PT-5IT

SYSTEM BOARD

(VER. 2.x)

OPERATION MANUAL

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TRADEMARKS

All trademarks used in this manual are the property of their respective owners.

NOTE

The "LOAD SETUP DEFAULTS" function loads the default settings directly from BIOS default table, these default settings are the best-case values that should optimize system performance and increase system stability . This function will be necessary when you accept this system board, or the system CMOS data is corrupted.
By pressing "Enter " key. the SETUP default values will be loaded. (please refer to the Chapter 5 AWARD BIOS SETUP procedures in this manual.)

NOTICE

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

1. INTRODUCTION

1.1 SYSTEM OVERVIEW

The **PT-5IT** Pentium PCI Local Bus system board is designed based on the Intel 82430TX PCIset system chipset and Winbond I/O chipset, which built-in two channels PIO and Bus Master Enhanced PCI IDE port, one Floppy Disk control port, two high speed Serial ports (UARTs) and one multimode Parallel port and also supports IR and USB ports. It is designed to fit a high performance, Pentium 75 MHz to 233 MHz based solution for high-end and true GREEN-PC computer systems.

This system board supports the Peripheral Component Interconnect (PCI) Local Bus standard (PCI Specification Rev. 2.1 compliant). It not only breaks through the I/O bottlenecks of the traditional ISA main board, but also provides the performance needs for networking and multi-user environments.

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2. SPECIFICATIONS

Chipset
Intel 82439TX, 82371AB and Winbond W83977TF.

CPU
Intel : Pentium processor and OverDrive processor (P54C / P54CS / P54CTB / P55C) 75 / 90 / 100 / 120 / 133 / 150 / 166 / 180 / 200 / 233 MHz.
Cyrix : 6x86 / 6x86L-P120+ / P133+ / P150+ / P166+ / P200+.
        6x86MX-PR166 / PR200 / PR233 / PR266.
AMD : K5-PR75 / PR90 / PR100 / PR120 / PR133 / PR150 / PR166.
        K6 / PR2-166 / PR2-200 / PR2-233

CPU VCC (switching regulator support)
(1). CPU I/O voltage   : "+3.3V DC" and "+3.5V DC".
(2). CPU CORE voltage : "+2.1V,+2.5V,+2.8V,+2.9V,+3.2V,+3.3V,+3.5V DC".
                             (+2.1V DC is unavailable on PT-5IT VER 2.0)

System Clock
50 / 55 / 60 / 66.6 / 75MHz adjustable.

Memory
DRAM   :   Two banks, each bank could be single or double sided, 8MB up to 256MB. Supports fast page mode (FPM) , Extended Data Out (EDO) and SDRAM memory (Using 72-pin SIMM module x 4, and 168-pin DIMM module x 2). DIMMs' operating voltage supports +5V DC or +3.3V DC adjustable.
SRAM   :   256KB or 512KB pipelined burst SRAM on board.

BIOS
AWARD System BIOS. 128KBx8 Flash ROM (for Plug & Play BIOS).

Expansion Slots
PCI Slots : 32-bit x 4 (All Master/Slave, PCI 2.1 Compliant).
ISA Slots : 16-bit x 4 (One slot PCI/ISA shared).

IDE Ports

Two channel PIO and Bus Master PCI IDE ports, maximum could be connected to 4 IDE Hard Disk and ATAPI CD-ROM device. Supports up to Mode 4 timing, and up to 22 MBytes/s transfer rates and supports "Ultra DMA/33" mode transfers up to 33MBytes/sec.

Super I/O Ports

1. Two high speed NS16C550 compatible serial ports (UARTs).
2. One SPP/EPP/ECP mode Bi-directional parallel port.
3. One Floppy Disk Control port.

IR Port

One HPSIR and ASKIR compatible Infrared port.

Mouse and Keyboard

Supports PS/2 Mouse connector, PS/2 Keyboard connector (option) and AT Keyboard connector.

USB Ports

Two Universal Serial Bus (USB) ports.

Software compatibility

MS-DOS, WindowsNT, OS2, XENIX, UNIX, NOVELL, CAD / CAM, compatibility Windows, Windows 95....etc

DIMENSION

Width & Length : 220 mm x 255 mm.
Height : 3/4 inches with components mounted.
PCB Thickness : 4-layers, 0.05 inches normal.
Weight : 20 ounces.

ENVIRONMENT

Operating Temperature : 10 to 40 . (50 to 104)
Require Airflow : 50 linear feet per per minute across CPU.
Storage Temperature : -40 to 70 . (-40 to 158)
Humidity : 0 to 90 noncondensing.
Altitude : 0 to 10,000 feet.

