PRM-92V

High Performance

Pentium II/III AGP2X
Mainboard

User's Guide

EPA POLLUTION PREVENTER

WARNING

For the system to operate normally, please make sure JP1 of the mainboard is set as below. Refer to Fig. 3 in this manual for the location JP1.

JP1
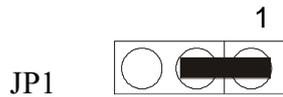
If JP1 is shorted to 2-3, no CMOS data can be retained.

CAUTION

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

POWER OFF

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

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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.
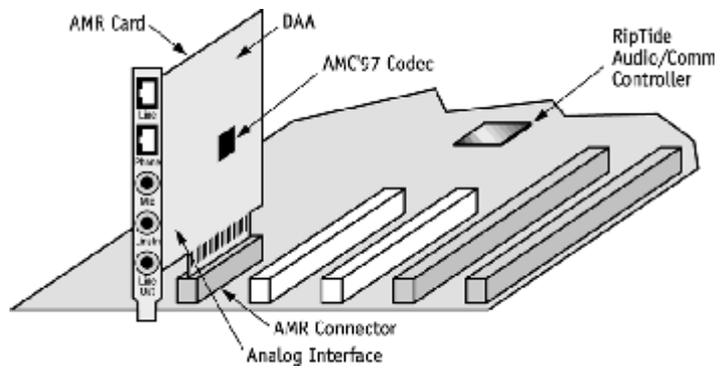
CONTENTS

CHAPTER 1　　　　　　INTRODUCTION

Preface

The motherboard is a 4 layers, **ATX** form factor high performance mainboard. The system core logic is based on the **VIA Apollo Pro133** chipset designed to support the system and memory buses from **66MHz, 100MHz and 133MHz** based on **Intel Pentium II/III** processors. It also supports **AGP2X**, **PC133/PC100 SDRAM**, **Ultra DMA33/66** for 33/66 MB/sec transfer rate and **OnNow/ACPI** power management interface.

1.1　　Features Summary

Processor
- Support Intel Pentium®II/III processors based on Slot 1.
- The mainboard can run with following speeds: 300-800MHz

Chipset
- VIA VT82C693A(A) (System Controller)
- VIA VT82C686A (PCI Super-I/O Integrated Peripheral Controller)

Architecture
- PCI2.1 compliant
- AC97 v2.1 compliant
- USB 1.1 compliant
- 66/100/133Mhz Front Side Bus supported

Main Memory
- Three 168-pin DIMM sockets are provided for 3.3V DRAM interface with 5V-tolerant inputs.
- Support SDRAM, VC SDRAM (Virtual Channel SDRAM), FPM (Fast Page Mode) DRAM, ESDRAM or EDO-DRAM.
- DIMM type – 8M/16M/32M/64M/128M/256M
- Memory configurations up to 768MB DRAM.
- ECC Function ensures data correction and integrity.

Power Management Features
- True green functions: support SMM, SMI and CPU stop clock
- ACPI/PC97 compatible
- H/W Monitoring: CPU voltage, System Temp, Fan speed
- LAN, Modem Ring-in wakeup function

Audio
- AC-Link with AC97 compliant
- Software Audio with AC97 CODEC onboard

Modem
- AMR slot for software modem

I/O Interface
- Two fast serial ports (16550)
- One EPP/ECP parallel port
- Built-in FDC supports 1.2M/1.44M/2.88M FDD
- 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 33/66 Mode supported. Transfer rate can be up to 66MB/s.
- PS/2 mouse and keyboard connectors
- Double Deck USB connectors
- IrDA supported

System BIOS
- Vendor - Award
- ROM Type - 256KByte Flash ROM
- ACPI/Plug and Play support
- Built-in Trend™ ChipAway Virus Anti-Virus Program

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

Form Factor
- Full ATX Size (305mm x 181mm) 4 Layer

1.2 Board Layout

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

USB

COM1

COM2

PARALLE

ATX POWER

CPU SLOT

VIA VT82C693A(A)

DIMM3

DIMM2

DIMM1

IDE0

IDE1

FDC

LINE OUT

LINE IN

MIC

GAME PORT

AMR SLOT

CODEC

AGP SLOT

PCI1

BATTERY

PCI2

PCI3

VIA VT82C686A

SYSTEM BOIS

PCI4

PCI5

ISA SLOT
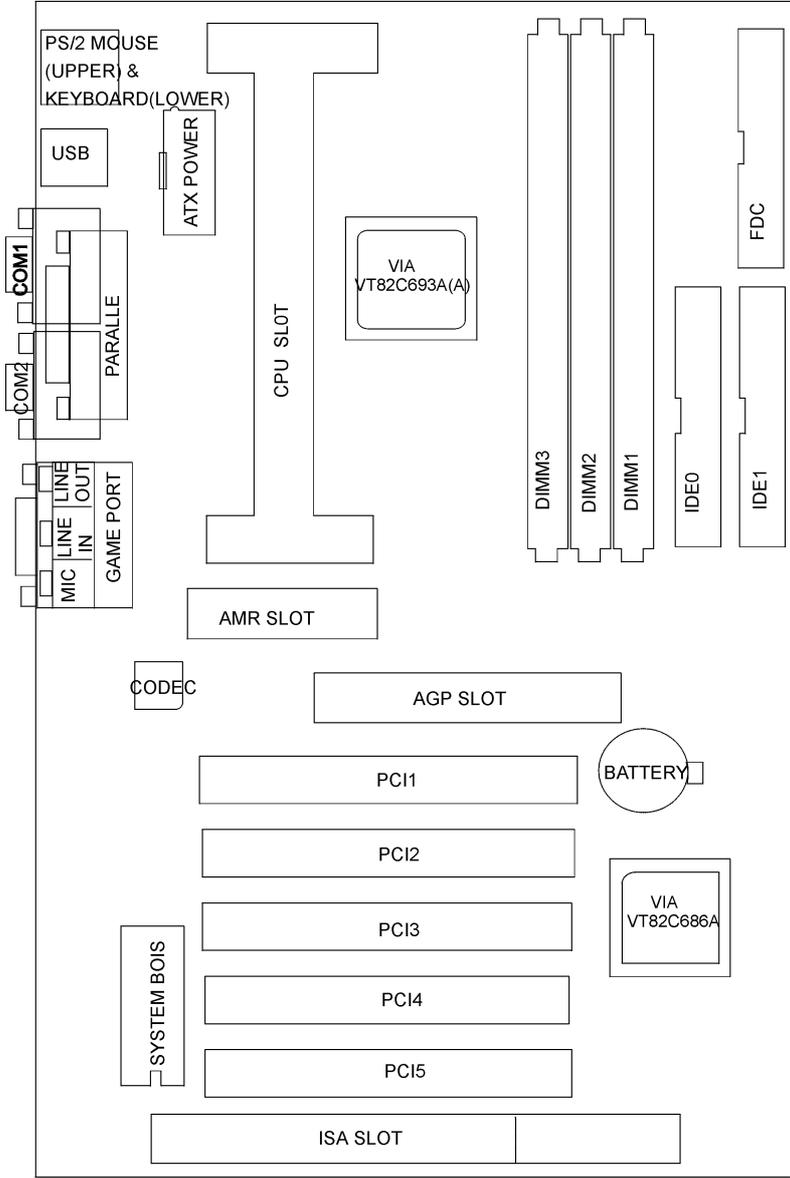
Fig. 1 Key Components of the Mainboard

