



Tomcat K7M



S2498

Revision 1.01

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Before you begin...

Check the box contents!

The retail motherboard package should contain the following:



1x Tomcat K7M motherboard



1 x CPU heatsink



1x 34-Pin floppy drive cable



1x Ultra-DMA-133/100/66 IDE cable



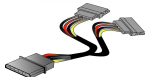
1x Tomcat K7M User's Manual



1 x Tomcat K7M Quick Reference



1 x TYAN driver CD



1 x SATA Power Cable



1 x SATA DATA cable



1x I/O shield

If any of these items are missing, please contact your vendor/dealer for replacement before continuing with the installation process.

Chapter 1: Introduction

1.1 – Congratulations!

You have just bought one of the most advanced platforms as a high Quality/reliable single board computer. The Tomcat K7M is based on VIA KN400A chipset, supporting the AMD Geode NX Processor with 133MHz FSB, DDR memory, VIA integrated Unichrome Graphics and more. These features enable breakthrough performance for today's rapidly developing multimedia applications.

Visit TYAN's Website at <http://www.TYAN.com>. There you can find information on all of TYAN's products with FAQ's, distributor's list and BIOS setting explanations.

1.2 – Hardware Specification

Processor

Single Socket A (Socket 462)
Support AMD Geode NX1250, NX1500 and
NX1750 CPU 453pin OPGA package.

Expansion Slots

Two 32Bit/33MHz PCI 2.3 Slots

Chipset

VIA KN400A chipset
VT8237
Winbond W83697HF LPC I/O chip
Realtek ALC655 AC'97 codec chip

Memory

Single memory channel
Supports up to two PC2100/2700 DIMMs
Up to 2GB of un-buffered Non-ECC memory

Integrated IDE

Dual channel master mode support up to four
IDE devices
Support for ATA-100/66/33 IDE drives and
ATAPI compliant devices

Integrated Serial ATA

Serial ATA Host controllers embedded
Two Serial ports running at 1.5Gb/s

Integrated LAN Controllers

One Integrated Realtek RTL8100C 10/100
Mbps Ethernet controller
Integrated Intel82541 Gigabit Ethernet
Controller. (AGNN version only)

Back Panel I/O Ports

Stacked PS/2 Mouse & Keyboard ports
Stacked USB 2.0 ports (4 ports total)
One 9-pin UART Serial port
One 15-pin VGA port
One 25-pin SPP/ECP/EPP parallel port
One RJ45 10/100 Base-T port
One RJ45 10/100/1000 Base-T port
(AGNN version only)
Vertical Mic-In/Line-In/Line-out audio jacks
(AGN version only)

Integrated I/O Interfaces

One Floppy connector for up to two drives
Two IDE connectors for up to four IDE
devices
Two SATA connectors for up to two devices
Two USB 2.0 Ports (via optional cable)
Pin headers for LAN LED/I²C/Chassis
intrusion
Pin headers for 1*system Fans
Tyan 2 x 9 front panel connector
Com2 ports (pin header)
One integrated 11pin VGA pin header
CD Audio-input Connector
Mic, and Line-out pin header
S/PDIF out pin header

Integrated Graphics

Integrated S3 Graphics UniChorme™ 2D/3D
engine with MPEG-2 acceleration
Share memory: 16/32/64MB

BIOS

Award BIOS 4Mbit Flash
Supports APM 1.2 & ACPI 1.0
Auto detection of memory size
Auto configuration of IDE hard disk types
User settings of hardware monitoring
Multiple boot options
Power Management: S1, S3, S4
Support AMD PowerNow!™ technology

OS (Operating System) Support

Microsoft Windows 2000
Microsoft Windows XP
Linux Redhat 8.0 and 9.0

Regulatory

FCC Class B (Declaration of Conformity)
European Community CE (Declaration of Conformity)

Power

On board 2-phase VRM
ATX / ATX12V (20-pin) power connector

Form Factor

Flex ATX footprint
9" x 7.5" (228.6cm x 190.5mm)

Chapter 2: Board Installation

Installation

You are now ready to install your motherboard. The mounting hole pattern of the Tomcat K7M matches the ATX system board specifications. Your chassis should support a standard ATX motherboard form factor.

How to install our products right.... the first time!

The first thing you should do is read this user's manual. It contains important information that will make configuration and setup much easier. Here are some precautions you should take when installing your motherboard:

- (1) Ground yourself properly before removing your motherboard from the antistatic bag. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). For the safest conditions, TYAN recommends wearing a static safety wrist strap.
- (2) Hold the motherboard by its edges and do not touch the bottom of the board, or flex the board in any way.
- (3) Avoid touching the motherboard components, IC chips, connectors, memory modules, and leads.
- (4) Place the motherboard on a grounded antistatic surface or on the antistatic bag that the board was shipped in.
- (5) Inspect the board for damage.

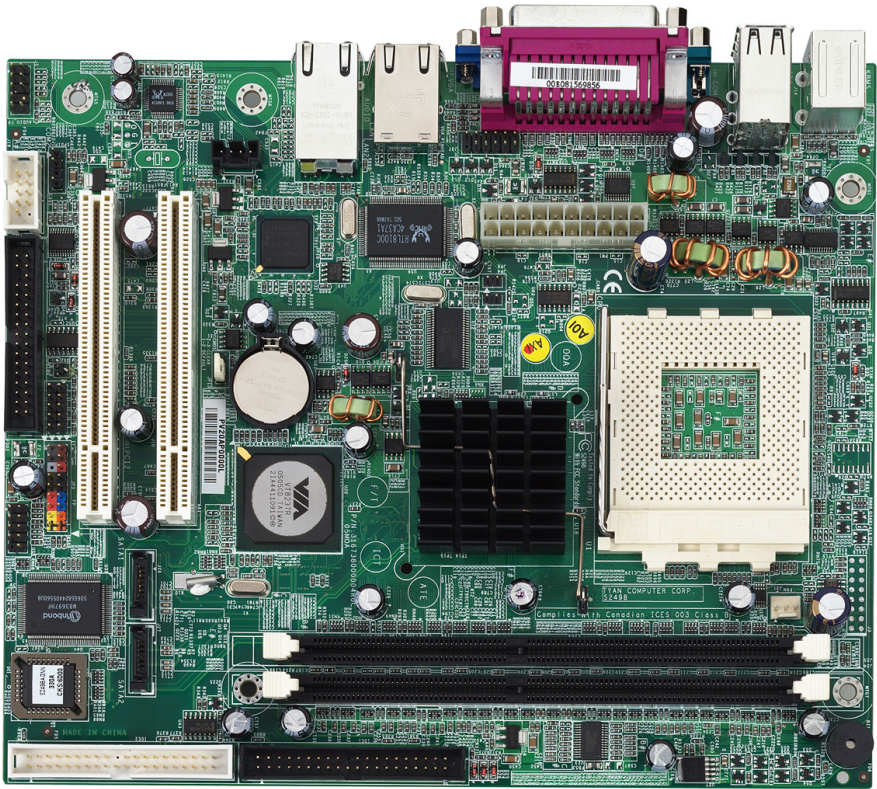
The following pages include details on how to install your motherboard into your chassis, as well as installing the processor, memory, disk drives and cables.

NOTE

DO NOT APPLY POWER TO THE BOARD IF IT HAS BEEN DAMAGED

2.1 – Board Image

The following is an image of the Tomcat K7M 2498AGNN.

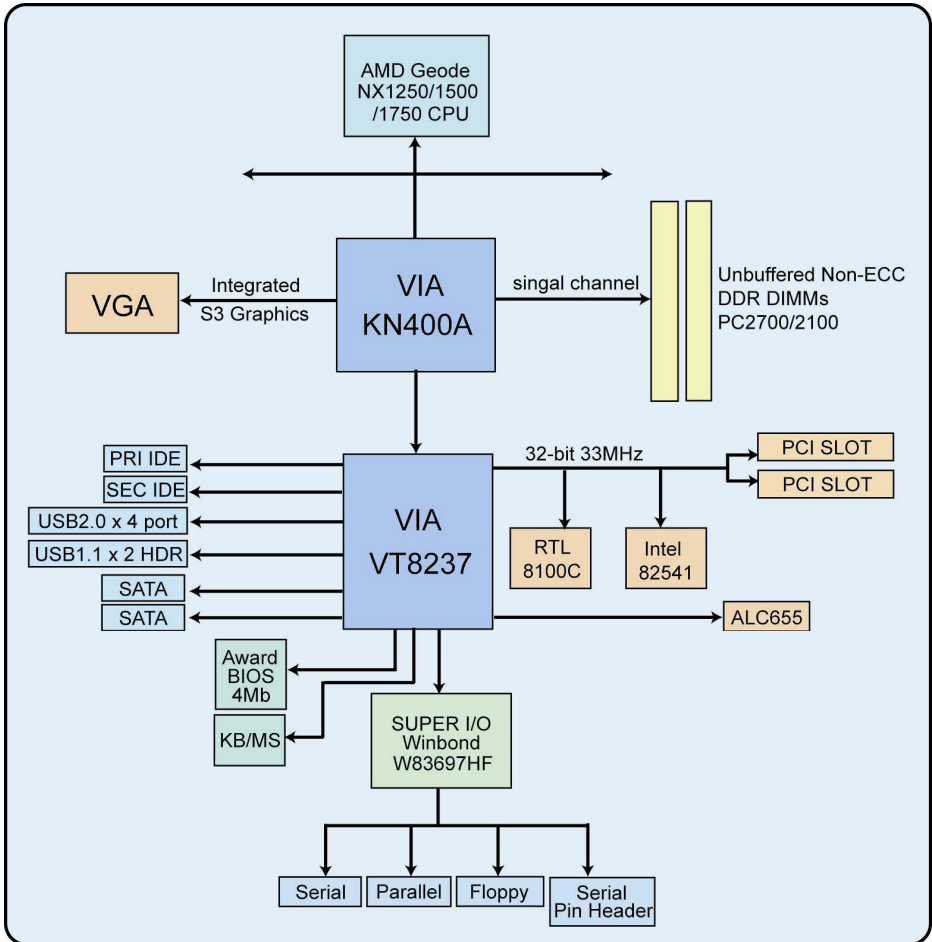


This picture is representative of the latest board revision available at the time of publishing. The board you receive may or may not look exactly like the above picture.

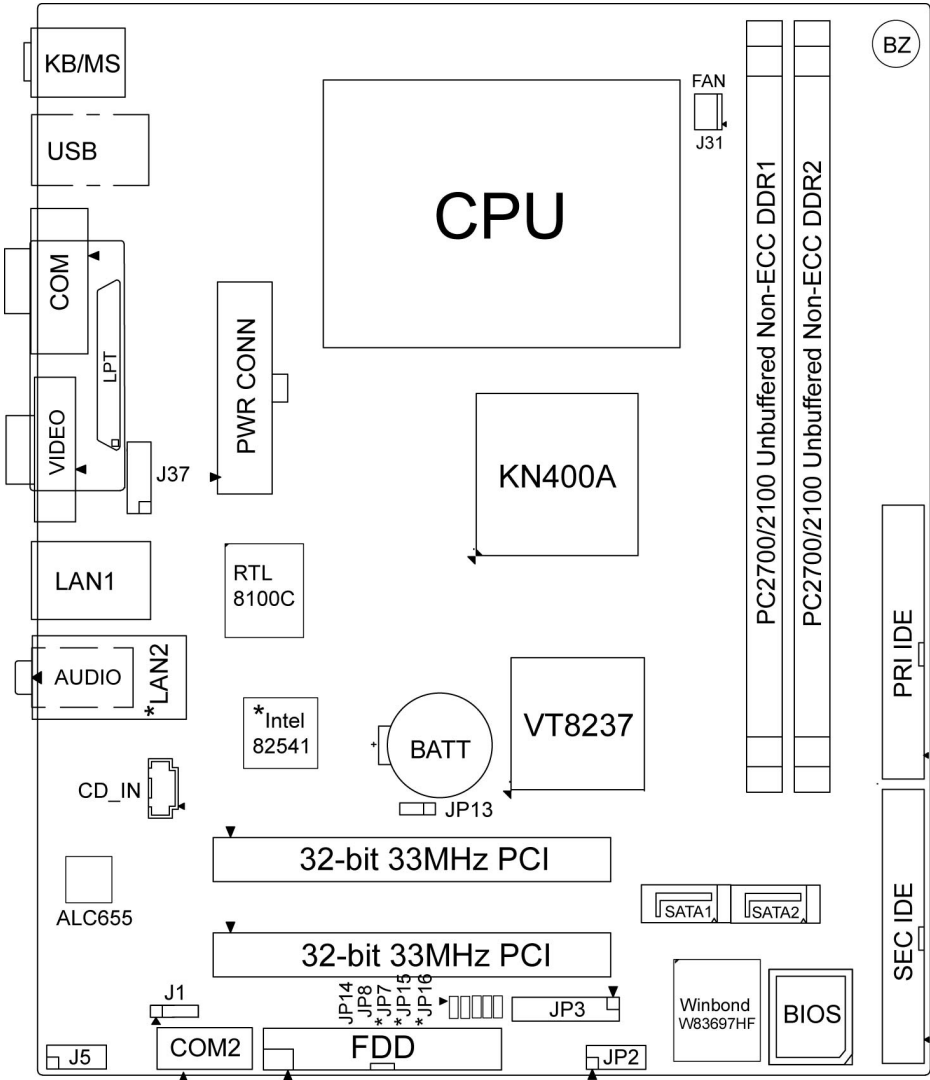
The following page includes details on the vital components of this motherboard.

