

# **PRM-23I**

High Performance

Socket370 PCI/AMR Mainboard

**User's Guide**



Edition 1.01

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P/N: 155100-8830



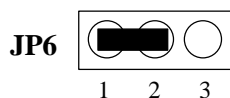
EPA POLLUTION PREVENTER



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## WARNING

For the system to operate normally, please make sure JP6 of the mainboard is set as below. Refer to Fig. 2 in this manual for the location JP6.



If JP6 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.

Be sure to unplug the power code of the system when installation or upgrade with any devices for the system.

## POWER OFF

It needs to hold the power switch 4 seconds to turn off the power, if "Delay 4 sec" selected in Power Management Setup of BIOS.

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# CHAPTER 1

# INTRODUCTION

## Preface

The motherboard is a 4 layers, microATX form factor high performance PCI/AMR mainboard. It includes Intel 810 system chipset, Winbond W83627HF LPC I/O controller, Optional Creative ES1373 sound chip and Flax slot extension.

## Features

- Intel® Accelerated Hub Architecture Increased I/O performance allows better concurrency for richer multimedia applications.
- Integrated graphics/AC97 controller BOM cost savings, more flexibility and better audio quality.
- Intel® 3D graphics with Direct AGP Vivid 2D and 3D graphics, BOM cost savings, efficient use of system memory for graphics, O/S and applications
- Optional 4MB of dedicated display cache video memory enables SKU differentiation with increased 3D graphics performance improvement over Direct AGP.
- Low-power sleep modes Energy Savings, Suspend to DRAM (3 Watts), and On Now in 10 seconds approx..
- One software driver code base more stable platform, higher quality graphics, reduced OEM support costs.
- Intel® Random Number Generator (RNG) enables ISV's to strengthen security products.
- Digital Video Out port allows connection of traditional TV or new digital flat panel displays; compatible with DVI specification.
- Soft DVD MPEG 2 playback with Hardware Motion Compensation Life-like video and audio.
- 100MHz System Bus capable Flexibility for performance headroom.
- 2 USB ports Plug and Play.
- Flex ATX connector supported for Slim case applications.
- AMR Slot supported for low cost Soft Modem card expand.
- TLR Slot supported for TV-LCD interface extension.

### Processor

- Intel PPGA S370 series.
- The mainboard can run with following speeds:  
300A, 333, 366, 400, 433, 466, 500 or 533MHz
- Jumperless CPU HOST frequency

### Chipset

- Intel 810 chipsets
- Winbond W83627HF LPC I/O Controller
- Winbond W83628/9 PCI-ISA Bridge
- Creative ES1373 PCI sound chip (optional)

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## Chapter 1

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### **Main Memory**

- Memory configurations up to 512MB SDRAM
- DIMM socket for SDRAM (3.3V unbuffered).
- Support both Synchronous DRAM and Extended Data Output (EDO) Mode DRAM Modules.
- ECC Function ensure 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.
- Keyboard /mouse wake-up by programmable buttons.
- Programmable AC Power Failure Recovery.
- IrDA supported.
- USB 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 66MB/s.

### **System BIOS**

- Award BIOS (4M FWH).

### **Slots**

- One AMR slot
- Three PCI slots (1 shared)
- One ISA slots (1 shared)(optional)
- One Flex Extension (for slim case)(optional)
- One TLR TV-Out/LCD Extension slot

