

P54TS™/P54TSW2™

OPERATION MANUAL

- Pentium™ P54C and P55C**
- 256/512K Pipeline Burst Cache On Board**
- Intel® Pentium™ 430FX Chipset**
- Adaptec® PCI Fast /Wide /Ultra SCSI**
- Enhanced IDE, Mode 3/DMA**
- Enhanced Multi-IO**

Pci/ISA BUS MOTHERBOARD

Preface

Congratulation on purchasing this **P54TS/TSW2** mainboard.

P54TS--CPU Pentium P54C and P55C (75-200MHz)

Adaptec® PCI Fast SCSI-2 port
Dual Enhanced IDE ports
256K Pipeline Burst Cache on board
Two 16550 UART ports
ECP/EPP/SPP/Bi-direction parallel port
Upto 2.88MB FDC port

TSW2--CPU Pentium P54C and P55C (75-200MHz)

Adaptec® PCI Wide / Ultra Wide SCSI-2 port
Dual Enhanced IDE ports
512K Pipeline Burst Cache on board
Two 16550 UART ports
ECP/EPP/SPP/Bi-direction parallel port
Upto 2.88MB FDC port

This manual describes the **P54TS/TSW2** for installations and configuration. This Pentium system board which support P54C / P55C CPU is based on Intel 82437FX Chipset provides high performance and offers system memory up to **128MB** with both Fast Page Mode and Extended Data Output (EDO Module for memory), full deep green function and enhanced IDE/ Multi-IO.

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Contents

Chapter 1- Overview	P3
1.1 Features	P3
1.2 Specifications	P5
Chapter 2- Quick Installation	P6
Chapter 3- Hardware Installation	P8
3.1 Preparation and Inspection	P8
3.2 Placement	P10
3.3 CPU group	P12
3.4 Cache Memory	P16
3.5 D-RAM Configuration	P16
3.6 SCSI Interface	P18
3.7 IDE Interface	P20
3.8 Enhanced Multi-IO	P21
3.9 Others	P23
Chapter 4- Award BIOS Setup	P25
4.1 Entering Setup	P25
4.2 Standard CMOS Setup Menu	P26
4.3 BIOS Feature Setup	P27
4.4 Chipset Feature Setup Menu	P28
4.5 Power Management Setup	P29
4.6 PCI & Onboard I/O Setup Menu	P29
4.7 Load Setup Default Menu	P30
4.8 Password Setting Menu	P30
4.9 IDE HDD Auto Detection	P31
4.A Save & Exit Setup	P31
4.B Exit Without Saving	P31
Chapter 5- SCSI BIOS Setup	P32
5.1 When to Use the SCSI Select Utility	P32
5.2 SCSI Select Utility option	P33
5.3 Configure / View Host Adapter Settings Menu	P33
5.4 SCSI Disk Utilities	P40

CHAPTER 1

Overview

1.1 Features

This **P54TS/TSW2** is designed with Intel 82437FX PCI chipset which is developed by INTEL Corporation to fully support Intel Pentium PCI/ISA system. The Intel "82437FX" chip set provides increased integration and improved performance designs. This system board also provides Adaptec Fast/ Wide/ Ultra SCSI-2 port, an integrated dual PCI IDE channels which support ATA-2 PIO mode 3 / 4 hard disk as well as DMA mode, controller with two high performance PCI IDE interfaces for up to four IDE devices (hard disk devices, CD-ROM device, etc.). With the built-in enhanced multi- I/O interface provides the standard floppy interface (up to 2.88 MB), two 16 Byte FIFO high speed 16550 UART serial port and fully compliance IEEE 1284 printer port which support the EPP/ECP capable parallel port. This system board provides not only high performance but also stability and is suitable for file server or CAD/ CAM purpose. Of course, care must be taken when inserting memory module, inserting Intel P54C / P55C processor or even plugging PCI card into associated slots to avoid damaging any circuits or sockets on board. A cooling fan is required when installing P54C/ P55C processor due to over-heat.

This system board supports standard Fast Page or EDO (Extended Data Output or Hyper Page Mode)DRAM. The EDO DRAM is designed to improve the DRAM read performance. Provides four 72-pins SIMM sockets for memory expansion. Flexible in inserts 1M x 32(4MB), 2M x 32(8MB), 4M x 32(16MB), and 8M x 32(32MB)SIMM modules. The memory timing requires 70 ns Fast page devices or 60 ns EDO DRAM. This system board requires minimum of 8MB system memory and maximum of 128MB while the pipelined burst cache memory can be 256KB or 512KB to increase system performance.

■CPU:

CPU socket (socket 7) supports the flexibility of different type of current and future Intel® Pentium processor. This 321 pin CPU socket is pin-to-pin to 320 pin socket 5. Support VRM(Voltage Regulator Module) for P54C and P55C processor. One jumper design, while choosing your CPU speed.

■VRM:

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The feature of P55C is target at 2.5 volt for the core logic and 3.3 volt for the I/O logic of CPU. The VRM (Voltage Regulator Module) is defined to replace the on-board 3.3 volt regulator design and provide 2.5 volt for these features CPU.

■ Cache memories:

High performance write back secondary cache. This supports Pipelined Burst Cache 256K for P54TS and 512K for P54TSW2 on board that is the manufacture default.

■ BIOS:

Award BIOS, on-screen "Plug & Play" setup for Adaptec SCSI, Enhanced IDE, and Multi-IO. Both **Flash ROM** (This ROM provides better upgrade ability for user to update their BIOS data on the system board) and EPROM are supported.

■ Expansion slots:

5 X 16-bits **ISA** slots for AT compatible add-on cards.

3 X 32-bits **PCI** slots for PCI compatible add-on cards. (PCI#2 is occupied by the Adaptec® SCSI, it is flexible for your choose while you install a prior or minor controller on this PCI bus.)

■ Memories:

Support up to **128MB** (minimum of 8MB, 4 x 72 pin SIMM module) on board, for both the Fast Page Mode and Extended Data Output (EDO) module.

■ Fast/Wide/Ultra SCSI-2 interface:

- **P54TS built in Adaptec® AIC-7850 chip for PCI Fast SCSI-2.**
- **P54TSW2 built in Adaptec® AIC-7880 chip for PCI Ultra Wide SCSI-2**
- **Data transfer rate up to 10MB/Sec for 8 bit Fast SCSI-2 (P54TS)**
- **Data transfer rate up to 40MB/Sec. for 16 bit Ultra Wide SCSI-2 (P54TSW2)**
- **Complete software driver from Adaptec® Inc., include EZ-SCSI for DOS/Windows®, Netware® , Windows® NT , OS/2 , SCO Unix , Unixware.**

■ IDE functions:

- Built in dual PCI Bus IDE Channels.
- Support ATAPI (AT Attachment Packet Interface)

■ Floppy Interface:

- Support both 3 1/2" and 5 1/4" **floppy disk drives and Tape Drive**
- (360K / 720K / 1.2M / 1.44M / **2.88MB**)

- **Enabled/Disable** selectable from system BIOS
- Non-Burst Mode DMA Option
- Byte Data FIFO
- Mode Driver (option)

■ **Serial Port**

- Two high speed 16550 UART serial port
- IRQ selectable for 3, 4, 10, 11.
- Address changeable form system BIOS
- NS16C550 compatible
- Programmable Baud Rate Generator

■ **Parallel Port:**

- IRQ selectable for IRQ5(278h), 7IRQ(378h/3BCh) from system BIOS.
- **Standard mode**--Compatible with IBM PC/AT Printer port
- **EPP Mode** --Enhanced Parallel Port compatible(EPP) compatible with IEEE 1284
- **ECP Mode** --Microsoft & Hewlett Packard Extended Capabilities Port (ECP) Compatible
- Incorporates ChiProtect Circuit for protection against damage due to printer power-on

■ **Others function:**

- Support both Fast Page DRAM or EDO DRAM SIMM.
- Support Pentium CPU SMM (System Management Mode).
- Using Embeded Battery in RTC (Real Time Clock) which provides environmental protection and longer battery life.

1.2 Specifications

■ **Physical Dimensions:**

Length: 330mm / Width: 220mm

■ **Environmental Requirements:**

Temperature 0-55 degrees C (operating or storage)
5% to 95% non-condensing relative humidity

CHAPTER 2

Quick Installation

We have the manufacture default setting :

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- 1) CPU Clock at **100 MHz**
- 2) VRM **not installed**
- 3) Adaptec SCSI Chip **Enabled**
- 4) **Fast SCSI-2 Enabled** (P54TS)
Wide SCSI-2 Enabled. (P54TSW2)
- 5) SCSI Terminator **Control by BIOS**
- 6) Enhanced Multi-IO Chip **Enabled**
- 7) **256K Pipeline Burst Cache** on board(P54TS)
512K Pipeline Burst Cache on board(P54TSW2)
- 8) Printer ECP Mode at **DMA3**
- 9) Printer at **IRQ7**, Address at **378h**
- 10) Serial 1 at **IRQ4**, Serial 2 at **IRQ3**
- 11) PS/2 MOUSE at **IRQ 12**

Reference to the **Chapter 3 & Chapter 4**, if you have devices conflict with the manufacture default.

