ASRock™

K7VT4A+

User Manual

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ASRock Website: http://www.asrock.com

Contents

1. Introduction

Thank you for purchasing ASRock K7VT4A+ motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

Chapter 1 and 2 of this manual contain introduction of the motherboard and step-by-step installation guide. Chapter 3 and 4 contain basic BIOS setup and support CD information. More information of advanced BIOS setup can be found in Appendix on page 22 for advanced users' reference.

> Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest memory and CPU support lists on ASRock website as well. ASRock website http://www.asrock.com

1.1 Package Contents

1 x ASRock K7VT4A+ Motherboard
     (ATX Form Factor: 12.0-in x 7.0-in, 30.5 cm x 17.8 cm)
1 x ASRock K7VT4A+ Quick Installation Guide
1 x ASRock K7VT4A+ Support CD
1 x Ultra ATA 66/100/133 IDE Ribbon Cable (80-conductor)
1 x 3.5-in Floppy Drive Ribbon Cable
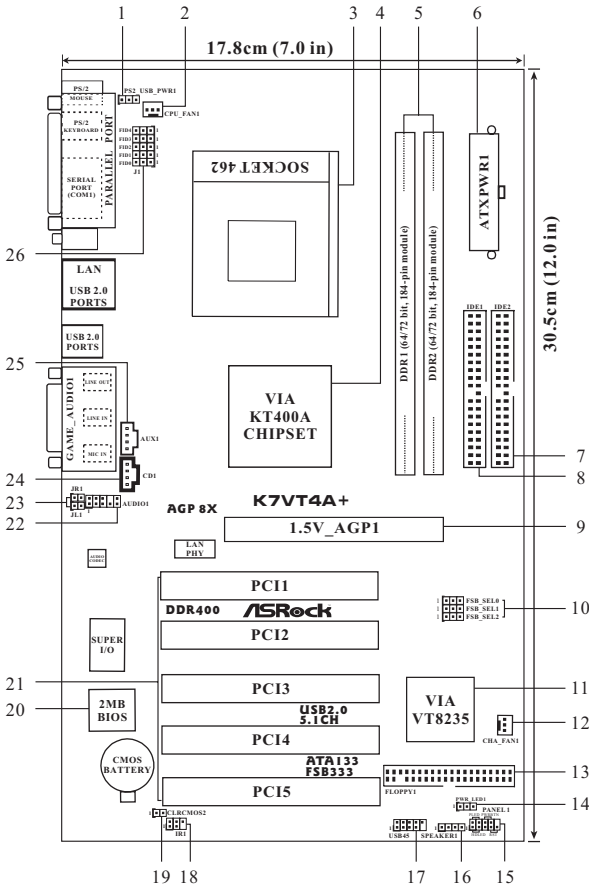1 x ASRock I/O™ Shield

1.2 Specifications

Platform:	ATX Form Factor: 12.0-in x 7.0-in, 30.5 cm x 17.8 cm
CPU:	Supports Socket A (462 pins) for
	AMD Athlon™ / Athlon™ XP / Duron™ processor
Chipsets:	North Bridge: VIA KT400A, FSB@333 MHz
	South Bridge: VIA VT8235CD, supports USB 2.0, ATA 133
Memory:	2 DDR DIMM Slots: DDR1 and DDR2
	PC3200 (DDR400) for 1 DDR DIMM slot, Max. 1GB
	PC2100 (DDR266) / PC2700 (DDR333) for 2 DDR DIMM slots,
	Max. 2GB
IDE:	IDE1: ATA 133 / Ultra DMA Mode 6
	IDE2: ATA 133 / Ultra DMA Mode 6
	Supports up to 4 IDE devices
Floppy Port:	Supports up to 2 floppy disk drives
Audio:	5.1 channels AC'97 Audio
LAN:	Speed: 802.3u (10/100 Ethernet), supports Wake-On-LAN
Hardware Monitor:	CPU temperature sensing
	Motherboard temperature sensing
	CPU overheat shutdown to protect CPU life
	(ASRock U-COP)(see **CAUTION 1**)
	CPU fan tachometer
	Chassis fan tachometer
	Voltage monitoring: +12V, +5V, +3.3V, Vcore
PCI slots:	5 slots with PCI Specification 2.2
AGP slot:	1 AGP slot, supports 1.5V, 8X/4X AGP card (see **CAUTION 2**)
USB 2.0:	6 USB 2.0 ports:
	includes 4 default USB 2.0 ports on the rear panel,
	plus one header to support 2 additional USB 2.0 ports
	(see **CAUTION 3**)
ASRock I/O™:	1 PS/2 keyboard port, 1 PS/2 mouse port,
	1 serial port: COM1, 1 parallel port: ECP/EPP support,
	1 RJ-45 port,
	4 default USB 2.0 ports,
	Audio Jack: Line Out / Line In / Microphone + Game port
BIOS:	AMI legal BIOS, Supports "Plug and Play",
	ACPI 1.1 compliance wake up events,
	SMBIOS 2.3.1 support,
	CPU frequency stepless control
	(only for advanced users' reference, see **CAUTION 4**)
OS:	Microsoft® Windows® 98 SE / ME / 2000 / XP compliant

CAUTION!

