

# Chapter 1 Specification

## Introduction

This series features an integration of the powerful processor Intel Pentium 4 and the single-chip North Bridge of VIA Apollo P4X400A (P4X400 CE version) plus South Bridge VT8235 CE. The Intel P4 processor is a rapid execution engine providing 533/400MHz quadpumped system bus, while North Bridge P4X400A (P4X400 CE version) is a high performance integrated chipset providing DDR 400/333/266/200 SDRAM memory interface, Hub interface, and AGP interface.

Integrated with P4X400A (P4X400 CE version), South Bridge VT8235 CE supports the LPC Super I/O, the USB 2.0 interface, UATA 133/100/66 data transfer rate and AC'97 6 channel Audio interface. This chapter is to introduce to users every advanced function of this high performance integration.

**Topics included in this chapter are:**

**1-1 Component Locations**

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

**1-3 Mainboard Specification Table**

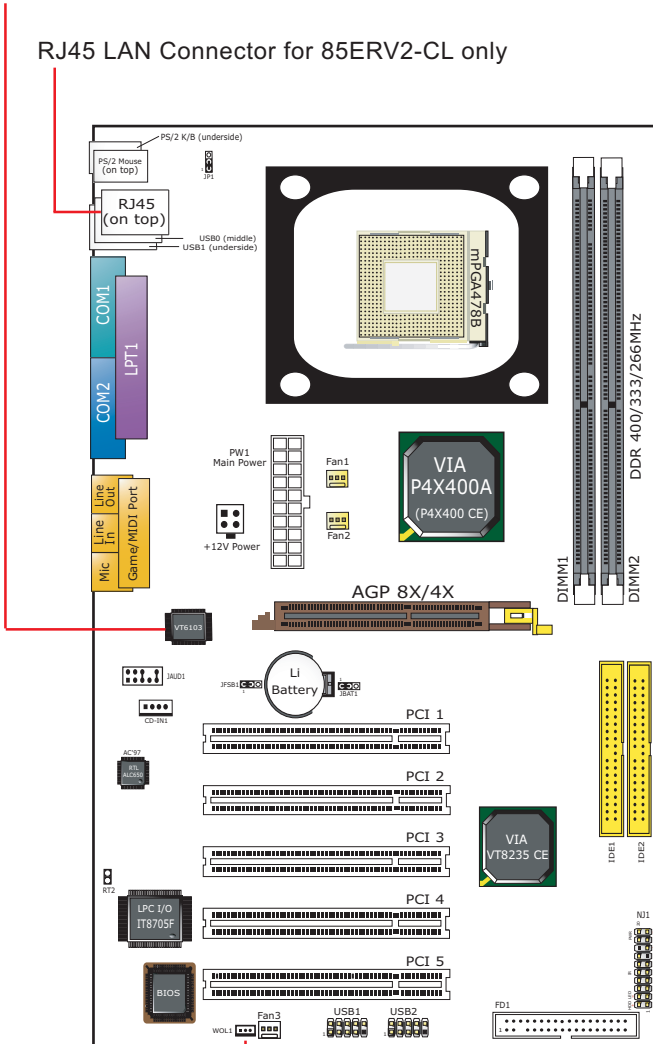
**1-4 Chipset Diagram**

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

## 1-1 85ERV2-C / 85ERV2-CL Components Locations

LAN Controller for 85ERV2-CL only

RJ45 LAN Connector for 85ERV2-CL only



Wake on LAN for 85ERV2-C only

## 1-2 Mainboard Specifications

### 1-2.1 CPU Socket

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

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

### 1-2.2 System Chipsets

North Bridge VIA Apollo P4X400A (P4X400 CE version):

- Supporting 400/533MHz Front Side Bus officially
- Supporting DDR 400/333/266/200 SDRAM memory interface, HUB interface, AGP 8x/4X interface as well as Hyper Threading Technology.
- Showing Hyper-Threading Logo when booting with a Hyper-threading CPU.

South Bridge VT8235 CE:

- Supporting the 8X V-Link, LPC Super I/O, Upstream Hub interface, PCI interface, IDE interface, LAN interface, USB V2.0 interface as well as the AC'97 6 channel Audio interface.

### 1-2.3 Memory

2 DDR DIMM 184-pin slots on board for DDR 400/333/266 SDRAMs, at 64bit data transfer rate:

- North Bridge P4X400A (P4X400 CE version) directly supporting pseudo-synchronous SDRAM up to 2GB unbuffered DDR SDRAMs.
- Installation of mixed volumes yet same type of DDR SDRAM modules supported .

### 1-2.4 AGP (Accelerated Graphics Port) interface

AGP Controller is embedded on board, supporting:

- 1.5V (8x/4x) power mode
- 8X 66MHz AD and SBA signaling; AGP pipelined split-transaction longburst transfers up to 2GB/sec.
- One AGP Slot on board, AGP v3.0 compliant

### **1-2.5 BIOS**

Flash Memory for easy upgrade, supporting 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 (Password Check, 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.)
- Hardware Monitor Status (CPU/System Temp., Fan speed etc.)
- Frequency/Voltage Control (CPU clock, Voltage of CPU, DIMM, AGP etc.)

### **1-2.6 Multi-I/O Functions:**

- PCI EIDE Controller, supporting:
  - 2x Ultra ATA 133/100 / 66 / 33 IDE Connectors supporting up to 4 IDE devices;
- Dedicated IR Functions:
  - Third serial port dedicated to IR function either through the two complete serial ports or the third dedicated port Infrared-IrDA (HPSIR) and ASK (Amplitude Shift Keyed) IR.
- Multi-mode parallel Data transfer:
  - Standard mode, ECP and EPP support;
- Floppy Disk connector:
  - One FDD connector with drive swap support;
- Universal Serial Bus Transfer Mode:
  - USB V2.0 compliant, 480 Mb/s USB Bus, supporting Windows 98 and later operating systems; USB drivers provided in Support CD for installation
  - 2 built-in USB connectors and 2 USB Headers which require 2 additional USB cables to provide 4 more optional USB ports;
- PS/2 Keyboard and PS/2 Mouse
- UARTs (Universal Asynchronous Receiver / Transmitter):
  - 2x Serial Ports COM1 and COM2 on board;

### **1-2.7 Expansion Slots**

- 5 PCI Bus Master slots
- One AGP 8x/4X slot
- 2 DDR DIMM slots

### **1-2.8 Hardware Monitor on board**

- Hardware Monitor in IT8705F, providing monitoring and alarm for flexible desktop management of hardware voltage, temperatures and fan speeds.
- Utility Software SmartGuardian for displaying Monitoring status is enclosed in Support CD for user's installation.

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

AC'97 Audio Codec Version 2.2 compliant on board

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

### **1-2.10 LAN on board (for 85ERV2-CL only)**

PCI local bus single-chip Fast Ethernet Controller VT6103 on board:

- Supporting 10/100Mb data transfer
- Supporting Wake On LAN function through the on-board RJ45 LAN Connector

### **1-2.11 Form Factor**

- ATX Form Factor, Power Supply ATX spec. Version 2.03 compliant, supported by one Main Power Connector, one +12V Power Connector,
- Mainboard size: 195mm x 305mm

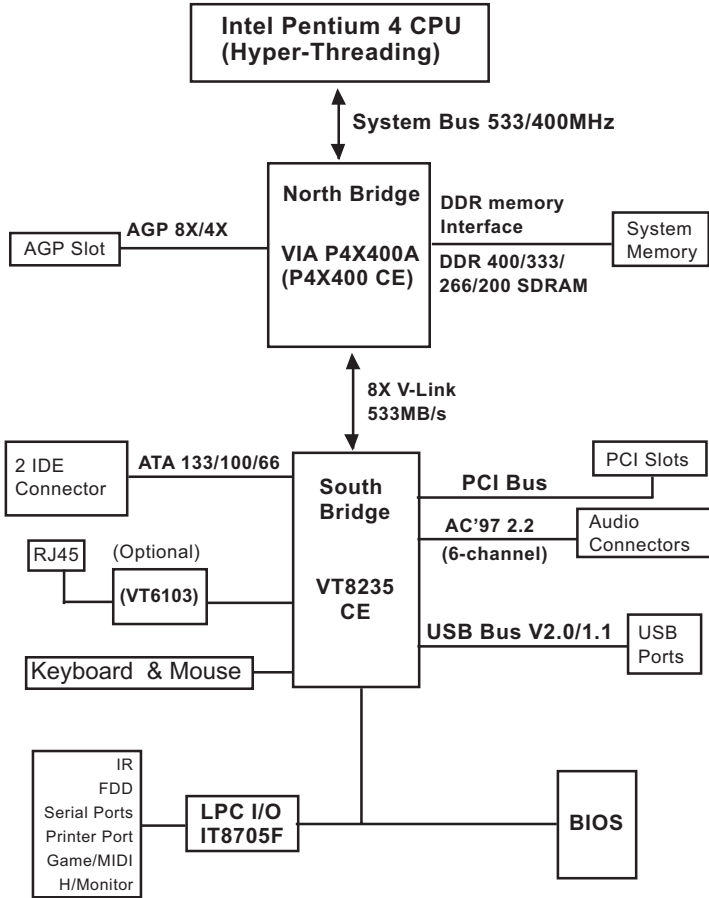
### **1-2.12 Advanced System Power Management**