Step 1. Install CPU and Cooler

Make sure the Clock Frequency is set to the same as the CPU installed. (Choose the CPU speed by one jumper on JP14)

Step 2. Install the memory

Plug at least **2 pieces** of 72 pins Micro Edge DRAM modules.

Step 3. Install display controller and connect I/O ports

This system board is designed using **PCI** (Peripheral Component Interconnect) and **ISA** (Industry Standard Architecture) interface controller. This support +5Volt interface slots. All PCI interface controllers must be PCI Rev 2.0 compliant.

Step 4. Connect the power supply

Connect P8 and P9 from power supply output.

Step 5. Power on the system

Turn on the Computer power.

Step 6. Setting up the system

Enter the "Setup Menu" screen by press the " Del " key while power on or warm reset the system. Always "LOAD SETUP DEFAULT" at first and select others necessary that your system require.

Step 7. Save the setup data to the CMOS

Exit the "Setup Menu " screen and then write to CMOS RAM. And enjoy the high performance system board.

- Step 8.** After boot your system O.S., insert the Adaptec® EZ-SCSI Installation diskette in a floppy disk drive and follow the EZ-SCSI operation manual or reference to Adaptec® 7800 Family Set manual which will guide you to install the Netware®, Windows® NT, OS/2 , SCO UNIX® , Unixware®..

CHAPTER 3

Hardware Installation

3.1 Preparation and Inspection

The P54TS/TSW2, like all electronic equipment is static sensitive. Please take the proper precautions when handling this board. You should avoid static up.

If possible, You should ground yourself by touching a metal table or your computer frame. Keep the board in its conductive wrapping until it is configured and ready to be installed in your system.

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For installation, you may need some or all of the following tools:

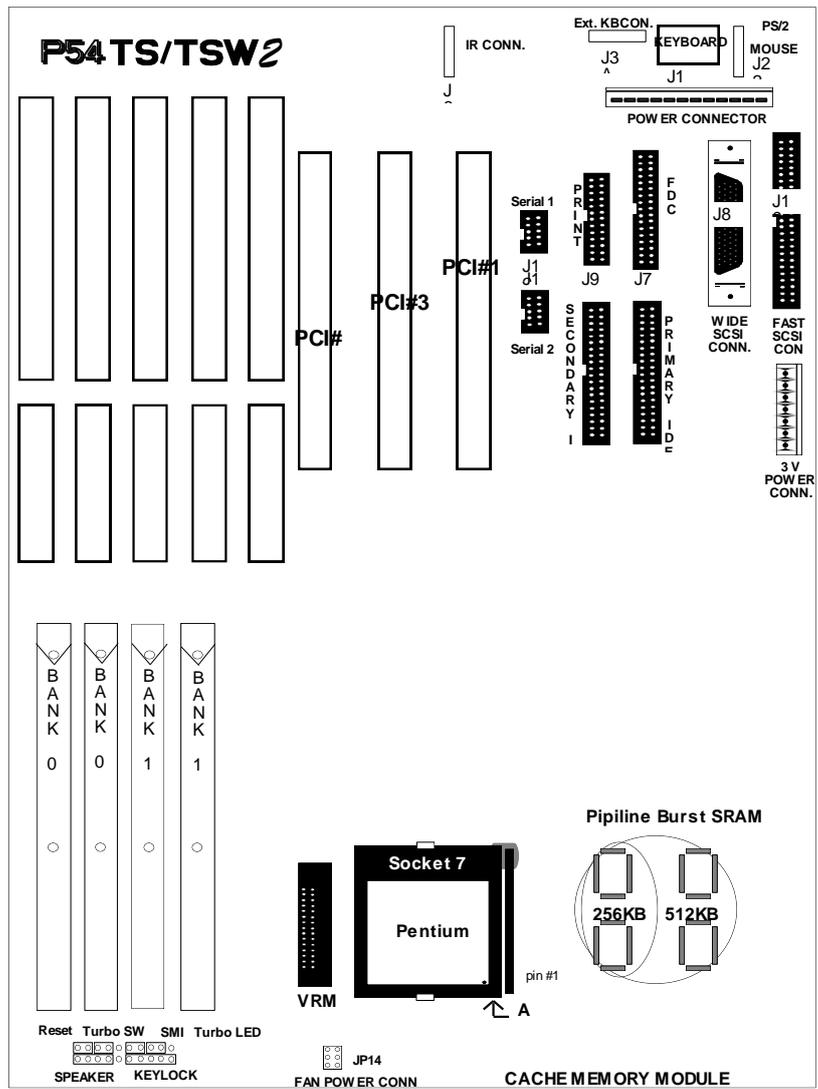
- SCSI HDD drive/devices manual(s).
- IDE HDD drive/devices and floppy drive manual(s).
- Peripherals that connect to your system's manual(s).
- MS DOS diskettes with FDISK and FORMAT programs.
- Medium size flat blade screwdriver.
- Medium sized Phillips head screwdriver.
- A 3/16 inch nut driver or wrench.

You should find the Following components when open the box :

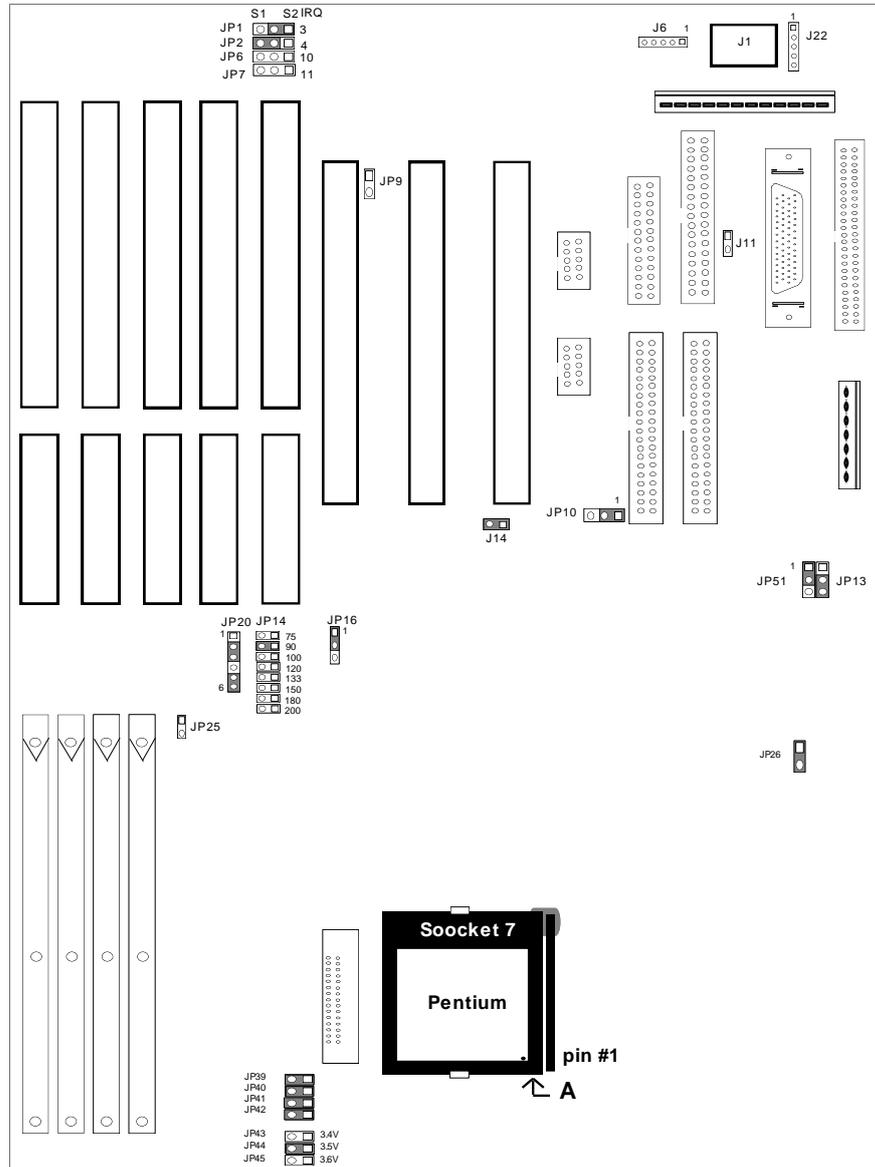
1. P54TS/TSW2 mainboard.
2. This Operation Manual
3. Adaptec® software driver Diskette (EZ-SCSI).
4. Adaptec® 7800 Family Manager Set software driver Diskette.
5. Adaptec® EZ-SCSI Manual.
6. Adaptec® 7800 Family Manager Set Manual.
7. 50 pins internal SCSI-2 signal flat cable.
8. 40 pins internal IDE signal cable.
9. 34 pins internal Floppy Disk Drive signal cable.
10. 10 pins IDC flat cable to 9 pins D-Sub male RS-232 connector.
11. 26 pins IDC flat cable to 25 pins D-Sub female printer signal flat cable.
12. 10 pins IDC flat cable to 25 pins D-Sub male RS-232 connector.
13. 68 pins internal Wide SCSI cable (for P54TSW/TSW2 only).
14. 1 x 5 pins IDC flat cable to L-frame 5 pins PS-2 mouse port.
15. CPU Cooler (optional)
16. External SCSI-2 port expansion kit (optional).
17. High speed printer port software driver(optional).
18. 3 Mode Driver (option)

