SQ574 Pentium PCI

Mainboard

User's Manual

User's Notice
Static Electricity Precaution

Static electricity can easily damage your SQ574 mainboard. Observing a few basic precautions can help you safeguard against damage that could result in expensive repairs. Follow the simple measures below to protect your equipment from static electricity damage:

Keep the mainboard and other system components in their anti-static packaging until you are ready to install them.

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.

After removing the mainboard from its original packing, 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 all of the socket IC's to ensure they are properly seated. Do this only with the board placed on a firm flat surface.

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 mainboard or an adapter card avoid touching its components. Handle the mainboard and adapter cards either by the edges or by the adapter card's case mounting bracket.

Table of Contents

1   Introduction

1.1   Overview

The SQ574 mainboard integrates the Pentium microprocessor, memory, and I/O technologies and is designed to fit into a standard AT form factor chassis. The design supports Pentium processors, Pentium processors with MMX technology, Cyrix 6X86/6X86L/MX Processors, and AMD K5/K6 Processors, IDT-C6 Processors. Page 2-2 illustrates the mechanical form factor for the SQ574 mainboard.

1.2   How to use this Manual

This manual provides information necessary to install and operate the SQ574 mainboard and is organized into four chapters. The purpose of this manual is to explain the installation procedures and operations of the mainboard as specified below.

1.   Introduction   Manual information and checklist

2.   Key Features   An overview specification of this mainboard

3.   Installation   Instructions on how to setup the mainboard

4.   BIOS setup   BIOS software setup information

1.3   Item Checklist

The SQ574 mainboard should contain following items (✓). Immediately, contact your retailer if you discover any missing items, or any damage.

- ☑   The SQ574 mainboard

- ☑   This SQ574 user's manual

- ☑   1 IDE ribbon cable

- ☑   1 floppy ribbon cable

- ☑   1 parallel ribbbon cable attached to a mounting bracket

- ☑   2 serial ribbbon cable attached to a mounting bracket

- ☑   Driver diskeete

- ❑   1 PS/2 cable with bracket (optional)

- ❑   USB (2 port) cable with bracket (optional)

- ❑   Infrared (IrDA) module with ribbon cable (optional)

2 Key Features

2.1 Product Specification

✧ **Processor:** Supports 120-300MHz Intel Pentium Processors (P54C), Pentium Processors with MMX Technology (P55C), AMD-K5, AMD-K6 and Cyrix 6X86, 6X86L, 6X86MX Processors, IDT-C6 Processors. The ZIF Socket 7 will support future Pentium Overdrives.

✧ **L2 Cache:** Onboard 512KB Pipeline Burst SRAM

✧ **SIMM (System Memory):** Supports 70ns or faster Extended Data Output (EDO) or Fast Page (FP) SIMM in four 72-pin SIMM sockets using 4MB, 8MB, 16MB, 32MB or 64MB for a maximum of 256MB system memory.

✧ **DIMM (System Memory):** Supports 66MHz or faster unbuffer 2 or 4 clock 3.3V DIMM in two 168-pin DIMM sockets using 8, 16, 32, 64 or 128 for a maximum of 256MB system memory.

✧ **Chipset:** Intel Triton 430TX set is the core chipset with an Winbond 977 super I/O controller chip.

✧ **Expansion Slots:** Four 32-bit PCI and Three 16-bit ISA expansions slots (one shared).

✧ **Super Multi-I/O:** Two high-speed UART compatible serial ports and One parallel port with ECP and EPP compatibility. One FDD header supporting either 5.25" or 3.5" (1.2 or 1.44/2.88MB) floppy drives. One IrDA TX/RX infrared port.

✧ **Keyboard and PS/2 Mouse:** Onboard Standard AT Keyboard and PS/2 Mouse Port

✧ **PCI bus Master IDE Controller:** Onboard dual-channel PCI Bus Master IDE support 4 IDE devices. This controller supports PIO Mode 3 and Mode 4 with a data transfer rate up to 17MB per second. An Ultra DMA 33 (UDMA) supports data transfer rates up to 33 MB per second. Also supports LS120 Floppy Drive.

✧ **Universal Serial Bus (USB):** Two standard USB interface supports up to 48MHz and 127 peripheral devices.

✧ **PCI BIOS:** Win 95 Plug and Play with Green power saving support, and DMI Support.

✧ **Mechanical:** Baby AT form factor 220 mm x 252 mm

✧ **Additional Feature:** SB-LINK header to support legacy sound blaster compatible audio to the PCI bus.

✧ **Jumperless Design:** Using the onboard BIOS, Jumpers settings are no longer needed.

