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Item Checkup

- Mainboard
- Multi-lingual Quick Installation Guide
- User Manual (Mainboard)
- Support CD
- Bundled Bonus Pack CD
- Bundled Bonus Pack Manual
- Cable :
 - ATA66/100 IDE Cable
 - 2 x Serial ATA Cable
 - Promise SATA RAID Driver Diskette
 - FDD Cable
 - Thermal Sensor Cable (Optional)
 - RS232 Cable (Optional)
 - USB Cable (Optional)

Chapter 1 Specification

Introduction

This series of mainboards features an integration of the powerful processor Intel Pentium 4 and the single-chip North Bridge Intel 845GE. The Intel P4 processor is a rapid execution engine providing 533/400MHz system bus, while North Bridge Intel 845GE is a high performance integrated chipset providing DDR333/266 DRAM memory interface, Hub interface, AGP interface as well as another integrated VGA interface with one on-board display port.

Integrated with i845GE, South Bridge Intel ICH4 supports the LPC Super I/O, Upstream Hub interface, PCI interface, IDE 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

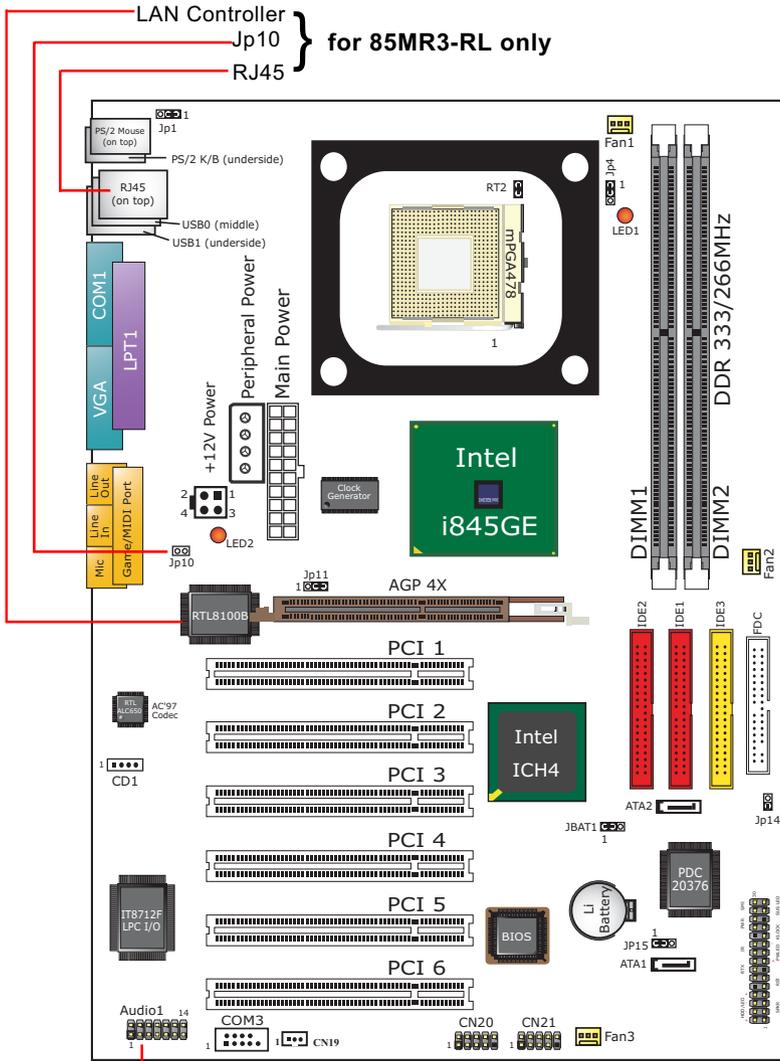
1-2 Mainboard Specifications**

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



Optional 6-channel Audio-Out Connector

1-2 Mainboard Specifications

1-2.1 CPU Socket

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

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

1-2.2 System Chipsets

North Bridge Intel 845GE:

- A high performance integrated chipset providing processor interface, DDR 333/266 SDRAM memory interface, Hub interface, AGP interface as well as another integrated VGA interface with one on-board display port.
- Showing Hyper-Threading Logo when booting with a Hyper-threading CPU.

South Bridge Intel ICH4:

- Supporting the LPC Super I/O, upstream Hub interface, PCI interface, IDE interface, USB 2.0 interface, AC'97 2.2 (6-channel) Audio interface and the interrupt control.

1-2.3 Memory

2 DDR DIMM 184-pin slots on board for DDR 333/266 DRAMs :

- Supporting unregistered, non-ECC DDR 333/266 DRAM up to 2GBs
- Supporting installation of mixed volumes yet same type of DDR DRAM modules

1-2.4 AMI BIOS

Flash Memory for easy upgrade, supporting BIOS Writing Protection, Year 2000 compliant, and supporting various hardware configuration during booting system (See Chapter 4 BIOS Setup):

- Standard CMOS Features(Times, Date, Hard Disk Type etc.)
- Advanced BIOS Features (Virus Protection, Boot Sequence etc.)
- Advanced Chipset Features (AT Clock, DRAM Timing etc.)
- Power Management Features (Sleep Timer, Suspend Timer etc.)
- PNP/PCI Configurations (IRQ Settings, Latency Timers etc.)
- Integrated Peripherals (Onboard IO, IRQ, DMA Assign. etc.)
- Hardware Monitor Status (CPU/System Temp., Fan speed etc.)
- Frequency/Voltage (CPU Clock, Voltage of CPU, DIMM, AGP etc.)

1-2.5 Accelerated Graphics Port (AGP) Interface

AGP Controller embedded on board, supporting:

- 1.5V(4X) power mode only
- 4X AD and SBA signaling, AGP pipelined split-transaction longburst transfers up to 1GB/sec.
- AGP 4X only, AGP V2.0 compliant

1-2.6 2D/3D VGA on board

- Built-in VGA Graphics Controller in i845GE, supporting one 15-pin connector on board for CRT 2D, 3D VGA display
- VGA/AGP display safeguarded by jumper setting (see Jumper Setting section for VGA/AGP select)
- VGA Driver enclosed in Support CD for user's installation

1-2.7 Advanced System Power Management

ACPI 1.0B compliant (Advanced Configuration and Power Interface), including ACPI suspend mode support (See Power Management of BIOS Setup)

- APM V1.2 compliant (Legacy Power Management)
- Keyboard / Mouse Power On/Wake Up
- Supporting Wake-on-LAN
- Real Time Clock (RTC) with date alarm, month alarm, and century field

1-2.8 Multi-I/O Functions

- PCI EIDE Controller, supporting:
 - 2 UATA100/66/33 IDE connectors supporting up to 4 IDE devices
- Dedicated IR Functions:
 - Third serial port dedicated to IR function either through the two complete serial ports or the third dedicated port Infrared-IrDA (HPSIR) and ASK (Amplitude Shift Keyed) IR
- Multi-mode Parallel Data Transfer:
 - Standard mode, high speed mode ECP and enhanced mode EPP
- Floppy Disk Connector:
 - 1 FDD connector supporting 2 floppy drives with drive swap support
- Universal Serial Bus Transfer Mode:
 - USB V2.0 compliant; 480Mb/s USB Bus, supporting Win 2000 or later operating system
 - USB drivers provided in Support CD for installation
 - 2 built-in USB connectors and 2 USB Headers (CN20, CN21) which require 2 additional USB cables to provide 4 more additional USB ports
- PS/2 Keyboard and PS/2 Mouse
- UARTs (Universal Asynchronous Receiver / Transmitter):
 - 2 complete serial ports (COM1 & COM3) on board

1-2.9 Expansion Slots

- 6 PCI Bus Master slots
- 1 AGP 4X slot
- 2 DDR DIMM slots

1-2.10 LAN on board (for 85MR3-RL only)

PCI local bus single-chip Fast Ethernet Controller RTL8100B on board:

- Supporting 10/100Mb data transfer
- Supporting Wake On LAN function through the on-board RJ45 LAN Connector
- LAN Driver enclosed in Support CD for user's installation.

1-2.11 Hardware Monitor on board

- Hardware Monitor in IT8712F, providing monitoring and alarm for flexible desktop management of hardware voltage, temperatures and fan speeds.
- Utility Software Smartguardian for displaying system status is enclosed in Support CD for user's installation.

1-2.12 AC'97 Audio Codec on board

AC'97 Audio Codec 2.2 compliant on board

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

1-2.13 6-channel Audio-out Support (optional)

- This series is designed with an optional 6-channel Audio-out connector "Audio1". If this option is chosen, it will provide 3 additional audio-out ports for the 6-channel sound.

1-2.14 Serial ATA RAID Controller Integrated

- Promise PDC20376 integrated on board
- Supporting 2 serial RAID connectors for 2 serial RAID hard disks with up to 150MB/s transfer rate
- Supporting an additional RAID IDE connector for one more RAID IDE hard Disk with up to 133MB/s transfer rate

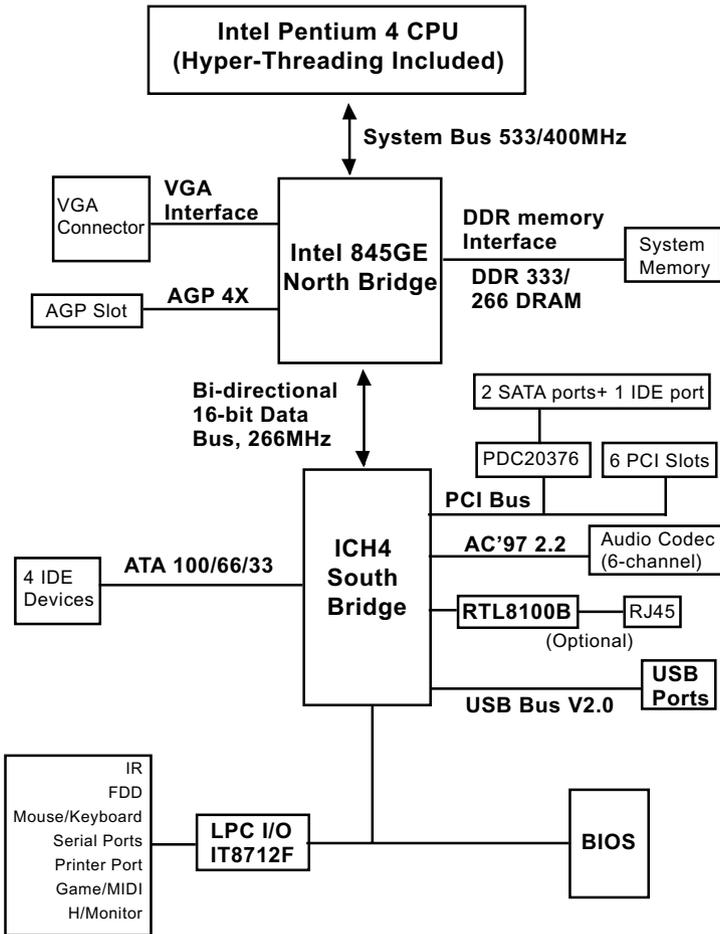
1-2.15 Form Factor

- ATX form factor, ATX power supply, version 2.03 compliant, supported by one Main Power Connector, one +12V Power Connector and one Peripheral Power Connector
 - Mainboard size: 305mm x 230mm
-

1-3 Mainboard Specification Table

| 85MR3-R/85MR3-RL Specifications and Features | | |
|--|--|---------|
| CPU | Socket 478B for Intel P4 CPU (HT CPU included) | |
| North Bridge | Intel 845GE, supporting 533/400MHz FSB | |
| South Bridge | Intel ICH4 | |
| BIOS | AMI BIOS | |
| Memory | Supporting DDR 333/266 DRAM, up to 2GB in two DDR DIMM slots | |
| I/O Chip | IT8712F, with Hardware Monitor | |
| AGP interface | AGP 4X mode only | |
| Audio | AC'97 Audio 2.2 compliant, 6 channel audio | |
| IDE Interface | 2 UATA 66/100 IDE ports | |
| VGA Display | VGA built in, 1 VGA connector on board | |
| PCI Slots | 6 PCI Master slots on board | |
| I/O Connectors | 6 USB V2.0, 1 FDD port, 2 COM ports, 1 LPT, 1 IrDA, 1 PS/2 K/B, 1 PS/2 Mouse | |
| Networking | LAN Controller RTL8100B and Connector RJ45 (for 85MR3-RL only) | |
| Serial ATA | RAID Controller PDC20376, supporting 2 SATA and one parallel ATA 133 IDE ports | |
| Other common features | BIOS Writing Protection Keyboard/Mouse Power On/Wake Up ATX 2.03 Power Supply ATX form factor | |
| Optional Features | Models | |
| | | 85MR3-R |
| LAN Controller on board | No | Yes |

1-4 Chipset System Block Diagram



Pentium 4 + Intel 845GE + Intel ICH4 Diagram

Chapter 2 Hardware Setup

To Get Things Ready for Hardware Setup !

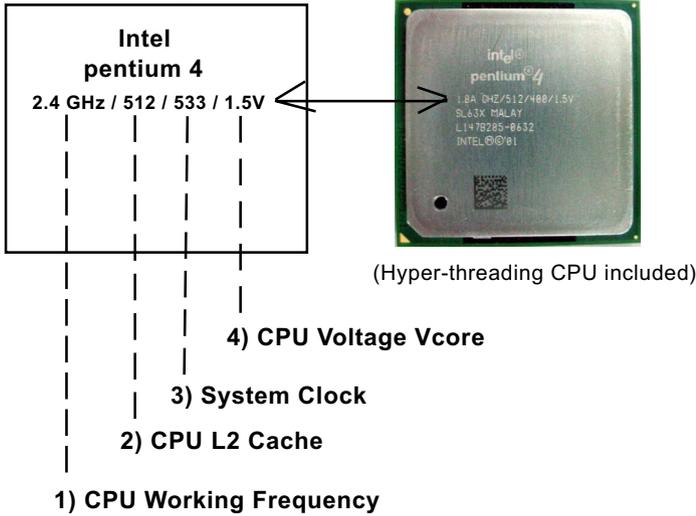
1. We recommend to install your CPU before any other components. For detailed installation instructions of processor, you can also refer to the pamphlet enclosed in your CPU package.
2. Installing a cooling fan with a good heat sink is a must for proper heat dissipation for your CPU. Get ready an appropriate fan with heatsink 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 Pentium 4 CPU Installation**
- 2-2 Pentium 4 CPU Fan Installation**
- 2-3 Memory Installation**
- 2-4 VGA/AGP 4X Installed with Jumper and LED Safeguard**
- 2-5 IDE Connector Installation**
- 2-6 Floppy Disk Connector (FDC) Installation**
- 2-7 ATX 2.03 Power Supply Installation**
- 2-8 Jumper Settings**
- 2-9 Other Connectors Configuration**

2-1 CPU Installation with Socket 478B

2-1.1 To Identify a Pentium 4 CPU



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

1. CPU Working Frequency: this part depicts the working frequency of the CPU. For example,
 - 2.4 GHz depicts that this CPU is locked to 2.4 GHz working frequency (18 x 133MHz CPU clock);
 - 2A GHz depicts that this CPU is an A version, locked to 2.0 GHz working frequency (20 x 100MHz CPU clock)
 - 3.06GHz depicts that this is a 3.06GHz hyper-threading CPU
2. CPU L2 Cache: this part depicts the L2 Cache size. For example,
 - 512 stands for 512 KB L2 Cache; 256 stands for 256 KB L2 Cache
3. System Clock: this part depicts the System Clock (Front Side Bus) provided by the CPU. For example,
 - 533 stands for a 533MHz system clock provided by a 133MHz CPU times 4;
 - 400 stands for a 400 system clock provided by a 100 MHz CPU x 4.
4. CPU Voltage Vcore: this part depicts the CPU Voltage. For example,
 - 1.5V stands for a CPU of 1.5V Vcore.

