SC-5TTx5

SURIA Tx 512Kb PB Cache Main Board
User's Guide & Technical Reference
82430 TX Chipset AT Main Board
Factory Part# 5BT5

Table of Contents

1 Introduction

The 82430 TX PCI mainboard is a high-performance **AT form-factor** system board that supports P54C/P55C family CPUs and 512K external cache memory on the mainboard. The mainboard is fully compatible with industry standards, and adds many technical enhancements.

Key Features

- CPU
  — Supports P54C/P55C family CPUs running at 75~233 MHz speeds; Cyrix 6x86/6x86L CPUs running at PR133$^+$/PR150$^+$/PR166$^+$/PR200$^+$ speeds; and AMD K5/K6 CPUs running at PR90 ~ PR266
  — **Supports SOCKET 7 for upgrade**
  — Supports P54C/P55C series SMM Mode and CPU Stop Clock
  — Smart Detect CPU Voltage function
- L2 Cache Controller
  — Write Back Cache Modes and Direct Mapped Organization
  — On-board 512K Pipeline Burst SRAMs Cache
- DRAM Controller
  — Supports Fast-Page Mode, EDO , and SDRAM (both symmetrical and asymmetrical addressing)
  — **Supports 2 strips of 8MB/16MB/32MB Unbuffered DIMMs**
  — On-board memory configurations from **4 to 256 Mbytes**
  — Supports "**Table-Free**" DRAM configuration in any SIMM bank
- BUS Controller
  — Compliant to PCI specifications v2.1
  — Four 32-bit PCI slots (Masters) and three ISA slots, 4-layer PCB
  — **Supports Universal Serial Bus — USB**
- Peripheral Controller
  — System BIOS built-in NCR810 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), one ECP/EPP/SPP compatible parallel port, and one PS/2 mouse port
  — **On-board supports FLASH Memory for easy upgrade BIOS**
  — **Easy installation of Triones EIDE/ATAPI CD-ROM Bus Master Drivers**
  — **Supports AT and ATX power supply connectors**

Unpacking the Mainboard

The mainboard package contains:

• The 82430TX Mainboard
• This User's Guide
• One IDE Bus Master driver diskette

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
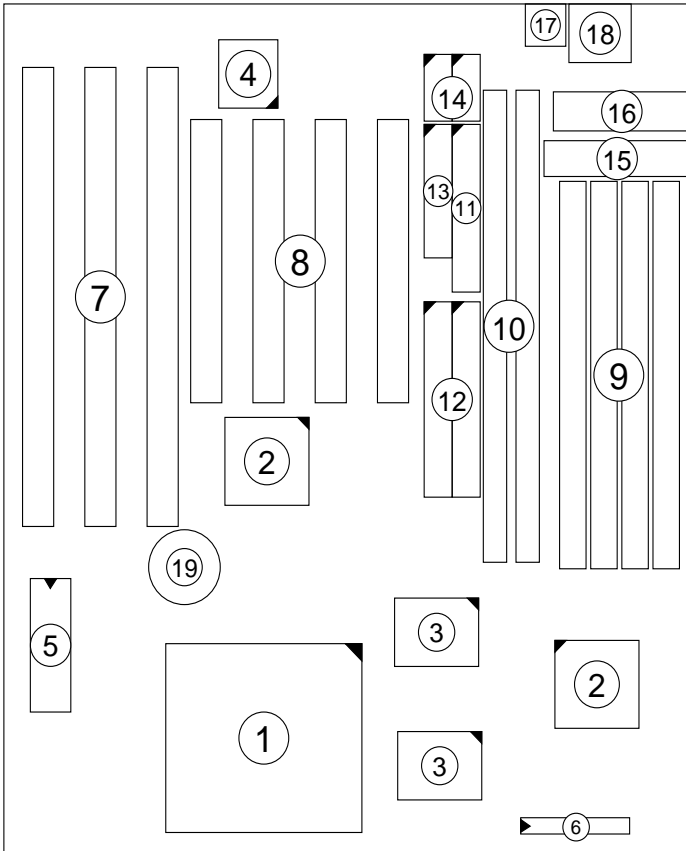
Figure 1–1. Mainboard Layout

1. ZIF socket 7 (for P54C/P55C)
2. 82430 TX Chipset
3. Pipelined Burst SRAM
4. Ultra I/O Chip
5. PnP FLASH BIOS

6. TAG SRAM
7. ISA Slots
8. PCI Slots
9. SIMM Bank
10. Unbuffered DIMM Bank

11. Floppy Connector
12. IDE1/IDE2 Connector
13. Parallel Port Connector
14. COM1/COM2 Connector
15. AT Power Supply Connector
16. AT/ATX Power Connector
17. PS/2 Mouse Connector
18. KB Connector
19. Lithium battery (for CMOS memory, 3V)