3.2 Placement

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Connectors Layout

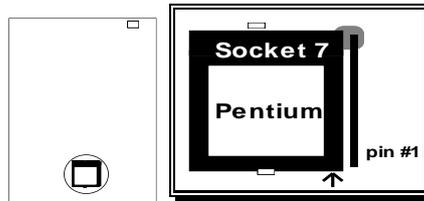


Jumpers Layout

3.3 CPU group

3.3.1 CPU Socket

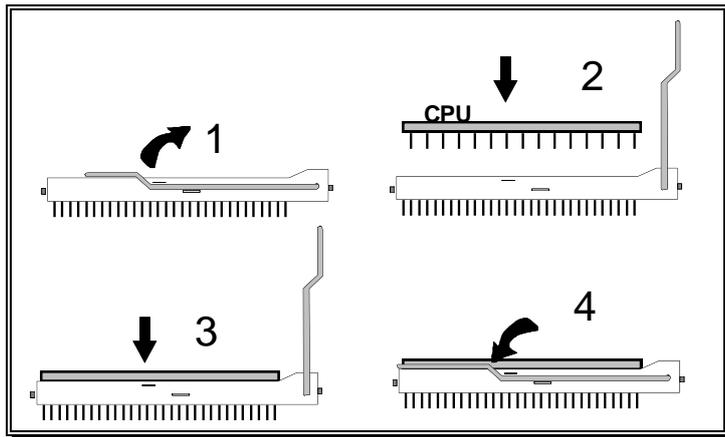
This CPU socket provides flexibility for P54C/P55C Intel Pentium, Pentium OverDrive and Pentium future processors. When installing the P54C/P55C CPU into the Zero Insertion Force (ZIF) socket should be very carefully. Lift the handle of this 321 Pin ZIF socket up carefully and insert the Pentium P54C / P55C CPU into ZIF socket. And make sure the CPU Pin 1 is with the square base and it goes to particular hole on the ZIF socket. Once you match the hole with Pin 1 then gently insert the CPU and press socket handle down.

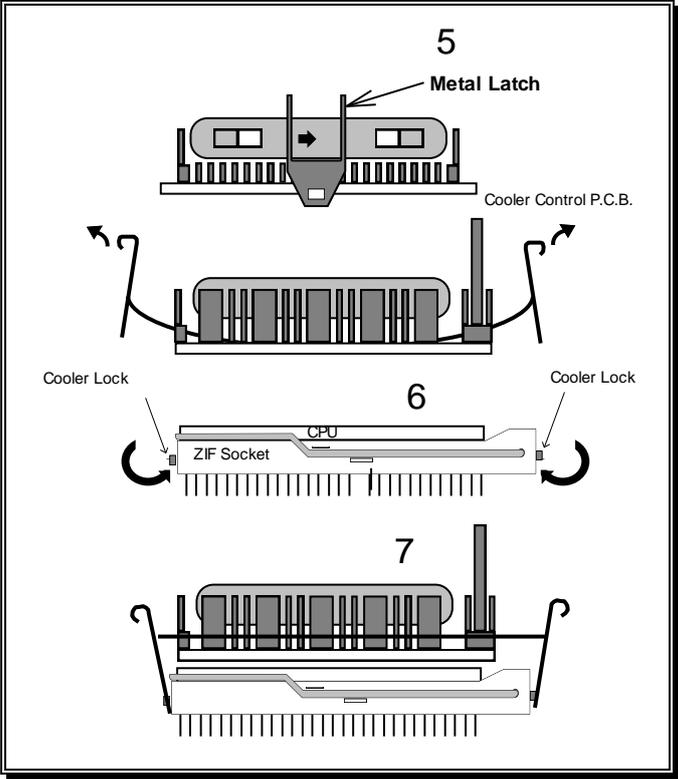


3.3.2 J17 CPU Cooler Fan Power Connector

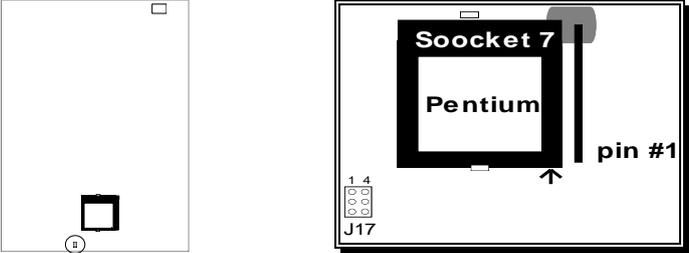
Warning !!! Warning !!! Warning !!!

CPU Cooler is required to be placed on top of the CPU all the times to prevent CPU over-heat.





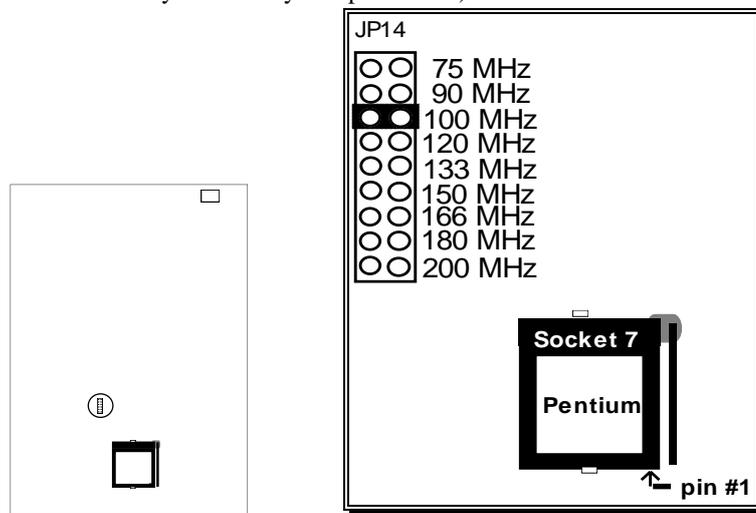
The CPU fan power connector is a 2 x 3 pin jumper.



J17 Pin Assignment	
Gnd	Gnd
+12V	+12V
Gnd	Gnd

3.3.3 CPU Clock Select

JP14 is a 2 X 9 pin jumper, with one "colored" jumper cap on it. One and only one jumper cap need to put on this connector for selecting the CPU clock. Just put the colored yellow jumper cap to the speed your CPU really is (the CPU internal/external clock ratio and ISA clock will be automatically selected by setup the JP14)



3.3.4 CPU Voltage Select (JP43)

The on-board regulator provides different CPUs voltage selection, this can support the Intel Pentium, Pentium-VR, Pentium-VRE CPUs.

Processor	working voltage (V)	Suggest voltage (V)
Pentium	3.315 - 3.465	3.45
Pentium-VR	3.3 - 3.465	3.45
Pentium-VRE	3.45 - 3.6	3.55

JP43	1-2	3-4	5-6
CPU Voltage	3.3V	3.45V	3.55V
		*Default	

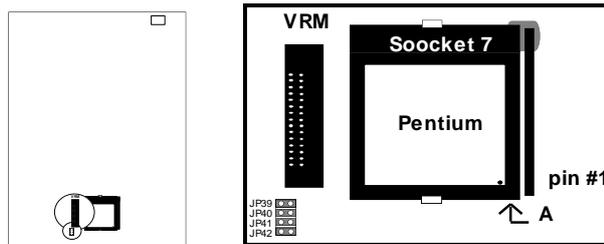
3.3.5 P54C/P55C Select (JP16)

CPU	JP16	Clock for CPU	Note
P54C/P54CS/P54CT	1-2	5 V spec	*Default
P55C	2-3	3.3 V spec	

3.3.6 VRM (Voltage Regulator Module) Connector

The VRM moves voltage regulation onto a module to support various CPUs with different voltage requirements in one system board. This VRM is a DC-to-DC converter mounted on a PCB with a standardize interface to this system board.

