6P2LX
MAIN BOARD
ATX FORM FACTOR
USER'S MANUAL
(VER. 1.1)

WARNING AND DISCLAIMER
THIS MANUAL IS DESIGNED TO PROVIDE INFORMATION ABOUT THE PENTIUM® II SYSTEM BOARD. EVERY EFFORT HAS BEEN MADE TO MAKE THIS MANUAL AS ACCURATE AS POSSIBLE, BUT NO WARRANTY OR FITNESS IS IMPLIED. ALL THE INFORMATIONS ARE PROVIDED ON AN 'AS IS' BASIS. THE AUTHOR AND HIS CORRESPONDING PUBLISHING COMPANY SHALL HAVE NEITHER LIABILITY NOR RESPONSIBILITY TO ANY PERSON OR ENTITY WITH RESPECT TO ANY LOSS OR DAMAGES ARISING FROM THE INFORMATION CONTAINED IN THIS MANUAL OR FROM THE USE OF THE SYSTEM BOARD THAT ACCOMPANIES IT. INFORMATION CONTAINED IN THIS MANUAL IS SUBJECT TO CHANGE WITHOUT NOTICE. THE MANUFACTURER OF THE SYSTEM BOARD WILL NOT BE HELD RESPONSIBLE FOR TECHNICAL OR EDITORIAL OMISSIONS MADE HEREIN, NOR FOR THE INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ITS FURNISHING, PERFORMANCE, FUNCTIONALITY OR USE. SUBSEQUENT CHANGES TO THIS MANUAL WILL BE INCORPORATED INTO THE NEXT EDITION. WE WELCOME ANY SUGGESTION REGARDING THIS MANUAL OR OUR COMPUTER PRODUCTS.

TRADEMARKS
ALL TRADEMARKS ARE THE PROPERTY OF THEIR RESPECTIVE OWNERS.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

1-1 OVERVIEW :

THE I440 LX MAIN BOARD IS DESIGNED WITH INTEL® 82440LX AGPSET WHICH PROVIDES AN INTEGRATED IDE CONTROLLER WITH TWO HIGH PERFORMANCE IDE INTERFACES FOR UP TO FOUR IDE DEVICES (HARD DEVICES , CD-ROM DEVICES , ETC), AND USB (UNIVERSAL SERIAL BUS) FEATURES ENHANCES THE OVERALL PERFORMANCE ANDE EXTENSION FOR THIS BOARD.

IT SUPPORTS INTEL® PENTIUM® II CPUS FAMILY RUNNING AT 233-333 MHZ SPEED, CPU SUPPORTS INTERNAL 512K L2 CACHE MEMORY IS IDEAL FOR MS-DOS, WINDOWS, WINDOWS95, WINDOWS NT, NOVELL, OS/2, UNIX., SOFTWARES.

THE PERFORMANCE, SPEED AND EXTENSIBILITY OF I440LX MAIN BOARD MAKE IT THE PERFECT CHOICE FOR BUILDING A LAN SERVER, A HIGH-END WORKSTATION OR A MULTI-USER SYSTEM.

1-2 SPECIFICATIONS

CPU : INTEL® PENTIUM® II CPU (66 MHZ FREQUENCY)

A. PROFESSSIONL PC: **KLAMATH**
233-333 MHZ WITH 512K INTERNAL CACHE
B. BASIC PC : **CELERON**
1. MENDOCINO WITH 128K INTERNAL CACHE
2. COVINGTON WITHOUT INTERNAL CACHE

MEMORY : 3 OF 168-PIN SDRAM **DIMM** UP TO 384MB OR 3 OF 168PIN EDO DIMM UP TO 768MB. EDO **CANNOT USE 5V DIMM.**

EXP.SLOT : 3 X ISA, 4 X PCI SLOTS AND 1X A.G.P. SLOT

CHIPSET : INTEL® **I440 LX** CHIPSET
INTEL® 82443LX PCI AND A.G.P CONTROLLER.
INTEL® 82371AB I/O BRIDGE

CACHE SIZE : NONE (CPU INTERNAL L2 CACHE 512K).

BIOS : AWARD® FULL **PNP** (PLUG & PLAY) BIOS.

I/O FUNCTION : ON BOARD 2 X PCI IDE DEVICES , 1 X FDC , 2 X SERIAL PORTS(16550 FAST COM),1X PARALLEL PORT DEVICE /EPP/ECP, USB CONNECTOR , I.R.(INFRA-RED) CONNECTOR

BOARD SIZE : 30.5 CM X 19 CM.

GREEN FUNCTION : COMPLIED WITH **APM** (**A**DVANCED **P**OWER **M**ANAGEMENT)**.**

SPECIAL FUNCTION LM78 SUPPORTS HARDWARE MONITORING IS OPTIONAL.

1-3 UNPACKING

THE MAIN BOARD PACKAGE CONTAINS:
* I440LX MAIN BOARD
* MANUAL
* CABLES
* DRIVER & UTILITY / CD
* RETENTION MODULES

IF ANY OF THESE ITEMS IS MISSING OR DAMAGED,CONTACT THE DEALER FROM WHOM YOU PURCHASED. LEAVE THE I440LX MAIN BOARD IN ITS ORIGINAL PACKING UNTIL YOU ARE READY TO INSTALL IT.

