MAIN BOARD
USER'S MANUAL
(VER:5VP3)

CE
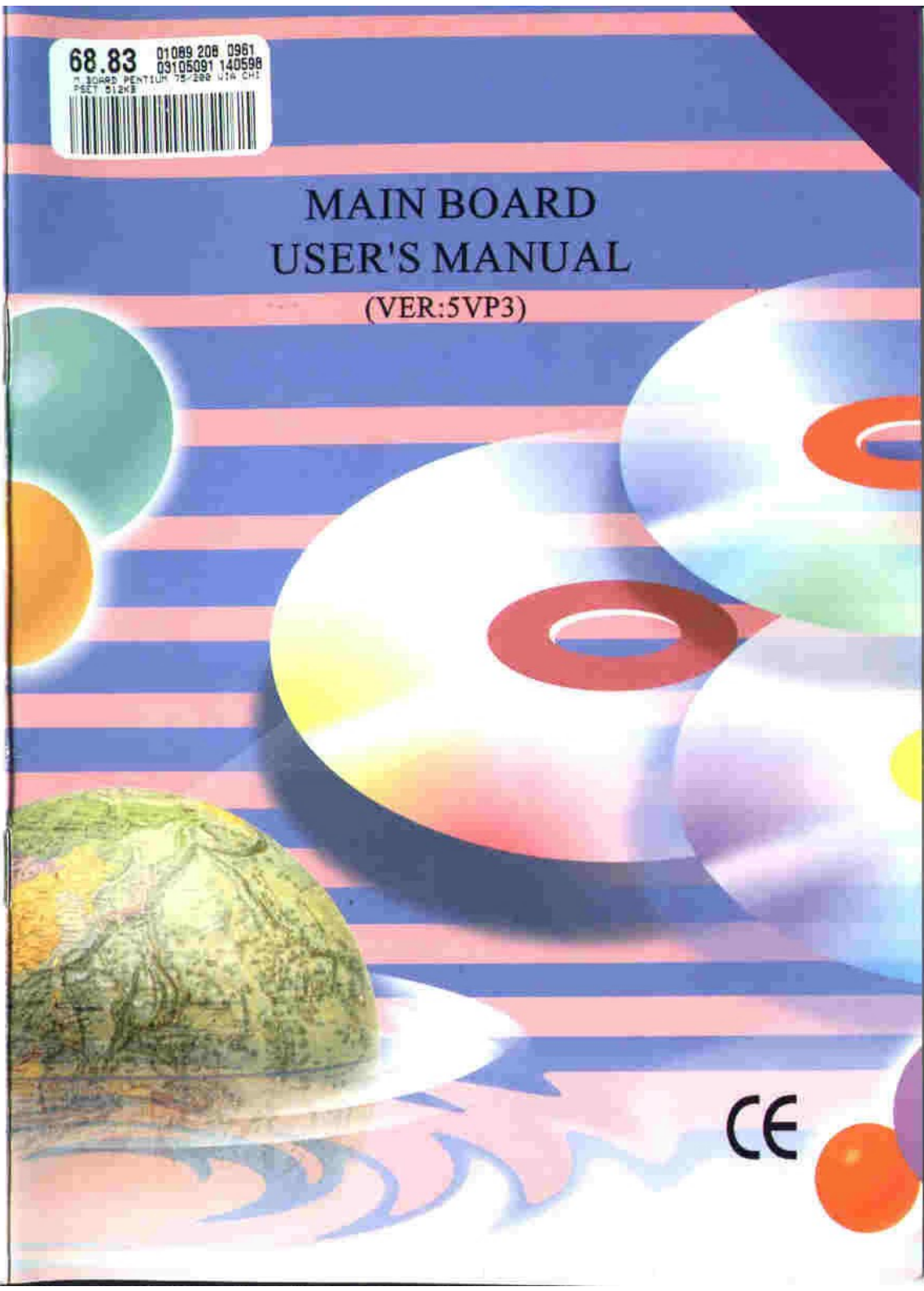
8612056
3MU-5VP300LS-870114

PRINT IN TAIWAN

THIS CD CONTAINS DRIVERS FOR I440LX, I430TX, VIA VP3 MAIN BOARDS, SIS 6326 AND TRIDENT 9850 AGP VGA CARDS. THE DIRECTORIES ARE:

1. **FLASH ROM**: TO UPDATE ANY MAIN BOARD BIOS BY USING AWARD BIOS.

    A. READ "**AWDFLASH. DOC**" FIRSTLY.

    B. MOVE ANY MEMORY MANAGEMENT (EMS) FILES LIKE **EMM 386, HIMEM...**, FROM ROOT DIRECTORY.

    C. EXCUTE "**AWDSLASH. EXE**" UNDER DOS, NOT WIN-95.

2. **I430TX**: DRIVERS FOR ANY I430TX- BASED AT/ATX MAIN BOARD

    A. **BMIDE FILES:** PROVIDE DRIVERS FOR ULTRA DMA (33MB/SEC.) MODE IDE HARD DISK. READ "**README**" FILE FIRSTLY & MOVE ICON TO "SETUP" THEN SYSTEM WILL INSTALL THESE DRIVERS AUTOMATICALLY. FILE "**DEINSTBM**" IS USED FOR RE-INSTALLATION.

    B. "**PIIX4INF**" FILE: WIN-95 DOESN'T SUPPORT TX-CHIP DRIVERS, SO AFTER WIN95 INSTALLATION SYSTEM, IT WILL PROMPT "?" MARKS. THIS FILE IS USED REBOOT SYSTEM TO COMPLETE.

3. **I440LX**: DRIVERS FOR I440LX MAIN BOARDS WITH THE SAME PROCEDURE AS I430TX.

4. **S-6326**: DRIVERS FOR SIS 6326 AGP VGA CARD. PLEASE REFER TO CHAPTER 3, 4, & 5 OF SIS 6326 AGPVGA "MANUAL"

    ***NOTE: "ADI42" & "ET" DIRECTORIES ARE USED FOR CHINESE ET SYSTEM ONLY.**

5. **T-9850**: DRIVERS FOR TRIDENT 9850 AGP VGA CARD. PLEASE REFER TO CHAPTER 3 OF "3D IMAGE 985" MANUAL.