2.2 – Block Diagram

S2498 Tomcat K7M Block Diagram



2.3 – Board Parts, Jumpers and Connectors







NOTE: * is only available on S2498AGNN version.

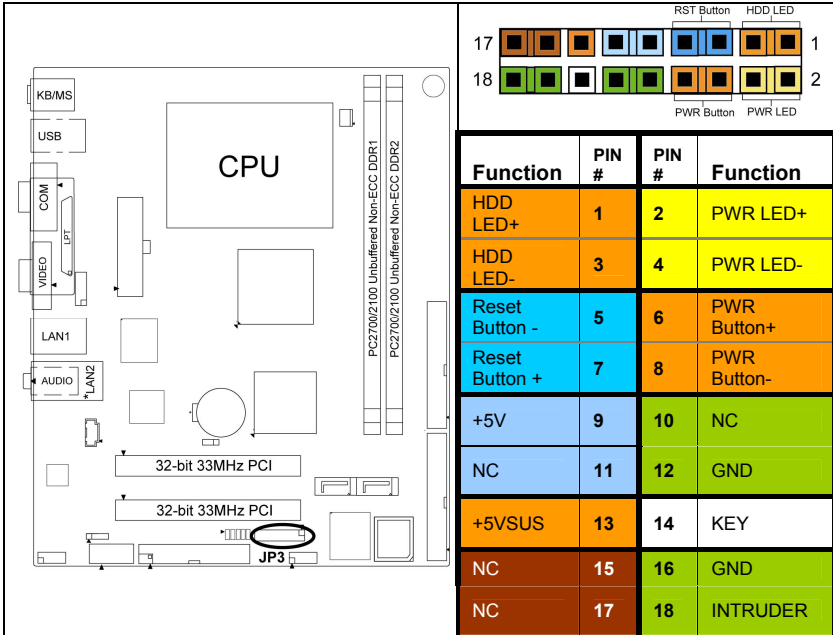
This jumper diagram is representative of the latest board revision available at the time of publishing. The board you receive may or may not look exactly like the above diagram.

	Function	Settings
JP3	Front Panel Connector	See Section 2.4 for pinout configuration
JP13	CMOS Reset	Close Pin-1 and Pin-2 (Default) Normal mode Close Pin-2 and Pin-3 Clear CMOS mode
J1	S/PDIF Header	See Section 2.6 for pinout configuration
JP2	USB Header	See Section 2.7 for pinout configuration
J5	Audio Header	See Section 2.8 for pinout configuration
JP8, JP14	LAN1 LED Header	See Section 2.9 for pinout configuration
*JP7,*JP15 ,*JP16	*LAN2 LED Header	See Section 2.10 for pinout configuration
J37	VGA Header	See Section 2.11 for pinout configuration
CD_IN	Internal Audio Connector	See Section 2.12 for pinout configuration

Jumper Legend

	OPEN - Jumper OFF	Without jumper cover
	CLOSED - Jumper ON	With jumper cover
	To indicate the location of pin-1	
	To indicate the location of pin-1	

2.4 – Front Panel Connector (JP3)



2.5- CMOS Reset (JP13)

Pin_3	Pin_1	Default
Pin_3	Pin_1	Clear

You can reset the CMOS settings by using this jumper if you have forgotten your system/setup password or need to clear system BIOS setting.

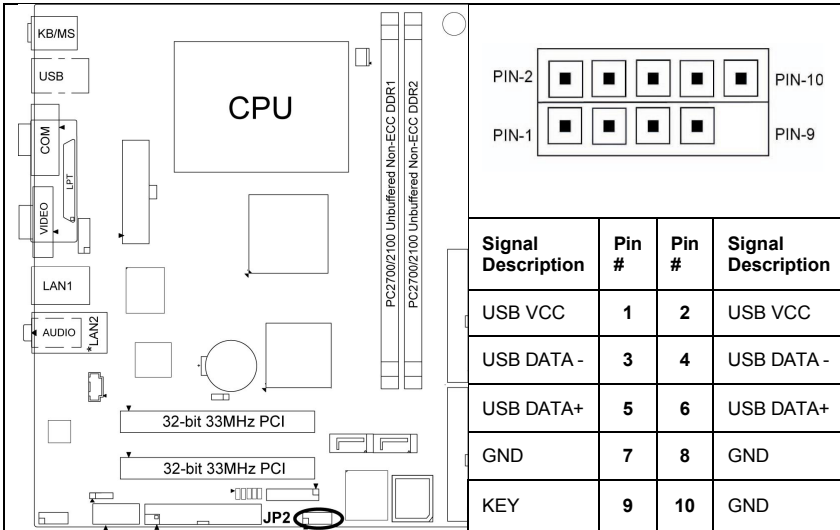
- Power off system and **disconnect both power connectors from the motherboard**
- Use jumper cap to close Pin_2 and Pin_3 for several seconds to Clear CMOS
- Put jumper cap back to Pin_1 and Pin_2 (default setting)

Reconnect power & power on system

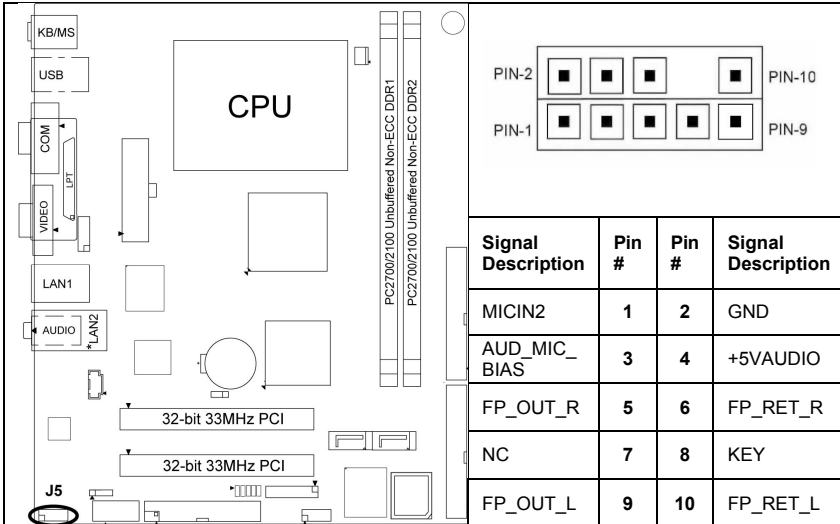
2.6 – S/PDIF Header (J1)

Pin-1	Pin-2	Pin-3	Pin-4
SPDIF_OUT	NC	KEY	GND

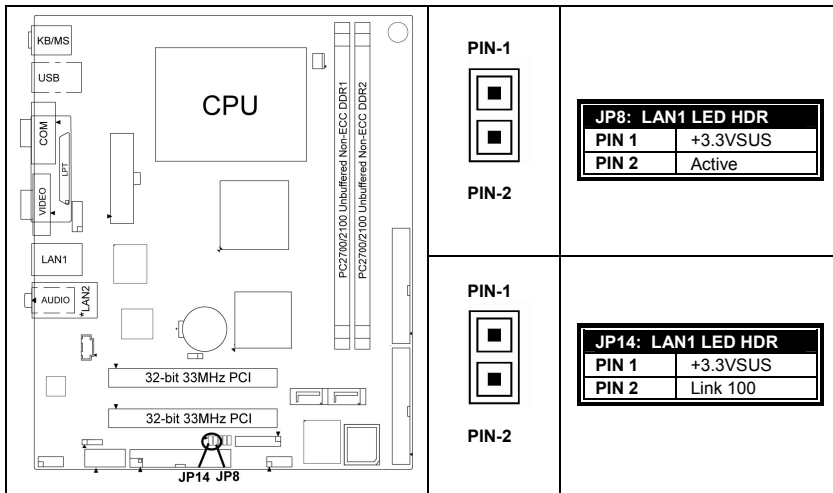
2.7– USB Header (JP2)



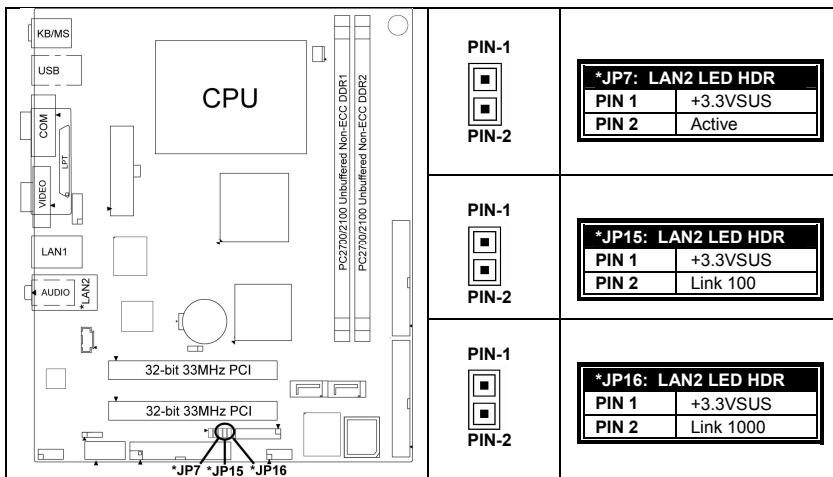
2.8– Audio Header (J5)



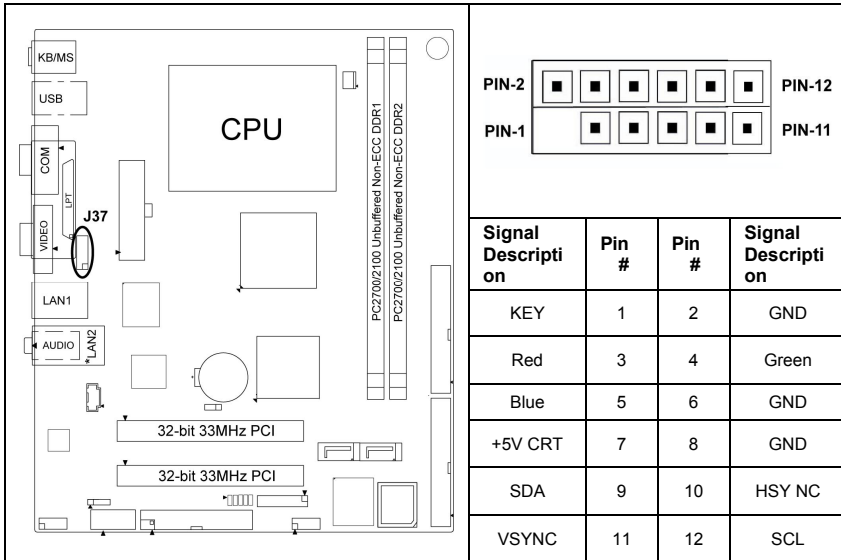
2.9 – LAN1 LED Header (JP8, JP14)



