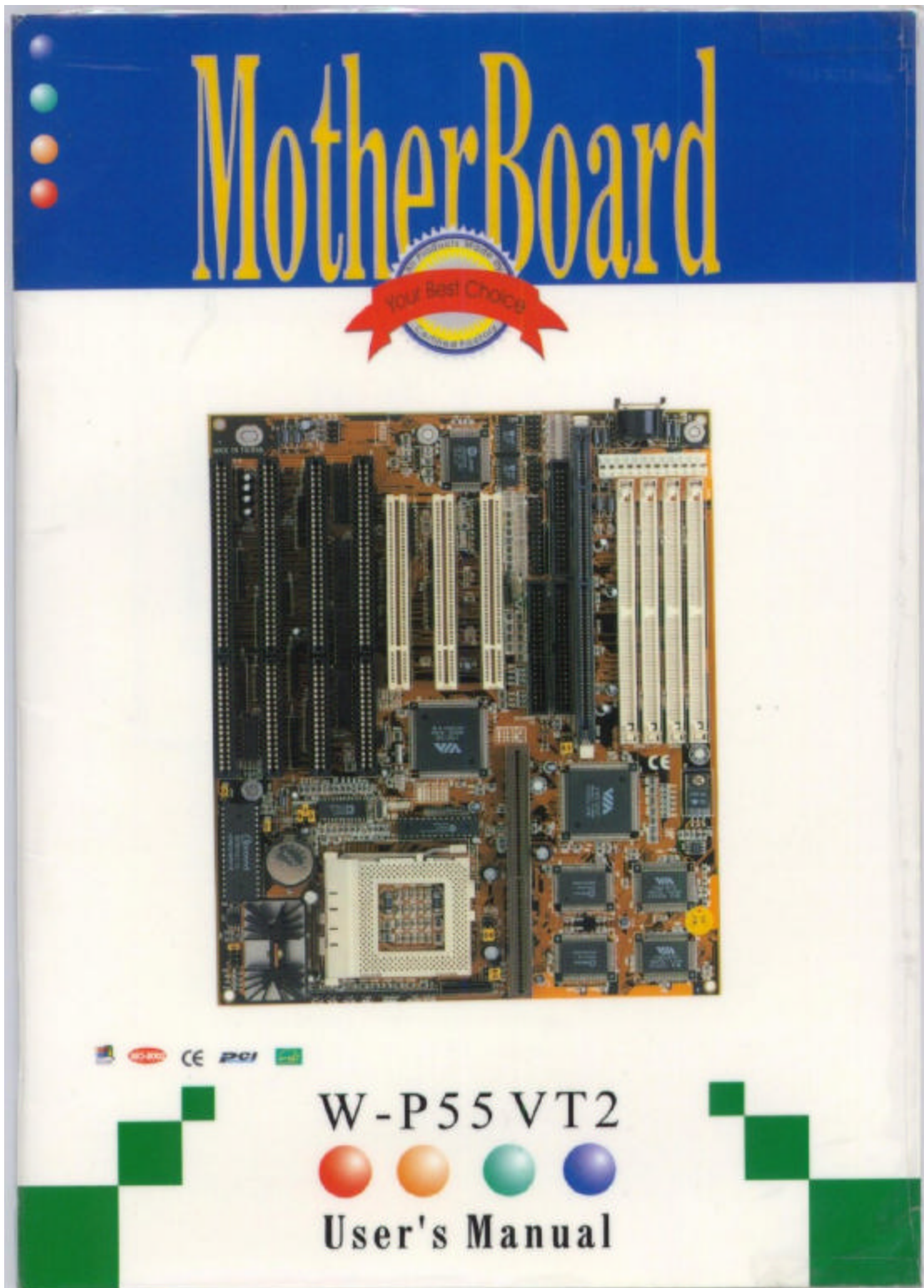


## Winco Wp-55VT2 Manual

Voor de aangebrachte toevoeging in het bestaande handboek van het moederbord WP55VT2 van Winco draag ik, de maker van dit bestand op generlei wijze geen verantwoording. Derhalve zal ik voor eventuele fouten of ontstane schade door gebruik het maken van de gegevens in dit document op geen enkele wijze hoe dan ook vergoeden.



**VT82C580VP PCIset**

**W-P 55 VT2**

**ISA PCI MB**

*with Onboard PCI IDE and Super Multi-I/O.*

url: [HTTP://www.winco.com.tw](http://www.winco.com.tw)

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*The specification is subject to change without notice.*



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# Chapter 1

## Introduction

The W-P55VT2 motherboard is a high performance system hardware based on Intel Pentium® processor and is equipped with three PCI slots, four standard ISA slots, Super Multi-I/O controller and dual ports PCI-IDE connectors for the future expansion. The hardware dimension is 220mm x 260mm with four layer design technology.

### Specification

- VIA VT82C580VP PCIset Chipset, including a CPU interface controller, advance cache controller, integrated DRAM controller, synchronous ISA bus controller, PCI local bus interface, integrated power management unit, internal keyboard controller, real-time clock.
- Intel Pentium® (P54C), Intel Pentium MMX (P55C) CPU speed 75~200 MHz processors in a 321-pin ZIF socket, upgradable to P54C series/P54CT/P55C (option by splitting the voltage regulator) Cyrix 6x86-P120-(100MHz)-6x86-P200-(150MHz) processors and AMD 5k86-P75(75MHz)-5k86-P166(133MHz) processors.
- Supports up to 256MB RAM in three banks using 72 pin SIMM modules of 1,2,3,4,8,16,32,64 or 128 MB with supports for EDO, BEDO or Fast page Mode memory and 168 pin SDRAM configuration.
- Supports Onboard Burst/Pipelined burst synchronous (the COAST 2.0 solution) L2 Write Back Cache. The cache memory combination could be 256KB/512KB (32KB\*32 or 64KB\*32 SRAM respectively). Up to total 1024KB(1MB)
- Support four 16 bits ISA slots, three 32 bits non-sharing PCI slots, and provides two independent high performance PCI IDE interface capable of supporting PIO Mode 3 and Mode 4 devices. The W-P55VT2 supports three PCI Bus Masters and a jumperless PCI INT# control scheme which reduces configuration confusion when plug in PCI I/O controller card(s).
- Integrated UMC UM8669 or SMC669 Multi I/O chipset features two 16550 UART compatible serial port one EPP/ECP capable port, one IR port and one Floppy Disk Drive connector.
- Award BIOS with support for Power Management, Plug & Play, Enhanced IDE features, and MS Windows 95. The BIOS is stored in 128KB Flash ROM form. It provides better upgradeability for the system.
- Supports two Universal Serial Bus connectors for Plug & Play connections for future generation devices



# Chapter 2

## Hardware design

### 2-1 Motherboard Layout

The W-P55VT2 is designed with VIA 82C580VP PCIset chipset which is developed by VIA Corporation to fully support Pentium Processor PCI/ISA system. The VIA 82C580VP PCIset provides increased integration and improved performance designs. The chipset provides an integrated IDE controller with two high performance IDE interfaces for up to four IDE devices (hard devices, CD-ROM device, etc). The UMC UM8669 or SMC 669 Multi I/O controller provides the standard PC I/O function: floppy interface, two 16550 UART compatible serial ports and EPP/ECP capable parallel port. The W-P55VT2 layout is shown in previous page (left page) for user's reference. Care must be taken when inserting memory modules, inserting CPU or even plugging PCI card into associated slots to avoid damaging any circuits or sockets on board. A cooling fan is strongly recommended when installing P54C/P54CTB/P55C/K5/6x86 processor due to possible overheating.

The W-P55VT2 supports minimum of 8MB of System Memory and maximum of 256MB while L2 Cache can be 256KB/512KB synchronous SRAM Onboard with the COAST 2.0 "Cache-On-A-Stick" solution to increase system performance. ( refer to Page 2-5 Cache Memory Configuration for the details.) Up to total of 1024KB (1MB)

The W-P55VT2 supports three memory banks and provides four 72-pins SIMM and one 168-pin DIMM sites for memory expansion. The sockets support 1M x 32 (4MB), 2M x 32(8MB), 4M x 32(16MB), and 8M x 32(32MB) single-sided or double-sided memory modules. The memory timing requires 70 nS Fast page devices or 60 nS EDO, BEDO or Synchronous DRAM. Memory parity generation and checking is not supported. (DRAM Modules may be parity[x 36] or non-parity[x 32].)

The W-P55VT2 supports Onboard two PCI IDE connectors, and detects IDE harddisk type by BIOS utility automatic.

The W-P55VT2 supports Award Plug & Play BIOS for the ISA and PCI cards. The BIOS can be located in Flash ROM. The advantage of having Flash ROM is much easier to replace BIOS code if necessary.