1.3 Block Diagram

Figure 2 is a block diagram of the major functional areas of this mainboard.
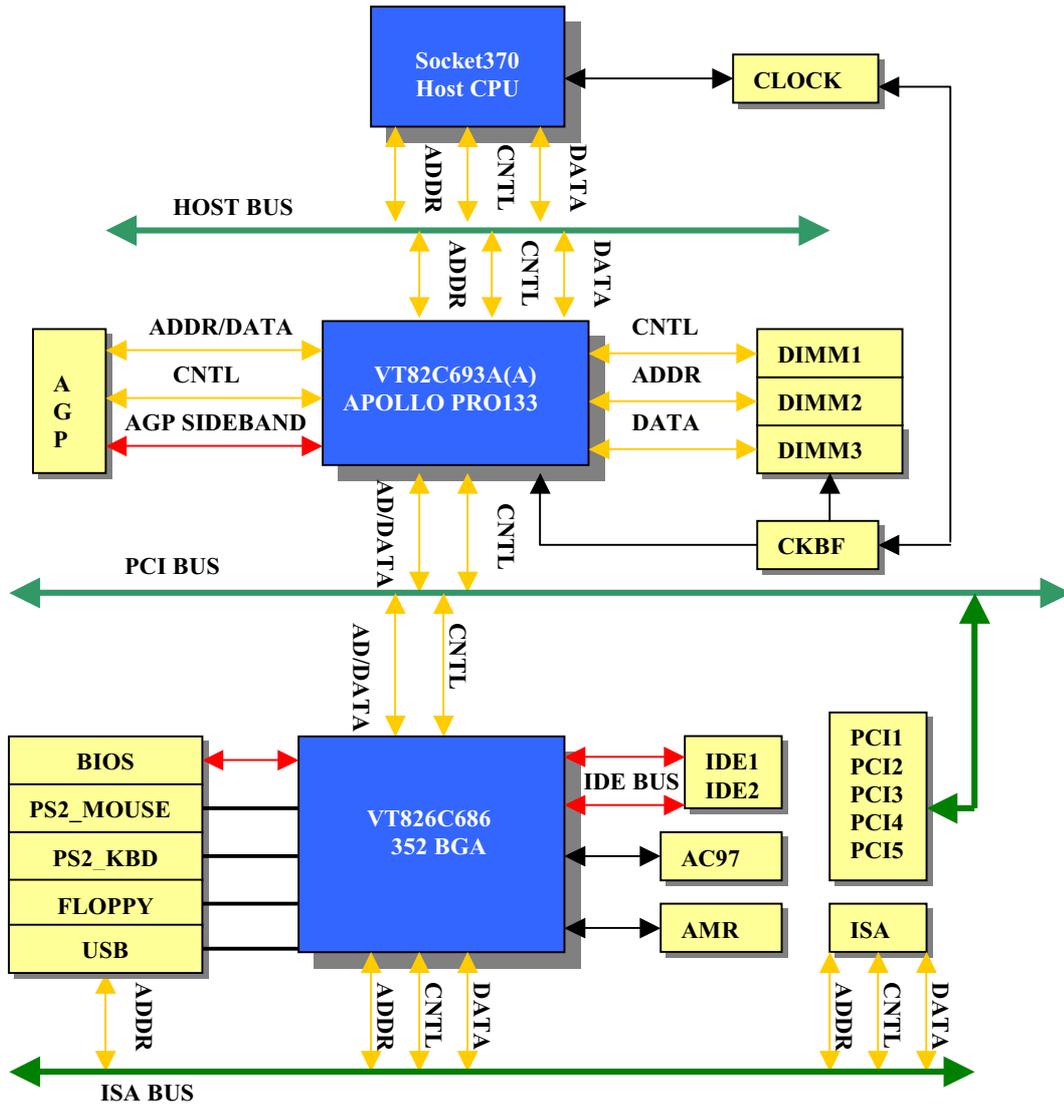
Fig 2 Block Diagram

CHAPTER 2   INSTALLATION

CAUTION

Before you begin to install this 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 mainboard is installed with a Slot-1 processor slot. This slot-1 cartridge can support a Pentium-III or Pentium II processor with a 66MHz/100MHz/133MHz host bus frequency. Pentium-III cartridges feature 512K of level-2 cache memory with improved instructions to handle 3D audio and video. The Pentium-III runs over a 100/133MHz system bus and operate at clock speeds from 450MHz up to 700MHz or more. The Pentium-II cartridges include 32K of internal level-1 cache memory and 512K of external level-2 cache memory. The first generation of Pentium-II cartridges ran over a 66MHz system bus, but current Pentium-II cartridges run over a 100MHz system bus and operate at clock speeds from 350MHz up to 450MHz or more.

(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**
Pentium II Processor	233MHz	66MHz	512K
	266MHz	66MHz	512K
	300MHz	66MHz	512K
	333MHz	66MHz	512K
	350MHz	100MHz	512K
	400MHz	100MHz	512K
	450MHz	100MHz	512K
Pentium III Processor	450MHz	100MHz	512K
	500 MHz	100MHz	512K
	533MHz	133MHz	512K
	550 MHz	100MHz	512K
	600MHz	100MHz	512K
	650MHz	100MHz	512K
	667MHz	133MHz	512K
	700MHz	100MHz	512K
	733MHz	133MHz	512K
	750MHz	100MHz	512K

RETENTION MECHANISM KITS INSTALLATION GUIDE

Retention Mechanism Kits includes following components:

1.   Retention mechanism Assembly
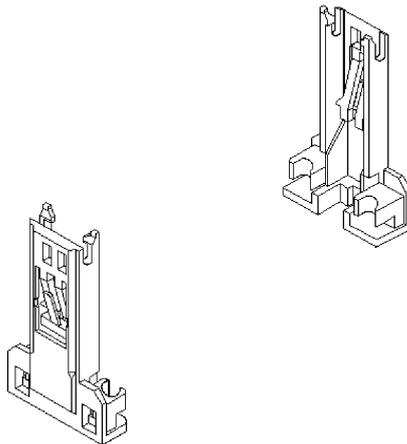
2.   Retention Mechanism Attach Mount
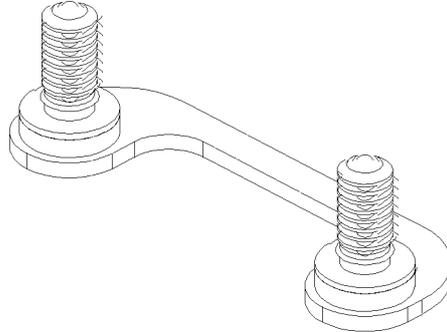
3.   Before the installation of RM Kits find the six holes on the motherboard for RM installation. The hole position and usage is as following:

FOR RM ATTACH MOUNT

FOR RM ATTACH MOUNT

FOR HEATSINK SUPPORT BASE
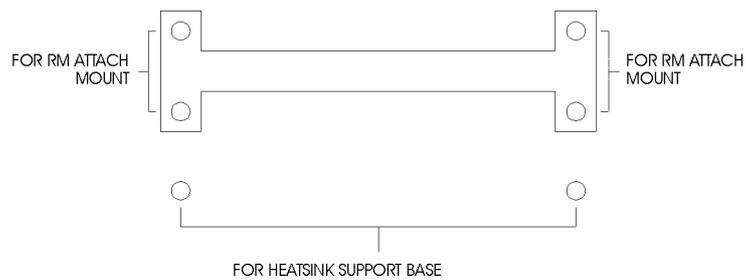
Installation Guide

1.   Mount the two RM Attach Mounts onto the motherboard from bottom side. These mounts will be used to attach the RM Assembly.

2.   Put the RM Assembly on the Slot 1 and use the four screws to fix RM Assembly to the RM Attach Mount.

3. Please refer to the diagram for the installation of Pentium III/II CPU
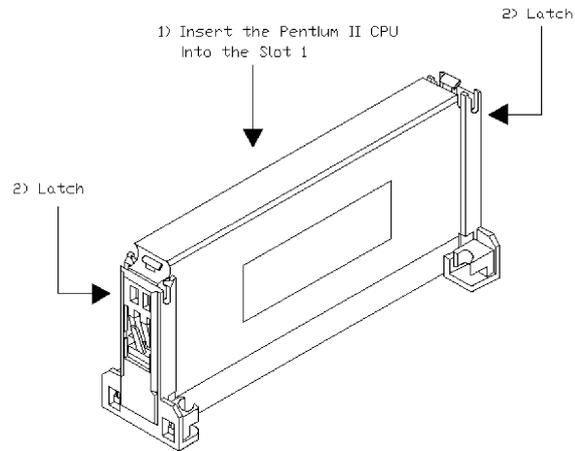
4. Please refer to the diagram for the installation of Celeron CPU or PentiumIII/II in SECC2 package.
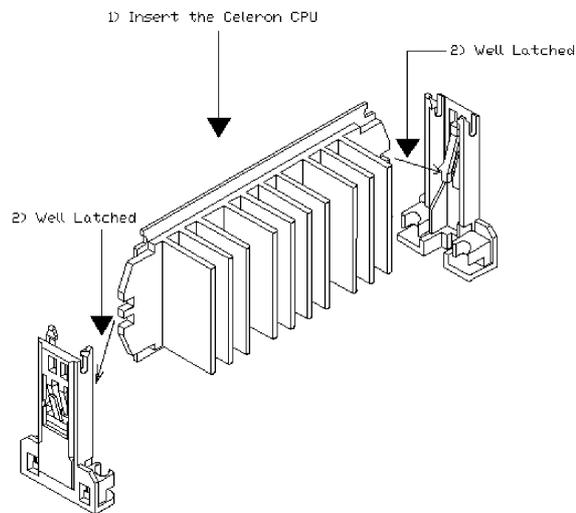
2.2   Installing System Memory

The mainboard provides 3 DIMM slots for providing a flexible memory size from 8MB up to 768MB main memory. For this mainboard, you may use 168-pin 3.3V unbuffered Synchronous DRAM, VCM (Virtual Channel Memory) SDRAM, FPM (Fast Page Mode) DRAM, ESDRAM and EDO DRAM.