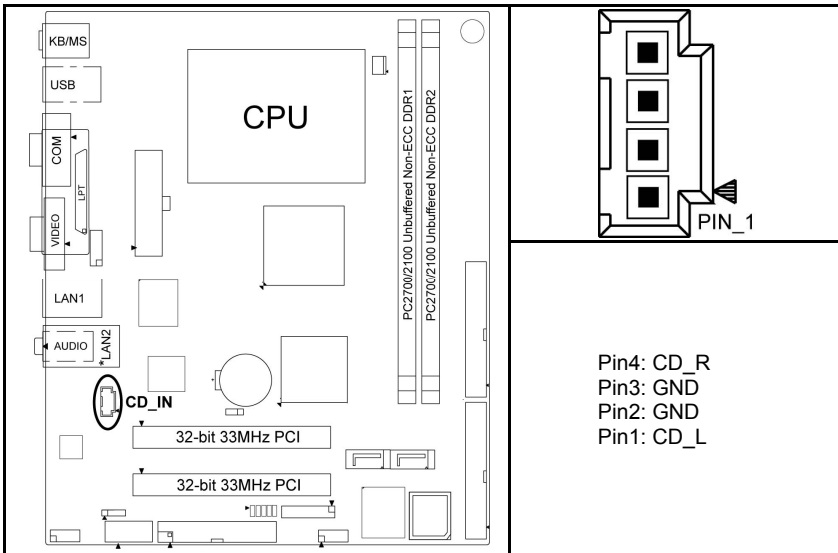
2.10 – *LAN2 LED Header (*JP7, *JP15, *JP16)



2.11 – VGA Header (J37)



2.12 – Internal Audio Connector (CD_IN)



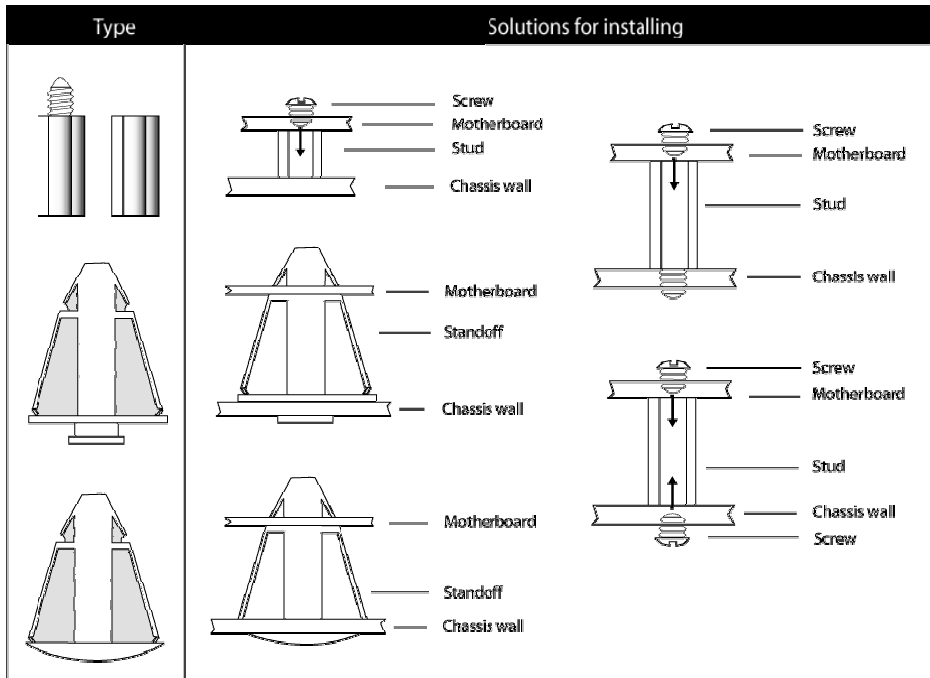
2.13 – Mounting the Motherboard

Before installing your motherboard, make sure your chassis has the necessary motherboard support studs installed. These studs are usually metal and are gold in color. Usually, the chassis manufacturer will pre-install the support studs. If you're unsure of stud placement, simply lay the motherboard inside the chassis and align the screw holes of the motherboard to the studs inside the case. If there are any studs missing, you will know right away since the motherboard will not be able to be securely installed.

Some chassis' include plastic studs instead of metal. Although the plastic studs are usable, TYAN recommends using metal studs with screws that will fasten the motherboard more securely in place.

Below is a chart detailing what the most common motherboard studs look like and how they should be installed.

Mounting the Motherboard



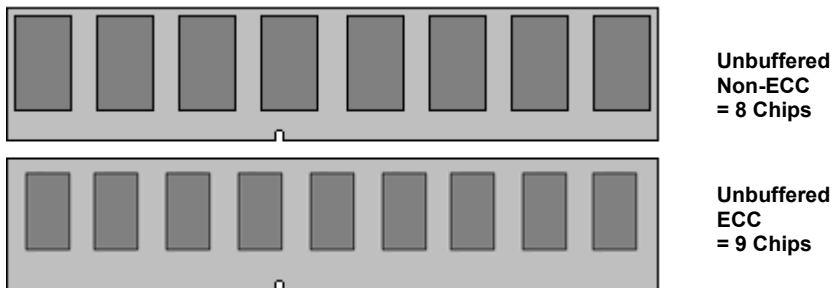
TIP: Use metal studs if possible, as they hold the motherboard into place more securely than plastic standoffs.

2.14 – Installing the Memory

Before attempting to install any memory, make sure that the memory you have is compatible with the motherboard as well as the processor. For example, while PC1600 DDR modules are compatible with all DDR based motherboards, they **will not** work if you are required to run the motherboard and processor buses at 133MHz. For this, PC2100 DDR modules are required. Critically important is whether you're using the recommended memory for the current board you have. For this information, please check TYAN's web site at: www.TYAN.com.

The following diagram shows the types of RAM modules you may encounter.

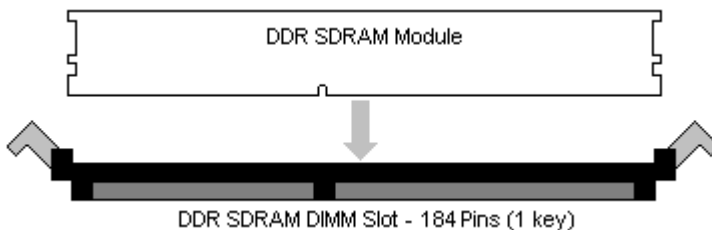
Use only 184-pin unbuffered non-ECC memory for S2498.



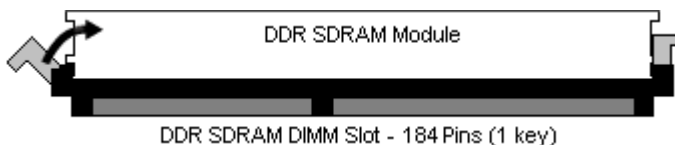
Note: The Tomcat K7M has two DIMM sockets, which supports a maximum of four banks of DDR memory (only supports 64 MB, 128 MB, 256 MB, 512MB and 1GB technologies for x8 and x16 devices.)

2.15 – Memory Installation Procedure

When you install the memory modules, make sure the module aligns properly with the memory slot. The modules are keyed to ensure that it is inserted only one way. The method of installing memory modules are detailed by the following diagrams.



Once the memory modules are firmly seated in the slot, two latches on either side will close and secure the module into the slot. Sometimes you may need to close the latches yourself.



To remove the memory module, simply push the latches outwards until the memory module pops up. Then simply remove the module.

NOTE

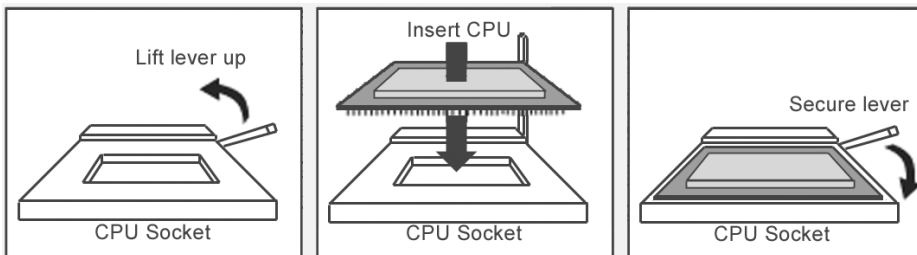
Due to the PCI v2.2 specifications, you **MUST** unplug the power connector to the motherboard before performing system hardware changes to avoid having your motherboard boot-up automatically.

2.16 – Installing the Processor and Heatsink

Your brand new Tomcat K7M supports the latest processor technologies from AMD. Check TYAN's website for latest processor support:

<http://www.TYAN.com>

The following diagrams will detail how to install your processor:



The processor you choose to use may not look exactly like the one pictured above, nor will the socket look exactly the same. For example, your processor may appear to be in a different color and have different markings on it. The diagram is provided as a visual guide to help you install the processor.

1. Lift the lever on the socket until it is approximately 90° or as far back as possible to the socket.

2. Align the processor with the socket. There are keys underneath the processor just like on memory modules to ensure that they insert the correct way.
3. Seat the processor firmly into the socket by gently pressing down until the processor sits flush with the socket.
4. Place the socket lever back down until it snaps into place.
5. Your processor is installed.

Take care when installing K7 Geode processors as they have very fragile connector pins below the processor and can bend and break if inserted improperly.

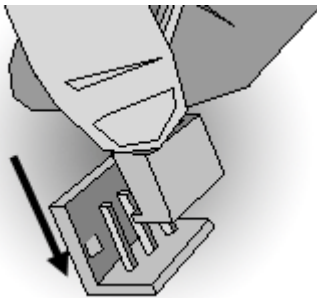
Heatsink Installation

After you are done installing the processor, you should proceed to installing the heatsink. The heatsink will ensure that the processor does not overheat, and will continue to operate at maximum performance. An overheated processor is also dangerous to the long-term reliability of the motherboard.

Because there are many different types of heatsinks available from many different manufacturers, many have their own method of installation. For the safest method of installation and information on choosing the appropriate heatsink, please refer to TYAN's website: <http://www.TYAN.com>.

Finishing Installing the Heatsink

After you finish installing the heatsink onto the processor and socket, attach the end wire of the fan (which should already be attached to the heatsink) to the motherboard. The following diagram illustrates how to connect fans onto the motherboard.

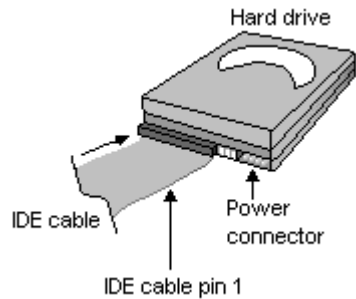
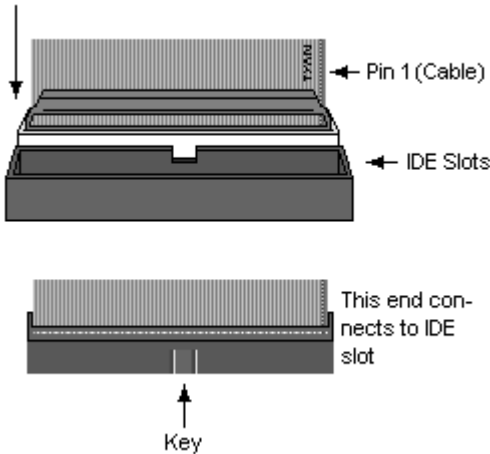


After you're finished installing all the fans you can connect your drives (hard drives, CD-ROM drives, etc.) to your motherboard.

