PRM-13I E1

High Performance

Socket370 Mainboard

User's Guide
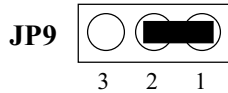
EPA POLLUTION PREVENTER

WARNING

For the system to operate normally, please make sure JP9 of the mainboard is set as below. Refer to Fig. 2 in this manual for the location JP9.

JP9 ⬜ ⬛⬛

       3   2   1

If JP9 is shorted to 2-3, no CMOS data can be retained.

CAUTION

The mainboard 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 and ATX type power supply installed.

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Technical Support

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What is it?

Ultra DMA

Ultra DMA (or UDMA) is a protocol for transferring data between a hard disk drive through the computer's data paths (or bus) to the computer's random access memory (RAM). It provides for faster throughput up to 33.3 MB/s in UDMA mode 2 and 66.7 MB/s in UDMA mode 4, twice to four times that of EIDE, for much lower prices than SCSI.

Ultra DMA support in your computer means that it will boot (start) and open new applications more quickly. It will also help users of graphics-intensive and other applications that require large amounts of access to data on the hard drive. Ultra DMA uses Cyclical Redundancy Checking (CRC), offering a new level of data protection.

Because the Ultra DMA protocol is designed to work with legacy PIO and DMA protocols, it can be added to many existing computers by installing an Ultra DMA/33 or Ultra DMA/66 PCI adapter card. Ultra DMA/33 uses the same 40-pin IDE interface cable as PIO and DMA, while Ultra DMA/66 requires a special 80-conductor cable.

AGP

AGP (Accelerated Graphics Port) is an interface specification that enables 3-D graphics to display quickly on ordinary personal computers. AGP is an interface designed to convey 3-D images (for example, from Web sites or CD-ROMs) much more quickly and smoothly than is possible today on any computer other than an expensive graphics workstation. The interface uses your computer's main storage (RAM) for refreshing the monitor image and to support the *texture mapping*, *z-buffering*, and *alpha blending* required for 3-D image display. The AGP main memory use is dynamic, meaning that when not being used for accelerated graphics, main memory is restored for use by the operating system or other applications.

ACPI

ACPI (Advanced Configuration and Power Interface) is an industry specification for the efficient handling of power consumption in desktop and mobile computers. ACPI specifies how a computer's BIOS, operating system, and peripherals communicate with each other about power usage. With ACPI, the following capabilities are possible (assuming the operating system supports them):

- The user can specify at what time a device, such as a display monitor, is to turn off or on.

- The user of a notebook computer can specify a lower-level of power consumption

when the battery starts running low so that essential applications can still be used while other less important applications are allowed to become inactive.

- The operating system can lower the clock speed during times when applications don't require the full processor clock speed.

- The operating system can reduce mainboard and peripheral device power needs by not activating devices until they are needed.

- The computer can enter a *stand-by mode* when no one is using it, but with modem power left on to receive incoming faxes.

- Devices can be plug-and-play. As soon as plugged in, they can be controlled by ACPI.
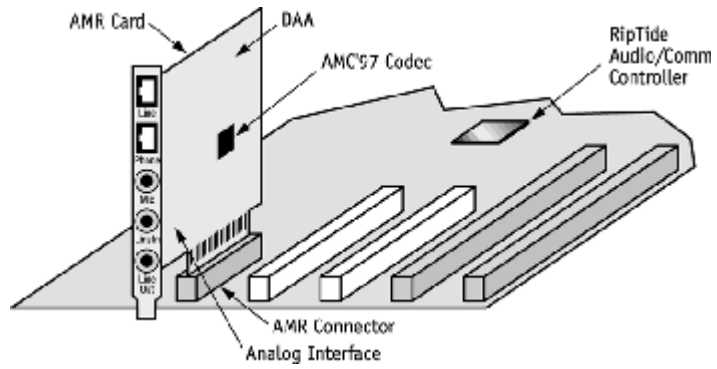
ACPI must be supported by the computer mainboard, BIOS, and the operating system. One of several *power schemes* can be chosen. ACPI is designed to work with Windows 98 and with Windows 2000. If you have Windows 98, you'll find a description of ACPI in the help files. Click Start->Help->Index-> and type in: ACPI.

STR

STR (Suspend -To –RAM) is one of the sleep states which is managed by the ACPI. You can resume your original work directly from DRAM without going through the Win98 booting process and run your application again. Suspend to DRAM saves your current work into the system memory.

AMR

AMR (Audio/Modem Riser) is a specification developed by Intel for packaging the analog I/O audio functions of modem circuitry together with a codec chip (which converts back and forth from analog to digital) on a small board that plugs directly into a computer's mainboard. The small board is called a *riser* apparently because it rises above the mainboard rather than laying flatly on it. Having this circuitry on a riser means that it doesn't have to be part of the mainboard itself. In the past, an internal modem was installed in one of several slots inside the computer chassis and an external modem was plugged into a serial port at the rear of the computer. With AMR design, the slot can now be used for other purposes. The AMR card can also provide the foundation for higher-quality audio solutions such as 3D positional audio and better MIDI music production.

CONTENTS

CHAPTER 1   INTRODUCTION

Preface

The mainboard is a **4 layers**, **FlexATX** form factor high performance PCI mainboard. It includes **Intel 810E** system chipset which enhances the performance of the first generation Integrated Graphics chipset designed for the Intel Celeron and Intel Pentium III processors, and supports new architectures such as high speed **AGP** graphic port, **PC100 SDRAM**, **AMR** slot, **Ultra DMA66**, **PCI2.2** and **66/100/133MHz** front side bus. It also builds with **4MB SDRAM on board** for video cache and on board software audio with **AC97 CODEC**. The **Winbond W83627HF** is a LPC I/O controller and **Realtech RTL8139B** is an Ethernet Controller. The **Winbond W81181AD** is a USB hub which supports **4 USB ports**.

1.1   Feature Summary
- 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
- Onboard 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.
- Soft DVD MPEG 2 playback with Hardware Motion Compensation Life-like video and audio.
- 100MHz System Bus capable Flexibility for performance headroom.
- Onboard 2 USB ports Plug and Play and 2 more optional USB ports to front panel.
- 10/100M BPS Ethernet Controller on board supported (optional).

Processor
- Intel Celeron™ series and Pentium® III Flip Chip Pin Grid Array (FC-PGA) Processors
- The mainboard can run with following speeds:300~800MHz
- Jumperless CPU HOST frequency

Chipset
- Intel 810DC100/810E chipsets
- Winbond W83627HF LPC I/O Controller
- Realtech RTL8139B Ethernet Controller
- Winbond W81181AD USB HUB

Architecture
- IBMPC/AT and PCI2.2 compatible
- AMR 1.01 compatible
- USB 1.1 compliant
- 66/100/133Mhz Front Side Bus supported

Main Memory
- Memory configurations up to 512MB SDRAM
- 2 DIMM sockets for SDRAM (3.3V unbuffered).
- Support both Synchronous DRAM and Extended Data Output (EDO) Mode DRAM Modules.
- ECC Function ensures data correction and integrity.

Power Management Features
- True green functions: support SMM, SMI and CPU stop clock function
- ACPI/PC97 compatible
- Hardware Monitoring: System Temperature, FAN speed, CPU voltage
- LAN, Modem& Keyboard wakeup function
- STR (Suspend-to-RAM) function supported

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/FIR supported.
- 2 USB connectors on board and 2 optional USB ports to front panel.
- TV-Out 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.

Ethernet Controller
- 10/100MHz PCI Ethernet controller on board.

System BIOS
- Award BIOS (4M FWH).

Slots
- One PCI slot
- One AMR slot

Form Factor
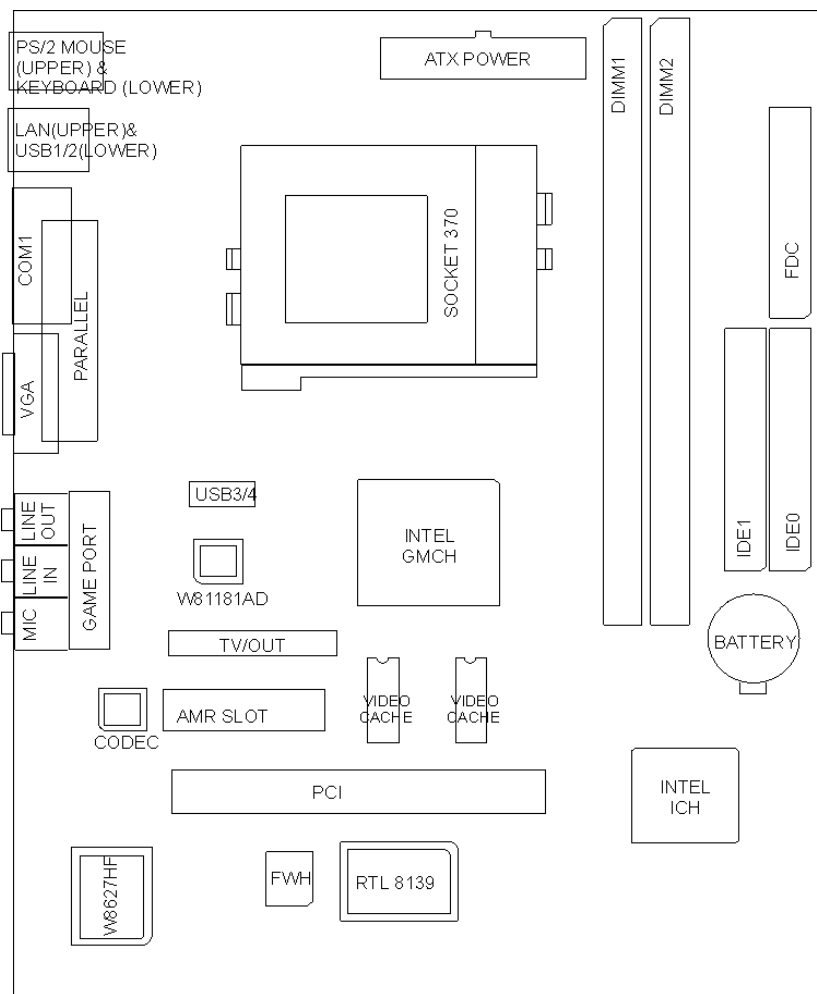- Flex ATX Form Factor Size (229mm x 191mm) 4 Layers