6. **VP3**: DRIVERS FOR ANY VP3-BASED AT/ATX MAIN BOARD.

    A. **586XIRQ**: AFTER INSTALLING THIS DRIVER, USER CAN CHANGE IRQ ADDRESS OF PCI DEVICE.

    B. **IDE FILES:** TO SUPPORT ULTRA DMA (33MB/SEC.), HARD DISK DRIVER. MOVE ICON TO "SETUP" TO INSTALL THIS FILE.

    C. **OSR2VXD**: TO SUPPORT AGP CARDS. SO FAR ONLY TRIDENT 9750 & 9850 ARE NEEDED.

    D. **VIAINF**: TO ELIMINATE "?" MARKS IN WIN-95. USER NEEDS TO USE "**REMOVE**" FUNCTION BAR TO MOVE "**?**" **PCI BRIDGE** LINE FIRSTLY. THEN RUN "**SETUP**" UNDER VIAINF DIRECTORY TO INSTALL THIS FILE.

7. **VPX**: DRIVERS FOR ANY VPX-BASED AT/ATX MOTHER BOARD MAIN BOARD. THE PROCEDURE IS SIMILAR TO VP3 WITHOUT "OSR2VXD" SINCE VPX DOESN'T SUPPORT AGP PORT.

---END---

User's Manual

The information presented in this publication has been carefully checked for reliability. However, no responsibility is assumed for inaccuracies. Specifications are subject to changes without notice.

•TRADEMARKS

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Table of Contents

Chapter 1 Introduction

This VT82C597AT mainboard combines the advanced capabilities of the VIA Apollo VP3 chipset with a high performance concurrent PCI local bus architecture to provide the ideal platform for unleashing the unsurpassed speed and power of the Intel Pentium® processor, Cyrix® 6x86 and AMD® K5/K6 processors, and can be easily upgraded for 321 pin ZIF socket.

The processor's advanced performance is complemented by a second level write back PB-SRAM up to 512KB and main memory up to 512MB RAM. The main memory is initialed using the board's two 72-pin SIMM sockets and two 168-pin DIMM sockets that accept either the new high performance EDO, BEDO, or Fast Page mode DRAM.

VT82C597AT VP3 integrates a full set of I/O features on board, including two 16550 UART compatible serial ports, one EPP/ECP capable port, one floppy disk controller, and one infrared communication controller. One chip built in Enhanced IDE controller provides convenient, speedy PCI bus Master connection capable of four IDE devices, including Hard disk and CD-ROM.

VIA builds all products to exacting standards, using the highest quality components available. We are proud to provide this system board and hope it brings you years of reliable service.

1-1 Main Features

*Supports CPU in a 321 pin ZIF socket: optional by splitting the voltage regulator).
  A. 75-233 MHz Intel Pentium®P54C /P55C CPU optional by splitting the voltage regulator).
  B. Cyrix®6x86/6x86L/6X86MX P120+/133+/150+/166+/200+ processors
  C. AMD® K5/K6 PR75/90/100/133/166/200/233 processors.

*VIA Apollo VP3 chipset includes:
  A. A CPU interface controller
  B. Advanced cache controller
  C. Integrated DRAM controller
  D. Synchronous PCI local bus interface
  E. Integrated power management unit
  F. Internal keyboard controller
  G. Real-time Clock
  H. AGP Controller

*Support on board 512K synchronous PBSRAM.

*Support synchronous DRAM with 168-pin DIMM modules of 8,16, 32, 64MB and 66MHz DDR(Double Data Rate) for SDRAM-II.

*2 DIMM/ 2 SIMM
  Take up to 256MB RAM in one bank, using 72-pin SIMM modules of 1, 2, 4, 8, 16, 32, 64 or 128MB with supports for EDO, BEDO or Fast Page mode memory.

*One AGP Expansion Slot: for AGP v1.0 compliant with 1x or 2x mode up to 133 MHz

*Three 16-bit ISA expansion slots and three 32-bit PCI expansion slots.

*Integrated Enhanced PCI local bus IDE controller with two connectors support four IDE devices , such as Hard disk and CD-ROM.

*Integrated ITE IT8661F/RF multi I/O chipset that offers two 16550 UART compatible serial ports, one EPP/ECP capable port, one IR port, and one Floppy Disk Drive connector.
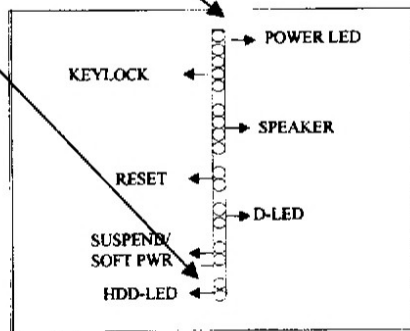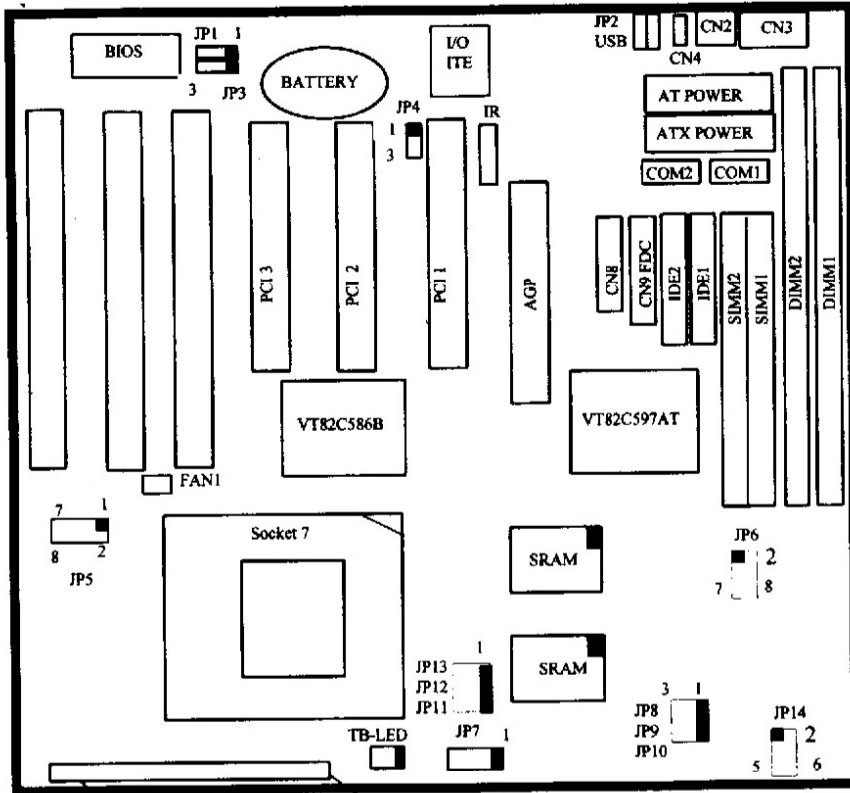
*Supports 128KB Flash ROM

