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Chapter 1 Specification

Introduction

This mainboard features an integration of the powerful AMD processors Athlon/Athlon XP/Duron and the North Bridge VIA Apollo KT400A plus South Bridge VT8235, with which the whole system performance supports 333/266/200MHz system bus.

VIA Apollo KT400A plus VT8235 supports on-board AMD processors to implement the 333/266/200MHz Front Side Bus, the AGP 8X/4X interface, the LPC Super I/O, the DDR 400/333/266MHz SDRAM, the 2-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

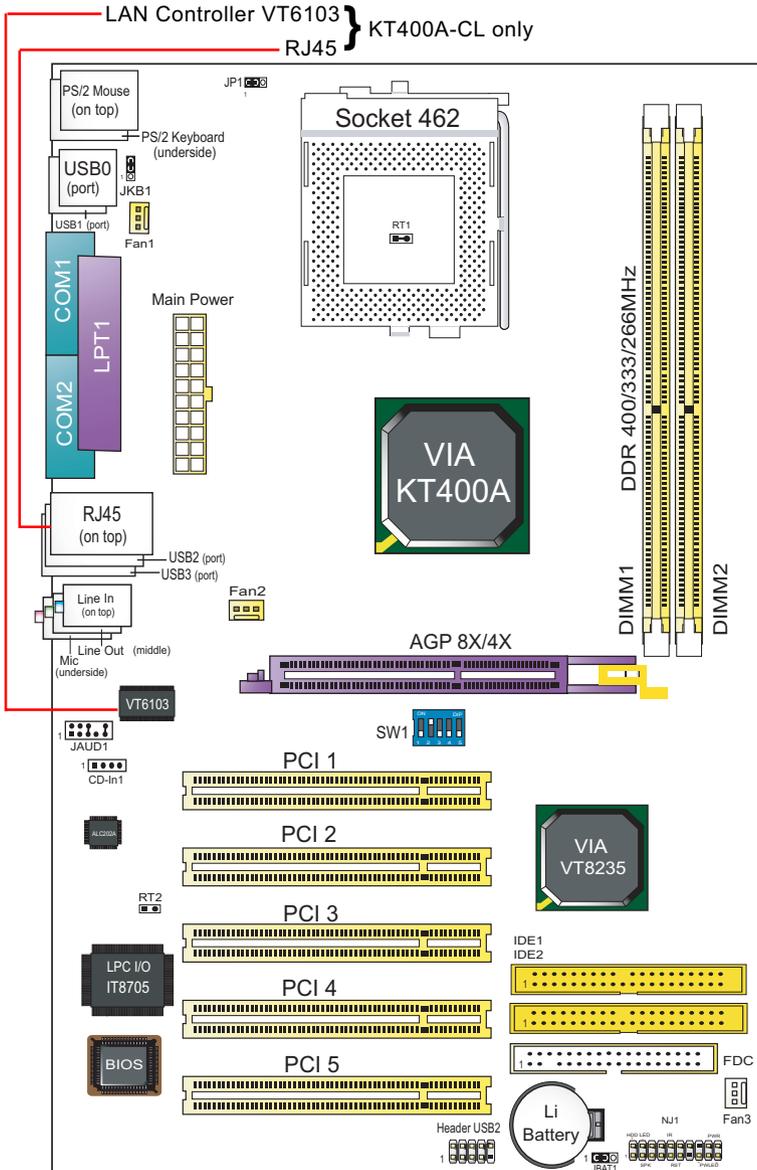
1-2 Mainboard Specifications**

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.**

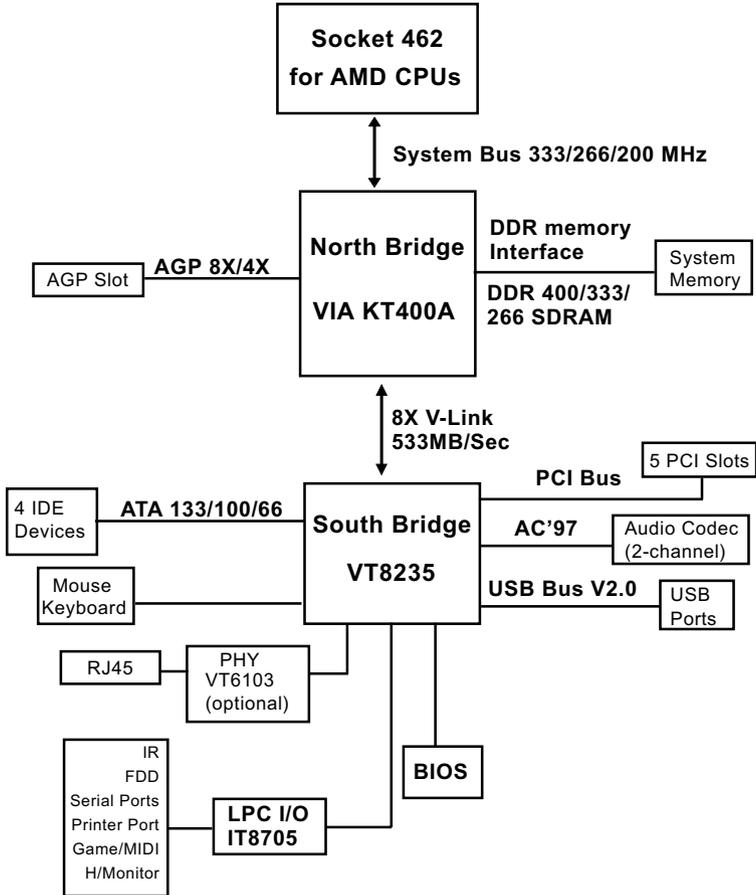
1-1 KT400A-C/KT400A-CL Mainboard Layout



1-2 Mainboard Specification Table

| Series KT400A-C/CL Specifications and Features | | |
|--|--|-----------------|
| CPU | Socket 462 for AMD Athlon, Athlon XP, Duron CPU | |
| North Bridge | VIA KT400A, supporting 333/266/200 MHz FSB | |
| South Bridge | VIA VT8235 | |
| BIOS | AMI BIOS | |
| Memory | Supporting DDR 400/333/266 SDRAM, up to 2GB in 2 DDR SDIMM slots | |
| I/O Chip | ITE IT8705F with Hardware Monitor | |
| AGP interface | AGP 8X/4X mode only | |
| Audio | AC'97 Audio Codec compliant, 2- channel audio | |
| 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 | |
| Other Common Feature | PS/2 Keyboard/ Mouse Wake up | |
| Optional Features | Model | |
| | KT400A-C | KT400A-CL |
| LAN Controller on board | No | VT6103 on board |
| LAN connector | No | RJ45 on board |

1-3 Chipset System Block Diagram



Socket 462 + VIA KT400A + VIA VT8235 Diagram

1-4 Mainboard Specifications and Features

1-4.1 CPU Socket

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

1-4.2 System Chipsets

- North Bridge VIA KT400A for managing and supporting 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 VIA VT8235 working with North Bridge KT400A supporting the V-Link, LPC Super I/O, PCI interface, ATA133 interface, USB V2.0 interface, as well as AC'97 Audio 2-channel interface.

1-4.3 Memory

2 DDR DIMM 184-pin slots on board :

- Supporting unregistered, non-ECC DDR 400/333/266/200 SDRAM up to 2GBs
- Supporting installation of mixed volumes yet same type of DDR SDRAM modules

1-4.4 BIOS

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

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

1-4.5 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 longburst transfers up to 2GB/sec.
- AGP 8X/4X supported, AGP V3.0 compliant

1-4.6 AC'97 Audio Codec on board

AC'97 Audio Codec ALC202A on board

- Supporting 2- channel audio output

1-4.7 Advanced System Power Management

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

- ACPI 1.0 compliant (Advanced Configuration and Power Interface)
- APM V1.2 compliant (Legacy Power Management)
- ACPI Suspend function supported
- PS/2 Keyboard & Mouse Wake-up
- Real Time Clock (RTC) with date alarm, month alarm, and century field

1-4.8 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 98 and later operating systems; USB drivers provided in Support CD for installation
 - 4 built-in USB connectors and 1 more USB pin-header which requires 1 optional USB cable to provide 2 more USB ports
- PS/2 Keyboard and PS/2 Mouse
- UARTs (Universal Asynchronous Receiver / Transmitter):
 - 2 complete serial ports (COM1 & COM2) on board

1-4.9 LAN on board (KT400A-CL only)

Fast Ethernet Controller V6103 PHY on board:

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

1-4.10 Hardware Monitor on board

- Hardware Monitor integrated in LPC I/O IT8705F, 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.

