

# SC-5THx

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**SURIA Hx 256Kb PB Cache Main Board  
User's Guide & Technical Reference  
82430 HX Chipset AT Main Board**

***Factory Part # 5T F0 / F2 / F5***

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# 1 Introduction

The 82430 HX/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

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- Supports P54C/P55C family CPUs running at 75 ~ 200 MHz speeds, Cyrix 6X86/6x86L CPUs running at P120<sup>+</sup>/P133<sup>+</sup>/P150<sup>+</sup>/P166<sup>+</sup>, and AMD K5 CPUs.
- **Supports Dual voltage processor (Optional)**
- **Supports SOCKET 7 & VRM** for upgrade (optional)
- Integrated Second Level (L2) Cache Controller
  - Write Back Cache Modes and Direct Mapped Organization
  - **On-board 256K/512K Pipeline Burst SRAMs Cache and upgrade slot supports**
- Integrated DRAM Controller
  - CAS#-before-RAS# Transparent DRAM Refresh
  - Supports 60/70ns Fast Page Mode (both symmetrical and asymmetrical addressing) and **EDO DRAM** (72-pin SIMM)
  - On-board memory configurations from **4 to 256 Mbytes**
  - Supports Error Checking & Correction (ECC) and Parity Check (Optional)
- Shadow RAM in Increments of 16 Kbytes
- Supports Pentium / P54C SMM Mode and CPU Stop Clock
- Supports “**Table-Free**” DRAM configuration
- **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), Multimode parallel port for SPP/EPP/ECP modes, PS/2 mouse function, and **IR function**
- **On-board supports FLASH Memory for easy upgrade BIOS**
- **Easy installation of Triones EIDE/ATAPI CD-ROM Bus Master Drivers.**

## Unpacking the Mainboard

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The mainboard package contains:

- The 82430 HX/P54C Mainboard
- This User's Guide
- One Triones IDE/ATAPI CD-ROM Bus Master Drivers 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

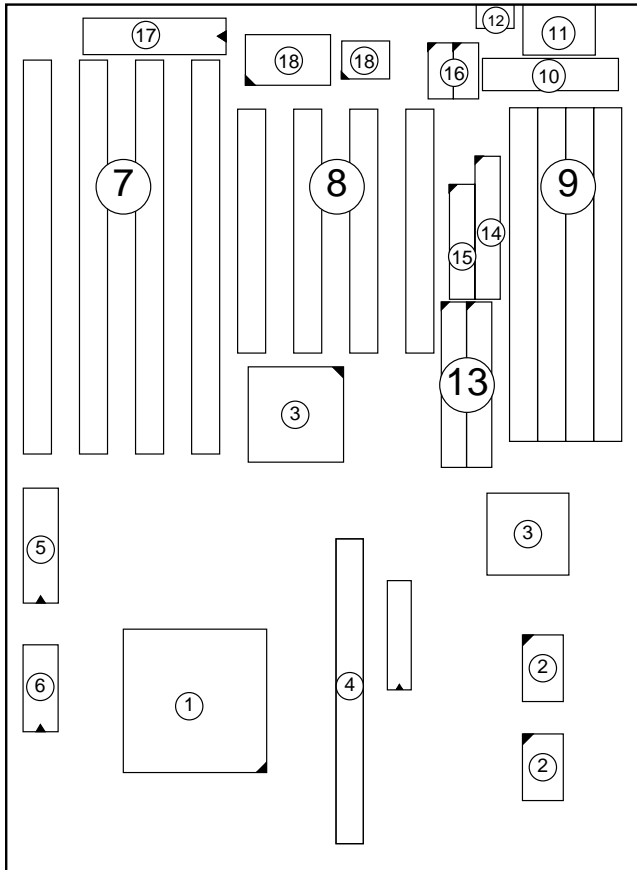
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Make sure you ground yourself before handling the mainboard or other system components. Electrostatic discharge can easily damage the components. Note that you must take special precaution when handling the mainboard in dry or air-conditioned environments.

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 I-1. Mainboard Layout*

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

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).

