

# K7VT2

# **User Manual**

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# Chapter 1 Introduction

Thank you for purchasing ASRock K7VT2 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 for new DIY system builders. Chapter 3 and 4 contain basic BIOS setup and support CD information.

Advanced BIOS setup is for advanced users' reference, which can be found in the Appendix.

### 1.1 Package Contents

ASRock K7VT2 motherboard (ATX form factor: 12" x 9.6")

ASRock K7VT2 Quick Installation Guide ASRock AMD-VIA series support CD

Cable for IDE devices (1 x ATA 66/100/133)

Cable for floppy drive (1 x ribbon cable)

ASRock I/O shield

### 1.2 Specifications

**Platform:** ATX form factor (12" x 9.6")

**CPU:** Supports Socket A(462 pins) for AMD Athlon<sup>™</sup> / Athlon<sup>™</sup> XP/

Duron™ processor

Chipsets: North Bridge: VIA KT266A; FSB@200/266MHz, AGP 4X

South Bridge: supports USB 2.0, ATA 133

Clock Generator: 100 MHz - 200MHz

Memory: 2 slots for DDR: DIMM1 and DIMM2 (PC1600/ PC2100),

Max. 2GB

2 slots for SDR: DIMM3 and DIMM4 (PC100/ PC133),

Max. 2GB

IDE: IDE1: ATA 133 / PIO Mode 4

IDE2: ATA 133 / PIO Mode 4 Can connect up to 4 IDE devices

Floppy Port: Supports floppy disk drive
Audio: 2 channels AC'97 Audio

LAN: Speed: 802.3 (10/100 Ethernet), supports Wake-On-LAN

Hardware Monitor: CPU temperature sensing

Chassis temperature sensing

CPU overheat shutdown to protect CPU life

Voltage monitoring: +12V, +5V, +3V, Vcore

CPU fan tachometer

Chassis fan tachometer

PCI slots: 5 slots with PCI Specification 2.2

AGP slot: Universal AGP slot supports 3.3v / 1.5v, 4X / 2X AGP cards USB 2.0: 4 default USB ports and a set of header for two additional

USB ports upgrade

ASRock I/O™: PS/2: keyboard / mouse

**RJ 45** 

4 rear default USB ports (USB 2.0)

Serial port: COM 1

Parallel port: ECP/EPP support

Audio Jack: Line Out/ Line In/ Microphone + Game port

BIOS: AMI legal BIOS

Supports "Plug and Play"

ACPI 1.1 compliance wake up events

Supports jumperfree SMBIOS 2.3 support

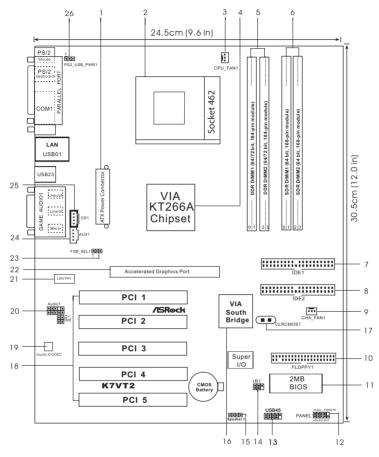
CPU frequency stepless control (only for advanced users' reference)

OS: Windows 98SE / ME / 2000 / XP compliant



- 1. While CPU overheat is detected, the system will automatically shutdown and the power button on the chassis will be disabled. Please check if the CPU fan on the motherboard functions properly before you resume the system.
- 2. Although K7VT2 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.

## 1.3 Motherboard Layout

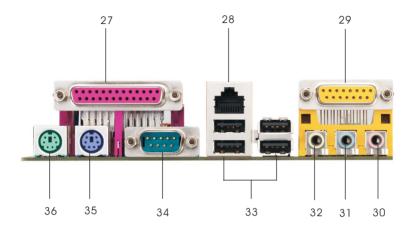


1	ATX power connector	14	IR1 connector
2	CPU socket	15	Speaker 1
3	CPU fan connector	16	South Bridge controller
4	North Bridge controller	17	CLRCMOS1
5	184-pin DDR DIMM slots (blue)	18	PCI slots
6	168-pin SDRAM DIMM slots (black)	19	Audio CODEC
7	Primary IDE connector (IDE1, blue)	20	Audio1 connector
8	Secondary IDE connector (IDE2, black)	21	LAN PHY
9	Chassis fan connector	22	AGP slot
10	Floppy connector	23	FSB_SEL1 jumper
11	Flash EEPROM	24	AUX1 connector (white)
12	System panel connector	25	CD1 connector (black)
13	USB header	26	PS2_USB_PWR1 jumper

