



Declaration of Conformity

According to 47 CFR, Parts 2 and 15 of the FCC Rules

The following designated product:

EQUIPMENT: MAINBOARD

is a Class B digital device that complies with 47 CFR Parts 2 and 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1. This device may not cause harmful interference.**
- 2. This device must accept any interference received, including interference that may cause undesired operation.**

This declaration is given to the manufacturer:

CHAINTECH AMERICA CORP.
4427 Enterprise St. Fremont, CA 94538, U.S.A.
<http://www.chaintech.com.tw>
Chaintech President: Simon Ho

Signature: 



VIA K8T890 + VT8237R
u-ATX Motherboard

User's Guide

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- * This device may not cause harmful interference.
- * This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If this equipment is not installed and used in accordance with the manufacturer's instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- * Reorient or relocate the receiving antenna.
- * Increase the separation between the equipment and receiver.
- * Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- * Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for audio noise emissions from digital apparatuses set out in the Radio Interference Regulations of the Canadian Department of Communications.

Manufacturer's Disclaimer Statement

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Chapter 1 Introduction

MK8T890 motherboard, supporting the latest AMD Socket-754 Athlon 64 / Sempron processor, is based on the VIA K8T890 chipset. MK8T890 is a state-of-the-art design with competitive price on heightening the performance for the computer. It is an ideal motherboard solution for home, office and SOHO users.

1-1 Specifications

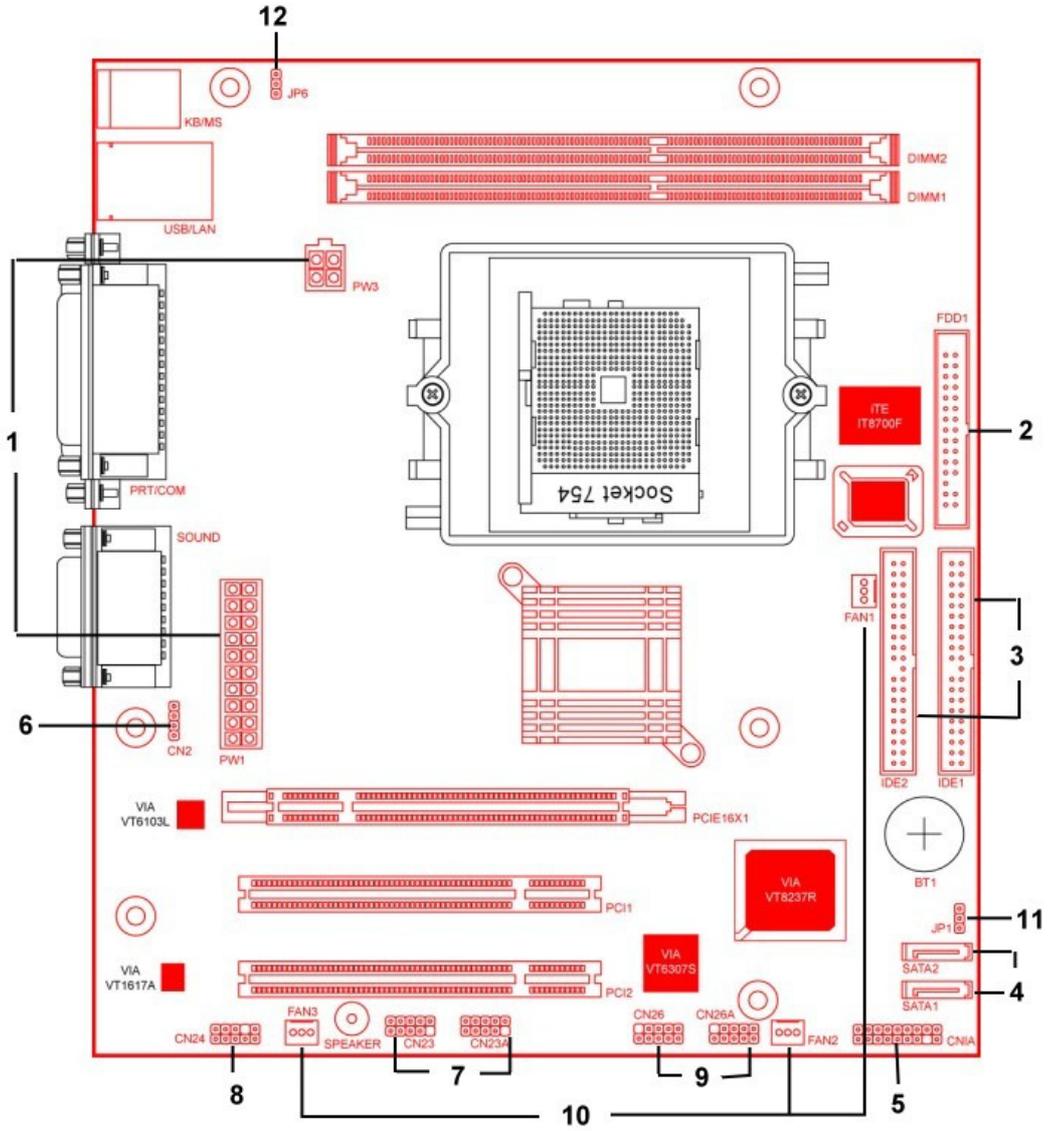
CPU	<ul style="list-style-type: none"> ● Supports AMD Socket-754 Athlon 64 / Sempron processor
FSB	<ul style="list-style-type: none"> ● Processor interface via 1600MT/s HyperTransport bus
Chipset	<ul style="list-style-type: none"> ● VIA K8T890 + VT8237R
Memory	<ul style="list-style-type: none"> ● Two 184-pin DDR DIMMs up to 2GB ● Supports DDR266/333/400 memory
Expansion Slots	<ul style="list-style-type: none"> ● One PCI Express x16 port for PCI Express graphics card ● Two 32-Bit PCI slots (v2.3 compliant)
SATA	<ul style="list-style-type: none"> ● Build-in VT8237R supports 2 Serial ATA devices for the highest data transfer rates (1.5Gbps burst) with RAID 0/1 solution
IDE	<ul style="list-style-type: none"> ● Supports 2 UltraDMA-66/100/133 IDE ports
Floppy	<ul style="list-style-type: none"> ● One FDD connector supports up to 2.88MB
LAN	<ul style="list-style-type: none"> ● Supports 10/100Mb Fast Ethernet with external VIA VT6103L PHY
Audio	<ul style="list-style-type: none"> ● With external high quality 5.1-Channel AC'97 Codec ● Complete software driver supports for Windows OS
Rear Panel I/O ports	<ul style="list-style-type: none"> ● One PS/2 Mouse and Keyboard port ● Two USB ports and one RJ45 connector ● Two 9-pin D-Sub male Serial ports ● One 25-pin D-Sub female Parallel port ● Three Audio I/O jacks (Line-in, Line-out and Mic-in) ● One 15-pin D-SUB female Game/MIDI port
Internal I/O connectors	<ul style="list-style-type: none"> ● Three 3x1 pin fan connectors ● Two 5x2 pin USB connectors for additional 4 USB ports ● Two 5x2 pin IEEE1394 connectors (Optional) ● One 4x1 pin CD-in connector ● One 9x2 pin front panel connector ● One 5x2 pin front side audio connector ● One 20 pin ATX Power connector ● One 4 pin ATX 12V Power connector
Boot-Block Flash ROM	<ul style="list-style-type: none"> ● Phoenix-Award system BIOS supports PnP, APM, DMI, ACPI, & Multi-device booting features
Form Factor	<ul style="list-style-type: none"> ● Micro-ATX Form Factor 244mm x 220mm