### W-P55VT2 Layout

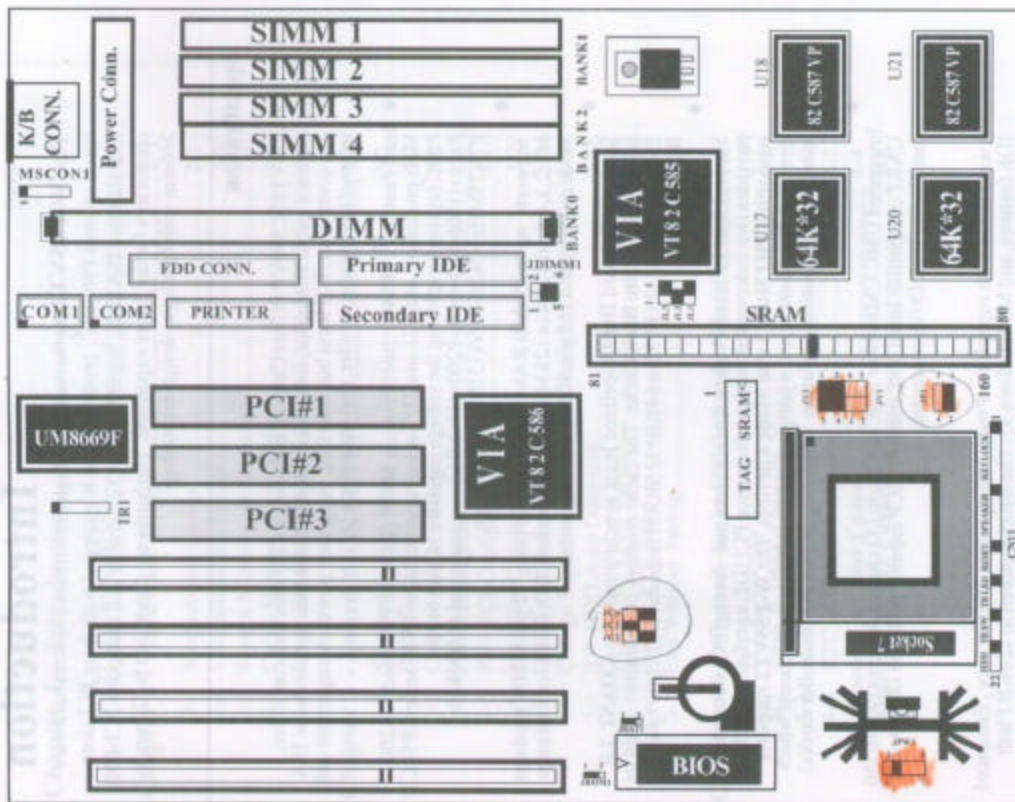
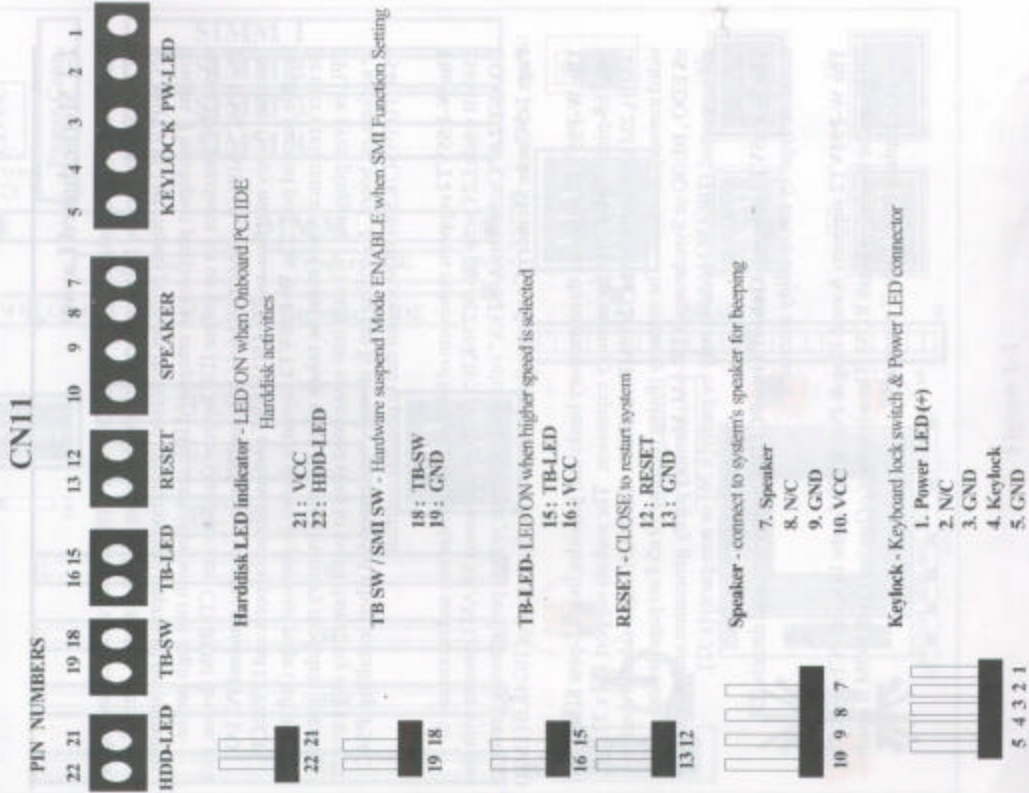


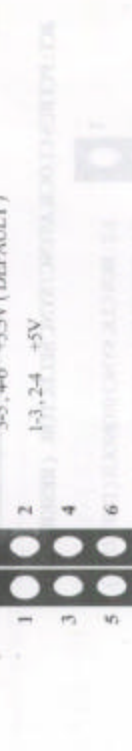
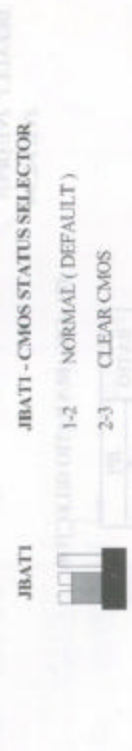
Figure 1-1

### 2-2 Connectors and Jumpers

This section describes all of the connectors and jumpers equipped in the motherboard. Please refer to Figure 1-1 for actual location of each connector and jumper.



Jumper	Function	Default
JPCI1	PCI RESET JUMPER (RESERVED)	
JROM1	BIOS FLASH ROM VOLTAGE REGULATOR	
JBIAT1	BIOS CMOS STATUS SELECTOR	
JDIMM1	SDRAM VOLTAGE SELECTOR	
JPW1	CPU V-CORE VOLTAGE SELECTOR	





CPU VOLTAGE SELECTOR - JPW1, JVI, JV2

DESCRIPTION	CPU VOLTAGE	JPW1	JVI	JV2
3.3V	V-CORE: 3.3V V-I/O: SAME	1-2	1-2,3-4	OPEN
3.52V	V-CORE: 3.52V V-I/O: SAME	3-4	1-2,3-4	OPEN
2.8V	V-CORE: 2.8V V-I/O: 3.3V	5-6	OPEN	1-2,3-4
2.5V	V-CORE: 2.5V V-I/O: 3.3V	7-8	OPEN	1-2,3-4

DEFAULT JVI: OPEN

JV2: 1-2, 3-4

JPI - CPU / BUS RATIO SELECTOR

RATIO	JPI	
	1,2	3,4
1.5X	OFF	OFF
2X	ON	OFF
2.5X	ON	ON
3X	OFF	ON

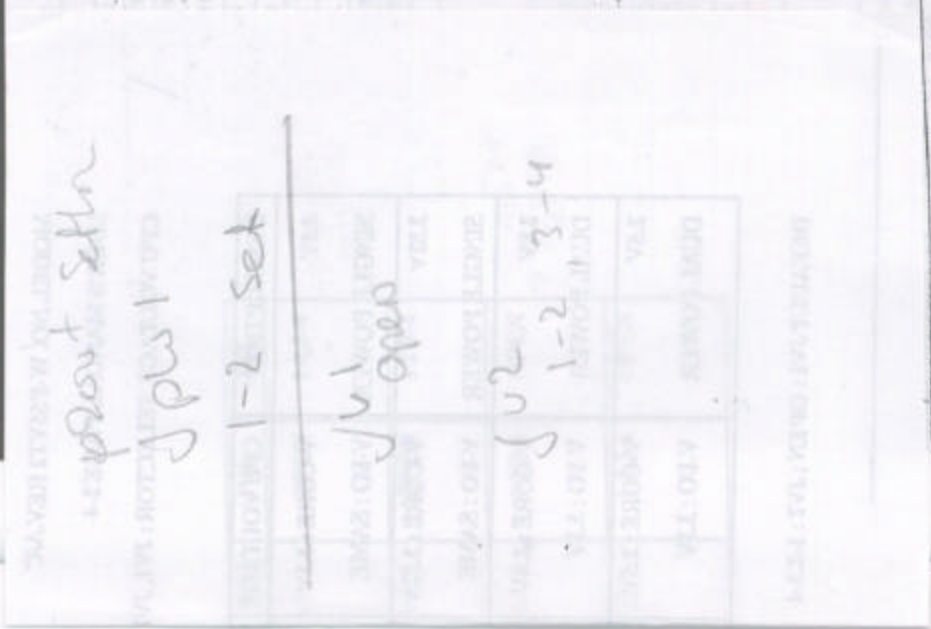
JCI: PCI BUS CLOCK ASYNC / SYNC SELECTOR (RESERVED)



- 1-2: BUS CLK SYNCHRONOUS (DEFAULT)
- 2-3: BUS CLK ASYNCHRONOUS

WARNING

Before you install a Cyrix 6x86 CPU, the CPU cooler model must be approved by Cyrix. Otherwise, your system may overheat. Please refer to your Cyrix CPU dealer for details. Besides the cooler must be installed in a way that air flow from the CPU fan to the regulator heat sink must be strong enough.



CPU CLOCK
50 MHz X 1.5
60 MHz X 1.5
66 MHz X 1.5
60 MHz X 2
66 MHz X 2
60 MHz X 2.5
66 MHz X 2.5
60 MHz X 3
66 MHz X 3

CPU CLOCK
50 MHz X 2
55 MHz X 2
60 MHz X 2
66 MHz X 2
75 MHz X 2
66 X 2.5

CPU CLOCK
50 MHz X 1.5
60 MHz X 1.5
66 MHz X 1.5
66 MHz X 1.5

CPU VOLTAGES

DESCRIPTION	VOLTAGE
3.3V	
3.52V	
2.8V	
2.5V	

DEFAULT JVI: 0

JV2: 1-

JCI: PCI BUS CL

- 1
- 2
- 3

WARNING

Before you install a Cyrix 6x86 CPU, the CPU cooler model must be approved by Cyrix. Otherwise, your system may overheat. Please refer to your Cyrix CPU dealer for details. Besides the cooler must be installed in a way that air flow from the CPU fan to the regulator heat sink must be strong enough.