- ACPI 1.0B compliant (Advanced Configuration and Power Interface), including ACPI Suspend mode support (See "Power management Features" in BIOS Setup)
- APM V1.2 compliant (Legacy Power Management)
- Wake On LAN supported (See "Power management Features" in BIOS Setup)
- Real Time Clock (RTC) with date alarm, month alarm, and century field

### 1-3 Mainboard Specification Table

<b>SL-85ERV2-C / 85ERV2-CL Specifications and Features</b>	
CPU	Socket 478B for Intel P4 CPU (HT CPU included)
North Bridge	VIA Apollo P4X400A (P4X400 CE version)
South Bridge	VIA VT8235 CE
BIOS	AMI BIOS
Memory	Supporting DDR 400/333/266/200 SDRAM, up to 2GB in two DDR DIMM slots
I/O Chip	ITE IT8705F
AGP interface	AGP 8X/4X Mode; 1 AGP Slot on board
Audio	AC'97 Audio V2.2 compliant, 6-channel audio
IDE Interface	2 UATA 33/66/100/133 IDE ports
Networking	Fast Ethernet Controller, RJ45 on board (Optional)
PCI Slots	5 PCI Master slots on board
I/O Connectors	6xUSB ports (V2.0), 1xFDD port, 2xCOM ports, 1xLPT, 1xIrDA, 1xPS/2 K/B, 1xPS/2 Mouse
Other Features	Hardware Monitoring in IT8705F ATX 2.03 Power Supply ATX Form Factor Keyboard/Mouse Power On/Wake Up

### 1-4 Chipset System Block Diagram



**Intel Pentium 4 + VIA P4X400A + VT8235 CE Diagram**

# Chapter 2 Hardware Setup

## To Get things ready for Hardware setup !

1. We recommend to install your CPU before any other components. For detailed installation instructions of processor, you can also refer to the pamphlet enclosed in your CPU package.
2. Installing a cooling fan with a good 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 Pentium 4 CPU Installation**

**2-2 Pentium 4 CPU Fan Installation**

**2-3 Memory Installation**

**2-4 AGP slot Installation**

**2-5 HDD/FDD Installation**

**2-6 ATX 2.03 Power Supply Installation**

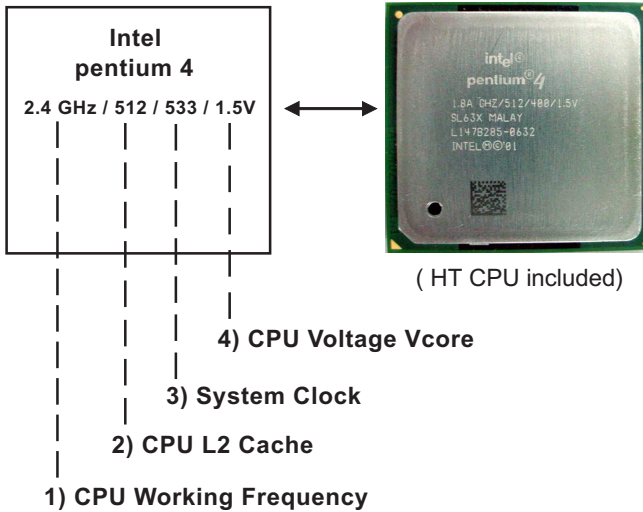
**2-7 Jumper Settings**

**2-8 Other Connectors Configuration**



## 2-1 CPU Installation with Socket 478B

### 2-1.1 To Identify a Pentium 4 CPU



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

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

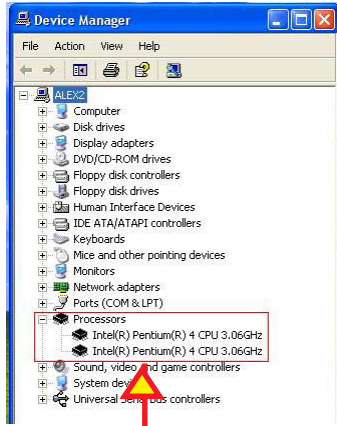
Note: System Clock vs CPU Clock

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

### 2-1.2 CPU Installation with Socket 478B

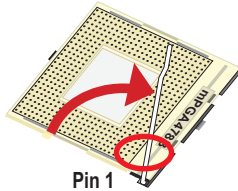
This mainboard is built with CPU Socket 478B ( 478-pin) supporting the Intel Pentium 4 CPU:

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

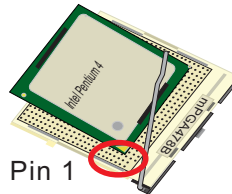


( If Hyper-threading CPU is installed successfully with O/S Win XP, the O/S will enable the dual-in-one CPU function.)

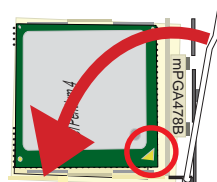
1. First pull sideways the lever of Socket 478, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



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

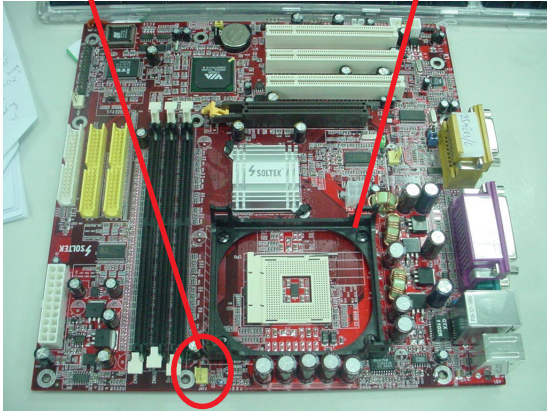


3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.

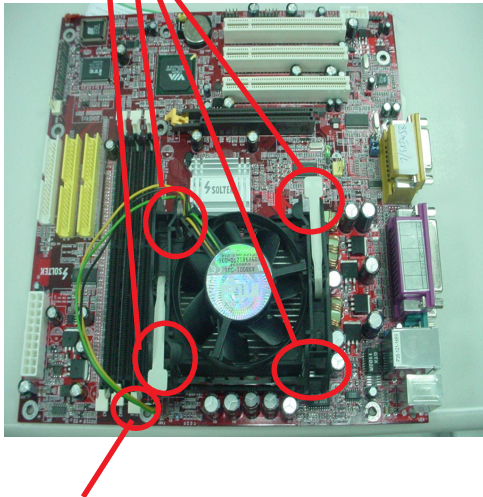


## 2-2 Pentium 4 CPU Fan Installation:

CPU Fan Connector      Pentium 4 Fanbase



Press down 4 Spring Locks to lock fan to fanbase



Connect Fan Connector to CPU FAN connector

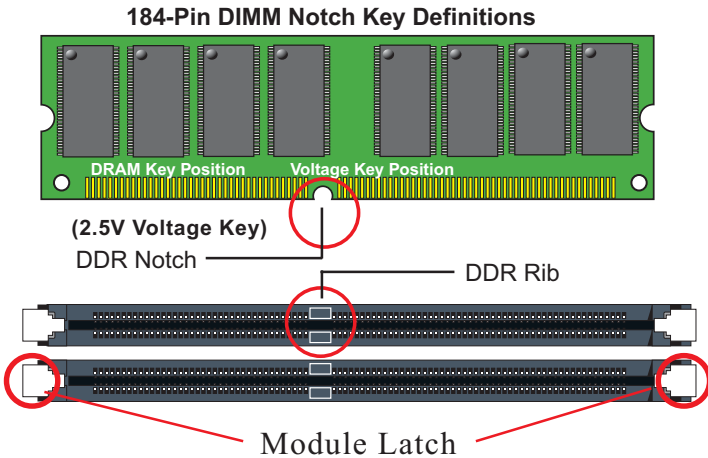
## 2-3 Memory Installation

How to tackle with the memory Modules:

- Make sure to unplug your Power Supplier 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 in a socket improperly will damage the memory module and slot.
- Make sure you have the right type of memory module for your mainboard.

