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   ATA 66 IDE Cable x 1 (one connector at each end)
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   FDD Cable
   USB Cable
   Audio Cable (optional)
   Printer Port Cable (optional)
   1394A Cable x 3 (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, as well as multiplexed AGP & DVO interface .

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 manual description and the Mainboard you are using, please look up the <u>Errata/ Update Slip</u> enclosed inside for the correction or updated information, or else contact the Mainboard Dealer or visit our Web Site for the latest manual update.

1-1 Mainboard Layout

1-2 Mainboard Specifications

1-2.1 CPU Socket

CPU Socket 478B on board, supporting Intel® Pentium 4 processor (Hyper-threading CPUs included) 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 DRAM memory interface, Hub interface, multiplexed AGP and DVO interface
• 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 (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 BIOS (Basic Input Output System)

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 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)
• PS/2 Keyboard / Mouse Power On
• Supporting Wake-on-LAN
• Real Time Clock (RTC) with date alarm, month alarm, and century field

1-2.6 Integrated Multiplexed AGP and DVO Interface

Integrated multiplexed AGP and DVO interface in North Bridge,support-ing AGP performance and analog/Digital display:

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

1-2.7 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 (optional):
  -- 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
  -- 4 built-in USB ports and 1 USB Header which requires 1 additional USB cable to provide 2 more additional USB ports
• PS/2 Keyboard and PS/2 Mouse
• UARTs (Universal Asynchronous Receiver / Transmitter):
  -- 2 complete serial ports (COM1 & COM2) on board

1-2.8 Expansion Slots
• 1 PCI Bus Master slots
• 1 AGP 4X slot
• 2 DDR DIMM slots

1-2.9 LAN on board
PCI local bus single-chip Fast Ethernet Controller RTL8100B on board:
• Supporting 10/100Mb data transfer
• Supporting Wake On LAN function through the on-board RJ45 LAN
  Connector
• LAN Driver enclosed in Support CD for user's installation.

1-2.10 Hardware Monitor on board
• Hardware Monitor supported by IT8712F, providing monitoring and
  alarm for flexible desktop management of hardware voltage, tempera-
  tures and fan speeds.
• Utility Software Soltek HM for displaying system status is enclosed in
  Support CD for user's installation.

1-2.11 AC'97 Audio Codec on board
AC'97 Audio Codec 2.2 compatible on board
• Supporting 6-channel PCM audio output
• 6-channel audio supporting Front Left, Front Right, Back Left, Back
  Right, Center and subwoofer for complete surround sound effect
• Supporting Digital S/PDIF Input/Output (B8A-F only)
• AC'97 Audio Codec Driver enclosed in Support CD for user's
  installation.

1-2.12 1394A-- high performance serial bus (B8A-F only)
1394A Interface, via FW323 PCI PHY/Link Open Host Controller on
Model B8A-F:
• PCI-bus based open host controller, compliant with IEEE 1394A-2000
  standard for high performance serial bus
• supporting three fully compliant cable ports, each supporting 400/
  200/100 Mbits trafic

1-2.13 Form Factor
• ATX form factor, ATX power supply, version 2.03 compliant, supported
  by one Main Power Connector, and one +12V Power Connector
• Mainboard size: 180mm x 250mm

1-3 Mainboard Specification Table

B8A/ B8A-F Specifications and Features	
CPU	Socket 478B for Intel Pentium 4 CPU
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 2 DDR DIMM slots
I/O Chip	IT8712F, with Soltek Hardware Monitor
AGP interface	1 AGP 4X slot for analog/digital display
Audio	AC'97 Audio 2.2 compliant, 2/6 channel audio
IDE Interface	2 UATA 66/100 IDE ports
VGA	1 x 15-pin connector on board for Analog display
PCI Slot	1 PCI Master slot on board
I/O Connectors	6 USB V2.0, 1 FDD , and 2 COM ports,1 IrDA, 1 LPT(optional), 1 PS/2 K/B, 1 PS/2 Mouse
Other common features	BIOS Writing Protection Keyboard/Mouse Power On ATX 2.03 Power Supply ATX form factor

Models / Optional Features	B8A	B8A-F
1394A Controller on board	No	Yes
S/PDIF Support	No	Yes

1-4 Chipset System Block Diagram

```
                    ┌─────────────────────┐
                    │  Intel Pentium 4 CPU │
                    └─────────────────────┘
                              ↕
                    System Bus 533/400MHz

┌──────────┐       ┌─────────────────┐   DDR memory     ┌──────────┐
│ Analog   │       │                 │   Interface      │ System   │
│ Connector│       │   Intel 845GE   │─────────────────→│ Memory   │
└──────────┘       │   North Bridge  │   DDR 333/       └──────────┘
  VGA Interface    │                 │   266 DRAM
┌──────────────┐   └─────────────────┘
│ AGP Slot     │
│ ─ DVO(digital)│
│ └AGP(Analog) │
└──────────────┘
                              ↕  Bi-directional
                                 16-bit Data
                                 Bus, 266MHz
                                                       (Optional)
                   ┌─────────────┐        ┌──────────┐ ┌──────┐
┌──────────┐ ATA   │             │ PCI Bus│ PCI Slot │ │ 1394 │
│ 4 IDE    │ 100/  │    ICH4     │────────└──────────┘ └──────┘
│ Devices  │ 66/33 │    South    │
└──────────┘       │    Bridge   │ AC'97 2.2  ┌──────────────┐
┌──────┐ ┌─────────┐│             │───────────│ Audio Codec  │
│ RJ45 │─│RTL8100B ││             │           │ (6-channel)  │
└──────┘ └─────────┘│             │           └──────────────┘
┌──────┐ USB Bus   │             │            ┌──────────────┐
│ USB  │           │             │            │ S/PDIF in/out│
│ Ports│ V2.0      │             │            └──────────────┘
└──────┘           └─────────────┘              (Optional)

┌──────────────┐   ┌─────────┐          ┌──────┐
│          IR  │   │ LPC I/O │          │      │
│         FDD  │   │ IT8712F │──────────│ BIOS │
│Mouse/Keyboard│   └─────────┘          └──────┘
│ Serial Ports │
│(optional)Printer
│  Game/MIDI   │
│  H/Monitor   │
└──────────────┘
```

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 CPU Identification and Installation
2-2 Pentium 4 CPU Fan Installation
2-3 Memory Installation
2-4 Analog / Digital Display Installation
2-5 IDE Connector Installation
2-6 Floppy Disk Connector Installation
2-7 ATX 2.03 Power Supply Installation
2-8 Jumper Settings
2-9 Other Connectors Configuration
2-10 IRQ Description

2-1 CPU Identification and Installation

2-1.1 To Identify a Pentium 4 CPU

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

(Including Hyper-threading CPUs)
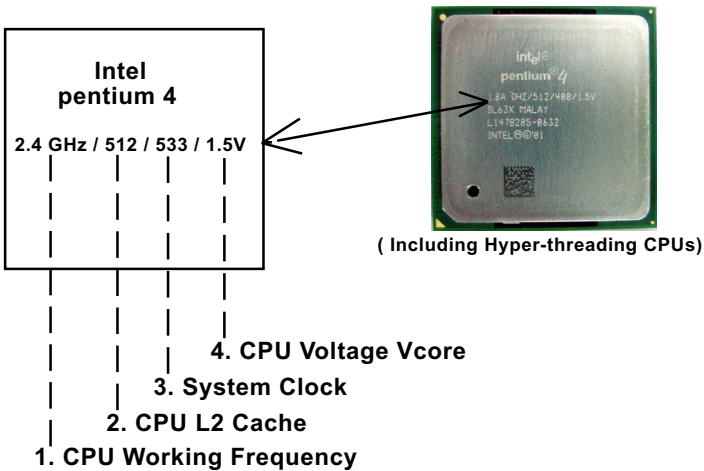
On the heatsink side of a Pentium 4 CPU, there printed a line of figures to identify its specifications. The line consists of 4 parts:

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

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

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

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

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

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

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

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

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

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

2-1.2 CPU Installation with Socket 478B

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

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

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

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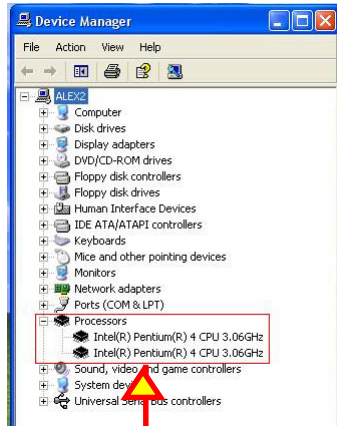
(If Hyper-threading CPU is installed successfully with O/S Win XP, the O/S will enable the dual-in-one CPU function.)