1-2 Package Contents

This product comes with the following components:

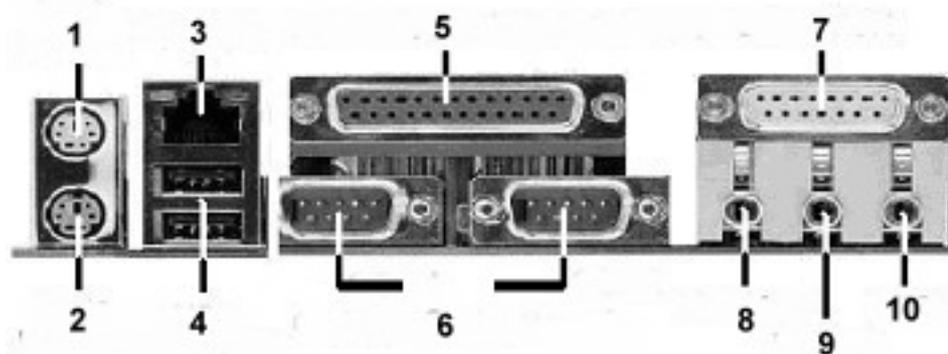
- | | |
|--|-----|
| 1. MK8T890 Motherboard | x 1 |
| 2. 40-Pin IDE Cable | x 1 |
| (Blue to motherboard, Gray to Master and Black to Slave) | |
| 3. 34-Pin floppy Disk Drive Cable | x 1 |
| 4. SATA Cable | x 1 |
| 5. User's Manual | x 1 |
| 6. Support Driver CD | x 1 |
| 7. Value Pack 2005 | x 1 |

1-3 Motherboard Layout



No.	Item	Function	Description
1	PW1/3	ATX.Power Supply Connector (PW1: 20 Pin, PW3: 4 pin)	These two connectors are used to connect the power by power cables.
2	FDD1	Floppy Disk Drive Connector (34-1 pin)	The floppy disk drive can be hooked up here via the FDD signal cable.
3	IDE1 & IDE2	IDE Connectors (40-1 pin)	IDE1 and IDE2 connectors are used to connect IDE HDD(s) via the IDE cables.
4	SATA1 & SATA2	Serial ATA Connectors	These connectors are used to connect the Serial ATA HDD(s) via the Serial ATA signal cable.
5	CN1A	Front Panel Connector (18-1 pin)	This connect is used to control the functions of power, power Led indicator, reset, speaker, HDD Led indicator.
6	CN2	Internal Audio Connector (4-pin CD-IN)	This connector is used to receive the stereo audio input from sound sources, such as the CD-ROM, TV tuner, MPEG card, etc.
7	CN23/ CN23A	USB Port Connectors (10-1 pin)	These connectors are used to connect the USB module(s) via the USB signal cable.
8	CN24	Front Audio Connector 10-1 pin	This connector offers you the option of a front-panel audio-jack cable ext. to be plugged into a special custom-designed system case.
9	CN26/ CN26A	IEEE 1394a port connectors (10-1 pin WAFER1394)	These connectors are used to connect the IEEE1394 module(s) via the IEEE1394 signal cable. (Optional)
10	FAN1/2/3	CPU, System and Case Fan connectors (3-pin)	These connectors are used to connect the CPU, Power and Case Fan to cool down the temperature.
11	JP1	CMOS Clear Jumper	The CMOS Clear Jumper allows you to reset your CMOS configurations.
12	JP6	Enable/Disable USB0/1 Device Wake-Up Jumper	An USB keyboard hot key and an USB mouse-click can be used to wake up the system.

1-4 Rear Panel I/O ports Layout



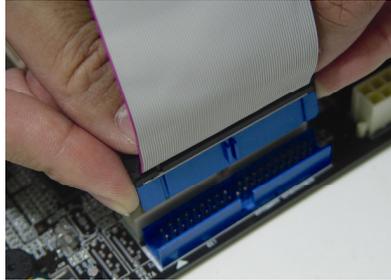
No.	Name	Function
1	Green PS/2 mouse port	The PS/2 mouse can be hooked up here
2	Purple PS/2 keyboard port	The PS/2 keyboard can be hooked up here
3	LAN (RJ-45) port	The Twisted-Pair Wire can be hooked up here to form the so-called Local Area Network (LAN)
4	USB 2.0	The USB 2.0 devices, such as the digital cameras, camcorders, portable hard disc drive, MP3 player, etc. can all be hooked up here
5	Female Parallel Printer port	The parallel printer, scanner or other devices can be hooked up here
6	Male Serial port (COM1, COM2)	The devices such as the modem, old-fashioned mouse, etc. can be hooked up here
7	GAME/MIDI port	The joystick, game pad or MIDI devices can be hooked up here
8	Lime Line out port	The headphone or speaker can be hooked up here
9	Light blue Line In port	The tape, CD, DVD player or other audio sources can be hooked up here
10	Pink Microphone port	The microphone can be hooked up here

Chapter 2 Hardware Installation

2-1 PC D.I.Y. Assembly Instructions

1. Installing FDD and IDE devices:

Aligned the red colored edge of the cable with the pin 1 of the drive connector on the motherboard and gently attached it. Attach the other end of the cable by aligning the colored edge to the pin 1 of the device connector. Make sure that all drives are securely fastened.



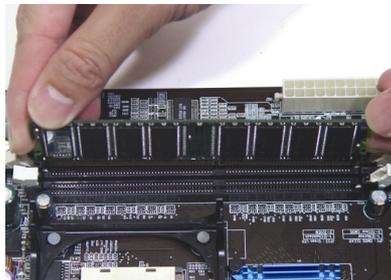
2. Installing a CPU:

Locate a noticeable notch in the CPU's corner. This marking indicate Pin 1 of the CPU. Gently insert the CPU with Pin 1 at the same corner of the socket that contains the end of the lever.



3. Installing System Memory:

Push module downward until side clips are properly secure to the module.



4. Mounting a Motherboard into a Chassis:

Use standoffs and screws to securely mount the motherboard and make sure that all the mounting holes are properly screwed.



5. Adding an expansion card:

Gently fasten the card to the proper slot.

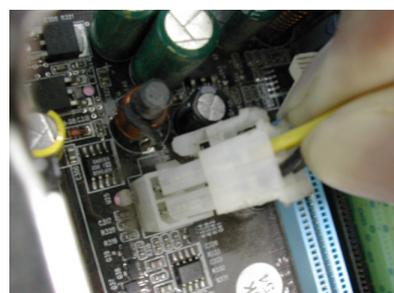


6. Connecting I/O ports and device connectors:

Simply plug the cable into the respective device port or connector as shown in the manual or silkscreen printed on the motherboard.

7. Connecting the Power Supply Cables:

Plug in the ATX power cable to the motherboard's power connector and make sure the cable is connected.



