

PRM-95V4

High Performance

Socket370/AGP4X Mainboard

User's Guide



Edition 1.00

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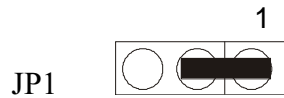
P/N: 155100-8853



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.



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.

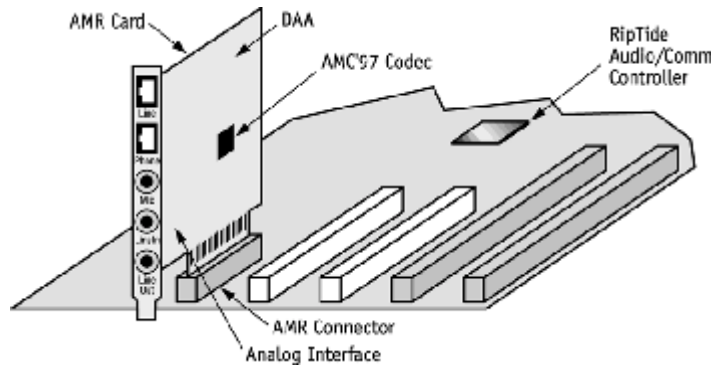
ACPI must be supported by the computer mainboard, BIOS, and the operating system. One of several *power schemes* can be chosen. ACPI is designed to work with Windows 98 and with Windows 2000. If you have Windows 98, you'll find a description of ACPI in the help files. Click Start->Help->Index-> and type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



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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 Pro133A** chipset designed to support the system and memory buses from **66MHz, 100MHz and 133MHz** based on **Intel Celeron** and **FC-PGA Pentium III** processors. It also supports **AGP4X, 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 FC-PGA Pentium®III, and Celeron™ processors based on Socket-370.
- The mainboard can run with following speeds: 300-800MHz

Chipset

- VIA VT82C694X (System Controller)
- VIA VT82C686A (PCI Super-I/O Integrated Peripheral Controller)

Architecture

- PCI2.1 compliant
- AC97 v2.1 compliant
- USB 1.1 compliant
- AGP v2.0 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 **1.5GB**
- 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

Chapter 1

- LAN, Modem Ring-in wakeup function
- STR function supported

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 - 256KB Flash ROM
- ACPI/Plug and Play support
- Built-in Trend™ ChipAway Virus Anti-Virus Program

Slots

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

Form Factor

- Full ATX Size (305mm x 195mm) 4 Layer

1.2 Board Layout

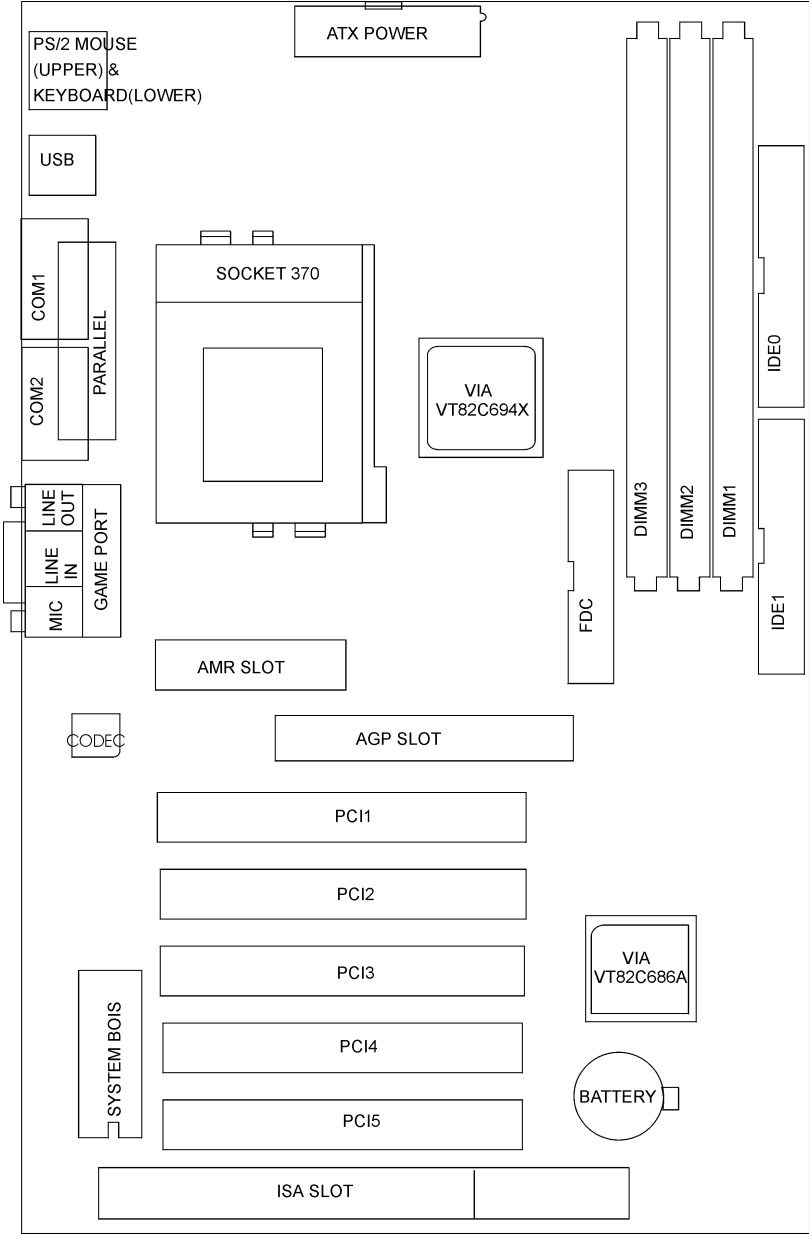


Fig. 1 Key Components of the Mainboard

1.3 Block Diagram

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

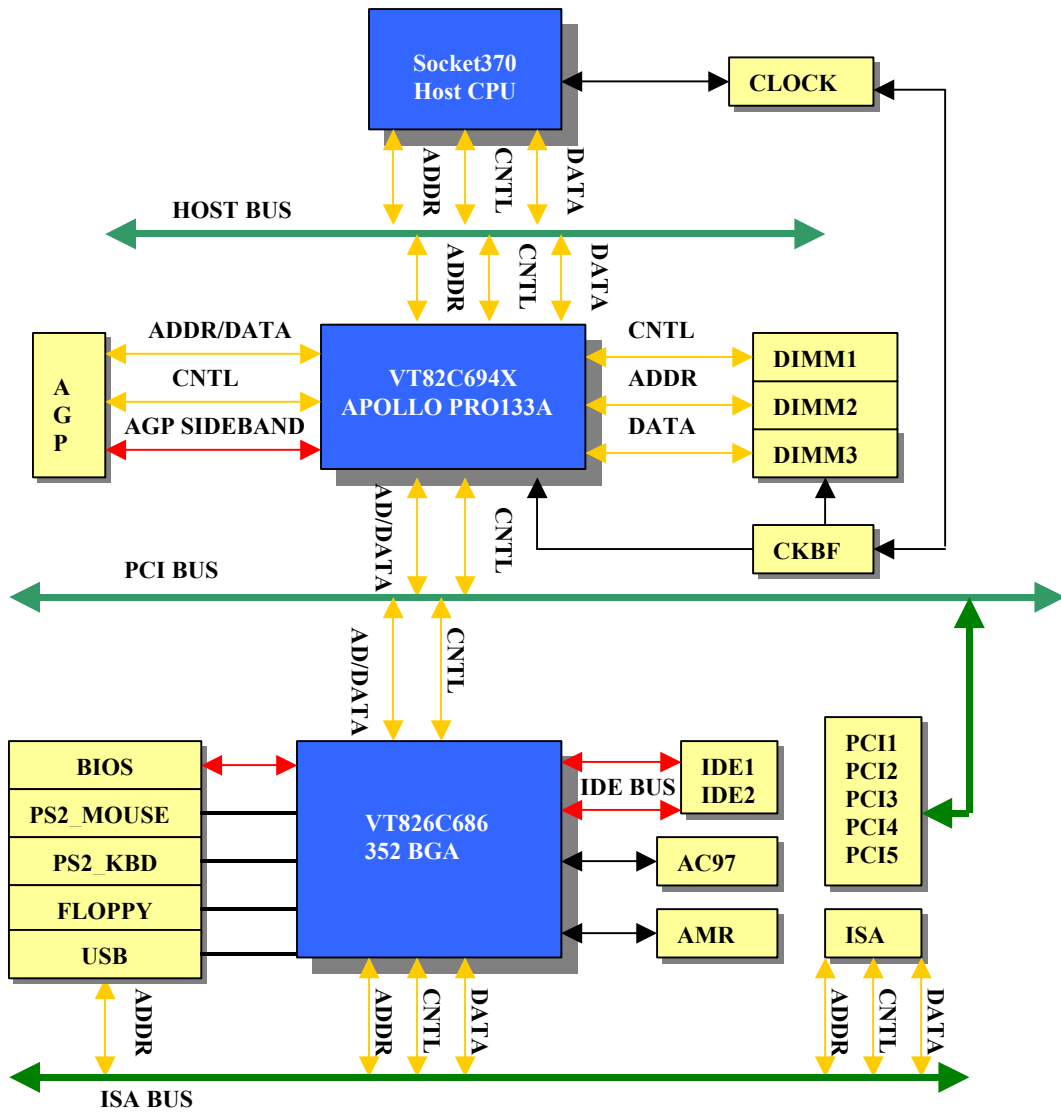


Fig 2 Block Diagram

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 handling 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 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.)

