# Advanced Pentium II Motherboard

**User's Manual**

# QS440VA

## USER'S MANUAL

# 1. INTRODUCTION

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## 1  Introduction

### 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 Pentium II AGP/PCI motherboard. Just 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.
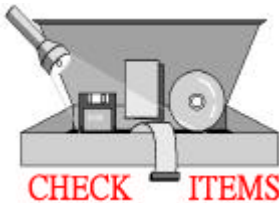
### Check Your Device Items

The standard package should contain following items marked with a "✓", If you find any these items missing or damaged. Please contact your retailer.

- ☑ The QS440VA motherboard
- ☑ Retention Mechanism
- ☑ 1 IDE ribbon cable
- ☑ 1 floppy ribbon cable
- ☑ 2 Floppy Diskette with VIA bus Master IDE Driver and AGP Driver.
- ☐ Infrared (IrDA) module with ribbon cable (optional)
- ☐ Pentium II Retention Mechanism (optional)

# 2. FEATURES

## 2   Features

**Photo Of The Motherboard**

# 2. FEATURES

## Features Of The Motherboard

The QS440VA motherboard integrates the Pentium® II microprocessor, memory, I/O and AGP (Accelerated Graphics Port) and is designed to fit into a standard ATX form factor chassis. Page 12 illustrates the Layout for the QS440VA motherboard. Below lists the key features provided by this motherboard:

**Processor (+Cache)**
- Single slot-1 for Pentium® II processor
- Supports Pentium II processor speeds (233-500MHz)
- 512KB second-level cache integrated into the Single Edge Pentium® II Contact cartridge

**Chipset**
- VIA VT82C692 / 693 BX PLUS AGP/PCI/ISA Chipset.

**System Memory**
- Three 168-pin DIMM sockets
- Minimum 8MB up to maximum 768 MB of unbuffered SDRAM with SPD supported.
- ECC (Error Checking & Correction) or non-ECC memory support

**Graphics Support**
- Supports AGP (Accelerated Graphics Port) for increased performance of Graphic Displays, special 3D operations in multimedia, and higher speed to satisfy the users optical vision.
- AGP Interface supports data transfers at 66 MHz (1x) or 133 MHz (2X) with full side-band signals.

**PCI Bus Master IDE Controller**
- Integrated PCI Bus Master IDE Controller Chip with Ultra-DMA33 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.

# 2. FEATURES

**Integrated I/O**
- Winbond 977, supporting two-async serial ports with high speed 16C550 and 16-byte FIFO. One Parallel port supporting EPP, ECP and Bi-directional modes. PS/2 keyboard port and mouse port.
- (Optional) Infrared port module (IrDA) for wireless interface.

**Hardware Monitoring**
- (Optional) Onboard Winbond W83781D chip to monitor variable voltages used in system CPU fan speed, and temperature.

**External Communication Ports**
- Universal Serial Bus (USB) integrated with Core Logic.

**System BIOS**
- AWARD BIOS based on 2MB Flash ROM. Enable IDE Auto-configuring, support ISA Plug & play, PC-97, Multi-Boot and PCI Add-In card auto-configuring.
- Also it supports DMI, which allows hardware to communicate within a standard protocol creating a higher level of compatibility. (Requires DMI-enabled component.)

**Green Features**
- Power Management: APM 1.2, Meets EPA Mode 2.0.
- Additionally, with support for ACPI (Advanced Configuration and Power Interface) feature, your system will become more wise in management of power.

**Additional features**
- Wake-On-LAN header
- Modem Ring header.
- Smart soft power control
- SB-LINK header to support legacy Sound Blaster compatible Audio to the PCI bus.

**Expansion Slots**
- Five PCI, Two ISA bus slots (one slot is shared) and One AGP slot for your variable usage.

**Mechanical**
- This motherboard complies with the ATX Form Factor specifications and is a four layers with dimensions of 7.5" x 12.0".

# 3. INSTALLATION

## 3 Installation

### Motherboard Layout & Main Parts

Chassis Fan

Key Lock &
Pwr LED& Clear
Password

ISA Slot

SB-LINK

Front Panel
Connector

PCI Slots

AGP Slot

WOL

J28 Modem Ring

JP2 CPU Speed

SEC. IDE

PRI. IDE

FLOPPY

CPU Slot

COM2

PRINTER

COM1

USB*2

PS/2*2

DIMM Sockets

CPU Fan

ATX Power Connector
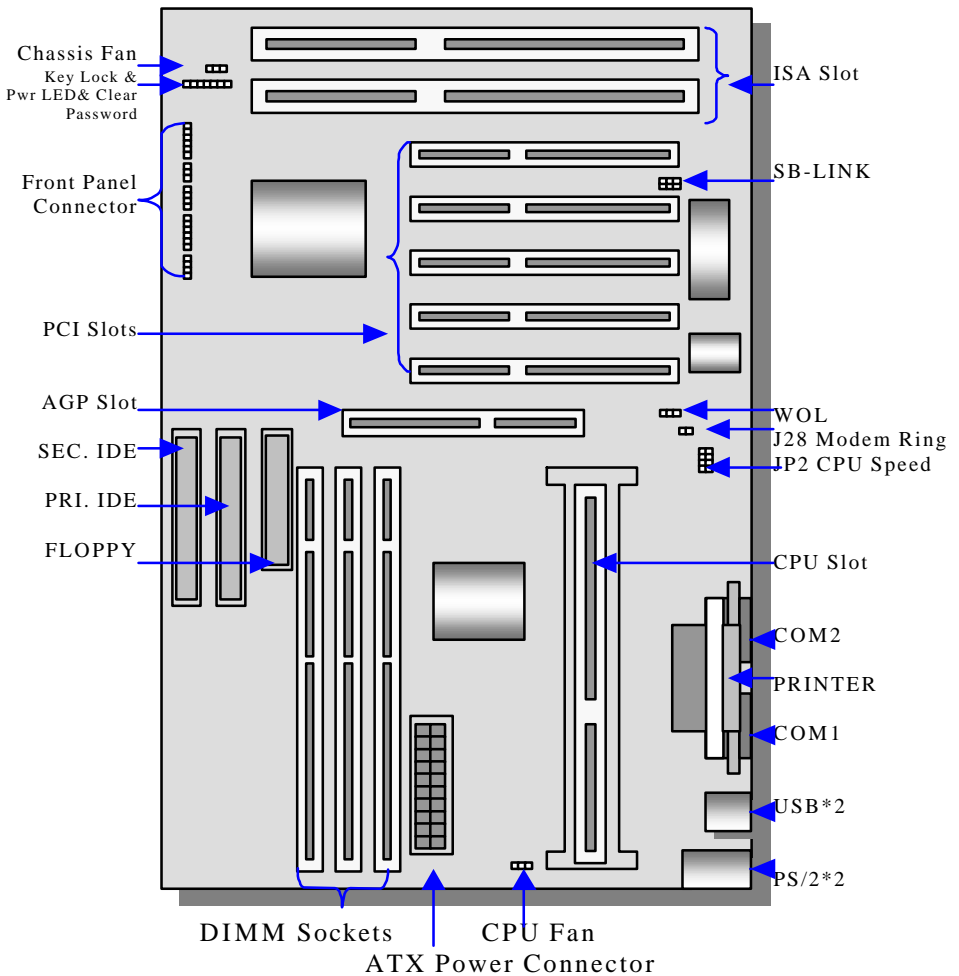
# 3. INSTALLATION

## Significant Parts List

**Front Panel Connectors**

| | |
|---|---|
| Speaker | SEC. 3.5.5 |
| Reset switch | SEC. 3.5.5 |
| Power LED | SEC. 3.5.5 |
| Hard drive activity LED | SEC. 3.5.5 |
| Infrared (IrDA) port | SEC. 3.5.5 |
| Sleep switch | SEC. 3.5.5 |
| Power switch | SEC. 3.5.5 |