2.2　Mainboard Layout
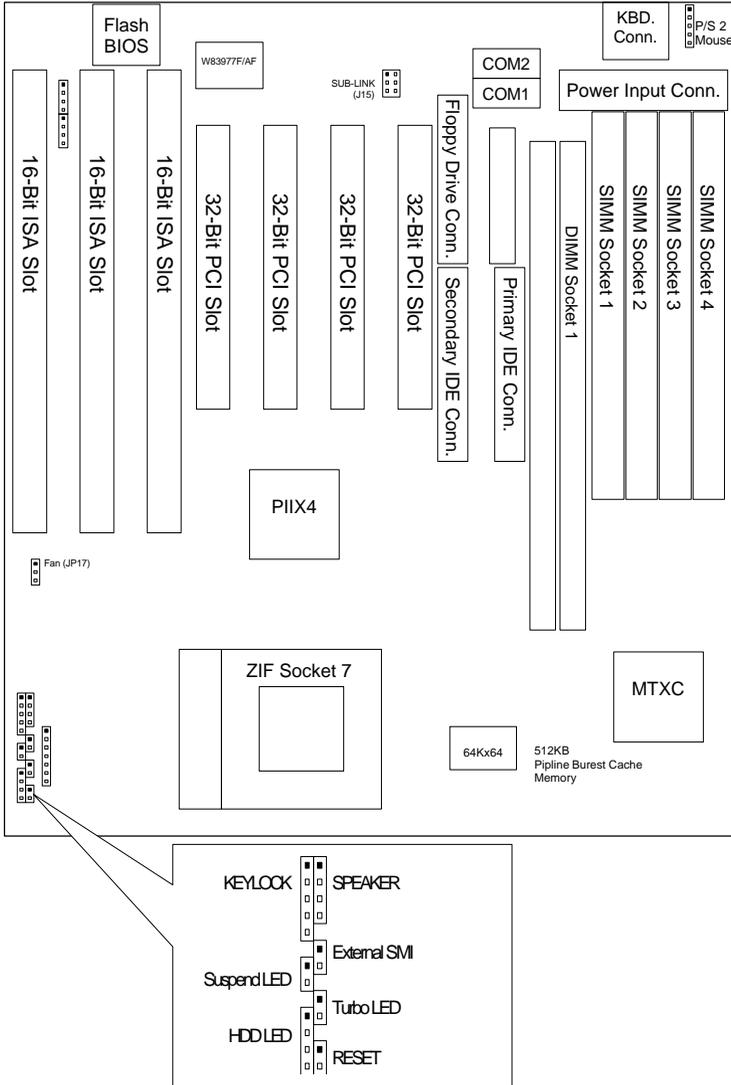
3 Installation Preview

Before you install the SQ574 mainboard into the system chassis you may find it convenient to first configure the mainboard hardware. This section describes how to install memory modules, and how to attach the various system components. Before using your computer you must review the following 6 steps:

1. Installation of DRAM modules (SIMM or DIMM)

2. Installation of the CPU

3. Installation of expansion cards

4. Installation of IDE, I/O cables connection., and Power Supply connection

5. Installation of the Power Core to the System.

6. Setup of the system BIOS software

WARNING: When handling the system upgrade or plug in additional Add-On Card, please be sure your System is Power Off.

3.1 Installation of DRAM modules (SIMM or DIMM)

3.1.1 SIMM (Single Inline Memory Module)

You can configure the system memory size in a variety of ways by using different combinations of the four 72-pin DRAM SIMM. The memory must be 70ns (nanoseconds) or faster using either Fast Page Mode or Extended Data Output (EDO) types. The memory table below shows the different memory size combinations available. Please pay attention to the following restrictions :

1) You must use one pair of sockets at a time in sequence (i.e. SIMM1 and SIMM2, or all four sockets at once).

2) *Each pair of modules must be the same size and speed and may be single sided or double-side*. Module sizes: Single-side SIMMs: 4MB, 8MB, 16MB; Double-side SIMMs: 8MB, 32MB, 64MB

3.1.2 SIMM Combinations

Total Memory (Slot 1-4)	Bank A (Slot 1 & 2)	Bank B (Slot 3 & 4)
8MB	4MBx2	None
16MB	8MBx2	None
32MB	16MBx2	None
64MB	32MBx2	None
8MB	None	4MBx2

Total Memory (Slot 1-4)	Bank A (Slot 1 & 2)	Bank B (Slot 3 & 4)
16MB	None	8MBx2
32MB	None	16MBx2
64MB	None	32MBx2
16MB	4MBx2	4MBx2
24MB	4MBx2	8MBx2
40MB	4MBx2	16MBx2
72MB	4MBx2	32MBx2
24MB	8MBx2	4MBx2
32MB	8MBx2	8MBx2
48MB	8MBx2	16MBx2
80Mb	8MBx2	32MBx2
40MB	16MBx2	4MBx2
48MB	16MBx2	8MBx2
64MB	16MBx2	16MBx2
96MB	16MBx2	32MBx2
72MB	32MBx2	4MBx2
80MB	32MBx2	8MBx2
96MB	32MBx2	16MBx2
128MB	32MBx2	32MBx2
128MB	64MBx2	None
128MB	None	64MBx2
256MB	64MBx2	64MBx2

3.1.3   Installation Procedure for SIMM
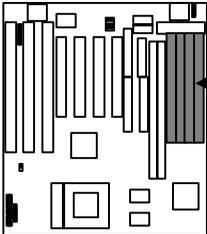
Insert SIMM into the SIMM sockets at a 45 degree angle.

1) PIN1 of the SIMM must match with the PIN1 of the SIMM socket.

2) The module will only insert into the socket one way. An orientation cut-out will prevent you from inserting it the wrong way.

3) Insert the SIMM into the SIMM socket at a 45 degree angle. If pin 1 of the SIMM does not line up with pin 1 of the socket, the SIMM will not insert into the socket. After inserting the SIMM module completely into the socket, push the SIMM module into a vertical position.

4) The module should click into place with the retaining clips at each end of the socket snapping behind the module to secure it.