1. While CPU overheat is detected, the system will automatically shutdown. Before you resume the system, please check if the CPU fan on the motherboard functions properly and unplug the power cord, then plug it back again. To improve heat dissipation, remember to spray thermal grease between the CPU and the heatsink when you install the PC system.

2. Do NOT use a 3.3V AGP card on the AGP slot of this motherboard! It may cause permanent damage!

3. Power Management for USB 2.0 works fine under Microsoft® Windows® XP SP1/2000 SP4. It may not work properly under Microsoft® Windows® 98/ME. Please refer to Microsoft® official document at http://www.microsoft.com/whdc/hwdev/bus/USB/USB2support.mspx

4. Although this motherboard offers stepless control, it is not recommended to perform over clocking. Frequencies other than the recommended CPU bus frequencies may cause the instability of the system or damage the CPU. The CPU host frequency of this motherboard is determined by the jumper-setting. You must set the FSB jumper according to your AMD CPU before you use the "Manual" option as the FSB setting in BIOS setup to perform over clocking. Please check page 22 for details.

1.3 Motherboard Layout

1	PS2_USB_PWR1 Jumper	14	Power LED Connector (PWR_LED1)
2	CPU Fan Connector (CPU_FAN1)	15	System Panel Connector (PANEL1)
3	CPU Socket	16	Chassis Speaker Connector (SPEAKER 1)
4	North Bridge Controller	17	USB 2.0 Connector (USB45, Blue)
5	184-pin DDR DIMM Slots (DDR1- 2)	18	Infrared Module Connector (IR1)
6	ATX Power Connector (ATXPWR1)	19	Clear CMOS Jumper (CLRCMOS2)
7	Secondary IDE Connector (IDE2, Black)	20	Flash Memory
8	Primary IDE Connector (IDE1, Blue)	21	PCI Slots (PCI1- 5)
9	AGP Slot (1.5V_AGP1)	22	Front Panel Audio Connector (AUDIO1)
10	FSB Select Jumpers	23	JR1 / JL1 Jumpers
	(FSB_SEL0, FSB_SEL1, FSB_SEL2)	24	Internal Audio Connector: CD1 (Black)
11	South Bridge Controller	25	Internal Audio Connector: AUX1 (White)
12	Chassis Fan Connector (CHA_FAN1)	26	J1 Jumper (FID0, FID1, FID2, FID3, FID4)
13	Floppy Connector (FLOPPY1)		

1.4 ASRock I/O™

1	Parallel Port	**6**	Line Out (Lime)
2	RJ-45 Port	**7**	USB 2.0 Ports
3	Game Port	**8**	Serial Port (COM1)
4	Microphone (Pink)	**9**	PS/2 Keyboard Port (Purple)
5	Line In (Light Blue)	**10**	PS/2 Mouse Port (Green)

2. Installation

K7VT4A+ is an ATX form factor (12.0-in x 7.0-in, 30.5 cm x 17.8 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

> Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded anti-static pad or in the bag that comes with the component.
5. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

2.1   CPU Installation

Step 1.   Unlock the socket by lifting the lever up to a 90° angle.

Step 2.   Position the CPU directly above the socket such that its marked corner
matches the base of the socket lever.

Step 3.   Carefully insert the CPU into the socket until it fits in place.

> The CPU fits only in one correct orientation. DO NOT force the
> CPU into the socket to avoid bending of the pins.

Step 4.   When the CPU is in place, press it firmly on the socket while you push
down the socket lever to secure the CPU. The lever clicks on the side tab
to indicate that it is locked.

Step 1   Step 2, 3   Step 4

2.2   Installation of CPU Fan and Heatsink

AMD Athlon™ / Athlon™ XP/ Duron™ family CPUs with a speed of 600 MHz and
higher require larger heatsink and cooling fan. Thermal grease between the
CPU and the heatsink is also needed to improve heat transfer. Make sure that
the CPU and the heatsink are securely fastened and in good contact with
each other. Then connect the CPU fan to the CPU_FAN connector (CPU_FAN1,
see page 7, No. 2). For proper installation, please kindly refer to the instruc-
tion manuals of the CPU fan and heatsink vendors.

2.3 Installation of Memory Modules (DIMM)

K7VT4A+ motherboard provides two 184-pin DDR (Double Data Rate) DIMM slots.

> Please make sure to disconnect power supply before adding or removing DIMMs or the system components.

Step 1.   Unlock a DIMM slot by pressing the retaining clips outward.

Step 2.   Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.
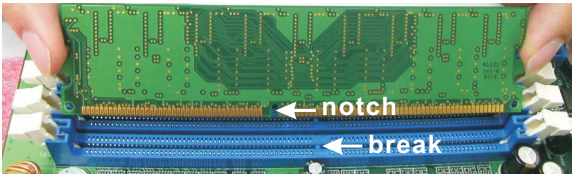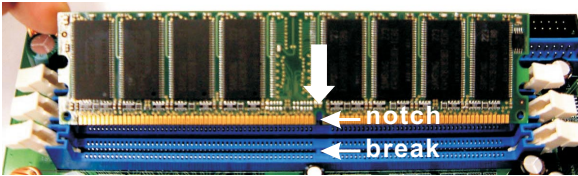
> The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

Step 3.   Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated.

2.4 Expansion Slots (PCI and AGP Slots)

There are 5 PCI slots and 1 AGP slot on K7VT4A+ motherboard.