2.17 – Attaching Drive Cables

Attaching IDE cables to your drives is simple because they only go in one way. TYAN motherboards have two on-board IDE channels for you to use, each supporting two drives. There is a white and a black IDE connector on your motherboard. **The black connector is the Primary IDE channel and the white connector is the Secondary IDE channel.**

Attaching IDE cables to the IDE connectors is illustrated below:

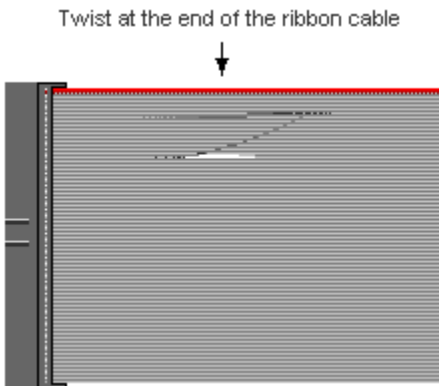


Simply plug in the BLUE END of the IDE cable into the motherboard IDE connector, and the other ends into the drive(s). Each standard IDE cable has three connectors, two being close to each other. The BLUE connector that is far on its own is the end that plugs into the motherboard whereas the other two connectors are used to connect to drives.

TIP: Pin 1 on the IDE cable (usually denoted by a colored wire) faces the drive's power connector.

Floppy Drives

Attaching floppy diskette drives are done in a similar manner to hard drives. See the picture below for an example of a floppy cable. Most of the current floppy drives on the market require that the cable be installed with the colored stripe positioned next to the power connector. In most cases, there will be a key pin on the cable which will force a proper connection of the cable.



The first floppy drive (sometimes denoted as **A:**) is usually attached to the end of the cable with the twist in it. Drive B: is usually connected to the second or third connector in the cable (the second or third connector after you install Drive **A:**).

Refer to your floppy drive's installation instructions (if available), or contact your dealer if you are unsure about how to attach the floppy drive(s). Remember, you can only have 2 floppy drives connected at any given time.

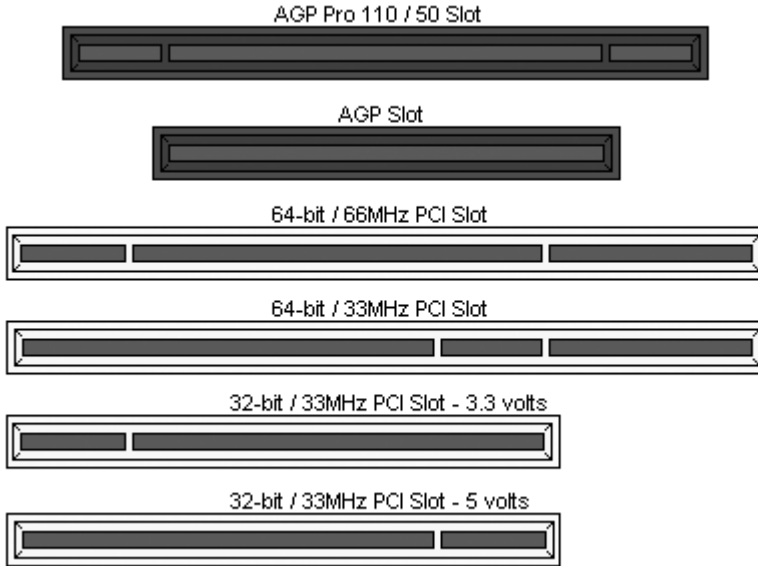
Below are some symptoms of incorrectly installed floppy drives. While they are minor and installing them incorrectly doesn't cause severe problems, it may cause your system to freeze or crash when trying to read and or write to disks.

Symptoms of incorrectly installed floppy drives	
Drive is not automatically detected	Usually caused by faulty cables, cables put in backwards or a bad floppy drive or motherboard. Try another floppy drive to verify the problem if the cable is properly installed or try replacing the actual cable. Also check to see if the onboard floppy controller is enabled in the BIOS setup.
Drive Fail message at bootup	The cable, floppy drive or motherboard may be faulty. Try another drive or cable to verify.
Drive does not power on	Check power cable and cabling. Maybe a bad power supply or drive cable problem.
Drive activity light is constantly on	Usually signifies that the cable on the drive is on backwards, which is a common issue. Reverse the cable at the floppy drive end and try again.

NOTE Before continuing onto **Connecting External Devices**, make sure everything is properly connected. Things like jumpers and case wiring are the most common causes of troubleshooting frustrations, both for the end-user and for any company doing technical support.

2.18 – Installing Add-In Cards

Before installing add-in cards, it's good to be aware if they're fully compatible with your motherboard. For this reason, we've provided a chart, listing the most common slots that may appear on your motherboard. Not all the slots in this diagram will be on the same board though, but there will be combinations. See below for the way the slots look and what each one means.



Simply find the appropriate slot for your expansion card and insert the card in firmly. Do not force any expansion cards (or anything else) into any slots if they refuse to go in. It's better to try another slot or return the faulty card rather than damaging both the motherboard and the card.

TIP: It's good practice to spread out cards as far apart from each other as possible if you can. This gives more breathing room and sensitive electronics will cool better and perform more reliably.

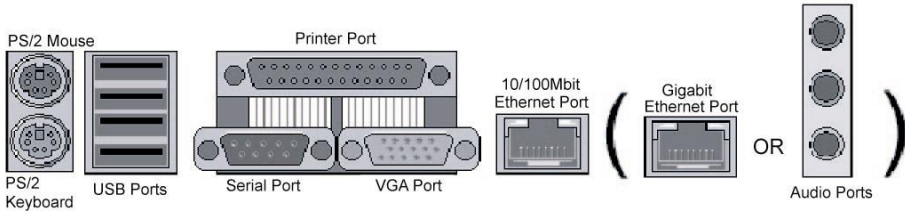
NOTE

YOU MUST unplug the power connector to the motherboard before performing system hardware changes, to avoid having your motherboard boot-up automatically, due to the PCI v2.2 spec.

2.19 – Connecting External Devices

The standard devices you should expect to plug into the motherboard are keyboards, mice, and printer cables. The following diagram will detail the ATX port stack for the following board:

S2498 Tomcat K7M



Although primarily to connect printers, the parallel printer port is also used for devices such as ZIP drives, external CD-RW drives, scanners, and other external devices. Serial ports, also known as COM ports, are primarily used to connect external modems and other RS-232C devices.

TIP: While the ports have been created to accept connectors in only one direction, make sure to be careful when inserting connectors. At times, attaching connectors in the incorrect orientation can damage, bend and or break the pins.

2.20 – Installing the Power Supply

There are two power connectors on your Tomcat K7M. By default, the Tomcat K7M requires that you have an ATX / ATX12V power supply that has a 20-pin and a 4-pin power connector. Do not use any other type of power supply.



Disconnect power supply from electrical outlet

1. Connect ATX / ATX12V 4-pin power connector.
2. Connect ATX / ATX12V 20-pin power connector.
3. Connect power cable to power supply to power outlet

2.21 – Finishing Up

Congratulations on making it this far! You're finished setting up the hardware aspect of your computer. Before closing up your chassis, make sure that all cables and wires are connected properly, especially IDE cables and most importantly, jumpers. You may have difficulty powering on your system if the motherboard jumpers are not set correctly.

In the rare circumstance that you have experienced difficulty, even though the instructions herein were followed, you can find help by asking your vendor for assistance. If they are not available for assistance, please find setup information and documentation online at our website or by **calling your vendor's support line**.

Chapter 3: BIOS Setup

Installation

The BIOS is the basic input/output system, the firmware on the motherboard that enables your hardware to interface with your software. This chapter describes different settings for the BIOS that can be used to configure your system.

The BIOS section of this manual is subject to change without notice and is provided for reference purposes only. The settings and configurations of the BIOS are current at the time of print, and therefore may not match exactly what is displayed on screen.

This section describes the BIOS setup program. The setup program lets you modify basic configuration settings. The settings are then stored in a dedicated, battery-backed memory (called NVRAM) that retains the information when the power is turned off.

This motherboard's BIOS is a customized version of the industry-standard BIOS for IBM PC AT-compatible personal computers. The BIOS provides critical, low-level support for the system's central processing unit (CPU), memory, and I/O subsystems.

This BIOS has been customized by adding important features such as password protection, power management, and chipset "tuning" features that control the system. This section will guide you through the process of configuring the BIOS for your system setup.

Starting Setup

The BIOS is immediately activated when you turn on the computer. The BIOS reads system configuration in CMOS RAM and begins the process of checking out the system and configuring it through the Power-On-Self-Test (POST).

When these preliminary tests are complete, the BIOS searches for an operating system on one of the system's data storage devices (hard drive, CD-ROM, etc). If one is found, the BIOS will launch that operating system and hand control over to it. You can enter the BIOS setup by pressing the **[Delete]** key when the machine boots up and begins to show the memory count.

Setup Basics

The table below shows how to navigate in the setup program using the keyboard.

Key	Function
Tab	Moves from one selection to the next
Left/Right Arrow Keys	Change from one menu to the next
Up/Down Arrow Keys	More between selections
Enter	Opens highlighted section
PgUp/PgDn Keys	Change settings.

Getting Help

Pressing **[F1]** will display a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press **[ESC]** or the **[F1]** key again.

In Case of Problems

If you discover that you have trouble booting the computer after making and saving the changes with the BIOS setup program, you can restart the computer by holding the power button down until the computer shuts off (usually within 4 seconds); resetting by pressing CTRL-ALT-DEL; or clearing the CMOS.

The best advice is to only alter settings that you thoroughly understand. In particular, do not change settings in the Chipset section unless you are absolutely sure of the outcome. The Chipset defaults were carefully chosen by TYAN or your system manufacturer for the best performance and reliability. Even a seemingly small change to the Chipset setup options may cause the system to become unstable or unusable.

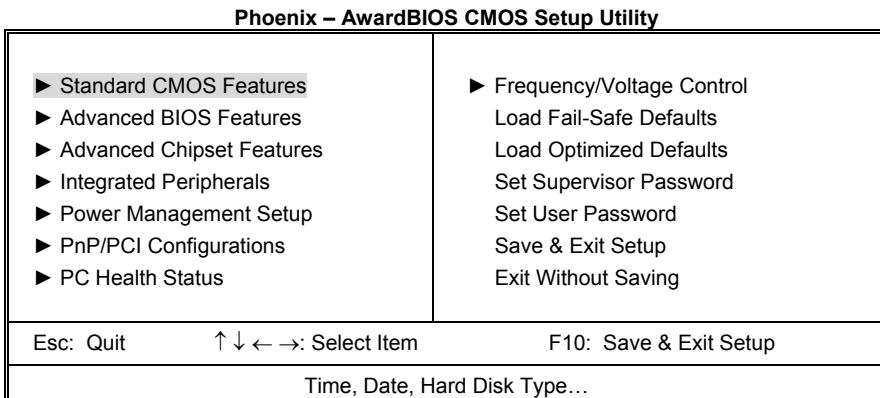
Setup Variations

Not all systems will have the same BIOS setup layout or options. While the basic look and function of the BIOS setup remains more or less the same for most systems, the appearance of your Setup screen may differ from the charts shown in this section. Each system design and chipset combination requires a custom configuration. In addition, the final appearance of the Setup program depends on the system designer. Your system designer may decide that certain items should not be available for user configuration, and remove them from the BIOS setup program.

NOTE: On the following pages, options written in **bold type** represent the BIOS Setup default.

3.1 – Main BIOS Setup

When you enter Phoenix - AwardBIOS CMOS Setup Utility, the following screen will appear as below:



Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI Configuration

This entry appears if your system supports PnP / PCI.

PC Health Status

Use this menu to show your system temperature, speed and voltage status.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Supervisor / User Password

Use this menu to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Save

Abandon all CMOS value changes and exit setup.

