



Technical Support

Should a problem arise with your system, you should first turn to your reseller. Your system has most likely been configured by them, and so they should have the best idea of what is in your system. Hence, they should be able to help you the most. Further, if you purchased your system from a dealer nearby, you can actually bring your system to them to have it serviced instead of fiddling with it yourself. If your reseller is unable to assist you, try our web page, <http://www.tyan.com>, or our newsgroup, alt.comp.periphs.mainboard.tyan.

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor **first** for any product problems.

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You can obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid, or hand carried to the manufacturer. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty only covers normal consumer use and does not cover damages incurred during shipping or from failure due to the alteration, misuse, abuse, or improper maintenance of products.

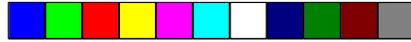
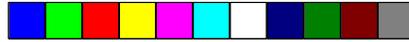


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Introduction

Chapter 1—Introduction

1.1 Overview

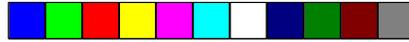
The S1571 is a quality, high performance mainboard designed for Intel Pentium microprocessors. This mainboard utilizes the Intel 430TX chipset and can support CPU speeds of 75MHz through 233MHz. The S1571 will also support the CyrixM1/6x86, Cyrix M2, AMD K6, and Intel multimedia Pentium P55C/P54CTB (MMX Overdrive), which utilizes MMX commands.

The S1571's PCI Local Bus provides high performance capabilities that are ideal for a wide range of demanding applications such as CAD, CAM, CAE, networking, multi-user environments, database management, desktop publishing, image processing, and 3D animation.

This integrated system board achieves high reliability with numerous features and yet is small enough to be supported in an AT form factor. Some of the features included are on-board dual channel PCI PIO, Bus Master IDE and UltraDMA/33, on-board floppy controller, USB Port, PS/2 Mouse Port, on-board high speed I/O, and support for pipeline-burst SRAM.

Flexibility and expandability have been designed into the S1571. With I/O and drive controller support built on-board, the five PCI and four ISA (one ISA and one PCI as a shared slot) slots are free for numerous add-on expansion cards.

Remember to take a look at TYAN Computer's web site, located at <http://www.tyan.com>. Here you can find information on all of TYAN's products along with FAQs, distributors list, drivers, and CMOS setting explanations. If you have a tech support question please contact us at www.tyan.com.



Introduction

1.2 Hardware Specifications/Features

- ◆CPU
Intel Pentium 75 MHz thru 200 MHz (Socket 7).
Intel Pentium MMX 166 MHz thru 233 MHz.
Intel Pentium P55C/P54CTB (MMX Overdrive).
Cyrix/IBM/SGS M1/6x86 PR120+/PR150+/
PR+166 (see page 11 for PR200+).
Cyrix M2 PR166/PR200(see page 11 for PR233).
AMD K5 PR90-PR166+, K6 166/200/233Mhz.

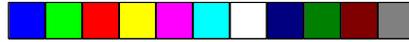
- ◆Speed
50/60/66/75/83 MHz system bus.
25/30/33 MHz PCI bus.

- ◆DRAM
3 banks of 72-pin SIMM and 2 DIMM sockets.
Supports 5V or 3.3V memory.
Supports EDO (Extended Data Out) DRAMs.
Supports SDRAM (Synchronous DRAM).
Supports Fast Page Mode DRAMs.
Supports 8MB to 256MB of DRAMs.

- ◆L2 Cache
512KB on board 2nd level PB SRAM.

- ◆EIDE Controller
Primary and secondary PCI EIDE channels on board for support of up to four EIDE Mode 0 through Mode 4 drives.
Supports DMA (Bus Master) multiword mode 0 to 2 (the Bus Master driver is available on the web at www.tyan.com).
Supports "Ultra 33" Synchronous DMA mode at 33MB/s transfer rate.

- ◆Enhanced I/O
Multi-mode bi-directional parallel port that supports standard, EPP, and ECP modes.
Supports 16550 compatible UARTs for on-board high speed serial ports.
Support for an IrDA-compliant Infra Red interface.



Introduction

On-board floppy controller.
On-board Universal Serial Ports.

- ◆ I/O Bus Slots 5 Master/Slave 32-bit PCI-Bus slots (slot 1 and slot 5 share a bus mastering resource).
4 16-bit ISA Bus slots.
One ISA and one PCI shared slot.
- ◆ Mouse On-board PS/2 mouse connector.
- ◆ Special features LM78 optional.
LANdesk compatible (only with LM78 installed).
Switching power supply.

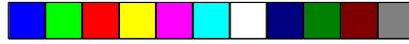
1.3 Software Specifications

- ◆ BIOS Default: Award BIOS.
Virus Protection.
Year 2000 Ready.
Plug and Play.
Support for easy BIOS upgrades with flash EPROM chip.
- ◆ OS Operates with MS-DOS, Windows 3.x, Windows for WorkGroups 3.x, Windows 95, Windows NT, OS/2, Novell Netware, Solaris, and SCO Unix.

1.4 Environment

Ambient Temperature	0 to +50 °C (operating)
Relative Humidity	0 to +85% (operating)
Altitude	0 to 10,000 feet (operating)
Vibration	0 to 1,000 Hz
Voltage	4.9 to 5.2 V

Information presented in this publication has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies. The information contained in this document is subject to change without notice.



Board Installation

Chapter 2—Board Installation

2.1 Unpacking

The mainboard package should contain the following:

- ◆S1571 Mainboard
- ◆One IDE 40 pin cable
- ◆One 34 pin floppy cable
- ◆User's Manual

The mainboard contains sensitive electric components which can be easily damaged by static electricity, so the mainboard should be left in its original packaging until it is ready to be installed.

With the power supply plugged in and turned off, touch an unpainted area of the system chassis immediately before handling the mainboard or any component. Doing so discharges the static charge your body may have acquired.

After opening the mainboard carton, extract the system board—holding it by its edges—and place it on a grounded anti-static surface, component side up. Inspect the board for damage. Do not inspect board unless it is placed on an anti-static mat. Do not touch the bottom of the board.

DO NOT APPLY POWER TO THE BOARD IF IT HAS BEEN DAMAGED!

2.2 Installation

You are now ready to install your mainboard. The mounting hole pattern of the S1571 matches the Baby-AT system board specifications. It is assumed that the chassis is for a standard Baby-AT mainboard form factor.



Board Installation

Trademarks

Award, BIOS/Flash are trademarks of Award Software International, Inc.

AMI BIOS is a trademark of American Megatrends, Inc.

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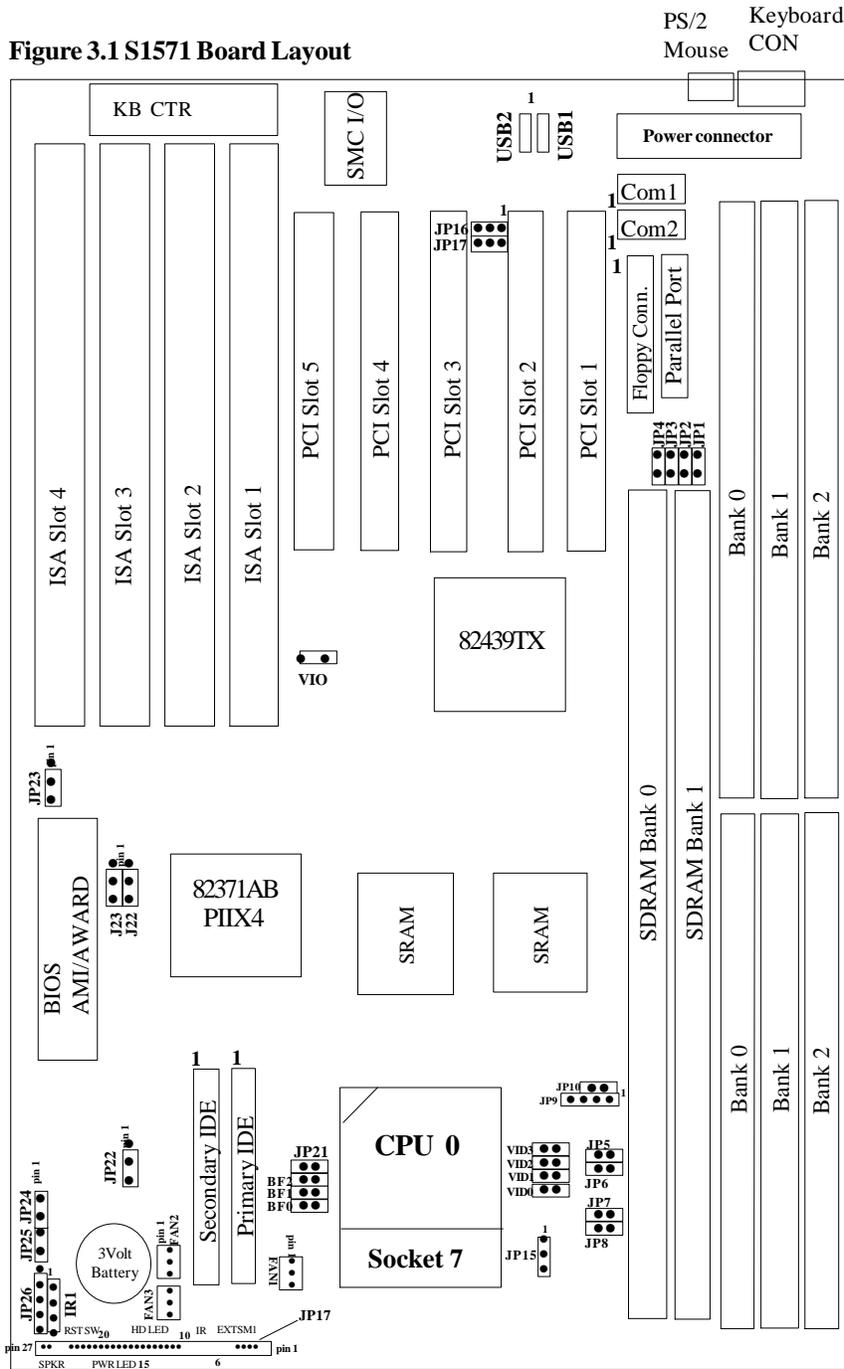
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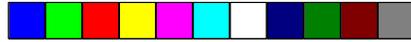
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Chapter 3—On-Board Resource Settings

