INTEL I440 LX CHIPSET
ATX FORM FACTOR
PENTIUM II SYSTEM BOARD

USER'S MANUAL

(VER : 6IX-LX1)

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CHAPTER 1: INTRODUCTION

1-1 OVERVIEW :

THE I440 LX MAIN BOARD IS DESIGNED WITH INTEL 82440LX PCISET 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 AND EXPENSIBILITY FOR THIS BOARD.

IT SUPPORTS INTEL PENTIUM II CPUS FAMILY RUNNING AT 200-300 MHZ SPEED, CPU SUPPORTS INTERNAL 512K L2 CACHE MEMORY IS IDEAL FOR MS-DOS, WINDOWS, WIN95, WINDOW NT, NOVELL, OS/2, UNIX., SOFTWARES.

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

CHAPTER 1.

INTRODUCTION

1-2 SPECIFICATIONS

: 200 - 300 MHZ INTEL PENTIUM II CPU.
: 3 OF 168-PIN **DIMM** UP TO 384MB. **DIMM**

FOR

JEDEC 3.3V TYPE **SDRAM**

(SYNCHRONOUS

DRAM) **EDO RAM CANNOT USE 5V**

DIMM.

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

SLOT

: INTEL **I440 LX** CHIPSET
INTEL 82443LX PCI AND A.G.P

CONTROLLER. INTEL 82371AB
I/O BRIDGE

: NONE (CPU INTERNAL L2 CACHE

512K).

: AWARD FULL **PnP** (PLUG & PLAY) BIOS.

: ON BOARD 2 x PCI IDE DEVICES , 1 x FDC

, 2 x

SERIAL PORTS(16550 FAST COM),1x

PARALLEL

PORT DEVICE /EPP/ECP, OPTIONAL

USB

CONNECTOR .

: 30.5 CM X 24.5 CM.

: COMPLIED WITH **APM** (**A**DVANCED

POWER

MANAGEMENT)**.**

* LM78 SUPPORTS HARDWARE MONITORING.

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 IN ITS ORIGINAL PACKING UNTIL YOU ARE READY TO INSTALL IT.

CHAPTER 2. INSTALLATION

2-1 LAYOUT REFERENCE

CHAPTER

2. INSTALLATION

2-2 JUMPER SETTINGS

1.**S1 :** CPU TYPE SELECTOR

CPU SPEED	CLOCK SPEED	RATIO	S1
PENTIUM II 200 MHZ	(66MHZ)	3.00	
PENTIUM II 233 MHZ	(66MHZ)	3.50	
PENTIUM II 266 MHZ	(66MHZ)	4.00	
PENTIUM II 300 MHZ	(66MHZ)	4.50	

CHAPTER

2. INSTALLATION

EXPLANATION OF JUMPER SETTING

S1 : CPU CLOCK & FREQUENCY RATIO SELECTOR

	60 MHZ	66.6 MHZ
S1(1)		

	3 X	3.5 X	4 X	4.5 X
S1(2-4)				

2. **RTC** : BATTERY SELECTOR (BLACK JUMPER CAP)

		NORMAL	**CLEAR CMOS**
JP4	1-2	**(DEFAULT)**	**2-3**

☞ **CUSTOMERS NEED TO CLEAR CMOS, THEN RECONFIGURE IT IF 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. Selecting toggle by the "power switch type" will allow this lead to be controlled by a toggle-or rocker-type switch, where one side is "**OFF**" and the other side is "**ON**". 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. OTHER JUMPER SETTINGS AND CONNECTORS :

PRIMARY : PRIMARY IDE CONNECTOR.
SECONDARY : SECONDARY IDE CONNECTOR

FLOPPY : FLOPPY DISK CONNECTOR .
PRINTER : PARALLEL PORT CONNECTOR.
COM1 : SERIAL PORT 1 CONNECTOR.
COM2 : SERIAL PORT 2 CONNECTOR.
MOUSE : PS/2 MOUSE CONNECTOR.
KBD : PS/2 KEYBOARD CONNECTOR.

5. FAN1, FAN2, FAN3 : CPU FAN CONNECTOR

CPU FAN PIN OUT

PIN1	**PIN2**	**PIN3**
SENSOR	+12V	GND

NOTE : USB (UNIVERSAL SERIAL BUS) AND IRCON CONNECTOR ARE OPTIONAL.