3.2 – Standard CMOS Features

In this section, you can alter general features such as the date and time, as well as access to the IDE configuration options. Note that the options listed below are for options that can directly be changed within the Main Setup screen. User can Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Phoenix – AwardBIOS CMOS Setup Utility

Standard CMOS Features

Date (mm: dd: yy)	Thu, Apr 3 2003	Item Help
Time (hh: mm: ss)	13: 31: 30	
▶ IDE Primary Master	[None]	Menu Level ▶ Change the day, month, year and century
▶ IDE Primary Slave	[None]	
▶ IDE Secondary Master	[None]	
▶ IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Based Memory	640K	
Extended Memory	64512K	
Total Memory	65536K	
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Date / Time Setup:

System Date: Adjusts the system date.

MM Months
DD Days
YYYY Years

System Time: Adjusts the system clock.

HH Hours (24hr. format)
MM Minutes
SS Seconds

IDE Master / Slave Setup:

Computer detects IDE drive type from drive C to drive F.

None / Auto / Manual

Drive A / B:

Defines the floppy drive type.

None / 360K, 5.25in / 1.2M, 5.25in / 720K, 3.5in / 1.44M, 3.5in / 2.88M, 3.5in

Video:

Defines video display mode.

EGA/VGA / CGA 40 / CGA 80 / MONO

Halt On:

Determines if the computer should stop when an error is detected during power up.

No Errors / All Errors / All, But Keyboard / All, But Diskette / All, But Disk/Key

3.3 – Advanced BIOS Features

In Advanced BIOS features, you will be able to adjust many of the feature that effect system speed and boot-up options.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features

Virus Warning [Disabled] CPU Internal Cache [Enabled] External Cache [Enabled] CPU L2 Cache ECC checking [Enabled] Quick Power On Self Test [Enabled] ▶ Boot Sequence [Press Enter] Swap Floppy Drive [Disabled] Boot Up Floppy Seek [Disabled] Boot Up NumLock Status [On] Gate A20 Option [Fast] Typematic Rate Setting [Disabled] X Typematic Rate (Chars/Sec) 6 X Typematic Delay (Msec) 250 Security Option [Setup] APIC Mode [Disabled] MPS Version Control For OS [1.4] OS Select For DRAM > 64MB [Non-OS2] Video BIOS Shadow [Disabled] Small Logo (EPA) Show [Disabled]	Item Help <hr/> - Menu Level ▶ Allow you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

Virus Warning:

This option allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection.

Enabled / Disabled

CPU Internal Cache:

Toggles the use of CPU Internal cache.

Enabled / Disabled

External Cache:

This option allows you to enabled or disabled the External Cache.

Enabled / Disabled

CPU L2 Cache ECC Checking:

This option allows you to enabled or disabled the CPU L2 Cache ECC Checking.

Enabled / Disabled

Quick Power On Self Test:

This option allows the system to skip self tests for faster startup.

Enabled / Disabled

Swap Floppy Drive:

This option allows the system to swap floppy drive.

Disabled / Enabled

Boot Up Floppy Seek:

This option allows the system to seek floppy drive when boots up.

Enabled / Disabled

Boot Up NumLock Status:

This option allows you to select power on state for NumLock.

Off / On

Gate A20 Option:

Select if chipset or keyboard controller should control GateA20. When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

Normal / Fast

Typematic Rate Setting:

Toggles control of keyboard key repeat rate.

Enabled/Disable

Typematic Rate (Chars/Sec):

Defines how many characters are repeated per second when holding down a key on the keyboard.

6 / 8 / 10 / 12 / 15 / 20 / 24 / 30

Typematic Delay (Msec):

Defines the delay that occurs at keystroke before that key will start to repeat.

250 / 500 / 750 / 1000

Security Option:

Sets the password on either just the BIOS setup or the entire system (BIOS setup included).

Setup / System

APIC Mode:

This option allows you to enabled or disabled Advanced Programmable Interrupt Controller (APIC) Mode.

Enabled / Disabled

MPS Version Control For OS:

Selects APIC mode depending on operating system: select 1.1 for Win NT 3.52, and 1.4 for Win NT4.0, Win2000 and WinXP

1.4 / 1.1

OS Select For DRAM > 64MB:

Select OS2 only if you are running OS/2 operating system with more than 64MB of RAM.

Non-OS2 / OS2

Video BIOS Shadow:

This option allows you to enabled copies Video BIOS to shadow RAM Improves performance.

Disabled / Enabled

Small Logo (EPA) Show:

Toggles the display of the EPA Energy Star logo at POST.

Enabled / Disabled

Boot Sequence:

Phoenix – AwardBIOS CMOS Setup Utility

Advanced BIOS Features

		Item Help
▶ Hard Disk Boot Priority	[Press Enter]	
First Boot Device	[Floppy]	
Second Boot Device	[CDROM]	
Third Boot Device	[Hard Disk]	
Boot Other Device	[Enabled]	
		Menu Level ▶▶
		Select Your Boot Device Priority

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Hard Disk Boot Priority:

Select [Press Enter] to set Hard Disk Boot Priority

First / Second / Third Boot Device:

This BIOS attempts to load the operating system from the devices in the sequence selected in these item.

Floppy / LS120 / Hard Disk / CDROM / ZIP100 / USB-FDD / USB-ZIP /
USB-CDROM / LAN / Disabled

Boot Other Device:

System can load the operating system from the other devices except above devices

Enabled / Disabled

3.4 – Advanced Chipsets Features

In Advanced Chipset Features, you will be able to adjust many of the chipset special features.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced Chipset Features

<ul style="list-style-type: none"> ▶ DRAM Clock/Drive Control [Press Enter] ▶ AGP & P2P Bridge Control [Press Enter] ▶ CPU & PCI Bus Control [Press Enter] Memory Hole [Disabled] System BIOS Cacheable [Disabled] Video RAM Cacheable [Disabled] 	<p style="text-align: center;">Item Help</p> <hr style="width: 80%; margin: auto;"/> <p style="text-align: center;">Menu Level ▶</p>
<p>↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults</p>	

Memory Hole:

Reserve 15-16M Memory for ISA use.

Disabled / Enabled

System BIOS Cacheable:

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Disabled / Enabled

VIDEO RAM Cacheable:

Selecting Enabled allows caching of the video RAM, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Disabled / Enabled

Phoenix – AwardBIOS CMOS Setup Utility

DRAM Clock/Drive Control

Current FSB Frequency	[133MHz]	Item Help
Current DRAM Frequency	[166MHz]	
DRAM Clock	[By SPD]	
DRAM Timing	[Auto By SPD]	
DRAM CAS Latency	[2.5]	Menu Level ►
Bank Interleave	[Disabled]	
Precharge to Active (Trp)	[4T]	
Tras Non-DDR400/DDR400	[7T/10T]	
Active to CMD (Trcd)	[5T]	
DRAM Command Rate	[2T Command]	
DRAM Burst Len	[4]	
Write Recovery Time	[2T]	
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Current FSB Frequency:

Show current FSB frequency

Current DRAM Frequency:

Show current DRAM frequency

DRAM Clock:

Select setting for DRAM clock

By SPD / 133 MHz / 166 MHz / 200 MHz

DRAM Timing :

Select setting for SDRAM timing

Manual / AUTO By SPD / Turbo / Ultra

DRAM CAS Latency:

This setting defines the number of cycles after a read command until output starts.

1.5 / 2 / 2.5 / 3

Bank Interleave:

Select Bank Interleave

Disabled / 2 Bank / 4 Bank

Precharge to Active (Trp):

This item controls the number of DRAM clocks used for DRAM Trp parameters.

2T / 3T / 4T / 5T

Tras Non-DDR400/DDR400:

This item controls the number of DRAM clocks used for DRAM Tras parameters.
6T/8T / 7T/10T / 5T/6T / 8T/12T

Active to CMD (Trcd):

This item controls the number of DRAM clocks used for DRAM Trcd parameters.
2T / 3T / 4T / 5T

DRAM Command Rate:

This item selects DRAM command rate parameters.
2T Command / 1T Command

DRAM Burst Len:

This item selects DRAM burst length parameters.
4 / 8

Write Recovery Time:

This item selects Write Recovery Time parameters.
2T / 3T

Phoenix – AwardBIOS CMOS Setup Utility

AGP & P2P Bridge Control

AGP Aperture Size	[64M]	Item Help
AGP Mode	[4X]	
AGP Fast Write	[Disabled]	
AGP Master 1 WS Write	[Disabled]	
AGP Master 1 WS Read	[Disabled]	
AGP 3.0 Calibration Cycle	[Enabled]	
VGA Share Memory Size	[64M]	
CPU Direct Access FB	[Enabled]	
Select Display Device	[CRT]	
Panel Type	[7]	
TV_type	[NTSC]	
TV_Connector	[CVBS]	
TV_Layout	[Default]	
Dithering	[Disabled]	
Menu Level ►		
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

AGP Aperture Size:

Decide How many memory AGP can use as frame buffer.
256M/128M/64M/32M/16M/8M/4M/1G/512M

AGP Mode :

Decide AGP Translation speed
1X/2X/4X

AGP Fast Write:

Write to frame buffer directly
Disabled/Enabled

AGP Master 1 WS Write:

Enable / Disable AGP Master 1 WS Write function
Disabled/Enabled

AGP Master 1 WS Read:

Enable / Disable AGP Master 1 WS Read function
Disabled/Enabled

AGP 3.0 Calibration Cycle:

Enable / Disable AGP 3.0 Calibration Cycle
Disabled/Enabled

CPU Direct Access FB:

Enable / Disable CPU Direct Access FB
Disabled/Enabled

Select Display Device:

Select Display Device type
CRT / LCD / CRT+LCD / TV / CRT+TV / LCD+TV / DVI / CRT+DVI / TV+DVI

Panel Type:

Show panel type

TV_type:

Select TV type
NTSC / PAL / PALM / PALN / PALNc

TV_Connector:

Select TV connector type
CVBS / S-Video 0 / R/G/B / Cr/Y/Cb / SDTV-R/G/B / SDTV-Pr/Y/Pb / S-Video 1

TV_Layout:

Select TV layout value
Default / COMP.+S-Video / S-Video+S-Video / COMP.+R/G/B / COMP.+Y/Cb/Cr / COMP.+SDTV-R,G,B / COMP.+SDTV-Y,Pb,Pr

Dithering:

Enable / Disable Dithering
Disabled/Enabled

Phoenix – AwardBIOS CMOS Setup Utility

CPU & PCI Bus Control

PCI1 Master 0 WS Write	[Enabled]	Item Help <hr/> Menu Level ►
PCI2 Master 0 WS Write	[Enabled]	
PCI1 Post Write	[Enabled]	
PCI2 Post Write	[Enabled]	
VLink 8X Support	[Enabled]	
PCI Delay Transaction	[Enabled]	
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

PCI1/PCI2 Master 0 WS Write:

Enable / Disable PCI1/2 Master 0 WS function

Enable / Disable

PCI1/PCI2 Post Write:

Enable / Disable PCI1/2 post write function

Enable / Disable

VLink 8X Support:

Enable / Disable chip VLink 8X WS function

Enable / Disable

PCI Delay Transaction:

Enable / Disable Chip PCI Delay function

Enable / Disable

3.5 – Integrated Peripherals

Options related to onboard peripheral features can be altered through the following:

Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals

<ul style="list-style-type: none"> ▶ VIA OnChip IDE Device [Press Enter] ▶ VIA OnChip PCI Device [Press Enter] ▶ SuperIO Device [Press Enter] Init Display First [PCI Slot] 	<p>Item Help</p> <hr style="width: 80%; margin: 0 auto;"/> <p>Menu Level ▶</p>
<p>↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults</p>	

Init Display First:

This item selects which display card init first.
PCI Slot / Onboard /AGP

VIA OnChip IDE Device:

Phoenix – AwardBIOS CMOS Setup Utility
VIA OnChip IDE Device

<ul style="list-style-type: none"> OnChip SATA [Enabled] SATA Mode [IDE] OnChip IDE Channel0 [Enabled] OnChip IDE Channel1 [Enabled] IDE Prefetch Mode [Enabled] Primary Master PIO [Auto] Primary Slave PIO [Auto] Secondary Master PIO [Auto] Secondary Slave PIO [Auto] Primary Master UDMA [Auto] Primary Slave UDMA [Auto] Secondary Master UDMA [Auto] Secondary Slave UDMA [Auto] IDE HDD Block Mode [Enabled] 	<p>Item Help</p> <hr style="width: 80%; margin: 0 auto;"/> <p>Menu Level ▶▶</p>
<p>↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults</p>	

OnChip SATA:

The integrated peripheral controller contains a SATA interface with support for two SATA channels. Select “Auto” to activate each channel separately.