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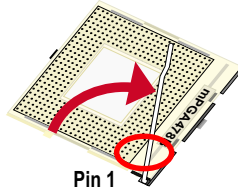
Pin 1

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

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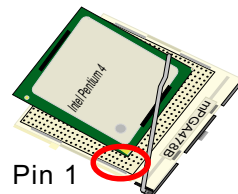
3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.

Pin 1
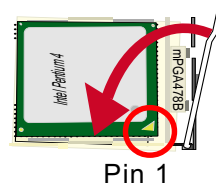
2-2 Pentium 4 CPU Fan Installation

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.
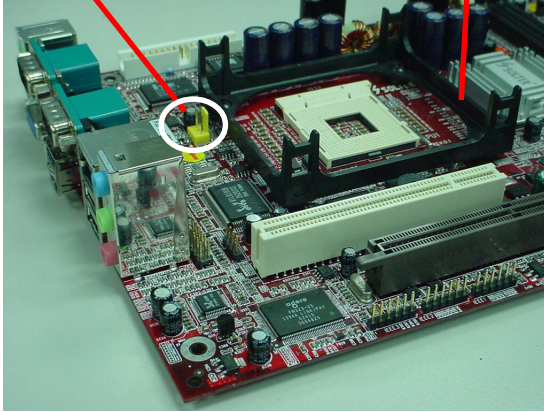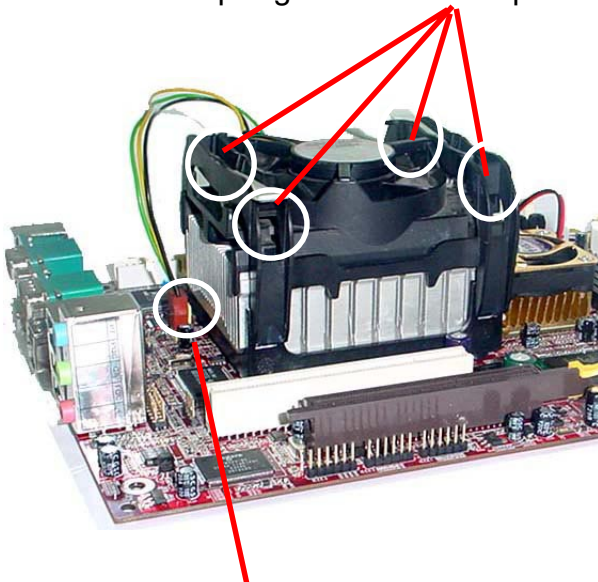• Pay attention to the orientation of the DIMM slots. Forcing a DIMM into a slot improperly will damage the memory module and slot itself.
• Make sure you have the right type of memory module for your mainboard.

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.

184-Pin DIMM Notch Key Definitions

DRAM Key Position   Voltage Key Position

DDR Notch

DDR Rib
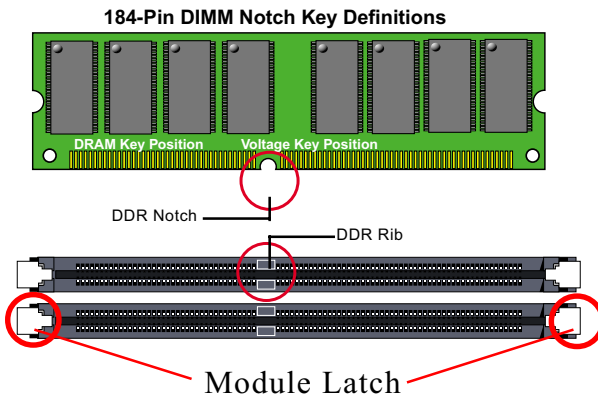
Module Latch

2-3.2 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 VGA-on-board and AGP Slot Installation

1. To install analog display, please connect your analog monitor directly to 15-pin VGA connector on board. The other way is insert an AGP4X card to AGPslot and connect the analog monitor to the AGP card. Please note that this AGP slot supports AGP 4X card with 1.5V power supply only.
2. To install Digital-Video-Out (DVO) display, please insert a DVO card into the AGP slot and connect the digital monitor to the DVI connector.
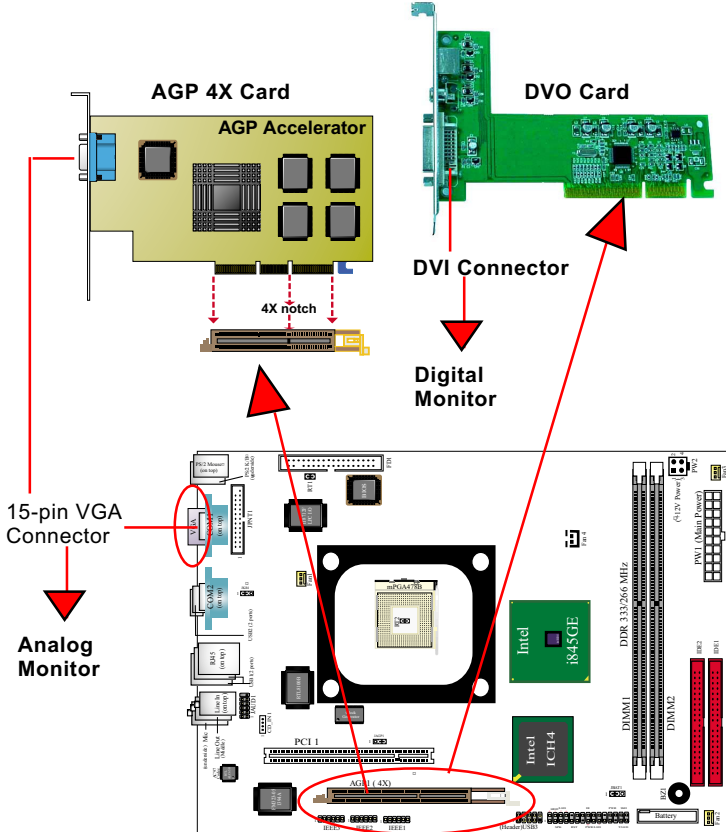
AGP slot supporting both DVO and AGP display

2-5 IDE Connector Installation

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

Hard Disk Drive Connector

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

Pin 1 (to Red Line)

IDE1   IDE2

80-conductor IDE Cable (with Slave Connector)

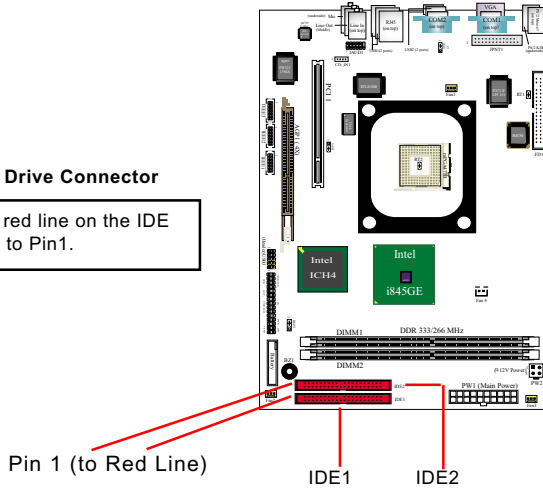This kind of cable is not recommmended for the Mini-barebone system because the ribbon cannot be bundled up and will block the air flow in the barebone cabinet.