Pentium CPU Installation

CPU SPEED	JC2	JC3	JC4	JPI		CPU CLOCK
				1-2	3-4	
75 MHz	2-3	2-3	2-3	OFF	OFF	50 MHz X 1.5
90 MHz	1-2	2-3	2-3	OFF	OFF	60 MHz X 1.5
100 MHz	2-3	1-2	2-3	OFF	OFF	66 MHz X 1.5
120 MHz	1-2	2-3	2-3	ON	OFF	60 MHz X 2
133 MHz	2-3	1-2	2-3	ON	OFF	66 MHz X 2
150 MHz	1-2	2-3	2-3	ON	ON	60 MHz X 2.5
166 MHz	2-3	1-2	2-3	ON	ON	66 MHz X 2.5
180 MHz	1-2	2-3	2-3	OFF	ON	60 MHz X 3
200 MHz	2-3	1-2	2-3	OFF	ON	66 MHz X 3

Cyrix CPU (6x86) Installation

CPU SPEED	JC2	JC3	JC4	JPI		CPU CLOCK
				1-2	3-4	
6X86-P120+	2-3	2-3	2-3	ON	OFF	50 MHz X 2
6X86-P133+	2-3	2-3	1-2	ON	OFF	55 MHz X 2
6X86-P150+	1-2	2-3	2-3	ON	OFF	60 MHz X 2
6X86-P166+	2-3	1-2	2-3	ON	OFF	66 MHz X 2
6X86-P200+	1-2	2-3	1-2	ON	OFF	75 MHz X 2
6X2 P233	2-3	1-2	2-3	OFF	ON	66 X 2.5

AMD CPU (K5) Installation

CPU SPEED	JC2	JC3	JC4	JPI		CPU CLOCK
				1-2	3-4	
K5-P75 (75 MHz)	2-3	2-3	2-3	OFF	OFF	50 MHz X 1.5
K5-P90 (90 MHz)	1-2	2-3	2-3	OFF	OFF	60 MHz X 1.5
K5-P100 (100 MHz)	2-3	1-2	2-3	OFF	OFF	66 MHz X 1.5
K5-P133 (100 MHz)	2-3	1-2	2-3	OFF	OFF	66 MHz X 1.5



MODEL NO. W-P55VT2 REV.A/C

USER'S MANUAL PAGE 2-4

CPU VOLTAGE SELECTOR: JVI, JVZ

CPU VOLTAGES

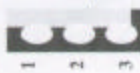
DESCRIPTION	3.3V	3.52V	2.8V	2.5V
		<i>3.52V</i>	<i>2.8V</i>	
			<i>Highload</i>	

DEFAULT JVI: 0  
JVZ: 1

DESCRIPTION	CPU VOLTAGE	JPWI	JVI	JVZ
3.3V	V-CORE: 3.3V	1-2	OPEN	1-2,3-4
SINGLE POWER	V-I/O: SAME			
3.52V	V-CORE: 3.52V	3-4	OPEN	1-2,3-4
SINGLE POWER	V-I/O: SAME			
2.8V	V-CORE: 2.8V	5-6	1-2,3-4	OPEN
DUAL POWER	V-I/O: 3.3V			
2.5V	V-CORE: 2.5V	7-8	1-2,3-4	OPEN
DUAL POWER	V-I/O: 3.3V			

DEFAULT JVI: OPEN; JVZ: 1-2,3-4

JCI: PCI BUS CL



WARNING

Before you install a Cyrix 6x86 CPU, the CPU cooler model must be approved by Cyrix. Otherwise, your system may overheat. Please refer to your Cyrix CPU dealer for details. Besides the cooler must be installed in a way that air flow from the CPU fan to the regulator heat sink must be strong enough.

CPU CLOCK
50 MHz X 1.5
60 MHz X 1.5
66 MHz X 1.5
60 MHz X 2
66 MHz X 2
60 MHz X 2.5
66 MHz X 2.5
60 MHz X 3
66 MHz X 3

CPU CLOCK
50 MHz X 2
55 MHz X 2
60 MHz X 2
66 MHz X 2
75 MHz X 2
<i>66 X 2.5</i>

CPU CLOCK	1-2	2-3	2-3	2-3	OFF	OFF
K5-P90 (90 MHz)	1-2	2-3	2-3	2-3	OFF	OFF
K5-P100 (100 MHz)	2-3	1-2	2-3	2-3	OFF	OFF
K5-P133 (100 MHz)	2-3	1-2	2-3	2-3	OFF	OFF



JL1, JL2, JL3: CACHE SIZE SELECTOR

CACHE SIZE	ON BOARD	MODULE	JL1	JL2	JL3
256KB	256KB	NONE	2-3	2-3	1-2
512 KB	256 KB	256KB	1-2	2-3	1-2
512 KB	512 KB	NONE	1-2	2-3	1-2
1024 KB	512 KB	512KB	1-2	1-2	2-3

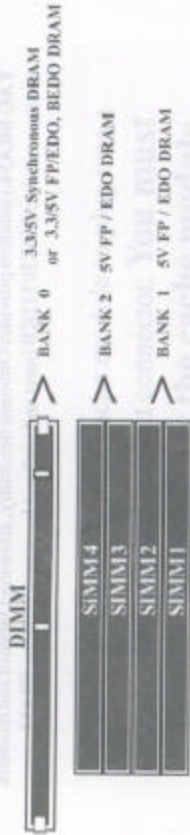
JL4: EXTERNAL CACHE MODE SELECTOR

JL4	OFF	BURST MODE (DEFAULT)
ON	LINEAR BURST MODE	

NOTE: EXTERNAL CACHE LINEAR BURST MODE SETTING WHEN USED CYRIX OR IBM CPU ONLY

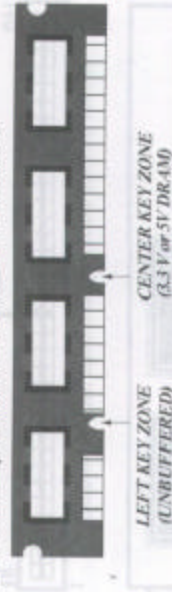
2-3 System Memory Configuration

The W-P55VT2 supports different type of settings for the system memory. There is no jumper nor connector needed for memory configuration. Following figures provides all possible memory combinations.



SIMM1, SIMM2	SIMM3, SIMM4	DIMM(BANK 0)	STATUS
Installed	None	None	OK
None	Installed	None	OK
None	None	Installed	OK
Installed	Installed	None	OK
None	Installed	Installed	OK
Installed	None	Installed	OK
Installed	Installed	Installed	OK

- NOTE : 1. W-P55VT2 supports both Fast Page DRAM and EDO DRAM SIMMs, but they can be mixed in the same memory bank.  
 2. Because the DIMM or (SIMM1+SIMM2) occupies different memory block So they can be installed at the same time.  
 3. DIMM Module Specification : 3.3V or 5V / Unbuffered



The W-P55VT2 supports 168-pin DIMM module to extend system memory size. You can install (3.3V or 5V/UNBUFFERED) Fast Page, EDO, BEDO or Synchronous DRAM.

When you have a DIMM module to plug into a 168-pin dual readout connector, you must make sure that the DIMM module's voltage is correct and supports Intel Pentium® Processor System.

**2-4 Cache Memory Configuration**

The second level (L2) of cache is installed in the motherboard to increase the system performance. The W-P55VT2 supports different type of combinations for the cache installation. The COAST 2.0 (Cache-On-A-Stick). The cache modules has a TAGSRAM.) solution provides Onboard flexibility, allowing Onboard and modules to accommodate 256KB/512KB burst and pipelined burst synchronous SRAM.

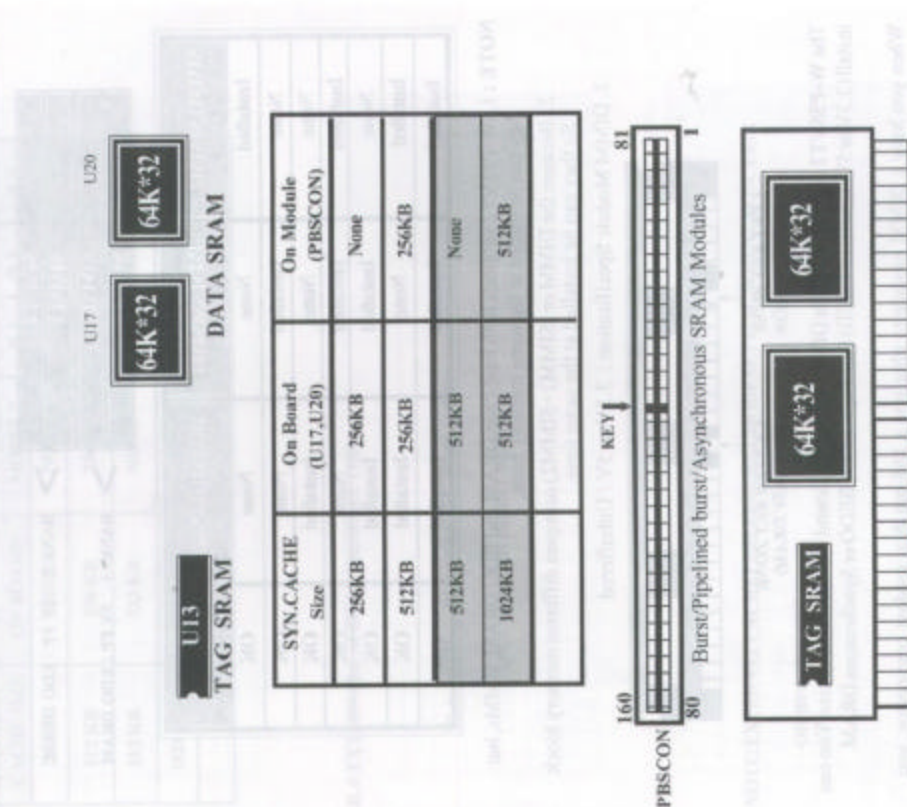


Figure 2-1 COAST MODULE

The W-P55VT2 may have come with an optimal COAST Module (Ref. Figure 2-1) (to extend the onboard cache size from 512KB to 1024KB (When the W-P55VT2 had mounted 512 KB (64K\*32 x 2 synchronous SRAM).