Note: System Clock vs CPU Clock

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

2-1.2 CPU Installation with Socket 478B

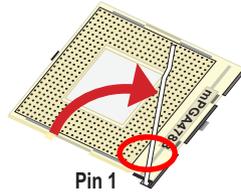
This mainboard is built with CPU Socket 478B (478-pin) supporting the Intel Pentium 4 CPU:

- Follow the steps described in this section to install the 478-pin Pentium 4 CPU into the on board Socket 478.
- After installation of Pentium 4 CPU, you must also install the specific Pentium 4 CPU fan designed in tandem with this CPU. This CPU Fan installation is described in next section.
- This mainboard supports Hyper-threading dual-in-one CPU, the function of which can be enabled by Windows XP. (See illustration on the right.)

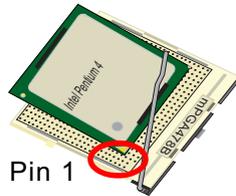


(If Hyper-threading CPU is installed successfully with O/S Win XP, the O/S will enable the dual-in-one CPU function.)

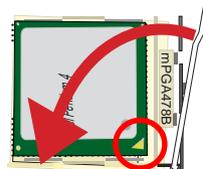
1. First pull sideways the lever of Socket 478, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



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.

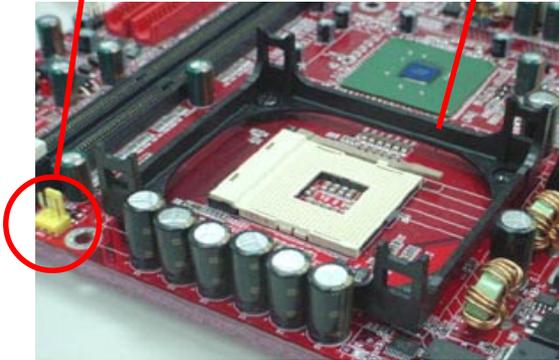


3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.

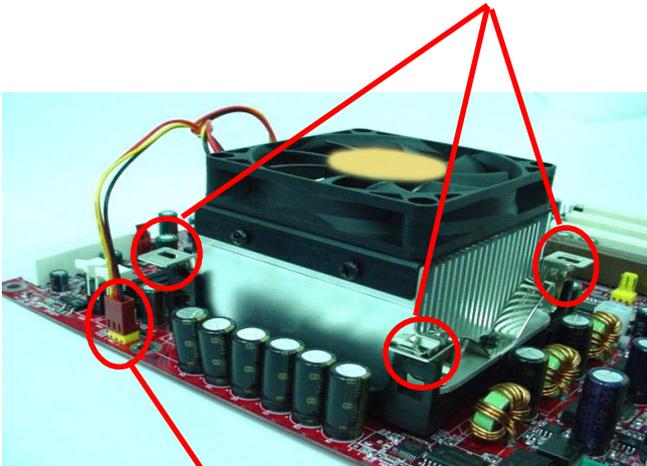


2-2 Pentium 4 CPU Fan Installation

CPU Fan Connector Pentium 4 Fanbase



Press down the spring locks to lock up the fan



Connect to CPU Fan connector

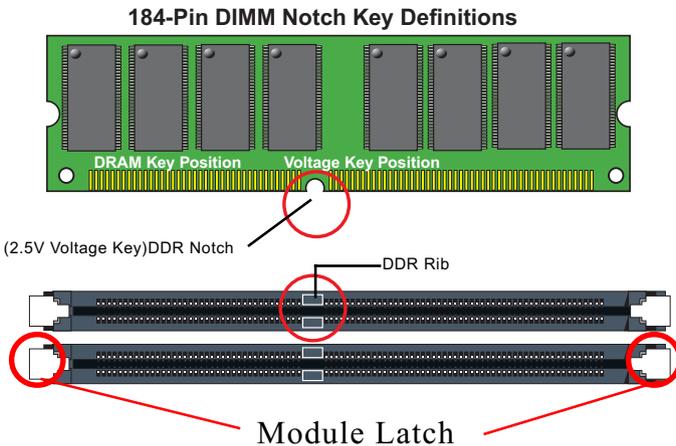
2-3 Memory Installation

How to tackle the memory Modules:

- Make sure to unplug your power supply before adding or removing memory module. Failure to do so may cause severe damage to both your mainboard and the memory module.
- Pay attention to the orientation of the DIMM slots. Forcing a DIMM into a slot improperly will damage the memory module and slot itself.
- Make sure you have the right type of memory module for your mainboard.

2-3.1 To Install DDR DRAM Module

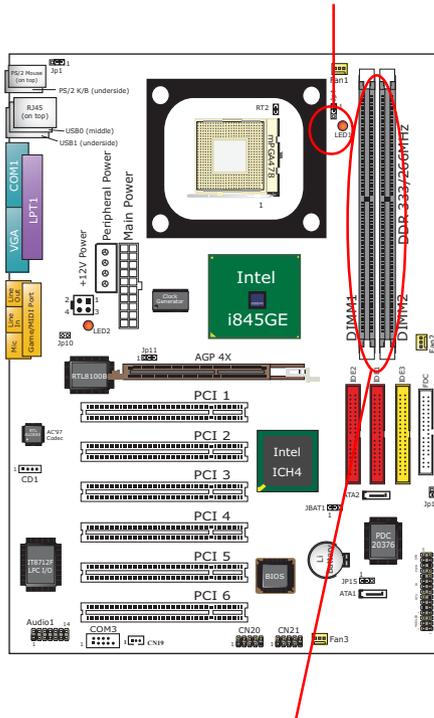
- This series only supports up to 2GB unbuffered DDR 333/266 DRAM, with 2 DDR DIMM slots on board. Do not insert other type of modules into these slots.
- DDR DIMM slot has 184-pins and one notch. Insert a DDR DRAM vertically into the 184-pin slot with the notch-to-rib matching. Press the Module down in a gradual way until it surely reaches the bottom and clicks straight up the two latches on the left and right of the slot. If any one of the latches has not turned up completely, you should unplug the module and press it down a bit more firmly.



2-3.2 Indicator LED1: DIMM Powered On

An indicator LED 1 is designed on board. Whenever system is started, all the DIMM slots on board will also get powered on, resulting in LED 1 lighting up. This indicator is to warn users that, whenever DIMM slot is powered, no memory module should be removed from or added onto it.

Indicator LED1: DIMM Powered On



DDR DIMM Slots(184-pin)

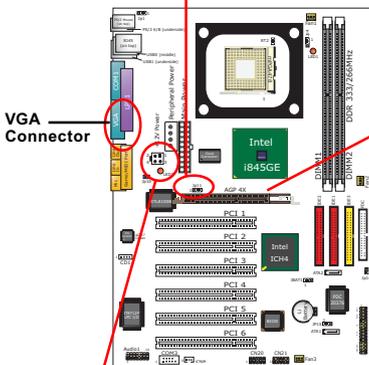
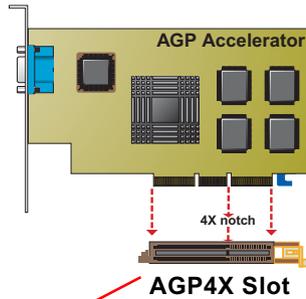
2-3.3 To Remove a DIMM

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

2-4 Install VGA / AGP4X with LED2 & Jp11 Safeguard

- To install on-board VGA, please connect your monitor directly to VGA connector on board. Default Jp11 2-3 closed is to assure booting system with on-board VGA or 1.5V AGP4X add-on card yet without safeguard against 3.3V AGP2X card.
 - * That is, if 3.3V AGP 2X card is mistakenly inserted for booting the system, the high voltage will burn the 1.5V circuitry on board. Never use a 3.3V or an unknown AGP card in this case.
- To install AGP4X card on this mainboard, please insert AGP4X card into AGP slot and connect your monitor directly to the AGP4X card. To assure the use of a correct AGP4X card of 1.5V, please set Jp11 to 1-2 closed to allow only 1.5V AGP 4X card to boot system. With Jp11 1-2 closed, safeguard is enabled against AGP2X card. That is, system cannot boot with 3.3V AGP2X card or on-board VGA. In this case, if user cannot boot with an AGP card inserted in AGP slot, it indicates that the AGP card is a wrong one. Find a 1.5V AGP4X card before booting this system.
- LED2 is a Warning LED. Whenever an AGP card is not inserted to the AGP slot, or if the card is not a correct one, LED2 will keep lighting up until a proper installation is done.

| Jp11: VGA/AGP4X Safeguard | |
|---|--|
| 1  | 1-2 closed Safeguard against AGP2X Enabled; 1.5V AGP 4X Card to boot system only |
| 1  | 2-3 closed (default) Safeguard Disabled; VGA or AGP 4X to boot system. (Warning: 3.3V AGP card will cause 1.5V circuit burn.) |



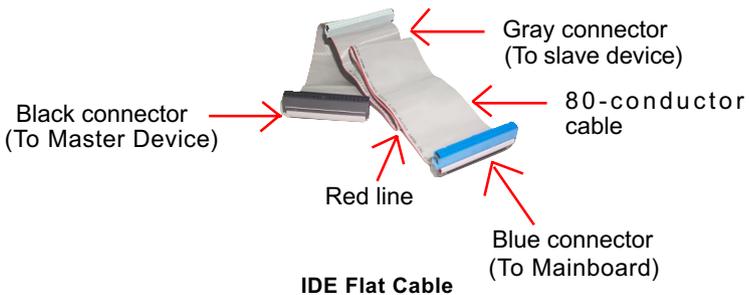
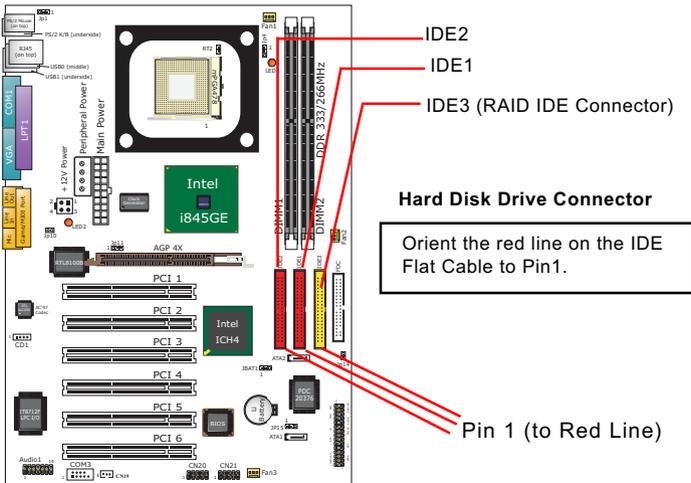
LED2: AGP Warning Indicator

Warning:

- If a 3.3V AGP 2X card is mistakenly inserted for booting the system, the high voltage will burn the 1.5V circuitry on board. Never use a 3.3V or an unknown AGP card on this mainboard

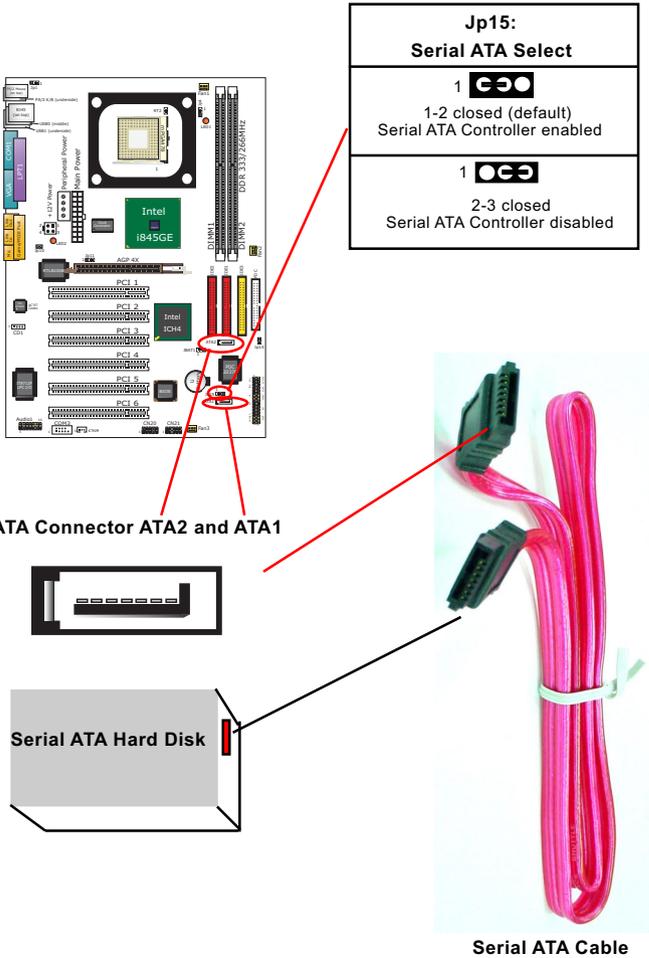
2-5 IDE Connector Installation

1. 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.
2. An additional parallel ATA connector IDE3 is supported by the optional Parallel & Serial ATA Controller PDC20376. IDE3 is enabled as a RAID IDE connector if only the Controller is enabled by Jp15 (See Jumper Setting in this chapter).



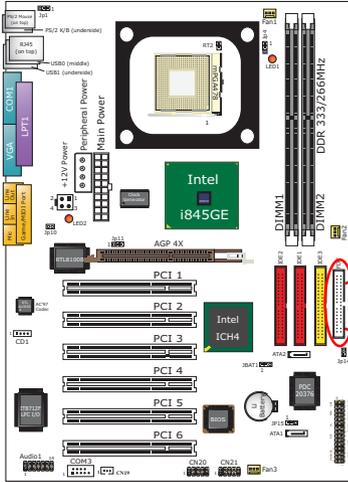
2-6 Serial ATA Connector Installation

2 Serial ATA connectors are built on board, supported by the Controller PDC20376. Before we install Serial ATA hard disk drive to the Serial ATA Connector, we must first enable the controller PDC20376 by Jp15 setting.



2-7 Floppy Drive Connector (FDC) Installation

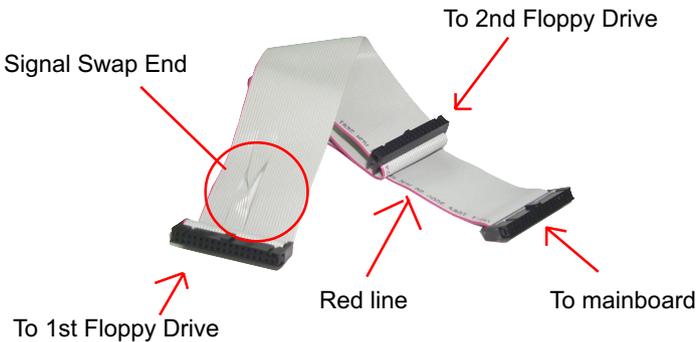
To install FDC, you should connect the end of FDC cable with single connector to the board , and connect the other end with two connectors to the floppy drives.