**Back Panel Connectors**

| | |
|---|---|
| PS/2-style keyboard and mouse connectors | SEC. 3.5.6 |
| Two USB connectors | SEC. 3.5.6 |
| Two serials ports | SEC. 3.5.6 |
| One parallel port | SEC. 3.5.6 |

**Expansion Slots/Sockets**

| | |
|---|---|
| DIMM Sockets | SEC. 3.3 |
| SEC CPU Slot | SEC. 3.2 |
| ISA Slots | SEC. 3.4 |
| PCI Slots | SEC. 3.4 |
| AGP Slot | SEC. 3.4 |

**Power/IDE/FDD Connectors**

| | |
|---|---|
| Power connector | SEC. 3.5.4 |
| IDE connectors | SEC. 3.5.1 |
| FDD connector | SEC. 3.5.3 |

**Additional Connectors**

| | |
|---|---|
| CPU Fan | SEC. 3.5.7 |
| Chassis Fan | SEC. 3.5.7 |
| Key Lock | SEC. 3.5.7 |
| WOL Connector | SEC. 3.5.7 |
| SB-LINK Header | SEC. 3.5.7 |
| CPU Speed Jumper | SEC. 3.5.7 |
| Modem Ring | SEC. 3.5.7 |
| Clear Password | SEC. 3.5.7 |

# 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. When handling the motherboard or an adapter card avoids touching its components. 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. Incorrectly 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

## 3.1  Slots And Connectors

This motherboard requires jumper setting for CPU speed. Please refer to page 17.

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



**PIN 1** ▲
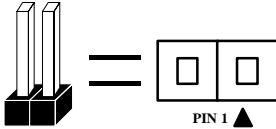
**Slots/Connectors List**
1) J1:        Mouse / Keyboard
2) J2:        Serial Port (COM 2)
3) J3:        Serial Port (COM 1)
4) J4:        USB1 / USB2
5) J5:        Parallel Port
6) J6-J10:    PCI Slots
7) J11:       WOL (Wake On LAN) Connector
8) J12:       AGP (Accelerated Graphics Port) Slot
9) J13        CPU Fan
10) J14:      Primary IDE
11) J15:      ATX Power Connector
12) J16:      Chassis Fan
13) J17:      Key Lock & Power LED
14) J18:      Secondary IDE
15) J19:      Floppy Connector
16) J20:      Speaker
17) J21:      Reset
18) J22:      Power LED
19) J23:      HDD LED
20) J24:      IrDA  (Infrared Data Association)
21) J25:      Sleep
22) J26:      Power Switch
23) J27:      SB-LINK Header
24) J28:      Modem Ring Connector
25) JP1:      Clear Password
26) JP2:      CPU Speed Jumper

# 3. INSTALLATION

## 3.2   CPU (Central Processing Unit)

This motherboard provides a Single Edge Contact (SEC) slot and a Bridges on the board for the Pentium II processor packaged in a SEC cartridge. This cartridge includes the processor core, second-level cache, thermal plate and black cover. When mounted in Slot 1, the processor is secured by a retention mechanism attached to the motherboard.

Also this motherboard can be upgraded with Pentium II processors that run at higher speeds. When upgrading the processor, use the BIOS configuration mode to change the processor speed.
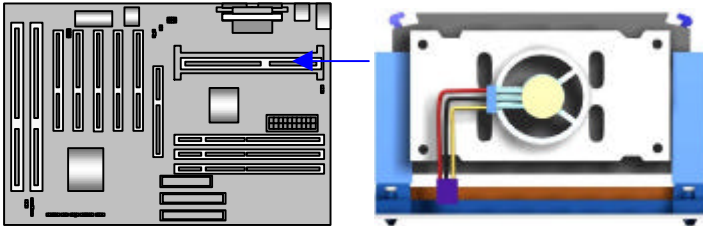


### 3.2.1     Install CPU

Please follow the below steps to install your CPU, and configure the speed in according to Processor Jumper Setting List.

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



Four Lock Pins

Universal Retention Mechanism
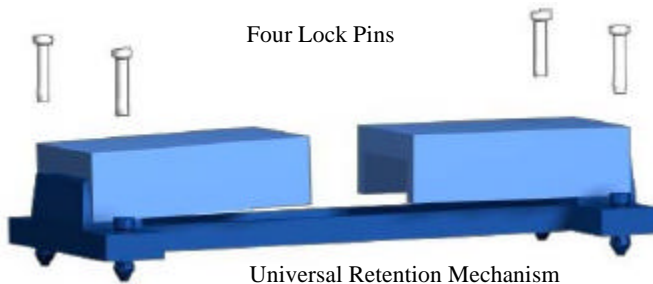
# 3. INSTALLATION

Next follow the following steps to complete CPU Installation.

Step 1: Place the Universal Retention Mechanisms over the CPU slot (SEC slot) on motherboard.

Step2: 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
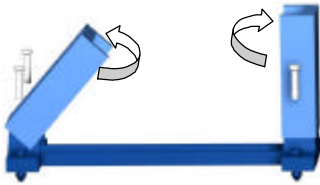


1. Unfold the Retention Mechanism.

2. Place the Retention Mechanism over CPU Slot.
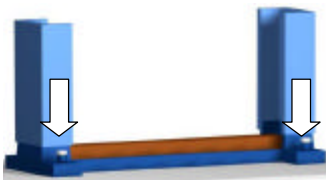


3. Push 4 lock pins into holes to fix Retention Mechanism on motherboard.
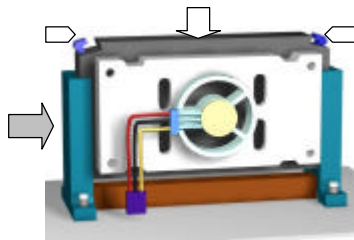
4. Insert CPU. Push the two lock pins inward and press CPU down gently.