PCI slots: PCI slots are used to install expansion cards that have the 32-bit PCI interface.

AGP slot: The AGP slot is used to install a graphics card. The ASRock AGP slot has a special design of clasp that can securely fasten the inserted graphics card.

> Please do NOT use a 3.3V AGP card on the AGP slot of this motherboard! It may cause permanent damage! For the voltage information of your graphics card, please check with the graphics card vendors.

Installing an expansion card

Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).

Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5. Fasten the card to the chassis with screws.

Step 6. Replace the system cover.

2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "Short". If no jumper cap is placed on the pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when jumper cap is placed on these 2 pins.

Short   Open
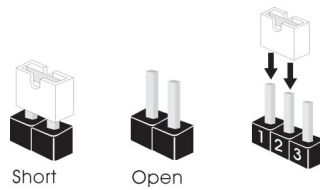
Jumper	Setting

FSB Select Jumpers
(FSB_SEL0,
FSB_SEL1,
FSB_SEL2)
(see p.7 item 10)

	FSB 200MHz	FSB 266MHz	FSB 333MHz	FSB 400MHz
FSB_SEL0	1_2	OPEN	2_3	OPEN
FSB_SEL1	OPEN	2_3	OPEN	1_2
FSB_SEL2	1_2	1_2	1_2	2_3

Note: The CPU FSB frequency of this motherboard is determined by jumper-setting. You must adjust "FSB Select Jumpers" according to the FSB of your AMD CPU. Please follow the figures above to set the CPU FSB frequency.

PS2_USB_PWR1
(see p.7 item 1)

1_2   2_3
+5V   +5VSB

Short pin2, pin3 to enable +5VSB (standby) for PS/2 or USB wake up events.

Note: To select +5VSB, it requires 2 Amp and higher standby current provided by power supply.

JR1 / JL1 Jumpers
(see p.7 item 23)

JR1
JL1

Note: If JR1 and JL1 Jumpers are short, both the front panel and the rear panel audio connectors can work.

Clear CMOS Jumper
(CLRCMOS2)
(see p.7 item 19)

2-pin jumper

Note: CLRCMOS2 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short the Clear CMOS jumper for 5 seconds. After shorting the Clear CMOS jumper, please remove the jumper cap. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action.

J1 Jumper

(FID0, FID1, FID2, FID3, FID4)

(see p.7 item 26)

```
FID4  ○ ○ ○  1
FID3  ○ ○ ○  1
FID2  ○ ○ ○  1
FID1  ○ ○ ○  1
FID0  ○ ○ ○  1
```
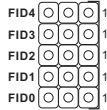
Note: The set of J1 jumper is only for advanced users to adjust the multiplier of CPU. Please follow the table below to adjust the multiplier of CPU. However, the system will work well without the adjustment of multiplier. You do not have to adjust the multiplier for normal usage.

Multiplier	FID0	FID1	FID2	FID3	FID4
5x	2-3	2-3	1-2	2-3	2-3
5.5x	1-2	2-3	1-2	2-3	2-3
6x	2-3	1-2	1-2	2-3	2-3
6.5x	1-2	1-2	1-2	2-3	2-3
7x	2-3	2-3	2-3	1-2	2-3
7.5x	1-2	2-3	2-3	1-2	2-3
8x	2-3	1-2	2-3	1-2	2-3
8.5x	1-2	1-2	2-3	1-2	2-3
9x	2-3	2-3	1-2	1-2	2-3
9.5x	1-2	2-3	1-2	1-2	2-3
10x	2-3	1-2	1-2	1-2	2-3
10.5x	1-2	1-2	1-2	1-2	2-3
11x	2-3	2-3	2-3	2-3	2-3
11.5x	1-2	2-3	2-3	2-3	2-3
12x	2-3	1-2	2-3	2-3	2-3
12.5x	1-2	1-2	2-3	2-3	2-3
13x	2-3	2-3	1-2	2-3	1-2
13.5x	1-2	2-3	1-2	2-3	1-2
14x	2-3	1-2	1-2	2-3	1-2
15x	2-3	2-3	2-3	1-2	1-2
16x	2-3	1-2	2-3	1-2	1-2
16.5x	1-2	1-2	2-3	1-2	1-2
17x	2-3	2-3	1-2	1-2	1-2
18x	1-2	2-3	1-2	1-2	1-2
19x	1-2	2-3	2-3	2-3	1-2
20x	1-2	1-2	2-3	2-3	1-2
21x	1-2	1-2	1-2	2-3	1-2
22x	1-2	2-3	2-3	1-2	1-2
23x	2-3	1-2	1-2	1-2	1-2
24x	1-2	1-2	1-2	1-2	1-2

For example, "Athlon XP 2000+" is an 1666MHz CPU: 12.5 (Multiplier) X 133MHz (External frequency) = 1666MHz

J1 jumper setting:

```
FID4  ● ● ○  1
FID3  ● ● ○  1
FID2  ● ● ○  1
FID1  ○ ● ●  1
FID0  ○ ● ●  1
```
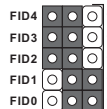
The jumper caps are not provided by ASRock. Please understand that ASRock does not guarantee and support the adjustment of multiplier. These jumpers setting may not apply to all multiplier-locked or even some unlocked AMD CPU. Frequencies other than the recommended CPU bus frequencies may cause the instability of the system or damage the CPU.