**Note 1:** When you have a cache module to plug into a 160-pin dual readout connector. **You must make sure that the cache module follow the specification of Intel COAST 2.0 or later version.** Please

contact the modules supplier to avoid not working properly or damaging any modules circuits.

**Note 2:** Please be noted that some Synchronous SRAM can not support the **TWO BANK L2 CACHE**. For example, the SEC KM732V588G SRAM from SAMSUNG will not be able to support the **TWO BANK** function.



## 2-5 Integrated PCI Bridge

The **W-P55VT2** utilizes **VIA VT82C580VP PCI chipset** to support Intel Pentium Processor PCI/ISA system. The **VT82C580VP PCI** set chipset consists of the **82C585VP** system controller (TSC), two **82C587VP** Data Path (TDP) devices, and one **82C586** PCI ISA/IDE Accelerator (PIIX3) bridge chip. It provides an interface which translates CPU cycle into PCI bus cycle, and PCI burst read/write capability. In addition, it provides high performance PCI arbiter to support three PCI Masters, Rotating Priority Mechanism, and Hidden Arbitration Scheme. Minimizes Arbitration Overhead.

There are four interrupts in each PCI slot: INTA#, INTB#, INTC#, and INTD#. Since the **W-P55VT2** adapts the PCI auto-configuration with the system BIOS Setup utility. When the system is turned on after adding a PCI add-in card, the BIOS automatically configure interrupts, DMA channels, I/O space, and other parameters. You do not have to configure jumpers or worry potential resource conflicts. Because PCI cards use the same interrupt resource as ISA cards, you must specify the interrupt used by ISA add-in cards in the BIOS Setup utility.

If however, a "Legacy card" (such as plug paddle card and cable into the ISA slot.) is plugged in the system, modification in the **ROM SETUP UTILITY** become necessary. First, enter **PCI CONFIGURATION SETUP** utility from **ROM SETUP UTILITY** main menu to set the "**PCI IDE IRQ MAP TO : ISA**".

Secondly, you must enter **CHIPSET FEATURES SETUP UTILITY** from **ROM SETUP UTILITY** main menu and set the "**Onboard Primary PCI IDE: Disabled** and **Onboard Secondary PCI IDE: Disabled**." When you plug the PCI/ISA IDE card into the system, You should **Disable Onboard Primary and Secondary PCI IDE** from **CHIPSET FEATURES SETUP UTILITY** too.

Some "Legacy card" ( no paddle card and cable.) you can set the system interrupt request (IRQ) on the "Legacy card" (refer to user's manual of the card) to a proper system IRQ level (in general, card's Primary assigned to INTA and Secondary assigned to INTB). If the card is plugged into slot I (marked PCI#1), you can not use second slot (marked PCI#2) because the Secondary INT signal takes INTB from the slot. The user then enter **PCI CONFIGURATION SETUP** utility from **ROM SETUP UTILITY** main menu and set the "**PCI IDE IRQ MAP TO : PCI-Slot1**" (depend on the slot # where the Legacy card is plugged).

# CHAPTER 3

## AWARD BIOS SETUP

Award's ROM BIOS provides a built-in Setup program which allows user to modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS RAM so data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stay unchanged unless there is configuration change in the system, such as hard drive replacement or new equipment change.

It is possible that CMOS had a battery failure which cause data lose in CMOS RAM. If so, re-enter system configuration parameters become necessary.

### To enter Setup Program

Power on the computer and press **<Del>**-key immediately will bring you into BIOS CMOS SETUP UTILITY.

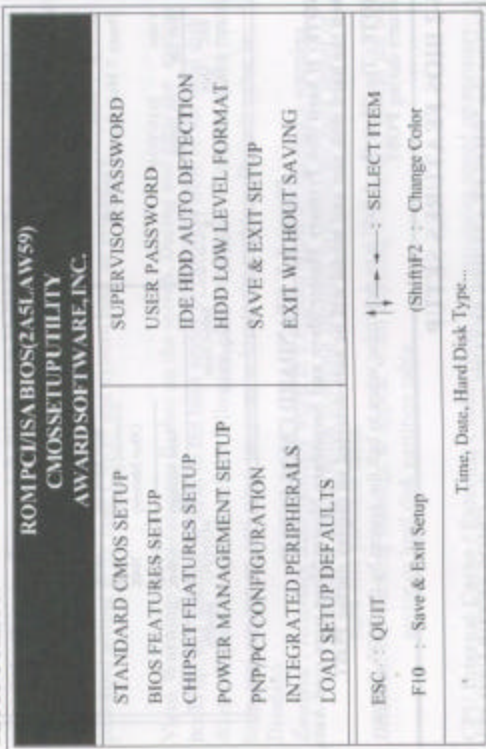


Figure 3-1 CMOS SETUP UTILITY

The menu displays all the major selection items and allow user to select any one of shown item. The selection is made by moving cursor (press any direction key ) to the item and press 'Enter' key. An online help message is displayed at the bottom of the screen as cursor is moving to various items which provides user better understanding of each function. When a selection is made, the menu of selected item will appear so the user can modify associated configuration parameters.



### 3-1 STANDARD CMOS SETUP

Choose "STANDARD CMOS SETUP" in the CMOS SETUP UTILITY Menu (Fig.3-1). The STANDARD CMOS SETUP allows user to configure system setting such as current date and time, type of hard disk drive installed in the system, floppy drive type, and the type of display monitor. Memory size is auto-detected by the BIOS and displayed for your reference. When a field is highlighted (direction keys to move cursor and <Enter> key to select), the entries in the field will be changed by pressing <PgDn> or <PgUp> keys or user can enter new data directly from the keyboard.

ROM: PC1/ISA BIOS(QAS1AW59)  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

Date (mm-dd-yy) : Wed, Dec 25, 1996  
Time (hh:mm:ss) : 14 : 30 : 30

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZONE	SECTORS	MODE
Primary Master	Auto	0	0	0	0	0	0	Auto
Primary Slave	Auto	0	0	0	0	0	0	Auto
Secondary Master	Auto	0	0	0	0	0	0	Auto
Secondary Slave	Auto	0	0	0	0	0	0	Auto

Drive A : 1.44MB, 5.1 in.  
Drive B : None  
Floppy 3 Mode Support : Disable

Video : EGA/VGA  
Halt On : All Errors

Base Memory : 640K  
Expanded Memory : 5368K  
Other Memory : 384K  
Total Memory : 16384K

ESC : Quit  
F1 : Help  
F2 : Change Color  
F7 : Modify  
F10 : Select Item  
(Shift)F2 : Change Color

Figure 3-2. STANDARD CMOS SETUP

**NOTE:** If hard disk Primary Master/Slave and Secondary Master/Slave were used Auto, then the hard disk size and model will be auto-detected on display during POST.

**NOTE:** The "Halt On" field is to determine when to halt the system by the BIOS if error occurs during POST.

### 3-2 BIOS FEATURES SETUP

Selecting the "BIOS FEATURES SETUP" option in the CMOS SETUP UTILITY menu allows user to change system related parameters in the displayed menu. This menu shows all of the manufacturer's default values of W-P55VT2. Again, user can move the cursor by pressing direction keys and <PgDn> or <PgUp> keys to modify the parameters. Pressing [F1] key to display help message of the selected item.

This setup program also provides a convenient way to load the default parameter data from CMOS[F7] area if shown data is corrupted. This provides the system a capability to recover from any possible error.

ROM: PC1/ISA BIOS(2AS1AW59)  
BIOS FEATURES SETUP  
AWARD SOFTWARE, INC.

Video Warning	: Disabled	Video BIOS	: Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF	: Shadow	: Disabled
External Cache	: Enabled	CC000-CDFFF	: 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			
IDE HDD Block Mode	: Enable			
Gate A20 Inverse	: Fast			
Memory Parity Check	: Disabled			
Typematic Rate Setting	: Disabled			
Typematic Rate (Chars/Sec)	: 6			
Type numeric Delay (Msec)	: 250			
Security Option	: Setup			
PCI/VGA Palette Snoop	: Disabled			
OS Select For DRAM > 64MB	: Non-OS2			

ESC : Quit  
F1 : Help  
F5 : Old Values  
F7 : Load Setup Defaults  
F10 : Select Item  
(Shift)F2 : Modify  
(Shift)F2 : Color

Figure 3-3. BIOS FEATURES SETUP

**Note:** The Security Option contains "setup" and "system". The "setup" indicates that the password setting is for CMOS only while the "system" indicates the password setting is for both CMOS and system boot up procedure.

**• Virus Warning:** This category 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 the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem. Default value is Disabled

**Enabled:** Activates 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 / External Cache:** These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is Enable. If your CPU is without Internal Cache then this item "CPU Internal Cache" will not be shown.