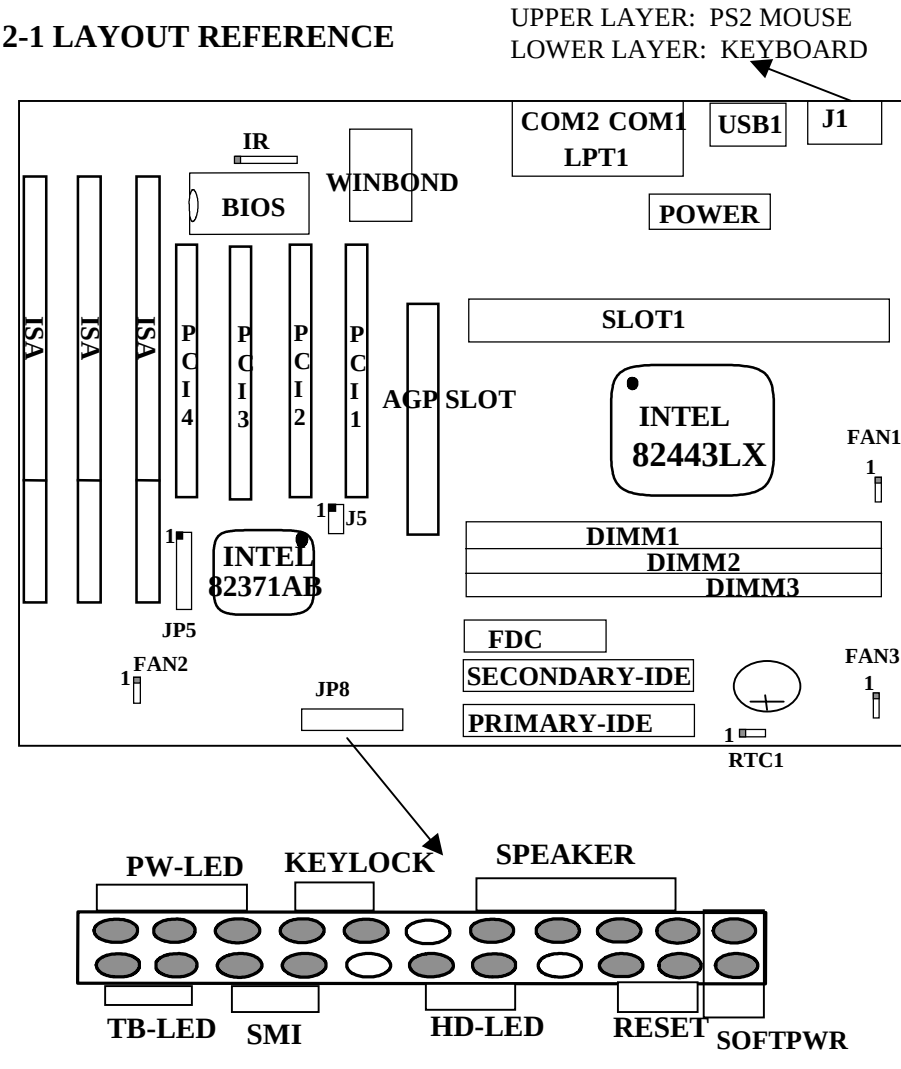
1.4 QUICK REFERENCE FOR CD SOFTWARE DRIVERS

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 **"AWDFLASH. EXE"** UNDER DOS, NOT WIN-95.
2. **I440LX**: DRIVERS FOR ANY I440LX- 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.

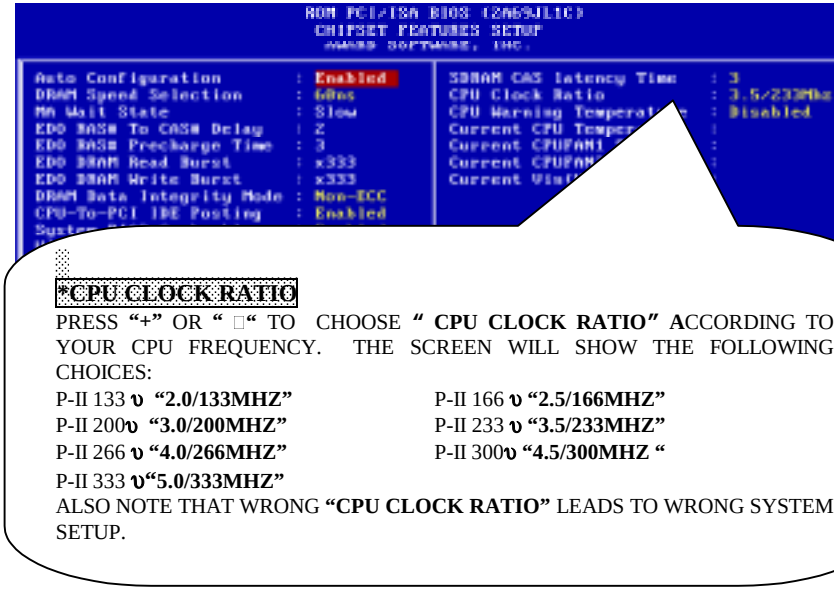
CHAPTER 2. INSTALLATION

2-1 LAYOUT REFERENCE



2-2 JUMPER SETTINGS

1. SINCE THIS IS A JUMPER-FREE VERSION, THE USER ONLY NEEDS TO MODIFY **"CPU CLOCK RATIO"** IN "**3-4 CHIPSET FEATURES SETUP**." FIRST, GO TO "**3-4 CHIPSET FEATURES SETUP"** AND SET PROPER **"CPU CLOCK RATIO."** THEN, GO TO "**3-1 AWARD BIOS SETUP"** AND SAVE THE CHANGE. IT IS NOT NECESSSARY TO SET HARDWARE JUMPERS.



1. **RTC1** : BATTERY SELECTOR

	NORMAL	**CLEAR CMOS**
RTC1	1-2 **(DEFAULT)**	**2-3**

☞ **CUSTOMERS NEED TO CLEAR CMOS, THEN RECONFIGURE IT WHEN FORGET PASSWORD FOR BIOS SETUP.**

3. SOFTPWR : ATX POWER SWITCH

THE SYSTEM POWER IS CONTROLLED BY A MOMENTARY SWITCH (WHEN "POWER SWITCH TYPE" IS SET TO MOMENTARY) CONNECTED TO THIS LEAD. PUSHING THE BUTTON ONCE WILL TURN ON THE SYSTEM AND PUSHING ANOTHER TIME WILL TURN OFF THE SYSTEM. THE SYSTEM POWER LED SHOWS THE STATUS OF THE SYSTEM'S POWER. THIS CONNECTION DOES NOT HAVE A FUNCTION WHEN A STANDARD POWER SUPPLY IS USED.