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## 1.4 ASRock I/O™



27	Parallel port	32	Line Out (Lime)
28	RJ-45 port	33	USB 2.0 ports
29	Game port	34	Serial port (COM1)
30	Microphone (Pink)	35	PS/2 keyboard port (Purple)
31	Line In (Light Blue)	36	PS/2 mouse port (Green)

## Chapter 2 Installation

K7VT2 is an ATX form factor (12" x 9.6") motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

#### 2.1 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.



Do not over-tighten the screws! Doing so may damage the motherboard.

### 2.2 Pre-installation Precautions

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

- Unplug the power cord from the wall socket before touching any component.
- 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.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.

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.

#### 2.3 CPU Installation

- Step 1. Unlock the socket by lifting the lever up to a 90° to 100° 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

#### 2.4 Installation of CPU Fan and Heatsink

AMD Ahtlon/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. For proper installation, please kindly refer to the instruction manuals of vendors of CPU fan and heatsink.

## 2.5 Installation of Memory Modules (DIMM)

SDRAM (Synchronous DRAM) DIMM (Dual In-line Memory Module)has 168 pins and DDR (Double Data Rate) SDRAM DIMM has 184 pins.



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







184-pin RAM

The 168-pin SDRAM DIMM (black) and 184-pin DDR DIMM (blue) can be easily distinguished by the fool-proof design.



Please do not insert both 168-pin SDRAM DIMM and 184-pin DDR DIMM at the same time. Only use one single type of DIMMs at one time. Also, for proper operation, it is not recommended to use two different brands of the DIMMs at the same time.

- 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.
- Step 3. Firmly insert the DIMM into the slot until the retaining clip snap back in place and the DIMM is properly seated.



## 2.6 Expansion Slots (PCI and AGP Slots)

There are five PCI slots and one AGP slot on the 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 locking mechanism which can securely fasten the graphics card inserted.

## Installing an expansion card

- Step 1. Before installing the expansion card, read the documentation of the expansion card and make necessary hardware settings for the card.
- Step 2. Remove the system unit cover (if your motherboard is already in stalled in a chassis).
- Step 3. Remove the bracket facing the slot that you intend to use. Keep the screw 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.

## 2.7 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".

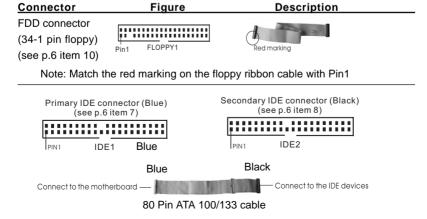


Jumper	Setting	Description
FSB_SEL1		
(see p.6 item 23)	FSB_SEL1 O • • 2_3	FSB_SELT O O O 1_2
	FSB 100 MHz	FSB 133 MHz
Note: Set CPU front		side bus frequency
PS2_USB_PWR1 (see p.6 item 26)	+5V +5	Short pin2, pin3 to enable +5VSB (standby) for PS/2 or USB wake up events;
CLRCMOS	Note:requires 2 Am	p and higher standby current
(see p.6 item 17)	Solder points	Disconnect the power cord, then short the solder points to clear CMOS

#### 2.8 Connectors



Connectors are NOT jumpers. DO NOT place jumper caps over these connectors.