5) To release the memory module push both retaining clips outwards and carefully rock the module forward.

IMPORTANT: Do not use SIMM that use an extra TTL chip to convert the memory module from asymmetric to symmetric.

3.1.4 DIMM (Dual Inline Memory Modules)

The SQ574 mainboard features two 168-pin DIMM sockets with each supporting 8MB to 128MB of SDRAM/EDO using 1MBx64, 2MBx64, 4MBx64 and 8MBx64 DIMM (Asymmetrical single and double sided). The DRAM interfaces on a 64-bit wide, data path. Also supported is 3.3 volts 66.67Mhz unbuffered Synchronous DRAM (SDRAM) and 3.3V volts 60ns or faster unbuffered EDO DRAM. The EDO DRAM and SDRAM are defined below.

3.1.5 DIMM Combination

Total Memory (DIMM1 and DIMM2)	DIMM1	DIMM2
8MB	8MB	Empty
8MB	Empty	8MB
16MB	8MB	8MB
16MB	16MB	Empty
16MB	Empty	16MB
32MB	16MB	16MB
32MB	32MB	Empty
32MB	Empty	32MB
64MB	32MB	32MB
64MB	64MB	Empty
64MB	Empty	64MB
128MB	64MB	64MB
128MB	128MB	Empty
128MB	Empty	128MB
256MB	128MB	128MB

3.1.6   Installation Procedure for DIMM
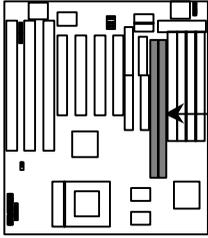
Insert DIMM into the DIMM sockets at a 90 degree angle.

1)   Pin1 of the DIMM must match with pin 1 of the DIMM socket.

2)   The module will only insert into the socket one way. An orientation cut-out will prevent you from inserting it the wrong way.

3)   Insert the DIMM into the DIMM socket at a 90 degree angle. If pin 1 of the DIMM does not line up with pin 1 of the socket, the DIMM will not insert into the socket. After inserting the DIMM completely into the socket, push up on the socket latches securing the DIMM into place.

4)   To release the memory modules, push both latches down and carefully rock the module forward

Important: Do not use DIMM which use an extra TTL to convert the memory module from asymmetric to symmetric.

3.2   Installation of the CPU

The SQ574 comes with a 321-pin ZIF socket 7 for installing the CPU. The Socket 7 will also support future Pentium up-grade processors. It is strongly recommended that a heatsink and CPU cooling fan be used to prevent the CPU from overheating. (Tip) Applying a thermal jelly between the CPU and the heatsink/fan will help cool the CPU.

To install a CPU, remember to take the following precautions against static electric discharge. The basic procedure is as follows:

NOTICE: When installing the CPU into the CPU socket, be sure that PIN 1 of the CPU is in the same corner as PIN 1 of socket. The CPU is an extremely sensitive electrical component and can be easily damaged by static electricity.
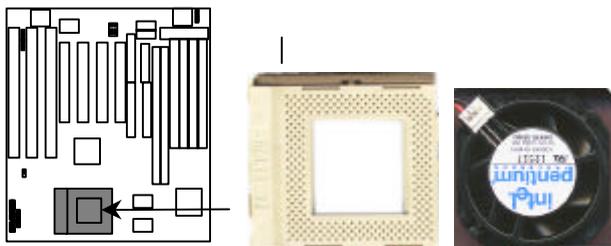
1) Turn off your system and disconnect the power source.

2) Remove the existing CPU from the ZIF socket by pulling the ZIF lever upwards at a 90 degree angle.

3) Insert the CPU with the correct orientation as shown below. Use the notched (white dot) corner of the CPU as your guide. The notch in the corner of the CPU should correspond with PIN 1 of the ZIF socket (Notice: Pin 1 is the blank corner of the ZIF socket with one hole missing).

4) Once the CPU is inserted close the socket's lever.

WARNING: Without a fan, the CPU can overheat and will cause damage to both the CPU and the SQ574 mainboard.

3.3   Installation of Expansion Slots:

3.3.1   ISA & PCI Slots

There are two types of ISA expansion cards, design-Legacy and PnP (Plug & Play). For Legacy cards you must set the cards' jumpers manually. For Plug & Play cards, your system will adjust the IRQs automatically. You can verify the IRQ allocation either by using Microsoft's Diagnostic (MSD.EXE) utility which is in the Windows directory or through the Windows 95 resources menu.

32-bit PCI Slot
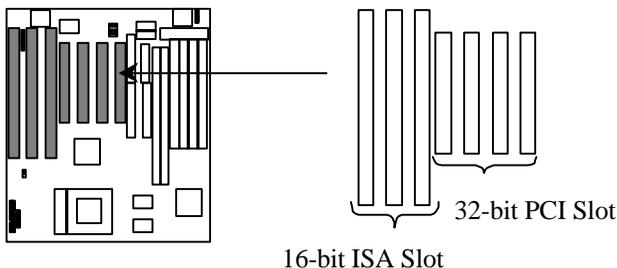
16-bit ISA Slot

3.3.2   Installation Procedure:

The SQ574 has 7 expansion slots on-board. Three are 16-bit ISA Bus expansion connectors and four are 32-bit PCI expansion slots. One of the expansion slots is shared by the connectors and will accommodate either an ISA or a PCI expansion card, but not both at the same time. All four PCI expansion slots accept PCI Bus master cards and fully supported by PCI 2.1 specifications.