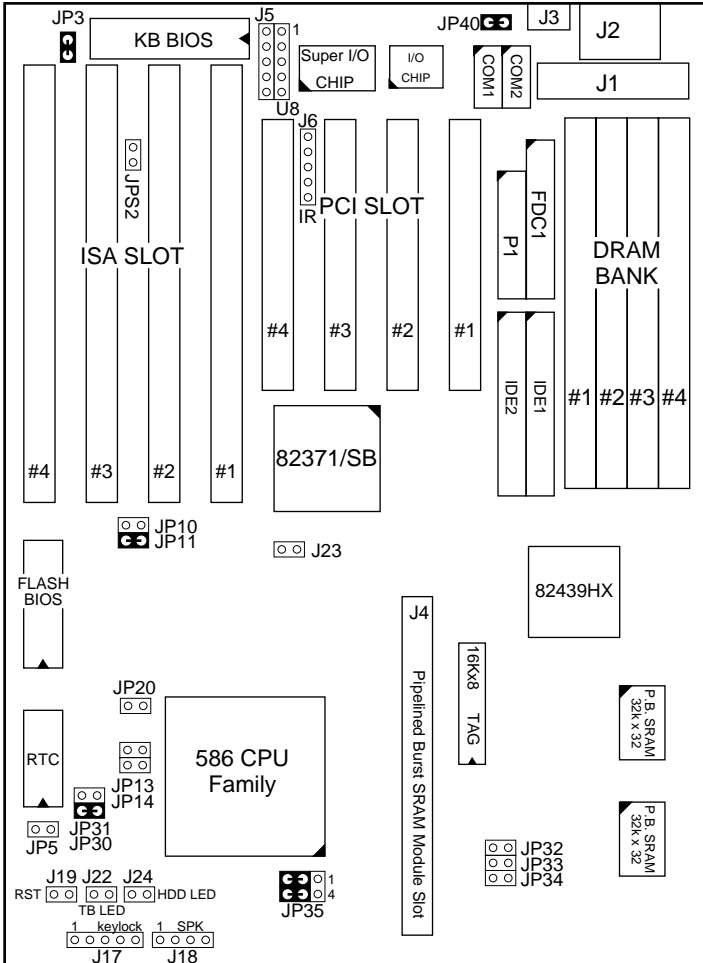


Figure 1–2. Mainboard Default Setting

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

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# 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.*

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## Jumpers

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### Factory Set Jumpers

The following jumpers are set at the factory as below.

Jumpers	Factory settings
JP40	factory setting at short

### JP3: Display Type

Set JP3 to configure the mainboard for use with either a color or monochrome monitor.

Monitor Type	JP3
Monochrome	
EGA/VGA (default)	

### 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.







### J3: PS/2 Mouse Connector

Attach PS/2 mouse cable to this connector to enable the PS/2 mouse function.

### JP13, JP14: Bus Fraction Core/Bus Ratio Select



Set this jumper according to your CPU clock.

*Note:* For Pentium X / Y MHz, X stands for CPU core clock, Y stands for bus clock.

Ratio	P54CX Family	JP13, JP14
3/2 (Default)	Pentium – (100/66, 90/60, 75/50)MHz	 JP13 JP14
2/1	Pentium – (100/50)MHz Pentium – (120/60, 133/66)MHz	 JP13 JP14
5/2	Pentium – (150/60)MHz Pentium – (166/66) MHz	 JP13 JP14
3/1	Pentium – (180/60) MHz Pentium – (200/66) MHz	 JP13 JP14



### 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

## JPS2: PS/2 Mouse Function Jumper

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 PS/2 mouse when choose enabled of PS/2 Mouse Function.*

## CPU Type Configuration

Set the mainboard's CPU jumpers JP10, JP11, JP13, and JP14 according to CPU type as described below, and then set JP23 and JP24 for the proper voltage of the CPU.