2.6 Connectors
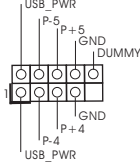
> Connectors are NOT jumpers. DO NOT place jumper caps over these connectors. Placing jumper caps over the connectors will cause permanent damage of the motherboard!
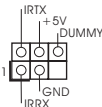
Connector	Figure	Description

FDD Connector
(33-pin FLOPPY1)
(see p.7 item 13)

Pin1   FLOPPY1

the red-striped side to Pin1

Note: Make sure the red-striped side of the cable is plugged into Pin1 side of the connector.

Primary IDE Connector (Blue)   Secondary IDE Connector (Black)
(39-pin IDE1, see p.7 item 8)   (39-pin IDE2, see p.7 item 7)

PIN1   IDE1   PIN1   IDE2

connect the blue end   connect the black end
to the motherboard   to the IDE devices

80-conductor, ATA 66/100/133 cable

Note: If you use only one IDE device on this motherboard, please set the IDE device as "Master". Please refer to the instruction of your IDE device vendor for the details. Besides, to optimize compatibility and performance, please connect your hard disk drive to the primary IDE connector (IDE1, blue) and CD-ROM to the secondary IDE connector (IDE2, black).

USB 2.0 Connector
(9-pin USB45)
(see p.7 item 17)

USB_PWR
P-5
P+5
GND
DUMMY

GND
P+4
P-4
USB_PWR

ASRock I/O™ provides you 4 default USB 2.0 ports on the rear panel. If the rear USB ports are not sufficient, this USB 2.0 connector is available to support 2 additional USB 2.0 ports.

Infrared Module Connector
(5-pin IR1)
(see p.7 item 18)

IRTX
+5V
DUMMY

GND
IRRX

This connector supports an optional wireless transmitting and receiving infrared module.

Internal Audio Connectors

(4-pin CD1, 4-pin AUX1)

(CD1: see p.7 item 24)

(AUX1: see p.7 item 25)

AUX-R
GND
GND
AUX-L
AUX1

CD-R
GND
GND
CD-L
CD1
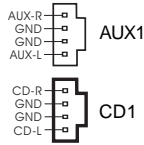
These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, DVD-ROM, TV tuner card, or MPEG card.

Front Panel Audio Connector

(9-pin AUDIO1)

(see p.7 item 22)

GND
+5VA
BACKOUT-R
BACKOUT-L
AUD-OUT-L
DUMMY
AUD-OUT-R
MIC-POWER
MIC
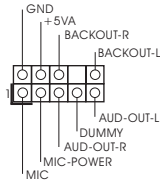
This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

System Panel Connector

(9-pin PANEL1)

(see p.7 item 15)

PLED+
PLED-
PWRBTN#
GND
DUMMY
RESET#
GND
HDLED-
HDLED+
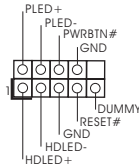
This connector accommodates several system front panel functions.

Chassis Speaker Connector

(4-pin SPEAKER 1)

(see p.7 item 16)

SPEAKER
DUMMY
DUMMY
+5V
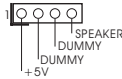
Please connect the chassis speaker to this connector.

Chassis Fan Connector

(3-pin CHA_FAN1)

(see p.7 item 12)

GND
+12V
CHA_FAN_SPEED
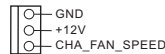
Please connect a chassis fan cable to this connector and match the black wire to the ground pin.

CPU Fan Connector

(3-pin CPU_FAN1)

(see p.7 item 2)

CPU_FAN_SPEED
+12V
GND
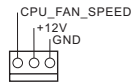
Please connect a CPU fan cable to this connector and match the black wire to the ground pin.

ATX Power Connector

(20-pin ATXPWR1)

(see p.7 item 6)

Please connect an ATX power supply to this connector.

Power LED Connector

(3-pin PWR_LED1)

(see p.7 item 14)

PLED-
PLED+
PLED+

Please connect a 3-pin power LED cable to this connector.

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3. BIOS Setup

3.1 BIOS Setup Utility

This section explains how to use the BIOS Setup Utility to configure your system. The Flash Memory on the motherboard stores the BIOS Setup Utility. You may run the BIOS Setup when you start up the computer. Please press <F2> during the Power-On-Self-Test (POST) to enter the BIOS Setup Utility, otherwise, POST will continue with its test routines.

If you wish to enter the BIOS Setup after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart the system by turning the system off and then back on.

The BIOS Setup Utility is designed to be user-friendly. It is a menu-driven program, which allows you to scroll through its various sub-menus and select among the predetermined choices.

> Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purpose only, and may not exactly match what you see on your screen.

3.1.1 BIOS Menu Bar

The top of the screen has a menu bar with the following selections:

MAIN	Sets up the basic system configuration
ADVANCED	Sets up the advanced features
SECURITY	Sets up the security features
POWER	Configures Power Management features
BOOT	Configures the default system device that is used to locate and load the Operating System
EXIT	Exits the current menu or the BIOS Setup

To access the menu bar items, press the right or left arrow key on the keyboard until the desired item is highlighted.

3.1.2 Legend Bar

At the bottom of the Setup Screen is a legend bar. The following table lists the keys in the legend bar with their corresponding functions.

