

**INTEL I440 LX CHIPSET  
ATX FORM FACTOR  
PENTIUM II SYSTEM BOARD  
USER'S MANUAL  
( VER : 6IX-LX1 )**

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## CHAPTER 1: INTRODUCTION

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## CHAPTER 1. INTRODUCTION

### CHAPTER 1: INTRODUCTION

#### **1-1 OVERVIEW :**

THE I440 LX MAIN BOARD IS DESIGNED WITH INTEL 82440LX PCISSET 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** (ADVANCED 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

### **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  |    |

#### 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        |

## CHAPTER 2. INSTALLATION

☞ **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 |        |             |      |             |     |
|-----------------|--------|-------------|------|-------------|-----|
| <b>PIN1</b>     | SENSOR | <b>PIN2</b> | +12V | <b>PIN3</b> | GND |

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

## CHAPTER 2. INSTALLATION

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

| USB PIN OUT        |                    |
|--------------------|--------------------|
| USB1               | USB2               |
| <b>PIN1</b> +5V    | <b>PIN2</b> +5V    |
| <b>PIN3</b> USBP0- | <b>PIN4</b> USBP1- |
| <b>PIN5</b> USBP0+ | <b>PIN6</b> USBP1+ |
| <b>PIN7</b> GND    | <b>PIN8</b> GND    |

### 7. IR1 : IR (INFRARED) CONNECTOR

| IR CONNECTOR PIN OUT |                     |                    |                     |                     |                     |                     |
|----------------------|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|
| <b>PIN 1</b><br>RX   | <b>PIN 2</b><br>GND | <b>PIN 3</b><br>TX | <b>PIN 4</b><br>+5V | <b>PIN 5</b><br>RXH | <b>PIN 6</b><br>VCC | <b>PIN 7</b><br>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) FUNCTION**" OF "**INTEGRATED PERIPHERALS**"

## CHAPTER 2. INSTALLATION

### 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  |

## CHAPTER 2.INSTALLATION

### **2-4 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

### CHAPTER 3. BIOS SETUP

#### 3-1. AWARD BIOS CMOS SETUP

ROM PCI BIOS  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

|  |  |
|--|--|
| STANDARD CMOS SETUP<br>BIOS FEATURES SETUP<br>CHIPSET FEATURES SETUP<br>POWER MANAGEMENT SETUP<br>PNP/PCI CONFIGURATION<br>LOAD SETUP DEFAULTS | INTEGRATED PERIPHERALS<br>SUPERVISOR PASSWORD<br>USER PASSWORD<br>IDE HDD AUTO DETECTION<br>HDD LOW LEVEL FORMAT<br>SAVE & EXIT SETUP<br>EXIT WITHOUT SAVING |
| ESC : QUIT<br>F10 : SAVE & EXIT SETUP  | ↓↑@- : SELECT ITEM<br>(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.

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### 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.

## CHAPTER 3. BIOS SETUP

### 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<br>:DISABLED<br>CPU INTERNAL CACHE<br>:ENABLED<br>EXTERNAL CACHE<br>:ENABLED<br>QUICK POWER ON SELF TEST<br>:ENABLED<br>BOOT SEQUENCE :C, A<br>SWAP FLOOPY DRIVER<br>:DISABLED BOOT UP FLOOPY SEEK<br>:ENABLED<br>BOOT UP NUMLOCK STATUS :on<br>BOOT UP SYSTEM SPEED :high<br>GATE A20 OPTION :FAST<br>TYPEMATIC RATE SETTING<br>:DISABLED<br>TYPEMATIC RATE(CHARS/SEC) :6<br>TYPEMATIC DELAY(MSEC) :250<br>SECURITY OPTION :setup<br>PS/2 mouse function control :Enabled<br>PCI VGA PALETTE SNOOP<br>:DISABLED<br>assign IRQ for VGA :disabled<br>OS SELECT FOR DRAM > 64MB :NON-OS2<br>report no FDD for win 95 :no | VIDEO BIOS SHADOW<br>:Enabled<br>C8000-CBFFF SHADOW<br>:DISABLED<br>CC000-CFFFF SHADOW<br>:DISABLED<br>D0000-D3FFF SHADOW<br>:DISABLED<br>D4000-D7FFF SHADOW<br>:DISABLED<br>D8000-DBFFF SHADOW<br>:DISABLED<br>DC000-DFFFF SHADOW<br>:DISABLED |
|  | ESC : QUIT      ↓↑@- : SELECT<br>ITEM<br>F1 : HELP      PU/PD/+/- :   |

## CHAPTER 3. BIOS SETUP

|  |  |
|--|--|
|  | MODIFY<br>F5 : OLD VALUED (SHIFT) F2 :<br>COLOR<br>F6 : LOAD BIOS DEFAULTS<br>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 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.

## CHAPTER 3. BIOS SETUP

### ***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

TURBO 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.

### ***TYPOMATIC RATE SETTING:***

THIS DETERMINES THE TYPOMATIC RATE.

