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## **Item Checkup**

---

- Mainboard
- User Manual (Mainboard)
- Multi-lingual Quick Installation Guide
- Support CD
- Bundled Bonus Pack CD
- Bundled Bonus Pack Manual
- Promise SATA RAID Driver Diskette (Optional)
- Cables :
  - ATA66/100/133 IDE Cable
  - FDD Cable
  - USB Cable (Optional)
  - 2 x Serial ATA Cable (Optional)
  - 1 x Serial ATA Power Cable (Optional)

# Chapter 1 Specification

## Introduction

This series features an integration of the powerful AMD processors Athlon/Athlon XP/Duron and the North Bridge nVIDIA nFORCE2 Ultra 400 (nFORCE2 SPP) plus South Bridge nFORCE2 MCP, with which the whole system performance supports 400/333/266/200MHz system bus.

nVIDIA nFORCE2 Ultra 400 (nFORCE2 SPP) plus nFORCE2 MCP supports on-board AMD processors to implement the 400/333/266/200 MHz Front Side Bus, the AGP 8X/4X interface, the LPC Super I/O, the Dual-channel DDR 400/333/266 MHz SDRAM, the 6-channel AC'97 Audio interface, the USB 2.0 interface and ATA 133/100/66 data transfer rate. This chapter is to introduce to users every advanced function of this high performance integration.

**Topics included in this chapter are:**

**1-1 Mainboard Layout**

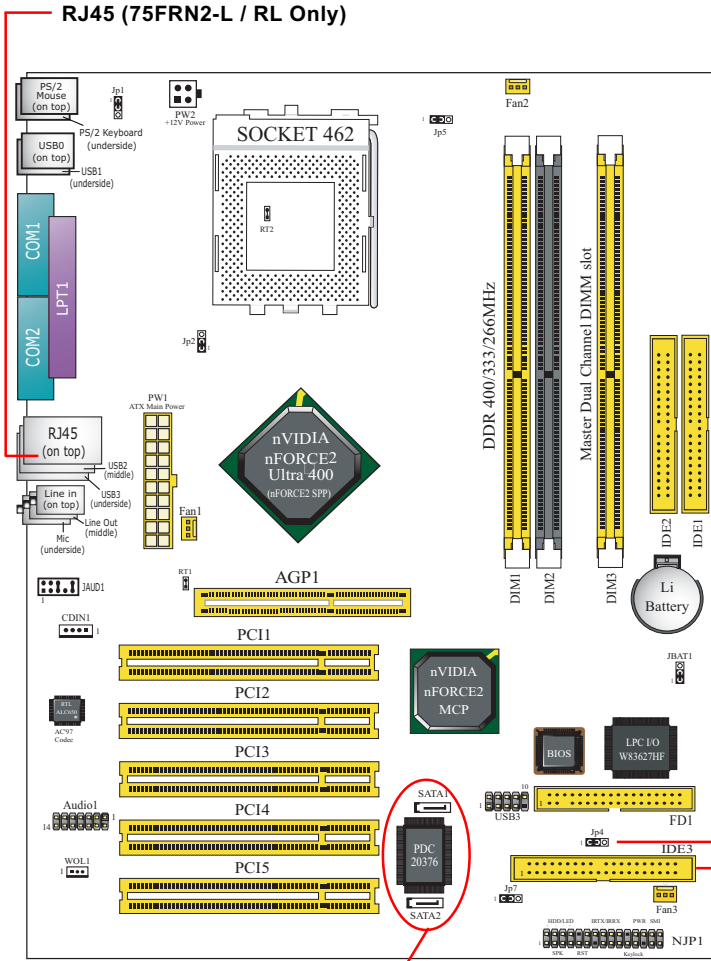
**1-2 Mainboard Specifications\*\***

**1-3 Mainboard Specification Table**

**1-4 Chipset System Block Diagram**

**\*\* If any difference is found between this manual 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 75FRN2 / 75FRN2-R / 75FRN2-L / 75FRN2-RL Layout



RJ45 (75FRN2-L / RL Only)

RAID Controller and 2  
SATA RAID connectors  
(75FRN2-R / RL Only)

PATA RAID IDE connector  
(75FRN2-R / RL Only)

RAID Controller Jumper  
(75FRN2-R / RL Only)

## **1-2 Mainboard Specifications**

### **1-2.1 CPU Socket**

CPU Socket 462 (Socket A) on board, supporting AMD Athlon, Athlon XP and Duron processors and implementing 400/333/266/200MHz system bus

### **1-2.2 System Chipsets**

- North Bridge nVIDIA nFORCE2 Ultra 400 (nFORCE2 SPP) for managing and supporting 400/333/266/200MHz system Bus, AGP 8X/4X interface and DDR 333/266MHz Memory Interface with an enhanced support of DDR 400MHz Memory Module.
- South Bridge nVIDIA nFORCE2 MCP working with North Bridge nFORCE2 SPP supporting the HyperTransport, LPC Super I/O, PCI interface, ATA133 interface, LAN interface, USB V2.0 interface as well as AC'97 Audio 6-channel interface.

### **1-2.3 Memory**

3 DDR DIMM 184-pin slots on board :

- Supporting unregistered, non-ECC Dual-channel DDR 400/333/266/200 SDRAM up to 3GB
- Supporting installation of identical DDR SDRAM modules for Dual Channel transfer.

### **1-2.4 BIOS**

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

- Standard CMOS Features (Times, Date, Hard Disk Type etc.)
- Advanced BIOS Features (Virus Protection, Boot Sequence etc.)
- Advanced Chipset Features (AT Clock, DRAM Timing etc.)
- Power Management Features (Sleep timer, Suspend Timer etc.)
- PNP/PCI Configurations (IRQ Settings, Latency Timers etc.)
- Integrated Peripherals (Onboard I/O, IRQ, DMA Assign. etc.)
- SmartDoc Anti-Burn Shield (CPU/System Temp., Fan speed etc.)
- CPU Ratio/Voltage Control (Voltage of CPU, DIMM, AGP etc.)

### **1-2.5 Accelerated Graphics Port (AGP) Interface**

AGP Controller embedded on board, supporting:

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

### **1-2.6 Advanced System Power Management**

Advanced Configuration and Power Interface incorporated in BIOS for reducing power consumption :

- ACPI 1.0B compliant (Advanced Configuration and Power Interface), including ACPI Suspend mode support (See Power management of BIOS Setup)
- APM V1.2 compliant (Legacy Power Management)
- PS/2 Keyboard & Mouse Power On
- Real Time Clock (RTC) with date alarm, month alarm, and century field

### **1-2.7 Multi-I/O Functions**

- PCI EIDE Controller, supporting:
  - 2 ATA 133 / 100 / 66 IDE connectors supporting up to 4 IDE devices
- Dedicated IR Functions:
  - 1x5 IR connector dedicated to IR function with 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 Drive Connector:
  - 1 FDD connector supporting 2 floppy drives with drive swap support
- Universal Serial Bus Transfer Mode:
  - USB V2.0 compliant, 480 MB/s USB Bus, supporting Windows 2000 / XP.
  - 4 built-in USB connectors and 1 more USB pin-header which require 1 additional USB cable to provide 4 more USB ports
- PS/2 Keyboard and PS/2 Mouse
- UARTs (Universal Asynchronous Receiver / Transmitter):
  - 2 serial ports (COM1 & COM2) on board

### **1-2.8 Expansion Slots**

- 5 PCI Bus Master slots
- 1 AGP 8X/4X slot
- 3 DDR DIMM slots



### **1-2.9 AC'97 Audio Codec on board**

AC'97 Audio Codec on board, 6-channel interface compliant

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

### **1-2.10 Hardware Monitor on board**

- Hardware Monitor supported by LPC I/O W83627HF, providing monitoring functions on hardware voltage, temperatures and fan speeds.
- Utility Software Soltek Hardware Monitor for displaying monitor status is enclosed in Support CD for user's installation.

### **1-2.11 Serial ATA RAID Controller (75FRN2-R / RL only)**

- Promise PDC20376 integrated on board
- Supporting 2 serial RAID connectors for 2 serial RAID hard disks with up to 150MB/s transfer rate
- Supporting an additional PATA RAID connector for one more RAID IDE hard disk with up to 133MB/s transfer rate
- SATA RAID Controller Driver is enclosed in Support CD and a Floppy Disk for user's installation.

### **1-2.12 LAN on board (75FRN2-L / 75FRN2-RL only)**

Fast Ethernet Controller integrated in nFORCE2 MCP and nFORCE2 Media Access Controller:

- Supporting 10/100Mb Fast Ethernet Base T LAN
- LAN Driver enclosed in Support CD for user's installation

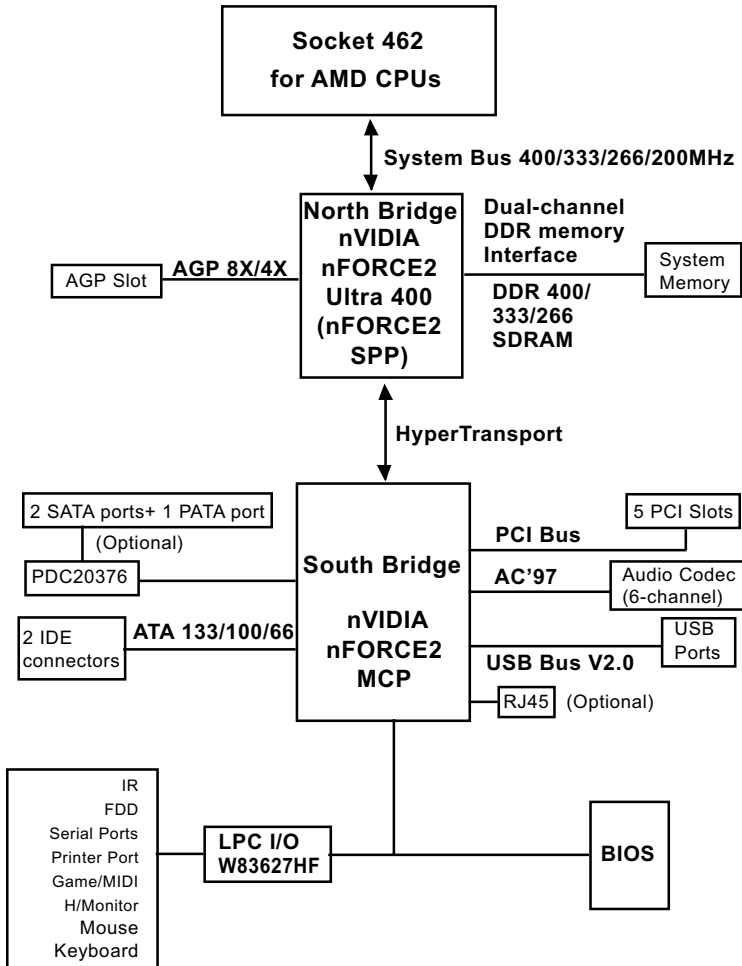
### **1-2.13 Form Factor**

- ATX Form Factor, ATX Power Supply
- Mainboard size: 305mm x 245mm

### 1-3 Mainboard Specification Table

Series 75FRN2 Specifications and Features				
CPU	Socket 462 for AMD Athlon, Athlon XP, Duron CPU			
North Bridge	nFORCE2 Ultra 400 (nFORCE2 SPP), supporting 400/333/266/200 MHz FSB			
South Bridge	nFORCE2 MCP			
BIOS	Award BIOS			
Memory	Dual-channel DDR 400/333/266 SDRAM, up to 3GB in 3 DDR DIMM slots			
I/O Chip	Winbond W83627HF			
AGP interface	AGP 8X/4X mode only			
Audio	AC'97 Audio Codec, 6-channel compliant			
IDE Interface	2 ATA 133/100/66 IDE Connector			
VGA	Not integrated on board			
PCI Slots	5 PCI Master slots on board			
I/O Connectors	6 USB V2.0, 1 FDD port, 2 COM ports, 1 LPT, 1 IrDA, 1 PS/2 K/B, 1 PS/2 Mouse			
SATA Interface	2 SATA RAID Connectors and 1 RAID IDE Connector (75FRN2-R / RL Only)			
Networking	LAN Controller nForce2 MCP and Connector RJ45 (75FRN2-L / RL Only)			
Other Common Feature	Keyboard/Mouse Power On/Wake Up			
Optional Features	75FRN2	75FRN2-R	75FRN2-L	75FRN2-RL
Serial ATA Raid	NO	YES	NO	YES
Parallel ATA Raid				
Network	NO	NO	YES	YES

### 1-4 Chipset System Block Diagram



Socket 462 + NVIDIA nFORCE2 Ultra 400 (nFORCE2 SPP) + NVIDIA nFORCE2 MCP Diagram

# *Memo*

# 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 heatsink is a must for proper heat dissipation for your CPU. Get ready an appropriate fan with heatsink for proper installation. Improper fan and installation will damage your CPU.
3. In case CPU Vcore, CPU clock or Frequency Ratio is adjustable on board, please follow the instructions described in the User Manual for proper setup. Incorrect setting will cause damage to your CPU.