### **Form Factor**

- microATX Form Factor Size (240mm x 220mm) 4 Layers

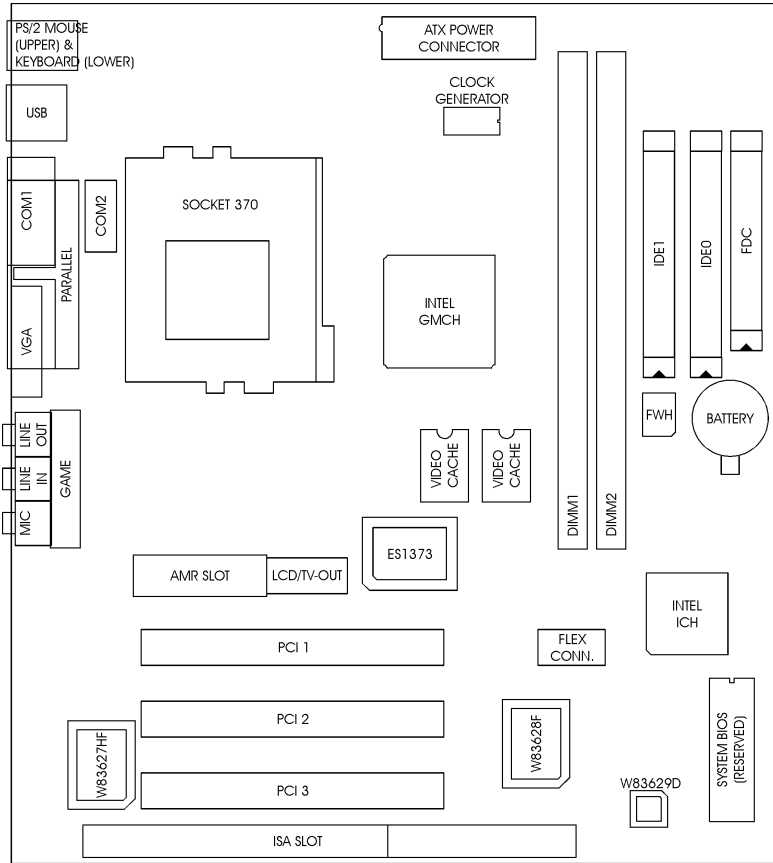


Fig. 1 Key Components of the Mainboard



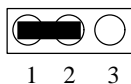


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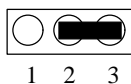
## CHAPTER 2

## 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.

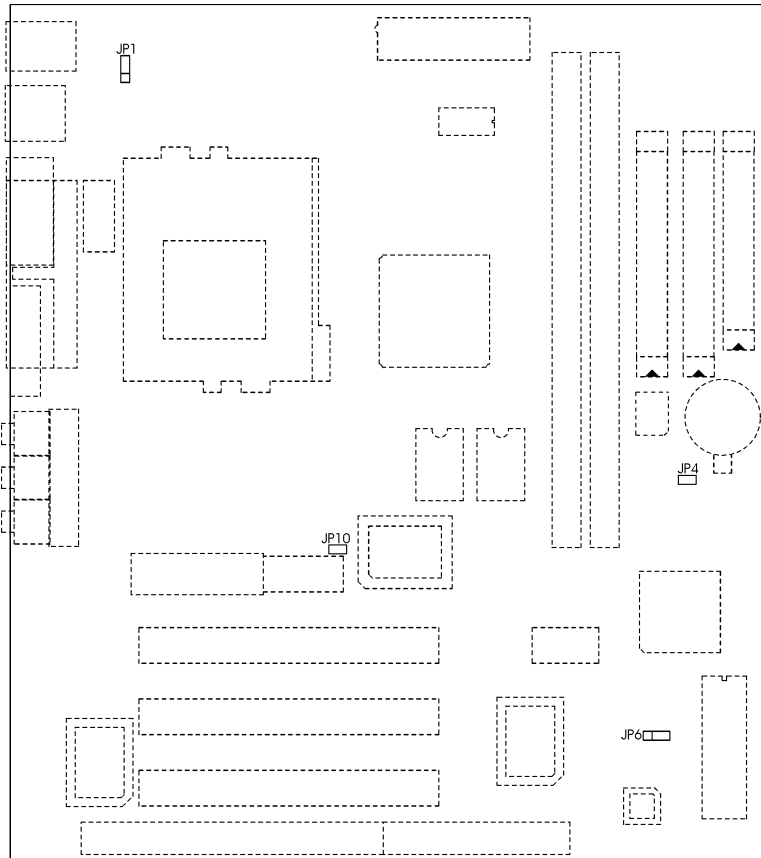


The jumper is shorted when the jumper cap is placed over the two pins of the jumper.



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**

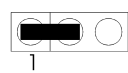
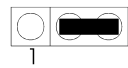
### 2.3 CPU SPEED

The table below summaries the CPU frequency and settings of each jumper of the motherboard.