Gray connector
(To slave device)

Red line

Black connector
(To Master Device)

Blue connector
(To Mainboard)
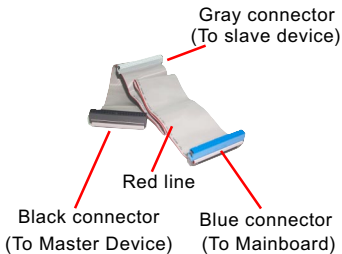
80-conductor IDE Cable (dedicated for Barebone)

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

Bundle Strap

Red line

80-conductor IDE cable

Blue connector
(To Mainboard)

Black connector
(To Master Device)

2-6 Floppy Drive Connector Installation

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

Pin 1 (to Red Line)

Floppy Drive Connector:

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

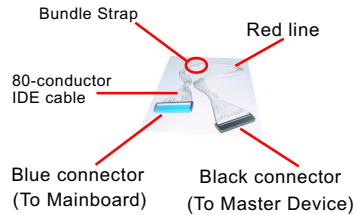
34-conductor FDC cable (w/2nd Connector)

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

To 2nd Floppy Drive

To 1st Floppy Drive

To mainboard
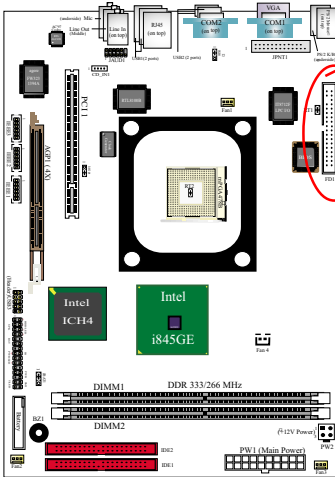
Red line
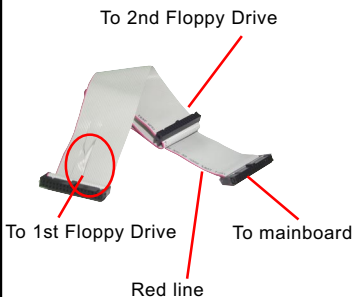
34-conductor FDC cable (dedicated for Barebone)

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

Signal Swap End

Red line

To 1st Floppy Drive
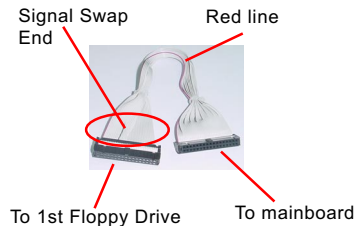
To mainboard

2-7 ATX V2.03 Power Supply Installation

+12V Power Connector

```
        1      2
GND    O  O   GND
+12V   O  O   +12V
        3  ▪   4
```

Main Power Connector (20-pin)

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

Pin1   Pin11
Main Power Connector
(20-pin)
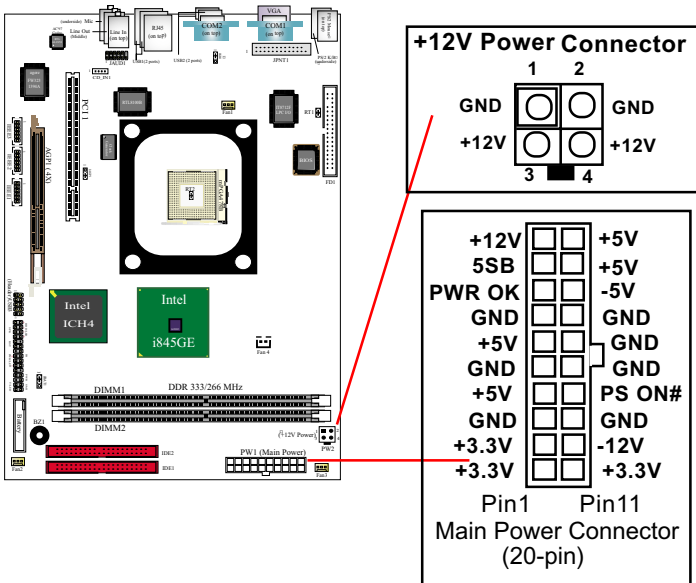
To set up Power Supply on this mainboard:

1. Connect the on-board Main Power Connector (20-pin) to the Main Power Connector (20-pin) of an ATX Power Supply which should be of the latest version 2.03 model, and then connect the square-shaped +12V Power Connector on board to the square-shaped +12V Power Connector of the Power Supply.
   Warning: Both Main Power Connector and +12 Power Connector should be connected to power supply; otherwise, system may either not start or be damaged.

2. This ATX power supply should be able to provide at least 720mA / +5V standby power for Wake On LAN and Wake On Modem function.

2-8 Jumper Settings

The following diagrams show the locations and settings of jumper blocks on the mainboard.
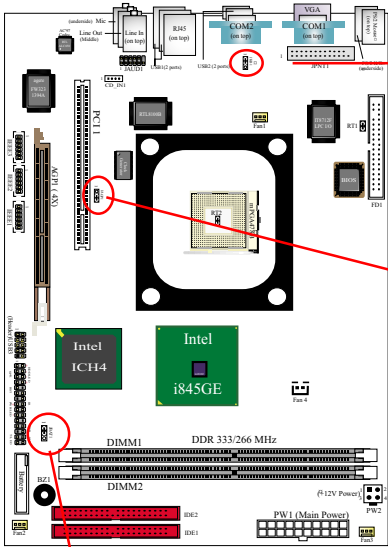
JKB1
PS/2 & USB KB/Mouse Wake-up
1-2 closed (default) Enabled
2-3 closed Disabled

JAGP1:
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.)

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

25

2-8.1 How to tackle the Jumpers:

A 3-pin Jumper

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

A 2-pin Jumper Cap

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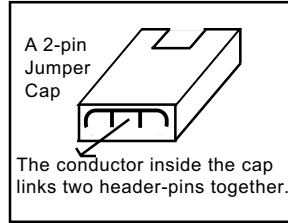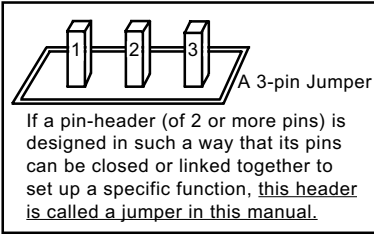
• A Jumper is usually but not necessarily given a "JpX" legend.
• In the Jumper setting diagram, the jumper pins covered with black marks stand for closed pins with jumper cap.

Jp X **1** ◯◖◗ **3**   **1** ◯◯◯ **3**   **1** ◖◗◯ **3**

Jumper with Pin 2-3 closed   **Jumper with all pins open**   **Jumper with Pin 1-2 closed**

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

2-8.2 JBAT1: Clear CMOS

When you have problem with rebooting your system, you can clear CMOS data and restore it to default value. To clear CMOS with Jumper JBAT1, please follow the steps below:
1. Power off system.
2. Set JBAT1 to Pin 2-3 closed.
3. After 2 or 3 seconds, restore the JBAT1 setting to Pin1-2 closed.
4. CMOS data are restored to default now. Remember never clear CMOS when system power is on.

JBAT1 Clear CMOS

1-2 closed (default) To hold data

2-3 closed To clear CMOS
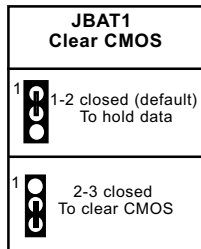
2-8.3 JAGP1: VGA/AGP 4X Safeguard

1. Default JAGP1(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. JAGP1 at 1-2 closed is to enable safeguard against AGP2X card and allow only 1.5V AGP 4X card to boot system. With JAGP1 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.