1-4.11 Form Factor

- ATX Form Factor, ATX Power Supply
- Mainboard size: 305mm x 190mm

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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

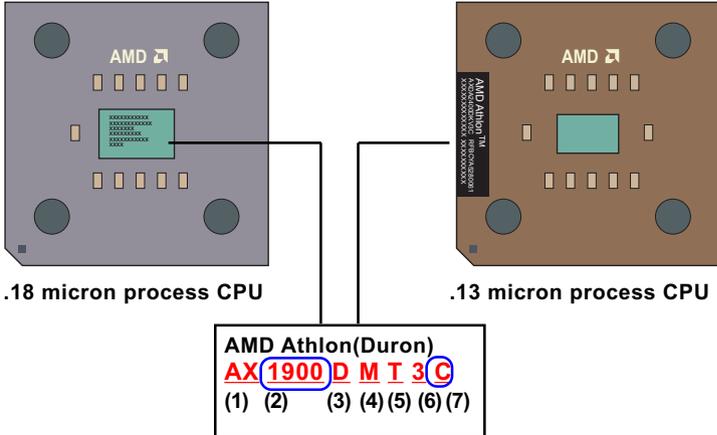
2-6 ATX Power Supply Installation

2-7 Jumper Settings

2-8 Other Connectors Configuration

2-1 CPU Identification and Installation

2-1.1 CPU Identification Legends



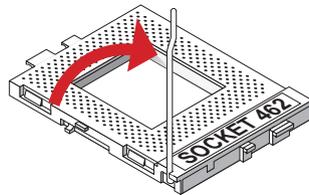
- (1) **Family / Architecture:**
 A, AX, AXDA=AMD Athlon Processor
 D, DHD, DHM, DHL=AMD Duron Processor
- (2) **Speed:** 1000=1000MHz, 1600=1400MHz, 1700=1467MHz,
 1800=1533MHz, 1900=1600MHz, 2000=1667MHz,
 2100=1733MHz, 2200=1800MHz, 2400=2000MHz,
 2600=2133MHz, 2700=2167MHz, 2500=1833MHz(Barton),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

2-1.2 CPU Installation with Socket 462

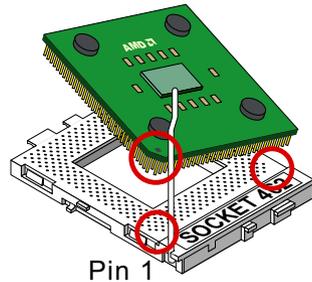
This mainboard is built with CPU Socket 462 supporting the AMD CPUs Athlon, Athlon XP and Duron:

- 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.

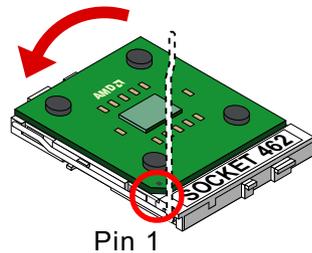
1. First pull sideways the lever of Socket 462, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



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.



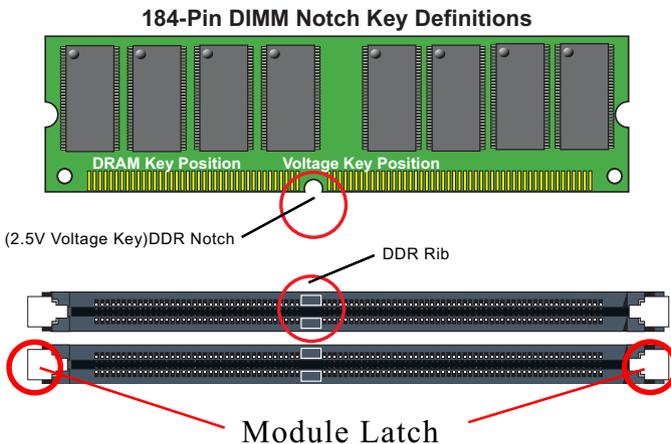
2-2 Memory Installation

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.

2-2.1 To Install DDR SDRAM Module

- This mainboard supports up to 2GB unbuffered DDR 400/333/266 SDRAM, with 2 DDR DIMM slots on board. Do not insert other type of modules into these slots. Memory support is upgradable to DDR 400 without guarantee of success in BIOS Setup.
- 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.

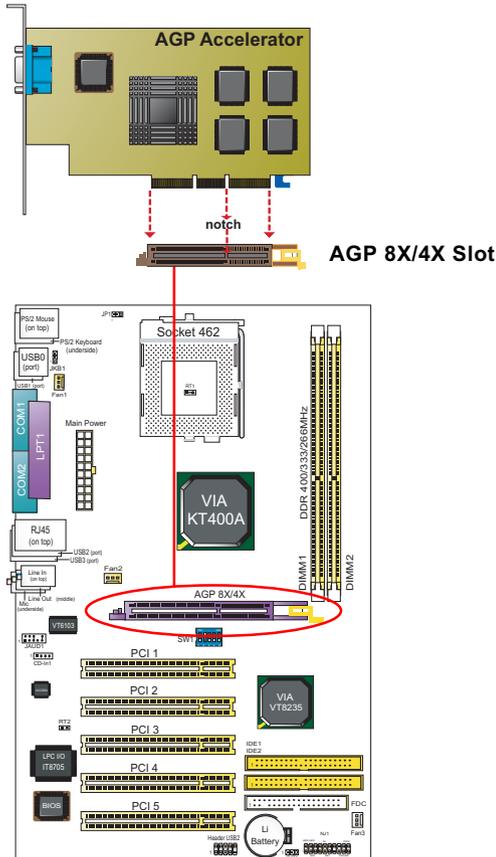


2-2.2 To Remove a DIMM

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

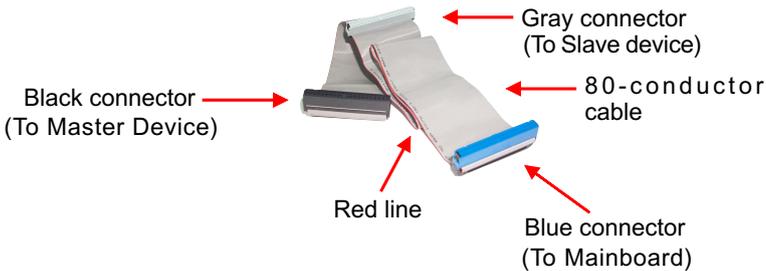
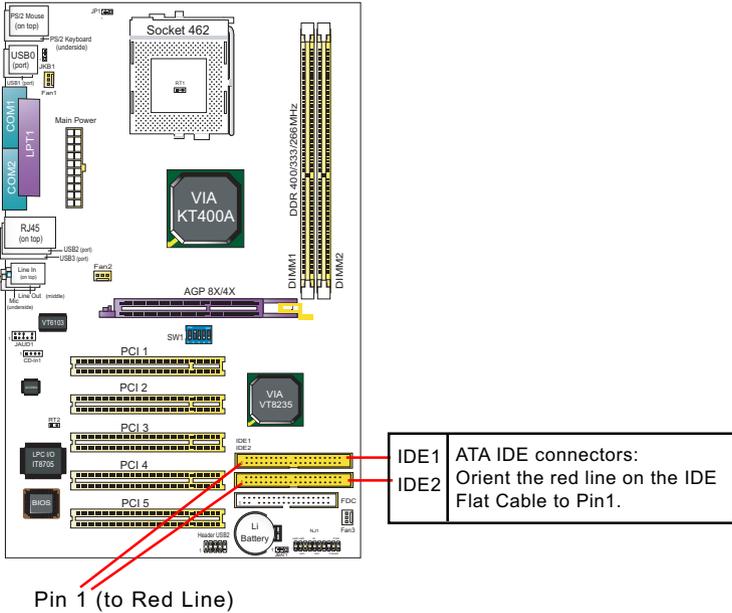
2-3 AGP Slot Installation