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

Step 4:
Setting CPU speed jumper block JP2

| Processor core speed | System bus speed | 1-2 | 3-4 | 5-6 | 7-8 |
|---|---|---|---|---|---|
| 7/2 (233MHz) | 66.66MHz | Open | Close | Open | Close |
| 4 (266MHz) | 66.66MHz | Close | Open | Close | Close |
| 9/2 (300MHz) | 66.66MHz | Close | Open | Open | Close |
| 5 (333MHz) | 66.66MHz | Open | Open | Close | Close |
| 11/2 (366MHz) | 66.66MHz | Open | Open | Open | Close |
| 6 (400MHz) | 66.66MHz | Close | Close | Close | Open |
| 13/2 (433MHz) | 66.66MHz | Close | Close | Open | Open |
| 3 (300MHz) | 100MHz | Open | Close | Close | Close |
| 7/2 (350MHz) | 100MHz | Open | Close | Open | Close |
| 4 (400MHz) | 100MHz | Close | Open | Close | Close |
| 9/2 (450MHz) | 100MHz | Close | Open | Open | Close |
| 5 (500MHz) | 100MHz | Open | Open | Close | Close |

# 3. INSTALLATION

## 3.3    System Memory (DRAM )

### 3.3.1    DIMM (Dual Inline Memory Module)

The QS440VA features three 168-pin DIMM sockets, each supporting 8MB, 16MB, 32MB, 64MB and 256 MB of SDRAM. Memory can be installed in one, two or all three sockets. Memory size and speed can vary between sockets. Also variable memory can be combined for a total memory of 8MB to 768MB with variable combination. The BIOS will automatically detects memory type, size and speed.



DIMM 3
DIMM 2
DIMM 1
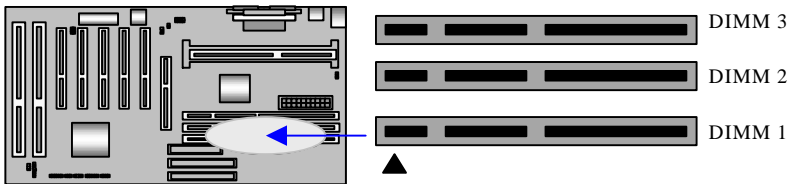
### 3.3.2    Installation Procedure

**Step1:** Pin 1 of the DIMM must match pin 1 of the DIMM socket.

**Step2:** Insert the DIMM module into the DIMM socket at a 90-degree angle. If pin 1 of the DIMM module does not line up with pin 1 of the socket, the DIMM module will not insert correctly into the socket.



Pin 1

DIMM Socket            DIMM Module

**Step 3:** After inserting the DIMM module completely into the socket, push up on the socket latches securing the DIMM into place.

Be careful not to misfit the DIMM Module into DIMM sockets in the wrong direction. This module can be inserted into DIMM socket only one way. Please note the "▲" for pin 1 location.
To release the memory module, push both latches down and carefully rock the module

17
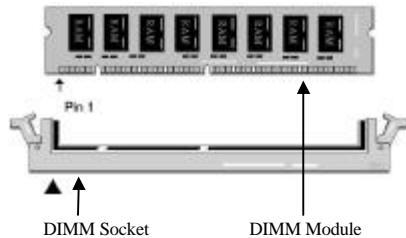
# 3. INSTALLATION

forward and backward while slowly lifting it upward.

### 3.3.3    DIMM Combination

Each DIMM socket can be inserted with 8MB, 16MB, 32MB, 64MB, 128MB and 256MB DIMM or empty. The total combinations are, 7*7*7, 343 selections. You can refer to following figure to select one way to insert your DIMM, for example:

**Select**

| | Empty | 8MB | 16MB | 32MB | 64MB | 128MB | 256MB |
|---|---|---|---|---|---|---|---|
| **DIMM 3** | Empty | 8MB | 16MB | 32MB | 64MB | 128MB | 256MB |
| **DIMM 2** | Empty | 8MB | 16MB | 32MB | 64MB | 128MB | 256MB |
| **DIMM 1** | Empty | 8MB | 16MB | 32MB | 64MB | 128MB | 256MB |

Select    **DIMM 3:** 64MB
         **DIMM 2:** 16MB      ➤ **Total**
         **DIMM 1:** 128MB        $64 + 16 + 128 = 208$ MB
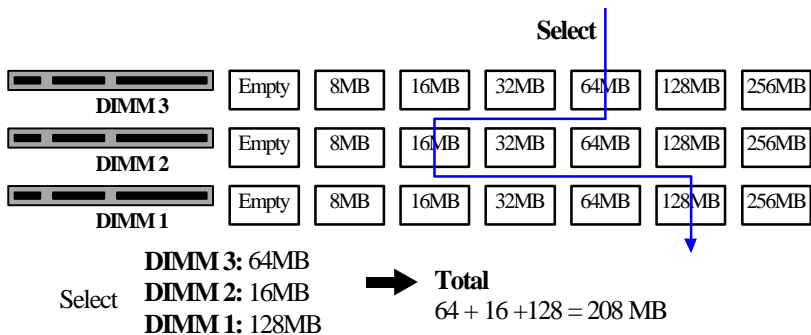
To select 1 out of 6 items (empty, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB) in DIMM3.
Then, repeat again in DIMM2, DIMM1 to go through your own path.
A total of 343 combinations ensure you can insert your DIMM modules any way you prefer.

**WARNING:** Do not use an extra TTL chip to convert the memory module from asymmetric to symmetric in DIMM.

# 3. INSTALLATION

## 3.4  Expansion Slots

This motherboard contains 8 expansion slots onboard. Two 16-bit ISA Bus, five 32-bit
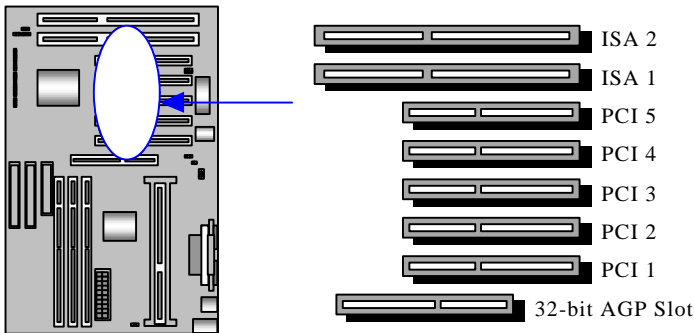


PCI expansion slots and one 32-bit AGP slot as shown above.

One PCI and one ISA are shared to accommodate either an ISA or a PCI expansion cards, but not both at the same time. All five PCI expansion slots accept PCI us master cards and are fully supported by the PC"I 2.1 specification.

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.

**Notice:** Some expansion cards require an IRQ to work and may cause a conflict. There are total of 16 IRQs with some reserved for expansion cards. In case of a conflict please contact the system manufacturer for technical support.

# 3. INSTALLATION

## 3.5  Connectors

Here in the motherboard contains IDE, floppy, power input, front panel, back panel and additional connectors.

### 3.5.1    Primary IDE Connector (J14, 39-pin block)
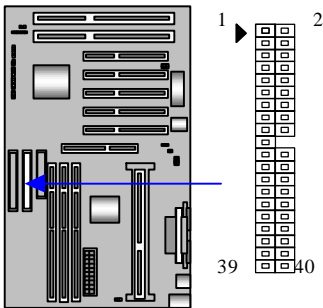
This connector supports two primary channel IDE devices via a ribbon cable. When two IDE devices are installed using the primary IDE connector, make sure that the second IDE device is set to slave mode as indicated in the device's manual.