Default settings are as follows: Pentium 133MHz (P54C) CPU, 512K Pipelined Burst cache, On-board PCI E-IDE Enabled, 2 high speed UARTS Enabled (w/ 16550 FIFO), 1 EPP/ECP port (ECP + EPP mode), 5V DRAM/3.3V DIMM, and AT power supply.
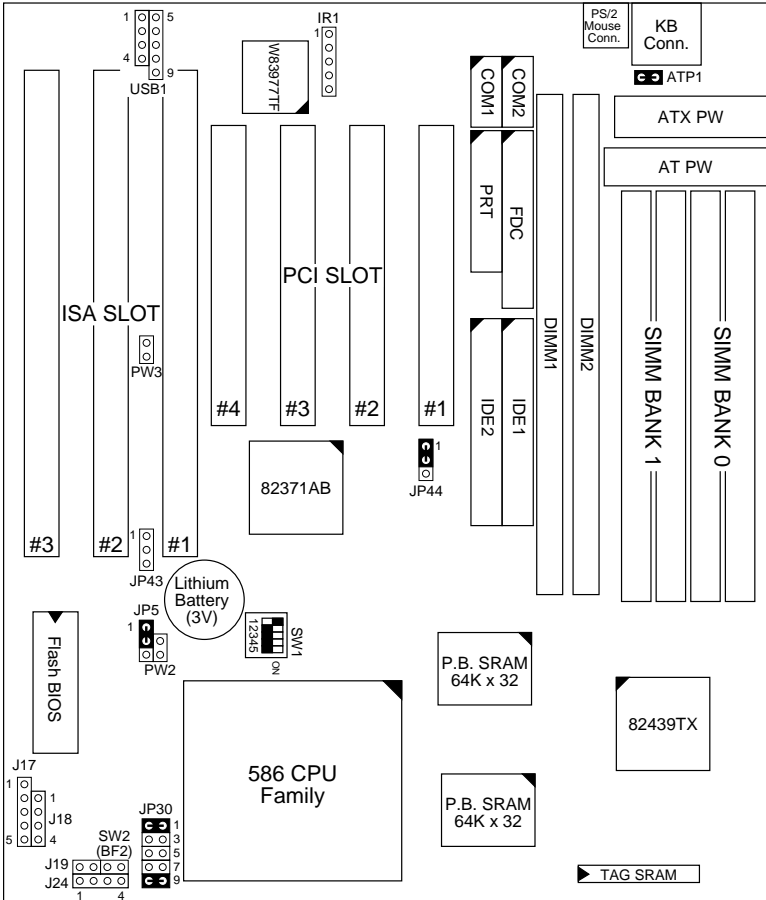
Figure 1–2. Mainboard Default Setting

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.

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

Jumpers

JP5: CMOS Clear Jumper

Clear the CMOS memory by momentarily shorting pin 2–3; then shorting pin 1–2 to retain new settings.

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

JP40: CE Test Jumper Pin

This connector is reserved for the CE test. If you run into problems during the CE test, unplug the jumper pin and try again.

JP43: CPU Cooling Fan Connector
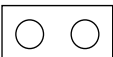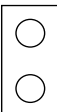
This 3-pins connector provides 12V power for the CPU cooling fan which matches the pin assignment of this connector. If you enable the Suspend Mode function in BIOS setup, this fan will stop when the system is into the suspend mode.
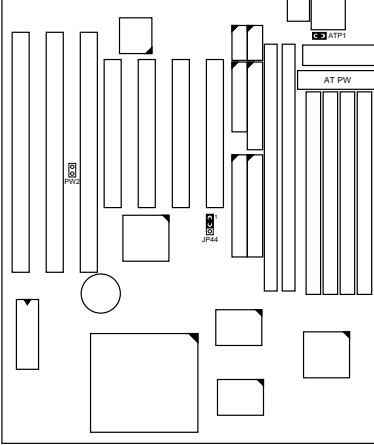
CPU Cooling Fan Connector (Pin Assignment)
◯ 1 (GND)
◯ 2 (12V)
◯ 3 (GND)

Note: Make sure the pin assignment of our CPU Cooling Fan is matched with this connector before connecting it, otherwise, you may damage either the mainboard or the cooling fan.

ATP1, PW3, JP44: Power Supply Selection Jumpers

These three jumpers let you select either the AT or the ATX power supply. Use only one power supply at a time on this mainboard.

	AT Power Supply (default)	ATX Power Supply
ATP1	◖ ◗	◯ ◯
PW3	◯ ◯	(shorted)
JP44	(pins 1-2 shorted) 1	(pins 2-3 shorted) 1

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 – 90/100 CPU Settings (1.5 x clock)
AMD K5 – PR90/PR100/PR120/PR133 (1.5 x clock)
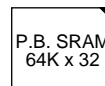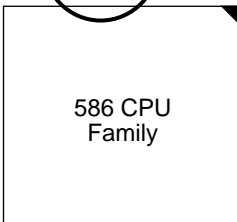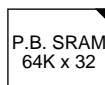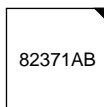
Figure 2–1–1. CPU Jumper Settings

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

2. AMD K5–PR90= AMD 5_k86(SSA5)–P90.

Pentium – 120/133 CPU Settings (2.0 x clock)
Cyrix 6x86/6x86L – PR133+/PR150+/PR166+/PR200+ CPU Settings (2.0 x clock)
AMD K5/K6 – PR150 CPU Setting
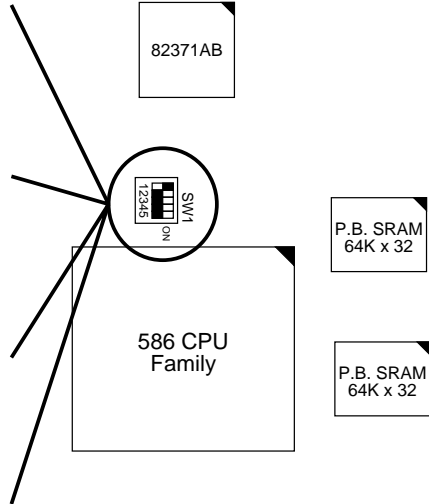
Figure 2–1–2. CPU Jumper Settings