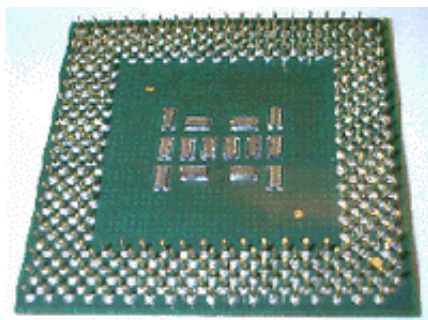
The board supports the processors listed as below:

	Processor Speed	Host Bus Frequency	Cache Size
<i>Celeron Processor</i>	366MHz	66MHz	128KB
	400MHz	66MHz	128KB
	433MHz	66MHz	128KB
	466MHz	66MHz	128KB
	500MHz	66MHz	128KB
	533MHz	66MHz	128KB
<i>Pentium III Processor (FC-PGA)</i>	500 MHz	100MHz	256KB
	533MHz	133MHz	256KB
	550 MHz	100MHz	256KB
	600MHz	100MHz	256KB
	650MHz	100MHz	256KB
	667MHz	133MHz	256KB
	700MHz	100MHz	256KB
	733MHz	133MHz	256KB

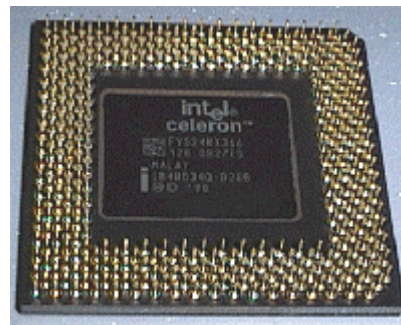
Differences Between FC-PGA and PPGA Form Factors

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.

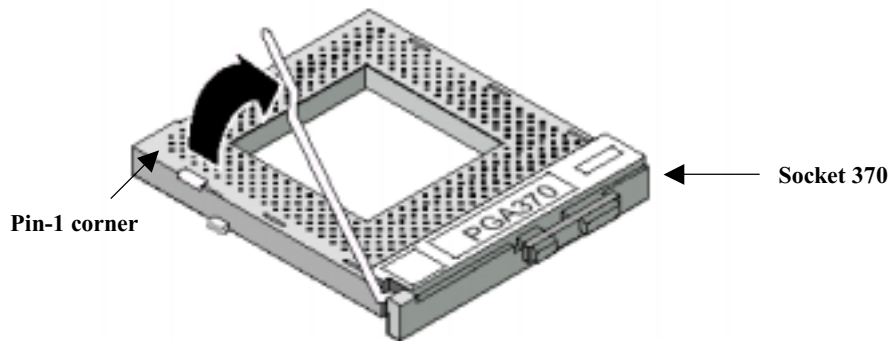


FC-PGA

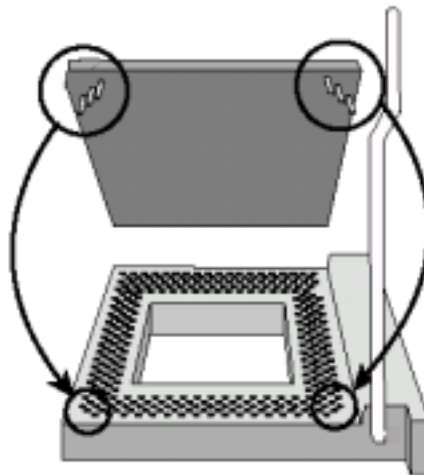


PPGA

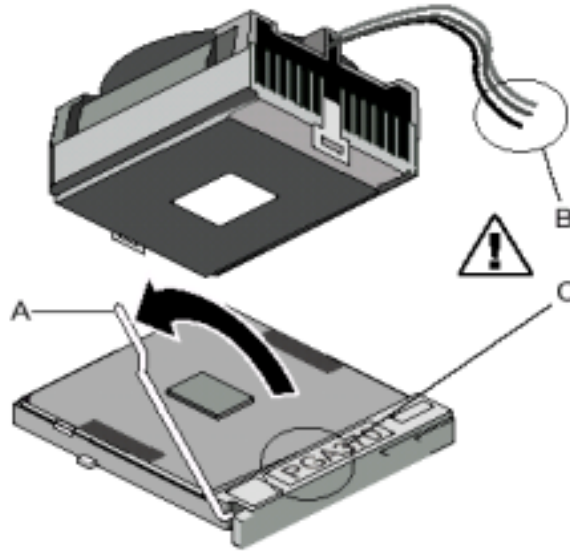
1. Locate the PGA370 socket for the processor.
2. On the socket and on the processor, identify the pin 1 corner. On the socket, the pin-1 corner is opposite the hinge of the locking lever, and it has one hole missing from the corner. On the processor, the pin-1 corner has a slight bevel.



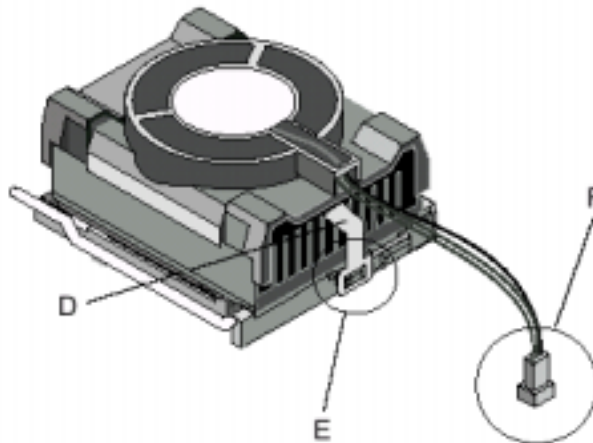
3. Push the socket locking lever away from the socket to unhook it. Swing the lever into the upright position.
4. Insert the processor into the socket taking care that you have matched the pin-1 corner. No force is required, and the processor should seat smoothly into the socket.



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.

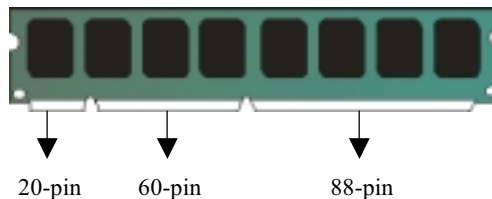


2.2 Installing System Memory

The mainboard provides 3 DIMM slots for providing a flexible memory size from 8MB up to 1.5GB 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 DRAM interface may be faster than CPU by 33MHz to allow use of PC100 memory modules with 66MHz Celeron or use of PC133 with 100MHz FC-PGA Pentium 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 FC-PGA Pentium 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.

Dynamic Clock Enable (CKE) control for SDRAM power reduction in high speed systems.



168-pin 3.3V unbuffered memory module

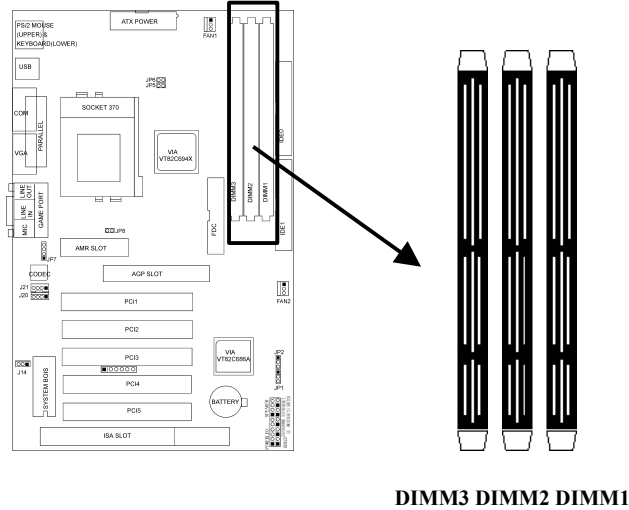
You must install at least one memory module and the first memory module should be installed in DIMM1 slot, the second in DIMM2 slot and the third in DIMM3 slot.