**Enabled:** Enable cache.

**Disable:** Disable cache.



- Quick Power On Self Test:** This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.  
*Enabled:* Enable quick POST.  
*Disabled:* Normal POST.
- Boot Sequence:** This category determines which drive computer searches first for the DOS (Disk Operating System). Default value is A,C.  
*A,C:* System will first search for floppy disk drive then hard disk drive.  
*C,A:* System will first search for hard disk drive then floppy disk drive.  
*CDROM,C,A:* System will first search for the CDROM driver (if the CDROM has a bootable CD title.) and second search hard disk driver then floppy disk driver.
- C,CDROM,A:** System will first search for the hard disk driver and second search the CDROM driver (if the CDROM has a bootable CD title.) then floppy disk driver.
- Swap Floppy Drive:** The swap floppy drive. Default value is Disabled.  
*Enabled:* Floppy A & B will be swapped under the DOS.  
*Disabled:* Floppy A & B will be not swap.
- Boot Up Floppy Seek:** During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks. The default value is Enabled.  
*Enabled:* BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks, Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.  
*Disabled:* BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.
- Boot Up NumLock Status:** The default value is On.  
*On:* Keypad is number keys.  
*Off:* Keypad is arrow keys.
- Boot UP System Speed:** It selects the default system speed, that the system will run at immediately after system boot.  
*High:* Set the speed to high.  
*Low:* Set the speed to low.
- Gate A20 Option:** The default value is Fast.  
*Normal:* The A20 signal is controlled by keyboard controller or chipset hardware.  
*Fast:* Default; Fast. The A20 signal is controlled by Port 92 or chipset specific method.
- Typematic Rate Setting:** This determines the typematic rate.  
*Enabled:* Enable typematic rate and typematic delay programming.  
*Disabled:* Disable typematic rate and typematic delay programming. The system BIOS will use default value of this 2 items and the default is controlled by keyboard.
- Typematic Rate(Chars/Sec):**

6 : 6 characters per second.	8 : 8 characters per second.
10: 10 characters per second.	12: 12 characters per second.
15: 15 characters per second.	20: 20 characters per second.
24: 24 characters per second.	30: 30 characters per second.
- Typematic Delay(Msec):** When holding a key, the time between the first and second character displayed.  
 250 : 250msec.  
 500 : 500 msec.  
 750 : 750 msec.  
 1000: 1000 msec.
- Security Option:** This category allows you to limit access to the system and Setup, or just to Setup. The default value is Setup.  
*System:* The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.  
*Setup:* The system will boot; but access to Setup will be denied if the incorrect password is not entered at the prompt.
- PCI/VGA Palette Snoop:** This field controls the ability of a primary PCI VGA controller to share a common palette (When a snoop write cycles) with an ISA video card. The default value is Disabled.  
*Enabled:* If an ISA card connects to a PCI VGA card via the VESA connector and that ISA card connects to VGA monitor and that ISA card uses the RAMDAC of PCI card.  
*Disabled:* Disable the VGA card Palette snoop function.
- Video BIOS Shadow:** It determines whether video BIOS will be copied to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.  
*Enabled:* Video shadow is enabled.  
*Disabled:* Video shadow is disabled.



### 3-4 POWER MANAGEMENT SETUP

Choose the "POWER MANAGEMENT SETUP" in the CMOS SETUP UTILITY to display the following screen. 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.



Figure 3-5 POWER MANAGEMENT SETUP

Again, user can move the cursor by pressing direction keys to the field needed to be modified and press <PgDn> or <PgUp> to alter item selection. You can only change the content of Doze Mode, Standby Mode, and Suspend Mode when the Power Management is set to 'User Define'.

### 3-4-1 The Description of the Power Management

- A. Power Management mode selection :**
  - Disabled :** The system operates in NORMAL conditions (Non-GREEN), and the Power Management function is disabled.
  - Max.saving:** This mode will maximize the power saving capability.
  - Min.saving:** This mode will minimize the power saving capability.
  - User define:** Allow user to define timeout parameters to control power saving timing. Refer to item B shown below.

- C8000 - CBFFF Shadow :
- CC000 - CFFFF Shadow:
- D0000 - D3FFF Shadow:
- D4000 - D7FFF Shadow:
- D8000 - DBFFF Shadow:
- DC000 - DFFFF Shadow:

These categories determine whether optional ROM will be copied to RAM by 16K byte or 32K byte per/unit and the size depends on chipset.  
**Enabled :** Optional shadow is enabled.  
**Disabled:** Optional shadow is disabled.

### 3-3 CHIPSET FEATURES SETUP

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

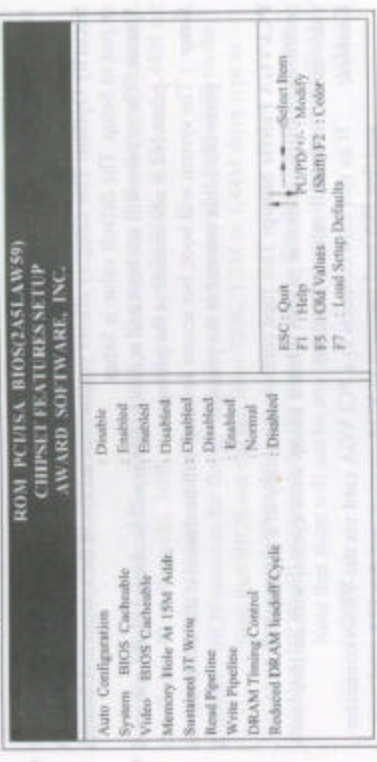


Figure 3-4 CHIPSET FEATURES SETUP

- **Auto Configuration:** This Category allows you to set the DRAM timing. The default value is Disabled. When Enabled this field. You can select the different DRAM's timing that supports by chipset below item.  
**SELECTOR:** 60 ns → DRAM Timing Control = Auto  
 70 ns → DRAM Timing Control = Auto  
 Disable → DRAM Timing Control = Normal  
           → Medium  
           → Fast  
           → Turbo

**Note:** When you insert slower memory modules in the system and set a faster timing. Maybe the system will hang up.



**PM Events:**  
 AWARD BIOS defines 15 PM Events in the power management mode (Doze, standby & suspend). The user can initialize any PM Events to be "Enabled" or "Disable". When the system detects all of the enabled events do not have any activity, it will start the system Doze timer first if the "Power Management" isn't "Disabled". Once the system Doze timer is timed out, it will process doze power saving procedure by starting the system standby timer. When the standby timer run out and all of the "Enabled" events remains silent, the system will enter the standby mode. By now, the system will not only process the standby power saving procedures but also start the system suspend timer. When the suspend timer times out, all of the CPU clock will be stopped by dropping system clock down to zero and remains this way until any one of the "Enabled" event occurs.

### 3-5 PNP/PCI CONFIGURATION

The PNP/PCI configuration program is for the user to modify the PCI/ISA IRQ signals when various PCI/ISA cards are inserted in the PCI or ISA slots.

**WARNING :** Any misplacing IRQ could cause system can't pick out the resources.

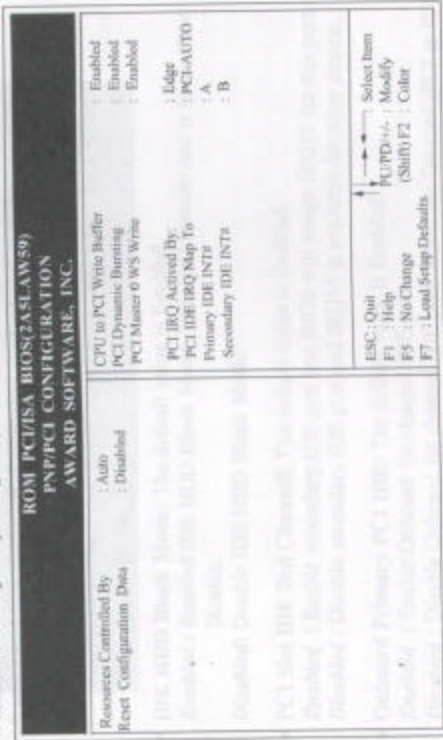


Figure 3-6 PCI CONFIGURATION SETUP

### 3-8 CHAPTER 3

B. Timeout parameters :

#### HDD Standby

HDD Standby timer can be set from 1 to 15 minute(s).

#### System Doze

The "System Doze" mode timer starts to count when there is no "PM events" occurred. The valid timeout setting is from 1 minute up to 1 hour.

#### System Standby

The "Standby" mode timer starts to count when "System Doze" mode timer timed out and no "PM events" occurred. Valid range is from 1 minute up to 1 hour.

#### System Suspend

This function works only when the Pentium<sup>®</sup> Processor is installed. The timer starts to count when "System Standby" mode timer is timed out and no "PM Events" occurred. Valid range is from 1 minute up to 1 hour.

### 3-4-2 Description of the Green Functions

The W-P55V72 supports HDD Power Down, Doze and standby power saving functions when Intel Pentium<sup>®</sup> Processor is installed. In addition, the suspend function is supported when the Suspend jumper be close to enter the green function. The detail description of these functions are provided in next page.

#### HDD Standby Mode

When system stop reading or writing HDD, the timer starts to count. The system will cut off the HDD power when timer runs out of time. The system will not resume operation until either a read from or a write to HDD command is executed again.

#### Doze Mode

The system hardware will drop down CPU clock from normal working speed when Doze mode timeout occurs.

#### Standby Mode

When the system standby mode timer runs out, it will enter the standby mode and retain CPU at slow working speed. The screen will be blanked out.

#### Suspend Mode

When the system suspend timer times out, the system will enter the suspend mode and the chipset will stop CPU clock immediately. The power consumption in Suspend Mode is lower than in standby mode. The screen is also blanked out.