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

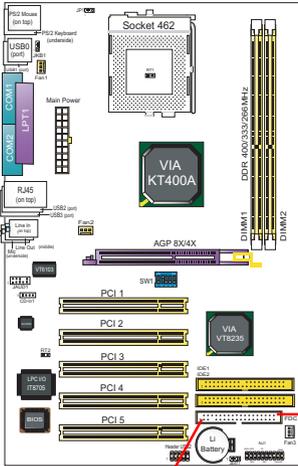
To install IDE Connector, you may connect the blue connector of IDE cable to the primary (IDE1) or secondary (IDE2) connector on board, and then connect the gray connector to your slave device and the black connector to your master device. If you install two hard disks, you must configure the second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



IDE Flat Cable

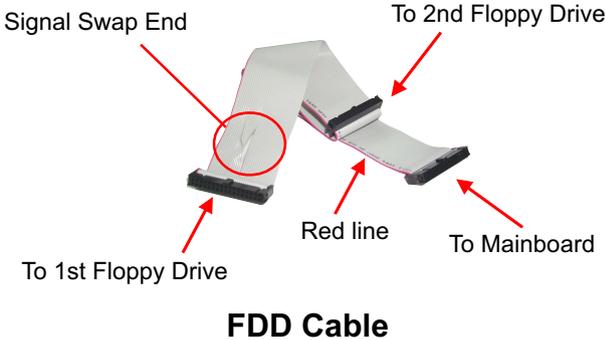
2-5 Floppy Drive Connector (FDC) Installation

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



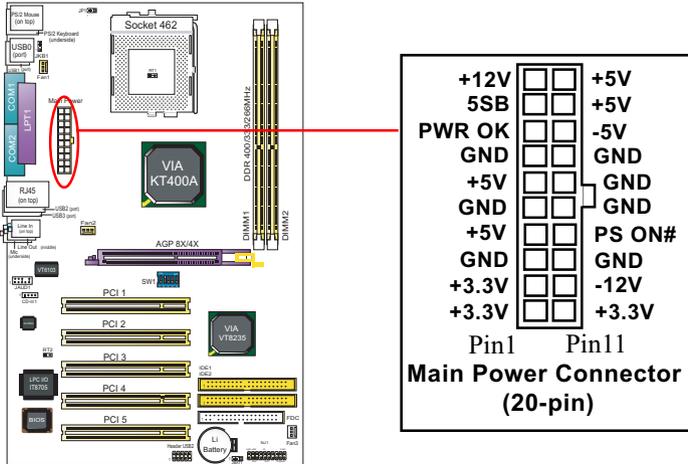
Floppy Drive Connector:
Orient the red line of the Floppy Flat Cable to Pin1.

Pin 1 (to Red Line)



FDD Cable

2-6 ATX Power Supply Installation



To set up Power Supply on this series:

Connect the on-board Main Power Connector (20-pin) to the Main Power Connector (20-pin) of an ATX Power Supply which can be either of the latest version 2.03 or of earlier ATX model.

2-7 Jumper / Switch Settings

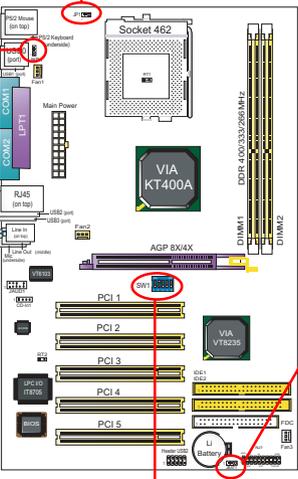
The following diagrams show the locations and settings of jumper / switch blocks on the mainboard.

**JP1: Anti-burn Shield (ABSII)
(Overheated CPU Shutdown)
(only for Athlon XP/Duron Morgan)**

| | |
|---|-----------------------------|
| 1  | 1-2 closed (default) |
| Enable overheated CPU (85°C) shutdown function | |
| 1  | 2-3 closed |
| Disable overheated CPU shutdown function | |

**JKB1
PS/2 KB/Mouse Wake-up**

| | |
|---|-----------------------------|
| 1  | 1-2 closed |
| Enabled | |
| 1  | 2-3 closed (default) |
| Disabled | |



**JBAT1
Clear CMOS**

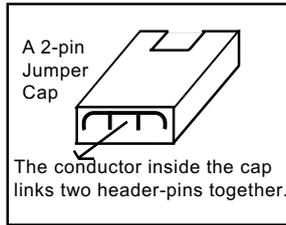
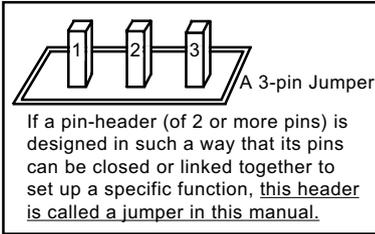
| | |
|---|-----------------------------|
| 1  | 1-2 closed (default) |
| To hold data | |
| 1  | 2-3 closed |
| To clear CMOS | |

SW1 (5-Dip) On 
Off 

SW1 (5-Dip): CPU Clock Select

| CPU Clock | SW1-1 | SW1-2 | SW1-3 | SW1-4 | SW1-5 |
|------------------|-------|-------|-------|-------|-------|
| 100MHz (default) | Off | On | Off | Off | Off |
| 133MHz | On | Off | On | Off | Off |
| 166MHz | On | Off | On | On | On |

2-7.1 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.

2-7.2 SW1: CPU Clock Select

SW1 is designed on board as a 5-dip switch for CPU clock select.

1. Before setting the CPU clock, read the Identification Legend on the CPU, find the Max FSB and divide it by two. The result is the default CPU clock.
2. Select the CPU clock you want from 100/133/166MHz and set SW1 to match your choice.
3. If you select a CPU clock which is higher than your default CPU clock, it may fail to boot system. You should restore the default setting and then clear CMOS to reboot your system. (See Clear CMOS in next paragraph.)

| SW1 (5-Dip) CPU Clock Select | | | | | |
|------------------------------|-------|-------|-------|-------|-------|
| On Off | | | | | |
| CPU Clock | SW1-1 | SW1-2 | SW1-3 | SW1-4 | SW1-5 |
| 100MHz (default) | Off | On | Off | Off | Off |
| 133MHz | On | Off | On | Off | Off |
| 166MHz | On | Off | On | On | On |

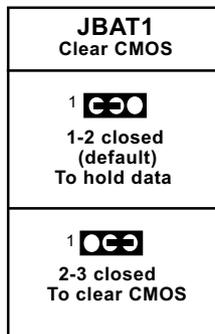
Further notes on CPU Overclocking:

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

2-7.3 JBAT1: Clear CMOS

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

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



2-7.4 Jp1: Anti-burn Shield (ABSII)

| | |
|---|--|
| JP1: Anti-burn Shield (ABSII) (Overheated CPU Shutdown) (only for Athlon XP/ Duron Morgan) | |
|  1 | 1-2 closed (default) Enable overheated CPU (85°C) shutdown function |
|  1 | 2-3 closed Disable overheated CPU shutdown function |

JP1 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 JP1 1-2 closed (default setting) will get system shutdown when any of the above-mentioned CPUs gets 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 JP1 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 to restart your system.

2-7.5 JKB1: PS/2 KB/Mouse Wake-up

JKB1 is designed to enable / disable the PS/2 Keyboard or PS/2 Mouse Wake-up (from suspend mode). Setting JKB1 to 2-3 closed (default) will disable this function while setting JKB1 to 1-2 closed will enable this function.

Yet users still have to choose the KB/Mouse Wake-up mode on BIOS. (See Integrated Peripherals” in BIOS Setup.)

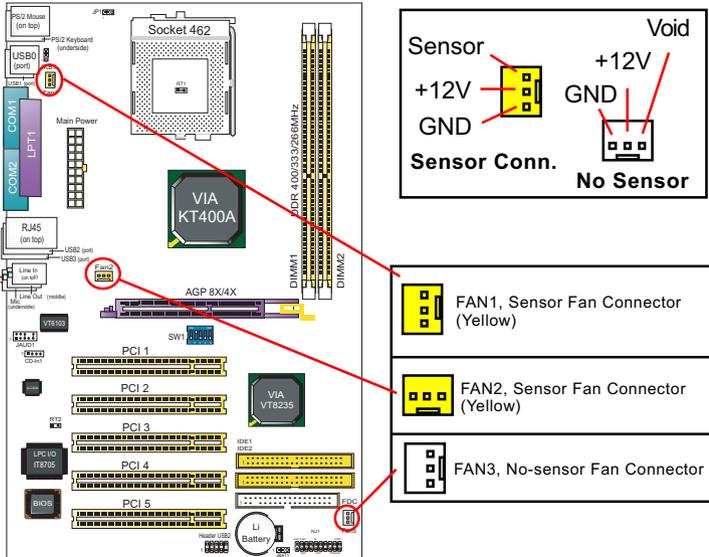
USB KB/Mouse Wake-up is not supported on this mainboard.