The memory bus can run at 66MHz, 100MHz or 133MHz. The DRAM interface may be faster than CPU by 33MHz to allow use of PC100 memory modules with 66MHz Pentium II or use of PC133 with 100MHz Pentium II/III, it also may be slower than CPU by 33MHz to allow use of older memory modules with newer CPUs (e.g., PC66 memory modules with 100MHz Pentium II/III). To implement this you must enter the *BIOS Setup* program and make the settings of the *DRAM CLOCK* in the *Chipset Features Setup* item.

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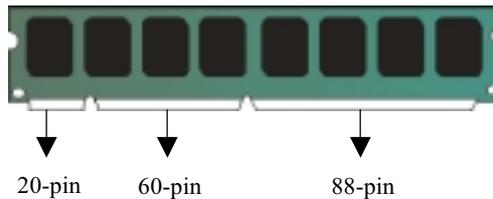
168-pin 3.3Vunbuffered memory module

You must install at least one memory module and the first memory module should be installed in DIMM1 slot, the second in DIMM2 slot and the third in DIMM3 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 and be used in mixed combinations.

Now you can install the system memory modules according the following steps:

1.   Locate the DIMM slots on the mainboard.

DIMM3 DIMM2 DIMM1
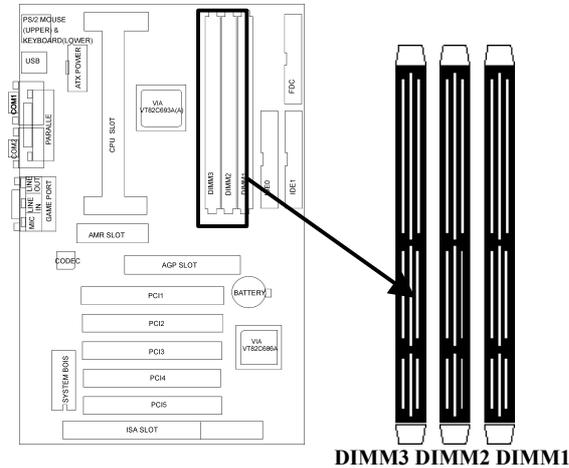
2.   Push the latches on each side of the DIMM slot down.

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   <u>Jumper Settings</u>

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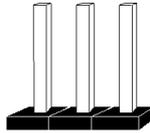
Jumper Cap   **3-pin jumper**   **2-pin jumper**
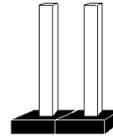
Jumpers Presentation

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:
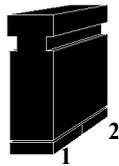
Jumper shorted symbolizes
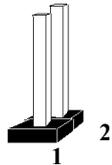
Jumper opened symbolizes
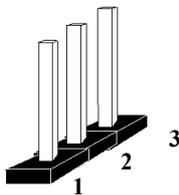
Open all pins of a jumper symbolizes as:
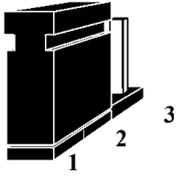
Closed pin-1 and pin-2 of a jumper symbolizes as:

1
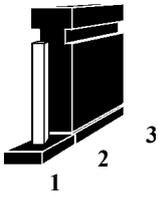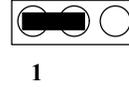
Closed pin-2 and pin-3 of a jumper symbolizes as:

1
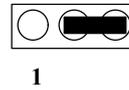
2.31   GRAPHICAL DESCRIPTION OF JUMPER SETTINGS
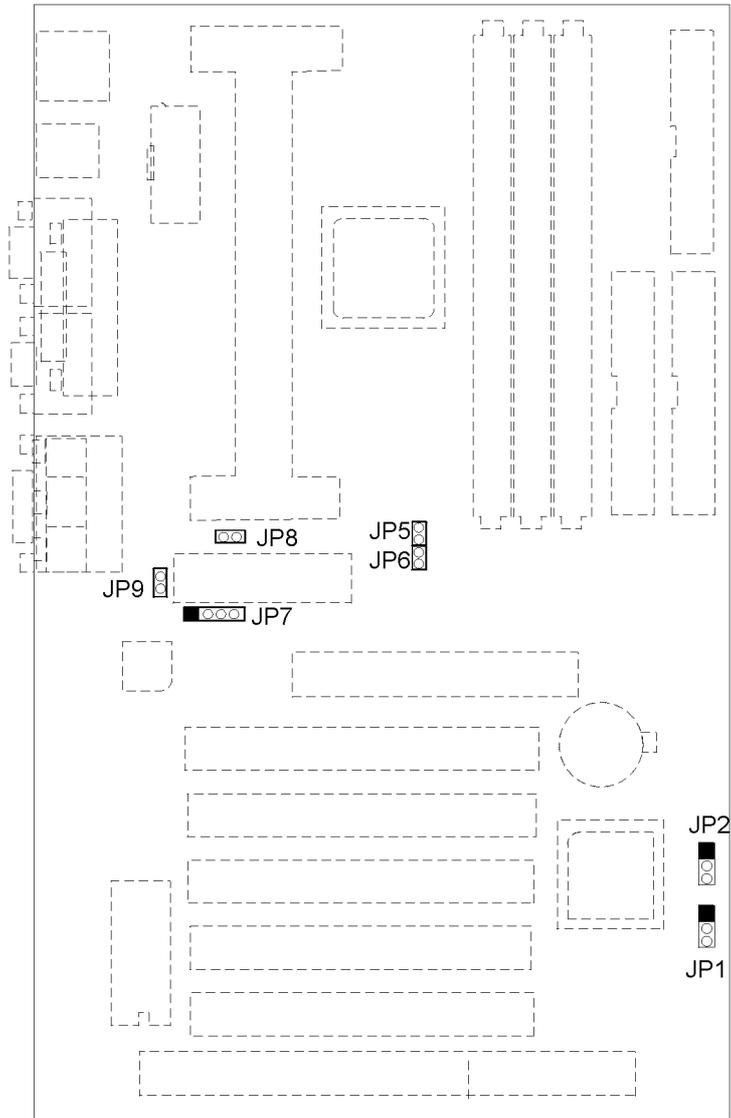
Fig. 3 Jumper Location of the mainboard

2.32 JP1-CLEAR CMOS DATA

JP1 is used to clear the content of the CMOS Data in the RTC.
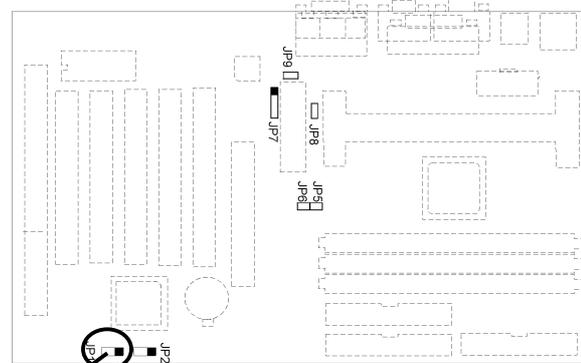
JP1
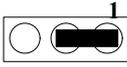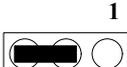
JP1	Description
1 ○ �	Normal
1	Clear CMOS Data

Table1: Clear CMOS Data

2.33 JP2 – CONFIGURATION JUMPER FOR CPU SPEED PROTECTION

JP2 is used to control the CPU speed setting in BIOS whether it can change or not.
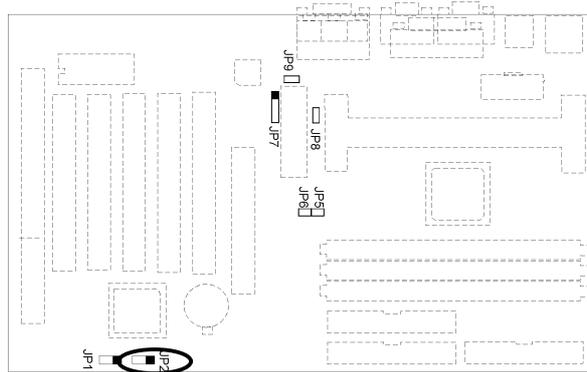
JP2