Disabled /Enabled

SATA Mode:

Select SATA mode
Raid /IDE

OnChip IDE Channel 0/1 :

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select "Enabled" to activate each channel separately.
Disabled /Enabled

IDE Prefetch Mode:

Select Disabled Or Enabled IDE Prefetch Mode
Disabled / Enabled

Primary / Secondary Master/ Slave PIO:

The four IDE PIO (Programmed Input / Output) field let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
Auto / Mode 0 / Mode 1 / Mode 2 / Mode 3 / Mode 4

Primary / Secondary Master/ Slave UDMA:

This allows you to select the mode of operation for the Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable bios SUPPORT.
Auto / Disabled

IDE HDD Block Mode:

Select Disabled Or Enabled IDE HDD Block Mode
Enabled / Disabled

VIA OnChip PCI Device:

Phoenix – AwardBIOS CMOS Setup Utility
VIA OnChip PCI Device

AC97 Audio MC97 Modem OnChip USB Controller OnChip EHCI Controller USB Keyboard Support USB Mouse Support	[AUTO] [AUTO] [All Enabled] [Enabled] [Disabled] [Disabled]	Item Help <hr/> Menu Level ►►
↑↓←→: Move Enter: Select +/-PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

AC97 Audio:

Enable / Disable onchip AC97.audio
Auto / Disabled

MC97 Modem:

Enable / Disable onchip MC97. Modem
Auto / Disabled

Onchip USB Controller:

This item allows you to decide to "All Disabled" or "All Enabled" the USB device.
All Disabled / All Enabled / 1&2 USB Port / 2&3 USB Port / 1&3 USB Port / 1 USB Port / 2 USB Port / 3 USB Port

OnChip EHCI Controller:

This item allows you to decide to "Enabled" or "Disabled" the EHCI device.
Enabled / Disabled

USB Keyboard Support:

Select "Enabled" if your system contains a USB controller and you have a USB keyboard.
Enabled / Disabled

USB Mouse Support:

Select "Enabled" if your system contains a USB controller and you have a USB mouse.
Enabled / Disabled

Super IO Device:

Phoenix – AwardBIOS CMOS Setup Utility
Super IO Device

Onboard FDC Controller	[Enabled]	Item Help	
Onboard Serial Port 1	[3F8 / IRQ4]		
Onboard Serial Port 2	[2F8 / IRQ3]	Menu Level ►►	
UART Mode Select	[Normal]		
RxD, TxD Active	[Hi, Lo]		
IR Transmission Delay	[Enabled]		
UR2 Duplex Mode	[Half]		
Use IR Pins	IR-Rx2Tx2		
Onboard Parallel Port	[378 / IRQ7]		
Parallel Port Mode	[SPP]		
EPP Mode Select	[EPP1.7]		
ECP Mode Use DMA	[3]		
Game Port Address	[201]		
Midi Port Address	[330]		
Midi Port IRQ	[10]		
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults			

Onboard FDC Controller:

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select "Disabled" in the field.

Enabled / Disabled

Onboard Serial Port 1 / 2:

Select an address and corresponding interrupt for the first and second serial ports.

3F8/IRQ4 / 2E8/IRQ3 / 3E8/IRQ4 / 2F8/IRQ3 / Disabled / Auto

UART Mode Select:

This field allows the users to configure what IR mode the 2nd serial port should use.

Normal / IrDA and ASKIR

RxD, TxD Active:

This field configures the receive and transmit signals generated from the IR port.

Hi, Hi / Hi, Lo / Lo, Hi / Lo, Lo

IR Transmission Delay:

This item allows you to "Enabled" or "Disabled" the IR transmission delay.

Enabled / Disabled

UR2 Duplex Mode:

This item allows you to select IR "Half" or "Full" duplex function.

Half / Full

Use IR Pins:

This item allows the user to configure the IR Pins: IR-Rx2Tx2 .

Onboard Parallel Port:

This field allows the user to configure the LPT port.

378/IRQ7 / 278/IRQ5 / 3BC/IRQ7 / Disabled

Parallel Port Mode:

This field allows the user to select the parallel port mode.

SPP / EPP / ECP / ECP+EPP/ Normal

EPP Mode Select:

This item allows you to determine the IR transfer mode of onboard I/O chip.

EPP1.9 / EPP1.7

ECP Mode Use DMA:

This field allows the user to select the DMA1 or DMA3 for the ECP mode.

1 / 3

Game Port Address:

This field allows the user to configure the Game port.

Disabled / 201 / 209

Midi Port Address:

This field allows the user to configure the Midi port.

Disabled / 330 / 300 / 290

Midi Port IRQ:

This field allows the user to configure the Midi port IRQ.

5 / 10

3.6 – Power Management Setup

Options related to power management can be altered through the following:

Phoenix – AwardBIOS CMOS Setup Utility Power Management Setup

ACPI Function	[Enabled]	Item Help
ACPI Suspend Type	[S1 (POS)]	
Power Management Option	[User Define]	
HDD Power Down	[Disabled]	Menu Level ▶
Suspend Mode	[Disabled]	
Video Off Option	[Suspend -> Off]	
Video Off Method	[V/H SYNC+Blank]	
MODEN Use IRQ	[3]	
Soft-Off by PWRBTN	[Instand-Off]	
Run VGABOIS if S3 Resume	[Auto]	
Ac Loss Auto Restart	[Off]	
▶ IRQ/Event Activity Detect	[Press Enter]	
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

ACPI Function:

Toggles advanced power and configuration done by OS.

Enabled / Disabled

ACPI Suspend Type:

Defines ACPI system suspend mode.

S1 (POS) / S3 (STR) / S1&S3

Power Management Option:

Defines the type of power saving features the system should follow.

User Define / Maximum Saving / Minimum Saving

HDD Power Down:

Defines hard drive power down delay.

Disabled / 1 min-15 min

Suspend Mode:

Defines the method used to power off the system.

Disabled / 1 Min / 2 Min / 4 Min / 6 Min / 8 Min / 10 Min / 20 Min / 30Min / 40Min / 1 Hour

Video Off Method:

Defines the method used to power off graphics.

V/H SYNC+Blank / Blank / DPMS

Video Off Option:

Tell you what time frame that the video will be disabled under current power management settings.

Always On / Suspend -> Off

MODEM Use IRQ:

Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

NA / 3 / 4 / 5 / 7 / 9 / 10 / 11

Soft-Off by PWRBTN:

Defines the mode of the Soft-Off by PWRBTN.

Delay 4 Sec / Instant-Off

Run VGABOIS if S3 Resume:

Defines the type used to run VGABOIS if S3 Resume.

Auto / Yes / No

Ac Loss Auto Restart:

Defines the type of the Ac Loss Auto Restart.

Off / On

Phoenix – AwardBIOS CMOS Setup Utility

IRQ/Event Activity Detect

PS2KB Wakeup Select	[Hot Key]	<p>Item Help</p> <hr/> <p>Menu Level ►►</p>
PS2KB Wakeup From S3/S4/S5	[Disabled]	
PS2MS Wakeup from S3/S4/S5	[Disabled]	
USB Resume from S3	[Disabled]	
VGA	[OFF]	
LPT & COM	[LPT/COM]	
HDD & FDD	[ON]	
PCI Master	[OFF]	
PowerOn by PCI Card	[Disabled]	
Modem Ring Resume	[Disabled]	
RTC Alarm Resume	[Disabled]	
Date (of Month)	0	
Resume Time (hh:mm:ss)	0: 0: 0	
► IRQs Activity Monitoring	[Press Enter]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

PS2KB Wakeup Select:

When Select password, Please press ENTER key to change Password Max 8 numbers.

PS2KB Wakeup From S3/S4/S5:

Defines the mode of the PS2KB Wakeup From S3/S4/S5:

Disable / Ctrl+F1 / Ctrl+F2.....

PS2MS Wakeup from S3/S4/S5:

Defines whether PS2 Mouse can wake the system from S3/S4/S5.

Disabled / Enabled

USB Resume from S3:

Defines whether the USB can Resume system from S3.

Disabled / Enabled

VGA:

Defines whether to On or Off VGA.

Off / On

LPT & COM:

Defines which to choose from LPT and COM,

NONE / LPT / COM / LPT/COM

HDD & FDD:

Defines the status of HDD & FDD.

Off / On

PCI Master:

Defines the status of PCI Master.

Off / On

PowerOn by PCI Card:

Defines whether PCI card can wake up system or not:

Disabled / Enabled

Modem Ring Resume:

Defines whether the system will resume if the modem is dialed into.

Disabled / Enabled

RTC Alarm Resume:

Defines whether the system will wake up if the RTC Alarm come out.

Disabled / Enabled

Date(of Month):

This item is set to 0.

Phoenix – AwardBIOS CMOS Setup Utility

IRQs Activity Monitoring

Primary INTR	[ON]	Item Help
IRQ3 (COM 2)	[Enabled]	_____
IRQ4 (COM 1)	[Enabled]	
IRQ5 (LPT 2)	[Enabled]	
IRQ6 (Floppy Disk)	[Enabled]	
IRQ7 (LPT 1)	[Enabled]	
IRQ8 (RTC Alarm)	[Disabled]	
IRQ9 (IRQ2 Redir)	[Disabled]	
IRQ10 (Reserved)	[Disabled]	
IRQ11 (Reserved)	[Disabled]	
IRQ12 (PS/2 Mouse)	[Enabled]	
IRQ13 (Coprocessor)	[Enabled]	
IRQ14 (Hard Disk)	[Enabled]	
IRQ15 (Reserved)	[Disabled]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Primary INTR:

Defines the status of the Primary INTR.

Off / On

IRQ8, 9, 10, 11, 15:

Set these items as follow.

Disabled / Enabled

IRQ3,4, 5, 6, 7, 12, 13, 14:

Set these items as follow.

Disabled / Enabled

3.7 – PnP/PCI Configurations

Options related to all the configurations of PnP / PCI resources.

Phoenix – AwardBIOS CMOS Setup Utility

PnP / PCI Configurations

PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto (ESCD)]	<hr/> Menu Level ► Default is Disabled. Select Enabled to Reset Extended System Configuration Data ESCD> when you exit Setup if you have Installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
X IRQ Resources	Press Enter	
PCI / VGA Palette Snoop	[Disabled]	
Assign IRQ For VGA	[Enabled]	
Assign IRQ For USB	[Enabled]	
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

PNP OS Installed:

Select Yes if you are using a Plug and Play capable operating System. Select No if you need the BIOS to configure non-boot devices.

No / Yes

Reset Configuration Data:

This setting allow you to clear ESCD data.

Enabled / Disabled

Resources Controlled By:

Default whether system resources are controller by BIOS or by user.

Manual / Auto (ESCD)

PCI / VGA Palette Snoop:

Leave as default.

Enabled / Disabled

IRQ Resources:

Press Enter.

Assign IRQ For VGA and USB:

Set as follow:

Disabled / Enabled

3.8 – PC Health Status

This menu is related to detecting system temperature, voltage, fan and speed.

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status

CPU Warning Temperature [Disabled] Current SYS Temperature Current CPU Temperature Current CPUFAN Speed Current SYSFAN Speed VCORE +3.3 V +5 V +12 V -12 V Shutdown Temperature [Disabled]	Item Help <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> Menu Level ►
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

CPU Warning Temperature:

Set the CPU Warning Temperature.