### 2-3.1 To Install DDR SDRAM Module for this Mainboard :

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

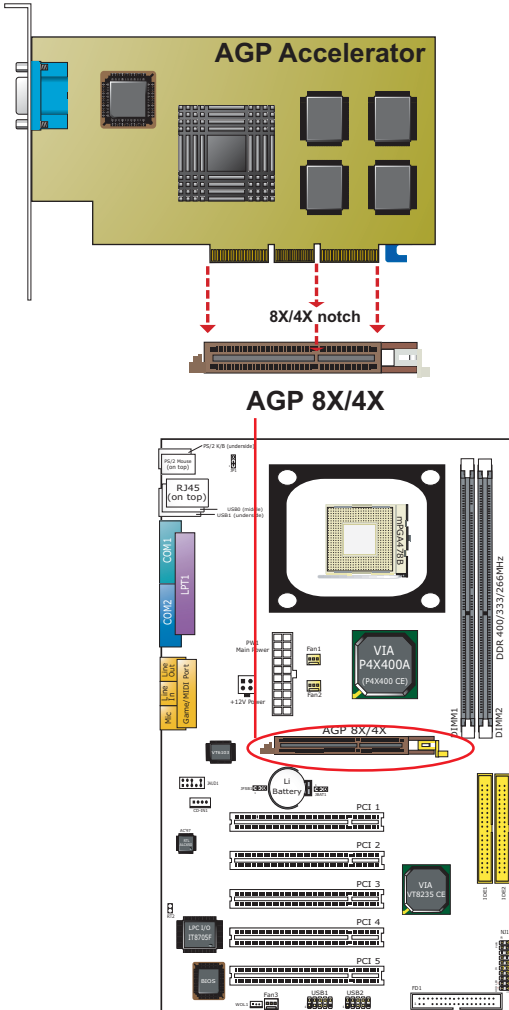


### 2-3.2 To Remove a DIMM:

Power off system and press down the holding latches on both sides of slot and the module will be released from the DIMM slot.

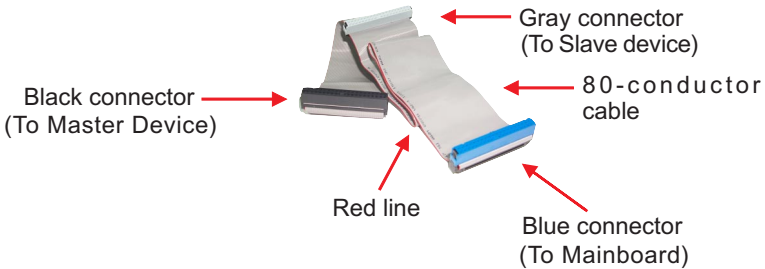
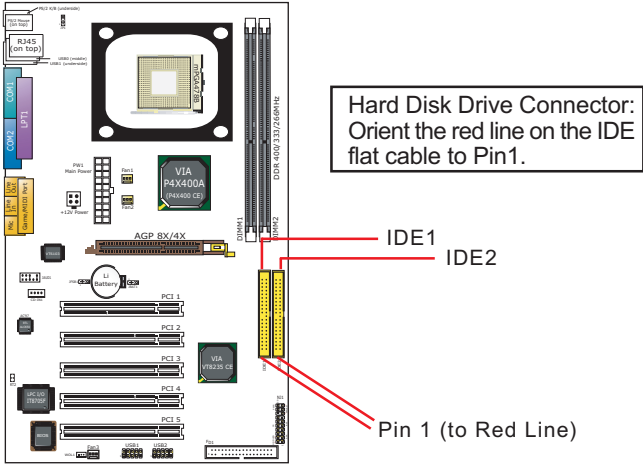
## 2-4 AGP slot Installation :

To install a VGA card into AGP 8X/4X slot on board, users can install a 8X or 4X AGP card with its only card driver. An AGP 8X card will support a data transfer rate up to 2GB/sec., and an 4X card supports a date transfer rate up to 1GB/sec..



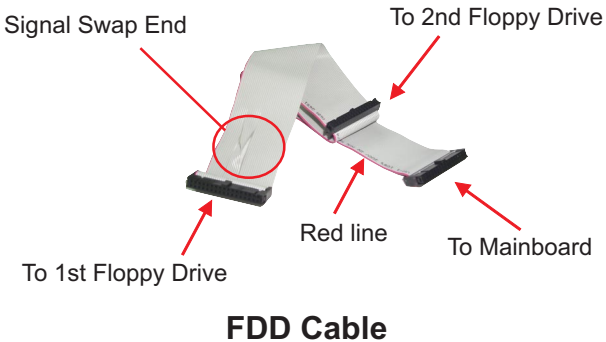
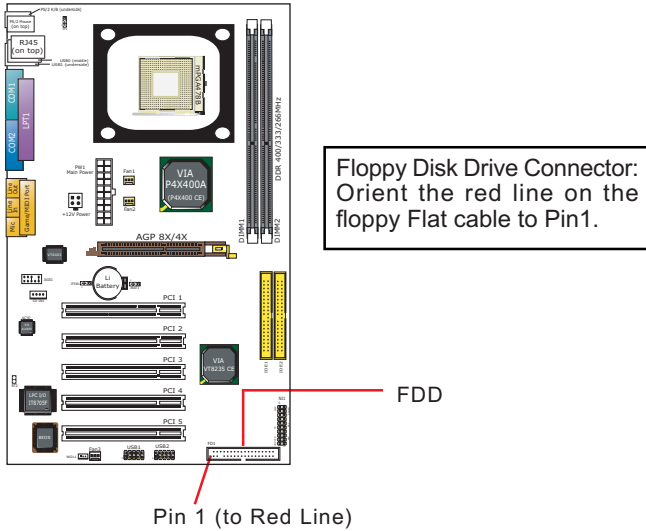
## 2-5 IDE / FDD Connector Installation

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

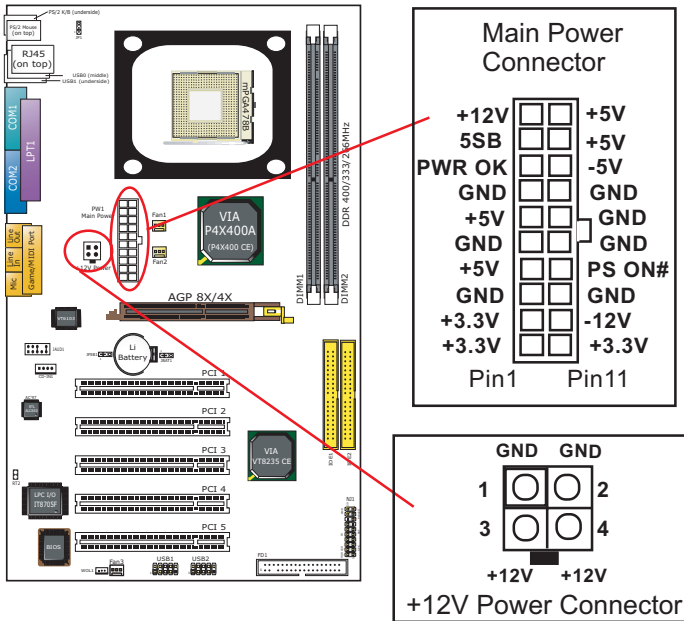


### IDE Flat Cable

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



## 2-6 ATX V2.03 Power Supply Installation



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



To set up Power Supply on this mainboard:

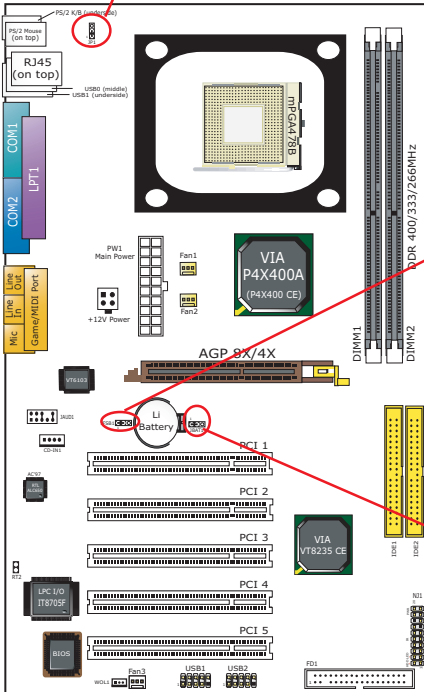
1. Connect the on-board Main Power Connector (20-pin) to the Main Power Connector (20-pin) of an ATX Power Supply which can be of the latest version 2.03 model, and then connect the square-shaped +12V Power Connector on board to the square-shaped +12V Power Connector of the Power Supply.  
Warning: Both the Main Power Connector and the +12V Power Connector should be connected to Power Supply; otherwise, the system may either not start or be damaged.
2. This ATX Power Supply should be able to provide at least 720mA/ +5V standby power for Wake On Lan function.








## 2-7 Jumper Settings

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

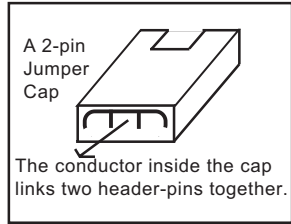
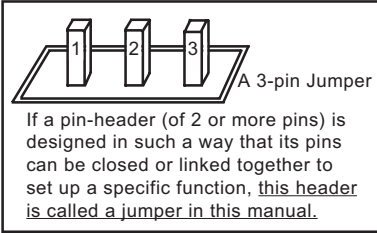
<b>JP1:</b>	
<b>Keyboard/Mouse Power On / Wake Up</b>	
1	 <b>1-2 closed (default)</b> Keyboard/Mouse Power On / Wake Up Disabled
1	 <b>2-3 closed</b> Keyboard/Mouse Power On / Wake Up Enabled



<b>JFSB1</b>	
<b>CPU Frequency Select</b>	
1	 <b>(default)</b> CPU Auto-Detection
1	 <b>100MHz (FSB400)</b>
1	 <b>133MHz (FSB533)</b>

<b>JBAT1:</b>	
<b>Clear CMOS</b>	
1	 <b>1-2 closed (default)</b> To hold data
1	 <b>2-3 closed</b> To clear CMOS

**How to tackle the Jumpers:**



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



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

**2-7.1 JFSB1: CPU Frequency Select**

JFSB1 is designed on board for CPU frequency select.

1. Setting JFSB1 1-2 closed will allow CPU on board to Auto Detect its own frequency and apply it to the System Bus.
2. Setting JFSB1 2-3 closed is for 100 MHz CPU.
3. Setting JFSB1 all pins open is for 133 MHz CPU. 100MHz CPU will fail to boot herewith.
4. If 100MHz CPU fails to boot system , you should restore the default setting and then clear CMOS to reboot your system. (See Clear CMOS in next paragraph.)

<b>JFSB1 CPU Frequency Select</b>	
1	(default) CPU Auto-Detection
1	100MHz (FSB400)
1	133MHz (FSB533)

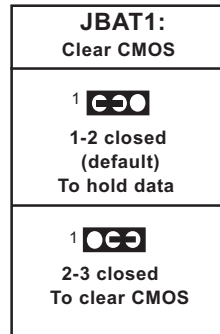
Further Notes on CPU Overclocking:

1. If you have successfully booted system, with or without CPU overclock, you still can try another CPU overclock in BIOS Setup. Please enter BIOS Setup, choose “Frequency/Voltage Control” menu, and then configure the “CPU Clock” item to raise your CPU clock.
2. CPU overclocking should take all components on board into account. If you fail in BIOS overclocking, you will not be able to restart system. In such case, Power off system and clear CMOS by JBAT1 and then restart your system. And remember to reconfigure whatever should be reconfigured.
3. If your system is already fixed in a cabinet or case, you may not like to take the trouble to clear CMOS. Then power on your system with the power button on the PC case and simultaneously press down the “Insert” key on the keyboard until you see the initial bootup screen appear. And remember you should also enter CMOS BIOS Setup instantly and choose “Load Optimized Defaults” to restore default BIOS .

### 2-7.2 JBAT1: Clear CMOS

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

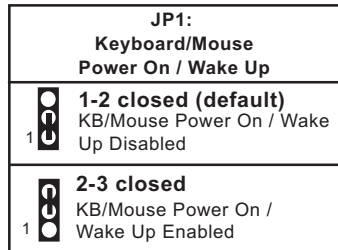
1. Power off system;
2. Set JBAT1 to Pin 2-3 closed.
3. After 2 or 3 seconds, return the JBAT1 setting to Pin1-2 closed.
4. CMOS data are restored to default. Remember never clear CMOS when system power is on.



### 2-7.3 JP1: KB/Mouse Power On / Wake Up

JP1 is designed on board as a jumper to enable/disable the PS/2 keyboard/mouse Power On/Wake Up from system off or suspend mode. Yet users should still enter BIOS setup to choose the Wake Up/ Power On mode.

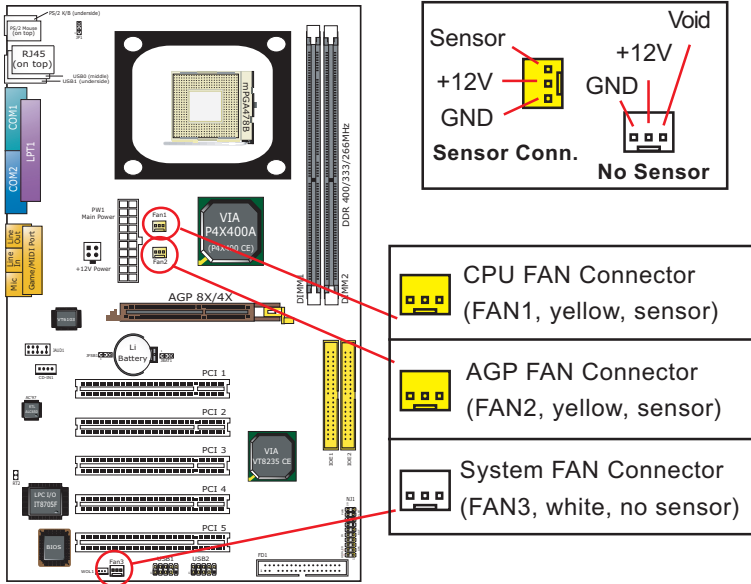
USB keyboard/mouse Wake Up function is not supported in this series.



## 2-8 Other Connectors Configuration

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

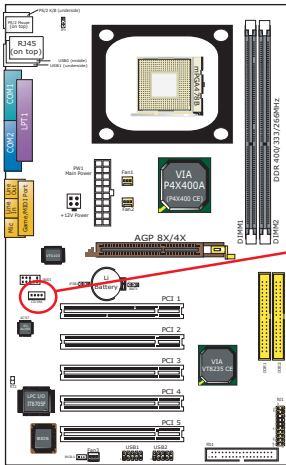
### 2-8.1 On Board FAN Connectors



Both Sensor and No-sensor Fan Connectors support CPU/AGP/System/Case cooling fan with +12V mode. Sensor Fan Connector is yellow in color on board. When connecting the wire to any Fan Connector, user should make sure that the red wire is for the positive current and should be connected to pin +12V, and the black wire is Ground and should be connected to pin GND. A Hardware Monitor chipset is on board, with which user can install a Hardware Monitor Utility and read the fan speed transmitted from the sensor fan. Otherwise, user can read the fan speed from the “Hardware Monitor Status” in CMOS BIOS.