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:

Chapter 2

1. Locate the DIMM slots on the mainboard.



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.

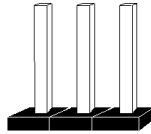
2.3 Jumper Settings

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.

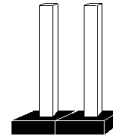
Jumpers and Caps



Jumper Cap



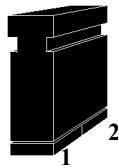
3-pin jumper



2-pin jumper

Jumpers Presentation

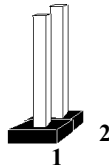
To rapidly give an effective and direct way to set jumpers for your system, there are some diagrams used in the following chapters. All kind of jumper setting modes are simplified as the following relevant graphic symbols:



Jumper shorted symbolizes



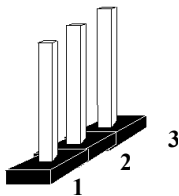
1



Jumper opened symbolizes



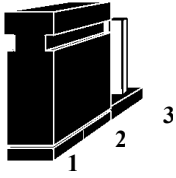
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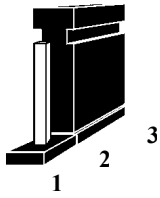
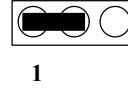
Open all pins of a jumper symbolizes as:



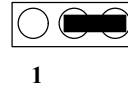
1



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



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



2.31 GRAPHICAL DESCRIPTION OF JUMPER SETTINGS

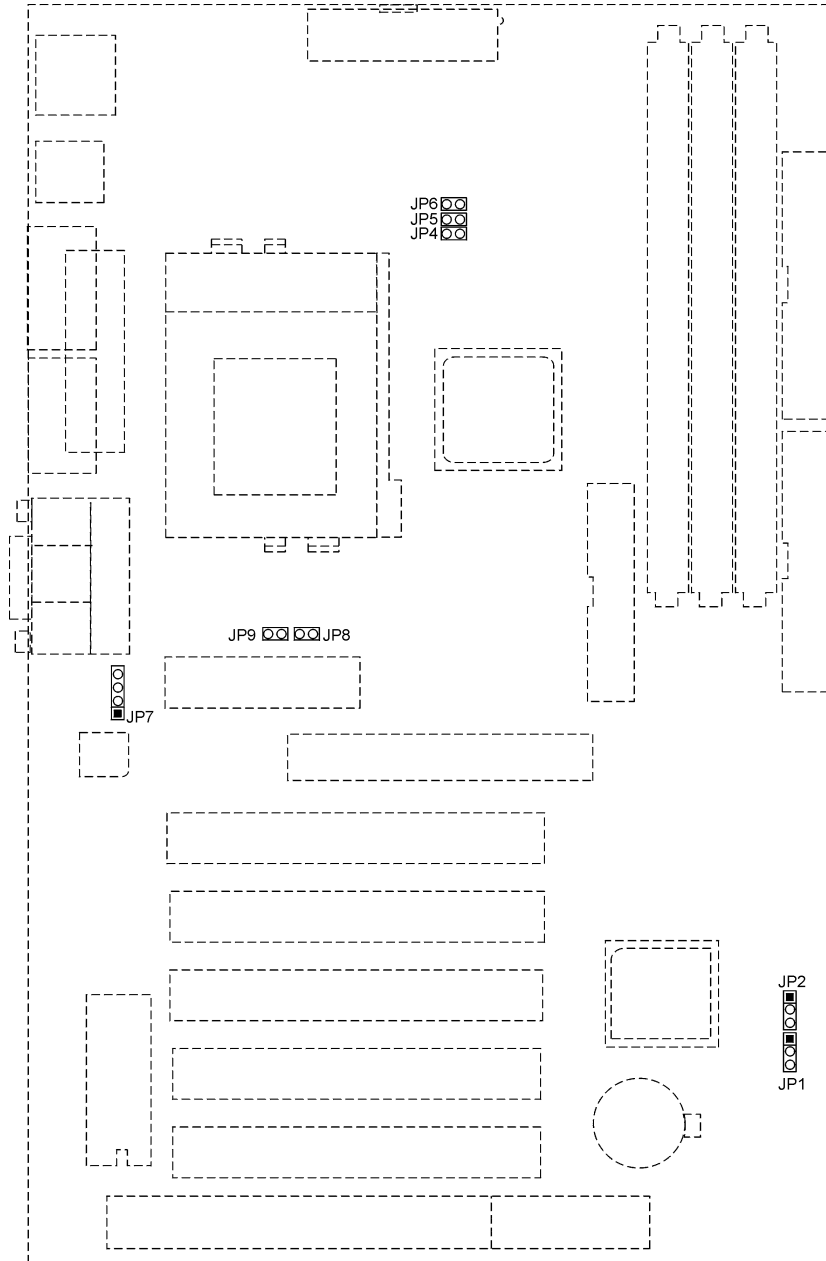
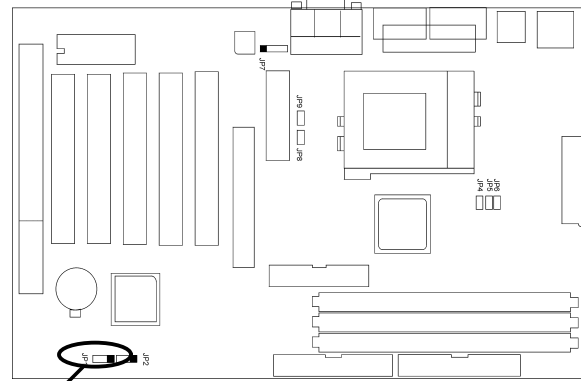


Fig. 3 Jumper Location of the mainboard

2.32 JP1-CLEAR CMOS DATA

JP1 is used to clear the content of the CMOS Data in the RTC.

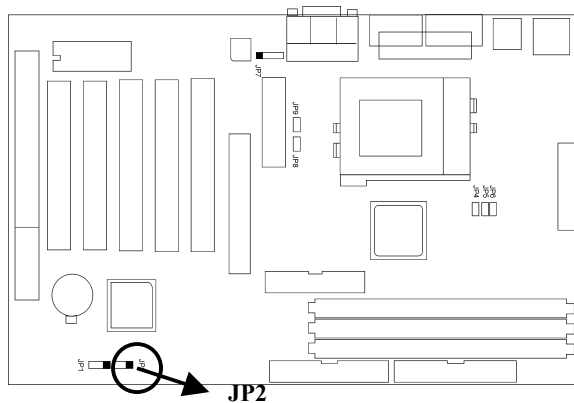


JP1	Description
	Normal
	Clear CMOS Data

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.




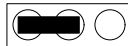
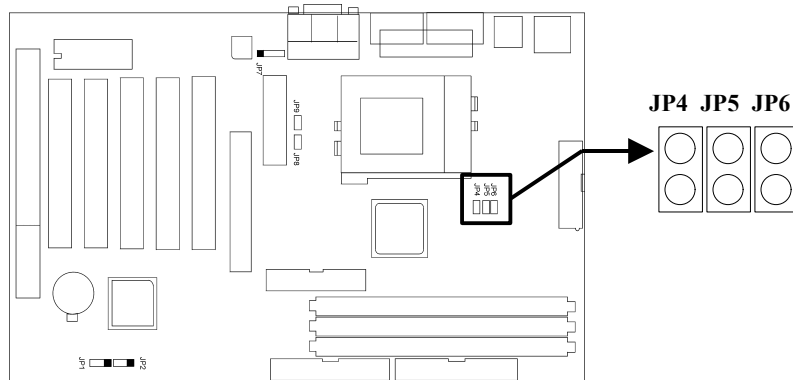
JP2	CPU Speed
<p>1</p> 	Selection
<p>1</p> 	Show Only

Table2: CPU Speed Protection

2.34 JP4, JP5, JP6 – CPU FRONT SIDE BUS FREQUENCY SETTING

JP4,5,6 are used to set the CPU Front Side Bus Frequency.