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

Pentium– 150/166 CPU Settings (2.5 x clock)
AMD K5/K6– PR166 CPU Setting

82371AB

Pentium – 150/60 MHz

ON
12345
SW1

Pentium – 166/66 MHz
AMD K5/K6 – PR166

ON
12345
SW1

SW1
12345
ON

586 CPU
Family

P.B. SRAM
64K x 32

P.B. SRAM
64K x 32
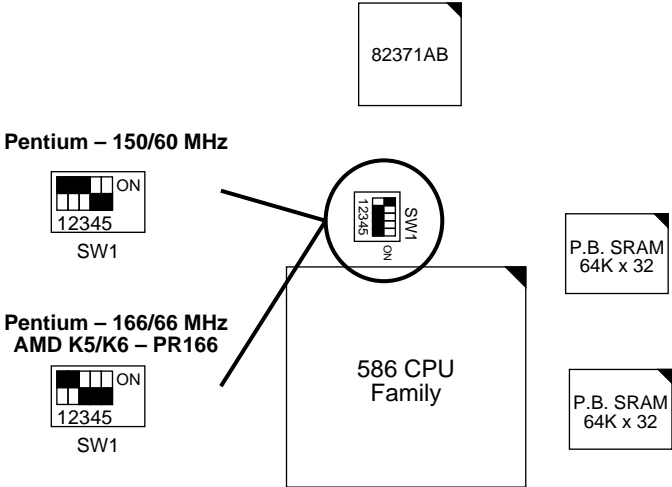
Figure 2–1–3. CPU Jumper Settings

Pentium – 180/200 CPU Settings (3.0 x clock)
AMD K6 – PR200 CPU Setting

82371AB

Pentium – 180/60 MHz

ON
12345
SW1

Pentium – 200/66 MHz
AMD-K6/PR2-200

ON
12345
SW1

SW1
12345
ON

586 CPU
Family

P.B. SRAM
64K x 32

P.B. SRAM
64K x 32
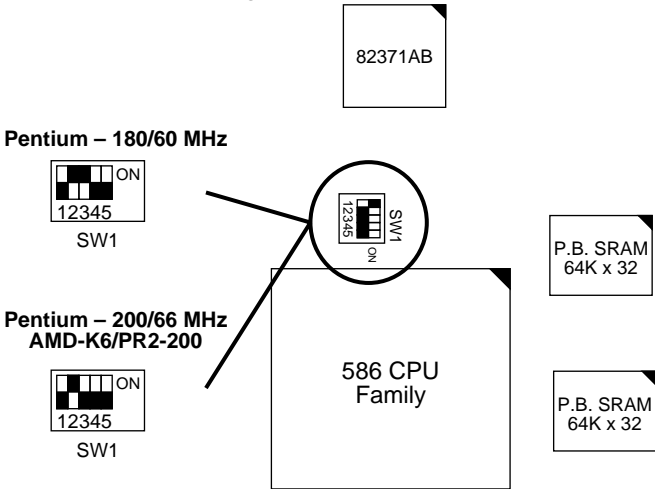
Figure 2–1–4. CPU Jumper Settings

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

Pentium – 233 CPU Settings (3.5 x clock)
AMD K6 – PR233 CPU Setting
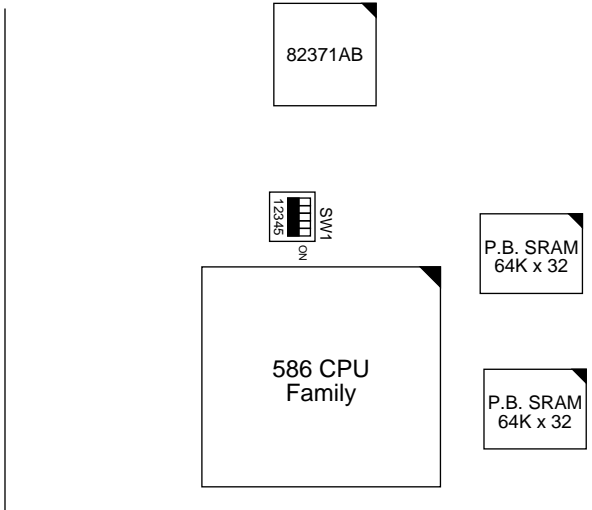
Figure 2–1–5. CPU Jumper Settings

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

AMD K6 – PR266 CPU Setting (4.0 x clock)
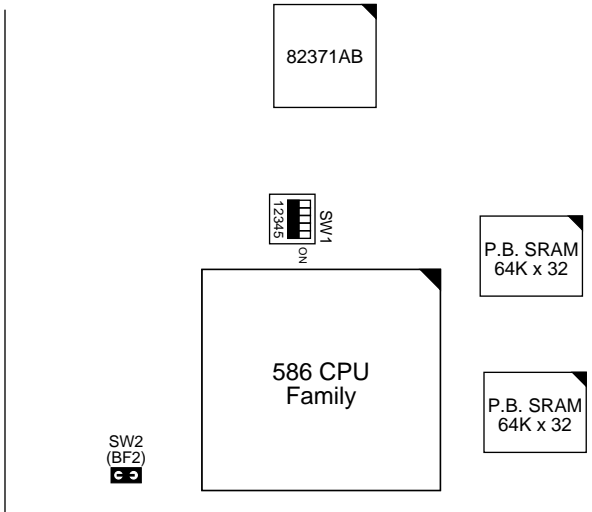
Figure 2–1–6. CPU Jumper Settings

❑ **Step 2: CPU Single/Dual Voltage Setting**

There are two kinds of CPU input voltages due to various designs of CPUs—single voltage and dual voltage. Set your CPU according to the type that you have.

For Intel P54C/P55C series CPUs, there is no need to adjust any jumper for CPU voltag due to the Smart Detect CPU Voltage function.