JAGP1: 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.)

2-8.4 JKB1: PS/2 & USB KB/Mouse Wake-up

JKB1 is designed to select keyboard or the Power button as the power-on controller. Setting JKB1 to 1-2 closed will allow users to enable the USB & PS/2 KB/Mouse Wake-up function while setting JKB1 to 2-3 closed will disable this function.

JKB1 **PS/2 & USB KB/Mouse Wake-up**
1-2 closed (default) Enabled
2-3 closed Disabled

2-9 Other Connectors Configuration

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

2-9.1 On Board FAN Connectors

GND
+12V
SENSOR
Sensor Conn.

FAN1, yellow, sensor CPU FAN Connector

FAN4: Chipset FAN Connector

FAN2, yellow, sensor Sys. FAN Connector

FAN3, yellow, sensor Spare Fan Connector
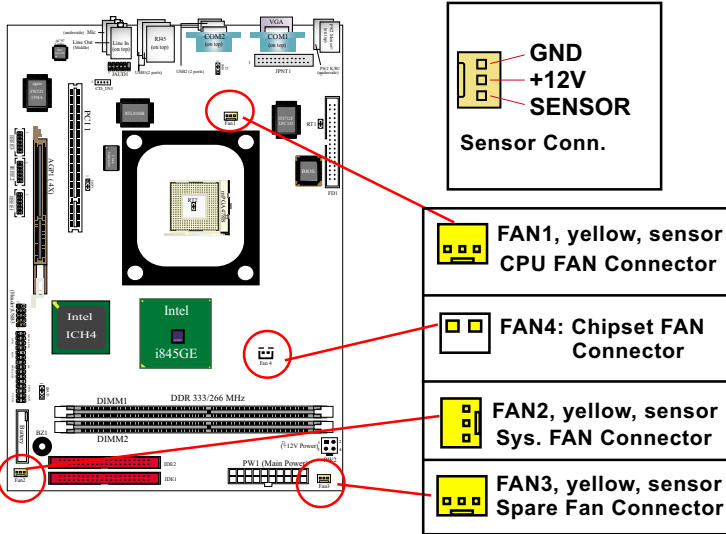
FAN1: a 3-pin sensor Fan connector which can automatically respond to the temperature and adjust its own fan speed. PAN1 is typically designed for CPU fan so as to adjust the CPU fan speed and thus control the CPU status and power consumption. If CPU Fan is mistakenly connected to FAN3 or if the CPU FAN does not run, the buzzer on board will buzz to warn user.

FAN2: a 3-pin sensor Fan connector which can automatically respond to the temperature and adjust its own fan speed. FAN2 is typically designed for system fan so as to adjust the system fan speed and thus control the power consumption.

FAN3: a 3-pin spare sensor Fan connector which can detect the fan speed only. Do not connect FAN3 with CPU Fan.

FAN4: a 2-pin no-sensor Fan connector for chipset cooling fan.

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.

2-9.2 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 (not Win9X / Me). USB 1.0 / 2.0 drivers are provided in Support CD for user's installation.

USB Cable (Optional)

USB connectors USB1 and USB2 (underside)

USB Port

Red wire

1

10

USB Pin-header USB3

First USB Port Wiring

Red	White	Green	black	
+5V	D4-	D4+	GND	

USB Header Pin Assignment

10

1

+5V   D5-   D5+   GND
Red   White Green black

Second USB Port Wiring
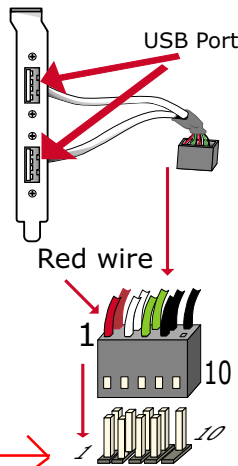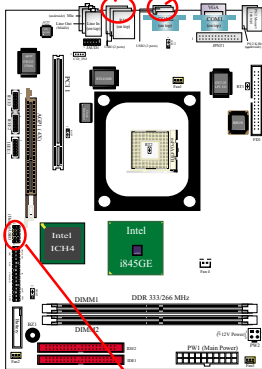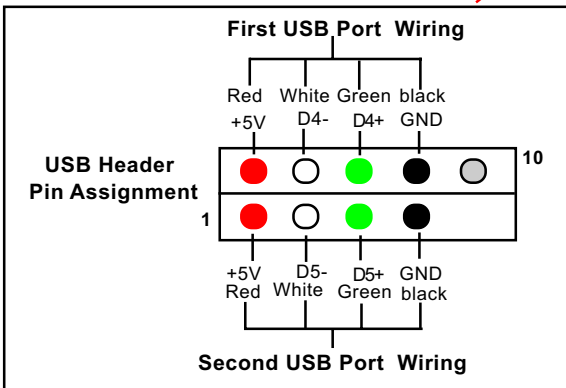
2-9.3 Chassis Panel Connectors

A : PS/2 Mouse
B : COM1
C : COM2
D : RJ45 (LAN)
E : Line In /
    Rear Speaker Out
F : PS/2 Keyboard
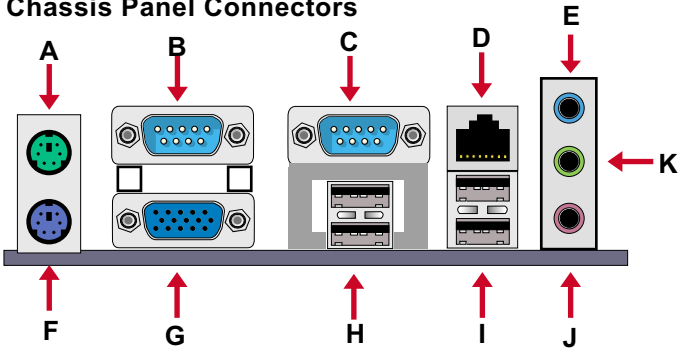
G : VGA Connector
H : USB2
I : USB1
J : Microphone Input/
    Center/Subwoofer Out
K : Line Out /
    Front Speaker Out

2-9.4 PS/2 Mouse And PS/2 Keyboard

PS/2 Mouse Connector (green, on top)

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

6 Void   5 Keyboard Clock
4 VCC   3 GND
2 Void   1 Keyboard Data
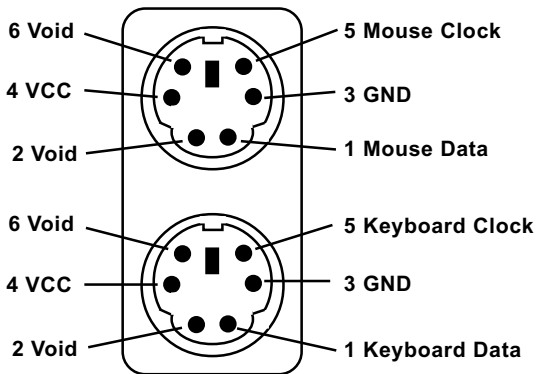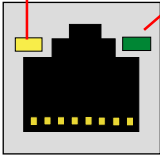
PS/2 Keyboard Connector   (purple, underside)

2-9.5 LAN Connector: RJ45
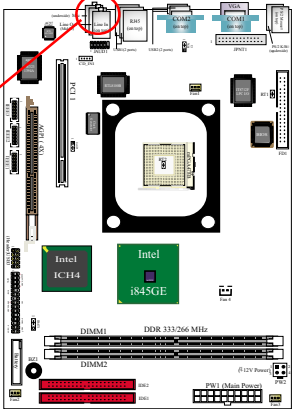
One RJ45 connector is on board for networking connection and also provides support for Wake On LAN function.