2-2 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including power supply, keyboard, and the various controllers on the front panel of the system case.

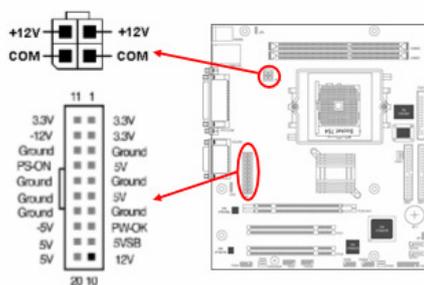


The power supply connector is the last connection to be made while installing a motherboard. Before connecting the power supply, please make sure it is not connected to the power source.



All cables come with a security-proof.

1. PW 1 / 3 (ATX Power Supply Connector):



The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system. The ATX power supply provides a single 20-pin connector interface, which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft power signal, a 5V trickle supply

is continuously supplied when AC power is available. When the system is in Soft-Off mode, this trickle supply maintains the system in its minimum power state.

The ATX 12V power supply has a new +12V (4-pin) and +5V / 3.3V (6-pin) auxiliary power connector to enable the delivery of more +12 VDC and + 5/ 3.3V VDC current to the motherboard.

Power-On By Modem:

While in Soft-Off state, if an external modem ring-up signal is detected, the system will be activated and therefore can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section 3. 6)

Blinking LED in Suspend Mode:

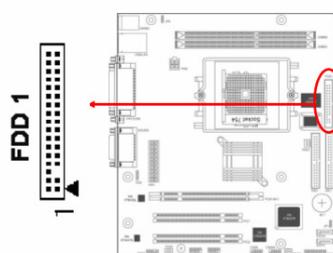
While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Green Override Power Button on your ATX case, or by enabling the Power Management and Suspend Mode options in BIOS's Power Management menu. (See section 3.6)

Poly-fuse Over Current Protection:

The poly-fuse protects the system from dangerous voltages that the system might be exposed to via keyboards or USB connectors. In case of such an exposure, the poly-fuse will immediately be disconnected from the circuit just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state and the keyboard or USB connector can function properly again. Unlike conventional fuses, the

poly-fuse will not need to be replaced, relieving users from such inconveniences.

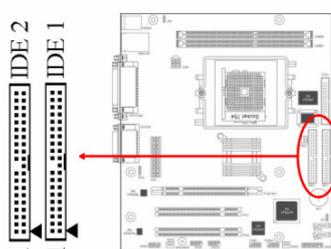
2. Internal connectors



FD1: Floppy Disk Drive Connector (34-1 pin)

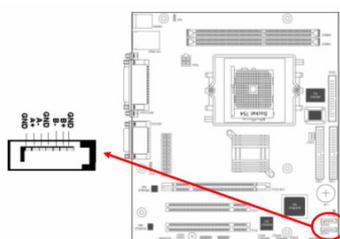
To install the FDD, please connect one end of the FDD signal cable to the connector and the other end to the rear of the FDD.

IDE1 & IDE2: IDE Connectors (40-1 pin)



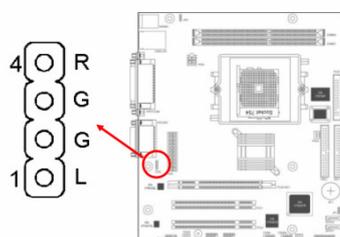
This motherboard comes with 2 IDE (Integrated Device Electronics) connectors, which can connect up to 4 PATA hard disk drives via the Ultra DMA 133/100/66 signal cables. If the user attempts to install more than 2 HDDs, he must configure the master/slave mechanism by setting the corresponding jumpers on the HDDs. For more details, please refer to the related information that usually lies on the surface of the HDDs.

SATA1 & SATA2: Serial ATA Connectors (7-pin)



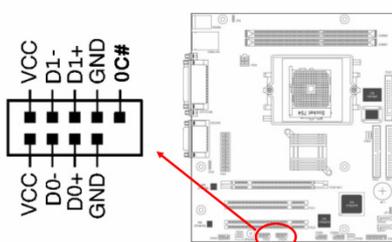
These connectors are used to connect the Serial ATA Hard Disk Drive(s) via the Serial ATA signal cable. Once the SATA HDD(s) is(are) installed, remember to connect the SATA power cable to the rear of it or them and the power plug of the power supply unit.

CN2: Internal Audio Connector (4-pin CD-IN)

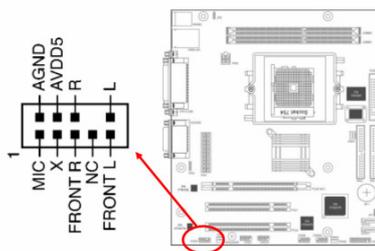


Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your motherboard. This will enable your CD-ROM's audio function.

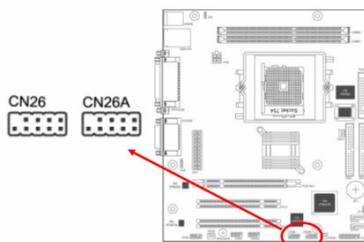
CN23/CN23A: USB Port Connectors (10-1 pin)



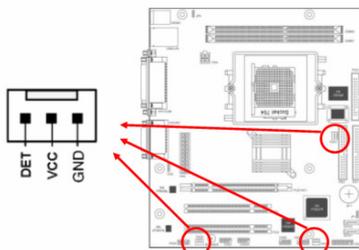
These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps transfer rate. The USB/GAME module(s) can be hooked up here via the USB/GAME cable(s).

CN24: (Front Audio Connector 10-1 pin)

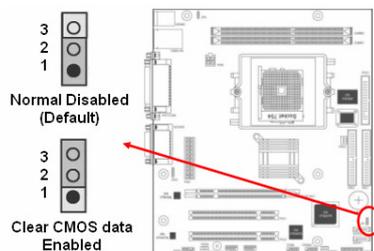
This connector gives you option of a front-panel audio-jack cable ext. to be plugged into a special custom-designed system case. Simply remove the two jumper caps at pins [5-6] and [9-10] then plug it into the (optional) cable ext. connector. Pins [5-6] and [9-10] are shorted (default) to enable the back-panel audio function.

**CN26/CN26A: IEEE 1394a port connectors (10-1 pin WAFER1394)
(Optional)**

The IEEE 1394 module(s) can be hooked up here via the IEEE 1394 module cable(s).

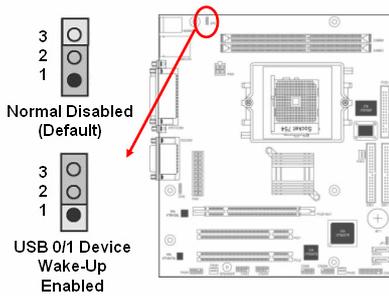
FAN 1/2/3: CPU, System and Case Fan connectors (3-pin)

These connectors connect the cooling fans via the fan cables.

JP1: CMOS Clear Jumper

There is a CMOS RAM on board that has a power supply from external battery to keep the data and system configuration. To clear the contents of the CMOS, please follow the steps below.