### □ Step 1: Frequency Setting

**Pentium – 75\*/90\*/100\* CPU Settings (1.5 x clock)**

**AMD K5 – PR75/PR90/PR100/PR120/PR133 Settings (1.5 x clock)**

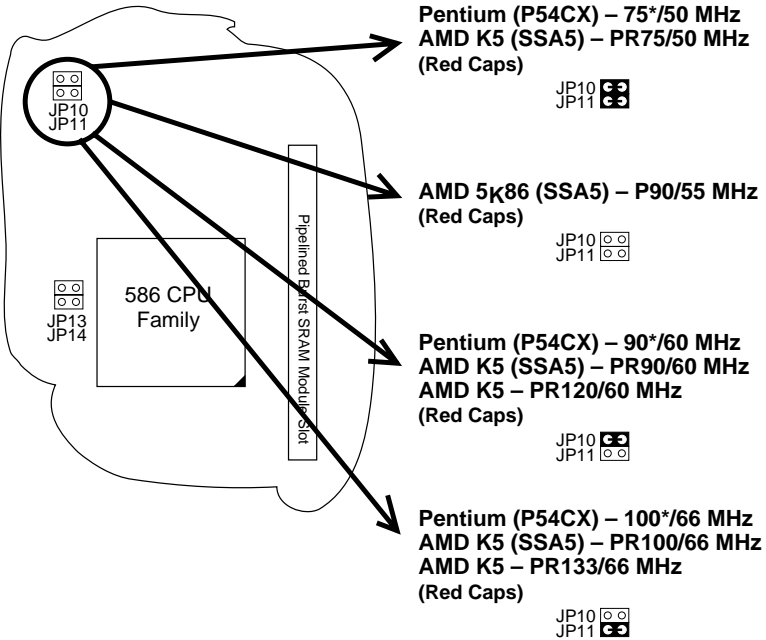


Figure 2–1–1. CPU Jumper Settings

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

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

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

**(2.0 x clock)**

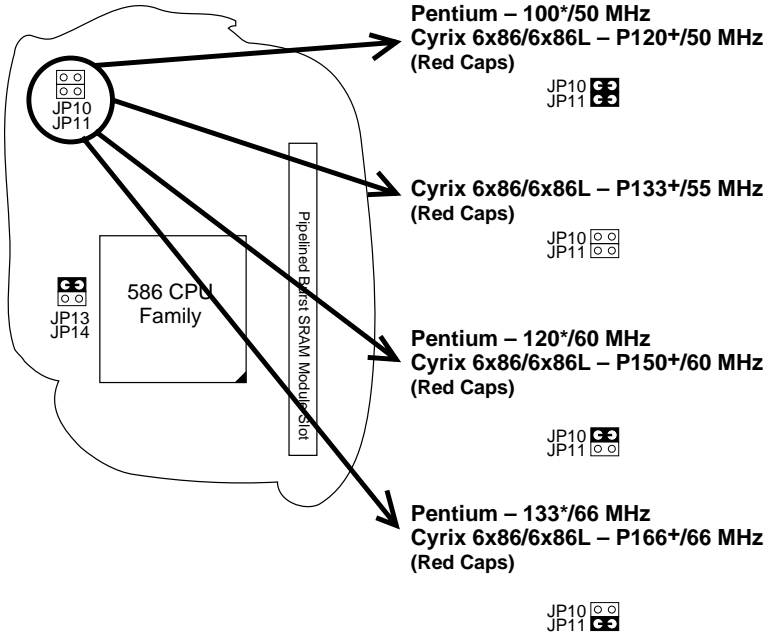


Figure 2–1–2. CPU Jumper Settings

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

**Pentium/AMD – 150/166 CPU Settings (2.5 x clock)**

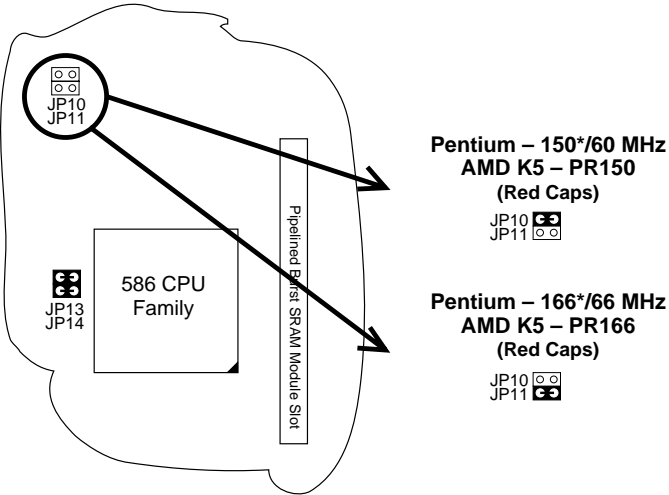


Figure 2-1-3. CPU Jumper Settings

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

**Pentium – 180\*/200\* CPU Settings (3.0 x clock)**

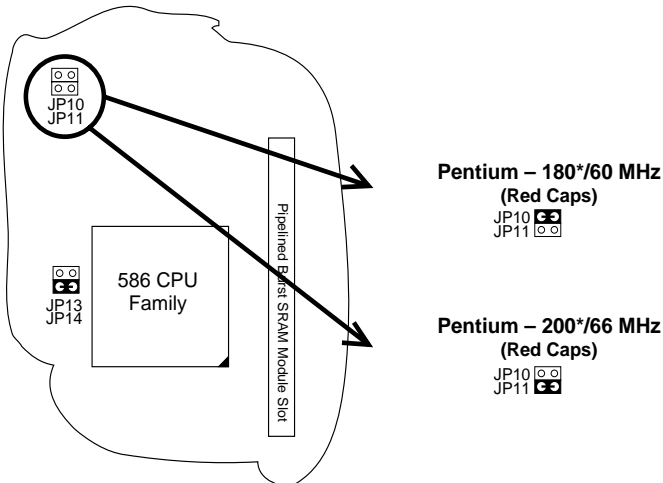


Figure 2-1-4. CPU Jumper Settings

