

I. INTRODUCTION

A. SYSTEM OVERVIEW

The □PT-5IVH□ Pentium PCI Local Bus system board is designed based on the Intel 82430VX PCIset system chipset and Winbond I/O chipset, which built-in two channel PIO and Bus Master Enhanced PCI IDE ports, 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 system board, but also provides the performance needs for networking and multi-user environments.

A. FEATURES

The PT-5IVH system board contains the following features:

- Pentium P54C/P54CS/P54CTB/P55C, Cyrix 6x86 / 6x86L & AMD K5 based, PC/AT compatible system board with ISA Bus and PCI Local Bus.
- Supports the most part of "586" level CPUs designed by Intel, Cyrix and AMD.
- Built-in 2 set voltage regulator circuits to support multi-specification CPU I/O voltage (+3.3V DC and +3.52V DC) and CPU CORE voltage (+2.8V DC).
- DRAM Memory : Supports fast page mode (FPM), Extended Data Out (EDO) and SDRAM (synchronous) memory.
- Cache Memory : Supports pipelined burst SRAMs. Cache size up to 512KB.
- BIOS : Supports Plug and Play BIOS.
- IDE ports : Supports two channel PIO and Bus Master Enhanced PCI IDE ports, up to Mode 4 timing, and up to 22 MBytes/s transfer rates.

- I/O ports : Supports two high speed serial ports (UARTs), One multimode parallel port for standard (SPP), enhanced (EPP) and high speed (ECP) modes. One Floppy Disk Control port.
- IR Port : Supports IR (Infrared Rays) functions. Both HPSIR and ASKIR are supported.
- USB Ports : Supports two Universal Serial Bus (USB) ports.
- Software compatibility : MS-DOS, WindowsNT, OS2, XENIX, UNIX, NOVELL, CAD / CAM, Windows, Windows 95..etc. full tested.

I. SPECIFICATIONS **Chipset**

Intel 82437VX, 82438VX, 82371SB and Winbond W83977F.

 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+

AMD : K5-PR75 / PR90 / PR100 / PR120 / PR133 / PR150 / PR166.

 CPU VCC

(1). CPU I/O voltage : +3.3V DC and +3.52V DC.

(2). CPU CORE voltage: +2.8V DC.

 System Bus Clock

50 / 55 / 60 / 66.6 MHz adjustable.

 Memory

DRAM : Two banks, each bank could be single or double sided, 8MB up to 128 MB. 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. 5 Qword deep buffer for posted write, and Dword and Burst merging.

SRAM : 256KB or 512KB pipelined burst SRAM on board , supports Direct-Mapped write back cache memory.

 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.

 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 (optional) and AT Keyboard connector.

 USB Ports

Two Universal Serial Bus (USB) ports.

 DIMENSION

Width & Length : 220 mm x 255 mm.

Height : 3/4 inches with components mounted, but without expansion boards and cables.

PCB Thickness : 4 layers, 0.05 inches normal.

Weight : 20 ounces.

 ENVIRONMENT

Operating Temperature : 10°C to 40°C. (50°F to 104°F)

Required Airflow : 50 linear feet per minute across CPU.

Storage Temperature : - 40°C to 70°C. (- 40°F to 158°F)