## **The following topics are included in this chapter:**

**2-1 CPU Identification and Installation**

**2-2 Memory Installation**

**2-3 AGP Slot Installation**

**2-4 IDE Connector Installation**

**2-5 Floppy Drive Connector ( FDC ) Installation**

**2-6 Serial ATA Connector Installation (75FRN2-R /  
75FRN2-RL only)**

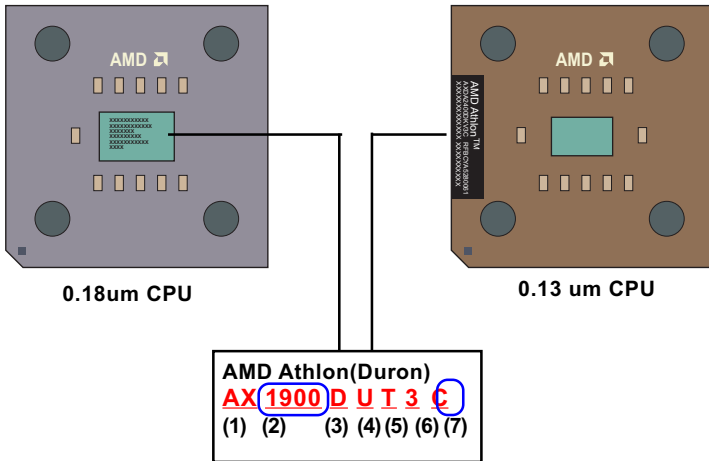
**2-7 ATX Power Supply Installation**

**2-8 Jumper Settings**

**2-9 Other Connectors Configuration**

## 2-1 CPU Identification and Installation

### 2-1.1 CPU Identification Legends



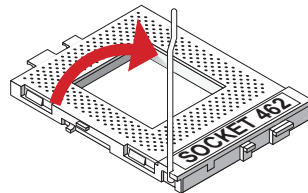
- |     |                                                                                                                                                                                                                                                                               |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1) | <b>Family / Architecture:</b><br>A, AX, AXDA=AMD Athlon Processor<br>D, DHD, DHM, DHL=AMD Duron Processor                                                                                                                                                                     |
| (2) | <b>Speed:</b> 1000=1000MHz, 1600=1400MHz, 1700=1467MHz,<br>1800=1533MHz, 1900=1600MHz, 2000=1667MHz,<br>2100=1733MHz, 2200=1800MHz, 2400=2000MHz,<br>2600=2133MHz, 2700=2167MHz, 2500=1833MHz(Barton),<br>2800=2083MHz(Barton), 3000=2250MHz(Barton),<br>3200=2332MHz(Barton) |
| (3) | <b>Package Type:</b> A=CPGA, D=OPGA                                                                                                                                                                                                                                           |
| (4) | <b>Voltage:</b> L=1.5V, U=1.6V, K=1.65V, P=1.7V, M=1.75V, N=1.8V                                                                                                                                                                                                              |
| (5) | <b>Maximum Temperature:</b> R=70°C, Y=75°C, V=85°C<br>T=90°C, S=95°C, Q=100°C                                                                                                                                                                                                 |
| (6) | <b>Size of L2 Cache:</b> 1=64Kb, 2=128Kb, 3=256Kb, 4=512Kb                                                                                                                                                                                                                    |
| (7) | <b>Max FSB:</b> A=B=200MHz, C=266MHz, D=333MHz, E=400MHz<br>Note: Get the Host CPU Clock by dividing FSB by 2.                                                                                                                                                                |

## 2-1.2 CPU Installation with Socket 462

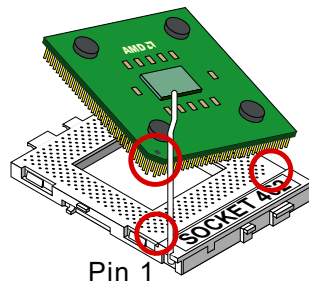
This mainboard is built with CPU Socket 462 supporting the AMD CPUs Athlon, Athlon XP and Duron:

- Follow the steps described in this section to install CPU into the on-board Socket 462.
- After installation of CPU, you must also install a proper cooling fan on top of the CPU and connect the Fan cable to the CPU fan connector.

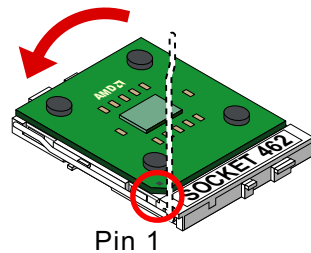
1. First pull sideways the lever of Socket 462, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



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



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 Memory Installation

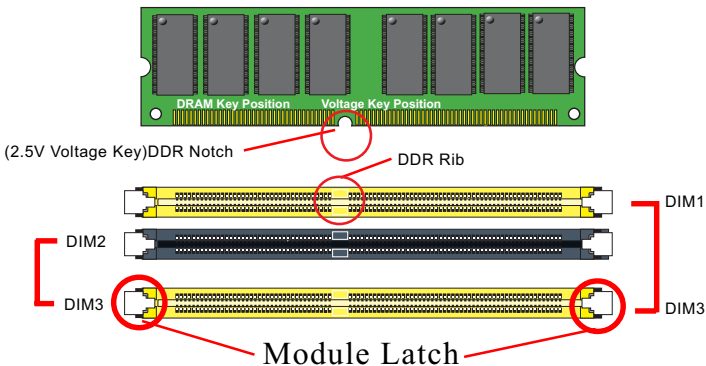
How to tackle the memory Modules:

- 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.

### Dual Channel Memory Features

- Dual Channel Memory Configuration is formed by couple of identical DDR SDRAMs.
- Dual Channel memory configuration provides higher performance than Single Channel configurations.
- Matched DIMMs need to have identical density, DRAM technology, DRAM bus width, and equal number of memory banks.
- This series supports up to 3GB unbuffered Dual Channel DDR 400/333/266 SDRAM, with 3 DDR DIMM slots on board. Do not insert other type of modules into these slots.
- The dual memory controller can double the DDR memory bandwidth up to 6.4GB/s with couple of DDR400, 5.4GB/s with couple of DDR333 and 4.2GB/s with couple of DDR266.

184-Pin DIMM Notch Key Definition



DIM1+DIM3 = DIM2+DIM3 = Dual Channel Memory Mode



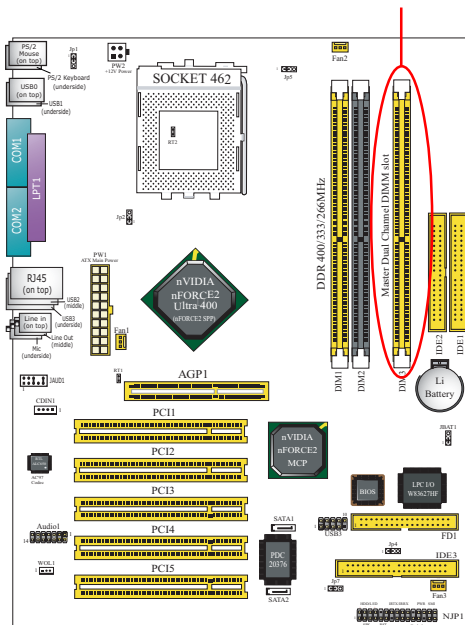
### 2-2.2 Dual Channel DDR DIMM configuration

1. To enable Dual Channel function on this series of mainboard, a DDR SDRAM module must be first inserted into DIM3, the Master Dual Channel slot.

2. Next, either DIM1 or DIM2 or both should be inserted with DDR SDRAM module(s) to activate the Dual Channel function. That is, DIM3 is the Master Dual Channel DIMM slot and at least one more slot is needed to couple with the Master Dual Channel DIMM slot DIM3.

- Please notice that users should insert totally identical (size and frequency) DDR module pair into the memory 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.

Master Dual-channel Slot DIM3



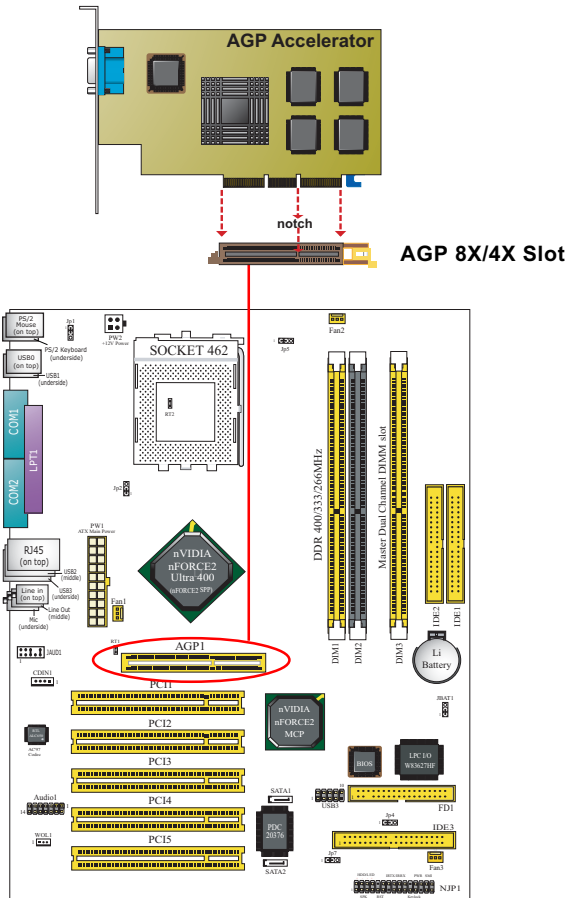
### 2-2.3 To Remove a DIMM

Press down the holding latches on both sides of slot to release the module from the DIMM slot.

## 2-3 AGP Slot Installation

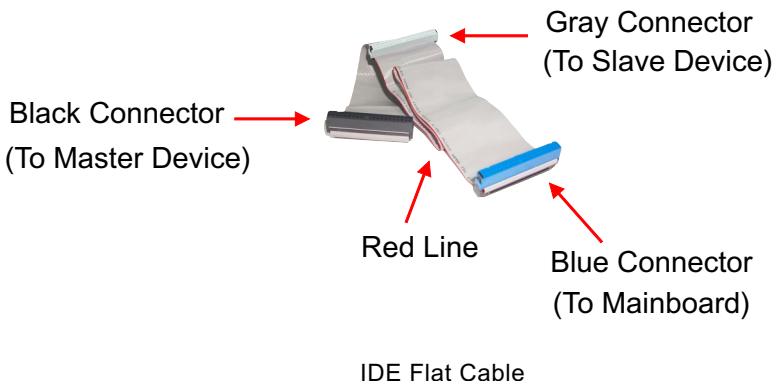
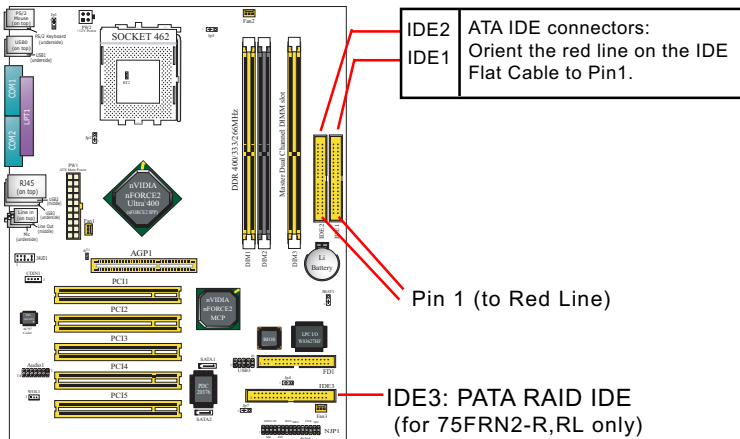
The AGP slot on board supports 1.5V AGP 8X/4X card only. A Rib is specifically added to the 8X/4X slot so as to match the AGP 8X/4X card. To insert a 3.3V AGP 2X card into the AGP 4X slot will damage the system chip and burn the 1.5V circuitry.