**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.

### 3.5.2    Secondary IDE Connector (J18, 39-pin block)
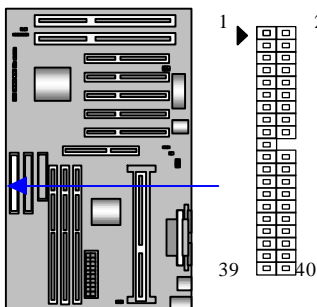
This connector supports two secondary channel IDE devices as well as the 120MB Floppy drives via a ribbon cable. When two IDE devices are installed using the secondary IDE connector, make sure that the second IDE device is adjusted to slave mode as instructed in the device's manual.

**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. INSTALLATION

### 3.5.3    Floppy Drive Connector (J19, 33-pin block)
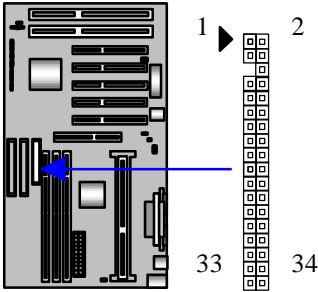
The FDC sub-system can control three types of floppy drives (1.2, 1.44 and 2.88MB) or compatible tape drives. The connection to the floppy drive is via a header (J19). The floppy disk interface includes 48mA drivers and inputs on the

**WARNING:** When you connect a ribbon cable to this port, you must orient the cable connector so that the PIN 1 edge of the cable is at the PIN 1 end of the onboard port.

drive interface.

### 3.5.4    Power Input Connector (J15, 20-pin block)
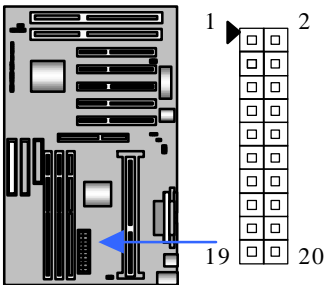
This connector supports a standard ATX power supply. When connecting, make sure the lock key matches the hook attached on a power supply cable. The power cord should be unplugged when you connect it.

**WARNING:** Make that the ATX Power Supply can take at least 10-mA load on the 5-Volt Standby lead (5VSB). You may experience difficulty in powering on your system without this.

# 3. INSTALLATION

### 3.5.5 Front Panel connectors (J20-J26)

Front Panel includes headers for the following seven I/O connectors:
Speaker, Reset Switch, Power LED, Hard drive activity LED, Infrared (IrDA) port, Sleep Switch, Power Switch. Please refer to the following figure.

**Front Panel connectors:**

Speaker     Reset     Pwr LED     HD LED          IrDA                    Sleep     Pwr
J 2 0       J 2 1     J 2 2       J 2 3                                   J 2 5     J 2 6
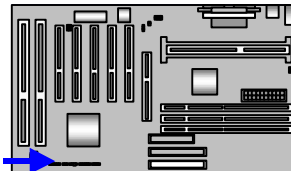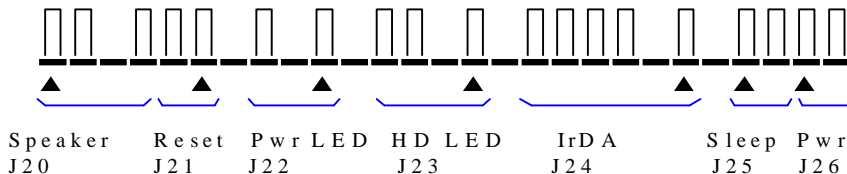
**Speaker Connector or Onboard Buzzer (J20, 4-pin)**

It is used to drive a chassis-mounted speaker.
This header can select between the chassis speaker and internal buzzer by installing a cap over pin1&2. When the chassis mounted speaker is needed the jumper should be removed.

SpkrDat
Buzzer/Speaker Sel
Logic Ground

Speaker  J20
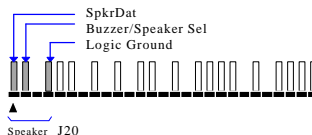
**Reset Switch Connector (J21, 2-pin)**

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.

Ground
Reset

Reset J21
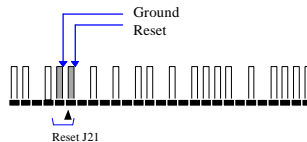
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**Power LED/Sleep/Message Waiting (J22, 3-pin)**

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

| LED Status | Description |
|------------|-------------|
| Light Off  | Power Off   |
| Light On   | Power On    |
| Flash      | Sleep       |

LED +
LED -

Pwr LED    J22
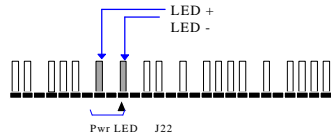
**HDD LED Connector (J23, 4-pin)**

The QS440VA supports one straight 4-pin header for connecting to front Panel Hard Disk activity LED indicator.

LED+
LED-
LED+

HD LED    J23
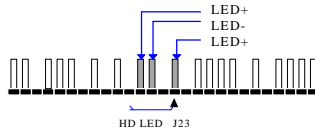
**Infrared (IrDA) connector (J24, 6-pin)**

The QS440VA offers an IrDA infrared header that supports third party infrared modules. The case must reserve space for the IR module if you want to use the IrDA function. This option supports wireless transmission and reception of infrared data. The module mounts in a small

IR Remote or Fast IR
IR-TX Transmit
Ground
IR-RX Receive
Vcc

IrDA   J24

opening on the system case that supports this feature. The efficient distance is 100cm and the transfer rate is 1.44M KB/sec.
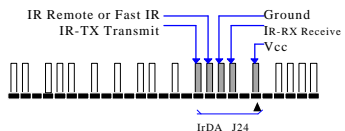
**Sleep Switch (J25, 2-pin)**

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:

LID
GROUND

Sleep Switch

● Optional front panel sleep/resume button

● Prolonged system inactivity using the BIOS inactivity timer feature (Section 4.5)

The 2-pin header supports a front panel sleep/resume switch, which must be a momentary SPST type that is normally open
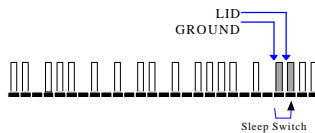
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**Power Switch (J26, 2-pin)**

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

GROUND
PWRBIN

Power Switch J26

system can be set to the suspended mode once you push the power switch for no longer then 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.
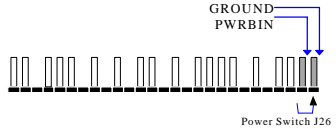
# 3. INSTALLATION

### 3.5.6    Back Panel Connectors



Parallel

PS/2        USB        Serial 1        Serial 2
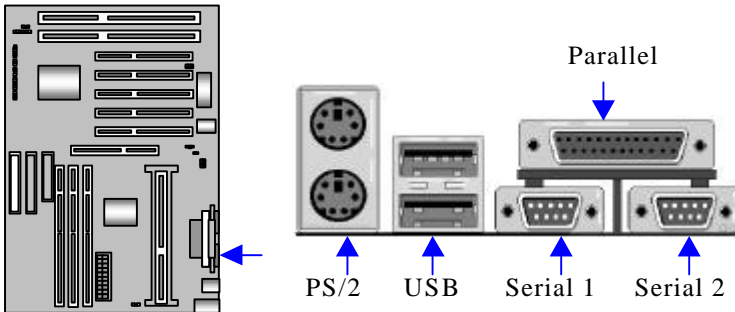
**PS/2 Keyboard and Mouse Ports**

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

Mouse

Keyboard
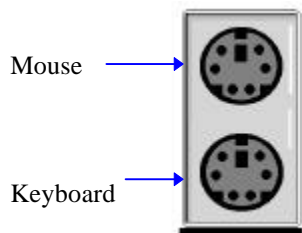


**Universal Serial Bus (USB) Ports**

USB 2

USB 1

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. INSTALLATION

**Parallel Port**

The QS440VA 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. The parallel port contains 12mA source output drivers on the drive interface and incorporates "Chip Protect" circuitry for protection against damage due to printer's power being on.