4. FAN1, FAN2, FAN3 : CPU FAN CONNECTOR

CPU FAN PIN OUT		
PIN1 SENSOR	**PIN2** +12V	**PIN3** GND

5. IR1 : I.R. (INFRARED) CONNECTOR

IR CONNECTOR PIN OUT						
PIN 1	**PIN 2**	**PIN 3**	**PIN 4**	**PIN 5**	**PIN 6**	**PIN 7**
RX	GND	TX	+5V	RXH	VCC	GND

NOTE : IR1 USES THE SAME I/O PORT AS COM2. THERE IS NO ANY HARDWARE JUMPER SETTING FOR IRCON/COM2 ON THIS MAIN BOARD BUT CUSTOMERS NEED TO SET PROPER BIOS SETTING FOR "**IRDA**","**ASKIR**" OR "NORMAL"(DEFAULT) UNDER "INFRA RED (IR) FUNCTION" OF "INTEGRATED PERIPHERALS"

6. OTHER JUMPER SETTINGS AND CONNECTORS :

PRIMARY : PRIMARY IDE CONNECTOR
SECONDARY : SECONDARY IDE CONNECTOR
FDC : FLOPPY DISK CONNECTOR
LPT1 : PARALLEL PORT CONNECTOR.
COM1 : SERIAL PORT 1 CONNECTOR.
COM2 : SERIAL PORT 2 CONNECTOR.
USB1 : USB (UNIVERSAL SERIAL BUS) CONNECTOR
J1 : PS2 MOUSE/KEYBOARD CONNECTOR
J5 : SB-LINK CONNECTOR
JP5 : AUTO CPU SPEED SENSOR
AUTO VOLTAGE SENSOR
AUTO FAN SPEED SENSOR
WITH IC, **"GL518M"** ON BOARD THE SYSTEM CAN DETECT **CPU TEMPERATURE, VOLTAGES AND FAN SPEED. THIS IS AN OPTIONAL FUNCTION.** THE USER MAY CONTACT THE SUPPLIER IF INTERESTED.

2-3 MEMORY CHART

THE MAIN BOARD SUPPORTS 168-PIN DIMMS OF 8MB, 16MB, 32MB, 64MB, 128MB TO FORM A MEMORY SIZE BETWEEN 8MB TO 192MB. PLEASE NOTE THIS MOTHER BOARD CANNOT SUPPORT ANY 5V DIMM. **ONLY 3.3V SDRAM & EDO DRAM ARE ACCEPTABLE. USERS MUST CHECK IT BEFORE INSTALLATION.**

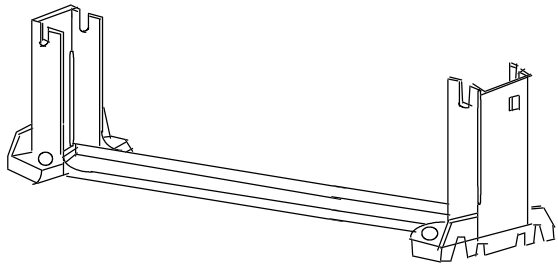
NOTE: THE FOLLOWING CHART IS FOR REFERENCE ONLY. THE USER MAY INSERT DIMM MODULES IN EITHER DIMM1, DIMM 2, OR DIMM3.

TOTAL	DIMM1	DIMM2	DIMM3
8MBYTES	8MB	---	---
16MBYTES	8MB	8MB	---
24MBYTES	8MB	8MB	8MB
32MBYTES	8MB	8MB	16MB
32MBYTES	16MB	16MB	---
32MBYTES	32MB	---	---
40MBYTES	16MB	16MB	8MB
48MBYTES	16MB	16MB	16MB
64MBYTES	64MB	---	---
64MBYTES	32MB	32MB	---
96MBYTES	32MB	32MB	32MB
128MBYTES	64MB	64MB	---
128MBYTES	128MB	---	---
192MBYTES	64MB	64MB	64MB
256MBYTES	128MB	128MB	---
384MBYTES	128MB	128MB	128MB

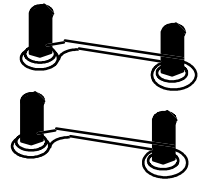
2-4 RM KIT ASSEMBLING PROCEDURE

1. CHECK IF ALL THE FOLLOWING COMPONENTS ARE INCLUDED IN YOUR PACKAGE, TOTALLY 5 SEPERATE PIECEPARTS.

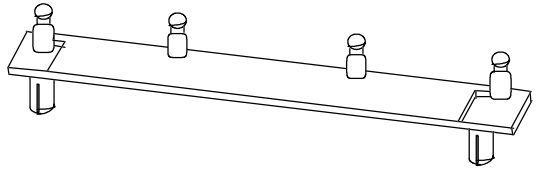
RETENTION MECHANISM (RM): 1 PC



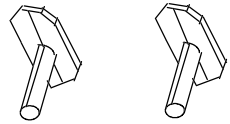
RM ATTACH MOUNT (RMAM): 2 PCS



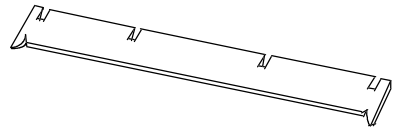
HEAT SINK SUPPORT BASE (HASSBASE): 1 PC



HSS PIN (HSSPIN): 2 PCS



HSS TOP BAR (HSSTOP): 1 PC



2. MAKE SURE THAT THE POWER SUPPLY IS TURNED OFF.

3. INSERT THE RMAM UP THROUGH THE BOTTOM OF THE MOTHERBOARD.

4. INSERT THE 2 PINS OF THE HSSPIN DOWNWARD THROUGH THE MOTHERBOARD TO SECURE. TAKE NOTE THAT THE 2 PINS ARE OF DIFFERENT SIZES. YOU CANNOT INSERT THE LARGER PIN INTO THE SMALLER HOLE.