3. SYSTEM BOARD LAYOUT

3.1 PT-5IT VER. 2.x

Explanation : All connectors, jumpers and components which marks by a black point on the corner means the pin-1 side of the connector, jumper and component.
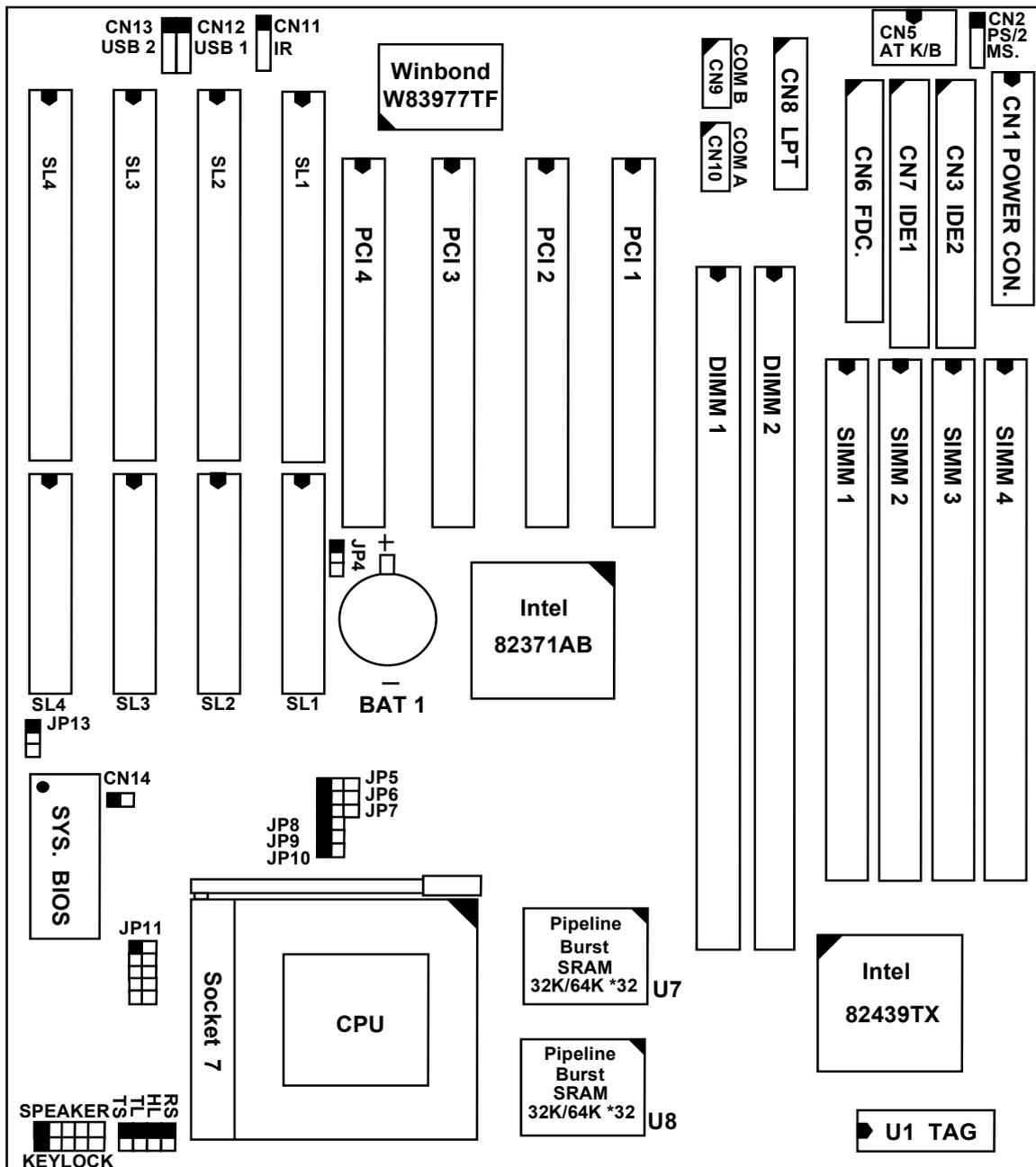
4. HARDWARE SETUP

4.1   UNPACKING

The system board package should contain the following parts :

> The PT-5IT system board.
> OPERATION MANUAL.
> Cable set for IDE and I/O device.

4.2   HARDWARE CONFIGURATION

Before the system board is ready to operate, the hardware must be configured to allow for various functions within the system. To configure the PT-5IT system board is a simple task, only a few jumpers, connectors, cables and sockets needs to be selected and installed. (For the detailed locations of each component please refer to the "system board layout figure" which appears in page 3-1.)

4.2.1   DRAM INSTALLATION

The PT-5IT system board will support two banks main memory (bank0 and bank 1) on board, (using four 72-Pin SIMM socket, SIMM 1 - 4 and two 168-pin DIMM socket, DIMM 1 - 2) each bank could be single-sided or double-sided, 8MB up to 256 MB of local memory can be attained. Supports standard fast page mode (FPM), Extended Data Out (EDO) and synchronous (SDRAM) memory.

The usable DRAM modules are : *(Note : S = Single-sided , D = Double-sided)*

(1)   FPM and EDO memory :   512Kbx32 **(2MB)**,   1Mbx32   **(4MB)**,
                              2Mbx32   **(8MB)**,   4Mbx32   **(16MB)**,
                              8Mbx32   **(32MB),**   16Mbx32   **(64MB)**

(2)   SDRAM memory   :   1Mbx64   **(8MB)**,   2Mbx64   **(16MB)**,
                              4Mbx64   **(32MB),**   8Mbx64   **(64MB)**
                              16Mbx64   **(128MB).**

The speed of FPM DRAMs must be used 70ns or faster than 70ns, the speed of EDO DRAMs and SDRAMs must be used 60ns or faster than 60ns.

SIMMs' and DIMM's operating voltage :

(1) SIMM1 - SIMM4 : + 5V DC

(2) DIMM1 - DIMM2 : +3.3V DC

DRAM Bank can be populated in any order (bank 0 does not have to be populated before bank 1).Within any given bank, the SIMMs must be the same size. Among the two banks, SIMM (DIMM) densities can be mixed in any order. EDO, FPM and SDRAMs can be mixed between SIMMs (DIMM), a given SIMM (DIMM) must contain only one type of DRAM. When DRAM types are mixed each SIMM (DIMM) runs optimized for that particular type of DRAM.

