PRM-27I

High Performance

Socket370 PCI Mainboard

User's Guide

EPA POLLUTION PREVENTER

WARNING

For the system to operate normally, please make sure JP3 of the mainboard is set as below. Refer to Fig. 2 in this manual for the location JP3.

JP3

If JP3 is shorted to 2-3, no CMOS data can be retained.

CAUTION

The motherboard is an electrostatic sensitive device. Don't open or handle except at a static-free workstation.

POWER OFF

It needs to hold the power switch 4 seconds to turn off the power.

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CHAPTER 1 INTRODUCTION

Preface

The motherboard is a 4 layer, ATX form factor high performance PCI/AGP mainboard. It includes Intel 440BX chipset, Winbond W83977EF Super I/O controller.

Features

Processor
- Support Intel Pentium III FC-PGA 500-800MHz Processors
- Support Intel Celeron 300-550MHz Processors.

Chipset
- Intel 440BX
- Intel PIIX4
- Winbond W83977EF (Super I/O Controller)
- Optional Winbond W83781D (System Voltage & Temperature Monitoring IC)

Main Memory
- 4 DIMM sockets for 3.3V SDRAM (PC/100 DIMM) or EDO (For 66MHz Front Size Bus CPU Only)
- Memory configurations up to 1GMB SDRAM..
- ECC Function ensures data correction and integrity.

Multi I/O
- On board Multi-I/O supports two serial, one parallel ports and floppy drive controller.
- Serial ports are 16550 Fast UART compatible.
- Parallel port has EPP and ECP capabilities.
- PS/2 keyboard and PS/2 mouse connector is provided.
- IrDA supported.
- USB supported.

Accelerated Graphics Port (AGP) Interface
- A.G.P. 2X mode supported

PCI IDE
- On board supports PCI Master IDE Controller, two connectors support up to four IDE devices such as HDD, CD ROM drive and Tape Back-up drives, etc.
- PCI Master IDE controller supports PIO Mode 3 and 4 devices, I/O data transfer rate can be up to 16.6MB/s.
- Ultra DMA Mode supported. Transfer rate can be up to 33MB/s.

System BIOS
- Award BIOS (256KB Flash EPROM).

Slots
- One AGP slot
- Five PCI slots
- One ISA slot

Form Factor
- Full ATX Size (305mm x 180mm) 4 Layer
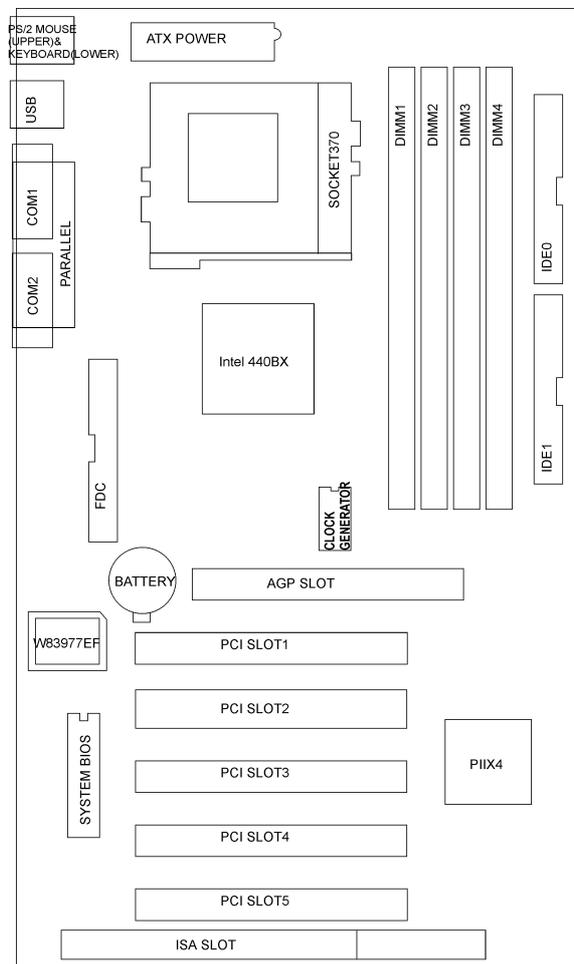
Fig. 1 Key Components of the Mainboard

CHAPTER 2 JUMPER SETTINGS

2.1 JUMPERS PRESENTATION
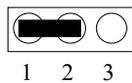
Pins 1 and 2 are shorted with a jumper cap.
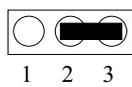
Pins 2 and 3 are shorted with a jumper cap.

The jumper is shorted when the jumper cap is placed over the two pins of the jumper.

The jumper is open when the jumper cap is removed from jumper.

2.2 GRAPHICAL DESCRIPTION OF JUMPER SETTINGS
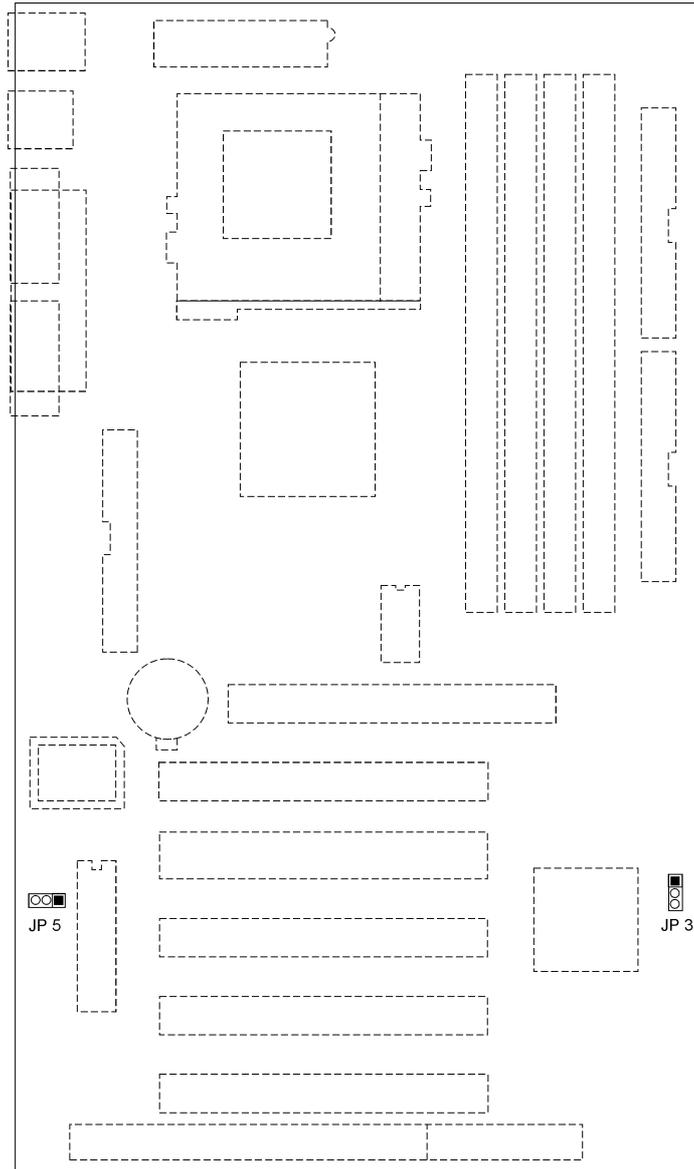
Fig. 2 Jumper Location of the mainboard

2.3   JP3 –CLEAR CMOS DATA

JP3 is used to clear the content of the CMOS Data in the RTC (build in PIIX4E chip).