6. **USB** : USB (UNIVERSAL SERIAL BUS) CONNECTOR

USB PIN OUT

	USB1		USB2
PIN1	+5V	**PIN2**	+5V
PIN3	USBP0-	**PIN4**	USBP1-
PIN5	USBP0+	**PIN6**	USBP1+
PIN7	GND	**PIN8**	GND

7. IR1 : IR (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 "**IRDA1.0**","**ASKIR**" OR "**standard**"(DEFAULT) UNDER "INFRA RED (IR)

CHAPTER

2. INSTALLATION
FUNCTION" OF "INTEGRATED PERIPHERALS"

2-3 MEMORY INSTALLATION

THERE ARE NO JUMPERS FOR THE DIMM CONFIGURATION. THE MOTHER BOARD SUPPORTS 168-PIN DIMMS OF 4MB, 8MB, 16MB, 32MB, 64MB TO FORM A MEMORY SIZE BETWEEN 8MB TO 192MB.

PLEASE NOTE THIS MOTHER BOARD CANNOT SUPPORT ANY 5V DIMM , ONLY ACCEPT 3.3V SDRAM , EDO DRAM. USER MUST CHECK IT BEFORE INSTALLATION

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	---
192MBytes	64MB	64MB	64MB

2-4 ASSEMBLING PROCEDURE

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

CHAPTER

2.INSTALLATION

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

CHAPTER 3. BIOS SETUP

3-1. AWARD BIOS CMOS SETUP

ROM PCI BIOS
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

Time, Date,Hard Disk Type...

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.

CHAPTER 3. BIOS SETUP

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.

ROM PCI BIOS
STANDARD CMOS SETUP

AWARD SOFTWARE, INC.

DATE (MM:DD:YY) :
WED JUN 1, 1995
TIME (HH:MM:SS)
: 00 : 00 : 00

HARD DISK
TYPE SIZE CYLS
HEADS PRECOMP
LANDZ SECTOR
MODE
PRIMARY MASTER
: USER(428MB) 899
15 65535
898 62
NORMAL
PRIMARY SLAVE
: NONE (0MB)
SECONDARY
MASTER : NONE
(0MB)
SECONDARY SLAVE
: NONE (0MB)

DRIVE A : 1.2M ,
5.25 IN
DRIVE b : 1.44M ,
3.5 IN

floppy 3 mode support :
disabled

VIDEO :
EGA/VGA
HALT ON : ALL

ERRORS
ESC : QUIT
↓↑®¬ : SELECT
ITEM
PU/PD/+/- : MODIFY
F1 : HELP
(SHIFT) F2 : CHANGE
COLOR

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.

ROM PCI BIOS
BIOS FEATURES SETUP

AWARD SOFTWARE, INC.

VIRUS WARNING	VIDEO BIOS SHADOW
:DISABLED	:Enabled
CPU INTERNAL CACHE	C8000-CBFFF SHADOW
:ENABLED	:DISABLED
EXTERNAL CACHE	CC000-CFFFF SHADOW
:ENABLED	:DISABLED
QUICK POWER ON SELF TEST	D0000-D3FFF SHADOW
:ENABLED	:DISABLED
BOOT SEQUENCE	D4000-D7FFF SHADOW
:C, A	:DISABLED

SWAP FLOOPY DRIVER :DISABLED
BOOT UP FLOOPY SEEK :ENABLED
BOOT UP NUMLOCK STATUS :on
BOOT UP SYSTEM SPEED :high
GATE A20 OPTION :FAST
TYPEMATIC RATE SETTING :DISABLED
TYPEMATIC RATE(CHARS/SEC) :6
TYPEMATIC DELAY(MSEC) :250
SECURITY OPTION :setup
PS/2 mouse function control :Enabled
PCI VGA PALETTE SNOOP :DISABLED
assign IRQ for VGA :disabled
OS SELECT FOR DRAM > 64MB :NON-OS2
report no FDD for win 95 :no

D8000-DBFFF SHADOW :DISABLED
DC000-DFFFF SHADOW :DISABLED

ESC : QUIT ↓↑®¬ : SELECT ITEM
F1 : HELP PU/PD/+/- : MODIFY
F5 : OLD VALUED (SHIFT) F2 : COLOR
F6 : LOAD BIOS DEFAULTS
F7 : LOAD SETUP DEFAULTS

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

CHAPTER 3. BIOS SETUP

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:
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.

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.

