Contents

Chapter 1 Specification

Introduction

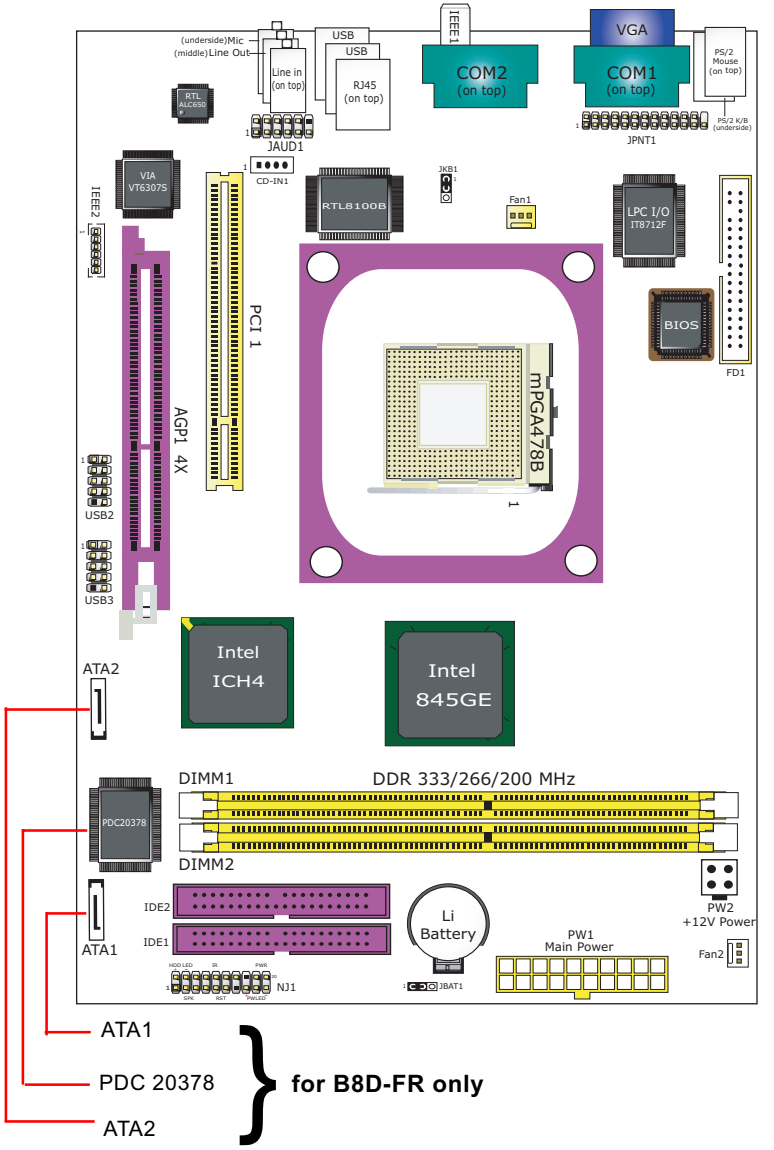
This series of mainboards features an integration of the powerful processor Intel Pentium 4 and the single-chip North Bridge Intel 845GE. The Intel P4 processor is a rapid execution engine supporting 800/533/400MHz system bus, while North Bridge Intel 845GE is a high performance integrated chipset providing DDR 333/266 SDRAM memory interface, Hub interface, AGP interface as well as an integrated Graphics Port for VGA display.

Integrated with 845GE, South Bridge Intel ICH4 supports LPC 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.

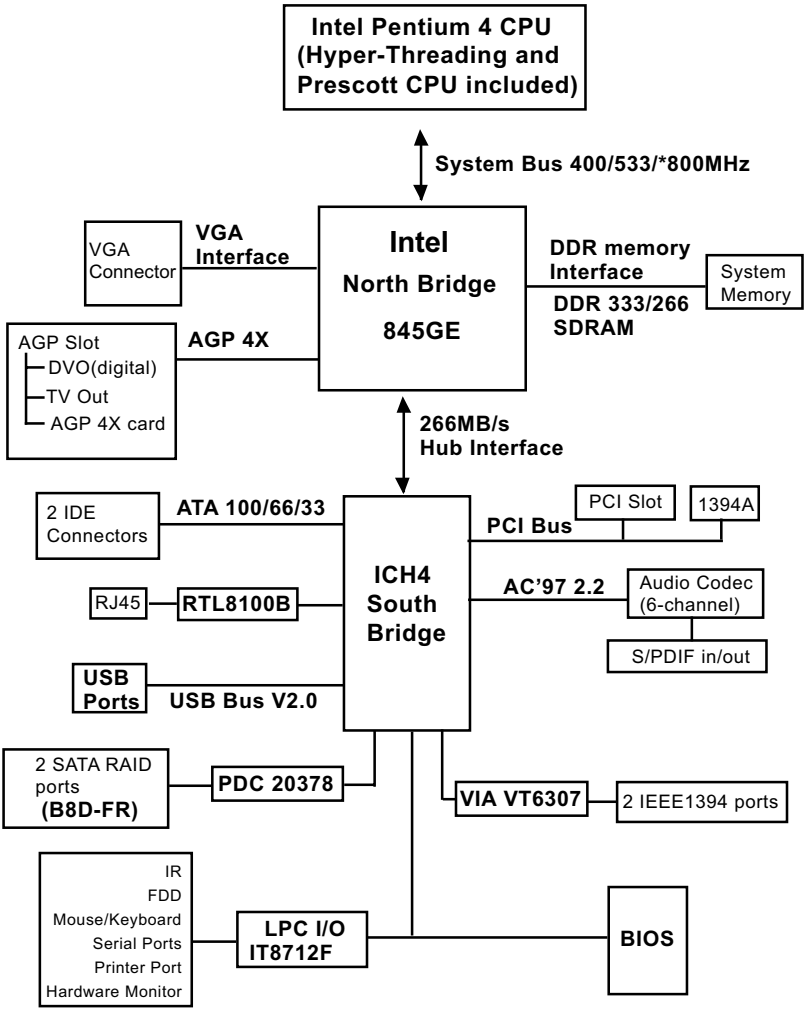
Topics included in this chapter are:

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

1-1 SL-B8D-F/SL-B8D-FR Mainboard Layout



1-2 Chipset System Block Diagram



Pentium 4 + Intel 845GE + Intel ICH4 Diagram

***FSB 800MHz is an unguaranted overclock support for 200MHz CPU.**

1-3 Mainboard Specification Table

B8D-F/ B8D-FR Specifications and Features		
CPU	Socket 478 for P4 CPU (Celeron-D, HT CPU and *Prescott 533CPU up to 2.8GNz included)	
North Bridge	Intel 845GE, 400/533/*800MHz FSB	
South Bridge	Intel ICH4	
BIOS	AMI BIOS	
Memory	DDR 333/266 SDRAM, up to 2GB in 2 DIMM slots	
I/O Chip	IT8712F, with Hardware Monitor	
AGP interface	AGP4X Mode only; 1 AGP Slot on board	
VGA Display	1 x VGA connector on board for analog display	
Audio	AC'97 Audio 2.2 compliant, 6 channel audio	
IDE Interface	2 UATA 66/100 IDE ports	
Networking	LAN Controller RTL8100B and Connector RJ45	
PCI Slot	1 PCI Master slot on board	
I/O Connectors	6 USB V2.0, 1 FDD port, 2 COM ports, 1 LPT, 1 IrDA, 1 PS/2 K/B, 1 PS/2 Mouse	
IEEE1394 Interface	VIA VT6307 IEEE1394 Controller on board supporting 2 IEEE1394 ports.	
Other common features	Keyboard/Mouse Wake Up	
Models / Optional Features	B8D-F	B8D-FR
SATA RAID Controller on board	No	Yes

***FSB 800MHz (Prescott 800 not supported) is an unguaranted overclock support for 200MHz CPU.**

1-4 Mainboard Specifications

1-4.1 CPU Socket

CPU Socket 478B on board, supporting Intel® Pentium 4 and Northwood processors (including Intel Celeron-D, Hyper-Threading CPUs and Prescott 533 CPU 2.8GHz) in the 478-pin package for :

-- *800/533/400MHz System Bus -- 512KB L2 Advanced Transfer Cache
-- Hyper-pipelined technology -- Advanced dynamic execution;
-- Rapid Execution Engine -- Streaming SIMD Extensions 2
-- 128 Bit Enhanced Floating Point Unit -- Execution Trace Cache

1-4.2 System Chipsets

North Bridge Intel 845GE:

- A high performance integrated chipset providing P4 processor interfac (including Hyper-threading Technology), *800/533/400MHz FSB, DDR 333/266 SDRAM memory, Hub interface, AGP interface as well as another integrated VGA interface with one on-board display port.
- Showing Hyper-Threading Logo when booting with a Hyper-thread ing CPU.

South Bridge Intel ICH4:

- Supporting the LPC 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.

***FSB 800MHz (Prescott 800 not supported) is an unguaranted overclock support for 200MHz CPU.**

1-4.3 Memory

2 DDR DIMM 184-pin slots on board :

- Supporting unregistered, non-ECC DDR 333/266 SDRAM to 2GBs
- SPD (Serial Presence Detect) Scheme for DIMM Detection supported

1-4.4 AMI BIOS

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

- Standard BIOS Features(Times, Date, System Information etc.)
- Advanced BIOS Features (CPU,IDE, Floppy, SuperIO, Hardware Health, ACPI, USB, and Frequency/Voltage Control)
- Advanced Chipset Features (NorthBridge, SouthBridge Configuration)
- PCI/PNP Resource Management (IRQ Settings, Latency Timers etc.)
- Boot Configuration Setup (Boot Settings, Boot Device Priority etc.)
- BIOS Security Features (Supervisor Password, User Password)

1-4.5 Integrated Multiplexed AGP and DVO Interface

Integrated multiplexed AGP and DVO interface in 845GE,supporting AGP performance and analog/Digital display:

- One AGP slot on board, supporting both Digital Video Out card or AGP4x 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

1-4.6 Multi-I/O Functions

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

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

1-4.7 Expansion Slots

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

1-4.8 Advanced System Power Management

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

1-4.9 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.

1-4.10 Hardware Monitor on board

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

1-4.11 AC'97 Audio Codec on board

AC'97 Audio Codec 2.2 compliant on board

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

1-4.12 Front Panel Audio-out Connector

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

1-4.13 IEEE 1394 Interface

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

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

1-4.14 SATA RAID Interface (B8D-FR Only)

Serial ATA RAID Interface supported by PDC20378:

- Supporting 2 Serial ATA RAID connectors for 2 serial ATA RAID hard disks with up to 150MB/s transfer rate
- Supporting RAID 0, 1 configuration
- SATA RAID Controller Driver enclosed in Support CD / Floppy Disk for user's installation.

1-4.15 Form Factor

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

Chapter 2 Hardware Setup

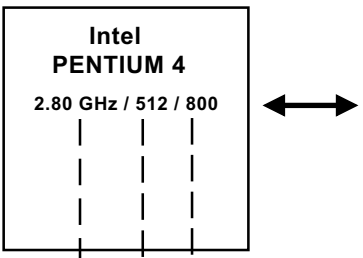
To Get Things Ready for Hardware Setup !

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

The following topics are included in this chapter:

2-1 CPU Installation with Socket 478B

2-1.1 To Identify a Pentium 4 CPU



(Hyper-Threading & Prescott CPU included)

3) System Bus

2) CPU L2 Cache

1) CPU Working Frequency

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

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

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

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

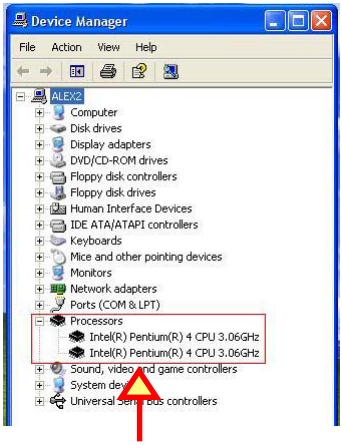
Note: System Bus vs CPU Clock
P4 CPU is a quad-pumped CPU. The system bus is provided by the CPU clock x 4. Therefore, users can figure out the P4 CPU clock by the System Bus divided by 4.

Pentium 4 with Hyper Threading Technology :
(1) P4 processors at 2.40C, 2.60C, 2.80C, 3, 3.20GHz with an advanced 800MHz system bus
(2) P4 processor at 3.06Ghz with 533MHz system bus

2-1.2 CPU Installation with Socket 478B

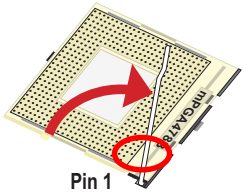
This mainboard is built with CPU Socket 478B (478-pin) supporting the Intel Pentium 4 CPU:

- 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.)