An AGP 8X card will support a data transfer rate up to 2GB/sec, while an AGP 4X card will provide 1GB/sec transfer rate.



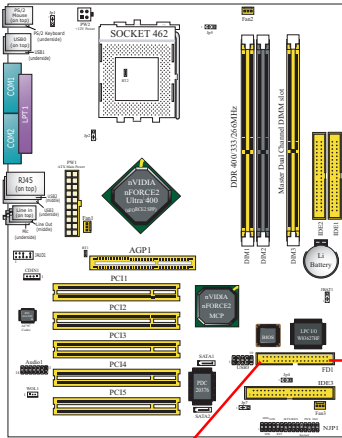
## 2-4 IDE Connector Installation

1. To install IDE Connector, you may connect the blue connector of IDE cable to the primary (IDE1) or secondary (IDE2) connector on board, and then connect the gray connector to your slave device and the black connector to your master device. If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers correctly. Please refer to your hard disk documentation for the jumper settings.
2. An additional Parallel ATA connector IDE3 is supported by the optional Serial ATA Controller PDC20376. IDE3 is enabled as a RAID IDE connector if and only if the Controller is enabled by Jp4 (See Jumper Setting in this chapter).



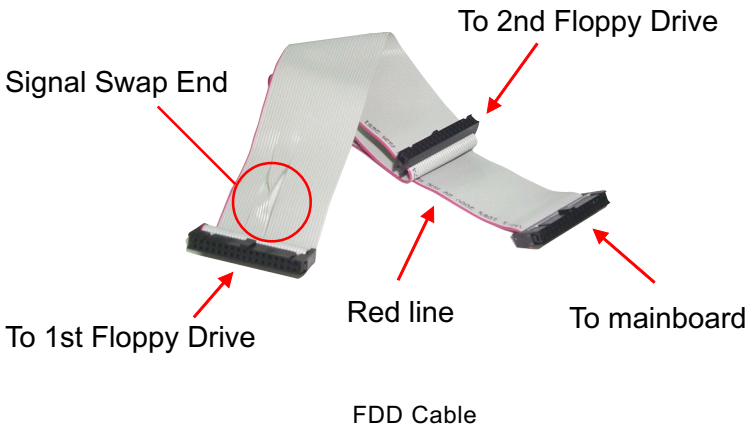
## 2-5 Floppy Drive Connector Installation

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.



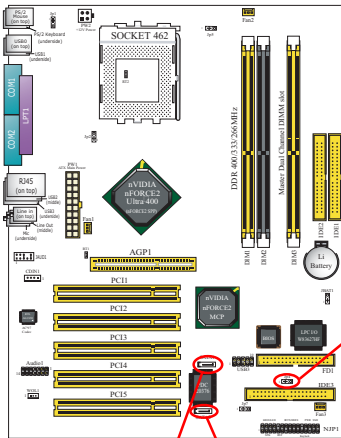
Floppy Drive Connector:  
Orient the red line of the Floppy Flat Cable to Pin 1.



Pin 1 (to Red Line)



## 2-6 Serial ATA Connectors (75FRN2-R / RL Only)

2 Serial ATA connectors are built on board, supported by the SATA RAID Controller PDC20376. Before we install SATA RAID disk drive to the Serial ATA Connector, we must first enable the controller PDC20376 by Jumper Jp4 1-2 closed and then install the RAID Controller Driver (see Chapter 5 Disk Array Installation).

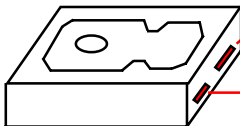


<b>Jp4: Serial ATA RAID Select</b>	
1 	1-2 closed (default) SATA RAID Controller enabled
1 	2-3 closed SATA RAID Controller disabled

Serial ATA Connector SATA1 and SATA2



To Power Supply



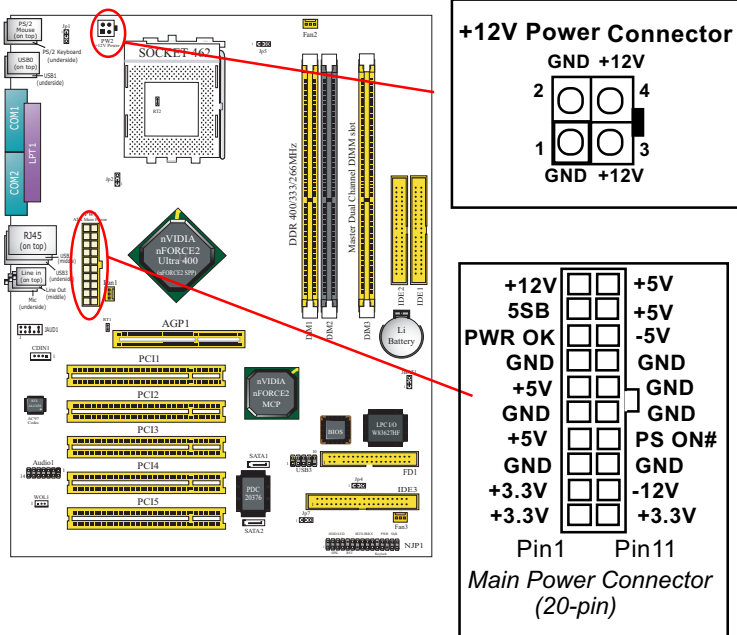
Serial ATA Hard Disk

SATA Power Connector



Serial ATA Power Cable

## 2-7 ATX Power Supply Installation



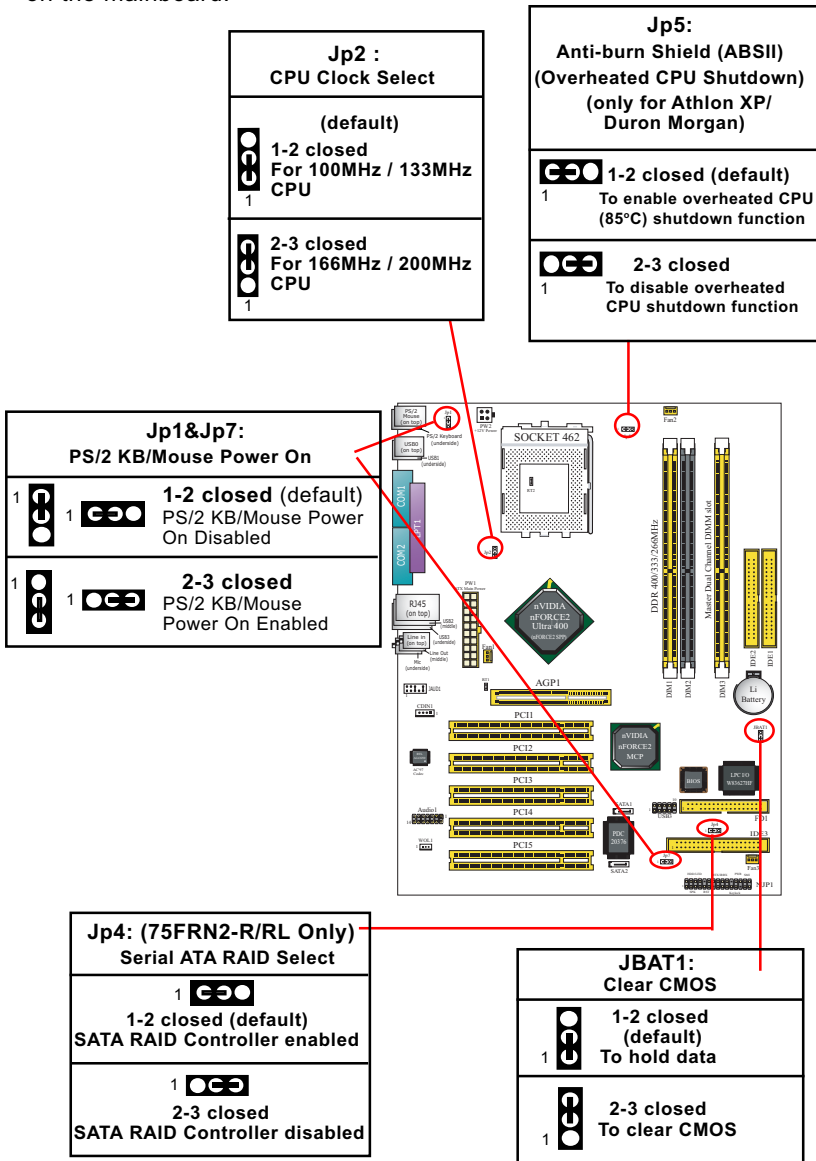
ATX V2.03 Power Supply is strongly recommended running with the nFORCE2-chipset mainboard.

To set up Power Supply on this mainboard:

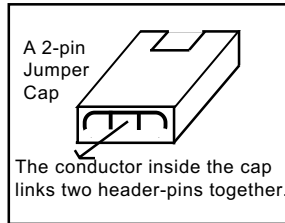
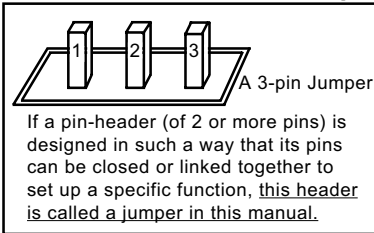
1. Get ready a V2.03 ATX Power Supply which provides a square-shaped +12V Power Connector in addition to the 20-pin Main Power Connector and other peripheral power connectors.
2. Connect the on-board square-shaped +12V Power Connector to the square-shaped +12V Power Connector of the Power Supply.
3. Connect the on-board 20-pin Main Power Connector to the 20-pin Main Power Connector of the Power Supply. Please note that both the +12V Power Connector and the 20-pin Main Power Connector should be connected to Power Supply to power on the system.

## 2-8 Jumper Settings

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



### 2-8.1 How to tackle the Jumpers:



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



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

### 2-8.2 Jp2: CPU Clock Select

1. Before setting the CPU clock by Jp2, read the Identification Legend on the CPU, find the Max FSB and divide it by two. The result is the default CPU clock.
2. Setting Jp2 1-2 closed is for 100/133MHz CPU.
3. Setting Jp2 2-3 closed is for 166/200MHz CPU, 100/133MHz CPU will fail to boot herewith.
4. If 100/133MHz CPU fails to boot system , you should excute the nVIDIA-Boot-Failure-Restart Procedure to reboot system.

<b>Jp2 : CPU Clock Select</b>	
(default)	
1	1-2 closed For 100MHz / 133MHz CPU
1	2-3 closed For 166MHz / 200MHz CPU



**nVIDIA Boot-Failure-Reboot Procedures:**

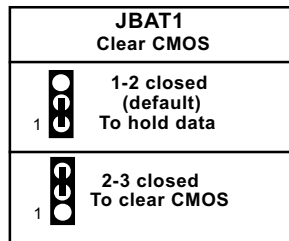
Whenever nVIDIA system fails to boot (including overclock and non-overclock cases), it requires a more guaranteed Reboot Procedure to restart system.

- (1) To reboot nVIDIA system, users should first power off the system.
- (2) If a “CPU Clock Select” Jumper is on board, restore this jumper setting to default setting.
- (3) Execute the “Clear CMOS” procedures with “Clear CMOS” Jumper.
- (4) Then press down “Insert” key of the keyboard before pressing down Power Button to start system. Do not release Insert Key until you can see the initial bootup screen appear.
- (5) In some “overclocking cases by BIOS Setup”, if system still cannot boot up with the above 4 steps, please remove the on-board battery from the battery-socket and unplug the power cord as well. Keep the battery and power cord away from system in 10 to 20 seconds so as to make sure all power residue has faded away.
- (6) After restoring the power cord and battery to system, make sure the “CPU Clock Select” Jumper is at “Default Setting” and then press the Power Button to restart system again. Please note that Step (5) will take the place of Step (3) and (4).
- (7) After starting system, users should also enter “Advanced Chipset Features” of BIOS Setup and set the “FSB Frequency” to “CPU Default” value for a guaranteed bootup. However, user can also select a higher CPU clock to try overclocking again.



**2-8.3 JBAT1: nVIDIA 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 3 or 5 seconds(allowing residue power to fade away), return the JBAT1 setting to Pin1-2 closed.
4. To reboot the system, press down “ Insert” key before pressing down Power Button. Do not release Insert key until you see the initial bootup screen.



