SC-5TVx

SURIA Vx 256Kb PB Cache Main Board
User's Guide & Technical Reference
82430VX PCI Chipset AT Main Board

Factory Part # 5VA0/A2/A5

Table of Contents

1　Introduction

The 82430 VX/P54C PCI mainboard is a high-performance system board that supports Pentium P54CX family CPUs. You can install 256K to 512K of external cache memory on the mainboard. The mainboard is fully compatible with industry standards, and adds many technical enhancements.

Key Features

*   Supports P54C/P55C family CPUs running at 75 ~ 200 MHz speeds; Cyrix 6X86/6x86L CPUs running at P120[+]/P133[+]/P150[+]/P166[+] MHz speeds; and AMD K5 CPUs.
*   **Supports SOCKET 7** for upgrade
*   Integrated Second Level (L2) Cache Controller
    — Write Back Cache Modes and Direct Mapped Organization
    — **On-board 256K Pipeline Burst SRAMs Cache and upgrade slot supports**
*   Integrated DRAM Controller
    — Supports Fast-Page Mode, EDO, and Synchronus DRAM (both symmetrical and asymmetrical addressing)
    — Supports 8MB, 16MB, and 32MB Unbuffered DIMM memory
    — On-board memory configurations from **4 to 128 Mbytes**
*   Supports Pentium / P54C SMM Mode and CPU Stop Clock
*   Supports "**Table-Free**" DRAM configuration in any bank
*   **Supports Universal Serial Bus — USB (Optional)**
*   Compliant to PCI specifications v2.1
*   Four 32-bit PCI slots (Masters) and Four ISA slots, 4-layer PCB
*   System BIOS built-in NCR306 SCSI Card BIOS and **"Plug and Play"** function
*   On-board built-in PCI Master IDE controller and floppy controller
*   On-board supports for two high speed UARTS (w/i 16550 FIFO) and Multimode parallel port for Standard, Enhanced (EPP) and high speed (ECP) modes, PS/2 mouse function
*   **On-board supports FLASH Memory for easy upgrade BIOS**
*   **On-board supports PS/2 mouse function.**

Unpacking the Mainboard

The mainboard package contains:

- The 82430VX / P54C Mainboard
- This User's Guide

Note: Do not unpack the mainboard until you are ready to install it.

Follow the precautions below while unpacking the mainboard.

1. Before handling the mainboard, ground yourself by grasping an unpainted portion of the system's metal chassis.

2. Remove the mainboard from its anti-static packaging and place it on a grounded surface, component side up.

3. Check the mainboard for damage. If any chip appears loose, press carefully to seat it firmly in its socket.

Do not apply power if the mainboard appears damaged. If there is damage to the board contact your dealer immediately.

Electrostatic Discharge Precautions

Make sure you ground yourself before handling the mainboard or other system components. Electrostatic discharge can easily damage the components. Note that you must take special precaution when handling the mainboard in dry or air-conditioned environments.

Take these precautions to protect your equipment from electrostatic discharge:

- Do not remove the anti-static packaging until you are ready to install the mainboard and other system components.
- Ground yourself before removing any system component from its protective anti-static packaging. To ground yourself grasp the expansion slot covers or other unpainted portions of the computer chassis.
- Frequently ground yourself while working, or use a grounding strap.
- Handle the mainboard by the edges and avoid touching its components.

Mainboard Layout w/ Default Settings
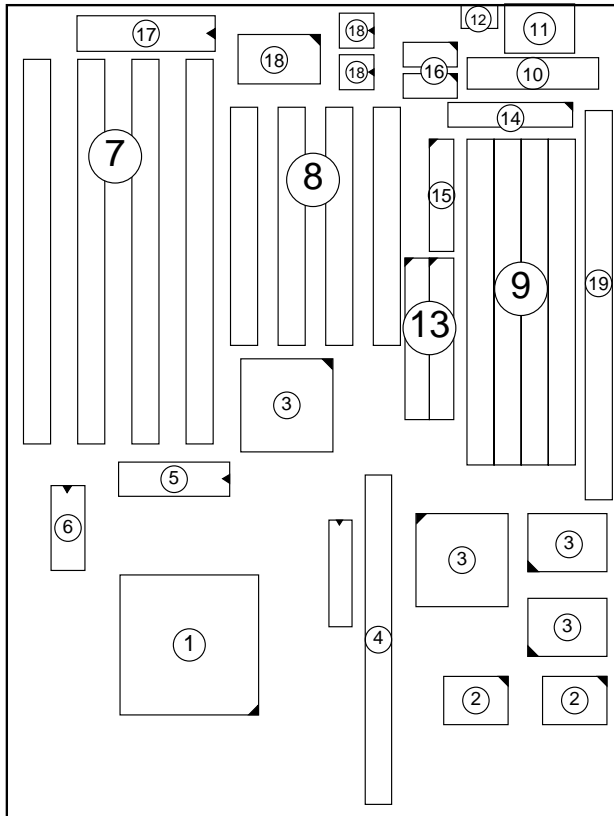
Figure 1–1. Mainboard Layout

1. P54C/6x86 in ZIF socket 7
2. Pipelined Burst SRAM
3. 82430 VX Chipset
4. Pipelined Burst SRAM Module Slot
5. PnP FLASH BIOS
6. Real Time Clock (RTC)
7. ISA Slots
8. PCI Slots
9. SIMM Memory Bank
10. 5V DC Power Connector
11. Keyboard Connector
12. PS/2 Mouse Connector
13. IDE1/IDE2 Connector
14. Floppy Connector
15. Parallel Port Connector
16. COM1/COM2 Connector
17. Keyboard BIOS
18. Super I/O Chipset
19. Unbuffered DIMM Memory Bank