There is no jumper needed for DRAM configuration, DRAMs' type and size will be detected by system BIOS automatically.

The following table provides the possable combinations for DRAM memory installation.

Bank 0		Bank 1	
SIMM1 and SIMM2	DIMM1	SIMM3 and SIMM4	DIMM2
Single-sided	Empty	Single-sided	Empty
Double-sided	Empty	Double-sided	Empty
Empty	Single-sided	Empty	Single-sided
Empty	Double-sided	Empty	Double-sided

Note : We strong recommend, Don't install 5V SIMM module and 3.3V DIMM modules at the same time.

4.2.2 L2 CACHE MEMORY INSTALLATION

The PT-5IT system board will support 256KB or 512KB cache memory on board, using synchronous pipeline-burst SRAMs. Both Write Back and Write Through cache update policy are supported.

The following table lists the detalied combination about cache memory installation.

Cache Size	Data SRAMs(U7 , U8)	Tag SRAMs(U1)
256 KB	32KB x 32	8KB or 16KB or 32KB x 8
512 KB	64KB x 32	16KB or 32KB x 8

4.2.3 CONNECTORS

A connector is two or more pins that are used make connections to the system standard accessories (such as power, mouse, printer,...etc.) The following is a list of connectors on board, as well as descriptions of each individual connector.

(A) BAT1   Non-Rechargeable battery (Using 3 Vlots Lithium battery : CR2032)

Pin #	Assignment
	Battery Positive
	Ground

(B) CN1   Power connector

Pin #	Assignment	Pin #	Assignment	Pin #	Assignment
1	Power Good	5	Ground	9	-5V DC
2	+5V DC	6	Ground	10	+5V DC
3	+12V DC	7	Ground	11	+5V DC
4	-12V DC	8	Ground	12	+5V DC

(C) CN2   PS/2 Mouse converted connector

Pin #	Assignment	Pin #	Assignment	Pin #	Assignment
1	Mouse Data	3	Ground	5	Mouse Clock
2	No Connection	4	+5V DC		

(D) CN3   IDE 2 connector (Secondary IDE Port, using IRQ15)

(E) CN4   PS/2 Keyboard connector (option)

Pin #	Assignment	Pin #	Assignment	Pin #	Assignment
1	Keyboard Data	3	Ground	5	Keyboard Clock
2	No Connection	4	+5V DC	6	No Connection

(F) CN5   AT Keyboard connector

Pin #	Assignment	Pin #	Assignment	Pin #	Assignment
1	Keyboard Clock	3	No Connection	5	+5V DC
2	Keyboard Data	4	Ground		

(G) CN6   Floppy Disk Control Port connector (Using IRQ6, DMA channel 2)

(H) CN7   IDE 1 connector (Primary IDE Port, using IRQ14)

(I) CN8 Parallel Port connector
(Supports SPP/EPP/ECP mode, selected by BIOS setup,using IRQ7 or IRQ5, ECP using DMA channel 3 or 1)

Pin #	Assignment	Pin #	Assignment
1	STROBE-	14	AUTO FEED-
2	Data Bit 0	15	ERROR-
3	Data Bit 1	16	INIT-
4	Data Bit 2	17	SLCT IN-
5	Data Bit 3	18	Ground
6	Data Bit 4	19	Ground
7	Data Bit 5	20	Ground
8	Data Bit 6	21	Ground
9	Data Bit 7	22	Ground
10	ACK-	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SLCT	26	N.C. (No Connection)

1 14

13 26

(J) CN9 COM B (Serial Port 2) connector
COM1/2/3/4, selected by BIOS setup, using IRQ3 or 4

Pin #	Assignment	Pin #	Assignment
1	DCD (Data Carrier Detect)	2	RD (Received Data)
3	TD (Transmit Data)	4	DTR (Data Terminal Ready)
5	Ground	6	DSR (Data Set Ready)
7	RTS (Request To Send)	8	CTS (Clear To Send)
9	RI (Ring Indicator)	10	NC (No Connection)

1 2

9 10

(K) CN10   COM A (Serial Port 1) connector

COM1/2/3/4, selected by BIOS setup, using IRQ4 or 3

Pin #	Assignment		Pin #	Assignment	
1	DCD	(Data Carrier Detect)	2	RD	(Received Data)
3	TD	(Transmit Data)	4	DTR	(Data Terminal Ready)
5	Ground		6	DSR	(Data Set Ready)
7	RTS	(Request To Send)	8	CTS	(Clear To Send)
9	RI	(Ring Indicator)	10	NC	(No Connection)

1 2   9 10

(L) CN11   IR (Infrared Rays) transmission connector

Pin #	Assignment	Pin #	Assignment	Pin #	Assignment
1	+5V DC	3	IR Receive	5	IR Transmit
2	No Connection	4	Ground		

(M) CN12   USB 1 (Universal Serial Bus port1) connector

(N) CN13   USB 2 (Universal Serial Bus port2) connector

(O) CN14   Cooling fan power connector

Pin #	Assignment
1	+12V DC
2	Ground

(P)   RS   Reset Button connector

Pin #	Assignment	Pin1&2	Function
1	Reset Control	Open	No action
2	Ground	Short	System Reset