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

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. 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.

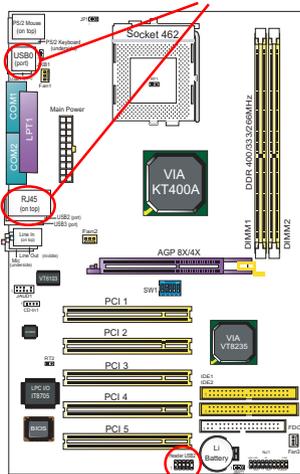
2-8.2 USB Ports and USB Pin-headers

This series provides four USB ports USB0 to USB3 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 an additional USB Cable. Users can order the optional USB cables from your mainboard dealer or vender.

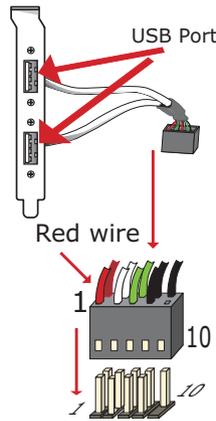
When plugging the USB cable to USB Header, users must make sure the red wire is connected to Pin 1.

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

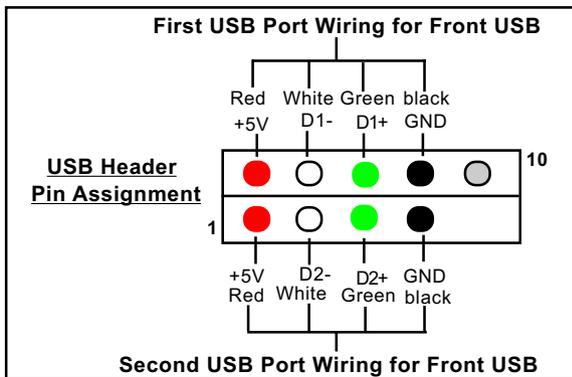
USB connectors USB0 to USB3



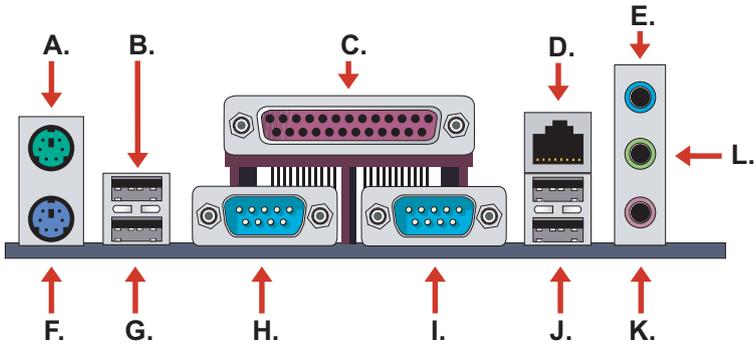
USB Cable (Optional)



Header USB2 for USB4/5 ports



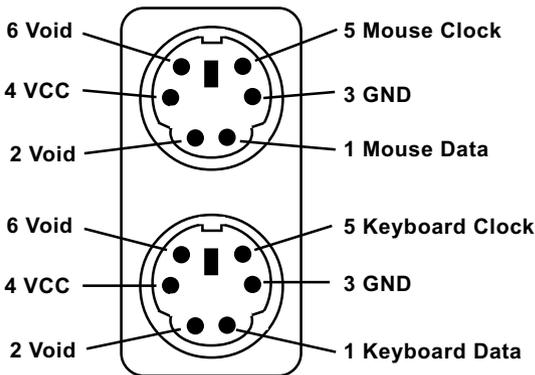
2-8.3 Chassis Back Panel Connectors



- | | |
|----------------------------------|--|
| A : PS/2 Mouse | G : USB 0 |
| B : USB 1 | H : COM1 Connector |
| C : LPT1 Port | I : COM2 Connector |
| D : RJ45 (KT400-CL only) | J : USB 2 (middle) USB 3 (underside) |
| E : Line in/ Rear Speaker Out | K : Microphone Input / Center Subwoofer Out |
| F : PS/2 Keyboard | L : Line Out / Front Speaker Out |

2-8.4 PS/2 Mouse And PS/2 Keyboard

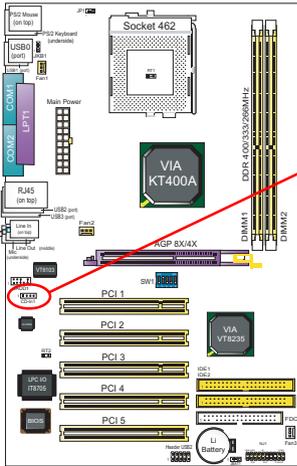
PS/2 Mouse Connector (green, on top)



PS/2 Keyboard Connector (purple, underside)

2-8.5 CD-ROM Audio Connectors (CDIn1)

CDIn1 is an audio connector connecting CD-ROM audio to mainboard.

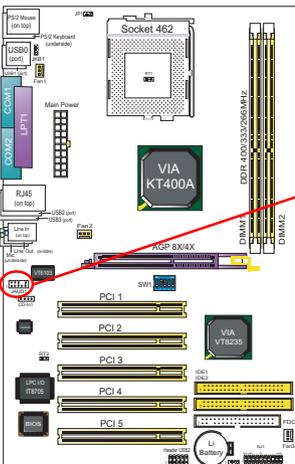


| CD-ROM Audio Connector | |
|------------------------|---------------|
| CDIn1 1 | Pin Signal |
| Pin 1 | Left Channel |
| Pin 2 | GND |
| Pin 3 | GND |
| Pin 4 | Right Channel |

2-8.6 JAUD1: External Audio Connector (optional)

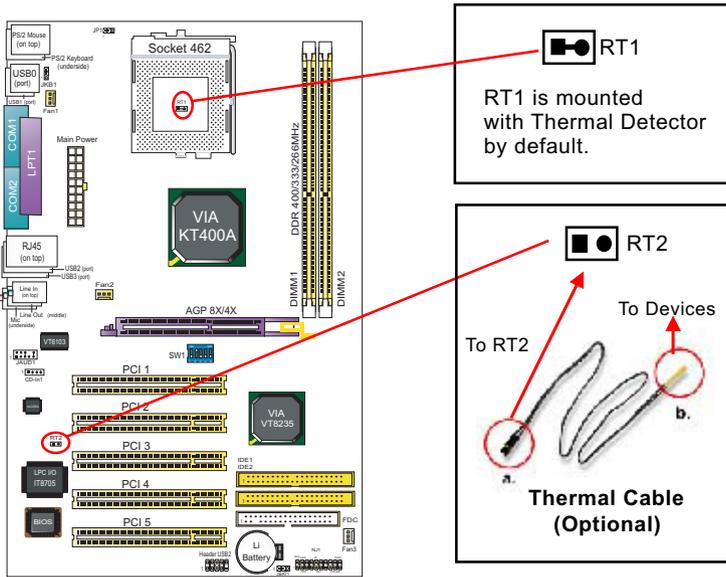
This Mainboard is designed with an External connector “JAUD1” which provides connection to your Audio connectors on the Front Panel of the PC case.