3-4. CHIPSET FEATURES SETUP

CHAPTER 3. BIOS SETUP

ROM PCI BIOS
CHIPSET FEATURES SETUP

AWARD SOFTWARE, INC.

AUTO CONFIGURATION
: ENABLED

DRAM SPEED SELECTION
:60ns
MA WAIT STATE
:slow
EDO RAS TO CAS delay :3
EDO RAS# precharge time :3
EDO read burst (B/E/F) :X333
EDO write burst (B/E/F) :X222
DRAM ECC/Parity select :Disabled
DRAM refresh queue :enabled
DRAM RAS only refresh :disabled
DRAM ECC/parity select :disabled
CPU - to - PCI IDE posting :DISabled
DRAM read-around-write :enabled
burst write combine :enabled
PCI - to - DRAM pipeline :enabled
system BIOS cacheable :disabled
video RAM cacheable :disabled
8 bit i/o recovery time :1
16 bit i/o recovery time :1
memory hole at 15m-16m :Disabled
passive release
:enabled
delayed transaction
:disabled

AGP apertare sige (MB) :256
SDRAM RAS TO CAS delay :slow
SDRAM RAS# precharge time :slow
SDRAM CAS latency time :3

current CPUFAN1 speed : 0 RPM
current CPUFAN2 speed : 0 RPM
current CPUFAN3 speed : 0 RPM
IN0(V): 2.81V IN1(V) : 1.50V
IN2(V): 3.34V IN3(V) : 5.08V
IN4(V): 12.28V IN5(V) : -11.81V
IN0(V): -4.99V

ESC : QUIT ↓↑®¬ : SELECT ITEM
F1 : HELP PU/PD/+/- : MODIFY
F5 : OLD VALUED (SHIFT) F2 : COLOR
F6 : LOAD BIOS DEFAULTS
F7 : LOAD SETUP DEFAULTS

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)

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
: X4444 (default)

DRAM Write Burst (B/E/F) [Slower rate may be required in certain system designs to support layout with longer trace length or slower DRAM. The DRAM write burst timing are controlled by register.]
: X2222
: X3333
: X4444 (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)

3-5. POWER MANAGEMENT SETUP

ROM PCI BIOS
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

POWER MANAGEMENT :DISABLED
PM CONTROL BY APM :Yes
VIDEO OFF METHOD :V/H SYNC+blank
MODEM use IRQ :3

DOZE MODE :DISABLED
STANDBY MODE :DISABLED
SUSPEND MODE :DISABLED
HDD POWER DOWN :Disabled

** wake up events in doze & standby **
IRQ3 (WAKE-UP EVENT) :ON
IRQ4 (WAKE-UP EVENT) :ON
IRQ8 (WAKE-UP EVENT) :ON
IRQ12 (WAKE-UP EVENT) :ON

** power down & resume events **
IRQ3 (COM 2) :ON
IRQ4 (COM 1) :ON
IRQ5 (LPT 2) :off
IRQ6 (Floppy Disk) :off
IRQ7 (LPT 1) :off
IRQ8 (RTC Alarm) :off
IRQ9 (IRQ2 Redir) :off
IRQ10 (Reserved) :off
IRQ11 (Reserved) :off
IRQ12 (PS/2 Mouse) :off
IRQ13 (COpROCESSOR) :off
IRQ14 (HARD DISK) :ON
IRQ15 (RESERVED) :off

ESC : QUIT ↓↑®¬ : SELECT ITEM
F1 : HELP PU/PD/+/- : MODIFY
F5 : OLD VALUED (SHIFT) F2 : COLOR

F6 : LOAD BIOS DEFAULTS
F7 : LOAD SETUP DEFAULTS

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
Wake-up Event : TO IRQ3, IRQ4 , IRQ8 , IRQ12 check point. Any activity. The system will wake up.
Power down Activities : To COM ports, LPT ports and Drive ports IRQ3.....IRQ15 check point Then Into Green function.