(Q)   HL   IDE HDD LED connector

Pin #	Assignment
1	Pullup (+5V DC)
2	Signal Pin

(R)   TL   Turbo LED connector

Pin #	Assignment

1	Pullup (+5V DC)
2	Signal Pin

(S) TS   Turbo Switch connector (This function is reserved)

Pin #	Assignment	Pin1&2	Function
1	Turbo Control	Open	Turbo
2	Ground	Short	Normal

(T) SPEAKER   Speaker connector

Pin #	Assignment	Pin #	Assignmen
1	+5V DC	4	Speaker Data Signal
2	No Connection	5	No Connection
3	No Connection		

(U) KEY LOCK   Front Panal Power LED & Key-Lock connector

Pin #	Assignment
1	Pullup (+5V DC for Power LED)
2	No Connection
3	Ground
4	Keyboard Lock
5	Ground

4.2.4   JUMPERS

A jumper is two, three or more pins which may or may not be covered by a plastic connector plug (mini-jumper). A jumper is used to select different system options. *Please make sure all jumpers at correct position before this system board used.*

(A) JP5, JP6, JP7, JP8, JP9, JP10   CPU type selection

(1) 50Mhz x 1.5 (Cyrix : 50Mhz x 3)   (2) 60Mhz x 1.5

JUMPERS	CPU TYPE	JUMPERS	CPU TYPE
1 2 3	Intel 80502-75	1 2 3	Intel 80502-90
JP5		JP5	
JP6		JP6	
JP7	AMD K5-PR75	JP7	AMD K5-PR90
JP8		JP8	K5-PR120
JP9		JP9	
JP10	Cyrix 6x86 / 6x86L	JP10	
	- P200+		

(3) 66Mhz x 1.5 / 66Mhz x 3.5   (4) 50Mhz x 2

JUMPERS	CPU TYPE	JUMPERS	CPU TYPE
1 2 3	Intel 80502-100	1 2 3	
JP5	80503-233	JP5	
JP6		JP6	
JP7	AMD K5-PR100	JP7	
JP8	K5-PR133	JP8	
JP9	K6-PR233	JP9	
JP10		JP10	Cyrix 6x86 / 6x86L
	Cyrix 6x86 MX		- P120+
	- PR266		

(5) 55Mhz x 2   (6) 60Mhz x 2

JUMPERS	CPU TYPE	JUMPERS	CPU TYPE
1 2 3		1 2 3	Intel 80502-120
1 [O O] JP5		1 [O O] JP5	
1 [O O] JP6		1 [O O] JP6	
1 [O O] JP7		1 [O O] JP7	
1 [O O] JP8		1 [O O] JP8	
1 JP9		1 JP9	
1 JP10	Cyrix 6x86 / 6x86L - P133+	1 JP10	Cyrix 6x86 / 6x86L - P150+

(7) 66Mhz x 2   (8) 75Mhz x 2

JUMPERS	CPU TYPE	JUMPERS	CPU TYPE
1 2 3	Intel 80502-133	1 2 3	
1 [O O] JP5		1 [O O] JP5	
1 [O O] JP6		1 [O O] JP6	
1 [O O] JP7		1 [O O] JP7	
1 [O O] JP8		1 [O O] JP8	
1 JP9		1 JP9	
1 JP10	Cyrix 6x86 / 6x86L - P166+	1 JP10	Cyrix 6x86 / 6x86L - P200+

(9) 60Mhz x 2.5   (10) 66Mhz x 2.5

JUMPERS	CPU TYPE	JUMPERS	CPU TYPE
1 2 3	Intel 80502-150	1 2 3	Intel 80502-166
1 [O O] JP5		1 [O O] JP5	80503-166
1 [O O] JP6		1 [O O] JP6	
1 [O O] JP7	AMD K5-PR150	1 [O O] JP7	AMD K5-PR166
1 [O O] JP8		1 [O O] JP8	K6-PR166
1 [O O] JP9		1 [O O] JP9	
1 JP10	Cyrix 6x86MX - PR166	1 JP10	Cyrix 6x86MX - PR200

(11) 60Mhz x 3   (12) 66Mhz x 3

JUMPERS	CPU TYPE	JUMPERS	CPU TYPE

1 2 3	Intel 80502-180		1 2 3	Intel 80502-200
1 [○ ○] JP5			1 [○ ○] JP5	80503-200
1 [○ ○] JP6			1 [○ ○] JP6	
1 [○ ○] JP7			1 [○ ○] JP7	AMD K6-PR200
1 JP8			1 JP8	
1 [○ ○] JP9			1 [○ ○] JP9	
1 JP10			1 JP10	Cyrix 6x86MX - PR233

(13) 66Mhz x 4   (14) 66Mhz x 4.5

JUMPERS	CPU TYPE		JUMPERS	CPU TYPE
1 2 3			1 2 3	
1 [○ ○] JP5			1 [○ ○] JP5	
1 [○ ○] JP6			1 [○ ○] JP6	
1 [○ ○] JP7	AMD K6-PR266		1 [○ ○] JP7	
1 [○ ○] JP8			1 [○ ○] JP8	
1 JP9			1 [○ ○] JP9	
1 [○ ○] JP10			1 [○ ○] JP10	

NOTE : Cyrix 6x86 / 6x86L - P200+

　　　　: 75Mhz x 2, Better performance, but more peripheral compatible problem.

　　　　: 50Mhz x 3, (Maker suggest this jumper setting).