CPU Type Speed	CPU Core Voltage	VRM
P54C (754/90/100/120-133)	3.3 V	Option
P54CS (120/133)	3.3 V	Option
P54CT	3.3 V	Option
P55C (150/166)	2.5 V	supplied by OEM



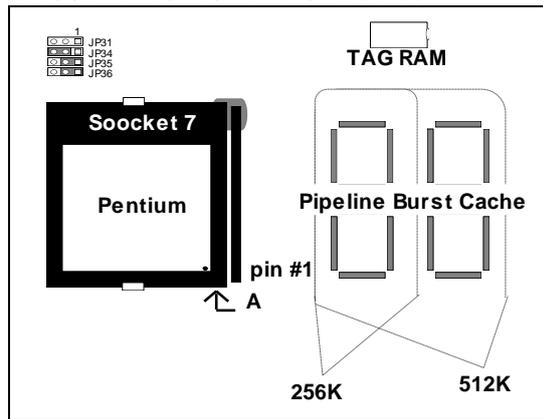
JP39,JP40,JP41,JP42 In order to support both VRM and Non-VRM applications, The JP39 to JP42 need to be set as follow.

Warning: Once the VRM has been installed, the JP39,JP40,JP41,JP42 must taken out.

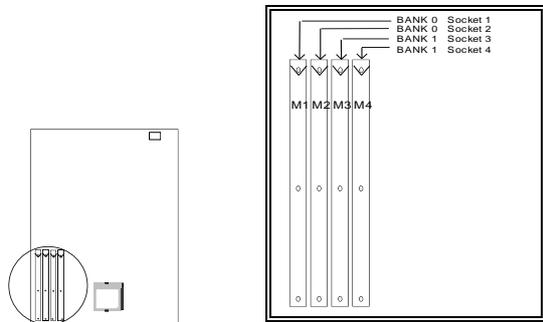
	No VRM Installed	VRM Installed
JP39	On	Off
JP40	On	Off
JP41	On	Off
JP42	On	Off
	*Default	

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The cache memory support for pipelined burst SRAM, this will perform at least 10% faster than traditional asynchronous SRAM. Manufacture default will be P54TS for 256K and P54TSW2 for 51K on-board.



3-5 D-RAM Configuration



BANK 0 Socket 1 & 2	BANK 1 Socket 3 & 4	Total Size 1 through 4
4MB x 2	Empty	8MB
8MB x 2	Empty	16MB
16MB x 2	Empty	32MB
32MB x 2	Empty	64MB
Empty	4MB x 2	8MB
Empty	8MB x 2	16MB
Empty	16MB x 2	32MB
Empty	32MB x 2	64MB

4MB x 2	4MB x 2	16MB
4MB x 2	8MB x 2	24MB
4MB x 2	16MB x 2	40MB
4MB x 2	32MB x 2	72MB
8MB x 2	4MB x 2	24MB
8MB x 2	8MB x 2	32MB
8MB x 2	16MB x 2	48MB
8MB x 2	32MB x 2	80MB
16MB x 2	4MB x 2	40MB
16MB x 2	8MB x 2	48MB
16MB x 2	16MB x 2	64MB
16MB x 2	32MB x 2	96MB
32MB x 2	4MB x 2	72MB
32MB x 2	8MB x 2	80MB
32MB x 2	16MB x 2	96MB
32MB x 2	32MB x 2	128MB

- NOTE:**
1. P54TS/TSW2 support both Fast Page DRAM or EDO DRAM SIMMs, but they cannot be mixed within the same memory bank.
 2. SIMMs can be parity(x 36) or non parity(x 32).
 3. The 70 ns Fast Page Mode or 60 ns EDO DRAM is recommended.
 4. The "BANK" means 64 Bit, supports two BANKs in this main board

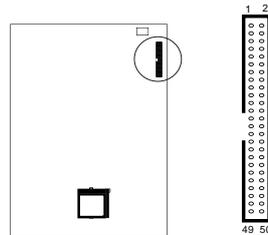
BANK 0 = Socket 1 + Socket 2

BANK 1 = Socket 3 + Socket 4

3.6 SCSI Interface

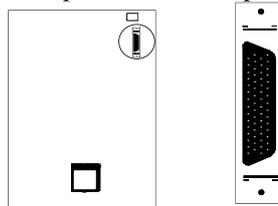
3.6.1 J10 Fast SCSI-2 Connector

J10 is a 50 pins 8 bit internal SCSI-2 connector. It attaches the SCSI cable(s) from the P54TS/TSW2 SCSI controller to the SCSI peripherals. Be-sure the cable's colored side should align to pin #1 of this connector.



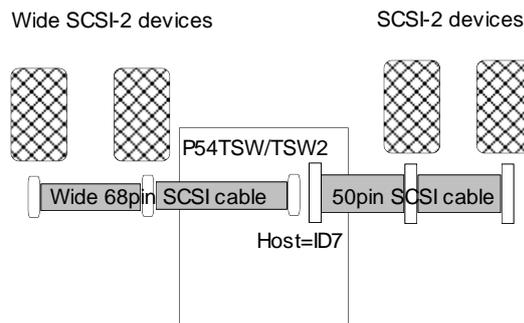
3.6.2 J8 Wide SCSI-2 Connector (P54TSW2 only)

J8 is a 68 pins 16 bit Wide SCSI-2 connector. It attaches the SCSI cable(s) from the P54TSW2 SCSI port to the SCSI peripherals. (reference to JP26)



3.6.3 Link Wide & Fast SCSI-2 devices (P54TSW2 only)

The SCSI devices are cabled together in a single, connected series. This SCSI cable must run sequentially from one device to the next, with no branches.



*Reference to Chapter5. SCSI Select Utility for software setup.

3.6.4 Set SCSI IDs

You must assign a different SCSI ID to each device on the SCSI bus connected to the P54TS/P54TSW2 system board. See your SCSI device documentation for directions on how to determine the ID and change it.

■ 8-bit SCSI devices that connect to Fast SCSI-2 connector can be assigned ID from 0 to 7. And 16 bit Wide SCSI devices that connect to Wide SCSI connector can be assigned from 0 to 15. Normally, the host will use ID7.

■ SCSI ID0 is best use for SCSI hard disk to be used as your computer's boot device, ID1 is best reserved for a secondary SCSI hard disk.(This is only when you use the SCSI hard disks and devices.)

3.6.5 J11 SCSI-2 LED

J11 is a 2 pins connector.

Pin	Assignment
1	LED anode (+)
2	LED cathode (-)

3.6.6 SCSI-2/Wide SCSI Select (P54TSW2 only)

JP26 is a 2 pin jumper connector. The mini-jumper cap should be put on this jumper, if any wide SCSI devices were connected to this wide SCSI port.

Function	JP26	Note
SCSI-2 enabled	off	*Default
Wide SCSI-2 enabled	on	

3.6.7 SCSI Chip Select

JP10 is a 3 pin jumper connector.

Function	JP10	Note
Enabled	1-2	*Default
Disabled	2-3	

3.6.8 SCSI Terminator Control

JP13 is a 3 pin jumper connector. This is for Low byte SCSI-2 Terminator.

Function	JP13	Note
Terminator always On	1-2	
Terminator always Off	off	
Terminator Controlled by BIOS	2-3	*Default

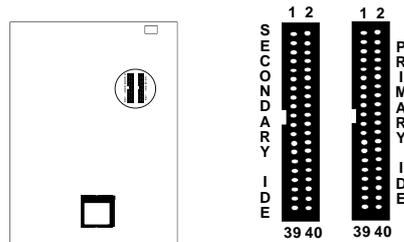
JP51 is a 3 pin jumper connector. This is for High byte SCSI Terminator. (For Wide SCSI only)

Function	JP51	Note
Terminator always On	1-2	*Default
Terminator always Off	off	

3.7 IDE Interface

3.7.1 Primary, Secondary IDE Connectors

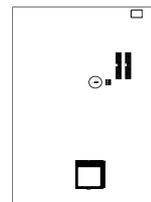
Primary / Secondary IDE are 40 pins internal IDE port connectors. Use a 40 pins flat cable to connect between this connector and the IDE devices. Normally put the boot-up hard disk at the primary IDE channel and other IDE devices at the secondary IDE channel (like CD-ROM). Each IDE connector can connect for two IDE devices and do not forget to set the first IDE device to "Master" and second IDE device to "Slave" when you connect two IDE devices in one connector.



3.7.2 J14 IDE LED

J14 is a 2 pins LED connector.

Pin	Assignment
1	LED anode (+)
2	LED cathode (-)

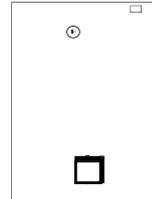


3.8 Enhanced Multi-IO

3.8.1 Multi-IO Chip Control

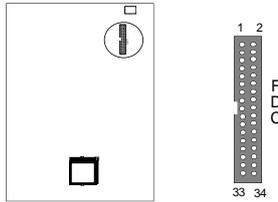
JP9 is a 2 pin jumper connector.

