

***AMD Slot-A
AGP/PCI/ISA
Motherboard***

QS754

User's Manual



Declaration

Declaration

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Compliance & Certificate

Compliance & Certificate

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DESIGN & MANUFACTURE OF MOTHER BOARDS AND PERSONAL COMPUTERS.

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Year 2000 Compliance:

This product is tested to be qualified to bear the NSTL Year 2000 Compliant logo. Year2000 problem is mainly a problem of computer software (OS), and the hardware issue. With the support of BIOS on motherboard, the Y2K problem can be thoroughly conquered.

Easy Installation

Easy Installation

Easy Installation Steps

The following “Easy Installation” steps are for users accustomed to the assembly of a computer system. For those individuals requiring more specific information, please refer to the more detailed descriptions located within the latter chapters of this manual. Note: You must keep your power cable unplugged until the following installation steps are completed.

Getting Start:

Touch a grounded metal surface to release static electricity stored in your body before unpacking your motherboard. For details please refer to Precaution section in Chapter 3.

Install the CPU by correctly aligning the CPU with the Slot as noted in the motherboard diagram. Once aligned, press down on the CPU gently but firmly and lock it. Next, install the 3.3 volt unbuffered SDRAM into the 168 pin DIMMs. See Sec. 3.4.

Set CPU speed in according to Sec.3.2.

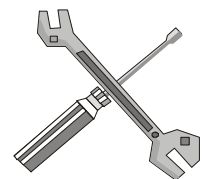
After completing the above steps, install any expansion

Cards(PCI, ISA) into riser card and have the riser card installed

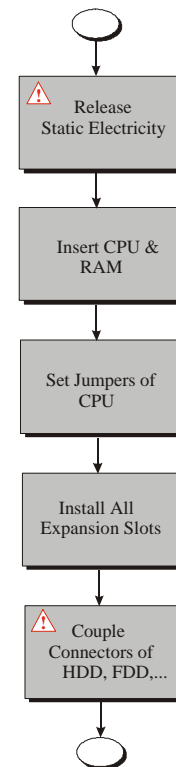
firmly into the slot for riser card on board. See Sec. 3.5.

Plug in all cables included in the package except for the power cord. Please see Sec. 3.6.

Please recheck all steps to ensure no mistakes have been made and then plug in the power cord and turn on the power to enter the BIOS setup, Chapter 4.



INSTALLATION



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1. Introduction

1. Introduction

1.1 How To Use This Manual

This manual provides information necessary for Original Equipment Manufactures (OEMs) and home users to build a PC-AT compatible system using the AMD Athlon motherboard. Follow the installation procedure presented on the **Easy Installation Page** and refer to the section number following each step if you require more detailed instructions.

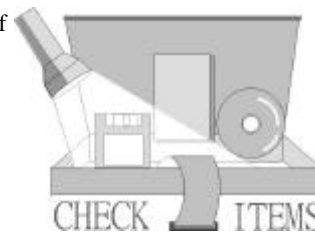


1.2 Check Your Device Items

The standard package should contain the following items. If you find any of these items be missing or damaged, please contact your retailer.

- The QS754 motherboard
- Universal Retention Mechanism(Support AMD Athlon)

- 1 IDE ribbon cable
- 1 floppy ribbon cable
- 1 CD with drivers
- 1 User's Manual



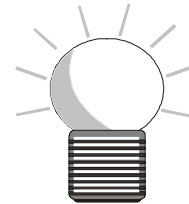
1. Introduction

2. Features

2. Features

2.1 Features Of The Motherboard

The QS754 motherboard integrates the AMD Athlon microprocessor, memory, I/O and AGP, and is designed to fit into a ATX form factor chassis. Page 14 illustrates the Layout for the QS754 motherboard. Below lists the key features provided by this motherboard:



Processor

- Single Slot-A for Intel AMD Athlon Processor.
- AMD Athlon CPU with built-in 128K L1 Cache & 512K L2 Cache.
- Support AMD Athlon processor speeds

Chipset

- AMD 751/756 AGP/PCI/ISA Chipset, supports 200MHz FSB
- Winbond 83977 ATF Super I/O Controller

System Memory

- Three 168-pin DIMM sockets
- Minimum 16MB up to maximum 768MB Memory Capacity
- Support 100MHz SDRAM DIMM module

PCI Bus Master IDE Controller

- Integrated PCI Bus Master IDE Controller Chip with Ultra-DMA66 capabilities. Up to four IDE devices can be supported using the two onboard IDE connectors. Also supported is PIO Modes 3&4, Bus Master IDE DMA Mode 2 and Enhanced IDE devices such as Tape Backup machines and CD-ROMs. Either the 5.25-inch or 3.5 inch (1.44MB or 2.88MB) floppy drives can be used without requiring an external card. Additionally, Floppy 3 mode (Japanese standard 3.5 inch disk drive, 1.2MB) and LS-120 floppy disk drives (3.5 inch disk drive: 120MB, 1.44MB, 720K) are also supported.

Integrated I/O

- 1 Floppy Port (up to 2.88 MB)
- 1 Parallel Port (ECP/EPP)

2. Features

- 2 Serial Ports (16C550 Fast UART Compatible)
- 1 PS/2 Mouse Connector, 1 PS/2 Keyboard connector
- 2 Standard USB Connector (48MHz)

System BIOS

- 2MB flash EPROM. Award PCI BIOS
- PC98 and PnP compatible. ACPI, APM, Y2K and DMI support
- Bootable from CD-ROM supported

Green Features

- Power Management: APM 2.1
- Additionally, with support for ACPI (Advanced Configuration and Power Interface) feature and On-Now, your system will become more wise in power management

Additional features

- Wake-On-LAN header

Expansion Slots

- 1 AGP, 3 ISA, 4 PCI expansion slots and one shared PCI slot

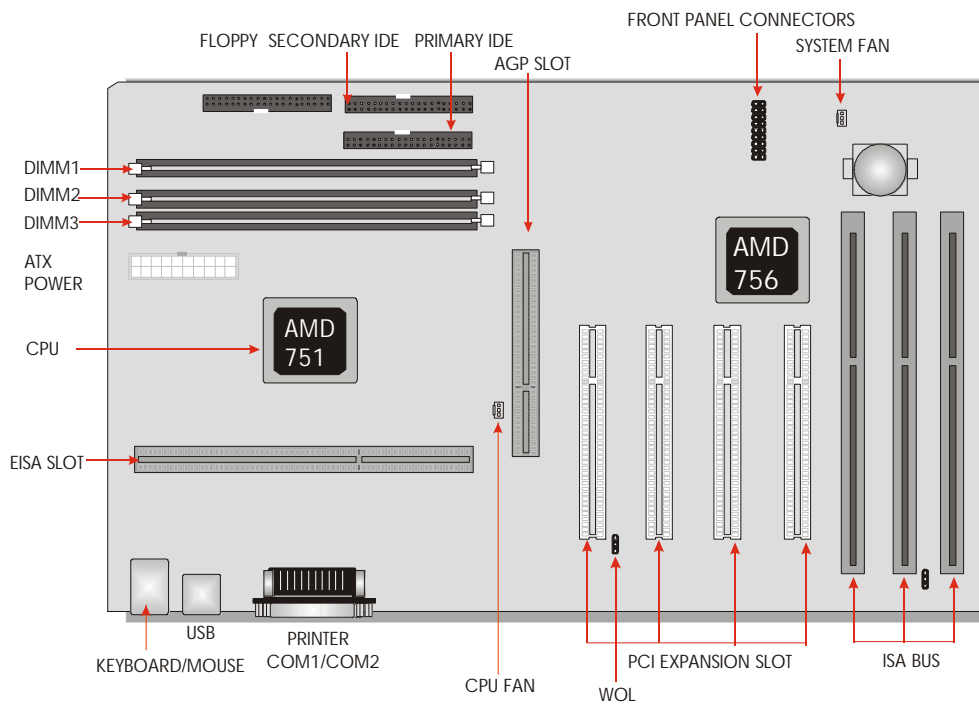
Mechanical

- This motherboard complies with the ATX Form Factor specifications and has six layers with dimensions of 8.2" x 12"