USB header (10-1 pin USB45) (see p.6 item 13)  Infrared module connector (5-pin IR1)	USB_PWR    P-5   P+5   SND   DUMMY   P-5   P+5   SND   DUMMY   P-5   P-5   SND   DUMMY   P-5   P	ASRock I/O™ already provided 4 default USB ports If the 4 USB ports on the rear panel are not sufficient, an USB header is available for 2 additional USB ports.  This connector supports an optional wireless transmitting
(see p.6 item 14)	GND	and receiving infrared module.
Internal audio connectors (4-pin CD1, AUX1) (CD1: see p.6 item 25) (AUX1: see p.6 item 24)	O GND CD1 O GND CD1 O GND CD1 O GND AUXR O GND AUXR O GND AUXI	These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.
Audio1 connector (10-1 pin Audio1) (see p.6 item 20)	SACKOUT-R ACKOUT-R ACKOUT-R AUD-OUT-L AUD-OUT-L AUD-OUT-L MMC-POWERT-S	This is an interface for front panel audio cable that allows convenient connection and control of audio devices.
System panel connector (10-1 pin PANEL1) (see p.6 item 12)	PLED+ PLED-PW08IN# (SND )   GND   GN	This connector accommodates several system front panel functions.
Speaker1 connector (4-pin speaker1)	0000	This connector allows you to attach to an external speaker.
(see p.6 item 15)	SPEAKER DUIMMY +5V	attaci to an external speaker.
Chassis fan connector (see p.6 item 9)	GND +12V CHA_FAN_SPEED	Connect the fan cable to the connector matching the black wire to the ground pin.
CPU fan connector (see p.6 item 3)	GND +12V	Connect the fan cable to the connector matching the black
	CPU_FAN_SPEED	wire to the ground pin.
ATX power connector (20-pin) (see p.6 item 1)	Power Connector	Connect an ATX power supply to the connector.

# Chapter 3 BIOS Setup

## 3.1 BIOS Setup Program

This section explains how to configure your system using this utility.

The EEPROM on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run BIOS Setup. Press <F2> during the Power-On-Self-Test (POST) to enter the Setup utility, otherwise, POST continues with its test routines.

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

The Setup program is designed to make it as easy to use as possible. It is a menu-driven program, which means you can scroll through its various submenus and make your selections 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** Use this menu to make changes to the basic system configuration.

ADVANCED Use this menu to enable and make changes to the advanced

features.

**SECURITY** Use this menu to setup security features.

**POWER** Use this menu to configure and enable Power Management

features.

**BOOT** Use this menu to configure the default system device used to

locate and load the Operating System.

**EXIT** Use this menu to exit the current menu or to exit the Setup program.

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

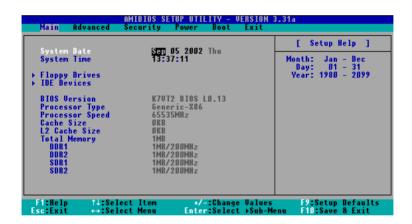
## 3.1.2 Legend Bar

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

Navigation Key(s)	Function Description		
<f1></f1>	Display the General Help Screen		
<esc></esc>	Jump to the Exit menu or returns to the main menu from		
	a sub-menu		
↑/↓ ←/→	Move cursor up or down between fields		
<b>←</b> / →	Select menu to the left or right		
+ /- Increase or decrea	ase values		
<enter></enter>	Bring up a selected menu for a highlighted field		
<f9></f9>	Reset the current screen to its Setup Defaults		
<f10></f10>	Save changes and exit Setup		

#### 3.2 Main Menu

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



#### 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  $\uparrow$  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  $\uparrow \downarrow$  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.



#### **TYPF**

# **[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 automatic detection is successful, BIOS Setup automatically fills in the correct values for the remaining fields on this sub-menu. If automatic detection fails, this may due to the hard disk is too old or too new. If the hard disk was already formatted on an older system, 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 new IDE hard disk drives. This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drives to active.

#### [CD-ROM]: This is used for ATAPI CD-ROM drives

After making your selections on this sub-menu, press the <ESC> key to return to the main menu. When the menu appears, the hard disk drive field displays the size for the hard disk drive that you configured.

#### Cylinders

This field configures the number of cylinders. Refer to the drive documentation to determine the correct value.

#### Heads

This field configures 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.

#### Sector

This field configures 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.

#### 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 section.

## Chapter 4 Software Support

## 4.1 Install Operating System

This motherboard supports various Windows operating systems (98SE / 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 enhance the motherboard features.

## 4.2.1 Running The Support CD

To begin using the support CD, simply 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 device.

#### 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.

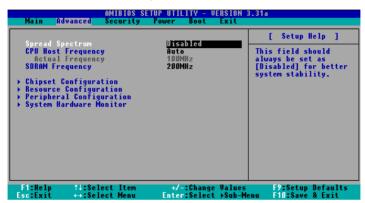
#### 4.2.4 Contact Information

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

# Appendix 1 Advanced BIOS Setup

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

## 1.1 Advanced BIOS Setup Menu



#### Spread Spectrum:

This field should always be "Disabled" for better system stability.