Figure 3.1 S1571 Board Layout





Resource Settings

3.2 Jumper Settings

CPU	BF0	BF1	BF2	JP9	JP10	JP15	VID0	VID1	VID2	VID3	VIO
P54C 75	OFF	OFF	OFF	1-2, 3-4	ON	1-2	ON	ON	ON	ON	OFF
P54C 90	OFF	OFF	OFF	3-4	ON	1-2	ON	ON	ON	ON	OFF
P54C 100	OFF	OFF	OFF	1-2	ON	1-2	ON	ON	ON	ON	OFF
P54C 120	ON	OFF	OFF	3-4	ON	1-2	ON	ON	ON	ON	OFF
P54C 133	ON	OFF	OFF	1-2	ON	1-2	ON	ON	ON	ON	OFF
P54C 150	ON	ON	OFF	3-4	ON	1-2	ON	ON	ON	ON	OFF
P54C 166	ON	ON	OFF	1-2	ON	1-2	ON	ON	ON	ON	OFF
P54C 200	OFF	ON	OFF	1-2	ON	1-2	ON	ON	ON	ON	OFF
P55C 166	ON	ON	OFF	1-2	ON	1-2	ON	OFF	OFF	OFF	ON
P55C 200	OFF	ON	OFF	1-2	ON	1-2	ON	OFF	OFF	OFF	ON
P55C 233	OFF	OFF	OFF	1-2	ON	1-2	ON	OFF	OFF	OFF	ON
K5 90	OFF	OFF	OFF	1-2	ON	1-2	ON	ON	ON	ON	OFF
K5 100	OFF	OFF	OFF	1-2	ON	1-2	ON	ON	ON	ON	OFF
K5 120	ON	OFF	OFF	3-4	ON	1-2	ON	ON	ON	ON	OFF
K5 133	ON	OFF	OFF	1-2	ON	1-2	ON	ON	ON	ON	OFF
K5 166	ON	ON	OFF	1-2	ON	1-2	ON	ON	ON	ON	OFF
K6 166	ON	ON	OFF	1-2	ON	1-2	ON	OFF	OFF	ON	ON
K6 200	OFF	ON	OFF	1-2	ON	1-2	ON	OFF	OFF	ON	ON
K6 233	OFF	OFF	OFF	1-2	ON	1-2	ON	ON	OFF	OFF	ON
IDT C6 150 (50x3)	OFF	ON	OFF	1-2, 3-4	ON	1-2	ON	ON	OFF	ON	OFF
IDT C6 180 (60x3)	OFF	ON	OFF	3-4	ON	1-2	ON	ON	OFF	ON	OFF
Cyrix PR120+ M1	ON	OFF	OFF	1-2, 3-4	ON	1-2	ON	ON	ON	ON	ON
Cyrix PR133+ M1	ON	OFF	OFF	1-2, 3-4	OFF	1-2	ON	ON	ON	ON	ON
Cyrix PR150+ M1	ON	OFF	OFF	3-4	ON	1-2	ON	ON	ON	ON	ON
Cyrix PR166+ M1	ON	OFF	OFF	1-2	ON	1-2	ON	ON	ON	ON	ON
Cyrix PR200+ M1	ON	OFF	OFF	3-4	OFF	1-2	ON	ON	ON	ON	ON
Cyrix PR150L M1	ON	OFF	OFF	3-4	ON	1-2	ON	OFF	OFF	OFF	ON
Cyrix PR166L M1	ON	OFF	OFF	1-2	ON	1-2	ON	OFF	OFF	OFF	ON
Cyrix PR200L M1	ON	ON	OFF	3-4	OFF	1-2	ON	OFF	OFF	OFF	ON
Cyrix PR166 M2	ON	ON	OFF	3-4	ON	1-2	ON	OFF	OFF	OFF	ON
Cyrix PR200 M2	ON	ON	OFF	1-2	ON	1-2	ON	OFF	OFF	OFF	ON
Cyrix PR233 M2	ON	ON	OFF	3-4	OFF	1-2	ON	OFF	OFF	OFF	ON

*Chips in the Cyrix "L" series are "Low Voltage" and operate at 2.8 volts.



Resource Settings

CPU Voltage Settings

CPUVCC	2.0V	2.1V	2.2V	2.3V	2.4V	2.5V	2.6V	2.7V	2.8V	2.9V	3.0V	3.1V	3.2V	3.3V	3.4V	3.5V
VD0	OFF	ON														
VD1	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON
VD2	OFF	OFF	ON	ON												
VD3	OFF	ON														

CPU Multipliers

CPUMult	BF0	BF1	BF2
x1.5	OFF	OFF	OFF
x2	ON	OFF	OFF
x2.5	ON	ON	OFF
x3	OFF	ON	OFF

BUS Speed Settings

BUS Frequency	JP9	JP10
50 M Hz	1-2, 3-4	ON
55 M Hz	1-2, 3-4	OFF
60 M Hz	3-4	ON
66 M Hz	1-2	ON
75 M Hz	3-4	OFF
83 M Hz	1-2	OFF

BIOS Memory Voltage Select

BIOS VCC	JP23
5V	1-2
12V	2-3

Note: please ignore the JP21 label on the board.

WARNING:

This motherboard incorporates support for 75MHz and 83MHz BUS speeds. However, these speeds will push PCI bandwidth beyond the Intel-recommended specification for PCI 2.1 compliance. Therefore, TYAN Computer Corporation takes no responsibility for any problems, hardware or software, related to the use of BUS speeds beyond 66MHz. We also cannot guarantee any PCI cards' compatibility beyond the specified speed of 33MHz. Technical support and RMA/Warranty claims relating to the use of BUS speeds beyond the 66MHz/33MHz limit recommended by Intel will not be honored by TYAN. **Use at your own risk.**

Resource Settings

Windows95 Users:

You may encounter problems with some of the devices in the Intel 82371AB chipset. Neither the PCI Bridge nor the PCI Universal BUS device IDs for this chipset (also called PIIX4) are recognized by Windows95. This is a software problem, not a hardware problem, and can be easily remedied by either upgrading to Windows98 or downloading the 82371AB patch found at <http://www.tyan.com> or at <ftp://download.intel.com/design/pcisets/busmastr/setupex.exe>

SIMM DRAM Memory Voltage Select

DRAM VCC	JP1	JP2	JP7	JP8
3V	OFF	OFF	ON	ON
5V	ON	ON	OFF	OFF

DIMM Memory Voltage Select

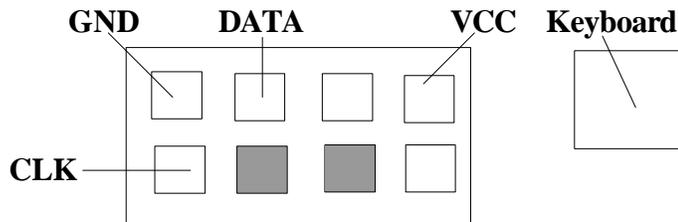
DIMM VCC	JP3	JP4	JP5	JP6
3V	OFF	OFF	ON	ON
5V	ON	ON	OFF	OFF

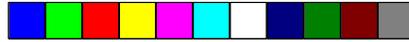
Others

JP26	Install only if there is a speaker on board.
JP24	Connected to the LED for Turbo On/Off.
JP25	Connected to the switch for Turbo On/Off.
JP26	Pin 4 and 5 for Keylock function.