Parallel Port
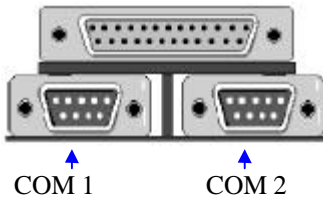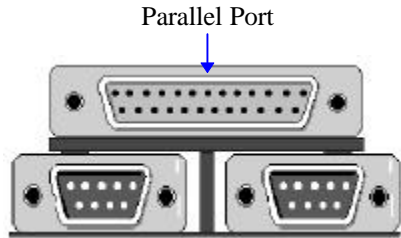
**Serial Port**

The motherboard has two serial ports. The electrical 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.

COM 1          COM 2

# 3. INSTALLATION

### 3.5.7    Connectors

**SB-LINK Header**

To support the legacy Sound Blaster compatible
Audio to the PCI bus.

PCPCIGNTN    DGND
PCPCIREQN
KEYDGND    SERIRQ
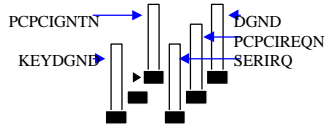
**WOL (Wake On LAN)**

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

+ 5 V S B

M P _ W A K E U P    G N D

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±5% at 720mA.
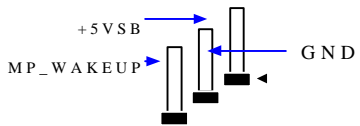
**Modem Ring**

This header is used for remote wakeup of the computer
through a modem. Modem Ring requires an add-in
modem card with remote wakeup capabilities. The

R I

G N D

remote wakeup header on the add-in modem card must be connected to the onboard
Modem Ring header.

SB-LINK    1   2        WOL        Modem
Header                 (Wake On LAN)      Ring
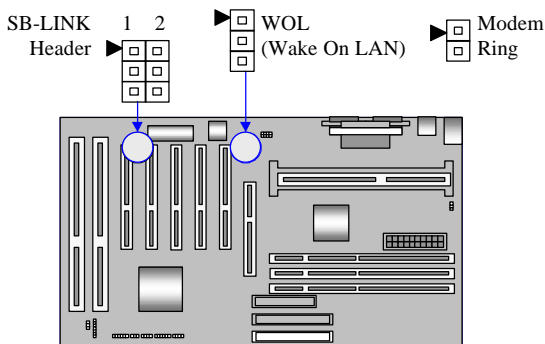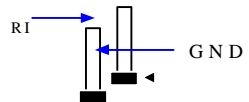
# 3. INSTALLATION
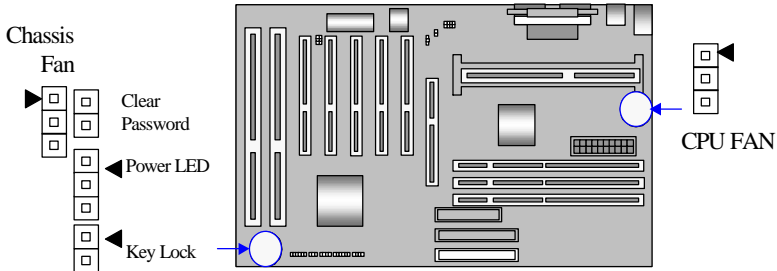


## Chassis Fan Headers

This header can supply power for Chassis Fan which may be mounted inside your case to cool down your system components. If your chassis have a Chassis Fan, this header will support it.
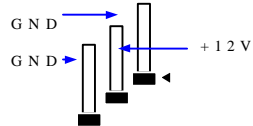


## Clear Password/Key Lock/Power LED Header

**If** an unknown password is set in the BIOS, it can be cleared by inserting a jumper over JP1.

**The** Power LED is as same as the Power LED connector found in the Front Panel Connectors.

**You** can lock your system by using a Key Lock on your case.
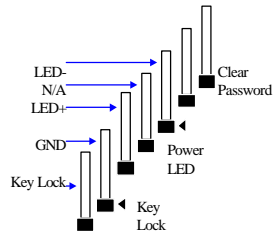


## CPU Fan

Your Pentium II Cartridge may have an attached heatsink and Fan; this connector is for the CPU Fan.
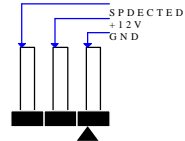
# 3. INSTALLATION

## Ready To Turn On Power

● **Check Again**

1       Is the CPU Cartridge installed exactly and firmly into Retention Mechanism (Sec. 3.2)?

2       Are all the DRAM modules installed properly (Sec. 3.3)?

3       Did you insert expansion card (VGA, Sound…. etc.) already (Sec. 3.4)?

4       Are you sure that all the connectors (described in Sec 3.5) have been connected to their variable devices (Sec. 3.5)?

● **Yes, I have checked and assured the above steps!**

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

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 system VGA port, and the monitor power cord to power outlet.
6. Now turn on 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 <Delete> button on the keyboard to enter BIOS Setup. Next, follow the instructions in the next chapter, **BIOS**
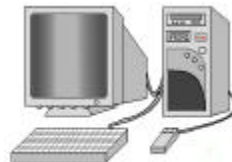
# 3. INSTALLATION

**SETUP.**

# 3. INSTALLATION

# 4. BIOS SETUP

## 4  BIOS Setup

The QS440VA motherboard uses AWARD BIOS, which is stored in a Flash EEPROM and can be upgraded by a floppy disk-based program. The BIIOS 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  How To Enter 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 <Del> 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.

# 4. BIOS SETUP

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

## Setup Keys

These keys help you navigate in 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<br>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 |

## 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.

## 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

# 4. BIOS SETUP

setup may cause the system to become unstable.

# 4. BIOS SETUP

## 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.

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

```
                    ROM PCI/ISA BIOS (2A69KB3E)
                        CMOS SETUP UTILITY
                       AWARD SOFTWARE, INC.

    STANDARD CMOS SETUP              INTEGRATED PERIPHERALS

    BIOS FEATURE SETUP              SUPERVISOR PASSWARD

    CHIPSET FEATURES SETUP          USER PASSWARD

    POWER MANAGEMENT SETUP          IDE HDD AUTO DETECTION

    PNP/PCI CONFIGURATION           SAVE & EXIT SETUP

    LOAD SETUP DEFAULTS             EXIT WITHOUT SAVING


    ESC : Quit                      ↑ ↓ → ←  : Select Item
    F10 : Save & Exit Setup         (Shift)F2 : Change Color

                    Time, Date Hard Disk Type…
```

Figure 1

Following is a brief summary of each Setup category.