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.

RJ45 Connector
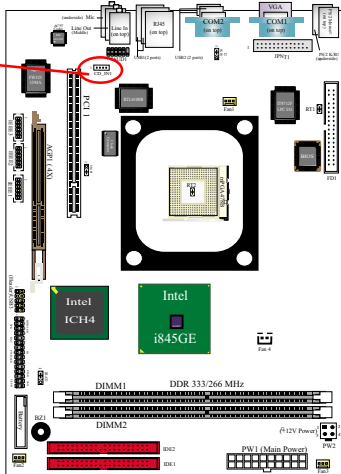
2-9.6 CD-ROM Audio Connectors (CD_IN1)

CD_IN1 is an audio connector connecting CD-ROM audio to mainboard.

CD-ROM Audio Connector

CD_IN1	Pin 1	Pin 2	Pin 3	Pin 4
1	Left Channel	GND	GND	Right Channel

32

2-9.7 System Buzzer: BZ1

A buzzer BZ1 is designed on board for beeping warning of problems at starting system.

System Buzzer BZ1
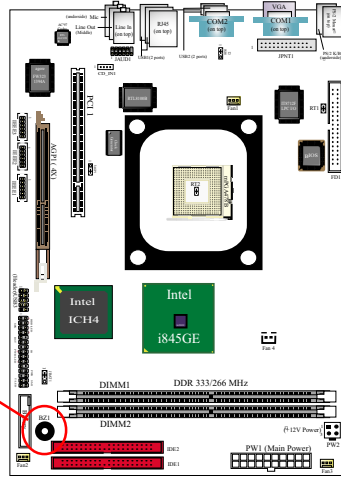
2-9.8 JAUD1: Audio/Digital(S/PDIF) I/O Connector

This series is designed with an optional S/PDIF I/O and Audio-out connector "JAUD1. If this option is chosen, it will provide digital sound input and output channel.

Audio-out Pin Assignment

```
2  ● ● ● ● ●   12
1  ● ● ● ● ● ●  11
```

Pin 1 SPDIF IN	Pin 2 Gnd
Pin 3 GND	Pin 4 +5V
Pin 5 +5V	Pin 6 SPDIF OUT
Pin 7 MIC IN	Pin 8 +5VA
Pin 9 LINE OUT R	Pin10 GNDA
Pin11 LINE OUT L	Pin12 KEY
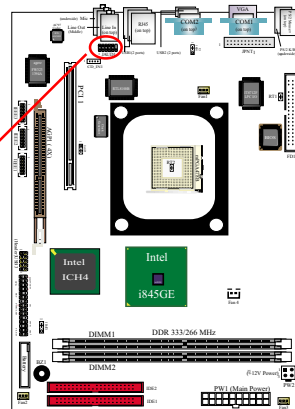
2-9.9 NJP1: Front Panel Connectors

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

(9)Speaker	Vcc	Logic High(+) — **1st HDD LED**
	No Connection	HDD LED Signal(-)
	GND	HDD LED Signal(-) — **(4)**
	Speaker Signal	Logic High(+) — **2nd HDD LED**
(8)Reset Switch	Reset Signal	
	GND	Infrared Transmit Signal
		GND
(7)Power LED	Vcc	Infrared Transmit Signal — **Infrared(IR) (3)**
	No Connection	No Connection
	GND	Vcc
(6)Keylock (optional)	KLock	
	GND	ATX Power Switch — **Power Switch (2)**
		Vcc
(5)Suspend LED	Suspend LED Signal	SMI Signal — **SMI (1) (optional)**
	GND	GND

1. SMI Connector (System Management Interrupt) (optional):
   Connection: Connected to the case-mounted Suspend Switch.
   Function **:** Manually placing 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.

2-9.10 RT1 and RT2: Thermal Resistors

RT1

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

RT2

RT2 is mounted with Thermal Resistor by default for detecting external CPU temperature.
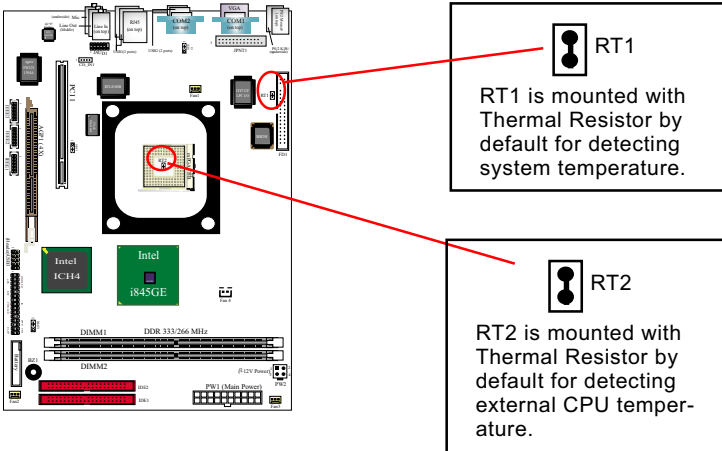
2-9.11 1394A Front Connectors : IEEE1/2/3 (B8A-F only)

1394A Interface, via FW323 PCI PHY/Link Open Host Controller on Model B8A-F:

• Supporting three fully compliant cable ports, each supporting 400/200/100 Mbits trafic

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

IEEE1/2/3
Pin Assignment

Pin 1	BPWR(+12V)
Pin 2	GND
Pin 3	TPB(0/1/2)-
Pin 4	TPB(0/1/2)+
Pin 5	TPA (0/1/2)-
Pin 6	TPA (0/1/2)+

1
6
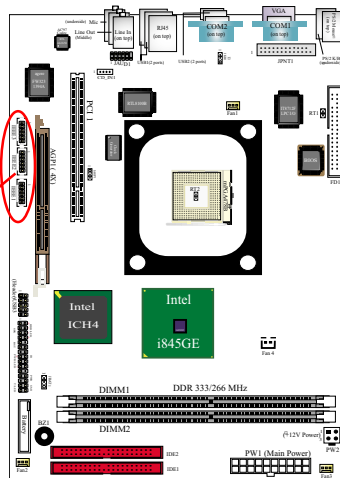
2-9.12 Printer Port: JPNT1 (optional)

JPNT1 is an optional parallel printer port.
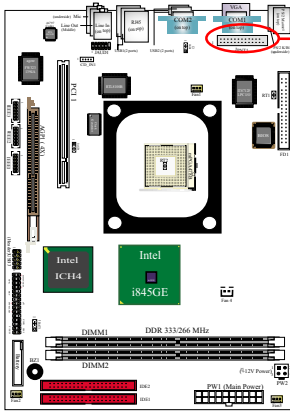
JPNT1: Printer Port (optional)
Pin Assignment

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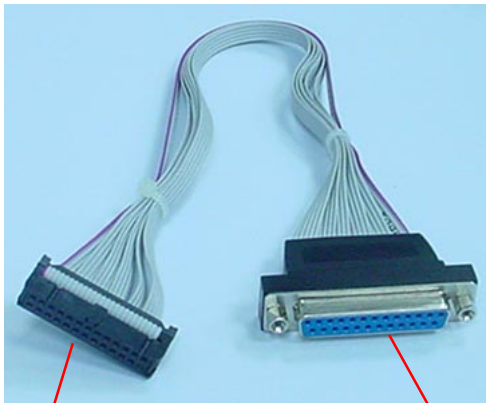
To Printer Connector on board

To Printer

Printer Cable (optional)

Chapter 3 Software Setup

Drivers, Utilities and Software Installation

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

• Contents of Support CD:
For this series, user should be able to find in the Support CD the following drivers and utilities:

  1. INF Utility (Intel Chipset Software Installation Utility);
  2. Intel Application Accelerator (IAA);
  3. DirectX
  4. Graphics Drivers
  5. AC'97 Audio Drivers
  6. Hardware Monitor Utility
  7. Other Drivers (including Network and Intel USB)

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. The installation procedures for all these operating systems are all programed into an auto-run mode. What users have to do is to read and follow the pop-up instructions to carry out the installation. We therefore take the installation on Windows 98 as the general illustration hereby.