5. PUT THE RM DOWN ON SLOT ONE AND FASTEN UP THE 4 SCREWS. TAKE NOTE THAT ONE TIP OF THE SLOT ONE HAS A SMALL PROTRUSION, SO YOU CAN ONLY INSERT IT ONE WAY.

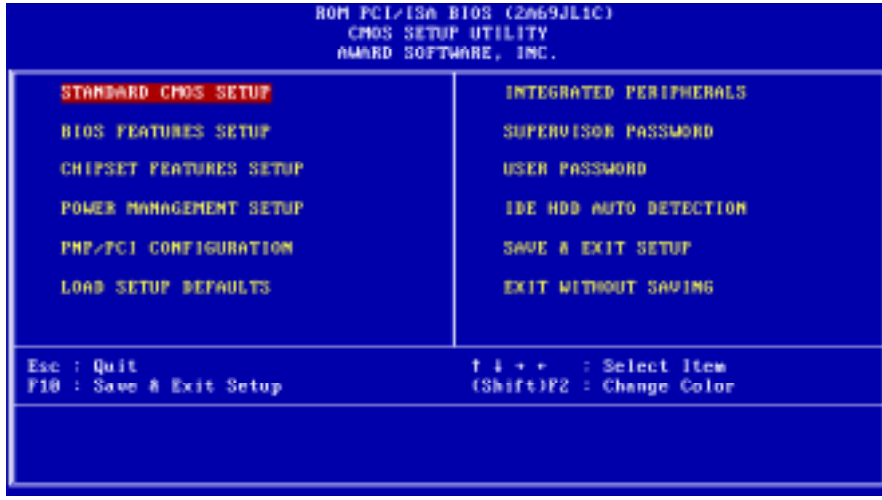
6. CLIP THE HSSTOP INTO THE HSSBASE.

7. INSERT THE P-II CPU ALONG THE RM INTO SLOT ONE TILL ITS TOP CLICKS INTO THE 2 HOLES ON THE TOP OF THE RM.

8. SLIDE THE HSSTOP INTO THE HSSBASE THROUGHT THE FINS ON THE ATX HEATSINK.

CHAPTER 3. BIOS SETUP

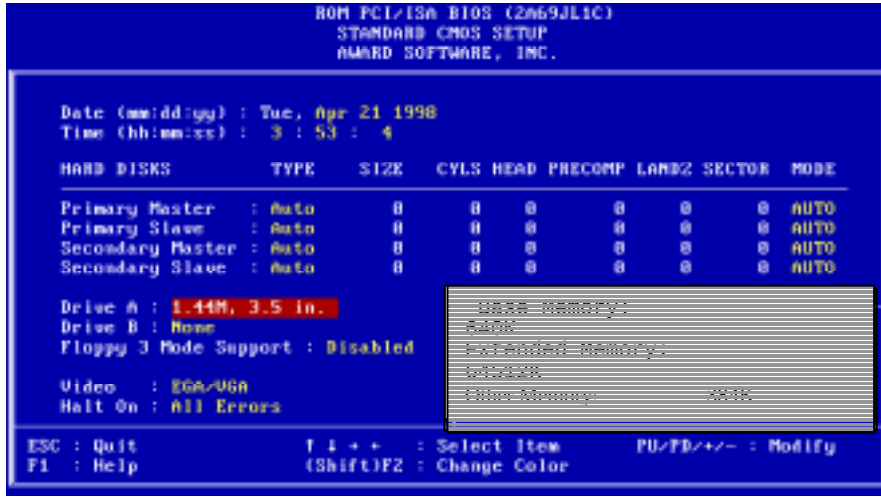
3-1. AWARD BIOS CMOS SETUP



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 ON-LINE 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.

3-2. STANDARD CMOS SETUP

CHOOSE **"STANDARD CMOS SETUP"** IN THE CMOS SETUP UTILITY MENU (FIGURE3-1). 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 <PAGEDOWN> OR <PAGEUP> KEY OR USER CAN ENTER NEW DATA DIRECTLY FROM THE KEYBOARD.

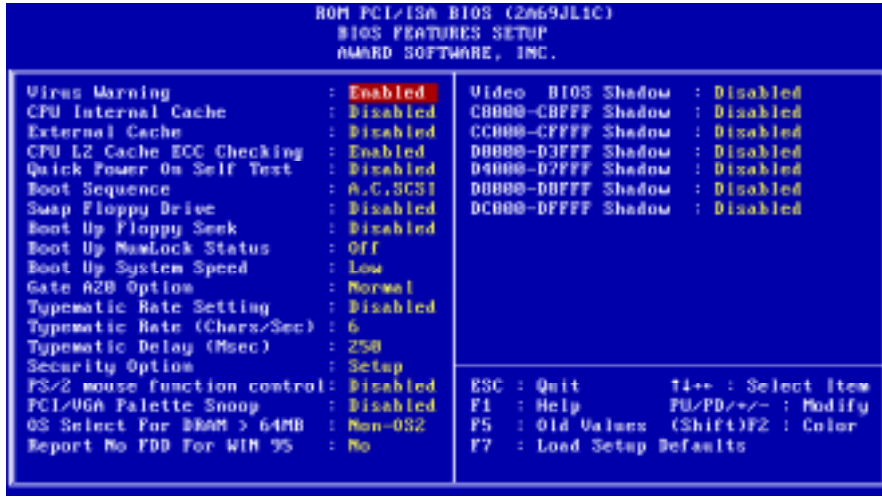


NOTE: IF HARD DISK PRIMARY MASTER/SLAVE AND SECONDARY MASTER/SLAVE WERE USED AUTO, THEN THE HARD DISK SIZE AND MODEL WILL BE AUTO DETECTED ON DISPLAY DURING POST.

NOTE: THE "HALT ON:"FIELD IS TO DETERMINE WHEN TO HALT THE SYSTEM BY THE BIOS IF ERROR OCCURRED DURING POST.