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

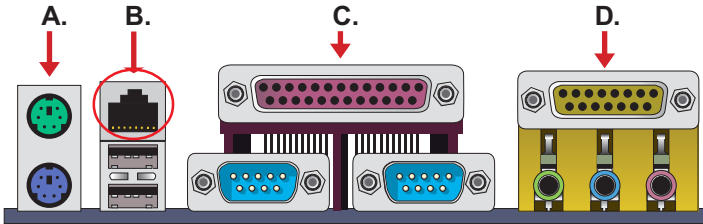
### 2-8.2 CD-ROM Audio Connector



CD-ROM Audio Pin Assignment

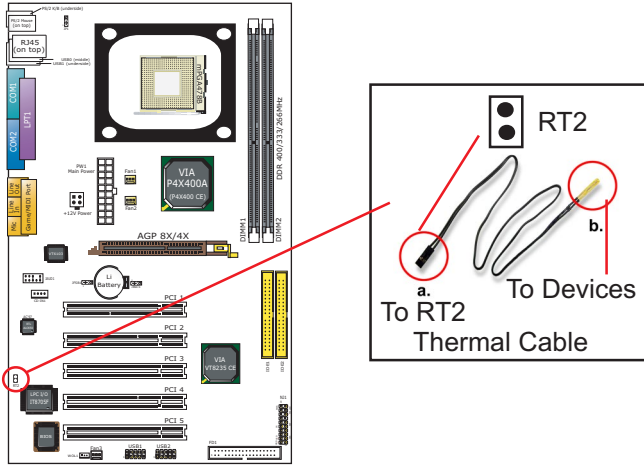
CD-IN 1	Pin 1	Pin 2	Pin 3	Pin 4
	Left Channel	GND	GND	Right Channel

### 2-8.3 Chassis Panel Connector



- |  |   |
|--|---|
| <b>A</b> : PS/2 Mouse Port                       | <b>G</b> : COM 1                                      |
| <b>B</b> : RJ45 LAN Port<br>(For 85ERV2-CL only) | <b>H</b> : COM 2                                      |
| <b>C</b> : LPT1 Port                             | <b>I</b> : Line Out /<br>Front Speaker OUT            |
| <b>D</b> : Game/MIDI Port                        | <b>J</b> : Line In /<br>Rear Speaker Out              |
| <b>E</b> : PS/2 Keyboard Port                    | <b>K</b> : Microphone Input /<br>Center Subwoofer Out |
| <b>F</b> : USB 1(underside)<br>USB0 (middle)     |   |

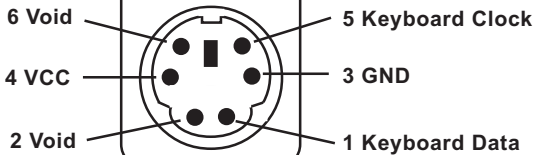
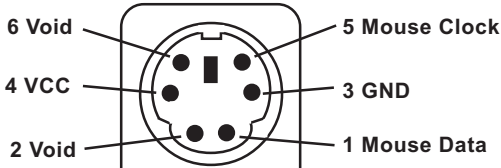
### 2-8.4 Thermal Connector



Connector RT2: A thermal cable is needed to connect RT2 to on-board devices such as HDD, Graphics card etc., so as to detect the temperature generated therein. Please connect the end (a) of the thermal cable to mainboard RT2 header, and tape another end (b) of thermal cable on to the device which you want to monitor. After you have finished the thermal cable installation, you will **see the detected temperature in BIOS setup or Hardware monitor utility.**

### 2-8.5 PS/2 Mouse And PS/2 Keyboard

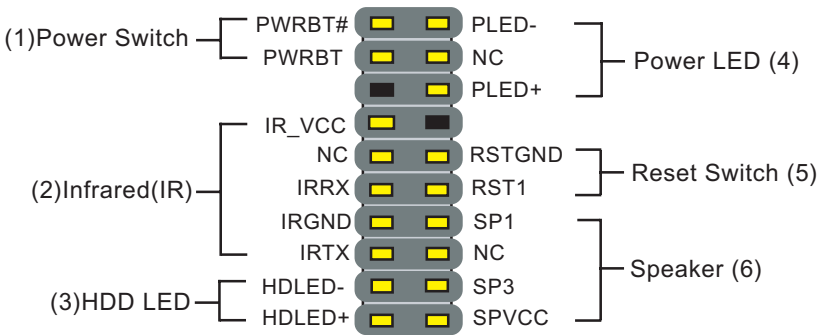
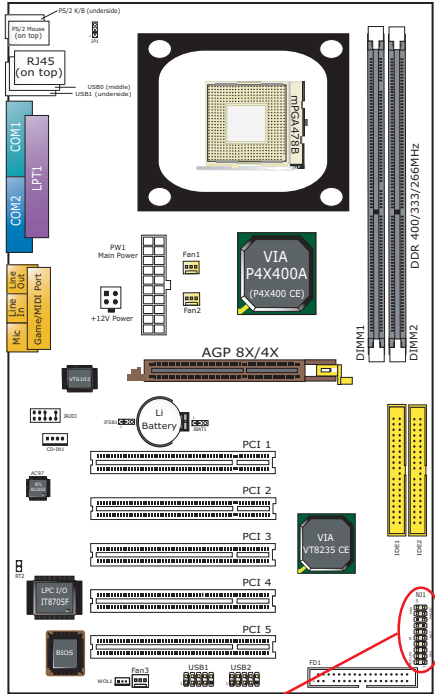
**PS/2 Mouse Connector (green, on top)**



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

### 2-8.6 Complex Header

This complex Header consists of 6 connectors providing various supports:



**(1) Power Switch Connector:**

Connection: Connected to a momentary button or switch.

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

**(2) IR Connector (Infrared Connector):**

Connection: Connected to Connector IR on board.

Function: Supporting wireless transmitting and receiving module on board.

**(3) HDD LED Connector:**

Connection: Connected to HDD LED.

Function: To supply power to HDD LED.

**(4) Power LED Connector:**

Connection: Connected to System Power LED.

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

**(5) Reset Switch Connector:**

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

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

**(6) Speaker Connector:**

Connection: Connected to the case-mounted Speaker.

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

---



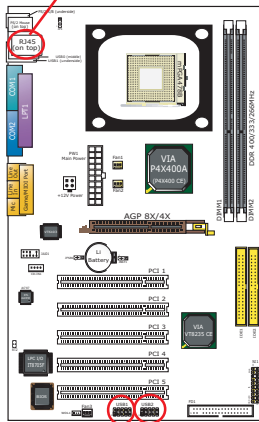
### 2-8.7 USB Ports and USB Pin-headers

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

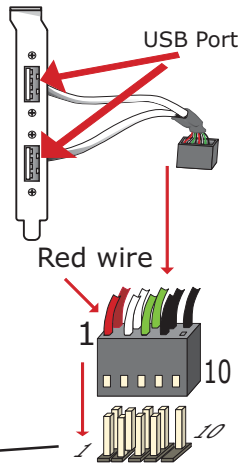
When plugging the USB cable to USB Header, user must make sure the red wire is connected to Pin 1.

All 6 USB ports are compliant with 1.0 / 2.0 USB Bus. USB 2.0 supports Windows 98 and up . USB 1.0 / 2.0 drivers are provided in Support CD for user's installation.

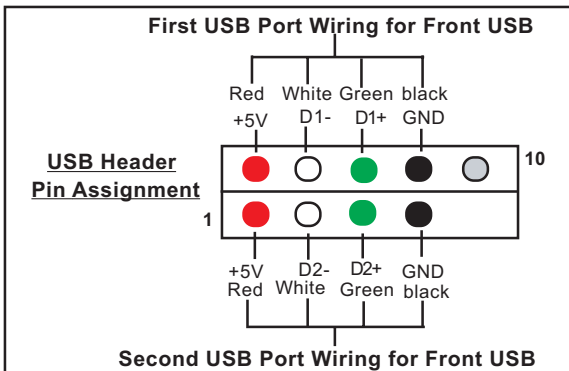
#### USB Ports USB 1 (underside) & USB 0 (middle)



#### USB Cable (Optional)



#### USB Pin-headers USB1 and USB2

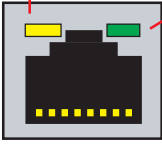


### 2-8.8 RJ45 Connector ( for 85ERV2-CL only)

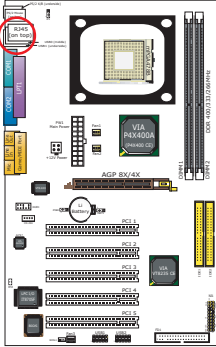
One RJ45 connector is on board for LAN connection.

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.