\*: 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-PRxxxCx, AMD-K5-PRxxxFx, and Cyrix 6x86. Refer to the following figure to set these CPUs' voltage:

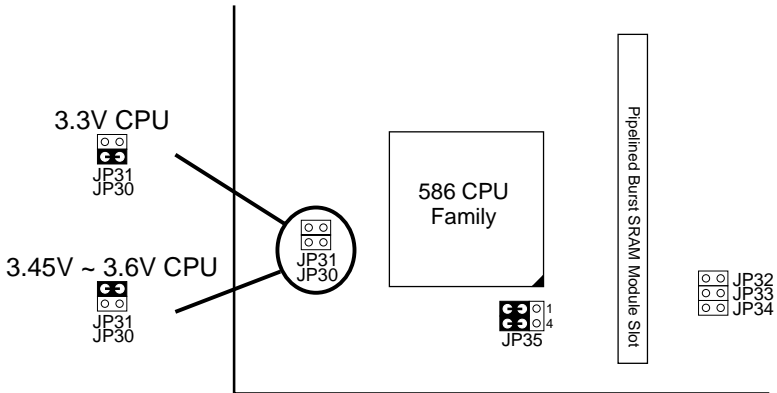


Figure 2-2-1. Single Voltage CPU

### Dual Voltage CPU Setting (Optional)

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 figure to set these CPUs' voltage:

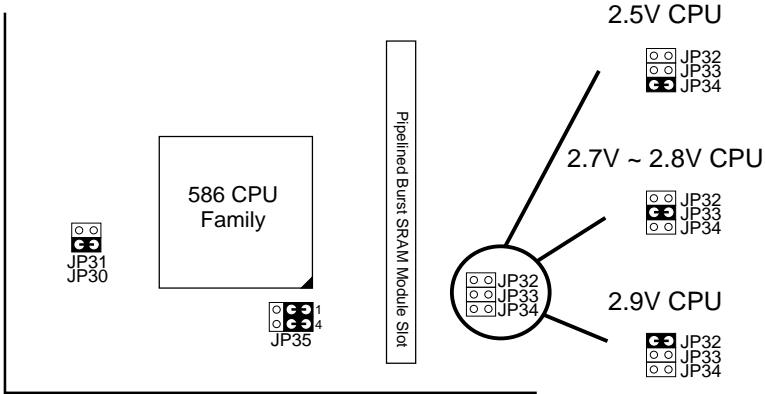


Figure 2-2-2. Dual Voltage CPU

## Memory Configuration

The mainboard supports two banks of **72-pin SIMM or EDO DRAM (with or without parity)**. The mainboard requires SIMM of at least 80ns access time.

The mainboard supports **from 4 to 256 Mbytes** with no other restrictions on memory configurations. You can install DRAM in any combination without having to rely on a memory configuration table. Memory configuration is thus "**Table-Free**" in any bank. (You have to install two stripes of SIMM module to complete a bank.)