To install expansion cards, please read the expansion card's documentation, which shipped with the expansion card, for instructions.

NOTICE: Some expansion cards require an IRQ to work and may cause a conflict. There are total of 16 IRQs but only 6 are free for expansion cards. In case of a conflict please contact the system manufacturer for technical support.

3.4   Installation of IDE, I/O cables connection

3.4.1   Primary IDE Connector (40-pin block) (J14)

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.

Pin	Signal Name	Pin	Signal Name
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	Key
21	DDRQ0 (DDRQ1)	22	Ground
23	I/O Write #	24	Ground
25	I/O Read #	26	Ground
27	IOCHRD	28	+5V V pull-up
29	DDACK0 (DDACK1) #	30	Ground
31	IRQ14 (IRQ15)	32	Reserved
33	Addr 1	34	Reserved
35	Addr 0	36	Addr 2
37	Chip Select 1P (1S) #	38	Chip Select 3P (3S)
39	Activity #	40	Ground

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 end of the on-board connector.

3.4.2   Secondary IDE Connector (40-pin block) (J15)

This connector supports two secondary channel IDE devices and 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.

Pin	Signal Name	Pin	Signal Name
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	Key
21	DDRQ0 (DDRQ1)	22	Ground
23	I/O Write #	24	Ground
25	I/O Read #	26	Ground
27	IOCHRD	28	+5V V pull-up
29	DDACK0 (DDACK1) #	30	Ground
31	IRQ14 (IRQ15)	32	Reserved
33	Addr 1	34	Reserved
35	Addr 0	36	Addr 2
37	Chip Select 1P (1S) #	38	Chip Select 3P (3S)
39	Activity #	40	Ground

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 end of the on-board connector.

3.4.3   Floppy Drive Connector (34-pin block) (J9)

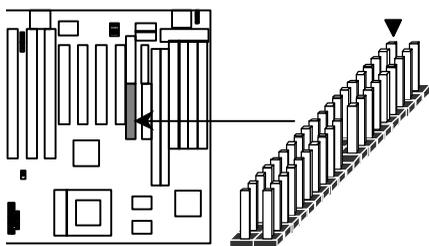The FDC sub-system can control three types (1.2, 1.44, and 2.88MB) of floppy drivers or compatible tape drives. Connection to floppy drives is via a header (J9). The floppy disk interface includes 48mA drivers and Schmit inputs on the drive interface.
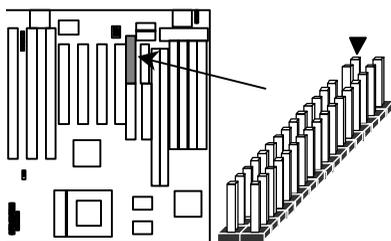
Pin	Signal Name	Pin	Signal Name
1	Ground	2	DENSEL
3	Ground	4	TP
5	Key	6	FDENIN#
7	Ground	8	FDINDX#
9	Ground	10	FDM00#
11	Ground	12	FDDS1#
13	Ground	14	FDDS0#
15	Ground	16	FDM01#
17	MSEN1	18	FDDIR#
19	Ground	20	FDSTEP#
21	Ground	22	FDWD#
23	Ground	24	FDWE#
25	Ground	26	FDTRK0#
27	MSEN0	28	FDWPD#
29	Ground	30	FDRDATA#
31	Ground	32	FDHEAD#
33	Ground	34	DSKCHG#

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 on-board port.

3.4.4   Universal Serial Bus (USB) Port

This SQ574 mainboard has two USB on-board header. USB devices provide a more convenient operating environment and improve data transferring capacity. True Plug-and-Play, this new bus technology will support over 127 different peripherals through a Hub.
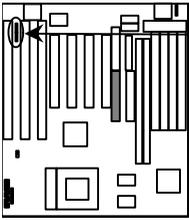
Pin	Signal Name (USB1)	Pin	Signal Name (USB2)
1	+5V	5	+5V
2	USB0-	6	USB1-
3	USB0+	7	USB1+
4	Ground	8	Ground

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 end of the on-board connector.

3.4.5   Power Input Connector (12-pin block) (J8)

This connector supports a standard AT 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.

3.4.6   Keylock and Power_On/Suspended LED Connector (5-pin) (J13)

The SQ574 supports one straight 5 pin header for connecting to front pannel Power/Suspended LED indicator. The Power LED will become blinking once the system get into Suspend Mode.
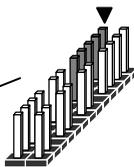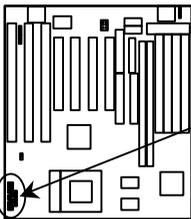
Pin	Signal Name
1	LED+
2	No Connect
3	LED-
4	Keylock
5	Ground

3.4.7   HDD LED Connector (4-pin) (J12)

The SQ574 supports one straight 4 pin header for connecting to front panel Hard Disk activity LED indicator.
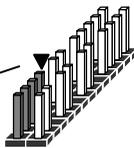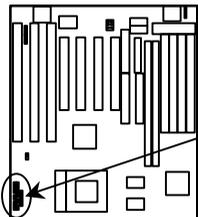
Pin	Signal Name
1	LED+
2	LED-
3	LED-
4	LED+

3.4.8 Reset Switch Connector (2-pin) (J16)

This connector supports the front pannel case-mounted reset. 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.