3. Installation

3. INSTALLATION

3.1 Motherboard Layout & Main Parts



3. Installation

Significant Parts List

Front Panel Connectors

Power Switch	Refer to Sec. 3.6.9
Power LED	Refer to Sec. 3.6.10
Speaker	Refer to Sec. 3.6.11
Reset	Refer to Sec. 3.6.6
Sleep	Refer to Sec. 3.6.8
HDD LED	Refer to Sec. 3.6.7

Back Panel Connectors

PS/2-style keyboard and mouse connectors	Refer to Sec. 3.5.13
USB connectors	Refer to Sec. 3.5.14
Two serials ports	Refer to Sec. 3.5.16
One parallel port	Refer to Sec. 3.5.15

Expansion Slots/sockets

SEC CPU Slot	Refer to Sec. 3.3
DIMM Sockets	Refer to Sec. 3.4.1
ISA/PCI Slots	Refer to Sec. 3.5

Power/IDE/FDD Connectors

IDE connectors	Refer to Sec. 3.6.1-3.6.2
Power connector	Refer to Sec. 3.6.4
FDD connector	Refer to Sec. 3.6.3

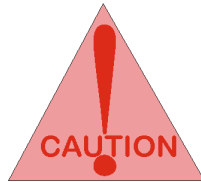
Additional Connectors

CPU Fan	Refer to Sec. 3.5.18
WOL Connector	Refer to Sec. 3.5.17

3. Installation

Precaution Before Start

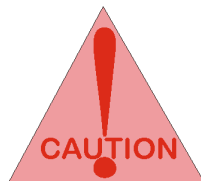
Static Electricity Damage:



Static electricity can easily damage your motherboard. Observing a few basic precautions can help safeguard against damage that could result in expensive repairs. Follow the simple measures below to protect your equipment from static electricity damage.

1. Keep the motherboard and other system components in their anti-static packaging until you are ready to install them.
2. Touch a grounded surface before you remove any system component from its protective anti-static packaging. Unpacking and installation should be done on a grounded, anti-static mat. The operator should be wearing an anti-static wristband, grounded at the same points as the anti-static mat.
3. After removing the motherboard from its original packaging, only place it on a grounded, anti-static surface component side up. Immediately inspect the board for damage. Due to shifting during shipping, it is suggested that the installer press down on the entire socket ICs to ensure they are properly seated. Do this only with the board placed on a firm flat surface.
4. During configuration and installation touch a grounded surface frequently to discharge any static electrical charge that may have built up in your body. The best precaution is to wear a grounded wrist strap. Avoid touching the components. When handling the motherboard or an adapter card. Handle the motherboard and adapter cards either by the edges or by the adapter card case-mounting bracket.

Misplaced Jumper Damage:



There are critical headers used for connectors or power sources. These are clearly marked separately from the jumpers listed in Motherboard Layout. Incorrect setting jumpers and connectors may lead to damage to your motherboard. Please pay special attention not to connect these headers in wrong directions

3. Installation

3.2 Slots And Connectors

This motherboard requires jumper setting for making some change.



Note: In the following pages, the triangle ▲ mark stands for pin 1 of connectors.

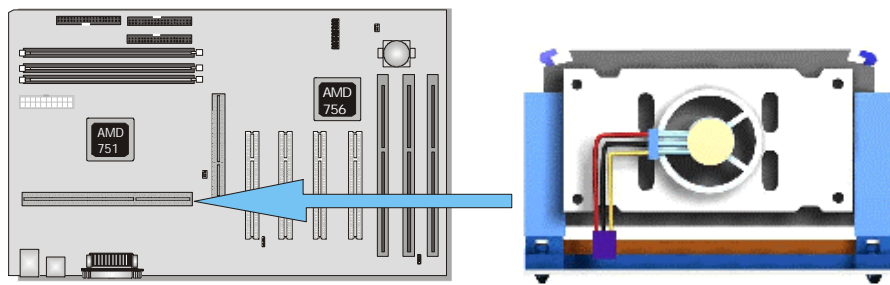
Slots/Connectors List

J11: PCI 1	J27: COM 1
J12: PCI 2	J27: COM2
J13: PCI 3	J27: Printer
J15: PCI 4	J25: USB1/USB2
J10: AGP Slot	J25: Keyboard/Mouse
J2: Secondary IDE (IDE 1)	J5: Front Panel Connectors
J7: Primary IDE (IDE 2)	J4: Front USB Header
J1: Floppy (FLP1)	J8: ATX Power
J6: Power Fan	J17: WOL(Wake On Lan)
J9: CPU Fan	

3. Installation

3.3 CPU (Central Processing Unit)

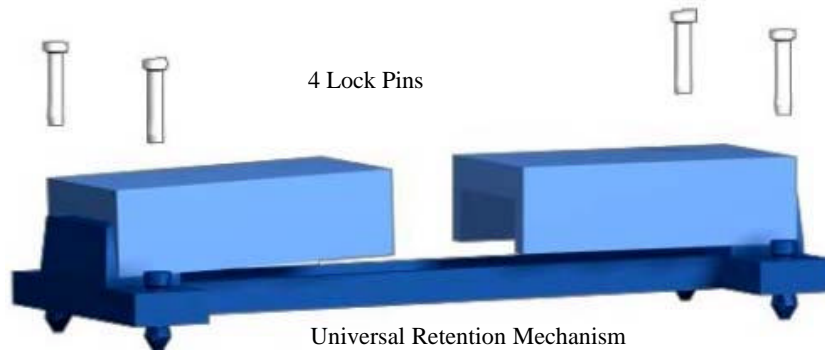
This motherboard provides a Single Edge Contact (SEC) slot and a Bridges on the board for the AMD Athlon processor packaged in a SEC cartridge. This cartridge includes the processor core, second-level cache, thermal plate and black cover. When mounted in Slot-A, the processor is secured by two retention mechanism attached to the motherboard.



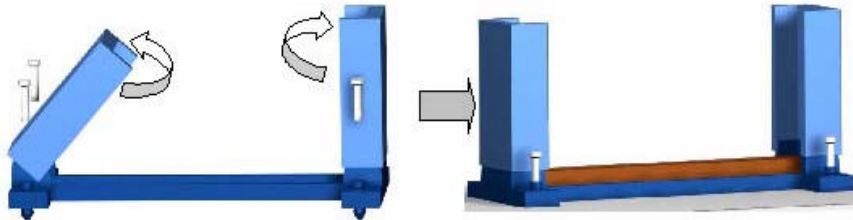
3.3.1 Install CPU

Please follow the below steps to install your CPU.

First please ensure the following parts you received with this motherboard. One AMD Athlon URM (Universal Retention Mechanism) and four Lock Pins. Usually, the URM was set on motherboard already.

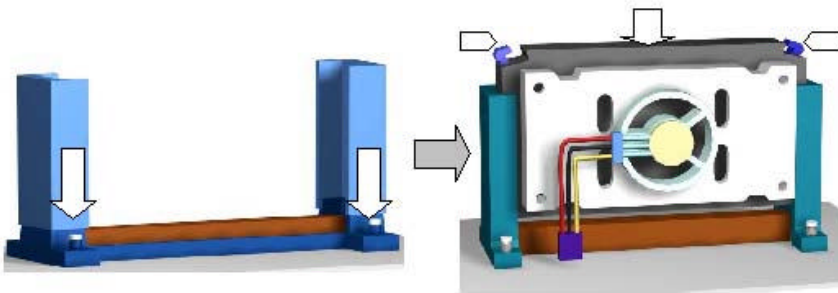


3. Installation



1. Unfold the Retention Mechanism.

2. Place the Retention Mechanism over CPU Slot



3. Push 4 lock pins into holes to fix Retention Mechanism on motherboard.

4. Insert CPU. Push two lock pins inward and press CPU down gently.

- Step 1: Place the Universal Retention Mechanisms over the CPU slot (SEC slot) on motherboard.
- Step 2: Fix the Retention Mechanism to the motherboard with four Lock Pins. To insert the Lock Pins into holes to lock them tight and firmly. And then unfold the URM.
- Step 3: Push the SEC Cartridge's two locks inward and insert the CPU into Retention Mechanism. Press the top of CPU gently but firmly until it is fully inserted.