## 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 jumper JP20 to set the mainboard for the type of SRAM 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
<b>256KB</b>	32K x32, 2 pcs (or 256K module)/ U2, U4 (or J4)	16K x 8/ U5	64 MB
<b>Upgrade to 512KB</b>	32K x 32, 2pcs + 256K module/ U2, U4, and J4	16K x 8/ U5	64MB
<b>Onboard 512KB</b>	64K x 32, 2 pcs on U2 and U4	16K x 8 on U5	64MB

### 256K Pipelined Burst Cache Configuration

1. Leave JP20 opened when you have 256K Pipelined Burst SRAM CHIPS onboard.

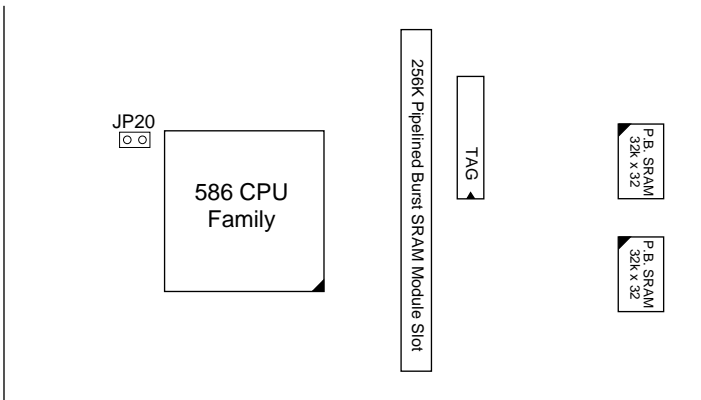


Figure 2–3–1. 256K Pipelined Burst Cache Configuration



**Upgrade to 512K/Onboard 512KB Pipelined Burst Cache Configuration**

1. Insert Jumper into JP20 when you have 512K Pipelined Burst SRAM CHIPS onboard or 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.

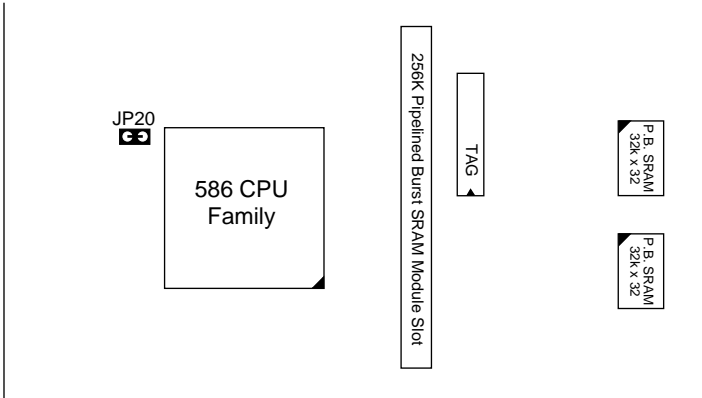


Figure 2-3-2. 512K Pipelined Burst Cache Configuration

**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
<b>LPT1*</b>	378H	7	ECP + EPP
<b>COM1</b>	3F8H	4	
<b>COM2</b>	2F8H	3	

\* LPT1 is default for standard mode. If you want ECP/EPP functions you must use the BIOS settings. 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.*

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## Connectors

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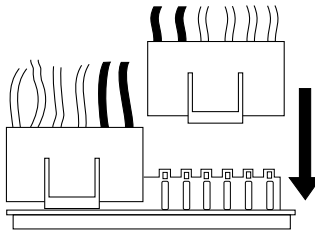
Attach the mainboard to case devices, or an external battery, via connectors on the mainboard. Refer to Figure 1-1 for connector locations and connector pin positions.

### J2 – Keyboard Connector

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

### J1 – Power Supply Connectors

The mainboard requires a power supply with at least 200 watts and a “power good” signal. J1 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.



### 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, pin4, 5 for keylock.)

### J18 – Speaker Connector

Attach the system speaker to connector J18.

### J19 – Hardware Reset Control

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

**J22 – Turbo LED Connector**

Attach the turbo LED to J22. The LED lights when the system is in Turbo mode.

**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.

**J4 – 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.

**J5, U8 – Universal Serial Bus Connector (Optional)**

Attach USB cable to these connectors for external USB device.

**J6 – 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	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	: 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.			Base Memory: 640K					Extended Memory: 3328K
Drive B : None								Other Memory: 128K
Video : EGA/VGA			Total Memory: 4096K					
Halt On : All Errors								
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 .