1.2   Board Layout

Fig. 1 Key Components of the Mainboard

1.3 Chipset Block Diagram

```
                    ┌─────────────────────────────┐
                    │  Intel Celeron/Pentium III   │
                    └─────────────────────────────┘
                                  ↕
                          System bus(66/100/133Mhz)

Digital Video Out ◀───────┐
                          │     ┌──────────────┐           ┌──────────────┐
       TV ◀──── [Encoder] ◀─────┤              │  64 Bit/   │   System     │
          Encoder               │ Intel 82810E │ 100Mhz     │   Memory     │
                                │   (GMCH)     │◀──────────▶│              │
      Display ◀─────────────────┤              │           └──────────────┘
                                │              │
 [Display Cache] ◀──────────────┤              │
 (4MB SDRAM,100/133 MHz)        └──────────────┘
                                       ↕
                                ┌──────────────┐           ┌──────────────┐
  2 IDE Ports ◀─────────────────┤              │◀─────────▶│  PCI Slots   │
  Ultra ATA/66                  │  ICH (I/O    │           └──────────────┘
                                │ Controller   │  [Super   ┌──────────────┐
                                │   Hub)       │◀─▶ I/O ]  │  LAN         │
  2 USB Ports ◀─────────────────┤              │           │  Option      │
                                │              │           └──────────────┘
                                └──────────────┘           ┌──────────────┐
                                       ↕                   │ Audio/Modem  │
                                ┌──────────────┐           │ Codec        │
                                │    FWH       │           └──────────────┘
                                │(Firmware Hub)│
                                └──────────────┘
```
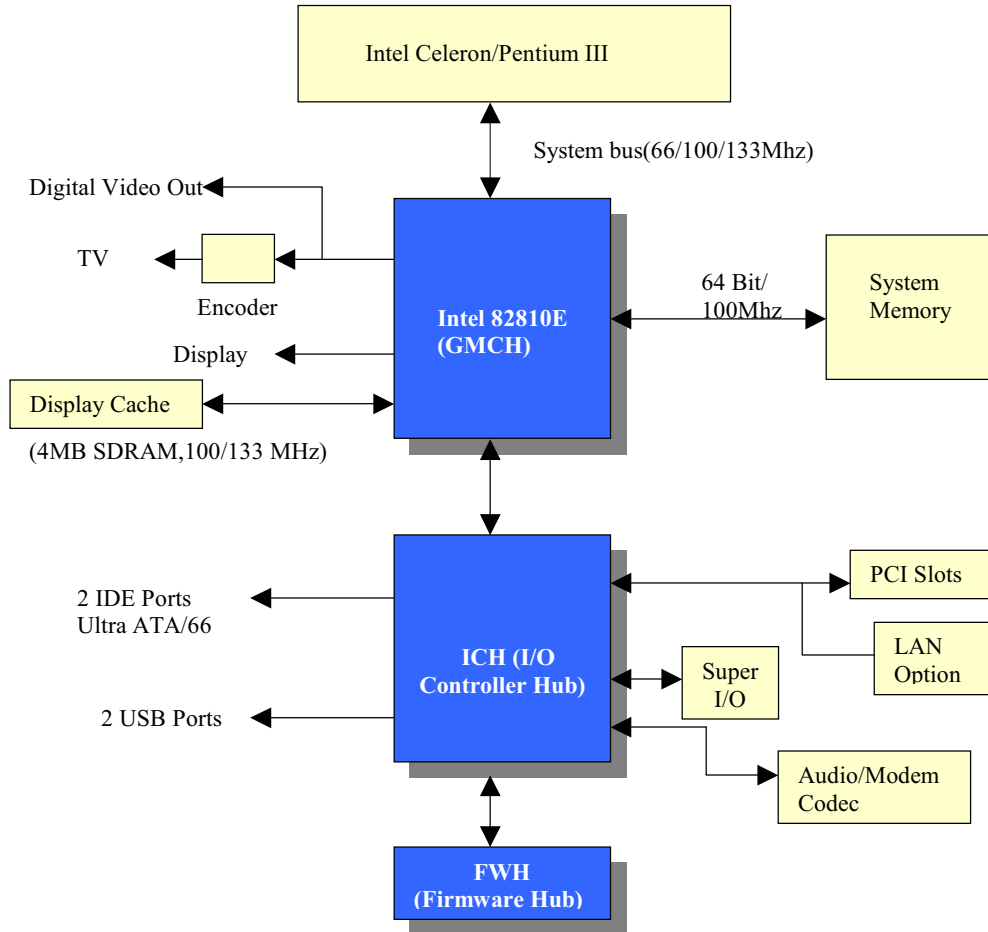
Fig 2 Intel 810E Chipset Block Diagram

CHAPTER 2   INSTALLATION

CAUTION

Before you begin to install the PRM-13I E1 mainboard, take some precautions to ensure that you avoid the possibility of damage to the product from static electricity. Ensure you are installing the mainboard into a suitable case too.

- Before handing the mainboard, ground yourself by grasping an unpainted portion of the system's metal chassis.
- Remove the mainboard from its anti-static packaging. Hold it by the edges and avoid touching its components.
- Check the mainboard for damage. If any chip appears loose, press carefully to seat it firmly in its socket.

INSTALLATION STEPS

To install and operate the new mainboard , you must carry out the following steps:
1. Install the CPU with cooling fan
2. Install memory modules
3. Set jumpers on the mainboard
4. Install the Extension Cards
5. Connect cables, wires and external connectors
6. Complete the BIOS setup program

2.1   Processor Installation

The PRM-13I E1 mainboard is installed with a PGA370 ZIF processor socket. This socket can support a single Intel Celeron™ processor with a 66MHz or 100MHz host bus frequency, or a single Intel® Pentium® III FC-PGA processor with 100MHz or 133MHz host bus frequency. The CPU core voltage is automatically detected.

(Warning: Processors not specifically listed by type and rated speed may have requirements that are not supported by the board's design. Use of unsupported processors may result in improper operation, damage to the board or processor, or reduced product life.)

The board supports the processors listed as below:

|	Processor Speed	Host Bus Frequency	Cache Size
Celeron Processor	366MHz	66MHz	128KB
	400MHz	66MHz	128KB
	433MHz	66MHz	128KB
	466MHz	66MHz	128KB
	500MHz	66MHz	128KB
	533MHz	66MHz	128KB
Pentium III Processor (FC-PGA)	500 MHz	100MHz	256KB
	533MHz	133MHz	256KB
	550 MHz	100MHz	256KB
	600MHz	100MHz	256KB
	650MHz	100MHz	256KB
	667MHz	133MHz	256KB
	700MHz	100MHz	256KB

Differences Between FC-PGA and PPGA Form Factors

The FC-PGA package is used on Pentium III processors, and is referred to as the Flip Chip Pin Grid Array package. The PPGA package is used on Intel Celeron processors, and is referred to as the Plastic Pin Grid Array package.

The PPGA package used on the Intel Celeron processors has the actual silicon core facing down towards the motherboard. The silicon core is covered by a heat slug helping to dissipate heat from the core. The heat slug transfers heat from the core to the heatsink. As processors get smaller and faster, the ability to dissipate heat from the processor core is become more and more critical. The FC-PGA package, flips the silicon core over facing up. The core sits on top of the actual package and is exposed. The silicon die is exposed and makes direct contact with the heatsink.
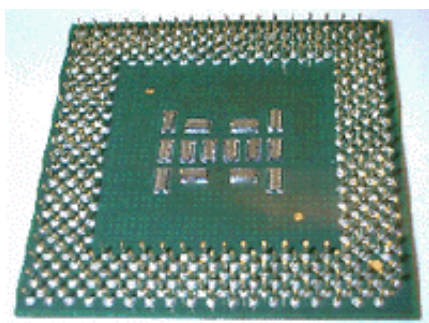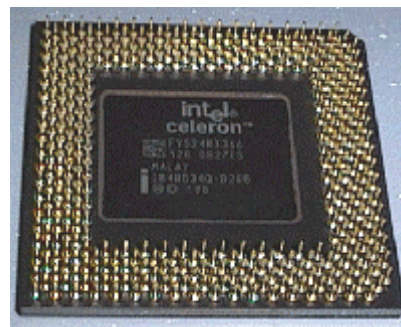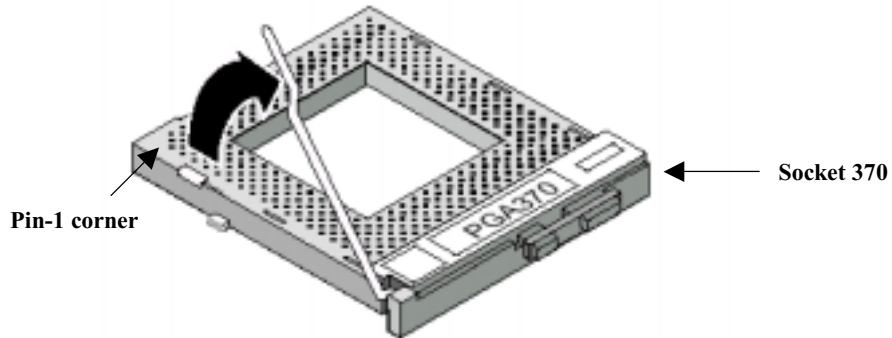

FC-PGA   **PPGA**

1. Locate the PGA370 socket for the processor.

2. On the socket and on the processor, identify the pin 1 corner. On the socket, the pin-1 corner is opposite the hinge of the locking lever, and it has one hole missing from the corner. On the processor, the pin-1 corner has a slight bevel.