CPU Type	Freq.	Bus Freq.	Bus Ratio
PPGA S370 Celeron	300MHz	66MHz	4.5x
	333MHz		5.0x
	366MHz		5.5x
	400MHz		6.0x
	433MHz		6.5x
	466MHz		7.0x
	500MHz		7.5x
	533MHz		8.0x



**Table 1**

### 2.4 JP1 – KEYBOARD/MOUSE POWER SELECT

JP1	Description
	VCC (Default)
	VCC5SBY for Keyboard Wake-up

**Table 2**

### 2.5 JP4 – BIOS LOCK/UNLOCK SELECT

JP4	Description
	Unlock (Default)
	Lock

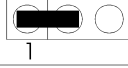

**Table 3**







## 2.6 JP6 - CLEAR CMOS DATA

JP6 is used to clear the content of the CMOS Data in the RTC (build in PIIX4 chip).

JP6	Description
 1	Normal
 1	Clear CMOS Data

**Table 4**

## 2.7 JP10 – ONBOARD AUDIO SELECT (FOR ES1373 ONLY)(OPTIONAL)

JP10	Description
	Enable
	Disable

**Table 5**

## 2.8 MEMORY CONFIGURATION

The mainboard lets user upgrade system memory via DIMM sockets on the mainboard. On board memory is located in four banks: Bank 0 - 3. Two DIMM sockets are provided for EDO DRAM or Synchronous DRAM. Table 6 provides the typical memory configurations supported by the mainboard.

Bank 0/1 (DIMM1)	Bank 2/3 (DIMM2)
Installed	None
None	Installed
Installed	Installed

**Table 6**

The maximum memory size is up to 512MB (SDRAM). The size of each DIMM can be 32MB, 64MB, 128MB, 256MB and 512MB