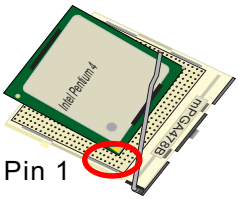


(If Hyper Threading CPU is installed successfully with O/S Win XP, the O/S will enable the dual-in-one CPU function.)

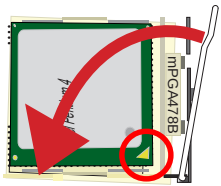
1. First pull sideways the lever of Socket 478, and then turn it up 90^0 so as to raise the upper layer of the socket from the lower platform.



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

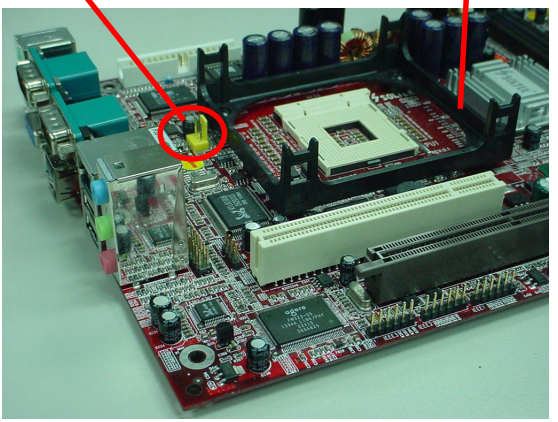


3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.

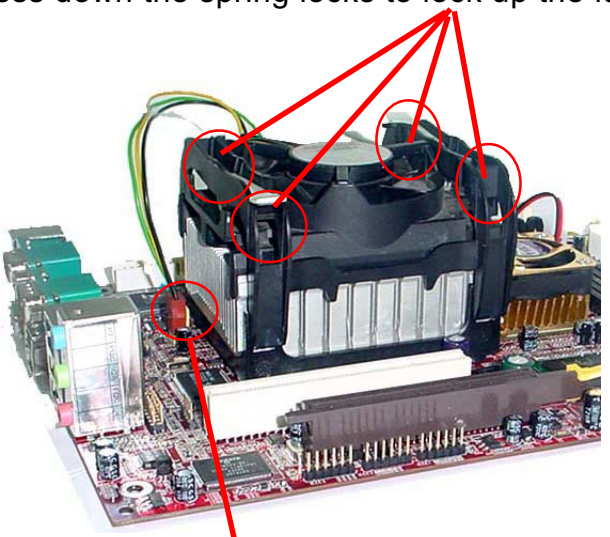


2-2 Pentium 4 CPU Fan Installation

CPU Fan Connector Pentium 4 Fanbase



Press down the spring locks to lock up the fan



Cooling Fan to CPU FAN connector

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

2-3 Memory Installation

How to tackle the memory Modules:

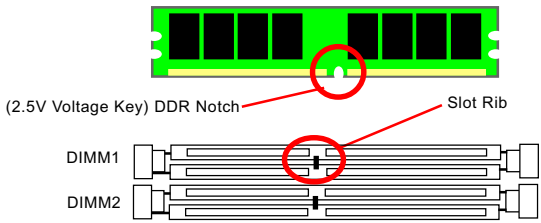
- Make sure to unplug your power supply before adding or removing memory module. Failure to do so may cause severe damage to both your mainboard and the memory module.
- Pay attention to the orientation of the DIMM slots. Forcing a DIMM into a slot improperly will damage the memory module and slot itself.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

2-3.1 To Install DDR SDRAM Module

- This mainboard supports up to 2GB unbuffered DDR 333/266/200 SDRAM, 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 SDRAM 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 Definition

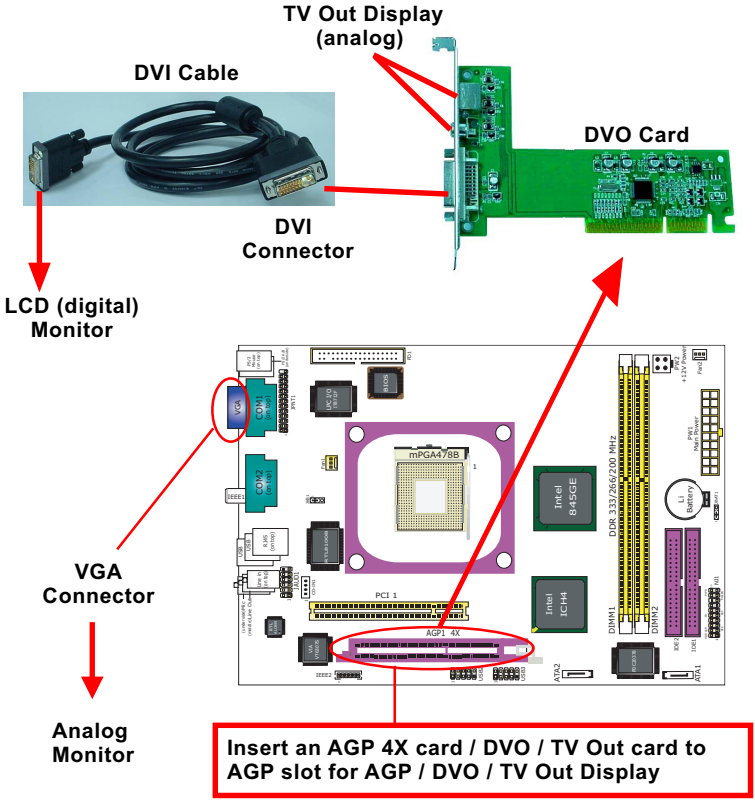


2-3.2 To Remove a DIMM

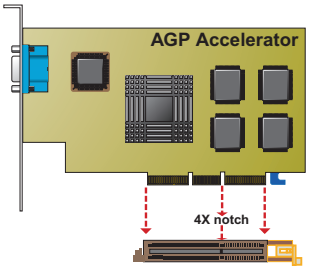
First power off system and then press down the holding latches on both sides of slot to release the module from the DIMM slot.

2-4 VGA / AGP 4X Slot Installation

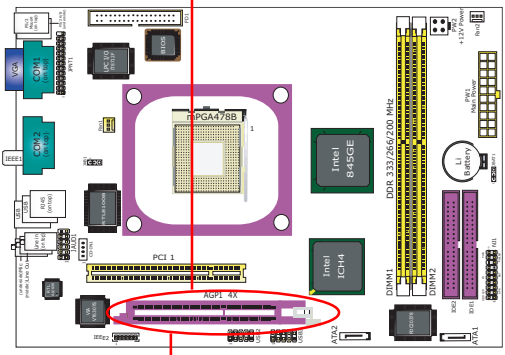
1. To install on-board VGA, please connect your monitor directly to VGA connector on board.
2. To install Digital-Video-Out(DVO) / TV Out display, please insert an AGP / DVO /TV Out card into the AGP slot. This AGP slot supports AGP 4X card(analog), DVO card and TV Out card, respectively but not simultaneously.



3. If user wants AGP display, please insert 1.5V AGP 4X card into the AGP slot to boot system. A Rib is specifically added to the 4X slot so as to match the AGP 4X card. To insert a 3.3V AGP 2X card into the AGP 8X/4X slot will damage the system chip and burn the 1.5V circuitry.



AGP 4X Slot

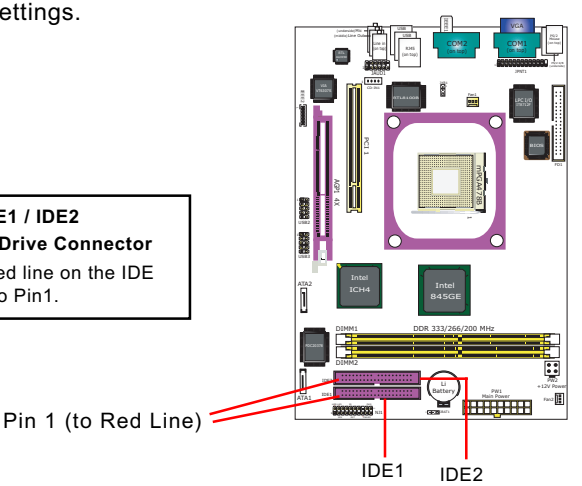


Insert an AGP 4X card / DVO / TV Out card to AGP slot for AGP / DVO / TV Out Display

2-5 IDE Connector Installation

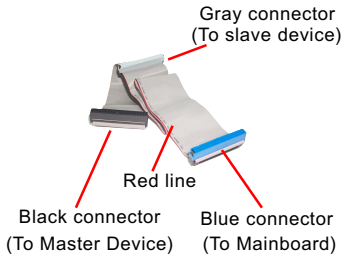
To install IDE Connector, you may connect the blue connector of IDE cable to the primary (IDE1) or secondary (IDE2) connector on board, and then connect the gray connector to your slave device and the black connector to your master device. If you install two hard disks, you must configure the second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

IDE1 / IDE2
Hard Disk Drive Connector
Orient the red line on the IDE Flat Cable to Pin1.



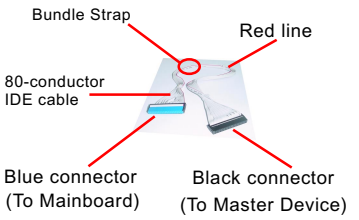
80-conductor IDE Cable (with Slave Connector)

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.



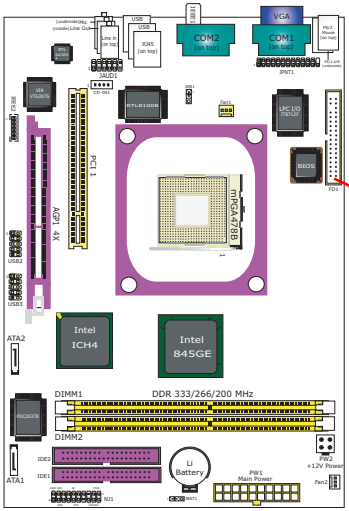
80-conductor IDE Cable (dedicated for Barebone)

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.



2-6 Floppy Drive Connector Installation

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



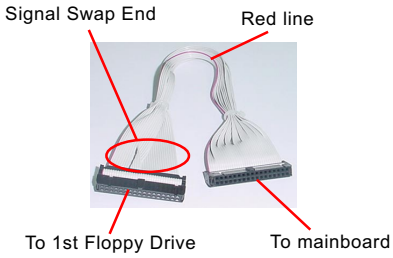
Floppy Drive Connector:

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

Pin 1 (to Red Line)

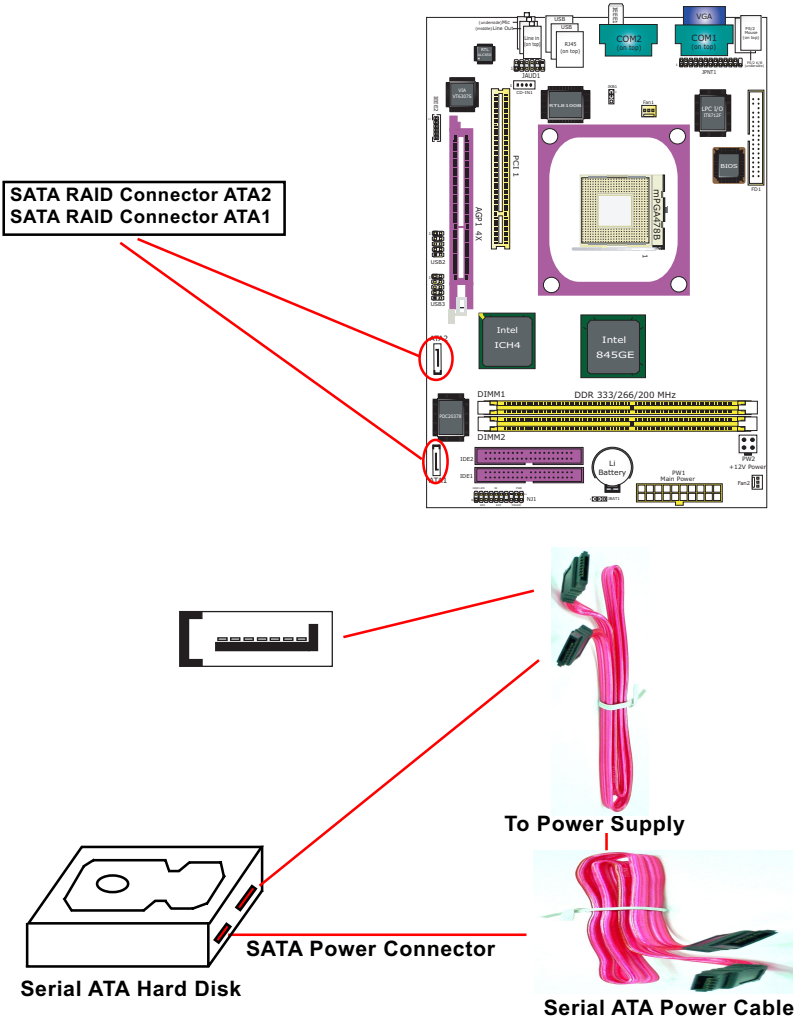
34-pin FDC cable
(Dedicated for Barebone)

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.

