

6WMM7 Series

USER'S MANUAL

1. The 6WMM7 motherboard Series includes 6WMM7 (82810-DC100) , 6WMM7-1(82810) and 6WMM7-E(82810E).
2. Support Dual BIOS(Optional).
3. Support ISA Bus Slot (Optional).
4. Support YAMAHA YMF744 Sound Chip (Optional).
5. Support Suspend To RAM Function.
6. System power on by PS/2 Mouse: First, enable this function in CMOS Setup, then you can power on the system by double clicking the right or left button of your PS/2 Mouse.
7. System power on by Keyboard: If your ATX power supply supports larger than 300 mA 5V Stand-By current (depends on the specification of keyboards), you can power on your system by entering password from the Keyboard after setting the "Keyboard power on" jumper and password in CMOS Setup(Optional).
8. Support 3 steps ACPI LED selectable.
9. Support Modem Ring-On (Include internal Modem and external modem on COM A and COM B).
10. Support Wake-up On LAN (Your ATX power supply must support larger than 720 mA 5V Stand-By current).
11. Support TV/DFP(Digital Flat Panel) function by TV/DFP daughter card (Optional).
12. The PCB version 2.0 and above have supported Intel Pentium® !!! 256K Socket 370 Processor.
13. Support AMR function.

INTEL® Celeron™ /Pentium® !!!Socket 370 Processor MAIN BOARD

R-20-03-000331

REV. 2.0 Third Edition

The author assumes no responsibility for any errors or omissions that may appear in this document nor does it make a commitment to update the information contained herein.

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Mar. 31, 2000 Taipei, Taiwan

I. Quick Installation Guide :

The system bus frequency can be switched between 66MHz ~ 133MHz by adjusting JP1 & JP33. The CPU Frequency is control by BIOS.

- The CPU speed must match with the frequency RATIO. It will cause system hanging up if the frequency RATIO is higher than that of CPU.

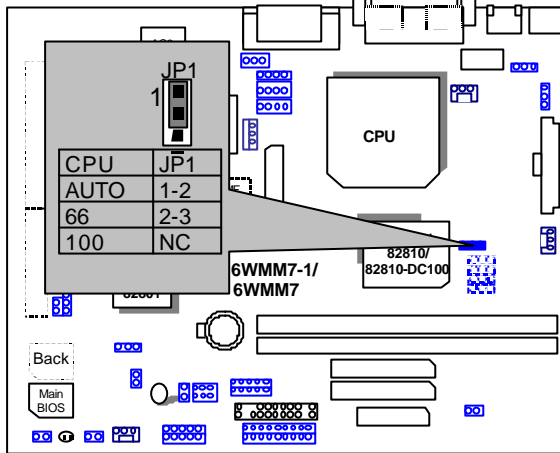


Figure 1: other chipset CPU speed setup

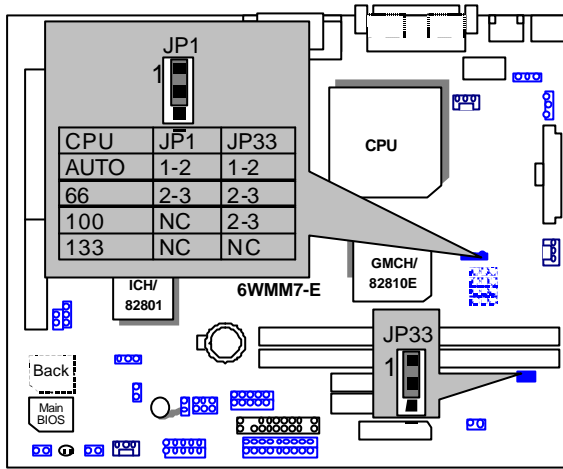


Figure 2: for 82810E chipset CPU speed setup

- ★ **Note:** Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets, SDRAM, Cards....etc.
- ★ **Note:** JP33 is only available when the motherboard use 82810E chipset.