*PCB size : 22.0 x 24.0 cm.

*ATX Power connector (optional)

Chapter 2 Mother Board Specification
2-1 Motherboard Layout

2-2 Jumper Setting

Intel Pentium® Processor Installation

CPU clock	SYS. clock	JP5	JP7	JP8	JP9	JP10	JP11	JP12	JP13	JP14	Ratio
P54C 75 MHZ 3.3V	50 MHZ	1-2, 5-6, 7-8	1-2	2-3	2-3	2-3	1-2	1-2	1-2	OPEN	1.5x
P54C 90 MHZ 3.3V	60 MHZ	1-2, 5-6, 7-8	1-2	2-3	1-2	1-2	1-2	1-2	1-2	OPEN	1.5x
P54C 100 MHZ 3.3V	66 MHZ	1-2, 5-6, 7-8	1-2	2-3	1-2	1-2	1-2	1-2	1-2	OPEN	1.5x
P54C 120 MHZ 3.3V	60 MHZ	1-2, 5-6, 7-8	1-2	2-3	1-2	1-2	2-3	1-2	1-2	OPEN	2x
P54C 133 MHZ 3.3V	66 MHZ	1-2, 5-6, 7-8	1-2	1-2	1-2	1-2	2-3	1-2	1-2	OPEN	2x
P54C 150 MHZ 3.3V	60 MHZ	1-2, 5-6, 7-8	1-2	2-3	1-2	1-2	2-3	2-3	1-2	OPEN	2.5x
P54C 166 MHZ 3.3V	66 MHZ	1-2, 5-6, 7-8	1-2	1-2	1-2	1-2	2-3	2-3	1-2	OPEN	2.5x
P55C 166 MHZ 2.8/3.3V	66 MHZ	7-8	1-2	1-2	1-2	1-2	2-3	2-3	1-2	1-2, 3-4, 5-6	2.5x
P54C 180 MHZ 3.3V	60 MHZ	1-2, 5-6, 7-8	1-2	2-3	1-2	1-2	1-2	2-3	1-2	OPEN	3x
P54C 200 MHZ 3.3V	66 MHZ	1-2, 5-6, 7-8	1-2	1-2	1-2	1-2	1-2	2-3	1-2	OPEN	3x
P55C 200 MHZ 2.8/3.3V	66 MHZ	7-8	1-2	1-2	1-2	1-2	1-2	2-3	1-2	1-2, 3-4, 5-6	3x
*P55C 233 MHZ 2.8/3.3V	66 MHZ	7-8	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2, 3-4, 5-6	3.5x

Cyrix® 6x86 Processor installation

CPU clock	SYS. clock	JP5	JP7	JP8	JP9	JP10	JP11	JP12	JP13	JP14	Ratio
120+ M1 3.52V	50 MHZ	1-2,3-4,5-6,7-8	2-3	2-3	2-3	2-3	2-3	1-2	1-2	open	2x
150+ M1 3.52V	60 MHZ	1-2,3-4,5-6,7-8	2-3	2-3	1-2	1-2	2-3	1-2	1-2	open	2x
166+ M1 3.52V	66 MHZ	1-2,3-4,5-6,7-8	2-3	1-2	1-2	1-2	2-3	1-2	1-2	open	2x
6X86L 150 2.8/3.3V	60 MHZ	7-8	2-3	2-3	1-2	1-2	2-3	1-2	1-2	1-2,3-4, 5-6	2x
6X86L 166 2.8/3.3V	66 MHZ	7-8	2-3	1-2	1-2	1-2	2-3	1-2	1-2	1-2,3-4, 5-6	2x
6X86L 200 2.8/3.3V	75 MHZ	7-8	2-3	1-2	2-3	1-2	2-3	1-2	1-2	1-2,3-4, 5-6	2x
6X86MX 166 2.9/3.3V	66 MHZ	1-2,7-8	2-3	1-2	1-2	1-2	2-3	1-2	1-2	1-2,3-4, 5-6	2x
6X86MX 200 2.9/3.3V	75 MHZ	1-2,7-8	2-3	1-2	2-3	1-2	2-3	1-2	1-2	1-2,3-4, 5-6	2x