(B) JP11   CPU CORE voltage selection   (for VER : 2.0 pin 9-10 is unavailable)

JP 11	CORE Voltage	IO Voltage	CPU TYPE
	3.5V	3.5V	AMD K5
	3.5V	3.5V	Cyrix 6x86
	3.2V	3.3V	AMD K6-233
	3.2V	3.3V	AMD K6-266

JP 11	CORE Voltage	IO Voltage	CPU TYPE
	3.3V	3.3V	Intel P54C

JP 11	CORE Voltage	IO Voltage	CPU TYPE
	2.9V	3.3V	AMD K6-166
	2.9V	3.3V	AMD K6-200
	2.9V	3.3V	Cyrix 6x86MX

JP 11	CORE Voltage	IO Voltage	CPU TYPE
	2.8V	3.3V	Intel P55C
	2.8V	3.3V	Cyrix 6x86L

JP 11	CORE Voltage	IO Voltage	CPU TYPE
	2.5V	3.3V	
1 ☐☐ 2			
3 ⬤⬤ 4			
5 ⬤⬤ 6			
7 ⬤⬤ 8			
9 ☐☐ 10			

JP 11	CORE Voltage	IO Voltage	CPU TYPE
	2.1V	3.3V	
1 ☐☐ 2			
3 ☐☐ 4			
5 ☐☐ 6			
7 ☐☐ 8			
9 ⬤⬤ 10			

NOTE   :

       P54C   :   pentium CPU (80502)

       P55C   :   pentium MMX CPU (80503)

(D) JP4   Clear CMOS button

         <u>Pin #</u> <u>Function</u>

1 ☐   1-2   Normal operation

2 ☐   2-3   Clear CMOS

3 ☐

(*Note : Don't forget to turn this jumper return 1-2 within 3 to 5 seconds*)

(C) JP13   ROM BIOS selection (optional)

         <u>Pin #</u> <u>Function</u>

1 ☐   1-2   for +5V FLASH ROM

2 ☐   2-3   for +12V FLASH ROM

3 ☐

5. AWARD BIOS SETUP

5.1 GETTING STARTED

When the system is first powered on or reset, the BIOS will enter the Power-On Self Test routines (POST : Display a copyright message on the screen followed by a diagnostics and initialization procedure.) (If an EGA or VGA card is installed, the copyright message of the video card maybe displayed on the screen first.) The BIOS will indicate any error or malfunction by a series of beeps or display the error message on screen.

Normally, the simulate figure 5-1 will display on the screen when the system is powered on.
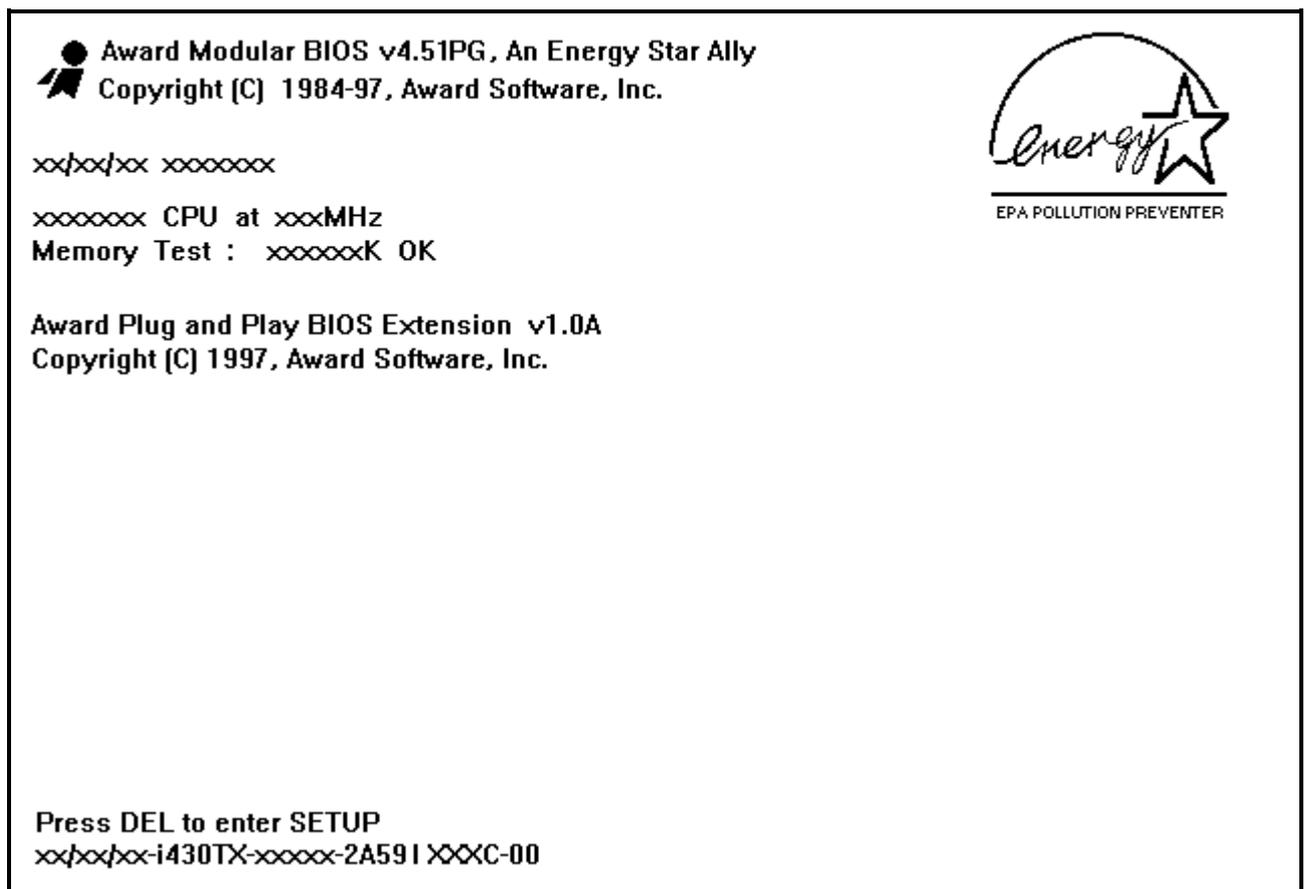
Fig. 5-1 Initial Power-On screen.