Navigation Key(s)	Function Description
<F1>	Displays the General Help Screen
<ESC>	Jumps to the Exit menu or returns to the upper menu from the current menu
↑ **/** ↓	Moves cursor up or down between fields
← **/** →	Selects menu to the left or right
+ / -	Increases or decreases values
<Enter>	Brings up a selected menu for a highlighted field
<F9>	Loads all the setup items to default value
<F10>	Saves changes and exits Setup

3.2 Main Menu

When you enter the BIOS Setup Utility, the following screen appears.

```
                   AMIBIOS SETUP UTILITY - VERSION 3.31a
     Main   Advanced    Security    Power    Boot    Exit

                                                    [  Setup Help  ]
        System Date        Oct 31 2003 Fri
        System Time        20:07:40                 Month:  Jan - Dec
                                                     Day:    01 - 31
      ▶ Floppy Drives                               Year: 1980 - 2099
      ▶ IDE Devices

        BIOS Version       K7VT4A+ BIOS P1.00
        Processor Type     AMD Athlon(tm) XP 2600+
        Processor Speed    2133 MHz
        L1 Cache Size      128 KB
        L2 Cache Size      256 KB
        Total Memory       512 MB
          DDR1             512 MB / 200 MHz (DDR400)
          DDR2             None




     F1:Help          ↑↓:Select Item    +/-:Change Values     F9:Setup Defaults
     Esc:Exit         ←→:Select Menu    Enter:Select  ▶Sub-Menu   F10:Save & Exit
```

System Date [Month/Day/Year]

Set the system date that you specify. Valid values for month, day, and year are Month: (Jan to Dec), Day: (1 to 31), Year: (up to 2099). Use ↑ ↓ keys to move between the Month, Day, and Year fields.

System Time [Hour:Minute:Second]

Set the system to the time that you specify. Use ↑ ↓ keys to move between the Hour, Minute, and Second fields.

Floppy Drives

Use this to set the type of floppy drives installed.

IDE Devices

Use this to configure IDE devices.

TYPE

To set the type of the IDE device, first, please select "IDE Devices" on Main menu and press <Enter> to get into the sub-menu. Then, select among "Primary IDE Master", "Primary IDE Slave", "Secondary IDE Master", and "Secondary IDE Slave" to make configuration of its type. Below are the configuration options.

```
                    AMIBIOS SETUP UTILITY - VERSION 3.31a
  Main

    Primary  IDE  Master                              [  Setup Help  ]

                                                Select how to set the
    Type                         Auto           parameters of drive,
    Cylinders
    Heads                                       Or
    Write Precompensation                       Select [AUTO] to set
    Sectors                                     all HDD parameters
    Maximum Capacity                            automatically.
    LBA Mode                     Off
    Block Mode                   Off
    Fast Programmed I/O Modes    Auto
    32 Bit Transfer Mode         Off
    Ultra DMA Mode               Auto



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

[USER]: It allows user to manually enter the number of cylinders, heads, and sectors per track for the drive.

Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk.

[Auto]: Select [Auto] to automatically detect hard disk drive. If auto-detection is successful, the BIOS Setup automatically fills in the correct values for the remaining fields on this sub-menu. If the auto-detection fails, it may due to that the hard disk is too old or too new. If the hard disk was already formatted on an older system, the BIOS Setup may detect incorrect parameters. In these cases, select [User] to manually enter the IDE hard disk drive parameters.

After entering the hard disk information into BIOS, use a disk utility, such as FDISK, to partition and format the new IDE hard disk drives. This is necessary so that you can write the data into or read the data from the installed hard disk. Please make sure to set the partition of the Primary IDE hard disk drives to make them active.

[CD/DVD]: This is used for IDE CD/DVD drives.

[ARMD]: This is used for IDE ARMD (ATAPI Removable Media Device), such as MO.

Cylinders

This is used to configure the number of cylinders. Refer to the drive documentation to determine the correct value.

Heads

This is used to configure the number of read/write heads. Refer to the drive documentation to determine the correct values.

Write Pre-compensation

Enter Write Pre-compensation sector. Refer to the drive documentation to determine the correct value.

Sectors

This is used to configure the number of sectors per track. Refer to the drive documentation to determine the correct value.

Maximum Capacity

This field shows the drive's maximum capacity as calculated by the BIOS based on the drive information you entered.

LBA Mode

This allows user to select the LBA mode for a hard disk > 512 MB under DOS and Windows; for Netware and UNIX user, select [Off] to disable the LBA mode.

Block Mode

Set the block mode to [On] will enhance hard disk performance by reading or writing more data during each transfer.

Fast Programmed I/O Modes

This allows user to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

32 Bit Transfer Mode

It allows user to enable 32-bit access to maximize the IDE hard disk data transfer rate.

Ultra DMA Mode

Ultra DMA capability allows improved transfer speeds and data integrity for compatible IDE devices. Set to [Disabled] to suppress Ultra DMA capability.

3.3 Advanced, Security, Power, Boot, and Exit Menus

Detailed descriptions of these menus are listed in the Appendix. See page 22.

4.   Software Support

4.1 Install Operating System

This motherboard supports various Microsoft® Windows® operating systems: 98 SE / ME / 2000 / XP. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that will enhance the motherboard features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file ASSETUP.EXE from the BIN folder in the Support CD to display the menus.

4.2.2 Drivers Menu

The Drivers Menu shows the available devices drivers if the system detects installed devices. Install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the applications software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 ASRock PC-DIY Live Demo Program

ASRock presents you a multimedia PC-DIY live demo, which shows you how to install your own PC system step by step. You may find the file through the following path:
   ..\ MPEGAV \ AVSEQ01.DAT
To see this demo program, you may run Microsoft® Media Player® to play the file.

4.2.5 Contact Information

If you need to contact ASRock or want to know more about ASRock, welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information.

Appendix: Advanced BIOS Setup

This section will introduce you the following BIOS Setup menus: "Advanced," "Security," "Power," "Boot," and "Exit."

1. Advanced BIOS Setup Menu