Default settings are as follows: Pentium 100MHz CPU, 256K W/B Pipelined Burst cache, Address Pipeline Enabled, On-board Local Bus IDE Enabled, FDC Enabled, 2 high speed UARTS Enabled (w/ 16550 FIFO), 1 EPP/ECP port (ECP + EPP mode), and 5V DRAM/3.3V DIMM.
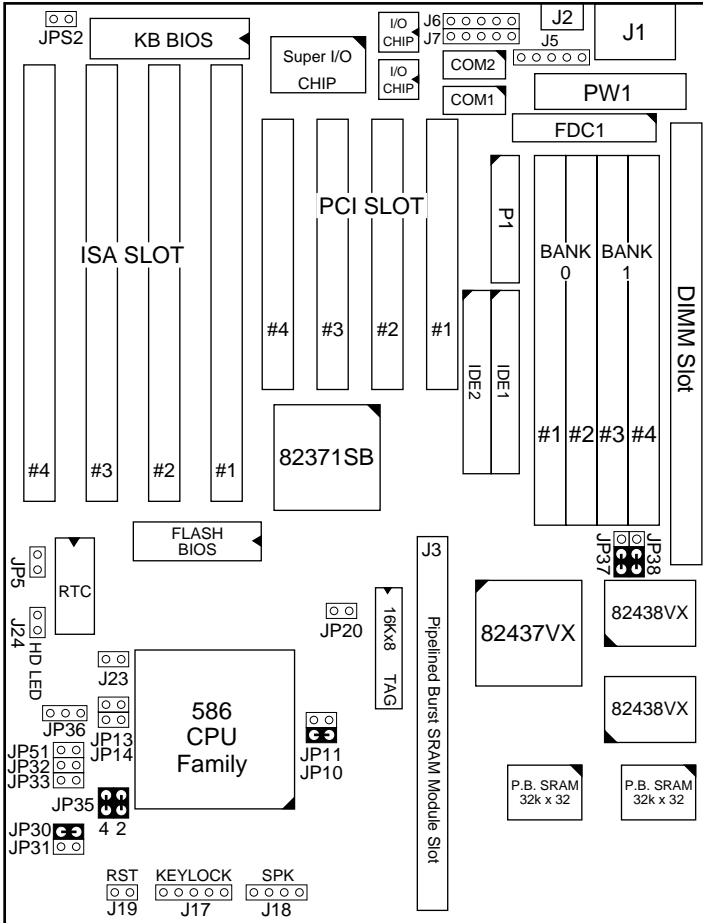
Figure 1–2. Mainboard Default Setting

Important: *Make sure the system is well ventilated to prevent overheating and ensure system stability.*

2   Hardware Setup

This chapter explains how to configure the mainboard's hardware. After you install the mainboard, you can set jumpers, install memory on the mainboard, and make case connections. Refer to this chapter whenever you upgrade or reconfigure your system.

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*CAUTION***:**   ***Turn off power to the mainboard, system chassis, and peripheral devices before performing any work on the mainboard or system.***

Jumpers

Factory Set Jumpers

The following jumpers are set at the factory as below.

Jumpers	Factory settings
JP1, JP22, JP35	**Factory fixed.**

J23: Sleep Switch Connector Enable/Disable

Toggle this jumper to force the system into power saving (Green) mode. Any hardware IRQ signal makes the system wakeups.

JP5: CMOS Clear Jumper

Clear the CMOS memory by momentarily shorting this jumper; then open the jumper to retain new settings.

CMOS Setting	JP5
Retain CMOS data (default)	● ● 1 2
Clear CMOS data	● ● 1 2

CPU Type Configuration

This section shows you how to configure your CPU step by step. Note that you need to check the CPU voltage before installation.

❑ Step 1: Frequency Setting

Pentium – 75/90/100 CPU Settings (1.5 x clock)
AMD K5 – PR75/PR90/PR100/PR120/PR133 (1.5 x clock)

Pentium (P54CX) – 75/50 MHz
AMD K5 (5$_K$86) – PR75/50 MHz
(Red Caps)

JP11
JP10

AMD 5$_K$86 (SSA5) – PR90/55 MHz
(Red Caps)

JP11
JP10

Pentium (P54CX) – 90/60 MHz
AMD K5 (5$_K$86) – PR90/60 MHz
AMD K5 – PR120/60 MHz
(Red Caps)

JP11
JP10

Pentium (P54CX) – 100/66 MHz
AMD K5 (5$_K$86) – PR100/66 MHz
AMD K5 – PR133/66 MHz
(Red Caps)

JP11
JP10
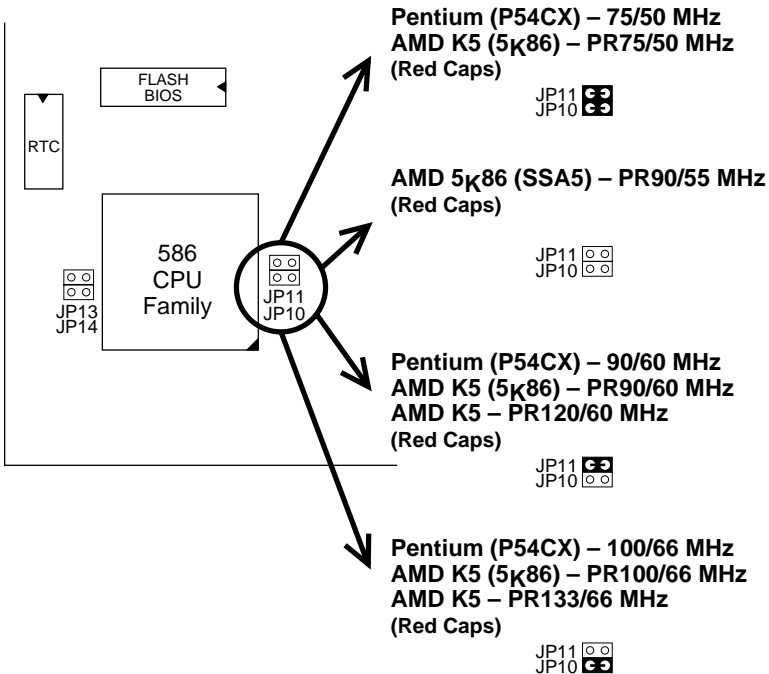
Figure 2–1–1.   CPU Jumper Settings

Note: 1. You must equip the CPU with a fan and heat sink for system
*   stability.*
*   2. AMD K5–PR75/90/100 = AMD 5$_k$86(SSA5)–P75/90/100.*

Pentium – 100/120/133 CPU Settings (2.0 x clock)