Floppy Drive Connector:

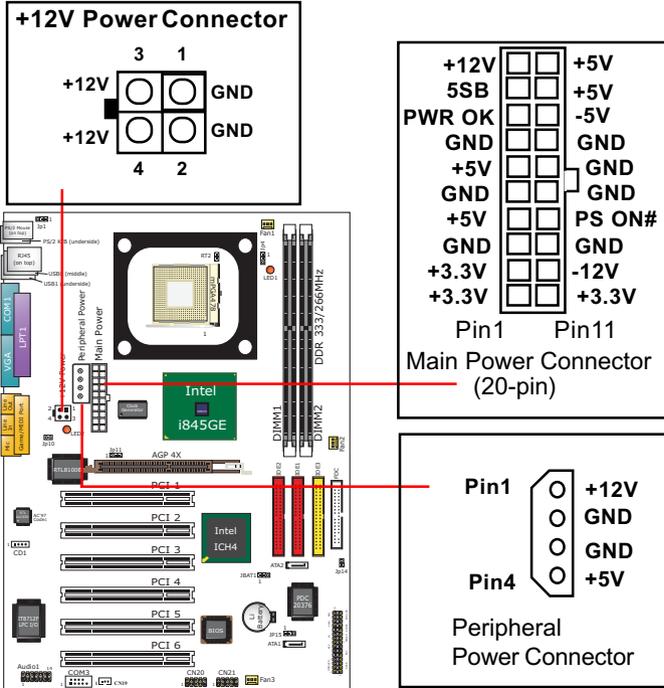
Orient the red line of the Floppy Flat Cable to Pin 1.

Pin 1 (to Red Line)



FDC Cable

2-8 ATX V2.03 Power Supply Installation



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

To set up Power Supply on this mainboard:

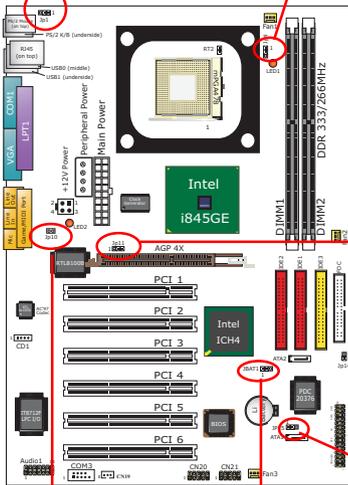
1. Connect the on-board Main Power Connector (20-pin) to the Main Power Connector (20-pin) of an ATX Power Supply which can be either of the latest version 2.03 or of earlier ATX model.
2. If you use an ATX Power Supply Version 2.03 or the later ones, you can now connect the onboard square-shaped +12V Connector to the square-shaped +12V Connector of your ATX Power Supply. In this case, it is not necessary for you to connect the onboard 4-pin Peripheral Power Connector to your Power Supply.
3. If you use an ATX power Supply of an older version than V2.03, there will be no square-shaped +12V Connector. So please connect the onboard 4-pin Peripheral Power Connector to the 4-pin Peripheral Power Connector of your Power Supply.

2-9 Jumper Settings

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

| | |
|---|---|
| Jp1: KB / Mouse Power On / Wake Up | |
|  | 1-2 closed (default) KB/Mouse Power On & Wake Up Disabled |
|  | 2-3 closed KB/Mouse Power On & Wake Up Enabled |

| | |
|---|---|
| JP4 CPU Clock Select | |
|  | (default) 1-2 closed CPU Autodetect |
|  | 2-3 closed for 133MHz CPU Clock |



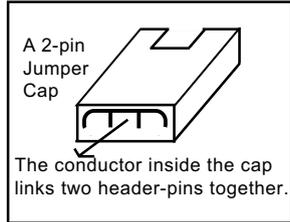
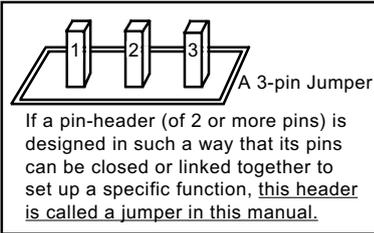
| | |
|---|---|
| Jp11: VGA/AGP4X Safeguard | |
|  | 1-2 closed Safeguard against AGP2X Enabled; 1.5V AGP 4X Card to boot system only |
|  | 2-3 closed (default) Safeguard Disabled; VGA or AGP 4X to boot system (Warning: 3.3V AGP card will cause 1.5V circuit burn.) |

| | |
|---|--|
| Jp10 LAN Controller Select (85MR3-RL only) | |
|  | 1-2 open (default) LAN controller enabled |
|  | 1-2 closed LAN controller disabled |

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

| | |
|---|---|
| Jp15: Serial ATA Select | |
|  | 1-2 closed (default) Serial ATA Controller enabled |
|  | 2-3 closed Serial ATA Controller disabled |

How to tackle the Jumpers:



- 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.



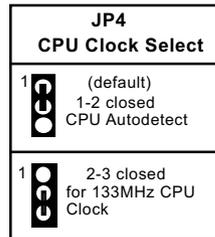
- Do not remove any jumper cap when power is on. Always make sure the power is off before changing any jumper settings. Otherwise, the mainboard will be damaged.

2-9.1 Jp4: CPU Clock Select

Jp4 is designed to select 100/133MHz CPU clock for the system. Setting Jp4 to 1-2 closed will allow CPU on board to autodetect its own frequency and apply it to the System Bus.

Setting JP4 to 2-3 closed will manually configure a 100MHz CPU to 133MHz.

However, overclocking should always take the whole mainboard into account. There is no 100% guaranty of success. In case overclocking fails, system boot will fail. You should then take the autodetect setting to boot system. Even more, you should clear CMOS before rebooting system. (See JBAT 1 Clear CMOS).



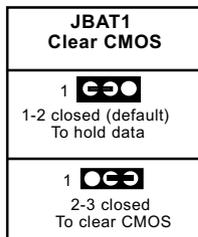
Further Notes on CPU Overclocking:

1. If you have successfully booted system with or without CPU overclock, you still can do another CPU overclock in BIOS Setup. Please enter BIOS Setup, choose “Frequency/Voltage Control” menu, and take the “Use Linear” option of the “Use CPU Linear Frequency”. Then 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 as stated below 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 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 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.



2-9.3 Jp1: KB / Mouse Power On / Wake Up

Jp1 is a jumper for user to enable/disable the KB/Mouse Power-On or Wake-Up function. Setting Jp1 to 1-2 closed will disable this function. Setting Jp1 to 2-3 closed will enable this function, such that users can power on system (from system off) by PS/2 KB or Mouse or wake up system (from Suspend modes) either by PS/2 or USB KB/Mouse. However, to use this function, users should also enter BIOS setup and configure the USB Keyboard Power On items, That is, users should need both Jp1 and the BIOS to execute this function.

| Jp1: KB / Mouse Power On / Wake Up | |
|--|--|
|  1 | 1-2 closed (default) KB/Mouse Power On & Wake Up Disabled |
|  1 | 2-3 closed KB/Mouse Power On & Wake Up Enabled |

2-9.4 Jp10: LAN Controller Select (85MR3-RL only)

Jp10 is a 2-pin jumper for enabling or disabling the on-board LAN Controller. Users can set Jp10 OPEN to enable the on-board LAN Controller so as to set up the LAN driver, or to set it CLOSED to disable the on-board LAN Controller. In such case, users are free to use an add-on PCI LAN card for networking.

| Jp10 LAN Controller Select (85MR3-RL only) | |
|---|--|
| 1  | 1-2 open (default) LAN controller enabled |
| 1  | 1-2 closed LAN controller disabled |

2-9.5 Jp11: VGA/AGP 4X Safeguard

1. Default Jp11(2-3 closed) is to disable safeguard against 3.3V AGP2X card and allow booting system with either 1.5V on-board VGA or 1.5V AGP4X add-on card. User can choose either VGA or AGP 4X as the initial display by changing BIOS Setup(see“PNP/PCI Configurations ” in BIOS Setup).
2. Jp11 at 1-2 closed is to enable safeguard against AGP2X card and allow only 1.5V AGP 4X card to boot system. With JP11 1-2 closed, system cannot boot with onboard VGA or AGP 2X card. In this case, if user cannot boot with an AGP card inserted in AGP slot, it indicates that the AGP card is a wrong one. The AGP card should be changed to a 1.5V AGP 4X card for booting system.

Warning:

- *If a 3.3V AGP 2X card is mistakenly inserted for booting the system, the high voltage will burn the 1.5V circuitry on board. Never use a 3.3V or an unknow AGP card on this mainboard.*

| Jp11: VGA/AGP4X Safeguard | |
|---|---|
| 1  | 1-2 closed Safeguard against AGP2X Enabled; 1.5V AGP 4X Card to boot system only |
| 1  | 2-3 closed (default) safeguard Disabled; VGA or AGP 4X to boot system (Warning: 3.3V AGP card will cause 1.5V circuit burn.) |

2-9.6 Jp15: Serial ATA Raid Controller Select

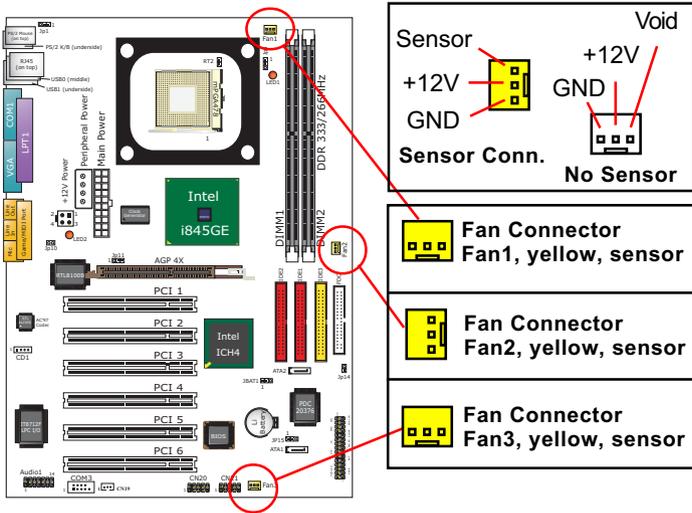
Jp15 is a 3-pin jumper for enabling or disabling the on-board Serial ATA RAID Controller PDC20376. Setting Jp15 1-2 CLOSED will allow user to enable on-board RAID Controller so as to allow user to set up the Disk Array.

| Jp15: Serial ATA Select | |
|---|---|
| 1  | 1-2 closed (default) Serial ATA Controller enabled |
| 1  | 2-3 closed Serial ATA Controller disabled |

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 CMOS 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 with the monitoring program.

2-10.2 USB Ports and USB Pin-headers

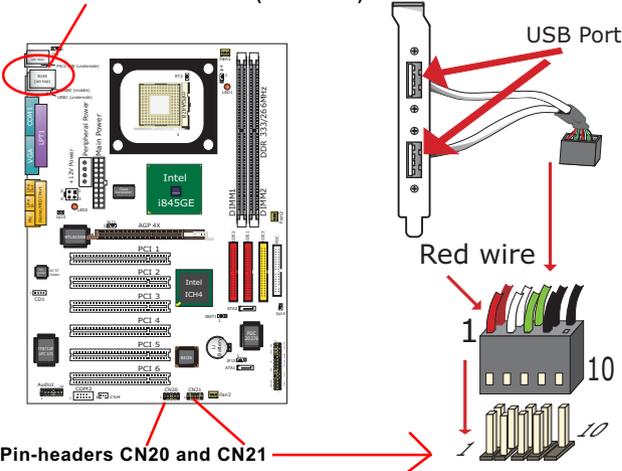
This series provides two USB ports USB0 and USB1 on board supporting various USB devices. In addition, two USB pin-headers are added on board to provide expansion of four more optional USB ports by using two additional USB cables. Users can order the optional USB cables from your mainboard dealer or vendor.

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

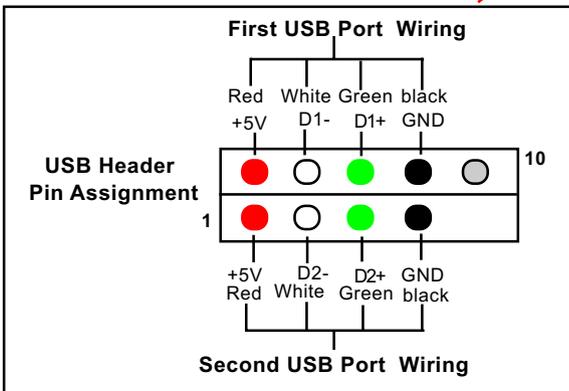
All 6 USB ports are compliant with 1.0 / 2.0 USB Bus. USB 2.0 supports Win 2000 and up (exclude Win9X / Me). USB 1.0 / 2.0 drivers are provided in Support CD for user's installation.

USB Cable (Optional)

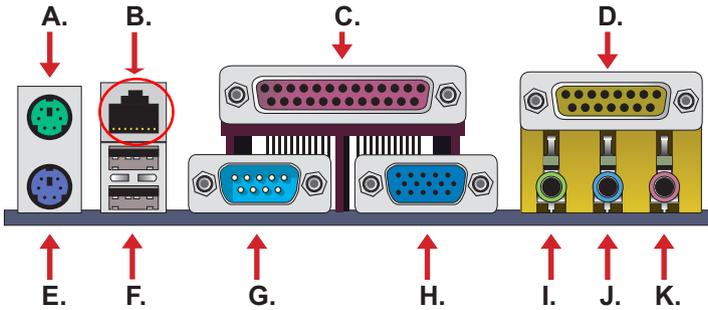
USB connectors USB0 and USB1 (underside)



USB Pin-headers CN20 and CN21



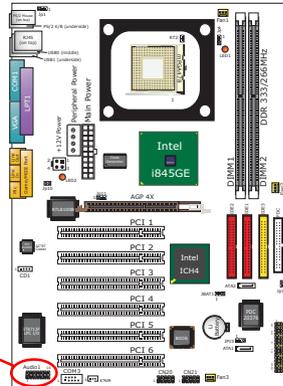
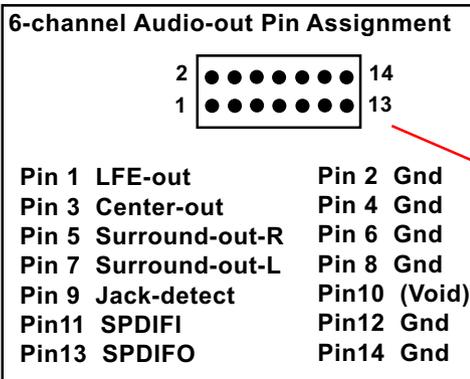
2-10.3 Chassis Panel Connectors



- | | |
|----------------------------------|-------------------------------|
| A : PS/2 Mouse | G : COM1 Connector |
| B : RJ45 (top) (85MR3-RL) | H : VGA Connector |
| C : LPT1 Port | I : Line Out / |
| D : GAME/MIDI | Front Speaker Out |
| E : PS/2 Keyboard | J : Line in/ |
| F : USB 1 (underside) | Rear Speaker Out |
| USB 0 (middle) | K : Microphone Input / |
| | Center Subwoofer Out |

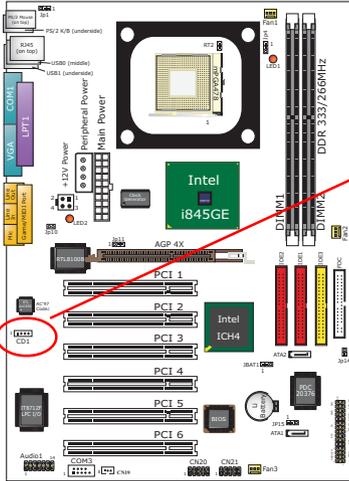
2-10.4 Audio 1: 6-channel Sound Output Connector (optional)

This series is designed with an optional 6-channel Audio-out connector “Audio1”. If this option is chosen, it will provide 3 additional audio-out ports for the 6-channel sound.