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

  3-1 To Open up the Support CD
  3-2 Intel Chipset Software Installation Utility (INF Utility)
  3-3 Intel Application Accelerator (IAA)
  3-4 DirectX
  3-5 Graphics Drivers
  3-6 AC'97 Audio Drivers
  3-7 Hardware Monitor Utility
  3-8 LAN Drivers
  3-9 Intel USB2.0 Drivers

3-1 To Open up the Support CD

1. Please put the Support CD enclosed in your mainboard package into the CD-ROM drive. In a few seconds, the Main Menu will automatically appear, displaying the contents to be installed for this series:
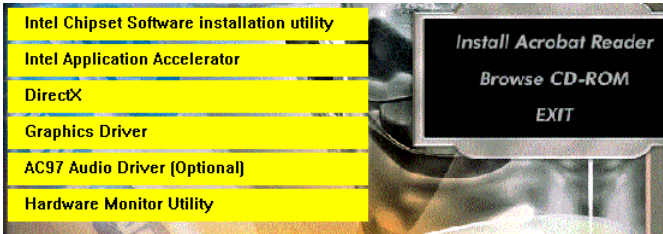
2. In case your system does not open the Support CD automatically, please click to the following path to enter the Main Installation Menu:

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

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

3-2 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.
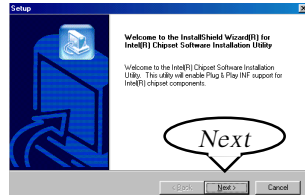
3. **"Intel Software License Agreement"** screen will appear, please click the **"Yes"** button to agree with the Licence Agreement and continue.
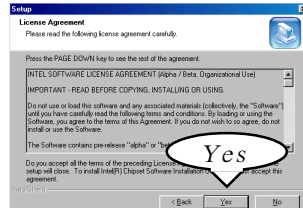
4. After all the setup process is finished, please restart your computer by clicking on "Finish" so as to take the Utility into effect.
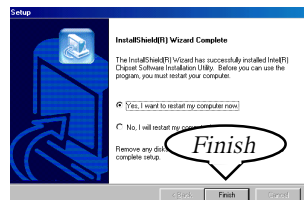
3-3 To Install "Intel Application Accelerator"

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 programed to an auto-run mode. 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.
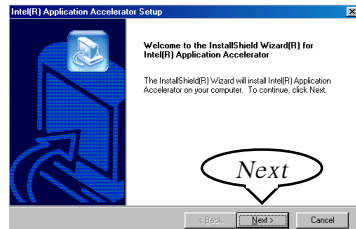
3. On the "Licence Agreement" screen, click on "Yes" to continue.
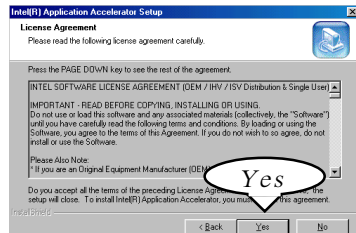
4. On "Choose Destination Location" screen, press **"Yes"** to continue.
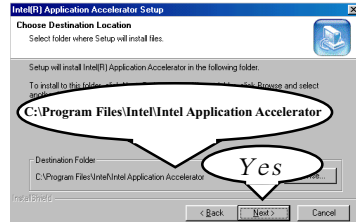
5. On "InstallShield Wizard Complete" screen, choose "Yes, I want to restart my computer now" and press "finish" to restart. Remember you must restart computer to put setup into effect.
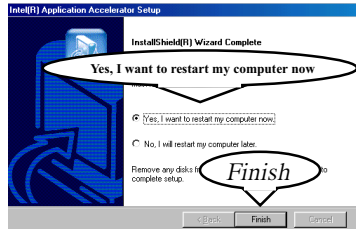
3-4 To Install DirectX

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.
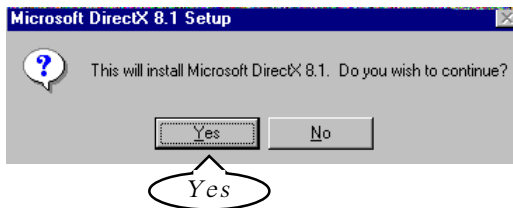
3. After all the setup procedures have completed, click to "OK" button to exit the Installation program and re-start your system.
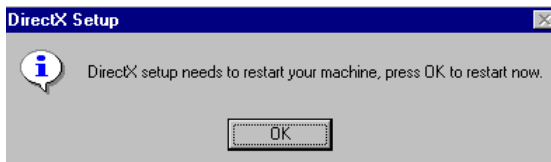
3-5 To Install Graphics Driver

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.
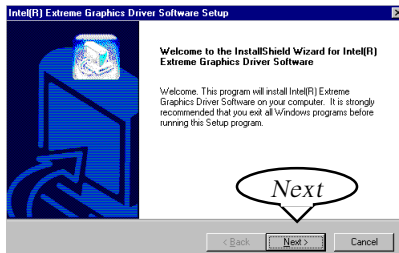
3. After all the setup procedures have completed, click to "Finish" button to exit the Installation program and re-start your system.
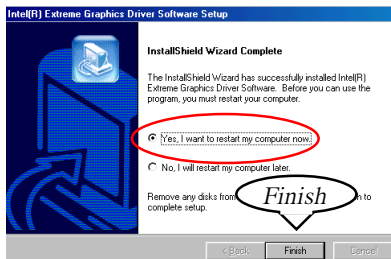
3-6 To Install AC'97 Audio Driver

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

3-6.1 Installing AC'97 2/6-channel Audio Driver

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

2. Instantly, the "installShield Wizard" screen appears to guide you through the "Avance AC'97 Audio Setup"".
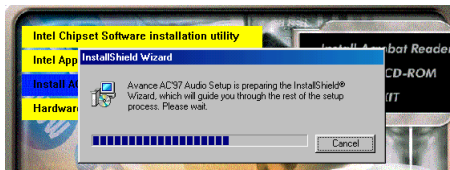
3. Instantly, the Setup program proceeds to install the softwares which include AC'97 driver and AVRack. (If you want to stop setup, click the "Cancel" button.)
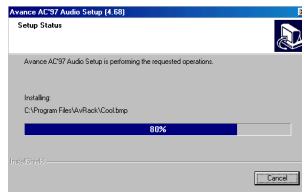
4. After the setup process is finished, please check the radial button "Yes, I want to restart my computer now." And click "OK" to restart your system.