*Deturbo is not supported in 430TX chipset.

PS/2 Mouse Connector:





Resource Settings

I/O Port Setting: JP16 and JP17

	JP16	JP17
For Serial Port	1-2	1-2
For IR Port	2-3	2-3

J17 Settings

pins	function
3-4	EXTSM1
6-7	IR Receive
8-9	IR Transmit
13-14	IDE LED Primary
15-16	IDE LED Secondary
18-20	PWR LED
22-23	RST SW
24-27	SPK

3.3 CMOS RTC

The TX chipset includes a Real Time Clock circuit. It provides the date and the time for the system. Normally the life span of an RTC battery is 5 years. If the battery for the RTC is low, it will prevent your system from POSTing and you will not get a display. If this occurs, you will need to replace the battery with another 3-volt lithium battery (Duracell DL2032).

3.4 Speaker Connector Installation

The S1571 provides a 4-pin header to connect the speaker. The speaker is connected to pins 24-27 of jumper block J17.

3.5 Hardware Reset Switch Connector Installation

The RESET switch on your case's display panel provides users with the HARDWARE RESET function, which is the same as power on/off. The system will do a cold start after the RESET switch is pushed. The RESET



Resource Settings

switch is a 2-pin connector and should be installed on pins 22 and 23 on jumper block J17.

3.6 Flash EPROM-Jumper JP23

The S1571 uses flash memory to store BIOS programs. It can be updated as new versions of the BIOS become available. The flash utility will guide you through the process step by step.

JP23 determines which type of EPROM is used. This jumper has been set to match the on-board BIOS chip. The factory default for the S1571 is on pins 1 and 2. Depending on the type of EPROM used, some boards will have JP23 on pins 2 and 3.

Refer to chapter 5 for Flash EPROM upgrade procedures.

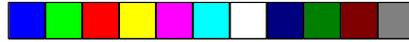
3.7 Hardware CMOS & Password Reset: JP22

If you have been locked out of your system because you forgot your password or set the CMOS incorrectly, follow the instructions below.

- a. Power off the system.
- b. Connect jumper JP22 to pins 2 and 3.
- c. Wait for 2 seconds, then return JP22 to pins 1 and 2.
- d. Power on the system again.

By following the above procedures, you will erase your password and reset the CMOS to the BIOS defaults.



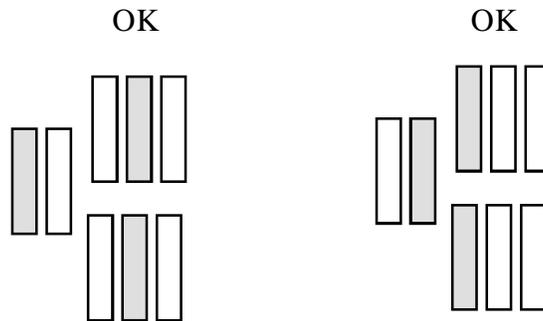


Resource Settings

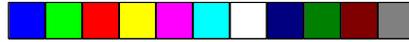
3.8 DRAM Installation

The S1571 uses a 64-bit data path from memory to CPU and can accommodate up to 256MB of RAM. The mainboard supports Fast Page Mode, and EDO (Extended Data Out) 72 pin SIMMs. SDRAMs (Synchronous) are also supported in the DIMM slots. DIMMs must be of the **unbuffered** variety. All installed memory will be automatically detected so there is no need to set jumpers. The TX chipset can cache up to 64MB of RAM.

- ◆ SIMM modules must be installed in pairs.
- ◆ Each pair of SIMMs must be of the same size and type.
- ◆ The mainboard supports 1, 2, 4, 8, and 16MBx32 SIMM modules.
- ◆ SIMM banks 0, 1, and 2 can use either double- or single-sided SIMMs.
- ◆ Two SIMMs or one unbuffered DIMM must be installed for the system to POST.
- ◆ The mainboard supports 1, 2 and 4MBx64 DIMM modules.
- ◆ SIMM bank 0 and DIMM bank 0 cannot be used at the same time.
- ◆ SIMM bank 1 and DIMM bank 1 cannot be used at the same time.
- ◆ You can use SIMM bank 0 with DIMM bank 1.
- ◆ You can use SIMM bank 1 with DIMM bank 0 (see figure below).



The shaded boxes represent occupied slots.



Resource Settings

- ◆ If you use 4MBx64 DIMMs you cannot use DRAM bank 2. DRAM bank 2 has an upper limit of 32MB.
- ◆ We do not recommend using DRAM bank 2 along with DIMMs.
- ◆ The following table shows some of the available memory configurations.

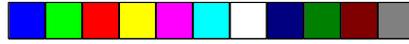
DRAM Bank 0	DRAM Bank 1	DRAM Bank 2	SDRAM Bank 0	SDRAM Bank 1	Total
4MBx2	none	none	none	none	8MB
none	none	none	8MBx1	none	8MB
none	none	none	16MBx1	none	16MB
8MBx2	none	none	none	none	16MB
4MBx2	4MBx2	4MBx2	none	none	24MB
16MBx2	none	none	none	none	32MB
none	8MBx2	none	16MBx1	none	32MB
32MBx2	none	none	none	none	64MB
none	none	none	none	64MBx1	64MB
none	none	none	32MBx1	64MBx1	96MB
none	none	none	64MBx1	64MBx1	128MB
64MBx2	none	none	none	64MBx1	192MB
none	none	none	128MBx1	128MBx1	256MB

3.9 CPU Installation

Several types of CPUs can be used on the S1571. Please refer to section 3.2 for the correct CPU jumper settings for your board.

Remember:

- ◆ The CPU is a sensitive electronic component and it can be easily damaged by static electricity. Do not touch the CPU pins with your fingers.
- ◆ When installing the CPU into the socket, match the CPU pins to the socket pins.
- ◆ Before the CPU is installed, the mainboard must be placed on a flat surface. You should be able to insert the CPU with minimal pressure. Do not push down hard, but do use firm pressure.
- ◆ **A cooling fan and/or heat sink assembly is required to protect the CPU from being damaged.**



Resource Settings

Installation procedure:

1. Make sure the ZIF socket lever is up. To raise the lever, pull it out to the side a little and raise it as far as it will go. The top plate will slide back.
2. Align the CPU and socket pin 1 corners. The pins on the bottom of the CPU should align with the rows of holes in the socket.
3. Insert the CPU in the socket. It should insert easily. If it does not, adjust the position of the lever a little.
4. Press the lever down. The top plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. This is normal and will not damage the CPU. The lever should snap into place at the side of the socket.

3.10 Upgrading Cache Memory

The S1571 has 512KB of on-board pipeline-burst SRAM and cannot be upgraded in the field. The TX chipset can cache a maximum of 64MB of RAM.

3.11 Peripheral Device Installation

After all the jumpers on the mainboard have been set, it can then be mounted into the case. Proceed to install the display card and any other peripheral devices.

If a PCI-Bus interface card is to be installed in the system, any one of the five PCI-Bus slots can support either a Master or a Slave device.

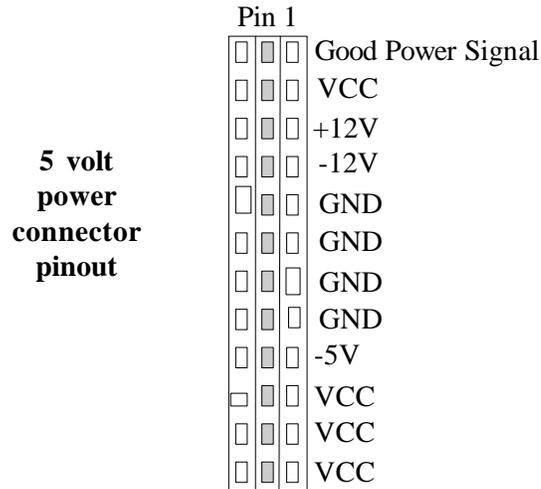
After installing the peripheral controllers, you should check everything again, and prepare to power on the system.



Resource Settings

3.12 Connecting the Power Supply

The system power supply connector on the mainboard is for a 5-volt power supply. Incorrect installation of the power supply could result in serious damage to the system board and connected peripherals.



To connect the leads from either voltage power supply, you should first make sure the power supply is unplugged. Most power supplies have two leads. Each lead has six wires, two of which are black.

Orient the connectors so the black wires are in the middle of the 5V power supply.

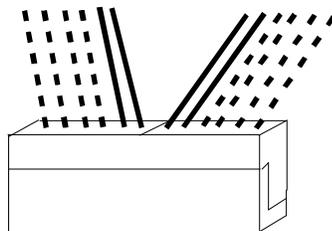
Caution: Some power supplies also include 3V connectors. The connection wires normally have two colors with 3 black wires on one side. Please be careful not to use the wrong connector.