After the POST routines are completed, the following message appears :

" Press **DEL** to enter SETUP "

To execute the Award BIOS Setup program, press **DEL** key. The simulate screen in figure 5-2 MAIN MENU will be displayed at this time.

5.2 MAIN MENU

ROM PCI / ISA BIOS (2A59IXXX)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

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

ESC : Quit   : Select Item
F10 : Save & Exit Setup   (Shift)F2 : Change Color

Time, Date, Hard Disk Type ...

Fig. 5-2 CMOS SETUP MAIN MENU screen.

5.3 CONTROL KEYS

Listed below is an explanation of the keys displayed at the bottom of the screens accessed through the BIOS SETUP program :

Arrow Keys   **:** Use the arrow keys to move the cursor to the desired item.
Enter   **:** To Select the desired item.
F1   **:** Display the help screen for the selected feature.
(Shift)F2   **:** To change the screen color, total 16 colors.
ESC   **:** Exit to the previous screen.

PgUp(-)/PgDn(+) : To modify the default value of the options for the highlighted feature.

F5 **:** Retrieves the previous CMOS values from CMOS, only for the current option page setup menu.

F7 **:** Loads the SETUP default values from BIOS default table, only for the current option page setup menu.

F10 **:** Save all changes made to CMOS RAM, only for the MAIN MENU.

The following pages will show the simulate screens of CMOS SETUP, each figure contains the setup items and the default settings of them. Below each figure may or may not be contained a lists of function description for commonly used settings. For the other settings' function description you needed, please feel free to contact with your supplier.

5.4 STANDARD CMOS SETUP

ROM PCI / ISA BIOS (2A59IXXX)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm : dd : yy) : Thu,   Apr   3 1997
Time   (hh : mm : ss) : 11 : 33 : 55

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	Auto	0	0	0	0	0	0	Auto
Primary Slave	None	0	0	0	0	0	0	------
Secondary Master	Auto	0	0	0	0	0	0	Auto
Secondary Slave	None	0	0	0	0	0	0	------

Drive A : 1.44M,   3.5 in.
Drive B : None

Video   :   EGA/VGA
Halt On : All Errors

Base Memory :   640 K
Extended Memory :   xxxxxx K
Other Memory :   xxxxxx K
Total Memory :   xxxxxx K

ESC   :   Quit   : Select Item   PU/PD/+/- : Modify
F1   :   Help   (Shift)F2 : Change Color

Fig. 5-3 STANDARD CMOS SETUP screen.

MODE :
For IDE hard disks, this BIOS provides three modes to support both normal size IDE hard disks and also disks size larger the 528MB:

NORMAL : For IDE hard disks size smaller then 528MB.

LBA   : For IDE hard disks size larger then 528MB and up to 8.4GB (Giga Bytes)

that use Logic Block Addressing (LBA) mode.

Large   : For IDE hard disks size larger then 528MB that do not use LBA mode.
           Large mode is a new specifition which may not be fully supported by all   operation systems. Now it can only be used with the MS-DOS and is
           uncommon.

Note : Some OSes (like SCO-UNIX) must use "NORMAL" for installation.

5.5 BIOS FEATURES SETUP

```
                    ROM  PCI / ISA  BIOS  (2A59IXXX)
                        BIOS  FEATURES  SETUP
                        AWARD  SOFTWARE,  INC.
```

Virus Warning	: Disabled	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,SCSI	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	
Typematic Delay (Msec)	: 250	
Security Option	: Setup	
PCI/VGA Palette Snoop	: Disabled	
OS Select For DRAM > 64MB	: Non-OS2	
		ESC : Quit : Select Item
PS/2 mouse function control	: Enabled	F1 : Help PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F7 : Load Setup Defaults

Fig. 5-4 BIOS FEATURES SETUP screen.

Virus Warning :
This feature flashes on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and an error message will appear, in the mean time, you can run anti-virus program to locate the problem. Default values is "Disabled"
Enabled : Activate automatically when the system boots up causing a warning
message   to appear when anything attempts to access the boot sector or hard disk
              partition table.
Disabled : No warning message to appear when anything attempts to access the boot
              sector or hard disk partition table.

CPU Internal Cache :
This option enables CPU's internal (L1) cache memory. If you want to use the internal (L1) cache memory and external (L2) cache memory, this option must be enabled.

External Cache :
This option enables L2 (secondary) external cache memory. If none external cache memory on board you must set this option to "disabled", otherwise, you can select enabled or disabled.