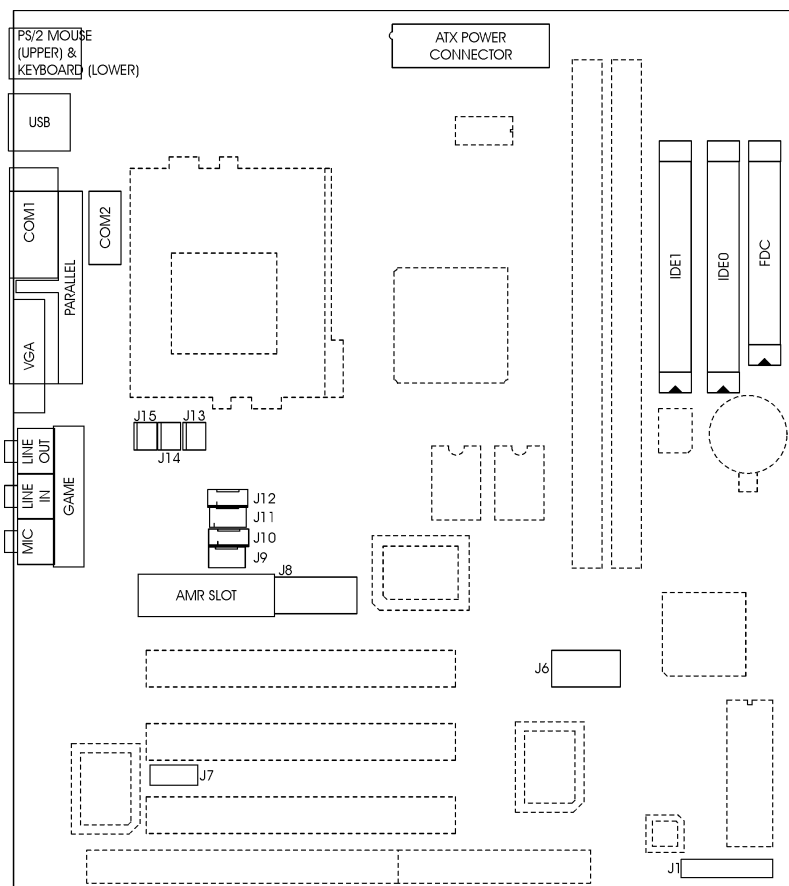


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## CHAPTER 3

## 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.

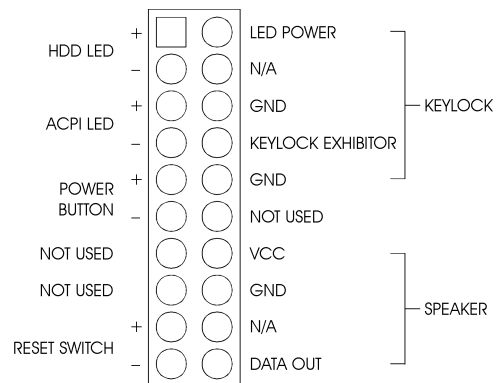


Fig. 4 Multiple Function Jumper

### 3.2 J2 - FLOPPY DRIVE CONTROLLER

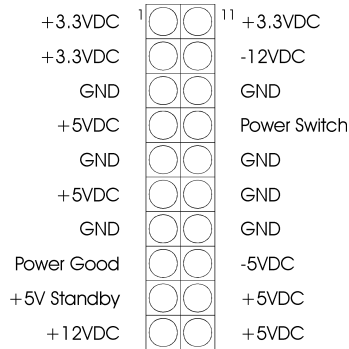
This connector supports the floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drive.

### 3.3 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 J5 - ATX POWER SUPPLY CONNECTOR

J5 is a 2x10 pin male connector. Plug the power connector of the ATX power supply onto the connector.



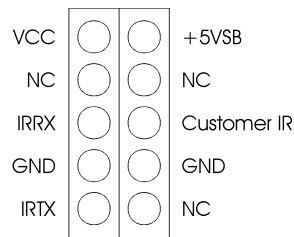
**Fig. 5 ATX Power Supply Connector**

### 3.5 J6 – FLEX CONNECTOR

Flex Connector is an optional one to extend to a 3 PCI slots riser card for the new Slim MicroATX platform.

### 3.6 J7 – CUSTOMER IR CONNECTOR

J7 is a ten-pin connector for the IrDA/ASKIR/Customer Infrared device. The pin definition is listed as follows:



**Fig. 6 Customer IR Connector**

### 3.7 J8 – LCD/TV OUT CONNECTOR

This is a reserved connector for TV-OUT extension which is a TV Encoder chip on the card to encode the VGA signals to TV composite signals. And a PanelLink LCD interface chip as a transmitter controller for TFT LCD Panel.

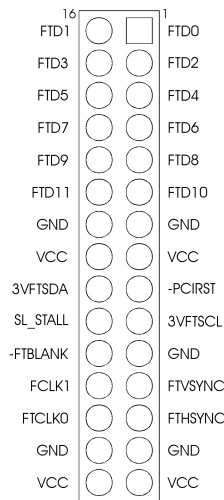


Fig. 7 LCD/TV Out Connector

### 3.8 J9 – CD-ROM AUDIO CONNECTOR (SONY)

J9 is a four-pin connector, which is used to connect with the Sony CD-ROM audio output. This pin definition is as following:

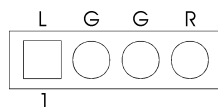


Fig. 8 CD-ROM Audio Connector

### 3.9 J10 – CD-ROM AUDIO CONNECTOR (MISUMI/PANASONIC)

J10 is four-pin connector, which is used to connect with the Panasonic or Misumi CD-ROM audio output. The pin definition is as following:

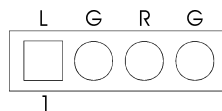


Fig. 9 CD-ROM Audio Connector

### 3.10 J11 – TV AUDIO IN CONNECTOR

J11 is an input and used for the Audio source from TV tuner card or capture card.

### 3.11 J12 – PHONE/MODEM IN CONNECTOR

J12 is an input and used for the Audio source from Modem cards.

### 3.12 J13, J14 – CPU FAN CONNECTOR

J13, J14 are three-pin connectors, which are used to connect with the CPU Fan, Or the Case Fan which will be monitored by the on board hardware doctor, And controlled the Fan speed.

### 3.13 J15 – AUX. FAN CONNECTOR

This Auxiliary Fan connector is always power supplied except power off.

### 3.14 J19 – SERIAL PORT COM2 CONNECTOR

This connector supports serial port 2 for external Modem, serial mouse or other communication devices.