Resource Settings

Align the plastic guide pins on the lead cables with their receptacles on the mainboard. You may need to hold the lead at an angle to line it up. Once you have the guide pins aligned, press the lead connector so that the plastic clips on the lead snap into place and secure the lead to the connector.



Connecting the 5V power supply





BIOS Configuration

Chapter 4—BIOS Configuration

Award's BIOS has a built-in setup program that allows the user to modify the basic system configuration. This type of information is stored in the battery-backed CMOS NVRAM. **Entering incorrect information or forgetting your password can lock you out of your system (refer to section 3.9 for information on resetting the CMOS NVRAM).**

4.1. Entering Setup

You may enter setup by powering on the computer and watching for the below message during the POST (Power On Self Test).

* TO ENTER SETUP BEFORE BOOT PRESS DEL KEY



When this message appears at the bottom of your screen, press the key. This must be done quickly, for the message is only displayed for a brief time. If you do not press the key in time, the system will not boot and an error message will appear on the screen. You will be asked to:



* PRESS F1 TO CONTINUE OR TO ENTER SETUP

If you choose to enter Setup the Main Menu will appear on the screen (see Figure 4.1 on the following page). Use the arrow keys to select among the items and press <Enter> to enter each sub-menu.

BIOS Configuration

Figure 4.1: Main Menu

ROM ISA BIOS (2A59IT5A)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT PNP/PCI CONFIGURATION LOAD BIOS DEFAULTS LOAD SETUP DEFAULTS	INTEGRATED PERIPHERALS SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECT SAVE & EXIT SETUP EXIT WITHOUT SAVING
ESC : Quit F10 : Save & Exit Setup	
↑ ↓ → ← : Select Item (Shift)F2 : Change Color	
Time, Date, Hard Disk Type...	

4.2 Control Keys

Below is a chart of the control keys available in Setup.

PgUp key	Increases the numeric value or makes changes.
PgDn key	Decreases the numeric value or makes changes.
F1 key	General help.
F2 key	Changes color; choose from a total of 16 colors.
F5 key	Restore the previous CMOS value.
F6 key	Load BIOS defaults.
F7 key	Load Setup Defaults.
F10 key	Save all CMOS changes (only for Main Menu).
<Esc> key	Quit



BIOS Configuration

4.3 Getting Help

4.3.1 Main Menu

The description of the highlighted setup function is displayed at the bottom of the screen.

4.3.2 Setup Page Menu/Option Page Setup Menu

Press F1 to bring up a small help window that describes the appropriate keys to use and the possible selections for the highlighted items. To exit the Help Window, press <Esc>.

4.4 The Main Menu



Once you enter the Award BIOS CMOS Setup Utility, the Main Menu (Figure 4.1) will appear on the screen. The Main Menu allows you to select from the eight setup functions and 2 exit choices. Use the arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

Below is a list of the sub-menus and commands, and a description of their functions.

- ◆ **Standard CMOS setup**
This setup page includes all of the items in the original PC AT-compatible BIOS.
- ◆ **BIOS features setup**
This setup page includes all of the enhanced features of Award's BIOS.
- ◆ **Chipset features setup**
This setup page includes all of the 430TX chipset features.
- ◆ **Power Management setup**
Change, set, or disable system power management options.



BIOS Configuration

◆ PNP/PCI Configuration

This setup page allows you to modify the configuration of Plug and Play standard and PCI bus parameters.

◆ Load BIOS defaults

BIOS defaults are the most stable settings for the system parameters.

◆ Load setup defaults

Setup defaults are the optimal values for the system parameters.

◆ Supervisor/User Password

Change, set, or disable a password. This allows you to limit access to the system and to Setup. Use with caution.

◆ Integrated Peripherals

This option lets you enable or disable on-board FDD, HDD, and I/O options.

◆ IDE HDD auto detection

Automatically detects and configures hard disk parameters.

◆ Save and exit setup

Saves changes to CMOS and exits setup.

◆ Exit without saving

Abandons all CMOS changes and exits setup.

4.5. Standard CMOS Setup Menu

In the Standard CMOS menu you can set the system clock, calendar, disk drive parameters, video type, and the type of errors that will stop the BIOS POST.

BIOS Configuration

Figure 4.2: Standard CMOS Setup Menu

ROM ISA BIOS (2A59IT5A)							
STANDARD CMOS SETUP							
AWARD SOFTWARE, INC.							
Date (mm:dd:yy) : Tue, Dec 7 1995							
Time (hh:mm:ss) : 18 : 01 : 38							
	Type	Size	CYLS.	HEADS.	PRECOMP.	LANDZONE	SECTORS
Primary Master :	none	0mb	0	0	0	0	0
Primary Slave:	none	0mb	0	0	0	0	0
Secondary Master:	none	0mb	0	0	0	0	0
Secondary Slave:	none	0mb	0	0	0	0	0
Drive A : 1.44 M, 3.5 in.					Base Memory: 640 KB		
Drive B : 1.2 M, 5.25 in.					Extended Memory: 7168 KB		
Floppy Mode Support : Disabled					Other Memory: 384 KB		
Video : EGA/VGA					Total Memory: 8192 K		
Halt On : All Errors							
ESC: Quit		↑ → ↓ ←		: Select Item		PU/PD/+/- : Modify	
F1: Help		(Shift)F2		: Change Color			

◆ Date

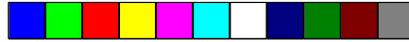
The date format is <month>, <day>, <year>.

◆ Time

The time format is <hours>, <minutes>, <seconds>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

◆ Primary/Secondary Drive Type

This category identifies the types of hard disk drives that have been installed in the computer. There are 45 predefined types and a user-definable type. Select auto if the drive type is unknown.



BIOS Configuration

Press <PgUp> or <PgDn> to select a numbered hard disk type, or type a number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk type is not listed, you can select User to define your own drive manually.

If you choose the User type, you will be asked to fill in the categories shown in the chart below. Enter the parameters and press <Enter>. (Your hard disk information should be provided in the documentation from the hard disk vendor or the system manufacturer.)

CYLS	number of cylinders
HEADS	number of heads
PRECOMP	write precomp cyl
LANDZONE	landing zone
SECTORS	number of sectors
MODE	auto, normal, large, or LBA

If a hard disk has not been installed or you have a CD-ROM/Tape drive connected to an IDE channel, select NONE and press <Enter>.

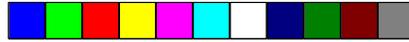
◆ Drive A type/Drive B type

This category identifies the types of floppy disk drives that have been installed in your computer as the A and/or B drives. The possible floppy drive types are as follows:

None	No floppy drive installed.
360KB, 5.25 in.	5.25 inch PC-type standard drive; 360KB capacity.
1.2MB, 5.25 in.	5.25 inch AT-type high-density drive; 1.2MB capacity.
720KB, 3.5 in.	3.5 inch double-sided drive; 720KB capacity.
1.44MB, 3.5 in.	3.5 inch double-sided drive; 1.44MB capacity.
2.88MB, 3.5 in.	3.5 inch double-sided drive; 2.88MB capacity.

◆ Video

This category detects the type of graphics adapter used for the primary display system. The BIOS usually detects the correct video type automatically.



BIOS Configuration

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA, or VGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode.
CGA 80	Color Graphics Adapter, power up in 80 column mode.
Mono	Monochrome adapter, includes hi-res monochrome.

◆ Halt On

This category determines whether the computer will stop if an error is detected during power up.

No errors	The system boot will not be stopped for any errors that are detected.
All errors	If the BIOS has detected a non-fatal error, the system will be stopped and you will be prompted.
All, but Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, but Diskette	The system boot will not stop for disk errors; it will stop for all other errors.
All, but Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

◆ Memory

This category is for display only and is determined by the POST (Power On Self Test) of the BIOS. You have four display choices.

Base Memory

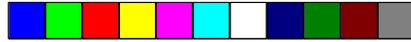
The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 640KB.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

Other Memory

This refers to memory located in the 640KB to 1024KB address space. This memory can be used for different applications. DOS uses this area to load device drivers in order to keep as much conventional memory free for application programs as possible. Often called "high memory."



BIOS Configuration

4.6. BIOS Features Setup

The BIOS Features Setup Menu appears as follows, and uses the same key controls (<PgUp>, <PgDn>, etc.) as the previous menus.

ROM ISA BIOS
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	:Enabled	Video BIOS Shadow	:Enabled
CPU Internal Cache	:Enabled	C8000-CBFFF Shadow	:Disabled
External Cache	:Enabled	CC000-CFFFF Shadow	:Disabled
Quick Power On Self Test	:Enabled	D0000-D3FFF Shadow	:Disabled
Boot Sequence	:A,C	D4000-D7FFF Shadow	:Disabled
Swap Floppy Drive	:Disabled	D8000-DBFFF Shadow	:Disabled
Boot Up Floppy Seek	:Enabled	DC000-DFFFF Shadow	:Disabled
Boot Up NumLock Status	:On		
Boot Up System Speed	:High		
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
PS/2 Mouse Function	:Enabled	F6 :Load BIOS Defaults	
PCI/VGA Palette Snoop	:Disabled	F7 :Load Setup Defaults	
Assign IRQ for VGA	:Enabled		
OS select for DRAM >64MB	:non-OS/2		

BIOS Configuration

What follows is a description of the menu options.