Cyrix 6x86/6x86L – P120+/P133+/P150+/P166+ CPU Settings

(2.0 x clock)
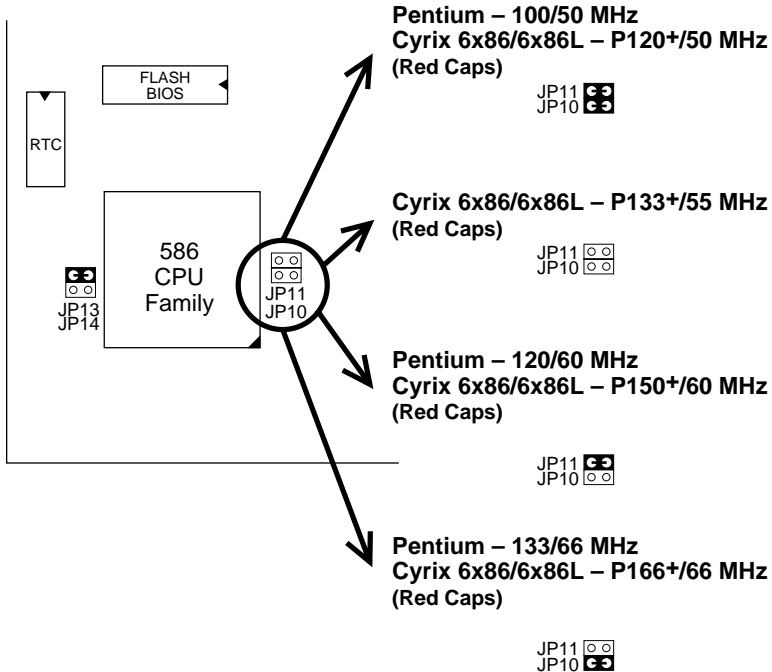
Figure 2–1–2. CPU Jumper Settings

Note: 1. You must equip the CPU with a fan and heat sink for system stability.

2. Cyrix 6x86 – P166+ has to be matched with 60ns DRAMs.

Pentium/AMD – 150/166 CPU Settings (2.5 x clock)
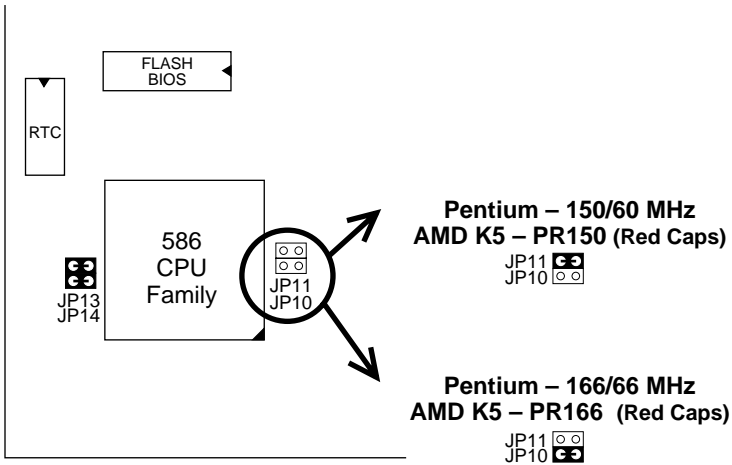
Figure 2–1–3. CPU Jumper Settings

Note: *You must equip the CPU with a fan and heat sink for system stability.*

Pentium – 180/200 CPU Settings (3.0 x clock)
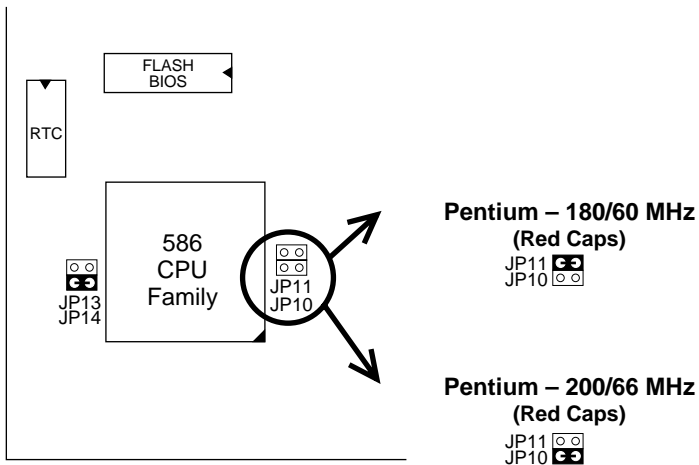
Figure 2–1–4. CPU Jumper Settings

Note: *You must equip the CPU with a fan and heat sink for system stability.*

❑ Step 2: CPU Single/Dual Voltage Setting

Single Voltage CPU Setting

Signal voltage CPUs use the same voltage for VIO and VCore and has been used traditionally. The CPUs which fall into this category are Intel P54CX, AMD-K5-PRxxxBx, AMD-K5-PRxxxFx, and Cyrix 6x86. Refer to the following figures to set these CPUs' voltage:
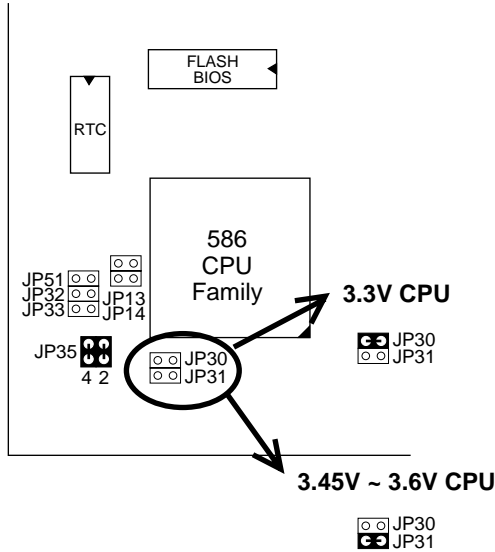
Figure 2–2–1. Single Voltage CPU

Dual Voltage CPU Setting

Dual voltage CPUs are designed to use different voltage for VIO and VCore and they include Intel P55CX, AMD-K5-PRxxxHx, AMD-K5-PRxxxJx, AMD-K5-PRxxxKx, Cyrix 6x86L, and Cyrix M2. Refer to the following figures to set these CPUs' voltage:
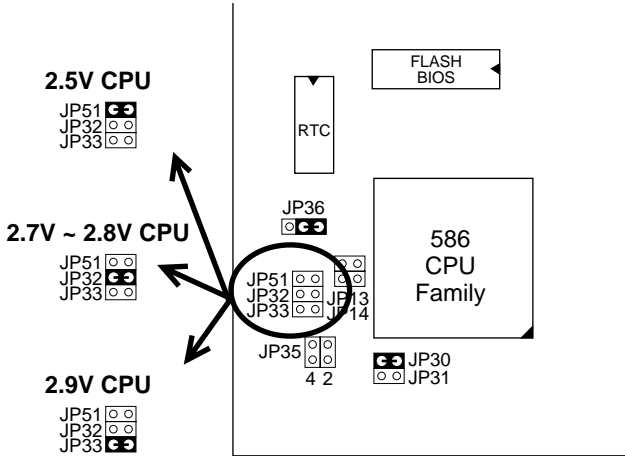
Figure 2–2–2. Dual Voltage CPU Setting

Memory Configuration
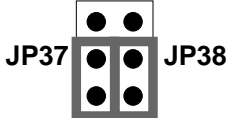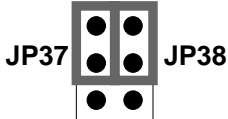
The mainboard supports two banks of **72-pin SIMM, EDO DRAM, and one 3.3V/5V Unbuffered DIMM.** The mainboard requires SIMM of at least 70ns access time.