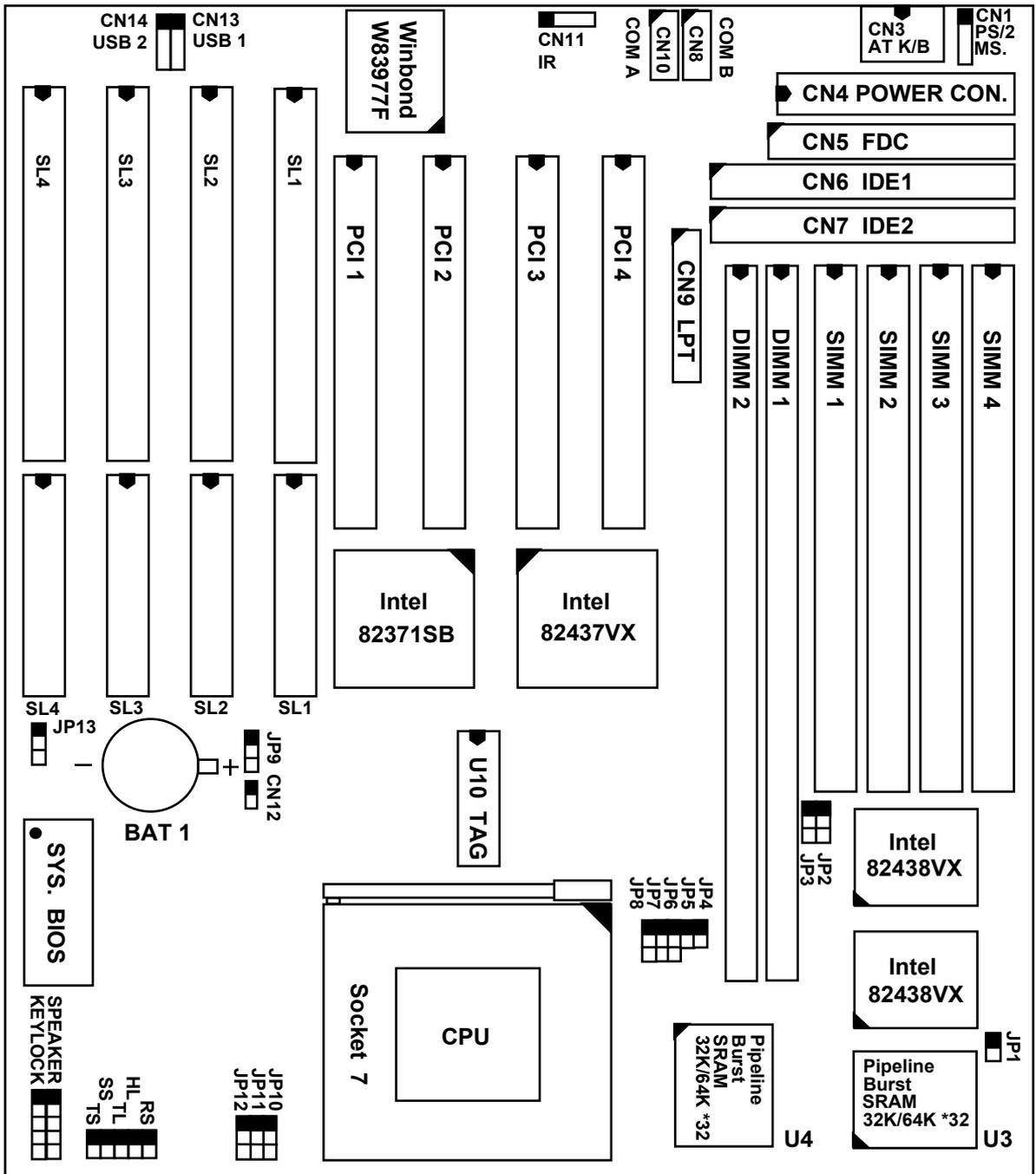
Humidity : 0 to 90% noncondensing.

Altitude : 0 to 10,000 feet.

I. SYSTEM BOARD LAYOUT

A. PT-5IVH 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.



I. HARDWARE SETUP

A. UNPACKING

The system board package should contain the following parts :

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

A. 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-5IVH 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.)

1. DRAM INSTALLATION

The PT-5IVH 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 128 MB of local memory can be attained. It 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 | : | 1MBx32(36)-S (4MB), | 1MBx32(36)-D (8MB), |
| | | 2MBx32(36)-S (8MB), | 2MBx32(36)-D (16MB), |
| | | 4MBx32(36)-S (16MB), | 4MBx32(36)-D (32MB). |
| (2) SDRAM memory | : | 1MBx64-S (8MB), | 2MBx64-D (16MB), |
| | | 4MBx64-S (32MB). | |

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 or +5V DC

(factory default at +3.3V DC, adjusted by “purchase order”)

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 (DIMMs) 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 possible 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 modules and 3.3V DIMM modules at the same time.

1. L2 CACHE MEMORY INSTALLATION

The PT-5IVH 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 detailed combination about cache memory installation.