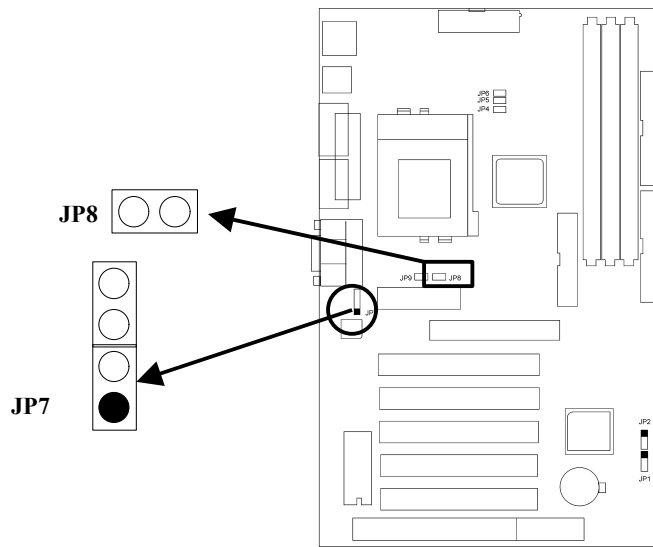
JP4	JP5	JP6	CPU Front Side Bus Frequency
			Auto detect according to the CPU installed.
			Always 83MHz for 66MHz Bus CPU.
			Always 100MHz for 66/100MHz Bus CPU
			Always 133MHz for 100/133MHz Bus CPU

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:

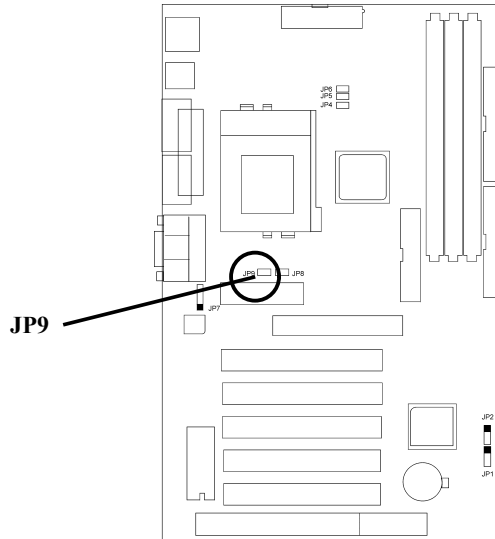




JP7	JP8	Description
		Onboard Audio Codec Enabled
		Onboard Modem Codec Enabled Onboard Audio Codec Disabled (for AMR)
		Onboard Audio and Modem Codec Enabled (Default) (for MR)

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.

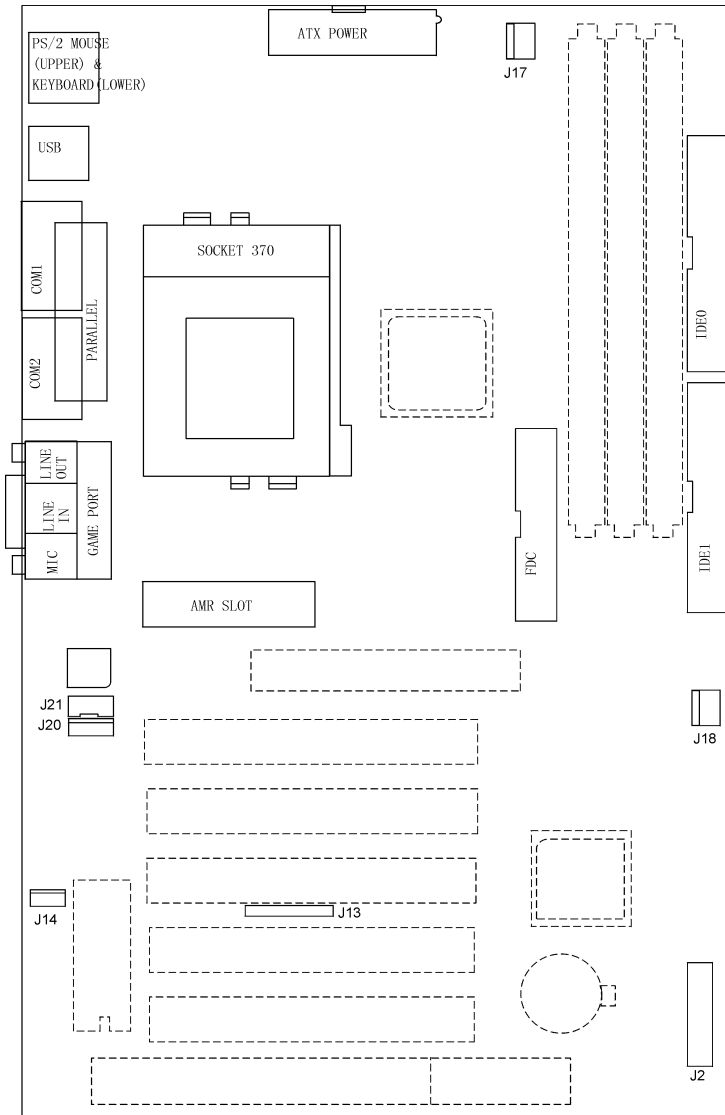


Fig 4 Connector Location

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.

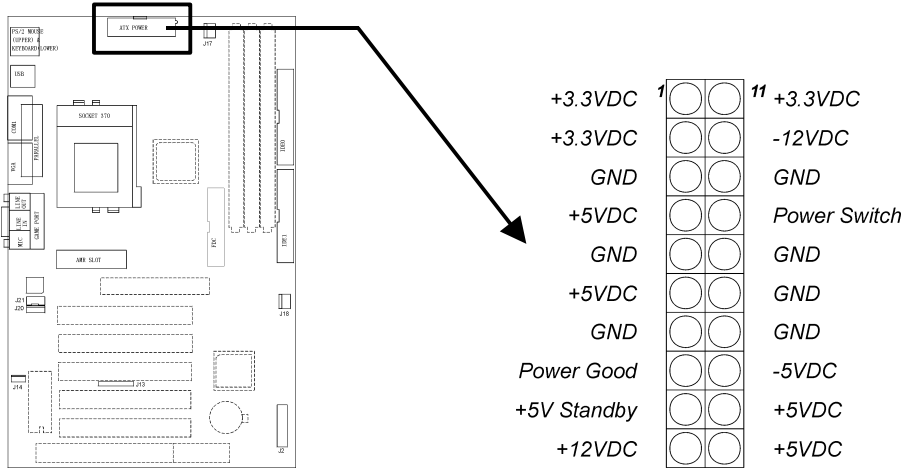


Fig. 5 ATX Power Supply Connector

2. J2 – MULTIPLE FUNCTION JUMPER

J2 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.

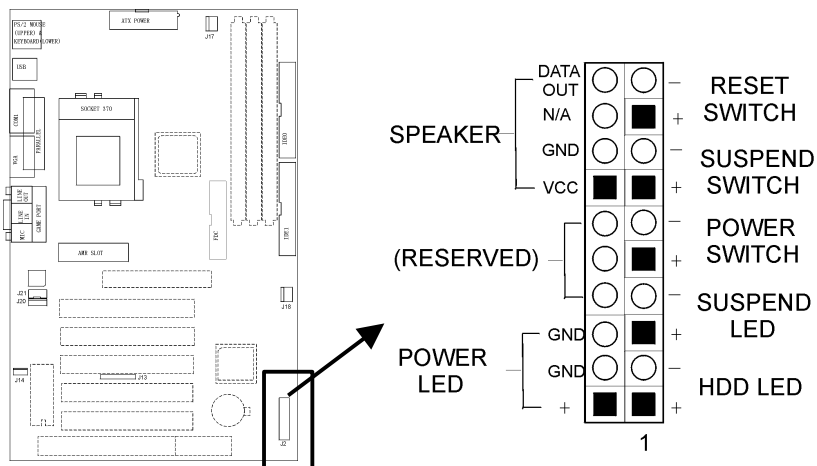


Fig 6 Multiple Function Jumper

3. J10 - 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.

4. J11, J12 - 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.

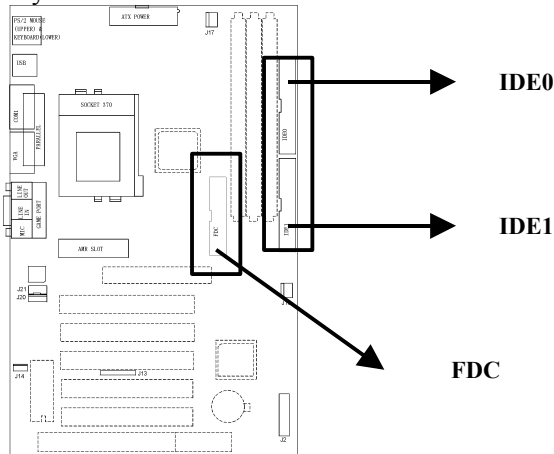


Fig 7 IDE and FDC Connectors

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.