#### **CPU Host Frequency:**

[Auto]: The motherboard detects the jumper setup and sets the CPU host frequency automatically.

[Manual]: This allows the user to set CPU host frequency manually. However, this is not recommended unless you thoroughly knows the feature.

Wrong setup may cause problems during operation.

#### **SDRAM Frequency:**

[Auto]: The motherboard detects the memory module(s) inserted and automatically assigns appropriate frequency.

[other values]: This allows the user to select the value as operating frequency. Chipset Configuration:

[AGP Mode]: The default is 4X. You can also choose 1X or 2X for older version of VGA cards.

**[AGP Aperture Size]:** It refers to a section of the PCI memory address range used for graphics memory. We recommend that you leave this field at the default value unless your AGP card requires other sizes.

**[PCI Delay Transaction]:** The default is "Disabled". It is recommended to set "Disabled" for this field to maximize system compatibility.

[USB Controller]: Use this to enable or disable the use of USB devices

**[USB Device Legacy Support]:** Use this to enable or disable support to emulate legacy I/O devices such as mouse, keyboard,... etc.

#### **Resource Configuration:**

**[PCI Latency Timer (PCI clocks)]:** The default is 32. We recommend you to keep the default value unless your PCI expansion cards' specifications require other settings.

[Primary Graphics Adapter]: Select the primary graphics adapter (AGP or PCI).

#### Peripheral Configuration:

[OnBoard FDC]: Use this to enable or disable floppy drive controller.

**[OnBoard Serial PortA]:** 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>.



[Serial PortB Mode]: Select mode for the IR transmission port.

[OnBoard Parallel Port]: Select Parallel Port address or disable Parallel Port.

Configuration options: <Auto>, <Disabled>, <378>, <278>.

[Parallel Port Mode]: Select mode for parallel port.

[EPP Version]: Select EPP version. The default is 1.9.

**[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: <5>, <10>, <11>. The default is 5.

[OnBoard Game Port]: Select address for Game Port or disable Game Port.

Configuration options: <200h>, <208h>, <Disabled>.

[OnBoard IDE]: Enable or Disable IDE controllers.

Configuration options: <both>, <Disabled>, <Primary>, <Secondary>.

[OnBoard LAN]: Enable or Disable onboard LAN.

## 1.2 Security Setup Menu



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 Supervisor Password. Valid password can be a 1 to 6 alphanumeric characters combination. If you already have a password, you must enter your current password first in order to create a new password.

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

Password Check: Select the check points 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.

#### 1.3 Power Setup Menu



Suspend to RAM (S3): This field allows you to select whether to auto-detect or disable the ACPI Suspend-to-RAM feature. Select [Auto] will enable this feature if the system supports it.

Restore on AC/Power Loss: This allows you to set the power state when the AC power restore from the previous AC power loss. If <Power Off> is selected, the AC power remains off when it restores. If <Power On> is selected, the AC power resumes and the system starts to boot up.

**Ring-In Power On:** Use this to enable or disable Ring-in signals to power on the system from power soft-off mode.

**PME# Power On:** Use this to enable or disable PCI PME# to power on the system from the 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.

## 1.4 Boot Setup Menu



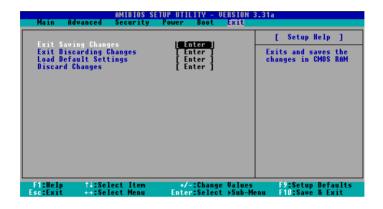
**Quick Boot Mode:** This mode speeds up the boot-up routine by skipping memory retestings.

**Boot-time Diagnostic Screen:** This screen shows CPU and hardware information during Power-On-Self-Test (POST) routine. If this screen is disabled, only ASRock logo is shown during the boot up process.

**Boot Up Num-Lock:** This automatically activates the Numeric Lock function after boot up.

Boot to OS/2: This enables boot up to OS/2 operating system.

#### 1.5 Fxit Menu



**Exit Saving Changes:** After you enter the sub-menu, the message "Save current settings and exit" will appear. If you press <ENTER>, the program will save the current settings and exit the BIOS SETUP program.

**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 program without making any changes to the settings.

Load Default Settings: This loads the default values for all setup options.

**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. All changes are discarded.