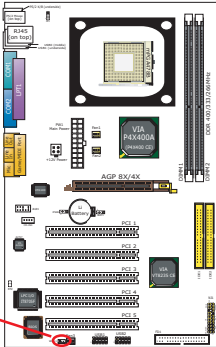
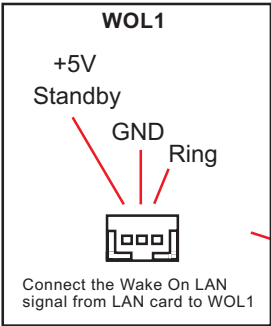


RJ45 Connector



### 2-8.9 Wake On LAN Connector ( for 85ERV2-C only):

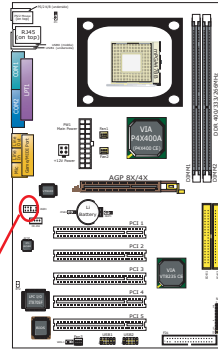
1. This connector connects to a PCI LAN card with a Ring signal output. The connector powers up the system when it receives a wake-up packet or signal through the LAN card.
2. This feature requires that Resume On Ring feature is enabled in the BIOS setting "Power Management Setup" and that your system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



### 2-8.10 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.



<b>JAUD1: Front Audio Panel Connector</b>			
	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Pin 1 Mic In</p> <p>Pin 3 Mic VREF</p> <p>Pin 5 FPOUT R</p> <p>Pin 7 (Key)</p> <p>Pin 9 FPOUT L</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Pin 2 Aud GND</p> <p>Pin 4 Aud Vcc</p> <p>Pin 6 RET R</p> <p>Pin 10 RET L</p> </td> </tr> </table>	<p>Pin 1 Mic In</p> <p>Pin 3 Mic VREF</p> <p>Pin 5 FPOUT R</p> <p>Pin 7 (Key)</p> <p>Pin 9 FPOUT L</p>	<p>Pin 2 Aud GND</p> <p>Pin 4 Aud Vcc</p> <p>Pin 6 RET R</p> <p>Pin 10 RET L</p>
<p>Pin 1 Mic In</p> <p>Pin 3 Mic VREF</p> <p>Pin 5 FPOUT R</p> <p>Pin 7 (Key)</p> <p>Pin 9 FPOUT L</p>	<p>Pin 2 Aud GND</p> <p>Pin 4 Aud Vcc</p> <p>Pin 6 RET R</p> <p>Pin 10 RET L</p>		

# Chapter 4 AMI BIOS Setup

## THE BIOS

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

BIOS performs the following functions:

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

**This Chapter includes the following topics :**

**4-1 About BIOS Setup**

**4-2 To Run BIOS Setup**

**4-3 About CMOS**

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

**4-5 To Update BIOS**

**4-6 BIOS Setup**

### 4-1 About BIOS Setup

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

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

### 4-2 To Run BIOS Setup

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

DEL : SETUP

### 4-3 About CMOS

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

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

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

## 4-5 To Update BIOS

- System BIOS is incorporated into a Flash memory component. Flash BIOS allows user to upgrade BIOS without the need to replace an EPROM component.
- The Upgrade Utility can be loaded on a floppy diskette for upgrading saving, and verifying the system BIOS. The Update Utility can also be run from a hard disk drive or a network drive.
- It is highly recommended that you save a copy of the original mainboard BIOS along with a Flash EPROM Programming utility (AMIXXX.EXE) to a bootable floppy disk so that you can reinstall the BIOS when in need.
- Normally, to update BIOS is unnecessary if the system is working fine. Users should only update BIOS when incompatible problems are encountered or new features have to be added to system.
- “AMIFLASH.EXE” is a Flash EPROM Programming utility that updates the BIOS by uploading a new BIOS file to the programmable flash ROM on the mainboard. This program only works in **DOS environment, the utility can not be executed in Win95/98, ME, NT, WINDOWS 2000 or Windows XP environment.**

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

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

Step 2. Create a bootable diskette. Then copy the BIOS file and AMI flash utility “AMIXXX.EXE” into the diskette.

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

Step 4. Under “ A “ prompt, type “ **AMIXXX.EXE \*.ROM** “ and then press <Enter> to run BIOS update program. Please note that there should be a space between AMIXXX.EXE and \*.ROM. (\*.ROM depends on your mainboard model and version code. Instead of typing “\*”, you should type the specific file name for your specific mainboard). For example, you may type “amiflash(space)LDL005.rom”.

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

Step 6. You will see a message “CMOS Memory Size Wrong” during booting the system. Press <Del> or <F1> to run CMOS setup utility, then reload “LOAD SETUP DEFAULTS” or “**Load Optimal Defaults**” and save this change.

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

### 4-6.1 CMOS Setup Utility

This mainboard comes with the AMI BIOS from American Megatrends Inc. Enter the CMOS Setup Utility Main Menu by:

1. Turn on or reboot your system. After a series of diagnostic checks, the following message will appear:

**PRESS <Del> TO RUN SETUP**

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

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a			
<ul style="list-style-type: none"> <li>▶ Standard CMOS Features</li> <li>▶ Advanced BIOS Features</li> <li>▶ Advanced Chipset Features</li> <li>▶ Power Management Features</li> <li>▶ PNP/PCI Configurations</li> <li>▶ Integrated Peripherals</li> <li>▶ Hardware Monitor Status</li> <li>▶ Frequency/Voltage Control</li> </ul>	<ul style="list-style-type: none"> <li>Set Supervisor Password</li> <li>Load Optimal Defaults</li> <li>Save &amp; Exit Setup</li> <li>Exit Without Saving</li> </ul>		
F1: Help	↑↓: Select Item	+/- : Change Values	F9: Setup Defaults
Esc: Exit	←→: Select Menu	Enter: Select ▶Sub-Menu	F10: Save and Exit
Set Time, Date, Hard Disk Type ...			

3. Use the arrow keys on your keyboard to select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system.
4. You may return to the Main Menu anytime by pressing <ESC>.
5. In the Main Menu, "Save & Exit Setup" saves your changes and reboots the system, and "Exit Without Saving" ignores your changes and exits the program.



### 4-6.2 Standard CMOS Setup

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

Run the Standard CMOS Setup as follows:

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

Standard CMOS Features	Setup Help
System Time                    00 19 29 System Date                    May 15 2003 Thr  ▶ Floppy options. ▶ IDE Device Config	

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

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

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

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

**System Time** The BIOS shows the time of the day in the format: hh:mm:ss. Choose the field with the Arrow keys and change the time with the Page Up/Page Down +/- keys.

**System Date** The BIOS shows the date of the day in the format: mm:dd:yy :day of the Week. Choose the field with the Arrow keys and change the value with the Page Up/Page Down +/- keys.

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

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

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

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

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

F9: Setup Defaults  
 F10: Save and Exit

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

1-50: Predefined types

USER: set Parameters by User

Auto: Set parameters automatically

CD-ROM: Use for ATAPI CD-ROM drives

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

### 4-6.3 Advanced BIOS Features

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

Run the Advanced BIOS Features as follows:

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

**AMIBIOS NEW SETUP UTILITY - VERSION 3.31a**

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

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

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

F9: Setup Defaults  
F10: Save and Exit

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

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

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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

**Quick Boot** Allows you to enable (default)/ disable quick boot of your system.

**Delay for Hard Drive (Sec.)** Allows you to adjust the time of detecting hard disk on board at booting system.  
Choices: Disabled; 1~10 sec. in 1 sec. stepping.