3-6. PNP / PCI CONFIGURATION SETUP

ROM PCI BIOS
PNP / PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.

resources controlled by : auto
rest configuration data : disables

IRQ-3 assigned to : legacy ISA
IRQ-4 assigned to : legacy ISA
IRQ-5 assigned to : legacy ISA
IRQ-7 assigned to : legacy ISA
IRQ-9 assigned to : PCI/ISA PnP
IRQ-10 assigned to : PCI/ISA PnP
IRQ-11 assigned to : PCI/ISA PnP
IRQ-12 assigned to : PCI/ISA PnP
IRQ-14 assigned to : PCI/ISA PnP
IRQ-15 assigned to : PCI/ISA PnP
DMA-0 assigned to : legacy ISA
DMA-1 assigned to : legacy ISA
DMA-3 assigned to : legacy ISA
DMA-5 assigned to : legacy ISA
DMA-6 assigned to : legacy ISA
DMA-7 assigned to : legacy ISA

PCI IRQ ACTIVED BY :LEVEL
PCI IDE MAP TO :PCI-AUTO
PRIMARY IDE INT# :A
SECONDARY IDE INT# :B
ON BOARD PCI SCSI CHIP :DISABLED

ESC : QUIT ↓↑®¬ : SELECT ITEM
F1 : HELP PU/PD/+/- : MODIFY
F5 : OLD VALUED (SHIFT) F2 : COLOR
F6 : LOAD BIOS DEFAULTS
F7 : LOAD SETUP DEFAULTS

(1-3) AVAILABLE IRQ : (NA, 3, 4, 5, 7, 9, 10, 11, 12, 13, 14, 15)
PCI IRQ ACTIVED BY : LEVEL
PCI IDE IRQ MAP TO : PCI-AUTO (PCI-SLOT 1, 2, 3)
PRIMARY IDE INT# : A (B, C, D)
SECONDARY IDE INT# : B (C, D, A)
PCI SLOTS ROUTING METHOD:
PCI 1: A, B, C, D

PCI 2: B, C, D, A
PCI 3: C, D, A, B

3-7. INTEGRATED PERIPHERALS

ROM PCI BIOS
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

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
on-chip primary PCI IDE :Enabled
on-chip secondary PCI IDE :Enabled
PCI slot IDE 2nd channel :Enabled

onboard FDD controller :Enabled
onboard serial port 1 :COM1
onboard serial port 2 :COM2
INFRA RED (IR) FUNCTION
:DISABLED
onboard parallel port
:3f8/IRQ7
onboard parallel mode :SPP

IR TRANSFER MODE
:HALF-DUP
IR I/O GROUP
:A

USB CONTROLLER
:DISABLED

ESC : QUIT ↓↑®¬ : SELECT ITEM
F1 : HELP PU/PD/+/- : MODIFY
F5 : OLD VALUED (SHIFT) F2 : COLOR
F6 : LOAD BIOS DEFAULTS
F7 : LOAD SETUP DEFAULTS

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

PCI slot IDE 2nd Channel [Use external IDE. AS ISA IDE or 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 : COM1
: COM2 (default)
: COM3
: COM4
: Disabled

On-board Parallel Port : 378H (default)
: 278H
: 3BCH
: Disabled

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---

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CHAPTER 4. SOFTWARE DRIVER & UTILITY

4-1 SOFTWARE DRIVER
THE INTEL PROVIDES DRIVERS FOR IDE HDDS. PLEASE REFER TO ***.TXT OR *.DOC** IN DISKETTE.

* **BMIDE_95.EXE** --- FOR WINDOWS 95

* **BMIDE_NT.EXE** --- FOR WINDOWS NT

* **BMIDEOS2.EXE** --- FOR IBM OS2

4-2 DMI (**D**ESKTOP **M**ANAGEMENT **I**NTERFACE) UTILITY
THIS MAIN BOARD SUPPORTS **DMI** WITHIN THE BIOS LEVEL AND PROVIDES A **DMI** UTILITY TO MAINTAIN THE **M**ANAGEMENT **I**NFORMATION **F**ORMAT **D**ATABASE (**MIFD**). **DMI** IS ABLE TO AUTO-DETECT AND RECORD INFORMATION PERTINENT TO A COMPUTER'S SYSTEM SUCH AS THE CPU TYPE, CPU SPEED, AND INTERNAL/EXTERNAL FREQUENCIES, AND MEMORY SIZE.
THIS **DMI** UTILITY ALSO ALLOWS THE SYSTEM INTEGRATOR OR END USER TO ADD ADDITIONS INFORMATION INTO THE **MIFD** SUCH AS SERIAL NUMBERS, HOUSING CONFIGURATIONS, AND VENDOR INFORMATION.