Cache Size	Data SRAMs (U3, U4)	Tag SRAMs (U10)
256 KB	32KB x 32	8KB or 16KB or 32KB x 8

512 KB	64KB x 32	16KB or 32KB x 8
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1. 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)

<u>Pin #</u>	<u>Assignment</u>
<input type="checkbox"/>	Battery Positive
<input type="checkbox"/>	Ground

(B) CN1 PS/2 Mouse converted connector

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

(C) CN2 PS/2 Keyboard connector (optional)

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

(D) CN3 AT Keyboard connector

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

(E) CN4 Power connector

<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>	<u>Pin #</u>	<u>Assignment</u>
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

(F) CN5 Floppy Disk Control Port connector (Using IRQ6, DMA channel 2)

(G) CN6 IDE 1 connector (Primary IDE Port, using IRQ14)

(H) CN7 IDE 2 connector (Secondary IDE Port, using MIRQ0)

(I) CN8 COM B (Serial Port 2) connector
COM1/2/3/4, selected by BIOS setup, using IRQ3 or 4

1 2	<u>Pin #</u> <u>Assignment</u>	<u>Pin #</u> <u>Assignment</u>										
<table border="1" style="border-collapse: collapse; width: 40px; height: 40px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>											1 DCD (Data Carrier Detect)	2 RD (Received Data)
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			3 TD (Transmit Data)	4 DTR (Data Terminal Ready)								
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			5 Ground	6 DSR (Data Set Ready)								
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			7 RTS (Request To Send)	8 CTS (Clear To Send)								
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			9 RI (Ring Indicator)	10 NC (No Connection)								
9 1												
0												

(J) CN9 Parallel Port connector
(Supports SPP/EPP/ECP mode, selected by BIOS setup, using IRQ7 or IRQ5, ECP using DMA channel 3 or 1)

1 14	<u>Pin #</u> <u>Assignment</u>	<u>Pin #</u> <u>Assignment</u>		
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			1 STROBE-	14 AUTO FEED-
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			2 Data Bit 0	15 ERROR-
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			3 Data Bit 1	16 INIT-
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			4 Data Bit 2	17 SLCT IN-
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			5 Data Bit 3	18 Ground
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			6 Data Bit 4	19 Ground
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			7 Data Bit 5	20 Ground
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			8 Data Bit 6	21 Ground
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			9 Data Bit 7	22 Ground
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			10 ACK-	23 Ground
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			11 BUSY	24 Ground
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			12 PE	25 Ground
<table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="width: 20px; height: 20px;"> </td><td style="width: 20px; height: 20px;"> </td></tr> </table>			13 SLCT	26 N.C. (No Connection)
13 26				

(K) CN10 COM A (Serial Port 1) connector
 COM1/2/3/4, selected by BIOS setup, using IRQ4 or 3

1 2	<u>Pin #</u>	<u>Assignment</u>		<u>Pin #</u>	<u>Assignment</u>
□ □	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)
9 1					
0					

(L) CN11 IR (Infrared Rays) transmission connector

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

(M) CN12 Cooling fan power connector

<u>Pin #</u>	<u>Assignment</u>
1	+12V DC
2	Ground

(N) CN13 USB 1 (Universal Serial Bus port1) connector

(O) CN14 USB 2 (Universal Serial Bus port2) connector

(P) RS Reset Button connector

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

(Q) HL IDE HDD LED connector

<u>Pin #</u>	<u>Assignment</u>
1	Pullup (+5V DC)

2 Signal Pin

(R) TL Turbo LED connector

<u>Pin #</u>	<u>Assignment</u>
1	Pullup (+5V DC)
2	Signal Pin

(S) SS External SMI button connector

<u>Pin #</u>	<u>Assignment</u>	<u>Pin1&2</u>	<u>Function</u>
1	SMI Control	Open	For normal operation
2	Ground	Short	To get into Suspend mode

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

<u>Pin #</u>	<u>Assignment</u>	<u>Pin1&2</u>	<u>Function</u>
1	Turbo Control	Open	Turbo
2	Ground	Short	Normal

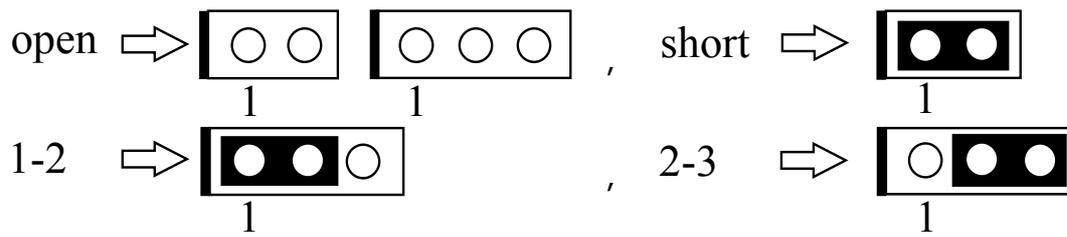
(U) SPEAKER Speaker connector

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

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

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

Explanation : (For next section : JUMPERS)