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 External Audio Connector, please open all pins of JAUD1 and connect it to the External Audio Connector.



| JAUD1: External Audio Connector | |
|---------------------------------|---------------|
| | |
| Pin 1 Mic In | Pin 2 Aud GND |
| Pin 3 Mic VREF | Pin 4 Aud Vcc |
| Pin 5 FPOUT R | Pin 6 RET R |
| Pin 7 (Key) | Pin 8 (Void) |
| Pin 9 FPOUT L | Pin10 RET L |

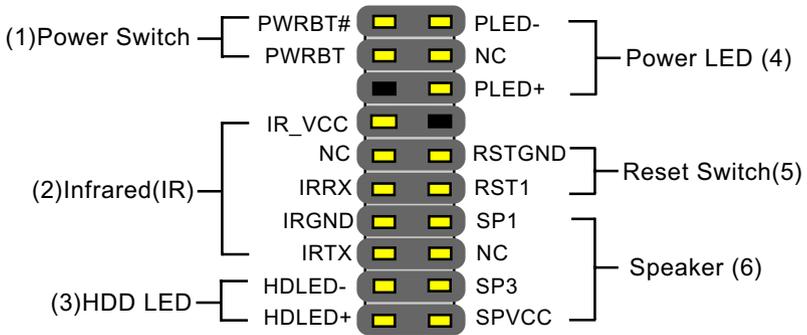
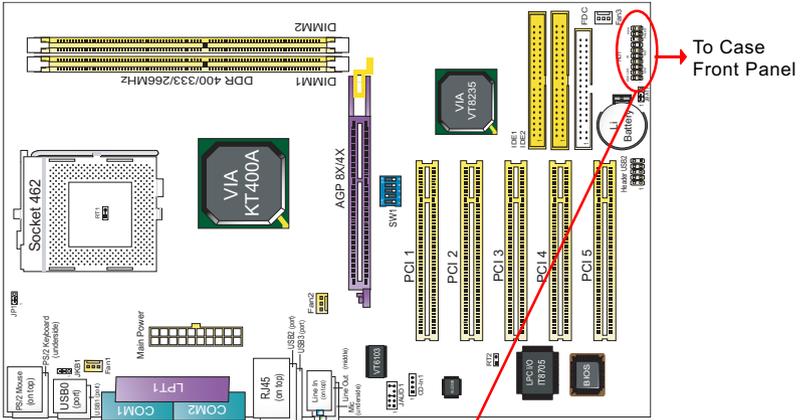
2-8.7 Thermal Connectors



1. Detector RT1: A thermal Detector is mounted by default to connector RT1 so as to detect the external temperature of the CPU. What RT1 does is to transmit the thermal signal to BIOS or Hardware Monitor.
2. Connector RT2: A thermal cable is needed to connect RT2 to the 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 RT2, and tape another end (b) of the thermal cable 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.**

2-8.8 Front Panel Connectors

This Front Panel Connector 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) 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.

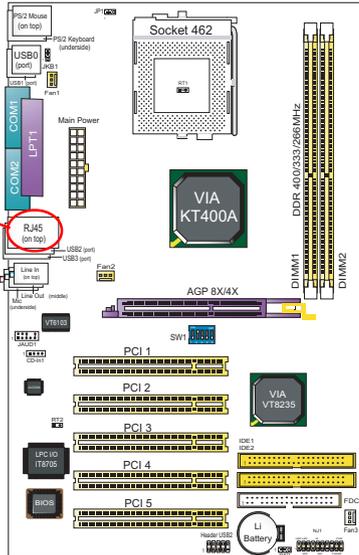
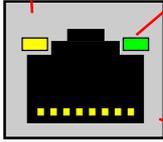
Function: To supply power to the case-mounted Speaker.

2-8.9 LAN Connector (KT400A-CL 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.



MEMO

Chapter 3 Software Setup

Drivers, Utilities and Software Installation

Support CD:

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

This chapter is devoted to describing the installations of all these essential drivers and utilities on Windows 98SE, Windows ME, Windows 2000 and Windows XP. The installation procedures for all these operating systems are programmed into an auto-run mode. What users have to do is read and follow the pop-up instructions. We therefore take the installation on Windows XP as the general illustration hereby.

The priority of driver installation should also be noted. Users are recommended to take the following installation order:

3-1 To Open Up Support CD

3-2 VIA 4-IN-1 Drivers Installation

3-3 AC'97 Audio Drivers Installation

3-4 USB 2.0 Drivers Installation

3-5 Hardware Monitor Utility Installation

3-6 VIA Lan Driver (KT400A-CL only) Installation

3-1 To Open Up Support CD

1. Please put the Support CD enclosed in your mainboard package into the CD-ROM drive. In a few seconds, the Main Menu will automatically appear, displaying the contents to be installed for this series:



2. In case your system does not open the Support CD automatically, please click to the following path to enter the Main Installation Menu:
D:\Autorun.exe (assuming that your CD-ROM Drive is Drive D)
3. Users are recommended to install all the drivers and utilities at a time, though they can be installed separately. Also, we should take "VIA 4-IN-1 Drivers" as first installation priority to optimize the VIA system. From next section, we provide detailed descriptions of all these installations with graphical illustrations.
4. Drivers may be updated from time to time in our web site. If you are installing a newer driver than the one illustrated in this chapter, please be aware that the illustration pictures might be different.

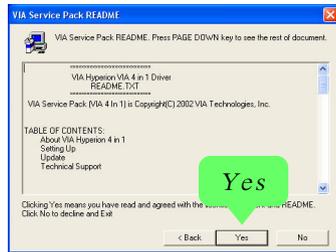
3-2 VIA 4-IN-1 Drivers Installation

1. Following the procedures of opening the Support CD, click to “VIA 4-in-1 Drivers” to proceed.

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



3. “VIA Service Pack README” screen will appear, please click the “Yes” button to agree with the Licence Agreement and continue.

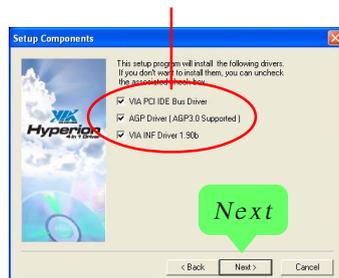


4. On the screen below, check “Normally Install” and click “Next” to continue. (If you check “Quick Install”, you will skip the detailed procedures of the VIA 4-in-1 Setup.)



5. Select the checkbox as below and click “Next” to continue:

- VIA PCI IDE Bus Driver
- AGP Driver (AGP 3.0 Supported)
- VIA INF Driver 1.70a



6. Select “Install VIA PCI IDE Driver” checkbox, then click the “Next” button to continue.



7. Select “Install VIA AGP Driver” in turbo mode and press “Next” button to continue.



10. After all these setup procedures have finished, you should restart your computer by clicking on “OK” so as to put VIA 4-in-1 drivers into effect and proceed to next driver installation.

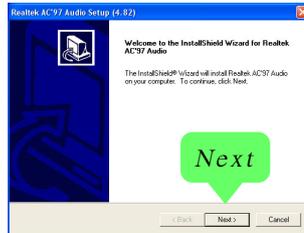


3-3 AC'97 Audio Drivers Installation

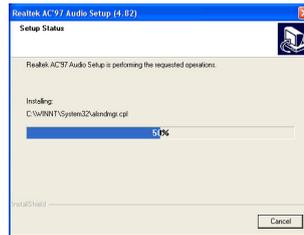
Avance AC97 Audio Codec on board, AC'97 2.1 compatible, supporting 6/2-channel audio code for PC multimedia systems. Avance AC'97 Audio Codec Driver is provided in Support CD for user's installation.

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

2. Instantly, the “InstallShield Wizard” screen appears to guide you through the “Realtek AC'97 Audio” Setup, please press “Next” button to continue.



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



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



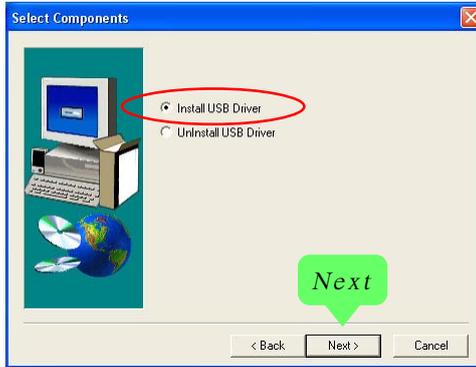
3-4 USB 2.0 Driver installation

VIA USB V2.0 is already integrated on board. Its 480Mb/s transfer rate supports operating systems Windows 98SE/Me/2000/XP. USB Driver installation procedures are of similar steps in these systems. Before installing VIA USB V2.0 Driver on Windows XP, users should install the latest Service Pack for Windows XP. Please take the following illustrations from Windows XP as the USB driver installation guide:

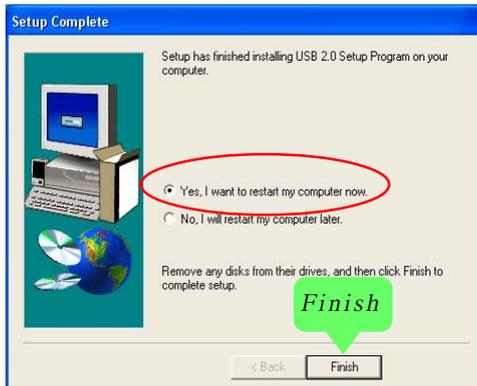
1. Update Windows XP with the latest service pack before installing VIA USB V2.0 Driver.
2. Following the procedures of opening the Support CD, click to choose “VIA USB 2.0 Driver” to proceed. Please notice that the USB card driver is different from the USB 2.0 driver typically for the on-board USB. Do not use the USB card driver here.
3. Instantly the “USB 2.0 Setup Program” will pop up on screen. Click “Next” to continue.