## 2-8.4 Jp5: Anti-burn Shield (ABSII)

<b>Jp5:</b> Anti-burn Shield (ABSII) (Overheated CPU Shutdown) (only for Athlon XP/ Duron Morgan)	
 1-2 closed (default)	
1	To enable overheated CPU (85°C) shutdown function
 2-3 closed	
1	To disable overheated CPU shutdown function

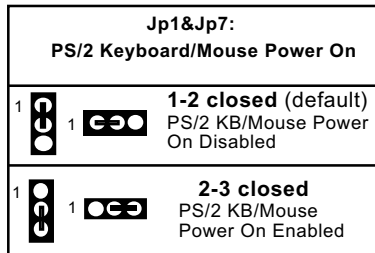
Jp5 is designed to enable the overheat safeguard for some CPUs which are incorporated with a protective thermal diode. The latest AMD Athlon XP and Duron Morgan CPUs are incorporated with such thermal diode and can be protected by this function. Setting Jp5 1-2 closed (default setting) will get system shutdown when the above-mentioned CPUs get to 85°C (the default protection temperature.) Only when the CPU returns to a cooler state can you restart your system.

For other CPUs that are not incorporated with a protective thermal diode, please set Jp5 2-3 closed to disable the function because it is a vain design now.

Reminder: If a sudden shutdown happens to your system which has been running well for a while with an AMD Athlon XP/ Duron Morgan CPU, this might be caused by the “Overheated CPU Shutdown” design. Please use a better CPU cooling fan and restart your system.

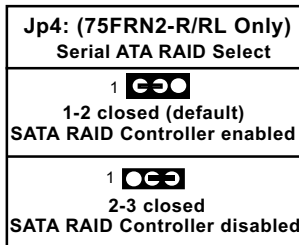
### 2-8.5 Jp1&Jp7: PS/2 KB/Mouse Power On

Jp1 and Jp7 is designed to enable / disable PS/2 Keyboard/Mouse Power on function. Setting Jp1 and Jp7 to 1-2 closed will disable this function. Setting Jp1 and Jp7 to 2-3 closed will enable this function. Yet user still has to enter BIOS Setup for choosing the KB/ Mouse Power-on mode. (See Integrated Peripherals” in BIOS Setup.)



### 2-8.6 Jp4: SATA RAID Controller Select(75FRN2-R/RL Only)

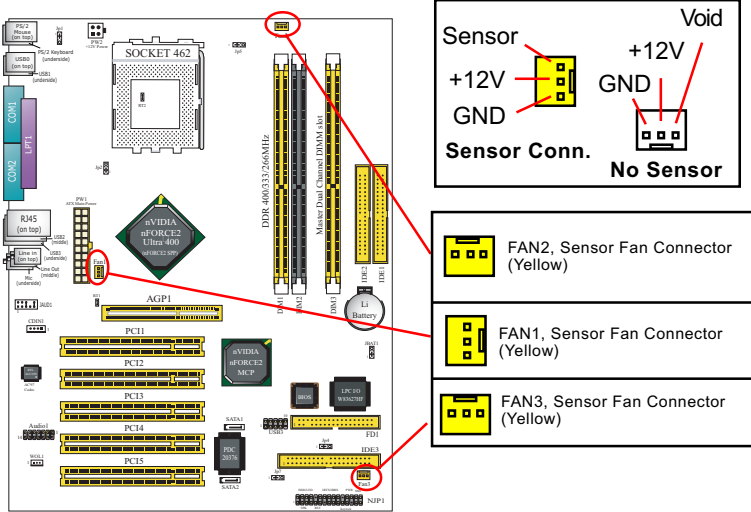
Jp4 is a 3-pin jumper for enabling or disabling the on-board Serial ATA RAID Controller PDC20376. Setting Jp4 1-2 CLOSED will allow user to enable on-board RAID Controller so as to allow user to set up the Disk Array.



## 2-9 Other Connectors Configuration

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

### 2-9.1 Onboard FAN Connectors



Both Sensor and No-sensor Fan Connectors support CPU/AGP/System/Case cooling fan with +12V mode. A Hardware Monitor chipset is on board, with which users can install a Hardware Monitor Utility and read the fan speed transmitted from the sensor fan. Otherwise, users can read the fan speed from the “Hardware Monitor Status” via BIOS.

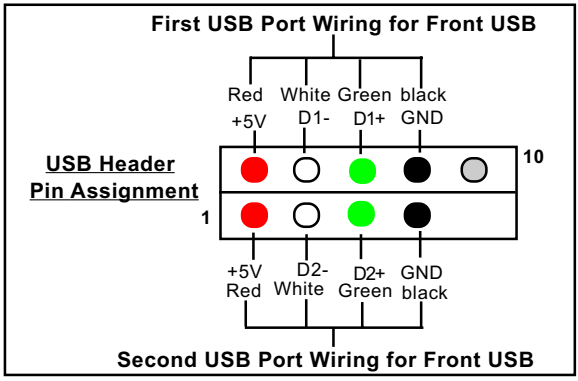
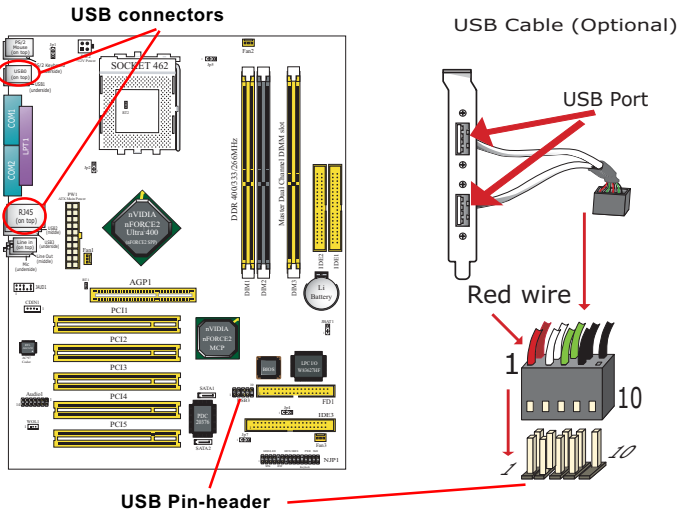
A running Fan will send out 2 electric pulses per rotation of its fan blade. A Sensor Fan Connector will count the electric pulses and send the information to the System Hardware Monitor which in turn will work out the fan rotation speed and display it on screen.

### 2-9.2 USB Ports and USB Pin-headers

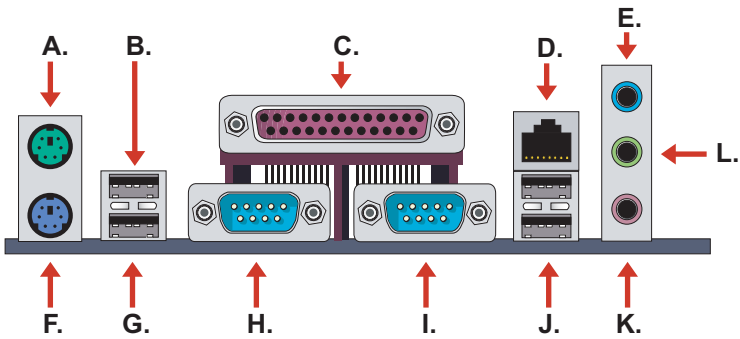
This series provides four USB ports on board supporting various USB devices. In addition, one USB pin-header is added on board to provide expansion of two more optional USB ports by using one additional USB Cable. Users can order the optional USB cable from your mainboard dealer or vender.

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

All 6 USB ports are compliant with 1.0 / 2.0 USB Bus. USB 2.0 supports Windows 2000 and above. USB 1.0 / 2.0 drivers are provided in Support CD for user's installation.



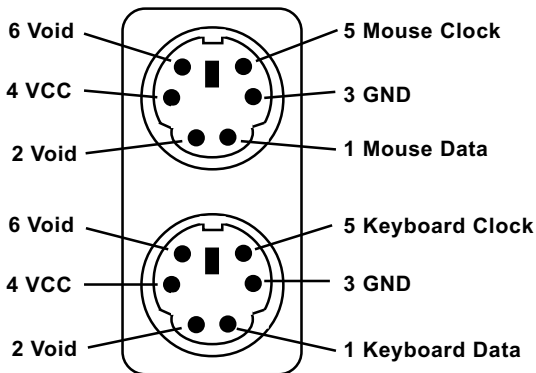
### 2-9.3 Chassis Panel Connectors



- |                                  |                                                |
|----------------------------------|------------------------------------------------|
| A : PS/2 Mouse                   | H : COM1 Connector                             |
| B : USB 0 (top)                  | I : COM2 Connector                             |
| C : LPT1 Port                    | J : USB 2 (middle)                             |
| D : RJ45 (75FRN2-L/RL only)      | USB 3 (underside)                              |
| E : Line in/<br>Rear Speaker Out | K : Microphone Input /<br>Center Subwoofer Out |
| F : PS/2 Keyboard                | L : Line Out /<br>Front Speaker Out            |
| G : USB 1 (underside)            |                                                |

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

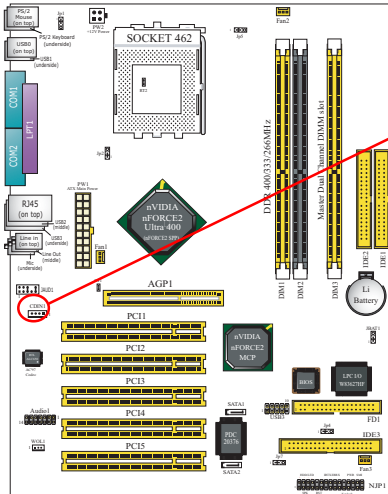
#### PS/2 Mouse Connector (green, on top)




#### PS/2 Keyboard Connector (purple, underside)

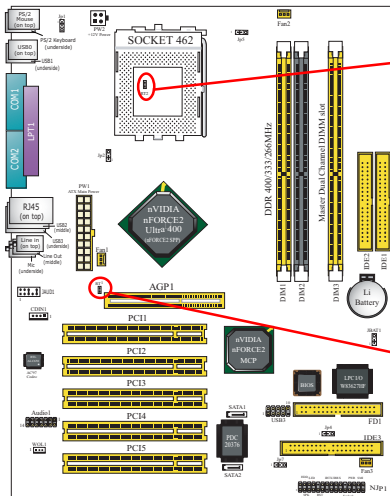
### 2-9.5 CD-ROM Audio Connectors

CDIN1 is an audio connector connecting CD-ROM audio to mainboard.




CD-ROM Audio Connector	
 1	Pin Signal
Pin 1	Left Channel
Pin 2	GND
Pin 3	GND
Pin 4	Right Channel

### 2-9.6 Thermal Detectors




**Thermal Detector RT2**

 RT2

RT2 is mounted with Thermal Detector by default for detecting external CPU temperature.