Disabled / 50C/122F / 53C/127F / 56C/133F / 60C/140F / 63C/145F / 66C/151F / 70C/158F

Shutdown Temperature: /

set the Shutdown Temperature.

Disabled / 60C/140F / 65C/149F / 70C/158F / 75C/167F

Note: The onboard Winbond® 83697HF hardware monitoring ASIC automatically detects the system, motherboard and CPU temperature. The hardware monitor ASIC also detects the voltage output through the voltage regulators.

3.9 – Frequency/Voltage Control

Options related to control CPU clock and frequency ratio.

Phoenix – AwardBIOS CMOS Setup Utility Frequency / Voltage Control

Auto Detect PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Disabled]	
CPU Clock	[100]	Menu Level ►

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Auto Detect PCI Clk:

Sets the BIOS to automatically adjust PCI and memory bus speeds accordingly.
Enabled / Disabled

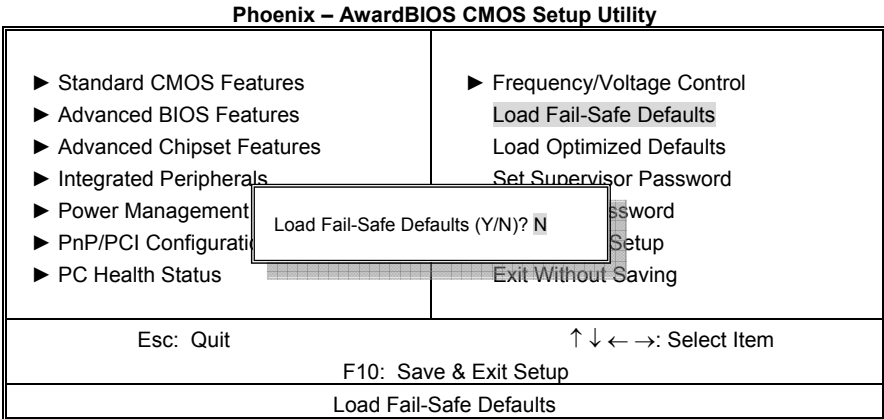
Spread Spectrum:

Reduces interference on the motherboard. Leave as default if your system works correctly.
Enabled / Disabled

CPU Clock:

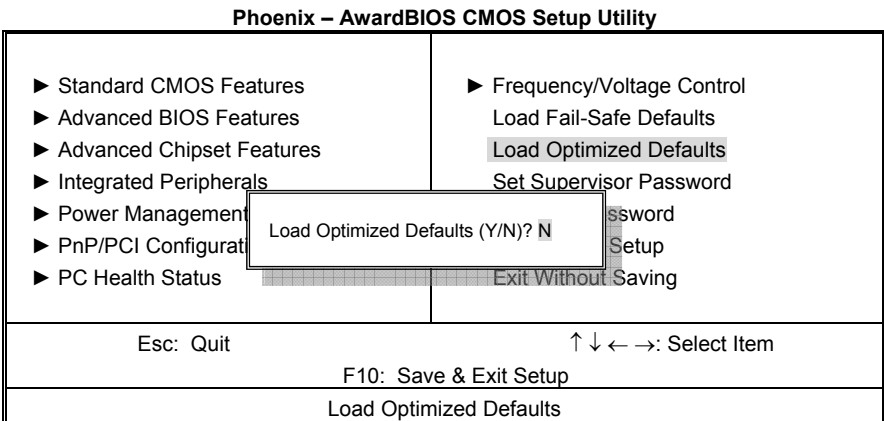
Show the CPU clock.

3.10 – Load Fail-Safe Defaults



When you press <Enter> on this item you get a confirmation dialog box with a message similar to:
Load Fail-Safe Defaults (Y/N)? N
Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

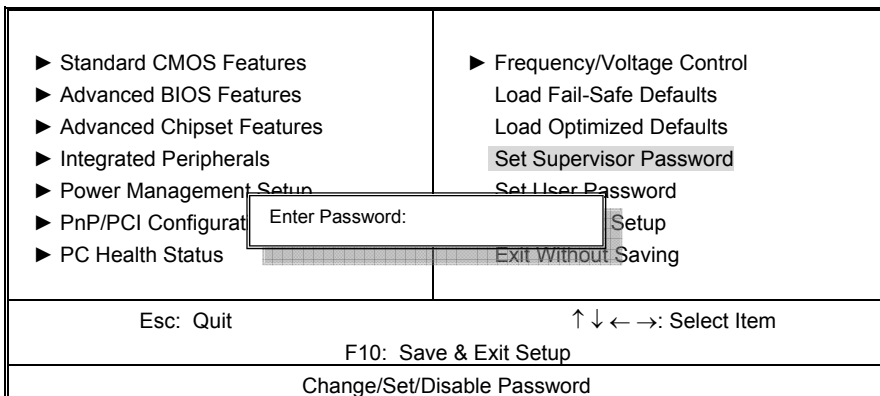
3.11 – Load Optimized Defaults



When you press <Enter> on this item you get a confirmation dialog box with a message similar to:
Load Optimized Defaults (Y/N)? N
Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

3.12 – Supervisor/User Password Setting

Phoenix – AwardBIOS CMOS Setup Utility



You can set either a supervisor or a user password, or both of them. The differences are:

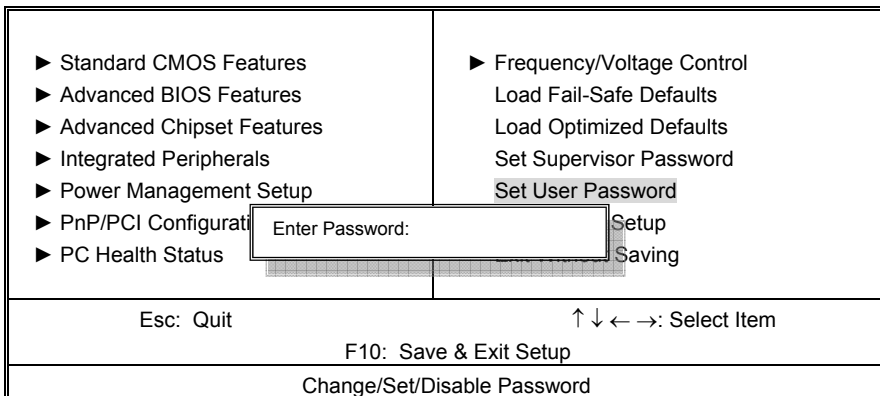
Set Supervisor Password: can enter and change the options of the setup menus.

Set User Password: Can enter but does not have permission to change any options.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Phoenix – AwardBIOS CMOS Setup Utility



Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

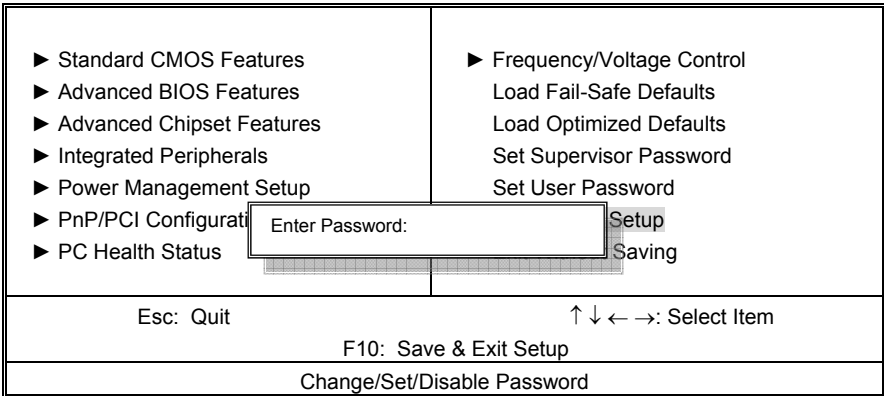
When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

3.13 – Exit Selecting

Phoenix – AwardBIOS CMOS Setup Utility



Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

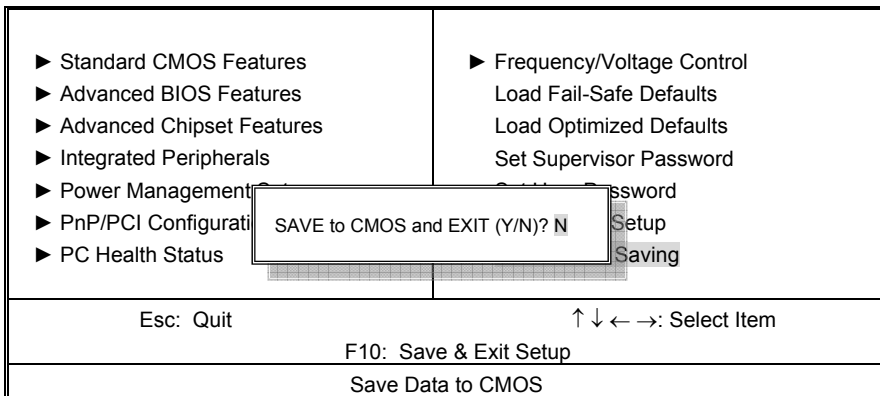
Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS

configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Phoenix – AwardBIOS CMOS Setup Utility



Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? **Y**

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Chapter 4: Diagnostics

Note: if you experience problems with setting up your system, always check the following things in the following order:

Memory, Video, CPU

By checking these items, you will most likely find out what the problem might have been when setting up your system. For more information on troubleshooting, check the TYAN website at: <http://www.TYAN.com>.

4.1 Beep Codes

Fatal errors, which halt the boot process, are communicated through a series of audible beeps. For example, if the BIOS POST can initialize the video but an error occurs, an error message will be displayed. If it cannot display the message, it will report the error as a series of beeps.

The most common type of error is memory error:

Memory not installed or memory not seated in the socket properly. If this occurs, the board will beep continuously and will not stop until power off. Please ensure that the correct type of memory is installed in the correct location.

If you get this error, please check your memory configuration, order, type, and check for faulty modules. Please check our website for memory compatibility.

Before calling your vendor or calling TYAN Tech Support, be sure that you know how many beeps your board made, and how long the beeps were. Also have other information such as your attached add-in cards, drives and OS to help speed up the support process and come to a possible solution faster.

4.2 Flash Utility

Every BIOS file is unique for the motherboard it was designed for. For Flash Utilities, BIOS downloads, and information on how to properly use the Flash Utility with your motherboard, you must check the TYAN website: <http://www.TYAN.com/>

NOTE

Please be aware that by flashing your BIOS, you agree that in the even of a BIOS flash failure, you must contact your dealer for a replacement BIOS. There are no exceptions. TYAN does not have a policy of replacing BIOS chips directly with end users. In no event will TYAN be held responsible for damage done to the BIOS by the end user.

Appendix I: Glossary

ACPI (Advanced Configuration and Power Interface): a power management specification that allows the operating system to control the amount of power distributed to the computer's devices. Devices not in use can be turned off, reducing unnecessary power expenditure.

AGP (Accelerated Graphics Port): an interface specifically designed for the demands of 3D graphics applications. The 32-bit AGP channel directly links the graphics controller to the system memory. While the channel runs at just 66MHz, it supports data transmission during both the rising and falling ends of the clock cycle, yielding an effective speed of 133MHz.

ATAPI (AT Attachment Packet Interface): also known as IDE or ATA; a drive implementation that includes the disk controller on the device itself. It allows CD-ROMs and tape drives to be configured as master or slave devices, just like hard drives.

ATX: the form factor designed to replace the AT form factor. It improves on the AT design by rotating the board 90 degrees, so that the IDE connectors are closer to the drive bays, and the CPU is closer to the power supply and cooling fan. The keyboard, mouse, USB, serial, and parallel ports are built-in.

Bandwidth: refers to carrying capacity. The greater the bandwidth, the more data the bus, phone line, or other electrical path, can carry. Greater bandwidth, then, also results in greater speed.