JP3	Description
1 ⬚⬛⬛	Normal
1 ⬛⬛⬚	Clear CMOS Data

Table 1: Clear CMOS Data

2.4   JP5 - VOLTAGE SELECTION FOR SYSTEM ROM

JP5 is used to select the operation voltage of the system ROM.

JP5	Description
1 ⬚⬛⬛	12V Flash EPROM
1 ⬛⬛⬚	5V Flash EPROM

Table 2: Voltage Selection for System ROM

2.5   MEMORY CONFIGUARTION

When 100MHz Front Size Bus Processor is used, SDRAM DIMMs with PC/100 specification and Serial Presence Defect (SPD) data structure are required. For 66MHz Front Size Bus Processor, SDRAM or EDO DIMM may be used. Don' t use both SDRAM and EDO DIMM at the same time.

To enable the Error Checking and Correction (ECC) feature of the chipset, ECC DIMM has to be used and the "DRAM Data Integrity Mode" on BIOS Chipset Features Setup Menu has to be set to "ECC".

Four DIMM sockets are provided for the 3.3V SDRAM or EDO:
        DIMM1 - used memory rows 0 and 1

DIMM2 - used memory rows 2 and 3
DIMM3 - used memory rows 4 and 5
DIMM4 - used memory rows 6 and 7

Table 3 provides the typical memory configurations supported by the mainboard.

Rows 0/1 (DIMM1)	Rows 2/3 (DIMM2)	Rows 4/5 (DIMM3)	Rows 6/7 (DIMM4)
Installed	None	None	None
None	Installed	None	None
None	None	Installed	None
None	None	None	Installed
Installed	Installed	None	None
Installed	None	Installed	None
None	Installed	Installed	None
None	Installed	None	Installed
None	Installed	Installed	Installed
Installed	Installed	Installed	Installed

Table 3

The maximum memory size is up to 1GB. The size of each DIMM can be 8MB, 16MB, 32MB, 64MB, 128MB or 256MB.

2.6   CPU SPEED

The table below summaries the CPU frequency and settings of BIOS setup of the motherboard.

Bus Ratio BIOS Setting	CPU Freq.	Bus Freq. by CPU FSB
3.0x	200/300/400MHz	
3.5x	233/350/466MHz	
4.0x	266/400/533MHz	
4.5x	300/450/600MHz	
5.0x	333/500/667MHz	
5.5x	366/500/733MHz	66/100/133MHz
6.0x	400/600/800MHz	
6.5x	433/650MHz	
7.0x	466/700MHz	
7.5x	500/750MHz	
8.0x	550/800MHz	

CHAPTER 3 CONNECTOR CONFIGURATION

Once the mainboard has been fastened into system case, the next step is to connect the internal cables. The internal cables are wire leads with plastic female connectors that attach to the connectors. The mainboard connectors have varying numbers of pins and are the points of contact between the mainboard and other parts of the computer.
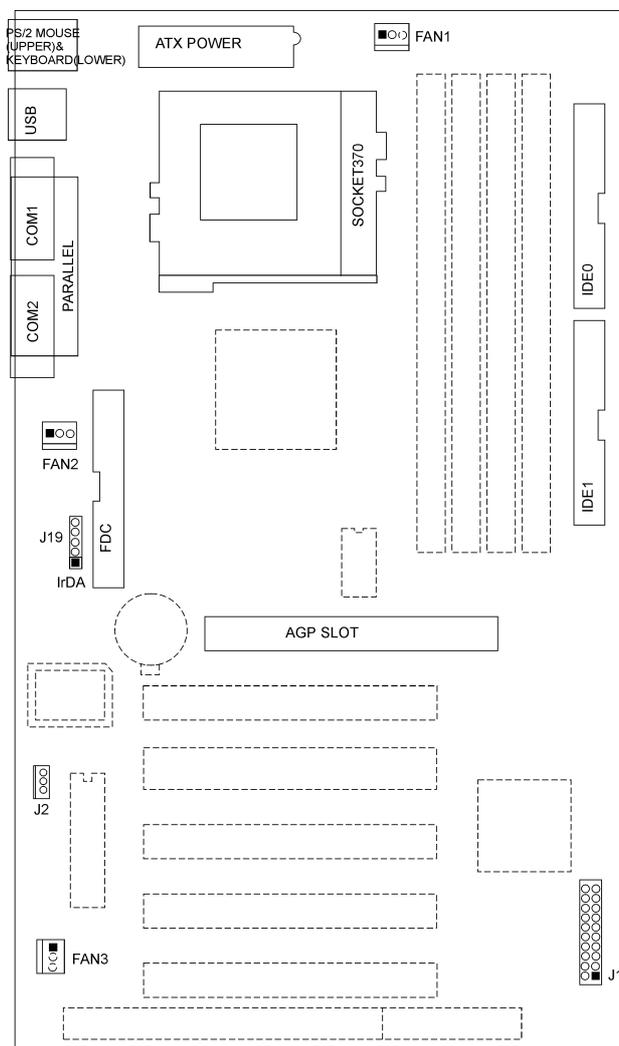
Fig 3 Connector Location

3.1   J1 – MULTIPLE FUNCTION JUMPER

J1 is a front panel multi-function jumper includes speaker, reset, keylock, harddisk, LED, ACPI (suspend) LED and power button (suspend switch). The pin definition is following figure.
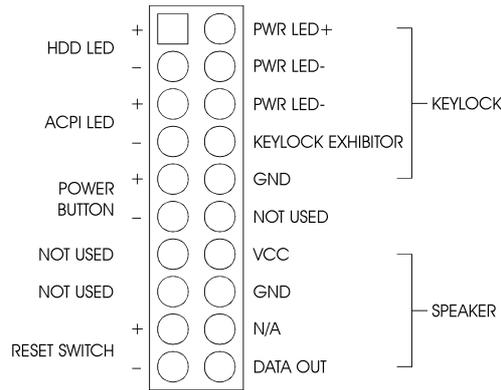
Fig. 4 Multiple Jumper Connector

3.2   J2 - WAKE ON LAN CONNECTOR

J2 is a 3-pin connector as interface of LAN card for wake up on LAN purpose.
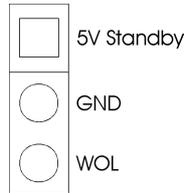
Fig. 5 Wake On LAN Connector

3.3   J3, J4 - PRIMARY/SECONDARY IDE CONNECTORS

These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to your hard disk or other device.