JP17~JP20 (Optional) (See Figure 3) (ICS 9248-73)

CPU	SDRAM	PCI	JP20	JP19	JP18	JP17
AUTO	100	33	open	open	2-3	2-3
150	150	37.5	1-2	2-3	2-3	1-2
140	140	35	2-3	2-3	2-3	1-2
133.3	133.3	44.43	2-3	1-2	1-2	2-3
133.3	133.3	33.32	1-2	1-2	1-2	2-3
124	124	41.33	1-2	2-3	1-2	2-3
120	120	40	2-3	2-3	1-2	2-3
114.99	114.99	38.33	2-3	1-2	2-3	1-2
105	105	35	2-3	1-2	2-3	2-3

100.9	100.9	33.63	1-2	2-3	2-3	2-3
100.23	100.23	33.41	2-3	2-3	2-3	2-3
95	95	31.67	1-2	1-2	1-2	1-2
90	90	30	2-3	1-2	1-2	1-2
83.31	124.96	41.65	1-2	2-3	1-2	1-2
75	112.5	37.5	2-3	2-3	1-2	1-2
70	105	35	1-2	1-2	2-3	1-2
66.89	100.33	33.44	1-2	1-2	2-3	2-3

★ **Note:** We don't recommend you to set up your system speed to 70,75,83,90,95,105,115,120,124,140 or 150MHz because these frequencies are not the standard specifications for CPU, Chipset and most of the peripherals. Whether your system can run under 70,75,83,90,95,105,115,120,124,140 or 150MHz properly will depend on your hardware configurations: CPU, SDRAM, Cards, etc.

JP17/ JP18 / JP19 / JP20 (Optional) :

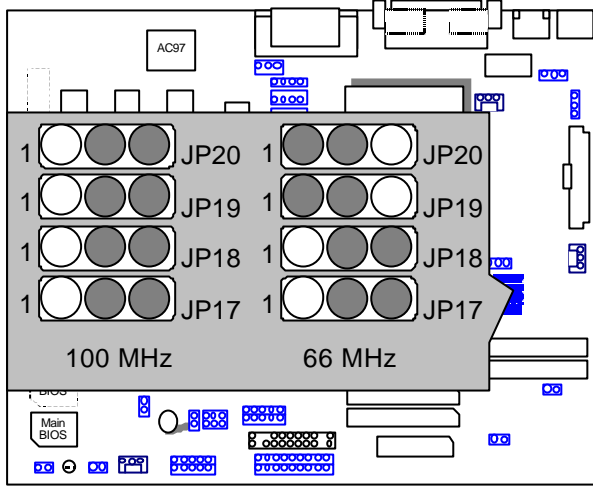
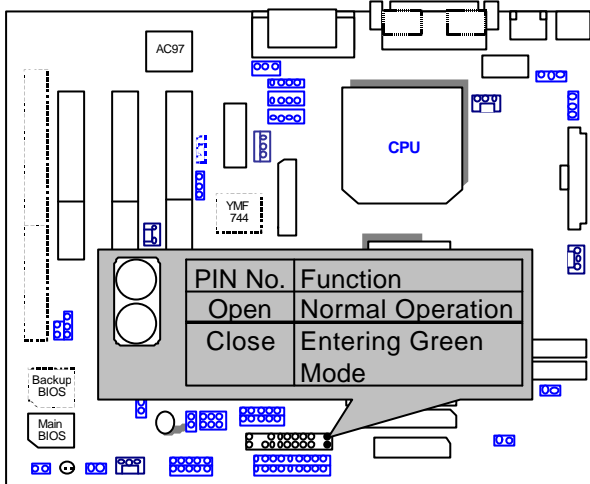