◆ Virus warning

This category flashes on-screen messages. During and after the system boot up, any attempt to write to the boot sector or the partition table of the hard disk drive will produce an error message. If a warning appears, then you should run an anti-virus program to locate the problem. This feature protects only the boot sector, not the entire drive. Note that some disk diagnostic programs will trigger the virus warning message.

Enabled message disk	Activates automatically when the system boots up, causing a warning to appear when anything attempts to access the boot sector or hard partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

◆ CPU Internal Cache and CPU External Cache

These two categories—when enabled—speed up memory access.

Enabled	Enables the cache.
Disabled	Disables the cache.

◆ Quick Power On Self Test

Select Enabled to reduce the amount of time required to run the power on self test (POST). It should be noted that this test is quicker because it skips some steps of the full POST.

◆ Boot Sequence

This category determines which drive the computer searches first for the disk operating system (i.e. DOS).

A, C	System will first search for floppy disk drive, then hard disk drive.
C, A	System will first search for hard disk drive, then floppy disk drive.

◆ Swap Floppy Drive

If you have two floppy drives, you can choose to designate the physical A drive as the logical B drive, and vice versa.

Enabled	Floppy A and B will be swapped.
Disabled	Floppy A and B will be defined normally.

BIOS Configuration

◆ Boot Up Floppy Seek

During POST, the BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. The 360KB type is 40 tracks, while the 720KB, 1.2MB, and 1.44MB types are all 80 tracks.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that the BIOS cannot distinguish between 720KB, 1.2MB, and 1.44MB drive types, as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning messages if the drive installed is 360KB.

◆ Boot Up NumLock Status

Determines whether or not NumLock is active when the system boots.

On	Number keys are active on keypad.
Off	Arrow keys are active on keypad.

◆ Boot Up System Speed

Select High to boot at the default CPU speed; select Low to boot at the speed of the AT bus. If you are using old software—or certain add-in peripherals—you may need to use the slower CPU speed.

◆ Typematic Rate Setting, Typematic Rate (char/sec), and Typematic Delay.

The Typematic Rate Setting option enables or disables the Typematic Rate and Typematic Rate Delay options. The Typematic Rate (6, 8, 10, 12, 15, 20, 24, or 30 characters per second) and Typematic Rate Delay (250, 500, 750, or 1000 milliseconds) control the speed at which a keystroke is repeated. Typematic Rate Delay controls the gap between key compression and the appearance of the character on-screen. The character is then printed repeatedly at the speed set by the Typematic Rate.

BIOS Configuration

◆ Security Option

This option allows you to select whether a password (if you have one) is required each time the system boots, or only when you enter Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

◆ PS/2 Mouse

Enables or disables the PS/2 mouse resources.

◆ PCI/VGA Palette Snoop

Leave this field at Disabled.

◆ Shadow

This function allows BIOS to “shadow” firmware, that is, copy it from ROM into the system RAM. Once there, it can be read through the 16-bit or 32-bit DRAM bus by the CPU. Firmware that is not shadowed is read through the 8-bit X-bus. Shadowing improves the performance of the system BIOS and similar ROM firmware for expansion peripherals, but reduces the amount of high memory (see page 26) available for loading device drivers. Do not enable shadowing into all of the memory at once; enable each section independently.

4.7 Chipset Features Setup

ROM ISA BIOS
CHIPSET SETUP UTILITY
AWARD SOFTWARE, INC.

Auto Configuration	:Enabled	PCI Delayed Transaction	:Enabled
DRAM Timing	:70ns	Pipeline Cache Timing	:Faster
DRAM Leadoff Timing	:10/6/3	Chipset NA# Asserted	:Enabled
DRAM Read Burst (EDO/FP)	:x222/x333	Mem Drive Strength (MA/RAS)	:10ma/16ma
DRAM Write Burst Timing	:x333	DRAM Refresh Rate	:15.6us
Fast EDO Lead Off	:Disabled		
Refresh RAS# Assertion	:5/Cls		
Fast RAS to CAS delay	:2		
DRAM Page Idle Timer	:8Clks		
DRAM Enhanced Paging	:Enabled		
Fast MA to RAS# delay	:1 Clks		
SDRAM(CAS Lat/RAS-to-CAS)	:2/2	ESC :Quit	↑ ↓ → ← :Select Item
SDRAM Speculative Read	:Disabled	F1 :Help	PU/PD/+/- :Modify
System BIOS Cacheable	:Enabled	F5 :Old Values	(Shift)F2 :Color
Video BIOS Cacheable	:Enabled	F6 :Load BIOS Defaults	
8 bit I/O Recovery Time	:1	F7 :Load Setup Defaults	
16 bit I/O Recover Time	:1		
Memory Hole at 15M/16M	:Disabled		
PCI Passive Release	:Enabled		

More Information on these settings can be found at TYAN's web site,
<http://www.tyan.com>.



BIOS Configuration

◆ Auto Configuration

This function selects the optimal values for your chipset parameters. If Disabled, the chipset parameters will revert to setup information stored in CMOS. When Auto Configuration is Enabled, many of the options below will not be available.

◆ DRAM Timing

The value in this field is determined by the performance parameters of the installed DRAM chips. Unless you install new memory that has a different performance rating than the factory DRAMs, you should not alter this field.

◆ DRAM Leadoff Timing

Select the combination of CPU clocks the DRAM on your board requires before each read from or write to the memory. Beware: changing the value from the setting determined by the board designer for the installed DRAM may cause memory errors.

◆ DRAM Read Burst

Sets the timing for reads from EDO (Extended Data Output) or FP[M] (Fast Page Mode) memory. The lower you set the timing numbers, the faster the system will address the memory. Selecting timing numbers lower than the installed DRAM is able to support can result in memory errors.

◆ DRAM Write Burst Timing

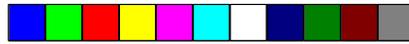
Sets the timing for writes to memory. As above, the lower the timing numbers, the faster the system will address the memory. Note that selecting timing numbers lower than the installed DRAM is able to support can result in memory errors.

◆ Fast EDO Leadoff

Unless you have EDO DRAMS in a synchronous cache or cacheless system, select Disabled. Enabling will cause a 1-HCLK pull-in for all read leadoff latencies for EDO DRAMs (i.e., page hits, page misses, and row misses). You should also select Disabled if any of the DRAM rows contain FPM DRAMs.

◆ Refresh RAS# Assertion

Select the number of clock cycles in which RAS# is asserted for refresh cycles.



BIOS Configuration

♦Fast RAS# to CAS# Delay

Inserts a timing delay between the CAS and RAS strobe signals, used when DRAM is refreshed, read from, or written to.

♦DRAM Page Idle Timer

Select the time in HCLKs that the DRAM controller waits to close a DRAM page after the CPU becomes idle.

♦DRAM Enhanced Paging

When Enabled, the chipset keeps the page open until a page/row miss. When Disabled, the chipset uses additional data to keep the DRAM page open when the host may be only temporarily absent.

♦Fast MA to RAS# Delay

Do not change these values unless you change the specifications of the installed DRAM or the installed CPU.

♦SDRAM (CAS Lat/RAS-to-CAS)

You can select a combination of CAS latency and RAS-to-CAS delay in HCLKs of 2/2 or 3/3. The board designer should set these values based on the installed DRAM. As above, do not change the values in this field unless you change the specifications of the installed DRAM or the installed CPU.

♦SDRAM Speculative Read

The chipset can guess at a DRAM read address in order to reduce read latencies. A read request containing the data memory address is issued by the CPU, and received by the DRAM controller. If this function is Enabled, the controller issues the read command just before it has finished decoding the data address.

♦System BIOS Cacheable

If Enabled, this function results in better video performance by permitting caching of the video BIOS ROM at C0000h to C7FFFh. Note that any program which tries to write to this area may cause a system error.

♦Video BIOS Cacheable

If Enabled, results in better system performance by permitting caching of the system BIOS ROM at F0000h-FFFFFh. Any program which tries to write to this memory area may cause a system error.



BIOS Configuration

◆ 8- and 16-Bit I/O Recovery Time

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

◆ Memory Hole at 15M-16M

You can reserve this area of the system memory for ISA adapter ROM. As long as it is reserved, however, it cannot be cached. Any peripherals that require this area of system memory will likely have a note in their user information to that effect.

◆ PCI Passive Release

When Enabled, CPU to PCI bus accesses are allowed during passive release. If Disabled, only another PCI master will have access to local DRAM.