Pin-1 corner   **Socket 370**

3. Push the socket locking lever away from the socket to unhook it. Swing the lever into the upright position.

4. Insert the processor into the socket taking care that you have matched the pin-1 corner. No force is required, and the processor should seat smoothly into the socket.
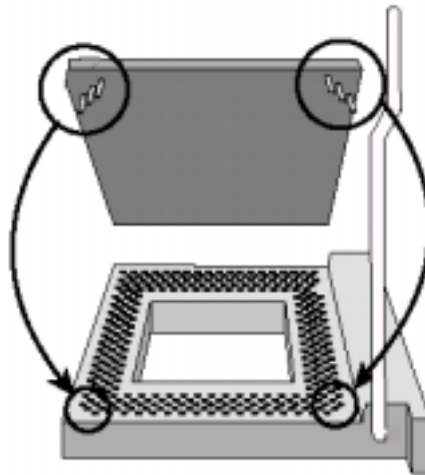
5. Swing the locking lever down and hook it under the latch on the side of the socket to lock it in place.
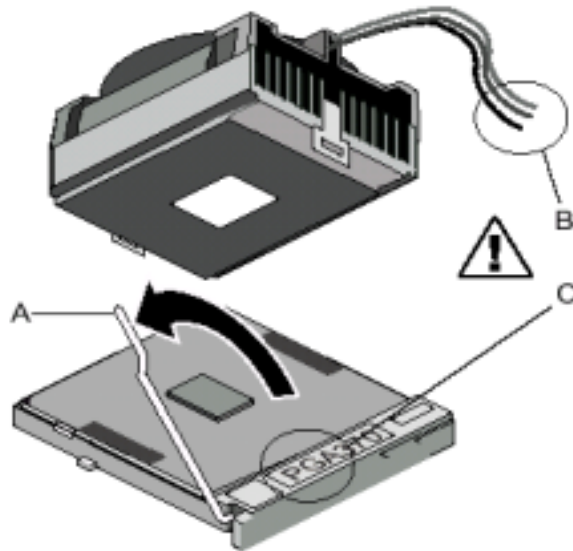
6. Locate the power connector for the processor cooling fan. If your processor has a cooling fan installed, connect the cable from the cooling fan to CPU FAN.

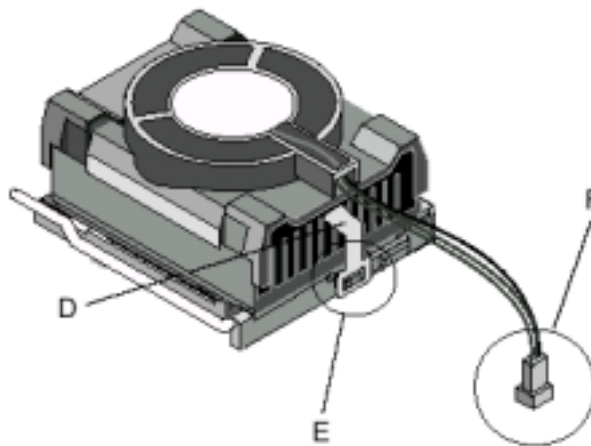## 2.2 Installing System Memory

The mainboard provides 2 DIMM slots for providing a flexible memory size from 8MB up to 512MB main memory. For this mainboard, you must use 168-pin 3.3V unbuffered Synchronous DRAM or EDO DRAM. The memory bus runs at 100MHz only. In order to ensure your processor operates over a 100MHz system bus steadily, you must install memory compatible to the PC-100 specification.

20-pin   60-pin   88-pin
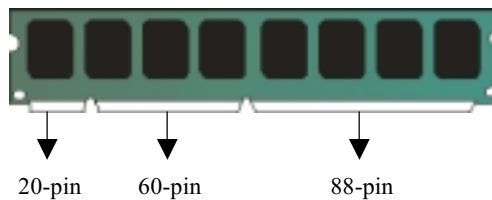
168-pin 3.3Vunbuffered memory module

You must install at least one memory module and the first memory module should be installed in DIMM1 slot, the second in DIMM2 slot.

The mainboard supports memory chips with ECC (Error Correction Code) functions. If you install more than one module, the modules can have different capacities, but the memory chips should all be the same type.

1. Locate the DIMM slots on the mainboard.

DIMM1   DIMM2
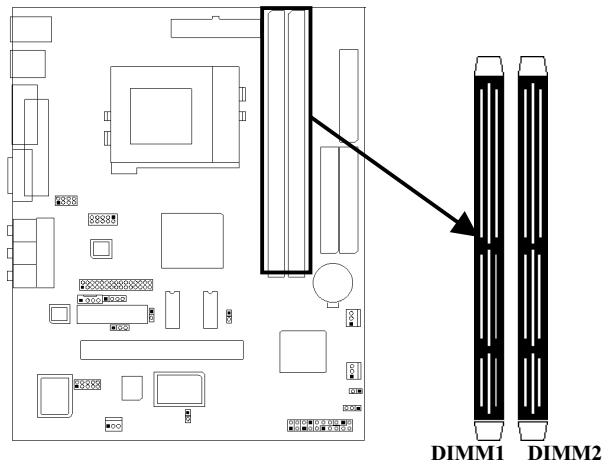
2. Push the latches on each side of the DIMM slot down.

3.   Install the DIMM module into the slot and press it carefully but firmly down so that it seats correctly. The latches at either side of the slot will be levered upwards and latch on to the edges of the DIMM when it is installed correctly.

2.3   Jumper Settings

There are some hardware settings on the mainboard. They specify configuration options for various features. The settings are made using something called a 'jumper'. Jumpers on the system board provide information to your operation about installed options and system settings. A jumper is a set of two or more metal pins in a plastic base attached to the mainboard. A plastic jumper 'cap' with a metal plate inside fits over two pins to create an electrical contact between them. The contact establishes a hardware setting such as installing the CPU, selecting cache size.

Jumpers and Caps
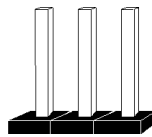
Jumper Cap   **3-pin jumper**   **2-pin jumper**
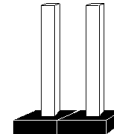
Jumpers Presentation

To rapidly give an effective and direct way to set jumpers for your system, there are some diagrams used in the following chapters. All kind of jumper setting modes are simplified as the following relevant graphic symbols:
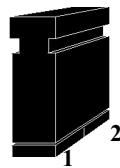
Jumper shorted symbolizes as:
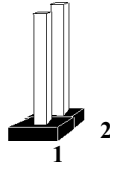
Jumper opened symbolizes as:
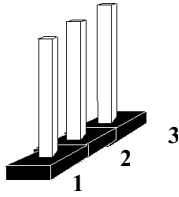
Open all pins of a jumper symbolizes as:
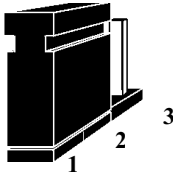
Closed pin-1 and pin-2 of a jumper symbolizes as:
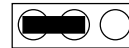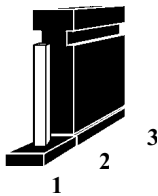
Closed pin-2 and pin-3 of a jumper symbolizes as:
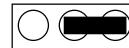
Graphical Description Of Jumper Settings
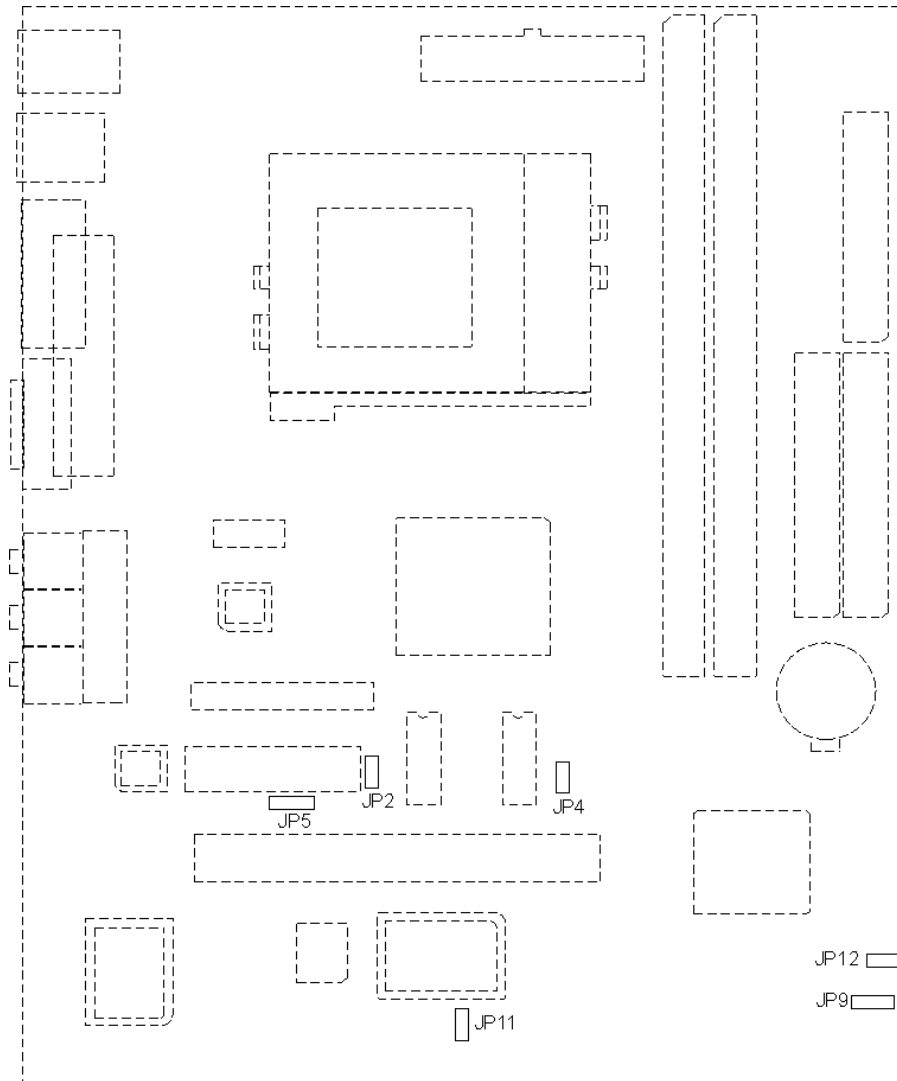
Fig. 3 Jumper Location of the mainboard