2-10.5 CD-ROM Audio Connectors (CD 1)

CD 1 is an audio connector connecting CD-ROM audio to the mainboard.

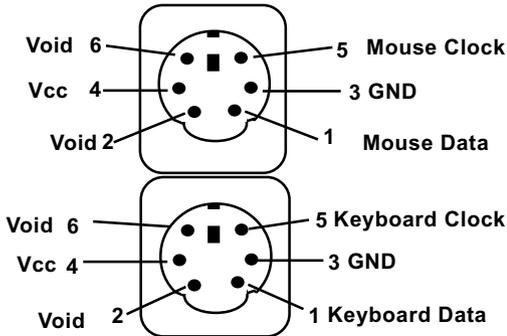


CD-ROM Audio Connector

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

2-10.6 PS/2 Mouse And PS/2 Keyboard

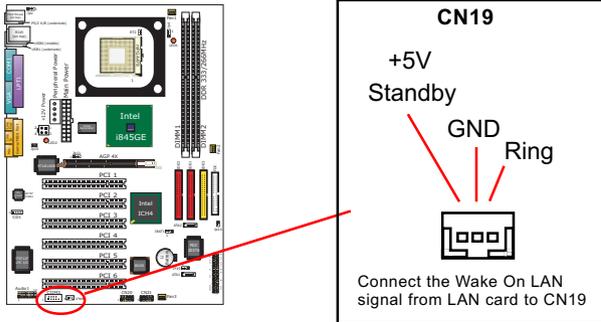
(PS/2 Mouse: On top of keyboard connector, green)



(PS/2 Keyboard Connector: Underside, purple)

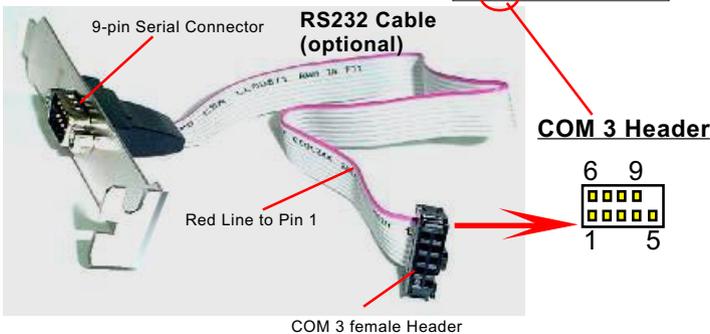
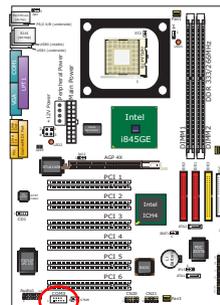
2-10.7 Connector CN19: Wake On LAN

1. This connector connects to a LAN card with a Ring signal output. The connector powers up the system when it receives a wake-up packet or signal through the LAN card.
2. This feature requires that Resume On Ring feature is enabled in the BIOS setting “Power Management Setup” and that your system must be on ATX power supply with at least 720mA / +5V standby power.



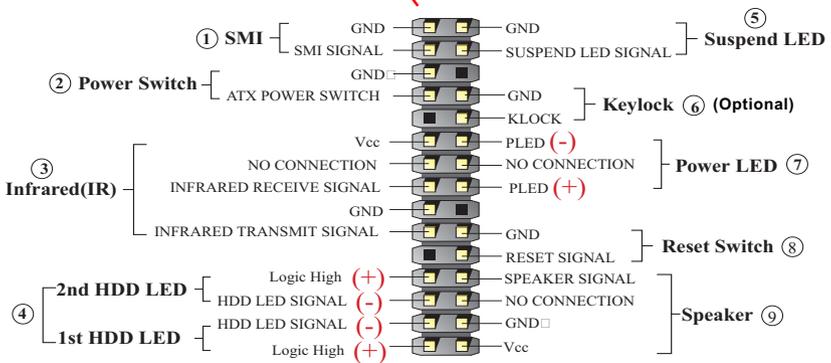
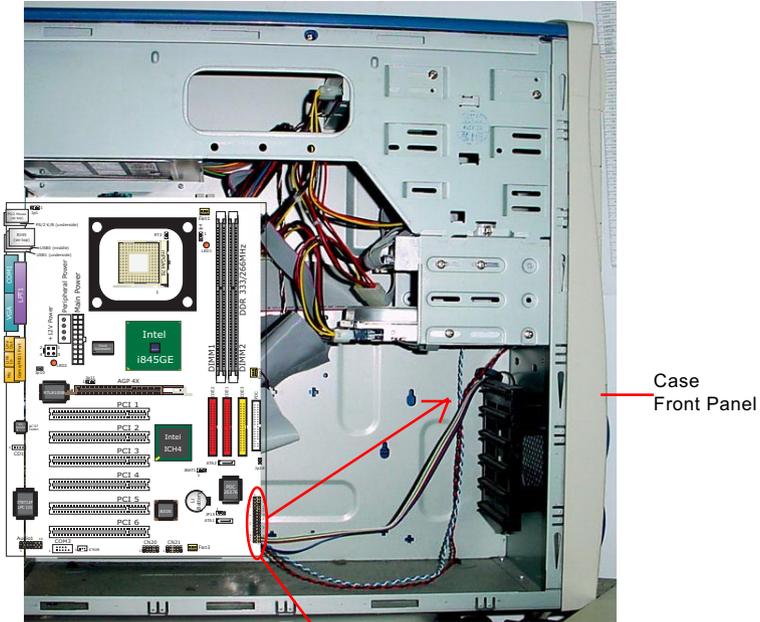
2-10.8 Pin-header COM 3: for one serial port

COM 3 Header is built on board , which requires a serial RS232 cable to provide a 9-pin serial connector for a serial device connection. The RS232 cable is optional in the mainboard package. When you insert RS232 cable to COM 3 header, take notice that the red line of the cable must connect to Pin 1 of COM 3.



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. SMI Connector (System Management Interrupt):

Connection: Connected to the case-mounted Suspend Switch.

Function : Manually setting the DOS system into a Suspend mode or “Green” mode by System Management Interrupt.

2. 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.

3. IR Connector (Infrared Connector):

Connection: Connected to Connector IR on board.

Function : Supporting wireless transmitting and receiving moule on board.

4. 1st HDD LED Connector / 2nd HDD LED Connector:

Connection: Connected to HDD LED.

Function : To supply power to HDD LED.

5. Suspend LED Connector:

Connection: Connected to Suspend indicator.

Function : To supply power to “Suspend indicator”.

6. Keylock Connector (optional):

Connection: Connected to keylock switch.

Function : To lock/disable keyboard for security purpose.

7. Power LED Connector:

Connection: Connected to System Power LED.

Function : To supply power to “System Power LED”.

8. Reset Switch Connector:

Connection: Connected to the case-mounted “Reset Switch”.

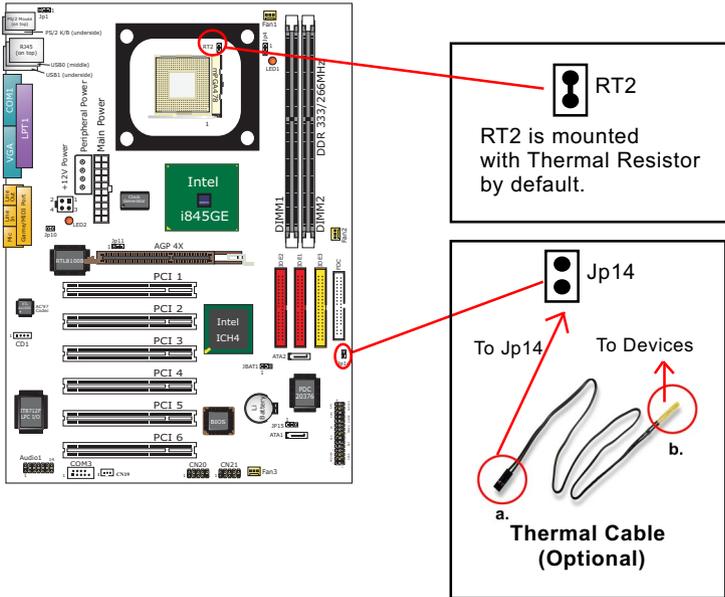
Function : To supply power to “Reset Switch” and support system reboot function.

9. Speaker Connector:

Connection: Connected to the case-mounted Speaker.

Function : To supply power to the case-mounted Speaker.

2-10.10 Thermal Resistor and Connector: RT2 and Jp14



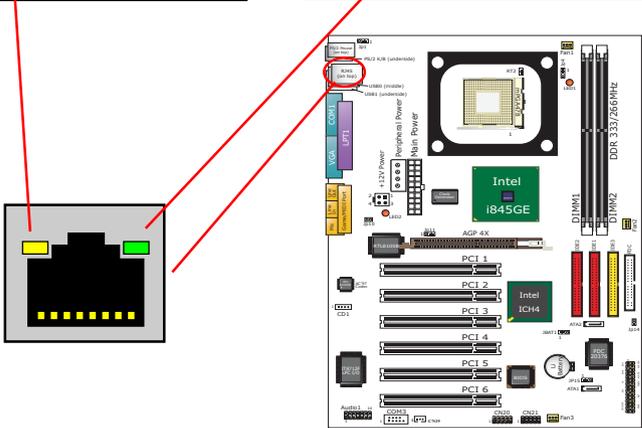
1. Resistor RT2: A thermal resistor is mounted by default to connector RT2 so as to detect the temperature of the CPU. What RT2 does is to transmit the thermal signal to BIOS or Hardware Monitor.
2. Connector Jp14: A thermal cable is needed to connect Jp14 to on-board devices such as HDD, Graphics card etc., so as to detect the temperature generated therein. Please connect the end (a) of the thermal cable to Jp14, and tape another end (b) of thermal cable on to the device which you want to monitor. After you have finished the thermal cable installation, you will **see the detected temperature in BIOS setup or Hardware Monitor utility.**

2-10.11 LAN Connector (85MR3-RL Only)

One RJ45 connector is on board for network connection.

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

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



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.

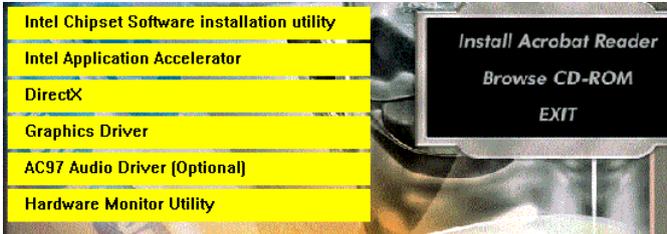
This chapter is devoted to describing the installations of all these essential drivers and utilities on Windows 9X, Windows ME, Windows 2000 and Windows XP. And installation on Windows 98 as the general illustration example hereby.

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 Intel Application Accelerator (IAA)**
- 3-4 To Install DirectX**
- 3-5 To Install Graphics Driver**
- 3-6 To Install AC'97 Audio Drivers**
- 3-7 To Install Hardware Monitor Utility**
- 3-8 To Install LAN Drivers (for 85MR3-RL only)**
- 3-9 To Install Intel USB V2.0 Drivers**
- 3-10 RAID Controller Drivers Installation**

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.

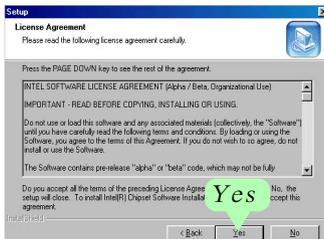
3-2 To Install “Intel Chipset Software Installation Utility”

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

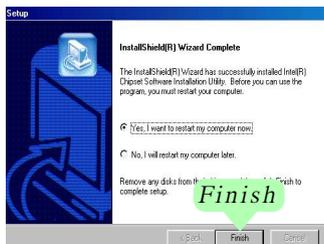
2. The Intel Service Pack InstallShield Wizard will pop up to guide you to the Intel Service pack installation. Press “Next” button to continue.



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.



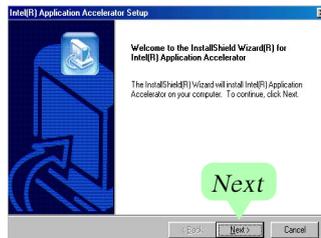
3-3 To Install “Intel Application Accelerator”

IAA supports all Windows 98/98SE/ME/NT4/2000/XP with Pentium III / 4 processor. Installations of this software for these operating systems are similarly programmed to an auto-run mode, and it is typically designed to improve performance of the storage sub-system and overall system performance.

Below is a model installation on Windows 98. Users of Windows Me/ NT4/2000/XP can also follow this example for IAA installation.

1. Following the procedures of opening the Support CD, click to “Intel Application Accelerator” to proceed.

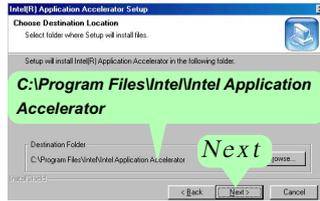
2. On the “InstallShield Wizard” screen, click on “Next” to continue.



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



4. On "Choose Destination Location" screen, press "Next" to continue.



5. On "InstallShield Wizard Complete" screen, choose "Yes, I want to restart my computer now" and press "Finish" to restart. Remember you must restart computer to put setup into effect.



3-4 To Install DirectX

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

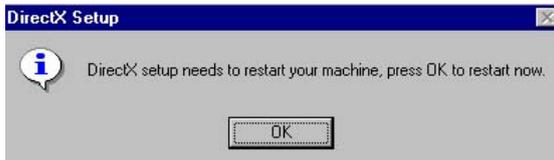
Then click to “Install DirectX”. This utility will support a better graphic display of the built-in VGA interface.

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



Yes

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



OK

3-5 To install Graphics Driver

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

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

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



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



3-6 To Install AC'97 Audio Driver

Avance AC97 Audio Codec on board, AC'97 2.2 compatible, supporting 6 channel audio code for PC multimedia systems. Avance AC'97 Audio Codec Driver is provided in Support CD for user's installation.

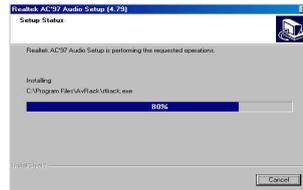
3-6.1 Installation

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 "Realtek 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.)



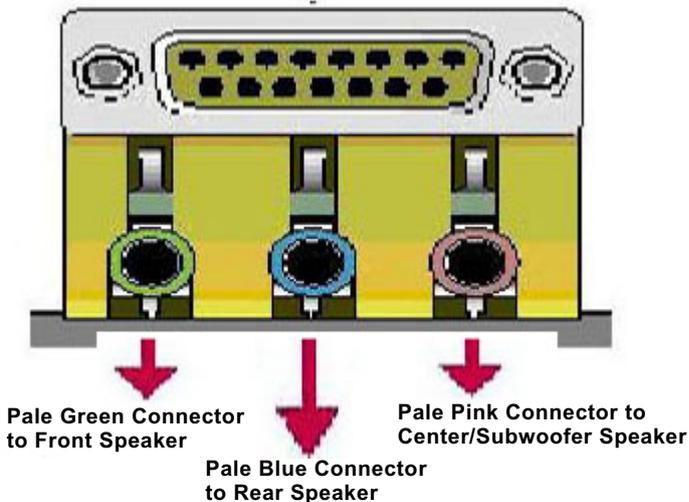
4. After the setup process is finished, please check the radial button "Yes, I want to restart my computer now." And click "Finish" to restart your system.