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 P54C series, AMD-K5-PRxxxBx, AMD-K5-PRxxxCx, AMD-K5-PRxxxFx, and Cyrix 6x86. Refer to the following figures to set these CPUs' voltage:
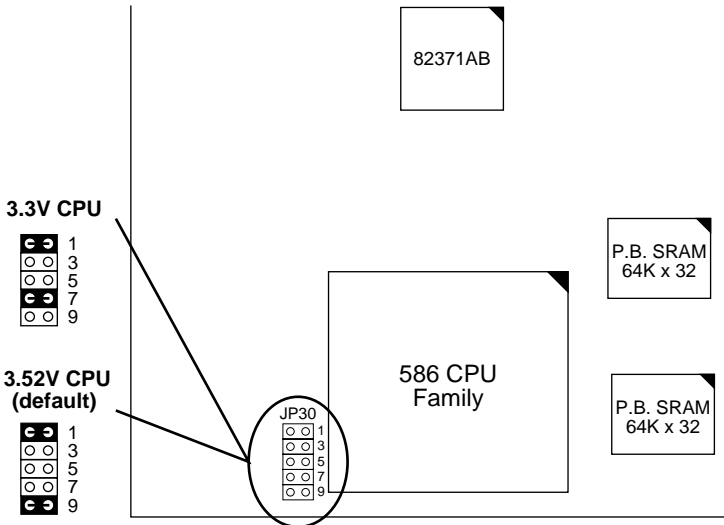
Figure 2–2–1. Single Voltage CPU

Note: Please ask your CPU dealer for the exact CPU voltage before you install it.

Dual Voltage CPU Setting

Dual voltage CPUs are designed to use different voltage for VIO and VCore and they include Intel P55C series, Cyrix 6x86L, and AMD K6. Refer to the following figures to set these CPUs' voltage:
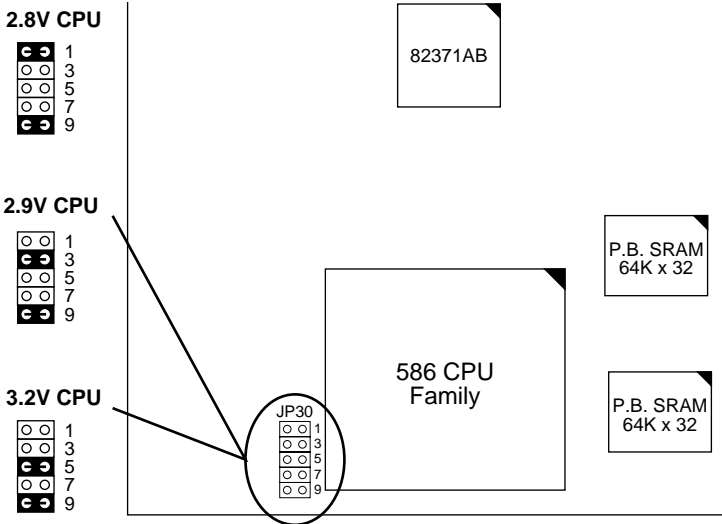
Figure 2–2–2. Dual Voltage CPU

Note: Due to various design, please ask your CPU dealer for the exact VIO and VCORE voltage before you install it.

Memory Configuration

The mainboard supports two banks of **72-pin SIMM modules and two strips of 168-pin/3.3V Unbuffered DIMM modules.** The mainboard requires SIMM of at least 70ns access time.

The mainboard supports **from 4 to 256 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. You must install two strips of SIMM modules to complete a bank.

Memory Configuration Table

	SIMM Bank		DIMM Bank	
	Bank 0	**Bank 1**	**DIMM 1**	**DIMM 2**
RAM Type	FPM/EDO	FPM/EDO	FPM/EDO/ SDRAM	FPM/EDO/ SDRAM
Single RAM Module Size (MB)	4/8/16/32/64	4/8/16/32/64	8/16/32/64	8/16/32/64

Note: Do not install FPM or EDO SIMM/DIMM when you already installed SDRAM type of DIMM.

RAM Bank Installation Notice

Due to the RAS line share architecture of TX chipset, the possible combination of DIMM/SIMM in this mainboard are as one of the followings:

1.   In Bank 0
2.   In Bank 1
3.   In Bank 0 & Bank 1
4.   In DIMM 1
5.   In DIMM 2
6.   In DIMM 1 & DIMM 2
7.   In Bank 0 & DIMM 2
8.   In Bank 1 & DIMM 1

Cache Configuration

The mainboard has a write-back caching scheme with built-in 512KB Level 2 Pipelined Burst cache onboard to improve the system performance.

Cache Size and RAM Locations

Cache Size	Cache RAM	TAG RAM	Cacheable Range
512KB	64K x 32, 2pcs on U5, U6	16K x 8 on U9	64 MB

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 via connectors on the mainboard. Refer to Figure 1-1 for connector locations and connector pin positions.

PW2 — ATX Power Supply On/Off Switch Connector (Momentary Type)

Attach a two-pin switch to this connector for turning the ATX power supply on/off.

COM1, COM2 — COM1/COM2 Connectors

Attach COM1/COM2 device cable to these connectors. Refer to the following drawing for pin assignment:
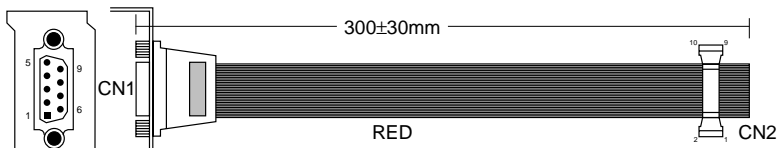
CN1	1	6	2	7	3	8	4	9	5	NC
CN2	1	2	3	4	5	6	7	8	9	10

FDC — FDC Connector
Attach floppy cable to this connector.