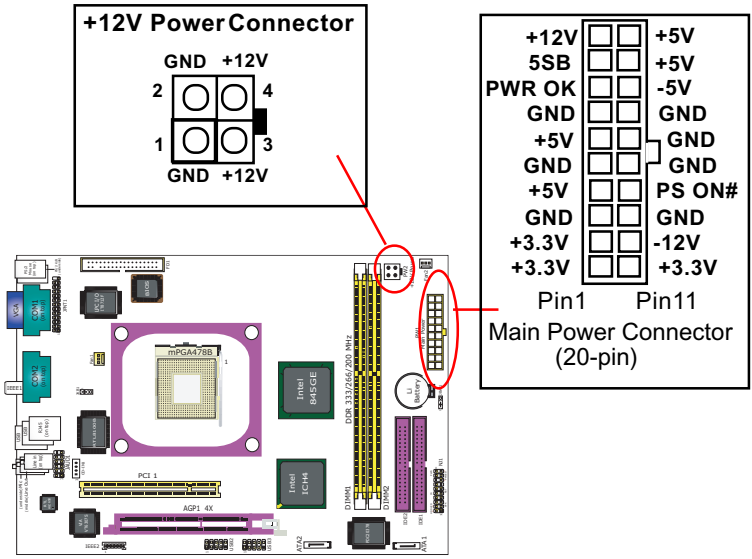


2-7 SATA RAID Connectors (B8D-FR only)

The Serial ATA is designed to improve the Parallel ATA with the capability of Hot Plug and offer a data bandwidth of 150Mbytes/second. It also reduce voltage and pin count and can be implemented with thin cables which improve the inner ventilaton of PC cases.
2 Serial ATA RAID connectors are built on board, supported by the RAID Controller PDC20378. (See Chapter 5 for further installation)



2-8 ATX V2.03 Power Supply Installation



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

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

2-9 Jumper Settings

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

JKB1:
Keyboard / Mouse Wake Up

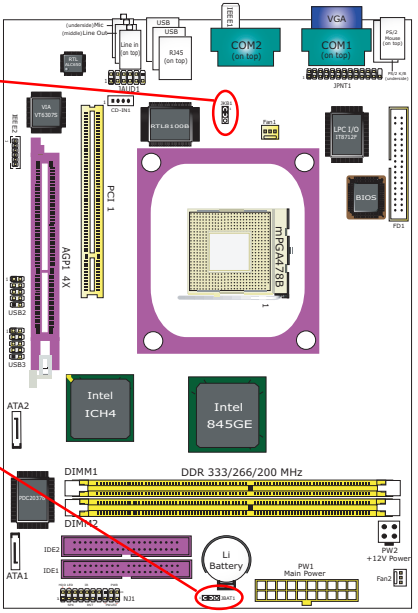
1-2 closed (default)
Enabled

2-3 closed
Disabled

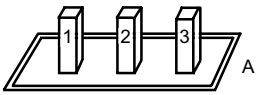
JBAT1
Clear CMOS

1-2 closed
(default)
To hold data

2-3 closed
To clear CMOS

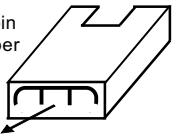


2-9.1 How to tackle the Jumpers:



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

Jumper with Pin 2-3 closed

Jumper with all pins opened

Jumper with Pin 1-2 closed

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

2-9.2 JBAT1: Clear CMOS

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

1. Power off system.
2. Set JBAT1 to Pin 2-3 closed.
3. After 2 or 3 seconds, restore the JBAT1 setting to Pin1-2 closed.
4. CMOS data are restored to default now. Remember never clear CMOS when system power is on.

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

2-9.3 JKB1: Keyboard / Mouse Wake Up

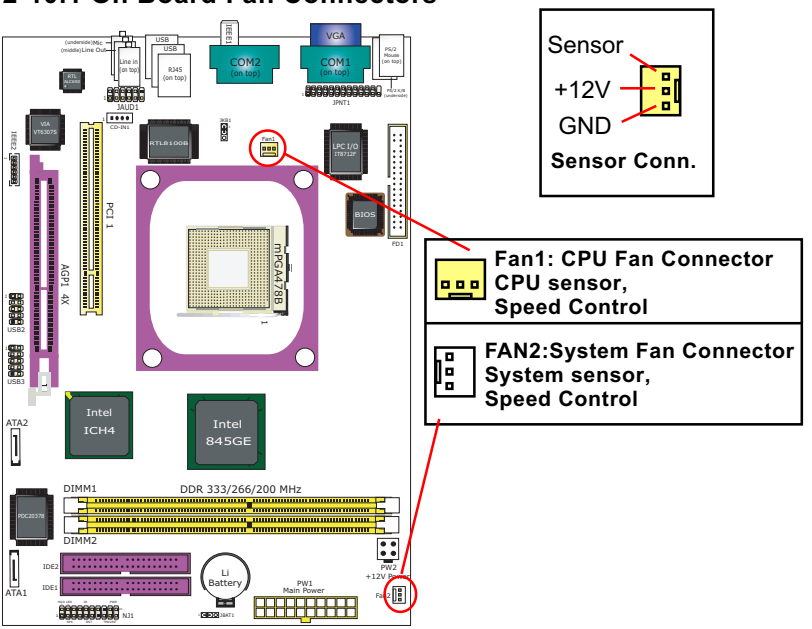
JKB1 is designed on board as a jumper to enable/disable the PS/2 keyboard/mouse Wake Up from suspend mode. Yet user should still enter the " ACPI Configuration" of BIOS setup to choose the Wake Up mode. USB keyboard/mouse Wake Up function is optionally supported on this mainboard.

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

2-10 Other Connectors Configuration

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

2-10.1 On Board Fan Connectors



Please populate the cooling fans as illustrated above.
FAN1: FAN1 should be connected to CPU cooling FAN only for CPU temperature detection and CPU Han speed control.

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

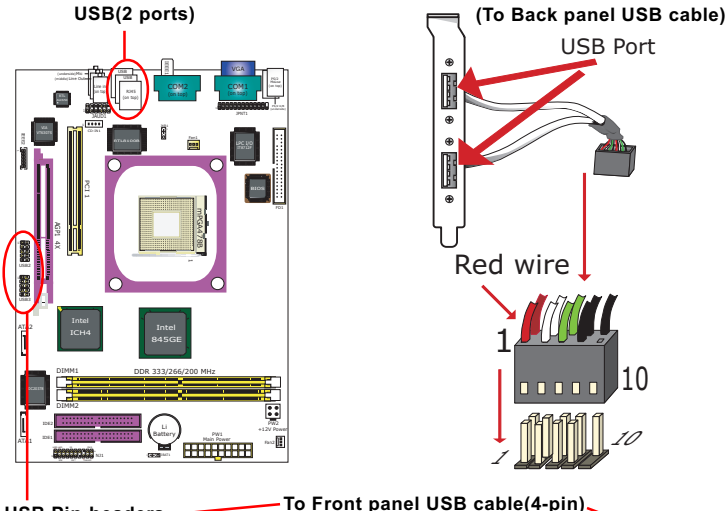
2-10.2 USB Ports and USB Pin-headers

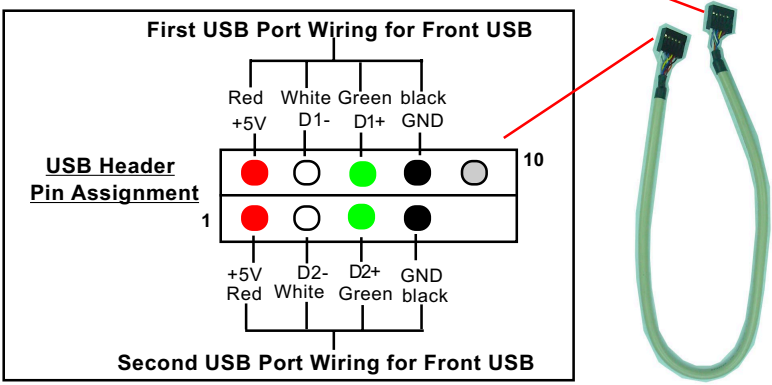
This series provides 4 USB ports on board supporting various USB devices. In addition, 2 USB pin-headers are added on board to provide expansion of 4 more optional USB ports by using 2 additional USB cables. Users can order the optional USB cables from your mainboard dealer or vendor.

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

All 6 USB ports are compliant with 1.1 / 2.0 USB Bus. USB 2.0 supports Windows 2000 and up (no support for Windows 9X / Me). Please see Chapter 3 for USB2.0 Installation.

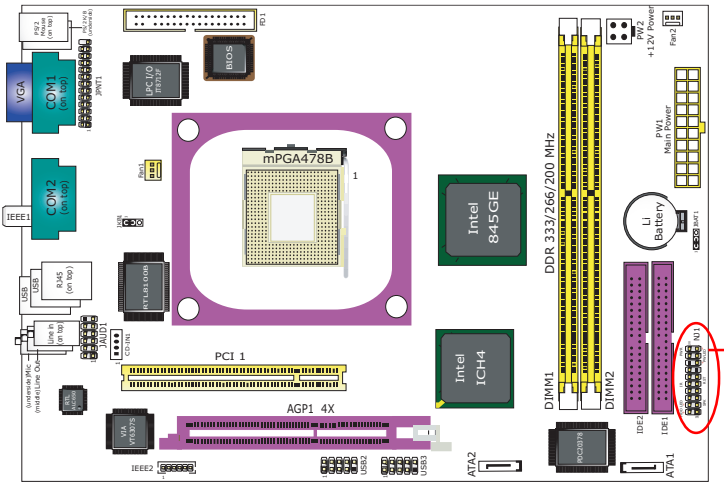
USB Cable (Optional)

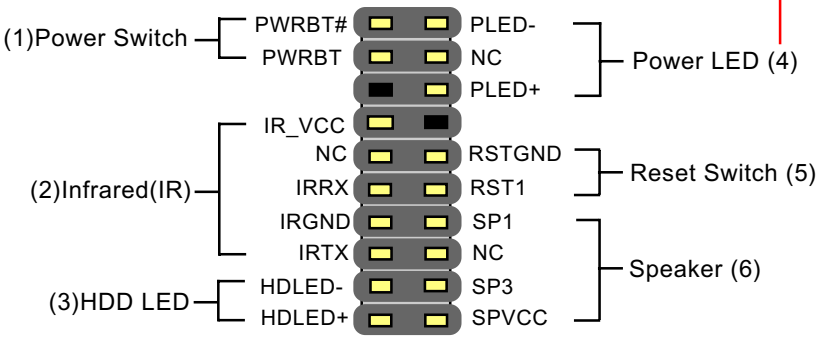




2-10.3 Front Panel Connectors

This Front Panel Connectors consist of the following connectors for various supports. When you have fixed the mainboard to the case, join the connectors of this Front Panel Connectors to the case Front Panel.





(1) Power Switch Connector:

Connection**:** Connected to a momentary button or switch.
Function: Manually switching the system between “On” and “Soft Off”. Pressing the momentary button for more than 4 seconds will also turn the system off.

(2) IR Connector (Infrared Connector):

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

(3) HDD LED Connector:

Connection: Connected to HDD LED.
Function: To supply power to HDD LED.

(4) Power LED Connector:

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

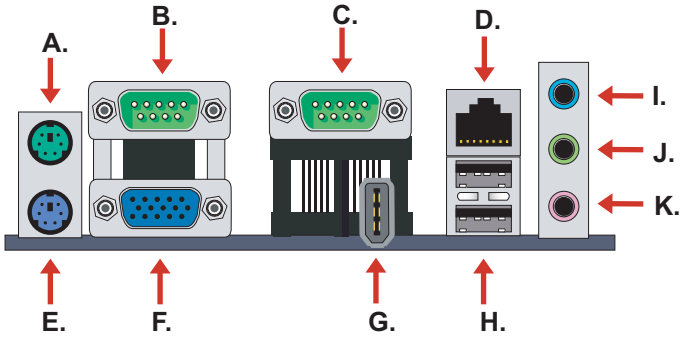
(5) Reset Switch Connector:

Connection: Connected to case-mounted “Reset Switch”.
Function: To supply power to “Reset Switch” and support system reboot function.