3-6.2 To verify 6-channel Audio

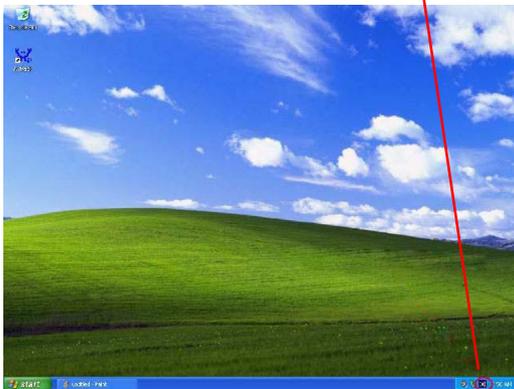
After installation of AC'97 6-channel Codec, you must configure the 5.1 Speaker connection to enable the 6-channel audio.

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

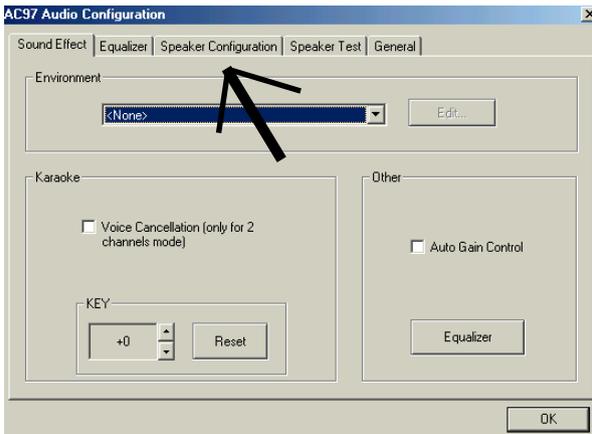


2. After Connection is done, start your Windows system and double click the Avance Sound Effect Manager icon to enter 6-channel configuration:

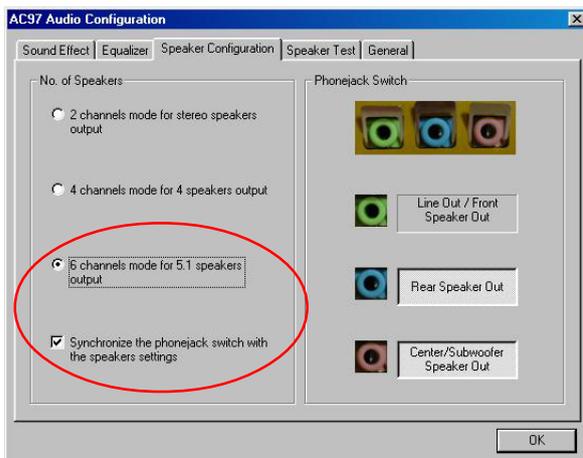
Avance Sound Effect Manager



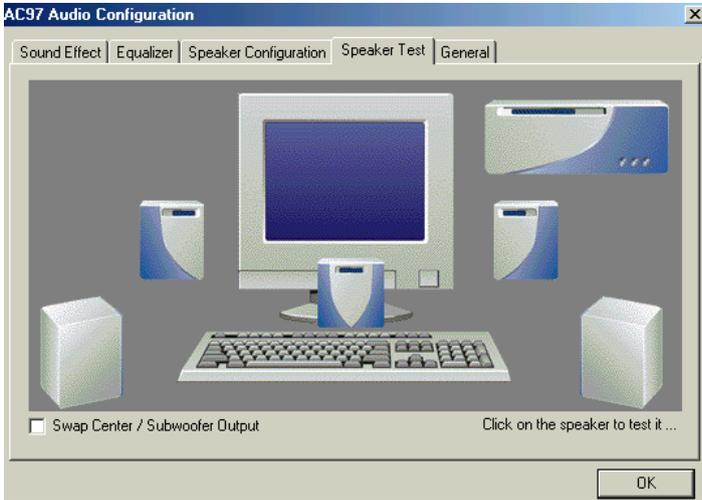
3. The “AC'97 Audio Configuration” screen will pop out. Click the “Speaker Configuration” bar with your mouse.



4. Instantly, the “Speaker Configuration” screen will pop out. Pick the items “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 Speaker 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.



3-7 Install Hardware Monitor Utility

3-7.1 Installation

Hardware Monitor is built in chip IT8712F of this series. Its installation is programmed to a fully automated mode on Windows 9X/Me/NT4/2000/XP. User 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. Instantly the “Smart Guardian Setup” screen appears to announce the setup of Hardware Monitor software “Smart Guardian”.

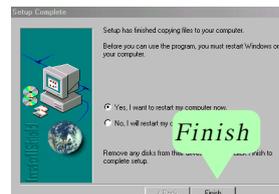
3. Next, the Setup Program will suggest to you the destination directory where the “Smart Guardian” will be installed. Select the Program folder and click “Next” to continue.



4. Instantly, Setup Program starts to copy files and install the software.

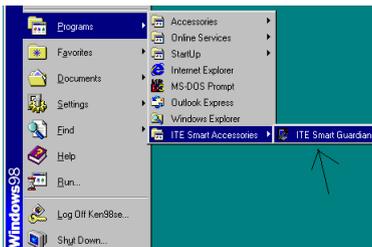


4. In one or two second, the “Setup complete” screen appears. Click “Finish” to restart your computer so that the Utility can be put into effect.



3-7.2 Verification

1. After restarting your computer, click “Start” and choose the path \Programs \ITE Smart Accessories\ITE Smart Guardian to open the main window of the Hardware Doctor.



2. Instantly, the Smartguardian Main Panel appears, telling you the CPU current temperature, CPU current Voltage and Current fan speed.

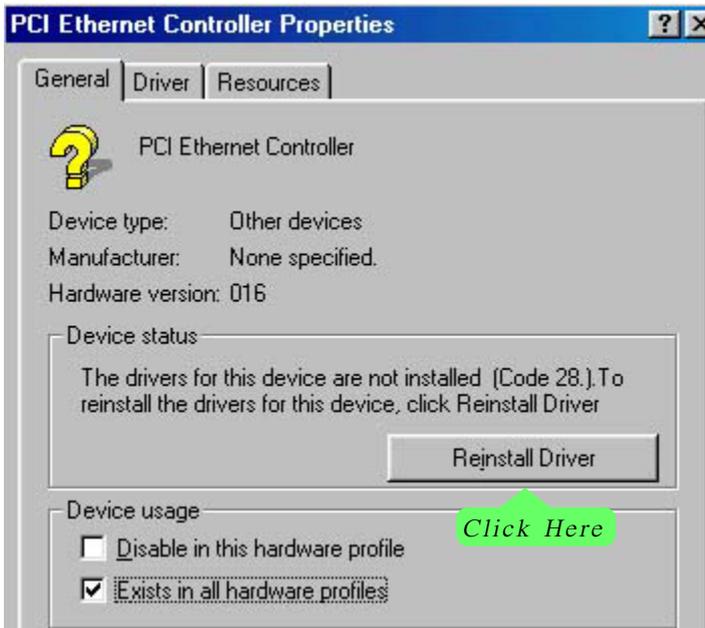


3-8 Install LAN Drivers (for 85MR3-RL only)

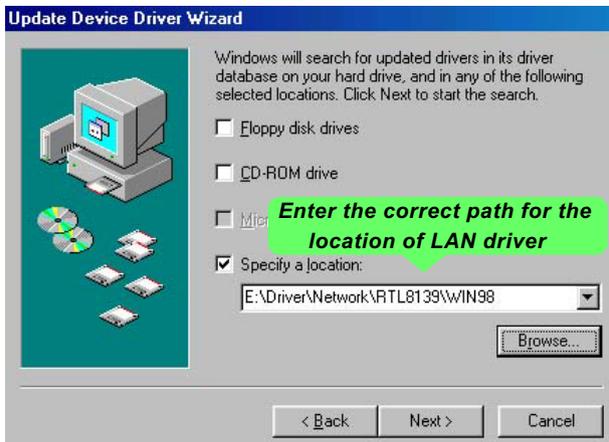
3-8-1. RTL8100B LAN driver on Windows 9X

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

1. On the “Start” screen of your system, please click to the following path:
 \My Computer\properties\Device manager
2. In the “Device manager” screen, you can see the item “ PCI Ethernet Controller” with a yellow question mark on its left side, which indicates that the LAN controller is already detected by system but the driver for this on-board RTL8100B Ethernet Controller is not installed yet. Please point to this item with your mouse and double click on it (or click the “Properties” button).
3. Instantly, the “PCI Ethernet Controller Properties” screen shows up. Please click the “General” bar to continue.
4. In the “General” screen, click “reinstall Driver” button to continue. Please note that the status of “Device Usage” should stay at “Exists in all hardware profiles”.



5. In the “Update device Driver Wizard” screen, click “Next” to continue until you see a dialog box asking you to “Specify a location” for the driver. You should **now** insert the Support CD into your CD-ROM.
6. As illustrated in the picture below, check the item “Specify a location” and click the “Browse” button to find out the correct path for the driver. Supposing your CD-ROM drive is Drive E, please type: E:\Driver\Network\RTL8139\Win98 into the blank bar. (Please note that both RTL8100B and RTL8139C controllers are supported by Driver RTL8139.) Then click the “Next” button to continue.
7. The Update Device Driver Wizard will then go on installing the driver,



- until the “Insert Disk” dialog box shows up. Please withdraw your Support CD and insert the Win 98 CD-ROM into the CD-ROM drive for updating system and click “OK” to continue.
8. The Update Device Driver Wizard will then proceed to update the system with the LAN driver. When the “Finish” screen shows up, click “Finish” to continue.
 9. Final Dialog box will appear to remind you that you must restart your computer to finish updating the new hardware. Please click “Yes” to restart system and finish the LAN driver installation.

3-8-2. RTL8100B LAN driver on Windows NT4.0

1. When you newly install Win NT4, the Setup program will ask you whether your computer will participate on a network. please check "Do not connect this computer to a network at this time" and continue with your installation. That means, you are going to install the LAN Adapter and driver after you have finished system installation. By this way, you will set up your LAN Adapter and driver more surely.
2. If you have now installed Win NT4 in your computer, please boot your system and in the "Start" screen click the following path to install your computer networking:
 \Start\Settings\Control Panel\Network (double click)
3. Instantly, a dialog box pops up, asking you, "Windows NT Networking is not installed. Do you want to install it now?" Please click "Yes" to continue.
4. The Network Setup Wizard will then proceed to guide you to the installation of LAN Adapter and Driver, until the "Select Network Adapter" screen pops up, on which you should click "Have Disk" to install the on-board RTL8100B LAN Controller.
5. Instantly, the "Insert Disk" dialog box pops up. You should **now** insert the Support CD into your CD-ROM drive, and then type to the white bar the correct path for the location of the LAN driver. Supposing your CD-ROM drive is drive D, please type the following path:
 D:\Driver\Network\RTL8139\Winnt4 and click "OK" button to continue. (Controller RTL8100B is supported by Driver RTL8139)
6. Instantly, the Setup program detects the "Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet Adapter" and shows it on the "Select OEM Option" screen. Please click "OK" to continue.
7. The Setup program will then proceed to install the RTL8139 Adapter and then other networking components such as TCP/IP protocol.
8. During the setup process, if "windows NT Setup" needs to copy some Windows files, you should then withdraw the Support CD and insert back the Win NT4 CD-ROM into your CD-ROM drive to continue.
9. After you have finished other networking components setup, you should restart your system to put all the new setups into effect.

10. To verify that the onboard RTL8100B Controller has been set up in system, please click “Start”, then “Control Panel”, then “Network”.
11. In the “Network” screen, click the “Adapter” bar. You can now see the “Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet Adapter is already installed in system.

3-8-3. RTL8100B LAN driver on Win ME / 2000 / XP

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

3-9 To Install USB 2.0 Driver for Win2000 or WinXP

USB V2.0 with its 480Mb/s transfer rate supports operating system Win2000 and WinXP with Intel USB drivers and Microsoft USB drivers. USB Driver installation procedures are of similar steps in Win2000 and WinXP. The point is the Intel USB drivers are already open to Intel Chipset users, while Microsoft USB drivers are to be found in the Win 2K and Win XP Service pack. Users should install the latest Service Pack for Win 2K or Win XP before installing the Intel USB2.0 driver. The following procedures are for installation of USB2.0 drivers on both Win 2K and Win XP:

1. In Win2000 or WinXP, install the latest Service Pack version into the operating system (the latest Service Pack can be found in Microsoft Web Site).
2. After installation of the Service Pack, insert the Mainboard Support CD into CD-ROM for installation of the USB2.0 driver.
3. Take the following path to search for the USB 2.0 driver for installation:

My Computer(right click of Mouse)\Properties\
Hardware\Device Manager\
Universal Serial Bus(USB) Controller (left double click of Mouse)
Driver\Update Driver\

4. Instantly the “Upgrade Device Driver Wizard” will show up on screen. Click “Next” to continue.
5. Instantly, the Wizard Program will guide you through to search for the USB driver.
6. The following “Upgrade Device Driver Wizard” screen will appear. Tick “Specify a Location” and mouse click “Next” button to continue.



“Specify a Location” of driver in “Win2000”.



“Specify a Location” of driver in “WinXP”.

7. When a dialog box pops out, asking user to key in the correct path for Intel_USB2.0 driver, please type the following path and mouse click “OK” button to install the Intel_USB 2.0 driver:

For both Win2000 and Win XP:

d:\driver\usb20\Intel_USB20

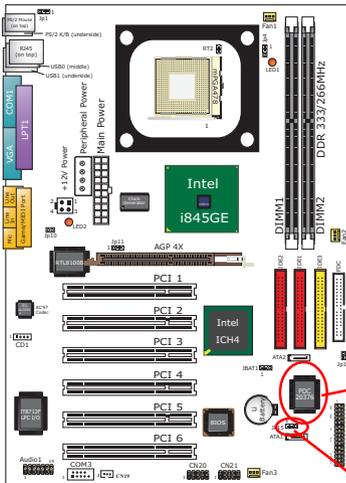
(supposing the CD-ROM Drive holding the Support CD is Drive D)

8. After clicking “OK” button, the program will go on installing Intel_USB20” driver until installation completes. When the following screen appears. Click “Finish” to complete the installation, and your system supports USB 2.0 now.



3-9 Install RAID Controller PDC20376 Drivers

1. Please locate the Promise RAID Controller on your mainboard to make sure that you are using the right board.
2. Locate the RAID Controller Select Jumper JP15 on board, and make sure this Jumper is set at Pin 1-2 closed for enabling RAID controller. Please refer to the following Setup illustration of JP15 on board.
3. Refer to Chapter 5 of this manual for Disk Array Setup and RAID Controller Drivers Installation.