BBS (BIOS Boot Specification): is a feature within the BIOS that creates, prioritizes, and maintains a list of all Initial Program Load (IPL) devices, and then stores that list in NVRAM. IPL devices have the ability to load and execute an O/S, as well as provide the ability to return to the BIOS if the O/S load process fails for some reason. At that point, the next IPL device is called upon to attempt loading of the O/S.

BIOS (Basic Input/Output System): the firmware that resides in the ROM chip, and provides the basic instructions for controlling your computer's hardware. Both the operating system and application software use BIOS routines to ensure compatibility.

Buffer: a portion of RAM which is used to temporarily store data, usually from an application, though it is also used when printing, and in most keyboard drivers. The CPU can manipulate data in a buffer before copying it, all at once, to a disk drive. While this improves system performance -- reading to or writing from a disk drive a single time is much faster than doing so repeatedly -- there is also the possibility of losing your data should the system crash. Information stored in a buffer is temporarily stored, not permanently saved.

Bus: a data pathway. The term is commonly used to refer to the connection between the processor and system memory, and between the processor and AGP, PCI or ISA buses.

Bus mastering: allows peripheral devices and IDE controllers to access the system memory without going through the CPU (similar to DMA channels).

Cache: a temporary storage area for data that will be needed often by an application. Using a cache lowers data access times, since the needed information is stored in the SRAM instead of in the slower DRAM. Note that the cache is also much smaller than your system memory: a typical cache size is 512KB, while you may have as much as 4GB or more of system memory.

Cache size: refers to the physical size of the cache. This should not be confused with the cacheable area, which is the total amount of memory which can be scanned by the system in search of data to put into the cache. A typical setup would be a cache size of 512KB, and a cacheable area of 512MB. In this case, up to 512KB of system memory is capable of being cached. However, only 512KB of this memory will be in the cache at any given moment.

Closed and open jumpers: jumpers and jumper pins are active when they are “on” or “closed”, and inactive when they are “off” or “open”.

CMOS (Complementary Metal-Oxide Semiconductor): chips that hold the basic startup information for the BIOS.

COM port: another name for the serial port, which is called such because it transmits the eight bits of a byte of data along one wire, and receives data on another single wire (that is, the data is transmitted in serial form, one bit after another). Parallel ports transmit the bits of a byte on eight different wires at the same time (that is, in parallel form, eight bits at the same time).

DDR (Double Data Rate): is a technology designed to double the clock speed of the memory. It activates output on both the rising and falling edge of the system clock rather than on just the rising edge, potentially doubling throughput.

DIMM (Dual In-line Memory Module): faster and more capacious form of RAM than SIMMs.

DIMM bank: sometimes called DIMM sockets, because the physical slot and the logical unit are the same. That is, one DIMM module fits into one DIMM socket, which is capable of acting as a memory bank.

DMA (Direct Memory Access): channels that are similar to IRQs. DMA channels allow hardware devices (like soundcards or keyboards) to access the main memory without involving the CPU. This frees up CPU resources for other tasks. As with IRQs, it is vital that you do not double up devices on a single line. Plug-n-Play devices will take care of this for you.

Doze mode: in this mode, only the CPU's speed is slowed.

DRAM (Dynamic RAM): widely available, very affordable form of RAM which will lose data if it is not recharged regularly (every few milliseconds). This refresh requirement makes DRAM three to ten times slower than non-recharged RAM such as SRAM.

ECC (Error Correction Code or Error Checking and Correcting): allows data to be checked for errors during run-time. Errors can subsequently be corrected at the same time that they're found.

EEPROM (Electrically Erasable Programmable ROM): also called Flash BIOS, is a ROM chip which can, unlike normal ROM, be updated. This allows you to keep up with changes in the BIOS programs without having to replace the BIOS chip. TYAN's BIOS updates can be found at <http://www.TYAN.com>.

ESCD (Extended System Configuration Data): a format for storing information about Plug-n-Play devices in the system BIOS. This information helps properly configure the system each time it boots.

Fault-tolerance: a term describing a system where one component can quickly be replaced without causing a loss of service, such as in a RAID system.

Firmware: low-level software that controls the system hardware.

Form factor: an industry term for the size, shape, power supply type, and external connector type of the Personal Computer Board (PCB) or motherboard. The most common form factors in use today are; ATX, microATX, FlexATX, Extended ATX, SSI EEB, and SSI MEB.

Global timer: onboard hardware timer, such as the Real-Time Clock (RTC).

Handshaking: a form of encryption. One system, typically the server, sends an encryption scheme to another agent, typically a client. Thus, the client's data is protected during transmittal to the server.

HDD: stands for Hard Disk Drive, a type of fixed drive.

H-SYNC: controls the horizontal synchronization/properties of the monitor.

IC (Integrated Circuit): the common, formal name for a computer chip.

IDE (Integrated Device/Drive Electronics): a simple, self-contained HDD interface. It can handle drives up to 8.4 GB in size. Almost all IDE drives sold today are a form of Enhanced IDE (EIDE), with maximum capacity determined by the hardware controller.

IDE INT (IDE Interrupt): a hardware interrupt signal that goes to the IDE.

I/O (Input/Output): the connection between a computer and another device (mouse, keyboard, etc.)

Initial Program Load (IPL): a feature built into BBS-compliant devices, describing those devices as capable of loading and executing an O/S, as well as being able to provide control back to the BIOS if the loading attempt fails.

IPL: see Initial Program Load.

IRQ (Interrupt Request): an electronic request that runs from a hardware device to the CPU. The interrupt controller assigns priorities to incoming requests and delivers them to the CPU. It is important that there is only one device hooked up to each IRQ line. Doubling up devices on IRQ lines can cause problems. Plug-n-Play operating systems can take care of these details for you.

ISA (Industry Standard Architecture): a slower 8- or 16-bit bus (data pathway). The original IBM PC, PC-XT, and PC-AT utilized these bus architectures.

Latency: the amount of time that one part of a system spends waiting for another part to catch up. This is most common when the system sends data out to a peripheral device, and waits for the peripheral to send data back (peripherals tend to be slower than onboard system components).

Mirroring: see RAID.

NVRAM: ROM and EEPROM are both examples of Non-Volatile RAM, memory that holds its data without power. DRAM, in contrast, is volatile.

OEM (Original Equipment Manufacturer): manufacturers that commonly package other companies' motherboards and hardware inside their chassis and sell them.

Parallel port: transmits the bits of a byte on eight different wires at the same time (that is, in parallel form, eight bits at the same time).

PCI (Peripheral Component Interconnect): a 32 or 64-bit local bus (data pathway) which is faster than the ISA bus. Local buses are those which operate within a single system (as opposed to a network bus, which connects multiple systems).

PCI PIO (PCI Programmable Input/Output) modes: the data transfer modes used by IDE drives. These modes use the CPU for data transfer (in contrast, DMA channels do not). PCI refers to the type of bus used by these modes to communicate with the CPU.

PCI-to-PCI bridge: allows you to connect multiple PCI devices onto one PCI bus.

Pipeline burst SRAM: a fast secondary cache. It is used as a secondary cache because SRAM is slower than SDRAM, but usually larger. Data is cached first to the faster primary cache, and then, when the primary cache is full, to the slower secondary cache.

Pipelining: to improve system performance by allowing the CPU to begin executing a second instruction before the first is completed. A pipeline can be likened to an assembly line, with a given part of the pipeline repeatedly executing a set part of an operation on a series of instructions.

PM timers (Power Management timers): software timers that count down the number of seconds or minutes until the system times out and goes into sleep, suspend, or doze mode.

PnP (Plug-and-Play): a design standard that has become ascendant in the industry. Plug-and-Play devices require little set-up to use. Novice end users can simply plug them into a computer that is running on a Plug-n-Play aware operating system (such as Windows 98/Me/XP), and go to work. Devices and operating systems that are not Plug-n-Play require you to reconfigure your system each time you add or change any part of your hardware.

PXE (Preboot Execution Environment): one of four components that together make up the Wired for Management 2.0 baseline specification. PXE was designed to define a standard set of preboot protocol services within a client, towards the goal of allowing networked-based booting to boot using industry standard protocols.

RAID (Redundant Array of Independent/Inexpensive Disks): a way for the same data to be stored in different places on many hard drives. By using this method, the data is stored redundantly, also the multiple hard drives will appear as a single drive to the O/S. RAID Level 0 is known as striping, where data is striped (or overlapped) across multiple hard drives, but offers no fault-tolerance. RAID Level 1 is known as mirroring, which stores the data within at least two hard drives, but does not stripe. RAID Level 1 also allows for faster access time and fault-tolerance, since either hard drive can be read at the same time. RAID Level 0+1 features both striping and mirroring, providing fault-tolerance, striping, and faster access, all at the same time.

RAM (Random Access Memory): technically refers to a type of memory where any byte can be accessed without touching the adjacent data, is often used to refer to the system's main memory. This memory is available to any program running on the computer.

ROM (Read-Only Memory): a storage chip which contains the BIOS; the basic instructions required to boot the computer and start up the operating system.

SDRAM (Synchronous Dynamic RAM): called as such because it can keep two sets of memory addresses open simultaneously. By transferring data alternately from one set of addresses and then the other, SDRAM cuts down on the delays associated with non-synchronous RAM, which must close one address bank before opening the next.

Serial port: called as such because it transmits the eight bits of a byte of data along one wire, and receives data on another single wire (that is, the data is transmitted in serial form, one bit after another).

Sleep/Suspend mode: in this mode, all devices except the CPU shut down.

SRAM (Static RAM): unlike DRAM, this type of RAM does not need to be refreshed in order to prevent data loss. Thus, it is faster and more expensive.

Standby mode: in this mode, the video and hard drives shut down; all other devices continue to operate normally.

Striping: see RAID

UltraDMA-33/66/100/133 (aka ATA-133/100/66/33): a fast version of the original DMA channel. UltraDMA is also called UltraATA. Without a proper UltraDMA controller, your system cannot take advantage of higher data transfer rates of the new UltraDMA/UltraATA hard drives.

USB (Universal Serial Bus): a versatile port. This one port type can function as a serial, parallel, mouse, keyboard or joystick port. It is fast enough to support video transfer, and is capable of supporting up to 127 daisy-chained peripheral devices.

VGA (Video Graphics Array): the PC video display standard

V-SYNC: controls the vertical scanning properties of the monitor.

ZIF Socket (Zero Insertion Force socket): these sockets make it possible to insert CPUs without damaging the sensitive CPU pins. The CPU is lightly placed in an open ZIF socket, and a lever is pulled down. This shifts the processor over and down, guiding into the board and locking it into place.

Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then Tyan Computer Corporation can help. Besides designing innovative and quality products for over a decade, Tyan has continuously offered customers service beyond their expectations. Tyan's website (www.tyan.com) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. Tyan also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, Tyan serves multiple market segments with the industry's most competitive services to support them.

"Tyan's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general." - Anandtech.com

Please feel free to contact us directly for this service at techsupport@tyan.com

Help Resources:

1. See the beep codes section of this manual.
2. See the TYAN website for FAQ's, bulletins, driver updates, and other information: <http://www.tyan.com>
3. Contact your dealer for help BEFORE calling TYAN.
4. Check the TYAN user group: alt.comp.periphs.mainboard.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

NOTE: A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid. TYAN will pay to have the board shipped back to you.



Notice for the USA

Compliance Information Statement (Declaration of Conformity Procedure) DoC
FCC Part 15: This device complies with part 15 of the FCC Rules

Operation is subject to the following conditions:

- 1) This device may not cause harmful interference, and
- 2) This device must accept any interference received including interference that may cause undesired operation. 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 one or more of the following measures:
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and the receiver.
 - Plug the equipment into an outlet on a circuit different from that of the receiver.
 - Consult the dealer on an experienced radio/television technician for help.

Notice for Canada

This apparatus complies with the Class B limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference radio.)



Notice for Europe (CE Mark)

This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

Document #: D1650-101