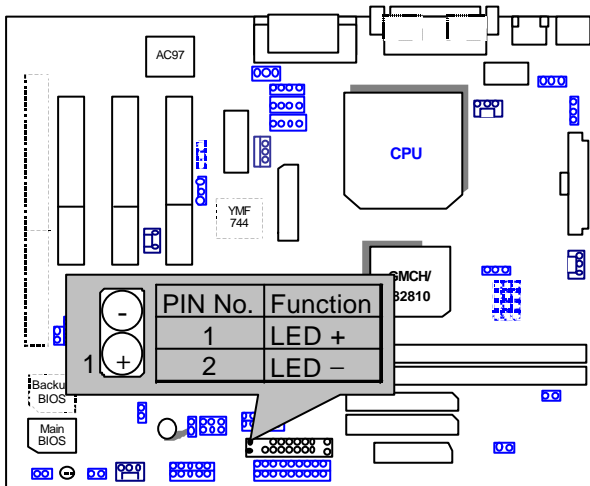
Figure 3

II. Jumper setting :

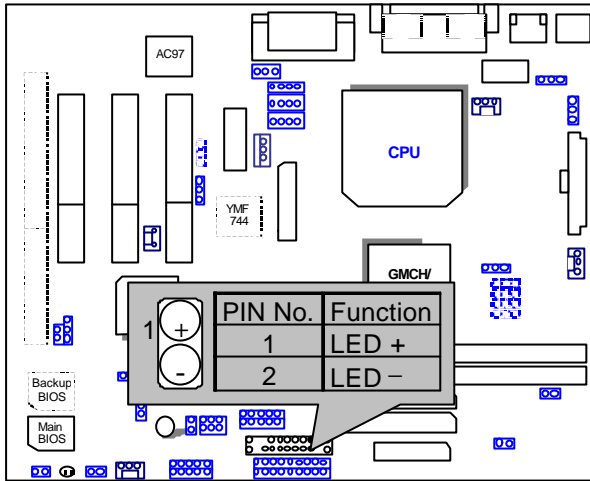
GN : Green Function Switch



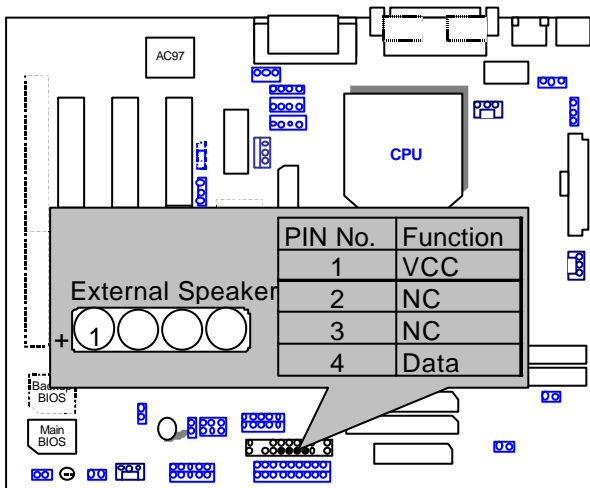
GD : Green Function LED



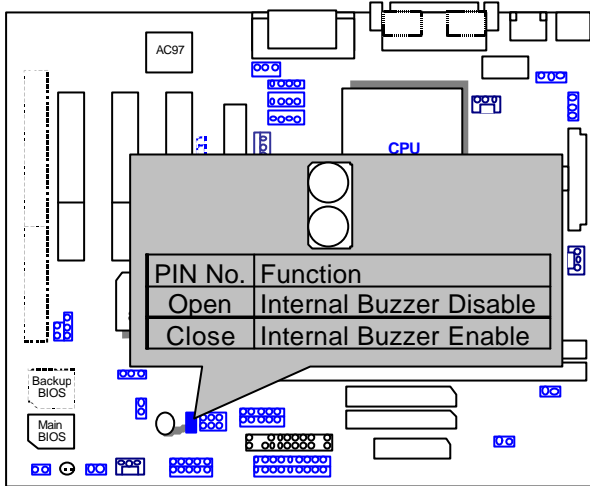
HD : IDE Hard Disk Active LED