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

**Try Other Boot Devices** Allows you to enable/disable system to try to boot with other boot devices.  
Choices: Yes (default); No

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

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

- S.M.A.R.T. for Hard Disks** Allows you to enable / disable the Self Monitoring Analysis and Reporting Technology for the hard disk. Choices: Enabled; Disabled (default)
- Bootup Num-lock** Allows you to toggle between On (default) or Off to control the state of the NumLock keys when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.
- Floppy Drive Swap** Disabled (default), Floppy Drive A will not be changed to B, nor B to A. Enabled, Floppy Drive A and B will change position.
- Floppy Drive Seek** Disabled (default), Floppy Drives will not be checked and diagnosed at system bootup; Enabled, Floppy Drives will be checked and diagnosed at system bootup.
- PS/2 Mouse Support** Enabled (default), PS/2 mouse is supported. Disabled, PS/2 Mouse is not supported
- Primary Display** Allows you to choose the primary display for the system. Choices: VGA/EGA (default); CGA40x25; CGA80x25; Mono; Absent
- Password Check** Allows you to set BIOS to check up password with a password prompt at BIOS Setup or whenever re-starting system. Choices: Setup (default); Always
- Boot to OS/2** Allows you to set your system to OS/2 operating system. Choices: Yes; No (default)
- CPU Microcode Updation** Allows you to enable/disable the CPU Microcode Update function. Choices: Disabled; Enabled (default)

**L1 /L2 Cache** Use this item to enable/disable the L1/L2 cache.  
Choices: Enabled (default); Disabled

**System BIOS Cacheable** Allows you to enable (default)/ disable the System BIOS Cacheable function.

**C000, 32K Shadow** Allows you to set these addresses cached, Enabled or Disabled. Default: Cached

**C800,CC00,D000,D400, D800,DC00 16K Shadow** Allows you to set these addresses cached, Enabled or Disabled. Default: Disabled

### 4-6.4 Advanced Chipset Features

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

Run the Advanced Chipset Features as follows:

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

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

Advanced Chipset Features	Setup Help
<p style="text-align: center;">DRAM Timing</p> <p>Configure SDRAM timing by SPD      Enabled</p> <p>SDRAM Frequency                      Auto</p> <p>SDRAM CAS# Latency                  2.5</p> <p>SDRAM Bank Interleave              Disabled</p> <p>SDRAM Burst Length                  4QW</p> <p>SDRAM Command Rate                2T</p> <p>Memory Hole                            Disabled</p> <p>VLink 8X Supported                    Enabled</p> <p>AGP Mode                                4x</p> <p>AGP Read Synchronization            Disabled</p> <p>AGP Fast Write                         Disabled</p> <p>AGP Comp. Driving                     Auto</p> <p>AGP Aperture Size                     64MB</p> <p>AGP Master 1 W/S Write               Disabled</p> <p>AGP Master 1 W/S Read               Disabled</p> <p>Hyper Threading Function            Enabled</p> <p>USB Controller                         6 USB Ports</p> <p>USB 1.1 Device Legacy Support      Disabled</p> <p>USB 1.1 Port 64/60 Emulation        Disabled</p>	

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

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

F9: Setup Defaults  
F10: Save and Exit

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

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

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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



- Configure SDRAM Timing by SPD** SPD (Serial presence detect) is a device in memory module for storing the module information such as DRAM timing and chip parameters. If this option is enabled, BIOS will access SPD automatically to configure module timing. If disabled, DRAM timing can be configured manually.  
Default: Enabled
- SDRAM Frequency** Allows you to set the SDRAM frequency.  
Choices: 200MHz; 266MHz; Auto(default)
- SDRAM CAS# Latency** With SDRAM Timing by SPD disabled, you can select the SDRAM CAS# (Column Address Stroke) latency manually. A shorter time means a shorter wait time after the CAS signal.  
Choices: 2 Clocks; 2.5 Clocks
- SDRAM Bank Interleave** This item allows you to enable / disable(default) SDRAM Bank Interleave function (between different memory modules).
- SDRAM Burst Length** With SDRAM timing by SPD disabled, you can select the SDRAM Burst Length manually.  
Choices: 8QW, 4QW(default)
- SDRAM Command Rate** Allows you to set the SDRAM Command Rate.  
Choices: 1T; 2T(default)
- Memory Hole** Allows you to enabled / disabled (default) the support of Memory Hole which is reserved for ISA card.  
Choices: Disabled; 512KB-640KB; 15MB-16MB; 14MB-16MB
- VLink 8X Supported** If enabled, this option will support VLink 8X between CPU and North Bridge.  
Choices: Disabled; Enabled(default)
- AGP Mode** Allows you to set the AGP Mode on board.  
Choices: 8x; 4x(default); 2x; 1x
- AGP Read Synchronization** Allows you to enabled / disable the AGP Read Synchronization function.  
Choices: Enabled; Disabled (default)

- AGP Fast Write** Allows you to enable / disable the AGP Fast Write function.  
Choices: Enabled; Disabled (default)
- AGP Comp. Driving** Allows you to Auto or Manually set the AGP Compensation Driving Strength.  
Choices: Manual; Auto (default)
- Manual AGP Comp. Driving** If AGP Comp. Driving is set to Manual, this item allows you to set AGP Compensation Driving Strength.  
Choices: 00h ~ FFh
- AGP Aperture Size** Allows you to set the AGP Aperture Size.  
Choices: 4MB; 8MB; 16MB; 32MB; 64MB; 128MB; 256MB;
- AGP Master 1 W/S Write** Allows you to enable / disable (default) the support of AGP Master 1 Wait State Write.
- AGP Master 1 W/S Read** Allows you to enable / disable (default) the support of AGP Master 1 Wait State Read.
- (Hyper Threading Function)** If Hyper Threading CPU is running on board, this item appears to show the enabled status.  
Choices: Enabled; Disabled
- USB Controller** Allows you to set the USB Controller on the USB port(s).  
Choices: 6 USB Ports (default) ; 4 USB Ports; 2 USB Ports; Disabled
- USB 1.1 Device Legacy Support** Allows you to select the USB Device Legacy support.  
Choices: No Mice; All Device; Disabled (default)
- USB 1.1 Port 64/60 Emulation** Allows you to enable / disable (default) the Port 64/60 Emulation.

### 4-6.5 Power Management Features

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

Run the Power Management Features as follows:

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

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

Power Management Features		Setup Help
ACPI Standby State	S1/POS	
Power Management/APM	Enabled	
Video Power Down Mode	Suspend	
Hard Disk Power Down Mode	Stand By	
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
Power Button Function	On/Off	
Restore on AC/Power Loss	Power Off	
Resume On Ring/WOL	Disabled	
Resume On PME#	Disabled	
Resume On KBC	Disabled	
Wake-Up Key	Any Key	
Resume On PS/2 Mouse	Disabled	
Resume On RTC Alarm	Disabled	
RTC Alarm Date	15	
RTC Alarm Hour	12	
RTC Alarm Minute	30	
RTC Alarm Second	30	

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

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

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

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

- ACPI Standby State** This item allows you to select the ACPI Suspend type. You can select S3(STR) for suspending to DRAM if your system supports this mode. Or you can select S1 (POS) for Power on Suspend under ACPI mode.  
Choices: S1/POS, S3(STR) (Optional)
- Power Management/ APM** Allows you to enable (optional)/ disable the Power management / Advanced Power Management function.
- Video Power Down Mode** Allows you to select the Video Power Down Mode.  
Choices: Disabled; Standby; Suspend (default)
- Hard Disk Power Down Mode** Allows you to select the Hard Disk Power Down Mode.  
Choices: Disabled; Standby (default); Suspend
- Standby Time Out (Minute)** To set the duration of Standby Time Out.  
Choices: Disabled; 1; 2; 4; 8; 10; 20; 30; 40; 50; 60
- Suspend Time Out (Minute)** To set the duration of Suspend Time Out.  
Choices: Disabled; 1; 2; 4; 8; 10; 20; 30; 40; 50; 60
- Power Button Function** Allows you to set power button function.  
Choices: On/Off (default); Suspend
- Restore on AC/Power Loss** Allows you to set the restore state from AC/Power Loss.  
Choices: Last State; Power Off (default); Power On
- Resume on Ring/WOL** Allows you to enable / disable (default)the Resume on Ring Signal function and Wake On Lan function. An input signal on the serial Ring Indicator (RI) Line (in other words, an incoming call on the modem) awakens the system from a soft off state.
- Resume On PME#** Allows you to enable / disable (default) the Resume On PME function.
- Resume On KBC** Allows you to enable / disable (default) the Resume On Keyboard Clock function.  
Choices: S4/S5; Disabled

- Wake-Up Key** If “Resume On KBC” function is enabled, this option allow you to set the key to wake up the system.  
Choices: Any Key
- Resume On PS/2 Mouse** Allows you to enable / disable (default) the Resume On PS/2 Mouse function.  
Choices: S4/S5; Disabled
- Resume On RTC Alarm** Allows you to enable / disable (default)the Resume On RTC Alarm function.
- RTC Alarm Date / Hour / Minute / Second** If resume On RTC Alarm is enabled, this field allows you to set the Alarm date Hour, Minute and second.  
Date Choices: Every Day; 01 ~ 31  
Hour Choices: 00 ~ 23  
Minute Choices: 00 ~ 59  
Second Choices: 00 ~ 59