AMD® K5/K6 Processor installation

CPU Clock	SYS.Clock	JP5	JP7	JP8	JP9	JP10	JP11	JP12	JP13	JP14	Ratio
K5-PR75 3.52V	50 MHZ	1-2,3-4,5-6,7-8	1-2	2-3	2-3	2-3	1-2	1-2	1-2	open	1.5x
K5-PR90/PR120 3.52V	60 MHZ	1-2,3-4,5-6,7-8	1-2	2-3	1-2	1-2	1-2	1-2	1-2	open	1.5x
K5-PR100/PR133 3.52V	66 MHZ	1-2,3-4,5-6,7-8	1-2	1-2	1-2	1-2	1-2	1-2	1-2	open	1.5x
K5-PR166 3.52V	66 MHZ	1-2,3-4,5-6,7-8	1-2	1-2	1-2	1-2	2-3	2-3	1-2	open	2.5x
K6-PR166 2.9/3.3V	66 MHz	1-2,7-8	1-2	1-2	1-2	1-2	2-3	2-3	1-2	1-2,3-4, 5-6	2.5x
K6-PR200 2.9/3.3V	66 MHZ	1-2,7-8	1-2	1-2	1-2	1-2	1-2	2-3	1-2	1-2,3-4, 5-6	3x
K6-PR233 3.2/3.3V	66 MHZ	5-6,7-8	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2,3-4, 5-6	3.5x
K6-PR233 3.3/3.3V	66 MHZ	1-2, 5-6, 7-8	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2, 3-4, 5-6	3.5x

Explanation:
JP8 - JP10 - CPU Speed Selector

Jumper	50MHZ	60MHZ	66MHZ	75MHZ
JP8	2-3	2-3	1-2	1-2
JP9	2-3	1-2	1-2	2-3
JP10	2-3	1-2	1-2	1-2
PCICLK	25	30	33.3	37.5

JP1 - Flash ROM Voltage Selector

Description	JP1
5V (SST,Winbond)	1-2
12V (Intel,MXIC)	2-3

JP3 - CMOS Selector

Description	JP3
Normal (default)	1-2
Clear CMOS (clear password)	2-3

JP4- Power Selection

1-2	For AT Power
3-4	For ATX Power

JP5 - CPU Voltage Selector

JP5	VCORE
7-8	2.8V
1-2, 7-8	2.9V
5-6, 7-8	3.2V
1-2, 5-6, 7-8	3.3V
1-2, 3-4, 5-6 7-8	3.5V

JP6 - DIMM Voltage Selector

Description	JP6
5V DIMM	1-2, 3-4
3.3V DIMM	5-6, 7-8

JP7 –Cache Function Selector

Description	JP7
Interface Burst for Intel, AMD, CPU	1-2
Linear Burst for Cyrix & IBM CPU	2-3

JP11-JP13 - CPU/BUS Ratio

Ratio	JP11	JP12	JP13
1.5X	1-2	1-2	1-2
2X	2-3	1-2	1-2
2.5X	2-3	2-3	1-2
3X	1-2	2-3	1-2
3.5X	1-2	1-2	1-2

2-3 Connectors

*CN4 – PS/2 Mouse

Pin	Description
1	Mouse Clock
2	Mouse Data
3	N.C.
4	Ground
5	+5V DC

*CN3 - Keyboard Connector

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

*JP2 - USB Connector

*CN5 - AT 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

Note:
IDE1 - Primary IDE Connector
IDE2 - Secondary IDE Connector
CN9 – Floppy Disk Connector
COM1, COM2 - Serial Ports Connector
CN8 - Printer Port Connector

*CN6- ATX Power Supply Connector

Pin	Description	Pin	Description
1	+3.3V DC	11	+3.3V DC
2	+3.3V DC	12	-12V DC
3	Ground	13	Ground
4	+5V DC	14	Soft-Power
5	Ground	15	Ground
6	+5V DC	16	Ground
7	Ground	17	Ground
8	Power Good	18	-5V DC
9	+5V Standby	19	+5V DC
10	+12V DC	20	+5V DC

*CN7 - Infrared Connector : IR

Pin	Signal Name
1	IRRX
2	Ground
3	IRTX
4	+5V DC
5	IRRXH
6	+5V DC
7	Ground

2-4 DRAM Configuration

System memory RAM is comprised of industrial standard 72-pin Single In-line Memory Modules (SIMMs). Burst Extended Data Out (BEDO) and Extended Data Out (EDO) memory are the latest DRAM chip designs that perform a lot better than the Fast Page mode DRAM type. With BEDO and EDO memory, CPU accesses to memory is 10% to 15% faster. The VT82C580VP3 is able to support standard FPM (Fast Page Mode), EDO (Extended Data Out), or BEDO (Burst Extended Data Out); memory can be installed in a variety of cong., as show in the following table:

Total Memory	Bank 0/1 (DIMM1)	Bank 2/3 (DIMM2)	Bank4/5 (SIMM1,SIMM2)
8MB	8MB		
8MB			4MB & 4MB
12MB	8MB	4MB	
16MB	8MB	8MB	
16MB	16MB		
16MB			8MB & 8MB
24MB	16MB	8MB	
32MB	16MB	16MB	
32MB	32MB		
32MB			16MB & 16MB
40MB	32MB	8MB	
48MB	32MB	16MB	
64MB	32MB	32MB	
64MB	64MB		
64MB			32MB & 32MB
72MB	64MB	8MB	
80MB	64MB	16MB	
96MB	64MB	32MB	
128MB	64MB	64MB	
128MB			64MB & 64MB

Chapter 3   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 config. change in the system, such as hardisk driver replacement or changes of new equipment.

It is possible that CMOS has a battery failure which causes data loss in CMOS ram. If so, re-entering system config. parameters becomes necessary.

TO ENTER SETUP PROGRAM

Power on the computer and press <Del> key immediately, which brings you into BIOS CMOS SETUP UTILITY.

```
                 ROM PCI/ISA BIOS (2A5LEL19)
                      CMOS SETUP UTILITY
                     AWARD SOFTWARE, INC.
  STANDARD CMOS SETUP        |  INTEGRATED PERIPHERALS
  BIOS FEATURES SETUP        |  SUPERVISOR PASSWORD
  CHIPSET FEATURES SETUP     |  USER PASSWORD
  POWER MANAGEMENT SETUP     |  IDE HDD AUTO DETECTION
  PNP/PCI CONFIGURATION      |  HDD LOW LEVEL FORMAT
  LOAD SETUP DEFAULTS        |  SAVE & EXIT SETUP
                             |  EXIT WITHOUT SAVING
  ESC : Quit                 |  <-> : Select Item
  F10 : Save & Exit Setup    |  (Shift)F2 : Change Color
```

The menu displays all the major selection items and allows user to select any of shown items. The selection is made by moving cursor (press any direction key) to the item and press "enter" key. An on line helps 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. Thus, the user can modify associated configuration parameters.