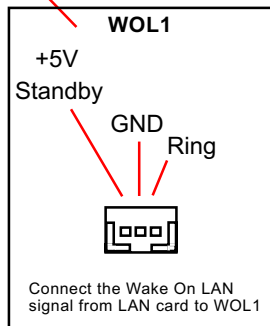
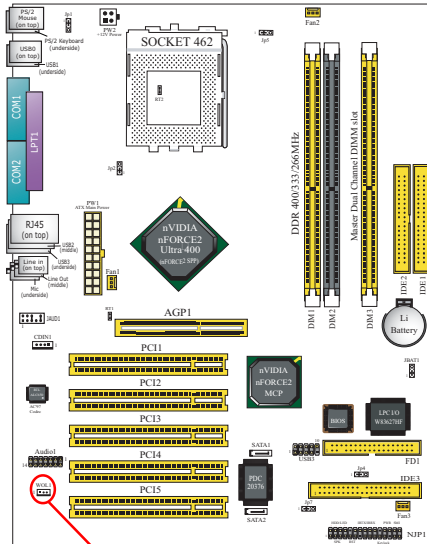
**Thermal Detector RT1**

 RT1

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

### 2-9.7 Wake On LAN Connector:

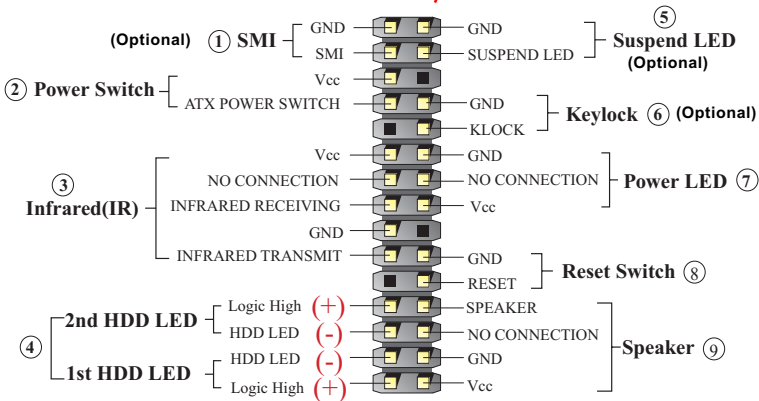
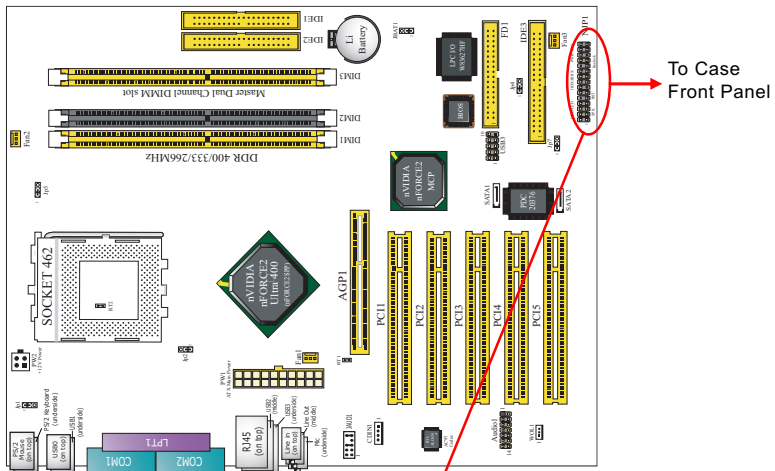
1. This connector connects to a PCI LAN card with a Ring signal output. The connector powers up the system when it receives a wake-up packet or signal through the LAN card.
2. This feature requires that Resume On Ring feature is enabled in the BIOS setting “Power Management Setup” and that your system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





### 2-9.8 Complex Pin-header (Front Panel Connectors)

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



**(1) SMI Connector (Optional):**

Connection: Connected to the Suspend Switch.

Function: Manually selecting DOS system into the Suspend Mode or “Green Mode” by System Mangement Interupt.

**(2) Power Switch Connector:**

Connection: Connected to a momentary button or switch.

Function: Manually switching the system between “On” and “Soft Off”. Pressing the momentary button for more than 4 seconds will also turn the system off.

**(3) IR Connector (Infrared Connector):**

Connection: Connected to Connector IR on board.

Function: To support wireless transmitting and receiving module on board.

**(4) 1st HDD LED Connector/2nd HDD LED Connector:**

Connection: Connected to HDD LED.

Function: To supply power to HDD LED.

**(5) Suspend LED Connector (Optional):**

Connection: Connected to Suspend Indicator.

Function: To supply power to “Suspend Indicator”.

**(6) Keylock Connector (Optional):**

Connection: Connected to keyboard.

Function: To lock keyboard and disable keyboard function.

**(7) Power LED Connector:**

Connection: Connected to System Power LED.

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

**(8) Reset Switch Connector:**

Connection: Connected to “Reset Switch”.

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

**(9) Speaker Connector:**

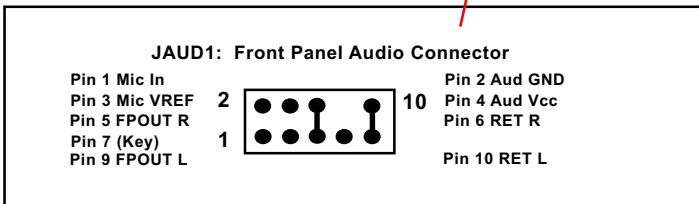
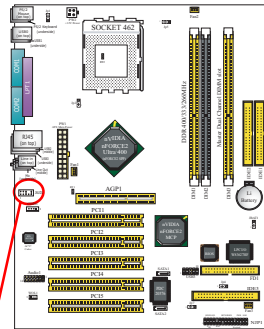
Connection: Connected to the case-mounted Speaker.

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

## 2-9.9 Front Panel Audio Connector

This Mainboard is designed with a Front Panel Audio connector “JAUD1” which provides connection to your chassis.

1. When JAUD1 is set to 5-6 closed and 9-10 closed, this default setting disables this connector and leaves the Back Panel Audio enabled.
2. To use this Front Panel Audio Connector, please open all pins of JAUD1 and connect it to your chassis.

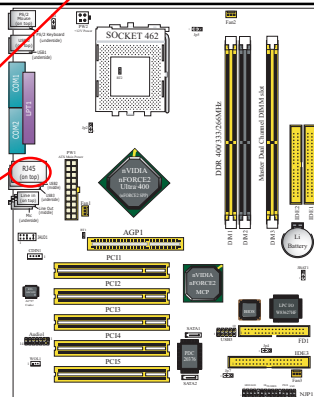
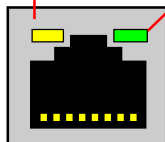


## 2-9.11 LAN Connector (75FRN2-L / RL Only)

One RJ45 connector is on board for network connection.

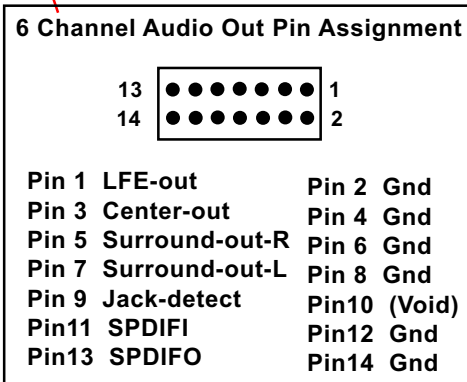
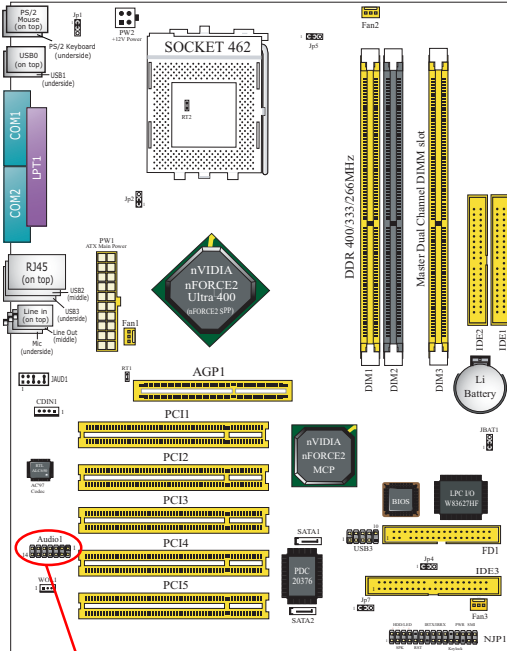
Yellow LED “On” to indicate Network hub is in connection with the system.

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



### 2-9.12 6 Channel Sound Output Connector(Optional)

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



# Chapter 4 BIOS Setup

## THE BIOS

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

BIOS performs the following functions:

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

**This Chapter includes the following topics :**

**4-1 About BIOS Setup**

**4-2 To run BIOS Setup**

**4-3 About CMOS**

**4-4 The POST (Power On Self Test)**

**4-5 To upgrade BIOS**

**4-6 BIOS Setup**

## **4-1 About BIOS Setup**

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

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

## **4-2 To Run BIOS Setup**

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

```
Press "DEL" to enter "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 do some proper settings in BIOS Setup.

## **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 Upgrade 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 to execute saving, verifying, and updating the system BIOS. The Upgrade Utility can also be run from a hard disk drive or a network drive.

### 4-5.1 Before Upgrading BIOS

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

### 4-5.2 Upgrade Process

- Normally, to upgrade BIOS is unnecessary if the system is working fine. Users should only upgrade the BIOS when you experience incompatible problems or need to create new features.
- “AWDFLASH.EXE” is a Flash EPROM Programming utility that updates the BIOS by uploading a new BIOS file to the programmable flash ROM on the mainboard. This program only works in **DOS environment, the utility can not be executed in Windows 95/98, ME, NT, 2000 or Windows XP environment.**
- Please follow the steps below for upgrading the system BIOS:

Step 1. Please visit the board maker’s website, download the zip file which contains the latest BIOS file and Award Flash Utility “AWDFLASH.EXE”. After unzipping, the BIOS file format will be \*.bin, of which “\*” stands for the specific BIOS file name.

Step 2. Create a bootable diskette. Then copy the BIOS file and Award Flash Utility “AWDFLASH.EXE” into the diskette.

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

Step 4. Type **awdf flash \*.bin /sn/py/cc** and then press <Enter> to run BIOS upgrade program. (\*.bin depends on your mainboard model and version code. Instead of typing “\*”, you should type specific file name for your specific mainboard).

Step 5. Please press <F1> or <F10> to exit or reset your system.

Warning ! If the message “ **Write Fail** ” appears while Award “FLASH MEMORY WRITER” is verifying Flash memory, just repeat the process. Please DO NOT reset or turn off the system. If the award memory flash utility is not able to update the BIOS successfully, your system may not be able to boot up.

Step 6. You will need a message “CMOS checksum error-Default loaded” during booting the system. Press <Del> to run CMOS setup utility, then reload “LOAD SETUP DEFAULTS” or “**Load Optimized Defaults**” and save this change.

The parameters of AWDFLASH.EXE

/sn: No original BIOS backup

/py: Program flash memory

/cc: Clear CMOS data (and update data automatically) after programming

**NOTE:** Users can type AWDFLASH /? to get further details about the parameters. Incorrect usage of the parameter will damage the BIOS information, so we strongly recommend users to leave parameters alone unless you fully understand their function.



BIOS Update Illustration:

- (1) Executing the “awdf flash.exe k8AV2008.bin” in DOS system, Award Flash Memory Writer Start Screen appears: To input BIOS file name.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00 Date: 09/18/2003 File Name to Program : K8AV2008.BIN
Message: Input the (BIOS) file name


- (2) Press Y if you want to back up your old BIOS. Otherwise, press N to go on without saving.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00 Date: 09/18/2003 File Name to Program : K8AV2008.BIN
Message: Do You Want To Save BIOS (Y/N)


- (3) Press Y to write the latest BIOS into system.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00 Date: 09/18/2003 File Name to Program : K8AV2008.BIN
Message: Press “Y” to Program or “N” to Exit

(4) Updating is in progress. Do not turn off power at this moment.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00    Date: 09/18/2003 Flash Type - SST 39SF020 /5V  File Name to Program : k8av2008.bin  Writing Flash Memory - 0FE00 OK 
<input type="checkbox"/> Write OK <input checked="" type="checkbox"/> No Update <input type="checkbox"/> Write Fail
Warning: Don't Turn Off Power Or Reset System !

(5) When the process is complete, remove the Floppy Diskette and press F1 to restart the system to put the new BIOS into effect.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00    Date: 09/18/2003 Flash Type - SST 39SF020 /5V  File Name to Program : k8av2008.bin  Flashing Complete Remove Floppy Diskette & Hit <F1> to Continue 
<input type="checkbox"/> Write OK <input checked="" type="checkbox"/> No Update <input type="checkbox"/> Write Fail
F1 Reset

## 4-6 BIOS SETUP --- CMOS Setup Utility

**Warning and Tips:** If changing CMOS Configuration causes difficulty in rebooting system, you can take the following measures:

1. At pressing the power button to reboot, press the “Insert” key at the same time. As soon as the screen displays the booting message, release the “Insert” key and press “Delete” key to enter CMOS Setup Utility . Then choose the “Load Optimized (Optimal) Defaults” menu to restore the default values for a new start. Or,
2. Open your machine cabinet and clear CMOS with jumper setting. Please refer to the Jumper Setting Section of this User manual.

### 4-6.1 CMOS Setup Utility

1. Power on your system.
2. At the initial screen, enter CMOS Setup Utility by pressing < Del > key before POST(Power on Self Test) is complete and the main program screen will appear as follows.

#### Phoenix - AwardBIOS CMOS Setup Utility

<ul style="list-style-type: none"> <li>▶ Standard CMOS Features</li> <li>▶ Advanced BIOS Features</li> <li>▶ Advanced Chipset Features</li> <li>▶ Integrated Peripherals</li> <li>▶ Power Management Setup</li> <li>▶ PnP/PCI Configurations</li> <li>▶ SmartDoc Anti-Burn Shield</li> </ul>	<ul style="list-style-type: none"> <li>▶ CPU Ratio/Voltage Control</li> <li>Load Optimized Defaults</li> <li>Set Supervisor Password</li> <li>Set User Password</li> <li>Save &amp; Exit Setup</li> <li>Exit Without Saving</li> </ul>
Esc: Quit F10: Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type...	

3. When one main item of the Main Menu is chosen and clicked on, its submenu will appear to display the related items and options. On the other hand, a list of operation guide will appear at the end of the submenu as below:

↑↓ ←→ :Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help  
F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

- (1) 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.
  - (2) Press <Enter> to select item or option.
  - (3) +/- /PU/PD: To adjust or select value.
  - (4) F10: Save configuration.
  - (5) Esc: Press <Esc> key to get out of the menu on screen.
  - (6) F1: Press F1 to display General Help List.
  - (7) F5: Press F5 to restore the Previous Value.
  - (8) F6: Press F6 to load the Fail-Safe default values.
  - (9) F7: Press F7 to load the Optimized Default Values.
4. You may return to the Main Menu anytime by pressing <ESC>.
  5. In the Main Menu, "SAVE AND EXIT SETUP" saves your changes and reboots the system, and "EXIT WITHOUT SAVING" ignores your changes and exits the program.

### 4-6.2 Standard CMOS Setup

Standard CMOS Setup records some basic system hardware configuration and sets the system clock and error handling. You only need to modify the configuration values of this option if you want to change your system hardware configuration or when the data stored in the CMOS memory gets lost or damaged.

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:

**Phoenix - AwardBIOS CMOS Setup Utility**  
**Standard CMOS Features**

Date (mm:dd:yy)	Fri, February 18 2003	Item Help
Time (hh:mm:ss)	9 : 41 : 11	Menu Level ▶
IDE Primary Master	WDC WD400BB-00DEA0	Change the day, month, year and century
IDE Primary Slave	None	
IDE Secondary Master	None	
IDE Secondary Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, But Keyboard	
Base Memory	640K	
Extended Memory	261120K	
Total Memory	262144K	

↑ ↓ ← → : Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

**Date (mm:dd:yy)** The BIOS determines the day of the week from the other date information. This field is for information only.  
 Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

**Time (hh:mm:ss)** The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the left or right arrow key to move to desired field. Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

**Primary / Secondary Master / Slave** This field records the specifications for all non-SCSI hard disk drives installed in your system. Refer to the respective documentation on how to install the drives.

**Phoenix - AwardBIOS CMOS Setup Utility  
 IDE Primary Master**

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master Access Mode	Auto Auto	Menu Level ►
Capacity	40022MB	To auto-detect the HDD's size, head... on this channel
Cylinder	19158	
Head	16	
Precomp	0	
Landing Zone	19157	
Sector	255	

↑↓ ←→ :Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help  
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

**Drive A / Drive B** Select this field to the type(s) of floppy disk drive(s) installed in your system. The choices are:  
360KB, 5.25 in.  
1.2MB, 5.25 in.  
720KB, 3.5 in.  
1.44MB, 3.5 in.  
2.88MB, 3.5 in.  
None

**Video** Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in setup.

**Halt On** During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process.

**Base Memory** Typically 640KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

**Extended Memory** Above the 1MB boundary. Early IBM personal computers could not use memory above 1MB, but current PCs and their software can use extended memory.

**Total Memory** This option shows system memory capacity.

### 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:

**Phoenix - AwardBIOS CMOS Setup Utility  
Advanced BIOS Features**

Virus Warning	Disabled	Item Help
CPU Internal Cache	Enabled	
External Cache	Enabled	Menu Level ►  Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this functions is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Enabled	
OS Select For DRAM > 64MB	Non-OS2	

↑↓ : Move    Enter: Select    +/-/PU/PD: Value    F10: Save    Esc: Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults



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

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

**CPU Internal / External Cache** Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type up contain internal cache memory (L1), and most, but not all, modern PCs have additional (external) cache memory (L2). When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for faster access by the CPU.

**Quick Power On Self Test** Select Enabled to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally enable quick POST.

**First/Second/Third/Other Boot Device** The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The choices: Floppy; LS/ZIP; HDD; SCSI; CDROM; Disabled

**Swap Floppy Drive** When enabled, floppy drives A and B will be exchanging without any physical connection and modification on the cables.

**Boot Up Floppy Seek** When enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 270KB, 1.2MB, and 1.44MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to disabled to save time.

- Boot Up NumLock Status** Toggle between On or Off to control the state of the NumLock key when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.
- Gate A20 Option** Gate A20 refers to the way the system addresses memory above 1MB (extended memory). When set to *Fast*, the system chipset controls Gate A20. When set to *Normal*, a pin in the keyboard controller controls Gate A20, Setting Gate A20 to *Fast* improves system speed, particularly with OS/2 and Windows.
- Typematic Rate Setting** When *Disabled*, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystroke repeats at a rate determined by the keyboard controller in your system.  
When *Enabled*, you can select a typematic rate and typematic delay.
- Typematic Rate (Chars / Sec)** When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10, 12, 15, 20, 24, or 30 characters per second.
- Typematic Delay (Msec)** Choices: 250; 500; 750; 1000. This option sets the time interval for displaying the first and the second characters. If enabled, the time interval is optional.
- Security Option** If you have set a password, select whether the password is required every time the System boots, or only when you enter setup.  
The choices: System(default); Setup
- APIC Mode** Allows you to enable (default) / disable the APIC (Advanced Programmable Interrupt Controller) function. APIC mode will expand available IRQs for the system when enabled.
- OS Select For DRAM > 64MB** Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on your system.

### 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:

**Phoenix - AwardBIOS CMOS Setup Utility**  
**Advanced Chipset Features**

System Performance	Optimal	Item Help
FSB Frequency	100MHz	Menu Level ► [Optimal] - Use the most stable settings.  [Aggressive/Turbo] - Use over clocked settings for higher performance but with higher risk of instability.  [Expert] - Allows full customization of performance options. Advanced users only.
x CPU Interface	Optimal	
Memory Frequency	By SPD	
Resulting Frequency	133MHz	
x Memory Timings	Optimal	
x T(RAS)	7	
x T(RCD)	3	
x T(RP)	3	
x Cas Latency	2,5	
FSB Spread Spectrum	Disabled	
AGP Spread Spectrum	Disabled	
AGP Aperture Size (MB)	64M	
AGP Frequency	66MHz	
AGP 8X Support	Enabled	
AGP Fast Write Capability	Enabled	
CPU Thermal-Throttling	50.0%	
System BIOS Cacheable	Disabled	
Video RAM Cacheable	Disabled	
USB20 HDD	Disabled	

↑↓↔← : Move    Enter: Select    +/-/PU/PD: Value    F10: Save    Esc: Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

**System Performance** Allows you to set different system performance modes.

Choices: Optimal; Aggressive; Turbo; Expert

**FSB Frequency** To select an FSB for the CPU on board in accordance with the System Performance setting.

Choices: 100MHz; 133MHz;

166MHz (for 166MHz CPU only);

200MHz (for 200MHz CPU only);

100~250MHz in 1MHz stepping (for “Expert” setting in System Performance only)

**CPU Interface** This option appears when “System Performance” is set at “Expert”.

Choices: Optimal; Aggressive

**Memory Frequency** This item allows you to set the Memory Frequency mode.

Choices: Auto;

**Resulting Frequency** This item is to show the current DRAM Frequency.

**Memory Timing** This value will change in accordance of the setting of “System Performance”.

**T(RAS)** This value appears when “Memory Timing” is set at “Expert”. Choices: 1~15

**T(RCD)** This value appears when “Memory Timing” is set at “Expert”. Choices: 1~7

**T(RP)** This value appears when “Memory Timing” is set at “Expert”. Choices: 1~7

**Cas Latency** This value appears when “Memory Timing” is set at “Expert”. Choices: 2.0; 2.5; 3.0

**FSB Spread Spectrum** Allows you to enable / disable (Default) FSB Spread Spectrum.

**AGP Spread Spectrum** Allows you to enable / disable (Default) AGP Spread Spectrum.

- AGP Aperture Size** Series of options are available: 32, 64, 128, 256 or 512 MB. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will automatically report the starting address of this buffer to the O.S. The default setting is 64MB.
- AGP Frequency** Allows you to adjust the working frequency of an AGP card. The default AGP Frequency is 66MHz. Choices: Auto, 50MHz ~ 100Mhz
- AGP 8X Support** Allows you to enable(default) / disable AGP 8X mode.
- AGP Fast Write Capability** This item will enable the AGP mode into fast write mode. If your graphics card does not support this function, please do not enable this function.
- CPU Thermal- Throttling** If your CPU is up to certain temperature that may damage itself, this option can be set to lower down current CPU speed to decrease temperature to protect CPU itself. The percentage in the option is to set how fast the running speed of the CPU is.
- System BIOS Cacheable** Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance.
- Video BIOS Cacheable** Selecting Enabled allows caching of the video memory (RAM) at A0000h-AFFFFh, resulting in better video performance. However, check your AGP manual to find out if any compatibility problem exists.