Single-side SIMM	Double-side SIMM
4MB = 1MB x 36(32)	2MB = 512K x 36(32)
16MB = 4MB x 36(32)	8MB = 2MB x 36(32)
64MB = 16MB x 36(32)	32MB = 8MB x 36(32)

The mainboard supports **from 4 to 128 Mbytes** with no other restrictions on memory configurations. You can install SIMM in any combination without having to rely on a memory configuration table. Memory configuration is thus "**Table-Free**" in any SIMM bank.

DIMM Voltage Setting

You must check the voltage of your DIMM before you install it. See Jumper 37 and Jumper 38 to configure the proper voltage for DIMM.

Type of DIMM	JP37, JP38
3.3V SDRAM (default)	JP37 ⬚ JP38
5V Fast-Page Mode and EDO	JP37 ⬚ JP38

Note: 1. You must install two strips of SIMM modules to complete a bank.

*2. Bank 1 and DIMM share the same part of DRAM architecture so that the **system only recognizes** DIMM when you install DIMM and Bank1 together.*

Cache Configuration

The mainboard has a write-back caching scheme. You can configure the mainboard's cache by installing cache chips in the sockets noted below and then set jumpers JP20 to set the size of SRAM you installed. See Figures 2–3–1~2–3–2 for cache configurations.

Cache Size and RAM Locations

Cache Size	Cache RAM	TAG RAM	Cacheable Range
256KB	32K x32, 2 pcs (or 256K module) on U23, U24 (or J3)	16K x 8 on U15	64 MB
512KB	32K x 32, 2pcs + 256K module on U23, U24, and J3	16K x 8 on U15	128 MB

256K Pipelined Burst Cache Configuration
1.   Leave JP20 opened when you have 256K Pipelined Burst SRAM CHIPs onboard.
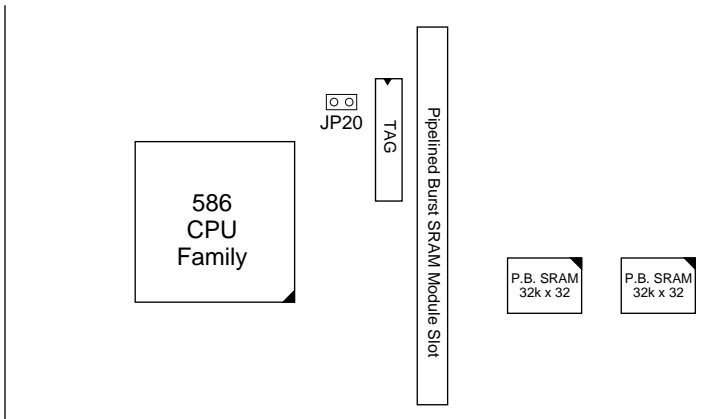
Figure 2–3–1. 256K Pipelined Burst Cache Configuration

512K Pipelined Burst Cache Configuration
1.   Insert Jumper into JP20 when you have 512K Pipelined Burst SRAM (256K SRAM CHIPs and 256K Pipelined Burst SRAM module.)
2.   Due to the various design, contact the supplier for Pipelined Burst SRAM module when you want to upgrade to 512K cache on your motherboard.
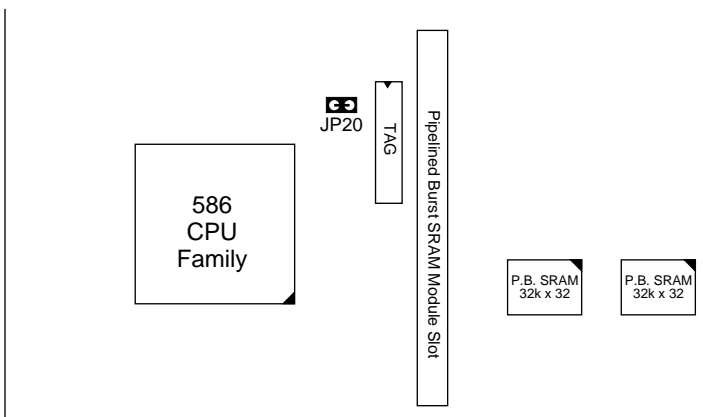
Figure 2–3–2. 512K Pipelined Burst Cache Configuration

Multi I/O Port Addresses

Default settings for multi-I/O port addresses are shown in the table below.

Port	I/O Address	IRQ	Status
LPT1*	378H	7	ECP + EPP
COM1	3F8H	4	
COM2	2F8H	3	

* If default I/O port addresses conflict with other I/O cards (e.g. sound cards or I/O cards), you must adjust one of the I/O addresses to avoid address conflict. (You can adjust these I/O addresses from the BIOS.

Note: Some sound cards have a default IRQ setting for IRQ7, which may conflict with printing functions. If this occurs do not use sound card functions at the same time you print.

Connectors

Attach the mainboard to case devices, or an external battery, via connectors on the mainboard. Refer to Figure 1-1 for connector locations and connector pin positions.

J1 – Keyboard Connector

A five-pin female DIN keyboard connector is located at the rear of the board. Plug the keyboard jack into this connector.

J17 – Keylock & Power LED Connector

J17 is a connector for a lock that may be installed on the system case for enabling or disabling the keyboard. J17 also attaches to the case's Power LED. (Pin 1–2 for power LED, pin3–5 for keylock.)

J18 – Speaker Connector

Attach the system speaker to connector J18.

PW1 – Power Supply Connectors

The mainboard requires a power supply with at least 200 watts and a "power good" signal. PW1 has two six-pin male header connectors. Plug the dual connectors from the power directly onto the board connector while making sure the black leads are in the center.
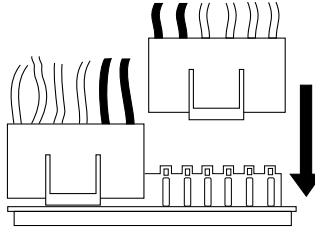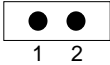
J19 – Hardware Reset Control

Attach the Reset switch to J19. Closing the Reset switch restarts the system.