JP2	CPU Speed
1 ◯ ▬	**Selection**
1 ▬ ◯	**Show Only**

Table2: CPU Speed Protection

2.34 JP5, JP6 – CPU FRONT SIDE BUS FREQUENCY SETTING

JP5,6 are used to set the CPU Front Side Bus Frequency.
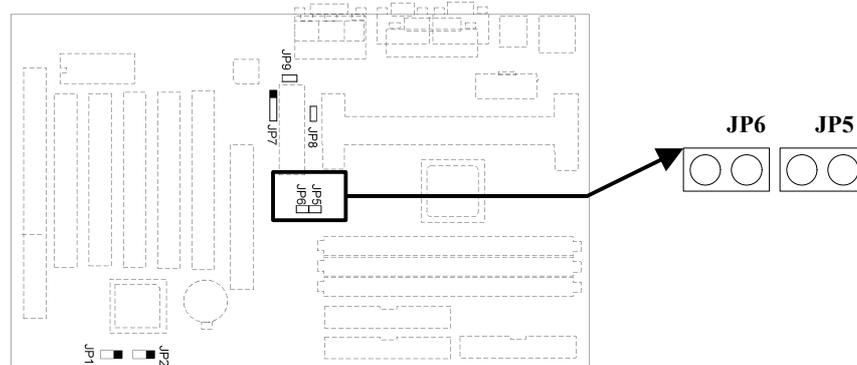
J6	JP5	CPU Front Side Bus Frequency
▬	▬	Auto detect according to the CPU installed.
▬	◯◯	Always 100MHz for 66/100MHz Bus CPU
◯◯	▬	Always 133MHz for 100/133MHz Bus CPU

Table3: CPU Front Side Bus Frequency

2.35 JP7, JP8-Onboard Codec Setting

JP7-8 are used to enable or disable the onboard Audio Codec and Modem Codec . If you want to install an ISA or PCI Audio card on any of the expansion slots, you must disable the onboard Audio Codec and disable the "Onchip sound" in the BIOS Setup Menu. When you need to install a primary AMR (Audio Modem Riser) card, you must enable the Onboard Modem Codec and disable the "Onchip sound" in the BIOS Setup Menu. For details please refer to the following setting:
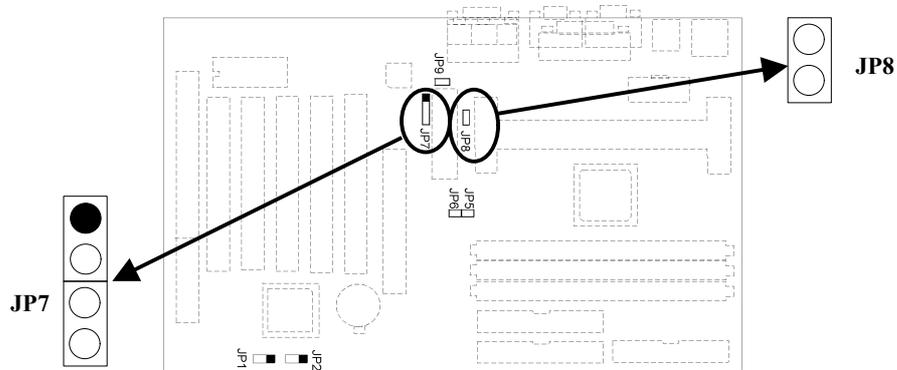
JP7	JP8	Description
1 ▭▬▭ ○ ○	▬▬	Onboard Audio Codec Enabled
1 ○ ○ ▬▬	○ ○	Onboard Modem Codec Enabled Onboard Audio Codec Disabled (for AMR)
1 ▬▬ ▬▬	▬▬	Onboard Audio and Modem Codec Enabled (Default) (for MR)

Table 4 AC97&MC97 Selection

2.36 JP9 – AMR CHANNEL SETTING

This jumper allows you to select the AMR channel to be *Primary* or *Secondary*. If onboard audio codec is enabled, *Secondary* must be selected;

otherwise, select *Primary* if the onboard audio codec is disabled.
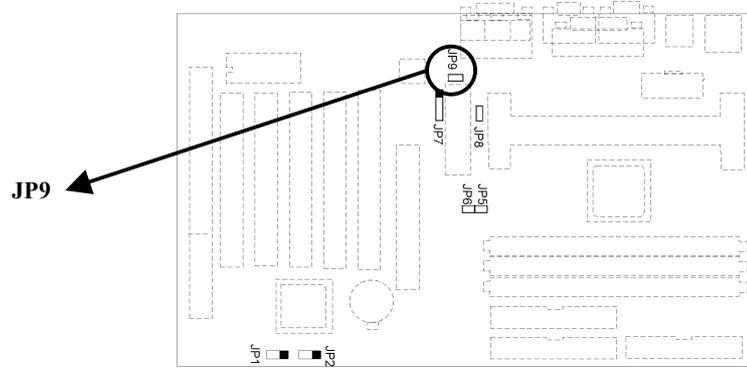
JP9	Description
	Primary
	Secondary(Default)

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.
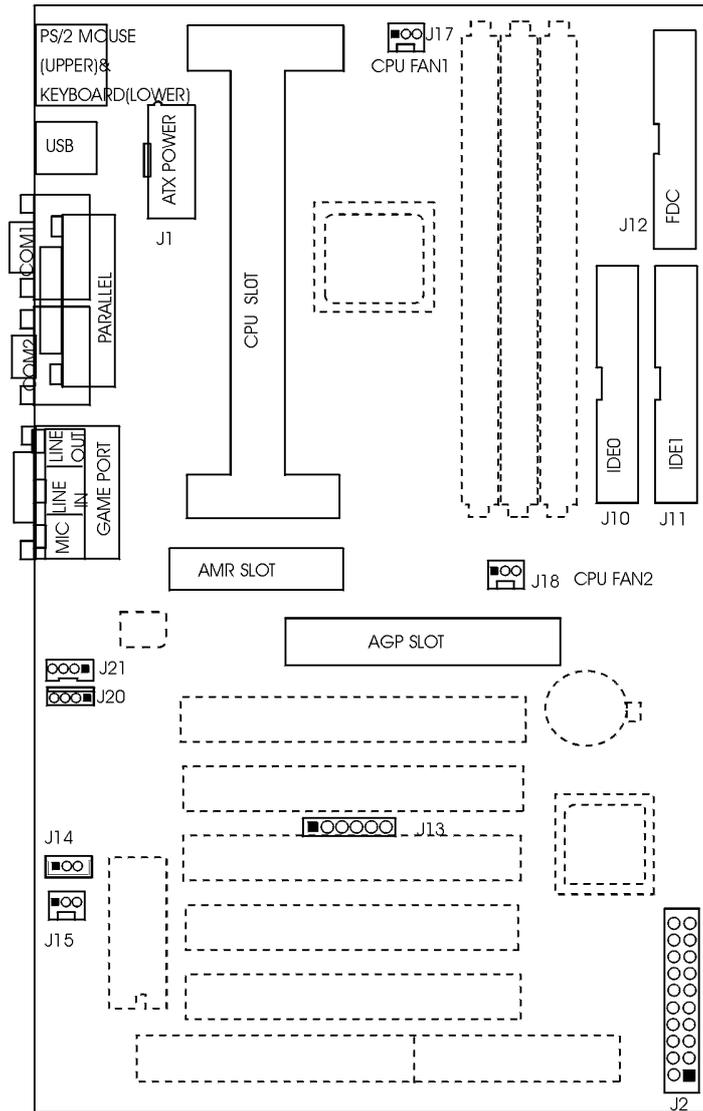
Fig 4 Connector Location

1. J1 - ATX POWER SUPPLY CONNECTOR

J1 is a 2x10 pin male connector. Plug the power connector of the ATX power supply onto the connector.
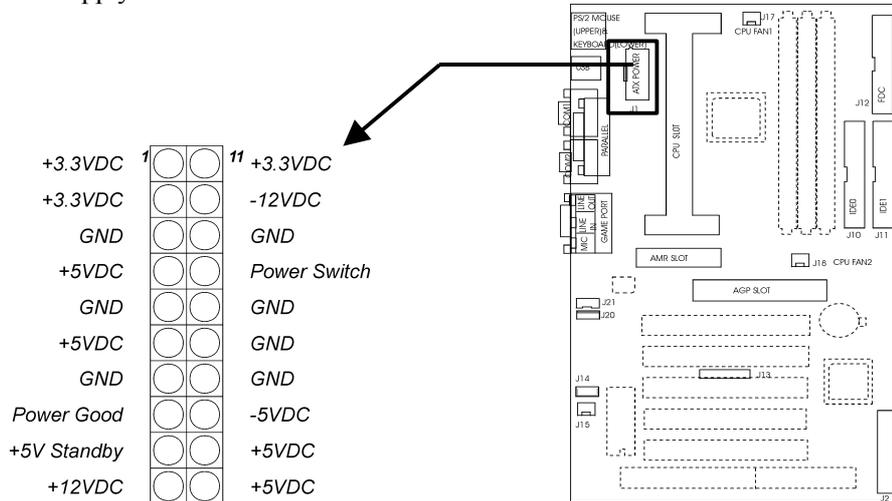
Fig. 5 ATX Power Supply Connector