AT PW — Power Supply Connectors
The mainboard requires a power supply with at least 200 watts and a "power good" signal. AT PW has two 6-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.
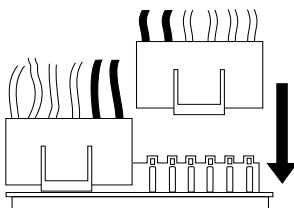
ATX PW — ATX Power Supply Connectors
The motherboard provides an ATX power supply connector. It is a twenty-pin male header connector. Plug the connector from the power directly onto the board connector while making sure the pin1 is in its position.

11   20
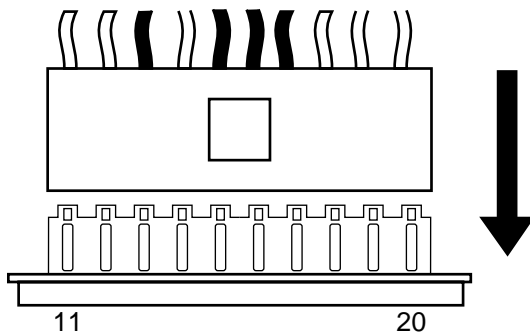
J19 – Hardware Reset Control
Attach the Reset switch to J19. Closing the Reset switch restarts the system.

J24 – HDD LED Connectors

Attach the cable of hard disk drive LEDs to this connector. The LED lights when an HDD is active.

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

Attach cables of hard disk drives to these connectors.

IR1 – IR Connector

Attach a 5-pin infrared device cable to this connector for enabling the infrared transfer function. This mainboard meets the specification of ASKIAR and HPSIR.

IR1 Connector Pin Assignment	
1	VCC
2	FIRRX
3	IRRX
4	GND
5	IRTX
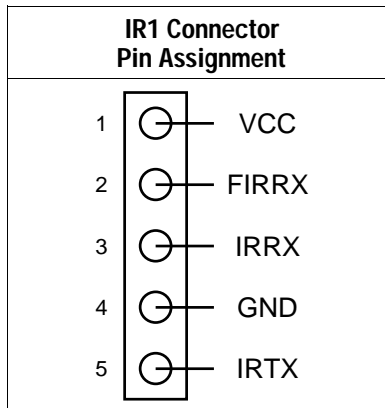
J17 – Keylock & Power LED Connector

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, 3 for power LED and pin 4, 5 for keylock.)

KB Conn. – Keyboard Connector

A 5-pin female DIN keyboard connector is located at the rear of the board. Plug the keyboard jack into this connector.

PS/2 Mouse Conn. – PS/2 Mouse Connector

Attach 6-pin male PS/2 mouse cable to this connector to enable PS/2 mouse function.

```
┌─────────────────────────────────┐
│      PS/2 Mouse Connector        │
│         Pin Assignment           │
├─────────────────────────────────┤
│ ┌─────┐ ┌─────┐ ┌─────┐ ┌─────┐ │
│ │ GND │ │DATA │ │ N/A │ │ VCC │ │
│ └─────┘ └─────┘ └─────┘ └─────┘ │
│ ┌─────┐                 ┌─────┐ │
│ │CLOCK│                 │ N/A │ │
│ └─────┘                 └─────┘ │
└─────────────────────────────────┘
```
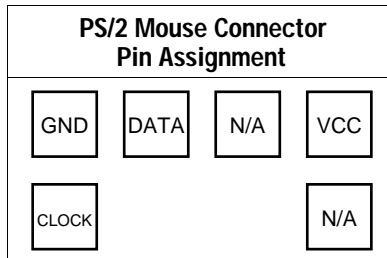
PRT – Parallel Port Connector

Attach parallel port cable to this connector.

J18 — Speaker Connector

Attach a 4-pin case-mounted speaker to this connector.

USB1 – Universal Serial Bus Connectors

Attach 9-pin USB cable to these connectors for external USB device.

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             │
 │                                                                         │
 │    PNP/PCI CONFIGURATION             SAVE & EXIT SETUP                  │
 │                                                                         │
 │    LOAD SETUP DEFAULTS               EXIT WITHOUT SAVING                │
 │                                                                         │
 │    LOAD BIOS DEFAULTS                                                    │
 ├───────────────────────────────────┴───────────────────────────────────┤
 │ 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  : AUTO    0      0    0       0      0       0  AUTO │
│  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 │
│  Fll : 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   First, choose the type of hard disk that you
(Secondary)   already installed:
Master & Slave   Auto –   BIOS detects hard disk type
                               automatically (default)
                      1 ~ 46 – Selects standard hard disk type
                      User –   User defines the type of hard disk.