# 4. BIOS SETUP

| | |
|---|---|
| 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. |
| 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. BIOS 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.
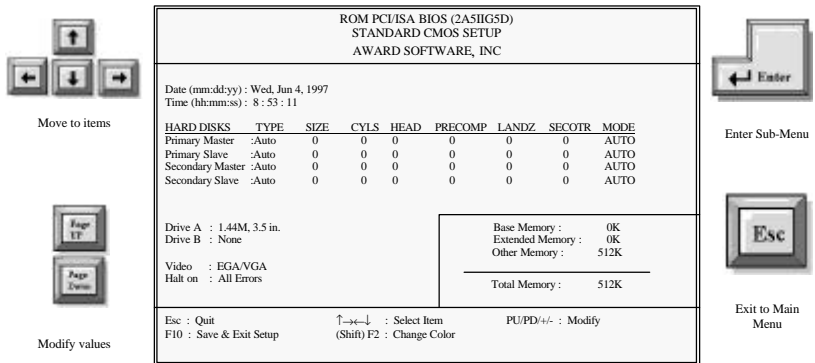


**Figure 2: Standard CMOS setup**

### 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.

### 4.3.3    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,

# 4. BIOS SETUP

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 DECTECTION 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 herds

• 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.

# 4. BIOS SETUP

- 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.

- 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.  These are the selections:

| 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 64MB, 128MB, 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.

**Other Memory**

Between 640 KB and 1 MB; often called High memory. DOS may load terminate-and-

stay-resident (TSR) programs, such as device drivers, in this area, to free as much conventional memory as possible for applications. Lines in your CONFIG.SYS file that start with LOADHIGH load programs into high memory

**Total memory**

# 4. BIOS SETUP

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

# 4. BIOS SETUP

## 4.4   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.



| | | ROM PCI/ISA BIOS (2A5KKG5C) | |
| | | BIOS FEATURES SETUP | |
| | | AWARD SOFTWARE, INC. | |

| | | | |
|---|---|---|---|
| Virus Warning | : Disabled | Video BIOS Shadow | : Enabled |
| CPU Internal Cache | : Enabled | C8000-CBFFF Shadow | : Disabled |
| External Cache | : Enabled | CC000-CFFF Shadow | : Disabled |
| CPU L2 Cache ECC Checking | : Enabled | D0000-D3FFF Shadow | : Disabled |
| Quick Power On Self Test | : Disabled | D4000-D7FFF Shadow | : Disabled |
| Boot Sequence | : A,C,SCSI | D8000-DBFFF Shadow | : Disabled |
| Swap Floppy Drive | : Disabled | DC000-DFFFF Shadow | : Disabled |
| Boot Up Floppy Seek | : Disabled | : |
| Boot Up NumLock Status | : On | |
| IDE HDD Block Mode | : Enabled | |
| Gate A20 Option | : Fast | |
| Memory Parity/ECC Check | : Disabled | |
| Typematic Rate Setting | : Disabled | |
| Typematic Rate (Chars/Sec) | : 6 | |
| Typematic Delay (Msec) | : 250 | |
| Security Option | : Setup | Esc : Quit      ↑→←↓ : Select Item |
| IDE Second Channel Control | : Disabled | F1  : Help      PU/PD/+/- : Modify |
| PCI/VGA Palette Snoop | : Disabled | F5  : Old value   (Shift) F2 : Color |
| OS Select For DRAM >64MB | : Non-OS2 | F7  : Load Setup Defaults |

Move to items · Enter Sub-Menu · Modify values · Exit to Main Menu

**Figure 3: 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 additional memory that is much faster than conventional DRAM

# 4. BIOS SETUP

(system memory). Some CPU integrate a build-in Cache memory to speed  up the data transfer. This item allows you to enable or disable the inter Cache.

### 4.4.3    External Cache

Cache memory is 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    CPU L2 Cache ECC Checking

To set at Enabled activates the Error Check & Correction feature of the CPU L2 cache. The options are: Enabled (Default), Disabled.

### 4.4.5    Quick Power On Self Test

When enabled, allows the BIOS to bypass the extensive memory test. The options are: Enabled (Default), Disabled.

### 4.4.6    Boot Sequence

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 sequences 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.

### 4.4.7    Swap Floppy Drive

Allows you to switch the order in which the operating system accesses the floppy drives during boot up. The options are Enabled, Disabled (Default)

### 4.4.8    Boot Up Floppy Seek

When *Enabled*, the BIOS tests (seeks) floppy drives to determine whether they have 40 floppy drives, we recommend that you set this field to *Disabled* to save time.

# 4. BIOS SETUP

### 4.4.9    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.

### 4.4.10    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.

### 4.4.11    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 a\rate and typematic delay.

### 4.4.12    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.

### 4.4.13    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.

### 4.4.14    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.

### 4.4.15    IDE Second Channel Control

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary on-chip IDE interface. Select Disabled to deactivate this interface, if you install a secondary add-in IDE interface. The options are:

# 4. BIOS SETUP

Disabled, Enabled (Default).

### 4.4.16    PCI/VGA Palette Snoop

Some display cards that are not standard VGA such as graphics accelerators or MPEG cards may not show the correct colors, the setting can correct this problem once you set it to Enable, To default setting leave at Disabled.

### 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 adapter.

Shadowing copy 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 (640KB 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 Chipset Features Setup Menu
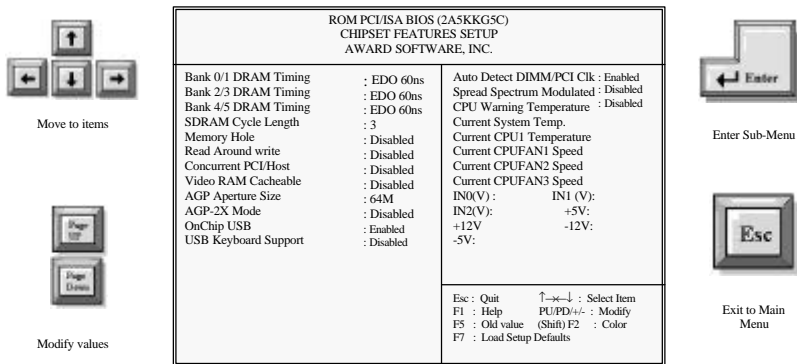


**Figure 4: Chipset Features Setup Menu**

### 4.5.1 Bank 0/1, 2/3, 4/5 DRAM Timing

Set the speed of RAM in Bank 0, 1, 2, 3, 4 and 5. The choices, EDO 50ns, EDO 60ns, Normal, Medium, Fast and Turbo.