2. J2 – MULTIPLE FUNCTION JUMPER

J2 a front panel multi-function jumper includes Harddisk LED, Suspend LED, ATX power switch, Suspend Switch, Power LED and Speaker. The pin definition is as following figure.
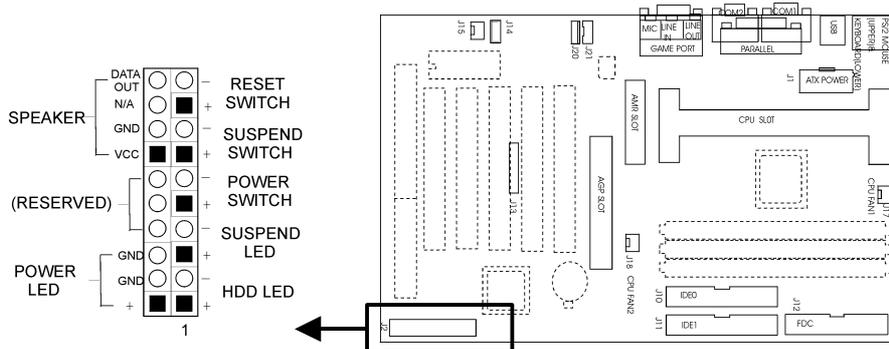
Fig 6 Multiple Function Jumper

3. J10, J11 - 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.
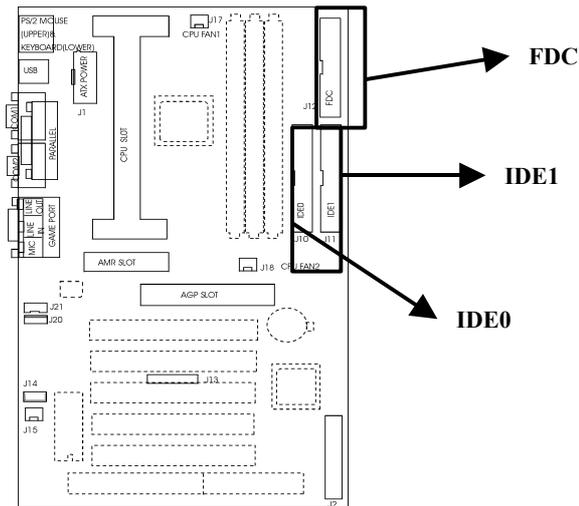
Fig 7 IDE and FDC Connectors

4. J12 - 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. J13 - IrDA CONNECTOR

J13 is an IrDA header that uses UART2 as interface of IrDA Infrared. You can connect the IrDA device to this header.
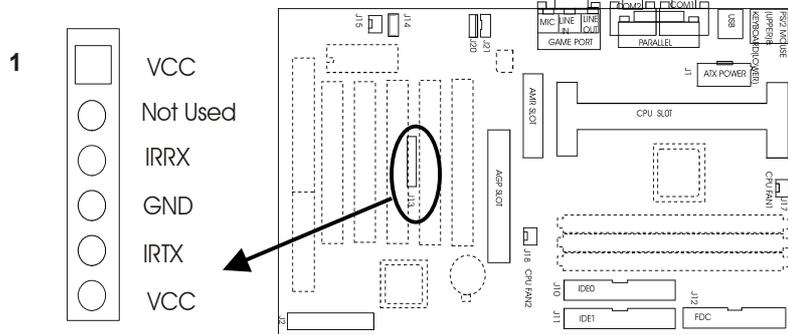
Fig. 8 IrDA Connector

6. J14 – LAN WAKE UP CONNECTOR

J14 is a 3-pin connector as interface of LAN card for wake up on LAN purpose.
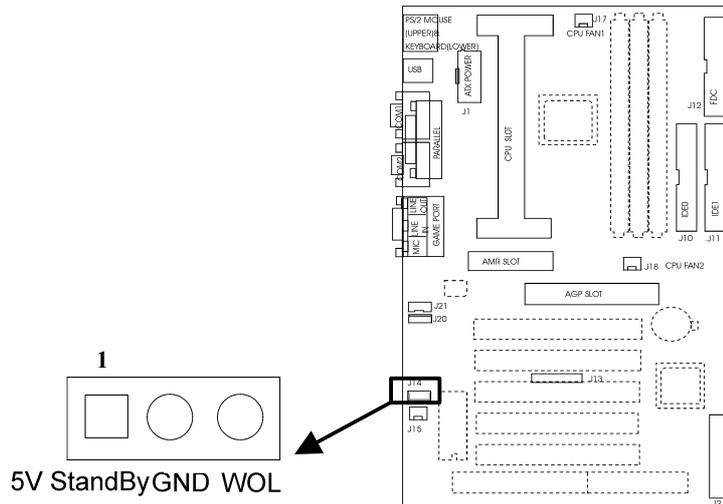
Fig. 9 LAN Wake Up Connector

7. J15, J17, J18-CPU FAN CONNECTOR

These FAN connectors are used to connect with the CPU Fan or the Chassis Fan Power cable.
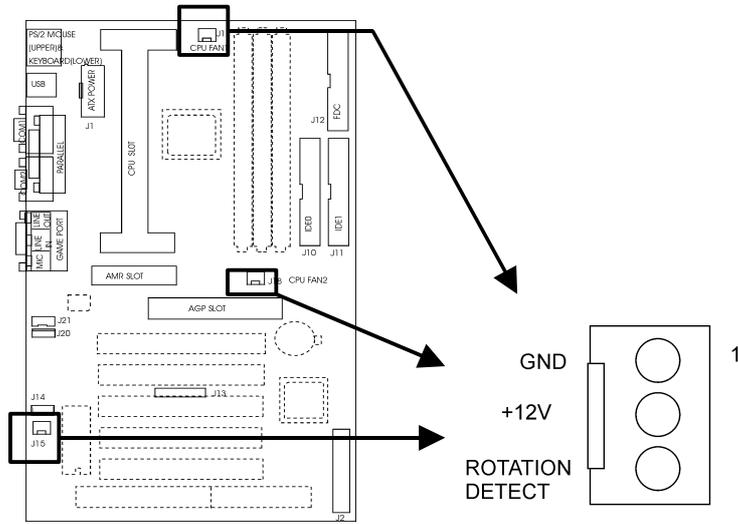
Fig. 10 FAN Connector

8.   J20 – CD-ROM AUDIO CONNECTOR (SONY)

J20 is a four-pin connector, which is used to connect with the Sony CD-ROM audio output. This pin definition is as following:
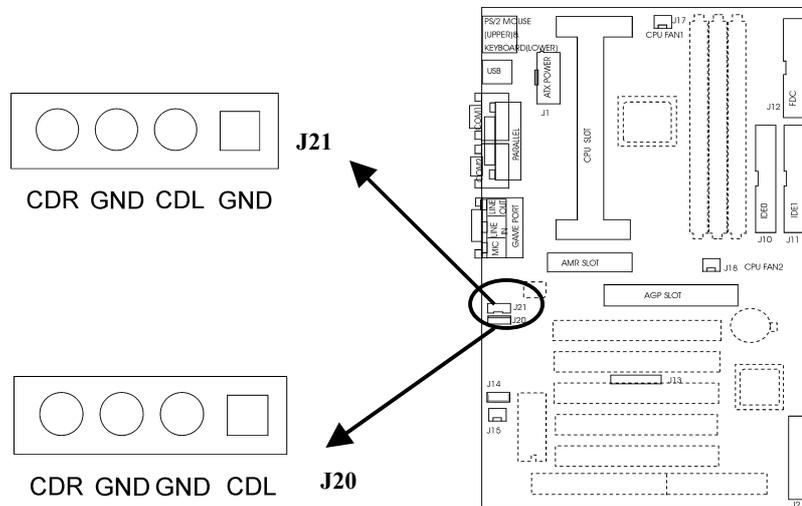
Fig.11 CD-ROM Audio Connector

9.   J21-CD-ROM AUDIO CONNECTOR (MISUMI/ PANASONIC)

J21 is a four-pin connector, which is used to connect with the Panasonic or Misumi CD-ROM audio output. The pin definition is as above.