3-3. BIOS FEATURES SETUP

SELECT 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 I440LX MAIN BOARD. AGAIN, USER CAN MOVE THE CURSOR BY PRESSING DIRECTION KEYS AND <PAGEDOWN> OR <PAGEUP> KEY TO MODIFY THE PARAMETERS, PRESSING [F1] KEY TO DISPLAY HELP MESSAGE OF THE SELECTED ITEM. THIS SETUP PROGRAM ALSO PROVIDE 2 CONVINENT WAYS TO LOAD THE DEFAULT PARAMETER DATA FROM BIOS [F6] OR CMOS [F7] AREA IF SHOWN DATA IS CORRUPTED. THIS PROVIDES THE SYSTEM A CAPABILITY TO RECOVER FROM ANY POSSIBLE ERROR.



EXTERNAL CACHE:

THIS OPTION SELECTS THE TYPE OF CACHING ALGORITHM USED BY BIOS AND THE COMPUTER FOR L2 (EXTERNAL) SECONDARY CACHE MEMORY. THE SETTINGS ARE ENABLED OR DISABLED.

ENABLED: ENABLE CACHE

DISABLED: 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.
ENABLE : ENABLE QUICK POST
DISABLED: NORMAL POST

BOOT SEQUENCE:

"A,C,SCSI," "C,A,SCSI," "C,CDROM, A," "D,A,SCSI," "E,A,SCSI," "F,A, SCSI," " SCSI, A,C," "SCSI, A,C," "C ONLY," " LS/ZIP, C."

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 SWAPPED.

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 720K, 1.2M AND 1.44M ARE ALL 80 TRACKS. THE DEFAULT VALUE IS ENABLED.

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-THE SPEED THAT THE SYSTEM WILL RUN AT IMMEDIATELY AFTER POWER UP.
HIGH: SET THE SPEED TO HIGH.
LOW: SET THE SPEED TO LOW.

NOTE: THE BOARD DEFAULT VALUE IS LOW IN THE FIELD. BOOT THE SYSTEM TO CONTROLLER TURBO OR DE-TURBO BY ON-BOARD (TURBO SWITCH).

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 : 250 MSEC
500 : 500 MSEC
750 : 750 MSEC
1000 :1000 MSEC

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.

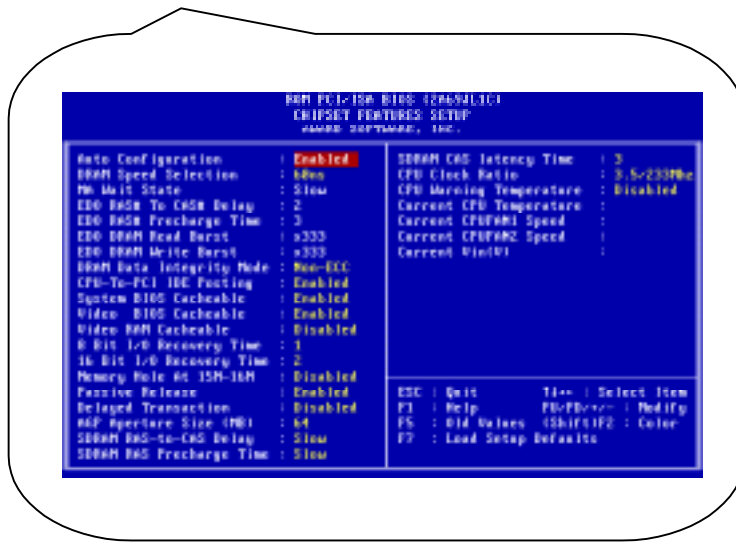
ENABLED : VIDEO SHADOW IS ENABLED

DISABLED: VIDEO SHADOW IS DISABLED

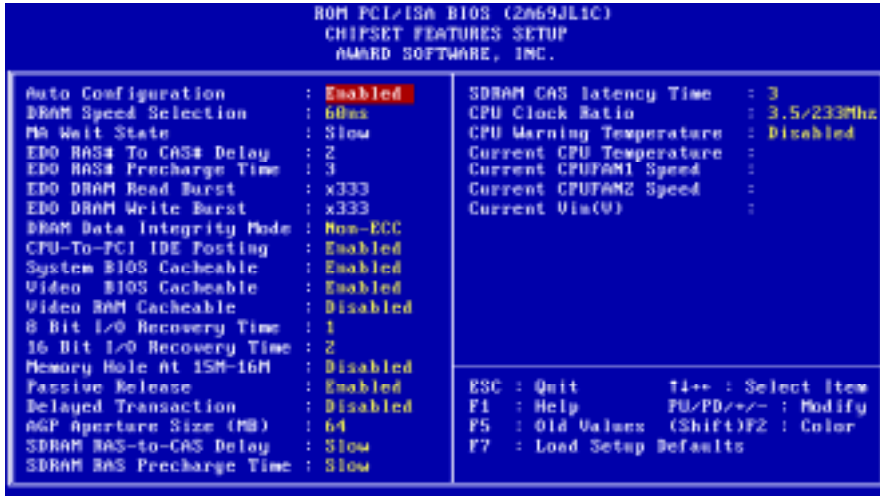
C8000-CBFFF SHADOW:
CC000-CFFFF SHADOW:
D0000-D3FFF SHADOW:
D4000-D7FFF SHADOW:
D8000-DBFFF SHADOW:
DC000-DFFFF SHADOW:

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.

IMPORTANT NOTICE:
ADDING IC "GL518M" ON BAORD, THE SCREEN WILL SHOW THE BELOW ITEMS: **"CURRENT CPU TEMPERATURE," "CURRENT CPUFAN1 SPEED," "CURRENT CPUFAN2 SPEED," "CURRENT VIN(V)."** AGAIN, IF THE USER IS INTERESTED IN THOSE FUNCTIONS, PLEASE CONTACT THE SUPPLIER OF THIS MOTHER BOARD.