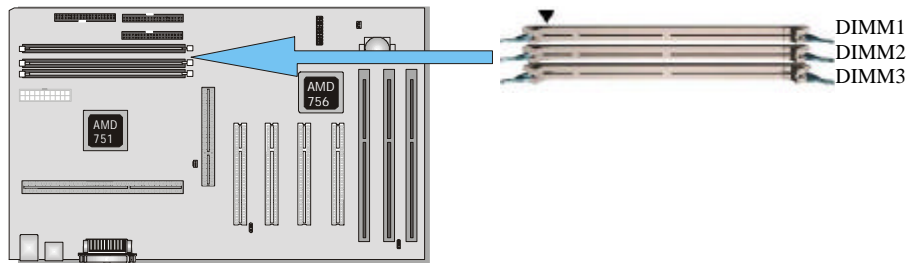
Warning : It is strongly recommended that a heatsink and CPU cooling fan be used to prevent the CPU from overheating. Applying a thermal of jelly between the CPU and the heatsink/fan will further cool the CPU.

3. Installation

3.4 System Memory (DRAM)

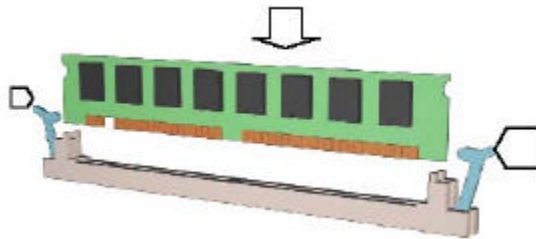
3.4.1 DIMM (Dual Inline Memory Module)

The QS750 features three 168-pin DIMM sockets. You can configure the system memory size from 16MB to 768MB in a variety of ways by using different combinations of the three 168-pin DIMM.



3.4.2 Installation Procedure

- Step1:** Make sure Pin 1 of the DIMM match with pin 1 of the DIMM socket.
- Step2:** Insert the DIMM module into the DIMM socket vertically. After inserting the DIMM module completely into the socket, push up on the socket latches securing the DIMM into place.
- If the pin 1 of the DIMM module does not line up with pin 1 of the socket, the DIMM module will not be inserted correctly into the socket.

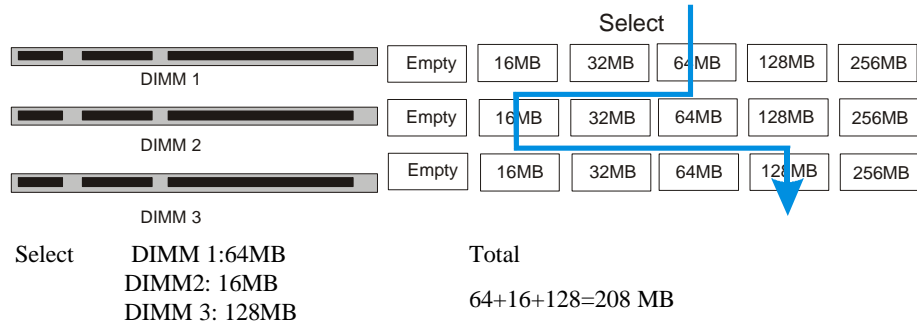


Be careful not to misfit the DIMM Module into DIMM sockets in wrong direction. This module can be inserted into the socket only one way. To release the memory module, push both latches down and carefully rock the module forward and backward while slowly lifting it upward.

3. Installation

3.4.3 DIMM Module Combinations

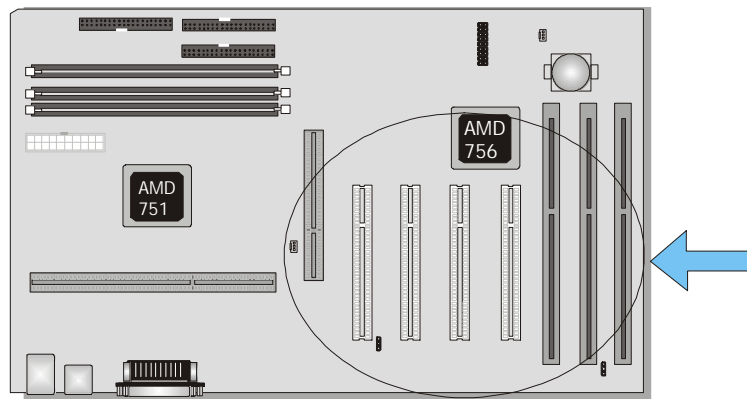
Each DIMM socket can be inserted with 8MB, 16MB, 32MB, 64MB, 128MB, 256MB, 512MB DIMM. For example, the following figure shows you one way to insert your DIMM.



Select one of the six choices (Empty, 16MB, 32MB, 64MB, 128MB, 256MB) in DIMM1.

Then, repeat in DIMM2 (Empty, 16MB, 32MB, 64MB, 128MB, 256MB) to go through your own path.

3.5 Expansion Slots



This motherboard contains 8 expansion slots (including one shared PCI/ISA) onboard. Three 16-bit ISA Bus, four 32-bit PCI expansion slots and one 32-bit AGP slot are shown as above.

All PCI expansion slots accept PCI bus master cards and are fully supported by the PCI 2.1 specification.

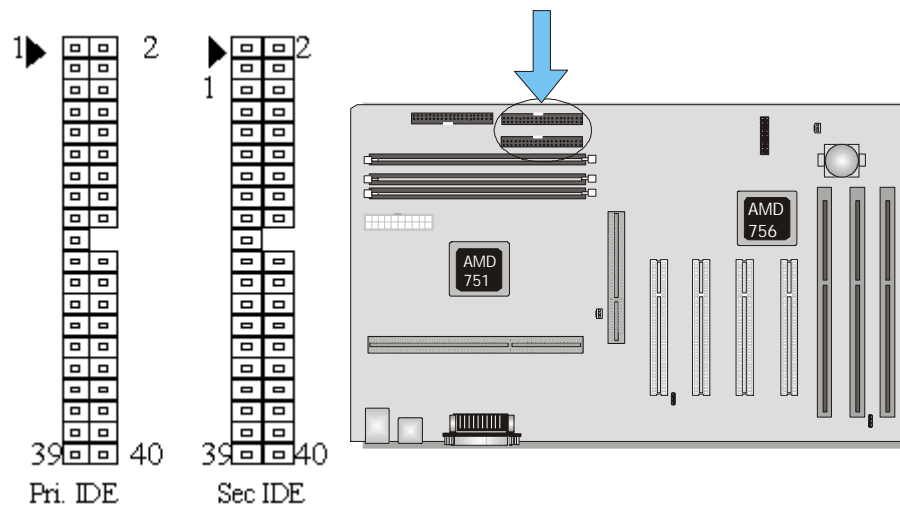
3. Installation

The Accelerated Graphics Port (AGP or A.G.P.) is a high performance interconnect targeted at 3D graphical display applications and is based on a set of performance extensions or enhancements to the PCI bus. (AGP interface specification Rev. 1.0 compliant)

To install expansion cards, please read the expansion card's documentation for instructions and cautions.

3.6 Connectors

This motherboard contains IDE, floppy, power input, front panel, back panel and additional connectors.



3.6.1 Primary IDE Connector (39-pin block, Black)

This connector supports two primary channel IDE devices via a ribbon cable. When two IDE devices are installed using the primary IDE connector, make sure that the second IDE device is set to slave mode as indicated in the device's manual.

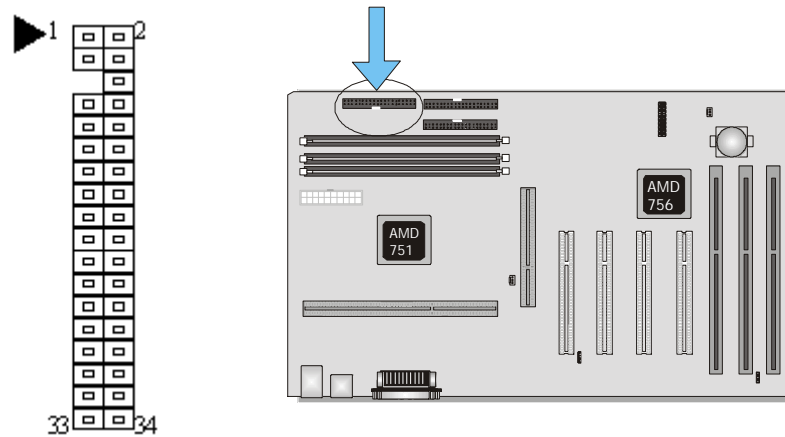
3.6.2 Secondary IDE Connector (39-pin block, White)

This connector supports two secondary channel IDE devices as well as the 120MB Floppy drives via a ribbon cable. When two IDE devices are installed using the secondary IDE connector, make sure that the second IDE device is adjusted to slave mode as indicated in the device's manual.