**ENABLED:** ENABLE TYPOMATIC RATE AND TYPOMATIC DELAY PROGRAMMING.

**DISABLED:** DISABLE TYPOMATIC RATE AND TYPOMATIC DELAY PROGRAMMING, THE SYSTEM BIOS WILL USE DEFAULT VALUE OF THIS 2 ITEMS AND THE DEFAULT IS CONTROLLED BY KEYBOARD.

### ***TYPOMATIC 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

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24: 24 CHARACTERS PER SECOND    30 : 30 CHARACTERS PER SECOND

### ***TYPOMATIC 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.

## CHAPTER 3. BIOS SETUP

### 3-4. CHIPSET FEATURES SETUP

ROM PCI BIOS  
CHIPSET FEATURES SETUP  
AWARD SOFTWARE, INC.

|  |  |
|--|--|
| AUTO CONFIGURATION :<br>ENABLED<br><br>DRAM SPEED SELECTION :60ns<br>MA WAIT STATE :slow<br>EDO RAS TO CAS delay :3<br>EDO RAS# precharge time :3<br>EDO read burst (B/E/F) :X333<br>EDO write burst (B/E/F) :X222<br>DRAM ECC/Parity select :Disabled<br>DRAM refresh queue :enabled<br>DRAM RAS only refresh :disabled<br>DRAM ECC/parity select :disabled<br>CPU - to - PCI IDE posting :DISabled<br>DRAM read-around-write :enabled<br>burst write combine :enabled<br>PCI - to - DRAM pipeline :enabled<br>system BIOS cacheable :disabled<br>video RAM cacheable :disabled<br>8 bit i/o recovery time :1<br>16 bit i/o recovery time :1<br>memory hole at 15m-16m :Disabled<br>passive release :enabled<br>delayed transaction :disabled | AGP apertare sige (MB) :256<br>SDRAM RAS TO CAS delay :slow<br>SDRAM RAS# precharge time :slow<br>SDRAM CAS latency time :3<br><br>current CPUFAN1 speed : 0 RPM<br>current CPUFAN2 speed : 0 RPM<br>current CPUFAN3 speed : 0 RPM<br>IN0(V): 2.81V    IN1(V) : 1.50V<br>IN2(V): 3.34V    IN3(V) : 5.08V<br>IN4(V): 12.28V    IN5(V) : -11.81V<br>IN0(V): -4.99V<br><br>ESC : QUIT    ↓↑Ⓜ← : SELECT<br>ITEM<br>F1 : HELP            PU/PD/+/- :<br>MODIFY<br>F5 : OLD VALUED (SHIFT)    F2 :<br>COLOR<br>F6 : LOAD BIOS DEFAULTS<br>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.]

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: 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

## CHAPTER 3. BIOS SETUP

changed while the L2 cache is enabled.]

:Enabled

:Disabled (default)

### 3-5. POWER MANAGEMENT SETUP

ROM PCI BIOS

POWER MANAGEMENT SETUP

AWARD SOFTWARE, INC.

|  |  |
|--|--|
| <p>POWER MANAGEMENT<br/>:DISABLED</p> <p>PM CONTROL BY APM :Yes</p> <p>VIDEO OFF METHOD :V/H</p> <p>SYNC+blank</p> <p>MODEM use IRQ :3</p> <p>DOZE MODE :DISABLED</p> <p>STANDBY MODE :DISABLED</p> <p>SUSPEND MODE :DISABLED</p> <p>HDD POWER DOWN :Disabled</p> <p>** wake up events in doze &amp; standby **</p> <p>IRQ3 (WAKE-UP EVENT) :ON</p> <p>IRQ4 (WAKE-UP EVENT) :ON</p> <p>IRQ8 (WAKE-UP EVENT) :ON</p> <p>IRQ12 (WAKE-UP EVENT) :ON</p> | <p>** power down &amp; resume events **</p> <p>IRQ3 (COM 2) :ON</p> <p>IRQ4 (COM 1) :ON</p> <p>IRQ5 (LPT 2) :off</p> <p>IRQ6 (Floppy Disk) :off</p> <p>IRQ7 (LPT 1) :off</p> <p>IRQ8 (RTC Alarm) :off</p> <p>IRQ9 (IRQ2 Redir) :off</p> <p>IRQ10 (Reserved) :off</p> <p>IRQ11 (Reserved) :off</p> <p>IRQ12 (PS/2 Mouse) :off</p> <p>IRQ13 (COProcessor) :off</p> <p>IRQ14 (HARD DISK) :ON</p> <p>IRQ15 (RESERVED) :off</p> |
|  | <p>ESC : QUIT      ↓↑@- : SELECT<br/>ITEM</p> <p>F1 : HELP            PU/PD/+/- :<br/>MODIFY</p> <p>F5 : OLD VALUED    (SHIFT) F2 :<br/>COLOR</p> <p>F6 : LOAD BIOS DEFAULTS</p> <p>F7 : LOAD SETUP DEFAULTS</p>   |