3.4   J10 - ATX POWER SUPPLY CONNECTOR

+3.3VDC	1	11	+3.3VDC
+3.3VDC			-12VDC
GND			GND
+5VDC			Power Switch
GND			GND
+5VDC			GND
GND			GND
Power Good			-5VDC
+5V Standby			+5VDC
+12VDC			+5VDC
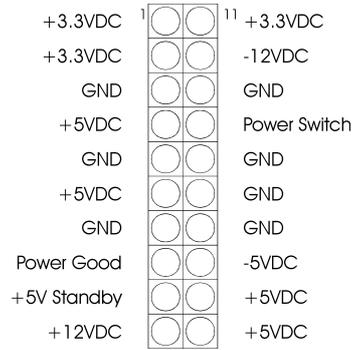
Fig. 6 ATX Power Supply Connector

3.5   J19 - IrDA CONNECTOR

J19 is an IrDA connector that uses UART2 as interface of IrDA Infrared and HP SIR.

1	VCC
	Fast IRRX
	IRRX
	GND
	IRTX
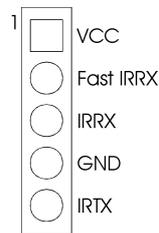
Fig. 7 IrDA Connector

3.6   J23 - FLOPPY DRIVE CONTROLLER

This connector supports the floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drive.

3.7 CPU FAN, SYSTEM FAN - FAN CONNECTOR

FAN1~FAN3 connectors are used to connect with the CPU Fan or the Chassis Fan Power cable.
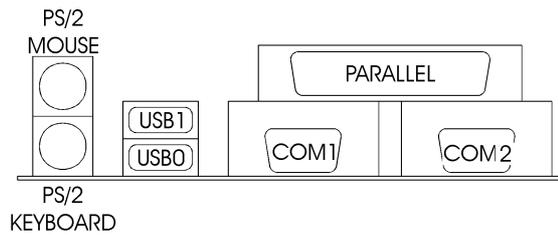
Fig. 8 I/O Connector

3.8 PS/2 KEYBOARD CONNECTOR

This connector is a six-pin female mini DIN connector using a PS/2 plug. If a standard AT size keyboard plugs, you may use the DIN to mini DIN adaptor.

3.9 PS/2 MOUSE CONNECTOR

This connector is a six-pin female mini DIN connector using a PS/2 plug. Plug the jack on the PS/2 keyboard cable into this connector.

3.10 UNIVERSAL SERIAL BUS PORT 0 & 1

These connectors are two four pin female sockets which are available for connecting USB device.

3.11 SERIAL PORT COM1 & COM2

This is a D-Type 9 pin male connector for pointing devices or other serial devices.

3.12 PARALLEL PORT CONNECTOR

This is a D-Type 25 pin female connector.

3.13   U1 – SOCKET370 FOR CELERON CPU

U1 is the Socket370 for Celeron and Pentium III FC-PGA CPU.
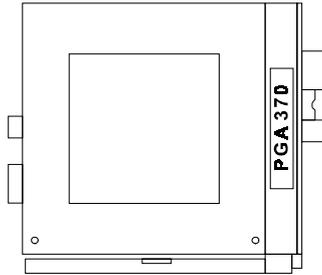
Fig. 9 Socket 370

CHAPTER 4   AWARD BIOS SETUP GUIDE

This following manual is specially provided for the BIOS supported system. After the configuration of the mainboard, and have assembled the components, user can turn on the completed system. At this point, run the software setup to ensure that the system information is correct.

The software setup of the system board is achieved through Basic Input-Output System (BIOS) programming. Use the BIOS setup program to tell the operating system what type of devices (such as disk drives) are connected to the system board.

The system setup is also called CMOS setup. Normally, users need to run system setup if either the hardware configuration is not identical with information contained in the CMOS RAM, or the CMOS RAM has lost power.

4.1   AWARD BIOS SETUP

The setup program provided with the mainboard is the Award BIOS from Award Software, Inc. Enter the AWARD Setup program's Main Menu as follows:

1.   Turn on or reboot the system. After a series of diagnostic check, the following message appear:

"Press DEL to enter SETUP"

2.   Press the <DEL> key to enter the AWARD BIOS setup program and the following screen appears:

ROM PCI/ISA BIOS (2A6LGD1O)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	CPU SPEED SETTING
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

Esc : Quit   ↑↓→← : Select Item
F10 : Save & Exit Setup   (Shift)F2 : Change Color

Time, Data, Hard Disk Type...

Fig. 10

3.   Choose an option and press <Enter>. Modify the system parameters to reflect the options installed in the system. (see the following sections for more information).

4.   Press <ESC> at anytime to return to the Main Menu.

5.   In the Main Menu, choose "SAVE AND EXIT SETUP" to save change and reboot the system. Choosing "EXIT WITHOUT SAVING" to ignore all changes and exists the program.

...

4.2 STANDARD CMOS SETUP

ROM PCI/ISA BIOS (2A6LGD1O)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

```
Date (mm:dd:yy) : Mon, Jan 10 2000
Time (hh:mm:ss) : 19 : 1 : 14

HARD DISKS        TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE

Primary Master   :  Auto   0    0     0       0       0      0     AUTO
Primary Slave    :  None   0    0     0       0       0      0    ---------
Secondary Master :  None   0    0     0       0       0      0    ---------
Secondary Slave  :  None   0    0     0       0       0      0    ---------


Drive A : 1.44M , 3.5in.                      Base Memory:      640K
Drive B : None                            Extended Memory:    64512K
                                             Other Memory:      384K
Video   : EGA/VGA
Halt On : All Errors                         Total Memory:     65536K

Esc : Quit          ↑↓→← : Select Item        PU/PD/+/- : Modify
F1  : Help          (Shift)F2 : Change Color
```

Fig.11

Date(mm/dd/yy)	Type the current date.
Time(hh:mm:ss)	Type the current time.
Hard Disks	Choose from the standard hare disk types 1 to 45. Type 47 is user definable. Type Auto is for auto detect the hard disk type.
Drive A&B	Choose 360K, 5.25in.; 1.2M, 5.25in.; 720K, 3.5in.; 1.44M, 3.5in.; 2.88MB 3.5in. or None
Video	Choose EGA/VGA, CGA 40, CGA 80, or MONO,
Halt On	Choose All Errors; No Errors; All, But Keyboard; All, But Diskette or All, But Disk/Key