(6) Speaker Connector:

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

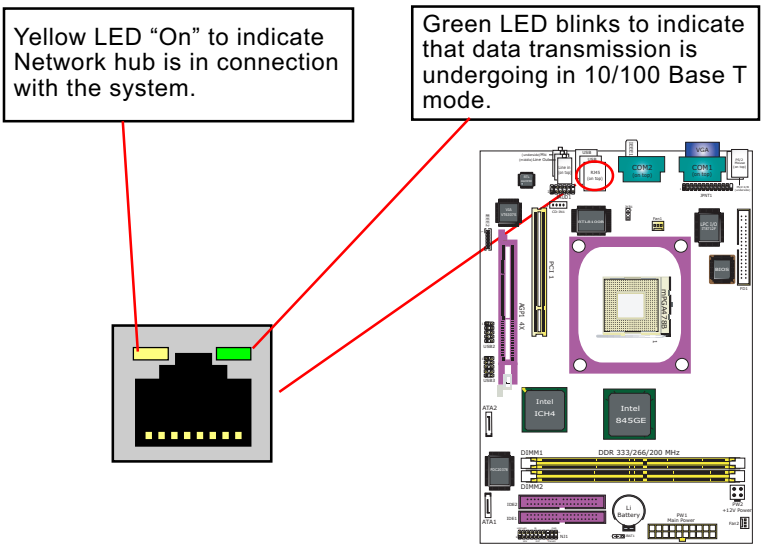
2-10.4 Back Panel Connectors



A : PS/2 Mouse
B : COM1
C : COM2
D : RJ45 (LAN)
E : PS/2 Keyboard
F : VGA Connector
G : IEEE1394 Connector
H : USB0, USB1
I : Line In /Rear Speaker Out
J : Line-out/Front Speaker Out
K : Mic-in/Center/Subwoofer Out

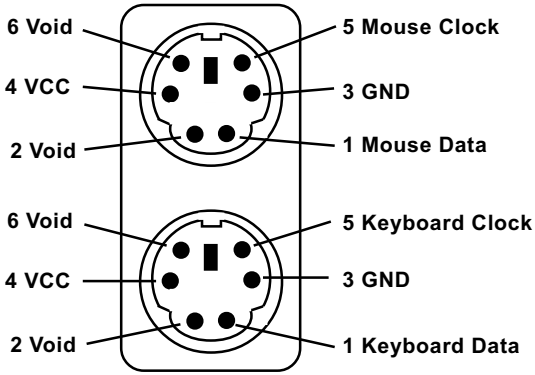
2-10.5 LAN Connector

One RJ45 connector is on board for network connection.



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

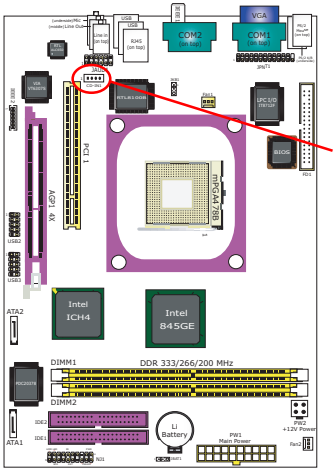
(PS/2 Mouse: On top of keyboard connector, green)



(PS/2 Keyboard Connector: Underside, purple)

2-10.7 CD-ROM Audio Connectors

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



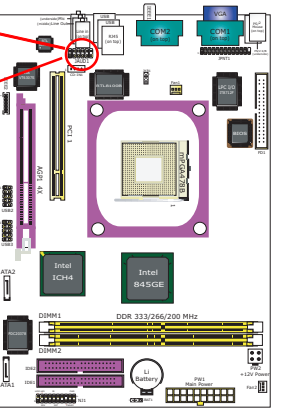
CD-ROM Audio Pin Assignment	
CD-IN1 1 ■ ● ● ●	Pin Signal
Pin 1	Left Channel
Pin 2	GND
Pin 3	GND
Pin 4	Right Channel

2-10.8 JAUD1: Front Panel Audio Connector

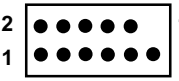
This series is designed with a Front Panel Audio connector "JAUD1.

- Supporting Front Panel S/PDIF Input/Output, Front Panel Mic-In and Front Panel Line-out;
- A S/PDIF cable is needed to connect this connector to Front Panel.

To Front Panel



Audio-out Pin Assignment



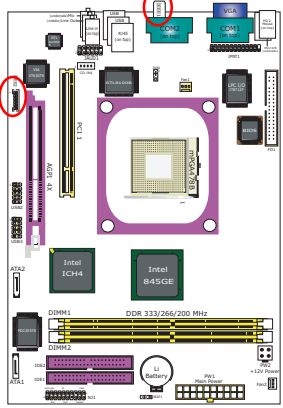
Pin 1 SPDIF IN	**Pin 2 Gnd**
Pin 3 GND	**Pin 4 +5V**
Pin 5 +5V	**Pin 6 SPDIF OUT**
Pin 7 MIC IN	**Pin 8 +5VA**
Pin 9 LINE OUT R	**Pin10 GNDA**
Pin11 LINE OUT L	**Pin12 KEY**

2-10.9 IEEE 1394a Port/Pin-header

Two IEEE1394a Ports are built on board for Digital Video Cameras and other devices with 1394a interface. Another IEEE 1394a Pin-header is built on board providing one more 1394a channel on the front Panel.

- When plugging the IEEE1394 cable to IEEE1394 Header, users must make sure the red wire is connected to Pin 6.

IEEE 1394a Port

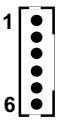


(To IEEE 1394 cable)

IEEE2

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)+

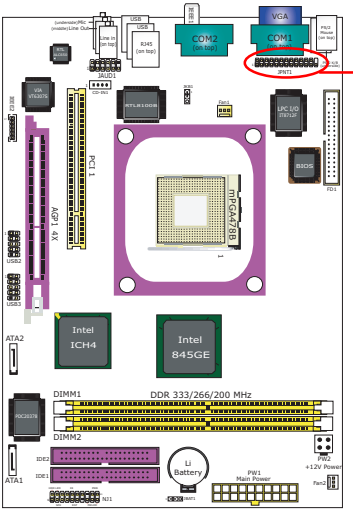


IEEE1394 Cable (optional)

To Barebone-system Front Panel 1394 connector

2-10.10 Printer Port: JPNT1 (optional)

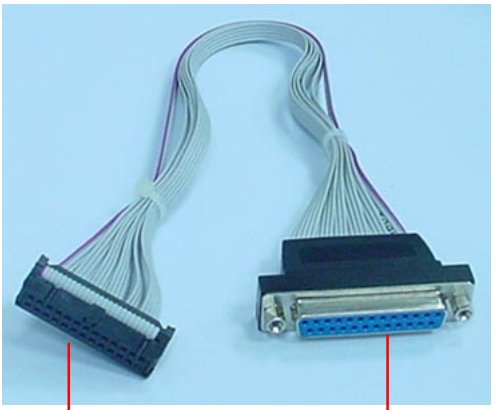
JPNT1 is an optional parallel printer port.



14 26
1 13

JPNT1: Printer Port (optional)
Pin Assignment

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



To Printer Connector on board

To Printer

Printer Cable (optional)

Chapter 3 Software Setup

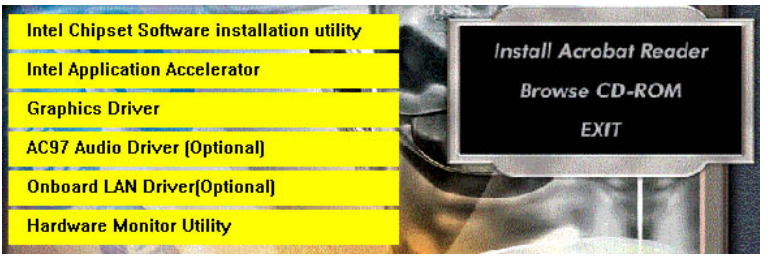
Drivers, Utilities and Software Installation

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

This chapter is devoted to describing the installations of all these essential drivers and utilities on Windows 9X, Windows ME, Windows 2000 and Windows XP. And installation on Windows XP as the general illustration hereby.
The priority of drivers to be installed should also be noted. Users are recommended to take the following installation orders :

3-1 To Open up the Support CD

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)

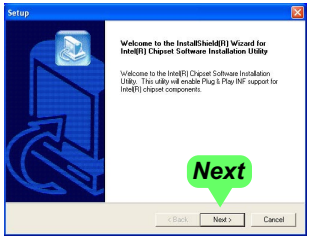
3. We should take “Intel Chipset Software installation Utility” as first installation priority to optimize the Intel system.
   From next section, we provide detailed descriptions of all these installations with graphical illustrations.

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

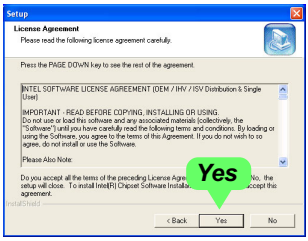
3-2 Intel Chipset Software Installation Utility

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

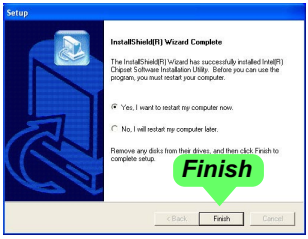
2. The Intel Service Pack InstallShield Wizard will pop up to guide you to the Intel Service pack installation. Press **"Next"** button to continue.



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



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

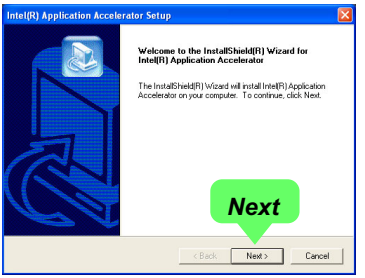


3-3 Intel Application Accelerator Installation

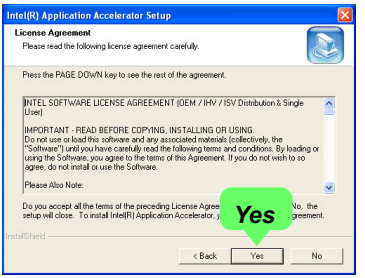
IAA supports all Windows 98SE/ME/2000/XP with Pentium III / 4 processor. Installations of this software for these operating systems are similarly programed to an auto-run mode. It is typically designed to improve performance of the storage sub-system and overall system performance. Below is a model installation on Windows XP. Users of Windows 98SE/ME/2000 can also follow this example for IAA installation.

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

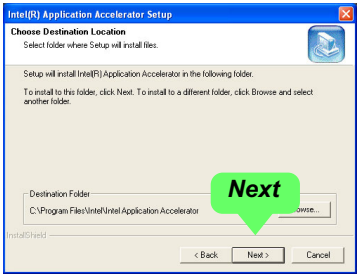
2. On the "InstallShield Wizard" screen, Click on "Next" to continue.



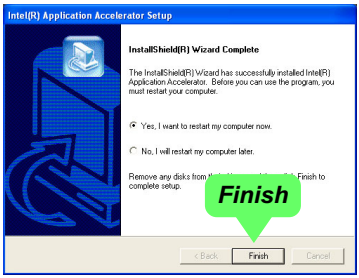
3. On the "Licence Agreement" screen, click on "Yes" to continue.



4. On ”Choose Destination Location” screen, press **“Next”** to continue.



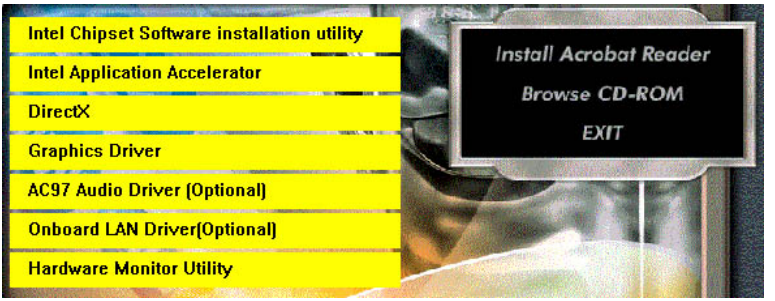
5. On ”InstallShield Wizard Complete” screen, choose “Yes, I want to restart my computer now” and press “Finish” to restart. Remember you must restart computer to put setup into effect.