### 3-6 INTEGRATED PERIPHERALS

<b>ROM PCI/ISA BIOS(2ASLAW59)</b> <b>INTEGRATED PERIPHERALS</b> <b>AWARD SOFTWARE, INC.</b>	
OnChip IDE First Channel OnChip IDE Second Channel IDE Prefetch Mode IDE Primary Master PIO IDE Primary Slave PIO IDE Secondary Master PIO IDE Secondary Slave PIO Onboard FDD Controller Onboard Serial Port 1 Onboard Serial Port 2 Infrar Red (IR) Function Onboard Parallel Port Onboard Parallel Mode ECP Mode Use DMA	: Enabled : Enabled : Enabled : Auto : Auto : Auto : Auto : Enabled : Auto : Auto : Disabled : 378/IRQ7 : ECP+EPP : 3
ESC : Quit F1 : Help F5 : No Change F7 : Load Setup Defaults	
← → : Select Item PCUPD+/- : Modify (Shift) F2 : Color	

### 3-10 CHAPTER 3

- **Resource Controlled By:** The default value is Auto. Manual: The field defines that the PNP Card's resource is controlled by manual. You can set which IRQ-X and DMA-X assigned to PCI/ISA PNP or Legacy ISA Cards.
  - Auto:** If your ISA card and PCI card are all PNP cards. To set this field Auto. The BIOS will be assigned the interrupt resource automatically.
  - **Reset Configuration Data:** The default value is Disabled
  - Disabled:** Normal Setting
  - Enabled:** If you had plugged some Legacy cards in the system and there were record into ESCD(Extended System Configuration Data). You can set this field to Enabled and to clear ESCD one time. When some Legacy cards were removed.
  - **PCI IDE IRQ Map To:** The default value is PCI-AUTO
- When you have true PCI card(s) plugged into the system, you will not need to change any thing here in the SETUP program. However, if you do not know whether you have true PCI card or not, please refer to your PCI card user's manual for the details.

When you have a Legacy card (described in section 2-5) to be plugged into the system, a proper setting is extremely important or it may cause the system hang up. The diagram shown below tells you how the Rotating Priority Mechanism is designed.



**Note:** If you don't use the Onboard IDE connector, then use On-card (PCI or ISA card) IDE connector. You will set Onboard Primary PCI IDE; Disabled and Onboard Secondary PCI IDE; Disabled from CHIPSET FEATURES SETUP UTILITY.

The Onboard PCI IDE cable should be equal to or less than 18 inches (45 cm.).

- **IDE HDD Block Mode:** The default value is Enabled.  
**Enabled :** Enabled IDE HDD Block Mode. The HDD transfer rate is better than Disable.  
**Disabled:** Disable IDE HDD Block Mode.
- **PCI Slot IDE 2nd Channel:** The default value is Enabled.  
**Enabled :** Enable secondary IDE port and BIOS will assign IRQ15 for this port.  
**Disabled :** Disable secondary IDE port and IRQ15 is available for other device.
- **Onboard Primary PCI IDE:** The default value is Enabled.  
**Enabled :** Enable Onboard 1st channel IDE port.  
**Disabled :** Disable Onboard 1st channel IDE port. When use On-card (PCI or ISA card) IDE connector.
- **Onboard Secondary PCI IDE:** The default value is Enabled.  
**Enabled :** Enable Onboard 2nd channel IDE port.  
**Disabled :** Disable Onboard 2nd channel IDE port. When use On-card (PCI or ISA card) IDE connector.



- IDE Primary Master PIO:** The default value is Auto.  
 Auto : BIOS will automatically detect the Onboard Primary Master PCI IDE HDD Accessing mode.  
 Mode0-4 : Manually set the IDE Accessing mode.
- IDE Primary Slave PIO:** The default value is Auto.  
 Auto : BIOS will automatically detect the Onboard Primary Slave PCI IDE HDD Accessing mode.  
 Mode0-4 : Manually set the IDE Accessing mode.
- IDE Secondary Master PIO:** The default value is Auto.  
 Auto : BIOS will automatically detect the Onboard Secondary Master PCI IDE HDD Accessing mode.  
 Mode0-4 : Manually set the IDE Accessing mode.
- IDE Secondary Slave PIO:** The default value is Auto.  
 Auto : BIOS will automatically detect the Onboard Secondary Slave PCI IDE HDD Accessing mode.  
 Mode0-4 : Manually set the IDE Accessing mode.
- Onboard FDC Controller:** The default value is Enabled.  
 Enabled : Enable the Onboard SMC CHIP's floppy drive interface controller.  
 Disabled : Disable the Onboard SMC CHIP's floppy drive interface controller.  
 When use On-card ISA FDC's controller.
- Onboard UART 1:** This field allows the user to select the serial port. The default value is 3F8H/IRQ4.  
 COM1: Enable Onboard Serial port 1 and address is 3F8H/IRQ4.  
 COM2: Enable Onboard Serial port 1 and address is 2F8H/IRQ3.  
 COM3: Enable Onboard Serial port 1 and address is 3E8H/IRQ4.  
 COM4: Enable Onboard Serial port 1 and address is 2E8H/IRQ3.  
 Disabled: Disable Onboard SMC CHIP's Serial port 1.
- Onboard UART 2:** This field allows the user to select the serial port. The default value is 2F8H/IRQ3.  
 COM1: Enable Onboard Serial port 2 and address is 3F8H/IRQ4.  
 COM2: Enable Onboard Serial port 2 and address is 2F8H/IRQ3.  
 COM3: Enable Onboard Serial port 2 and address is 3E8H/IRQ4.  
 COM4: Enable Onboard Serial port 2 and address is 2E8H/IRQ3.  
 Disabled: Disable Onboard SMC CHIP's Serial port 2.

- Onboard UART 2 Mode:** The default value is standard. This field allows the User to select the COM2 port that can support a serial Infrared Interface standard: Support a Serial Infrared Interface IrDA.  
 HPSIR: Support a HP Serial Infrared Interface formats.  
 ASKIR: Support a Sharp Serial Infrared Interface formats.

- Onboard Parallel port:** This field allows the user to select the LPT port. The default value is 378H/IRQ7.  
 378H : Enable Onboard LPT port and address is 378H and IRQ7.  
 278H : Enable Onboard LPT port and address is 278H and IRQ5.  
 3BCH : Enable Onboard LPT port and address is 3BCH and IRQ7.  
 Disabled : Disable Onboard SMC CHIP's LPT port.

**NOTE:** Parallel Port address is 378H/3BCH that selects the routing of IRQ7 for LPT1. Parallel Port address is 278H that selects the routing of IRQ5 for LPT1.

- Parallel port Mode:** This field allows the user to select the parallel port mode. The default value is ECP+EPP.  
 Normal : Standard mode. IBM PC/AT Compatible bidirectional parallel port.  
 EPP : Enhanced Parallel Port mode.  
 ECP : Extended Capabilities Port mode.  
 EPP+ECP : ECP Mode & EPP Mode.
- ECP Mode USE DMA:** This field allows the user to select DMA1 or DMA3 for the ECP mode. The default value is DMA3.  
 DMA1 : The filed selects the routing of DMA1 for the ECP mode.  
 DMA3 : The filed selects the routing of DMA3 for the ECP mode.

### 3-7 LOAD SETUP DEFAULTS

The "LOAD SETUP DEFAULTS" 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.

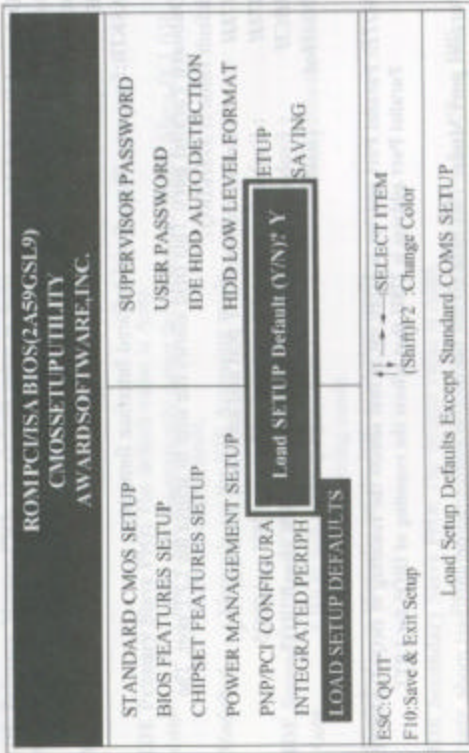


Figure 3-8 LOAD SETUP DEFAULT

### 3-8 CHANGE SUPERVISOR or USER PASSWORD

To change the password, choose the "SUPERVISOR PASSWORD or USER PASSWORD" option from the CMOS SETUP UTILITY menu and press [Enter].

**NOTE:** Either "Setup" or "System" must be selected in the "Security Option" of the BIOS FEATURES SETUP menu (Refer to Figure 3-3 for the details).

1. If CMOS is corrupted or the option was not used, a default password stored in the ROM will be used. The screen will display the following message:

Enter Password:

Press the [Enter] key to continue after proper password is given.

2. If CMOS is corrupted or the option was used earlier and the user wish to change default password, the SETUP UTILITY will display a message and ask for a confirmation.

Confirm Password:

3. After pressing the [Enter] key (ROM password if the option was not used) or current password (user-defined password), the user can change the password and store new one in CMOS RAM. A maximum of 8 characters can be entered.

### 3-9 IDE HDD AUTO DETECTION

The "IDE HDD AUTO DETECTION" utility is a very useful tool especially when you do not know which kind of hard disk type you are using. You can use this utility to detect the correct disk type installed in the system automatically. But now you can set **HARD DISK TYPE** to **Auto** in the **STANDARD CMOS SETUP**. You don't need the "IDE HDD AUTO DETECTION" utility. The BIOS will Auto-detect the hard disk size and model on display during POST.