```
                    AMIBIOS SETUP UTILITY - VERSION 3.31a
    Main    Advanced    Security    Power    Boot    Exit

                                                    [  Setup Help  ]
    Spread Spectrum              Disabled
    CPU Host Frequency           Auto              <Enter> to enable or
        Actual Frequency         133MHz            disable the feature of
    DRAM Frequency               Auto              spread spectrum.
    Flexibility Option           Disabled

    ▶ Chipset Configuration
    ▶ Resource Configuration
    ▶ Peripheral Configuration
    ▶ System Hardware Monitor




    F1:Help         ↑↓:Select Item      +/-:Change Values      F9:Setup Defaults
    Esc:Exit        ←→:Select Menu      Enter:Select  ▶Sub-Menu   F10:Save & Exit
```

Spread Spectrum

This field should always be [Disabled] for better system stability.

CPU Host Frequency

[Auto]

It is recommended to select this option, which will let the CPU host frequency of this motherboard determined by the jumper-setting.

[Manual]

This allows user to set CPU host frequency manually. However, because the CPU host frequency of this motherboard is determined by the jumper-setting, you must set the FSB jumper adjustment according to your AMD CPU before you use this "Manual" option as the FSB setting in BIOS setup to perform over clocking. This is not recommended unless you thoroughly know the feature. Wrong setup may cause problems during operation.

DRAM Frequency

If set to [Auto], the motherboard will detect the inserted memory module(s) and automatically assign appropriate frequency. You may select other value as operating frequency: [133MHz (DDR266)], [166MHz (DDR333)], [200MHz (DDR400)].

Flexibility Option

The default value of this option is [Disabled]. It will allow better tolerance for memory compatibility when it is set to [Enabled].

Chipset Configuration

```
                    AMIBIOS SETUP UTILITY - VERSION 3.31a
        ┌─────────┐
        │ Advanced │
┌───────┴─────────┴──────────────────────────┬──────────────────────┐
│   Chipset Configuration                     │    [  Setup Help  ]  │
│                                             │                      │
│                                             │ <Enter> to select [4X],│
│   AGP Mode                        Auto      │ [2X], [1X] as the AGP │
│   AGP Aperture Size               64MB      │ mode.                │
│   AGP Fast Write                  Disabled  │                      │
│   PCI Delay Transaction           Disabled  │                      │
│                                             │                      │
│   USB Controller                  Enabled   │                      │
│   USB Device Legacy Support       Disabled  │                      │
│                                             │                      │
│   DRAM CAS# Latency               Auto      │                      │
│                                             │                      │
│   Over Vcore Voltage              Disabled  │                      │
│   V-Link Speed                    Normal    │                      │
│                                             │                      │
│                                             │                      │
│                                             │                      │
├─────────────────────────────────────────────┼──────────────────────┤
│  F1:Help        ↑↓:Select Item   +/-:Change Values   │ F9:Setup Defaults │
│  Esc:Previous Menu          Enter:Select  ▶Sub-Menu  │ F10:Save & Exit   │
└─────────────────────────────────────────────┴──────────────────────┘
```

AGP Mode

This feature will be set to [Auto] as default.

AGP Aperture Size

It refers to a section of the PCI memory address range used for graphics memory. It is recommended to leave this field at the default value unless the installed AGP card's specifications requires other sizes.

AGP Fast Write

This allows you to enable or disable the feature of AGP fast write protocol support.

PCI Delay Transaction

Enable PCI Delay Transaction feature will free the PCI Bus when the CPU is accessing 8-bit ISA cards. Disable this feature when using ISA cards that are not PCI 2.1 compliant.

USB Controller

Use this to enable or disable the use of USB controller.

USB Device Legacy Support

Use this to enable or disable the support to emulate legacy I/O devices such as mouse, keyboard,... etc.

DRAM CAS# Latency

This is used to adjust the means of memory accessing. Configuration options: [Auto], [2T], [2.5T], [3T]. Please note that not all the DDR DIMMs can support CAS latency=3T.

Over Vcore Voltage

This feature allows you to increase the CPU Vcore voltage with two levels. The default value is [Disabled].

> It is not recommended to enable "Over Vcore Voltage" feature. Doing so may cause CPU damage.

V-Link Speed

This feature allows you to speed up the V-Link speed. The default value is [Normal].

Resource Configuration

```
                    AMIBIOS SETUP UTILITY - VERSION 3.31a
      Advanced
         Resource Configuration                    [  Setup Help  ]

                                                <Enter> to select PCI
   PCI Latency Timer (PCI Clocks)    32         clocks. Leave on
   Primary Graphics Adapter          PCI        default setting for the
                                                best PCI performance.