1. 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) JP4, JP5, JP6, JP7, JP8 CPU type selection

(1) INTEL Pentium CPUs

CPU Type	JP4	JP5	JP6	JP7	JP8	Remark
80502-75	open	open	1-2	1-2	1-2	
80502-90	open	open	1-2	1-2	2-3	
80502-100	open	open	1-2	2-3	1-2	
80502-120	open	short	1-2	1-2	2-3	
80502-133	open	short	1-2	2-3	1-2	
80502-150	short	short	1-2	1-2	2-3	
80502-166 / 80503-166	short	short	1-2	2-3	1-2	
80502-180	short	open	1-2	1-2	2-3	
80502-200 / 80503-200	short	open	1-2	2-3	1-2	
80503-233	open	open	1-2	2-3	1-2	

(2) Cyrix 6x86 / 6x86L / 6x86MX CPUs

CPU Type	JP4	JP5	JP6	JP7	JP8	Remark
6x86 / 6x86L - P120+	open	short	1-2	1-2	1-2	
6x86 / 6x86L - P133+	open	short	2-3	1-2	1-2	
6x86 / 6x86L - P150+	open	short	1-2	1-2	2-3	
6x86 / 6x86L - P166+	open	short	1-2	2-3	1-2	
6x86 / 6x86L - P200+	open	short	2-3	1-2	2-3	*
6x86 / 6x86L - P200+	open	open	1-2	1-2	1-2	**
6x86MX-PR166	short	short	1-2	1-2	2-3	
6x86MX-PR200	short	short	1-2	2-3	1-2	
6x86MX-PR233	short	open	1-2	2-3	1-2	
6x86MX-PR266	open	open	1-2	2-3	1-2	

Remark * : 75Mhz x 2, Better performance, but more peripheral compatible problem.
 ** : 50Mhz x 3, (Maker suggest this jumple setting).

(3) AMD K5 / K6 CPUs

CPU Type	JP4	JP5	JP6	JP7	JP8	Remark
AMD-K5-PR75	open	open	1-2	1-2	1-2	
AMD-K5-PR90	open	open	1-2	1-2	2-3	
AMD-K5-PR100	open	open	1-2	2-3	1-2	
AMD-K5-PR120	open	open	1-2	1-2	2-3	
AMD-K5-PR133	open	open	1-2	2-3	1-2	
AMD-K5-PR150	short	short	1-2	1-2	2-3	
AMD-K5-PR166	short	short	1-2	2-3	1-2	
AMD-K6-PR166	short	short	1-2	2-3	1-2	
AMD-K6-PR200	short	open	1-2	2-3	1-2	

(B) JP10, JP11, JP12 CPU operating voltage selection

Note : For the detailed CPU-VCC requirement, please inquire of your CPU supplier.

CPU VCC		JP10	JP11	JP12	Remark
I/O voltage	CORE voltage				
+ 3.52 V		1-2	1-2	1-2	*
+ 3.3 V	+ 2.8 V	2-3	2-3	2-3	**

Remark :

* : For the single-VCC required CPUs. (e.g. Intel P54C, Cyrix 6x86, AMD-K5-xxAB?, AMD-K5-xxAC?, AMD-K5-xxAF? ... etc.)

** : For the dual-VCC required CPUs. (e.g. Intel P55C, Cyrix 6x86L, Cyrix 6x86MX, AMD-K5-xxAH? ,AMD-K5-xxAJ? ,AMD-K6... etc.)

(C) JP9 Clear CMOS switch

Pin # Function

1-2 Normal operation

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

(D) JP13 ROM BIOS selection

<u>Pin #</u>	<u>Function</u>
1-2	for +5V FLASH ROM
2-3	for +12V FLASH ROM

(E) JP2,JP3 DIMM voltage selection

<u>Pin #</u>	<u>Function</u>
1-2	+5V DC
2-3	+3.3V DC (Factory default)

I. AWARD BIOS SETUP

A. 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.

A. MAIN MENU

ROM PCI / ISA BIOS (2A59GXXX)
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