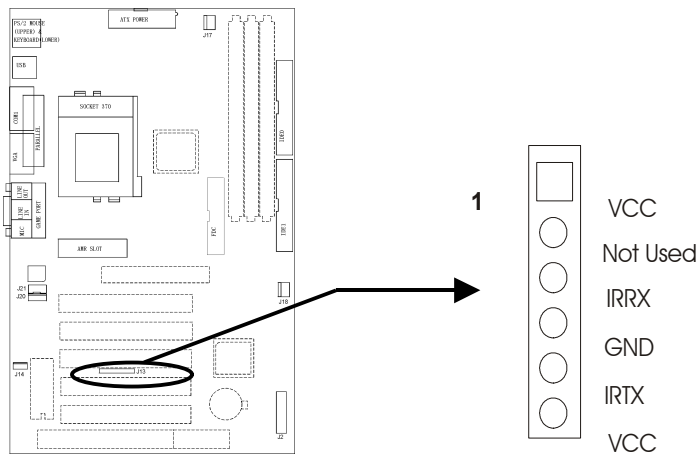


Fig. 8 IrDA Connector

6. J14 – LAN WAKE UP CONNECTOR

J14 is a 3-pin connector as interface of LAN card for wake up on LAN purpose.

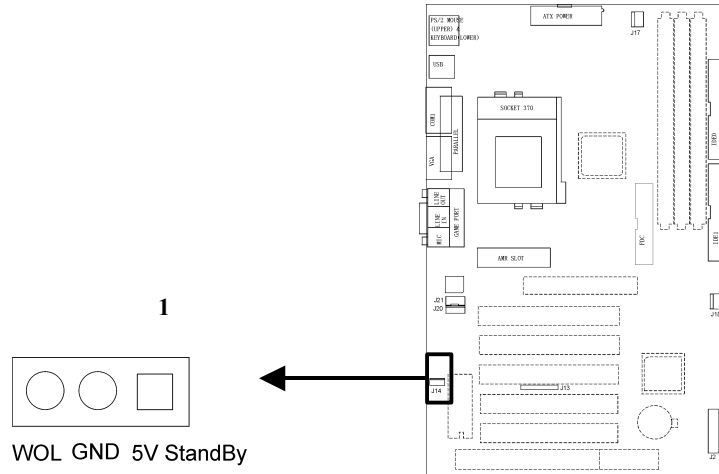


Fig. 9 LAN Wake Up Connector

7. J17, J18-CPU FAN CONNECTOR

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

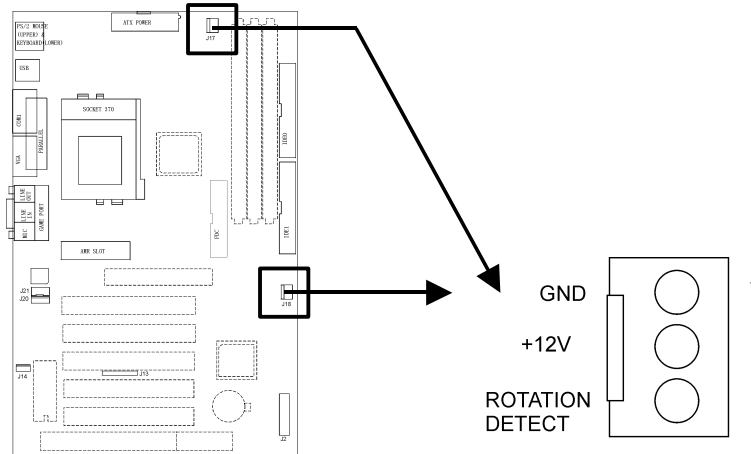


Fig. 10 FAN Connector

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:

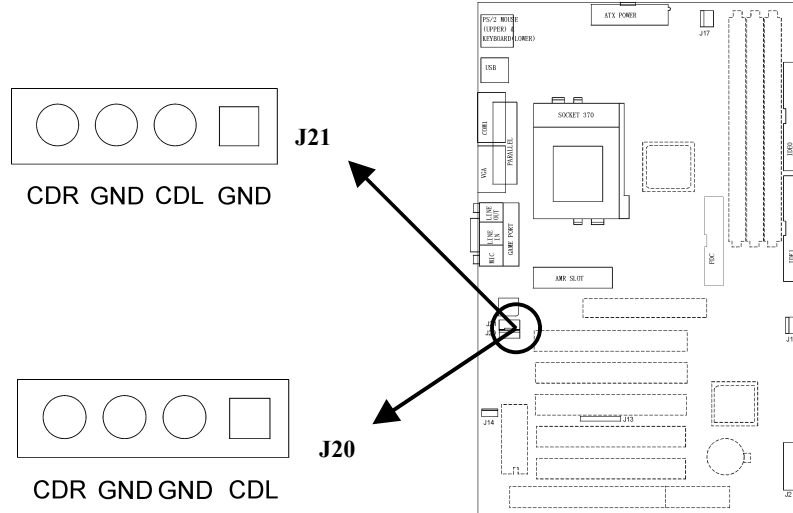


Fig.11 CD-ROM Audio Connector

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.

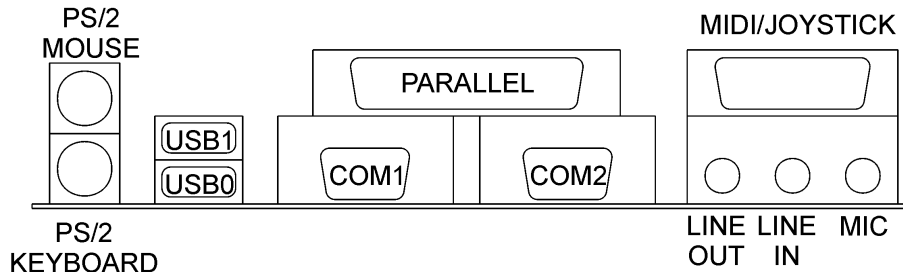


Fig. 12 I/O Connector

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

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, X7 should be selected for Celeron 466MHz CPU, and the default “CPU Host/PCI Clock” is 66/33MHz, don’t over specification selected. Actually, the currently Celeron 66MHz based CPU, always locked the CPU Clock Ratio inside. So the Ratio selected 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 “Insert” key until the power turned on again and the BIOS Title displayed. It’s a safe mode to recover the system.

3.1 AWARD BIOS SETUP MAIN MENU

Once you enter the Award™ BIOS 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) 1984-1999

Standard CMOS Feature	Frequency/Voltage Control
Advanced BIOS Feature	Load Fail-Safe Defaults
Advanced Chipset Feature	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
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 <hr/> Menu Level > Change the day, month, year and century
Time:	16:19:20	
IDE Primary Master	2557 MB	
IDE Primary Slave	None	
IDE Secondary Master	None	
IDE Secondary Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Floppy 3 Mode Support	Disabled	
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)

Chapter 3

Floppy 3 Mode Support	Disabled Both Drive A Drive B	This allows you to use the Floppy 3 Mode FDD.
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.

(**Note:** If you are under the SCO UNIX operating system, you should select “Normal” as the “Access Mode” Function.)

CMOS Setup Utility – Copyright ©1984-1999 Award Software		
IDE Primary Master		
IDE HDD Auto-Detection	Press Enter	Item Help Menu Level
IDE Primary Master	Auto	
Access Mode	Auto	
Cylinder	4956	To auto-detected the HDD's size, head...on this channel
Head	16	
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 default setting is "Auto". If you are under the SCO UNIX system, you should select "Normal".
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 – 1999 Award Software		
Advanced BIOS Features		
Watchdog Function	Enabled	Item Help <hr/> Menu Level ➤ 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
Anti-Virus Protection	Enabled	
CPU Internal Cache	Enabled	
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Disabled	
First Boot device	Floppy	
Second Boot device	HDD-0	
Third Boot device	Floppy	
Boot other device	Disabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	Off	
Gate A20 Option	Normal	
Typematic Rate Setting	Enabled	
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	
HDD S.M.A.R.T Capability	Disabled	
Video BIOS Shadow	Enabled	
C8000-CBFFF Shadow	Disabled	
CC000-CFFFF Shadow	Disabled	
D0000-D3FFF Shadow	Disabled	
D4000-D7FFF Shadow	Disabled	
D8000-DBFFF Shadow	Disabled	
DC000-DFFFF Shadow	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 17 Advanced BIOS Features

Advanced BIOS Features Items Description:

Item	Options	Description
Watchdog Function	Enabled Disabled	You can choose Enabled to use the Watchdog hard disk-protection function if your BIOS shows this function.
Anti-Virus Protection	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.