4.3   BIOS FEATURES SETUP

ROM PCI/ISA BIOS (2A6LGD1O)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

```
┌─────────────────────────────────────────────────────────────────────────┐
│  Anti-Virus Protection        : Enabled    Video BIOS Shadow      : Enabled  │
│  CPU Internal Cache           : Enabled    C8000-CBFFF Shadow     : Disabled │
│  External Cache               : Enabled    CC000-CFFFF Shadow     : Disabled │
│  CPU L2 Cache ECC Checking     : Enabled    D0000-D3FFF Shadow     : Disabled │
│  Quick Power On Self Test      : Disabled   D4000-D7FFF Shadow     : Disabled │
│  Boot Sequence                : A,C,SCSI   D8000-DBFFF Shadow     : Disabled │
│  Swap Floppy Drive            : Disabled   DC000-DFFFF Shadow     : Disabled │
│  Boot Up Floppy Seek          : Enabled                                      │
│  Boot Up Numlock Status       : On                                           │
│  Gate A20 Option              : Fast                                         │
│  Memory Parity/ECC Check       : Enabled                                     │
│  Typematic Rate Setting       : Disabled                                    │
│  Typematic Rate (Chars/Sec)    : 6                                           │
│  Typematic Delay (Msec)        : 250                                         │
│  Security Option              : Setup                                        │
│  PCI/VGA Palette Snoop         : Disabled                                    │
│  OS Select For DRAM > 64MB     : Non-OS2                                     │
│  HDD S.M.A.R.T. Capability     : Disabled   ESC: Quit     ↑↓→←: Select Item  │
│  Report No FDD For Win95       : No         F1: Help      PU/PD/+/-: Modify  │
│                                             F5: Old Values  (Shift)F2: Color │
│                                             F6: Load BIOS Defaults           │
│                                             F7: Load Setup Defaults          │
└─────────────────────────────────────────────────────────────────────────┘
```

Fig.12 BIOS Setup Defaults

<u>**A short description of the screen items follows:**</u>

Anti-Virus Protection: Choose Enabled or Disabled.   Enabled to activate the Trend ChipAwayVirus (R) Anti-Virus program inside the BIOS.

CPU Internal Cache: Choose Enabled or Disabled. This option lets user choose whether to use CPU internal cache memory. The default is Enabled.

External Cache: Choose Enabled or Disabled. This option lets user choose whether to use secondary cache memory. The default is Enabled.

Quick Power On Self Test: Choose Enabled or Disabled. This option let the POST sequence runs longer for through tests.

Boot Sequence: With the default setting the BIOS first attempts to boot from drive A: and then, if unsuccessful, from hard disk C:. User can select other boot up sequence. Available sequences are "A,C,SCSI", "C,A,SCSI", "C,CDROM,A", "CDROM,C,A", "D,A,SCSI", "E,A,SCSI", "F,A,SCSI", "SCSI,A,C", "SCSI,C,A", "C only", "LS/ZIP,C".

Swap Floppy Drive: Choose Enabled or Disabled. This option lets end users to change the Drive A: or B: to others.

Boot up Floppy Seek: Choose Enabled or Disabled. Disabled provides a fast boot and reduces the possibility of damage to the heads.

Boot Up NumLock Status: Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts numeric keypad in arrow key mode at boot-up.

Gate A20 Option: Choose Fast (chipset handled) or Normal (keyboard handled). The gate A20 is a device used to address memory above 1Mbytes. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Memory Parity/ECC Check: Choose Enabled or Disabled. If memory modules with Parity of ECC is installed.

Typematic Rate Setting: Choose Enabled or Disabled. Enabled will determines the typematic rate defined by following two options.

Typematic Rate (Chars/Sec): The number selected 6,8,10... indicates how fast the number of characters can response in one second.

Typematic Delay (Msec): The number selected indicates the time period between two identical keys appear.

Security Option: Choose Setup or System. If system is selected, the password should be set.

PCI/VGA Palette Snoop: Select Disabled or Enabled. If Enabled the MPEG Card can synchronised with PCI/VGA.

OS Select For DRAM > 64MB: Select Non-OS/2 or OS/2. If the system memory is larger than 64MB and running OS/2, please select OS/2. However, if it use other operating system, please select Non-OS/2. Furthermore, if the system memory is less than 64MB, the BIOS will ignore this function.

HDD S.M.A.R.T. Capability: Choose Enabled or Disabled. Enabled will support the hard disk S.M.A.R.T. feature (Self-Monitoring, Analysis and Reporting Technology).

Report No FDD For Win95: Choose Yes or No. Yes will show a removable disk in Window 95 when the floppy drive is set as None.

Video BIOS Shadow: ROM Shadow copies Video BIOS code from slower ROM to faster RAM. Video BIOS can then execute from RAM.

C8000-DFFFF Shadow: If enabled and BIOS is present in this segment, then the BIOS is shadowed.

4.4   CHIPSET FEATURES SETUP

The Advanced Chipset Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Note: Change these Settings only if user is familiar with the Chipset.

ROM PCI/ISA BIOS (2A6LGD1O)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

```
Auto Configuration.            : Enabled
EDO DRAM Speed Selection       : 60ns          Current CPU Temperature      : 56°C/133°F
                                               Current System Temp.         :  27°C/80°F
SDRAM RAS-to-CAS Delay         : 3             Current CPU FAN1 Speed       :  4500RPM
SDRAM CAS Precharge Time       : 3             Current CPU FAN2 Speed       :  4800RPM
SDRAM CAS Latency Time         : 3             Current CPU FAN3 Speed       :  4800RPM
DRAM Data Integrity Mode       : Non-ECC       Vcore   : 2.01V    2.5(V)     :   2.48V
System BIOS Cacheable          : Disabled      3.3(V)  : 3.32V    5.0(V)     :   5.05V
Video BIOS Cacheable           : Disabled      12(V)   : 12.22V  -12(V)      : -12.37V
Video RAM Cacheable            : Disabled      -5(V)   : -5.07V
8 Bit I/O Recovery Time        : 1
16 Bit I/O Recovery Time       : 1
Memory Hole At 15M-16M         : Disabled
Passive Release                : Disabled
Delayed Transaction            : Enalbed
AGP Aperture Size              : 64M

                                               ESC: Quit         ↑↓→←: Select Item
                                               F1: Help          PU/PD/+/-: Modify
                                               F5: Old Values    (Shift)F2: Color
                                               F6: Load BIOS Defaults
                                               F7: Load Setup Defaults
```

Fig. 13

A short description of the screen items follows:
Auto Configuration: When Auto Configuration is Enabled, BIOS will set up the chipset with the predetermined optimal parameters according to the CPU installed. Otherwise, set it manually.

EDO DRAM Speed Selection: 60ns

SDRAM RAS-to-CAS Delay: This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed.

SDRAM CAS Precharge Time: If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. This field applies only when synchronous DRAM is installed in the system.