                      Next, choose hard disk mode:
                      Auto –   BIOS detects hard disk mode
                               automatically (default)
                      Normal – Normal IDE hard disk (smaller than
                               528MB)
                      LBA –   Enhanced–IDE hard disk (larger
                               than 528MB)

Primary (Secondary) Master & Slave (Continued)	Large –	Large IDE hard disk (for certain hard disk)
	Note:	*If you have any questions on your hard disk type or mode, ask your hard disk provider or previous user for details.*

Drive A & B Choose 360KB , 5 1/4 **in**.,
1.2MB , 5 1/4 **in**.,
720KB , 3 1/2 **in**.,
1.44M , 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

Halt On Choose halt mode when BIOS detects system errors:

All Errors (default)	All, But Diskette
No Errors	All, But Keyboard
	All, But Disk/Key

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,SCSI D0000-D3FFF Shadow  : Disabled
Swap Floppy Drive         : Disabled D4000-D7FFF Shadow  : Disabled
Boot Up NumLock Status    : On       D8000-DBFFF Shadow  : Disabled
Typematic Rate Setting    : Disabled DC000-DFFFF Shadow  : Disabled
Typematic Rate (Chars/Sec) : 6
Typematic Delay (Msec)    : 250      ESC : Quit      ↑ ↓ → ←: Select Item
Security Option           : Setup    F1  : Help       PU/PD/+/- : Modify
PCI/VGA Palette Snoop     : Disabled F5  : Old Values (Shift)F2 : Color
OS Select for DRAM >64MB  : Non-OS2  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. <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   Choose the boot device sequence as your need. For
                         example, "A, C, SCSI" means BIOS will look for an
                         operating system first from drive A, drive C, then
                         SCSI device. Options of this function are:
                         A, C, SCSI
                         C, A, SCSI
                         C, CD–ROM, A
                         CD–ROM, C, A
                         D, A, SCSI
                         E, A, SCSI
                         F, A, SCSI
                         SCSI, A, C
                         SCSI, C, A
                         C only.

Swap Floppy   Enabled changes the sequence of the drive A and
Drive   drive B to drive B and drive A. (The Default setting
                         is Disabled.)

Boot Up Num   Choose **On** or **Off**. On puts numeric keypad in Num
Lock Status   Lock mode at boot-up. Off puts this keypad in arrow
                         key mode at boot-up.

Typematic Rate   Enable this option to adjust the keystroke repeat rate.
Setting

Typematic Rate   Choose the rate a character keeps repeating.
(Chars/Sec)

Typematic   Choose how long after you press a key that a
Delay (Msec)   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:	Disable Snoop function (default).
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 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 │                                  │
│ DRAM Timing           : 60 ns   │                                  │
│                                 │                                  │
│ DRAM Leadoff Timing   : 10/6/3  │                                  │
│ DRAM Read Burst (EDO/FP) : x222/x333 │                             │
│ DRAM Write Burts Timing : x222  │                                  │
│ Fast EDO Lead Off     : Disabled│                                  │
│ Refresh RAS# Assertion : 4 CLKS │                                  │
│ Fast RAS To CAS Delay : 3       │                                  │
│ DRAM Page Idle Timer  : 2 Clks  │                                  │
│ DRAM Enhanced Paging  : Enabled │                                  │
│ Fast MA to RAS# Delay : 2 Clks  │                                  │
│ SDRAM (CAS Lat/RAS-to-CAS): 3/3 │                                  │
│ SDRAM Speculative Read : Disabled│ ESC : Quit      ↑↓→←: Select Item│
│ System BIOS Cacheable : Disabled│ F1  : Help   PU/PD/+/- : Modify  │
│ Video BIOS Cacheable  : Disabled│ F5  : Old Values (Shift)F2 : Color│
│ 8 Bit I/O Recovery Time : 3     │ F6  : Load BIOS Defaults          │
│ 16 Bit I/O Recovery Time : 3    │ F7  : Load Setup Defaults         │
│ Memory Hole At 15M-16M : Disabled│                                 │
└─────────────────────────────────┴──────────────────────────────────┘
```

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 Use the default setting.

DRAM Leadoff Timing Use the default setting.

DRAM Read Burst (EDO/FP)	Use the default setting.
DRAM Write Burst Timing	Use the default setting.
Fast EDO Lead Off	Use the default setting.
Refresh RAS# Assertion	Use the default setting.
Fast RAS to CAS Delay	Use the default setting.
DRAM Page Idle Timer	Use the default setting.
DRAM Enchanced Paging	Use the default setting.
Fast MA to RAS# Delay	Use the default setting.
SDRAM (CAS Lat/RAS-to-CAS)	Use the default setting.
SDRAM Speculative Read	Use the default setting.

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.

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 Management   : User Define │ ** Reload global Timer Events ** │
 │ PM Control by APM  : Yes         │ IRQ [3-7, 9-15],NMI  : Enabled   │
 │ Video Off Method   : V/H SYNC+Blank│ Primary IDE 0        : Disabled  │
 │ Video Off After    : Standby     │ Primary IDE 1        : Disabled  │
 │                                  │ Secondary IDE 0      : Disabled  │
 │ Doze Mode          : Disabled    │ Secondary IDE 1      : Disabled  │
 │ Standby Mode       : Disabled    │ Floppy Disk          : Disabled  │
 │ Suspend Mode       : Disabled    │ Serial Port          : Enabled   │
 │ HDD Power Down      : Disabled   │ Parallel Port        : Disabled  │
 │ VGA Active Monitor  : Enabled    │                                  │
 │ Soft-Off by PWR-BTTN : Delay 4 Sec.│                                │
 │ CPU Fan Off In Suspend: Enabled  │ ESC : Quit    ↑↓→←: Select Item  │
 │ Resume by Ring      : Disabled   │ F1  : Help    PU/PD/+/- : Modify │
 │ Resume by Alarm     : Disabled   │ F5  : Old Values (Shift)F2 : Color│
 │                                  │ F6  : Load BIOS Defaults         │
 │ ** Break Event From Suspend **   │ F7  : Load Setup Defaults        │
 │ IRQ8  Clock Event   : Disabled   │                                  │
 └──────────────────────────────────┴──────────────────────────────────┘
```

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 – Let's you define the HDD and system power down times (default).

                             Disable – 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.