DMI SOFTWARE REQUIREMENTS

THE **DMI** UTILITY (**DMICFG.EXE**) MUST BE RAN IN **REAL MODE** IN ORDER FOR THE PROGRAM TO RUN, THE BASE MEMORY MUST BE AT LEAST 180K. MEMORY MANAGERS LIKE HIMEM.SYS (REQUIRED BY WINDOWS) MUST NOT BE INSTALLED. YOU CAN BOOT UP FROM A SYSTEM DISKETTE WITHOUT AUTOEXEC.BAT AND CONFIG.SYS FILES, "**REM**" **HIMEM.SYS** IN THE **CONFIG.SYS**, OR PRESS <F5> DURING BOOT UP TO BYPASS YOUR AUTOEXEC.BAT AND CONFIG.SYS FILES.

EDIT DMI

USE THE (LEFT-RIGHT) CURSORS TO MOVE THE TOP MENU ITEMS AND THE (UP-DOWN) CURSOR TO MOVE BETWEEN THE LEFT HAND MENU ITEMS. THE BOTTOM OF THE SCREEN WILL SHOW THE AVAILABLE KEYS FOR EACH SCREEN. PRESS ENTER AT THE MENU ITEM TO ENTER THE RIGHT HAND SCREEN FOR EDITING . **"EDIT COMPONENT"** APPEARS ON TOP. THE REVERSED COLOR FIELD IS THE CURRENT CURSOR POSITION AND THE BLUE TEXT ARE AVAILABLE FOR EDITING. THE ORANGE TEXT SHOWS AUTO-DETECTED INFORMATION AND ARE NOT AVAILABLE FOR EDITING. THE BLUE TEXT **"PRESS [ENTER] FOR DETAIL"** CONTAINS A SECOND POP-UP MENU IS AVAILABLE, USE THE (PLUS-MINUS) KEY TO CHANGE THE SETTINGS. ENTER **"F10"** (FUNCTION KEY) TO UPDATE **DMI** (SAVE **DMI**), ESC TO EXIT.

ADD DMI

THIS OPTION ALSO ALLOWS THE SYSTEM INTEGRATOR TO ADD ADDITIONS INFORMATION INTO THE **MIFD** SUCH AS SERIAL NUMBERS, HOUSING CONFIGURATIONS, AND VENDOR INFORMATION.

SAVE DMI FILE

YOU CAN SAVE THE **MIFD** (NORMALLY ONLY SAVED TO FLASH ROM) TO A FILE BY ENTERING THE DRIVE AND PATH HERE. IF YOU WANT TO CANCEL **"SAVE"**, YOU MAY PRESS **ESC** AND A MESSAGE **"BAD FILE NAME"** APPEARS HERE TO SHOW IT WAS NOT SAVED.

LOAD DMI FILE
YOU CAN LOAD THE DISK FILE TO MEMORY BY ENTERING A DRIVE AND PATH AND FILENAME. HERE.

---END---

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4-3 API (APPLICATIONS PROGRAMMING INTERFACE) UTILITY

OVERVIEW

* PENTIUM PRO HAS THE CAPACITY TO CORRECT SPECIFIC ERRATA.
* EACH STEPPING PENTIUM PRO HAS ITS OWN INTEL- SUPPLIED DATA BLOCK.
* EACH DATA BLOCK EXACTLY 2K BYTE LENGTH.
* BIOS LOADS THE DATA BLOCK INTO PENTIUM PRO DURING SYSTEM BOOTING.
* BIOS API PROVIDES A STANDARD INTERFACE TO UPDATE THE DATA BLOCK IN BIOS.

WHAT YOU NEED TO DO

* ENSURE THAT MAIN BOARD BIOS MUST CONTAIN THE INTEL-DEFINED UPDATE API
* ENSURE BIOS UPDATE API FUNCTIONING.
* IF NOT, CONTACT YOUR BIOS VENDOR FOR A COMPLETE BIOS UPGRADE.

AN UTILITY FOR BIOS API

* **CHECKUP.HLP** -- ASCII HELP FILE
* **LASTUP.PDB** -- THE MOST RECENT STEPPING DATA FILE IS STORED.
* **STATUS.LOG** -- THE MESSAGE DURING THE MOST RECENT UPDATE IS STORED.
* **CHECKUP.EXE** -- AN EXECUTABLE DOS APPLICATION.
* **PEP.PDB** -- CONTAINS STEPPING DATA BLOCK FILE.

PS/2 MOUSE PIN OUT

PIN # 1	MOUSE CLOCK
PIN # 2	MOUSE DATA
PIN # 3	NONE
PIN # 4	GND
PIN # 5	VCC

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 PROTURSION, 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.