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

PCI Latency Timer (PCI Clocks)

The default is 32. It is recommended to keep the default value unless the installed PCI expansion cards' specifications require other settings.

Primary Graphics Adapter

Select PCI or AGP as the primary graphics adapter.

Peripheral Configuration

```
                AMIBIOS SETUP UTILITY - VERSION 3.31a
      ┌─────────┐
      │ Advanced │
  ┌───┴─────────┴──────────────────────────┬──────────────────────┐
  │   Peripheral Configuration             │   [  Setup Help  ]    │
  │                                        │                       │
  │                                        │ <Enter> to enable or  │
  │  OnBoard FDC               Auto        │ disable the floppy    │
  │  OnBoard Serial Port       Auto        │ drive controller.     │
  │  OnBoard Infrared Port     Disabled    │                       │
  │  OnBoard Parallel Port     Auto        │                       │
  │    Parallel Port Mode      ECP+EPP     │                       │
  │    EPP Version             1.9         │                       │
  │    Parallel Port IRQ       Auto        │                       │
  │    Parallel Port DMA Channel  Auto     │                       │
  │  OnBoard Midi Port         Disabled    │                       │
  │    Midi IRQ Select         5           │                       │
  │  OnBoard Game Port         200h        │                       │
  │  OnBoard IDE               Both        │                       │
  │  OnBoard LAN               Enabled     │                       │
  │  OnBoard AC'97  Audio      Auto        │                       │
  │                                        │                       │
  ├────────────────────────────────────────┼──────────────────────┤
  │ F1:Help        ↑↓:Select Item   +/-:Change Values   F9:Setup Defaults │
  │ Esc:Previous Menu          Enter:Select ▶Sub-Menu   F10:Save & Exit   │
  └────────────────────────────────────────┴──────────────────────┘
```

OnBoard FDC

Use this to enable or disable floppy drive controller.

OnBoard Serial Port

Use this to set addresses for the onboard serial ports or disable serial ports. Configuration options: [Auto], [Disabled], [3F8 / IRQ4 / COM1], [2F8 / IRQ3 / COM2], [3E8 / IRQ4 / COM3], [2E8 / IRQ3 / COM4].

OnBoard Infrared Port

You may select [Auto] or [Disabled] for this onboard infrared port feature.

OnBoard Parallel Port

Select Parallel Port address or disable Parallel Port. Configuration options: [Auto], [Disabled], [378], [278].

Parallel Port Mode

Set the operation mode of the parallel port. The default value is [ECP+EPP]. If this option is set to [ECP+EPP], it will show the EPP version in the following item, "EPP Version".

OnBoard Midi Port

Select address for Midi Port or disable Midi Port. Configuration options: [Disabled], [330], [300], [290], [292].

Midi IRQ Select

Use this to select Midi IRQ. Configuration options: [3], [4], [5], [7], [10], [11].

OnBoard Game Port

Select address for Game Port or disable Game Port. Configuration options: [Disabled], [200h], [208h].

OnBoard IDE

You may enable either the primary IDE channel or the secondary IDE channel. Or you may enable both the primary and the secondary IDE channels by selecting [Both]. Set to [Disabled] will disable the both. Configuration options: [Disabled], [Primary], [Secondary], [Both].

OnBoard LAN

This allows you to enable or disable the onboard LAN feature.

OnBoard AC'97 Audio

Select [Disabled], [Auto] or [Enabled] for the onboard AC'97 Audio feature.

System Hardware Monitor

You may check the status of the hardware on your system. It allows you to monitor the parameters for CPU temperature, Motherboard temperature, CPU fan speed, and critical voltage.

```
                    AMIBIOS SETUP UTILITY - VERSION 3.31a
        Advanced

        System  Hardware  Monitor                    [  Setup Help  ]


    CPU  Temperature          35℃ / 95°F
    M / B  Temperature        27℃ / 82°F
    CPU  FAN  Speed           3110   RPM
    Chassis  FAN  Speed          0   RPM
    Vcore                     1.72  V
    +  3.30V                  3.31  V
    +  5.00V                  4.97  V
    +  12.00V                 12.16 V





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

2. Security Setup Menu

```
                 AMIBIOS SETUP UTILITY - VERSION 3.31a
    Main    Advanced    Security  Power    Boot    Exit

                                                          [  Setup Help  ]
    Supervisor Password       Clear
    User Password             Clear              <Enter> to set the
                                                 supervisor password.
    Set Supervisor Password   [ Enter ]
    Set User Password         [ Enter ]

    Password Check            Setup




    F1:Help          ↑↓:Select Item      +/-:Change Values       F9:Setup Defaults
    Esc:Exit         ←→:Select Menu    Enter:Select  ▶Sub-Menu    F10:Save & Exit
```

Supervisor Password: This field shows the status of the Supervisor Password.

   [Clear]: No password has been set.

   [Set]: Supervisor password has been set.

User Password: This field shows the status of the User Password.

   [Clear]: No password has been set.

   [Set]: User password has been set.

Set Supervisor Password: Press <Enter> to set the Supervisor Password. Valid password can be a 1 to 6 alphanumeric characters combination. If you already have a password, you need to enter your current password first in order to create a new password.

Set User Password: Press <Enter> to set the User Password. Valid password can be a 1 to 6 alphanumeric characters combination. If you already have a password, you need to enter your current password first in order to create a new password.

Password Check: Select the check point for "Password Check". Configuration options: [Setup], [Always]. If [Setup] option is selected, the "Password Check" is performed before BIOS setup. If [Always] option is selected, the "Password Check" is performed before both boot-up and BIOS setup.

3. Power Setup Menu