Pin	Signal Name
1	Reset
2	Ground
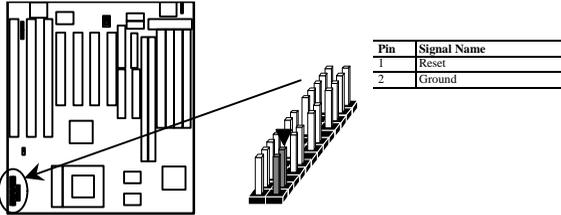
3.4.9 Speaker Connector (4-pin) (J17)

A 1x4 straight header is available to drive a chassis-mounted speaker if desired.

Pin	Signal Name
1	Speaker+
2	No connect
3	No connect
4	Speaker-
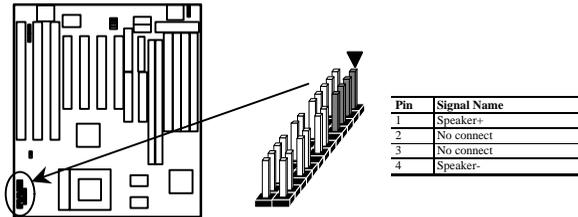
3.4.10 IrDA connector (6-pin) (J11)

The SQ574 mainboard offers an IrDA function. The case must reserve space for the IR module if you want to use the IrDA function. This connector supports optional wireless transmission and reception of infrared data. The module mounts in a small opening on the system case that supports this feature. The efficient distance is 100cm and the transfer rate is 1.44M KB/sec.

Pin	Signal Name
1	+5V
2	Key
3	IrRX
4	Ground
5	IrTX
6	Reserve
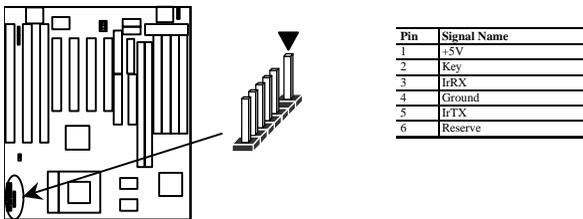
IMPORTANT: You must configure this feature through the BIOS. The IR module is supported by the mainboard via a 6-pin connector and ribbon cable.

3.4.11 Fan_On Control (J7)

This connector supports the on board fan power output, the Fan can be shut down once the system get into Suspended Mode.
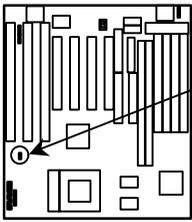
Pin	Signal Name
1	Fan_On
2	+12V
3	Fan_On

3.4.12 PS/2 Keyboard (J2) and Mouse Connector (J3)

The SQ574 mainboard offers 1 PS/2 Keyboard and 1 PS/2 Mouse port as below.
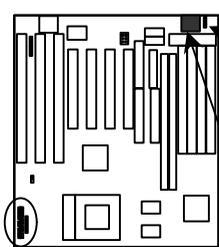
PS/2 Mouse

Keyboard

Pin	Signal Name
1	DATA
2	Key
3	Ground
4	+5V (Fused)
5	Clock
6	No connect

3.4.13 Parallel Port Connector (26-pin Block) (J1)

The motherboard includes a bi-directional 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 other parallel ports are 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.
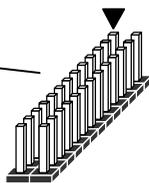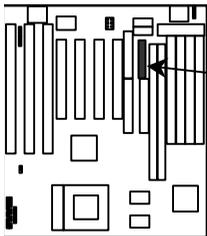
Parallel Port

Pin	Signal Name	Pin	Signal Name
1	STROBE#	14	AUTOFD#
2	DATA BIT 0	15	FAULT#
3	DATA BIT 1	16	PINIT#
4	DATA BIT 2	17	SLCT IN#
5	DATA BIT 3	18	Ground
6	DATA BIT 4	19	Ground
7	DATA BIT 5	20	Ground
8	DATA BIT 6	21	Ground
9	DATA BIT 7	22	Ground
10	ACK#	23	Ground
11	BUSY	24	Ground
12	PEERROR	25	Ground
13	SLCTt		

3.4.14 Serial Port (J4/J5)

The SQ574 has two serial ports. The electrical characteristics are compliant with the EIA-232-D Serial Communications Specifications. The serial ports may be remapped above other installable serial ports or disabled through the BIOS.
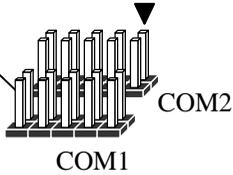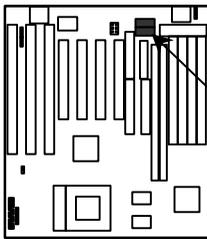
Pin	Signal Name
1	DCD
2	TXD
3	RXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

COM2

COM1

3.4.15 SB-LINK Connector (J15)

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

SB-LINK
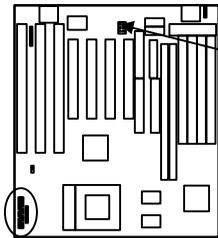
Pin	Signal Name
1	PCPCIGNTN
2	DGND
3	KEY
4	PCPCIREQN
5	DGND
6	SERIRQ

4   BIOS Setup

The SQ574 mainboard uses an Award BIOS, which is stored in a Flash EEPROM and which can be upgraded using a floppy disk-based program. The BIOS has a built-in Setup program that allows users to modify the basic system configuration setting. The settings are then stored in a dedicated battery-backed memory, called CMOS RAM, that retains the information when the power is turned off. The BIOS provides critical low-level support for the system central processing, memory, and I/O subsystems. The Award BIOS has been customized by adding important, but nonstandard, features such as virus and password protection, power management, and detailed fine-tuning of the chipset controlling the system. The rest of this manual is intended to guide you through the process of configuring your system using Setup.