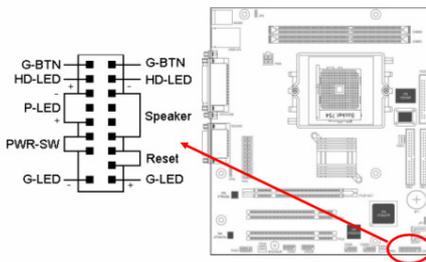
1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location [2-3] for <5 seconds>, and then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Optimized Defaults.
5. Type [Y] and then press [Enter] to continue.
6. Set the system configuration in the Standard CMOS Setup menu.

JP6: Enable/Disable USB 0/1 Device Wake-Up Jumper:

An USB keyboard hot key or an USB mouse-click can activate this board. To use this function, select a hot key of your choice at the USB Resume from S3 option under Wake Up Events in the BIOS's Power On Management screen. You must also set this jumper's cap to pins 2-3 to use this function.

3. CN1A: Front Panel Connector (18-1 pin)

- **PWR-SW** (Over-ride Power Button Connector):



The power button on the ATX chassis can be used as a normal power switch as well as a device to activate the Advanced Power Management Suspend mode. This is a power-saving mode used for saving electricity when the computer is idle for long periods of

time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to **[Delay 4 Sec.]** to activate this function.

When the Soft-OFF by PWR-BTTN function is enabled, pressing the power button rapidly will switch the system to Suspend mode. Any occurrence of external activities such as pressing any keys on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than **[4 seconds]** will switch the system completely off. See Over-ride Power Button Operation diagram.

- **P-LED** (Power LED Connector):

The power indicator LED shows the system's power status. It is important to pay attention to the correct cable and pin orientation (i.e. Be careful not to reverse the order of these two connectors.)

- **G-BTN** (Green Button Switch):

Some ATX cases provide a Green button switch, which is used to put the system in Suspend mode. While in Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in its minimum power state. The system is activated whenever the keyboard or mouse is touched. The system will resume in various ways as defined by Power Management Setup screen in BIOS.

- **RESET** (System Reset Switch Connector):

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

- **SPEAKER** (Speaker Connector):

This 4-pin connector connects to the case-mounted speakers.

- **HD-LED (IDE - Activity LED Connector):**

The IDE- activity LED lights up whenever the system reads/writes to the IDE devices.

- **Front Audio Connector (10-1 pin CN24 Front Audio)**

This connector give you the option of a front panel audio jack cable ext. to be plug into a special custom designed system case. Simply remove the two jumper caps at pin [5-6] and [9-10] then plug it into the (optional) cable ext. connector. Pin [5-6] and [9-10] are shorted (default) to enable the back panel audio function.

- **ATX Power Connectors (20-pin ATXPWR & 4-pin ATX 12V)**

The plugs of the ATX power supply go here.

Suggestion: Please use the power supply which can support over 350W.

Chapter 3 Phoenix-Award BIOS CMOS Setup Utility

3-1 Entering Phoenix-Award BIOS CMOS Setup Utility

The Phoenix-Award BIOS CMOS Setup Utility can be entered by pressing **{Delete}** during the booting process; accurately speaking, it is during the POST (Power-On Self Test), one of major tasks performed by the BIOS when the system is turned on to make certain every hardware of the system is present and works properly.

3-2 Standard CMOS Features

Date (mm:dd:yy)

Allows users to set the system date. Once set up, the system date will be based on this.

Time (hh:mm:ss)

Allows users to set the system time. Once set up, the system time will be based on this.

IDE Channel 0~3 Master/Slave

Each of these items shows the name of the IDE devices currently connected to the motherboard. Select the item desired by using arrow keys then press **{Enter}** to enter the sub-menu.

IDE HDD Auto-Detection

The item allows BIOS to auto-detect the IDE devices currently connected to the motherboard and to show the related information, including Capacity, Cylinder, Head, Precomp, Landing Zone as well as Sector.

IDE Channel 0~3 Master/Slave

These items allow users to set the status of the IDE devices. **[Auto]** is recommended. Available options: **[None]**, **[Auto]** and **[Manual]**.

Drive A/B

Allows users to choose the type of the floppy disk drive currently used. Available options: **None, 360K, 5.25 in., 1.2M, 5.25in., 720K, 3.5in., 1.44M, 3.5in., 2.88M, 3.5in..**

Video

Allows users to choose the specification of the monitor currently connected to the motherboard.

Halt On

The item allows users to determine under what condition the system should halt during the boot process.

If **All Errors** is selected, the booting process will halt when the system detects any errors on

hardware during the POST.

If **No Errors** is selected, the boot process will not halt even though the system detects an error on hardware during the POST.

If **All, But Keyboard** is selected, the booting process will halt when the system detects any errors on hardware except for the keyboard.

If **All, But Diskette** is selected, the booting process will halt when the system detects any errors on hardware except for the hard disk drive.

If **All, But Disk/Key** is selected, the booting process will halt when the system detects any errors on hardware except for the hard disk drive & keyboard.

3-3 Advanced BIOS Features

Hard Disk Boot Priority

One of the major tasks for the BIOS is to help the CPU load the operating system from the hard disk drive into the system memory. This feature allows users to set the sequence by which the BIOS will search for an operating system. Set the hard disk drive that contains the operating system as the first place for the fastest booting process.

Virus Warning

This feature provides the fundamental anti-virus protection by monitoring writes to the boot sector and partition table. If enabled, the BIOS will halt the system and flash the warning message whenever it detects an attempt to write to the boot sector or partition table.

CPU Internal/External Cache

This feature controls the functionality of the CPU' s internal & external cache. If **enabled**, the CPU' s internal & external cache will be allowed to work. The CPU performance thus will largely increase.

CPU L2 Cache ECC Checking

This BIOS feature enables or disables the L2 (*Level 2 or Secondary*) cache's ECC (*Error Checking and Correction*) function, if available.

Enabling this feature is recommended because it will detect and correct single-bit errors in data stored in the L2 cache. As most data reads are satisfied by the L2 cache, the L2 cache's ECC function should catch and correct almost all single-bit errors in the memory subsystem. It will also detect double-bit errors although it cannot correct them. But this isn't such a big deal since double-bit errors are extremely rare. For all practical purposes, the ECC check should be able to catch virtually all data errors. This is especially useful at overclocked speeds when errors are most likely to creep in.

So, for most intents and purposes, I recommend that you **enable** this feature for greater system stability and reliability.

Please note that the presence of this feature in the BIOS does not necessarily mean that your

processor's L2 cache actually supports ECC checking. Many processors do not ship with ECC-capable L2 cache. In such cases, you can still enable this feature in the BIOS but it will have no effect.

Quick Power On Self Test

This feature allows you to reduce the time it takes to boot up the system. If **enabled**, the BIOS will shorten the booting process by skipping certain some tests and shorten others. It is recommended that you disable this feature when you boot up the system for the first time or whenever you install a new piece of hardware. Doing this will allow the BIOS to execute the complete diagnostic tests to detect the potential problems with the hardware.

First Boot Device

This feature allows users to determine from which device the BIOS will attempt to load the operating system first. If users want to install the operating system such as Windows XP, they will need to set the First Boot Device as the CD-ROM to install the operating system into the Hard Disk Drive (HDD).