3. Instantly, next screen will pop up to prompt you to select component. Select "Install USB Driver" and click "Next" button to continue.



4. The USB 2.0 Setup Program will then guide you through the whole driver setup until the "Finish" screen appears to prompt you to restart your system. Please click "Finish" button to restart system to put the new driver into effect.



3-5 Hardware Monitor Utility Installation

3-5.1 Installation

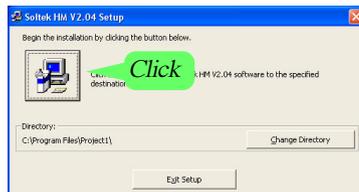
Hardware Monitor is built on this mainboard. Its installation is programmed to a fully automated mode on Windows 9X/ME/NT4/2000/XP. Users can follow the model installation below for its installation on various Windows System.

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

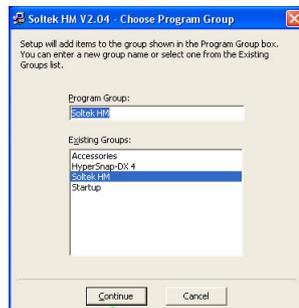
2. Then the installation program automatically opens the “Soltek HM Setup” screen. Click “OK” to continue.



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



4. Select the Program group and click “Continue” button to continue.



5. On the “Soltek HM Setup” screen, click “OK” to restart your computer so that the Utility can be put into effect.



3-5.2 Verification

1. After restarting your computer, click “Start” and choose the following path:
\\ Soltek HM \\ Soltek HM to open the main window of the Soltek Hardware Doctor.



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

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

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

Click on “Soltek” button to display the function menu.

TEMPERATURE

| | |
|---------|----|
| CPU Die | 40 |
| JBS 8 | 47 |
| RT2 | 29 |

FAN TACHOMETER

| | |
|-------|-----------|
| Fan 1 | Not Found |
| Fan 2 | 6750 |
| Fan 3 | Not Found |

VOLTAGE

| | | | |
|--------------|-------|---------|--------|
| CPU Voltage | 1.112 | 1N | 22.896 |
| DRAM Voltage | 1.512 | -1V | 22.948 |
| 3.3V | 1.788 | 5V20 | 4.514 |
| 5V | 4.919 | Battery | 1.080 |

SOLTEK

About Soltek99
Help
Exit

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

Status Warning LED

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

3-6 Installing VIA Lan Driver (for KT400A-CL only)

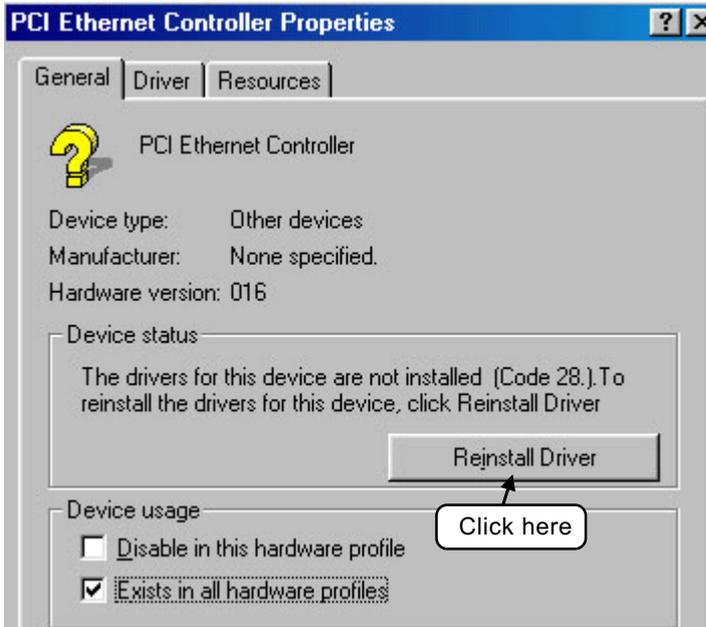
3-6-1. VIA6103 LAN driver on Windows 9X

The VIA 6183 LAN driver contained in the Support CD supports VIA 6103 LAN chip. Yet it is not included in the Autorun Menu. To install VIA LAN driver on Windows 9X, please follow the steps shown below:

1. On the "Start" screen of your system, please click to the following path:

\My Computer\properties\Device manager

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



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



6. As illustrated in the picture below, check the item “Specify a location” and click the “Browse” button to find out the correct path for the driver. Supposing your CD-ROM drive is Drive E, please type:

E:\Driver\Network\VIA6183 into the blank bar. (If you are installing on Win 95OSR2, you should type W95OSR2 instead of Win98.) Then click the “Next” button to continue.

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

3-6-2. VIA6183 LAN driver on Windows NT4.0

1. When you newly install Win NT4, the Setup program will ask you whether your computer will participate on a network. please check “Do not connect this computer to a network at this time” and continue with your installation. That means, you are going to install the LAN Adapter and driver after you have finished system installation. By this way, you will set up your LAN Adapter and driver more surely.
2. If you have now installed Win NT4 in your computer, please boot your system and in the “Start” screen click the following path to install your computer networking:
 \Start\Settings\Control Panel\Network (double click)

3. Instantly, a dialog box pops up, asking you, "Windows NT Networking is not installed. Do you want to install it now?" Please click "Yes" to continue.
4. The Network Setup Wizard will then proceed to guide you to the installation of LAN Adapter and Driver, until the "Select Network Adapter" screen pops up, on which you should click "Have Disk" to install the on-board VIA LAN Controller.
 5. Instantly, the "Insert Disk" dialog box pops up. You should now insert the Support CD into your CD-ROM drive, and then type to the white bar the correct path for the location of the LAN driver. Supposing your CD-ROM drive is drive D, please type the following path:
D:\Driver\Network\VIA6103\Winnt4 and click "OK" button to continue.
6. Instantly, the Setup program detects the "VIA PCI 10/100MbFast Ethernet Adapter" and shows it on the "Select OEM Option" screen. Please click "OK" to continue.
7. The Setup program will then proceed to install the VIA PCI LAN Adapter and then other networking components such as TCP/IP protocol.
8. During the setup process, if "windows NT Setup" needs to copy some Windows files, you should then withdraw the Support CD and insert back the Win NT4 CD-ROM into your CD-ROM drive to continue.
9. After you have finished other networking components setup, you should restart your system to put all the new setups into effect.
10. To verify that the onboard VIA LAN Controller has been set up in system, please click "Start", then "Control Panel", then "Network".
11. In the "Network" screen, click the "Adapter" bar. You can now see the "VIA PCI 10/100Mb Fast Ethernet Adapter is already installed in system.

3-6-3. VIA6183 LAN driver on Win ME / 2000 / XP

1. When you newly install Windows ME , Windows 2000 or windows XP, the system will detect the LAN Controller on board and configure it automatically into system. Therefore, user needs not bother to install the LAN controller into these operating systems.
2. To verify the existence of VIA6183 LAN Controller and Driver, please enter the "Control Panel" of your system and click "Network" to open the "Configuration" screen. You can then see the "VIA PCI 10/100MbFast Ethernet Adapter" is already installed in system.

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

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

4-1 About BIOS Setup

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

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

4-2 To Run BIOS Setup

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

```
DEL : SETUP
```

4-3 About CMOS

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

4-4 The POST (Power On Self Test)

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

4-5 To Update BIOS

- System BIOS is incorporated into a Flash memory component. Flash BIOS allows user to upgrade BIOS without the need to replace an EPROM component.
- The Upgrade Utility can be loaded on a floppy diskette for upgrading saving, and verifying the system BIOS. The Update Utility can also be run from a hard disk drive or a network drive.
- It is highly recommended that you save a copy of the original mainboard BIOS along with a Flash EPROM Programming utility (AMIXXX.EXE) to a bootable floppy disk so that you can reinstall the BIOS when in need.
- Normally, to update BIOS is unnecessary if the system is working fine. Users should only update BIOS when incompatible problems are encountered or new features have to be added to system.
- “AMIFLASH.EXE” is a Flash EPROM Programming utility that updates the BIOS by uploading a new BIOS file to the programmable flash ROM on the mainboard. This program only works in ***DOS environment, the utility can not be executed in Windows 95/98, ME, NT, 2000 or XP environment.***

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

Step 1. Please visit the board maker’s website, download latest BIOS file and AMI update utility. The file name of AMI update utility will be “AMIXXX.EXE” of which “XXX” stands for the version number of the file. The BIOS file format will be *.ROM, of which “*” stands for the specific BIOS file name.