Because jumper settings are no longer needed. The followings show how to clear CMOS and CPU speed:

1.Clear CMOS:

Keep pushing "F10" until system power is on and booting messages appears on screen.

2.Clear CPU Speed:

Keep pushing "INS" until system power is on and booting messages appears on screen.

4.1   Starting 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 out the system and configuring it through the power-on self test (POST). When these preliminaries are finished, the BIOS seeks an operating system on one of the data storage devices (hard drive, floppy drive, etc.). The BIOS launches the operating system and hands control of system operations to it.

To start Setup, press the <Del> key some time before or while a message similar to this appears briefly at the bottom of the screen during POST:

   TO ENTER SETUP PRESS **DEL** KEY

If the message disappears before you respond and you still wish to enter Setup, reboot the system to try again by turning the system OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not reboot, an error message will be displayed at the bottom of the screen and you will again be asked to,

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

4.1.1   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 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.

You can invoke this override by immediately pressing Insert; when you restart your computer. You can restart by either using the ON/OFF switch, the RESET button or by pressing Ctrl-Alt-Delete.

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. The Chipset defaults have been carefully chosen by Award or your system manufacturer for the best performance and reliability. Even a seemingly small change to the Chipset setup may causing 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.

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

```
                      ROM PCI/ISA BIOS (2A59IB3G)
                           CMOS SETUP UTILITY
                          AWARD SOFTWARE, INC.
   ┌─────────────────────────────────────────────────────────────────┐
   │   STANDARD CMOS SETUP               INTEGRATED PERIPHERALS        │
   │                                                                   │
   │   BIOS FEATURE SETUP                SUPERVISOR PASSWORD           │
   │                                                                   │
   │   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.

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.

4.3   Standard CMOS Setup Menu

In the Standard CMOS Menu (Figure2) 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.

```
                    ROM PCI/ISA BIOS (2A59IB3G)
                       STANDARD CMOS SETUP
                       AWARD SOFTWARE, INC.

   Date (mm:dd:yy) : Fri, Dec 26, 1997
   Time (hh:mm:ss) :  9: 55 : 18

   HARD DISKS          TYPE    SIZE    CYLS    HEAD    PRECOMP  LANDZ  SECTOR   MODE
   Primary Master  :  Auto      0       0       0        0       0       0     Auto
   Primary Slave   :  Auto      0       0       0        0       0       0     Auto
   Secondary Master:  Auto      0       0       0        0       0       0     Auto
   Secondary Slave :  Auto      0       0       0        0       0       0     Auto


   Drive A    : 1.44MB, 3.5 in.               Base Memory:          640K

   Drive B    : None                          Extended Memory:    15360K

                                              Other Memory:         384K

   Video      : EGA/VGA                       ─────────────────────────
   Halt On    : All Errors                    Total Memory:       16384K

 ESC  : Quit          ↑ ↓ → ←  : Select Item        PU/PD/+/- : Modify
 F1   : Help          (Shift)F2 : Change Color
```

Figure 2

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, 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 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.

  - 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 detects 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 detects 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.

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

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

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 (2A59IB3G)
                        BIOS FEATURES SETUP
                       AWARD SOFTWARE, INC.

  Virus Warning            : Disabled    Video  BIOS Shadow        :  Enabled
  External Cache           : Enabled     C8000-CBFFF Shadow        :  Disabled
  Quick Power On Self Test : Disabled    CC000-CFFFF Shadow        :  Disabled
  Boot Sequence            : A,C, SCSI   D0000-D3FFF Shadow        :  Disabled
  Swap Floppy Drive        : Disabled    D4000-D7FFF Shadow        :  Disabled
  Boot Up Floppy Seek      : Enabled     D8000-DBFFF Shadow        :  Disabled
  Boot Up Numlock Status   : On          DC000-DFFFF Shadow        :  Disabled
  Typematic Rate Setting   : Disabled
  Typematic Rate (Chars/Sec) : 6
  Typematic Delay (Msec)   : 250
  Security Option          : Setup
  Assign IRQ For VGA       : Disabled    ESC : Quit         ↑↓→←: Select Item
  PCI/VGA Palette Snoop    : Enabled     F1  : Help         PU/PD/+/- : Modify
  OS Select For DRAM > 64MB  : Non-OS2   F5  : Old Values   (Shift)F2 : Color
  Report No FDD For WIN 95  :No          F7  : Load Setup Defaults
```

Figure 3

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 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.

4.4.3 Quick Power On Self Test

Select *Enabled* to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.

4.4.4   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 sequence options of three drives 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.

4.4.5   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.

4.4.6   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.

4.4.7   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.

4.4.8   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.

4.4.9   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.

4.4.10   Typematic Delay (Msec)

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

4.4.11   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.

4.4.12   Assign IRQ for VGA

Assign the IRQ# for VGA card.