SDRAM CAS Latency Time: It defines the length of time for Column Address Stroke allowed to precharge.

DRAM Data Integrity Mode: Select ECC (Error-correcting Code) or Non-ECC according to the type of DIMM installed.

System BIOS Cacheable: Choose Enabled or Disabled. "Enabled" allows System BIOS to be cacheable.

Video RAM Cacheable: Choose Enabled or Disabled. "Enabled" allows video RAM to be cacheable.

AGP Aperture Size: Select the size of the Accelerated Graphic Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The available options are 4, 8, 16, 32, 64, 128 and 256MB.

The below items will show only with SYSTEM MONITORING FEATURES:

Current CPU Temperature: This item will show the temperature of CPU.

Current System Temp.: This item will show the temperature of the system board.

Current CPU FAN1/ FAN2/ FAN3 Speed: These items will show the rotate speed per minute of the FANs .

Vcore/2.5(V)/3.3(V)/5.0(V)/12(V)/-12(V)/-5(V): These items show the different voltage of the system board.

4.5   POWER MANAGEMENT SETUP MENU

The Power Management Setup option is used to change the values of the chipset registers for system power management functions.

ROM PCI/ISA BIOS (2A6LGD1O)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

```
ACPI Function            : Enabled          Primary INTR           : ON
Power Management         : User Define       IRQ3   (COM2)          : Primary
PM Control by APM        : Yes               IRQ4   (COM1)          : Primary
Video Off Option         : Suspend → Off     IRQ5   ( LPT2)         : Primary
Video Off Method         : V/H SYNC+Blank    IRQ6   (Floppy Disk)   : Primary
MODEM Use IRQ            : 3                 IRQ7   (LPT1)           : Primary
Soft-off by PWRBTN       : Delay 4 Sec.      IRQ8   (RTC Alarm)     : Disabled
         **PM Timers**                       IRQ9   (IRQ2 Redir)    : Secondary
HDD Power Down           : Disabled          IRQ10 (Reserved)       : Secondary
Suspend Mode             : Disabled          IRQ11 (Reserved)       : Secondary
         **PM Events**                       IRQ12 (PS/2 Mouse)     : Primary
VGA                      : OFF               IRQ13 (Coprocessor)    : Primary
LPT & COM                : LPT/COM           IRQ14 (Hard Disk)      : Primary
HDD & FDD                : OFF               IRQ15 (Reserved)       : Disabled
DMA/Master               : OFF
Wake Up On LAN           : Disabled
Modem Ring Resume        : Disabled
RTC Alarm Resume         : Disabled
                                             ─────────────────────────────────
                                             ESC: Quit        ↑↓→←: Select Item
                                             F1: Help         PU/PD/+/-: Modify
                                             F5: Old Values   (Shift)F2: Color
                                             F6: Load BIOS Defaults
                                             F7: Load Setup Defaults
```

Fig.14

<u>**A short description of the screen items follows:**</u>

ACPI Function: To enabled feature for supporting the operating system with Advanced Configuration and Power Interface. (such as Windows 98)

Power Management: Available selection are "Disabled", "User Define", "Max Saving" and "Min Saving":
"Disabled" will disable all the power saving functions.
"User Define" makes the time period waiting for Suspend Mode to be programmed.
"Max Saving" will set the time period waiting for Suspend Mode to be 10 seconds.
"Min Saving" will set the time period waiting for Suspend Mode to be 1 hour.

PM Control by APM: Available options are "Yes" and "No". To choose "Yes" to let the Power Management Function to be control by the MS APM software.

Video Off Option: Choose the mode in which you want the monitor to blank. The options are "Always On", "Suspend → Off", "Susp, Stby → Off", "All mode → Off".

Video Off Method: Choose V/H SYNC+Blank, DPMS or Blank Screen. This is monitor Power Saving Method. V/H SYNC+Blank means turn off Vertical, Horizontal scanning and blank the screen. Blank Screen will blank the display screen. DPMS (Display Power Management System) can allow the System BIOS control the Display Card to turn off the Display.

MODEM Use IRQ: Available options are 3,4,5,7,9,10,11 and NA. It is used to choose the interrupt line that the Modem is used. "NA" means not available.

Soft-Off by PWR-BTTN: Available options are "Instant-Off" and "Delay 4 sec.". For "Instant-Off" option, the power of the system will be switched off at once when the power button is pressed for turn it off. For "Delay 4 sec." Option, the power of the system will be switched off with pressing the power button for 4 seconds.

HDD Power Down: To select the time period will turn the HDD off. Accessing the HDD again will take a few seconds for HDD to spin up for operation.

Suspend Mode: To set the time period waiting for Suspend Mode when the Power Management function is set to "User Define".

VGA/LPT&COM/HDD&FDD/DMA/Master: All of these functions are used to control the wake up event from the Suspend Mode. Once the function is enabled, the corresponded activity will trigger the system back to the Normal Mode from the Suspend Mode.

Wake Up On LAN: When Enabled, the wake up packet received by the Network Card, with wake up on LAN feature, can wake up the system

Modem Ring Resume: When Enabled, the external modem ring in can wake up the system.

RTC Alarm Resume: To enable the **RTC Alarm Resume** will wake up the system at the time set on the **Date (of Month)** and **Timer (hh:mm:ss)**.

Primary INTR: To turn on this feature will enable the system to monitor the IRQs for power management.

IRQ3 – IRQ15: When it is enabled, the system will monitor the activity of the corresponded system IRQ to turn on or off the power management functions.

4.6   PCI CONFIGURATION

The PCI Configuration Setup option is used to configure the PCI add-on Cards on PCI Slots. Without proper setup the PCI Add-on Cards might not function properly.

ROM PCI/ISA BIOS (2A6LGD1O)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

```
┌──────────────────────────────────────────────────────────────────────────┐
│ PNP OS Installed          : Yes          CPU to PCI Write Buffer  : Enabled │
│ Resources Controlled By   : Manual       PCI Dynamic Bursting     : Enabled │
│ Reset Configuration Data  : Disabled     PCI Master 0 WS Write    : Enabled │
│ IRQ-3  assigned to        : PCI/ISA PnP  PCI Delay Transaction    : Enabled │
│ IRQ-4  assigned to        : PCI/ISA PnP  PCI #2 Access #1 Retry   : Disabled│
│ IRQ-5  assigned to        : PCI/ISA PnP  AGP Master 1 WS Write    : Enabled │
│ IRQ-7  assigned to        : PCI/ISA PnP  AGP Master 1 WS Read     : Disabled│
│ IRQ-9  assigned to        : PCI/ISA PnP                                     │
│ IRQ-10 assigned to        : PCI/ISA PnP  PCI IRQ Actived By       : Level   │
│ IRQ-11 assigned to        : PCI/ISA PnP  Assign IRQ For USB       : Enabled │
│ IRQ-12 assigned to        : PCI/ISA PnP  Assign IRQ For VGA       : Enabled │
│ IRQ-14 assigned to        : PCI/ISA PnP                                     │
│ IRQ-15 assigned to        : PCI/ISA PnP                                     │
│ DMA-0  assigned to        : PCI/ISA PnP                                     │
│ DMA-1  assigned to        : PCI/ISA PnP  ESC: Quit    ↑↓→←: Select Item     │
│ DMA-3  assigned to        : PCI/ISA PnP  F1: Help     PU/PD/+/-: Modify     │
│ DMA-5  assigned to        : PCI/ISA PnP  F5: Old Values  (Shift)F2: Color   │
│ DMA-6  assigned to        : PCI/ISA PnP  F6: Load BIOS Defaults             │
│ DMA-7  assigned to        : PCI/ISA PnP  F7: Load Setup Defaults            │
└──────────────────────────────────────────────────────────────────────────┘
```