### 3.15 AMR – AMR SLOT

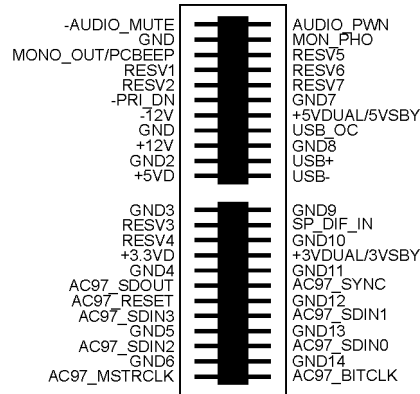


Fig. 10 AMR Slot

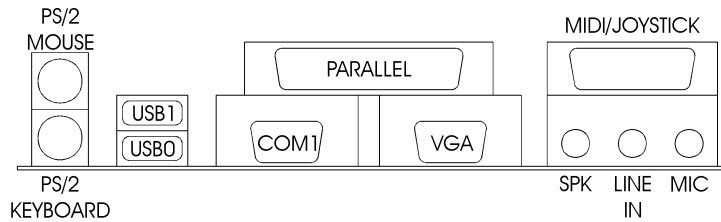


Fig. 11 I/O Connector

### 3.16 J16 – AUDIO/MIDI PORT CONNECTOR

Three 1/8" female connectors used as speaker, line in and microphones. **SPK** can be connected to headphones or preferably powered speakers. **Line In** allows tape players or other audio sources to be recorded by your computer or played through the SPK. **MIC** allows microphones to be connected for inputting voice and the 15 pins MIDI port used for Game pod or Midi devices.



**3.17 J18 – PARALLEL PORT CONNECTOR**

This is a D-Type 25 pin female connector for Line/parallel printer.

**3.18 J20 – SERIAL PORT COM1**

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

**3.19 J21 – UNIVERSAL SERIAL BUS PORTS 0 & 1**

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

**3.20 J22 – 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.

**3.21 J22 – 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 mouse cable into this connector.

---

## CHAPTER 4

## AWARD BIOS

If the first time installation of this system board, please press the “DEL” key to get into the BIOS Setup while Power-on memory 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, X6 should be selected for Celeron 400MHz 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 is not take in effect, the Optimized defaults loaded 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 “ESC” key until the power turned on again and the BIOS Title displayed. It’s a safe mode to recover the system.

The detail BIOS description for this I810 system, Please reference to the \awardbios\i810bios.rtf on All-in-one Multimedia CD-ROM.

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## CHAPTER 5

## DRIVER INSTALLATION

The ALL-IN-ONE Multimedia CD-ROM will auto execute with a menu displayed when put into CD-ROM Drive. Then the correct product needs to be selected, and the Drivers list will be showed on the right side of the screen: The 810 Drivers, Utility files, Manual & Catalog. Click the **810 Drivers** for the drivers of system must be installed. For example, in Windows 98 or 95 system, the “**Intel 82810 Win9x VGA Drivers**”, **Intel 82810 Win9x IDE Driver**”, and the “**AD1881 AC97 Audio Drivers for Win9x**” are minimum drivers must be installed for proper system operation. If the CD-ROM can not auto execute with Menu prompt, the “Explore this CD” can be selected to browse the CD-ROM, and click “Autotrun.exe” in root directory, or follow the descriptions as below to install the drivers step by step.

### 5.1 VGA ON BOARD DRIVERS INSTALLATION

#### I. Win9x VGA drivers installation:

Browse the All-in-one Multimedia CD-ROM to the directory **\Intel\82810\vga\win9x\graphics\** and click *setup.exe*.

#### II. WinNT VGA drivers installation:

Browse the All-in-one Multimedia CD-ROM to the directory **\Intel\82810\vga\winNT\graphics\** and click *setup.exe*.

#### III. Win2000 VGA drivers installation:

Browse the All-in-one Multimedia CD-ROM to the directory **\Intel\82810\vga\win2000\graphics\** and click *setup.exe*.

---

## 5.2 IDE DRIVERS INSTALLATION

INF files enable the Intel® 810 and Intel® 820 Chipsets to be recognized by listed operating systems. This installer will unpack updated .INF files into a specified folder.