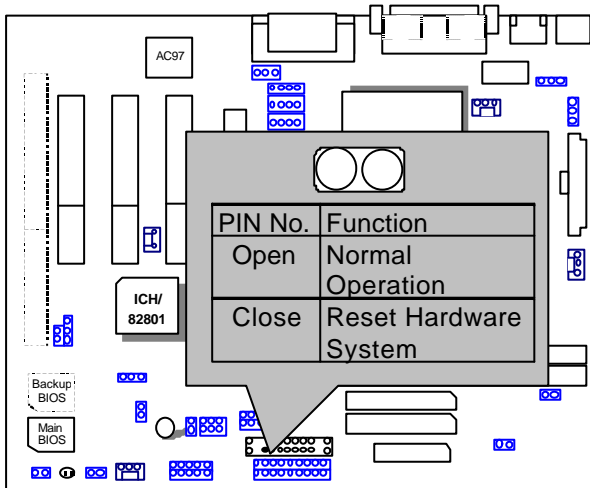
SPK : External Speaker Connector



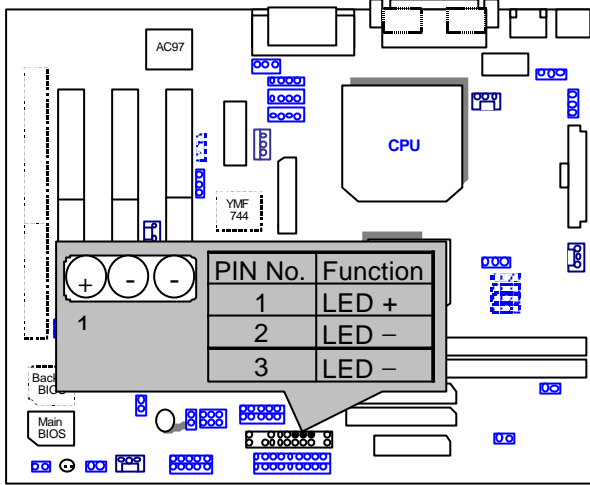
J16 : Buzzer Enable (Optional)



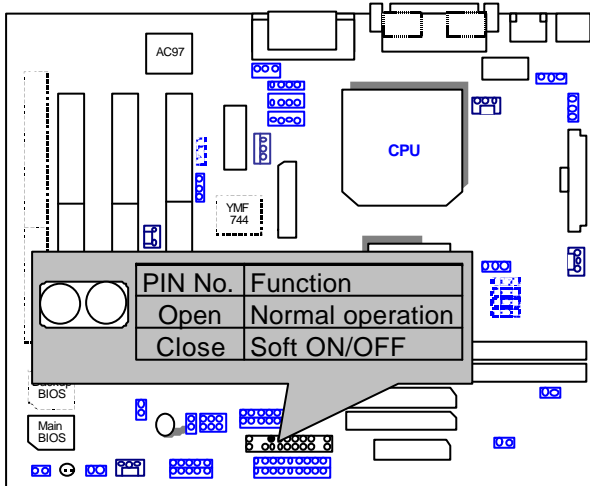
RES : Reset Switch



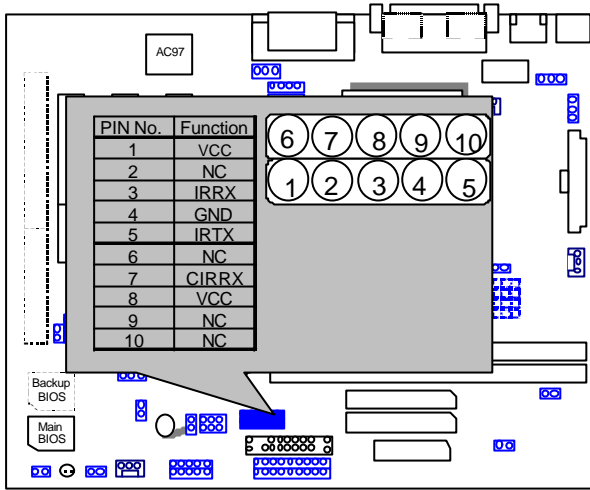
PWR : Power LED Connector (as 3 steps ACPI LED)