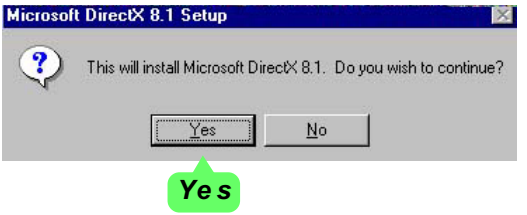
3-4 DirectX Installation

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

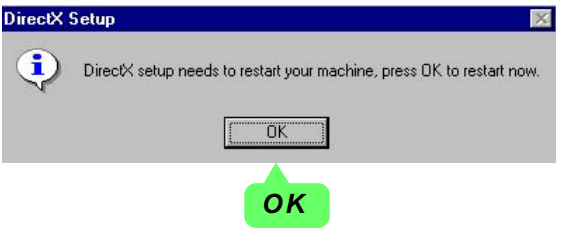
Then click to “Install DirectX”. This utility will support a better graphic display of the built-in VGA interface. Please note that DirectX installation is for Windows 98SE/ME only.



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



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

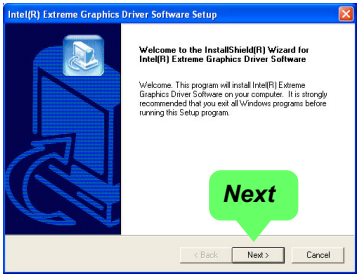


3-5 Graphics Driver Installation

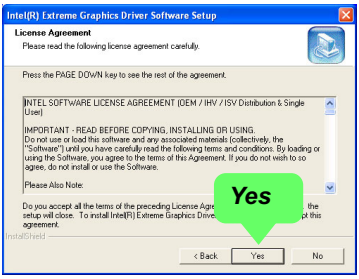
Following the installation of IAA(or DirectX), you have to restart system so that your system can be reconfigured with the utility. When restarting procedures finish, please open the Support CD with your CD-ROM to enter the Main Installation Menu.

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.

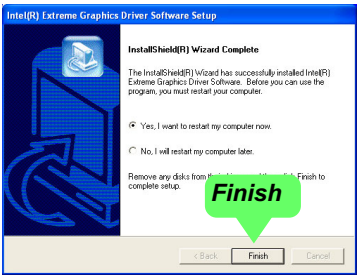
2. When the screen of “Intel(R) Extreme Graphics Driver Software Setup” appears, please press “Next” button to continue.



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



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



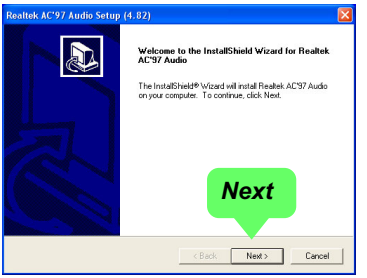
3-6 AC'97 Audio Driver Installation

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

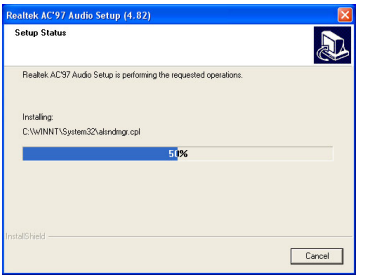
3-6.1 Install AC'97 6-channel Audio Driver

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

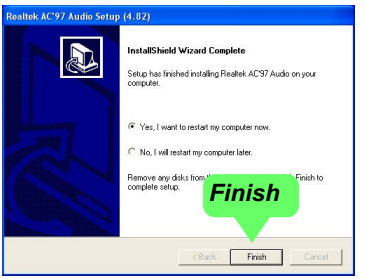
2. Instantly, the "installShield Wizard" screen appears to guide you through the "Avance AC'97 Audio Setup"".



3. Instantly, the Setup program proceeds to install the softwares which include AC'97 driver and AVRack. (If you want to stop setup, click the "Cancel" button.)



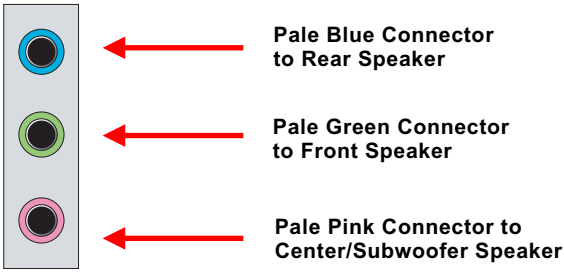
4. After the setup process is finished, please check the radial button "Yes, I want to restart my computer now." And click "Finish" to restart your system.



3-6.2 Verify 6-channel Audio

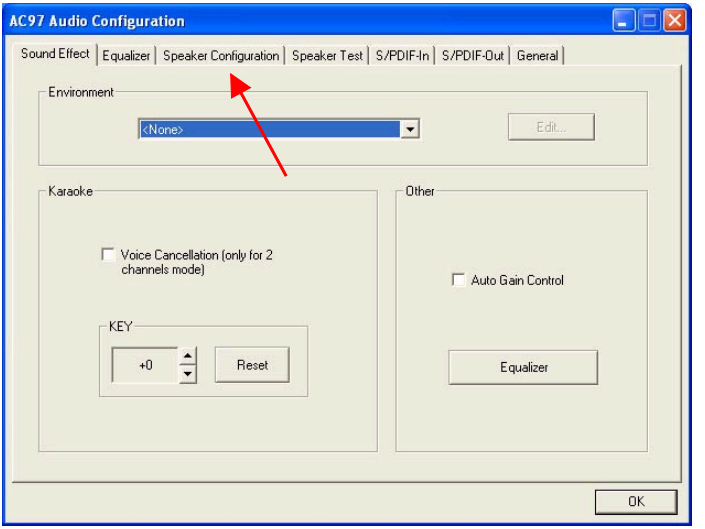
After installation of AC'97 6-channel Codec, you must configure the 5.1 Speaker connection to enable the 6-channel audio.

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

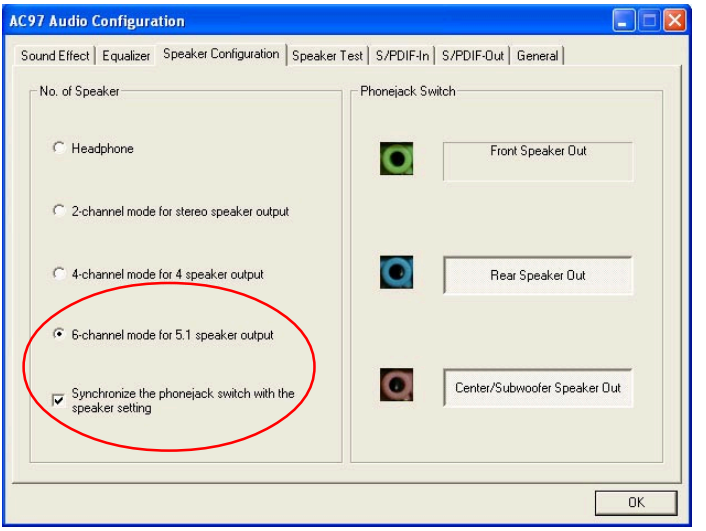


2. After Connection is done, start your Windows system and double click the Avance Sound Effect manager icon to enter 6-channel configuration:

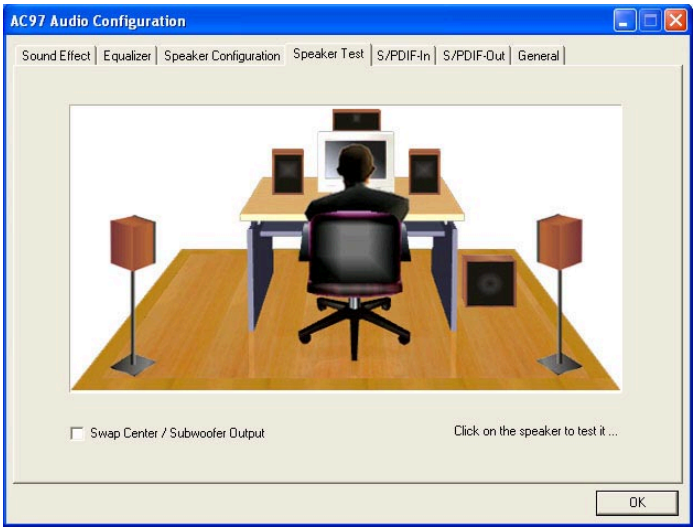
3. The AC'97 Audio Configuration" screen will pop out. Clikc the "Speaker Configuration" bar with your mouse.



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.



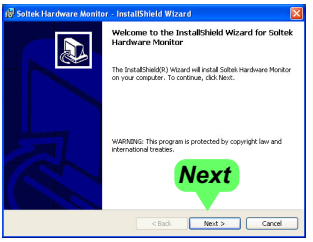
3-7 Hardware Monitor Utility Installation

3-7.1 Installation

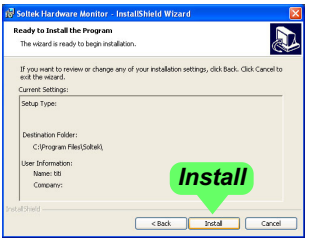
Hardware Monitor is built on this mainboard. Its installation is programmed to a fully automated mode on Windows 9X/Me/NT4/2000/XP. Users can follow the model installation below for its installation on various Windows System.

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

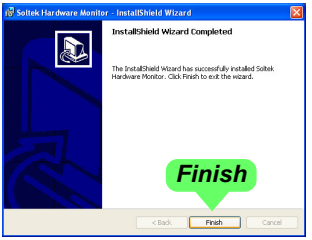
2. The Soltek Hardware Monitor InstallShield Wizard will pop up to guide you to the Intel Service pack installation. Press **"Next"** button to continue.



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

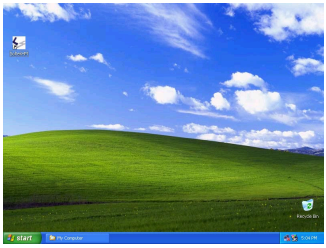


4. After all the setup process is finished, click "Finish" to exit the wizard.

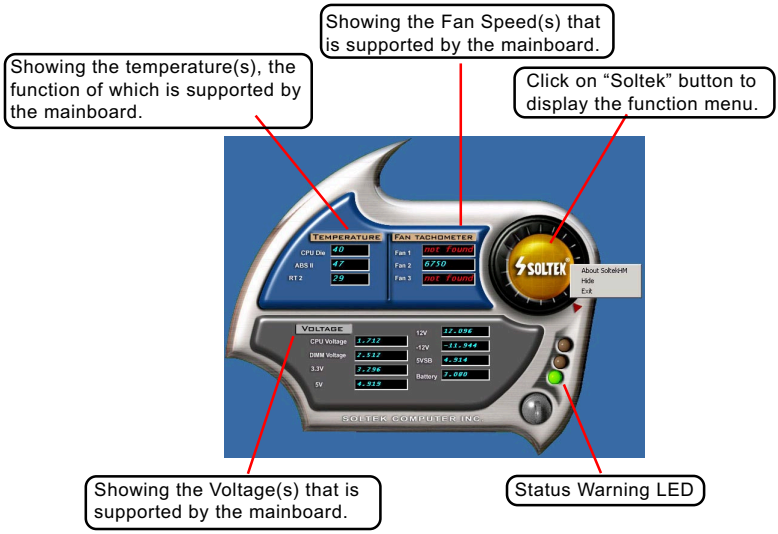


3-7.2 Verification

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



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



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

3-8 LAN Drivers Installation

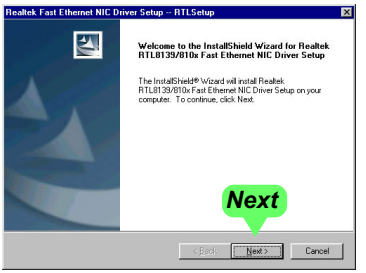
3-8.1 RTL8100B LAN driver on Windows ME / 2000 / XP

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

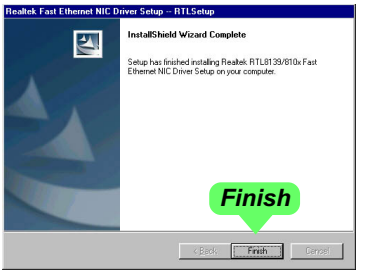
3-8.2 RTL8100B LAN driver on Windows 9X

1. Following the procedures of opening the Support CD, click to " Onboard LAN Driver" to proceed.

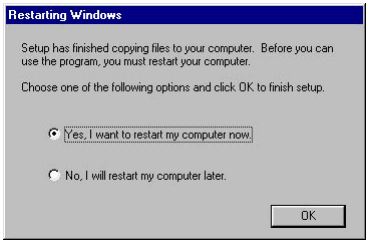
2. The Realtek Fast Ethernet NIC Setup InstallShield Wizard will pop up to guide you to the Driver installation. Press **"Next"** button to continue.