2.31. JP2, JP4 – CPU SPEED DETECTION

JP2 and JP4 are used to select a system bus frequency of either Auto Detection or Forced mode.
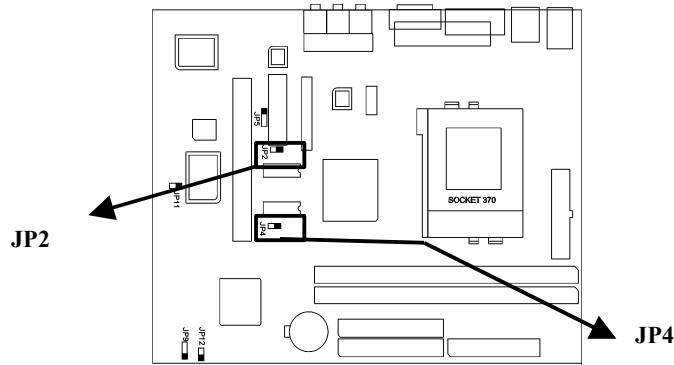
JP2	JP4	Description
		Auto Detect
		Always 100MHz
		Always 133MHz

Table1 CPU SPEED DETECTON

2.32. JP5 – ONBOARD CODEC SETTING
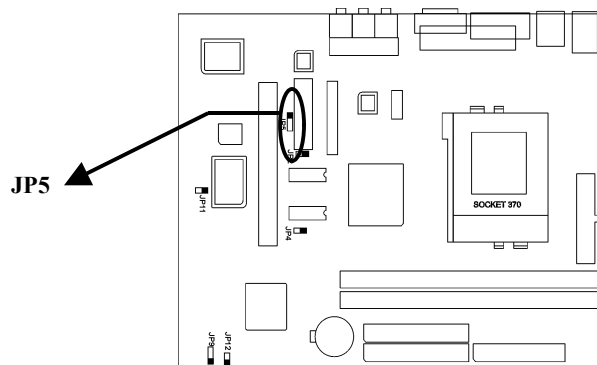
If you want to install another sound card, you have to disable the onboard audio Codec by setting this jumper to Disabled.
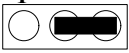
JP5	Description
1	Enabled
1	Disabled

Table 2 ONBOARD CODEC SETTING

2.33. JP9 – CLEAR CMOS DATA

This jumper lets you erase the system setup settings that are stored in CMOS memory. You might need to erase this data if incorrect settings are preventing your system from operating. To clear the CMOS memory, turn off the system, disconnect the power cable from the mainboard, and short the appropriate pins for a few seconds.

JP9
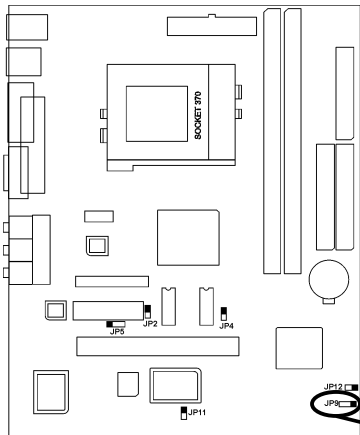
JP9	Description
1	Normal
1	Clear CMOS Data

Table 3 Clear CMOS Data

2.34. JP11 – ONBOARD ETHERNET SETTING

This jumper is used to set the onboard Ethernet. If you want to install another Ethernet Card, you should use this jumper to disable the onboard Ethernet.
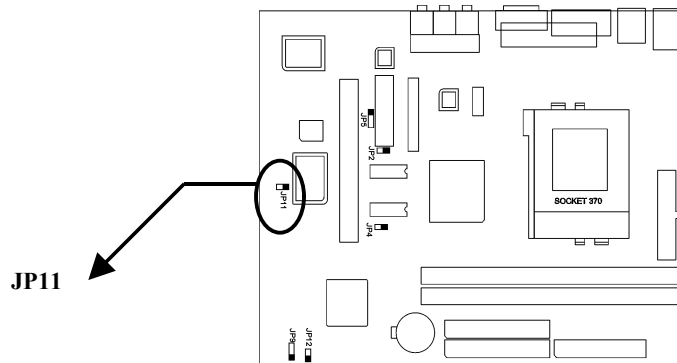
JP11

JP11	Description
	Enabled
	Disabled

Table 4 Onboard Ethernet Setting

2.35. JP12 – BIOS LOCK/UNLOCK SELECT

This jumper is used to Lock and Unlock the BIOS. After the new BIOS is installed, set JP12 to Lock so that the BIOS can not be erased by accident.
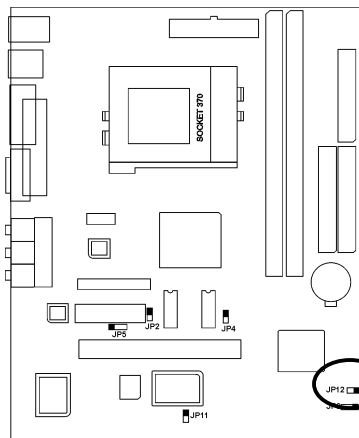
JP12	Description
	Unlock(Default)
	Lock

Table 5 BIOS WR SELECT

JP12

2.4   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.

PS/2 MOUSE (UPPER) & KEYBOARD (LOWER)

ATX POWER

LAN(UPPER)& USB1/2(LOWER)

COM1

PARALLEL

VGA

SOCKET 370

FDC

JP14

JP15

LINE OUT

LINE IN

MIC

GAME PORT

IDE1

IDE0

J9

J16   J17

AMR SLOT

J3

J2

J12

J4
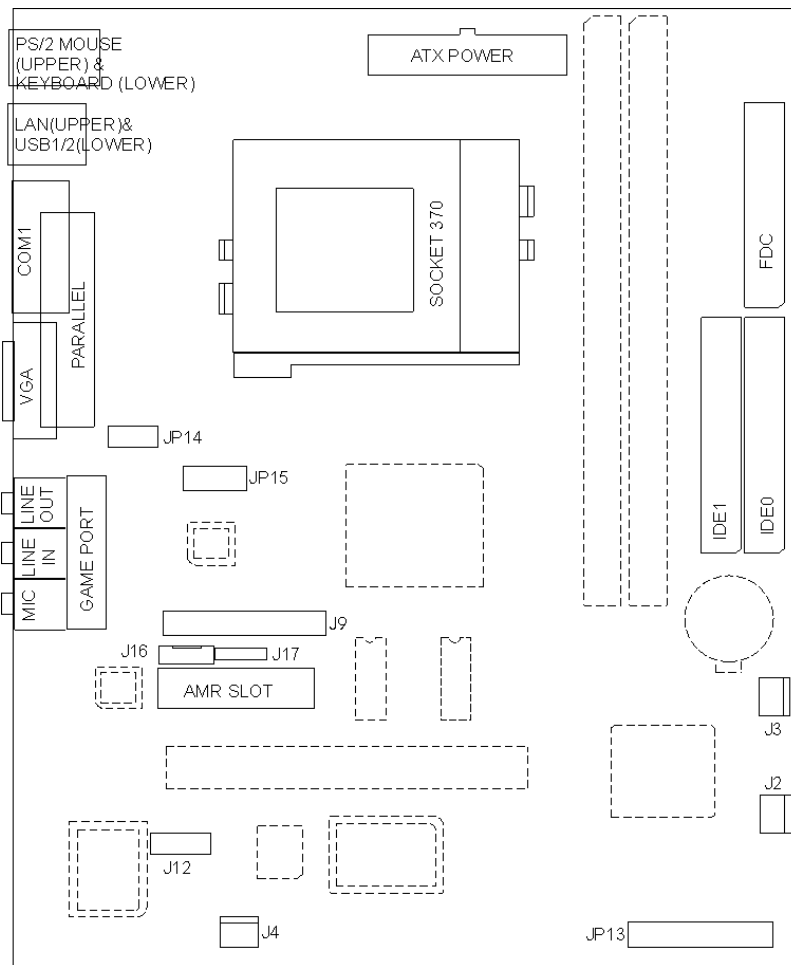
JP13

Fig 4 Connector Location

1. JP13 – MULTIPLE FUNCTION JUMPER

JP13 is a front panel multi-function jumper includes reset, harddisk, LED, GREEN LED and power button (suspend switch). The pin definition is following figure.
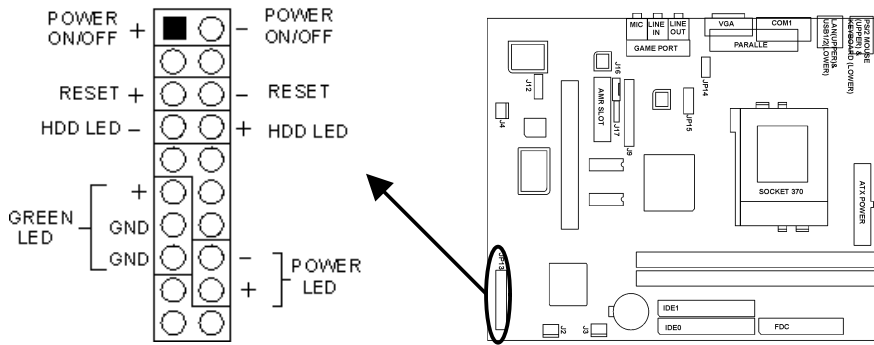
Fig. 6 Multiple Function Jumper

2. J2, J3 J4– CPU FAN CONNECTOR

J2, J3, J4 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.
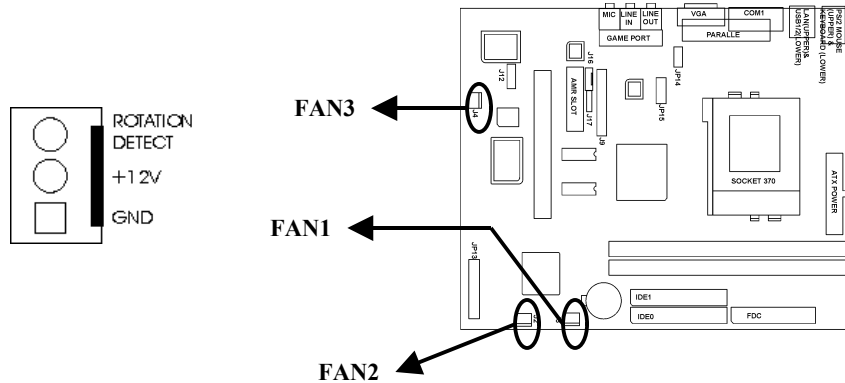
3. J5 – ATX POWER SUPPLY CONNECTOR

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

+3.3VDC		+3.3VDC
+3.3VDC		-12VDC
GND		GND
+5VDC		Power Switch
GND		GND
+5VDC		GND
GND		GND
Power Good		-5VDC
+5V Standby		+5VDC
+12VDC		+5VDC
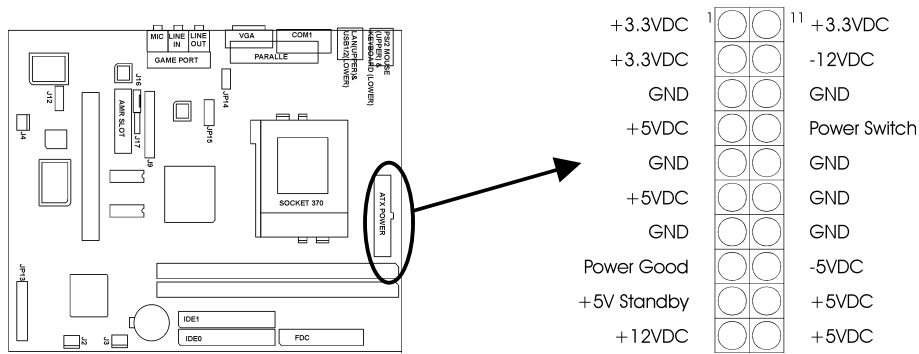
Fig. 7 ATX Power Supply Connector

4. J6 – FLOPPY DRIVE CONNECTOR

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.