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3-6.2 Verifying 6-channel Audio

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

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

Pale Green Connector to Front Speaker

Pale Blue Connector to Rear Speaker

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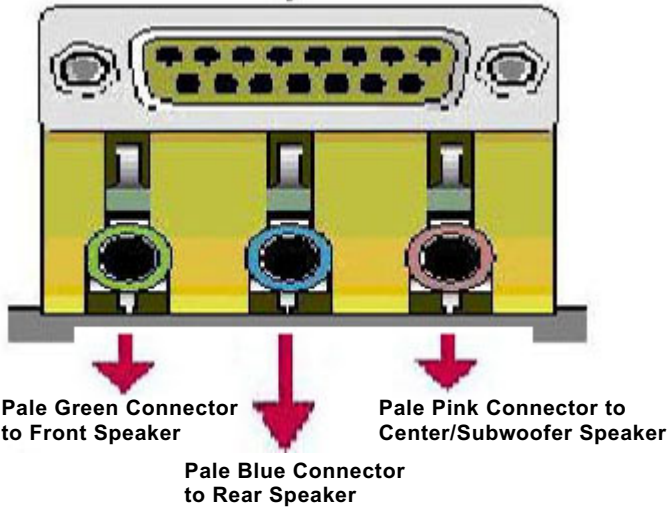
2. After Connection is done, start your Windows system and double click the Avance Sound Effect manager icon to enter 6-channel configuration:

Sound Effect Manager icon on Win XP

3. The AC'97 Audio Configuration" screen will pop out. Clikc the "Speaker Configuration" bar with your mouse.
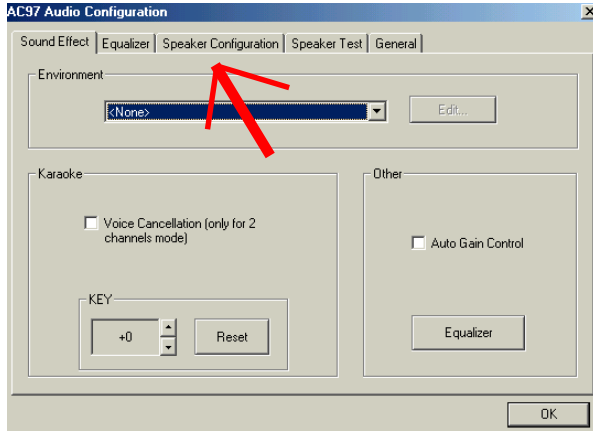
4. Instantly, the "Speaker Configuration" screen will pop out. Pick the items "6-channel mode for 5.1 speakers output" and " Synchronize the phonejack switch with the speakers settings" and then click "OK" to finish configuration.
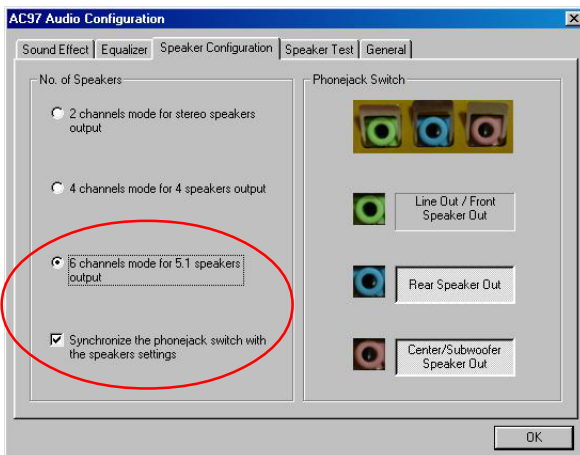
5. At finishing the Speakers Configuration, you can also click the "Speaker Test" bar on the screen to test the 6-channel performance. The figure below is the "Speaker Test" screen with testing instructions enclosed on it. Follow the instructions to perform the Speakers Test.
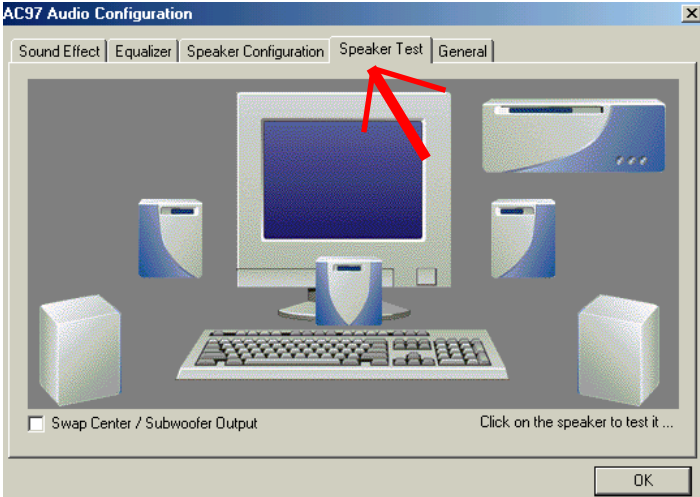
3-7 To Install Hardware Monitor Utility

3-7.1 Installation

Hardware Monitor is built on this mainboard. Its installation is programed 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. Then the installation program automatically opens the "Soltek HM Setup" screen. Click "Next to continue.

3. Select the Program folder and click the large button to continue.

4. Select the Program group and click continue button to go on.
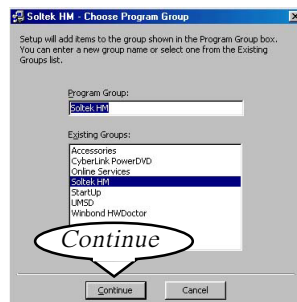
5. On the "Setup complete" screen, click "OK" to restart your computer so that the Utility can be put into effect.

Soltek HM Setup ⊠

Soltek HM Setup was completed successfully.

OK ◁ *OK*

3-7.2 Verification

1. After restarting your computer, click "Start" and choose the path Programs \ Soltek HM \ Soltek HM to open the main window of the Hardware Doctor.
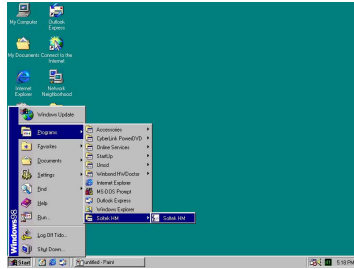
2. Then the pop-up screen will show all information about CPU Temperature, Fan Speed and various Voltages.

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

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

Click on "Soltek" button to display the function menu.

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

Status Warning LED

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

50

3-8 To Install LAN Drivers

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".
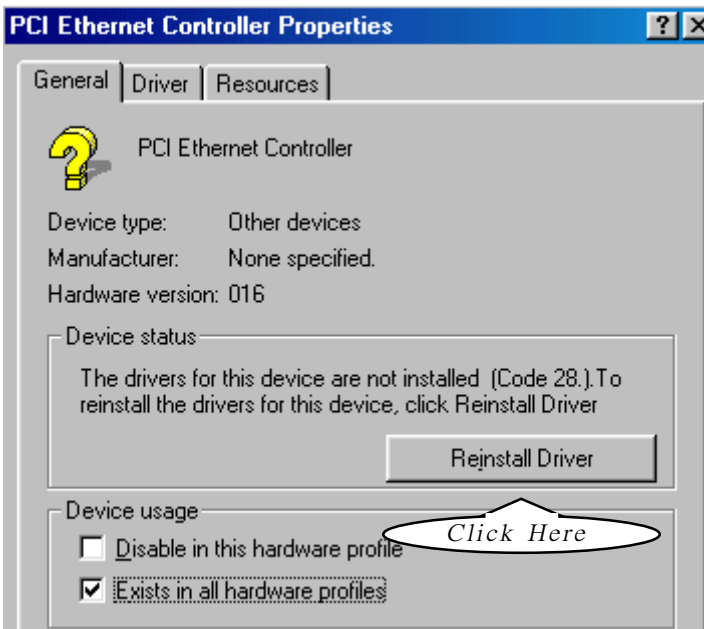
5. In the "Update device Driver Wizard" screen, click "Next" to continue until you see a dialog box asking you to "Specify a location" for the driver. You should **now** insert the Support CD into your CD-ROM.

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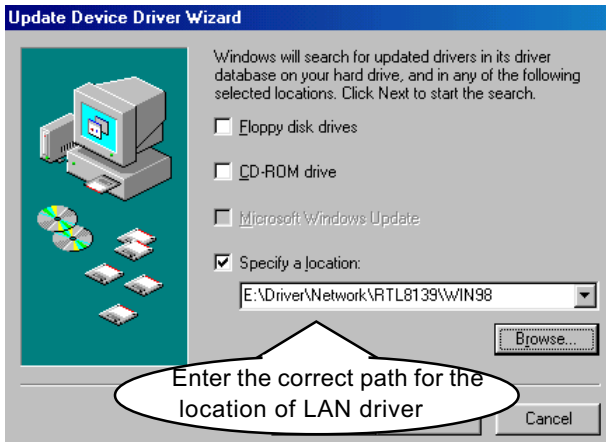
7. The Update Device Driver Wizard will then go on installing the driver, until the "Insert Disk" dialog box shows up. Please withdraw your Support CD and insert the Win 98 CD-ROM into the CD-ROM drive for updating system and click "OK" to continue.