3-1 Standard CMOS setup

```
                 ROM PCI/ISA BIOS (2A5LEL19)
                     STANDARD CMOS SETUP
                     AWARD SOFTWARE, INC.
  Date (mm:dd:yy) : Wed, Dec 10  1 1997
  Time (hh:mm:ss) : 11: 19: 26
  HARD DISKS      TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  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

  Driver A : 1.44M, 3.5 in
  Driver B : None                    Base Memory     :    640K
  Floppy 3 Mode Support: Disabled    Extended Memory :  64512K
  Video : EGA/VGA                    Other Memory    :    384K
  Halt On : All Errors
                                     Total Memory    :  65536K
  ESC : Quit        ↑↓→← : Select Item      PU/PD/+/- : Modify
  F1 : Help        (shift)F2 : Change Color
```

The Standard CMOS setup screen is displayed as above. System BIOS automatically detects memory size. No changes are necessary since it has a few items for setting. Each item may have one or more option settings. It allows you to change the system Date and Time, IDE hard disk, floppy disk drive types for drive A: and B: boot up video display mode, and POST error handling selection. Use the arrow keys to highlight the item and then use the <Pgup> or <Pgdn> keys to select the value you want in each item.

Hard Disk Configurations

Type :
> Select from "1" to "45" to fill in remaining fields with redefined values of disk drives. Select "User" to fill in the remaining fields. Select "Auto" to detect the HDD type automatically.

Size :
> The hard disk size. The unit is Mega Byte

Cyls :
> The cylinder number of the hard disk

Head :
> The read/write head number of hard disk. The range is from "1" to "16"

Preccomp :
> The cylinder number at which the disk drive changes the written timing

Landz :
> The cylinder number that the disk drive heads (read/write) are seated when The disk drive is parked

Sector :
> The sector number of each track defined on the hard disk. The range is from "1" to "64."

Mode :
> Select "AUTO" to detect the mode type automatically. If your hard disk supports the LBA mode, select "LBA" or "Large". However, if your hard disk cylinder is more than 1024 and does not support the LBA function, you have to set at "Large". Select "Normal" if your hard disk supporting cylinder is below 1024.

3-2 BIOS Features Setup

```
ROM PCI/ISA BIOS (2A5LEL19)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.
```

Virus warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A, C, SCSI	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up Numlock Status	: On		
Gate A20 Option	: Normal		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
IDE Second Channel Control	: Enabled		
PS/2 Mouse Function Control	: Enabled		
PCI/VGA Palette Snoop	: Disabled	ESC : Quit	↑ ↓ → ← : Select Item
OS Select for DRAM>64MB	: Non-OS2	F1 : Help	PU/PD/+/- : Modify
Report No FDD For Win95	: No	F5 : Old Values	(Shift)F2 : Color
		F7 : Load Setup Defaults	

Selecting the "BIOS FEATURE SETUP" option in the CMOS setup utility menu allows user to change system related parameters in the display menu. This menu shows all of the manufacturer's default values of SV-P55V. Again, user can move the cursor by pressing direction keys and <PgDn> or <PgUp> key to modify the parameters. Pressing [F1] key to display help message of the selected item. The setup program also provides 2 convenient ways to load the default parameter data from CMOS [F7] area if shown data is corrupted. This provides the system with a capability to recover from any possible error.

Virus Warning:
When enabled, it assigns the BIOS to monitor the master boot sector and the DOS boot sector of the first hard disk drive. The options are: Enabled, Disabled (Default)

CPU Internal Cache:
When enabled, it improves the system performance. Disable this item when testing or trouble-shooting. The options are: Enabled (Default), Disabled

External Cache:
When enabled, it supports an optional cache SRAM. The options are: Enabled (Default), Disabled.

Quick Power On Self Test:
When enabled, it allows the BIOS to bypass the extensive memory test. The options are : Enabled, Disabled (Default).

Boot Sequence:
Allows the system BIOS to try first to boot the operating system from the selected disk drive. The options are : A, C, SCSI (Default); C, A, SCSI; C, CDROM, A; CDROM, C, A; D, A, SCSI; E, A, SCSI; F, A, SCSI; SCSI, A, C; SCSI, C, A; C only; LS/ZIP, C.

Swap Floppy Drive:
When enabled, it allows you to switch the order in which the operating system accesses the floppy drives during boot up. The options are : Enabled, Disabled (Default)

Boot Up Floppy Seek:
When enabled, it assigns the BIOS to perform floppy diskette drive tests by issuing the time-consuming seek commands. The options are : Enabled (Default), Disabled

Boot Up Numlock Status:
When set to On, it allows the BIOS to automatically enable the Num Lock function when the system boots up. The options are: On (Default), Off.

Port 92H Fast A20G:
When enabled, it allows the A20G bus line signal generated from the chipset 82C586 PC/AT to directly pass to port 92H, instead of the keyboard controller. It will speed up the system performance. The options are fast, Normal (Default).

Typematic Rate Setting:
The term "typematic" means that when a keyboard key is held down, the character is repeatedly entered until the key is released. When this item is enabled, you may change the typematic repeat rate. The options are : Disabled (Default), Enabled

Typematic Rate (Chars/Sec):
It sets the rate of a character repeat when the key is held down. The options are: 6 (Default), 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec):
It sets the delay time before a character is repeated. The options are: 250 (Default), 500, 750, 1000 millisecond.

Security Option:
Allows you to set the security level of the system. The options are : Setup (Default), System.

PCI/VGA Palette Snoop:
When enabled, it allows you to install an enhanced graphics adapter card. If your graphics adapter card does not support the Palette Snoop function, please set at Disable to avoid system malfunction. The options are: Enabled, Disabled (Default).