### 4.5.2 SDRAM Cycle Length

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

### 4.5.3 Memory Hole

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. You can reserve this area of system memory for ISA adapter ROM. When that area is reserved it cannot be cached. The user information of peripherals that need to use this area of

# 4. BIOS SETUP

system memory usually discusses their memory requirements.

### 4.5.4    Read Around write

This feature speeds up data read performance when it stays Enabled.  The choices: Enabled, Disabled (Default).

### 4.5.5    Current PCI/Host

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

### 4.5.6    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.

### 4.5.7    AGP Aperture Size

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. Host cycles that hit the aperture range are forwarded to the AGP without any translation. See www.agpforum.org for AGP information.

### 4.5.8    AGP-2X Mode

This  feature allows user to select the AGP mode be to 1x or 2x when an AGP add-in card installed. However, when set at Enabled and the AGP card only support 1x mode, the system will fall back 1x mode automatically. The choices are: Enabled (Default), Disabled.

### 4.5.9    OnChip USB

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

### 4.5.10    USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and

# 4. BIOS SETUP

you have a USB keyboard.

### 4.5.11    Auto Detect DIMM/PCI Clk

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

### 4.5.12    Spread Spectrum Modulated

This feature is used to set the spread Spectrum to be center spread type or down spread type. The options are: Enabled, Disabled (Default).

### 4.5.13    CPU Warning Temperature

This item presents the current hardware situation for the hardware monitoring feature of this motherboard. Here you can enable or disable the function.

### 4.5.14    Current System Temp

This field displays the current system temperature, if your computer contains a monitoring system.

### 4.5.15    Current CPUFAN 1 / 2 / 3 Speed

These fields display the current speed of up to three CPU fans, if your computer contains a monitoring system.

# 4. BIOS SETUP

## 4.6  Power Management Setup Menu



Move to items

Modify values

```
                    ROM PCI/ISA BIOS (2A5KKG5C)
                    POWER MANAGEMENT SETUP
                    AWARD SOFTWARE, INC.

ACPI Function          : Enabled          Primary INTR    : ON
Power Management       : User Define      IRQ3   (COM 2)       : Disabled
PM Control by APM      : No               IRQ4   (COM 1)       : Disabled
Video Off Option       : Always On        IRQ5   (LPT 2)       : Disabled
Video Off Method       : blank Screen     IRQ6   (Floppy Disk) : Disabled
MODEM Use IRQ          : NA               IRQ7   (LPT 1)       : Disabled
Soft-Off by PWRBTN     : Delay 4 Sec      IRQ8   (RTC Alarm)   : Disabled
       **PM Timers**                      IRQ9   (IRQ2 Redir)  : Disabled
HDD Power Down         : Disabled         IRQ10  (Reserved)    : Disabled
Doze Mode              : Disabled         IRQ11  (Reserved)    : Disabled
Suspend Mode           : Disabled         IRQ12  (PS/2 Mouse)  : Disabled
       **PM Events**                      IRQ13  (Coprocessor) : Disabled
VGA                    : OFF              IRQ14  (Hard Disk)    : Disabled
LPT & COM              : NONE             IRQ15  (Reserved)     : Disabled
HDD & FDD              : OFF
DMA/master             : OFF              Esc : Quit    ↑→←↓ : Select Item
Wake Up On LAN         : Disabled         F1  : Help     PU/PD/+/- : Modify
Modem Ring Resume      : Disabled         F5  : Old value  (Shift) F2  : Color
RTC Alarm Resume       : Disabled         F7  : Load Setup Defaults
```

Enter Sub-Menu

Exit to Main Menu

**Figure 5: Power Management Setup Menu**

### 4.6.1    ACPI  function

The choices are Enabled and Disabled. This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

### 4.6.2    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 *PM Timers* section, following. |
| Min Saving | Minimum power savings. Inactivity period is 1 hour in each mode (except the hard drive). |

# 4. BIOS SETUP

### 4.6.3    PM Control by APM

If Advanced Power Management (APM) is installed on your system, selecting *Yes* gives better power savings.

### 4.6.4    Video Off Option

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

| | |
|---|---|
| Always On | Monitor will remain on during power saving modes. |
| Suspend → Off | Monitor blanked when the systems enters the Suspend mode. |
| Susp, Stby → Off | Monitor blanked when the system enters either Suspend or Standby modes. |
| All Modes → Off | Monitor blanked when the system enter any power saving mode. |

### 4.6.5    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. |

### 4.6.6    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.

### 4.6.7    Soft-Off by PWRBTN

When this feature set to "Delay 4 sec." , the system will become suspend once the Power Switch be pressed within 4 second, and the system will Power Off once the Power Switch be pressed over 4 second. If it set to "Instant Off", the system will unconditional Power Off once the Power Switch be pressed.

# 4. BIOS SETUP

### 4.6.8 HDD Power Down

After the selected period of drive inactivity (1 to 15 minutes), the hard disk drive powers down while all other devices remain active.

### 4.6.9 Doze Mode

Defines the continuous idle time before the system entering DOZE mode. The range is from 1 min to 1 Hr. If any item defined is enabled & active, STANDBY timer will be reloaded

### 4.6.10 Suspend Mode

After the selected period of system inactivity (1 minute to 1 hour), all devices except the CPU shut off.

### 4.6.11 VGA

When Enabled, you can set the LAN awakens the system.

### 4.6.12 LPT & COM

When On of LPT & COM, any activity from one of the listed system peripheral devices or IRQs wakes up the system.

### 4.6.13 HDD & FDD

When On of HDD & FDD, any activity from one of the listed system peripheral devices wakes up the system.

### 4.6.14 DMA/master

When you are On of DMA / ISA Master, any activity from one of the list system peripheral devices wakes up the system.

### 4.6.15 Wake Up On LAN

This option specifies whether the computer responds to an incoming call or not. Wake-On LAN requires a PCI add-in network interface card with remote wakeup capabilities.

# 4. BIOS SETUP

### 4.6.16    Modem Ring Resume

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

### 4.6.17    RTC Alarm 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 of the day by selecting Everyday, or on the $1^{st}$ through the $31^{st}$ by selecting the RTC Alarm Date.

### 4.6.18    Primary INTR

When set to On, any event occurring at will awaken a system which has been powered down.
The following is a list of IRQ's (Interrupt ReQuests ), which can be exemted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

```
IRQ3    (COM 2)
IRQ4    (COM 1)
IRQ5    (LPT 2)
IRQ6    (Floppy Disk)
IRQ7    (LPT 1)
IRQ8    (RTC Alarm)
IRQ9    (IRQ2 Redir)
IRQ10   (Reserved)
IRQ11   (Reserved)
IRQ12   (PS/2 Mouse)
IRQ13   (Coprocessor)
IRQ14   (Hard Disk)
IRQ15   (Reserved)
```

# 4. BIOS SETUP

## 4.7 PCI Configuration Setup Menu



```
                    ROM PCI/ISA BIOS (2A5KKG5C)
                    PNP/PCI CONFIGURATION SETUP
                      AWARD SOFTWARE, INC.

PNP OS Installed          : No       CPU to PCI Write Buffer  : Enabled
Resource Controlled By    : Auto     PCI Dynamic Bursting     : Disabled
 Reset Configuration Data : Disabled PCI Master 0 WS Write    : Enabled
                                     PCI Delay Transaction    : Disabled
                                     PCI#2 Access #1 Retry    : Disabled
                                     AGP Master 1 WS Write    : Disabled
                                     AGP Master 1 WS Read     : Disabled

                                     PCI IRQ Actived By       : Level
                                     Assign IRQ For USB       : Disabled
                                     Assign IRQ For VGA       : Disabled
                                     Assign IRQ For ACPI      : IRQ10

                                     Esc : Quit      ↑→←↓ : Select Item
                                     F1  : Help      PU/PD/+/- : Modify
                                     F5  : Old value (Shift) F2  : Color
                                     F7  : Load Setup Defaults
```

**Figure 6: PNP/PCI Configuration Setup Menu**

### 4.7.1 PNP OS Installed

The default setting is No when a non PNP OS installed or to prevent reassigning of interrupt setting for some of non PNP cards installed. Select Yes if the OS is PNP aware (e.g. Windows 95).