Second Boot Device

This feature allows users to determine the Second Boot Device from which the BIOS will attempt to load the operating system.

Third Boot Device

This feature allows users to determine the Third Boot Device from which the BIOS will attempt to load the operating system.

Boot Other Device

This feature allows users to determine whether the BIOS will attempt to load the operating system from the Second Boot Device or the Third Boot Device if it fails to load it from the First Boot Device.

Swap Floppy Drive

This BIOS feature is used to logically swap the mapping of drives A: and B:. Therefore, it is only useful if you have two floppy drives.

Normally, the sequence by which you connect the floppy drives to the cable determines which is drive A: and which is drive B:. If you attach the floppy drives the wrong way and obtain a drive mapping that is not to your satisfaction, the usual way of correcting this is to physically swap the floppy cable connectors.

This feature allows you to swap the logical arrangement of the floppy drives without the need to open up the case and physically swap the connectors.

When this BIOS feature is **enabled**, the floppy drive that originally was mapped to drive A: will be remapped to drive B: and vice versa for the drive that was originally set as drive B:.

When this BIOS feature is **disabled**, the floppy drive mapping will remain as that set by the drive connector arrangement.

Although this appears to be nothing more than a feature of convenience, it can be quite important if you are using two floppy drives of different form factors (3.5" and 5.25") and you need to boot from the second drive. Because the BIOS can only boot from drive A:, you will have to physically swap the drive connections or use BIOS this feature to do it logically.

If your floppy drive mapping is correct or if you only have a single floppy drive, there is no need to enable this feature. Leave it at the default setting of disabled.

Boot Up Floppy Seek

If **enabled**, the BIOS will attempt to detect and initialize the floppy disk drive (FDD) during the booting process. It will show an error message on the screen when the FDD is not detected. Nevertheless, the users still can continue the booting process. Enabling this feature is actually pointless and takes more time to boot up the system. It is recommended that the users disable it.

Boot Up NumLock Status

There are two input modes for the numeric keypad—numeric & cursor control mode. This feature allows you to select the mode the keypad will adopt. On represents the numeric mode and Off, cursor control mode.

Typematic Rate Setting

The feature allows you to control the keystroke repeat feature.

If **enabled**, you can manually adjust the two following:

- **Typematic Rate**
- **Typematic Rate Delay**

If **disabled**, the foregoing features will be disabled and greened out. The keyboard controller will then use the default Typematic Rate & Typematic Rate Delay.

Typematic Rate (Chars/Sec)

You can use this feature only when the **Typematic Rate Setting** is **enabled**. The feature allows users to determine at what rate the keyboard will repeat the keystroke when you press it continuously. The higher the typematic rate is, the faster the keyboard will repeat the keystroke.

Typematic Rate Delay (Msec)

This BIOS setting will only work if the **Typematic Rate Setting** feature has been **enabled**. This feature determines how long, in **milliseconds** (*thousandths of a second*), the keyboard controller will wait before it starts repeating the keystroke that you have pressed continuously. The longer the delay, the longer the keyboard controller will wait before it

starts repeating the keystroke.

Generally, using a short delay is useful for people who type quickly and don't like to wait long for a keystroke to be repeated. On the other hand, a long delay is useful for users who tend to press the keys longer while typing. This prevents the keyboard controller from unnecessarily repeating keystrokes with such users.

Security Option

This BIOS feature controls the application of the BIOS' password protection. It will only work once you have created a password through the **Password Setting** option in the main BIOS screen.

Selecting the **System** option will force the BIOS to ask for the password every time the system boots up.

If you choose **Setup**, then the password is only required for access to the BIOS. This option is useful for system administrators or computer resellers who need to keep novice users from messing around with the BIOS

APIC Mode

By enabling this option, "MPS version control for OS" can be configured.

MPS Version Control For OS

The 1.1 version is the older version that supports 8 more IRQs in the Windows NT environment. Choose the new 1.4 version for Windows 2000 and Windows XP.

OS Select for Dream >64MB

If your system's DRAM is larger than 64MB and you are running OS/2, select OS/2 as the item value. Otherwise, set the item value to Non-OS/2 for all other operating systems.

HDD S.M.A.R.T. Capability

S.M.A.R.T. or Self-Monitoring, Analysis, and Reporting Technology enables a drive's internal status to be monitored through diagnostic commands. Both your hard drive must support this capability and this function must be enabled in order to take advantage of this function. See your hard drive literature for more information.

Video BIOS Shadow

These fields allow you enable/disable the shadow feature for the Video BIOS and the appropriate memory segment.

Small Logo (EPA) Show

This function allows you to show or hide the small Logo EPA. If **Enabled**, the EPA Logo shows up on the screen when you boot up the system.

Show POST CODE

Enabling this function can show POST error code on the screen before proceeding to system's operating system.

3-4 Advanced Chipset Features

DRAM Configuration

Press **Enter** to enter the submenu.

Current FSB Frequency

This feature shows the current FSB frequency.

Current DRAM Frequency

This feature shows the current DRAM frequency.

Max Memclock (Mhz)

This feature allows you to select the memory clock. When it set to "Auto", the system will automatically detect the memory clock.

CAS# latency (Tcl)

The feature controls the latency between the SDRAM read command and the time the data really becomes available. In other words, the lower the CAS Latency Time is, the faster the memory reads or writes can occur. Note that not every memory module is capable of dealing with the lower CAS Latency Time and may lose data for this. Therefore, you shall increase it as the system becomes unstable.

LDT & PCI Bus Control

Upstream LDT Bus Width

This function determines the upstream width of the LDT bus of which connects CPU and MK8T890 chip. Please leave the default setting [16 bit] for a stable system operation.

Downstream LDT Bus Width

This function determines the downstream width of the LDT bus of which connects CPU and MK8T890 chip. Please leave the default setting [16 bit] for a stable system operation.

PCI1/PCI2 Master 0 WS Write

When enabled, allows a zero-wait-state-cycle delay when the PCI master drive writes data to DRAM.

PCI1/2 Post Write

Enabling this function will enhance the system efficiency.

PCI Delay Transaction

Enable it to abort the current PCI master cycle and accept a new PCI master request, it reaccepts the original PCI master, returns PCI data phase to the original PCI master.

Memory Hole

This feature enables users to determine whether the 15th~16th (1MB) block of memory will be reserved for the ISA cards or not. If **enabled**, 1MB of memory will be reserved

exclusively for the ISA cards. Thus the total amount of memory the operating system uses will decrease. If **disabled**, the 15th MB of RAM will not be reserved for the ISA cards and there will be a full range of memory available to the operating system. Since the ISA cards are a thing of the past, it is highly recommended that you **disable** this feature.

VLink Mode Selection

Enable this setting to utilize the 16X mode (twice as fast as 8X) offered by advanced PCIE cards. Your PCIE card must support 16X mode in order to take advantage of the faster speed.

Init Display First

This **BIOS** feature allows users to select whether to boot the system using the PCIE graphics card or the PCI graphics card. This is particularly important if you have PCIE and PCI graphics cards but only one monitor.