Video Off After Choose **Standby** (default), **Suspend**, **Doze**, or **N/A 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.
VGA Active Monitor	Choose Enabled (default) or Disabled. Enabled – enables the power management timers when a "no activity" event is detected.
Soft-Off by POR-BTTN	Choose **Instant-off** or **Delay 4 Sec** (default). **Delay 4 Sec** turns off the system power 4 seconds after pushing the power button
CPU Fan Off In Suspend	Choose Enabled to stop the CPU fan when the system runs into the suspend mode (refer to Power Management Setup.)
Resume by Ring	Choose **Enabled** or **Disabled** (default). This function only works when the computer is powered on. Enabled – The system will resume active when modem is ringing. Disabled – The system will not resume when modem is ringing.
Resume by Alarm	Choose **Enabled** or **Disabled** (default). Enabled – Set alarm to wake up the system either by the date (1-31) or time (hh:mm:ss), and if the date is set to 0, it means that the system will wake up by the alarm everyday. Disabled – The system ignores the alarm.
IRQ8 Clock Event	Choose **Enabled** or **Disabled** (default). Alarm function will be activated when this function is enabled.
IRQ[3-7,9-15], NMI	Choose **Enabled** (default) or Disabled. The BIOS monitors these items for activity. If activity occurs from the Enabled item the system wakes up.

Primary/Secondary IDE 0 Primary/Secondary IDE 1	Choose **Enabled** or **Disabled** (default). Enabled – Enables the power management timers when "no activity" event is detected.
Floppy Disk/ Serial Port/ Parallel Port	Choose **Enabled** or **Disabled**. Enabled – enables the power management timers when "no activity" event is detected.

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 IDE IRQ Map To  : PCI-AUTO
 Reset Configuration Data : Disabled     Primary   IDE INT# : A
                                         Secondary IDE INT# : B
 IRQ-3  assigned to : Legacy ISA*
 IRQ-4  assigned to : Legacy ISA*      Used MEM Base Addr   : N/A
 IRQ-5  assigned to : PCI/ISA PnP*
 IRQ-7  assigned to : PCI/ISA PnP*
 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 : PCI/ISA PnP*
 IRQ-15 assigned to : PCI/ISA PnP*
 DMA-0  assigned to : PCI/ISA PnP*
 DMA-1  assigned to : PCI/ISA PnP*      ESC : Quit        ↑↓→←: Select Item
 DMA-3  assigned to : PCI/ISA PnP*      F1  : Help      PU/PD/+/- : Modify
 DMA-5  assigned to : PCI/ISA PnP*      F5  : Old Values (Shift)F2 : Color
 DMA-6  assigned to : PCI/ISA PnP*      F6  : Load BIOS Defaults
 DMA-7  assigned to : PCI/ISA PnP*      F7  : Load Setup Defaults
```

*: *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 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 P**CI-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#.
Used MEM Base Addr	Choose C800, CC00, D000, D400, D800, or DC00 for setting the I/O address of your add-on card. You should ask your add-on card dealer for the exactly I/O address. Use this function only when problems occur while using the add-on card.

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:

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

To use the SETUP defaults, change the prompt to "Y" and press <Enter>. This item is recommended if you need to reset the system setup.

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 loading 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    IR Transmission Delay   : Enabled
 IDE Primary Master PIO   : Auto       IR IRQ Select           : IRQ4
 IDE Primary Slave PIO    : Auto       (FIR Mode Use DMA       : 0)
 IDE Secondary Master PIO : Auto       Onboard Parallel Port   : 378/IRQ7
 IDE Secondary Slave PIO  : Auto       Parallel Port Mode      : ECP+EPP
 IDE Primary Master UDMA  : Auto       ECP Mode Use DMA        : 3
 IDE Primary Slave UDMA   : Auto       EPP Mode Select         : EPP1.9
 IDE Secondary Master UDMA : Auto
 IDE Secondary Slave UDMA  : Auto
 On-Chip Primary  PCI IDE : Enabled
 On-Chip Secondary PCI IDE : Enabled
 PCI Slot IDE 2nd Channel : Disabled
 USB Keyboard Support     : Enabled

 Onboard FDC Controller   : Enabled
 Onboard Serial Port 1    : 3F8/IRQ4   ESC : Quit      ↑↓→←: Select Item
                                       F1  : Help      PU/PD/+/- : Modify
 Onboard Serial Port 2    : 2F8/IRQ3   F5  : Old Values (Shift)F2 : Color
 Onboard IR Controller    : Enabled    F6  : Load BIOS Defaults
 IR Address Select        : 2F8H       F7  : Load Setup Defaults
 IR Mode                  : IrDA
```

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.
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.

IDE Primary Master UDMA/ IDE Primary Slave UDMA/ IDE Secondary Master UDMA/ IDE Secondary Slave UDMA	Choose **Auto** (default) or **Disabled**. Auto – Supports Ultra DMA mode.
On-chip Primary PCI IDE/ On-chip Secondary PCI IDE	Enabled – Use the on-board IDE (default) Disabled – Turn off the on-board IDE
USB Keyboard Support	Choose **Disabled** (default) or **Enabled**. You need to use the regular keyboard to get in the BIOS Setup to enable this function before using the USB keyboard.
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. IRQ can be released when choose **Auto**. (??I don't quite understand this sentence??)
Onboard IR Controller	Choose **Enabled** to use the onboard IR function
IR Address Select	Choose 3F8H, 2F8H, 3E8H, 2E8H, 3E0H, or 2E0H to decide your IR address.
IR Mode	Choose IrDA, ASK2R, FIR, or CIR. Contact with your IR device provider for choosing the right mode.