JP9	Function	Note
Off	Enabled	*Default
On	Disabled	



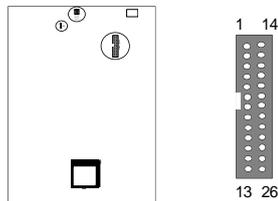
3.8.2 J11 FDC Connector

J11 is a 34 pins internal Floppy port connector. Use 34 pins flat cable to connect between this connector and floppy drives.



3.8.3 J15 Printer Connector

J15 is a 26 pins connector for parallel port. Use a 26 pin IDC flat cable to convert internal port to a standard 25 pin external D-Sub connector.



Following selection is all controlled by the BIOS:

**ECP Mode DMA Channel Select by BIOS
printer Port Address and IRQ Select by BIOS
(378h/3BC with IRQ7, 278h with IRQ5.)**

Printer and IEEE 1284 cable

The IEEE 1284 compliant cables have better features on the following:

- ✓ Twisted pairs of conductors
- ✓ Full foil shield
- ✓ Wire braid

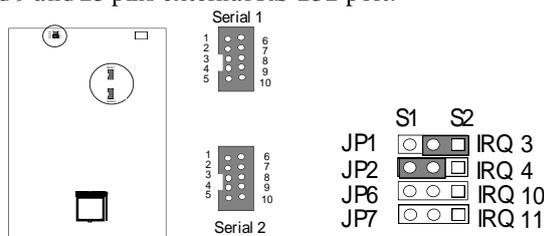
- ✓Controlled impedance -- 62 ohm
- ✓Limited cross-walk

With these features will guarantee the IEEE 1284 cable perform at much higher bandwidth rates that the fast Centronics, EPP and ECP modes perform at.

If you are using the ordinary parallel cables running at the EPP or ECP mode that this controller provided, you may experience that the data efforts.

3.8.4 J12/J13 Serial Port & IRQ Select

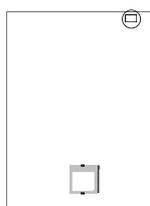
J12/J13 are 10 pins internal Serial 1/Serial 2 port connector. This system board provides two flat cable to convert internal Serial ports to a standard 9 and 25 pins external RS-232 port.



3.9 Others

3.9.1 Keyboard Connector

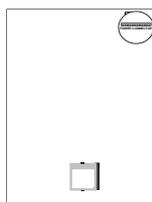
The keyboard connector is a 5-pin, circular-type DIN socket. It is used to connect the system board keyboard interface to any standard AT-compatible keyboard (84 or 101 key type keyboards). The pin assignment are as follows:



Pin	Assignment
1	Keyboard clock
2	Keyboard data
3	n/c
4	Ground
5	VCC

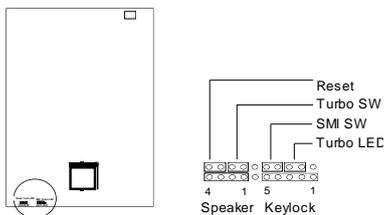
3.9.2 Power Supply Connector

The power supply connector is 12-pin AT standard power connectors. They are used to connect power lines and power good signal from the power supply's P8 and P9 headers to the system board. The pin assignments for P8 and P9 are indicated below:



Pin	P8 Description	Pin	P9 Description
1	Power Good	7	Ground
2	+5VDC	8	Ground
3	+12VDC	9	-5VDC
4	-12VDC	10	+5VDC
5	Ground	11	+5VDC
6	Ground	12	+5VDC

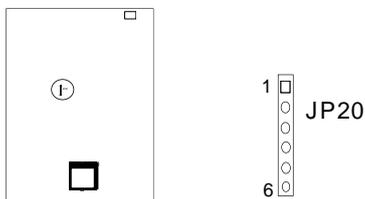
3.9.3 Keylock, Speaker Turbo Switch, Turbo LED SMI Switch Connectors



	Function
Reset Switch	On = Reset , Off = Normal
Turbo Switch	No use
SMI Switch	On = SMI , Off = Normal
Turbo LED	Anode , Cathode
Speaker	Sound Signal,NC,NC,+5V
Keylock	Anode,NC,Cathode,Keyboard Inhibit,Gnd

3.9.4 Flash EPROM Jumper Setting

Supports flash EPROM (ROM data can be changed on-board, without change/replace the ROM chip) are supported. (Also reference to Chapter 4.C Award Flash Memory Writer.)

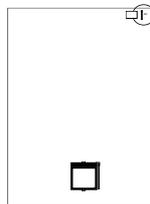


JP20	Function	EPROM type	Note

P54TS™/TSW2™

1-2, 5-6	Programming	12V Flash EPROM support (28xxx)	
2-3, 5-6	Programming	5V Flash EPROM support (29xxx)	*Default
2-3, 4-5	Normal	EEPROM or Flash EPROM support	

3.9.5 PS 2 Mouse



- 1
- Mouse data(Red)
 - Mouse clock(Blue)
 - Ground(green)
 - NC
 - Mouse VCC(Yellow)

J22 is a 5 pin connector, connect this port by a 1 x 5 IDC flat cable to a L-frame mini-din PS/2 mouse connector.

CHAPTER 4

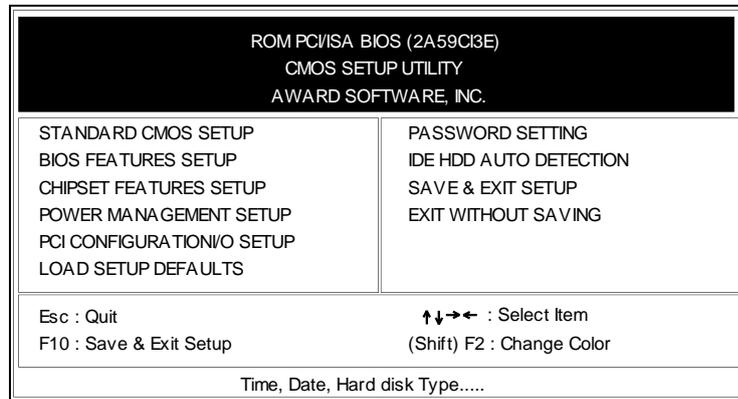
Aware BIOS Setup

Award's ROM BIOS provides a built-in Setup program which allows user modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOSRAM, so data will be retained even the system power is off. In general, you are not required to change any data. Unless there is a conflict or you re-configuring system, this will need to enter new setup information. Following section describes how to use this program and propriate entries.

And, it is possible that battery failed which might cause data lose in CMOS RAM, then you need to re-enter the system's CMOS RAM and re-configure to get the suitable parameters.

4.1 Entering Setup

Press < Del > key while system power on or warm reset. This will allow you to enter Setup.



This menu shown the above major selection items and allow user to select any one of items. The selection is made by moving cursor (use the any direction keys) to the item and press "Enter" key. An on line help message at the bottom of this screen will guide you more clear and provide you better in understanding of each function. Once the selection was made, the menu selected item will appear, so the user can modify associated configuration parameters.

Arrow key	Move cursor to desired selection
Esc key	Main Menu -- Quit without saving changes into CMOS Status Page Setup Menu and Option Page Setup Menu. Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Opti
(Shift) F2 key	Change color from 16 colors. F2 select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only fir Statue Page Setup Menu
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F10 key	Save all the CMOS changes, only for Main Menu

4.2 Standard CMOS Setup Menu

P54TS™/TSW2™

Choose STANDARD CMOS SETUP in the CMOS SETUP UTILITY menu that shown below. This STANDARD CMOS SETUP allows user to configure system setting, such as current date, time, type of hard disk, floppy disk drive, monitor type that installed in this system. For the memory size is by auto-detect by the system BIOS and will display for your reference. Move the highlighted bar to where you want to modify the parameters, then press "Enter" to select and follow the display at bottom of this screen's function keys.

ROM PCI/ISA BIOS (2A59C13E)									
STANDARD CMOS SETUP									
AWARD SOFTWARE, INC.									
Date	:	Tue, Jun 27 1995							
Time	:	00:00:00							
HARD DISKS		TYPE	SIZE	CYLS	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
Primary Master	:	User	233MB	816	14	65535	815	40	Normal
Primary Slave	:	None	0MB	0	0	0	0	0	-----
Secondary Master	:	None	0MB	0	0	0	0	0	-----
Primary Slave	:	None	0MB	0	0	0	0	0	-----
Drive A	:	1.2MB, 5.25 in							
Drive B	:	1.44MB, 3.5 in							
Video	:	EGA / VGA							
Halt on	:	All Errors							
						Base Memory : 640K			
						Extended Memory : 7168K			
						Other Memory : 384K			
						Total Memory : 8192K			
Esc : Quit		↓↑→← : Select Item				PgUp/PgDn/+/- : Modify			
F1 : Help		(Shift) F2 : Change Color				F3 : Toggle Calendar			

If you are not familiar with the hard disk type, you can also use the IDE HDD AUTO DETECTION at main screen. Or reference to your hard disk operation manual.