4.4.13   OS select for DRAM > 64MB

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

4.4.14   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.

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.

4.5   Chipset Features Setup Menu

```
                    ROM PCI/ISA BIOS (2A59IB3G)
                     CHIPSET FEATURES  SETUP
                      AWARD SOFTWARE, INC.

    Auto Configuration      :Enabled
    DRAM Timing             :60ns

    DRAM Leadoff timing     :10/6/3        CPU Type           :Intel P55C
    DRAM Read Burst (EDO/FP) :x222/x333    CPU Vcore          :2.80 V
    DRAM Write Burst Timing :x222          CPU Speed          :233 (66*3.5)
    System BIOS Cacheable   :Enabled
    Video BIOS Cacheable    :Enabled
    8 Bit I/O Recovery Time :1
    16 Bit I/O Recovery Time :2
    Memory Hole At 15M-16M  :Disabled
    DRAM Refresh Rate       :15.6 us

                                          ESC  : Quit      ↑ ↓ → ←   : Select
                                          Item
                                            F1  : Help       PU/PD/+/- : Modify
                                            F5  : Old Values  (Shift)F2 : Color

                                            F7  : Load Setup Defaults
```

Figure 4

4.5.1   DRAM Timing

The value in this field depends on performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

4.5.2   DRAM Lead off Timing/DRAM Read Burst(EDO/FP)
DRAM Write Burst Timing

These three items had been set up for working stable. Please do not make any modification.

4.5.3   System BIOS Cacheable

Selecting *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.

4.5.4   Video BIOS Cacheable

Selecting *Enabled* allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

4.5.5   8/16 Bit I/O Recovery Time

The I/O recovery mechanism adds bus clock cycles between PCI-originated I/O cycles to the ISA bus. This delay takes place because the PCI bus is so much faster than the ISA bus. These two fields let you add recovery time (in bus clock cycles) for 16-bit and 8-bit I/O.

4.5.6 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.

4.6   Power Management Setup Menu

```
                  ROM PCI/ISA BIOS (2A59IB3G)
                     POWER MANAGEMENT SETUP
                       AWARD SOFTWARE, INC.

    Power Management   :Disabled    ** Reload Global Timer Events **
    PM Control by APM  :Yes         IRQ [3-7,9-15], NMI   :  Disabled
    Video Off Method   :Blank screen Primary IDE 0        :  Disabled
    Video Off After    :Standby      Primary IDE 1        :  Disabled
    MODEM Use IRQ      :3            Secondary IDE 0       :  Disabled
    Doze Mode          :Disabled     Secondary IDE 1       :  Disabled
    Standby Mode       :Disabled     Floppy Disk          :  Disabled
    Suspend Mode       :Disabled     Serial Port          :  Disabled
    HDD Power Down     :Disabled     Parallel Port        :  Disabled
    VGA Active Monitor :Disabled
    Resume by Ring     :Disabled
    IRQ 8 Break suspend :Disabled


                                 ESC  :  Quit       ↑↓→← : Select Item
                                 F1   :  Help       PU/PD/+/- : Modify
                                 F5   :  Old Values  (Shift)F2 : Color

                                 F7   :  Load Setup Defaults
```
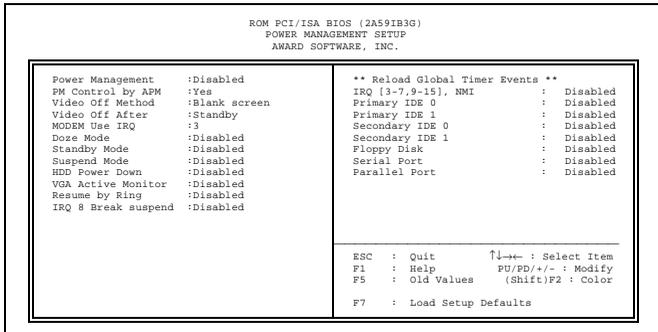
Figure 5

4.6.1   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).

4.6.2   PM Control by APM

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

4.6.3   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.

4.6.4   Video Off After

As the system moves from lesser to greater power-saving modes, select the mode in which you want the monitor to blank.

4.6.5   MODEM Use IRQ

This selection allows you to set the IRQ for the modem.

4.6.6   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

4.6.7   Standby Mode

After the selected period of system inactivity (1 minute to 1 hour), the fixed disk drive and the video shut off while all other devices still operate at full speed.

4.6.8   Suspend Mode

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

4.6.9   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.

4.6.10   VGA Active Monitor

When *Enabled,* any video activity restarts the global timer for Standby mode.

4.6.11   Resume by Ring

The system will be awaked by telephone ring if this feature set to Enable

4.6.12   IRQ8 Clock Event

You can turn *On* or *Off* monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

4.6.13   Reload global Timer Evets

When *Enabled,* an event occurring on each device listed below restarts the global time for Standby mode.