Fig. 15

Note: Change these Settings only if user is familiar with the Chipset and all the PCI Add-on Cards functions.

A short description of the screen items follows:

PNP OS Installed: Set this option to Yes if the operating system installed in the computer is Plug and Play-aware (e.g. Windows 95).

Resources Controlled By: The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play compatible device. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

Reset Configuration Data: If enable this option, the BIOS will clear and reset the ESCD after hardware reset.

IRQ#/DMA# assigned to: These items will be shown only when "Resources Controlled By" option is set the "Manual". The available options are "Legacy ISA" and "PCI/ISA PnP". If the option is set to "Legacy ISA", the BIOS will never assign the specified IRQ/DMA resource to PCI or ISA PnP Devices. If "PCI/ISA PnP" is chosen, the BIOS will make the specified IRQ/DMA have a chance to be assigned to the PCI or ISA PnP devices.

CPU to PCI Write Buffer: It is used to enable or disable the CPU to PCI Write Buffer.

PCI Dynamic Bursting: It is used to enable or disable the PCI dynamic bursting cycles.

PCI Master 0 WS Write: Choose Enabled to let the PCI Master using 0 wait state in write cycle.

PCI Peer Concurrency: Choose Enabled or Disabled. To enable this option will let the system active more than one PCI device at a time.

PCI Delay Transaction: Select Enabled to use the write buffer for the delay transaction cycles. It is selected to support the compliance of PCI Specification Version 2.1.

AGP Master 1 WS Write/AGP Master 1 WS Read: These items are used to enable or disable the AGP master device 1 wait state Write and Read cycle correspondingly.

PCI IRQ Active By: Choose Level or Edge. The default setting is Level.

Assign IRQ For USB: It is used to choose the IRQ that the USB is used.

Assign IRQ For VGA: It is used to choose the IRQ that the VGA is used.

4.7   INTEGRATED PERIPHERALS SETUP MENU

The Integrated Peripherals setup option is need to change the values of the I/O chipset registers for I/O functions.

ROM PCI/ISA BIOS (2A6LGD1O)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

OnChip IDE Channel0	: Enabled	Onboard Serial Port 1	: 3F8/IRQ4
OnChip IDE Channel1	: Enabled	Onboard Serial Port 2	: 2F8/IRQ3
IDE Prefetch Mode	: Enabled	UART Mode Select	: IrDA
IDE HDD Block Mode	: Enabled	RxD, TxD Active	: Hi, Lo
Primary Master PIO	: Auto	IR Transmittion delay	: Enabled
Primary Slave PIO	: Auto		
Secondary Master PIO	: Auto	Onboard Parallel Port	: 378/IRQ7
Secondary Slave PIO	: Auto	Parallel Port Mode	: ECP+EPP
Primary Master UDMA	: Auto	ECP Mode Use DMA	: 3
Primary Slave UDMA	: Auto	EPP Mode Select	: EPP1.7
Secondary Master UDMA	: Auto		
Secondary Slave UDMA	: Auto	PWRON After PWR Resume	: OFF
Init Display First	: AGP		
Power On Function	: Button Only		
Onboard FDC Controller	: Enabled	ESC: Quit ↑↓→←: Select Item F1: Help PU/PD/+/-: Modify F5: Old Values (Shift)F2: Color F6: Load BIOS Defaults F7: Load Setup Defaults	

Fig. 16

A short description of the screen items follows:

OnChip IDE Channel0/OnChip IDE Channel1: These items are used to enable or disable the onboard IDE Channel.

IDE Prefetch Mode: Choose Enabled to set the onboard IDE controller to access the IDE device with faster Prefetch Mode.

IDE HDD Block Mode: This allows your hard disk controller to use the fast block mode to transfer data to your hard disk drive.

Primary Master PIO/Primary Slave PIO/Secondary Master PIO/Secondary Slave PIO:
Available selection are "Auto", "Mode 0", "Mode 1", "Mode 2", "Mode 3" and "Mode 4". To
choose "Auto", the system BIOS will scan the IDE device and decide which mode of the device is.
Otherwise the user should key in the mode of the device to the corresponding field.

Some harddisks cannot work properly with its corresponding timing, please set a slower timing.

**Primary Master UDMA/Primary Slave UDMA/Secondary Master UDMA/Secondary Slave
UDMA:** Available selection are "Auto" or "Disabled". To choose "Auto", the system BIOS will
scan the IDE device and decide Ultra DMA supported or not.

Init Display First: To select priority of initialization the PCI display card or the AGP display
card.

Power On Function: This item is used to set the system power on method. The settings are
Button Only, Password, Hot Key, Mouse Left or Mouse Right.

Onboard FDC Controller: Choose Enabled or Disabled. Enabled allows onboard Floppy Drive
Controller to be functioned, otherwise the users should use other sources.

Onboard Serial Port 1: Choose Auto, Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4 and 2E8/IRQ3.
While choosing proper I/O Address/IRQ, be sure not to cause Address conflict with other I/O
devices. The default setting is 3F8/IRQ4.

Onboard Serial Port 2: Choose Auto, Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4 and 2E8/IRQ3.
While choosing proper I/O Address/IRQ, be sure not to cause Address conflict with other I/O
device. The default setting is 2F8/IRQ3.

UART Mode Select: Choose Standard, ASKIR (Amplitude Shift Keyed Infrared Port), IrDA 1.0
for serial Interface.

RxD, TxD Active: The available options are "Hi, Hi", "Hi, Lo", "Lo, Hi" and "Lo, Lo". It is
used to configure the logic level of Receive and Transmit signal in IrDA interface.

Onboard Parallel Port: Choose None or with four different I/O Address and corresponding
IRQx. While choosing proper I/O Address, be sure not to cause Address conflict with other I/O
devices.

Parallel Port Mode: Choose SPP, EPP, ECP, ECP+EPP Mode. Make proper selection with the
attached printer port device.