3. Installation

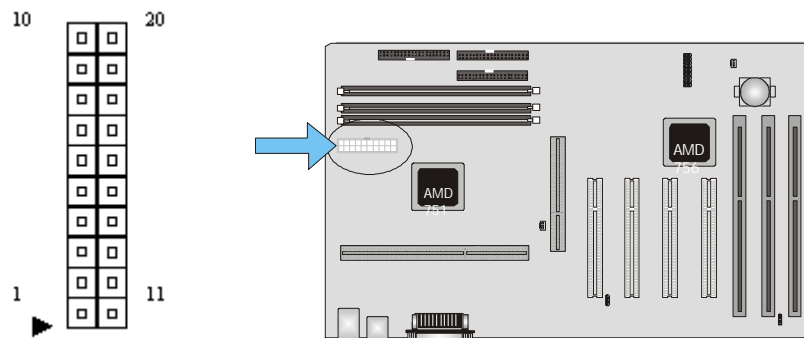
Warning: When you connect a ribbon cable to these ports, you must orient the cable connector so that the PIN 1 edge of the cable is at the PIN 1 edge of the onboard connector.

3.6.3 Floppy Drive Connector (33-pin block)



The FDC sub-system can control three types of floppy drives (1.2, 1.44 and 2.88MB) or compatible tape drives. The connection to the floppy drive is via a header. The floppy disk interface includes 48mA drivers and inputs on the drive interface.

3.6.4 Power Input Connector (20-pin block)



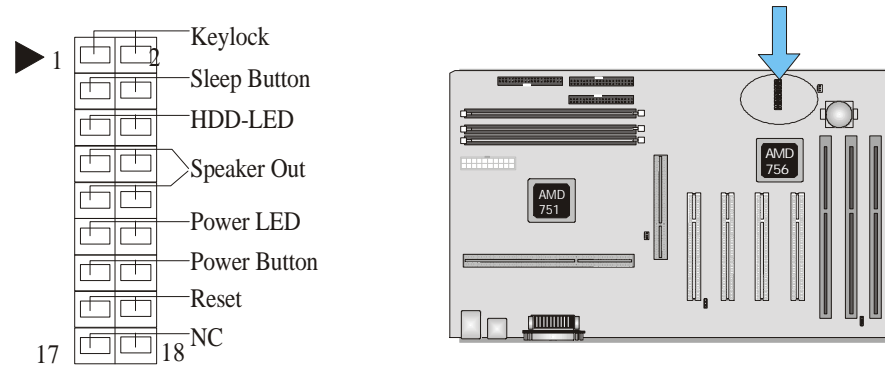
This connector supports a standard ATX power supply. When connecting, make sure the lock key matches the hook attached on a power supply cable. The power cord should be unplugged when you connect it.

3. Installation

3.6.5 Front Panel connectors (J20, 15-pin)

Front Panel includes headers for the following six I/O connectors:

Power Switch, Power LED, Speaker, Reset, Sleep and HDD LED.



3.6.6 Keylock Switch (2-pin)

This header allows you to lock the keyboard with a button or a key manually.

3.6.7 Reset Switch Connector (2-pin)

This connector supports the front panel case-mounted reset button. It is advised that the reset switch be used for rebooting the system in order to extend the life of the system's power supply.

3.6.8 HDD (IDE) LED Connector (2-pin)

The mainboard supports one straight 4-pin header for connecting to front Panel Hard Disk activity LED indicator.

3.6.9 Sleep Switch (2-pin)

When the APM (Advanced Power Management) feature is enabled in the system BIOS and the operating system's APM driver is loaded, the system can enter the sleep (standby) mode in one of the following ways:

- Optional front panel sleep/resume button
- Prolonged system inactivity using the BIOS inactivity timer feature.

The 2-pin header supports a front panel sleep/resume switch, which must be a momentary SPST type that is normally open

3. Installation

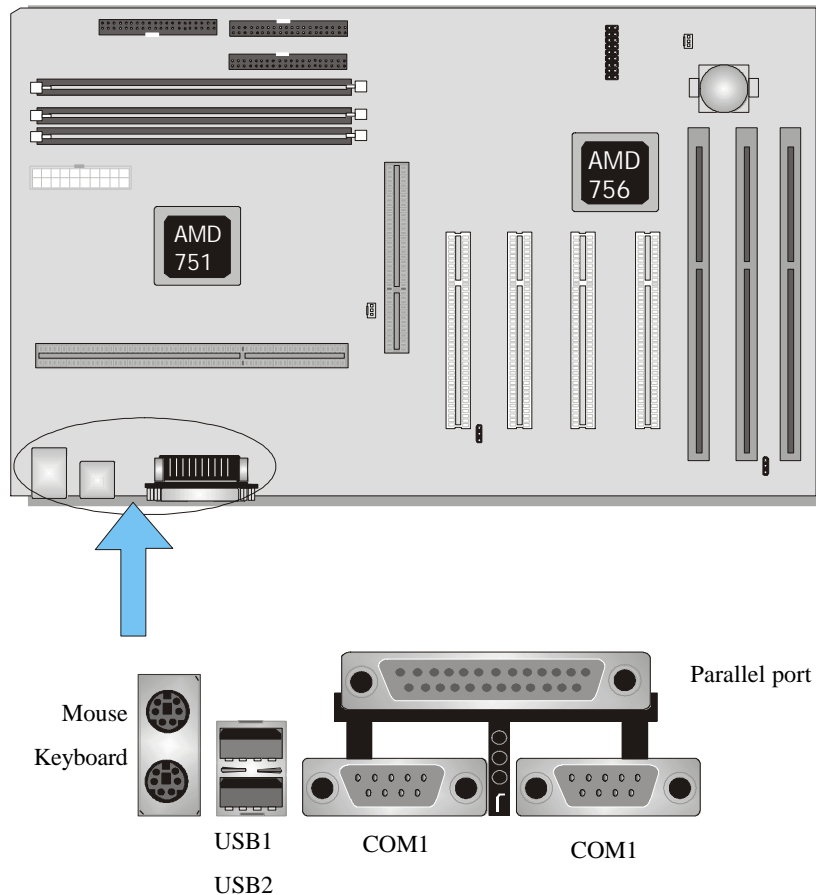
3.6.10 Power Switch (2-pin)

This connector supports the ATX case-mounted Power Switch, which in turn supports System Suspend function. When the BIOS sets the Power Button function to “Delay 4 sec.”, the system can be set to the suspended mode once you push the power switch for no longer than 4 seconds. If the power switch is pushed down for over 4 seconds the system will be totally Power Off. When the BIOS setting sets the Delay 4 second to “Instant-off”, then Power Switch function work as regular power switch.

3.6.11 Power LED (2-pin)

This header can be connected to a LED that will light when the computer is powered on.

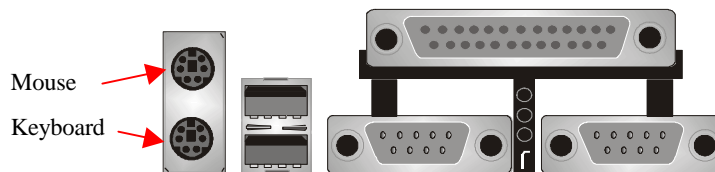
3.6.12 Back Panel Connectors



3. Installation

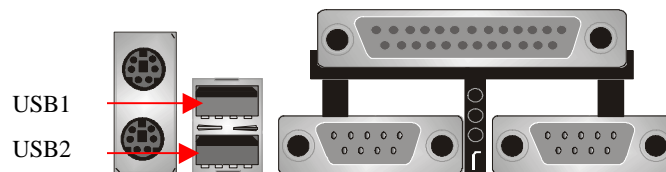
3.6.13 PS/2 Keyboard and Mouse Ports (J25)

The motherboard offers 1 PS/2 Keyboard and 1 PS/2 Mouse port.