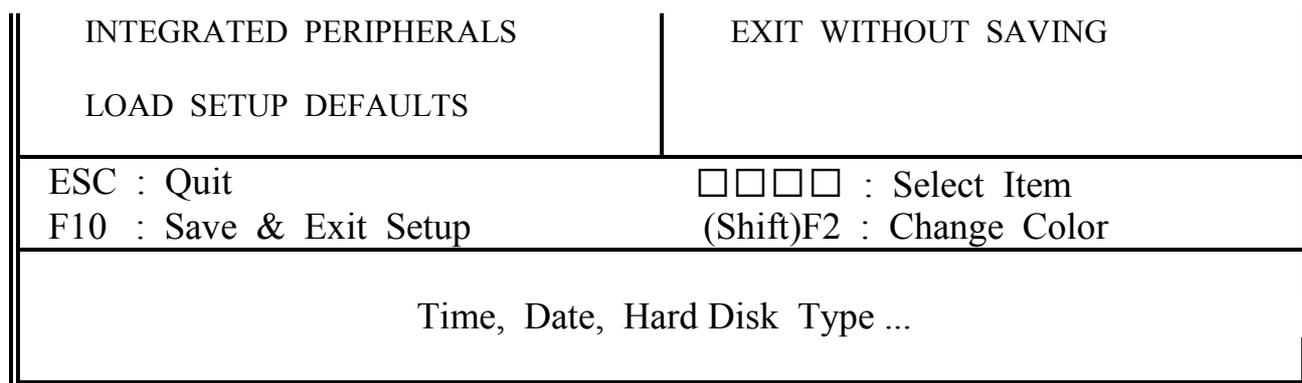


Fig. 5-2 CMOS SETUP MAIN MENU screen.

A. 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.
- F6** : Loads the BIOS default values from BIOS default table, 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.

A. STANDARD CMOS SETUP

ROM PCI / ISA BIOS (2A59GXXX)
STANDARD CMOS SETUP

AWARD SOFTWARE, INC.

Date (mm : dd : yy) : Thu, Feb 27 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.					<table border="1"> <tr> <td>Base Memory :</td> <td>640 K</td> </tr> <tr> <td>Extended Memory :</td> <td>xxxxxx K</td> </tr> <tr> <td>Other Memory :</td> <td>xxxxxx K</td> </tr> <tr> <td><hr/>Total Memory :</td> <td>xxxxxx K</td> </tr> </table>					Base Memory :	640 K	Extended Memory :	xxxxxx K	Other Memory :	xxxxxx K	<hr/> Total Memory :	xxxxxx K
Base Memory :	640 K																
Extended Memory :	xxxxxx K																
Other Memory :	xxxxxx K																
<hr/> Total Memory :	xxxxxx K																
Drive B : None																	
Video : EGA/VGA																	
Halt On : All Errors																	
ESC : Quit			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : 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 specification 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.

A. BIOS FEATURES SETUP

ROM PCI / ISA BIOS (2A59GXXX)

BIOS FEATURES SETUP

AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
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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		
Gate A20 Option	: Fast		
Typematic Rate Setting : Disabled		ESC : Quit <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item	
Typematic Rate (Chars/Sec) : 6		F1 : Help PU/PD/+/- : Modify	
Typematic Delay (Msec) : 250		F5 : Old Values (Shift)F2 : Color	
Security Option	: Setup	F7 : Load Setup Defaults	
PCI/VGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2		
PS/2 mouse function control	: Enabled		

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.

A. CHIPSET FEATURES SETUP

ROM PCI / ISA BIOS (2A59GXXX)
 CHIPSET FEATURES SETUP
 AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	Delayed Transaction	: Disabled
DRAM Timing	: 60 ns		
DRAM RAS# Precharge Time	: 3		
DRAM R/W Leadoff Timing	: 6		
Fast RAS To CAS Delay	: 3		
DRAM Read Burst (EDO/FP)	: x222/x333		
DRAM Write Burst Timing	: x222		
Fast MA to RAS# Delay	: 1		
CLK			
Fast EDO Path Select	: Disabled		
Refresh RAS# Assertion	: 4 Clks		
ISA Bus Clock	: PCICLK/4		
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 1	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
16 Bit I/O Recovery Time	: 1	F1 : Help	PU/PD/+/- : Modify
Memory Hole At 15M-16M	: Disabled	F5 : Old Values (Shift)	F2 : Color
Peer Concurrency	: Enabled	F7 : Load Setup Defaults	
Passive Released	: Enabled		

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.

A. POWER MANAGEMENT SETUP

ROM PCI / ISA BIOS (2A59GXXX)

POWER MANAGEMENT SETUP

AWARD SOFTWARE, INC.