## 4-6.6 PNP / PCI Configurations

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

Run the PNP/PCI Configurations as follows:

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

### AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

PNP/PCI Configurations	Setup Help
Plug and play Aware O/S	No
Clear NVRAM	No
PCI Latency Timer (PCI Clocks)	32
Primary Graphics Adapter	PCI
PCI IDE Busmaster	Enabled
PCI Slot1 IRQ Priority	Auto
PCI Slot2 IRQ Priority	Auto
PCI Slot3 IRQ Priority	Auto
PCI Slot4 IRQ Priority	Auto
PCI Slot5 IRQ Priority	Auto

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

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

F9: Setup Defaults  
F10: Save and Exit

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

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

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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

- Plug and Play Aware O/S** Select Yes if the system operating environment is Plug-and-Play system (e.g., Windows98).
- Clear NVRAM** Allows BIOS to clear the NVRAM data.  
Choices: No (default); Yes
- OnChip VGA Frame Buffer Size** Allows you to select the memory size shared with the system.  
Choices: None; 8MB; 16MB; 32MB
- PCI Latency Timer (PCI Clocks)** Allows you to set the PCI Latency Time.  
Choices: 32 (default); 64; 96; 192; 128; 160; 192; 224; 248;
- Primary Graphics Adapter** Allows you to select the Primary Graphics Adapter.  
Choices: PCI; AGP
- PCI IDE BusMaster** Allows you to enable (default) / disable the PCI IDE Bus Master function.
- PCI Slot 1/2/3/4/5 IRQ Priority** Allows you to specify the IRQ for the PCI slots.  
Choices: Auto (default); 3; 4; 5; 7; 9; 10; 11

### 4-6.7 Integrated Peripherals

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

Run the Integrated Peripherals as follows:

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

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Integrated Peripherals	Setup Help
Onboard FDC	Auto
Onboard Serial Port 1	Auto
Onboard Serial Port 2	Auto
Serial Port 2 Mode	Normal
Onboard Parallel Port	Auto
Parallel Port Mode	ECP
Parallel Port IRQ	Auto
Parallel Port DMA Channel	Auto
Onboard MIDI Port	Disabled
MIDI Port IRQ	5
OnBoard Game Port	200
OnBoard IDE	Both
OnBoard Lan (Optional)	Enabled
OnBoard LAN P.M.E (Optional)	Enabled
Onboard AC'97 Audio	Enabled

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

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

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

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



- OnBoard FDC** Allows you to enable / disable the Onboard FDC.  
Choices: Auto (default); Enabled; Disabled
- Onboard Serial Port 1** Allows you to set the Onboard Serial Port 1.  
Choices: Auto (default); Disabled; 3F8/COM1; 2F8/COM2; 3E8/COM3; 2E8/COM4;
- Onboard Serial Port 2** Allows you to set the Onboard Serial Port 2.  
Choices: Auto (default); Disabled; 3F8/COM1; 2F8/COM2; 3E8/COM3; 2E8/COM4;
- Serial Port 2 Mode** Allows you to set the Serial Port 2 Mode.  
Choices: Normal (default); IrDA; ASKIR;
- OnBoard Parallel Port** Allows you to configure onboard Parallel port .  
Choices: Auto (default); Disabled; 378; 278; 3BC;
- Parallel Port Mode** If Parallel Port is not disabled, this item allows you to configure parallel port mode.  
Choices: ECP (default); EPP + ECP; Normal; EPP
- Parallel Port IRQ** Its variation depends on the selection of "Parallel Port Mode".
- Parallel Port DMA Channel** Its variation depends on the selection of "Parallel Port Mode".
- OnBoard MIDI Port** Allows you to configure onboard MIDI port address.  
The choices: Disabled(default); 300; 310; 320; 330
- MIDI Port IRQ** If the onboard MIDI port is set at 300 to 330, this item shows up to allow you to configure the MIDI Port IRQ5 to IRQ11.
- OnBoard Game Port** Allows you to configure Onboard Game Port address.  
Choices: Disabled; 200h (default); 208h

- Onboard IDE** Allows you to choose the Onboard IDE Mode.  
Choices: Disabled; Primary; Secondary; Both (default)
- (Optional) OnBoard LAN** Allows you to enable / disable OnBoard Lan.  
Choices: Enabled (default); Disabled
- (Optional) Onboard LAN P.M.E** Allows you to enable / disable OnBoard LAN P.M.E.  
Choices: Enabled (default); Disabled
- Onboard AC'97 Audio** Allows you to enable / disable AC' 97 Audio.  
Choices: Enabled (default); Disabled

### 4-6.8 Hardware Monitor Status

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

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

**AMIBIOS EASY SETUP UTILITY - VERSION 3.31a**

Hardware Monitor Status	Setup Help
CPU Vcore                    +1.680 V +2.5V                        +2.528 V +3.3V                        +3.408 V +5.0V                        +5.126 V +12.0V                      +11.187V -12.0V                      -11.972V 5V SB                        +5.164V Battery                      +3.296V Fan 1 Speed                3068 RPM Fan 2 Speed                0 RPM Temperature 1              30 °C/86 °F Temperature 2              0 °C/32 °F Temperature 3              37 °C/98 °F	

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

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

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

**+2.5V** Shows current voltage against the +2.5V power supply.

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

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

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

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

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

**Battery** Shows current voltage against battery power supply.

**Fan 1 / 3** Displays the current speed of CPU Fan, and other onboard device which user has connected to the onboard Fan Connectors.

**Temperature 1** Shows current CPU external temperature.

**Temperature 2** Shows current system temperature.

**Temperature 3** Shows current CPU internal temperature.

### 4-6.9 Frequency/Voltage Control

Run the “Frequency/Voltage Control” as following:

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

AMIBIOS EASY SETUP UTILITY - VERSION 3.31a

Frequency/Voltage Control	Setup Help
RedStorm Overclocking Tech (Optional) (Press Enter)	
CPU Linear Freq Disabled	
CPU Clock (100 MHz)	
Spread Spectrum Selection Disabled	
Auto Detect PCI Slot Disabled	
CPU Ratio Selection 8.0x	

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

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

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

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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

**(Optional) Redstorm Overclocking Tech** Press <Enter> to start *RED STORM OVERCLOCKING TECH*. This option gives user an easy way to overclocking. It will increase CPU external clock automatically. When CPU external clock increases to an unacceptably high value, BIOS will restart your system, then running at an acceptable CPU external clock.

**CPU Linear Frequency** This item allows you to enable / disable this setting function.

**CPU Clock** If CPU Linear Frequency is set Enabled, this item allows you to set CPU Clock.  
Choices: 100MHz ~200MHz in 1MHz stepping.

**Spread Spectrum Selection** If CPU Linear Frequency is disabled, use this item to enable/disable (default) Spread Spectrum Selection. This function will reduce the EMI (Electromagnetic Interference) in your system. If you do not have an EMI problem, leave this item disabled.

**Auto Detect PCI Slot** Allows you to enable / disable (default) this auto detection function on PCI slot.

**CPU Ratio Selection** If CPU onboard is one with an adjustable or unlocked CPU ratio, this item allows you user to adjust the CPU Ratio.

### 4-6.10 Set Supervisor Password

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

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

[ Enter new supervisor password ]

2. The first time you run this option, enter your password up to 8 characters and press <Enter>. (The screen does not display the entered characters.)
3. After you enter the password, the following message appears, prompting you to confirm the password:

[ Retype new supervisor Password ]

4. Enter the same password "exactly" the same as you have just typed to confirm the password and press <Enter>.
5. The following message appears to confirm the new password setup.

[ New supervisor password installed ]

Any Key to Continue

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

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

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

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

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

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

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

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



#### 4-6.11 Load Optimized Defaults

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

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

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

#### 4-6.12 Save & Exit Setup

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

[ Saving current settings and exit ]  
Press [Enter] to continue  
or [ESC] to abort

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

#### 4-6.13 Exit Without Saving

Exit Without Saving option allows you to exit the Setup Utility without saving the modifications that you have specified. Highlight this option on the Main Menu and press <Enter> and the following message appears:

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

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