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



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.

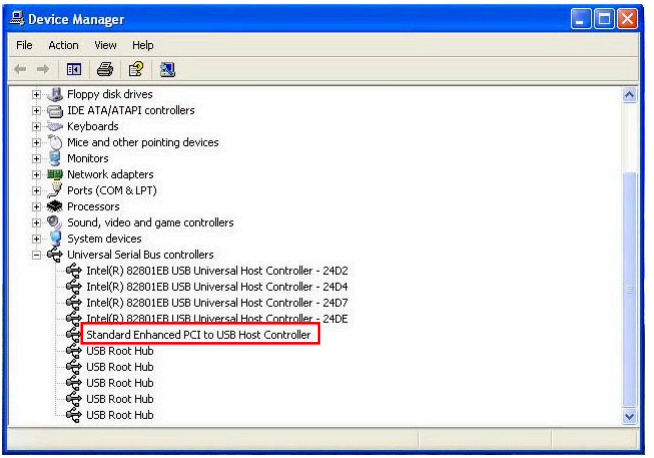


3-9 To Install USB 2.0 Driver for Windows 2000/XP

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

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

2. To verify USB2.0 installation, please enter “Device Manager” of “My Computer”. On the “Device Manager” screen, you should be able to see the item “Standard Enhanced PCI to USB Host Controller”, verifying USB2.0 Driver is installed successfully.



Chapter 4 AMI BIOS Setup

THE BIOS

BIOS 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 :

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

4-1 About BIOS Setup

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

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

4-2 To Run BIOS Setup

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

```
DEL:SETUP
```

4-3 About CMOS

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

4-4 The POST (Power On Self Test)

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

4-5 To Update BIOS

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

- It is highly recommended that you save a copy of the original mainboard BIOS along with a Flash EPROM Programming utility (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 Windows 95/98, ME, NT, 2000 or XP environment.***

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

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

Step 2. Create a bootable diskette. Then copy the BIOS file and AMI flash utility "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)DR3C005.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

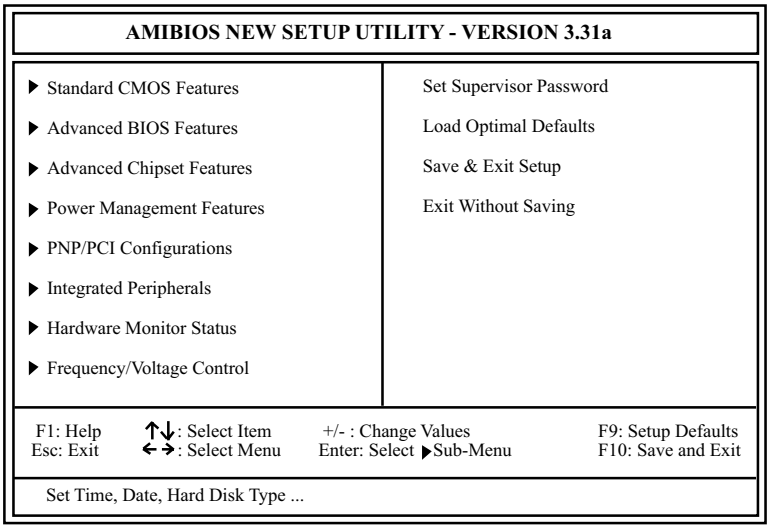
4-6.1 CMOS Setup Utility

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.



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. 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.

5. 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.

6. 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.

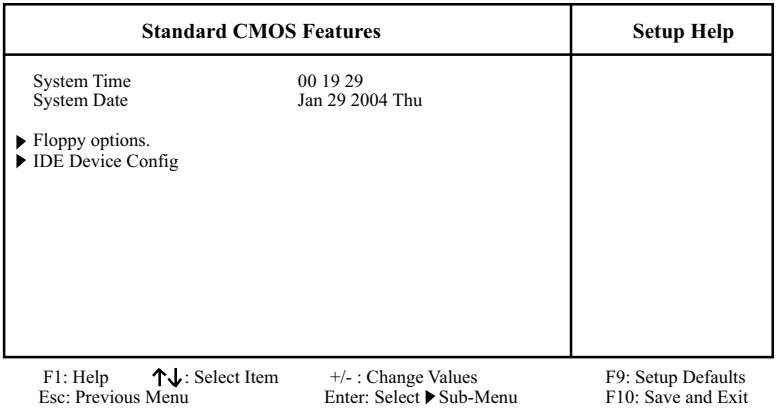
Attention: The BIOS Setup is subject to constant update without further notice to users. It is necessary for users to update the onboard BIOS by the latest BIOS version provided in our web site: www.soltek.com.tw

4-6.2 Standard 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:

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



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 :WDC WD400BB-00DEA0		**Setup Help**
Type	Auto	
Cylinders	19158	
Heads	16	
Write Precompensation		
Sectors	255	
Maxium Capacity	40020 Mb	
LBA Mode	On	
Black Mode	On	
Fast Programmed I/O Modes	4	
32 Bit Transfer Mode	Off	

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:

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 :WDC WD400BB-00DE	
Try Other Boot Devices	Yes	
Initial Display Mode	Silent	
Display Mode at Add-On ROM Init	Force BIOS	
S.M.A.R.T for Hard Disks	Disabled	
Bootup Num-lock	On	
Floppy Drive Swap	Disabled	
Floppy Drive Seek	Disabled	
PS/2 Mouse Support	Enabled	
Primary Display	VGA/EGA	
Password Check	Setup	
Boot To OS/2	No	
CPU Microcode 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

Quick Boot Allows you to enable (default)/ 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 (default); No

Initial Display Mode If option is “Silent”, it allows user to add logo to initial screen. If option is “BIOS”, the normal BIOS display mode will be shown.
Choices: Silent (default); BIOS

Display Mode at Add-On ROM Init If the item “Initial Display Mode” is set to “Silent”, two sub-modes are provided for the initial display mode. If “Force BIOS” (default) is chosen, the vendor’s logo screen will be followed by the “Add-on ROM” initial screen (the screen showing the add-on card BIOS message). If “Keep Current” is chosen, no “Add-On ROM” screen is followed.

S.M.A.R.T. for Hard Disks Allows you to enable / disable the Self Monitoring Analysis and Reporting Technology for the hard disk.
Choices: Enabled; Disabled (default)

Bootup Num-lock Allows you to toggle between On (default) or Off to control the state of the NumLock keys when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.

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, 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; CGA40x25; CGA80x25; Mono; Absent

Password Check Allows you to set BIOS to check up password with a password prompt at BIOS Setup or whenever re-starting system.
Choices: Setup; Always

Boot to OS/2 Allows you to set your system to OS/2 operating system.
Choices: Yes; No

CPU Microcode Updation Allows you to enable/disable the CPU Microcode Update function.
Choices: Disabled; Enabled

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.

C800,CC00,D000,D400, D800,DC00 16K Shadow Allows you to set these addresses cached, Enabled or 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:
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	8MB	
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

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

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

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

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

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

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

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

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

Internal Graphics Mode Select Allows you to set the internal graphic mode.
Choices: 512KB; 1MB; 8MB; Disabled

(Hyper-threading Function) If hyper-threading CPU is running on board, this item appears to show the enabled status.
Choices: Enabled; Disabled

AGP Aperture Size Allows you to set the AGP Aperture Size.
Choices: 4MB; 8MB; 16MB; 32MB; 64MB; 128MB; 256MB;

USB Controller Allows you to set the USB Controller on the USB port(s).
Choices: 6 USB Ports ; 4 USB Ports;
2 USB Ports; Disabled

USB 1.1 Device Legacy Support Allows you to select the USB Device Legacy support.
Choices: No Mice; All Device; Disabled

USB 1.1 Port 64/60 Emulation Allows you to enable / disable the Port 64/60 Emulation.

Boot Display Device Allows you to select the Boot isplay device.
Choices: Auto (default); CRT; TV; EFP; LFP; CRT+EFP; CRT+LFP

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

TV Standard Allows you to select the TV standard.
Choices: Auto (default); NTSC(M / M_J / 433 / N);
PAL(B / G / D / H / I / M / N / 60);
SECAM(L / L1 / B / D / G / H / K / K1 /)

Flat Panel Scaling Allows you to select the mode for flat panel scaling.
Choices: Auto (default); Force Scaling; Disabled

4-6.5 Power Management Features

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

Run the Power Management Features as follows:

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 (Optional)	
Call VGABIOS at S3 Resume	Enabled (Optional)	
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

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

(Optional) USB Device Wakeup From S3/S4 If ACPI is set to S3(STR), this item allows you to enable / disable the USB device Wakeup function from S3/S4 mode.

(Optional) Call VGABIOS at S3 Resume If the ACPI Standy State is set to "S3(STR)", this item allows you to enable / disable the Call VGABIOS at S3 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:

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

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

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

Init. Graphics Adapter priority Allows you to select the initial Graphics Adapter.
Choices: AGP/Int-VGA ; 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:

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 S-ATA	Enabled	
Onboard AC’97 Audio	Auto	
Onboard FDC	Auto	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
Serial Port 2 Mode	Normal	
Onboard Parallel Port	Auto	
Parallel Port Mode	ECP	
Parallel Port IRQ	Auto	
Parallel Port DMA Channel	Auto	
PS/2 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

Onboard IDE Allows you to choose the Onboard IDE Mode. Choices: Disabled; Primary; Secondary; Both

Onboard LAN Allows you to enable/disable onboard LAN function.

Onboard 1394 Allows you to enable/disable onboard IEEE1394 function.

Onboard S-ATA Allows you to enable/disable onboard Serial ATA function.

Onboard AC‘97 Audio Allows you to disable AC’ 97 Audio. Choices: Auto (default); Disabled

OnBoard FDC Allows you to enable / disable the Onboard FDC.

Onboard Serial Port 1 Allows you to set the Onboard Serial Port 1.
Choices: Auto; Disabled; 3F8/COM1; 2F8/COM2; 3E8/COM3; 2E8/COM4;

Onboard Serial Port 2 Allows you to set the Onboard Serial Port 2.
Choices: Auto; Disabled; 3F8/COM1; 2F8/COM2; 3E8/COM3; 2E8/COM4;

Serial Port 2 Mode Allows you to set the Serial Port 2 Mode.
Choices: Normal; IrDA; ASKIR;

OnBoard Parallel Port Allows you to configure onboard Parallel port .
Choices: Auto; Disabled; 378; 278; 3BC;

Parallel Port Mode If Parallel Port is not disabled, this item allows you to configure parallel port mode.
Choices: ECP; EPP + ECP; Normal; EPP

Parallel Port IRQ Its variation depends on the selection of “Parallel Port Mode”.

Parallel Port DMA Channel Its variation depends on the selection of “Parallel Port Mode”.

Keyboard Power On Function Allows you to configure the Keyboard Power On Function.
Choices: Disabled ; By Stroke Key

Stroke Keys Selected If Keyboard Power On 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 (default); 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.

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 Over Temperature	80˚C/176˚F	
Over Temperature Action	Warning	
CPU SMART FAN Adjust	Low	
System Smart FAN Adjust	Low	
System Temperature	37˚C/98˚F	
CPU Internal Temperature	44 ºC/111 ºF	
CPU Fan Speed	2636 RPM	
System Fan Speed	0 RPM	
CPU Vcore	+1.680 V	
+1.5V	+1.504 V	
VDIMM	+2.656 V	
+3.3V	+3.408 V	
+5.0V	+5.126 V	
+12.0V	+11.187 V	
-12.0V	-11.972 V	
-5.0V	-4.939 V	
5V SB	+5.164 V	
Battery	+3.296 V	

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

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

CPU Over Temperature Allow user to set the CPU Warning temperature.
Choices: Disabled; 70ºC/158ºF; 75ºC/167ºF;
80ºC/176ºF; 85ºC/185ºF

CPU Over Temperature Action Allow user to set the behavior if CPU temperature is beyond the limit.
Choices: Warning; Shutdown; Throttling

CPU/SYSTEM SMART FAN Adjust This item allows user to adjust the FAN drive power.
Choices: Low; Middle; High

System Temperature Shows current system temperature.

CPU Internal Temperature Shows current CPU internal temperature.

CPU/System Fan Speed Displays the current speed of CPU Fan, and other onboard devices which users have connected to the onboard Fan Connectors.

CPU Vcore Shows CPU core actual voltage value.