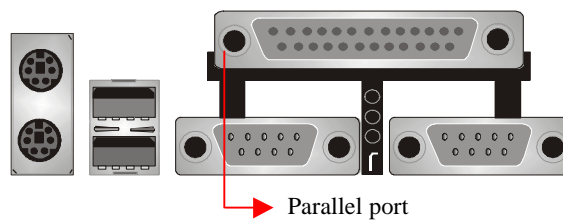
3.6.14 Universal Serial Bus (USB) Ports (J26)

The motherboard has two USB connectors. USB devices provide a more convenient operating environment and improve data transferring capacity. True Plug & Play. This new bus technology will support over 127 different peripherals through a Hub.



3.6.15 Parallel Port (Printer, J27)

The motherboard includes a parallel port (EPP/ECP compatible). The parallel port is capable of being disabled or remapped to either the secondary LPT address or the primary LPT address through BIOS if another parallel port is installed.

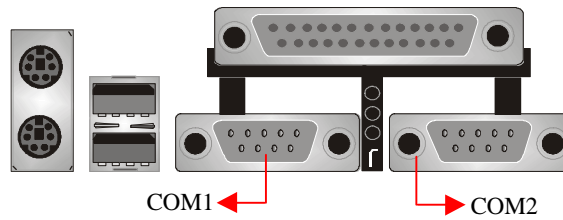


3.6.16 Serial Port (COM1/COM2, J27)

The motherboard has two serial ports (one on rare panel, one on board). The electrical

3. Installation

characteristics are compliant with the EIA-232-D Serial Communications Specifications. The serial ports may be remapped over other installable serial ports or disabled through the BIOS.



This product integrate the AGP function via a VGA port beside the COM1. The Accelerated Graphics Port (AGP or A.G.P.) is a high performance interconnect targeted at 3D graphical display applications.

3.6.17 WOL (Wake On LAN, J16/J17)

This header is used for remote wakeup of the computer through a network. WOL requires a PCI add-in network interface card (NIC) with remote wakeup capabilities. The remote wakeup header on the NIC must be connected to the onboard Wake on LAN header. For Wake on LAN, the 5-V standby line for the power supply must be capable of delivering $5V \pm 5\%$ at 720mA.

3.6.18 CPU Fan (J9, 3-pin)

Your CPU may have an attached heatsink and Fan; this connector is the power source for the CPU Fan.

3. Installation

Ready To Turn On Power

Check Again



1. Is the CPU installed exactly and firmly into the socket (Sec. 3.3)?
2. Are all the DRAM modules installed properly (Sec. 3.4)?
3. Did you insert the expansion card (VGA, Sound..etc.) already (Sec. 3.5)?

Are you sure that all the connectors (described in Sec 3.6) have been connected to their variable devices (Sec. 3.6)?

Yes, I have checked and assured the above steps!



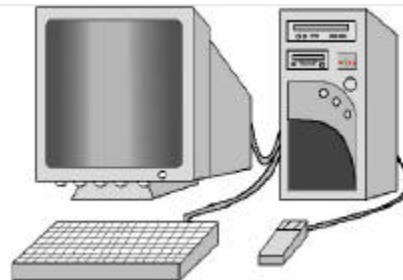
Now get ready to turn on your device by following the steps below.

1. Mount your motherboard to the chassis frame and close the case cover.
2. Switch off all power.
3. Connect the power supply cord into inlet of the system case.
4. Connect the power supply cord into an outlet of power supply.
5. Connect Monitor signal cable to the system VGA port and the monitor power cord to power outlet.
6. Now turn on the monitor and system power.

After Power on, The power LED on the front panel of the system case will light. For ATX power supplies, the system LED will light when the ATX power switch is pressed.

The system will then do a power-on tests item by item, and additional messages will appear on screen. If the screen blinks or the tests stops more than 30 seconds, the system may have failed the power-on test. If so, please recheck the above steps or call your retailer for assistance.

If the power-on test goes well, hold down <F2> button on the keyboard to enter BIOS Setup. Next, follow the instructions in the next chapter, **BIOS SETUP**.



3. Installation

4. BIOS Setup

4. BIOS Setup



The QS754 motherboard uses AWARD BIOS, which is stored in a Flash EEPROM and can be upgraded by a floppy disk-based program. The BIOS has a built-in Setup Program that allows users to modify the basic system configuration settings. The settings are then stored in a dedicated battery-backed memory, called CMMOS RAM that retains the information when the power is turned off.

The BIOS provides critical low-level support for the system's central processing, memory and I/O subsystems. The AWARD BIOS has been customized by adding important, nonstandard, features such as virus and password protection, power management, and detailed fine-tuning of the chipset which controls the system. The remainder of this manual is intended to guide you through the process of configuring your system using the BIOS Setup.

4.1 BIOS Setup

The AWARD BIOS is immediately activated when you first turn on the computer. The BIOS reads system configuration information in CMOS RAM and begins the process of checking the system and configuring it through the power-on self test (POST). When these preliminaries are finished, the BIOS seek an operation system on the data storage devices (hard drive, floppy drive, etc.). The BIOS launches the operating system and hands over control of system operation to it.

To start Setup, press the key during boot-up before or while a message similar to this appears briefly at the bottom of the screen during POST (Power On Self Test):

Press DEL if you want to enter SETUP

If the above message disappears before you have responded and you still wish to enter Setup, reboot the system to try again by pressing the "RESET" button on the system case. You may also restart by simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys.

Press **F1** to continue, **DEL** to enter SETUP

4.1.1 Setup Keys

The keys below help you navigate in Setup.

4. BIOS Setup

<↑> , <↓>	Move to previous or next item
<←> , <→>	Move to the item in the left or right hand
<Esc>	Main Menu – Quit and not save changes into CMOS Other Pages -- Exit current page and return to Main Menu
<PgUp> / <+>	Increase the numeric value or make changes
<PgDn> / <->	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Change color from total 16 colors. F2 to select Shift-F2 color forward, Shift-F2 to select color backward
<F3>	Calendar, only for Status Page Setup Menu
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F7>	Load the Setup default
<F10>	Save all the CMOS changes, only for Main Menu

4.1.2 Getting Help

Press F1 to pop up 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.

4.1.3 In Case of Problems

If after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the Award BIOS supports an override to the CMOS settings that resets your system to its default configuration.

The best advice is to alter only settings that you thoroughly understand. In particular, do not change settings in the Chipset screen without a good reason. BCM Advanced Research Inc. or your system manufacturer for the best performance and reliability has carefully chosen the Chipset defaults. Even a seemingly small change to the Chipset setup may cause the system to become unstable.

4.2 Main Setup Menu

When you enter the Award BIOS CMOS Setup Utility, a Main Menu (Figure 1) appears on the screen. The Main Menu allows you to select from several Setup functions and two exit choices. Use the arrow keys to select among the items and press Enter to accept and enter the sub-menu.

4. BIOS Setup

A brief description of each highlighted selection appears at the bottom of the screen.



Figure 1: Main Menu

Following is a brief summary of each Setup category.

Standard CMOS	Options in the original PC AT-compatible BIOS.
BIOS Features	Award enhanced BIOS options.
Chipset Features	Options specific to your system chipset.
Power Management	Advanced Power Management (APM) options.
PnP/PCI Configuration	Plug and Play standard and PCI Local Bus configuration options.
Integrated Peripherals	I/O subsystems that depend on the integrated peripherals controller in your system.
Supervisor/User Password Setting	Change, set, or disable a password. In BIOS versions that allow separate user and supervisor passwords, only the supervisor password permits access to Setup. The user password generally allows only power-on access.
IDE HDD Auto Detection	Automatically detect and configure IDE hard disk parameters.

4. BIOS Setup

Load Setup Defaults	Setup defaults are factory settings for optimal-performance system operations.
Save & Exit Setup	Save settings in nonvolatile CMOS RAM and exit Setup.
Exit Without Save	Abandon all changes and exit Setup.