Video BIOS Shadow:
When enabled, it allows the BIOS to copy the video ROM code of the add-on video cards to the system memory for faster access. The options are : Enabled (Default), Disabled.

C8000-CBFFF to DC000-DFFFF Shadow:

When enabled, it allows the BIOS to copy the BIOS ROM code of the add-on card to system memory for faster access. It may improve the performance of the add-on card. Some add-on cards will not function properly if it's BIOS ROM code is shadowed. To use these options correctly, you need to know the memory address range used by the BIOS ROM of each add-on card. The options are: Enabled, Disabled (Default).

3-3 Chipset Features Setup

```
                    ROM PCI/ISA BIOS (2A5LEL19)
                      CHIPSET FEATURES SETUP
                      AWARD SOFTWARE, INC.
Bank 0/1 DRAM Timing    : 70 ns        On Chip USB:  Disabled
Bank 2/3 DRAM Timing    : 70ns
Bank 4/5 DRAM Timing    : 70ns
SDRAM Cycle Length      : 2
SDRAM Bank Interleave   : 2 Bank
DRAM Read Pipeline      : Enabled
CacheSustained 3T write : Enabled
Cache Rd+CPU Wt Pipeline : Enabled
Read Around Write       : Enabled
Cache Timing            : Fast

Video BIOS Cacheable    : Enabled
System BIOS Cacheable   : Enaabled
Memory Hole At 15MB Addr. : Disabled
AGP Aperture Size       : 256M         ESC : Quit    ↑ ↓ → ←  : Select item
                                       F1 : Help          PU/PD/+/- : modify
                                       F5 : Old Values    (Shift)F2 : Color
                                       F7 : Load Setup Defaults
```

Video BIOS Cacheable:
When enabled, it allows the system to use the video BIOS codes C0000H-C7FFFH
from cache, instead of the slower DRAMs or ROMs. Video BIOS must be shadowed
first. The options are: Enabled (Default), Disabled.

System BIOS Cacheable:
When enabled, it allows the ROM area E0000H-FFFFFH to be cacheable when cache
controller is activated. The options are: Enabled (Default), Disabled.

Memory Hold At 15MB Addr.:
When enabled, the memory hole at the 15MB address will be relocated to the
15~16MB address range of the ISA cycle when the processor accesses the 15~16MB
address area. When disabled, the memory hole at the 15MB address will be treated as
a DRAM cycle when the processor accesses the 15~16MB address. The options are:
Enabled, Disabled (Default).

Sustained 3T Write:
The cache architecture adopts Write Through. When Write Through is enabled, the
performance is better under most application environment because the VP3 FIFO
queue is deep. The options are: Enabled, Disabled (Default)

Read/Write Pipeline:
Turn on Read/Write Pipeline operation to increase performance.

DRAM Timing Control:
It allows you to speed up the data access of 82C597AT.

For example: DRAM type	60ns	70ns
FP-7		V
EDO-6	V	
EDO-7		V

The options are: Turbo, Fast, Medium, Normal.

3-4 Power Management Setup

```
                    ROM PCI/ISA BIOS (2A5LEL19)
                    POWER MANAGEMENT SETUP
                      AWARD SOFTWARE, INC.
Power Management     : User Defined    Primary INTR        : On
PM Control by APM    : Yes             IRQ3  (COM 2)       : Primary
Video off Option     : Suspend->Off    IRQ4  (COM 1)       : Primary
Video off Method     : V/H SYNC+ Blank IRQ5  (LPT 2)       : Primary
Modem Use IRQ        : 3               IRQ6  (Floppy Disk) : Primary
Soft-Off by PWRBTN   : Instant- Off    IRQ7  (LPt 1)       : Primary
**PM Timers **                         IRQ8  (RTC Alarm)   : Disabled
HDD Power Down       : Disabled        IRQ9  (IRQ2 Redir)  : Secondary
Doze Mode            : Disabled        IRQ10 (Reserved)    : Secondary
Suspend Mode         : Disabled        IRQ11 (Reserved)    : Secondary
    **PM Events**                      IRQ12 (PS/2 Mouse)  : Primary
VGA                  : Off             IRQ13 (Coprocessor) : Primary
LPT & COM            : LPT/COM         IRQ14 (Hard Disk)   : Primary
HDD & FDD            : ON              IRQ15 (Reserved)    : Disabled
DMA/Master           : OFF
Modem Ring Resume    : Disabled        ESC : Quit    ↑ ↓ → ←  : Select Item
RTC Alarm Resume     : Disabled        F1 : Help          PU/PD/+/- : Modify
                                       F5 : Old Values    (Shift) F2 : Color
                                       F7 : Load Setup Defaults
```

Power Management:
When enable, it allows you to use Power Management features.

PM Control by APM:
The option "No" allows the BIOS to ignore the APM (Advanced Power Management)
specification. Selecting "Yes" allows the BIOS to wait for APM's prompt before it
enters Doze mode, Standby mode, or Suspend mode. If APM is installed, it will
prompt BIOS to set the system into the power saving mode after all tasks are done.

Video off Option:
This feature provides the selections of the video display power saving mode. The
option "Suspend -> Off" allows the display blanks if the system enters Suspend mode.
The option "All modes -> Off" allows the video display banks if the system enters
Doze mode or Suspend mode. The option "Always On" allows the video display to
stay in Standby mode even the system enters Doze or Suspend mode.

Video Off Method:
The option "V/H SYNC+ Blank" allows the BIOS to blank off screen display by
turning off the V-Sync signals sent from add-on VGA card. "DPMS Supported"
allows the BIOS to blank off screen display by your add-on VGA card which supports
DPMS. (Display Power Management Signaling function). "Blank Screen" allows the
BIOS to blank screen display by turning off the red-green-blue signals.

Conserve Mode:
When the Doze Mode of the system being happened, the Doze Mode is handled by
hardware not by SMI function.