#### **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.

## CHAPTER 3. BIOS SETUP

### **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<br>rest configuration data : disables  | PCI IRQ ACTIVATED BY :LEVEL<br>PCI IDE MAP TO :PCI-AUTO<br>PRIMARY IDE INT# :A<br>SECONDARY IDE INT# :B<br>ON BOARD PCI SCSI CHIP :DISABLED |
| IRQ-3 assigned to : legacy ISA<br>IRQ-4 assigned to : legacy ISA<br>IRQ-5 assigned to : legacy ISA<br>IRQ-7 assigned to : legacy ISA<br>IRQ-9 assigned to : PCI/ISA PnP<br>IRQ-10 assigned to : PCI/ISA PnP<br>IRQ-11 assigned to : PCI/ISA PnP<br>IRQ-12 assigned to : PCI/ISA PnP<br>IRQ-14 assigned to : PCI/ISA PnP<br>IRQ-15 assigned to : PCI/ISA PnP<br>DMA-0 assigned to : legacy ISA |   |

## CHAPTER 3. BIOS SETUP

|  |  |
|--|--|
| DMA-1 assigned to : legacy ISA<br>DMA-3 assigned to : legacy ISA<br>DMA-5 assigned to : legacy ISA<br>DMA-6 assigned to : legacy ISA<br>DMA-7 assigned to : legacy ISA |  |
|  | ESC : QUIT            ↓↑@- : SELECT<br>ITEM<br>F1 : HELP            PU/PD/+/- :<br>MODIFY<br>F5 : OLD VALUED    (SHIFT) F2 :<br>COLOR<br>F6 : LOAD BIOS DEFAULTS<br>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<br>IDE primary master PIO :Auto<br>IDE primary slave PIO :Auto<br>IDE secondary master PIO :Auto<br>IDE secondary slave PIO :Auto<br>on-chip primary PCI IDE :Enabled<br>on-chip secondary PCI IDE :Enabled<br>PCI slot IDE 2nd channel :Enabled<br><br>onboard FDD controller :Enabled<br>onboard serial port 1 :COM1<br>onboard serial port 2 :COM2<br>INFRA RED (IR) FUNCTION | USB CONTROLLER<br>:DISABLED |
|--|-----------------------------|

## CHAPTER 3. BIOS SETUP

|  |  |
|--|--|
| :DISABLED<br>onboard parallel port :3f8/IRQ7<br>onboard parallel mode :SPP<br><br>IR TRANSFER MODE<br>:HALF-DUP<br>IR I/O GROUP :A |  |
|  | ESC : QUIT      ↓↑Ⓜ↵ : SELECT<br>ITEM<br>F1 : HELP            PU/PD/+/- :<br>MODIFY<br>F5 : OLD VALUED (SHIFT)    F2 :<br>COLOR<br>F6 : LOAD BIOS DEFAULTS<br>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

## CHAPTER 3. BIOS SETUP

***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

## CHAPTER 3. BIOS SETUP

### 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.

## CHAPTER 3. BIOS SETUP

**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)  |
|   | <hr/>          |        |
|   | 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.

## CHAPTER 3. BIOS SETUP

DURING HDD ACCESSING, THE IDE CONTROLLER WILL TRANSFORM THE LOGICAL ADDRESS DESCRIBED BY SECTOR, HEAD & CYLINDER INTO ITS OWN PHYSICAL ADDRESS INSIDE THE HDD.

THE MAXIMUM HDD SIZE SUPPORTED BY LBA MODE IS 8.4 GIGABYTES WHICH IS OBTAINED BY THE FOLLOWING FORMULA:

$$\begin{array}{r} \text{NO. CYLINDER} \quad (1024) \\ X \text{ NO. HEAD} \quad (255) \\ X \text{ NO. SECTOR} \quad (63) \\ \hline X \text{ NO. BYTES PER SECTOR} \quad (512) \end{array}$$

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:

| <u>CYLS.</u> | <u>HEAD</u> | <u>SECTOR</u> | <u>MODE</u> |
|--------------|-------------|---------------|-------------|
| 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:

$$\begin{array}{r} \text{NO. CYLINDER} \quad (1024) \\ X \text{ NO. HEAD} \quad (32) \\ X \text{ NO. SECTOR} \quad (63) \\ \hline X \text{ NO. BYTES PER SECTOR} \quad (512) \end{array}$$

1

GIGABYTES

## CHAPTER 3. BIOS SETUP

**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.

## CHAPTER 3. BIOS SETUP

### 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   |

## CHAPTER 3. BIOS SETUP

|         |                        |
|---------|------------------------|
| 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

## CHAPTER 3. BIOS SETUP

### 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---

6IX-LX1-1

## CHAPTER 4 . SOFTWARE DRIVER & UTILITY

### 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 ( DESKTOP MANAGEMENT INTERFACE) UTILITY

THIS MAIN BOARD SUPPORTS **DMI** WITHIN THE BIOS LEVEL AND PROVIDES A **DMI** UTILITY TO MAINTAIN THE MANAGEMENT INFORMATION FORMAT DATABASE (**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

CHAPTER 4 . SOFTWARE DRIVER & UTILITY  
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---

6IX-K-1

## 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.

-end- by <http://acc.hop.to>