ECP Mode Use DMA: Choose "1" or "3" to select the DMA channel used for the ECP device.
This item is shown if the **Onboard Parallel Mode** is chosen as "ECP" or "ECP/EPP" option.

EPP Mode Select: Choose "EPP1.7" or "EPP1.9", which is used to configure the EPP using either EPP1.7 or 1.9 timing specification. This item is shown if the **Parallel Mode** is chosen as "EPP" or "ECP+EPP" option.

PWRON After PWR Resume: When ON, the BIOS will turn on the ATX power supply when the A/C power recovered after the A/C main power failure. The default value is "OFF".

4.8   LOAD SETUP DEFAULTS MENU

This Main Menu item uses the default setup values. Use this option as a diagnostic aid if the system behaves erratically. Choose this item and the following message appears:

"Load SETUP Defaults (Y/N)? N"

To use the Power-On defaults, change the prompt to "Y" and press <Enter>.

4.9   SUPERVISOR PASSWORD

Two level of password is supported. Depending on the setting of the "Security Option" in the "BIOS FEATURES SETUP", the system BIOS will ask for password every time booting up the System or entering BIOS Setup. With the supervisor password, both the system booting and BIOS setup changing is allowed.

This main menu item lets the user to set up the Supervisor Password.

Change the password as follows:

1.   Choose "PASSWORD SETTING" in the Main Menu and press <Enter>. The following message appears:

"ENTER PASSWORD:"

2.   Enter the Password and press <Enter>. The following message appears:

"CONFIRM PASSWORD:"

Important: *Keep a safe record of the new password. If forget or lose the password, the only way to access the system is to disconnect the CMOS batteries and then re-enter the password.*

4.10   USER PASSWORD

With the user password, only booting up the system is accepted, but changing the BIOS setup is not allowed.

4.11   IDE HDD AUTO DETECTION

When users can not find the Hard Disk information, it is very helpful to use this option.

1.   Choose this item and press <Enter>.

2.   After couple seconds, the screen will appear the Hard Disk information and following message:

"SELECT PRIMARY MASTER OPTION(N=SKIP): N"

3.   Enter Y or N to confirm the acceptance then enter.

4.   The process will repeat for Primary Slave, Secondary Master and Secondary Slave Hard Disks.

4.12   SAVE & EXIT SETUP MENU

When you select this function, the following message will appear at the centre of the screen to assist you to Save data to CMOS and Exit the Setup.

Save to CMOS and Exit (Y/N)?

4.13   EXIT WITHOUT SAVING MENU

When you select this function, the following message will appear at the centre of the screen to assist you to Abandon all Data and Exit Setup.

Quit Without Saving (Y/N)?

CHAPTER 5   FLASH AND DMI UTILITY

5.1   AWARD FLASH UTILITY

This section will provide instructions to guide you through updating your old BIOS. The file name we use to program here is *test.bin*, and the file name to save old BIOS is *2A59F000.OLD*. Please note that those file names are not absolute. They are only examples to let you have a more clear understanding of the updating process.

How to Begin

1. Please type **"a*wdflash*"** and press the **ENTER** key to begin the updating process.
2. Once you enter, you will see a main menu displaying:

```
┌─────────────────────────────────────────────────────────┐
│                                                           │
│              FLASH MEMORY WRITER V5.XX                    │
│          Copyright (C) 1996, Award Software, Inc.,        │
├───────────────────────────────────────────────────────────┤
│    For I430HX-2A59F000          DATE:  06/18/96           │
│       Flash Type                                          │
│                                                           │
│    File Name to Program:                                  │
│                                                           │
│                                                           │
│                                                           │
├───────────────────────────────────────────────────────────┤
│  Error Message:                                           │
└─────────────────────────────────────────────────────────┘
```

Fig.17

3. Type the program name *"test.bin"*, and then press the **ENTER** key.
4. At the bottom of the menu, you will be requested to answer:

"Do You Want to Save BIOS (Y/N)?"

<u>If you do not wish to save the old BIOS:</u>

5.   Please type *"N"*, and then press the ENTER key.
6.   Then you will be request to answer:

   "Are You Sure to Program?"

7.   Answer "N" if you do not want to program, and then it will exit.

<u>To save the old BIOS:</u>

8.   Please respond *"Y"*, and then press the ENTER key.
9.   Move the cursor to "File Name to Save:"
10.   Type file name *"2A59F000.OLD"*, and then press the **ENTER**.
      (Your old BIOS will be saved in the file name you create. In this case, the old BIOS is saved in the file name, 2A59F000.OLD).
11.   Then you will be requested to answer:

   "Are You Sure to Program (Y/N)?"

12.   Type *"Y"* to begin programming, and press the **ENTER** key.
13.   When the programming is finished, the showing message will appear:

   "Programming Flash Memory - 1FF00 0K

   Message: Please Power off or Reset System"

14.   Once you see the showing message *"Power Off or Reset System"*, please re-start your system.
15.   When you power on the computer again, you will find your old BIOS has already been successfully updated.

Warning

Please note that Award Flash Utility cannot run under EMM386 or QEMM.   Thus, when executing the command *"awdflash"*, and error message will appear:

   "Error Message: Fail - Due to EMM386 or QEMM!"

5.2 DESKTOP MANAGEMENT INTERFACE (DMI) OVERVIEW

This motherboard can support DMI within the BIOS level. 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. The onboard BIOS will detect as many system information as possible and store those collected information in a 4KB block in the motherboard's flash EPROM and allow the DMI to retrieve data from this database.

The DMI Configuration Utility (DMICFG.EXE) must be used 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 bootup to bypass your AUTOEXEC.BAT and CONFIG.SYS files.

Using the DMI Configuration Utility

<u>Edit DMI</u>

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) keys to change the settings. Enter to exit and save, ESC to exit and not save.

If the user has made changes, ESC will prompt you to answer Y or N. Enter Y to go back to the left-hand screen and save, enter N to go back to left-hand screen and not save. If editing has not been made, ESC will send you back to the left hand menu without any messages.