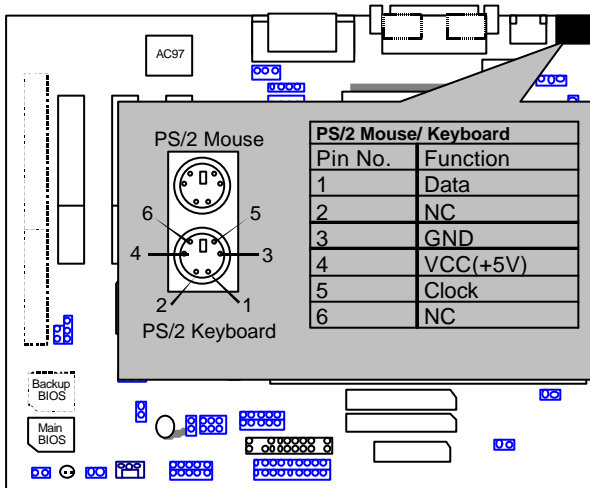
PW : Soft Power Connector



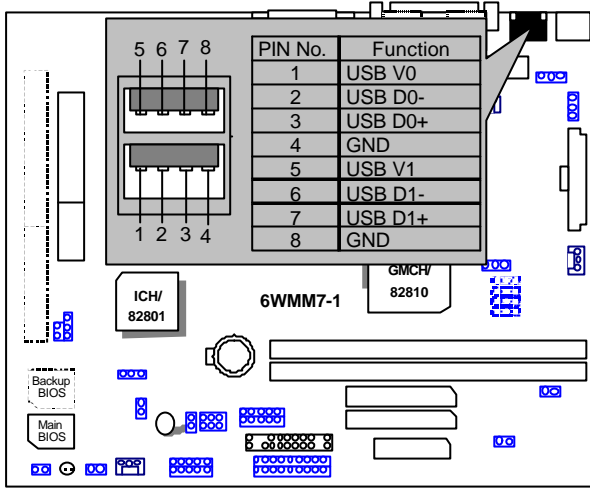
IR / CIR : Infrared Connector



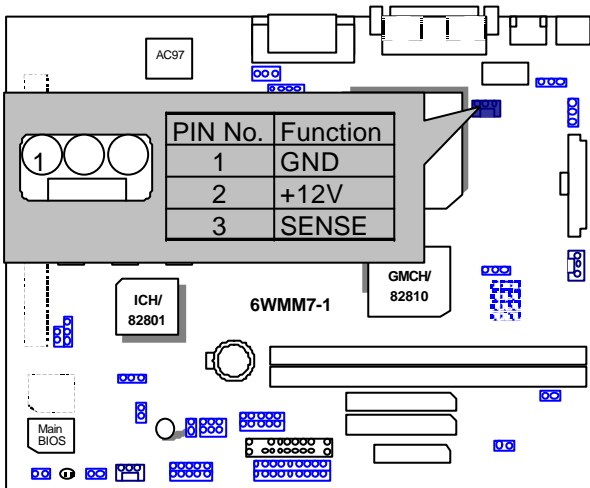
PS/2 Mouse / Keyboard Connector



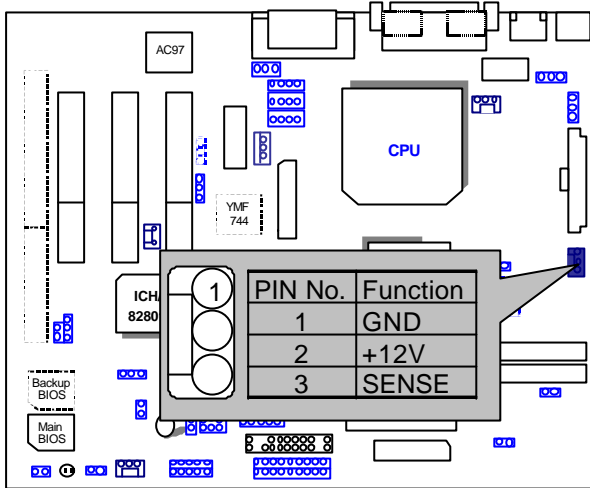