```
                    AMIBIOS SETUP UTILITY - VERSION 3.31a
   Main     Advanced     Security    |Power|  Boot     Exit

                                                      [   Setup Help   ]
   Suspend To RAM                     Disabled
   Repost Video on STR Resume         Disabled
   Restore on AC / Power Loss         Power Off        <Enter> to select
   Ring-In Power On                   Disabled         auto-detect or disable
   PCI Devices Power On               Disabled         the Suspend-to-RAM
   PS / 2 Keyboard Power On           Disabled         feature.
   RTC Alarm Power On                 Disabled
      RTC Alarm Date                  Every Day
      RTC Alarm Hour                  12
      RTC Alarm Minute                30
      RTC Alarm Second                30




   F1:Help            ↑↓:Select Item      +/-:Change Values          F9:Setup Defaults
   Esc:Exit           ←→:Select Menu    Enter:Select  ▶Sub-Menu      F10:Save & Exit
```

Suspend to RAM

> This field allows you to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the system supports it.

Repost Video on STR Resume

> This feature allows you to repost video on STR resume. It is recommended to enable this feature under Microsoft® Windows® 98 / ME.

Restore on AC/Power Loss

> This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

Ring-In Power On

> Use this to enable or disable Ring-in signals to turn on the system from the power-soft-off mode.

PCI Devices Power On

> Use this to enable or disable PCI devices to turn on the system from the power-soft-off mode.

PS/2 Keyboard Power On

> Use this to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

RTC Alarm Power On

> Use this to enable or disable RTC (Real Time Clock) to power on the system. If [Enable] is selected, you must fill the RTC Alarm Date / Hour / Minute / Second sub-fields with the actual wake up time you desire.

4. Boot Setup Menu

```
                AMIBIOS SETUP UTILITY - VERSION 3.31a
   Main    Advanced    Security    Power   | Boot |  Exit

                                                    [   Setup Help   ]
      Quick Boot Mode          Enabled
      Boot Up Num-Lock         On               <Enter> to enable or
      Boot To OS/2             No               disable the quick boot
      Boot From Network        Disabled         mode.

   ▶  Boot Device Priority




     F1:Help         ↑↓:Select Item     +/-:Change Values        F9:Setup Defaults
     Esc:Exit        ←→:Select Menu     Enter:Select ▶Sub-Menu   F10:Save & Exit
```

Quick Boot Mode

Enable this mode will speed up the boot-up routine by skipping memory retestings.

Boot Up Num-Lock

If this is enabled, it will automatically activate the Numeric Lock function after boot-up.

Boot To OS/2

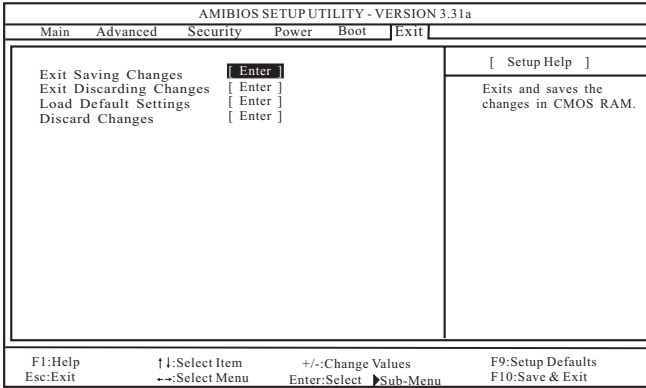This enables boot-up to OS/2 operating system.

Boot From Network

Use this to enable or disable "boot from network" feature.

Boot Device Priority

This allows you to set the boot device priority.

5. Exit Menu

```
                    AMIBIOS SETUP UTILITY - VERSION 3.31a
    Main     Advanced     Security     Power     Boot    Exit

                                                    [  Setup Help  ]
    Exit  Saving  Changes        [ Enter ]
    Exit  Discarding  Changes    [ Enter ]          Exits  and  saves  the
    Load  Default  Settings      [ Enter ]          changes  in  CMOS  RAM.
    Discard  Changes             [ Enter ]




    F1:Help          ↑↓:Select Item    +/-:Change Values     F9:Setup Defaults
    Esc:Exit         ←→:Select Menu    Enter:Select  ▶Sub-Menu  F10:Save & Exit
```

Exit Saving Changes

After you enter the sub-menu, the message "Save current settings and exit" will appear. If you press <ENTER>, it will save the current settings and exit the BIOS SETUP Utility.

Exit Discarding Changes

After you enter the submenu, the message "Quit without saving changes" will appear. If you press <ENTER>, you will exit the BIOS Setup Utility without making any changes to the settings.

Load Default Settings

After you enter the submenu, the message "Load default settings" will appear. If you press <Enter>, it will load the default values for all the setup configuration.

Discard Changes

After you enter the sub-menu, the message "Load setup original values" will appear. If you press <ENTER>, original values will be restored and all changes are discarded.