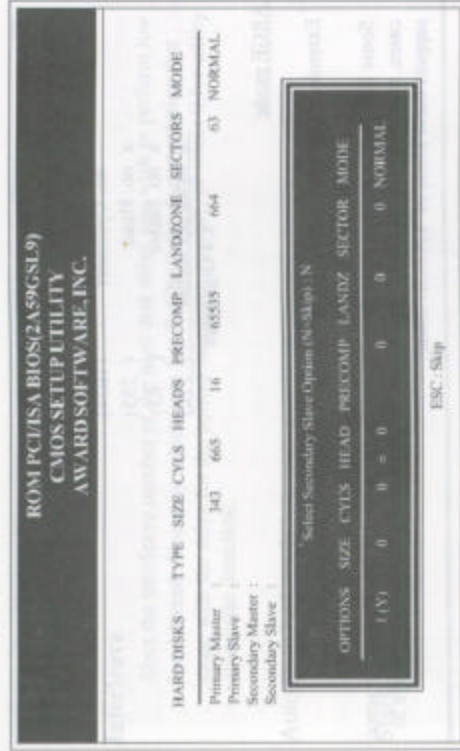


Figure 3-9 IDE HDD AUTO DETECTION

#### NOTE: HDD Modes

The Award BIOS supports 3 HDD modes: NORMAL, LBA & LARGE NORMAL mode

Generic access mode in which neither the BIOS nor the IDE controller will make any transformations during accessing.

The maximum number of cylinders, head & sectors for NORMAL mode are: 1024, 16 & 63.

no. Cylinder	(1024)
x no. Head	( 16)
x no. Sector	( 63)
x no. per sector	( 512)
	528 Megabytes

If user set his HDD to NORMAL mode, the maximum accessible HDD size will be 528 Megabytes even though its physical size may be greater than that!



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LBA (Logical Block Addressing) mode

A new HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders, heads & sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, the IDE controller will transform the logical address described by sector, head & cylinder into its own physical address inside the HDD.

The maximum HDD size supported by LBA mode is 8.4 Gigabytes which is obtained by the following formula:

$$\begin{aligned} & \text{no. Cylinder} && (1024) \\ & \times \text{no. Head} && ( 32) \\ & \times \text{no. Sector} && ( 63) \\ & \underline{\times \text{ bytes per sector}} && ( 512) \\ & && 8.4 \text{ Gigabytes} \end{aligned}$$

LARGE mode

Extended HDD access mode supported by Award Software.

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, user do not want LBA). The Award BIOS provides another alternative to support these kinds of LARGE mode:

CYL.	HEADS	SECTOR	MODE
1120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks DOS (or other OS) that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. Areverse transformation process will be made inside INT 12h in order to access the right HDD address the right HDD address!

Maximum HDD size:

$$\begin{aligned} & \text{no. Cylinder} && (1024) \\ & \times \text{no. Head} && ( 32) \\ & \times \text{no. Sector} && ( 63) \\ & \underline{\times \text{ bytes per sector}} && ( 512) \\ & && 1 \text{ Gigabytes} \end{aligned}$$

Note:

To support LBA or LARGE mode of HDDs, there must be some softwares involved. All these softwares are located in the Award HDD Service Routine (INT 13h). It may be failed to access a HDD with LBA (LARGE) mode selected if you are running under a Operating System which replaces the whole INT 13h. UNIX operating systems do not support either LBA or LARGE and must utilize the Standard mode. UNIX can support drives larger than 528MB.

3-10 HDD LOW LEVEL FORMAT

Interleave

Select the interleave number of the hard disk drive you wish to perform low level format. You may select from 1 to 8. Check the documentation that came with the drive for the correct interleave number, or select 0 for utility automatic detection.

Auto scan bad track

This allows the utility to scan first then format by each track.

Start

Press<Y>to start low level format.

3-11 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.

3-12 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 of the old data in the CMOS will not be destroyed.

# Chapter 4 Technical Information

## 4-1 I/O & MEMORY MAP

### MEMORY MAP

Address Range	Size	Description
[00000-7FFFF]	512K	Conventional memory
[80000-9FBFF]	127K	Extended Conventional memory
[9FC00-9FFFF]	1K	Extended BIOS data area if PS/2 mouse is installed
[A0000-C7FFF]	160K	Available for Hi DOS memory
[C8000-DFFFF]	96K	Available for Hi DOS memory and adapter ROMs
[E0000-EEFFF]	60K	Available for UMB
[EF000-EFFFF]	4K	Video service routine for Monochrome & CGA adaptor
[F0000-F7FFF]	32K	BIOS CMOS setup utility
[F8000-FCFFF]	20K	BIOS runtime service routine (2)
[FD000-FDFFF]	4K	Plug and Play ESCD data area
[FE000-FFFFF]	8K	BIOS runtime service routine (1)

### I/O MAP

[000-01F]	DMA controller(Master)
[020-021]	INTERRUPT CONTROLLER(Master)
[022-023]	CHIPSET control registers. I/O ports.
[040-05F]	TIMER control registers.
[060-06F]	KEYBOARD interface controller.(8042)
[070-07F]	RTC ports & CMOS I/O ports.
[080-09F]	DMA register.
[0A0-0BF]	INTERRUPT controller.(Slave)
[0C0-0DF]	DMA controller.(Slave)
[0E0-0FF]	MATH COPROCESSOR.
[1F0-1F8]	HARD DISK controller.
[278-27F]	PARALLEL port 2.
[280-2BF]	GRAPHICS adapter controller.
[2F8-2FF]	SERIAL port 2.
[360-36F]	NETWORK ports.
[378-37F]	PARALLEL port 1.
[3B0-3BF]	MONOCHROME & PARALLEL port adapter.
[3C0-3CF]	EGA adapter.
[3D0-3DF]	CGA adapter.
[3F0-3F7]	FLOPPY DISK controller.
[3F8-3FF]	SERIAL port 1.

### 4-1-1 I/O & MEMORY MAP

The I/O and memory maps for the PS/2 system are shown in the following tables. The I/O map shows the addresses of the I/O devices and the memory map shows the addresses of the memory devices. The I/O map is divided into two sections: the first section shows the addresses of the I/O devices and the second section shows the addresses of the memory devices. The memory map is divided into two sections: the first section shows the addresses of the memory devices and the second section shows the addresses of the I/O devices.

Address Range	Size	Description
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[F8000-FCFFF]	20K	BIOS runtime service routine (2)
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[FE000-FFFFF]	8K	BIOS runtime service routine (1)

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[2F8-2FF]	SERIAL port 2.
[360-36F]	NETWORK ports.
[378-37F]	PARALLEL port 1.
[3B0-3BF]	MONOCHROME & PARALLEL port adapter.
[3C0-3CF]	EGA adapter.
[3D0-3DF]	CGA adapter.
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[3F8-3FF]	SERIAL port 1.

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### 4-4 RTC & CMOS RAM MAP

RTC & CMOS :	Address	Description
00	00	Seconds.
01	01	Second alarm.
02	02	Minutes.
03	03	Minutes alarm.
04	04	Hours.
05	05	Hours alarm.
06	06	Day of week.
07	07	Day of month.
08	08	Month.
09	09	Year.
0A	0A	Status register A.
0B	0B	Status register B.
0C	0C	Status register C.
0D	0D	Status register D.
0E	0E	Diagnostic status byte.
0F	0F	Shutdown byte.
10	10	FLOPPY DISK drive type byte.
11	11	Reserve.
12	12	HARD DISK type byte.
13	13	Reserve.
14	14	Equipment type.
15	15	Base memory low byte.
16	16	Base memory high byte.
17	17	Extension memory low byte.
18	18	Extension memory high byte.
19-2D	19-2D	Reserve.
2E-2F	2E-2F	Reserve.
30	30	Reserved for extension memory low byte.
31	31	Reserved for extension memory high byte.
32	32	DATE CENTURY byte.
33	33	INFORMATION FLAG.
34-3F	34-3F	Reserve.
40-7F	40-7F	Reserved for CHIPSET SETTING DATA.

### 4-2 TIME & DMA CHANNELS MAP

TIME MAP:	Channel	Description
TIMER Channel 0	0	System timer interrupt.
TIMER Channel 1	1	DRAM REFRESH request.
TIMER Channel 2	2	SPEAKER tone generator.

DMA CHANNELS :	Channel	Description
DMA Channel 0	0	Available.
DMA Channel 1	1	Onboard ECP (Option).
DMA Channel 2	2	FLOPPY DISK (SMC CHIP).
DMA Channel 3	3	Onboard ECP (default).
DMA Channel 4	4	Cascade for DMA controller 1.
DMA Channel 5	5	Available.
DMA Channel 6	6	Available.
DMA Channel 7	7	Available.

### 4-3 INTERRUPT MAP

NMI :	Priority	Description
0	0	Parity check error.

IRQ (H/W) :	IRQ	Description
0	0	System TIMER interrupt from TIMER 0.
1	1	KEYBOARD output buffer full.
2	2	Cascade for IRQ 8-15.
3	3	SERIAL port 2.
4	4	SERIAL port 1.
5	5	PARALLEL port 2.
6	6	FLOPPY DISK (SMC CHIP).
7	7	PARALLEL port 1.
8	8	RTC clock.
9	9	Available.
10	10	Available.
11	11	Available.
12	12	PS/2 Mouse.
13	13	MATH coprocessor.
14	14	Onboard HARD DISK(IDE1) channel.
15	15	Onboard HARD DISK(IDE2) channel.

APPENDIX A: POST CODES

ISA POST codes are typically output to port address 80h.