Modem use IRQ:
When the system is in green function, modem wakes up the system through IRQ.

HDD Power Down:

Selecting "Disabled" will turn off the hard disk drive (HDD) motor.

Selecting "1Min ...15Min" allows you to define the HDD idle time before the HDD enters Power Saving mode. The option "When Suspend" lets the BIOS turn the HDD motor off when the system is in Suspend mode. The options "1Min ... 15Min" and "When Suspend" will not work concurrently. When HDD is in Power Saving Mode, any access to the HDD will wake the HDD up.

Doze Mode:

When disabled, the system will not enter Doze mode. The specified time option define the idle time the system takes before it enters Doze mode.

Suspend Mode:

When disabled, the system will not enter Suspend mode. The specified time option defines the idle time the system takes before it enters Suspend mode.

VGA:

Selecting "ON" will enable the power management timers when a "no activity" events is

detected in the VGA. Selecting "OFF" to disable the PM timer even if a "no activity" event is detected.

LPT & COM:

Selecting "LPT & COM" will enable the power management timers when a "no activity"

event is detected in the LPT and COM ports. Selecting "LPT" ("COM") will enable the power management timers when a "no activity" event is detected in the LPT (COM) ports.

Selecting "NONE" to disable the PM timer even if a "no activity" event is detected.

HDD & FDD:

Selecting "ON" will enable the power management timers when a "no activity" event is detected in the hard disk drive and floppy disk drive. Selecting "OFF" to disable the PM timer event if a "no activity" event is detected.

DMA/master:

When the master is working, the system will not have SMI signal until the master is finished.

Primary INTR:

When enabled, you can choose any IRQ#.

IRQ#:

When set at "Primary" the processor will power down only after the BIOS detects a "no IRQ activity" during the time specified by the Suspend time. If set at "Secondary event"

the system will distinguish whether an interrupt accesses an I/O address or not. If it does, the system enters the standby mode. If not, the system enters the dreaming mode; that is the system goes back full-on status but leaves the monitor blank. For instance, if the system connects to a LAN and receives an interrupt from its file server, the system will enter the dreaming mode to execute the corresponding calling routine.

3-5 PNP/PCI Configuration

ROM PCI/ISA BIOS (2A5LEL19) PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.	
PNP OS Installed : No	CPU to PCI Write Buffer : Enabled
Resources Controlled By : Manual	PCI Dynamic Bursting : Enabled
Reset Configuration Data : Disabled	PCI Master 0 WS Write : Enabled
ACPI I/O Device Node : Disabled	PCI Delay Transaction :Enabled
IRQ-3 assigned to : Legacy ISA	PCI Master Read Prefetch : Enabled
IRQ-4 assigned to : Legacy ISA	PCI#2 Access #1 Retry : Disabled
IRQ-5 assigned to : PCI/ISA PnP	AGP Master 1 WS Write : Enabled
Q-7 assigned to : Legacy ISA	AGP Master 1 WS Read : Disabled
IRQ-9 assigned to : PCI/ISA PnP	
IRQ-10 assigned to : PCI/ISA PnP	PCI IRQ Actived By : Level
IRQ-11 assigned to : PCI/ISA PnP	Assign IRQ For USB : Enabled
IRQ-12 assigned to : PCI/ISA PnP	Assign IRQ VGA : Disabled
IRQ-14 assigned to : Legacy ISA	
IRQ-15 assigned to : Legacy ISA	
DMA-0 assigned to : PCI/ISA PnP	
DMA-1 assigned to : PCI/ISA PnP	ESC : Quit ↑↓→← Select Item
DMA-3 assigned to : PCI/ISA PnP	F1 : Help PU/PD/+/- : Modify
DMA-5 assigned to : PCI/ISA PnP	F5 : Old Values (Shift) F2 : Color
DMA-6 assigned to : PCI/ISA PnP	F7 : Load Setup Defaults
DMA-7 assigned to : PCI/ISA PnP	

PCI IRQ Actived By:

If your IDE cards is triggered by edge, set it at "Edge". The options are: Level, Edge (Default).

PCI IDE IRQ Map To:

Set to auto to allow the system BIOS to automatically detect which interrupt is used by the PCI master drive. The options are: PCI-AUTO (Default), PCI-SLOT1, PCI-SLOT2, PCI-SLOT3, PCI-SLOT4, ISA.

CPU to PCI Write Buffer:

When enabled, it allows data and address access to the internal buffer of 82C586B, so the processor can be released from the waiting state. The options are: Enabled (Default), Disabled.

PCI Dynamic Bursting:

When enabled, the PCI controller allows Bursting PCI to transfer if the consecutive PCI cycles come with the address falling in the same 1KB space. This improves the PCI bus through-put. The options are: Enabled (Default), Disabled.

PCI Master 0 WS Write:

When enabled, it allows a zero-wait-state-cycle delay when the PCI master drive writes data into DRAM. The options are: Enabled, Disabled (Default).

3-6 Load Setup Defaults

Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

3-7 Integrated Peripherals

```
                ROM PCI/ISA BIOS (2A5LEL19)
                    INTEGRATED PERIPHEALS
                     AWARD SOFTWARE, INC.
OnChip IDE first channel    : Enabled    Onboard Parallel Port   : 378/IRQ7
OnChip IDE second channel   : Enabled    Parellel Port Mode      : SPP
IDE Prefetch Mode           : Enabled
IDE HDD Block Mode          : Enabled
IDE Primary Master PIO      : Auto
IDE Primary Slave PIO       : Auto
IDE Secondary Master PIO    : Auto
IDE Secondary Slave PIO     : Auto
IDE Primary Master UDMA     : Auto
IDE Primary Slave UDMA      : Auto
IDE Secondary Master UDMA   : Auto
IDE Secondary Slave UDMA    : Auto
                                         ESC : Quit    ↑↓→←  : Select Item
Onboard FDC Controller      : Enable     F1 . Help         PU/PD/+/- : Modify
Onboard Serial Port 1       : 3F8/IRQ4   F5 : Old Values   (Shift)F2 : Color
Onboard Serial Port 2       : 2F8/IRQ3   F7 : Load Setup Default
IR Address Select           : Disable
```

OnChip IDE First Channel:
When enabled, it allows the IDE driver to use the first channel of the primary IDE.