JPS2 – PS/2 Mouse Connector

Set PS/2 mouse function enabled or disabled.

PS/2 Mouse Function	JPS2
Disabled (default)	● ● 1 2
Enabled	● ● 1 2

Note: The IRQ12 is dedicated to the PS/2 mouse when choosing enabled of PS/2 Mouse Function.

J2 – PS/2 Mouse Connector

Attach PS/2 mouse cable to this connector.

IDE1/IDE2 – On-board Primary/Secondary IDE HDD Connectors

Attach on-board hard disk drives to these connectors.

J24 – HDD LED Connectors

Attach on-board hard disk drive LEDs to this connector. The LED lights when an HDD is active.

COM1/COM2 Connectors

Attach COM1/COM2 cable to these connectors.

FDC1 Connector

Attach floppy cable to this connector.

P1 – Parallel Port Connector

Attach parallel port cable to this connector.

J3 – Pipelined Burst SRAM Module Slot

Contact your supplier for Pipelined Burst SRAM upgrade module to upgrade your on-board cache SRAM up to 512KB. Make sure JP20 are set for the right size when you upgrade your cache SRAM.

J6, J7 – Universal Serial Bus Connector (Optional)

Attach USB cable to these connectors for external USB device.

J5 – IR Connector (Optional)

Attach 5-pin Infra Red device cable to this connector.

3   BIOS Setup

The mainboard's BIOS setup program is the ROM PCI/ISA BIOS from Award Software Inc. Enter the Award BIOS program's Main Menu as follows:

1. Turn on or reboot the system. After a series of diagnostic checks, you are asked to press DEL to enter Setup.

2. Press the <DEL> key to enter the Award BIOS program and the main screen appears:

```
                        ROM PCI/ISA BIOS
                       CMOS SETUP UTILITY
                     AWARD SOFTWARE, INC.
```

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PCI & ONBOARD I/O SETUP	HDD LOW LEVEL FORMAT
LOAD SETUP DEFAULTS	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING

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

```
                  Time, Date, Hard Disk Type...
```

3. Choose an option and press <Enter>. Modify the system parameters to reflect the options installed in the system. (See the following sections.)

4. Press <ESC> at anytime to return to the Main Menu.

5. In the Main Menu, choose "SAVE AND EXIT SETUP" to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program.

The Main Menu options of the Award BIOS are described in the sections that follow.

Standard CMOS Setup

Run the Standard CMOS Setup as follows.

1. Choose "STANDARD CMOS SETUP" from the Main Menu. A screen appears.

```
                    ROM PCI/ISA BIOS
                   STANDARD CMOS SETUP
                   AWARD SOFTWARE, INC.

  Date (mm:dd:yy) : Fri, Feb 1 1995
  Time (hh:mm:ss) :  7 : 30 : 33

  HARD DISKS        TYPE  SIZE    CYLS HEAD  PRECOMP  LANDZ  SECTOR  MODE

  Primary Master   : None   0       0    0        0      0       0  ----
  Primary Slave    : None   0       0    0        0      0       0  ----
  Secondary Master : None   0       0    0        0      0       0  ----
  Secondary Slave  : None   0       0    0        0      0       0  ----

  Drive A : 1.44M, 3.5 in.
  Drive B : None                     Base Memory:     640K
                                  Extended Memory:    3328K
  Video  : EGA/VGA                   Other Memory:     128K
  Halt On : All Errors
                                    Total Memory:     4096K

  Esc : Quit           ↑↓ → ←    : Select Item   PU/PD/+/- : Modify
  F11 : Help          (Shift) F2 : Change Color   F3 : Toggle Calendar
```

2. Use arrow keys to move between items and select values. Modify selected fields using PgUp/PgDn/+/– keys. Some fields let you enter values directly.

Date (mm/dd/yy)	Type the current date.
Time (hh:mm:ss)	Type the current time.
Primary (Secondary) Master & Slave	Choose from the standard hard disk types 1 to 46. Type 47 is user definable. If a hard disk is not installed choose "Not installed." (default)
Drive A & B	Choose 360KB , 5 1/4 **in**., 1.2MB , 5 1/4 **in**., 720KB , 3 1/2 **in**., 1.4M , 3 1/2 **in**.(default), 2.88 MB, 3 1/2 **in**. or Not installed
Video	Choose Monochrome, Color 40x25, VGA/EGA (default), Color 80x25

3. When you finish, press the <ESC> key to return to the Main Menu.

BIOS Features Setup

Run the BIOS Features Setup as follows.

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen with a list of items appears. (**The screen below shows the BIOS default settings.**)

```
                    ROM PCI/ISA BIOS
                    BIOS FEATURES SETUP
                    AWARD SOFTWARE, INC.
┌─────────────────────────────────────┬─────────────────────────────────────┐
│ CPU Internal Cache       : Enabled  │ Video  BIOS Shadow  : Enabled       │
│ External Cache           : Enabled  │ C8000-CBFFF Shadow  : Disabled      │
│ Quick Power on Self Test : Enabled  │ CC000-CFFFF Shadow  : Disabled      │
│ Boot Sequence            : A,C      │ D0000-D3FFF Shadow  : Disabled      │
│ Swap Floppy Drive        : Disabled │ D4000-D7FFF Shadow  : Disabled      │
│ Boot Up NumLock Status   : On       │ D8000-DBFFF Shadow  : Disabled      │
│ Gate A20 Option          : Fast     │ DC000-DFFFF Shadow  : Disabled      │
│ Typematic Rate Setting   : Disabled │                                     │
│ Typematic Rate (Chars/Sec): 6       │ ESC : Quit        ↑↓→←: Select Item │
│ Typematic Delay (Msec)   : 250      │ F1  : Help      PU/PD/+/- : Modify  │
│ Security Option          : Setup    │ F5  : Old Values (Shift)F2 : Color  │
│ PCI/VGA Palette Snoop    : Disabled │ F6  : Load BIOS Defaults            │
│ OS Select for DRAM >64MB : Non-OS2  │ F7  : Load Setup Defaults           │
└─────────────────────────────────────┴─────────────────────────────────────┘
```

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/– keys. <F> keys are explained below:

   <F1>:　　　"Help" gives options available for each item.

Shift <F2>:　Change color.

   <F5>:　　　Get the old values. These values are the values with
   which　　　the user started the current session.

   <F6>:　　　Load all options with the BIOS Setup default values.

   <F7>:　　　Load all options with the Power-On default values.