USB : USB Port



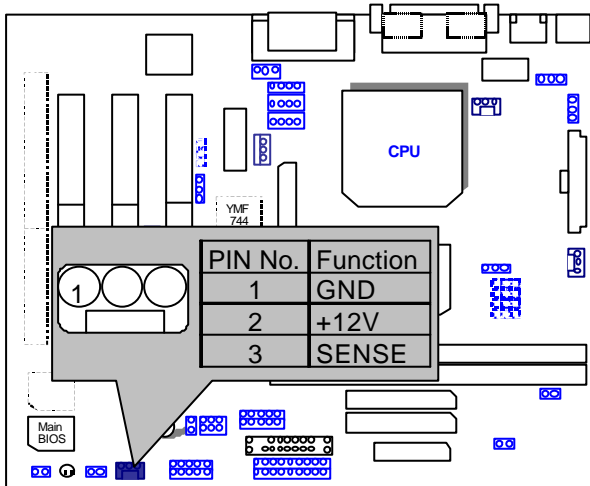
CPU FAN : CPU Fan Connector



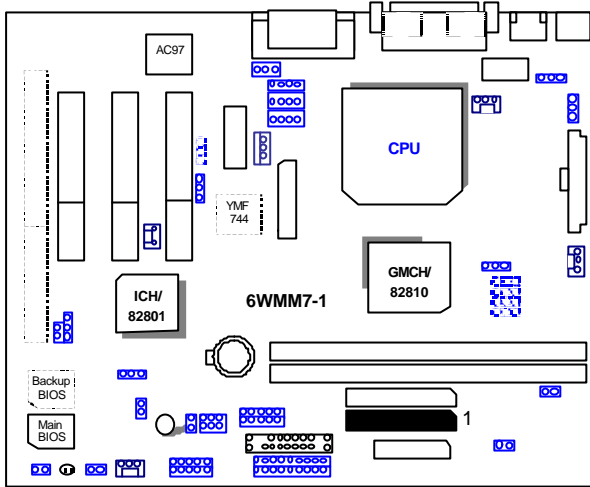
POWER FAN : Power Fan Connector



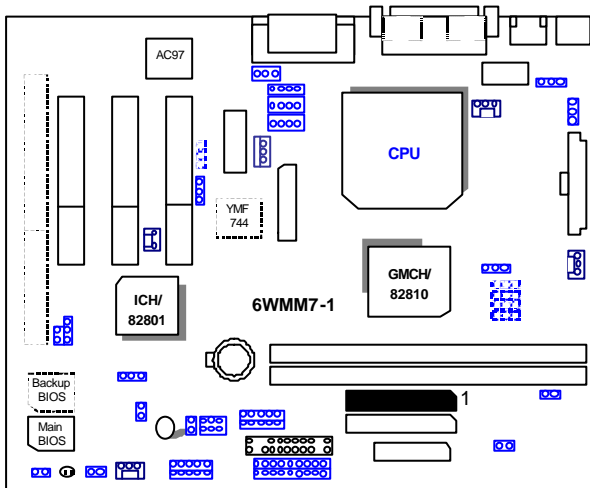
SYSTEM FAN : System Fan Connector