5. J7, J8 –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.

IDE1

FDD

IDE0
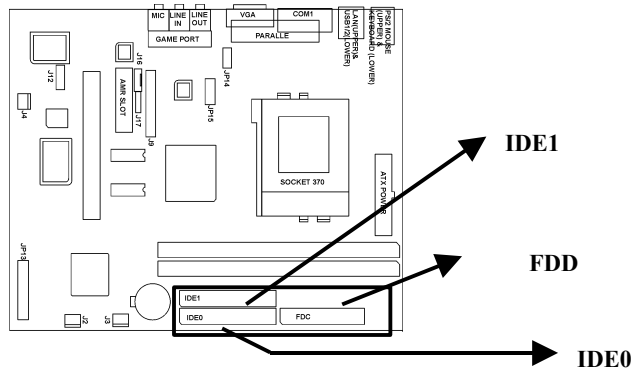
6. J9 –TV OUT CONNECTOR

J9 is a 2X15-pin TV OUT connector which supports Video output.
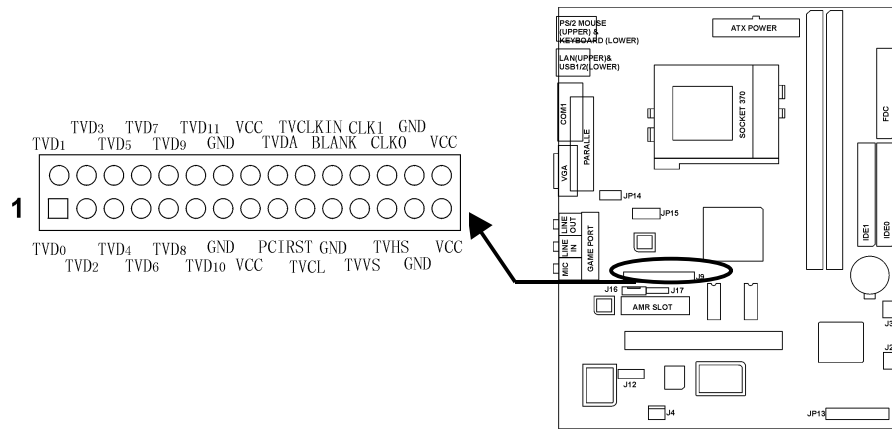
7. J12 – CUSTOMER IR CONNECTOR

J12 is a ten-pin connector for the IrDA/ASKIR/Customer Infrared device. The pin definition is listed as following:
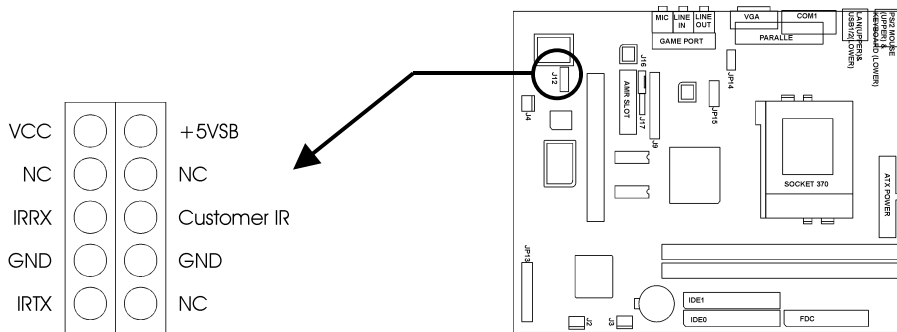
Fig. 8 Customer IR Connector

8. J16 – CD-ROM AUDIO CONNECTOR (MISUMI/PANASONIC)

J16 is a four-pin connector, which is used to connect with the Panasonic or Misumi CD-ROM audio output. The pin definition is as following:

9. J17 – CD-ROM AUDIO CONNECTOR (SONY)

J17 is a four-pin connector, which is used to connect with the Sony CD-ROM audio output. This pin definition is as following:

GND CDL GND CDR

1

J16

CDL GND GND CDR

1

J17
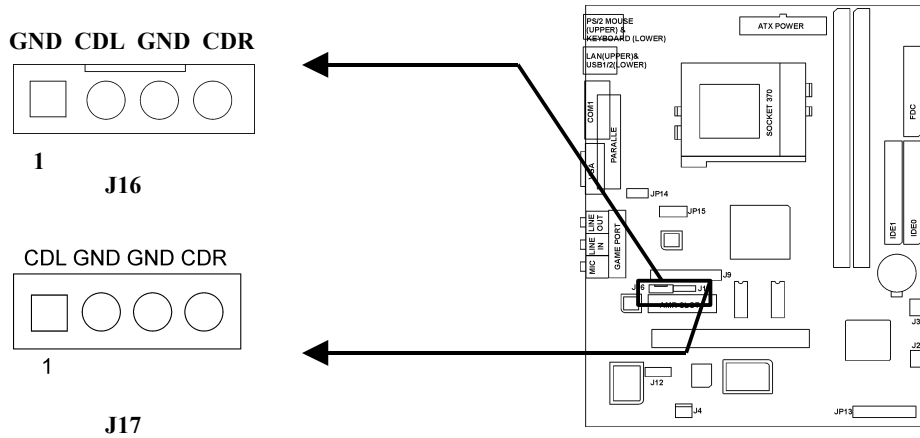
Fig 9 CD-ROM Audio Connector

10. J13 – USB PORTS 1/2 & LAN PORT

The USB 1&2 connectors are two four pin female sockets which are available for connecting USB device. The LAN port is a RJ45 connector for the onboard 10/100MHz Ethernet, plug the cable jack into this connector.

PS/2
MOUSE

LAN

USB1

USB2

PS/2
KEYBOARD

PARALLEL

COM1

VGA

MIDI/JOYSTICK

SPK   LINE   MIC
        IN
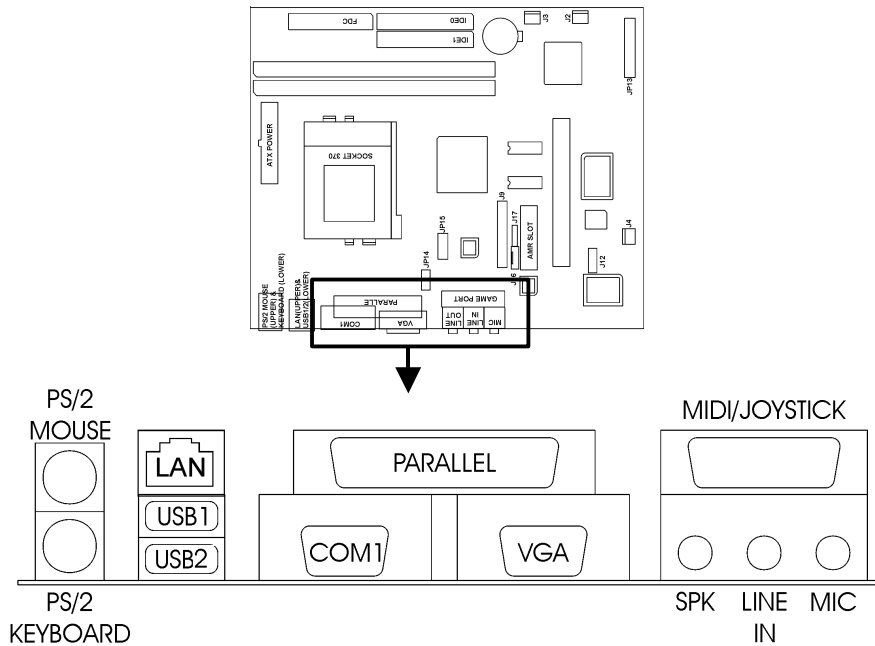
Fig. 10 Back Panel Connectors

11. J21 – VGA CONNECTOR

This is a D-Type 15-pin male connector for monitor.

12. J22 – PARALLEL PORT CONNECTOR

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

13. J23 – SERIAL PORT COM1

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

14. J25 – 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.

15. J26 – PS/2 KEYBOARD CONNECTOR

This connector is a six-pin female mini DIN connector using a PS/2 plug.