5.6   CHIPSET FEATURES SETUP

ROM PCI / ISA BIOS (2A59IXXX)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	
DRAM Timing	: 60 ns	
DRAM Leadoff Timing	: 10/6/3	
DRAM Read Burst (EDO/FP)	: x222/x333	
DRAM Write Burst Timing	: x222	
Fast EDO Lead Off	: Disabled	
Refresh RAS# Assertion	: 4 Clks	
Fast RAS To CAS Delay	: 3	
DRAM Page Idle Timer	: 2 Clks	
DRAM Enhanced Paging	: Enabled	
Fast MA to RAS# Delay	: 2 Clks	
SDRAM(CAS Lat/RAS-to-CAS)	: 3/3	
SDRAM Speculative Read	: Disabled	
System BIOS Cacheable	: Disabled	
Video BIOS Cacheable	: Disabled	ESC : Quit : Select Item
8 Bit I/O Recovery Time	: 1	F1 : Help PU/PD/+/- : Modify
16 Bit I/O Recovery Time	: 2	F5 : Old Values (Shift)F2 : Color
Memory Hole At 15M-16M	: Disabled	F7 : Load Setup Defaults
PCI 2.1 Compliance	: Disabled	

Fig. 5-5 CHIPSET FEATURES SETUP screen.

WARNING   : *The CHIPSET FEATURES SETUP in this screen are provided so that technical professionals can modify the Chipset to suit their requirement.   If you are not a   technical engineer, do not use this program !*

Auto Configuration :
When "Enabled", this parameter automatically enters and locks some of the optimum values for the chipset and CPU. Otherwise, this parameter allows the values of these parameters could be changed.

DRAM Timing :
When "Auto Configuration" is "Enabled", this parameter provides two suit of the optimum values for the chipset and CPU, depends on the DRAMs' speed, you can select "70 ns" or "60 ns", but the first value maybe caused your system more stable.

5.7 POWER MANAGEMENT SETUP

ROM PCI / ISA BIOS (2A59IXXX)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

```
Power  Management          : User  Define    **   Reload  Global  Timer  Events   **
PM Control by APM          : Yes             IRQ[3-7 , 9-15] , NMI        : Enabled
Video  Off  Method         : Blank  Screen   Primary  IDE  0             : Disabled
Video  Off  After          : Standby         Primary  IDE  1             : Disabled
                                             Secondary  IDE  0           : Disabled
Doze  Mode                 : Disable         Secondary  IDE  1           : Disabled
Standby  Mode              : Disable         Floppy  Disk               : Disabled
Suspend  Mode              : Disable         Serial  Port               : Enabled
HDD  Power  Down           : Disable         Parallel  Port             : Disabled

VGA  Active  Monitor       : Enabled

**   Break  Event  From  Suspend   **
IRQ  8  Clock  Event       : Disabled



                                             ESC  :  Quit                 :  Select Item
                                             F1   :  Help        PU/PD/+/-  :  Modify
                                             F5   :  Old  Values  (Shift)F2 :  Color
                                             F7   :  Load  Setup  Defaults
```

Fig. 5-6 POWER MANAGEMENT SETUP screen.

WARNING : *The POWER MANAGEMENT SETUP in this screen are provided so that technical professionals can modify the Chipset to suit their requirement. If you are not a technical engineer, do not use this program !*

Power Management :
This setting controls the Power Management functions. "User Define" allows the values of all parameters could be modified. "Min Saving" and "Max Saving" fixed the values of four parameters, including "Doze Mode", "Standby Mode", "Suspend Mode" and "HDD Power Down". "Disable" disabled all Power Management functions. Default is "User Define".

5.8   PNP/PCI CONFIGURATION

ROM PCI / ISA BIOS (2A59IXXX)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

```
PNP OS  Installed          : No            PCI IDE  IRQ  Map To        : PCI-AUTO
Resources  Controlled By   : Manual          Primary      IDE INT#     : A
Reset  Configuration  Data : Disabled         Secondary   IDE INT#     : B

IRQ-3    assigned  to      : Legacy ISA     Used MEM base addr         : N/A
IRQ-4    assigned  to      : Legacy ISA
IRQ-5    assigned  to      : PCI/ISA  PnP
IRQ-7    assigned  to      : Legacy ISA
IRQ-9    assigned  to      : PCI/ISA  PnP
IRQ-10  assigned  to       : PCI/ISA  PnP
IRQ-11  assigned  to       : PCI/ISA  PnP
IRQ-12  assigned  to       : Legacy ISA
IRQ-14  assigned  to       : Legacy ISA
IRQ-15  assigned  to       : Legacy ISA
DMA-0  assigned  to        : PCI/ISA  PnP
DMA-1  assigned  to        : PCI/ISA  PnP   ESC  : Quit                    : Select Item
DMA-3  assigned  to        : PCI/ISA  PnP   F1   : Help        PU/PD/+/- :  Modify
DMA-5  assigned  to        : PCI/ISA  PnP   F5   : Old  Values  (Shift)F2 : Color
DMA-6  assigned  to        : PCI/ISA  PnP   F7   : Load  Setup  Defaults
DMA-7  assigned  to        : PCI/ISA  PnP
```

Fig. 5-7 PNP/PCI CONFIGURATION setup screen.

WARNING   : The PNP/PCI CONFIGURATION in this screen are provided so that technical professionals can modify the Resources Configuration to suit their requirement.If you are not a technical engineer, do not use this program !

Resources Controlled by :

Manual : The system BIOS will not reference the ESCD for IRQ & DMA informations. Instead, it will reference the items in this setup menu for assigning IRQ & DMA, but for I/O and Memory space the system BIOS still refer to the ESCD.

Atuo   : The system BIOS will reference the ESCD all legacy informations.

Reset Configuration Data :

Disabled :   The system BIOS will do nothing.