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 syustem 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 toIntel Chipset users, while Microsoft USB drivers are to be found in the Win 2K and Win XP Service pack. <u>User should install the latest Service Pack for Win 2K or Win XP before installing the Intel USB2.0 driver.</u> 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 (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.
4. Instantly, the Wizard Program will guide you through to search for the USB driver.
5. The following "Upgrade Device Driver Wizard" screen will appear. Tick "Specify a Location" and mouse click "Next" button to continue.
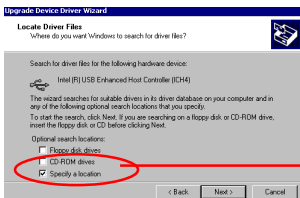
"Specify a Location" of driver in "Win2000".
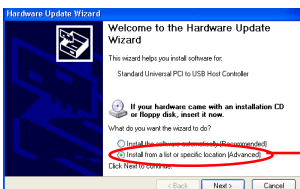
"Specify a Location" of driver in "WinXP".

6. 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)

7. 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.

56
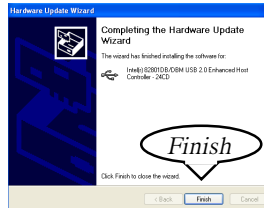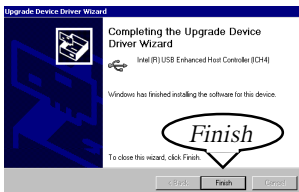
Chapter 4 AMI BIOS Setup

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 latest BIOS file and AMI update utility. 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).For example, you may type "amiflash(space)B8A005.rom".

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

Step 6. You will see a message "CMOS Memory Size Wrong" during booting the system. Press <Del> or <F1> to run CMOS setup utility, then reload "LOAD 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 <Del> TO RUN SETUP

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

```
╔══════════════════════════════════════════════════════════════════╗
║           AMIBIOS NEW SETUP UTILITY - VERSION 3.31a                ║
╠══════════════════════════════════════════════════════════════════╣
║  ▶ Standard CMOS Features          Set Supervisor Password         ║
║                                                                    ║
║  ▶ Advanced BIOS Features          Load Optimal Defaults           ║
║                                                                    ║
║  ▶ Advanced Chipset Features       Save & Exit Setup               ║
║                                                                    ║
║  ▶ Power Management Features        Exit Without Saving            ║
║                                                                    ║
║  ▶ PNP/PCI Configurations                                          ║
║                                                                    ║
║  ▶ Integrated Peripherals                                          ║
║                                                                    ║
║  ▶ Hardware Monitor Status                                         ║
║                                                                    ║
║  ▶ Frequency/Voltage Control                                       ║
╠══════════════════════════════════════════════════════════════════╣
║  F1: Help      ↑↓: Select Item    +/- : Change Values   F9: Setup Defaults ║
║  Esc: Exit     ←→: Select Menu    Enter: Select ▶Sub-Menu  F10: Save and Exit ║
╠══════════════════════════════════════════════════════════════════╣
║    Set Time, Date, Hard Disk Type ...                              ║
╚══════════════════════════════════════════════════════════════════╝
```

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 Dec 30 2002 Mon ▶ Floppy options. ▶ IDE Device 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   +/- : Change Values   F9: Setup Defaults
Esc: Previous Menu   Enter: Select ▶ Sub-Menu   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	
Inital 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 Updation	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 +/- : 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.

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. Choises: Disabled; Device(s) installed
Try Other Boot Devices	Allows you to enable/disable system to try to boot with other boot devices. Choises: 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" 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), Floopy Drive A will not be chnged 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 restarting 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 Updation 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	
(Hyper-threading function)	(Enabled)	
Internal 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   +/- : 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.

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

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

SDRAM CAS# Latency With SDRAM Timing by SPD disabled, you can se-
lect the SDRAM CAS# (Column Address Strode)la-
tency manually.
Choices: 1.5 Clocks; 2 Clocks; 2.5 Clocks

SDRAM RAS# With SDRAM Timing by SPD disabled, you can se-
Precharge lect the SDRAM RAS# (Row Address Strode)
Precharge cycle manually.
Choices: 2 Clocks; 3 Clocks

SDRAM RAS# to With SDRAM Timing by SPD disabled, you can se-
CAS# Delay lect the SDRAM RAS# to CAS# delay cycle
manually.
Choices: 1.5 clocks; 2 Clocks; 3 Clocks

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

SDRAM Burst Length With SDRAM Timing by SPD disabled, you can se-
lect 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, (including USB Thumb Disk).
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; LFP; CRT+LFP

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

TV Standard Allows you to select the TV standard.
Choices: Auto; NTSC; PAL; SECAM

Flat Panel Scaling Allows you to select the Flat Panel Scaling mode.
Choices: Auto; 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/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(S3) is selected, this item allows you to enable /disable (default) this function.

Call VGA BIOS at S3 Resume If STR mode(S3) 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/PME# Allows you to enable / disable the Resume on LAN/ 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	

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.

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; 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 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	Enabled	
Onboard 1394	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(Optional)	Auto	
Parallel Port Mode	ECP	
Parallel Port IRQ	Auto	
Parallel Port DMA Channel	Auto	
K/B Power-on 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

Onboard LAN If this option is on board, this item allows you to en-
able / disable the onboard LAN.
Choices: Enabled; Disabled

(Optional) Onboard If this option is on board, this item allows you to en-
1394 able / disable the onboard 1394.
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;

(Optional) OnBoard Allows you to configure onboard Parallel port .
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 If Parallel Port Mode is set at ECP, this item allows
Channel you to set the DMA Channel.
Choices: 0; 1; 3

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
FAN Speed Control	Silent	
CPU Warning temperature	80 ^{0}C/176 ^{0}F	
FAN1 PWM Adjust	Middle	
FAN2 PWM Adjust	Middle	
CPU External Temperature	0 ^{0}C/32 ^{0}F	
System Temperature	0 ^{0}C/32 ^{0}F	
CPU Internal Temperature	41˚C/105˚F	
Fan 1	4891 RPM	
Fan 2	4905 RPM	
Fan 3	0 RPM	
CPU Vcore	+1.680 V	
+1.5V	+1.504 V	
+2.5V	+2.528 V	
+3.3V	+3.408 V	
+5.0V	+5.126 V	
+12.0V	+12.444V	
-12.0V	-11.972V	
5V SB	+4.895V	
Battery	+3.296V	

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.

Fan Speed Control Allowing user to set fan running mode.
Choices: Silent (low voltage mode);
(Full On (full voltage mode)

CPU Warning Temperature Allowing user to set the CPU Warning temperature.
Choices: Disabled; 70^{0}C/158^{0}F; 75^{0}C/168^{0}F;
80^{0}C/176^{0}F; 85^{0}C/185^{0}F

FAN1/2 PWM Adjust This item allows user to adjust the FAN drive power.
Choices: Low; Middle; High

CPU External Temperature Showing current CPU External Temperature.

System Temperature Showing current System Temperature.

CPU Internal Temperature Showing current CPU Internal 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 Showing CPU core actual voltage value.

+1.5V / +2.5V / +3.3V / +5.0V / +12V / -12V / 5VSB / Battery Showing current voltage against the respective
power voltage supplied by Power Supplier.

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 Frequency	Disabled	
CPU Clock	(100 MHz)	
PCI Clock Auto Detection	Disabled	
Spread Spectrum Selection	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.

(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.

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.