If you are only using a single graphics card, then the BIOS will detect it as such and boot it up, irrespective of what you set the feature to. However, there may be a slight reduction in the time taken to detect and initialize the card if you select the proper setting for this BIOS feature. For example, if you only use a PCIE graphics card, then setting Init Display First to PCIE may speed up your system's booting-up process.

Therefore, if you are only using a single graphics card, it is recommended that you set the Init Display First feature to the proper setting for your system (PCIE for a single PCIE card and PCI for a single PCI card).

But if you are using multiple graphics cards, it is up to you which card you want to use as your primary display card. It is recommended that you select the fastest graphics card as the primary display card.

System BIOS Cacheable

This feature enables users to determine whether the BIOS in the flash ROM will be cached by the processor's L2 cache or not. If **enabled**, the access to the BIOS will speed up.

Nevertheless, the modern operating systems, such as Microsoft Windows XP, are designed to communicate with the hardware via the drivers instead of the BIOS. Thus it will be a waste for the L2 cache to store the BIOS. In addition, enabling this feature often results in the system crash. **Disabled** is recommended.

Flash BIOS Protection

The **Flash BIOS** Protection feature is a software toggle that controls write access to the BIOS. When it is **enabled**, the BIOS code is write-protected and cannot be changed. This protects it from any attempt to modify it, including BIOS updates and virus attacks.

Therefore, if you intend to update the BIOS, you'll need to **disable** this feature first.

It is highly recommended that you enable this feature at all times. You should only disable it

when you intend to update the BIOS. After updating the BIOS, you should immediately re-enable it to protect the BIOS against viruses.

3-5 Integrated Peripherals

VIA OnChip IDE Device

OnChip SATA

Allows you to enable or disable the SATA device(s).

SATA Mode

Allows you to select the SATA mode.

IDE DMA transfer access

Allows you to set IDE transfer mode to Direct Memory Access (DMA) mode.

OnChip IDE Channel0

Allows you to enable or disable the IDE channel0.

OnChip IDE Channel1

Allows you to enable or disable the IDE channel1.

IDE Prefetch Mode

The onboard IDE drive interfaces support Prefetching for faster drive accesses. Set to Disabled if this primary or secondary.

Primary Master PIO

This feature allows you to set the PIO (Programmable Input/Output) mode for the IDE Primary Master drive attached to the IDE1 connector. Auto is recommended.

Primary Slave PIO

This feature allows you to set the PIO (Programmable Input/Output) mode for the IDE Primary Slave drive attached to the IDE1 connector. Auto is recommended.

Secondary Master PIO

This feature allows users to set the PIO (Programmable Input/Output) mode for the IDE Secondary Master drive attached to the IDE2 connector. Auto is recommended.

Secondary Slave PIO

This feature allows users to set the PIO (Programmable Input/Output) mode for the IDE Secondary slave drive attached to the IDE2 connector. Auto is recommended

Primary Master UDMA

This feature allows users to set the Ultra Direct Memory Access (UDMA) mode for the IDE Primary Master drive attached to the IDE1 connector. Auto is recommended.

Primary Slave UDMA

This feature allows users to set the Ultra Direct Memory Access (UDMA) mode for the IDE Primary Slave drive attached to the IDE1 connector. Auto is recommended.

Secondary Master UDMA

This feature allows users to set the Ultra Direct Memory Access (UDMA) mode for the IDE Secondary Master drive attached to the IDE2 connector. Auto is recommended.

Secondary Slave UDMA

This feature allows users to set the Ultra Direct Memory Access (UDMA) mode for the IDE Secondary Slave drive attached to the IDE2 connector. Auto is recommended.

IDE HDD Block Mode

This feature enables users to speed up the hard disk access by transferring the data in the block mode. Enabled is recommended.

VIA OnChip PCI Device**VIA-3058 AC97 Audio**

This feature allows you to set the status of VIA-3058 AC97 Audio.

VIA-3043 OnChip LAN

This feature allows you to enable or disable the VIA-3043 OnChip LAN.

Onboard Lan Boot ROM

This feature allows you to enable or disable the Onboard Lan Boot ROM.

OnChip USB Controller

This feature allows you to enable or disable the OnChip USB Controller.

OnChip EHCI Controller

This feature allows you to enable or disable the OnChip EHCI Controller.

USB Emulation

Option	Description
OFF	Do not support any USB device on DOS
KB/MS	Support USB legacy keyboard & mouse. No support USB storage
ON	Support USB legacy keyboard, mouse & storage

USB Keyboard Support

This feature allows users to determine whether the USB keyboard is supported by the BIOS or the operating system. If users' operating system supports the USB keyboard, such as Windows XP, they shall **disable** this feature. If not, this feature shall be **enabled**. But this only provides the basic functions for the USB keyboard.

USB Mouse Support

Select Enabled if your system has a USB mouse installed on the system board. If your system has no USB mouse, select Disabled in this field.

SuperIO Device**Onboard FDC Controller**

Allows you to enable or disable the Onboard FDC Controller.

Onboard Serial Port 1

This feature allows users to select the I/O address and IRQ for the first serial port. **Auto** is recommended. Nevertheless, you can manually choose another I/O port or IRQ if a certain I/O port or IRQ is needed. **Disabling** this feature can free up the I/O port and IRQ resources

for other devices.

Onboard Serial Port 2

This feature allows users to select the I/O address and IRQ for the second serial port. **Auto** is recommended. Nevertheless, you can manually choose another I/O port or IRQ if a certain I/O port or IRQ is needed. **Disabling** this feature can free up the I/O port and IRQ resources for other devices.

Onboard Parallel Port

This feature allows users to select the I/O address and IRQ for the onboard parallel port. **Auto** is recommended. Nevertheless, you can manually choose another I/O port or IRQ if a certain I/O port or IRQ is needed. **Disabling** this feature can free up the I/O port and IRQ resources for other devices.

Parallel Port Mode

This feature allows users to select the transfer protocol for the parallel port.

- Normal (**SPP**) stands for the Standard Parallel Port, which is the original transfer protocol for the parallel port. Therefore, it works fine with all the parallel port devices.
- ECP (**Extended Capabilities Port**) is a transfer mode that uses the DMA protocol to reach data transfer rate of up to 2MB/s and provides symmetric bidirectional communication.
- EPP (**Enhanced Parallel Port**) is also referred to as IEEE 1284. It uses the existing parallel port signal to reach data transfer rate of up to 2MB/s and provides asymmetric communication bidirectional communication.

Some parallel port devices designate certain transfer protocol. Please refer to the documentation that comes with them. If users are not sure what transfer protocol shall be selected, they can use **ECP+EPP** so that the BIOS will automatically determine the transfer mode suitable for the device.

ECP Mode Use DMA

If the **ECP** or **ECP+EPP** mode in the above feature is selected, this feature will become selectable to enable users to choose the DMA channel 1 or 3.

Game Port Address

This feature allows users to select the I/O address for the Game port.

Midi port Address

This feature allows users to select the I/O address for the Midi port.

Midi Port IRQ

This feature allows users to select the IRQ for the Midi port.

3-6 Power Management Setup

ACPI Suspend Type

This feature allows users to select the ACPI suspend type. You can select **S1(POS)** for Power On Suspend under ACPI mode, or **S3 (STR)** for Suspending To RAM.

Power Management Option

To select the type (or degree) of power saving for Doze, Standby, and Suspend modes.