10.   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 adapter.
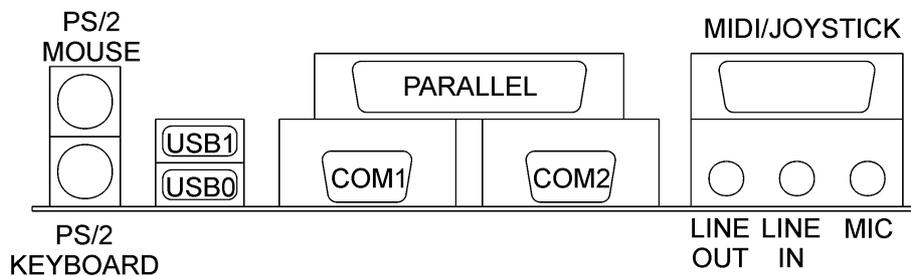
Fig. 12 I/O Connector

11.   PS/2 MOUSE CONNECTOR

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

12.   UNIVERSAL SERIAL BUS PORT 0 & 1

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

13.   SERIAL PORT COM1 & COM2

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

14.   PARALLEL PORT CONNECTOR

This is a D-Type 25 pin female connector.

15.   AUDIO PORT CONNECTOR

Three 1/8 female connectors used as line out, line in and microphones. **Line Out** can be connected to headphones or *powered speakers*. **Line In** allows tape players or other audio sources to be recorded by your computer or played through the Line Out. MIC allows microphones to be connected for inputting voice.

CHAPTER 3 AWARD BIOS SETUP GUIDE

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

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

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

3.1   AWARD BIOS SETUP

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

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

"Press DEL to enter SETUP"

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

ROM PCI/ISA BIOS (2A6LGD1D)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

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

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

Time, Data, Hard Disk Type...

Fig. 13

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

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

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

3.2 STANDARD CMOS SETUP

ROM PCI/ISA BIOS (2A6LGD1D)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

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

HARD DISKS      TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE

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


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

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

Fig. 14

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

3.3   BIOS FEATURES SETUP

ROM PCI/ISA BIOS (2A6LGD1D)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Anti-Virus Protection	: Enabled	**Video BIOS Shadow**	: Enabled
CPU Internal Cache	: Enabled	**C8000-CBFFF Shadow**	: Disabled
External Cache	: Enabled	**CC000-CFFFF Shadow**	: Disabled
CPU L2 Cache ECC Checking	: Enabled	**D0000-D3FFF Shadow**	: Disabled
		D4000-D7FFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	**D8000-DBFFF Shadow**	: Disabled
Boot Sequence	: A,C,SCSI	**DC000-DFFFF Shadow**	: Disabled
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled		
Boot Up Numlock Status	: On		
IDE HDD Block Mode	: Enable		
Gate A20 Option	: Fast		
Memory Parity/ECC Check	: Enabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6	**ESC: Quit ↑↓→←: Select Item**	
Typematic Delay (Msec)	: 250	**F1: Help PU/PD/+/-: Modify**	
Security Option	: Setup	**F5: Old Values (Shift)F2: Color**	
PCI/VGA Palette Snoop	: Disabled	**F6: Load BIOS Defaults**	
OS Select For DRAM > 64MB	: Non-OS2	**F7: Load Setup Defaults**	

Fig. 15 BIOS Setup Defaults

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

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

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

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

Quick Power On Self Test: The option are *Enabled* or *Disabled*. *Enabled* allows the computer to boot more quickly, skipping parts of the self test. *Disabled* causes the computer to boot more slowly, performing all parts of the self test.

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

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

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

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

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

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

Memory Parity/ECC Check: Choose *Enabled* or *Disabled*. If memory modules with Parity of ECC are installed, you may choose *Enabled*.

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

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

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

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

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

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

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

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

3.4   CHIPSET FEATURES SETUP

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

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

<div align="center">

ROM PCI/ISA BIOS (2A6LGD1D)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

</div>

Bank 0/1 DRAM Timing	**: SDRAM 10ns**	**Auto Detect DIMM/PCI clk** **: Enabled**
Bank 2/3 DRAM Timing	**: SDRAM 10ns**	
Bank 4/5 DRAM Timing	**: SDRAM 10ns**	
SDRAM Cycle Length	**: 3**	
DRAM Clock	**: Host CLK**	
Memory Hole	**: Disabled**	
P2C/C2P	**: Enabled**	
Fast R-W Turn Around	**: Disabled**	
Read Around write	**: Disabled**	
Concurrent PCI/HOST	**: Disabled**	
System BIOS Cacheable	**: Disabled**	
Video RAM Cacheable	**: Disabled**	
AGP Aperture Size	**: 64M**	
AGP-2x Mode	**: Enabled**	
H/W Reset Protection	**: Disabled**	**ESC: Quit** ↑↓→←**: Select Item**
Onchip USB	**: Enabled**	**F1: Help** **PU/PD/+/-: Modify**
USB Keyboard Support	**: Disabled**	**F5: Old Values (Shift)F2: Color**
Onchip Sound	**: Enabled**	**F6: Load BIOS Defaults**
Onchip Modem	**: Enabled**	**F7: Load Setup Defaults**

<div align="center">

Fig. 16

</div>

A short description of the screen items follows:
Bank 0/1 DRAM Timing, Bank 2/3 DRAM Timing, Bank 4/5 DRAM Timing:
Available options are *Normal, Medium, Fast, Turbo, FP/EDO 70ns, FP/EDO 60ns*,
SDRAM 10ns, SDRAM 8ns. It is set the DRAM Timing of the corresponding Memory
Bank.

SDRAM Cycle Length: It is used to set the SDRAM timing. The default setting is *2* and
it may be set to *3* for slower SDRAM.

DRAM Clock : It is used to set the RAM clock. The options are *HCLK, HCLK-*
33 ,HCLK+33. When choose *HCLK,* the RAM will run with the host clock. When choose
HCLK-33 OR HCLK+33, it will run lower or higher than the host clock.

Memory Hole: Choose *Enabled* or *Disabled*. *Enabled* allows some linear VGA Cards to
run larger frame port, or it can be reserved or some operating system.

Read Around write: Choose *Enabled* or *Disabled*.

Concurrent PCI/HOST: Choose *Enabled* or *Disabled*.

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

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

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

AGP –2x Mode: Choose *Enabled* or *Disabled. Enabled* allows AGP run with 2x mode.

H/W Reset Protection: When *Enabled*, it will disable the function of reset switch.

OnChip USB: Choose *Enabled* or *Disabled*. *Enabled* allows the on board Universal
Serial Bus (USB) Controller to be functioned.

USB Keyboard Support: This option only shown when OnChip USB Controller is
enabled. Choose Enabled or Disabled to support the USB keyboard.

Onchip Sound: Choose *Enabled* or *Disabled*. *Enabled* allows the on board sound chip to
be functioned.

Onchip Modem: Choose *Enabled* or *Disabled*.

Auto Detect DIMM/PCI clk: Choose *Enabled* or *Disabled*.

3.5   POWER MANAGEMENT SETUP MENU

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

ROM PCI/ISA BIOS (2A6LGD1D)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

ACPI Function	: Enabled	Primary INTR	: ON
Power Management	: User Define	IRQ3 (COM2)	: Primary
PM Control by APM	: Yes	IRQ4 (COM1)	: Primary
Video Off After	: Suspend	IRQ5 (LPT2)	: Primary
Video Off Method	: V/H SYNC+Blank	IRQ6 (Floppy Disk)	: Primary
MODEM Use IRQ	: 3	IRQ7 (LPT1)	: Primary
Soft-off by PWRBTN	: Instant-Off	IRQ8 (RTC Alarm)	: Disabled
PWRON After PW-Fail	: Off	IRQ9 (IRQ2 Redir)	: Secondary
HDD Power Down	: Disabled	IRQ10 (Reserved)	:
Doze Mode	: Disabled	IRQ11 (Reserved)	Secondary
Suspend Mode	: Disabled	IRQ12 (PS/2 Mouse)	: Secondary
			: Primary
** PM Events **		IRQ13 (Coprocessor)	: Primary
VGA	: OFF	IRQ14 (Hard Disk)	: Primary
LPT & COM	: LPT/COM	IRQ15 (Reserved)	: Disabled
HDD & FDD	: OFF		
PCI Master	: ON		
Modem Ring Resume	: Disabled		
RTC Alarm Resume	: Disabled		
Wake Up On LAN	: Disabled		

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

Fig. 17

A short description of the screen items follows:

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

Power Management: Available selections are "User Define", "MinSaving" and "MaxSaving":
 "User Define" makes the time period waiting for Suspend Mode to be programmed.
 "Min Saving" will set the time period waiting for Suspend Mode to be 1 hour.