4.3 Standard CMOS Setup Menu

In the Standard CMOS Menu (Figure 2) you can set the system clock and calendar, record disk drive parameters and the video subsystem type, and select the type of errors that stop the BIOS POST.

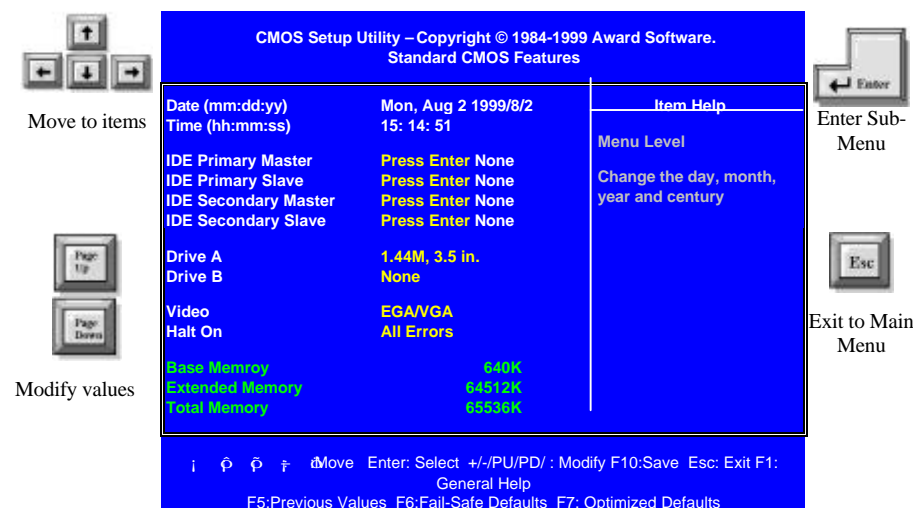


Figure 2: Standard CMOS Setup

4.3.1 Date

The BIOS determines the day of the week from the other date information. This field is for information only. Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

4.3.2 Time

The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the left or right arrow key to move to the desired field. Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

4. BIOS Setup

4.3.3 Hard Disks

The BIOS supports up to four IDE drives. This section does not show information about other IDE devices, such as a CD-ROM drive, or about other hard drive types, such as SCSI drives.

NOTE: We recommend that you select type AUTO for all drives.

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detects its specifications during POST, every time the system boots.

If you do not want to select drive type AUTO, other methods of selecting the drive type are available:

1. Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

- **Type:** The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any pre-defined type are classified as type USER.
- **Size:** Disk drive capacity (approximate). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.
- **Cyls:** Number of cylinders
- **Head:** Number of heads
- **Precomp:** Write precompensation cylinder
- **Landz:** Landing zone
- **Sector:** Number of sectors
- **Mode:** Auto, Normal, large, or LBA
- **Auto:** The BIOS automatically determines the optimal mode.
- **Normal:** Maximum number of cylinders, heads, and sectors supported are 1024, 16 and 63.
- **Large:** For drives that do not support LBA and have more than 1024 cylinders.

4. BIOS Setup

- LBA (Logical Block Addressing): During drive accesses, the IDE controller
- Transforms the data address described by sector, head, and cylinder number
- into a physical block address, significantly improving data transfer rates. For drives with greater than 1024 cylinders.

4.3.4 Drive A/B type

Select the correct specifications for the diskette drive(s) installed in the computer.

None	No diskette drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

4.3.5 Video

Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in Setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode.
CGA 80	Color Graphics Adapter, power up in 80 column mode.
MONO	Monochrome adapter, includes high resolution monochrome adapters.

4.3.6 Halt on

During the power-on self-test (POST), the computer stops if the BIOS detect a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process. Below are the selections:

4. BIOS Setup

No errors	POST does not stop for any errors.
All errors	If the BIOS detect any non-fatal error, POST stops and prompts you to take corrective action.
All, But Keyboard	POST does not stop for a keyboard error, but stops for all other errors.
All, But Diskette	POST does not stop for diskette drive errors, but stops for all other errors.
All, But Disk/Key	POST does not stop for a keyboard or disk error, but stops for all other errors.

4.3.7 Memory

You cannot change any values in the Memory fields; they are only for your information. The fields show the total installed random access memory (RAM) and amounts allocated to base memory, extended memory, and other (high) memory. RAM is counted in kilobytes (KB: approximately one thousand bytes) and megabytes (MB: approximately one million bytes).

RAM is the computer's working memory, where the computer stores programs and data currently being used, so they are accessible to the CPU. Modern personal computers may contain up to 64 MB, 128 MB, or more.

Base Memory

Typically 640 KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

Extended Memory

Above the 1-MB boundary. Early IBM personal computers could not use memory above 1 MB, but current PCs and their software can use extended memory.

Total Memory

System total memory is the sum of base memory, extended memory, and other memory.

4. BIOS Setup

4.4 Advanced BIOS Features Setup Menu

This screen (Figure 3) contains industry-standard options additional to the core PC AT BIOS. This section describes all fields offered by Award Software in this screen. Some fields may vary from those in your Setup program. Your system board designer may omit or modify some fields.

CMOS Setup Utility - Copyright © 1984-1999 Award Software. Advanced BIOS Features		Item Help
Virus Warning	Disabled	Menu Level
CPU Internal Cache	Enabled	Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and alarm beep.
External Cache	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS/ZIP	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Enabled	
Typematic Rate (Chars/Sec)	30	
Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM>64MB	Non-OS2	
Video Bios Shadow	Enabled	
C8000-CBFFF Shadow	Disabled	

Legend:
 i: Move Enter: Select +/-PU/PD/ ; Modify F10: Save Esc: Exit F1: General Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3: Advanced BIOS Features Setup Menu

4.4.1 Virus Warning

When enabled, you receive a warning message if a program (specifically a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

NOTE: Many disk diagnostic programs that access the boot sector table can trigger the virus-warning message. If you plan to run such a program, we recommend that you first disable the virus warning.

4.4.2 CPU Internal Cache

Cache memory is an additional memory that is much faster than conventional DRAM (system memory). Some CPU integrates a build-in Cache memory to speed up the data transferring. This item allows you to enable or disable the inter Cache.

4. BIOS Setup

4.4.3 External Cache

Cache memory is an additional memory that is much faster than conventional DRAM(system memory). When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. The External Cache field may not appear if your system does not have external cache memory.

4.4.4 Quick Power On Self Test

This allows you to enable or disable system self test when power on.

4.4.5 First Boot Device

This option sets the type of device for the first boot drives that the AMIBIOS sttempts to boot from after AMIBIOS Post completes.

4.4.6 Second Boot Device

This option sets the type of device for the second boot drives that the AMIBIOS sttempts to boot from after AMIBIOS Post completes.

4.4.7 Third Boot Device

This option sets the type of device for the third boot drives that the AMIBIOS sttempts to boot from after AMIBIOS Post completes.

4.4.8 Boot Other Device

The original IBM PCs loaded the DOS operating system from drive A (floppy disk), so IBM PC-compatible systems are designed to search for an operating system first on drive A, and then on drive C (hard disk). However, the BIOS now offers 10 different boot sequence options of three drive each. In addition to the traditional drives A and C, options include IDE hard drives D, E, and F; plus a SCSI hard drive and a CD-ROM drive.

4.4.9 Swap Floppy Drive

This field is effective only in systems with two floppy drives. Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

4.4.10 Boot Up Floppy Seek

When *Enabled*, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 720 KB, 1.2 MB, and 1.44 MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to *Disabled* to save time.

4. BIOS Setup

4.4.11 Boot Up NumLock Status

Toggle between *On* or *off* to control the state of the NumLock key when the system boots. When toggled *on*, the numeric keypad generates numbers instead of controlling cursor operations.

4.4.12 Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1 Megabytes. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still support this function, it is more common and much faster than the system chipset supports.

4.4.13 Typematic Rate Setting

When *Disabled*, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystrokes repeat at a rate determined by the keyboard controller in your system. When *Enabled*, you can select a typematic rate and typematic delay.

4.4.14 Typematic Rate (Chars/Sec)

When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6,8,10,12,15,20,24, or 30 characters per second.