POST(hex) DESCRIPTION

- 01-02 Reserved.
- C0 Turn off OEM specific cache, shadow.
- 03 1. Initialize EISA registers (EISA BIOS only).  
2. Initialize all the standard devices with default values. Standard devices includes:  
-DMA controller (8237).  
-Programmable Interrupt Controller (8259).  
-Programmable Interval Timer (8254).  
-RTC chip.
- 04 Reserved.
- 05 1. Keyboard Controller Self-Test.  
2. Enable Keyboard Interface.
- 06 Reserved.
- 07 Verifies CMOS's basic R/W functionality.
- C1 Auto-detection of onboard DRAM & Cache.
- C5 Copy the BIOS from ROM into E0000-FFFF shadow RAM so that POST will go faster.
- 08 Test the first 256K DRAM.
- 09 OEM specific cache initialization, (if needed)
- 0A 1. Initialize the first 32 interrupt vectors with corresponding Interrupt handlers. Initialize INT no from 33-120 with Dummy (Supricious) Interrupt Handler.  
2. Issue CPUID instruction to identify CPU type.  
3. Early Power Management initialization. (OEM specific)
- 0B 1. Verify the RTC time is valid or not.  
2. Detect bad battery.  
3. Read CMOS data into BIOS stack area.  
4. PaP initializations including: (PaP BIOS only)  
-Assign CSN to PaP ISA card.  
-Create resource map from ESCD.  
5. Assign IO & Memory for PCI devices. (PCI BIOS only)

POST(hex) DESCRIPTION

- 0C Initialization of the BIOS Data Area. (40:0N - 40:FF)
- 0D 1. Program some of the Chipset's value according to Setup. (Early Setup Value Program)  
2. Measure CPU speed for display & decide the system clock speed.  
3. Video initialization including Monochrome, CGA, EGA, VGA. If no display device found, the speaker will beep.
- 0E 1. Test video RAM. (If Monochrome display device found)  
2. Show messages including:  
-Award Logo, Copyright string, BIOS Data code & Part No.  
-OEM specific sign on messages.  
-Energy Star Logo. (Green BIOS ONLY)  
-CPU brand, type & speed.  
-Test system BIOS checksum. (Non-Compress Version only)
- 0F DMA channel 0 test.
- 10 DMA channel 1 test.
- 11 DMA page registers test.
- 12-13 Reserved.
- 14 Test 8254 Timer 0 Counter 2.
- 15 Test 8259 interrupt mask bits for channel 1.
- 16 Test 8259 interrupt mask bits for channel 2.
- 17 Reserved.
- 19 Test 8259 functionality.
- 1A-1D Reserved.
- 1E IF EISA NVM checksum is good, execute EISA initialization. (EISA BIOS only)
- 1F-29 Reserved.
- 30 Detect Base Memory & Extended Memory Size.
- 31 1. Test Base Memory from 256K to 640K.  
2. Test Extended Memory from 1M to the top of memory.



POST(hex)	DESCRIPTION
32	1. Display the Award Plug & Play BIOS Extension message. (PnP BIOS only) 2. Program all onboard super I/O chips (if any) including COM ports, LPT ports, FDD port ... according to setup value.
33-3B	Reserved.
3C	Set flag to allow users to enter CMOS Setup Utility.
3D	1. Initialize Keyboard. 2. Install PS2 mouse.
3E	Try to turn on Level 2 cache. Note : Some chipset may need to turn on the L2 cache in this stage. But usually, the cache is turn on later in POST 61h.
3F-40	Reserved.
4F	1. Program the rest of the Chipset's value according to Setup. (Later Setup Value Program) 2. If auto-configuration is enabled, programmed the chipset with pre-defined Values.
41	Initialize floppy disk drive controller.
42	Initialize Hard drive controller.
43	If it is a PnP BIOS, initialize serial & parallel ports.
44	Reserved.
45	Initialize math coprocessor.
46-4D	Reserved.
4E	If there is any error detected (such as video, kb...,) show all the error messages on the screen & wait for user to press <F1> key.
4F	1. If password is needed, ask for password. 2. Clear the Energy Star Logo. (Green BIOS only)
50	Write all CMOS values currently in the BIOS stack area back into the CMOS.
51	Reserved.
52	1. Initialize all ISA ROMs. 2. Later PCI initializations. (PCI BIOS only) -assign IRQ to PCI devices. -initialize all PCI ROMs. 3. PnP Initializations. (PnP BIOS only) -assign IO, Memory, IRQ & DMA to PnP ISA devices. -initialize all PnP ISA ROMs. 4. Program shadows RAM according to Setup settings. 5. Program parity according to Setup setting. 6. Power Management Initialization. -Enable/Disable global PM. -APM interface initialization.  1. If it is NOT a PnP BIOS, initialize serial & parallel ports. 2. Initialize time value in BIOS data area by translate the RTC time value into a timer tick value.
53	
60	Setup Virus Protection. (Root Sector Protection) functionality according to Setup setting.
61	1. Try to turn on Level 2 cache. Note : if L2 cache is already turned on in POST 3D, this part will be skipped. 2. Set the boot up speed according to Setup setting. 3. Last chance for Chipset initialization. 4. Last chance for Power Management initialization. (Green BIOS only) 5. Show the system configuration table.
62	1. Setup daylight saving according to Setup value. 2. Program the NUM Lock, typematrix rate & typematrix speed according to Setup setting.
63	1. If there is any changes in the hardware configuration, update the ESCD information. (PnP BIOS only) 2. Clear memory that have been used. 3. Boot system via INT 19H.
FF	System Booting. This means that the BIOS already pass the control right to the operating system.
Unexpected Errors:	
POST(hex)	DESCRIPTION
B0	If interrupt occurs in protected mode.
B1	Unclaimed NMI occurs.

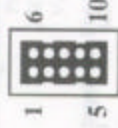
APPENDIX B: I/O CONNECTORS

CN2 : PS/2 MOUSE CONNECTOR:



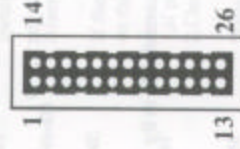
Pin	Signal Name
1	Data
2	No Connection
3	GND
4	VCC
5	Clock

COM1, COM2 : Serial Ports Connector



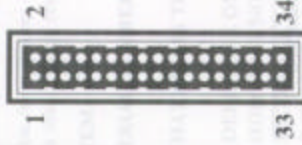
Signal Name	Pin	Pin	Signal Name
DCD	1	6	DSR
SIN	2	7	RTS
SOUT	3	8	CTS
DTR	4	9	RI
GND	5	10	N.C.

CN4 : Parallel Port Connector



Signal Name	Pin	Pin	Signal Name
STROBE-	1	14	AUTO FEED-
Data Bit 0	2	15	ERROR-
Data Bit 1	3	16	INIT-
Data Bit 2	4	17	SLCT IN-
Data Bit 3	5	18	Ground
Data Bit 4	6	19	Ground
Data Bit 5	7	20	Ground
Data Bit 6	8	21	Ground
Data Bit 7	9	22	Ground
ACL-	10	23	Ground
BUSY	11	24	Ground
PE	12	25	Ground
SLCT	13	26	N.C.

FDC : Floppy Disk Connector



Signal Name	Pin	Pin	Signal Name
Ground	1	2	FDHDIN
Ground	3	4	Reserved
Ground	5	6	FDEDIN
Ground	7	8	Index-
Ground	9	10	Motor Enable
Ground	11	12	Drive Select B-
Ground	13	14	Drive Select A-
Ground	15	16	Motor Enable
Ground	17	18	DIR-
Ground	19	20	STEP-
Ground	21	22	Write Data
Ground	23	24	Write Gate
Ground	25	26	Track 00-
Ground	27	28	Write Protect-
Ground	29	30	Read Data-
Ground	31	32	SIDE 1 SELECT-
Ground	33	34	Diskette

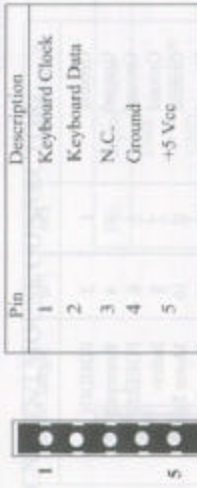
IDE1/IDE2 : Primary, Secondary IDE Connector



Signal Name	Pin	Pin	Signal Name
Reset IDE	1	2	Ground
Host Data 7	3	4	Host Data 8
Host Data 6	5	6	Host Data 9
Host Data 5	7	8	Host Data 10
Host Data 4	9	10	Host Data 11
Host Data 3	11	12	Host Data 12
Host Data 2	13	14	Host Data 13
Host Data 1	15	16	Host Data 14
Host Data 0	17	18	Host Data 15
Ground	19	20	Key
DRQ3	21	22	Ground
I/O Write-	23	24	Ground
I/O Read-	25	26	Ground
IOCHRDY	27	28	BALE
DACK3-	29	30	Ground
IRQ14	31	32	IOCS16-
Addr 1	33	34	Ground
Addr 0	35	36	Addr 2
Chip Select 0-	37	38	Chip Select 1-
Activity	39	40	Ground



**CONNECTORS**  
**CN1 - Keyboard connector**



Pin	Description
1	Keyboard Clock
2	Keyboard Data
3	N.C.
4	Ground
5	+5 Vcc

**CN7 - Power Supply Connector**



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

**WARRANTY FORM:**

This form insures that the product purchase is still under warranty till \_\_\_\_/\_\_\_\_/\_\_\_\_.  
 To insure quick return of repaired items kindly answer some questions below.

ITEM: \_\_\_\_\_

SERIAL NUMBER: \_\_\_\_\_

**WHAT SEEMS TO BE THE PROBLEM?**

- DEFECTIVE ON ARRIVAL
- HDD DOES NOT WORK
- SECONDARY IDE CHANNEL
- KEYBOARD ERROR
- PRINTER DOES NOT WORK
- MEMORY SOCKET BAD
- PCI SLOT BAD
- BIOS BAD
- LOCK UP
- FDD DOES NOT WORK
- PRIMARY IDE CHANNEL
- NO DISPLAY
- MOUSE DOES NOT WORK
- PIPELINE DEFECT
- ISA SLOT BAD
- CPU SOCKET BAD
- CMOS CHECKSUM ERROR
- OTHERS

OTHERS: PLEASE DESCRIBE: \_\_\_\_\_

•• Tear off this form and send back with defective item ••