Supported operating system: Microsoft Windows\* 95 OSR2.1+ and Windows\* 98 operating system

Chipset: Intel® 810 and Intel® 820 Chipsets

Browse the All-in-one Multimedia CD-ROM to the directory `\Intel\82810\IDEinf\` and click *setup.exe*.

## 5.3 AUDIO/AC97 ON BOARD DRIVERS INSTALLATION

### I. AD1881 AC97 Audio Drivers for Win98

1. Run `\AD\1881\WDM\SETUP.EXE`, then restart to take effect
2. The system will search for new drivers for **PCI Multimedia Audio Device**. Click *Next*, then *finish* to have an **unknown?** device
3. Then get into **Control Panel -> System -> Device Manager -> Other Device -> PCI Multimedia Audio Device -> Driver -> Update Drivers -> Next**
4. Select **Display a list of all drivers -> Sound, Video and Game controller -> Analog Device Inc. -> Next -> Yes**
5. Select **Next** again, then browse the Win98 installation CD-ROM to `\Win98` directory, then click *OK* to finish the drivers installation

### II. AD1881 AC97 Audio Drivers for WinNT

Run `\AD1881\WINNT\SETUP.EXE` and follow the instructions to complete the drivers installation.

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## CHAPTER 6

## FLASH AND DMI UTILITY

### 6.1 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 *2A69JD1J.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 “*awdfflash*” and press the **ENTER** key to begin the updating process.
2. Once you enter, you will see a main menu displaying:

FLASH MEMORY WRITER V6.XX (C) Award Software 1998 All Rights Reserved	
For i440LX-W977EF-2A69JD1JC-0	DATE: 12/03/98
Flash Type	
File Name to Program:	
Error Message:	

**Fig. 12**

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)?”**

## Chapter 6

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If you do not wish to save the old BIOS:

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.

To save the old BIOS:

8. Please respond “Y”, and then press the ENTER key.
9. Move the cursor to “File Name to Save:”
10. Type file name “**2A69JD1J.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, 2A69JD1J.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 - 3FF00 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 “*awdf*lash”, and error message will appear:

***“Error Message: Fail - Due to EMM386 or QEMM!”***

## 6.2 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

#### Edit DMI

```

Award DMI Configuration Utility V1.04a, Copyright Award Software Inc. 1996
[Edit DMI] [Add DMI] [Load DMI FILE] [Save DMI FILE]

  BIOS
  System
  Base Board
  Enclosure/Chassis
  Processor
  Memory Controller
  Memory Module
  Memory Module
  Memory Module
  Memory Module
  Cache
  Cache
  Port Connector
  Port Connector
  Port Connector
  Port Connector
  Port Connector
  Port Connector
  Port Connector
  System Slots

=== Display Component ===
Type : BIOS Information
Handle : 0000
Vendor Name : Award Software International, Inc.
BIOS Version : 4.51 PG
BIOS starting Address Segment : E000
BIOS Build Date : 05/12/97
BIOS Characteristics : Press [ENTER] for detail
Size of BIOS ROM : 0128K

↑←→-Move cursor ENTER-Accept DEL-Delete ESC-Abort&Exit

```

## Chapter 6

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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.