Power Management	: User Define	** Power Down & Resume Events **	
PM Control by APM	: Yes	IRQ 3 (COM 2)	: ON
Video Off Method	: Blank Screen	IRQ 4 (COM 1)	: ON
MODEM Use IRQ	: 3	IRQ 5 (LPT 2)	: ON
		IRQ 6 (Floppy Disk)	: ON
Doze Mode	: Disable	IRQ 7 (LPT 1)	: ON
Standby Mode	: Disable	IRQ 8 (RTC Alarm)	: OFF
Suspend Mode	: Disable	IRQ 9 (IRQ2 Redir)	: ON
HDD Power Down	: Disable	IRQ 10 (Reserved)	: ON
		IRQ 11 (Reserved)	: ON
** Wake Up Events In Doze & Standby **		IRQ 12 (PS/2 Mouse)	: ON
IRQ3 (Wake-Up Event)	: ON	IRQ 13 (Coprocessor)	: ON
IRQ4 (Wake-Up Event)	: ON	IRQ 14 (Hard Disk)	: ON
IRQ8 (Wake-Up Event)	: OFF	IRQ 15 (Reserved)	: OFF
IRQ12 (Wake-Up Event)	: ON		
		ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : 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".

A. PNP/PCI CONFIGURATION

ROM PCI / ISA BIOS (2A59GXXX)

PNP/PCI CONFIGURATION

AWARD SOFTWARE, INC.

Resources Controlled By	: Manual	PCI IRQ Activated By	: Level
Reset Configuration Data	: Disabled	PCI IDE IRQ Map To	: PCI-AUTO
<i>IRQ-3 assigned to</i>	: <i>Legacy ISA</i>	Primary IDE INT#	: A
<i>IRQ-4 assigned to</i>	: <i>Legacy ISA</i>	Secondary IDE INT#	: B
<i>IRQ-5 assigned to</i>	: <i>PCI/ISA PnP</i>	Used MEM base addr	: N/A
<i>IRQ-7 assigned to</i>	: <i>Legacy ISA</i>		
<i>IRQ-9 assigned to</i>	: <i>PCI/ISA PnP</i>		
<i>IRQ-10 assigned to</i>	: <i>PCI/ISA PnP</i>		
<i>IRQ-11 assigned to</i>	: <i>PCI/ISA PnP</i>		
<i>IRQ-12 assigned to</i>	: <i>Legacy ISA</i>		
<i>IRQ-14 assigned to</i>	: <i>Legacy ISA</i>		
<i>IRQ-15 assigned to</i>	: <i>Legacy ISA</i>		
<i>DMA-0 assigned to</i>	: <i>PCI/ISA PnP</i>	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
<i>DMA-1 assigned to</i>	: <i>PCI/ISA PnP</i>	F1 : Help	PU/PD/+/- : Modify
<i>DMA-3 assigned to</i>	: <i>PCI/ISA PnP</i>	F5 : Old Values (Shift)	F2 : Color
<i>DMA-5 assigned to</i>	: <i>PCI/ISA PnP</i>	F7 : Load Setup Defaults	
<i>DMA-6 assigned to</i>	: <i>PCI/ISA PnP</i>		
<i>DMA-7 assigned to</i>	: <i>PCI/ISA PnP</i>		

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 for 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 IRQ Actived By :

This option tells the system board chipset the IRQ signals input is Level or Edge trigger.

PCI IDE IRQ Map To : (for off-board PCI IDE 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#.

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

PCI-SLOT4

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)

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).

A. INTEGRATED PERIPHERALS

ROM PCI / ISA BIOS (2A59GXXX)
 INTEGRATED PERIPHERALS
 AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	Onboard Parallel Port	: 378 / IRQ7
IDE Primary Master PIO	: Auto	Parallel Port Mode	: SPP
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
PCI Slot IDE 2nd Channel	: Enabled		
USB Controller	: Disabled		
Onboard FDD Controller	: Enabled		
Onboard Serial Port 1	: 3F8 / IRQ4		
Onboard Serial Port 2	: 2F8 / IRQ3	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : 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 port (CN 9) transmission mode. Supports either SPP, EPP, ECP or ECP+EPP.

A. 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.

A. 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.

A. 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.

A. HDD LOW LEVEL FORMAT

This option provides an utility program for IDE HDD Low Level Format. Performing the Hard Disk Format will destroy 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 Hard Disk Drive.

A. 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.

A. EXIT WITHOUT SAVING

This option exits 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.