3-4. CHIPSET FEATURES SETUP



AUTO CONFIGURATION [THE BIOS WILL AUTOMATICALLY DETECT THE CPU SPEED AND WILL AUTO-CONFIGURATE THE BUS FREQUENCY, DRAM SPEED, CACHE AND READ/WRITE CYCLE.]

DRAM RAS# PRECHARGE TIME [THE DRAM PRECHARGE TIME BY RAS.]

: 4
: 3 (DEFAULT)

RAS TO CAS DELAY [CONTROL THE DRAM PAGE MISS AND ROW MISS LEADOFF TIMING.]

: 2
: 3 (DEFAULT)

EDO DRAM READ BURST (B/E/F) [THE TIMING USED DEPENDS ON THE TYPE OF DRAM ON A PER-BASIS. THE DRAM READ BURST TIMING ARE CONTROLLED BY REGISTER.]

: X2222
: X3333 (DEFAULT)

EDO DRAM WRITE BURST (B/E/F) [SLOWER RATE MAY BE REQUIRED IN CERTAIN SYSTEM DE- SIGNS TO SUPPORT LAYOUT WITH LONGER TRACE LENGTH OR SLOWER DRAM. THE DRAM WRITE BURST TIMING ARE CONTROLLED BY REGISTER.]

: X2222
: X3333 (DEFAULT)

SYSTEM BIOS CACHEABLE [DEFINE WHETHER SYSTEM BIOS AREA CACHEABLE OR NOT.]

:ENABLED
:DISABLED (DEFAULT)

VIDEO BIOS CACHEABLE [DEFINE WHETHER VIDEO BIOS AREA CACHEABLE OR NOT.]

:ENABLED
:DISABLED (DEFAULT)

8 BIT I/O RECOVERY TIME:

THIS FIELD DEFINES THE RECOVERY TIME FROM 1 TO 8 FOR 8-BIT I/O.

16 BIT I/O RECOVERY TIME:

TO DEFINE THE RECOVERY TIME FROM 1 TO 4 FOR 16-BIT I/O.

MEMORY HOLE AT 15M-16M [THIS FIELD ENABLE A MEMORY HOLE IN MAIN MEMORY SPACE. CPU CYCLES MATCHING AN ENABLED HOLD ARE PASSED ON TO PCI. NOTE THAT A SELECTED CAN NOT BE CHANGED WHILE THE L2 CACHE IS ENABLED.]

:ENABLED
:DISABLED (DEFAULT)

AGP APERTURE SIZE(MB): 4, 8, 16, 32, 64, 128, 256
DEFAULT IS "64."

3-5. POWER MANAGEMENT SETUP

POWER MANAGEMENT:

DISABLED : GLOBAL POWER MANAGEMENT WILL BE DISABLED.

USER DEFINE: USERS CAN CONFIGURE THEIR OWN POWER MANAGEMENT.

MIN.SAVING : PRE-DEFINE TIMER VALUE ARE USED SUCH THAT ALL TIMERS ARE IN THEIR MAX . VALUE

MAX.SAVING: PRE-DEFINE TIMER VALUES ARE USED SUCH THAT ALL TIMERS ARE IN THEIR MIN . VALUE.

PM CONTROL BY APM:

NO : SYSTEM BIOS WILL IGNORE APM.

YES : SYSTEM BIOS WILL WAIT FOR APM'S PROMPT BEFORE IT ENTER ANY PM MODE, E.G. DOZE, STANDBY OR SUSPEND.

**** NOTE ****

1. IF APM IS INSTALLED, AND THERE IS A TASK RUNNING, EVEN IF THE TIMER IS TIME OUT, THE APM WILL NOT PROMPT THE BIOS TO PUT THE SYSTEM INTO ANY POWER SAVING MODE!
2. IF APM IS NOT INSTALLED, THIS OPTION HAS NO EFFECT.

VIDEO OFF METHOD

: BLANK SCREEN --- THE SYSTEM BIOS WILL ONLY BLANKS OFF THE SCREEN WHEN DISABLED.

:V/H SYNC+BLANK --- BIOS WILL ALSO TURN OFF THE V/H SYNC SIGNAL FROM VGA CARD TO MONITOR.

:DPMS --- DISPLAY POWER MANAGEMENT BY VGA CARD SUPPORT.