Enabled : The system BIOS will clear/reset the ESCD during "POST". After clearing the   ESCD, the system BIOS will then change this item's value back to "Disable", otherwise, the ESCD will become useless.

IRQ# / DMA# assigned to :

Legacy : The system BIOS will skip never assign this specified IRQ/DMA resource to ISA   PCI or ISA PnP devices.

PCI/ISA : All items set to this value will make the specified IRQ/DMA have a chance to PnP   be assigned to PCI or ISA PnP devices.

PCI IDE IRQ Map To : (for off-board PCI ICE cards)

PCI-AUTO : The BIOS will scan for PCI IDE devices and determine the location of the   PCI IDE device, then assign IRQ 14 for primary IDE INT#, and assign IRQ 15 for secondary IDE INT#.

ISA   : The BIOS will not assign any IRQs even if PCI IDE card is found. Because some IDE cards connect the IRQ 14 and 15 directly from ISA slot   thru a card. (This card is called Legacy Header)

PCI-SLOT1 : For the specified slot, the BIOS will assign IRQ 14 for primary IDE INT#, to   and assign IRQ 15 for secondary IDE INT#. PCI-SLOT4

Note : No matter the item "Resources Controlled By" is set to "Manual" or "Auto", the   system BIOS assign IRQs to PCI devices from high to low. For ISA PnP devices,   the sequence is from low to high. IRQ 12 is always the last one available for   PCI/PnP due to IRQ 12 is always reserves for the PS/2 mouse.

Explanation for proper nouns :

PnP device :
   Device that has Plug & Play compatibility. That means it can request for DMA, IRQ,   I/O and Memory from the PnP BIOS and all these requests can be relocatable. In   other words, these devices does not utilized any fixed resources.
   All PCI devices and all ISA PnP devices are PnP devices.

Legacy device :
   A legacy device is a device that all its resources are fixed by hardware (or selected by jumpers).
   All ISA Non-PnP devices are legacy device.

Extended System Configuration Data (ESCD) :
   A media between the user and the system BIOS for passing the legacy devices informations. These informations are stored in the onboard NVRAM (flash ROM).

5.9 INTEGRATED PERIPHERALS

ROM PCI / ISA BIOS (2A59IXXX)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

```
IDE  HDD  Block  Mode         : Enabled
IDE  Primary  Master  PIO      : Auto
IDE  Primary  Slave   PIO      : Auto      Onboard  Parallel  Port        : 378 / IRQ7
IDE  Secondary  Master  PIO    : Auto      Parallel  Port  Mode           : SPP
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


Onboard  FDD  Controller       : Enabled
Onboard  Serial  Port  1        : 3F8 / IRQ4
Onboard  Serial  Port  2        : 2F8 / IRQ3   ESC  :  Quit                      :  Select  Item
Onboard  IR  Controller         : Disabled     F1    :  Help         PU/PD/+/-  :  Modify
                                               F5    :  Old  Values  (Shift)F2  :  Color
                                               F7    :  Load  Setup  Defaults
```

Fig. 5-8 INTEGRATED PERIPHERALS setup screen.

WARNING *:* *The INTEGRATED PERIPHERALS in this screen are provided so that*
technical professionals can modify the Chipset   to suit their
requirement.   If you are not a technical engineer, do not use this program !

Onboard IR Controller :
This setting determines the IR port (CN 11) function mode. Supports both HPSIR and ASKIR.

Onboard Parallel Mode :
This setting determines the onboard parallel prot (CN 8) transmission mode. Supports either SPP, EPP, ECP or ECP+EPP.

5.10 LOAD SETUP DEFAULTS

This option loads the SETUP default values from BIOS default table. By pressing "Enter" key, while "LOAD SETUP DEFAULTS" is highlighted, then presses "Y" and "Enter" key. the SETUP default values will be loaded. The SETUP default settings are the best-case values that should optimize system performance and increase system stability. If CMOS RAM is corrupted, the SETUP DEFAULTS settings are loaded automatically.

5.11 SUPERVISOR PASSWORD / USER PASSWORD

Type the Password and press "Enter",then repeat. Enters up to eight alphanumeric characters. By pressing "Enter" key twice, without any alphanumeric character enters, the PASSWORD will be disabled.

5.12 IDE HDD AUTO DETECTION

By pressing "Enter" key, while "IDE HDD AUTO DETECTION" is highlighted causes the system to attempt to detect the type of hard disk. If successful, then presses "Y" (or 1, 2, ...) and "Enter" key, it fills in the remaining fields on this menu and the correlated fields in the STANDARD CMOS SETUP menu.

5.13 HDD LOW LEVEL FORMAT

This option provides an utility program for IDE HDD Low Level Format. Performing the Hard Disk Format will destory any data on the Hard Disk. Back up the Hard Disk(s) before actually performing of these routines.
Note : These routines are not valid for a **SCSI** *Disk Drive.*

5.14 SAVE & EXIT SETUP

This option saves all setup values to CMOS RAM & EXIT SETUP routine, by moving the cursor to "SAVE & EXIT SETUP" and pressing "Enter" key, then types "Y" and "Enter" key, the values will be saved, the setup program will be terminated and the system will be reboot.

5.15 EXIT WITHOUT SAVING

This option exites setup routine without saving any changed values to CMOS RAM, by moving the cursor to "EXIT WITHOUT SAVING" and pressing "Enter" key, then

types "Y" and "Enter" key, the setup program will be terminated and the system will be reboot.