IR Transmission Delay	Choose **Enabled** (default) or **Disabled**. Due to the various design of IR devices, transmission delay has to be added on for different protocol.
IR IRQ Select	Choose IRQ3, IRQ4 (default), IRQ10, or IRQ11. If you have IRQ conflict problem during using the IR device, select another IRQ then try again.
FIR Mode Use DMA	Choose Disabled, 0, 1, or 3. When you choose **FIR** in **IR Mode**, you need to select a DMA channel to make the FIR transmission work.
Onboard Parallel Port	Choose the parallel port I/O address: 378H/IRQ7 (default), 3BCH/IRQ7, 278H/IRQ5, or Disabled to disable this port.
Parallel Port Mode	Choose **ECP+EPP** (default)**, SPP**, **EPP**, or **ECP.** The mode depends on your external device that connects to this port.
ECP Mode Use DMA	Choose **DMA3** (default) or **DMA1**. This setting only works when the Onboard Printer Mode is set at the ECP mode.
EPP Mode Select	Choose EPP1.9 (default) or EPP1.7. Check with your parallel port device provider to select the right mode.

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

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:

    "Enter Password:"

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:

    "Confirm Password:"

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

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:

<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 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
```

4   Drivers Installation Guide

IDE BUS Master Installation Guide

MS-DOS/WINDOW/WFW

1) You should install CD-ROM in secondary channel in Windows (WFW).
2) Change the current directory to a: or b:.
3) Under DOS command line prompt, run the SETUP directly.

After entering the setup utility, just follow the instructions of the setup.

WINDOWS NT3.5/4.0

1) From the Program Manager, double click on "Windows NT Setup" in the Main group.
2) Select "Options/Add/Remove SCSI Adapters...".
3) Click on Add.
4) The "Select SCSI Adapter Option" dialog will appear; select "Other (Requires a disk from a hardware manufacturer)" from the "Adapter:" list box.
5) Next, the "Insert Diskette" dialog box will appear; insert the Triones PIIX3/PIIX4 Bus Master EIDE/ATAPI Driver disk into Drive A: and type in "a:\winnt35" and <Return>.
6) Next, the "Select OEM Option" dialog box will appear; select "PIIX/PIIX3 Bus Master EIDE/ATAPI" and click "OK".
7) Next, the "Select SCSI Adapter Option" dialog box will appear; click on the "Install" button in the dialog box. If installation is successful, the "SCSI Adapter Setup" dialog box will reappear, and "PIIX/PIIX3 Bus Master EIDE/ATAPI" will be listed. That means the driver is installed.
8) Reboot your system to load the driver.

WINDOWS 95

1) Close any running applications.
2) Insert the floppy disk into drive A:.
3) Open "My Computer", double click "Drive A:".
4) Double click "Win95".
5) Double click the Setup program.
6) Then just follow the instruction.

NOVELL 3.X&4.X

1) Copy the driver TRIN4X.DSK or TRIN312.DSK to the subdirectory which holds the file SERVER.EXE.
2) Boot up the file server.
3) On the system console and on the command prompt state, type in: **load TRIN4X.DSK** <Enter> or **load TRIN312.DSK** <Enter>

You can also include the above command line into the start up file STARTUP.NCF to load the driver automatically.

SCO UNIX

1) Install SCO UNIX 3.2.x or SCO Open Desktop 3.x using the default SCO IDE driver.
2) Reboot your SCO UNIX system
3) Insert Triones supplied diskette into the 3.5 inch floppy drive of your system. Use doscp command to copy the file TRISCO.TAR to your /tmp directory. for example, if you are using floppy drive A, type: doscp a:/scounix/trisco.tar/tmp/trisco.tar
4) From root directory, type the following commands:
   mkdir/inst
   cd /inst
   tar xvf /tmp/trisco.tar.
   (Note: there is a period at the end of the last command.)

5) Now, insert a blank diskette into the floppy drive A and type:
   tar cvf /dev/<your floppy drive A device name>.
   (Note: there is a period at the end of the last command.)
   Your floppy drive A device name could be:
   - rfd096ds15,5.25 DSHD
   - rfd0135ds18 3.5 DSHD
   - rfd048ds9 5.25 DSDD
   - rfd0135ds9 3.5 DSDD

Now you have already made an installation diskette for the device driver.

Start the installation by typing: **custom**.
6) Select the "Install" operation and then follow the guided steps.
   When prompted "Do you want to set the device configuration (y/n)",
   answer "n".
7) Reboot your SCO UNIX system.

SCO UNIX 5.0
1) Install SCO UNIX 5.0 using the default SCO IDE driver.
2) Reboot your SCO UNIX system
3) Insert Triones supplied diskette into the 3.5 inch floppy drive of
   your system. Use doscp command to copy the file TRISCO.TAR to
   your /tmp directory. for example, if you are using floppy drive A,
   type: doscp **a:/scounix/trisco5.tar/tmp/trisco5.tar**
4) From root directory, type the following commands:
   mkdir/inst
   cd /inst
   tar xvf /tmp/trisco.tar.
   (Note: there is a period at the end of the last command.)
5) Install the driver by typing:
   ./install
6) Reboot your SCO UNIX system..

OS/2 2.0 and WARP 3.X

1) Copy TRIOS2.ADD from the floppy diskette to your hard disk under the OS2 directory (i.e., C:\OS2).
2) Edit C:\CONFIG.SYS to replace **BASEDEV=IBM1S506.ADD** with **BASEDEV=TRIOS2.ADD**
3) Reboot the system.

Note: *For more information (like parameter settings, driver de-installation, etc.), please refer to the README.TXT file on the diskette.*