HDD Power Down

Allows automatic power down of IDE drives after a specified period of inactivity, but 15 minutes is a suggested minimum, to avoid undue wear and tear on the drive.

Suspend Mode

Allows the system to go to Suspend State after a period of inactivity. If the system runs in Standby mode and the Suspend timer expires, all devices regulated by power management will shut off and the CPU speed will be 0 MHz.

Video off option

This setting allows you to select the power-saving modes during which the monitor goes blank.

- Blank – BIOS will only blank the monitor's screen. The electricity saved in this mode is negligible and this function is only used as a screen saver to prevent screen damage while the screen is on but not in use.
- V/H SYNC=Blank – The system turns off the vertical and horizontal synchronization ports writes blanks to the VGA buffer and the monitor's electron gun turns off. This function serves as both a screen saver and a power saver.
- DPMS Supported – Select this option if your video card supports the Display Power Management Signaling (DPMS) standard (i.e., you have a monitor that supports Green features). Use software supplied by your video subsystem to set video power management options.

Video off method

This function serves as both a screen saver and power saver for monitors. See the next function, Video Off After, for setting the video timer.

MODEM Use IRQ

If your computer has a modem use this function to assign BISO which IRQ is being occupied by the modem card. When the system in Green mode, the modem requires an IRQ assignment to wake up the system and perform tasks. This is compliant with APM 1.2 operating systems.

Soft-off by RWRBTN

When set to Delay 4 Sec., this function allows the power button to put the system in Suspend, a power saving mode. When set to Instant-Off the Soft-Off by PWR-BTN function is disabled and the computer turns completely off when the power button is pressed.

Run VGABIOS if S3 Resume

Available options: **Auto, Yes, No.**

Ac Loss Auto Restart

Available options: [**Former-Sts**], [**On**], [**Off**]. Please leave the default setting [**Off**] for a stable system operation.

AMD K8 Cool n Quiet Control

When set to “**Auto**”, the system will auto control the CPU voltage and frequency depends the loading of system.

IRQ/Event Activity Detect

PS2KB Wakeup Select

When **enabled**, a PS2 keyboard can turn on the system.

PS2KB Wakeup From S3/S4/S5

This function allows the keyboard to activate the system from S3/S4/S5 power saving modes. Available opinions: Ctrl+F1 through Ctrl+F12, Power, Wake and Any Key.

USB Resume from S3

When enabled, the system is able to resume from S3 mode by a USB keyboard hot key or mouse click.

VGA

VGA function is activated when option **On** is selected. Available options: On, Off. If your motherboard doesn't offer AGP slot, this function wouldn't work.

LPT & COM

Both LPT and COM ports are activated when LPT/COM is selected. Available options: None, LPT, COM, LPT/COM.

HDD & FDD

Both HDD and FDD are activated when it is set to On. Available options: On, Off.

PCI Master

This options control the activation of PCI slots. Available options: On, Off.

PowerOn by PME/Onboard LAN

When enabled, the Vidia LAN, which is on Board, will be able to receive a signal and wake up the system from soft off and suspend mode. You should connect the LAN to the RJ45 port and turn on the resume event in suspend mode.

PowerOn by Ring/WOL

When enabled, a Modem/LAN will be able to receive a signal and activate the system from soft off and green mode. You should connect the modem to the COM port and signal your PC to power on.

RTC Alarm Resume

Enabled allows the user to set the time the system will be turned on from the system power-off status.

Date (of Month)

This feature allows the user to set the day of the alarm starts when the RTC Alarm Resume From Soft Off is set to be Enabled.

Resume Time (hh:mm:ss)

If an ATX power supply is installed and when RTC Alarm Resume is Enabled, this feature allows you to set the time of the alarm starts when the RTC Alarm Resume From Soft Off is set to be Enabled.

IRQs Activity Monitoring

- **Primary INTR**

If set at On, the Primary interrupt will make the power management wake up the system.

- **IRQ3~15**

After the time period which you set, the system advances from doze mode to suspend mode in which the CPU clock stops and the screen display is off. At this moment, if the IRQ activity occurs, the system goes back to full on mode directly.

3-7 PnP/PCI Configurations

PnP OS installed

If all your operating systems support Plug & Play (PnP0), select Yes so that they can take over the management of device resources. If you are using a non-PnP-aware OS or not all of the operating systems you are using support PnP, select No to let the BIOS handle it instead. Some say that it is best to leave this option set to No regardless of whether your OS is PNP-capable or not. The reason is that when it is set to No, the BIOS will attempt to resolve any resource conflicts. If it is set to **Yes**, even if a conflict is detected, the BIOS will ignore it. So, setting it to **Yes** provide a bit of a safety net, and it will not affect the ability of the OS to perform PNP on its own.

Reset Configuration Data

ESCD (Extended System Configuration Data) is a feature of the Plug & Play BIOS that stores the IRQ, DMA, I/O and memory configuration of all the ISA, PCI and PCIE cards in the system (PnP or otherwise). Normally, you should leave the setting as Disabled. If you encounter serious problems with the installation of a new PCI card, this setting can help bail you out. Such a conflict would be serious enough that the OS may not start. If this happens, you can go into the BIOS and enable this option. Next time the PC boots, the BIOS will go and re-configure the settings for all PnP cards. The BIOS will automatically reset this setting to DISABLED next time you boot.

Resources Controlled By

When set to Manual the system BIOS will not refer to the ESCD for IQR & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA. When set to Auto the system BIOS will refer to the ESCD for all legacy information. ESCD (Extended System Configuration Data) provides a detailed format of the configuration data structures stored in flash memory. Each data structure defines the resources used by a device or a card in the system. This includes legacy and PCI/ISA PnP devices.

PCI/VGA Palette Snoop

This option is only useful if you use an MPEG card and an add-on card that make use of the graphics card's Feature Connector. It corrects incorrect color reproduction by "snooping" into the graphics card's framebuffer memory and modifying (synchronizing) the information delivered from the graphics card's Feature Connector to the MPEG or add-on card. It will also solve the problem of display inversion to a black screen after using the MPEG card.

Assign IRQ for VGA

Many high-end graphics accelerator cards now require an IRQ to function properly. Disabling this feature with such cards will cause improper operation and/or poor performance. Thus, it's best to make sure you enable this feature if you are having problems with your graphics accelerator card. If your motherboard doesn't offer AGP slot, this function wouldn't work.

Assign IRQ for USB

Assigns an IRQ to the USB controller. It enables or disables IRQ allocation for the USB (Universal Serial Bus). If you are using PCIE, this should be enabled. If you are not, you disable this to free up an IRQ.

FDD IRQ Can Be Free

This function allows user to choose if the FDD IRQ can be free up. The default setting is Yes and this does not allow the IRQ to be free.

Maximum Payload Size

This function can be used to set maximum TLP payload size for the PCI Express devices. The unit of payload size is byte.

3-8 Frequency/Voltage Control

Auto Detect PCI Clk

This feature allows users to determine whether the BIOS will automatically reduce the EMI (Electromagnetic Interference) and the power consumption by shutting down the unoccupied or inactive expansion slots. If **enabled**, the BIOS will monitor the PCI slots and will turn off the clock signal to all the unoccupied or inactive PCI slots. If **disabled**, the BIOS will not do

the thing mentioned above. It is recommended that users enable this feature to save power and reduce EMI.