<b>Boot Sequence</b>	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.)
<b>Swap Floppy Drive</b>	Enabled changes the sequence of the A: and B: drives. (The Default setting is Disabled.)
<b>Boot Up Num Lock Status</b>	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.
<b>Gate A20 Option</b>	Choose Fast (default) or Normal. Fast allows RAM accesses above 1MB using the fast gate A20 line.
<b>Typematic Rate Setting</b>	Enable this option to adjust the keystroke repeat rate.
<b>Typematic Rate (Chars/Sec)</b>	Choose the rate a character keeps repeating.
<b>Typematic Delay (Msec)</b>	Choose how long after you press a key that a character begins repeating.
<b>Security Option</b>	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.
<b>PCI/VGA Palette Snoop</b>	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.
<b>OS Select for DRAM &gt;64MB</b>	OS2: Choosing this when you are using OS/2 operation system.  Non-OS/2: Choosing this when you are using non-OS/2 operation system.

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**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	: 7/6		
Fast RAS# To CAS# Delay	: 3		
DRAM Read Burst Timing	: x333		
DRAM Write Bursts Timing	: x333		
Turbo Read Leadoff	: Disabled		
DRAM Speculative Leadoff	: Disabled		
Turn-Around Insertion	: Disabled		
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 3	ESC : Quit	↑ ↓ → ←: Select Item
16 Bit I/O Recovery Time	: 1	F1 : Help	PU/PD/+/- : Modify
Memory Hole At 15M-16M	: Disabled	F5 : Old Values (Shift)	F2 : Color
Peer Concurrency	: Enabled	F6 : Load BIOS Defaults	
Chipset Special Features	: Enabled	F7 : Load Setup Defaults	
DRAM ECC/PARITY Select	: Parity		
Memory Parity/ECC Check	: 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:

**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.

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<b>DRAM R/W Leadoff Timing</b>	Use the default setting.
<b>DRAM RAS to CAS Delay</b>	Use the default setting.
<b>DRAM Read Burst Timing</b>	Use the default setting.
<b>DRAM Write Burst Timing</b>	Use the default setting.
<b>Turbo Read Leadoff</b>	Use the default setting.
<b>DRAM Speculative Leadoff</b>	Use the default setting.
<b>Turn-Around Insertion</b>	Use the default setting.
<b>ISA Clock</b>	Use BIOS default setting or choose: /4: for 60, 66MHz CPU Bus Frequency /3: for 50, 55MHz CPU Bus Frequency.
<b>System BIOS Cacheable</b>	Disabled: The ROM area F0000H-FFFFFH is not cached. Enabled: The ROM area F0000H-FFFFFH is cacheable if cache controller is enabled.
<b>Video BIOS Cacheable</b>	Disabled: The video BIOS C0000H-C7FFFH is not cached. Enabled: The video BIOS C0000H-C7FFFH is cacheable if cache controller is enabled.
<b>8Bit I/O Recovery Time</b>	Use the default setting.
<b>16Bit I/O Recovery Time</b>	Use the default setting.
<b>Memory Hole At 15M-16M</b>	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.
<b>Peer Concurrency</b>	Use the default setting.

<b>Chipset Special Features</b>	Use the default setting.
<b>DRAM ECC/PARITY Select</b>	Choose ECC or Parity (default) according to the type of DRAM you have.
<b>Memory Parity/ECC Check</b>	Auto: Active memory checking automatically. Enabled: Enable memory checking. Disabled: Disable memory checking.
<b>Single Bit Error Report</b>	Enabled: System will report DRAM error to CPU. Disabled: System will not report DRAM error to CPU.
<b>L2 Cache Cacheable Size</b>	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 Management	: Disabled	** Power Down & Resume Events **
PM Control by APM	: No	IRQ 3 (COM 2) : ON
Video Off Method	: V/H SYNC+Blank	IRQ 4 (COM 1) : ON
		IRQ 5 (LPT 2) : ON
Doze Mode	: Disabled	IRQ 6 (Floppy Disk) : OFF
Standby Mode	: Disabled	IRQ 7 (LPT 1) : ON
Suspend Mode	: Disabled	IRQ 8 (RTC Alarm) : OFF
HDD Power Down	: Disabled	IRQ 9 (IRQ2 Redir) : ON
		IRQ 10 (Reserved) : ON
		IRQ 11 (Reserved) : ON
		IRQ 12 (PS/2 mouse) : ON
		IRQ 13 (Coprocessor) : ON
		IRQ 14 (Hard Disk) : ON
		IRQ 15 (Reserved) : ON
** Wake Up Events In Doze & Standby **		
IRQ3 (Wake-Up Event)	: ON	
IRQ4 (Wake-Up Event)	: 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** Let’s you define the HDD and system 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