OnChip IDE Second Channel:
When enabled, it allows the IDE drive to use the second channel of the primary IDE.

IDE Prefetch Mode:
When enabled, it allows the system BIOS to utilize the prefetch buffer of the onboard IDE controller to prefetch the next sequential data of the current access.

IDE Primary Slave PIO:
The default value is Auto.
Auto: BIOS will automatically detect the Onboard Primary Slave PCI IDE HDD
        accessing mode.7
Mode 0-4 : 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.
Mode 0-4 : Manually sets the IDE accessing mode.

IDE Primary Master PIO:
The default value is Auto.

IDE Secondary Slave PIO:
The default value is Auto.

Onboard FDC Controller:
The default value is Enabled.

Enabled : Enabled the onboard I/O Chip's floppy drive interface controller.
Disabled : Disabled the onboard I/O Chip's floppy drive interface controller. When use on-
card
        ISA FDC's controller.

Onboard Serial Port 1:
The field allows the user to select the serial port. The default value is AUTO.
COM1: Enable onboard serial port1 and address is COM1/3F8H
COM2: Enable onboard serial port1 and address is COM2/2F8H
COM3: Enable onboard serial port1 and address is COM3/3E8H
COM4: Enable onboard serial port1 and address is COM4/2E8H
Disabled: Disable onboard I/O Chip's Serial port 1.
AUTO : BIOS will automatically detect the Onboard Serial Port.

Onboard Serial Port 2:
The field allows the user to select the serial port. The default value is AUTO.
COM1: Enable onboard serial port1 and address is COM1/3F8H
COM2: Enable onboard serial port1 and address is COM2/2F8H
COM3: Enable onboard serial port1 and address is COM3/3E8H
COM4: Enable onboard serial port1 and address is COM4/2E8H
Disabled: Disable onboard I/O Chip's Serial port 1.
AUTO : BIOS will automatically detect the Onboard Serial Port.

Onboard Parallel Port:
The 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 I/O Chip's LPT port

3-8 Supervisor Password

1. If CMOS is corrupted or the option is 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 is used earlier, but the user wishes 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. Yet, 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.

```
                    ROM PCI/ISA BIOS (2A5LEL19)
                        CMOS SETUP UTILITY
                        AWARD SOFTWARE, INC.
HARD DISK      TYPE  SIZE  CYLS  HEADS  PRECOMP  LANDZONE  SECTORS  MODE
Primary Master        343  665   16     65535    664       63       Normal
Primary Slave
Secondary Master
Secondary Slave
```

Note: HDD modes
The Award BIOS supports 3 HDD modes: Normal, LBA&LARGE.

Normal mode:
Generic access mode either in BIOS or IDE controller will make any transformation during accessing. The maximum number of cylinders, head & sectors for Normal mode are 1024, 16 & 63.

$$\begin{array}{ll}
\text{no.Cyclinder} & (1024) \\
\text{x no.Head} & (16) \\
\text{x no.Sector} & (63) \\
\text{x no.per sector} & (512) \\
\hline
\text{528 Megabytes}
\end{array}$$

If user sets in Normal mode, the maximum accessible HDD size will be 528 Megabyte even though its physical size may be greater than that !

LBA (Logical Block Addressing) mode:
A new HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders, head & sectors shown in setup may not be the number physically contained in the HDD. During HDD accessing, the IDE controller will transform the logic 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:

$$\begin{array}{ll}
\text{no.Cylinder} & (1024) \\
\text{x no.Head} & (255) \\
\text{x no.Sector} & (63) \\
\text{x bytes.per sector} & (512) \\
\hline
\text{8.4 Gigabytes}
\end{array}$$

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 does not want LBA). The Award BIOS provides another alternative to support these kinds of LARGE mode:

CYLS.	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 into 2. At the same time, the number of heads is multiplied by 2. A verse transformation process will be made inside INT 12h in order to access the right HDD addess the right HDD address !

$$\begin{array}{ll}
\text{no.Cylinder} & (1024) \\
\text{x no.Head} & (32) \\
\text{x no.Sector} & (63) \\
\text{x bytes.per sector} & (512) \\
\hline
\text{1 Gigabytes}
\end{array}$$

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 fail to access a HDD with LBA (LARGE) mode selected if you are runninging under a operational system which replaces the whole INT 13h. UNIX operationl systems do not support either or LARGE and must utilize the standard mode. UNIX can support drives larger than 528MB.

3-10 Save & Exit Setup

After you have made changes under Setup, press <ESC> to return to the main menu. Move cursor to "Save and Exit Setup," or press "F10" and then press "Y" to change the CMOS setup. If you dio not change anything, press <ESC> again or move cursor to "Exit Without Saving" and press "Y" to retain the Setup settings. The following message will appear at the center of the screen to allow you to save data to CMOS and exit the setup utility.

SAVE to CMOS and EXIT (Y/N)?

3-11 Exit Without Saving

The **"EXIT WITHOUT SAVING"** option will bring you back to normal boot up procedure without saving any into CMOS RAM. All of the old data in the CMOS will not be destroyed. If you select this feature, the following message will appear at the center of the screen to allow you to exit the setup utility without saving CMOS modifications:

Quit Without Saving(Y/N)?

End

Addendum

PLEASE FIND THE ATTACHED REVISED JUMPER SETTING.

JP4- POWER SELECTION

1-2	FOR AT POWER
2-3	FOR ATX POWER

JP12 & JP13- CPU CLOCK

CPU CLOCK	JP12	JP13
6X86MX233 2.9/3.3V	2-3	1-2

Addendum

PLEASE FIND THE ATTACHED REVISED JP4.

JP4- POWER SELECTION

1-2	FOR AT POWER
2-3	FOR ATX POWER