On-Board RAID Controller

| Jp15: Serial ATA Select | |
|-------------------------|---|
| 1 | |
| | 1-2 closed (default) Serial ATA Controller enabled |
| 1 | |
| | 2-3 closed Serial ATA Controller disabled |

Chapter 4 AMI BIOS Setup

THE BIOS

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

BIOS performs the following functions:

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

This Chapter includes the following topics :

4-1 About BIOS Setup

4-2 To Run BIOS Setup

4-3 About CMOS

4-4 The POST (Power On Self Test)

4-5 To Update BIOS

4-6 BIOS Setup

4-1 About BIOS Setup

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

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

4-2 To Run BIOS Setup

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

DEL : SETUP

4-3 About CMOS

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

4-4 The POST (Power On Self Test)

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

4-5 To Update BIOS

- System BIOS is incorporated into a Flash memory component. Flash BIOS allows user to upgrade BIOS without the need to replace an EPROM component.
- The Upgrade Utility can be loaded on a floppy diskette for upgrading saving, and verifying the system BIOS. The Update Utility can also be run from a hard disk drive or a network drive.
- It is highly recommended that you save a copy of the original mainboard BIOS along with a Flash EPROM Programming utility (AMIXXX.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.
- “AMIFLASH.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 win95/98, ME, NT WINDOWS 2000 or Windows XP environment.***

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

Step 1. Please visit the board maker’s website, download the zip files which included the latest BIOS file and AMI update utility. After unzipping, the file name of AMI update utility will be “AMIXXX.EXE” of which “XXX” stands for the version number of the file. 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 “AMIXXX.EXE” into the diskette.

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

Step 4. Under “ A ” prompt, type “ **AMIXXX.EXE *.ROM** ” and then press <Enter> to run BIOS update program. Please note that there should be a space between AMIXXX.EXE and *.ROM. (*.ROM depends on your mainboard model and version code. Instead of typing “*”, you should type the specific file name for your specific mainboard).

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 or <F1> to run CMOS setup utility, then reload “LOAD SETUP DEFAULTS” or “**Load Optimal Defaults**” and save this change.

4-6 BIOS SETUP --- CMOS Setup Utility

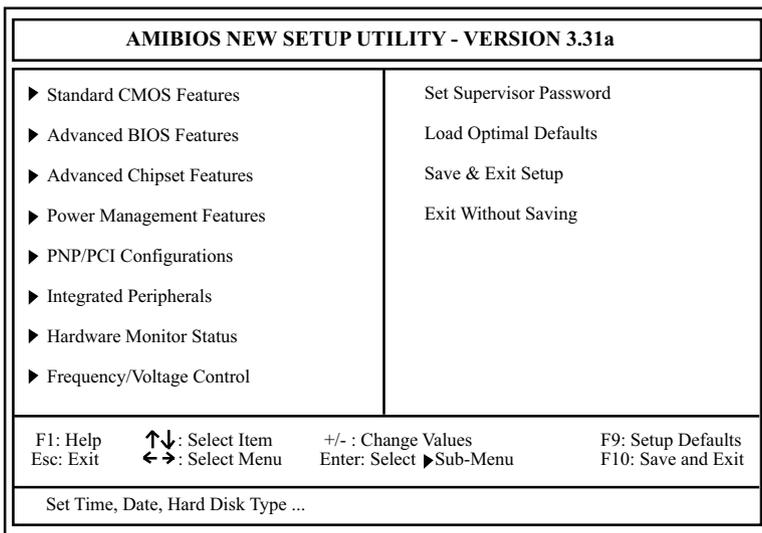
4-6.1 CMOS Setup Utility

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 TO RUN SETUP

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



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 & Exit Setup" saves your changes and reboots the system, and "Exit Without Saving" ignores your changes and exits the program.

4-6.2 Standard CMOS Setup

Standard CMOS Setup records some basic system hardware configuration and sets the system clock and error handling. Modify the configuration values of this option if you want to change your system hardware configuration or after you clear CMOS data.

Run the Standard CMOS Setup as follows:

1. Choose “Standard CMOS Setup” from the Main Menu and a screen with a list of options will appear:

| Standard CMOS Features | Setup Help |
|--|------------|
| System Time 00 19 29 System Date Mar 28 2003 Fri ▶ Floppy options. ▶ IDE Devices Config | |

F1: Help ↑↓: Select Item +/- : Change Values F9: Setup Defaults
 Esc: Previous Menu Enter: Select ▶Sub-Menu F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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

Floppy options Press Enter on “Floppy options” will let you select this field to the type(s) of floppy disk drive(s) installed in your system. The choices are:
 1.2MB, 5.25 in.
 720KB, 3.5 in.
 1.44MB, 3.5 in.
 2.88MB, 3.5 in.
 Not Installed

IDE Device Config Press Enter on IDE Device Config will let you configure the IDE devices on board and the following menu will reveal the following submenu for your configuration of the hard Disk you have installed:

| Primary IDE Master :Maxtor 82560 A4 | | Setup Help |
|-------------------------------------|---------|------------|
| Type | Auto | |
| Cylinders | 4962 | |
| Heads | 16 | |
| Write Precompensation | | |
| Sectors | 63 | |
| Maxium Capacity | 2561 Mb | |
| LBA Mode | On | |
| Black Mode | On | |
| Fast Programmed I/O Modes | 4 | |
| 32 Bit Transfer Mode | On | |

F1: Help ↑↓: Select Item
 Esc: Previous Menu

+/- : Change Values
 Enter: Select ► Sub-Menu

F9: Setup Defaults
 F10: Save and Exit

Type This option shows the types of configuration for the IDE devices:

1-50: Predefined types

USER: set Parameters by User

Auto: Set parameters automatically

CD-ROM: Use for ATAPI CD-ROM drives

Double click [Auto] to set all HDD parameters automatically, including "Cylinders, Heads, Write Precompensation, Sectors, Maximum Capacity and 32 Bit Transfer Mode.

4-6.3 Advanced BIOS Features

Advanced BIOS Features improves your system performance or sets up system features according to your preference.

Run the Advanced BIOS Features as follows:

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

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| Advanced BIOS Features | Setup Help |
|---------------------------------|--------------------------|
| Quick Boot | Enabled |
| Delay for Hard Drive (Sec.) | 2 |
| 1st Boot Device | Floppy: 1.44 MB 3.5 |
| 2nd Boot Device | CD-ROM |
| 3rd Boot Device | IDE-0 :Maxtor 20560 A4 - |
| Try Other Boot Devices | Yes |
| Initial Display Mode | Silent |
| Display Mode at Add-On ROM Init | Force BIOS |
| S.M.A.R.T for Hard Disks | Disabled |
| Bootup Num-lock | On |
| Floppy Drive Swap | Disabled |
| Floppy Drive Seek | Disabled |
| PS/2 Mouse Support | Enabled |
| Primary Display | VGA/EGA |
| Password Check | Setup |
| Boot To OS/2 | No |
| CPU Microcode Update | Enabled |
| L1 Cache | Enabled |
| L2 Cache | Enabled |
| System BIOS Cacheable | Enabled |
| C000,32K Shadow | Cached |
| C800,16K Shadow | Disabled |
| CC00,16K Shadow | Disabled |
| D000,16K Shadow | Disabled |
| D400,16K Shadow | Disabled |
| D800,16K Shadow | Disabled |
| DC00,16K Shadow | Disabled |

F1: Help ↑↓: Select Item
Esc: Previous Menu

+/- : Change Values
Enter: Select ▶Sub-Menu

F9: Setup Defaults
F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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

| | |
|--|---|
| Quick Boot | Allows you to enable / disable quick boot of your system. |
| Delay for Hard Drive (Sec.) | Allows you to adjust the time of detecting hard disk on board at booting system. Choices: Disabled; 1~10 sec. in 1 sec. stepping. |
| 1st/2nd/3rd Boot Device | Allows you to set floppy or IDE devices already installed to be the 1st/2nd/3rd boot device. Choices: Disabled; Device(s) installed |
| Try Other Boot Devices | Allows you to enable/disable system to try to boot with other boot devices. Choices: Yes; No |
| Initial Display Mode | If option is "Silent", it allows user to add logo to initial screen. If option is "BIOS", the normal BIOS display mode will be shown. Choices: Silent (default); BIOS |
| Display Mode at Add-On ROM Init | If the item "Initial Display Mode" is set to "Silent", two sub-modes are provided for the initial display mode. If "Force BIOS" (default) is chosen, the vendor's logo screen will be followed by the "Add-on ROM" initial screen (the screen showing the add-on card BIOS message). If "Keep Current" is chosen, no "Add-On ROM" screen is followed. |
| S.M.A.R.T. for Hard Disks | Allows you to enable / disable the Self Monitoring Analysis and Reporting Technology for the hard disk. Choices: Enabled; Disabled |

- Bootup Num-lock** Allows you to toggle between On or Off to control the state of the NumLock keys when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.
- Floppy Drive Swap** Disabled (default), Floppy Drive A will not be changed to B, nor B to A. Enabled, Floppy Drive A and B will change position.
- Floppy Drive Seek** Disabled (default), Floppy Drives will not be checked and diagnosed at system bootup; Enabled, Floppy Drives will be checked and diagnosed at system bootup.
- PS/2 Mouse Support** Enabled (default), PS/2 mouse is supported. Disabled, PS/2 Mouse is not supported
- Primary Display** Allows you to choose the primary display for the system. Choices: VGA/EGA (default); CGA40x25; CGA80x25; Mono; Absent
- Password Check** Allows you to set BIOS to check up password with a password prompt at BIOS Setup or whenever re-starting system. Choices: Setup; Always
- Boot to OS/2** Allows you to set your system to OS/2 operating system. Choices: Yes; No (default)
- CPU Microcode Update** Allows you to enable/disable the CPU Microcode Update function. Choices: Disabled; Enabled (default)
- L1 /L2 Cache** Use this item to enable/disable the L1/L2 cache. Choices: Enabled; Disabled
- System BIOS Cacheable** Allows you to enable/disable the System BIOS Cacheable function.
- C000, 32K Shadow** Allows you to set these addresses cached, Enabled or Disabled. Default: Cached
- C800,CC00,D000,D400, D800,DC00 16K Shadow** Allows you to set these addresses cached, Enabled or Disabled. Default: Disabled

4-6.4 Advanced Chipset Features

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

Run the Advanced Chipset Features as follows:

1. Choose “Advanced Chipset Features” from the Main Menu and a list of option will appear:

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| Advanced Chipset Features | Setup Help |
|------------------------------------|--------------|
| DRAM Timing | |
| SDRAM Frequency | Auto |
| Configure SDRAM timing by SPD | Enabled |
| SDRAM CAS# Latency | (2.5 Clocks) |
| SDRAM RAS# Precharge | (3 Clocks) |
| SDRAM RAS# to CAS# Delay | (3 Clocks) |
| SDRAM Precharge Delay | (7 Clocks) |
| SDRAM Burst Length | (4) |
| Memory Hole | Disabled |
| International Graphics Mode Select | 1MB |
| AGP Aperture Size | 64MB |
| USB Controller | 6 USB Ports |
| USB 1.1 Device Legacy Support | Disabled |
| USB 1.1 Port 64/60 Emulation | Disabled |
| Display Setting | |
| Boot display Device | Auto |
| Flat Panel Type | 640x480LVDS |
| TV Standard | Auto |
| Flat Panel Scaling | Auto |

F1: Help ↑↓: Select Item
Esc: Previous Menu

+/- : Change Values
Enter: Select ▶ Sub-Menu

F9: Setup Defaults
F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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

SDRAM Frequency Allows you to set the SDRAM frequency.
Choices for 100MHz CPU: Auto; 200MHz; 266MHz
Choices for 133MHz CPU: Auto; 200MHz; 266MHz;
333MHz

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.

SDRAM CAS# Latency With SDRAM Timing by SPD disabled, you can select the SDRAM CAS# (Column Address Strode) latency manually.
Choices: 1.5 Clocks; 2 Clocks; 2.5 Clocks

SDRAM 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

SDRAM 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

SDRAM Precharge Delay Allows you to set the SDRAM Precharge Delay cycle.
Choices: 5 clocks; 6 clocks; 7 clocks

SDRAM Burst Length With SDRAM Timing by SPD disabled, you can select the SDRAM Burst length manually.
Choices: 8; 4

- Memory Hole** Allows you to enabled / disabled (default) the support of Memory Hole which is reserved for ISA card.
- (Hyper-Threading Function)** If Hyper-Threading CPU is running on board, this item appears to show the enabled status.
Choices: Enabled; Disabled
- Internal Graphics Mode Select** Allows you to set the internal graphic mode.
Choices: 512KB; 1MB; 8MB; Disabled
- AGP Aperture Size** Allows you to set the AGP Aperture Size.
Choices: 4MB; 8MB; 16MB; 32MB; 64MB; 128MB; 256MB;
- USB Controller** Allows you to set the USB Controller on the USB port(s).
Choices: 6 USB Ports; 4 USB Ports; 2 USB Ports; Disabled
- USB 1.1 Device Legacy Support** Allows you to select the USB Device Legacy support.
Choices: No Mice; All Device; Disabled
- USB 1.1 Port 64/60 Emulation** Allows you to enable/disable (default) the Port 64/60 Emulation.
- Boot display Device** Allows you to select the Boot isplay device.
Choices: Auto; CRT; TV; EFP; CRT+EFP
- Flat Panel Type** Allows you to select the flat panel type.
Choices: 640x480LVDS;800x600LVDS;
1024x768LVDS; 1280x1024LVDS;
1400x1050LVDS;1600x1200LVDS;
640x480CMOS; 800x600CMOS;
1024x768CMOS; 1280x1024CMOS;
1400x1050CMOS; 1600x1200CMOS
- TV Standard** Allows you to select the TV standard.
Choices: Auto (default); NTSC(M / M_J / 433 / N);
PAL(B / G / D / H / I / M / N / 60);
SECAM(L / L1 / B / D / G / H / K / K1 /)
- Flat Panel Scaling** Allows you to select the mode for flat panel scaling.
Choices: Auto (default); Force Scaling; Disabled

4-6.5 Power Management Features

Power Management Features allows you to set the system's power saving functions.

Run the Power Management Features as follows:

1. Choose "Power Management Features" from the Main Menu and a list of options will appear:

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| Power Management Features | Setup Help |
|------------------------------|------------|
| ACPI Standby State | S1/POS |
| USB Device Wakeup From S3/S4 | Disabled |
| Call VGABIOS at S3 Resume | Enabled |
| Power Management/APM | Enabled |
| Video Power Down Mode | Suspend |
| Hard Disk Power Down Mode | Stand By |
| Standby Time Out (Minute) | Disabled |
| Suspend Time Out (Minute) | Disabled |
| Power Button Function | 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 |
| RTC Alarm Date | 15 |
| RTC Alarm Hour | 12 |
| RTC Alarm Minute | 30 |
| RTC Alarm Second | 30 |

F1: Help ↑↓: Select Item +/- : Change Values F9: Setup Defaults
 Esc: Previous Menu Enter: Select ▶ Sub-Menu F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.
 <F9>: Setup BIOS default values.
 <F10>: Save and Exit Setup.