◆ PCI Delayed Transaction

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

◆ Pipeline Cache Timing

If your system contains a single bank of pipelined burst SRAM, select Faster. If your system contains two banks of pipelined burst SRAM, select Fastest.

◆ Chipset NA# Asserted

If Disabled, NA# assertion depends upon cache size and type. If Enabled, the NA# pin is never asserted. Further, the chipset will signal the CPU for a new memory address before all the data transfers for the current cycle are complete. This is called “pipelining.”

◆ Mem. Drive Str. (MA/RAS)

Stands for Memory Address Drive Strength. Controls the strength of the output buffers driving the MA and BA1 pins (first value) and SCASx#, CKEx, MWEx#, and SRASx# pins (second value).

◆ DRAM Refresh Rate

In accord with your DRAM specifications, designate the period required to refresh the DRAMs.

BIOS Configuration

4.8 Power Management Setup

ROM ISA BIOS
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC

Power Management	:Disable	Reload Global Timer Events	
PM Control By APM	:No	IRQ (3-7, 9-15), NMI	:Disabled
Video Off Method	:Blank Screen	Primary IDE 0	:Disabled
Video Off After	:N/A	Primary IDE 1	:Disabled
Doze Mode	:Disable	Secondary IDE 0	:Disabled
Standby Mode	:Disable	Secondary IDE 1	:Disabled
Suspend Mode	:Disable	Floppy Disk	:Disabled
HDD Power Down	:Disable	Serial Port	:Disabled
Throttle Duty Cycle	:62.5%	Parallel Port	:Disabled
ZZ Active in Suspend	:Disable		
VGA Active Monitor	:Disabled		
IRQ8 Clock Event	:Disabled		

◆ Power Management

This option allows you to select the level of power saving for the Doze, Standby, and Suspend modes. Max saving provides the most power saved; Min saving, the least. User Define allows you to set each of the modes individually.

◆ PM Control by APM

If APM is installed on your system, selecting Yes gives better power savings.

◆ Video Off Method

The Blank Screen option will allow the system BIOS to blank the screen when disabling video. V/H SYNC+Blank will let the BIOS turn off the V-SYNC and H-SYNC signals from the VGA card to the monitor.

◆ Video Off After

Select the mode in which you want the monitor to blank.

◆ Doze Mode

Defines the continuous idle time before the system enters Doze mode. Only the CPU runs at a slower speed.



BIOS Configuration

◆ Standby Mode

Defines the continuous idle time before the system enters Standby mode. Video and fixed disk drive shut down; all other devices operate normally.

◆ Suspend Mode

Defines the continuous idle time before the system enters Suspend mode. All devices except the CPU shut down.

◆ HDD Power Down

The hard disk drive powers down after the chosen period of drive inactivity, while all other devices remain active.

◆ Throttle Duty Cycle

While the system is in Doze mode, the CPU clock runs only part of the time. This function allows you to select the percentage of time that the clock will run.

◆ ZZ Active in Suspend

When Enabled, the ZZ signal is active during Suspend mode.

◆ VGA Active Monitor

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

◆ IRQ8 Clock Event

You can turn on or off monitoring of IRQ8 so it does not awaken the system from Suspend mode. If you disable this function, the IRQ8 will not be monitored, and will not awaken the system from Suspend mode.

◆ Reload Global Timer Events

Defines the activities that can cause the PM timers to reload.

BIOS Configuration

4.9 PnP/PCI Configuration

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

PNP OS Installed	:Yes	PCI IRQ Activated By	:Level
Resource Controlled by	:Manual	PCI IDE IRQ Map To	:Auto
Reset Configuration Data	:Disabled	Primary IDE INT#	:A
IRQ3 assigned to	:legacy ISA	Secondary IDE INT#	:B
IRQ4 assigned to	:legacy ISA	Used MEM base addr	:N/A
IRQ5 assigned to	:PCI/PnP	Used MEM Length	:8K
IRQ7 assigned to	:legacy ISA		
IRQ9 assigned to	:PCI/PnP		
IRQ10 assigned to	:PCI/PnP		
IRQ11 assigned to	:PCI/PnP		
IRQ12 assigned to	:PCI/PnP		
IRQ14 assigned to	:legacy ISA		
IRQ15 assigned to	:legacy ISA	ESC: Quit	↑ ↓ → ←
DMA0 assigned to	:PCI/PnP		:Select Item
DMA1 assigned to	:PCI/PnP	F1 : Help	PU/PD/+/- :Modify
DMA3 assigned to	:PCI/PnP	F5 : Old Values	(Shift)F2 :Color
DMA5 assigned to	:PCI/PnP	F6 : Load BIOS Defaults	
DMA6 assigned to	:PCI/PnP	F7 : Load Setup Defaults	
DMA7 assigned to	:PCI/PnP		

◆PNP OS Installed

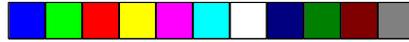
Select Yes if the system operating environment is Plug and Play aware (Windows 95 is).

◆Resources Controlled By

The BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request and DMA assignment and memory base fields disappear, since the BIOS automatically assigns them.

◆Reset Configuration Data

You should leave this field Disabled unless if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot. If this occurs, select Enabled to reset the Extended System Configuration Data when you exit Setup.



BIOS Configuration

♦IRQ n assigned to

When resources are controlled manually, assign each system interrupt as one of the following types:

Legacy ISA

Choose this option for devices compliant with the original PC AT bus specification.

PCI/ISA PnP

Choose this option for devices compliant with the Plug and Play standard, whether designed for the PCI or ISA bus architecture.

♦DMA n Assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types:

Legacy ISA

Choose this option for devices compliant with the original PC AT bus specification, requiring a specific interrupt.

PCI/ISA PnP

Choose this option for devices compliant with the Plug and Play standard, whether designed for the PCI or ISA bus architecture.

♦PCI IRQ Activated By

Unless the PCI device assigned to the interrupt specifies “Edge”-triggered interrupts, leave the IRQ trigger set at Level.

♦PCI IDE IRQ Map To

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



BIOS Configuration

◆Primary/Secondary IDE INT#

Up to four interrupts (INT# A, INT# B, INT# C, and INT# D) can be activated by each PCI peripheral connection. A PCI connection is assigned INT# A by default. Unless the peripheral device requires two interrupt services, assigning INT#B will have no effect. Note that the PCI IDE interface in the chipset has two channels, and therefore requires two interrupt services. The default values for the primary and secondary IRE INT# fields are appropriate for two PCI IRE channels. The secondary channel has a higher interrupt.

◆Used Mem base addr

This function designates a base address for the memory area used by peripheral devices that require high memory.

◆Used Mem Length

Select a length for the high memory area specified in the previous field. If no base address is specified, this field will not appear.



BIOS Configuration

4.9 Integrated Peripherals

Integrated Peripherals Award Software, Inc.			
IDE HDD Block Mode	:Enabled	On-Board Parallel Port	: 378/IRQ7
IDE Primary Master PIO	:Auto	Parallel Port Mode	: Normal
IDE Primary Slave PIO	:Auto	ECP Mode Use DMA	: 3
IDE Secondary Master PIO	:Auto	Parallel Port EPP Type	: EPP1.7
IDE Secondary Slave PIO	:Auto		
IDE Primary Master UDMA	:Auto		
IDE Primary Slave UDMA	:Auto		
IDE Secondary Master UDMA	:Auto		
IDE Secondary Slave UDMA	:Auto		
On-Chip Primary PCI IDE	:Enabled		
On-Chip Secondary PCI IDE	:Enabled		
USB Keyboard Support	:Disabled		
On-Board FDC Controller	:Enabled		
On-Board UART 1	:Com1/3F8		
On-Board UART 2 Mode	:Com2/2F8		
On-Board UART 2	:Standard		

The Settings in the Integrated Peripherals section allow you to enable or disable on-board devices. You can also configure the I/O and IRQ settings of the on-board serial and parallel ports.

◆IDE HDD Block Mode

The terms “multiple commands,” “multiple sector read/write,” and “block transfer” are all alternate names for block mode. Unless your IDE hard drive is old, it should support block mode. If Enabled, yields automatic detection of the optimal number of block read/writes per sector that the drive can support.

◆IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices supported by the onboard IDE interface. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

◆IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33 can only be implemented if your IDE hard drive supports it and the operating environment includes a DMA driver. If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.



BIOS Configuration

◆On-Chip Primary/Secondary PCI IDE

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

◆USB Keyboard Support

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

◆On-board FDC Controller

If your system has a floppy disk controller (FDC) installed on the system board and you wish to use it, select Enabled. If you install an add-in FDC or the system has no floppy drive, select Disabled.

◆On-board UART 1/2

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

◆On-board UART 2 Mode

The second serial port offers these InfraRed interface modes:

HPSIR	IrDA-compliant serial infrared port
ASKIR	Amplitude shift keyed infrared port

◆On-board Parallel Port

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

◆Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port.