16. J27, J28, J29 – AUDIO 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.

17. JP14 – EXTERNAL AUDIO PORT
JP14 is a 2X4-pin connector for external audio port.
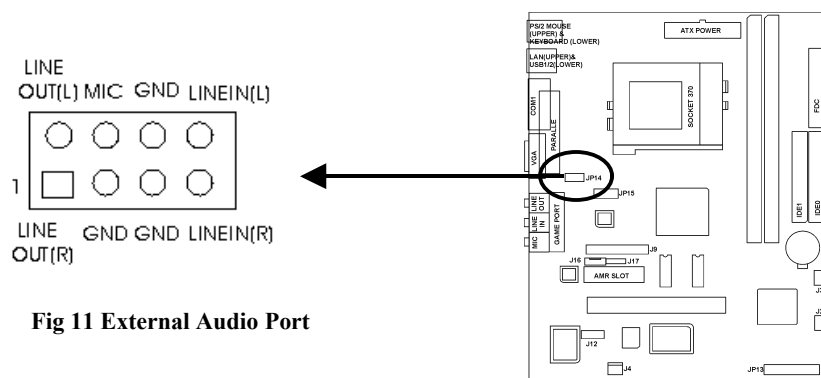
Fig 11 External Audio Port

18. JP15 – USB PORTS 3/4

JP15 are USB ports 3/4 which can be routed using a cable to the front panel.
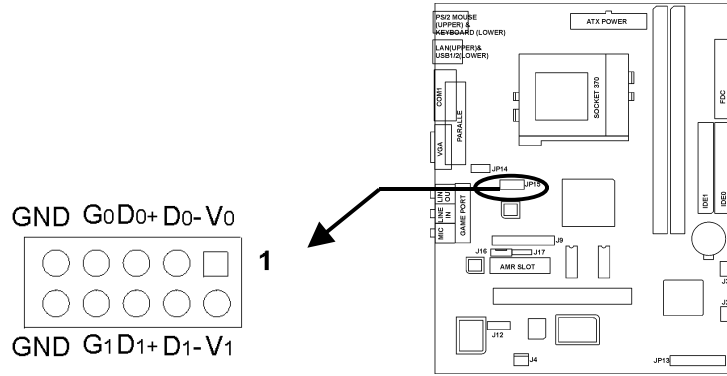
CHAPTER 3   AWARD BIOS SETUP GUIDE

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 Mainboard User's Guide & Software CD-ROM.

3.1 AWORD BIOS SETUP MAIN MENU

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

CMOS Setup Utility - Copyright (C) 1984-1998

Standard CMOS Feature	**Load Fail-Safe Defaults**
Advanced BIOS Feature	**Load Optimized Defaults**
Advanced Chipset Feature	**Set Supervisor Password**
Integrated Peripherals	**Set User Password**
Power Management Setup	**Save & Exit Setup**
PnP/PCI Configurations	**Exit Without Saving**
Frequency/Voltage Control	

Esc : Quit   ↑↓←→ : Select Item
F10 : Save & Exit Setup

Time, Date, Hard Disk Type….

Fig 12 BIOS Setup Main Menu

3.2 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

```
                        Standard CMOS Features

   Date:              Mon, Feb 8 1999              Item Help
   Time:                    16:19:20        _____
➤  IDE Primary Master      2557 MB
➤  IDE Primary Slave          None          Menu Level      ➤
➤  IDE Secondary Master            None
➤  IDE Secondary Slave             None      Change the day,  month,  year and century
   Drive A              1.44M, 3.5 in.
                     None
   Video                 EGA/VGA
   Halt On               All Errors
   Based Memory      640K
   Extended Memory   64512K
   Total Memory      65536K


↑↓←→Move  Enter: Select  +/-/PU/PD: Value  F10:Save  ESC: Exit  F1:General Help
   F5:Previous Values    F6:Fail-safe defaults      F7:Optimized Defaults
```

Fig 13 Standard CMOS Features

3.21.Standard CMOS Features Items Description

Item	Options	Description
Date	Month DD YYYY	Set the system date. Note that the 'Day' automatically changes when you set the date
Time	HH : MM : SS	Set the system time
IDE Primary Master	Options are in its sub menu (described in Table 2)	Press <Enter> to enter the sub menu of detailed options
IDE Primary Slave	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Secondary Master	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Secondary Master	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
Drive A Drive B	None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Select the type of floppy disk drive installed in your system

(To be Continued)

Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	N/A	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

Fig 14 Standard CMOS Feature

3.22. IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive.

Fig 15 shows the IDE primary master sub menu.

```
    CMOS Setup Utility – Copyright © 1984-1998  Award Software
                         IDE Primary Master

 IDE HDD Auto-Detection      Press Enter     Item Help

 IDE Primary Master       Auto 2557 MB       Menu Level    ➢➢
 Access Mode                  Auto

 Cylinder                     4956           To auto-detect the HDD's size,
 Head                           16           head... on this channel
 Precomp                         0
 Landing Zone                 4955
 Sector                         63



 ↑↓←→Move   Enter: Select  +/-/PU/PD: Value  F10:Save  ESC: Exit  F1:General Help
      F5:Previous Values   F6:Fail-safe defaults       F7:Optimized Defaults
```

Fig 15 IDE Setting

Use the legend keys to navigate through this menu and exit to the main menu. Use Fig 16 to configure the hard disk.

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Primary Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE !
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.
Access Mode	Normal LBA Large Auto	Choose the access mode for this hard disk
The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk.
Head	Min = 0 Max = 255	Set the number of read/write heads
Precomp	Min = 0 Max = 65535	**** **Warning**: Setting a value of 65535 means no hard disk
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

Fig 16 Hard disk configure

3.3   Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

```
┌─────────────────────────────────────────────────────────────────────┐
│         CMOS Setup Utility – Copyright © 1984 – 1998  Award Software  │
│                       Advanced BIOS Features                          │
├───────────────────────────────────────┬───────────────────────────────┤
│ Virus Warning              Enabled     │      Item Help                │
│ CPU Internal Cache         Enabled     │                               │
│ External Cache             Enabled     │  Menu Level      ➢            │
│ CPU L2 Cache ECC Checking  Enabled     │                               │
│ Quick Power On Self Test   Disabled    │  Allows you to choose the VIRUS│
│ First Boot device          Floppy      │  warning feature for IDE Hard │
│ Second Boot device         HDD-0       │  Disk boot sector protection. │
│ Third Boot device                      │  If this function is enabled  │
│        Floppy                          │  and someone attempt to write │
│ Boot other device                      │  data into this area, BIOS    │
│        Disabled                        │  will show a warning          │
│ Swap Floppy Drive          Disabled    │  message on screen and alarm  │
│ Boot Up Floppy Seek        Disabled    │  beep                         │
│ Boot Up NumLock Status     Off         │                               │
│ Gate A20 Option            Normal      │                               │
│ Typematic Rate Setting     Disabled    │                               │
│ Typematic Rate (Chars/Sec) 6           │                               │
│ Typematic Delay (Msec)     250         │                               │
│ Security Option            Setup       │                               │
│ OS Select For DRAM > 64MB  Non-OS2     │                               │
│ Report NO FDD For Win 95        No     │                               │
│                                        │                               │
├───────────────────────────────────────┴───────────────────────────────┤
│ ↑↓←→Move  Enter: Select  +/-/PU/PD: Value  F10:Save  ESC: Exit  F1:General Help │
│     F5:Previous Values   F6:Fail-safe defaults      F7:Optimized Defaults │
└─────────────────────────────────────────────────────────────────────┘
```

Fig 17 Advanced BIOS Features

Advanced BIOS Features Items Description:

Item	Options	Description
Virus Warning	Enabled Disabled	Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.
CPU Internal Cache/ External Cache	Enabled Disabled	These two categories speed up memory access. However, it depends on CPU/chipset design.
CPU L2 Cache ECC Checking	Enabled Disabled	This item allows you to enable/disable CPU L2 Cache ECC checking.
Quick Power On Self Test	Enabled Disabled	This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

(To be Continued)

First / Second B /Third/Other Boot device	Floppy, LS/ZIP, HDD, SCSI, CDROM, Disabled.	The BIOS attempts to load the operating system from the devices in the sequence selected in these items.
Swap Floppy Drive	Enabled Disabled	If the system has two floppy drives, you can swap the logical drive name assignments.
Boot Up Floppy Seek	Enabled Disabled	Seeks disk drives during boot up. Disabling speeds boot up.
Boot Up NumLock Status	On Off	Select power on state for NumLock.
Gate A20 Option	Normal Fast	Select if chipset or keyboard controller should control GateA20.
Typematic Rate Setting	Enabled Disabled	Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
Typematic Rate (Chars/Sec)	6, 8, 10, 12, 15, 20, 24, 30.	Sets the number of times a second to repeat a key stroke when you hold the key down.
Typematic Delay (Msec)	250, 500, 750, 1000	Sets the delay time after the key is held down before it begins to repeat the keystroke.
Security Option	System Setup	Select whether the password is required every time the system boots or only when you enter setup.
OS Select For DRAM > 64MB	Non-OS2 OS2.	Select the operating system that is running with greater than 64MB of RAM on the system.
Report NO FDD For Win 95	Yes No	Whether report no FDD for Win 95 or not.

Fig 18 Advanced BIOS Features Description

3.4   Advanced Chipset Features/Integrated Peripherals

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

CMOS Setup Utility – Copyright © 1984 – 1998 Award Software		
Advanced Chipset Features		
SDRAM CAS Latency Time	3	Item Help
SDRAM Cycle Time Tras/Trc	5/7	
SDRAM Address Setup Time	1	Menu Level ➢
SDRAM RAS-to-CAS Delay	3	
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Disabled	
Video BIOS Cacheable	Disabled	
Memory Hole At 15M-16M	Enabled	
Delay Transaction	Disabled	
On-Chip Video Window Size	64MB	
* Onboard Display Cache Setting *		
CAS# Latency	3	
Paging Mode Control	Fast	
RAS-to-CAS Override	Fast	
RAS# Timing	Fast	
RAS# Precharge Timing	Fast	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help		
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

Fig 19 Avanced Chipset Features

Avanced Chipset Features Items Description:

Item	Options	Description
SDRAM CAS Latency Time	2 3	When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.
SDRAM Cycle Time Tras/Trc	5/7 6/8	Select the number of SCLKs for an access cycle.
.SDRAM Address Setup Time	1 2	This item controls the Address Setup to the SDRAM timing.
SDRAM RAS-to-CAS Delay	2 3	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. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

(To be Continued)

SDRAM RAS Precharge Time	2 3	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. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.
System BIOS Cacheable	Enabled Disabled.	Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.
Video BIOS Cacheable	Enabled Disabled.	Select Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program writes to this memory area, a system error may result.
Memory Hole At 15M-16M	Enabled Disabled.	You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.
Delay Transaction	Enabled Disabled.	The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.
On-Chip Video Window Size	32MB 64MB Disabled	Select the on-chip video window size for VGA drive use.
Onboard Display Cache Setting		Setting the onboard display cache timing.
CAS # Latency	2 3	Select the local memory clock periods.
Paging Mode Control	Fast Slow	Select the paging mode control.
RAS-to-CAS Override	Fast Slow	Select the display cache clock periods control.
RAS# Timing	Fast Slow	This item controls RAS# active to Protegra, and refresh to RAS# active delay (in local memory clocks).
RAS# Precharge Timing	Fast Slow	This item controls RAS# precharge (in local memory clocks).