---

<b>PM Control by APM</b>	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.
<b>Video Off Method</b>	Choose V/H Sync+Blank (default), Blank screen, or DPMS for the selected PM mode.
<b>Doze Mode</b>	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.
<b>Standby Mode</b>	The default is Disabled. Time is adjustable from 1 Min to 1 Hour.
<b>Suspend Mode</b>	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.)
<b>HDD Power Down</b>	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.
<b>IRQx (Wake-Up Events)</b>	The BIOS monitors these items for activity. If activity occurs from the Enabled item the system wakes up.
<b>Power Down Activities</b>	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 Activated By : Level
Reset Configuration Data : Disabled	PCI IDE IRQ Map To : PCI-AUTO
	Primary IDE INT# : A
	Secondary IDE INT# : B
IRQ-3 assigned to : Legacy ISA*	
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*	
DMA-1 assigned to : PCI/ISA PnP*	
DMA-3 assigned to : PCI/ISA PnP*	
DMA-5 assigned to : PCI/ISA PnP*	
DMA-6 assigned to : PCI/ISA PnP*	
DMA-7 assigned to : PCI/ISA PnP*	
	ESC : Quit                   ↑ ↓ → ← : Select Item
	F1 : Help                   PU/PD/+/- : Modify
	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	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:

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

<b>IRQ and DMAX assigned to</b>	Choose PCI/ISA PnP or Legacy ISA. If the first item is set to Manual, you could choose IRQ 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.
<b>PCI IRQ Activated By</b>	Choose Edge or Level. Most PCI trigger signals are Level. This setting must match the PCI card.
<b>PCI IDE IRQ Map To</b>	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.
<b>Primary IDE INT#</b>	Choose INTA#, INTB#, INTC#, or INTD#. The default setting is INTA#.
<b>Secondary IDE INT#</b>	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:

“Load SETUP Defaults (Y/N)? N”

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 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
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
Onboard FDD Controller	: Enabled
Onboard Serial Port 1	: 3F8/IRQ4
Onboard Serial Port 2	: 2F8/IRQ3
UART 2 Mode	: Standard
Onboard Parallel Port	: 378H/IRQ7
Onboard Parallel MODE	: ECP/EPP
ECP Mode Use DMA	: 3
Parallel Port EPP Type	: EPP1.7
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 select values. Modify selected fields using the PgUp/PgDn/+/- keys.

A short description of screen items follows:



<b>IDE HDD Block Mode</b>	Choose Enabled (default) or Disabled. Enabled invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.
<b>PCI Slot IDE 2nd Channel</b>	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.
<b>On-chip Primary/ Secondary PCI IDE</b>	Enabled: Use the on-board IDE (default) Disabled: Turn off the on-board IDE
<b>IDE Primary Master PIO</b>	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.
<b>IDE Primary Slave PIO</b>	
<b>IDE Secondary Master PIO</b>	
<b>IDE Secondary Slave PIO</b>	
<b>Onboard FDC Controller</b>	Enabled: Use the on-board floppy controller (default).  Disabled: Turn off the on-board floppy controller.
<b>Onboard Serial Port 1</b>	Choose serial port 1 & 2's I/O address. Do not set port 1 & 2 to the same value except for Disabled.
<b>Onboard Serial Port 2</b>	
	COM 1/3F8H   COM3/3E8H COM 2/2F8H   COM4/2E8H (default)
<b>UART 2 Mode</b>	Standard: Use standard UART mode (default).  ASK IR: Use UART with ASKIR function.

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<b>Onboard Parallel Port</b>	Choose the printer I/O address: 378H/IRQ7 (default), 3BCH/IRQ7, 278H/IRQ5
<b>Onboard Printer Mode</b>	Choose ECP + EPP (default), SPP or EPP, ECP mode. The mode depends on your external device that connects to this port.
<b>ECP Mode DMA Select</b>	Choose DMA3 (default) or DMA1. This setting only works when the Onboard Printer Mode is set at the ECP mode.
<b>Parallel Port EPP Type</b>	Choose EPP specification Ver. 1.7 (default) or 1.9.

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## Supervisor Password

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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.
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.*

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## User Password

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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:

**“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.
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

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### 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

- 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 PIIX/PIIX3 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.*