- IRQ3 -7, 9-15, NMI

- Primary IDE 0

- Primary IDE 1
- Secondary IDE 0
- Secondary IDE 1
- Floppy Disk
- Serial Port
- Parallel Port

4.7   PCI Configuration Setup Menu

```
             ROM PCI/ISA BIOS (2A59IB3G)
             PNP/PCI CONFIGURATION SETUP
                 AWARD SOFTWARE, INC.

 PNP OS Installed          :No          PCI IDE IRQ Map To :          PCI-AUTO
 Resources Controlled By   :Auto
 Reset Configuration Data  :Disabled     Primary          IDE INT#    :  A
                                         Secondary        IDE INT#    :  B




                                        ESC  : Quit        ↑↓→← : Select Item
                                        F1   : Help        PU/PD/+/- : Modify
                                        F5   : Old Values  (Shift)F2 : Color

                                        F7   : Load Setup Defaults
```
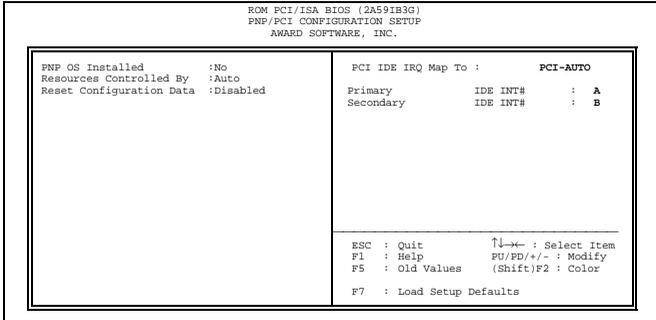Figure 6

4.7.1   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 assigns them.

4.7.2   PnP O/S Installed:

Select *Yes* if the system operating environment is Plug-and-Play aware (e.g., Windows 95).

4.7.3   Reset Configuration Data

Normally, you leave this field *Disabled*. Select *Enabled* to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

4.7.4   IRQ # Assigned to

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

4.7.5   DMA # Assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel.

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

4.7.6   PCI IDE IRQ Map To

This field lets you select PCI IDE IRQ mapping or PC AT (ISA) interrupts. If your system does not have one or two PCI IDE connectors on the system board, select values according to the type of IDE interface(s) installed in your system (PCI or ISA). Standard ISA interrupts for IDE channels are IRQ14 for primary and IRQ15 for secondary.

4.7.7   Primary/Secondary IDE INT#

Each PCI peripheral connection is capable of activating up to four interrupts: INT# A, INT# B, INT# C and INT# D. By default, a PCI connection is assigned INT# A. Assigning INT# B has no meaning unless the peripheral device requires two interrupt services rather than just one. Because the PCI IDE interface in the chipset has two channels, it requires two interrupt services. The primary and secondary IDE INT# fields default to values appropriate for two PCI IDE channels, with the primary PCI IDE channel having a lower interrupt than the secondary.

4.8   Integrated peripherals Menu

```
              ROM PCI/ISA BIOS (2A59IB3G)
              INTEGRATED PERIPHERALS SETUP
                 AWARD SOFTWARE, INC.

 IDE HDD Block Mode     : Enabled     Onboard Parallel Port   : 378/IRQ7
 IDE Primary Master PIO  : Auto       Parallel Port Mode      : ECP+EPP
 IDE Primary Slave PIO   : Auto       ECP Mode use DMA        : 3
 IDE Secondary Master PIO : Auto
 IDE Secondary Slave PIO  : Auto
 IDE Primary Master UDMA  : Auto
 IDE Primary Slave UDMA   : Auto
 IDE Secondary Master UDMA: Auto
 IDE Secondary Slave UDMA : Auto


 On-Chip Primary PCI IDE  : Enabled
 On-Chip Secondary PCI IDE : Enabled
 USB Keyboard Support    : Disabled
 Onboard FDD Controller  : Enabled
 Onboard Serial Port 1   : 3F8/IRQ4    ESC : Quit         ↑↓→← : Select Item
 Onboard Serial Port 2   : 2F8/IRQ3    F1  : Help         PU/PD/+/- : Modify
 UART Mode Select        : Normal      F5  : Old Values   (Shift)F2 : Color

                                       F7  : Load Setup Defaults
```
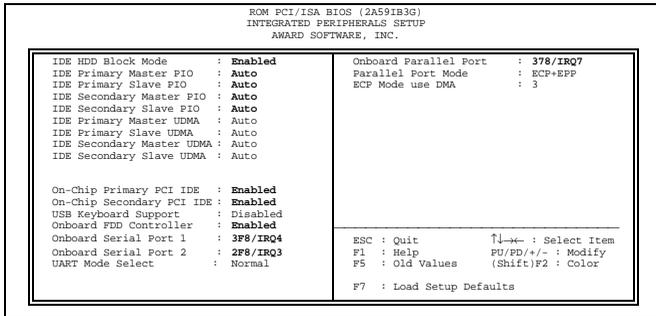
Figure 7

4.8.1   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.

4.8.2   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. Modes 0 through 4 provide successively increased performance. In *Auto* mode, the system automatically determines the best mode for each device.

4.8.3   IDE Primary/Secondary Master/Slave UDMA

Ustra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select *Auto* to enable BIOS support.

4.8.4   On-Chip Primary/Secondary PCI IDE

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

4.8.5   USB Keyboard Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

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 an add-in FDC or the system has no floppy drive, select *Disabled* in this field.

4.8.7   Onboard Serial Port 1/2

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

4.8.8   UART Mode Select

This selection allows you to select Normal or IrDA, or ASKIR to use the serial port.

4.8.9   Onboard Parallel Port

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

4.8.10   Onboard Parallel 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

4.8.11   ECP Mode Use DMA

Select a DMA channel for the port.

4.9   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

4.10   Password Setting

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.