A short description of screen items follows:

CPU Internal Cache	This option enables/disables the CPU's internal cache. (The Default setting is Enabled.)
External Cache	This option enables/disables the external cache memory. (The Default setting is Enabled.)
Quick Power On Self Test	Enabled provides a fast POST at boot-up .

Boot Sequence	The default setting attempts to first boot from drive A:, drive C, or CD-ROM. You can reverse this sequence with "C: A:", but then drive A: cannot boot directly. (It depends on the specifications of CD-ROM or CD-ROM drivers to boot from CD-ROM.)
Swap Floppy Drive	Enabled changes the sequence of the A: and B: drives. (The Default setting is Disabled.)
Boot Up Num Lock Status	Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.
Gate A20 Option	Choose Fast (default) o Normal. Fast allows RAM accesses above 1MB using the fast gate A20 line.
Typematic Rate Setting	Enable this option to adjust the keystroke repeat rate.
Typematic Rate (Chars/Sec)	Choose the rate a character keeps repeating.
Typematic Delay (Msec)	Choose how long after you press a key that a character begins repeating.
Security Option	Choose Setup or System. Use this feature to prevent unauthorized system boot-up or use of BIOS Setup.
	"System" – Each time the system is booted the password prompt appears.
	"Setup"– If a password is set, the password prompt only appears if you attempt to enter the Setup program.
PCI/VGA Palette Snoop	Enabled: The color of the monitor may be incorrect if uses with MPEG card. Enable this option to make the monitor normal.
	Disabled: Default setting.
OS Select for DRAM >64MB	OS2: Choosing this when you are using OS/2 operation system.
	Non-OS/2: Choosing this when you are using no-OS/2 operation system.

Video or Adapter BIOS Shadow	BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM. These 16K segments can be shadowed from ROM to RAM. BIOS is shadowed in a 16K segment if it is enabled and it has BIOS present.

3. After you have finished with the BIOS Features Setup program, press the <ESC> key and follow the screen instructions to save or disregard your settings.

Chipset Features Setup

The Chipset Features Setup option changes the values of the chipset registers. These registers control system options in the computer.

Note: Change these settings only if you are familiar with the Chipset.

Run the Chipset Features Setup as follows.

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and the following screen appears. (The screen below shows default settings.)

```
                    ROM PCI/ISA BIOS
                 CHIPSET FEATURES SETUP
                  AWARD SOFTWARE, INC.

 Auto Configuration     : Enabled    Single Bit Error Report  : Enabled
 DRAM Timing            : 70 ns      L2 Cache cacheable Size  : 64MB
 DRAM RAS# Precharge Time : 4         Chipset NA# Asserted     : Enabled
 DRAM R/W Leadoff Timing  : 7
 Fast RAS# To CAS# Delay  : 2
 DRAM Read Burst Timing   : x222x333
 DRAM Write Burts Timing  : x222
 Fast MA to RAS# Delay CLK: 1
 Fast EDO Path Select     : Enabled
 Refresh RAS# Assertion   : 4 CLKS
 ISA Bus CLock            : PCICLK/4

 System BIOS Cacheable    : Disabled
 Video BIOS Cacheable     : Disabled  ESC : Quit       ↑↓→←: Select Item
 8 Bit I/O Recovery Time  : 1         F1  : Help       PU/PD/+/- : Modify
 16 Bit I/O Recovery Time : 1         F5  : Old Values (Shift)F2 : Color
 Memory Hole At 15M-16M   : Disabled  F6  : Load BIOS Defaults
 Peer Concurrency         : Enabled   F7  : Load Setup Defaults
 Early NA Control         : Enabled
```

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/– keys.

A short description of screen items follows:

Auto Configuration	Enable this option (strongly recommended) and the system automatically sets all options on the left side of the screen (except cache update mode & BIOS cacheable). **If this option is Enabled you must boot from Turbo mode.**
DRAM Timing	Choose the right speed to fit your DRAM's spec.
DRAM RAS Precharge Time	Use the default setting.

DRAM R/W Leadoff Timing	Use the default setting.
DRAM RAS to CAS Delay	Use the default setting.
DRAM Read Burst Timing	Use the default setting.
DRAM Write Burst Timing	Use the default setting.
Fast MA to RAS# Delay CLK	Use the default setting.
Fast EDO Path Select	Use the default setting.
Refresh RAS# Assertion	Use the default setting.
ISA Bus Clock	Use BIOS default setting or choose:
	/4: for 60, 66MHz CPU Bus Frequency
	/3: for 50, 55MHz CPU Bus Frequency.
System BIOS Cacheable	Disabled: The ROM area F0000H-FFFFFH is not cached.
	Enabled: The ROM area F0000H-FFFFFH is cacheable if cache controller is enabled.
Video BIOS Cacheable	Disabled: The video BIOS C0000H-C7FFFH is not cached.
	Enabled: The video BIOS C0000H-C7FFFH is cacheable if cache controller is enabled.
8Bit I/O Recovery Time	Use the default setting.
16Bit I/O Recovery Time	Use the default setting.
Memory Hole At 15M-16M	Choose Enabled or Disabled (default). Some interface cards will map their ROM address to this area. If this occurs, you should select Enabled, otherwise use Disabled.

Peer Concurrency	Use the default setting.
Early NA Control	Use the default setting.
Single Bit Error Report	Enabled: System will report DRAM error to CPU.
	Disabled: System will not report DRAM error to CPU.
L2 Cache Cacheable Size	Use the default setting.

3. After you have finished with the Chipset Features Setup, press the <ESC> key and follow the screen instructions to save or disregard your settings.

Power Management Setup

The Power Management Setup option sets the system's power saving functions.

Run the Power Management Setup as follows.