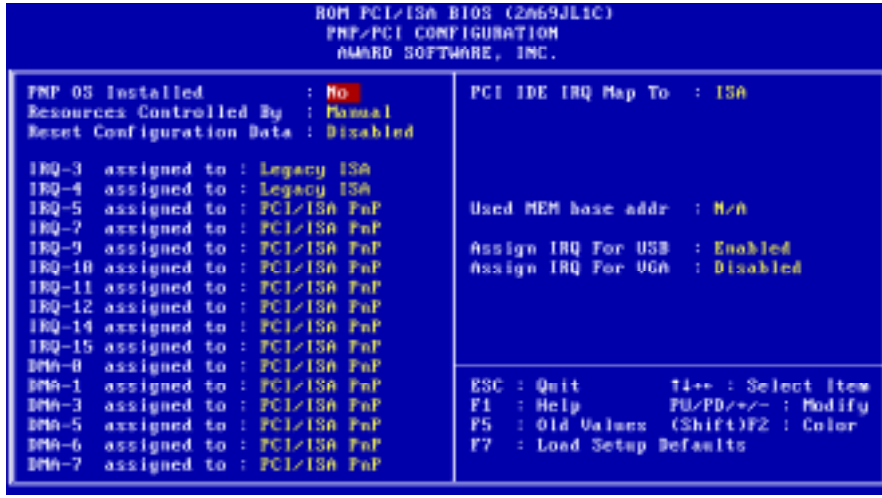
DOZE MODE : DISABLED , 1 MIN --- 1 HOUR

STANDBY MODE : DISABLED , 1 MIN --- 1 HOUR

SUSPEND MODE : DISABLED , 1 MIN --- 1 HOUR

HDD POWER DOWN : DISABLED , 1 MIN ---15 MIN

3-6. PNP / PCI CONFIGURATION SETUP

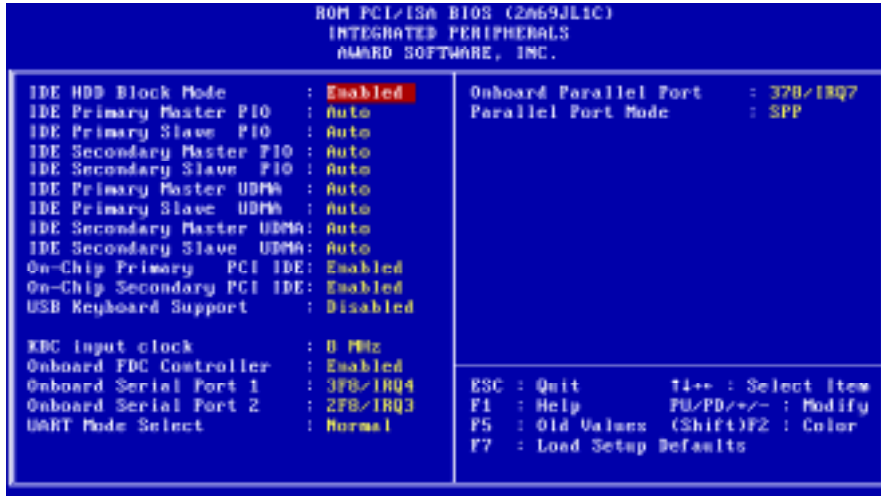


IRQ-3 ASSIGNED TO---- IRQ-15 ASSIGNED TO:
: PCI/ISA PNP
: LEGACY ISA

DMA-0 ASSIGNED TO--- DMA-7 ASSIGNED TO
: PCI/ISA PNP
: LEGANCY ISA

PCI IDE IRQ MAP TO
: ISA
: PCI-SLOT1
: PCI-SLOT2
: PCI-SLOT3
: PCI-SLOT4
: PCI-AUTO

3-7. INTEGRATED PERIPHERALS



IDE HDD BLOCK MODE[THIS FEATURE ENHANCES HARD DISK PERFORMANCE BY MAKING MULTI SECTOR TRANSFER, INSTEAD OF ONE SECTOR PER TRANSFER, MOST OF IDE DRIVERS, EXCEPT VERY EARLY DESIGNS ,CAN USE THIS FEATURE.]

:ENABLED (DEFAULT)

:DISABLED

IDE PRIMARY MASTER PIO[DETECT YOUR PRIMARY MASTER HARD DISK DEVICE.]

:AUTO (DEFAULT)

:MODE 0,1,2,3,4

IDE PRIMARY SLAVE PIO [DETECT YOUR PRIMARY SLAVE HARD DISK DEVICE.]

:AUTO (DEFAULT)

:MODE 0,1,2,3,4

IDE SECONDARY MASTER PIO [DETECT YOUR SECONDARY MASTER HARD DISK DEVICE.]
:AUTO (DEFAULT)
:MODE 0,1,2,3,4

IDE SECONDARY SLAVE PIO [DETECT YOUR SECONDARY SLAVE HARD DISK DEVICE.]
: AUTO (DEFAULT)
: MODE 0,1,2,3,4

ON-CHIP PRIMARY PCI IDE [SELECT USE CHIP SUPPORT PRIMARY PCI IDE.]
: ENABLED (DEFAULT)
: DISABLED

ON-CHIP SECONDARY PCI IDE [SELECT USE CHIP SUPPORT SECONDARY PCI IDE.]
: ENABLED (DEFAULT)
: DISABLED

ON-BOARD FDD CONTROLLER :
: ENABLED (DEFAULT)
: DISABLED

ON-BOARD SERIAL PORT 1 :
: COM1 (DEFAULT)
: COM2
: COM3
: COM4
: DISABLED

ON-BOARD SERIAL PORT 2 :
: DISABLED
: 3BC/IRQ7
: 378/IRQ7
: 278/2RQ7

ON-BOARD PARALLEL PORT :
: DISABLED
: 3BC/IRQ7
: 378/IRQ7
: 278/2RQ7

ON-BOARD PARALLEL MODE

: SPP(DEFAULT)
: EPP
: ECP
: ECP+EPP

3-8. SUPERVISOR/USER PASSWORD

THE " **SUPERVISOR/USER PASSWORD SETTING** " UTILITY SETS THE PASSWORD. THE MAINBOARD MAY BE SHIPPED WITH THE DEFAULT PASSWORD "AWARD_SW" , OR WITH THE PASSWORD DISABLED. IF YOU WANT TO CHANGE THE PASSWORD, YOU MUST FIRST ENTER THE CURRENT PASSWORD (" AWARD_SW " IN THIS CASE). THEN AT THE PROMPT, TYPE YOUR NEW PASSWORD. THE PASSWORD IS CASE SENSITIVE AND YOU CAN USE UP TO 8 ALPHANUMERIC CHARACTERS. PRESS <ENTER> AFTER THE PASSWORD . AT THE NEXT PROMPT, CONFIRM THE NEW PASSWORD BY TYPING IT AND PRESSING <ENTER> AGAIN. WHEN YOU USE THIS FEATURE, THE " SECURITY OPTION" LINE IN BIOS FEATURES SETUP WILL DETERMINE WHETHER THE PASSWORD WILL BE REQUIRED. TO DISABLE THE PASSWORD, PRESS THE <ENTER> KEY INSTEAD OF ENTERING A NEW PASSWORD WHEN THE " ENTER PASSWORD" DIALOG BOX APPEARS. A MESSAGE WILL APPEAR CONFIRMING THAT THE PASSWORD IS DISABLE. YOU MAY RECEIVE YOUR MAINBOARD SET UP THIS WAY.