4.4.15 Typematic Delay (Msec)

When the typematic rate setting is enabled, you can select a typematic delay (the delay before keystrokes begin to repeat) of 250, 500, 750 or 1000 milliseconds.

4.4.16 Security Option

If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup.

4.4.17 OS Select for DRAM>64MB

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

4.4.18 Shadow

Software that resides in a read-only memory (ROM) chip on a device is called *firmware*. The Award BIOS permits *shadowing* of firmware such as the system BIOS, video BIOS, and similar operating instructions that come with some expansion peripherals, such as, for example, a SCSI adaptor.

4. BIOS Setup

Shadowing copies firmware from ROM into system RAM, where the CPU can read it through the 16-bit or 32-bit DRAM bus. Firmware not shadowed must be read by the system through the 8-bit X-bus. Shadowing improves the performance of the system BIOS and similar ROM firmware for expansion peripherals, but it also reduces the amount of high memory (640 KB to 1 MB) available for loading device drivers, etc.

Enable shadowing into each section of memory separately. Many system designers hardwire shadowing of the system BIOS and eliminate a System BIOS Shadow option.

Video BIOS shadows into memory area C0000-C7FFF. The remaining areas shown on the BIOS Features Setup screen may be occupied by other expansion card firmware. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.

4. BIOS Setup

4.5 Advanced Chipset Features Setup Menu

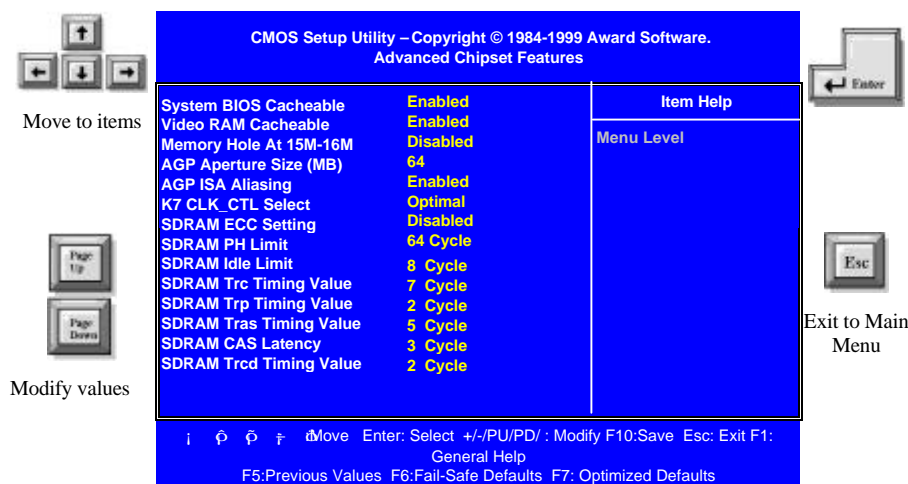


Figure 4: Advanced Chipset Features Setup Menu

4.5.1 System BIOS Cacheable

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

4.5.2 Video RAM Cacheable

Select 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.

4.5.3 Memory Hole At 15M – 16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

4.5.4 AGP Aperture Size (MB)

Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Those cycles that hit the aperture range are forwarded to the AGP without any transaction. See www.agpforum.org for AGP information.

4. BIOS Setup

4.5.5 SDRAM ECC Setting

This item allows you to select among three methods of memory error checking: Auto, Enabled and Disabled.

4.5.6 SDRAM CAS Latency

The choices are 2 and 3 (default). This feature appears only when SDRAM DIMMs are installed (BIOS auto detection). If the CAS latency of your SDRAM DIMM is 2, choose 2 to enhance the system performance. If the CAS latency of your SDRAM DIMM is 3, stay with the default setting.

4.6 Integrated Peripherals

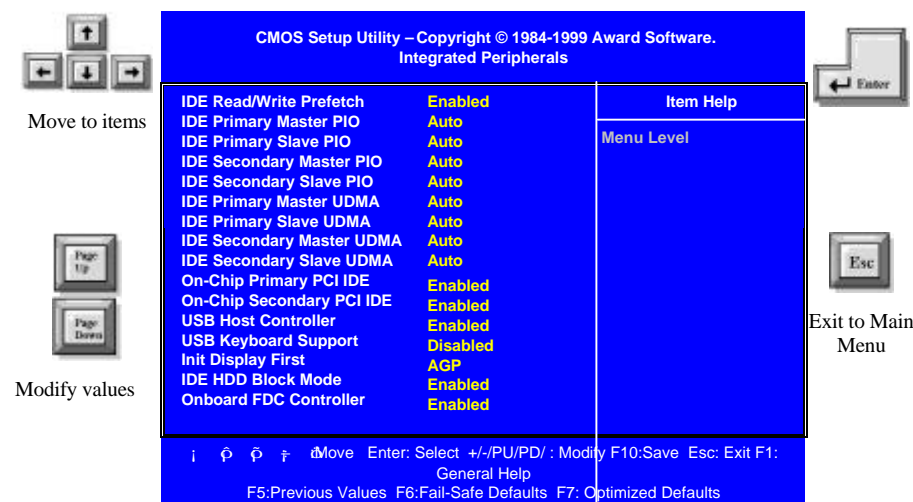


Figure 5: Integrated Peripherals Setup Menu

4.6.1 IDE Read/Write Prefetch

The onboard IDE drive interface supports IDE prefetching for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to Disabled if the interface does not support prefetching. The choices are: Enabled and Disabled.

4.6.2 IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports.

4. BIOS Setup

4.6.3 IDE Primary/Secondary Master/Slave UDMA

Ultra DMA 33/66 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 33/66, select Auto to enable BIOS support. The Choice: Auto, Disabled.

4.6.4 On-chip Primary PCI IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface. The choice: Enabled, Disabled.

4.6.5 On-Chip Secondary PCI IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface. The choice: Enabled, Disabled.

4.6.6 USB Host Cobtroller

4.6.6 USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) Keyboard. The choice: Enabled, Disabled.

4.6.7 Init Display First

This item allows you to decide to active whether PCI Slot or AGP first. The choices: PCI Slot, AGP.

4.6.8 IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The Choice: Enabled, Disable.

4.6.9 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 this field. The choice: Enabled, Disabled.

4.6.10 Onboard Serial Port 1/Port 2

This item allows you to determine access onboard serial port 1/port 2 controller with which

4. BIOS Setup

I/O address. The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

4.6.11 Onboard Parallel Port

This item allows you to determine access onboard parallel port controller with which I/O address. The choice: 378H/IRQ7, 278H/IRQ5, 3BC/IRQ7, Disabled.

4.6.12 Parallel Port Mode (Activated by Onboard Parallel Port)

Select an operating mode for the onboard parallel (printer) port. Select Normal unless your hardware and software require one of the other modes offered in this field.

The choices are: PS/2, EPP1.9, ECP, ECPEPP1.9, SPP, EPP1.7.

4.6.13 ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode. The choices are: 3 and 1.

4.6.14 EPP Mode Select

Select EPP port type. The choices are: EPP 1.7 and 1.9.

4. BIOS Setup

4.7 Power Management Setup Menu

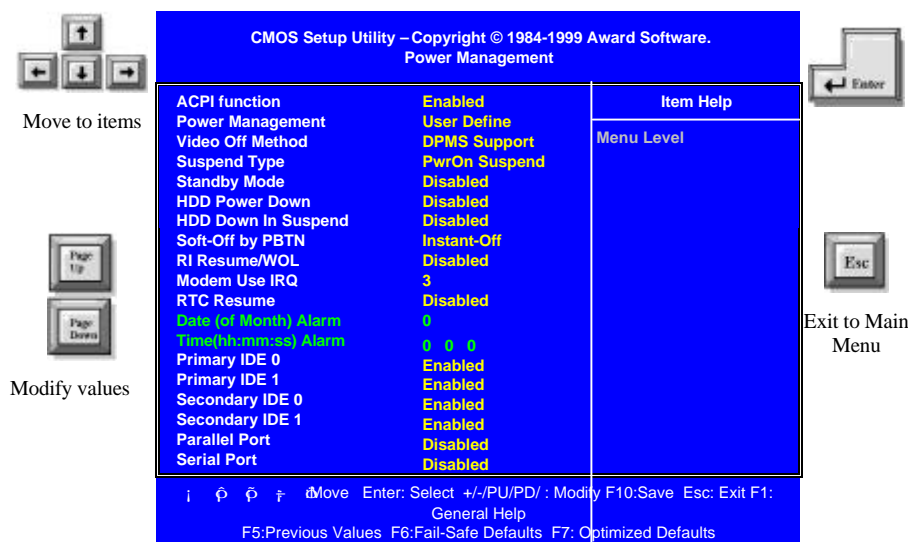


Figure 6: Power Management Setup Menu

4.7.1 ACPI function

ACPI (Advanced Configuration and Power Interface) evolves the existing motherboard configuration interfaces to support these advanced architectures in a more robust, and potentially more efficient manner.