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

If a hard disk has not been installed select **NONE** and press < **Enter** >.

4.3 BIOS Features Setup

Select the BIOS FEATURES SETUP in CMOS SETUP UTILITY menu allows user to change system related parameters in display menu. This menu shows all the manufacture's default value of this system board.

Again, user can move the cursor by pressing direction keys and <PgUp> or <PgDn> keys to modify the parameters. Also, press <F1> key to display help message of the selected items.

This setup program also provides 2 convenient ways to load the default parameters data from BIOS (By press F6) or from CMOS (By press F7) area if shown data is corrupted. This provides the system a capability to recover from any possible error.

ROM PCI/ISA BIOS (2A59C13E)			
BIOS FEATURES SETUP			
AWARD SOFTWARE, INC.			
Virus Warning	: Disable	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disable
External Cache	: Enabled	CC000-CFFFF Shadow	: Disable
Quick Power On Self Test	: Enabled	D0000-D3FFF Shadow	: Disable
Boot Sequency	: A, C	D4000-D7FFF Shadow	: Disable
Sw ap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disable
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disable
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disable		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay *Msec	: 250		
Security Option	: Setup		
		ESC : Quit	Arrow : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Value	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

4.4 Chipset Features Setup Menu

Choose the CHIPSET FEATURES SETUP in the CMOS SETUP UTILITY menu to display following menu.

ROM PCI/ISA BIOS (2A59C13E)			
CHIPSET FEATURES SETUP			
AWARD SOFTWARE, INC.			
DRAM Timing	:60ns	PCI Concurrency	:Enabled
System BIOS Cacheable	:Disabled	PCI Streaming	:Enabled
Video BIOS Cacheable	:Enabled	PCI Bursting	:Enabled
8 Bit I/O Recovery Time	:1	Onboard FDC Controller	:Enabled
16 Bit I/O recovery Time	:1	Onboard Serial Port 1	:COM 1
Memory Hole At 15M-16M	:Disabled	Onboard Serial Port 2	:COM 2
IDE HDD Block Mode	:Enabled	Onboard Parallel Port	:378H
IDE Primary Master PIO	:Auto	Parallel Port Mode	:ECP+EPP
IDE Primary Slave PIO	:Auto	ECP Mode Use DMA	:3
IDE Secondary Master PIO	:Auto	ESC : Quit	Arrow : Select Item
IDE Secondary Slave PIO	:Auto	F1 : Help	PU/PD/+/- : Modify
Onboard Primary PCI IDE	:Enabled	F5 : Old Volume (Shift)	F2 : Color
Onboard Secondary PCI IDE	:Enabled	F6 : Load BIOS Defaults	
PCI Slot IDE 2nd Channel	:Enabled	F7 : Load Setup Defaults	

4.5 Power Management Setup

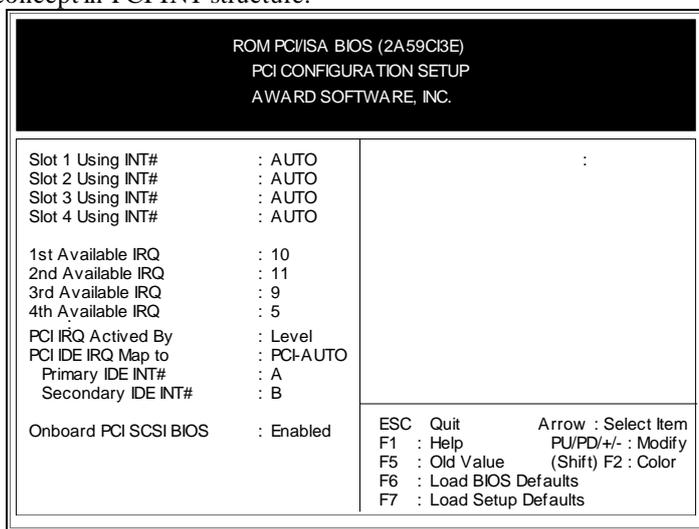
Choose the POWER MANAGEMENT SETUP in the CMOS SETUP UTILITY menu to display following menu. This menu allows user to modify the power management parameters and IRQ signals. In general, these parameters should not be changed unless it's absolutely necessary.

ROM PCI/ISA BIOS (2A59C13E)			
POWER MANAGEMENT			
AWARD SOFTWARE, INC.			
Power Management	: User Define	IRQ3 (COM 2)	: ON
PM Control by APM	: Yes	IRQ4 (COM 1)	: ON
Video Off Method	: V/H sync+Blank	IRQ5 (LPT 2)	: ON
Doze Mode	: Disabled	IRQ6 (Floppy Disk)	: ON
Standby Mode	: Disabled	IRQ7 (LPT 1)	: OFF
Suspend Mode	: Disabled	IRQ8 (RTC ALARM)	: OFF
HDD Power Down	: 15 Min	IRQ9 (IRQ2 Redir)	: ON
IRQ3(Wake-Up Event)	: ON	IRQ10 (Reserved)	: ON
IRQ4(Wake-Up Event)	: ON	IRQ11 (Reserved)	: ON
IRQ8(Wake-Up Event)	: ON	IRQ12 (P/S Mouse)	: ON
IRQ12(Wake-Up Event)	: ON	IRQ14 (Hard Disk)	: ON
		IRQ13 (COpcessor)	: ON
		IRQ15 (Reserved)	: ON
Power down Activities		ESC : Quit	Arrow : Select Item
COM Ports Accessed	: ON	F1 : Help	PU/PD/+/- : Modify
LPT Ports Accessed	: ON	F5 : Old Volume (Shift)	F2 : Color
Drive Ports Accessed	: ON	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

4.6 PCI & Onboard I/O Setup Menu

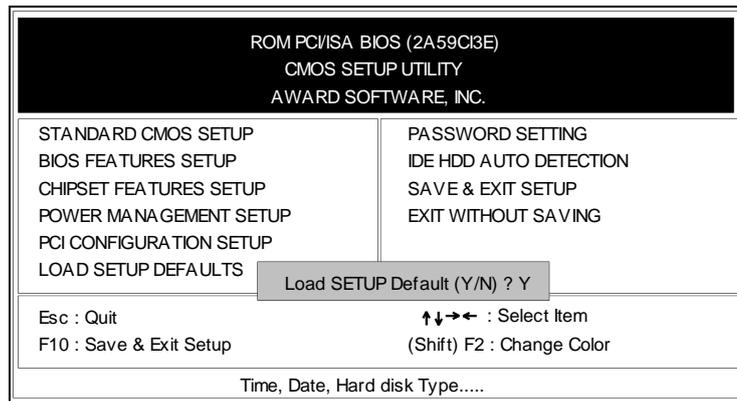
Most of I/O already combined on this system board. You can set the PCI INT# and I/O ports correspondence function. Of course, the wrong IRQ placing might cause the system hang-up.

Once you have true PCI interface cards plugged into this system, you will not required to change any setup in here. But if a Legacy interface card was inserted into this system, a proper setting is extremely important or it might cause system hang-up. Following figure will give more clear concept in PCI INT structure.



4.7 Load Setup Default Menu

This LOAD SETUP DEFAULT function loads the system default data directly from ROM and initialize associated hardware properly. This function will be necessary only when the system CMOS data is corrupted



4.8 Password Setting Menu

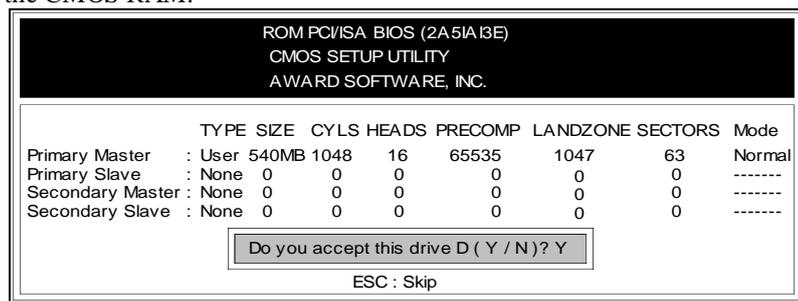
When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

4.9 IDE HDD Auto Detection

The IDE HDD AUTO DETECTION utility is a very useful tool for users while they forgot their IDE HDD type and other accommodate. Running this utility will automatically detect the HDD information and restore into the CMOS RAM.



4.A Save & Exit Setup

The SAVE & EXIT SETUP option will bring you back to boot-up procedure with all the changes you just made which are recorded in the CMOS RAM.

4.B Exit Without Saving

The EXIT WITHOUT SAVING option will bring you back to normal boot-up procedure without saving any data into CMOS RAM. All the old data will not be destroyed.