(To be Continued)

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.
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.
HDD S.M.A.R.T. Capability	Enabled Disabled	If your hard disk states that S.M.A.R.T. is supported, you can enable this item.
Video BIOS Shadow	Enabled Disabled	ROM Shadow copies Video BIOS code from slower ROM to faster RAM. Video BIOS can then execute from RAM.
C8000-DFFFF Shadow	Enabled Disabled	If enabled and BIOS is present in this segment, then the BIOS is shadowed.

Fig 18 Advanced BIOS Features Description

3.4 Advanced Chipset Features

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 – 1999 Award Software		
Advanced Chipset Features		
Bank 0/1 DRAM Timing	SDRAM 10ns	Item Help
Bank 2/3 DRAM Timing	SDRAM 10ns	
Bank 4/5 DRAM Timing	SDRAM 10ns	Menu Level ➤
Memory Hole	15M-16M	
P2C/C2P Concurrency	Enabled	
Fast R-W Turn Around	Disabled	
System BIOS Cacheable	Disabled	
Video RAM Cacheable	Disabled	
AGP Aperture Size	64M	
AGP-4X Mode	Enabled	
AGP Driving Control	Manual	
*AGP Driving Value	D5	
Onchip USB	Disabled	
*USB Keyboard Support	Disabled	
Onchip Sound	Enabled	
Onchip Modem	Enabled	
CPU to PCI Write Buffer	Enabled	
PCI Dynamic Bursting	Enabled	
PCI Master 0 WS Write	Enabled	
PCI Delay Transaction	Enabled	
PCI#2 Access #1 Retry	Enabled	
AGP Master 1 WS Write	Disabled	
AGP Master 1 WS Read	Disabled	
Memory Parity/ECC Check	Disabled	
Assign IRQ For ACPI IRQ9		
- ↵ ® 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

Advanced Chipset Features Items Description:

Item	Options	Description
Memory Hole	15M-16M 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.
P2C/C2P Concurrency	Enabled Disabled	This item allows you to enable the P2C/C2P Concurrency.
Fast R-W Turn Around	Enabled Disabled	Enabled this item will optimize the cache memory.
System BIOS Cacheable	Enabled Disabled.	Selecting <i>Enabled</i> 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 RAM Cacheable	Enabled Disabled.	Select <i>Enabled</i> 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.
AGP Aperture Size	4,8,16,32, 64,128M	This item defines the size of the aperture for the Accelerated Graphics Port.
AGP-4X Mode	Enabled Disabled	This item allows the AGP graphics adapter to operate in 4X Mode.
AGP Driving Control	Manual Auto	When choose manual, you can change the AGP driving value at the following item. We recommend you leave this item at the default value "Auto".
Onchip USB	Enabled Disabled	Use this item to enable or disable the USB controller.
Onchip Sound	Enabled Disabled	Use this item to enable or disable the sound system that is integrated on this mainboard.
Onchip Modem	Enabled Disabled	Use this item to enable or disable the modem Codec.
CPU to PCI Write Buffer	Enabled Disabled	When enabled, up to four D words of data can be written to the PCI bus without interrupting the CPU. When disabled, a write buffer is <u>not</u> used and the CPU read cycle will <u>not</u> be completed until the PCI bus signals that it is ready to receive the data.
PCI Dynamic Bursting	Enabled Disabled	When Enabled, data transfers on the PCI bus, where possible, make use of the high-performance PCI bus protocol, in which greater amounts of data are transferred at a single command.
PCI Master 0 WS Write	Enabled Disabl	Choose <i>Enabled</i> to let the PCI Master using 0 wait state in write cycle.

(To be continued)

Chapter 3

PCI Delay Transaction	Enabled Disabled	Select <i>Enabled</i> to use the write buffer for the delay transaction cycles. It is selected to support the compliance of PCI Specification Version 2.1.
PCI#2 Access #1 Retry	Enabled Disabled	This item allows you enable/disable the PCI #2 Access #1 Retry.
AGP Master 1 WS Write	Enabled Disabled	This item is used to enable or disable the AGP master device 1 wait state Write cycle correspondingly.
AGP Master 1 WS Read	Enabled Disabled	This item is used to enable or disable the AGP master device 1 wait state Read cycle correspondingly.
Memory Parity/ECC Check	Enabled Disabled	Enabled adds a parity check to the boot-up memory tests. Select Enabled only if the system DRAM contains parity.
Assign IRQ For ACPI	IRQ9 IRQ10 IRQ11	This item allows you to choose the IRQ for the ACPI function.

Fig 20 Advance Chipsets Features Description

3.5 Integrated Peripherals

CMOS Setup Utility – Copyright ©1984 – 1999 Award Software Integrated Peripherals		
OnChip IDE Channel 0	Enabled	Item Help <hr/> Menu Level ➤ If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support
OnChip IDE Channel 1	Enabled	
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary slave PIO	Auto	
Primary Master UDMA	Auto	
Primary slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
Init Display First	PCI Slot	
IDE HDD Block Mode	Enabled	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART 2 Mode	Standard	
*IR Function Duplex	Half	
*TX,RX inverting enable	NO, Yes	
Onboard Parrallel Port	Disabled	
Onboard Parallel Mode	Normal	
*EPP Mode Select	EPP1.7	
*ECP Mode Use DMA	3	
Onboard Legacy Audio	Enabled	
Sound Blaster	Disabled	

(To be continued)

SB I/O Base Address	220H	
SB IRQ Select	IRQ5	
SB DMA Select	DMA0	
MPU-401	Disabled	
MPU-401 I/O Address	330-333H	
Game Port(200-207H)	Enabled	
PWRON After PWR-Fail	Off	
Game Port Address	Disabled	
Midi Port Address	290	
Midi Port IRQ	10	
↑↓←→ 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

Integrated Peripherals Items Description:

Item	Options	Description
OnChip IDE Channel 0/1	Enabled Disabled.	The integrated peripheral ontrroller contains an IDE interface with support for two IDE channels. Select <i>Enabled</i> to activate each channel separately.
IDE Prefetch Mode	Enabled Disabled	Choose <i>Enabled</i> to set the onboard IDE controller to access the IDE device with faster Prefetch Mode.
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.
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.
Init Display First	PCI Slot Onboard .	This item allows you to decide to active whether PCI Slot or on-chip VGA first display.

(To be Continued)

Chapter 3

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.
UART 2 Mode	Standard ASKIR HPSIR	This item defines the operation of serial port. If you have installed an optional infrared port, you must change the setting of this item to either HPSIR or ASKIR. If you have selected an IR mode, you can use the following items to set the parameters of the infrared port.
IR Function Duplex Mode	Half Full	This item lets you choose two types Duplex Mode.
Onboard Parallel Port	Disabled 3BC/IRQ7 278/IRQ5 378/IRQ7	This item lets you disable the built-in parallel port, or enable it by assigning an I/O address and an Interrupt Request Line.
Onboard Parallel Mode	Normal ECP EPP ECP+EPP	This item defines the operation of the parallel port.
PWRON After PWR-Fail	Off On Former-Sts	If this item is enabled, system will automatic power on when power come back after power lost.
Game Port Address	Disabled 209 201	This item lets you set the Game Port Address.
MIDI Port Address	290 300 330	This item lets you select the MIDI Port Address.
MIDI Port IRQ	5 10	This item lets you select the MIDI Port IRQ.

Fig 22 Integrated Peripheral Features Description

3.6 Power Management Setup

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

CMOS Setup Utility – Copyright ©1984 – 1999 Award Software		
Power Management Setup		
Power Management	Press Enter	Item Help
ACPI Suspend Type	S3(STR)	
PM Control by APM	Yes	Menu Level ➤
Video Off Option	Suspend -> Off	
Video Off Method	VH SYNC_Blank	
MODEM Use IRQ	3	
Soft-Off by PWRBTN	Delay 4 Sec	
State After Power Failure	Auto	
Wake up Events	Press Enter	
- ~ - ® 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
Power Management	Press Enter	Press Enter to the submenu of Power Management. This category allows you to select the type (or degree) of power saving and is directly related to the following modes:
ACPI Suspend Type	S1(PowerOn Suspend) S3(STR)	This item acts as a master switch for the power-saving modes and hard disk timeout. When select “S1” the system will enter doze mode, and “S3” is Suspend-To-RAM state, system context will be saved to RAM.
PM Control by APM	Yes. No	When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock. If Advance Power Management (APM) is installed on your system, selecting Yes gives better power savings.