"Max Saving" will set the time period waiting for Suspend Mode to be 10 seconds.

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

Video Off After: Choose the mode in which you want the monitor to blank. The options are "On", "Suspend", "Doze" and "NA".

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

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

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

PWRON After PW-Fail: Choose *Off, Former-sts or On*.

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

Doze Mode: The options are *Disabled, 10Sec, 20Sec, 30Sec, 40Sec, 1Min, 2Min, 4Min, 6Min, 8Min, 10Min, 20Min, 30Min, 40Min, and 1Hour*. Select the time you want .The shorter the time you select the sooner the system will enter doze mode.

Suspend Mode: To set the time period waiting for Suspend Mode when the Power Management function is set to "User Define". The options are *Disabled, 10Sec, 20Sec, 30Sec, 40Sec, 1Min, 2Min, 4Min, 6Min, 8Min, 10Min, 20Min, 30Min, 40Min, and 1Hour*.

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

PCI Master: Choose *Disabled* or *Enabled*.

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

RTC Alarm Resume: To enable the **RTC Alarm Resume** will wake up the system at the

time set on the **Date (of Month)** and **Timer (hh:mm:ss)**.

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

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

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

3.6   PNP/PCI CONFIGURATION

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

<div align="center">

ROM PCI/ISA BIOS (2A6LGD1D)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

</div>

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

<div align="center">

Fig. 18

</div>

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

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

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

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

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

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

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

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

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

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

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

PCI Master Read Caching: Choose *Enabled* or *Disabled.* It is used to enable or disable the PCI master read caching.

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

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

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

3.7   LOAD BIOS DEFAULTS

Load BIOS Defaults allows you to automatically configure all of the options in the previous menus using the values in the ROM BIOS table. The fields in

Standard CMOS Setup are not affected.

3.8 LOAD SETUP DEFAULTS MENU

This Main Menu item allows you to use the default setup values. Use this option as a diagnostic aid if the system behaves unstable. Choose this item and the following message appears:

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

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

3.9 CPU SPEED SETTING

The CPU Speed Setting Setup option is used to select the CPU operating frequency determined by the CPU ratio and CPU system bus frequency.

Note: Don't set CPU frequency higher than its working frequency. If you do, we will not be responsible for any damage caused

ROM PCI/ISA BIOS (2A6LGD1D)
CPU SPEED SETTING
AWARD SOFTWARE, INC.

CPU Speed : **Manual**	
CPU Ratio : **x2**	
CPU Frequency : **100MHZ**	
Current CPU Tem. : **30°C/ 86°F**	
Current System Tem. : **25°C/ 81°F**	
Current CPUFAN1 Speed : **3800RPM**	
Current CPUFAN2 Speed : **ORPM**	
Vcore : 2.00V 2.5V : **2.49V**	
3.3V : 3.28V 5V : **4.95V**	**ESC: Quit** ↑↓→←: **Select Item**
12V : 12.00V	**F1: Help** **PU/PD/+/-: Modify**
	F5: Old Values (Shift)F2: Color
	F6:Load BIOS Defaults
	F7: Load Setup Defaults

Fig.19

A short description of the screen items follows:

CPU Speed: .If you choose "Manual", you can set both of the *CPU Ratio* and *CPU Frequency* below. Otherwise, you may choose selectable CPU speed setting from 3x to 8x with 0.5 increment

CPU Ratio: You may choose the CPU ratio from "x2" to "x8".

CPU Frequency: You can choose the CPU bus frequency from "66MHz" to "155MHz".

3.10 INTEGRATED PERIPHERALS SETUP MENU

The Integrated Peripherals setup option is used to change the values of the I/O

chipset registers for I/O functions.

<div align="center">

ROM PCI/ISA BIOS (2A6LGD1D)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

</div>

OnChip IDE Channel0	: Enabled		
OnChip IDE Channel1	: Enabled	**Onboard Parallel Mode**	: ECP/EPP
IDE Prefetch Mode	: Enabled		
Primary Master PIO	: Auto	**Parallel Port EPP Type**	: EPP1.7
Primary Slave PIO	: Auto	**ECP Mode Use DMA**	: 3
Secondary Master PIO	: Auto	**Onboard Legacy Audio**	: Enabled
Secondary Slave PIO	: Auto	**Sound Blaster**	: Disabled
Primary Master UDMA	: Auto	**SB I/O Base Address**	: 220H
Primary Slave UDMA	: Auto	**SB IRQ Select**	: IRQ5
Secondary Master UDMA	: Auto	**SB DMA Select**	: DMA1
Secondary Slave UDMA	: Auto	**MPU- 401**	: Disabled
Init Display First	: AGP	**MPU- 401 I/O Address**	: 330-333H
		FM Port (388-38H)	: Disabled
Onboard FDC Controller	: Enabled	**Game Port (200-207H)**	: Enabled
Onboard Serial Port 1	: Auto		
Onboard Serial Port 2	: Auto		
UART 2 Mode	: HPSIR	**ESC: Quit** ↑↓→←: Select Item	
IR Function Duplex	: Half	**F1: Help** PU/PD/+/-: Modify	
TX,RX inverting enable	: No	**F5: Old Values (Shift)F2: Color**	
Onboard Parallel Port	: 378/IRQ7	**F6: Load BIOS Defaults**	
		F7: Load Setup Defaults	

<div align="center">

Fig. 20

</div>

A short description of the screen items follows:

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

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

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

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

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

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

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

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

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

UART 2 Mode: Choose *Standard, HPSIR or ASKIR* (Amplitude Shift Keyed Infrared Port), The default setting is *Standard*.

IR Function Duplex: Choose *Half or Full*.

TX,RX inverting enable: Choose *No or Yes*.

Onboard Parallel Mode: Choose *Normal, EPP, ECP, ECP/EPP or Disabled*.

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

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

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

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

3.11   SUPERVISOR PASSWORD

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

allowed.

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

Change the password as follows:

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

    "ENTER PASSWORD:"

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

    "CONFIRM PASSWORD:"

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

3.12 USER PASSWORD

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

3.13 IDE HDD AUTO DETECTION

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

1. Choose this item and press <Enter>.

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

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

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

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

3.14 SAVE & EXIT SETUP MENU

When you select this function, the following message will appear at the centre of

the screen to assist you to Save data to CMOS and Exit the Setup.

Save to CMOS and Exit (Y/N)?

3.15 EXIT WITHOUT SAVING MENU

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

Quit Without Saving (Y/N)?

CHAPTER 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 VIA Apollo Drivers, Utility files, Manual & Catalog. Click the **Software Drivers** for the drivers of system must be installed. For example, in Windows 98 or 95 system, the "**4IN1 Drivers**", "**AD1881**" 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   4IN1 DRIVERS INSTALLATION

The **4IN1** drivers include *Bus Master PCI IDE Driver, AGP VxD Driver, VIA Chipset Function' Registry* and *IRQ Routing Miniport Driver.*

Browse the Mainboard User's Guide & Software CD-ROM to the directory **\92V\drivers\4in1** and click *setup.exe*, it will install the software automatically, be sure to select all of the drivers listed above during the installation

4.2   AD1881 DRIVER INSTALLATION

The **AD1881** is the VIA PCI Audio driver for the on board audio codec.

Browse the Mainboard User's Guide & Software CD-ROM to the directory **\92V\drivers\AD1881** and click *setup.exe,* it will enter the **VIA PCI Audio Driver Setup Program** interface. Click *Next,* it will install the software automatically. When finishing the driver installation follow the screen direction to *restart* Windows again. When reenter the Windows, the system will find the New Hardware, and add the *VIA Gameport Joystick* and *VIA PCI Audio Controller* to the **Sound, video and game controller Device** automatically.