CHAPTER 5

SCSI BIOS Setup

5.1 When to Use the SCSI Select Utility

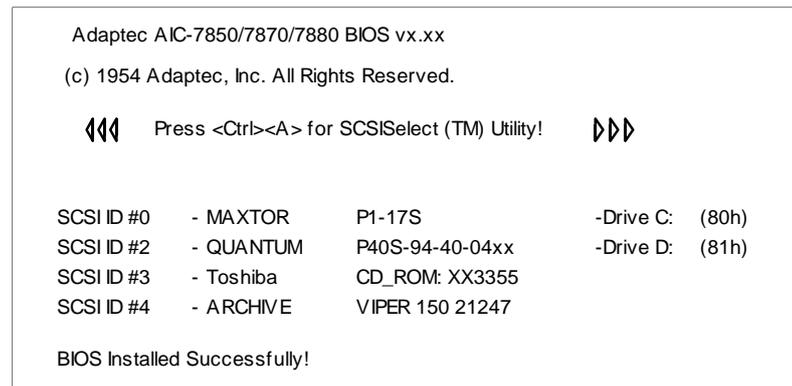
Use the SCSI Select utility if you need to

- Change any of the default values.
- Check and / or change SCSI device settings that may conflict with those of other devices (e.g., SCSI ID).
- Perform low - level formatting on new SCSI disk devices.

Running the SCSISelect Utility

You will see a banner similar to the one shown in below when you turn on or reboot your computer. The BIOS banner lists the model number and SCSI ID of each SCSI device connected to the host adapter.

P54TS™/TSW2™

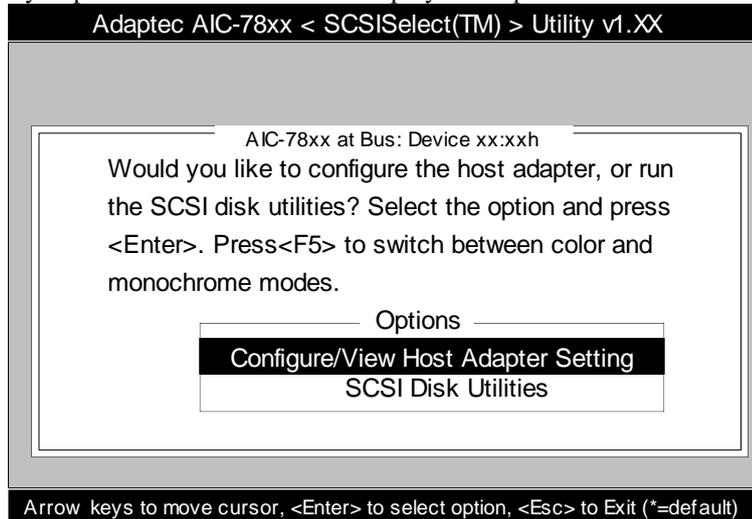


To start SCSI Select, press **Ctrl + A** when the BIOS banner first appears on the screen.

Note: If you only connect a non-bootable device, this BIOS can not be installed.

5.2 SCSI Select Utility Options

After you press Ctrl + A then it will displays the Options menu as below.

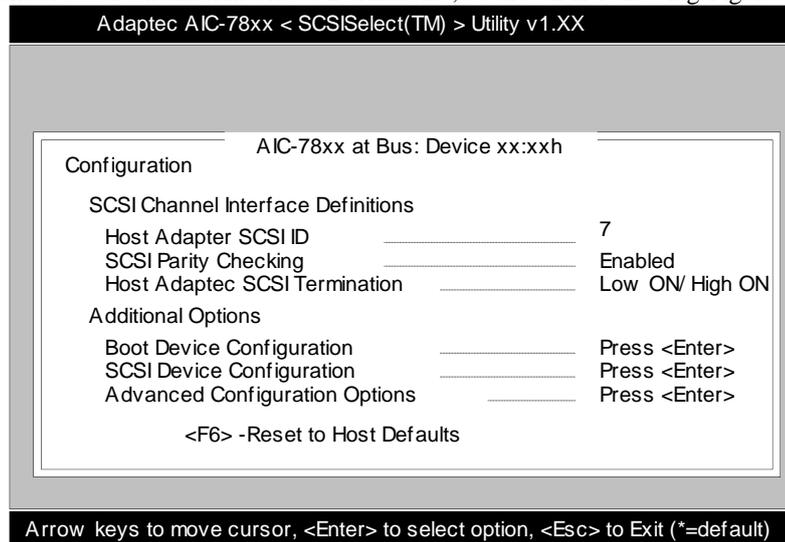


Use the Up and Down keys and the **Enter** key to make selections in the SCSI Select utility . Press **Esc** at any time to return to the previous menu .

Note: You can press **F5** to toggle the display between color and monochrome modes . (This feature may not work on some kinds of monitors.)

5.3 Configure/View Host Adapter Settings Menu

The Configure / View Host Adapter Settings menu lists three settings under SCSI Channel Interface Definitions , as shown in following Figure.



Use the cursor (Up, Down) to move to your selection. Press **Enter** to display a pop-up menu of choices or to make selections . Press **Esc** at any time to return to the previous menu.

Note : Press F6 to reset all settings to the host adapter defaults. Host adapter default settings are marked with an asterisk (*) throughout the selection submenus.

5.3.1 Host Adapter SCSI ID

This option allows you to change the host adapter SCSI ID. There are 8 available IDs for the P54TS and the 16 available IDs for the P5TSW/TSW2. The default setting for both models is SCSI ID 7 , which has the highest priority on the SCSI bus. (We recommend that you not to change this setting).

P54TS™/TSW2™

Note: Both in P54TS or P54TSW/TSW2 will show the 8 IDs, once jumper JP26 is set to "off".

Note: Only in P54TSW/TSW2 shows the following screen, when jumper JP26 is set to "on". Reference to SCSI interface at Chapter 3.6.5.

Each SCSI device on the SCSI bus, including the host adapter, must be set to a unique SCSI ID.

The SCSI ID serves two purposes: it uniquely identifies each SCSI device on the bus, and it determines the device's priority on the bus during the Arbitration phase. The Arbitration phase determines which device controls the bus when two or more devices request use of it.

Use the cursor (↑ ↓) and Enter keys to select the SCSI ID, if you need to change it. Press Esc at any time to return to the previous menu.

When selecting the host adapter SCSI ID, consider the following:

- .. If you install more than one SCSI host adapter in the computer, each board has its own SCSI bus. This means devices can have duplicate SCSI IDs, as long as they are not on the same SCSI bus (e.g. each SCSI bus can have a device with SCSI ID 0, etc.).
- .. If you plan to connect two host adapters in two different computers to the same SCSI bus so they can share SCSI devices (see Appendix C, Multiple Computer Configuration), set the host adapters to different SCSI IDs. IDs 6 and 7 are preferable, since they have the highest priority on the SCSI bus.

5.3.2 SCSI Parity Checking

Select this option to enable or disable SCSI Parity Checking on the host adapter. **The default setting is Enable.**

The host adapter always checks parity when reading from the SCSI bus to verify the correct transmission from your SCSI devices. You should disable SCSI Parity Checking if any attached SCSI devices do not support SCSI parity. (Most currently available SCSI devices do support SCSI parity.)

Use the cursor (↑ ↓) and **Enter** keys to make selections. Press **Esc** at any time to return to the previous menu.

5.3.3 Host Adapter SCSI Termination

This option allows you to configure host adapter SCSI termination. These show the choices available if you have an P54TS (AIC-7850) and P54TSW2 (AIC-7880). The default setting for the P54TS is **Enabled**. The default setting for the P54TSW2 is *Low ON / High ON*; this menu that termination is enabled for both the low and the high bytes of the 16-bit Wide SCSI bus.

Note: Bits 0 through 7 are the low byte; bits 8 through 15 are the high byte.

Use the cursor (↑ ↓) and **Enter** keys to make your selection .
P54TS/P54TSW2 SCSI Termination is determined by which of the SCSI connectors on the board have devices attached to them . The possible P54TS termination settings are as follows:

Host Adapter Termination	Devices Are Attached to
Enabled	Internal connector only
Enabled	External connector only
Disabled	Internal and external connectors

The possible P54TSW2 termination setting are as follows:

Host Adapter Termination		
Low	High	Devices Are Attached to
On	On	68-pin internal connector only
On	On	68-pin external connector only
On	On	50-pin internal connector only
Off	Off	68-pin internal and 68-pin external connectors
Off	On	50-pin and 68-pin internal connectors
Off	On	50-pin internal and 68-pin external connectors
Invalid		50-pin and 68-pin internal connectors, and 68-pin external connector

5.3.4 Boot Device Configuration

This option allows you to choose which SCSI ID device has the Boot right for system O.S.

5.3.5 SCSI Device Configuration

This option allows you to configure certain parameters of each SCSI device on the SCSI bus.

Use the cursor keys (↑ ↓) to move between options . Press **Enter** to display a pop-up menu with a selection of values . Use the cursor keysx (↑ ↓) to select a value , and press **Enter** to make your selection.