(To be continued)

Chapter 3

Video Off Option	Suspend – Off Always On All Modes--Off	When enabled, this feature allows the VGA adapter to operate in a power saving mode.
Video Off Method	V/H SYNC+Blank Blank Screen DPMS	This determines the manner in which the monitor is blanked.
MODEM Use IRQ	3, 4, 5, 7, 9, 10, 11, NA.	This determines the IRQ in which the MODEM can use.
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.”
State After Power Failure	Auto Off On	This field lets you determine the state that your PC returns to after a power failure.
Wake up Events	Press Enter	Press Enter to the submenu of wake up events.

Fig 24 Power Management Setup Features Description

Power Management Submenu Description:

There are 3 selections for Power Management:

Min. Power Saving	Minimum power management. Doze Mode = 1 hr., Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- ONLY AVAILABLE FOR SL CPU'S . Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down : When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
2. Doze Mode: When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.
3. Suspend Mode: When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

Wake Up Events Submenu Description:

VGA: When this item is enabled, any activity on the graphics system can reset power saving mode timeouts to zero, or resume the system from a power saving mode.

LPT&COM: When *On of LPT & COM*, any activity from one of the listed system peripheral devices or IRQs wakes up the system.

HDD&FDD: When *On of HDD & FDD*, any activity from one of the listed system peripheral devices wakes up the system.

PCI Master: When *On of PCI Master*, any activity from one of the listed system peripheral devices wakes up the system.

Wake Up On LAN: This item allows you to enable or disable the LAN wake up function that is a feature of this mainboard. When enabled, traffic through a network will resume the system from any of the power-saving modes.

Modem ring Resume: When enabled, an input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

RTC Alarm Resume: When *Enabled*, you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

IRQs Activity Monitoring: When Primary INTR is set *On*, all of the following interrupts can be manually configured to act as resets for the power saving timeouts. The following is a list of IRQ's, Interrupt **Re**quests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

- IRQ3 (COM 2)
- IRQ4 (COM 1)
- IRQ5 (LPT 2)
- IRQ6 (Floppy Disk)
- IRQ7 (LPT 1)
- IRQ8 (RTC Alarm)
- IRQ9 (IRQ2 Redir)
- IRQ10 (Reserved)
- IRQ11 (Reserved)
- IRQ12 (PS / 2 Mouse)

- IRQ13 (Coprocessor)
- IRQ14 (Hard Disk)
- IRQ15 (Reserved).

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 ©1984-1999 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 Enabled to reset
DMA Resources	Press Enter	Extended System Configuration
PCI/VGA Palette Snoop	Disabled	Data(ESCD) when you exit Setup if you
Assign IRQ For VGA	Enabled	have installed a new add-on and the system
Assign IRQ For USB	Enabled	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

(To be Continued)

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 “>”).
DMA Resources (DMA 0-7 assigned to)	Legacy ISA PCI/ISA PnP.	When resources are controlled manually, assign each system DMA channel a type, depending on the type of device using the DM channel.
IRQ Resources (IRQ 3-15 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.
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 <i>Disabled</i> .
Assign IRQ For VGA	Enabled Disabled	When this item is enabled, the system will assign an IRQ to the VGA port.
Assign IRQ For USB	Enabled Disabled	When this item is enabled, the system will assign an IRQ to the USB port.

Fig 26 PnP Setup Features Description

3.8 PC Health Status

This mainboard has a Hardware monitoring function which will auto detect the PC Status such as CPU voltage/temperature, System temperature and Fan speed. You can set a CPU Warning temperature and Shutdown temperature so that your PC will always be in the healthy status.

CMOS Setup Utility – Copyright © 1984-1999 Award Software		
PC Health Status		
Current CPU Temperature	52°C/125°F	Item Help ----- Menu Level ➤
Current System Temp.	25°C/77°F	
Current CPUFAN1 Speed	0 RPM	
Current CPUFAN2 Speed	4141RPM	
CPU V _{core} (V)	1.63V	
2.5V	2.51V	
3.3V	3.31V	
5V	4.92V	
12V	11.64V	
↑↓←→ 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 PC Health Status

3.9 Frequency/Voltage Control

CMOS Setup Utility – Copyright © 1984-1999 Award Software		
Frequency/Voltage Control		
Auto Detect DIMM/PCI CLK	Enabled	Item Help ----- Menu Level ➤
CPU Speed	Manual	
CPU Ratio	X8	
CPU Clock	83MHz	
*AGP Clock	83MHz	
*PCI Clock	27.7MHz	
*Spread Spectrum	OFF	
DRAM to Host Clock	Host Clock	
*DRAM Clock	83MHz	
SDRAM Cycle Length	2	
↑↓←→ Move Enter: Select +/-PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

Fig 28 Frequency /Voltage Control

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

Frequency/Voltage Control Items Description:

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 “x3” to “x8”.

CPU Clock: This item allows you to set the CPU Clock.

DRAM to Host Clock: This item allows you to set the DRAM Clock for flexible configuration of faster or slower than CPU clock.

SDRAM Cycle Length: This item allows you to set the cycle length of the SDRAM.

3.10 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.

3.11 Supervisor/User Password Setting

You can set either supervisor or user password, or both of them. 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 the center 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 Software 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&VT1611A Sound Drivers**" 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 "Autotrunc.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 `\95V\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&VT1611A SOUND DRIVER INSTALLATION

The **AD1881&VT1611A Sound Driver** is the VIA PCI Audio driver for the on board audio codec.

Browse the Mainboard User's Guide & Software CD-ROM to the directory `\95V\drivers\Via1611a\` 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 “**awdf**lash” 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 694A-686A-2A6LGD1D DATE: 09/10/99 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)?”

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 “2A59F00.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, 2A59F00.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 “awdf flash”, and error message will appear:

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

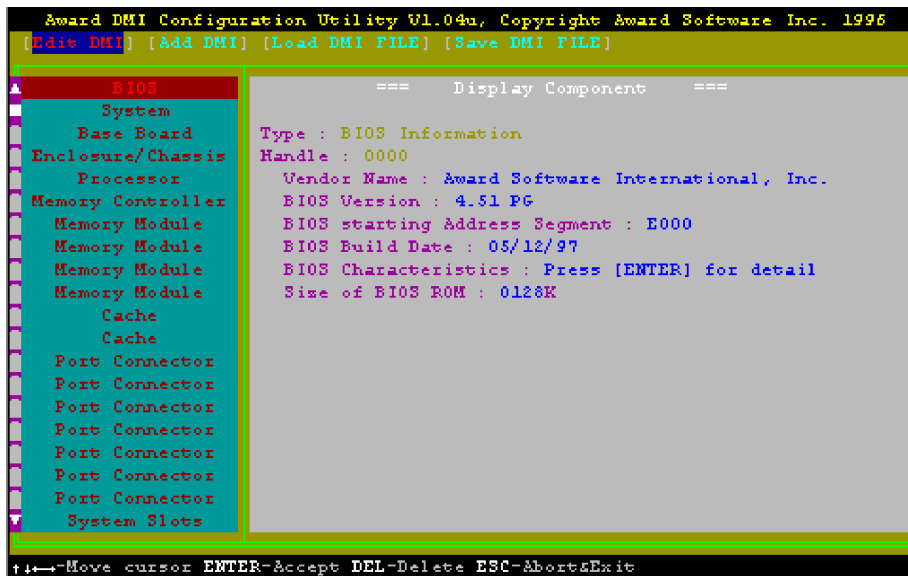
5.2 DESKTOP MANAGEMENT INTERFACE (DMI) OVERVIEW

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

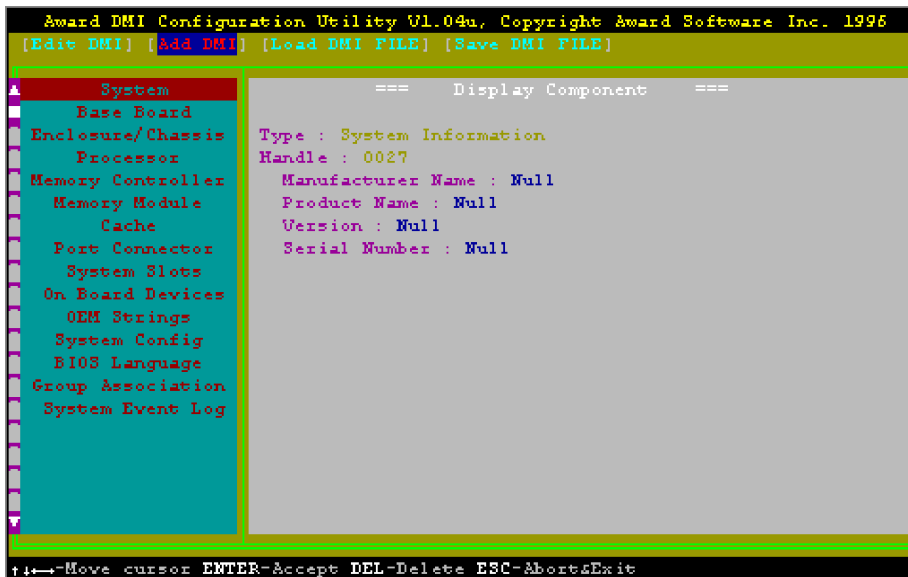
Edit DMI



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.