THERE ARE TWO KINDS OF PASSWORD FUNCTIONS IN THE SETUP MENU : ONE IS **SUPERVISOR PASSWORD**, AND THE OTHER IS "**USER PASSWORD.**" THE DIFFERENCES BETWEEN THEM ARE:

SUPERVISOR PASSWORD:THE SUPERVISOR PASSWORD FUNCTION ALLOWS YOU THE RIGHT TO CHANGE THE OPTIONS OF SETUP MENU ONCE YOU ENTER THE SETUP MENU.

USER PASSWORD:THE USER PASSWORD FUNCTION ONLY ALLOWS YOU TO ENTER THE SETUP MENU BUT DO NOT HAVE THE RIGHT TO CHANGE THE OPTIONS OF THE SETUP MENU EXCEPT USER PASSWORD, SAVE & EXIT SETUP, AND EXIT WITHOUT SAVING.

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 OR 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.

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 THIS HDD TO NORMAL MODE, THE MAXIMUM ACCESSIBLE HDD SIZE WILL BE 528 MEGABYTES 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, 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:

	NO. CYLINDER	(1024)
X	NO. HEAD	(255)
X	NO. SECTOR	(63)
X	NO. BYTES PER SECTOR	(512)
	8.4 GIGABYTES	

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:

CYLS.	HEAD	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. A REVERSE TRANSFORMATION PROCESS WILL BE MADE INSIDE INT 12H IN ORDER TO ACCESS THE RIGHT HDD ADDRESS THE RIGHT HDD ADDRESS!

MAXIMUM HDD SIZE:

	NO. CYLINDER	(1024)
X	NO. HEAD	(32)
X	NO. SECTOR	(63)
X	NO. BYTES PER SECTOR	(512)
	1 GIGABYTES	

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 AN OPERATING SYSTEM WHICH REPLACES THE WHOLE INT 13H. UNIX OPERATING SYSTEMS DO NOT SUPPORT EITHER LBA OR LARGE AND MUST UTILITY THE STANDARD MODE. UNIX CAN SUPPORT DRIVES LARGER THAN 528MB.

3-10 .LOAD SETUP DEFAULTS

"LOAD SETUP DEFAULTS" LOADS OPTIMIZED SETTINGS WHICH ARE STORED IN THE BIOS ROM. THE AUTO-CONFIGURED SETTINGS ONLY AFFECT THE BIOS FEATURE SETUP AND CHIPSET FEATURES SETUP SCREENS. THERE IS NO EFFECT ON THE STANDARD CMOS SETUP. TO USE THIS FEATURE, HIGHLIGHT IT ON THE MAIN SCREEN AND PRESS THE <ENTER> KEY. A LINE WILL APPEAR ON SCREEN ASKING IF YOU WANT TO LOAD THE SETUP DEFAULT VALUES. PRESS THE <Y> KEY AND THEN PRESS THE <ENTER> KEY . THE SETUP DEFAULTS WILL THEN LOAD. PRESS <N> IF YOU DON'T WANT TO

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.

3-13 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 ADAPTER
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 POSTS
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)
0F0-0FF	MATH COPROCESSOR
1F0-1FB	HARD DISK CONTROLLER
278-27F	PARALLEL PORT 2
2B0-2DF	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-CDF	CGA ADAPTER
3F0-3F7	FLOPPY DISK CONTROLLER
3F8-3FF	SERIAL PORT-1

3-14 TIME & DMA CHANNELS MAP

TIME MAP: TIMER CHANNEL 0 SYSTEM TIMER INTERRUPT
TIMER CHANNEL 1 DRAM REFRESH REQUEST
TIMER CHANNEL 2 SPEAKER TONE GENERATOR

DMA CHANNELS: DMA CHANNEL 0 AVAILABLE
DMA CHANNEL 1 ONBOARD ECP (OPTION)
DMA CHANNEL 2 FLOPPY DISK (SMC CHIP)
DMA CHANNEL 3 ONBOARD ECP (DEFAULT)
DMA CHANNEL 4 CASCADE FOR DMA CONTROLLER 1
DMA CHANNEL 5 AVAILABLE
DMA CHANNEL 6 AVAILABLE
DMA CHANNEL 7 AVAILABLE

3-15 INTERRUPT MAP

NIMI: NON-MASKABLE INTERRUPT

IRQ(H/W): 0 SYSTEM TIMER INTERRUPT FROM TIMER 0
1 KEYBOARD OUTPUT BUFFER FULL
2 CASCADE FOR IRQ8-15
3 SERIAL PORT2
4 SERIAL PORT1
5 PARALLEL PORT 2
6 FLOPPY DISK (SMC CHIP)
7 PARALLEL PORT 1
8 RTC CLOCK
9 AVAILABLE
10 AVAILABLE
11 AVAILABLE
12 PS/2 MOUSE
13 MATH COPROCESSOR
14 ONBOARD HARD DISK (IDE1) CHANNEL
15 ONBOARD HARD DISK (IDE2) CHANNEL

3-16 RTC & CMOS RAM MAP

RTC & CMOS:00 SECONDS
01 SECOND ALARM
02 MINUTES
03 MINUTES ALARM
04 HOURS
05 HOURS ALARM
06 DAY OF WEEK
07 DAY OF MONTH
08 MONTH
09 YEAR
0A STATUS REGISTER A
0B STATUS REGISTER B
0C STATUS REGISTER C
0D STATUS REGISTER D
0E DIAGNOSTIC STATUS BYTE
0F SHUTDOWN BYTE
10 FLOPPY DISK DRIVE TYPE BYTE
12 HARD DISK TYPE BYTE
13 RESERVE
14 EQUIPMENT TYPE
15 BASE MEMORY LOW BYTE
16 BASE MEMORY HIGH BYTE
17 EXTENSION MEMORY LOW BYTE
18 EXTENSION MEMORY HIGH BYTE
19-2D
2E-2F
30 RESERVED FOR EXTENSION MEMORY LOW BYTE
31 RESERVED FOR EXTENSION MEMORY HIGH BYTE
32 DATE CENTURY BYTE
33 INFORMATION FLAG
34-3F RESERVE
40-7F RESERVED FOR CHIPSET SETTING DATA

---END---