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

- ACPI Standby State** This item allows you to select the ACPI Suspend type. 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.
- USB Device Wake Up from S3/S4** If STR mode is selected, this item allows you to enable /disable (default) this function.
- Re-Call VGA BIOS at S3 Resuming** If STR mode is selected, this item allows you to enable / disable this function.
- Power Management/ APM** Allows you to enable / 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; Suspend
- Restore on AC/Power Loss** Allows you to set the restore state from AC/Power Loss. Choices: Last State; Power Off; Power On
- Resume on Ring** Allows you to enable / disable 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 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

4-6.6 PNP / PCI Configurations

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

Run the PNP/PCI Configurations as follows:

1. Choose "PNP/PCI Configurations" from the Main Menu and a screen with a list of options will appear:

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| PNP/PCI Configurations | Setup Help |
|---------------------------------|-------------|
| Clear NVRAM | No |
| PCI Latency Timer (PCI Clocks) | 32 |
| Init. Graphics Adapter Priority | AGP/Int-VGA |
| PCI IDE Busmaster | Enabled |
| PCI Slot1 IRQ Priority | Auto |
| PCI Slot2 IRQ Priority | Auto |
| PCI Slot3 IRQ Priority | Auto |
| PCI Slot4 IRQ Priority | Auto |
| PCI Slot5 IRQ Priority | Auto |
| PCI Slot6 IRQ Priority | Auto |

F1: Help ↑↓: Select Item
Esc: Previous Menu

+/- : Change Values
Enter: Select ▶ Sub-Menu

F9: Setup Defaults
F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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

Clear NVRAM Allows BIOS to clear the NVRAM data.
Choices: No (default); Yes

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

Init. Graphics Adapter priority Allows you to select the initial Graphics Adapter.
Choices: AGP/Int-VGA (default); AGP/PCI;
PCI/AGP; PCI/Int-VGA; Internal VGA;

PCI IDE BusMaster Allows you to enable / disable the PCI IDE Bus Master function.

PCI Slot 1/2/3/4/5/6 IRQ Priority Allows you to specify the IRQ for the PCI slots.
Choices: Auto; 3; 4; 5; 7; 9; 10; 11

4-6.7 Integrated Peripherals

Integrated Peripherals option allows you to get some information inside your system when it is working.

Run the Integrated Peripherals as follows:

1. Choose "Integrated Peripherals" from the Main Menu and a list of options will appear:

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| Integrated Peripherals | Setup Help |
|------------------------------|------------|
| Onboard IDE | Both |
| Onboard LAN (Optional) | (Enabled) |
| Onboard AC'97 Audio | Auto |
| Onboard FDC | Auto |
| Onboard Serial Port 1 | Auto |
| Onboard Serial Port 2 | Auto |
| Serial Port 2 Mode | Normal |
| Onboard Parallel Port | Auto |
| Parallel Port Mode | ECP |
| Parallel Port IRQ | Auto |
| Parallel Port DMA Channel | Auto |
| Onboard MIDI Port | Disabled |
| MIDI Port IRQ | 5 |
| Onboard Game Port | 200 |
| K/B PowerOn Function | Disabled |
| Stroke Keys Selected | N/A |
| PS/2 Mouse Power-on Function | Disabled |

F1: Help ↑↓: Select Item +/- : Change Values F9: Setup Defaults
 Esc: Previous Menu Enter: Select ▶ Sub-Menu F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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

- Onboard IDE** Allows you to choose the Onboard IDE Mode.
Choices: Disabled; Primary; Secondary; Both
- (Optional) Onboard LAN** If this option is on board, this item allows you to enable / disable the onboard LAN.
Choices: Enabled; Disabled
- Onboard AC'97 Audio** Allows you to disable AC' 97 Audio.
Choices: Auto; Disabled
- OnBoard FDC** Allows you to enable / disable the Onboard FDC.
Choices: Auto; Enabled; disabled
- Onboard Serial Port 1** Allows you to set the Onboard Serial Port 1.
Choices: Auto; Disabled; 3F8/COM1; 2F8/COM2;
3E8/COM3; 2E8/COM4;
- Onboard Serial Port 2** Allows you to set the Onboard Serial Port 2.
Choices: Auto; Disabled; 3F8/COM1; 2F8/COM2;
3E8/COM3; 2E8/COM4;
- Serial Port 2 Mode** Allows you to set the Serial Port 2 Mode.
Choices: Normal; IrDA; ASKIR;
- OnBoard Parallel Port** Allows you to configure onboard Parallel port .
Choices: Auto; Disabled; 378; 278; 3BC;
- Parallel Port Mode** If Parallel Port is not disabled, this item allows you to configure parallel port mode.
Choices: ECP; EPP + ECP; Normal; EPP
- Parallel Port IRQ** If Parallel Port Mode is set at EPP, this item allows you to set the Parallel Port IRQ.
Choices: 5; 7
- Parallel Port DMA Channel** If Parallel Port Mode is set at ECP, this item allows you to set the DMA Channel.
Choices: 0; 1; 3

- OnBoard MIDI Port** Allows you to configure onboard MIDI port address.
The choices: Disabled; 300h; 330h
- MIDI Port IRQ** If the onboard MIDI port is set at 300h or 330h, this item shows up to allow you to configure the MIDI Port IRQ3 to IRQ11.
- OnBoard Game Port** Allows you to configure Onboard Game port address.
Choices: Disabled; 200h; 208h
- Keyboard Power On Function** Allows you to configure the Keyboard PowerOn Function.
Choices: Disabled; By Stroke Key
- Stroke Keys Selected** If Keyboard PowerOn function is set at "by Stroke Key", this item shows up to allow you to select the stroke key.
Choices: Wake; Power; Ctrl + F1~F6
- PS/2 Mouse Power-on Function** Allows you to disable or use the PS/2 mouse to power on system..
Choices: Disabled; Enabled

4-6.8 Hardware Monitor Status

This menu helps you to read only and get more information on the working CPU temperature, FAN speed and voltage.

1. Choose "Hardware Monitor Status" from the Main Menu and a screen with a list of current status of your working system will appear:

AMIBIOS EASY SETUP UTILITY - VERSION 3.31a

| Hardware Monitor Status | Setup Help |
|-------------------------|----------------|
| Temperature 1 | 44 °C/111 °F |
| Temperature 2 | -55 °C/-131 °F |
| Temperature 3 | |
| Fan 1 | 4891 RPM |
| Fan 2 | 4905 RPM |
| Fan 3 | 0 RPM |
| CPU Vcore | +1.680 V |
| +1.5V | +1.504 V |
| +3.3V | +3.408 V |
| +5.0V | +5.126 V |
| +12.0V | +11.187V |
| -12.0V | -11.972V |
| -5.0V | -4.939V |
| 5V SB | +5.164V |
| Battery | +3.296V |

F1: Help ↑↓: Select Item +/- : Change Values F9: Setup Defaults
Esc: Previous Menu Enter: Select ► Sub-Menu F10: Save and Exit

2. Press <ESC> to return to the Main Menu. In case any irregular reading appears about your system, it indicates that a problem exists therein. To solve the problem, a hardware engineer or your dealer is recommended.

- Temperature 1** Shows current CPU internal temperature.
- Temperature 2** Shows current CPU external temperature.
- Temperature 3** Shows current system temperature.
- Fan 1 / 2 / 3** Displays the current speed of CPU Fan, and other two onboard devices which user has connected to the onboard Fan Connectors.
- CPU Vcore** Shows CPU core actual voltage value.
- +1.5V** Shows current voltage against the +1.5V power supply.
 - +3.3V** Shows current voltage against the +3.3V power supply.
 - +5.0V** Shows current voltage against the +5.0V power supply.
 - +12V** Shows current voltage against the +12V power supply.
 - 12V** Shows current voltage against the -12V power supply.
 - 5.0V** Shows current voltage against the -5.0V power supply.
- +5V SB** Shows current voltage against the +5V SB power supply.
- Battery** Shows current voltage against battery power supply.

4-6.9 Frequency/Voltage Control

Run the “Frequency/Voltage Control” as following:

1. Choose “Frequency/Voltage Control” from the Main Menu and a screen with a list of options will appear:

AMIBIOS EASY SETUP UTILITY - VERSION 3.31a

| Frequency/Voltage Control | Setup Help |
|---|------------|
| RedStorm Overclocking Tech (Optional) (Press Enter) | |
| CPU Ratio Selection | Locked |
| CPU Linear Freq | Disabled |
| CPU Clock | (100 MHz) |
| PCI Clock Auto Detection | Disabled |
| Spread Spectrum Selection | Disabled |
| CPU Voltage Control | Auto |
| AGP Voltage Control | 1.5V |
| DIMM Voltage Control | 2.5V |

F1: Help ↑↓: Select Item +/- : Change Values F9: Setup Defaults
Esc: Previous Menu Enter: Select ►Sub-Menu F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.
<F9>: Setup BIOS default values.
<F10>: Save and Exit Setup.

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

- (Optional) RedStorm Overclocking Tech** Press <Enter> to start *RED STORM OVERCLOCKING TECH*. This option gives user an easy way to overclocking. It will increase CPU external clock automatically. When CPU external clock increases to an unacceptably high value, BIOS will restart your system, then running at an acceptable CPU external clock.
- CPU Ratio Selection** If CPU onboard is one with an adjustable or unlocked CPU ratio, this item allows you user to adjust the CPU Ratio.
- CPU Linear Frequency** This item allows you to enable / disable this setting function.
- CPU Clock** If CPU Linear Frequency is set Enabled, this item allows you to set CPU Clock.
Choices: 100MHz ~200MHz in 1MHz stepping.
- PCI Clock Auto Detection** Allows you to enable / disable this auto detection function on PCI clock.
- Spread Spectrum Selection** If CPU Linear Frequency is disabled, use this item to enable/disable Spread Spectrum Selection. This function will reduce the EMI (Electromagnetic Interference) in your system. If you do not have an EMI problem, leave this item disabled.
- CPU Voltage Control** allows you to configure the CPU Voltage. Usually, to raise CPU voltage will raise the chance of CPU overclocking and yet risk damage of CPU.
Choices: Auto; 1.100V ~1.850V in 0.025 stepping
- 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
-

4-6.10 Set Supervisor Password

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

1. Choose "Set Supervisor Password" in the Main Menu 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 8 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:

[Retype new supervisor 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.

[New supervisor password installed]

Any Key to Continue

6. Then press any key to continue your CMOS Setup. To save the password setup, you should press "Save & Exit Setup" and choose "yes" to exit and save setup.
7. After the Supervisor password is set, you have to choose whether the password is for entering the system or only for entering BIOS Setup program. To make the choice, please enter BIOS Setup and choose "Advanced BIOS Features" in the main menu. (At entering BIOS Setup, you have to enter the password now.) In "Advanced BIOS Features", choose "Password Check" and change the option. The "Setup" option is to set the password only for entering BIOS Setup. The "Always" option is to set the password for entering the system.

8. To change or remove a current supervisor password, choose "Set Supervisor Password" and press <Enter>. An instruction box appears on the screen, prompting you to enter the current password first:

```
[ Enter current supervisor password ]  
  
[ ]
```

9. Type the current password with keyboard and then press <Enter>. An instruction box appears, prompting you to enter new supervisor password:

```
[ Enter new supervisor password ]  
  
[ ]
```

10. 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:

```
[ Supervisor password disabled ]  
  
Any Key to Continue
```

NOTE: If you forget or lose a supervisor password, the only way to access the system is to clear the CMOS. All setup informations will then be cleared including the password and you need to run the BIOS setup program again so as to reconfigure BIOS.

4-6.11 Load Optimized Defaults

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

[Load Optimized Defaults]
Press [Enter] to continue
or [ESC] to abort

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

4-6.12 Save & Exit Setup

Save & Exit Setup 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 current settings and exit]
Press [Enter] to continue
or [ESC] to abort

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

4-6.13 Exit Without Saving

Exit Without Saving option allows you to 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:

[Quit Without Saving Changes]
Press [Enter] to continue
or [ESC] to abort

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

Chapter 5 RAID Controller

The following topics and Appendices are included in this chapter:

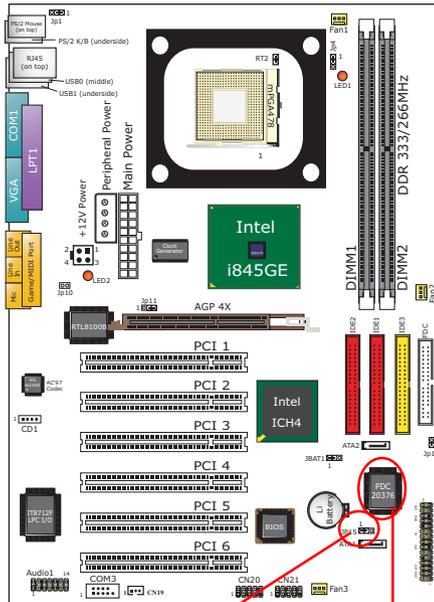
5-0 Before Creating Disk Array

5-1 Creating your Disk Array

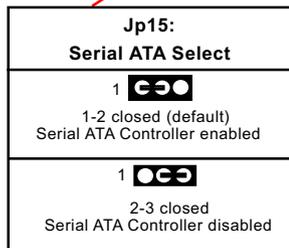
5-2 Installing RAID Controller PDC20376 Driver

5-0 Before Creating Disk Array:

1. Please locate the Promise RAID Controller on your mainboard to make sure that you are using the right board.
2. Locate the RAID Controller Select Jumper Jp15 on board, and make sure this Jumper is set at Pin 1-2 closed for enabling RAID controller. Please refer to the following Setup illustration of Jp15 on board:



On-Board RAID Controller



5-1 Creating Your Disk Array

To create your disk array, you have to open the FastBuild Utility, which should have already been built in the Promise Controller. At booting your system, you will see the following initializing screen:

```
FastTrak 376(tm) BIOS Version xxxxxx
(c) 2--2-2005 Promise Technology, Inc. All rights reserved.

No Array is defined.....

Press <Ctrl-F> to enter Fastbuild(tm) Utility or
Press <ESC> to continue booting.....
```

Press <Ctrl-F> to enter Fastbuild Utility NOW!

You can create two types of array with the help of FastBuild Utility.

1. An array for Performance in Striping type with 1 or 2 drives (or called RAID 0).
2. An array for Data Security in Mirroring type with 2 drives treated as one disk array (or called RAID 1).

WARNING : To create a Security array using an existing hard drive, backup any necessary data. Failure to follow this could result in data loss.

5-1.1 Creating An Array For Performance/Security

FastTrak 376 allows users to create striped arrays with 1 or 2 drives.

1. Boot your system with Controller PDC20376 enabled by Jp15 and your hard drive(s) connected to IDE3/ATA1/ATA2. Suppose this is the first time to create a Disk Array. The Promise BIOS on board with FastBuild Utility built in will scan the IDE devices and display the result as below:

```
FastTrak 376 (tm) BIOS Version 1.xx
(c) 2002-2005 Promise Technology, Inc. All Rights Reserved.

No array is defined...

Press <Ctrl-F> to enter FastBuild (tm) Utility or
Press <ESC> key to continue booting .....
```

2. Press <Ctrl-F> keys to display the FastBuild (tm) Utility Main Menu.

| | |
|-----------------------------|-------|
| Auto Setup | [1] |
| View Drive Assignment | [2] |
| Define Array | [3] |
| Delete Array | [4] |
| Rebuild Array | [5] |

3. Press "1" to display the Auto Setup Menu below. This is the fastest and easiest method to create your first array.

| | |
|---|-------------|
| [Auto Setup Options Menu] | |
| Optimize Array for: | Performance |
| [Array Setup Configuration] | |
| Mode | Stripe |
| Spare Drive | 0 |
| Drives used in Array | 1 |
| Array Disk Capacity | 38166 |
| [Keys Available] | |
| [↑] Up [↓] Down [←,→, Space] Change Option [ESC] Exit [Ctrl-Y] Save | |

4. If only one hard disk is inserted, the only choice is "Performance" under "**Optimize Array for**" section. If two hard disks are inserted, "Performance" and "Security" are the choices. If three hard disks are inserted, "Performance" is the only choice.
5. If only one hard disk is inserted, "Stripe" will appear under "Mode" section. If two or three hard disks are inserted, "Mirror" will appear for "Security" in "Mode" section.
6. Press <Ctrl-Y> keys to save and create the array.
7. Reboot your system.
8. Once the array has been created on new drive(s), you would need to FDisk and format the array as if it were a new single hard drive.
9. Also proceed to "Installing Drivers" section of this Chapter for system and FastTrak 376 Driver setup.