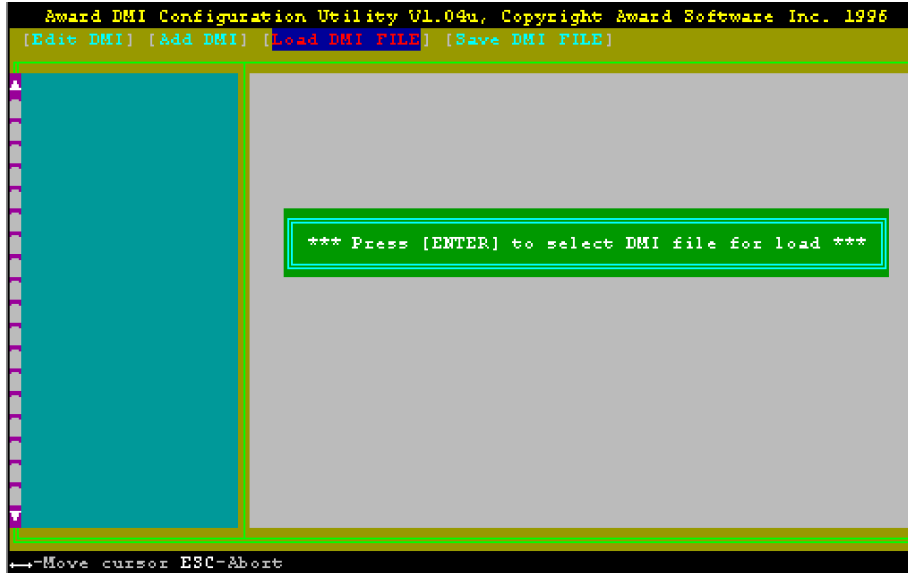
Add DMI



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.

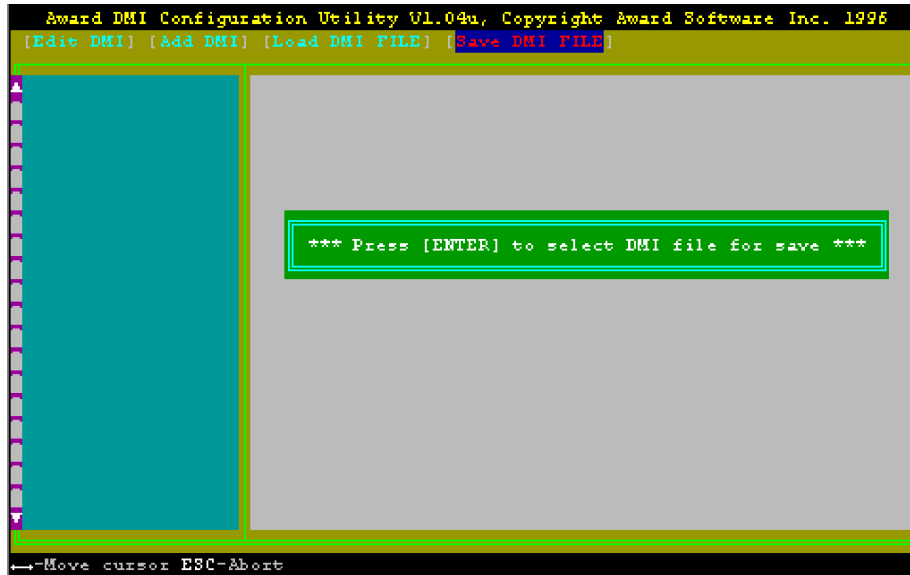
Chapter 5

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
<i>CMOS BATTERY HAS FAILED</i>	CMOS battery is no longer functional. It should be replaced.
<i>CMOS CHECKSUM ERROR</i>	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.
<i>DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER</i>	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.
<i>DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP</i>	Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly
<i>DISPLAY SWITCH IS SET INCORRECTLY</i>	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
<i>DISPLAY TYPE HAS CHANGED SINCE LAST BOOT</i>	Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.
<i>ERROR ENCOUNTERED INITIALIZING HARD DRIVE</i>	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.
<i>ERROR INITIALIZING HARD DISK CONTROLLER</i>	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.
<i>FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT</i>	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 mismatch
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

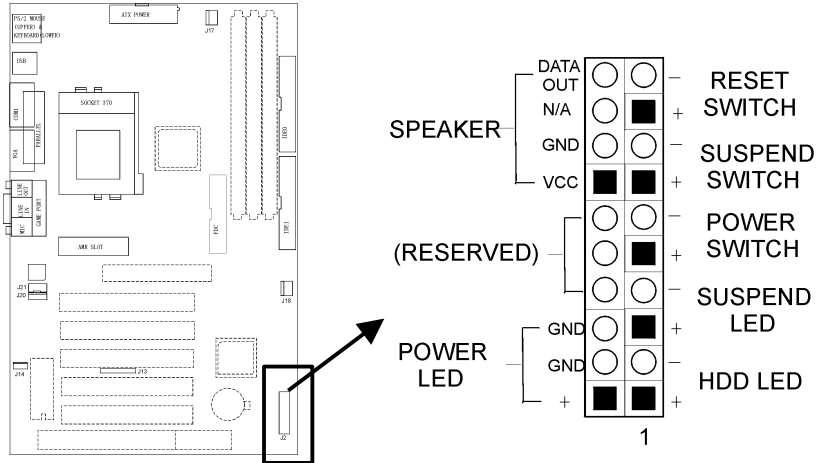
QUICK GUIDE

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	JP4: close JP5: close JP6: close
	Always 83MHz for 66 MHz bus CPU	JP4: close JP5: open JP6: open
	Always 100MHz for 66/100MHz bus CPU	JP4: open JP5: close JP6: close
	Always 133MHz for 100/133MHz bus CPU	JP4: open JP5: open 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 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.



APPENDIX C STR (Suspend to RAM)

This mainboard supports STR (Suspend To RAM) function which is one of the sleep states managed by 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. To use this function you must follow the steps as below:

1. Configure the STR:

- Press <Delete> key to enter the BIOS Setup Menu when booting up the system. Enter “*Power Management Setup*” item and choose “*S3(STR)*” mode in the “*ACPI Suspend Type*”.
- Install the Win98 or Win98SE in ACPI way (For details please refer to the help file in Win98).
- Install the drivers for the VGA card.
- Run *Patch98.exe* (You’d better copy the \95V\STR\Patch98.exe from the CD to your hard disk first.), and then the system will boot up again.
(**Note:** Whenever you change the VGA card, you must reinstall the Patch98.exe)

2. Run the STR:

- Run the following steps under Win98 : *Start @ Shutdown @ Stand By* . Then the PC will shut off automatically. (**Note:** Don’t unplug the AC power supply of the PC)
- Press the *Power* Button and after about 10 minutes the PC will resume to the state before the shutting down .

3. STR supporting VGA cards list:

S3 Trio64V/DX
S3 Virge/DX
S3 Savage 4 (AGP4X)
ATI series(including AGP 4X)
Matrox Millennium G400 (AGP 4X)
NVIDIA RIVE TNT2 ULTRA (AGP 4X)
and so on

Note: Expect for the S3 Trio64V/DX and S3 Virge/DX, the VGA cards listed above must install their own drivers which are developed by the VGA card manufacturers. More over, the Matrox Millennium G400(AGP 4X) needs installing the Direct X6.1

Please make sure if your VGA card can support STR function!