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a screen with a list of items appears.

```
                       ROM PCI/ISA BIOS
                      CMOS SETUP UTILITY
                    POWER MANAGEMENT SETUP
 ┌─────────────────────────────────┬──────────────────────────────────────┐
 │                                 │ ** Power Down & Resume Events **      │
 │ Power Management   : Disabled   │ IRQ 3  (COM 2)        : ON            │
 │ PM Control by APM  : No         │ IRQ 4  (COM 1)        : ON            │
 │ Video Off Method   : V/H SYNC+Blank │ IRQ 5  (LPT 2)        : ON        │
 │                                 │ IRQ 6  (Floppy Disk)  : OFF          │
 │ Doze Mode          : Disabled   │ IRQ 7  (LPT 1)        : ON            │
 │ Standby Mode       : Disabled   │ IRQ 8  (RTC Alarm)    : OFF           │
 │ Suspend Mode       : Disabled   │ IRQ 9  (IRQ2 Redir)   : ON           │
 │ HDD Power Down     : Disabled   │ IRQ 10 (Reserved)     : ON           │
 │                                 │ IRQ 11 (Reserved)     : ON           │
 │                                 │ IRQ 12 (PS/2 mouse)   : ON           │
 │ ** Wake Up Events In Doze & Standby ** │ IRQ 13 (Coprocessor)  : ON     │
 │ IRQ3  (Wake-Up Event) : ON      │ IRQ 14 (Hard Disk)    : ON           │
 │ IRQ4  (Wake-Up Event) : ON      │ IRQ 15 (Reserved)     : ON           │
 │ IRQ8  (Wake-Up Event) : ON      │                                      │
 │ IRQ12 (Wake-Up Event) : ON      │ ESC : Quit      ↑↓→←: Select Item     │
 │                                 │ F1  : Help      PU/PD/+/- : Modify    │
 │                                 │ F5  : Old Values (Shift)F2 : Color    │
 │                                 │ F6  : Load BIOS Defaults              │
 │                                 │ F7  : Load Setup Defaults             │
 └─────────────────────────────────┴──────────────────────────────────────┘
```

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/- keys.

A short description of selected screen items follows:

Power Management	Options are as follows:	
	User Define system	Let's you define the HDD and power down times.
	Disabled	Disables the Green PC Features.
	Min Saving	Doze timer = 1 Hour Standby timer = 1 Hour Suspend timer = 1 Hour HDD Power Down = 15 Min
	Max Saving	Doze timer = 1 Min Standby timer = 1 Min Suspend timer = 1 Min HDD Power Down = 1 Min

PM Control by APM	Choose Yes or No (default). APM stands for Advanced Power Management. To use APM, you must run "power.exe" under DOS v6.0 or later version.
Video Off Method	Choose V/H Sync+Blank (default), Blank screen, or DPMS for the selected PM mode.
Doze Mode	When the set time has elapsed, the BIOS sends a command to the system to enter doze mode (system clock drops to 33MHz). Time is adjustable from 1 Min to 1 Hour.
Standby Mode	The default is Disabled. Time is adjustable from 1 Min to 1 Hour.
Suspend Mode	The default is Disabled. Only an SL-Enhanced (or SMI) CPU can enter this mode. Time is adjustable from 1 Min to 1 Hour. Under Suspend mode, the CPU stops completely (no instructions are executed.)
HDD Power Down	When the set time has elapsed, the BIOS sends a command to the HDD to power down, which turns off the motor. Time is adjustable from 1 to 15 minutes. The default setting is Disabled. Some older model HDDs may not support this advanced function.
IRQx (Wake-Up Events)	The BIOS monitors these items for activity. If activity occurs from the Enabled item the system wakes up.
Power Down Activities	The BIOS monitors these items for no activity. If no activity occurs from the Enabled item the system will enter power saving mode (Doze/Standby/Suspend/ HDD Power Down mode) .

3. After you have finished with the Power Management Setup, press the <ESC> key to return to the Main Menu.

PNP/PCI Configuration Setup

This option sets the mainboard's PCI Slots. Run this option as follows:

1. Choose "PNP/PCI CONFIGURATION SETUP" from the Main Menu and the following screen appears. (The screen below shows default settings.)

```
                    ROM PCI/ISA BIOS
                  PNP/PCI CONFIGURATION
                   AWARD SOFTWARE, INC.

Resources Controlled By  : Manual      PCI IRQ Actived By  : Level
Reset Configuration Data : Disabled    PCI IDE IRQ Map To  : PCI-AUTO
                                        Primary   IDE INT# : A
IRQ-3  assigned to : Legacy ISA*        Secondary IDE INT# : B
IRQ-4  assigned to : Legacy ISA*
IRQ-5  assigned to : PCI/ISA PnP*
IRQ-7  assigned to : Legacy ISA*
IRQ-9  assigned to : PCI/ISA PnP*
IRQ-10 assigned to : PCI/ISA PnP*
IRQ-11 assigned to : PCI/ISA PnP*
IRQ-12 assigned to : PCI/ISA PnP*
IRQ-14 assigned to : Legacy ISA*
IRQ-15 assigned to : Legacy ISA*
DMA-0  assigned to : PCI/ISA PnP*       ESC : Quit       ↑↓→←: Select Item
DMA-1  assigned to : PCI/ISA PnP*       F1  : Help       PU/PD/+/- : Modify
DMA-3  assigned to : PCI/ISA PnP*       F5  : Old Values (Shift)F2 : Color
DMA-5  assigned to : PCI/ISA PnP*       F6  : Load BIOS Defaults
DMA-6  assigned to : PCI/ISA PnP*       F7  : Load Setup Defaults
DMA-7  assigned to : PCI/ISA PnP*
```

*: These items will disappear when Resource Controlled. is Auto.

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/− keys.

A short description of screen items follows:

Resources Controlled By	Manual:	BIOS doesn't manage PCI/ISA PnP card (i.e., IRQ) automatically.
	Auto:	BIOS auto manage PCI and ISA PnP card (recommended).
Reset Configuration Data	Disabled:	Retain PnP configuration data in BIOS.
	Enabled:	Reset PnP configuration data in BIOS.

IRQX and DMAX assigned to	Choose PCI/ISA PnP or Legacy ISA. If the first item is set to Manual, you could choose IRQX and DMAX assigned to PCI/ISA PnP card or ISA card.
	PCI/ISA PnP: BIOS auto assigns IRQ/DMA to the device.
	Legacy ISA: User assigns IRQ/DMA to the device.
PCI IRQ Activated By	Choose Edge or Level. Most PCI trigger signals are Level. This setting must match the PCI card.
PCI IDE IRQ Map To	Select PCI-AUTO, ISA, or assign a PCI SLOT number (depending on which slot the PCI IDE is inserted). The default setting is PCI-AUTO. If PCI-AUTO does not work, then assign an individual PCI SLOT number.
Primary IDE INT#	Choose INTA#, INTB#, INTC#, or INTD#. The default setting is INTA#.
Secondary IDE INT#	Choose INTA#, INTB#, INTC#, or INTD#. The default setting is INTB#.

3. After you have finished with the PCI Slot Configuration, press the <ESC> key and follow the screen instructions to save or disregard your settings.

Load Setup Defaults

This item loads the system values you have previously saved. Choose this item and the following message appears:

<div align="center">"Load SETUP Defaults (Y/N)? N"</div>

To use the SETUP defaults, change the prompt to "Y" and press <Enter>.