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

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

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

Example: AMIXXX.EXE(1 space)75KAV03.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 or <F1> to run CMOS setup utility, then reload “LOAD SETUP DEFAULTS” or “**Load Optimal Defaults**” and save this change.

4-6 BIOS SETUP --- CMOS Setup Utility

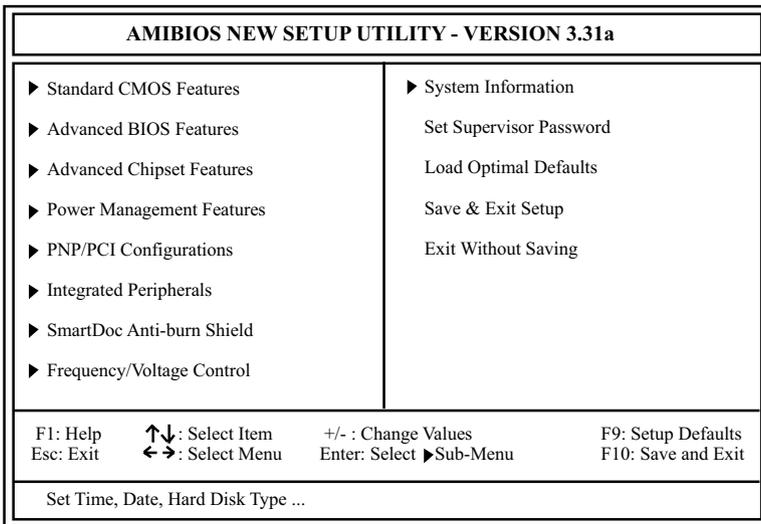
4-6.1 CMOS Setup Utility

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

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

PRESS TO RUN SETUP

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



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

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

4-6.2 Standard CMOS Setup

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

Run the Standard CMOS Setup as follows:

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

| Standard CMOS Features | Setup Help |
|--|------------|
| System Time 00 19 29 System Date Dec 30 2003 Tue ▶ Floppy options. ▶ IDE Devices Config | |

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.

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 : Not Installed | | Setup Help |
|------------------------------------|------|------------|
| Type | Auto | |
| Cylinders | | |
| Heads | | |
| Write Precompensation | | |
| Sectors | | |
| Maxium Capacity | 0 Mb | |
| LBA Mode | Off | |
| Black Mode | Off | |
| Fast Programmed I/O Modes | 0 | |
| 32 Bit Transfer Mode | Off | |

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

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

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

F9: Setup Defaults
 F10: Save and Exit

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

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

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

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

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

- Bootup Num-lock** Allows you to toggle between On or Off to control the state of the NumLock keys when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.
- Floppy Drive Swap** Disabled (default), 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.
- Primary Display** Allows you to choose the primary display for the system. Choices: VGA/EGA (default); CGA40x25; CGA80x25; Mono; Absent
- Password Check** Allows you to set BIOS to check up password with a password prompt at BIOS Setup or whenever re-starting system.
Choices: Setup; Always
- Boot to OS/2** Allows you to set your system to OS/2 operating system.
- L1 Cache** Allows you to set the Internal/External Cache Mode.
- L2 Cache** Allows you to set the Internal/External Cache Mode.
- System BIOS Cacheable** Allows you to enable / disable the System BIOS Cacheable function.
- C000, 32K Shadow** Allows you to set these addresses cached, Enabled or Disabled
- C800, CC00, D000, D400, D800, DC00 16K Shadow** Allows you to set these addresses cached, Enabled or Disabled.

4-6.4 Advanced Chipset Features

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

Run the Advanced Chipset Features as follows:

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>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 4 QW</p> <p>SDRAM Command Rate 2T</p> <p>Fast Command Normal</p> <p>AGP Mode 8X</p> <p>AGP Fast Write Disabled</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>AGP Read Synchronization Disabled</p> <p>APIC Interrupt Mode 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.
- SDRAM Frequency** Allows you to set the SDRAM frequency.
Choices: Auto; 266MHz; 333MHz; 400MHz
- SDRAM CAS# Latency** With SDRAM Timing by SPD disabled, you can select the SDRAM CAS# (Column Address Strode)l-
latency manually.
Choices: 2; 2.5; 1.5; 3.0
- SDRAM Bank Interleave** This item allows you to enable / disable SDRAM Bank Interleave function.
Choices: Disabled (default); 2-way; 4-way
- SDRAM Burst Length** With SDRAM Timing by SPD disabled, you can select the SDRAM Burst length manually.
Choices: 8 QW; 4 QW
- SDRAM Command Rate** Allows you to set the SDRAM Command Rate.
Choices: 1T; 2T
- Fast Command** Allows you to select the Fast Command Mode.
Choices: Normal; Fast; Ultra
- AGP Mode** Allows you to see the AGP Mode on board. The default setting is Auto. This item supports 4X/8XAGP Mode.
- AGP Fast Write** Allows you to enable / disable the AGP Fast Write function.

- 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 Waite State Write.
- AGP Master 1 W/S Read** Allows you to enable / disable (default) the support of AGP Master 1 Waite State Read.
- AGP Read Synchronization** Allows you to enabled / disabled (default) the AGP Read Synchronization function.
- APIC Interrupt Mode** Allows you to enable / disable the APIC function for selecting the APIC interrupt Mode.
- USB Controller** Allows you to set the USB Controller on the USB port(s).
Choices: 6 USB Ports; Disabled
- USB 1.1 Device Legacy Support** Allows you to select the USB Device Legacy support.
Choices: No Mice; All Devices; Disabled
- USB 1.1 Device Legacy Support** Allows you to enable/disable USB 1.1 Device Legacy Support.
- USB 1.1 Port 64/60 Emulation** Allows you to enable / disable 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 PME# | Disabled | |
| Resume On PS/2 KB | 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
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.

- ACPI Standby State** This item allows you to select the ACPI Suspend type. You can select S3(STR) for suspending to DRAM only if your system supports this mode. Or (when S3 is absent) you can select S1 (POS) for Power on Suspend under Windows 98 or later O/S ACPI mode.
Choices: S1/POS; S3/STR (optional); Auto
- Power Management/ APM** Allows you to enable / disable the Power management / Advanced Power Management function.
- Video Power Down Mode** Allows you to select the Video Power Down Mode.
Choices: Disabled; Standby; Suspend
- Hard Disk Power Down Mode** Allows you to select the Hard Disk Power Down Mode.
Choices; Disabled; Standby; Suspend
- Standby Time Out (Minute)** To set the duration of Standby Time Out.
Choices: Disabled; 1; 2; 4; 8; 10; 20; 30; 40; 50; 60
- Suspend Time Out (Minute)** To set the duration of Suspend Time Out.
Choices: Disabled; 1; 2; 4; 8; 10; 20; 30; 40; 50; 60
- Power Button Function** allows you to set power Button function.
Choices: On/Off; Suspend
- Restore on AC/Power Loss** Allows you to set the restore state from AC/Power Loss.
Choices: Last State; Power Off; Power On
- Resume on PME#** Allows you to enable / disable the Resume on PME function.

Resume on PS/2 KB Allows you to select S3/S4/S5 mode or disable the Resume on Keyboard clock function.
Choices: Disabled; S3; S3/S4/S5

Wake Up Key If Resume On PS/2 KB is not disabled, this item allows you to select any key to wake up system.

Resume on PS/2 Mouse Allows you to S4/S5 mode or disable the Resume on PS/2 Mouse function.
Choices: Disabled; S3; S3/S4/S5

Resume On RTC Alarm Allows you to enable / disable the Resume On RTC Alarm function.

RTC Alarm Date / Hour / Minute / Second If resume On RTC Alarm is enabled, this field allows you to set the Alarm date Hour, Minute and second.
Date Choices: Every Day; 01 ~ 31
Hour Choices: 00 ~ 23
Minute Choices: 00 ~ 59
Second Choices: 00 ~ 59

4-6.6 PNP / PCI Configurations

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

Run the PNP/PCI Configurations as follows:

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

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| PNP/PCI Configurations | Setup Help |
|--------------------------------|------------|
| 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 +/- : 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.