- USB20 HDD** Allows you to enable/ disable USB 2.0 Hard Disk.

### 4-6.5 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:

**Phoenix - AwardBIOS CMOS Setup Utility  
Integrated Peripherals**

		Item Help
OnChip IDE Channel0	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
OnChip IDE Channel1	Enabled	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
IDE Prefetch Mode	Enabled	
Init Display First	AGP	
OnChip USB	V1.1+V2.0	
USB Keyboard Support	Enabled	
AC97 Audio	Auto	
MAC Lan(nVIDIA)	Auto	
IDE HDD Block Mode	Enabled	
POWER ON Function	BUTTON ONLY	
x KB Power ON Password	Enter	
x Hot Key Power ON	Ctrl-F1	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART Mode Select	Normal	
x Rx/D , Tx/D Active	Hi, Lo	
x IR Transmission Delay	Enabled	
x UR2 Duplex Mode	Half	
x Use IR Pins	IR-Rx2Tx2	
Onboard parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
x EPP Mode Select	EPP1.9	
x ECP mode Use DMA	3	
PWRON After PWR-Fail	Off	

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    Esc: Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

- On-Chip IDE Channel 0/1** The chipset contains a PCI IDE interface with support from two IDE channels. Select Enabled to activate the first and/or the second IDE interface. Select Disabled to inactivate an interface if you install a primary and/or second add-on IDE interface.  
The choices: Enabled(default); Disabled
- Primary Master / Slave PIO** Choose Auto or Mode 0~4. The BIOS will detect the HDD mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable.  
The choices: Auto(default); Mode 0; Mode 1; Mode 2; Mode 3; Mode 4
- Secondary Master / Slave PIO**
- Primary Master / Slave UDMA** Ultra DMA33/66/100/133 implementation is possible only if your IDE hard drive supports it, if the operating environment includes a DMA drive, and if your system software supports Ultra DMA33/66/100/133. Select "Auto" to enable BIOS support.  
The choices: Auto(default); Disabled
- Secondary Master / Slave UDMA**
- IDE Prefetch Mode** The on-board IDE drive supports IDE prefetching for faster drive accesses. If the IDE device doesn't support prefetching, set this field to Disabled.  
The choices: Enabled(default); Disabled
- Init Display First** Initialize the AGP video display before initializing any other display device on the system. Thus the AGP display becomes the primary display.
- OnChip USB** Allows you to select the USB transfer rate mode. Usually USB2.0 is up to 480Mb/s, while USB1.1 is up to 12Mb/s.  
Choices: Disabled, V1.1+V2.0(default), V1.1
- USB Keyboard Support** Select Enabled(default) if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

**AC97 Audio** Select "Enabled" to use the on-chip audio capability of your system. Most of the field do not appear when this field is "Disabled", for user who wants to use add-on sound card, this item must be disabled.

**MAC LAN(nVIDIA)** This option allows you to enable/disable the Onboard LAN Controller.  
The choices: Auto(default); Disabled

**IDE HDD Block Mode** Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support.  
Choices: Enabled(default); Disabled

**POWER ON Function** Allows you to set the way to boot up the system.  
Choices: Password; Hot KEY; Mouse Left; Mouse Right; Any KEY; BUTTON ONLY(default); Keyboard 98

**KB Power On Password** If Keyboard Power-on function is set at "Password", this item shows up to allow you to type a password for the power-On function.  
Choices: N/A; Password

**Hot Key Power ON** Allows you to set the hot key to boot up the system.

**Onboard FDC Controller** Select Enabled if your system has a floppy drive controller (FDC) installing in the system board and you want to use it. If you install add-in FDC or the system has no floppy drive, select Disabled in this field.  
The choices: Enabled; Disabled



**Onboard Serial Port 1 / Port 2** Select a logical COM port name and matching address for the first and second serial ports. Select an address and corresponding interrupt for the first and second serial ports.  
Choices: Disabled; Auto;  
3F8/IRQ4; 2F8/IRQ3;  
3E8/IRQ4; 2E8/IRQ3

**UART Mode Select** The serial port 2 on your system may offer a variety of infrared port modes. Click here for a description of various modes.  
The choices: Normal(default); IrDA; ASKIR

**RxD , TxD Active** The option controls the speed between receiving and transmitting of IrDA or ASKIR when using.  
Choices: Hi,Hi; Hi,Lo; Lo,Hi; Lo,Lo

**IR Transmission Delay** When UART Mode is selected in IrDA or ASKIR mode, it allows you to enable / disable IR Transmission Delay.

**UR2 Duplex Mode** This options controls the operating mode between receiving and transmitting of IrDA or ASKIR. The operating mode will be synchronous bi-directional transmission and reception when Full mode is selected. Nevertheless, the operating mode will be asynchronous bi-directional transmission and reception when Half mode is selected.  
The choices: Half; Full

**Use IR Pins** When UART Mode is selected in IrDA or ASKIR mode, this item allows you to select the IR Pins signal selection.  
The choices: IR-Rx2Tx2; Rx2D2, Tx2D2

**Onboard Parallel Port** This item allows you to determine onboard parallel port controller I/O address setting.  
The choices: 378H/IRQ7(default); 278H/IRQ5; 3BC/IRQ7; Disabled

**Parallel Port Mode** Select an operating mode for the on-board parallel (printer) port. Select Normal, Compatible, or SPP unless you are sure your hardware and software both support one of the other available modes.  
Choices: SPP(default); EPP; ECP; ECP+EPP; Normal

**EPP Mode Select** Select EPP Mode when you choose EPP or ECP+EPP mode in the Parallel Port Mode.  
Choices: EPP1.7; EPP1.9

**ECP mode Use DMA** Select a DMA channel for the port when you choose ECP or ECP+EPP mode for the Parallel Port Mode.  
Choices: 1; 3

**PWRON After PWR-Fail** This item is to set the mode to power on when power resumes after power fails.  
Choices: Off(default) ; On; Former-Sts

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### 4-6.6 Power Management Setup

Power Management Setup allows you to set the system’s power saving functions.

Run the Power Management Setup as follows:

Choose “Power Management Setup” from the Main Menu and a list of options will appear:

**Phoenix - AwardBIOS CMOS Setup Utility**  
**Power Management Setup**

		Item Help
ACPI function	Enabled	
ACPI Suspend Type	S1(POS)	
Power Management	User Define	
Video Off Method	DPMS Support	
HDD Power Down	Disabled	
HDD Down In Suspend	Disabled	
Soft-off by PBTN	Instant-off	
WOL(PME#) From Soft-off	Disabled	
WOR(RI#) From Soft-off	Disabled	
Power-On by Alarm	Disabled	
x Day of Month Alarm	0	
x Time(hh:mm:ss) of Alarm	0 : 0 : 0	

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    Esc: Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

**ACPI Function** Select Enabled(default) only if your computer's operating system supports the Advanced Configuration and Power Interface (ACPI) specification. Currently, Windows NT 5.0 ( Windows 2000 ) supports ACPI.

**ACPI Suspend Type** This item allows you to select the ACPI Suspend type. You can select S3(STR) for Suspending To RAM if your system supports this mode. Or you can select S1(POS) for Power On Suspend under ACPI mode.  
 Choices: S1(POS)(default);S3(optional); S1&S3 (Optional)

**Power Management** This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes.  
 This table describes each power management mode:

<b>Max Saving</b>	Maximum power savings. Inactivity period is 1 minute in each mode.
<b>User Define</b>	Set each mode in dividually. Select time-out period in the section for each mode stated below.
<b>Min Saving</b>	Minimum power savings. Inactivity period is 1 hour in each mode (except the hard drive).

**Video Off Method** This determines the manner by which the monitor is blanked.

<b>V/H SYNC+Blank</b>	This selection will cause the system to turn off the vertical and horizontal snchronization ports and write blanks to the video buffer.
<b>Blank Screen</b>	This option only writes blanks to the video buffer.
<b>DPMS Support</b>	Select this option if your monitor supports the Display Power Management Singaling (DPMS) standard of the Video Electronics Standards to select video power management values.

**HDD Power Down** When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

**HDD Down In Suspend** Allows you to enable / disable(default) to power down HDD when suspend.

**Soft-Off by PBTN** When Enabled, turning the system off by pressing the on/off button places the system in a very low-power-usage state.

**WOL(PME#) From Soft-Off** Allows you to enable / disable(default) the Wake on Lan(PME#) function.

**WOR(RI#) From Soft-Off** Allows you to enable / disable(default) the Wake 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.

**Power-On by Alarm** Allows you to enable / disable(default) the Power-On by Alarm function.

**Day of Month Alarm** If Resume On Power-On by Alarm is enabled, this field allows you to set the Alarm Day of Month.  
Day Choices: 1 ~ 31

**Time of Alarm (Hour / Minute / Second)** If Resume On Power-On by Alarm is enabled, this field allows you to set the Alarm Hour, Minute and Second.  
Hour Choices: 00 ~ 23  
Minute Choices: 00 ~ 59  
Second Choices: 00 ~ 59

### 4-6.7 PnP / PCI Configuration

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

Run the PnP/PCI Configuration as follows:

Choose "PnP/PCI Configuration" from the Main Menu and a screen with a list of options will appear:

**Phoenix - AwardBIOS CMOS Setup Utility**  
**PnP PCI Configurations**

Reset Configuration Data	Disabled	Item Help
Resources Controlled by	Auto(ESCD)	
x IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
PCI SLOT1/5 IRQ Assigned	Auto	
PCI SLOT2 IRQ Assigned	Auto	
PCI SLOT3 IRQ Assigned	Auto	
PCI SLOT4 IRQ Assigned	Auto	

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    Esc: Exit    F1: General Help  
F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

**Reset Configuration Data** Normally, you leave this Disabled(default). Select Enabled to reset Extended System Configuration Data (ESCD), when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

**Resource Controlled By** The Plug and Play Award BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select *Auto*(default), all the interrupt request (IRQ) and DMA assignment fields will not appear, as the BIOS automatically assigns them. If you select *Manual*, the IRQ Resources item will appear for your configuration (see below).

**IRQ Resources** Press Enter. Please refer to the list below:

**Phoenix - AwardBIOS CMOS Setup Utility**  
**IRQ Resources**

		Item Help
IRQ-3 assigned to	PCI Device	
IRQ-4 assigned to	PCI Device	
IRQ-5 assigned to	PCI Device	
IRQ-7 assigned to	PCI Device	
IRQ-9 assigned to	PCI Device	
IRQ-10 assigned to	PCI Device	
IRQ-11 assigned to	PCI Device	
IRQ-12 assigned to	PCI Device	
IRQ-14 assigned to	PCI Device	
IRQ-15 assigned to	PCI Device	

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    Esc: Exit    F1: General Help  
F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

**PCI/VGA Palette Snoop** This option allows the BIOS to preview VGA status, and to modify the information delivered from the feature Connector of the VGA card to MPEG card. This option can solve the display inversion to black after you have used a MPEG card.

**PCI Slot 1/2/3/4/5 IRQ Assigned** Allows you to specify the IRQ for the PCI slots. Choices: Auto; 3; 4; 5; 7; 9; 10; 11; 12; 14; 15

### 4-6.8 SmartDoc Anti-Burn Shield

This section helps you to get more information about your system including CPU temperature, FAN speed and voltage. It is recommended that you contact your mainboard supplier to get proper values about the setting of the CPU temperature.

Run the “SmartDoc Anti-Burn Shield” as follows:

Choose “SmartDoc Anti-Burn Shield” from the Main Menu and a screen with a list of options will appear:

**Phoenix - AwardBIOS CMOS Setup Utility**  
**SmartDoc Anti-Burn Shield**

		Item Help
Shutdown By ABS II	85°C / 185°F	
ABS II Temp.	72°C / 161°F	
System Temp.	33°C / 93°F	
CPU External Temp.	42°C / 107°F	
Current CPUFAN1 Speed	5232 RPM	
Current CPUFAN2 Speed	0 RPM	
Current CPUFAN3 Speed	0 RPM	
CPU Vcore	1.79 V	
3.3V	3.26 V	
+5V	5.02V	
+12V	11.75V	
-12V	-11.74V	
-5V	-5.25V	
VBAT(V)	1.53V	
5VSB(V)	5.05V	

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    Esc: Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

**Shutdown By ABS II (for AMD XP/Duron Morgan)** This item will appear if AMD XP or Duron Morgan CPU is running on board. ABS II (Anti-burn Shield II) allows user to set up the safeguard temperature for the CPU designed with a protective thermal diode inside the CPU itself. Default Safeguard temperature is 85°C, at which the XP or Duron Morgan CPU will shutdown. Usually, a jumper is also designed on board for enabling/disabling ABS II function.

Choices: 75°C / 167°F; 80°C / 176°F  
 85°C / 185°F(default); 90°C / 194°F  
 95°C / 203°F; 100°C / 212°F



**ABS II Temp. (for AMD XP/Duron Morgan)** This item will appear if AMD XP or Duron Morgan CPU is running on board. This item is to show the current temperature inside the running CPU.

**System Temp.** Shows current system temperature.

**CPU External Temp.** Shows current CPU external temperature.

**Current CPUFAN 1/2/3 Speed** These fields display the current speed of the CPU / System fan.

**CPU Vcore** Shows CPU core actual voltage value.

**3.3V, +5V, +12V, -12V, -5V, 5VSB** Shows actual voltage value of all these default voltage value on board.

**VBAT** Shows voltage value of the battery on board. (Default Battery Voltage is 1.5V, not 3V)

## 4-6.9 CPU Ratio/Voltage Control

Run the “CPU Ratio/Voltage Control” as following:

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

**Phoenix - AwardBIOS CMOS Setup Utility**  
**CPU Ratio/Voltage Control**

		Item Help
CPU Ratio	Default	
CPU Vcore Select	Default	
AGP Voltage Select	1.5V	
DIMM Voltage Select	2.5V	
VDD Voltage Select	1.6V	

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    Esc: Exit    F1: General Help  
F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

**CPU Ratio** If CPU onboard is one with an adjustable or unlocked CPU ratio, this item allows you user to adjust the CPU Ratio. If your CPU is one with the CPU Ratio locked, this item will be invalid.

**CPU Vcore Select** 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: Default; 1.100V ~1.850V in 0.025V stepping

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

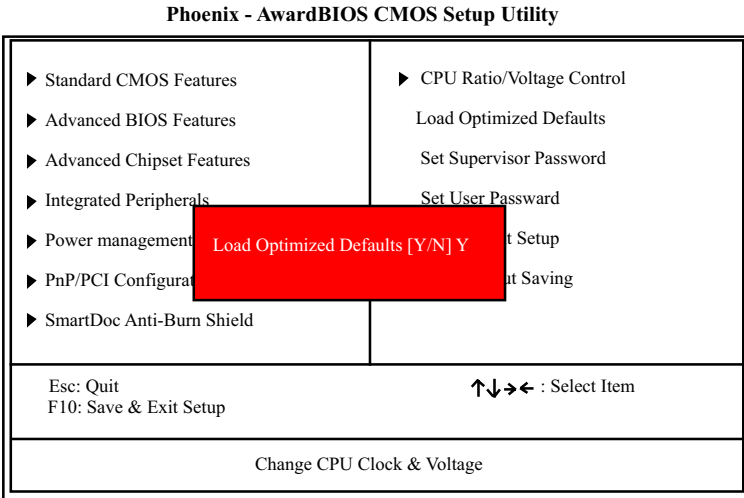
**DIMM Voltage Select** Allows you to configure the DIMM Voltage.  
Choices: 2.5V; 2.6V; 2.7V; 2.8V

**VDD Voltage Select** Allows you to configure the VDD Voltage.  
Choices: 1.6V; 1.7V; 1.8V

### 4-6.10 Load Optimized Defaults

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

**" Load Optimized Defaults (Y / N) ? N "**



"Y" is for "Yes", and "N" is for "No".

Pressing "Y" loads the BIOS Optimized default values to restore the BIOS to its original status.

### 4-6.11 Set Supervisor / User Password

These two options allow you to set your system passwords. Normally, the supervisor has a higher priority to change the CMOS setup option than the users. The way to set up the passwords for both Supervisor and Users are as follows:

1. Choose "Change Password" in the Main Menu and press <Enter>. Then following message appears:

**"Enter 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:

**"Confirm Password : "**

4. Enter the same password "exactly" the same as you have just typed to confirm the password and press <Enter>.
5. Move the cursor to Save & Exit Setup to save the password.
6. If you need to delete the password entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you have entered before.
7. Move the cursor to Save & Exit Setup to save the option you have just configured; otherwise the old password will still be there the next time you turn your system on.
8. Press <Enter> to exit to the Main Menu.

**NOTE:** If you forget or lose the password, the only way to access the system is to clear the CMOS RAM. All setup information will be lost and you need to run the BIOS setup program again.

#### 4-6.12 Save & Exit Setup

SAVE & EXIT SETUP allows you to save all modifications you have specified into the CMOS memory. Please do not reset or power off until you see the boot screen. Highlight this option on the Main Menu and the following message appears:

```
    "Not To Reset Or Power-off
    Before Boot Screen Showed.
    SAVE to CMOS and EXIT (Y/N) ?  Y "
```

"Y" is for "Yes", and "N" is for "No".

Press <Enter> key to save the configuration changes.

#### 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 the following message appears:

```
    "Quit Without Saving (Y/N) ?  N "
```

"Y" is for "Yes", and "N" is for "No".

You may change the prompt to "Y" and press <Enter> key to leave this option .

# **Chapter 5 RAID Controller**

(This Chapter is ONLY for 75FRN2-R and 75FRN2-RL)

**The following topics are included in this chapter:**

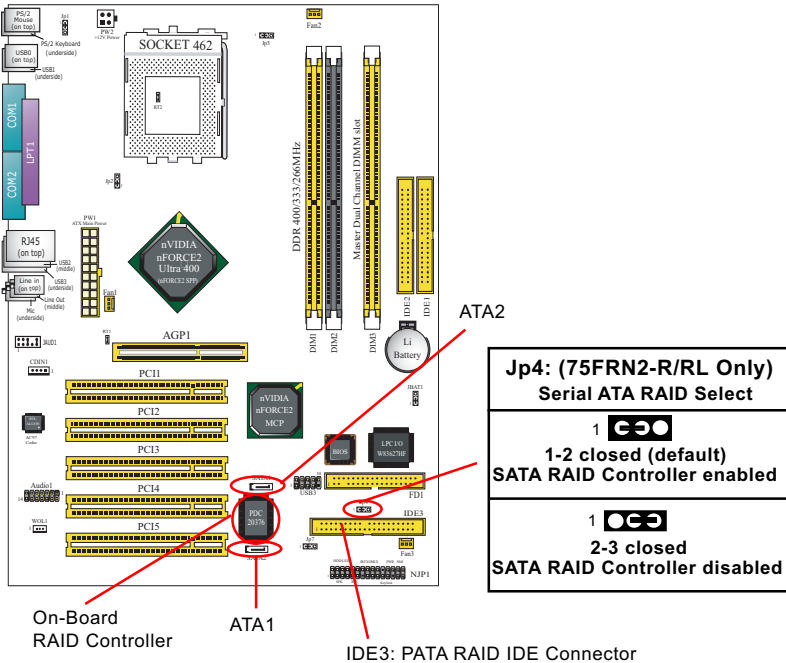
**5-0 Before Creating Disk Array**

**5-1 Creating your Disk Array**

**5-2 Installing RAID Controller PDC20376 Driver**

## 5-0 Before Creating Disk Array:

1. Jp4 is a 3-pin jumper for enabling or disabling the on-board Serial ATA RAID Controller PDC20376. Setting Jp4 1-2 CLOSED will allow user to enable on-board RAID Controller so as to allow user to set up the Disk Array.
2. Please locate the Promise RAID Controller on your mainboard to make sure that you are using the right board.
3. After you have enabled the Serial ATA RAID Controller with Jp4, you can now install the Serial ATA RAID Controller Driver into your system.



## 5-1 Creating Your Disk Array

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

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

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

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

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

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

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

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

### 5-1.1 Creating An Array For Performance/Security

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

1. Boot your system with Controller PDC20376 enabled by Jp4 and your hard drive(s) connected to IDE3/ATA1/ATA2. Suppose this is the first time to create a Disk Array. The Promise BIOS on board with FastBuild Utility built in will scan the IDE devices and display the result as below:

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

```
No array is defined...
```

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



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

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

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

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

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

## 5-1.2 Creating Security Array With Existing Data Drive

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

### Checkpoints before creating a Security Array:

- (1) You may use a drive that is containing data or a bootable O/S. Then you will need another new drive of identical or larger storage capacity.
  - (2) Backup any necessary data before proceeding. Failure to follow this accepted PC practice could result in data loss.
  - (3) If you wish to include your current bootable drive holding Window NT 4.x or Windows 2000 O/S as part of a bootable Mirroring ( RAID 1 ) array on your FastTrak 376 controller , you SHOULD first install the Windows NT4 or 2000 driver software to this drive while it is still attached to your system hard drive controller (e.g. IDE1/IDE2). For all other Operating Systems except Win NT4.0 and 2000, you can proceed with your hard driver(s) connected to IDE3/ATA1/ATA2.
1. Boot your system with FastTrak 376 Controller enabled by Jp4 and your hard drive(s) connected to IDE3/ATA1/ATA2. Suppose this is the first time to create a Disk Array. The Promise BIOS on board with FastBuild Utility built in will scan the IDE devices and display the result as below:

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

No array is defined...

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

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

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

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

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

## 5-2 Installing Drivers

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

### **Checkpoints for the driver installation:**

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

### 5-2.1 For Windows 2000/XP

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

1. Connect your hard driver(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller by Jp4.
  - 1a. Bootable floppy: Boot from bootable floppy and type "WINNT".  
After files have been copied, the system will reboot. On the reboot, press <F6> after the message "Setup is inspecting your computer's hardware configuration..." appears.
  - 1b. CD-ROM Install: Boot from the Windows 2000 / XP CD. Press <F6> after  
the message " Press F6 if you need to install third party SCSI or RAID driver" appears.
2. When the "Windows 2000/ XP Setup" window is generated, Press "S"  
to specify an Additional Device(s).
3. Press "O" to select "Other" and press the "Enter" key.
4. Insert into drive A the Promise Technology ® RAID driver diskette (you can make one yourself from your Support CD if you cannot find one in the Mainboard Package) and press "Enter" key.
5. Choose "Win2000/ XP Promise FastTrak 376 Controller" from the list that appears on screen, then press the "Enter" key.
6. The Windows 2000/XP Setup screen will appear again saying "Setup will  
load support for the following mass storage devices:" The list will include "Win2000/XP Promise FastTrak 376 controller".

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

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

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

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

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

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

### **5-2.1-3 Confirming Windows 2000 Installation**

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

## **5-2.2 Windows 95/98**

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

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

### **5-2.2-2 Windows 98**

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller by Jp4. Configure the hard drive(s), partition and format your hard driver(s).
2. Install Windows 98 normally.
3. After installation, go to “Start” menu and choose “Settings.”
4. Form the “Settings” menu, choose “Control Panel.”
5. In the “Controller Panel” window, double-click on the “System” icon.
6. In the “System” window, choose the “Device Manager” tab.
7. In the hierarchical display under “Other Devices” is a listing for “PCI RAID Controller.” Choose it and then press the “Properties” button.
8. Choose the “Driver” tab in the “Properties” window, choose “Update Driver,” and then press “Next.”
9. Choose “Search for a better driver than the one your device is using now (recommended),” then press “Next”.
10. Choose “Specify Location,” and then type “A:\WIN95-98” in the text box.

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

### **5-2.2-3 Windows 95**

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller by Jp4. Configure the hard drive(s) for RAID Array, partition and format your hard driver(s).
2. Install Windows 95 normally.
3. After installation, go to "Start" menu and choose "Settings."
4. Form the "Settings" menu, choose "Control Panel."
5. In the "Controller Panel" window, double-click on the "System" icon,
6. In the "System" window, choose the "Device Manager" tab.
7. In the hierarchical display under "Other Devices" is a listing for "PCI RAID Controller." Choose it and then press the "Properties" button.
8. Choose the "Driver" tab in the "Properties" window, and then press the "Update Driver" button.
9. When asked if you want Windows to research for the driver, choose "Yes (recommended)."
10. Insert the "FastTrak 376 Driver" diskette into the A: drive, then press "Next."
11. When Windows informs you that it was unable to find the drivers, press "Other Locations..."
12. In the "Select Other Location" dialog box, type "A:\WIN9x-ME".
13. Press "Next" button. A message informing you that Windows 95 has found "Win95-98 Promise FastTrak 376 (tm) Controller" should appear.
14. Press "Finish." (If Windows can't find the "FastTrak 376.MPD" file, type "A:\WIN9x-ME" in the copy files from:" text box).
15. Choose "Yes" when asked if you wish to restart the system, and remove the diskette from Drive A.

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

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

### **5-2.2-5 Windows 98**

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller by Jp4. Configure the hard drive(s) for RAID Array, power up the system and boot Windows.
2. The "Add New Hardware Wizard" will appear, informing you that it has found a "PCI RAID Controller."
3. Check the "Search for the best driver for your device" box and click the Next button.
4. Check the "Specify a Location" box and click the Next button.
5. Type "A:\WIN9x-ME" in the text box that appears.
6. Insert the "FastTrak 376 Driver" diskette in drive A:.
7. Click on "Next." The Add New Hardware wizard will say it has found "Win95-98 Promise FastTrak 376 Controller".
8. Click on "Next," and then on "Finish."
9. Choose "Yes" when asked if you want to restart your computer. Be sure to remove the diskette from drive A:.

### **5-2.2-6 Windows 95**

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller by Jp4. Configure the hard drive(s) for RAID Array, power up the system and boot Windows.
2. The "Update Device Drive Wizard" will appear, informing you that it has found a "PCI Mass Storage Controller."
3. Insert the "FastTrak 376 Driver" diskette in drive A:.
4. Type "A:\WIN9x-ME" in the text box, then click on "Next." Windows will inform you that it has found the "Win95/98 Promise FastTrak 376 controller".
5. Click on "Finish," and when prompted to insert the "FastTrak 376 Driver" diskette, click on "OK."
6. If a message informing you that the file "Win95/98 Promise FastTrak 376.MPD" cannot be found, go to the "Copy files from:" text box and type: "A:\WIN9x-ME".



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

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

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

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

### 5-2.3 DOS/Windows 3.1x

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

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

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

## 5-2.4 Windows NT4.0

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

1. Connect your hard drive(s) for RAID Array to IDE3/ATA1/ATA2, and enable FastTrak 376 Controller by Jp4. Start the system installation by booting from the Windows NT disk:
  - a) Floppy install: boot the system with the Windows NT installation diskettes.
  - b) Other bootable Floppy: boot from the bootable floppy and type "WINNT/B". After files have been copied, the system will reboot. On the reboot, press the "F6" key when the message "Setup is inspecting your computer's hardware configuration..." appears.
  - c) CD-ROM disk install: boot from the CD-ROM disk and press the "F6" key when the message "Setup is inspecting your computer's hardware configuration..." appears.
2. When the "Windows NT Setup" windows is generated, press "S" to specify an Additional Device(s).
3. Press "O" to select "Other" and press the "Enter" key.
4. Insert into drive A the Promise Technology ® FastTrak 376 driver diskette that you have made from the support CD: and press "Enter" key.
5. Choose "Win NT Promise FastTrak 376 (tm) Controller" from the list that appears on screen, then press the "Enter" key.
6. The Windows NT Setup screen will appear again saying "Setup will load support for the following mass storage devices:" The list will include "Win NT Promise FastTrak 376 (tm) controller".

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

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

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

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

With your bootable hard drive connected to IDE1/IDE2 and FastTrak 376 enabled by Jp4, boot Win NT4.0.

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