Note: *The SETUP Defaults are optimized for the most stabilized performance.*

Load BIOS Defaults

Choose this item and the following message appears:

"Load BIOS Defaults (Y/N)? N"

To use the BIOS defaults, change the prompt to "Y" and press <Enter>.

Note: *BIOS DEFAULTS values are adjusted for high performance. If you run into any problems after load BIOS DEFAULTS, please load the SETUP DEFAULTS for the stable performance.*

Integrated Peripherals

The Integrated Peripherals option changes the values of the chipset registers. These registers control system options in the computer.

Note: *Change these settings only if you are familiar with the Chipset.*

Run the Integrated Peripherals as follows.

1. Choose "Integrated Peripherals" from the Main Menu and the following screen appears. (The screen below shows default settings.,

```
                    ROM PCI/ISA BIOS
                  INTEGRATED PERIPHERALS
                   AWARD SOFTWARE, INC.

IDE HDD Block Mode      : Enabled
PCI Slot IDE 2nd Channel : Enabled
On-Chip Primary  PCI IDE: Enabled
On-Chip Secondary PCI IDE: Enabled
IDE Primary Master PIO  : Auto
IDE Primary Slave PIO   : Auto
IDE Secondary Master PIO : Auto
IDE Secondary Slave PIO  : Auto
USB Controller          : Disabled

Onboard FDD Controller  : Enabled
Onboard Serial Port 1   : 3F8/IRQ4
Onboard Serial Port 2   : 2F8/IRQ3
UART 2 Mode             : Standard    ESC : Quit          ↑ ↓ → ←: Select Item
Onboard Parallel Port   : 378H/IRQ7   F1  : Help      PU/PD/+/- : Modify
Onboard Parallel MODE   : ECP/EPP     F5  : Old Values (Shift)F2 : Color
ECP Mode Use DMA        : 3           F6  : Load BIOS Defaults
Paralel Port EPP Type   : EPP1.9      F7  : Load Setup Defaults
```

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/– keys.

A short description of screen items follows:

IDE HDD Block Mode	Choose Enabled (default) or Disabled. Enabled invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.
PCI Slot IDE 2nd Channel	Choose Enabled (default) or Disabled. When Enabled is set, IRQ15 is dedicated for secondary IDE use. When Disabled is set, IRQ15 is released for other devices.
On-chip Primary/ Secondary PCI IDE	Enabled: Use the on-board IDE (default) Disabled: Turn off the on-board IDE
IDE Primary Master PIO **IDE Primary Slave PIO** **IDE Secondary Master PIO** **IDE Secondary Slave PIO**	Choose Auto (default) or mode 0~4. Mode 0 is the slowest speed, and HDD mode 4 is the fastest speed. For better performance and stability, we suggest you use the Auto setting to set the HDD control timing.
USB Controller	Enabled it when you use USB device.
Onboard FDC Controller	Enabled: Use the on-board floppy controller (default). Disabled: Turn off the on-board floppy controller.
Onboard Serial Port 1 **Onboard Serial Port 2**	Choose serial port 1 & 2's I/O address. Do no set port 1 & 2 to the same value except for Disabled. COM 1/3F8H | COM3/3E8H COM 2/2F8H | COM4/2E8H (default) |
UART 2 Mode	Standard: Use standard UART mode (default). ASK IR: Use UART with ASKIR function.
Onboard Parallel Port	Choose the printer I/O address: 378H/IRQ7 (default), 3BCH/IRQ7, 278H/IRQ5

Onboard Printer Mode   Choose ECP + EPP (default), SPP or EPP, ECP mode. The mode depends on your external device that connects to this port.

ECP Mode DMA Select   Choose DMA3 (default) or DMA1. This setting only works when the Onboard Printer Mode is set at the ECP mode.

Parallel Port EPP Type   Choose EPP specification Ver. 1.7 (default) or 1.9.

Supervisor Password

Based on the setting you made in the "Security Option" of the "BIOS FEATURES SETUP", this Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. Change the password as follows:

1. Choose "SUPERVISOR PASSWORD" in the Main Menu and press <Enter>. The following message appears:

<div align="center">

"Enter Password:"

</div>

2. Enter a password and press <Enter>.

   (If you do not wish to use the password function, you can just press <Enter> and a "Password disabled" message appears.)

3. After you enter your password, the following message appears prompting you to confirm the new password:

<div align="center">

"Confirm Password:"

</div>

4. Re-enter your password and then Press <ESC> to exit to the Main Menu.

5. You have the right to change any changeable settings in the "CMOS SETUP UTILITY."

Important: *If you forget or lose the password, the only way to access the system is to set jumper JP5 to clear the CMOS RAM. All setup information is lost and you must run the BIOS setup program again.*

User Password

Based on the setting you made in the "Security Option" of the "BIOS FEATURES SETUP", this Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. Change the password as follows:

1. Choose "USER PASSWORD" in the Main Menu and press <Enter>. The following message appears:

<p align="center">**"Enter Password:"**</p>

2. Enter a password and press <Enter>.

   (If you do not wish to use the password function, you can just press <Enter> and a "Password disabled" message appears.)

3. After you enter your password, the following message appears prompting you to confirm the new password:

<p align="center">**"Confirm Password:"**</p>

4. Re-enter your password and then Press <ESC> to exit to the Main Menu.

5. You are not allowed to change any setting in "CMOS SETUP UTILITY" except change user's password.

Important: *If you forget or lose the password, the only way to access the system is to set jumper JP5 to clear the CMOS RAM. All setup information is lost and you must run the BIOS setup program again.*

IDE HDD Auto Detection

This Main Menu item automatically detects the hard disk type and configures the STANDARD CMOS SETUP accordingly.

*Note: This function is only valid for **IDE** hard disks.*

```
                         ROM PCI/ISA BIOS
                        CMOS SETUP UTILITY
                       AWARD SOFTWARE, INC.

 HARD DISKS          TYPE   SIZE    CYLS HEAD   PRECOMP   LANDZ   SECTOR   MODE

 Primary Master    : None    0        0    0        0       0        0    ----
 Primary Slave     : None    0        0    0        0       0        0    ----
 Secondary Master  : None    0        0    0        0       0        0    ----
 Secondary Slave   : None    0        0    0        0       0        0    ----


                  ┌──────────────────────────────────────┐
                  │  Do you accept this drive C (Y/N)? N  │
                  └──────────────────────────────────────┘

                            ESC : Skip
```