Add DMI
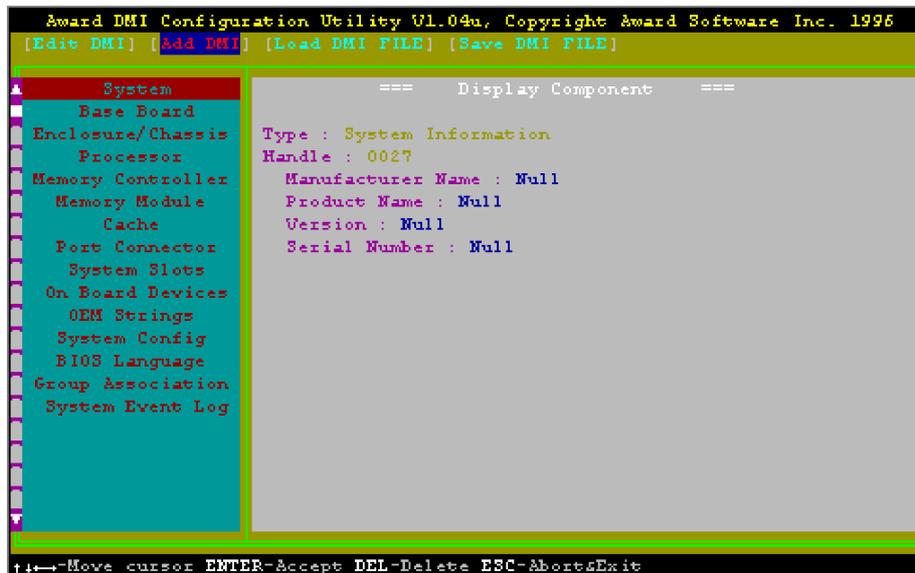
This DMI Configuration Utility also allows the system integrator or end user to add additional information into the DMI database such as serial numbers, housing configurations, and vendor information. Those information not detected by the motherboard BIOS and has to be manually entered through the DMI Configuration Utility and updated into the DMI database.
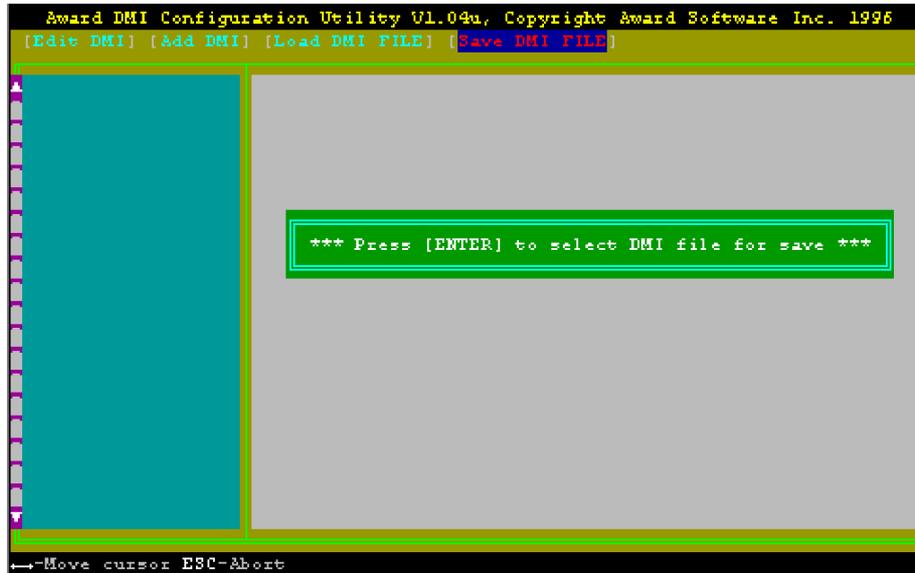
Load DMI File
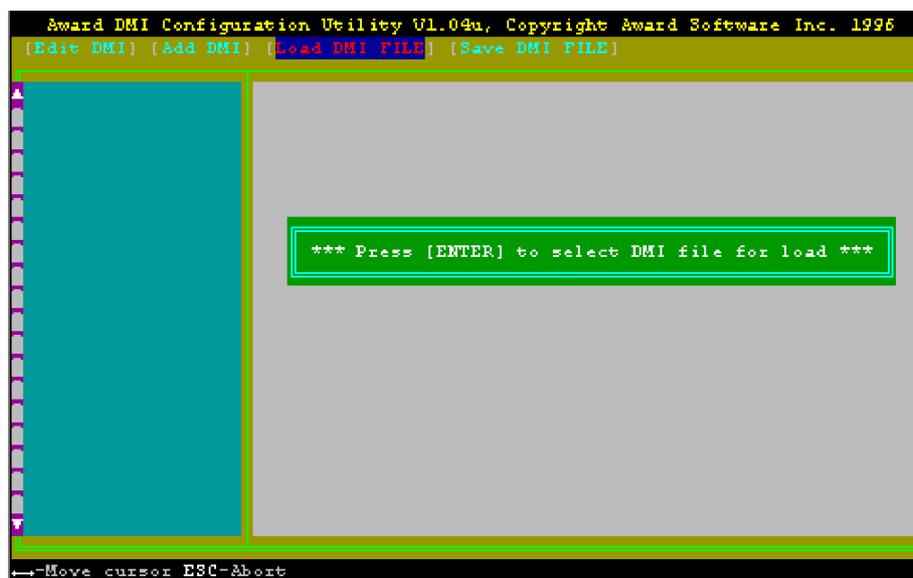
You can load the disk file to memory by entering a drive and path and file name here.

Save DMI File

You can save the DMI (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.
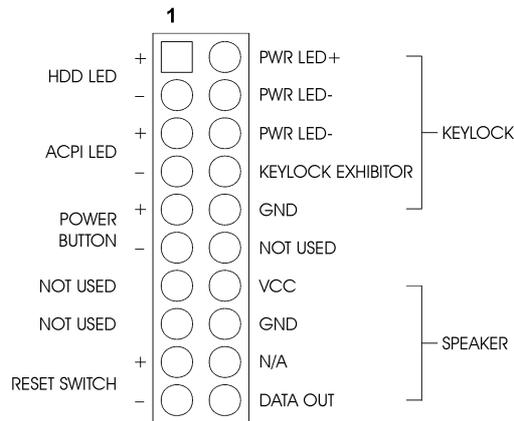
APPENDIX   QUICK GUIDE

1.   Jumper Settings

Function		Jumper Settings
CLEAR CMOS DATA	Normal	JP3: 1-2 close
	Clear	JP3: 2-3 close

2.   J1 – Multiple Function Connector

J1 is a front panel multi-function jumper which includes Hard disk LED, ACPI LED, ATX power switch, Reset Switch, Power LED and Speaker. The pin definition is as following figure.

3.   BIOS Setup

If the first time installation of this system board, please press the **"DEL"** key to get into the BIOS Setup while Power-on Self testing, and select "Load Optimized Defaults", and then select the Frequency/Voltage Control to choose the proper "CPU Clock Ratio" for the CPU installed. For example, X7 should be selected for Celeron 466MHz CPU, and the default "CPU Host/PCI Clock" is 66/33MHz, don't over specification selected. Actually, the currently Celeron 66MHz based CPU, always locked the CPU Clock Ratio

inside. So the Ratio selected will not take in effect, the Optimized Defaults loading is enough for this jumperless mainboard. Don't change any setting in the "Advance Chipset Features" which are important factors for the stability of this system. If an incorrect setting caused the system can not boot, just turn off the power, and then press **"Insert"** key until the power turned on again, and the BIOS title displayed. It's a safe mode to recover the system.