CHAPTER 5 FLASH AND DMI UTILITY

5.1   AWARD FLASH UTILITY

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

How to Begin

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

```
+--------------------------------------------------+
|          FLASH MEMORY WRITER V5.XX               |
|       Copyright (C) 1999, Award Software, Inc.,  |
|--------------------------------------------------|
|   For 693A(A)-686A-         DATE:   09/10/99      |
|   2A6LGD1D                                        |
|        Flash Type                                 |
|                                                   |
|   File Name to Program:                           |
|                                                   |
|                                                   |
|                                                   |
|--------------------------------------------------|
| Error Message:                                    |
+--------------------------------------------------+
```

Fig. 21

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

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

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

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

    "Are You Sure to Program?"

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

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

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

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

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

    "Programming Flash Memory - 1FF00 0K
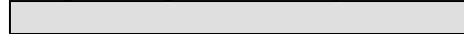
    Message: Please Power off or Reset System"

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

Warning

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

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

5.2 DESKTOP MANAGEMENT INTERFACE (DMI) OVERVIEW

This motherboard can support DMI within the BIOS level. DMI is able to auto-detect and record information pertinent to a computer's system such as the CPU type, CPU speed, and internal/external frequencies, and memory size. The onboard BIOS will detect as many system information as possible and store those collected information in a 4KB block in the motherboard's flash EPROM and allow the DMI to retrieve data from this database.

The DMI Configuration Utility (DMICFG.EXE) must be used in real mode in order for the program to run, the base memory must be at least 180K. Memory managers like HIMEM.SYS (required by windows) must not be installed. You can boot up from a system diskette without AUTOEXEC.BAT and CONFIG.SYS files, "REM" HIMEM.SYS in the CONFIG.SYS, or press <F5> during bootup to bypass your AUTOEXEC.BAT and CONFIG.SYS files.

Using the DMI Configuration Utility

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 is available for editing. The orange text shows auto-detected information and is 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
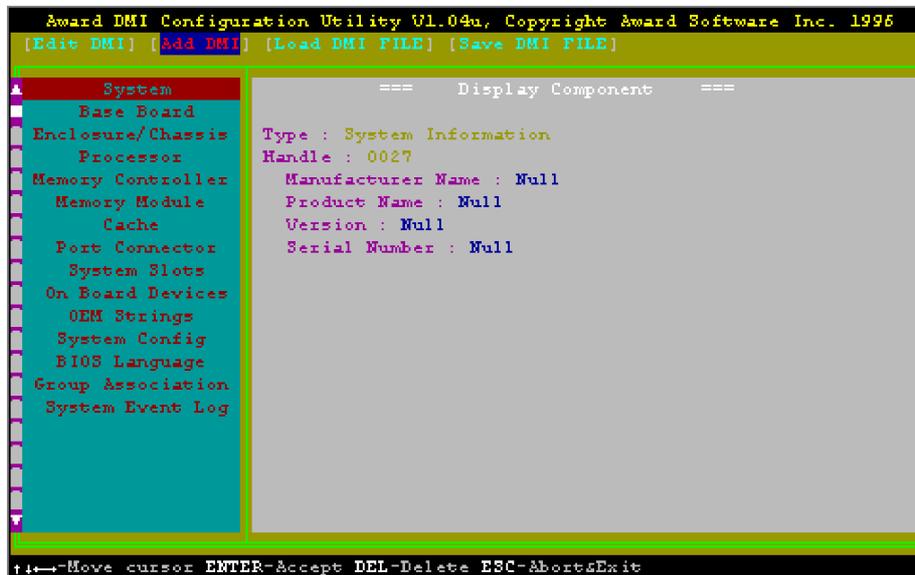
This DMI Configuration Utility also allows the system integrator or end user to add additional information into the DMI database such as serial numbers, housing configurations, and vendor information. Those information is not detected by the motherboard BIOS and has to be manually entered through the DMI Configuration Utility and updated into the DMI database.

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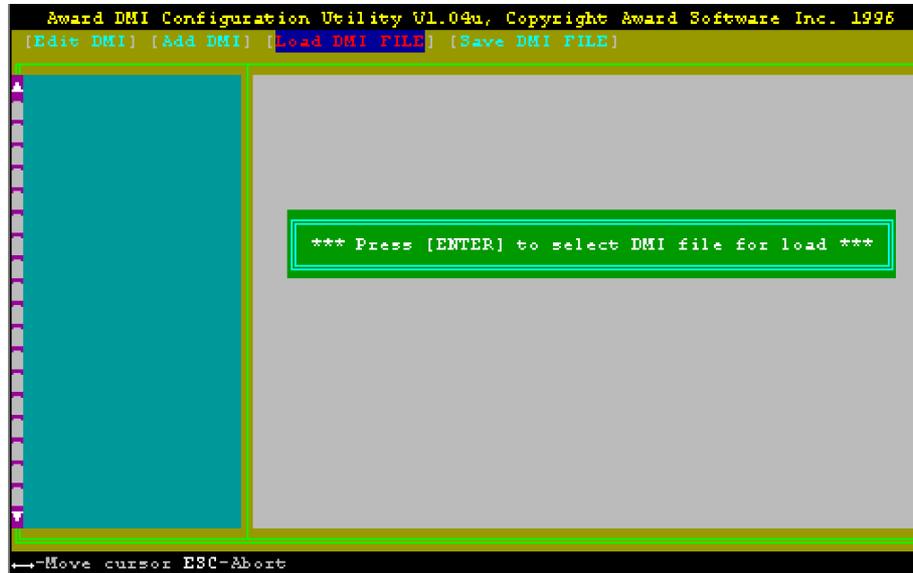
You can load the disk file to memory by entering a drive and path and file name here.

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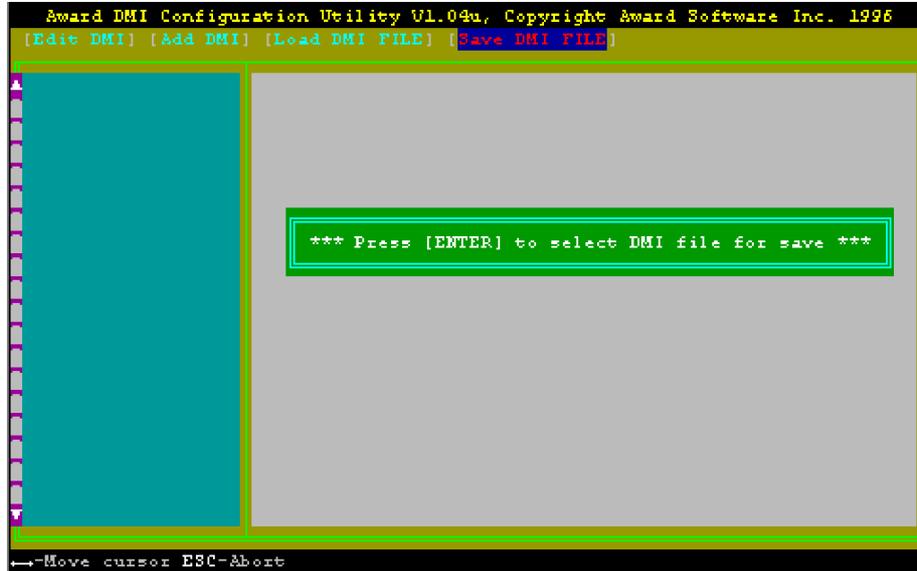
You can save the DMI (normally only saved to flash ROM) to a file by entering the drive and path here. If you want to cancel save, you may press ESC and a message "Bad File Name" appears here to show it was not saved.

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

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

1. **The table below summaries the functions and settings of each jumper of the motherboard.**

Function		Jumper Settings
CLEAR CMOS DATA	Normal	JP1: 1-2 close
	Clear	JP1: 2-3 close
CPU SPEED PROTECTION	CPU Speed Selection	JP2: 1-2 close
	CPU Speed Show Only	JP2: 2-3 close
CPU FRONT SIDE BUS FREQUENCY SETTING	Auto Detect	JP5: close JP6: close
	Always 100MHz for 66/100MHz bus CPU	JP5: open JP6: close
	Always 133MHz for 100/133MHz bus CPU	JP5: close JP6: open
ONBOARD CODEC SETTING	Onboard Audio Codec Enabled	JP7: 1-2 close JP8: close
	Onboard Modem Codec Enabled	JP7: 3-4 close JP8: open
	Onboard Audio and Modem Codec Enabled (Default)	JP7: 1-2 close 3-4 close JP8: close
AMR CHANNEL SETTING	Primary	JP9: open
	Secondary (Default)	JP9: close

2. **Muliple Function Jumper**

   J2 is a front panel multi-function jumper includes Harddisk LED, Suspend LED, ATX power switch, Suspend Switch, Power LED and Speaker. The pin definition is as following figure.