Fig 20 Advance Chipsets Features Description

3.5   Integrated Peripherals

CMOS Setup Utility – Copyright © 1984 – 1998 Award Software		
Integrated Peripherals		
OnChip Primary PCI IDE	Enabled	Item Help
OnChip Secondary PCI IDE	Enabled	
IDE Primary Master PIO	Auto	Menu Level ➢
IDE Primary Slave PIO	Auto	If your IDE hard drive supports
IDE Secondary Master PIO	Auto	block mode select Enabled for
IDE Secondary Slave PIO Auto		automatic detection of the optimal
IDE Primary Master UDMA	Auto	number of block read/write per
IDE Primary Slave UDMA	Auto	sector the drive can support
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	Enabled	
USB Keyboard Support	Enabled	
Init Display First	PCI Slot	
AC97 Audio	Enabled	
AC97 Modem	Enabled	
IDE HDD Block Mode	Enabled	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help		
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

Fig 21 Integrated Peripherals

Integarated Peripherals Items Description:

Item	Options	Description
OnChip Primary/Secondary PCI IDE	Enabled Disabled.	The integrated peripheral ontroller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.
IDE Primary/Secondary Master/Slave PIO	Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.	The four IDE PIO (Programmed input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
IDE Primary/Secondary Master/Slave UDMA	Auto Disabled.	Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

(To be Continued)

USB Controller	Enabled Disabled	Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.
USB Keyboard Support	Enabled Disabled	Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard**.**
Init Display First	PCI Slot Onboard .	This item allows you to decide to active whether PCI Slot or on-chip VGA first The choice:
AC97 Audio/Modem	Enabled Disabled	This item allows you to decide to enable/disable the 810 chipset family to support AC97 Audio/Modem.
IDE HDD Block Mode	Enabled Disabled	Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support
Onboard FDC Controller	Enabled Disabled	Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field
Onboard Serial Port 1/Port 2	3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.	Select an address and corresponding interrupt for the first and second serial ports.

Fig 22 Integrated Peripheral Features Description

3.6   Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

CMOS Setup Utility – Copyright © 1984 – 1998 Award Software		
Power Management Setup		
ACPI function	Enabled	Item Help
Power Management	User Define	
Video Off Method	V/H	Menu Level ➤
SYNC_Blank		
Video Off In Suspend	Suspend -> Off	
Suspend Type	Stop Grant	
MODEM Use IRQ	3	
Soft-Off by PWRBTN	Delay 4 Sec	
CPU THRM-Throttling	25.0%	
** Reload Global Timer Events **		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ [A-D]#	Disabled	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help		
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

Fig 23 Power Management Setup

Power Management Setup Items Description:

Item	Options	Description
ACPI Function	Enabled Disabled.	This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI)
Power Management	HDD Power Down Doze Mode Suspend Mode	This category allows you to select the type (or degree) of power saving and is directly related to the following modes:
Video Off Method	V/H SYNC+Blank Blank Screen DPMS	This determines the manner in which the monitor is blanked.
Video Off In Suspend	Yes No	This determines the manner in which the monitor is blanked.
Suspend Type	PWRON Suspend Stop Grant	Select the Suspend Type.
MODEM Use IRQ	3, 4, 5, 7, 9, 10, 11, NA.	This determines the IRQ in which the MODEM can use.
Suspend Mode	Enabled Disabled.	When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

(To be Continued)

HDD Power Down	Enabled Disable	When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
Soft-Off by PWRBTN	Delay 4 Sec Instant-Off	Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."
CPU THRM-Throttling	25.0% 37.5% 50.0% 62.5% 75.0% 87.5%	Select the CPU THRM-Throttling rate.
PM Events	Primary IDE 0 Primary IDE 1 Secondary IDE 0 Secondary IDE 1 FDD, COM, LPT PortPCI PIRQ[A-D] #	PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled* , even when the system is in a power down mode.

Fig 24 Power Management Setup Features Description

3.7   PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings

```
CMOS Setup Utility – Copyright © 1984-1998 Award Software
                        PnP/PCI Configurations
 PnP OS Installed           No                     Item Help
Reset Configuration Data    Disabled        ------------------------
Resources Controlled By     Manual          Menu Level      ➢
IRQ Resources               Press Enter     Default is Disabled.  Select
DMA Resources               Press Enter     Enabled to reset Extended
Memory Resources            Press Enter     System Configuration
                                            Data(ESCD) when you exit
    PCI/VGA Palette Snoop   Disabled        Setup if you have installed a new
                                            add-on and the system
                                            reconfiguration has caused such
                                            a serious conflict that the OS
                                            cannot boot.

 ↑↓←→Move  Enter: Select  +/-/PU/PD: Value  F10:Save  ESC: Exit  F1:General
Help
    F5:Previous Values   F6:Fail-safe defaults      F7:Optimized Defaults
```

Fig 25 PnP/PCI Configurations

PnP/PCI Configuration Setup Items Description:

Item	Options	Description
PNP OS Installed	Yes No	This item allows you to determine install PnP OS or not.
Reset Configuration Data	Enabled Disabled	Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot
Resource controlled by	Auto(ESCD) Manual	The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➢").
IRQ Resources		When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt
IRQ3/4/5/7/9/10/11/12/14/15 assigned to	*Legacy ISA* and *PCI/ISA PnP*.	This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.
DMA Resources		When resources are controlled manually, assign each system DMA channel a type, depending on the type of device using the DM channel.
DMA 0/1/3/5/6/7 assigned to	*Legacy ISA PCI/ISA PnP*.	Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.
Memory Resources		This sub menu can let you control the memory resource.

(To be Continued)

Reserved Memory Base	C800, CC00, D000, D800, DC00, D400, N/A	Reserved a low memory for the legacy device(non-PnP device).
Reserved Memory Length	8K, 16K, 32K, 64K.	Reserved a low memory length for the legacy device(non-PnP device)
PCI/VGA Palette Snoop	Enabled Disabled.	Leave this field at *Disabled*.

Fig 26 PnP Setup Features Description

3.8   Frequency/Voltage Control

```
CMOS Setup Utility – Copyright © 1984-1998 Award Software
                 Frequency/Voltage Control

Auto Detect DIMM/PCI CMK      Enabled          Item Help
Spread Spectrum Modulated     Disabled      ------------------------
   CPU Speed                  266Mhz(66x4)  Menu Level    ➢
   CPU Ratio                  X 3
CPU Frequency                 66 MHz



↑↓←→ Move  Enter: Select  +/-/PU/PD: Value  F10:Save  ESC: Exit  F1:General Help
   F5:Previous Values    F6:Fail-safe defaults      F7:Optimized Defaults
```

Fig 27 Frequency /Voltage Control

Frequency/Voltage Control Items Description:

Item	Options	Descripton
Auto Detect	Enabled Disabled	This item allows you to enable/disable auto detect DIMM/PCI Clock.
Spread Spectrum Modulated	Enabled Disabled	This item allows you to enable/disable the spread spectrum modulate
CPU Speed		This item allows you to select the CPU speed.
CPU Ratio		This item allows you to select the CPU ratio.
CPU Frequency		This item allows you to select the CPU frequency.

Fig 28 Freq. Control Features Description

3.9 Defaults Menu

Selecting "Defaults" from the main menu shows you two options which are described below:

Load Fail-Safe Defaults
When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults
When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

3.10 Supervisor/User Password Setting

You can set either supervisor or user password, or both of then. The differences between are:

supervisor password : can enter and change the options of the setup menus.

user password   : just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at thecenter of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.
To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED:

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

CHAPTER 4   DRIVER INSTALLATION

The Mainboard User's Guide & Software 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 Intel 810 and AC97 Audio Drivers, Utility files, Manual & Catalog.* Click the **Intel 810 and AC97 Audio 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.

4.1   VGA ON BOARD DRIVERS INSTALLATION

I.   In Win9x VGA drivers installation:

Browse the Mainboard User's Guide & Software CD-ROM to the directory **\Intel\82810\vga\win9x\graphics** and click *setup.exe*.

II.   WinNT VGA drivers installation:

Browse the Mainboard User's Guide & Software CD-ROM to the directory **\Intel\82810\vga\winNT\graphics** and click *setup.exe*.

III.   Win2000 VGA drivers installation:

Browse the Mainboard User's Guide & Software CD-ROM to the directory **\Intel\82810\vga\win2000\graphics** and click *setup.exe*.

4.2   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 Mainboard User's Guide & Software CD-ROM to the directory **\Intel\82810\IDEinf** and click *setup.exe*.

4.3 AUDIO/AC97 ON BOARD DRIVERS INSTALLATION

I. AD1881 AC97 Audio Drivers for Win95 or Win98 First Edition

Browse the All-in-one Multimedia CD-ROM to the directory **\AD1881\Win95** and click *setup.exe* to install the Audio Drivers. And browse the All-in-one Multimedia CD-ROM to the directory **\AD1881\Win95\Midi** and click *setup.exe* to install the MIDI Drivers.

II. AD1881 AC97 Audio Drivers for Win98 Second Edition or Win2000

Browse the All-in-one Multimedia CD-ROM to the directory **\AD1881\WDM** and click *setup.exe* to install the Audio Drivers.

III. AD1881 AC97 Audio Drivers for WinNT

Browse the All-in-one Multimedia CD-ROM to the directory **\AD1881\WinNT** and click *setup.exe* to install the Audio Drivers. And browse the All-in-one Multimedia CD-ROM to the directory **\AD1881\WinNT\Midi** and click *setup.exe* to install the MIDI Drivers.

4.4 LAN DRIVERS INSTALLATION

Please refer to the directory Realtech on Mainboard User's Guide & Software CD-ROM drivers and execute the HELP8139 to get a help menu of the drivers' installation.

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 *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 **"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 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. 29

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)?"