+1.5V Shows current voltage against the +1.5V power supply.

VDIMM Shows current voltage against the VDIMM power supply.

+3.3V Shows current voltage against the +3.3V power supply.

+5.0V Shows current voltage against the +5.0V power supply.

+12V Shows current voltage against the +12V power supply.

-12V Shows current voltage against the -12V power supply.

+5V SB Shows current voltage against the +5V SB power supply.

Battery Shows current voltage against battery power supply.

4-6.9 Frequency/Voltage Control

Run the “Frequency/Voltage Control” as following:

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

AMIBIOS EASY SETUP UTILITY - VERSION 3.31a

Frequency/Voltage Control		Setup Help
RedStorm Overclocking Tech (Optional)	(Press Enter)	
CPU Ratio Selection	Locked	
CPU Linear Freq	Disabled	
CPU Clock	(100 MHz)	
PCI Clock Auto Detection	Disabled	
Spread Spectrum Selection	Disabled	
CPU Voltage Control (Optional)	Auto	
AGP Voltage Control	1.5V	
DIMM Voltage Control	2.6V	

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

(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 (default)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.

(Optional) CPU Voltage Control If this function is chosen on board, it allows you to configure the CPU Voltage. Usually, to raise CPU voltage will raise the chance of CPU overclocking and yet risk damage of CPU.
Choices: Auto; 1.100V~1.850V in 0.025V stepping.

AGP Voltage Control Allows you to configure the AGP Voltage.
Choices: 1.5V; 1.6V; 1.7V; 1.8V

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

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>.

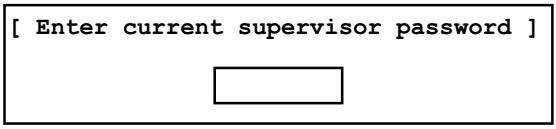
5. The following message appears to confirm the new password setup.

[New supervisor password installed]
Any Key to Continue

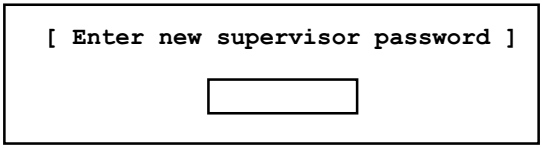
6. Then press any key to continue your CMOS Setup. To save the password setup, you should press “Save & Exit Setup” and choose “yes” to exit and save setup.

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.

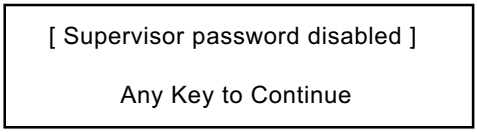
8. To change or remove a current supervisor password, choose “Set Supervisor Password” and press <Enter>. An instruction box appears on the screen, prompting you to enter the current password first:



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



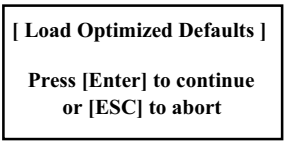
10. If you enter a new password into the box, you will be using this new password after you have finished and saved this new setup. Instead, if you press <Enter> before you enter any new password into the instruction box, another message box appears, telling you that you have disabled the Supervisor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



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

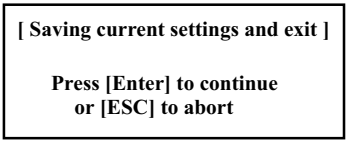
When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:



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

4-6.12 Save & Exit Setup

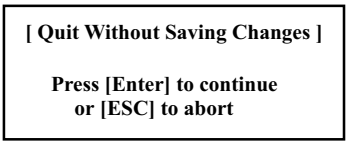
Save & Exit Setup allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and press <Enter>. The following message appears:



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:



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

Memo

Chapter 5 RAID & RAID Driver

(This Chapter is for B8D-FR only)

Promise RAID Controller PDC20378 & RAID Driver

Promise RAID (Redundant Array of Independent Disks) Controller PDC 20378 is built in this series of mainboards to provide RAID configuration of RAID 0, RAID 1 modes. RAID Drivers are enclosed in a Driver CD as well as a Floppy diskette to support various RAID systems (Windows 98SE/Me/2000/XP) setup.

This Chapter is to introduce the SATA RAID / SATA + PATA RAID Configurations :

5-0 About Disk Array

5-0-1 Disk Array Interpretation

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

5-0-2 Disk Array Member

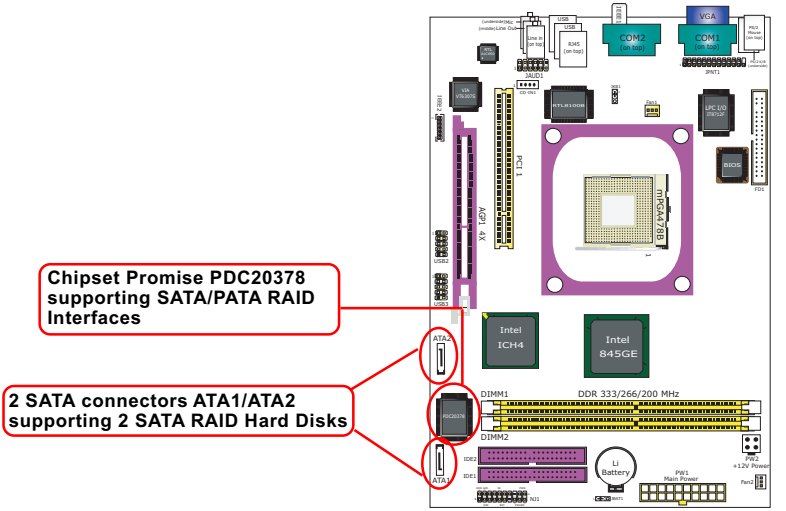
The individual disk drive in an array is called a “member”. Each member of a specific disk array is coded in their “reserved sector” with configuration information that identifies the drive as a member. All disk members in a formed disk array are recognized as a single physical drive to the system.

5-0-3 Disk Array Types Supported by Promise PDC20378

PDC20378 on this mainboard supports three types of Disk Arrays: RAID 0, RAID 1.

1. RAID 0 (or Striping mode):
   RAID 0 is a group of 2 to 4 Disk Drives configured together with RAID technology to provide better data transfer performance than a single drive since the workload is balanced between the array members. Reads and Writes of RAID 0 data are interleaved between multiple drives. When any disk member fails, it affects the entire array. The disk array size is equal to the number of drive members times the smallest member capacity. For example, one 1GB and three 1. 2GB drives will form a 4GB (4x1GB) disk array.
2. RAID 1 (or Mirroring mode):
   RAID 1 is a group of 2 Disk Drives configured together with RAID Technology to provide the fault tolerance function. Writes duplicate data on to RAID 1 while reads are performed in parallel. If one of the mirrored drives suffers a mechanical failure (e.g. spindle failure) or does not respond , the remaining drive will continue to function. This is called Fault Tolerance.
   The drive capacity of RAID 1 is half the total drive capacity of two equal-size drive.

5-1. SATA RAID Layout on B8D-FR



B8D-FR

5-2. First Step to Set up RAID - Populate Disk Drives

1. Connect 1 SATA Disk Drive to ATA1 and 1 SATA Disk Drive to ATA2.
3. Two Disk drives can be set up into RAID 0 / 1 Array.