4.7.2 Power Management

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. See the section *PM Timers* for a brief description of each mode. This table describes each power management mode:

Disable	Global Power Management will be disabled
Max Saving	Maximum power savings. Only Available for SL CPUs. Inactivity period is 1 minute in each mode.
User Define	Set each mode individually. Select time-out periods in the <i>PM Timers</i> section, following.

4. BIOS Setup

Min Saving	Minimum power savings. Inactivity period is 1 hour in each mode (except the hard drive).
------------	--

4.7.3 Video Off Method

Determines the manner in which the monitor is blanked.

V/H SYNC+Blank	System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer.
DPMS Support	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values.
Blank Screen	System only writes blanks to the video buffer.

4.7.4 Suspend Type

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

4.7.5 Standby Mode

When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

4.7.6 HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

4.7.7 HDD Down In Suspend

When enabled and after the set time of system inactivity, the hard disk drive will be in suspend mode.

4.7.8 Soft-Off by PWR-BTTN

This item allows you to select the function of power button.
The choices: Instant-Off, Delay 4 Sec.

4.7.9 RI Resume/WOL

An input signal on the serial Ring Indicator (RI) line (an incoming call on the modem) awakens the system from a soft off state. WOL specifies whether the computer responds to

4. BIOS Setup

an incoming call or not. It requires a PCI add-in network interface card with remote wakeup capabilities. Please set this option to enable RI resume and WOL.

4.7.10 Modem Use IRQ

This determines the IRQ in which the MODEM can use.
The choices are: 3, 4, 5, 7, 9, 10, 11, NA.

4.7.11 RTC Resume

This allows you to have an unattended or automatic power up of your system. You may configure your system to power up at a certain time in a day by selecting or on the first through the end of one month by selecting the RTC Alarm Date.

4.7.12 IRQ[3-15]/Primary IDE0/Primary IDE1/Floppy Disk/Serial Port/Parallel Port

When these setting are enabled, an event occurring on each device listed above restarts the global time for Standby mode.

4. BIOS Setup

4.9 PC Health Status Menu

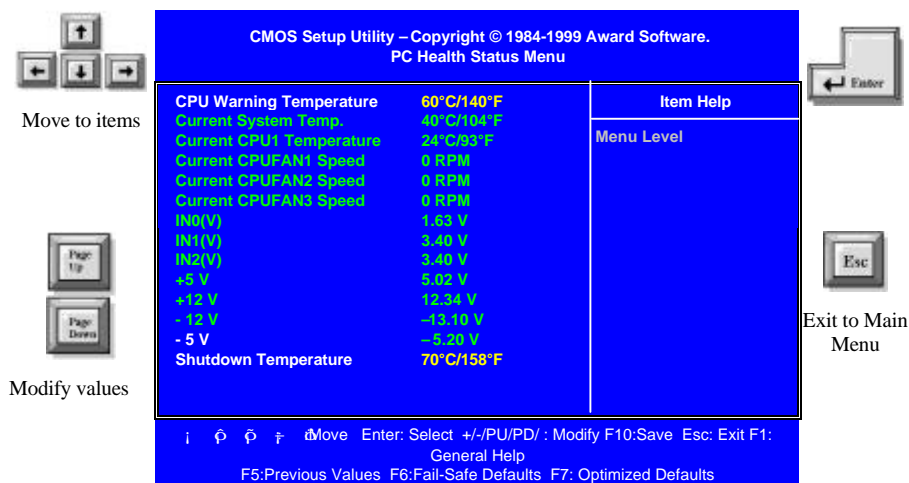


Figure 8: PC Health Menu

4.9.1 Hardware Monitoring Function

It shows all power voltage, CPU temperature and system temperature for the system.

4.9.1 CPU Warning Temperature

It allows you to set the CPU temperature. While the computer is working, the system will give you a warning message once the temperature of the CPU is higher than the setting.

4.9.2 Shutdown Temperature

This allows you to set the maximum temperature of the CPU. Once the CPU temperature arrives such value, the system will shutdown automatically.

4. BIOS Setup

4.10 Frequency/Voltage Control Setup Menu

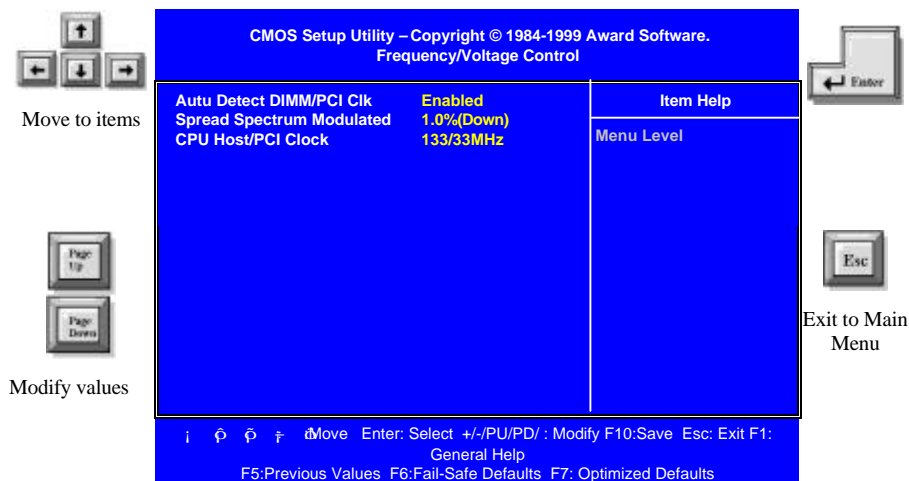


Figure 9: Frequency/Voltage Control Setup Menu

4.10.1 Auto Detect DIMM/PCI Clk

Keeping this feature at Enabled allows the system to detect the DIMM clock automatically. The choices are: Enabled (Default) and Disabled.

4.10.2 Spread Spectrum Modulated

This feature is used to set the spread spectrum to be spread type or down spread type. The choices are: Enabled and Disabled (Default).

4.10.3 CPU Host/PCI Clock

If each bus master cycle does not take the same path, it allows the multiple bus master cycles to be acted at the same time.

4.11 Load Optimized Defaults

The chipset defaults are settings which provide for maximum system performance. While Award has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet their needs.

4. BIOS Setup

4.12 Set Supervisor Password

The BIOS Setup will not be accessible unless you enter the correct password. Select this function and press “Enter”, the screen will display a start symbol instead of the characters entered. After the new password is entered, type the new password as prompted and press “Enter” again.

If the password confirmation is incorrect, an error message appears. If the new password is typed correctly, press “ESC”. The password is stored in NVRAM after AMIBIOS completes its cycle. Next time, when you boot the system, a password prompt will appear if this function is enabled.

4.13 Set User Password

When you select this function, a message appears at the center of the screen:

ENTER PASSWORD:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory. Now the message changes:

CONFIRM PASSWORD:

Again, type the password and press Enter. To abort the process at any time, press Esc.

In the *Security Option* item in the **BIOS Features Setup** screen select *System or Setup*:

- System: Enter a password each time the system boots and whenever you enter Setup.
- Setup: Enter a password whenever you enter Setup.

NOTE: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.

4.14 Save & Exit Setup

This feature allows the changes to be made to the CMOS setup to be saved. The system will resume booting after a successful save.

4.15 Exit Without Saving

Abandon all CMOS value change without saving.