- Plug and Play Aware O/S** Allows BIOS to recognize the Plug and Play Aware Operating System.
Choices: No (default); Yes
- Clear NVRAM** Allows BIOS to clear the NVRAM data.
Choices: No (default); Yes
- PCI Latency Timer (PCI Clocks)** Allows you to set the PCI Latency Time.
Choices: 32; 64; 96; 128; 160; 192; 224; 248;
- Primary Graphics Adapter** Allows you to select the primary Graphics Adapter.
Choices: PCI; AGP
- PCI IDE BusMaster** Allows you to enable / 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; 3; 4; 5; 7; 9; 10; 11

4-6.7 Integrated Peripherals

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

Run the Integrated Peripherals as follows:

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

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| Integrated Peripherals | Setup Help |
|------------------------------|------------|
| OnBoard 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 (VIA) (Optional) | Disabled |
| OnBoard LAN P.M.E | Disabled |
| 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; Enabled; disabled
- Onboard Serial Port 1** Allows you to set the Onboard Serial Port A.
Choices; auto; Disabled; 3F8/COM1; 2F8/COM2;
3E8/COM3; 2E8/COM4;
- Onboard Serial Port 2** Allows you to set the Onboard Serial Port B.
Choices; auto; Disabled; 3F8/COM1; 2F8/COM2;
3E8/COM3; 2E8/COM4;
- Serial Port 2 Mode** Allows you to set the Serial Port B Mode.
Choices: Normal; IrDA; ASKIR;
- OnBoard Parallel Port** Allows you to configure onboard Parallel port .
Choices: Auto; Disabled; 378; 278; 3BC;
- Parallel Port Mode** This item is a sub-memu of Onboard Parallel Port.
It allows you to configure parallel port mode.
Choices: ECP; EPP + ECP; Normal; EPP
- Parallel Port IRQ** This item is a sub-menu of Parallel Port Mode. It
allows you to set the Parallel Port IRQ.
Choices: 5; 7
- Parallel Port DMA Channel** This item is a sub-menu of Parallel Port Mode. It
allows you to set the DMA Channel.
Choices: 0; 1; 3
- OnBoard MIDI Port** Allows you to configure onboard MIDI port address.
The choices: Disabled; 300h; 310h; 320h; 330h
- MIDI IRQ** If the onboard MIDI port is set at 300h or 330h, this
item shows up to allow you to configure the MIDI
Port IRQ.
Choices: 5; 10; 11
- OnBoard Game Port** Allows you to configure Onboard Game port
address.
The choices: Disabled; 200h; 208h

Onboard IDE To set up the Onboard IDE mode.
Choices: Disabled; Primary; Secondary; Both

(Optional) Onboard LAN (VIA) Allows you to enable/disable LAN function.

Onboard LAN P.M.E Allows you to enable/disable LAN P.M.E function.

Onboard AC'97 Audio Allows you to enable/disable AC' 97 Audio.
Choices: Enabled; Disabled

4-6.8 SmartDoc Anti-Burn Shield

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

1. Choose “SmartDoc Anti-Burn Shield” from the Main Menu and a screen with a list of current status of your working system will appear:

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| SmartDoc Anti-Burn Shield | | Setup Help |
|---------------------------------|----------------|------------|
| CPU Warning Temperature | Disabled | |
| CPU Shut Down Temperature | Disabled | |
| CPU Fan Low speed Warning | Disabled | |
| CPU Fan Low Speed Shutdown | Disabled | |
| (ABSII)CPU Current Temperature | (53 °C/127°F) | |
| (ABSII)CPU Shutdown Temperature | (85 °C/185 °F) | |
| Temperature 1 | (36 °C/96 °F) | |
| Temperature 2 | (31 °C/87 °) | |
| Fan 1 Speed | (0 RPM) | |
| Fan 2 Speed | (4905 RPM) | |
| CPU Vcore | (+1.680 V) | |
| +2.5V | (+2.504 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) | |

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.

CPU Warning Temperature Select a upper limits for the CPU temperature. If the CPU temperature extends beyond the limit, any warning mechanism programmed into your system will activate the warning.
 Choices: Disabled; 50°C~71°C in 3°C stepping

- CPU Shutdown Temperature** This feature allows you to set the shutdown temperature to the running CPU.
Choices: Disabled; 50 °C~71°C in 3° C stepping
- CPU Fan Low Speed Warning** This feature allows you to set up the CPU Fan Low Speed warning function.
Choices: Disabled; Stop/0RPM; 1000~6000RPM
- CPU Fan Low Speed Shutdown** This feature is a sub-menu of “CPU Fan Low Speed Warning”. It allows you to enable/disable the CPU Fan Low Speed Shutdown function.
Choices: Disabled; Enabled
- ABS II CPU Current Temperature(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.
- ABS II CPU Shutdown Temperature(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 shut down. 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
- Temperature 1** Shows current CPU external temperature (by RT1).
- Temperature 2** Shows current system temperature (by RT2).
- Fan 1/2** Displays the current speed of CPU Fan, and other onboard device which user has connected to the onboard Fan Connectors.
- CPU Vcore** Shows CPU core actual voltage value.
- +2.5V/+3.3V/+5.0V/
+12V/-12V/+5.V SB/** Shows current voltage against the respective power supply.
- Battery** Shows current voltage against battery power supply.

4-6.9 Frequency/Voltage Control

Run the “Frequency/Voltage Control” as following:

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

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| Frequency/Voltage Control | | Setup Help |
|---------------------------------------|-------------|------------|
| RedStorm Overclocking Tech (optional) | Press Enter | |
| CPU Linear Frequency | Disabled | |
| CPU Clock | 133 MHz | |
| Spread Spectrum | Disabled | |
| Auto Detect PCI slot | Disabled | |
| CPU Voltage Control | Auto | |
| AGP Voltage Control | Default | |
| DIMM Voltage Control | Default | |
| CPU Ratio Selection | Default | |

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** If this option is chosen in BIOS, press <Enter> to start *RED STORM OVERCLOCKING TECH*. This option helps user to raise CPU clock automatically until an unacceptable value is reached. Then BIOS will restart your system with a highest acceptable CPU clock.
- CPU Linear Frequency** This item allows you to enable / disable this setting function.
- CPU Clock** If CPU Linear Frequency is set at Enabled, this item allows you to set CPU Clock.
Choices: 100MHz ~200MHz in 1MHz stepping.
- Spread Spectrum** Allows you to enable / disable this Spread Spectrum function. If enabled, 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 the Auto Detect PCI Slot function.
- CPU Voltage Control** allows you to configure the CPU Voltage. Usually, to raise CPU voltage will raise the chance of CPU overclocking and yet risk damage of CPU.
Choices: Auto; 1.100V ~1.850V in 0.025 stepping
- AGP Voltage Control** allows you to configure the AGP Voltage.
Choices: 1.6V; 1.7V; 1.8V
- DIMM Voltage Control** allows you to configure the DIMM Voltage.
Choices: 2.6V; 2.7V; 2.8V
- CPU Ratio Selection** If CPU onboard is one with an adjustable or unlocked CPU ratio, this item allows user to adjust the CPU Ratio. If your CPU is one with the CPU Ratio locked, this item will be invalid.

4-6.10 System Information

This menu helps you to read only and get more information on the system.

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

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

| System Information | | Setup Help |
|--------------------|--------------------|------------|
| BIOS Version | (12/23/03) | |
| Processor Type | (AMD Athlon(tm) XP | |
| Processor Speed | (1600MHz) | |
| Base Memory | (640KB) | |
| Extended Memory | (255MB) | |
| Total Memory | (256MB) | |
| Cache Size | (384KB) | |
| Memory Bank 0 | (None) | |
| Memory Bank 1 | Fastpage | |

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

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

F9: Setup Defaults
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.

4-6.11 Set Supervisor Password

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

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

[Enter new supervisor password]

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

[Retype new supervisor Password]

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

[New supervisor password installed]

Any Key to Continue

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

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

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

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

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

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

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

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

4-6.12 Load Optimized Defaults

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

[Load Optimized Settings]

Press [Enter] to continue
or [ESC] to abort

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

4-6.13 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.

4-6.14 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 Changes]

Press [Enter] to continue
or [ESC] to abort

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

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