Select Normal unless your hardware and software require one of the other possible modes.

◆ECP Mode Use DMA

Select a DMA channel for the port.

◆Parallel Port EPP Type

Select EPP port type 1.7 or 1.9.

BIOS Configuration

4.11 Load Setup Defaults

When you choose this option, the following screen will appear:

ROM ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET F	ETUP
PCI SLOT	SAVING
LOAD SETUP DEFAULTS	

ESC : Save & Exit Setup
F10 : Quit

↑ ↓ → ← : Select Item
(Shift)F2 : Change Color

Load SETUP Defaults except standard CMOS SETUP

◆ Load SETUP defaults

To load SETUP default values to CMOS NVRAM, enter Y. If you do not wish to do so, enter N. If any problem has occurred, loading the Setup Defaults is recommended.

BIOS Configuration

4.12 Load BIOS Defaults

When you choose this option, the following screen will appear:

ROM ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	LOAD BIOS Defaults (Y/N)? N
PCI SLOT	SAVING
LOAD SETUP DEFAULTS	

ESC : Save & Exit Setup
F10 : Quit

↑ ↓ → ← : Select Item
(Shift)F2 : Change Color

Load BIOS Defaults except standard CMOS SETUP

◆ Load BIOS defaults

To load BIOS default values to CMOS NVRAM, enter Y. If you do not wish to do so, enter N. If any problem has occurred, loading the BIOS Defaults is recommended.

4.13 Password Setting

When you select this function, the "Enter Password" message will appear at the center of the screen to assist you in creating a password.

BIOS Configuration

ROM ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SECURITY SETUP
PCI SLOT CONFIGURATION	BOOT SAVING
LOAD SETUP DEFAULTS	

ESC : Save & Exit Setup
F10 : Quit

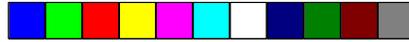
↑ ↓ → ← : Select Item
(Shift)F2 : Change Color

Change/Set/Disable Password

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. To abort the selection and not enter a password, press <Esc>.

To disable an existing password, press <Enter> when you are prompted to enter a password. A message ("Password Disabled") will confirm that the password has been disabled, the system will reboot, and you will be able to enter Setup freely.

If you selected System in the Security Option category of the BIOS Features Setup Menu (see page 29), you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you selected Setup in the Security Option category of the BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.



BIOS Configuration

4.14 IDE HDD Auto Detection

ROM ISA BIOS
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

Drive C:	(202 Mb)	CYLS.	HEAD	PRECOMP	LANZONE	SECTORS
		989	12	65535	989	35

Do you want to accept this as drive C (Y/N)?

Esc:Skip

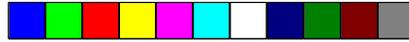
Type Y to accept the HDD parameter reported by BIOS. Type N to keep the old HDD parameter information.

4.15 Save & Exit Setup

ROM ISA BIOS
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	LOAD SETUP DEFAULTS
PCI SLOT CONFIGURATION	SAVE TO CMOS and EXIT (Y/N)? N
LOAD SETUP DEFAULTS	UT SAVING
ESC : Save & Exit Setup F10 : Quit	
↑ ↓ → ← :Select Item (Shift)F2 :Change Color	
Time, Date, Hard Disk Type,.....	

Type Y to quit the Setup Utility and save the user Setup values to the CMOS NVRAM. Type N to return to the Setup Utility.



Flash Writer Utility

Chapter 5–Flash Writer Utility

You can upgrade the BIOS of your mainboard by using a "Flash Memory Writer" (FMW) utility. This utility can be downloaded from TYAN's BBS and from the Tyan website. The system BIOS is stored on a 'flash' EPROM ROM chip on the mainboard which can be erased and reprogrammed by the FMW.

The following three files make up the FMW:

AWDFLASH.EXE	-The Flash Memory Writer utility for Award to Award upgrade.
README	-A text file of instructions.
*S71AWXX.BIN	-XX represents a 2-digit version number.

*This file name is subject to change and can have either a "bin" or a "rom" extension.

The Flash memory writer records (or 'programs') a new BIOS onto the flash memory chip. You cannot upgrade an Award BIOS to an AMI BIOS or an AMI BIOS to an Award BIOS.

Note

You should ALWAYS clear your CMOS after flashing a BIOS. This will clear out any stray settings from your old BIOS which may have been carried over from the flashing process. Most problems encountered after flashing a BIOS will be solved by this simple procedure.

To reprogram the System BIOS, you must first do the following:

1. Check jumper JP23 (default pins 1 and 2).

The S1571 uses a 5V Flash EPROM, so jumper JP23 should be left in the default position on pins 1 and 2. This jumper should never be moved, and on some boards has been hardwired.



Flash Writer Utility

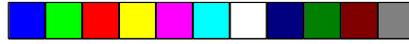
2. Make sure the CPU is running in 'real mode.'

FMW will not run if the CPU is operating in a protected or 'virtual mode.' This means that you can not run it with Windows running or with any memory manager software. You must disable any memory manager before you can run FMW. The easiest way to do this is as follows:

- a. Boot your system from a bootable floppy disk with no CONFIG.SYS or AUTOEXEC.BAT files, and then run Flash Memory Writer from a backup copy of your support disk. You can make your back-up floppy bootable when you format it, and use one disk for both purposes.
- b. If you are using MS-DOS 6.x, you can use the feature that allows you to bypass the CONFIG.SYS and AUTOEXEC.BAT file. You can access this feature by pressing <F5> while the "Starting MS-DOS..." line is on the screen.

There are other ways to get FMW to run. The important thing is to ensure that no memory managers are running. If you are uncertain whether or not there is a memory manager running on your system, try running FMW. If it works, then there is no active memory manager. If you see a warning message about the CPU mode, check to see that you have followed the directions properly, and try again.

Once you have satisfied the two requirements mentioned above, you can run FMW. You can copy the contents of the "Flash" directory to your hard drive, or you can run the utility from a backup of the support floppy disk. Either way, make sure that the new BIOS file is in the same directory as the FMW utility.



Flash Writer Utility

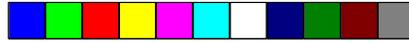
To start FMW, change to the “Flash” directory (if you are not already in it). Type “Awdflash” at the DOS command line and press the <Enter> key. The following screen will appear:

5.1 The Flash Memory Writer Utility Screen (Award)

FLASH MEMORY WRITER V3.0 Copyright (C) 1993, AWARD Software Inc.,	
For VX/HX-2A59CT51	Date:4/13/95
File Name to Program:	
Error Message:	

Type in the whole file name, e.g. A61AW10.BIN, and confirm that you want to program the BIOS. The utility will then ‘Blank,’ ‘Erase,’ and then ‘Program’ the flash memory on the mainboard with the new BIOS file. You should choose “Yes” to save the original system BIOS to a floppy diskette **before** you program the new BIOS. This leaves you with a backup of your original BIOS in case you need to re-install it. This is highly recommended. If you can not successfully program the BIOS file for some reason, re-install your original BIOS from the backup file. Always reset the CMOS with jumper JP1 after flashing to a new BIOS.

Warning: If you do not successfully install a complete BIOS file in the flash memory on the Mainboard, your system may not be able to boot. If this happens, it will require service by your system vendor. Follow the requirements and instructions in this section precisely to avoid such an inconvenience.



System Resources

Chapter 6—System Resources

6.1 Timer and DMA Channel Map

TIMER MAP: TIMER Channel-0 system timer interrupt
 TIMER Channel-1 DRAM REFRESH request
 TIMER Channel-2 SPEAKER tone generator

DMA CHANNELS: DMA Channel-0 Available
 DMA Channel-1 Available
 DMA Channel-2 FLOPPY DISK adapter
 DMA Channel-3 Available
 DMA Channel-4 Cascade for DMA controller 1
 DMA Channel-5 Available
 DMA Channel-6 Available
 DMA Channel-7 Available

6.2 Interrupt Map

NMI: Parity check error

IRQ (H/W) 0 System TIMER interrupt from TIMER-0
 1 KEYBOARD output buffer full
 2 Cascade for IRQ 9-15
 3 SERIAL port 2
 4 SERIAL port 1
 5 PARALLEL port 2
 6 FLOPPY DISK adapter
 7 PARALLEL port 1
 8 RTC clock
 9 Available
 10 Available
 11 Available
 12 PS/2 Mouse
 13 MATH co-processor
 14 Primary IDE
 15 Secondary IDE

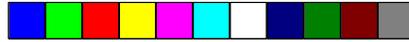
System Resources

6.3 Beep Codes

Currently the only beep code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps.