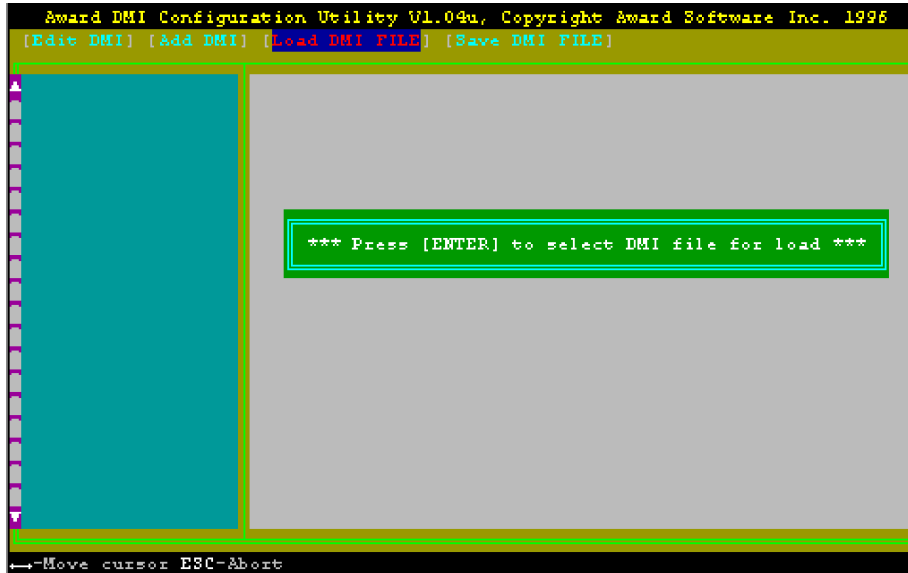
### Add DMI



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

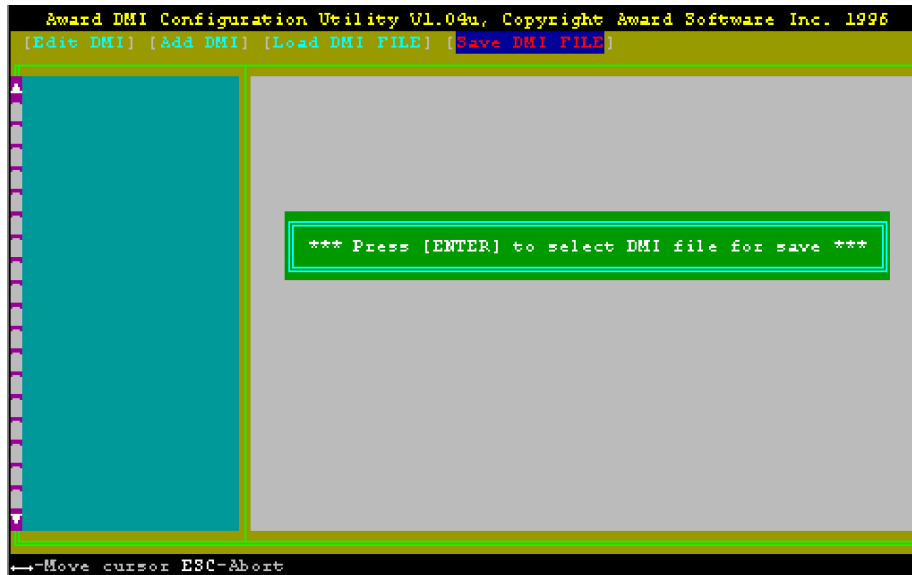


You can load the disk file to memory by entering a drive and path and file name here.

## Chapter 6

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### 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.

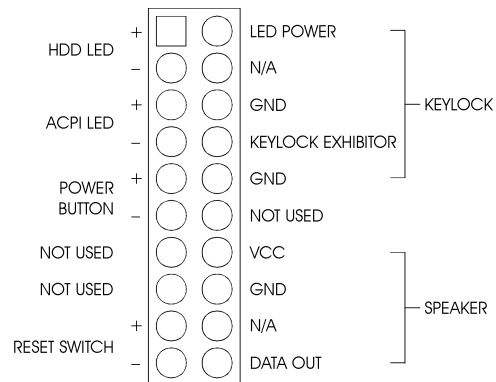
## APPENDIX A

## QUICK GUIDE

D) The table below summarizes the functions and settings of each jumper of the motherboard.

	Function	Jumper Settings
<b>Keyboard/ Mouse Select</b>	VCC (Default)	JP1: 1-2 short
	VCC5SBY for Keyboard Wake-Up	JP1: 2-3 short
<b>BIOS WR Select</b>	Unlock (Default)	JP4: short
	Lock	JP4: open
<b>Clear CMOS Data</b>	Normal (Default)	JP6: 1-2 short
	Clear CMOS	JP6: 2-3 short
<b>Onboard Audio Select (ES1373 only)</b>	Enabled (Default)	JP10: short
	Disabled	JP10: open

II) J1 – Multiple Function Jumper



## Appendix A

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### III) 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 memory 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, X6 should be selected for Celeron 400MHz 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 is not take in effect, the Optimized defaults loaded 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 “ESC” key until the power turned on again and the BIOS Title displayed. It’s a safe mode to recover the system.