5-3. To Enter RAID BIOS

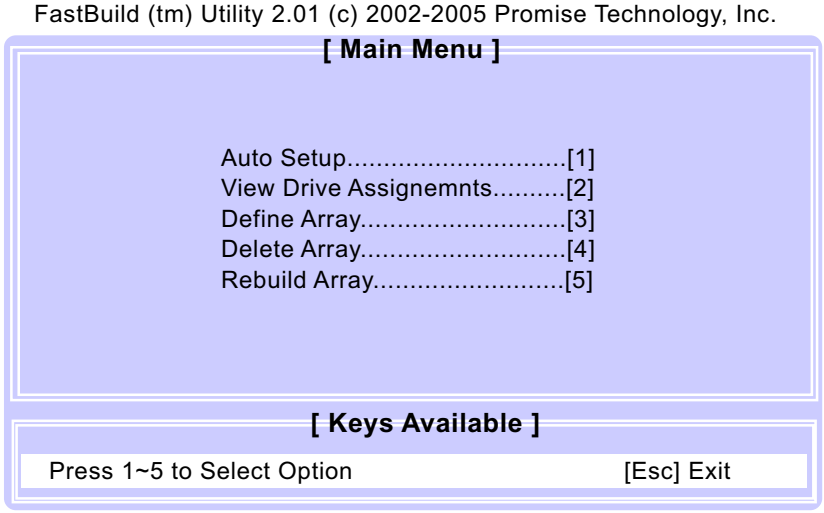
At booting system, the following screen will appear after “POST”.

```
FastTrak 378 (tm) BIOS Version 1.00.1.34
(c) 2002-2005 Promise Technology. Inc. All rights reserved.


No Array is defined.....................

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

Following the instruction on the screen, press <Ctrl-F> to enter the FastBuild (tm) Utility.

5-4. To Enter the Main Menu of FastBuild Utility

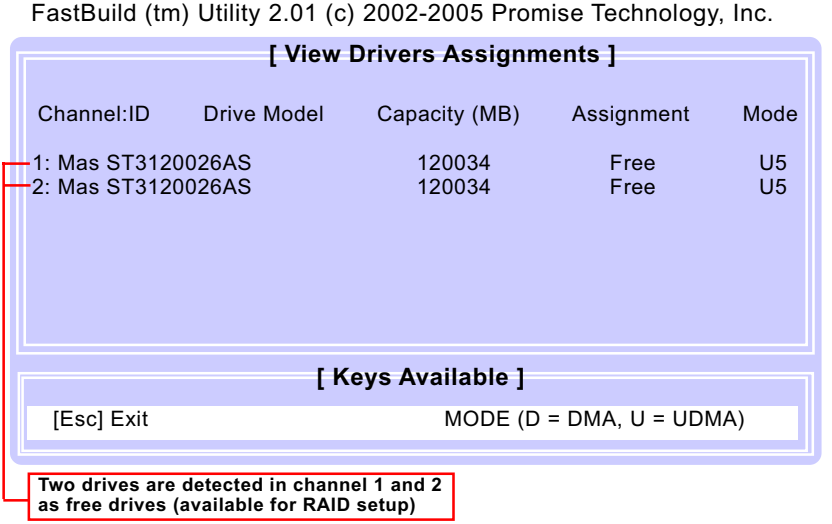
The Main Menu will pop out as below:



1. Auto Setup.....[1]
   Press figure "1" on keyboard to enter Auto Setup of RAID."Auto Setup" is available only if there are free disk drive detected in system.
2. View Drive Assignment.....[2]
   Press figure "2" on keyboard to view the drive assignment detected in system.
3. Define Array.....[3]
   Press figure "3" on keyboard to view the defined Array already set up in system.
4. Delete Array.....[4]
   Press figure "4" on keyboard to enter the "Delete Array" field for deleting Array already set up in system.
5. Rebuild Array.....[5]
   Press figure "5" on keyboard to enter the "Rebuild Array" field for rebuilding a defective array or RAID member. "Rebuild Array" is available for "RAID 1 (Mirror)" or "RAIA 0+1 (Mirror/Stripe)" mode.

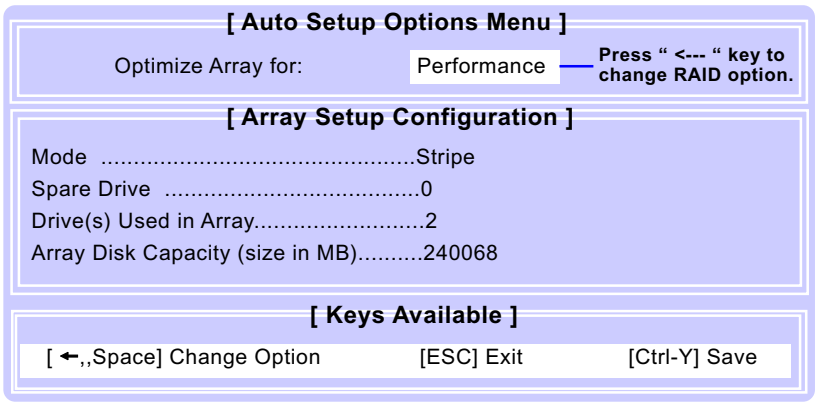
5-5. View Drive Assignment before RAID Setup

Press “2” to enter “View Drive Assignment” so that you can see the status of all disk drives detected by RAID BIOS.



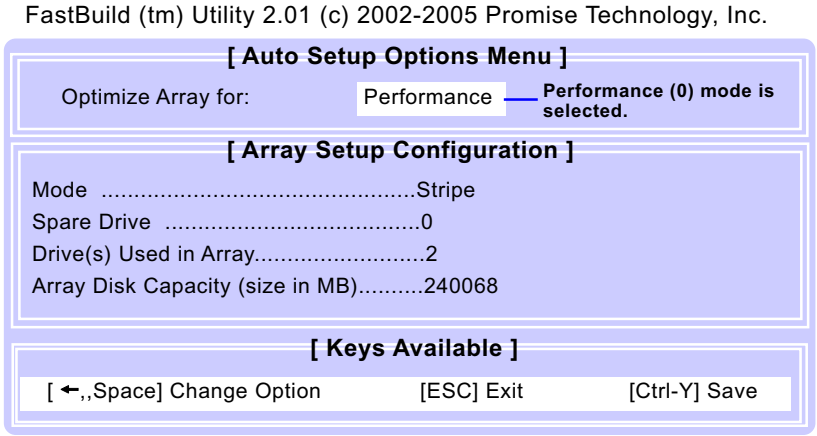
5-6. Enter “Auto Setup” for RAID Setup

Press “1” to enter “Auto Setup” so that you can see the RAID choices.



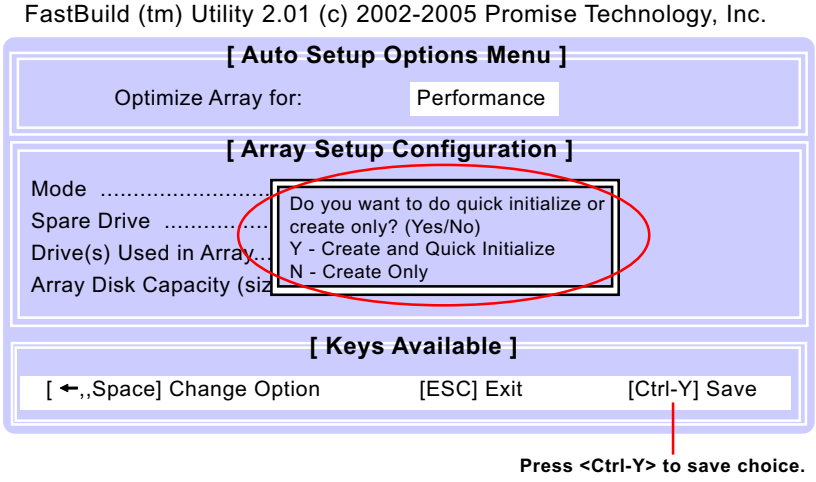
5-7. Choose " Performance" for RAID 0 (Stripe)

Press "1" to enter "Auto Setup" so that you can see the RAID choices.



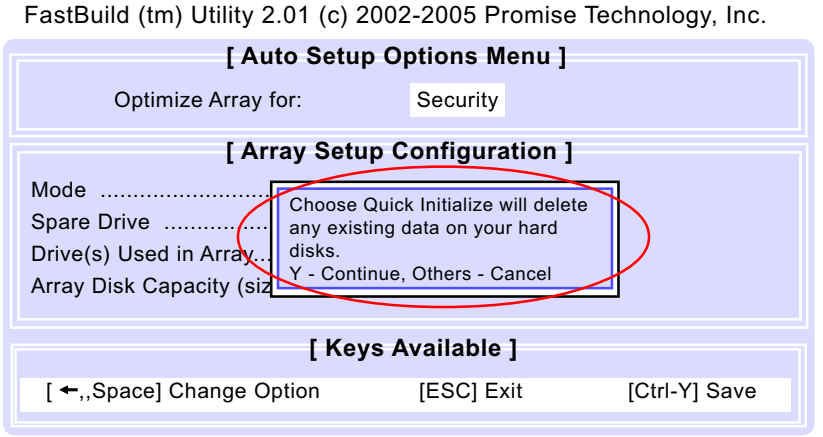
5-8. Press <Ctrl-Y> to Save the Choice

When a RAID mode is chosen, press < Ctrl-Y> to save the choice. Then select Y for "Create and Quick Initialize; or select N for "Create only".



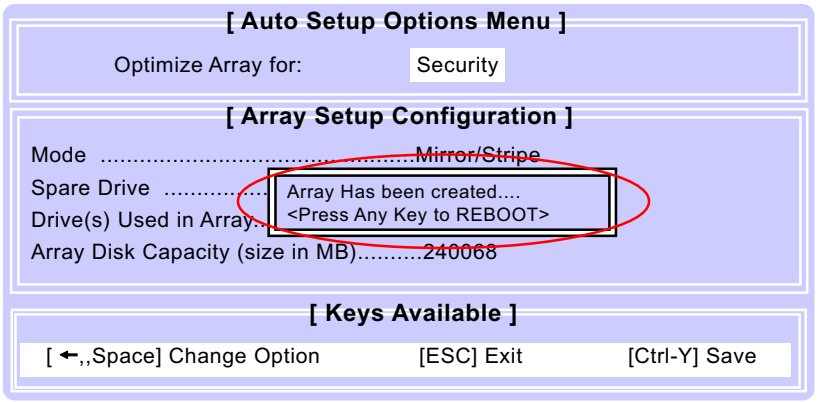
5-9. Create RAID only / Create and Quick Initialize

"Create Only" is for creating RAID without changing the disk data.
"Create and Quick Initialize" will create the RAID with clearing disk data.



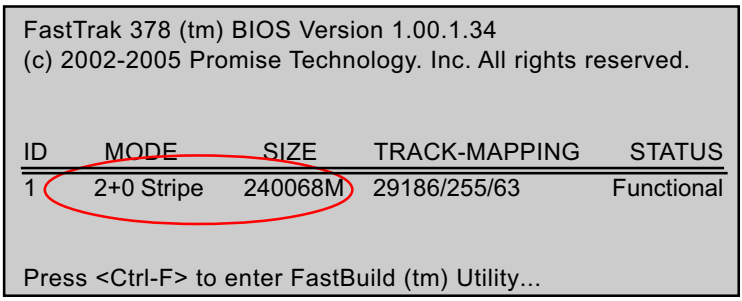
5-10. Array Created and Reboot System

After choosing "Create Only" or Create and Quick Initialize", next screen will prompt you to reboot system.
Press any key to reboot.



5-11. Stripe Array Detected at Reboot System

At rebooting system, Stripe Array (RAID 0) appears on screen after "POST".



Congratulation!
Your system is now ready for operating system installation and RAID Driver Setup.

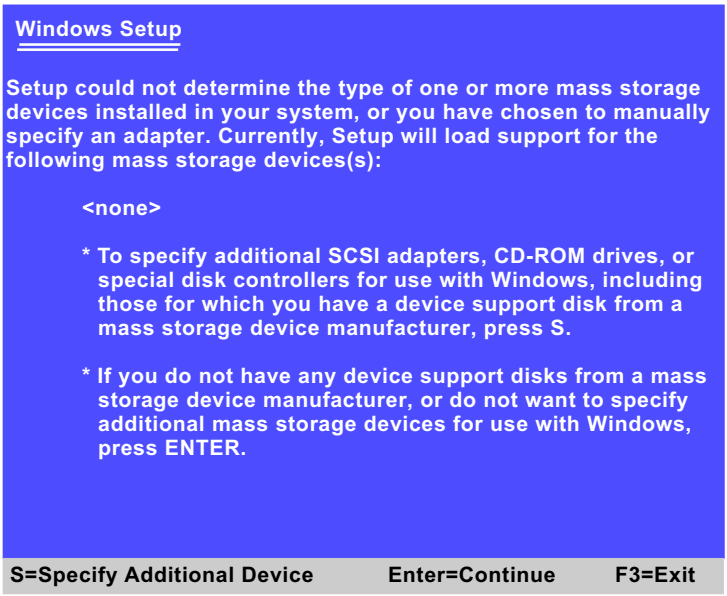
5-12 To Install Promise RAID Driver

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

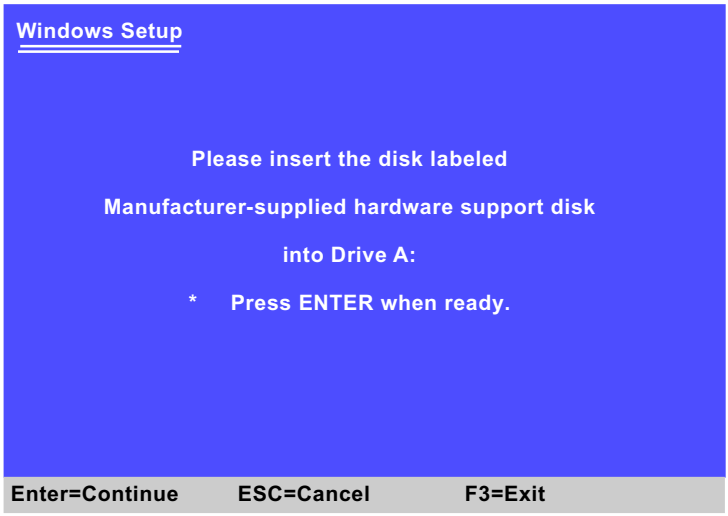
5-12-1 To Install RAID Driver on Windows 2000/XP

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

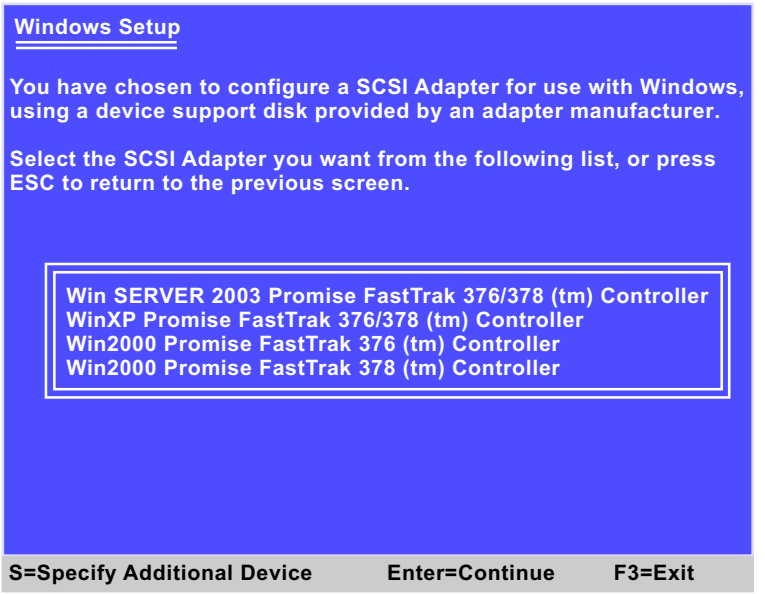
(6) On next screen press “S” to confirm the mass storage device setup.



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



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



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

5-12-2 To Install RAID Driver on Windows 98SE/Me

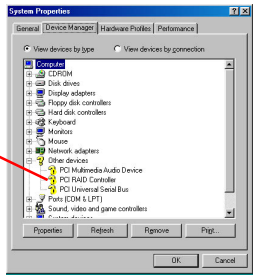
(1) Get ready the Floppy Diskette holding the RAID Driver.
(2) Check that Hard Disks are connected properly to the RAID connectors.
(3) Start your system and use RAID BIOS Setup Utility to configure RAID 0 / 1/ 0+1 to the hard disks.
(4) Restart System and format the bootable hard disks.
(5) Now, apply the Windows 98SE/ME CD to CD-ROM for operating system installation.
(6) With the Windows 98SE/ME installation complete, restart system for RAID driver setup.

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

\My Computer\properties\Device manager

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

The question mark here indicates that RAID Controller Driver is not installed yet.



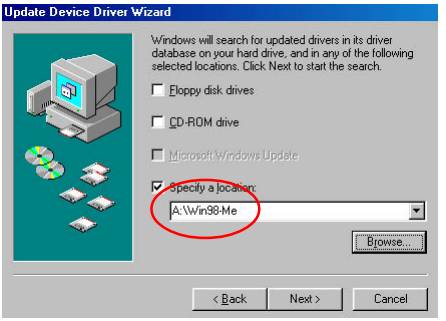
(9) Instantly, the “PCI RAID Controller Properties“ screen shows up. Please click the “General” bar to continue.

(10) In the “General” screen, click “reinstall Driver” button to continue. Please note that the status of “Device Usage” should stay at “Exists in all hardware profiles”.

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

(12) 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. As the RAID Driver is in Drive A, please type into the blank bar the correct path and click "Next" to continue:

D:\Driver\Promise\PDC20376&378\Win98-me
or
A:\Win98-me



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