Spread Spectrum

This BIOS feature allows you to reduce the EMI of your motherboard by modulating the signals it generates so that the spikes are reduced to flatter curves. It achieves this by varying the frequency slightly so that the signal does not use any particular frequency for more than a moment.

The BIOS usually offers two levels of modulation - **0.25%** or **0.5%**. The greater the modulation, the greater the reduction of EMI is. Therefore, if you need to significantly reduce your motherboard's EMI, a modulation of **0.5%** is recommended.

In most conditions, frequency modulation via this feature should not cause any problems. However, system stability may be slightly compromised in certain situations.

Spread Spectrum can also cause problems with overclocked systems, especially those that have been taken to extremes. Even a slight modulation of frequency may cause the processor or any other overclocked components of the system to fail, leading to very predictable consequences.

Therefore, it is recommended that you **disable** this feature if you are overclocking your system. The risk of crashing your system is not worth the reduction in EMI. Of course, if EMI reduction is important to you, **enable** this feature by all means. But you should reduce the clock speed a little to provide a margin of safety.

Some BIOSes also offer a **Smart Clock** option. Instead of modulating the frequency of signals over time, Smart Clock turns off the PCIE, PCI and SDRAM clock signals that are not in use. Therefore, EMI can be reduced without compromising system stability. As a bonus, using Smart Clock also helps reduce power consumption. The degree of EMI and power reduction will depend on the number of empty PCIE, PCI and SDRAM slots. But generally, Smart Clock won't be able to reduce EMI as effectively as simple frequency modulation.

With that said, it is recommended that you enable **Smart Clock**, instead of the 0.25% or 5% option, if the option is available to you. It allows you to reduce some EMI without any risk of compromising your computer's stability.

CPU Host/PCIEX/ AGP/PCI

Allows you to set the frequency of CPU, PCI and PCIE. Options: Default, 202/101/67/34 MHz, 206/103/68/34 MHz, 210/105/69/35 MHz and 215/107/71/35 MHz, 220/110/73/36 MHz.

Shutdown By LM90

This item allows you to set the shutdown temperature level for the processor. When the processor reaches the temperature you set, the system will shutdown. The defaulted option

is [95°C/203°F]. Available options are [95°C/203°F], [85°C/185°F] and [75°C/167°F].

LM90 Temp

CPU temperature can be detected and shown by the LM90.

3-9 Load Fail-Safe Defaults

If you made changes to the BIOS and your system becomes unstable as a result, you can change it back to default. However if you made many changes and don't know which one is causing the problem, your best bet is to choose the option "Load Fail Safe Mode Defaults" from the BIOS menu. This uses a minimal performance setting, but the system would run in a stable way. From the dialog box Choose "Y" followed by enter to load Fail-Safe Defaults.

3-10 Load Optimized Defaults

Like the Fail-Safe mode above, this option loads the BIOS default settings, but runs the system at optimal performance. From the dialog box Choose "Y" followed by enter to load Optimized Defaults.

3-11 Set Supervisor Password

Select this option to set the supervisor password. The supervisor password is the higher level password of the two normally present on the system. On most systems, when the supervisor password has been set, it must be entered in order to access the BIOS setup program, or to change the user password.

3-12 Set User Password

Select this option to set the user password. The user password is the lower level password of the two normally present on the system. The user password usually allows the system to be booted, but does not allow access to the BIOS setup program. The supervisor password must be used to enter the BIOS setup program.

Note: On some systems, either the supervisor or user passwords will allow access to the BIOS setup program. In this case the existence of two passwords may be to allow a single password to be set up for an administrator, which will work for multiple machines, while the user password is individual for each machine.

3-13 Save & Exit Setup

Save all configuration changes to CMOS (memory) and exit setup. A confirmation message will be displayed before proceeding.

3-14 Exit Without Saving

If you don't want to save changes made to the BIOS, choose "N" from the dialog box.

Chapter 4 Driver Setup

Insert the support CD that come with your motherboard into your CD-ROM driver or double-click the CD drive icon in [My computer] to enter the setup screen.



4-1 VIA Service Pack

1. Click [**VIA Service Pack**].
 2. Click [**Next**] to start software installation.
 3. Click [**Yes**] to continue.
 4. Select either Normal or Quick Installation and click [**Next**] to continue.
 5. Select the driver types and click [**Next**] to continue.
 6. Select [**Install VIA PCI IDE Bus Driver**] and click [**Next**] to proceed.
 7. Select enable DMA Mode then click [**Next**].
 8. Install AGP driver and click [**Next**] to continue.
- Select [**Yes, I want to restart my computer now**] or [**No, I will restart my computer later**] and then click [**Finish**] to complete the setup process.

4-2 DirectX 9.0c Install

This section provides information on installed DirectX devices by choosing [**DirectX**] from the Setup Driver menu.

1. Please select [**I accept the agreement**].
2. Please select [**Next**].
3. Please select [**Next**].
4. Please select [**Finish**] to complete.

4-3 VIA Codec Audio Driver

1. Select [**Audio driver**] to begin the software installation
2. Click [**Next**]
3. Select Install driver then click [**Next**].
4. Select [**Yes, I want to restart my computer now**] or [**No, I will restart my computer later**] and then click [**Finish**] to complete the setup process.

4-4 LAN Driver

1. Click [**LAN Driver**]
2. Click [**Yes**] to restart the system.

4-5 Raid Driver

1. Click [**VIA Raid Driver**].
2. Click [**Next**] to begin the installation process.
3. Click [**I agree**] to accept the license agreement, and click [**Next**] to continue.
4. Select the installation items, and then click [**Next**] to continue.
5. Click [**Next**] to continue.
6. Select [**Yes, I want to restart my computer now**] or [**No, I will restart my computer later**] and then click [**Finish**] to complete the setup process.

Appendix

For Windows 2000/XP Server SATA setup instruction

After you unpack driver, please copy files & subdirectories under directory D:\Raid\Via\DriverDisk (assuming your optical drive is D) to the root directory of floppy diskette (called driver diskette).

Therefore, in root directory of floppy diskette you will see:

- (1) Files "txtsetup.oem",
 - (2) Directory "RAID", "PIDE" and related driver files in each directory.
-
1. Booting from CD-ROM, when the Windows XP Setup blue screen appear and prompt user to Press F6 if you need to install third party SCSI or RAID driver, please press F6 key.
 2. The setup program will continue, later when the setup program prompts user to specify additional adapters, please press S Key.
 3. Then the setup program will prompt user to insert the driver diskette. Please insert the driver diskette, then press **ENTER** to continue.
 4. The follow-up window will list out the installation choices, please **SCROLL down** the list to select "VIA RAID Combo Driver Diskette" for Windows 2000/XP and press **ENTER** to continue.
 5. If users want to install other devices, please operate at this time. If all devices have been successfully installed, please go to next step.
 6. Press **ENTER** to continue Windows 2000/XP setup.

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How To Contact CHAINTECH

Please do not hesitate to contact us if you have any problem about our products. Any opinion will be appreciated.

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