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 *"awdflash"*, and error message will appear:

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

5.2 DESKTOP MANAGEMENT INTERFACE (DMI) OVERVIEW

This mainboard 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 mainboard'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

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
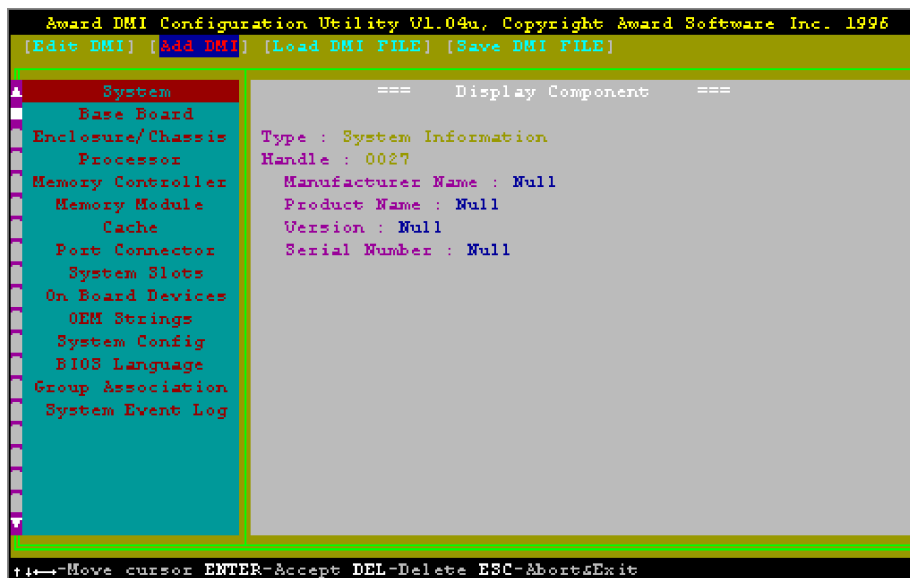
This DMI Configuration Utility also allows the system integrator or end user to add additional information into the DMI database such as serial numbers, housing configurations, and vendor information. Those information not detected by the mainboard BIOS and has to be manually entered through the DMI Configuration Utility and updated into the DMI database.

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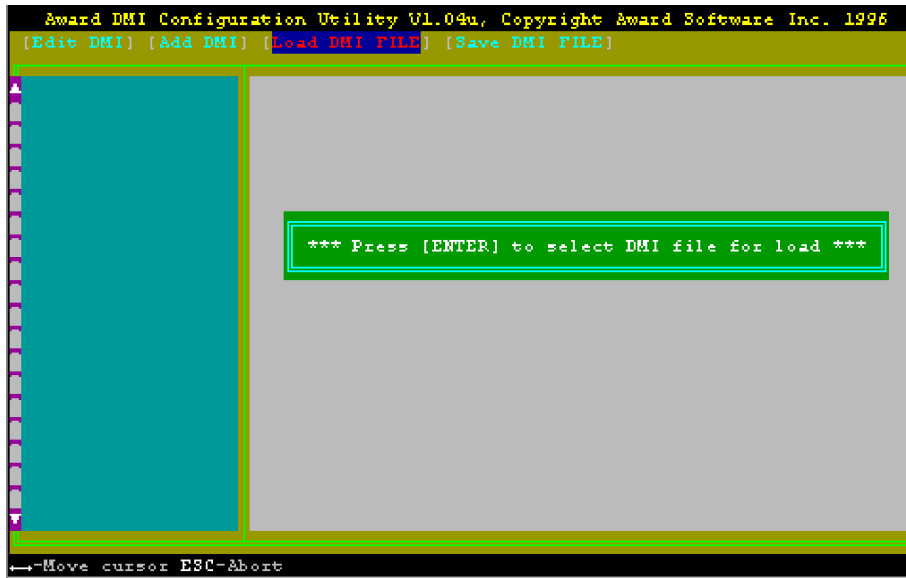
You can load the disk file to memory by entering a drive and path and file name here.

Save DMI File
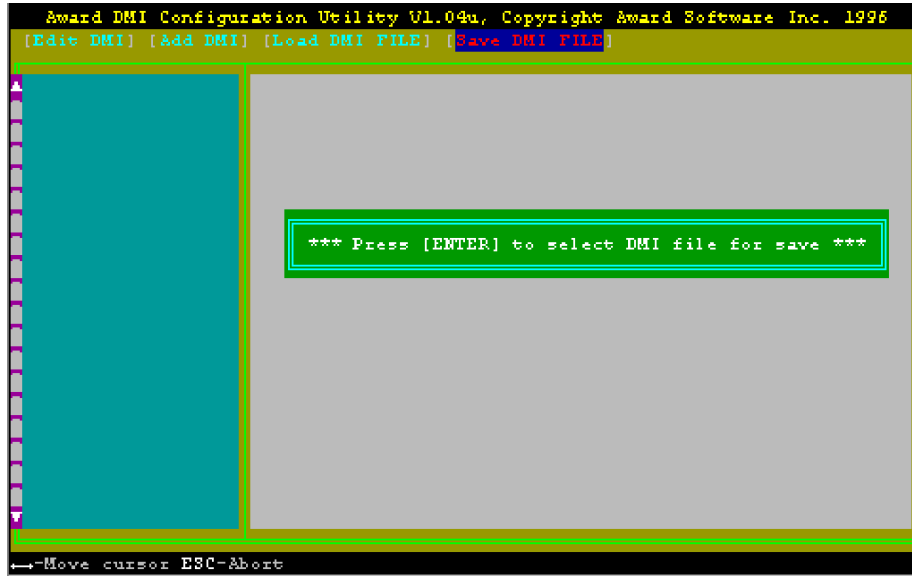
You can save the DMI (normally only saved to flash ROM) to a file by entering the drive and path here. If you want to cancel save, you may press ESC and a message "Bad File Name" appears here to show it was not saved.

CHAPTER 6   TROUBLESHOOTING

The following section provides some suggested actions to solve any problems you may have getting your system running.

1.   **If your computer does not start, check the following:**
   - Are all the cables properly connected to the computer? Does the wall outlet you are using have power?
   - If you have installed an add-in board, have you installed it correctly?
   - If you have installed a hard drive, have you installed it correctly? Has the drive been formatted? Check your drive and operating system documentation to see if you have set the jumper correctly and if you need to format it.

2.   **If the computer starts, but nothing appears on the screen, verify the following:**
   - Check your monitor:
     - Is the monitor power cable connected to a functioning power outlet?
     - Is the monitor cable attached to the monitor port on the back of the computer?
     - Is the monitor turned on?
     - Are the brightness and contrast controls correctly adjusted? Check your monitor manual.
   - Is your software correctly configured for your monitor and video adapter? Check the software user's manual.
   - If you installed an add-in video board, have you installed and configured it correctly?

3.   **If the computer comes on, but does not finish booting, check the following:**
   - Are the Num Lock, Caps Lock, and Scroll Lock lights flashing? If so, type the user password.
   - Does the computer beep more than once when you turn it on? The computer might not be configured correctly. Run BIOS Setup to fix the configuration.
   - Does a configuration error message appear on the screen? Run BIOS Setup to correct the problem.
   - Does the computer report a CMOS or battery failure error? Run BIOS Setup to check your configuration. If the configuration settings are lost, the computer battery has run out and needs to be replaced.

APPENDIXA BIOS ERROR MESSAGES

One or more of the following messages may be displayed if the BIOS detects an error during the POST.

BIOS Error Messages

| Error Message	Explanation
CMOS BATTERY HAS FAILED	CMOS battery is no longer functional. It should be replaced.
CMOS CHECKSUM ERROR	Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.
DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER	No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press <Enter>. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.
DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP	Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly
DISPLAY SWITCH IS SET INCORRECTLY	Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection
DISPLAY TYPE HAS CHANGED SINCE LAST BOOT	Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.
ERROR ENCOUNTERED INITIALIZING HARD DRIVE	Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.
ERROR INITIALIZING HARD DISK CONTROLLER	Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.
FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT	Cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE

BIOS Error Messages(continous)

Error Message	Explanation
KEYBOARD ERROR OR NO KEYBOARD PRESENT	Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot. If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.
Memory Address Error at …	Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.
Memory parity Error at ...	Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.
MEMORY SIZE HAS CHANGED SINCE LAST BOOT	Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.
Memory Verify Error at ...	Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.
PRESS A KEY TO REBOOT	This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot
PRESS F1 TO DISABLE NMI, F2 TO REBOOT	When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.
RAM PARITY ERROR - CHECKING FOR SEGMENT	Indicates a parity error in Random Access Memory.
SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT)	Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL
FLOPPY DISK(S) fail (80)	Unable to reset floppy subsystem.
FLOPPY DISK(S) fail (40)	Floppy Type dismatch
Hard Disk(s) fail (80)	HDD reset failed
Hard Disk(s) fail (40)	HDD controller diagnostics failed.
Hard Disk(s) fail (20)	HDD initialization error.
Hard Disk(s) fail (10)	Unable to recalibrate fixed disk.
Hard Disk(s) fail (08)	Sector Verify failed.
BIOS ROM checksum error - System halted.	The checksum of ROM address F0000H-FFFFFH is bad.
Memory test fail	BIOS reports the memory test fail if the onboard memory is tested error.

APPENDIX B   QUICK GUIDE

I)   The table below summaries the functions and settings of each jumper of the mainboard.

Function		Jumper Settings	
CPU Speed Detect	Auto detect	JP2,JP4:	short
	Always 100MHz	JP2: short	JP4: open
	Always 133MHz	JP2,JP4:	open
On board Codec Setting	Enabled	JP5:	1-2 short
	Disabled	JP5:	2-3 short
Clear CMOS Data	Normal	JP9:	1-2 short
	Clear	JP9:	2-3 short
Onboard Ethernet Setting	Enabled	JP11:	short
	Disabled	JP11:	open
BIOS WR Select	Unlock (Default)	JP12	short
	Lock	JP12	open

II)   JP13 – Multiple Function Jumper
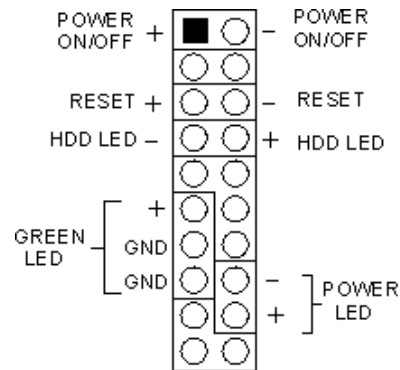
III)   BIOS Setup

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.