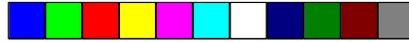
6.4 POST Codes

Code	Name	Description
C0	Turn Off Chipset Cache	OEM Specific-Cache control
1	Processor Test 1	Processor Status (1FLAGS) Verification. Tests the following processor status flags: carry, zero, sign, overflow. The BIOS sets each flag, verifies they are set, then turns each flag off and verifies it is off.
2	Processor Test 2	Read/Write/Verify all CPU registers except SS, SP, and BP with data pattern FF and 00.
3	Initialize Chips	Disable NMI, PIE, AIE, UEI, SQWV. Disable video, parity checking, DMA. Reset math coprocessor. Clear all page registers, CMOS shutdown byte. Initialize timer 0, 1, and 2, including set EISA timer to a known state. Initialize DMA controllers 0 and 1. Initialize interrupt controllers 0 and 1. Initialize EISA extended registers.
4	Test Memory Refresh Toggle	RAM must be periodically refreshed to keep the memory from decaying. This function assures that the memory refresh function is working properly.
5	Blank video, Initialize keyboard	Keyboard controller initialization.
6	Reserved	
7	Test CMOS Interface and Battery Status	Verifies CMOS is working correctly, detects bad battery.
BE	Chipset Default Initialization	Program chipset registers with power on BIOS defaults.
C1	Memory presence test	OEM Specific-Test to size on-board memory.
C5	Early Shadow	OEM Specific-Early Shadow enable for fast boot.
C6	Cache presence test	External cache size detection.
8	Setup low memory	Early chip set initialization. Memory presence test. OEM chip set routines. Clear low 64K of memory. Test first 64K memory.



System Resources

9	Early Cache Initialization	Cyrix CPU initialization. Cache initialization.
A	Setup Interrupt Vector Table	Initialize first 120 interrupt vectors with SPURIOUS_INT_HDLR and initialize INT 00h-1Fh according to INT_TBL.
B	Test CMOS RAM C Checksum	Test CMOS RAM Checksum, if bad, or insert key pressed, load defaults.
C	Initialize keyboard	Detect type of keyboard controller (optional). Set NUM_LOCK status.
D	Initialize Video Interface	Detect CPU clock. Read CMOS location 14h to find out type of video in use. Detect and Initialize Video Adapter.
E	Test Video Memory	Test video memory, write sign-on message to screen. Setup shadow RAM - Enable shadow according to Setup.
F	Test DMA Controller 0	BIOS checksum test. Keyboard detect and initialization.
10	Test DMA Controller 1	
11	Test DMA Page Registers	Test DMA Page Registers.
12-13	Reserved	
14	Test Timer Counter 2	Test 8254 Timer 0 Counter 2.
15	Test 8259-1 Mask Bits	Verify 8259 Channel 1 masked interrupts by alternately turning off and on the interrupt lines.
16	Test 8259-2 Mask Bits	Verify 8259 Channel 2 masked interrupts by alternately turning off and on the interrupt lines.
17	Test Stuck 8259's Interrupt Bits	Turn off interrupts then verify no interrupt mask register is on.
18	Test 8259 Interrupt Functionality	Force an interrupt and verify the interrupt occurred.
19	Test Stuck NMI Bits (Parity/IO Check)	Verify NMI can be cleared.
1A		Display CPU clock.
1B-1E	Reserved	
1F	Set EISA Mode	If EISA non-volatile memory checksum is good, execute EISA initialization. If not, execute ISA tests and clear EISA mode flag. Test EISA Configuration Memory Integrity (checksum & communication interface).
20	Enable Slot 0	Initialize slot 0 (System Board).
21-2F	Enable Slots 1-15	Initialize slots 1 through 15.
30	Size Base and Extended Memory	Size base memory from 256K to 640K and extended memory above 1MB.
31	Test Base and Extended Memory	Test base memory from 256K to 640K and extended memory above 1MB using various patterns. NOTE: This test is skipped in EISA mode and can be skipped with ESC key in ISA mode.



System Resources

32	Test EISA Extended Memory	If EISA Mode flag is set then test EISA memory found in slots initialization. NOTE: This test is skipped in ISA mode and can be skipped with ESC key in EISA mode.
33-3B	Reserved	
3C	Setup Enabled	
3D	Initialize & Install Mouse	Detect if mouse is present, initialize mouse, install interrupt vectors.
3E	Setup Cache Controller	Initialize cache controller.
3F	Reserved	
BF	Chipset Initialization	Program chipset registers with Setup values.
40		Display virus protect disable or enable.
41	Initialize Floppy Drive & Controller	Initialize floppy disk drive controller and any drives.
42	Initialize Hard Drive & Controller	Initialize hard drive controller and any drives.
43	Detect & Initialize Serial/ Parallel Ports	Initialize any serial and parallel ports (also game port).
44	Reserved	
45	Detect & Initialize Math Coprocessor	Initialize math coprocessor.
46-47	Reserved	
48-4D	Reserved	
4E	Manufacturing POST Loop or Display Messages.	Reboot if Manufacturing POST Loop pin is set. Otherwise display any messages (i.e. any non-fatal errors that were detected during POST) and enter Setup.
4F	Security Check	Ask password security (optional).
50	Write CMOS	Write all CMOS values back to RAM and clear screen.
51	Pre-boot Enable	Enable parity checker. Enable NMI, Enable cache before boot.
52	Initialize Option ROMs	Initialize any option ROMs present from C8000h to EFFFFh. NOTE: When FSCAN option is enabled, ROMs initialize from C8000h to F7FFFh.
53	Initialize Time Value	Initialize time value in 40h: BIOS area.
60	Setup Virus Protect	Setup virus protect according to Setup
61	Set Boot Speed	Set system speed for boot
62	Setup NumLock	Setup NumLock status according to Setup.
63	Boot Attempt	Set low stack. Boot via INT 19h.
B0	Spurious	If interrupt occurs in protected mode.
B1	Unclaimed NMI	If unmasked NMI occurs, press F1 to disable NMI, F2 reboot.
E1-EF	Setup Pages	E1- Page 1, E2 - Page 2, etc.
FF	Boot	



Notice for the USA Compliance Information Statement

(Declaration of Conformity Procedure) DoC

FCC Part 15: This Device complies with Part 15 of the FCC Rules.

Operation is subject to the following conditions:

- 1) this device may not cause harmful interference, and
- 2) this device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:
 - ◆ Reorient or relocate the receiving antenna.
 - ◆ Increase the separation between the equipment and receiver.
 - ◆ Plug the equipment into an outlet on a circuit different from that of the receiver.
 - ◆ Consult the dealer or an experienced radio/TV technician for help.



Notice for Canada

This apparatus complies with the Class "B" limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations.

Cet appareil est conforme aux normes de CLASSE "B" d'interférence radio tel que spécifiée par le Ministère Canadien des Communications dans les règlements d'interférence radio.



Notice for Europe (CE Mark)

This product is in conformity to the Council Directive 89/336/EEC, 92/31/EEC (EMC).





Addendum for S1571S

The three sections which follow should replace the corresponding sections on pages 10, 12, and 45 respectively of the S1571S User's Manual, Revision 1.0. The changes made to these three pages are minor.

♦ On page 10, the P54C rows of the VID3 column have been corrected from OFF to ON.

3.2 Jumper Settings

CPU	BF0	BF1	BF2	JP9	JP10	JP15	VID0	VID1	VID2	VID3	VIO
P54C 75	OFF	OFF	OFF	1-2, 3-4	ON	1-2	ON	ON	OFF	ON	OFF
P54C 90	OFF	OFF	OFF	3-4	ON	1-2	ON	ON	OFF	ON	OFF
P54C 100	OFF	OFF	OFF	1-2	ON	1-2	ON	ON	OFF	ON	OFF
P54C 120	ON	OFF	OFF	3-4	ON	1-2	ON	ON	OFF	ON	OFF
P54C 133	ON	OFF	OFF	1-2	ON	1-2	ON	ON	OFF	ON	OFF
P54C 150	ON	ON	OFF	3-4	ON	1-2	ON	ON	OFF	ON	OFF
P54C 166	ON	ON	OFF	1-2	ON	1-2	ON	ON	OFF	ON	OFF
P54C 200	OFF	ON	OFF	1-2	ON	1-2	ON	ON	OFF	ON	OFF

♦ On page 12, the K5 row of the VID2 column has been corrected from OFF to ON.

CPU Voltage Select

	VID0	VID1	VID2	VID3	VIO	JP15
P54C	ON	ON	OFF	ON	OFF	1-2
P55C	ON	OFF	OFF	OFF	ON	1-2
K5	ON	ON	ON	ON	OFF	1-2
K6 200MHz	ON	OFF	OFF	ON	ON	1-2
K6 233MHz	ON	ON	OFF	OFF	ON	1-2

♦ On page 45, JP22 has been corrected to JP23.

To reprogram the System BIOS, you must first do the following:

1. Check jumper JP23 (default pins 1 and 2).

The S1571 uses a 5V Flash EPROM, so jumper JP23 should be left in the default position on pins 1 and 2. This jumper should never be moved, and on some boards has been hardwired.