■Initiate Sync Negotiation

This option determines whether the host adapter initiates synchronous negotiation with the SCSI device.

P54TS™/TSW2™

When set to **yes**, the host adapter initiates synchronous negotiation with the SCSI device. When set to **no**, the host adapter does not initiate synchronous negotiation. The host adapter, however, always responds to synchronous negotiation if the SCSI device initiates it. The default setting is **yes**.

Data is transferred in asynchronous mode if neither the on board SCSI nor the SCSI peripheral negotiates for synchronous data transfers.

Note: Some older SCSI-1 devices do not support synchronous negotiation. This may cause your computer to operate erratically or hang if Initiate Sync Negotiation is enabled. Set Initiate Sync Negotiation to **no** for these devices.

■ Maximum Sync Transfer Rate

This option determines the maximum synchronous data transfer rate that the host adapter can support. The host adapter supports rates up to the Fast SCSI maximum of 10.0 MBytes/sec. The default value is 10.0. The P54TSW has a 16-bit (2-byte) channel that provides an effective maximum synchronous transfer rate of 20.0 MBytes/sec. (10.0 MBytes per 8-bit channel). Valid settings are

SCSI Select Transfer Rate	P54TS SCSI-2 Devices Effective Transfer rate	P54TSW2 + Wide Ultra SCSI-2 Devices Effective Transfer Rate
10.0	10.0 MBytes/sec.	40 MBytes/sec.
8.0	8.0 MBytes/sec.	32 MBytes/sec.
6.7	6.7 MBytes/sec.	26.8 MBytes/sec.
5.0	5.0 MBytes/sec.	20 MBytes/sec.

In most cases, you can use the maximum value of 10.0. If the host adapter is set not to negotiate for synchronous data transfer (i.e., Initiate Sync Negotiation is set to **no**), then the value selected here is the maximum rate that the host adapter accepts from the device during negotiation. (This is standard SCSI protocol.)

Note : Some older SCSI-1 devices do not support Fast SCSI data transfer rate (10.0, 8.0, and 6.7). This may cause your computer to operate erratically or hang if the transfer rate is set too high. Select a Maximum Sync Transfer Rate of 5.0 for these devices.

■ Enable Disconnection

This option determines whether the host adapter allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect / Reconnect).

Disconnect / Reconnect allows the host adapter to perform other operations on the SCSI bus while the SCSI device is temporarily disconnected.

When set to **yes**, the SCSI device may disconnect from the SCSI bus. The SCSI device, however, may choose not to disconnect, even if permitted by the host adapter (this can usually be configured on the SCSI device).

When set to **no**, the SCSI device is not allowed to disconnect from the SCSI bus. The default setting is **yes**.

You should leave Enable Disconnection set to **yes** if two or more SCSI devices are connected to the on board SCSI port. This optimizes SCSI bus performance. If only one SCSI device is connected to SCSI port, set Enable Disconnection to **no** to achieve slightly better performance.

■Send Start Unit Command

This option, which is supported by some SCSI devices, determines whether the Start Unit Command (SCSI command 1B) is sent to the SCSI device (most devices do not require this). Enabling this option reduces the load on your computer's power supply by allowing the host adapter to power-up SCSI devices one - at - a-time when you boot your computer. Otherwise, the devices all power-up at the same time. Most devices require you to set a jumper before they can respond to this command.

When set to **yes**, the Start Unit Command is sent to the SCSI device during bootup. When set to **no**, each SCSI device powers -up in its normal fashion. The default setting is **no**.

Note: The Send Start Unit Command setting is valid only if the host adapter BIOS is enabled.

If this option is enabled for more than one SCSI device, the Start Unit Command is sent first to the device with the lowest SCSI ID. When this device responds to the host adapter, the Start Unit Command is sent to the next highest SCSI ID with a setting of **yes**. The process continues until all supported devices responds to the host adapter.

Note : If many drivers are set to **yes** for Send Start Unit Command, the boot time varies depending on how long it takes each drive to spin up.

■Include in BIOS Scan

The option determines whether the host adapter BIOS supports devices attached to the SCSI bus without the need for device driver software.

When set to **yes**, the host adapter BIOS controls the SCSI device. When set to **no** the host adapter BIOS does not search the SCSI ID for devices to control; device driver software is need to control the SCSI device. The default setting is **yes**.

Note : The Include in BIOS Scan setting is valid only if the host adapter BIOS is enabled.

5.3.6 Advanced Configuration Options

When you select Advanced Configuration Options. Do not change these five options unless absolutely necessary.

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of options. Use the cursor keys (↑ ↓) to select an options, and press **Enter** to make your selection.

■Reset SCSI Bus at Host Adapter Initialization

This option allows you to enable or disable a SCSI bus reset generated by the host adapter during its power - on initialization and after a hard reset. If enabled, the SCSI bus is reset the first time the host adapter is initialized. If the host adapter BIOS is enabled, the BIOS resets the SCSI bus, then wait two seconds before scanning the bus for SCSI devices. If Reset SCSI Bus at Host Adapter Initialization is disabled, there is no two - second delay. The default setting is Enabled. Normally, SCSI Bus Reset at Host Adapter Initialization should always be enabled.

●Host Adapter BIOS

This option enables or disables the on board SCSI BIOS. The default setting is Enabled.

The host adapter BIOS must be enabled if you want the computer to boot from a SCSI hard disk drive connected to the host adapter. Several SCSISelect options cannot be used unless the SCSI BIOS is enabled.

●Support Removable Disk Under BIOS as Fixed Disks

This option allows you to control which removable - media drives are supported by the SCSI BIOS. It is only valid if the SCSI BIOS is enabled. The default setting is Boot Only. The following choices are available:

- Boot Only** - Only the removable - media drive designated as the boot device are treated as a hard disk drive.
- All Disks** - All removable - media drives supported by the BIOS are treated as hard disk drives.
- Disabled** - No removable - media drives are treated as hard disk drives. In this situation, software drives are needed because the drive are not controlled by the BIOS.

Caution: Support for removable - media drives means only that the host adapter BIOS allows you to use a removable - media drive as if it were a hard disk drive ;it does not mean you can remove the disk media during operation. If a removable - media SCSI device is controlled by the host adapter BIOS, do not remove the media while the drive is powered - on or you may lose data. If you want to be able to

remove media while the power is on, install the removable - media device driver and set this option to Disabled.

● **Extended BIOS Translation for DOS Drives > 1 GByte**

This option allows you to enable or disable extended translation for SCSI hard disks with a capacity greater than 1 GByte. It is only valid if the host adapter BIOS is enabled. The default setting is Enabled.

If this option is enabled, the following translation schemes are used:
SCSI hard disks 1 GByte use a translation schema of 64 heads, 32 sectors per track
SCSI hard disks 1 GByte use a translation schema of 255 heads, 63 sectors per track

● **Display <Ctrl-A> Message During BIOS initialization.**

This option allows you to enable or disable the BIOS prompt for the SCSI utility.

● **Multiple Lun Support**

This option allows you to enable or disable the SCSI Lun support

● **BIOS Support for More Than 2 Drives**

This option allows you to enable or disable BIOS support for more than two, and up to eight, SCSI hard disk drives. It is only valid if the host adapter BIOS is enabled. This feature is supported by BIOS 5.0 and above. The default setting is Enabled.

5.4 SCSI Disk Utilities

When you select SCSI Disk Utilities from the Options menu the SCSI Select utility scans the SCSI bus and lists all SCSI devices installed on the SCSI bus. You can easily determine from this screen which SCSI ID is assigned to each device on the SCSI bus.

When you highlight a disk drive by moving to it with the cursor keys and press **Enter**, a small menu window appears. You then select **Format Disk** or **Verify Media** from this menu.

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of values. Use the cursor keys (↑ ↓) to select a value, and press **Enter** to make your selection.

● **Format Disk**

The Format Disk utility performs a low-level format on disk devices.

P54TS™/TSW2™

Your fixed disk media must be low-level formatted before you can use your operating system's partitioning and file preparation utilities, such as MS-DOS fdisk and format.

Most SCSI disk devices are pre-formatted and do not need to be formatted again. The AdapterFormat Disk utility is compatible with the vast majority of SCSI disk drives. Run it on hard disk drives or removable-media drives that were previously used with a non-Adaptec host adapter.

Caution : A low-level format destroys all data on the drive. Be sure to back up your data before performing this operation. You cannot abort a low-level format once it is started.

●Verify Disk Media

The Verify Disk Media utility scans the selected device's media for defects. If the utility finds bad blocks, it prompts you to reassign them; if you select **yes**, those blocks will no longer be used.

Note: You can press **Esc** at any time to abort the Verify Disk Media utility.

 **Corp.**

Revision 1.3
DOC:CWIN / P54TS /MAN13
DATE:1/25/1996
P/N:PMTS00130AE

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