5-1.2 Creating Security Array With Existing Data Drive

FastTrak 376 on board permits only two drives to be used for a single Mirroring (Security) array with FastBuild Utility.

Checkpoints before creating a Security Array:

- (1) You may use a drive that is containing data or a bootable O/S. Then you will need another new drive of identical or larger storage capacity.
- (2) Backup any necessary data before proceeding. Failure to follow this accepted PC practice could result in data loss.
- (3) If you wish to include your current bootable drive holding Window NT 4.x or Windows 2000 O/S as part of a bootable Mirroring (RAID 1) array on your FastTrak 376 controller , you SHOULD first install the Windows NT4 or 2000 driver software to this drive while it is still attached to your system hard drive controller (e.g. IDE1/IDE2). For all other Operating Systems except Win NT4.0 and 2000, you can proceed with your hard driver(s) connected to IDE3/ATA1/ATA2.

1. Boot your system with FastTrak 376 Controller enabled by Jp15 and your hard drive(s) connected to IDE3/ATA1/ATA2. Suppose this is the first time to create a Disk Array. The Promise BIOS on board with FastBuild Utility built in will scan the IDE devices and display the result as below:

```
FastTrak 376 (tm) BIOS Version 1.xx
(c) 2002-2005 Promise Technology, Inc. All Rights Reserved.

      No array is defined...

Press <Ctrl-F> to enter FastBuild (tm) Utility or
Press <ESC> key to continue booting .....
```

2. Press <Ctrl-F> keys to display the FastBuild (tm) Utility Main Menu.

3. Press "1" to display the Auto Setup Menu below. This is the fastest and easiest method to create your first array.

| | |
|---|-------------|
| [Auto Setup Options Menu] | |
| Optimize Array for: | Performance |
| [Array Setup Configuration] | |
| Mode | Stripe |
| Spare Drive | 0 |
| Drives used in Array | 1 |
| Array Disk Capacity | 38166 |
| [Keys Available] | |
| [↑] Up [↓] Down [←,→, Space] Change Option [ESC] Exit [Ctrl-Y] Save | |

4. Using the Spacebar, choose "Security" under the **Optimize Array for** section.
5. Press <Ctrl-Y> keys to Save your selection.
6. Reboot your system.
7. Once the array has been created on new drive(s), you would need to FDisk and format the array as if it were a new single hard drive.
8. Also proceed to "Installing Drivers" section of this Chapter for system and FastTrak 376 Driver setup.

5-2 Installing Drivers

This section details the PDC 20376 FastTrak 376 driver installation for various operating systems. The driver should have been included either into the Support CD or into a Support Floppy Diskette.

Checkpoints for the driver installation:

1. To install FastTrak 376 Driver for an operating system, you must use the driver in Floppy Diskette instead of the one in CD. If you are not provided with a Driver Diskette, you should create one by copying the driver files through the support CD with the path:
"E:\Driver\Promise\FastTrak 376. (Suppose that CD-ROM title is E).
2. Set Jp15 on board enabled (Pin 1-2 closed) for RAID Controller Select. The following sections describe the detailed procedures of installing FastTrak 100-Lite Driver for windows 2000, Windows 95/98, Windows NT4.0, and Windows 3.1 / DOS.

5-2.1 For Windows 2000/XP

5-2.1-1 Installing Driver During New Installation of Windows 2000 / XP

1. Connect your hard driver(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller with Jp15.
 - 1a. Bootable floppy: Boot from bootable floppy and type "WINNT".
After files have been copied, the system will reboot. On the reboot, press <F6> after the message "Setup is inspecting your computer's hardware configuration..." appears.
 - 1b. CD-ROM Install: Boot from the Win 2000 / XP CD. Press <F6> after the message " Press F6 if you need to install third party SCSI or RAID driver" appears.
2. When the "Win 2000/ XP Setup" window is generated, Press "S" to specify an Additional Device(s).
3. Press "O" to select "Other" and press the "Enter" key.
4. Insert into drive A the Promise Technology ® RAID driver diskette (you can make one yourself from your Support CD if you cannot find one in the Mainboard Package) and press "Enter" key.
5. Choose "Win2000/ XP Promise FastTrak 376 Controller" from the list that appears on screen, then press the "Enter" key.
6. The Win 2000/XP Setup screen will appear again saying "Setup will load support for the following mass storage devices:" The list will include "Win2000/XP Promise FastTrak 376 controller".

Note: *If you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, continue to step 7.*

7. From the Win 2000/XP Setup screen, press the Enter key. Setup will now load all device files and then continue the Win 2000/XP installation.

5-2.1-2 Installing Driver To Existing Win 2000/XP System

WARNING: You must first complete installing the driver before moving the boot drive containing the existing Win 2000/XP operating system on to the FastTrak 376 controller (e.g. IDE3/ATA1/ATA2). On mainboard, IDE1/2 are for system IDE controller, while IDE3 & ATA1/2 are under RAID controller.

At booting with Win 2000/XP system and your hard drive(s) connected to IDE1/2, Win 2000/XP setup will show a "New Hardware Found" dialog box. Under Win 2000/XP, the "PCI RAID Controller" will be displayed.

1. In the dialog box, choose "Driver from disk provided by hardware manufacturer" button.
2. In the A: drive, insert the FastTrak 376 driver diskette.
3. Type "A:\WIN2000\XP" in the text box. Press "Enter".
4. Choose "Win2000/XP Promise FastTrak 376 Controller" from the list that appears on screen, then press the "Enter" key.
5. The Win 2000/XP setup screen will appear again saying "Setup will load support for the following mass storage device - Win2K/XP Promise FastTrak 376 controller. The FastTrak 376 driver will now be copied on to the system and entered into the Win 2000/XP driver database.
6. When the "System Setting Change" dialog box appears, remove the floppy diskette and click on "Yes" to restart the system. Win 2000/XP will then restart for the driver installation to take effect.
7. Power off your system, then attach your hard drive to the FastTrak 376 controller, e.g. IDE3/ATA1/ATA2.

5-2.1-3 Confirming Windows 2000 Installation

1. From Windows 2000, open the Control Panel from “ My Computer” followed by the System icon.
2. Choose the “Hardware” tab, then click the “Device Manager” tab.
3. Click the “+” in front of “SCSI & RAID Controllers hardware type.” The driver “Win2000 Promise FastTrak/FastTrak 376 Controller” should appear, informing user that the controller driver is already installed.

5-2.2 Windows 95/98

5-2.2-1 Installing Drivers During Windows 95/98 Installation

The following three sections detail the installation of the FastTrak 376 drivers while installing Windows 95/98 (with the FastTrak 376 controller card already in place). If you're installing the FastTrak 376 drivers on a system with Windows 95/98 already installed, see “Installing Drivers with Existing Windows 95/98”.

5-2.2-2 Windows 98

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller with Jp15. Configure the hard drive (s), partition and format your hard driver(s).
2. Install Windows 98 normally.
3. After installation, go to “Start” menu and choose “Settings.”
4. Form the “Settings” menu, choose “Control Panel.”
5. In the “Controller Panel” window, double-click on the “System” icon.
6. In the “System” window, choose the “Device Manager” tab.
7. In the hierarchical display under “Other Devices” is a listing for “PCI RAID Controller.” Choose it and then press the “Properties” button.
8. Choose the “Driver” tab in the “Properties” window, choose “Update Driver,” and then press “Next.”
9. Choose “Search for a better driver than the one your device is using now (recommended),” then press “Next”.
10. Choose “Specify Location,” and then type “A:\WIN95-98” in the text box.

11. Insert the "FastTrak 376 Driver" diskette into the A: drive.
12. Press the "Next" button. A message informing you that Windows 98 has found "Win95-98 Promise FastTrak 376 (tm) Controller" should appear.
13. Press "Next," then "Finish," then "Yes" when asked if you want to restart your computer. Be sure to remove the diskette from drive A:.

5-2.2-3 Windows 95

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller with Jp15. Configure the hard drive(s) for RAID Array, partition and format your hard driver(s).
2. Install Windows 95 normally.
3. After installation, go to "Start" menu and choose "Settings."
4. Form the "Settings" menu, choose "Control Panel."
5. In the "Controller Panel" window, double-click on the "System" icon,
6. In the "System" window, choose the "Device Manager" tab.
7. In the hierarchical display under "Other Devices" is a listing for "PCI RAID Controller." Choose it and then press the "Properties" button.
8. Choose the "Driver" tab in the "Properties" window, and then press the "Update Driver" button.
9. When asked if you want Windows to research for the driver, choose "Yes (recommended)."
10. Insert the "FastTrak 376 Driver" diskette into the A: drive, then press "Next."
11. When Windows informs you that it was unable to find the drivers, press "Other Locations..."
12. In the "Select Other Location" dialog box, type "A:\WIN9x-ME".
13. Press "Next" button. A message informing you that Windows 95 has found "Win95-98 Promise FastTrak 376 (tm) Controller" should appear.
14. Press "Finish." (If Windows can't find the "FastTrak 376.MPD" file, type "A:\WIN9x-ME" in the copy files from:" text box).
15. Choose "Yes" when asked if you wish to restart the system, and remove the diskette from Drive A.

5-2.2-4 Installing Drivers With Existing Windows 95/98

The following three sections detail the installation of the FastTrak 376 drivers on a system that has Windows 95/98 already installed. If you're installing the FastTrak 376 drivers on a system during a Windows 95/98 installation, see "Installing Drivers During Windows 95/98 Installation".

5-2.2-5 Windows 98

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller with Jp15. Configure the hard drive(s) for RAID Array, power up the system and boot Windows.
2. The "Add New Hardware Wizard" will appear, informing you that it has found a "PCI RAID Controller."
3. Check the "Search for the best driver for your device" box and click the Next button.
4. Check the "Specify a Location" box and click the Next button.
5. Type "A:\WIN9x-ME" in the text box that appears.
6. Insert the "FastTrak 376 Driver" diskette in drive A:.
7. Click on "Next." The Add New Hardware wizard will say it has found "Win95-98 Promise FastTrak 376 Controller".
8. Click on "Next," and then on "Finish."
9. Choose "Yes" when asked if you want to restart your computer. Be sure to remove the diskette from drive A:.

5-2.2-6 Windows 95

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller with Jp15. Configure the hard drive(s) for RAID Array, power up the system and boot Windows.
2. The "Update Device Drive Wizard" will appear, informing you that it has found a "PCI Mass Storage Controller."
3. Insert the "FastTrak 376 Driver" diskette in drive A:.
4. Type "A:\WIN9x-ME" in the text box, then click on "Next." Windows will inform you that it has found the "Win95/98 Promise FastTrak 376 controller".
5. Click on "Finish," and when prompted to insert the "FastTrak 376 Driver" diskette, click on "OK."
6. If a message informing you that the file "Win95/98 Promise FastTrak 376.MPD" cannot be found, go to the "Copy files from:" text box and type: "A:\WIN9x-ME".

7. Choose "Yes" when asked whether you want to start your computer. Be sure to remove the diskette from drive A.

5-2.2-7 Confirming Driver Installation in Windows 98/95

To confirm that the driver has been properly loaded in Win 95/98, perform the following steps:

1. Choose "Settings" from the "Start" menu.
2. Choose "Controller Panel", and then double-click on the "System" icon.
3. Choose the "Device Manager" tab, and click the "+" in front of "SCSI & RAID controllers." "Win95-98 Promise FastTrak 376 controller" should appear.

5-2.3 DOS/Windows 3.1x

For first-time installation, follow the standard procedure of installing DOS on to your hard disk (partition all hard drive with FDISK and format before performing the following procedure):

1. Insert "Disk 1" of your DOS installation diskettes into drive A:.
2. Type "A:\SETUP" at the "A:\>" prompt.
3. Continue with normal DOS installation procedure, and refer to your DOS manual for additional details.

Note: *The FastTrak 376 BIOS supports both DOS and Windows 3.1x without software drivers installed.*

5-2.4 Windows NT4.0

5-2.4-1 Installing Drivers During Windows NT 4.0 Installation

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller with Jp15. Start the system installation by booting from the Windows NT disk:
 - a) Floppy install: boot the system with the Windows NT installation diskettes.
 - b) Other bootable Floppy: boot from the bootable floppy and type "WINNT/B". After files have been copied, the system will reboot. On the reboot, press the "F6" key when the message "Setup is inspecting your computer's hardware configuration..." appears.
 - c) CD-ROM disk install: boot from the CD-ROM disk and press the "F6" key when the message "Setup is inspecting your computer's hardware configuration..." appears.
2. When the "Windows NT Setup" windows is generated, press "S" to specify an Additional Device(s).
3. Press "O" to select "Other" and press the "Enter" key.
4. Insert into drive A the Promise Technology ® FastTrak 376 driver diskette that you have made from the support CD: and press "Enter" key.
5. Choose "Win NT Promise FastTrak 376 (tm) Controller" from the list that appears on screen, then press the "Enter" key.
6. The Windows NT Setup screen will appear again saying "Setup will load support for the following mass storage devices:" The list will include "Win NT Promise FastTrak 376 (tm) controller".

Note: *If you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, continue to step 7.*

7. From the Windows NT Setup screen, press the Enter key. Setup will now load all device files and then continue the Windows NT installation.
8. After a successful installation, the "SCSI Adapter Setup" box will show that the "Win NT Promise FastTrak 376 (tm) Controller" driver has been installed.

5-2.4-2 Installing Drivers With Existing Windows NT4.0

WARNING: You must first complete installing the driver before moving the boot drive containing the existing Windows 2000 operating system on to the FastTrak 376 controller (e.g. IDE3/ATA1/ATA2). On mainboard, IDE1/0 are for system IDE controller, while IDE3 & ATA1/2 are under RAID controller.

With your bootable hard drive connected to IDE1/IDE2 and FastTrak 376 enabled by Jp15, boot Win NT4.0.

1. Choose "Settings" from the "Start" menu.
2. Choose "Controller Panel" from the "Settings" menu.
3. Double-click on the "SCSI Adapters" icon, which generates the "SCSI Adapters" dialog box.
4. Choose "Drivers," and then press "Add."
5. In the "Install Drivers" dialog box, press "Have Disk..."
6. When the "Install From Disk" appears, insert into Drive A the "FastTrak 376 Driver" diskette that you have made from support CD:.
7. Type "A:\NT4" in the text box window, then choose "OK."
8. When the "Install Driver" dialog box appears, select "Win NT Promise FastTrak 376 controller" and then press "OK."
9. When the "Select SCSI Adapter Option" dialog box appears, press "Install".
10. After a successful installation, the "SCSI Adapter Setup" box will show that the "Win NT Promise FastTrak 376 (tm) Controller" driver has been installed.
11. Power off your system.
12. Now you can move the boot drive to the FastTrak 376Controller.