### 4.7.2 Resources Controlled by

The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assign them.

### 4.7.3 Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Date (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 operating system cannot boot.

### 4.7.4 CPU to PCI Write Buffer

When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and the PCI bus. When

# 4. BIOS SETUP

Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.

### 4.7.5    PCI Dynamic Bursting

When Enabled, every write transaction goes to the write buffer. Burstable transactions then burst on the PCI bus and nonburstable transactions don't. The choices: Enabled, Disabled.

### 4.7.6    PCI Master 0 WS Write

When Enabled, Writes to the PCI bus are executed with zero wait states. The choices: Enabled, Disabled.

### 4.7.7    PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1. The choices: Enabled, Disabled

### 4.7.8    PCI#2 Access #1 Retry

When PCI#2 (AGP bus) access to PCE#1 (PCI bus) has a error occurred, The choices: Enabled, Disabled.

### 4.7.9    AGP Master 1 WS Write

When Enabled, writes to the AGP (Accelerated Graphics Port) are executed with on wait states.. The choices: Enabled, Disabled.

### 4.7.10    AGP Master 1 WS Read

When Enabled, read to the AGP (Accelerated Graphics Port) are executed with one wait states..

### 4.7.11    PCI IRQ Actived By

This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device. Under all circumstances, you should retain the default configuration unless advised otherwise by your system's manufacturer. The choices: Level, Edge.

# 4. BIOS SETUP

### 4.7.12    Assign IRQ For USB/VGA

Enable/Disable to assign IRQ for USB/VGA. The choices: Enabled, Disabled.

### 4.7.13    Assign IRQ For ACPI

Assign a IRQ for ACPI. The choice: IRQ9, IRQ10, IRQ11.

# 4. BIOS SETUP

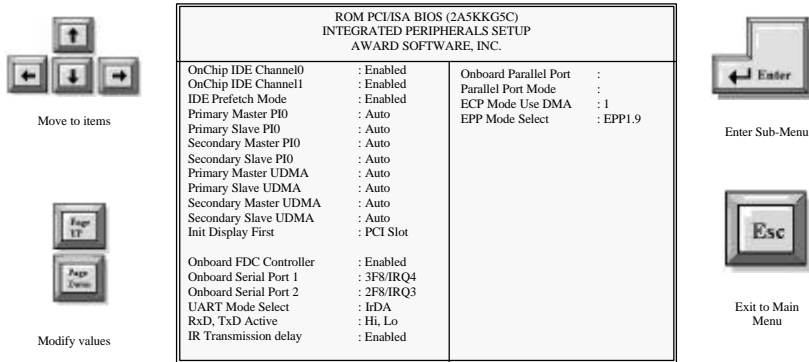## 4.8 Integrated peripherals Menu

```
                    ROM PCI/ISA BIOS (2A5KKG5C)
                    INTEGRATED PERIPHERALS SETUP
                        AWARD SOFTWARE, INC.

OnChip IDE Channel0      : Enabled      Onboard Parallel Port   :
OnChip IDE Channel1      : Enabled      Parallel Port Mode      :
IDE Prefetch Mode        : Enabled      ECP Mode Use DMA        : 1
Primary Master PI0       : Auto         EPP Mode Select         : EPP1.9
Primary Slave PI0        : Auto
Secondary Master PI0     : Auto
Secondary Slave PI0      : Auto
Primary Master UDMA      : Auto
Primary Slave UDMA       : Auto
Secondary Master UDMA    : Auto
Secondary Slave UDMA     : Auto
Init Display First       : PCI Slot

Onboard FDC Controller   : Enabled
Onboard Serial Port 1    : 3F8/IRQ4
Onboard Serial Port 2    : 2F8/IRQ3
UART Mode Select         : IrDA
RxD, TxD Active          : Hi, Lo
IR Transmission delay    : Enabled
```

Move to items     Modify values     Enter Sub-Menu     Exit to Main Menu

**Figure 7: Integrated Peripherals setup Menu**

### 4.8.1 OnChip IDE Channel0

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.

### 4.8.2 OnChip IDE Channel1

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.

### 4.8.3 IDE Prefetch Mode

The onboard IDE drive interfaces 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: Enabled, Disabled.

### 4.8.4 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

Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The choices: Auto, Mode0, Mode 1, Mode 2, Mode 3, Mode 4.

### 4.8.5    Init Display First

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

### 4.8.6    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 choices: Enabled, Disabled.

### 4.8.7    Onboard Serial Port 1/Onboard Serial Port 2

Select an address and corresponding interrupt for the first and second serial ports. The choices: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

### 4.8.8    UART Mode Select

This item allows you to determine which Infra Red(IR) function of onboard I/O chip. The choices: IrDA 1.0, Standard, ASKIR, HPSIR.

### 4.8.9    RxD, TxD Active

This item allows you to determine the active of RxD, TxD. The choices: "Hi,Hi", "Lo,Lo", "Lo,Hi", "Hi,Lo".

### 4.8.10    IR Transmission delay

This item allows you to enable/disable IR transmission delay. The choices: Enabled, Disabled.

### 4.8.11    Onboard Parallel Port

Select a logical LPT port name and matching address for the physical parallel (printer) port.

# 4. BIOS SETUP

### 4.8.12    Parallel Port Mode

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.

| | |
|---|---|
| SPP | Standard parallel port mode (Default) |
| EPP | Bi-directional mode |
| ECP | Fast, buffered |
| ECP+EPP | Bi-directional and buffered |

### 4.8.13    ECP Mode Use DMA

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

### 4.8.14    EPP Mode Select

Select EPP port type 1.7 or 1.9. The choices: EPP 1.7, 1.9.

# 4. BIOS SETUP

## 4.9  Supervisor Password

## 4.10 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 PASSWARD:**

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.*

## 4.11 IDE HDD Auto Detection

BIOS setup will display all possible modes that supported by the HDD including NORMAL, LBA & LARGE.

If HDD does not support LBA modes, no 'LBA" option will be shown.

If no of cylinders is less than or equal to 1024, no "LARGE" option will be show

Users can select a mode, which is appropriate for them.