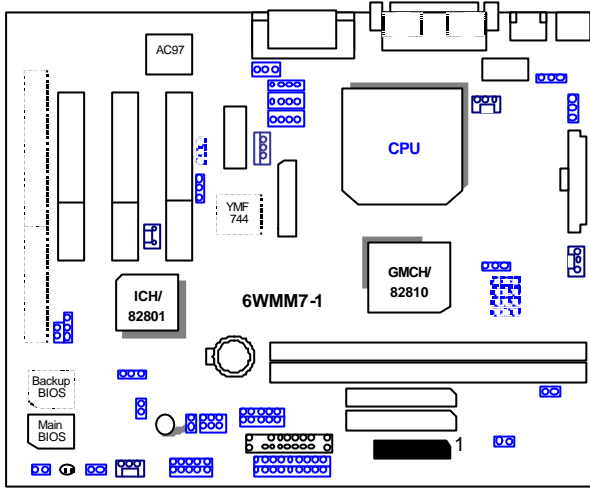
IDE1 : Primary IDE Port



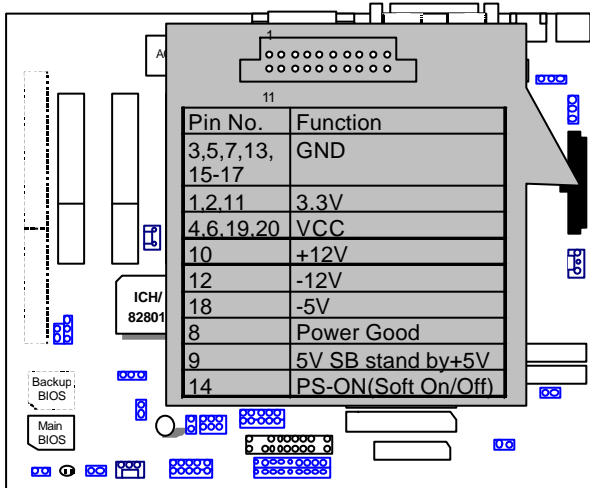
IDE2 : Secondary IDE Port



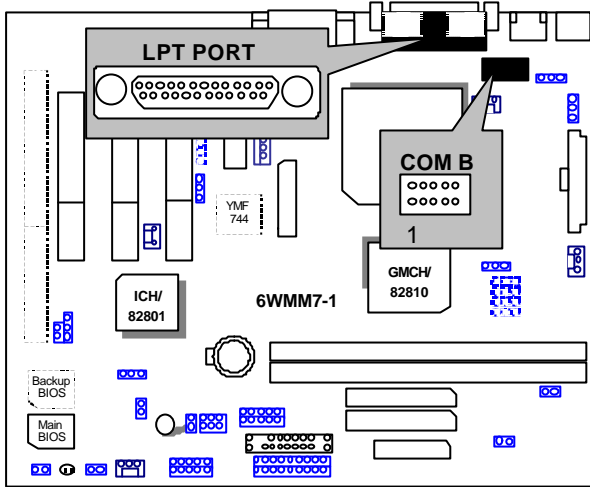
FLOPPY : Floppy Port



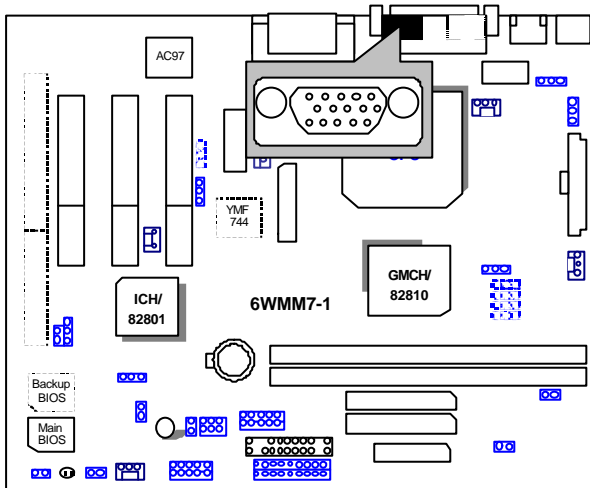
ATX POWER : ATX Power Connector



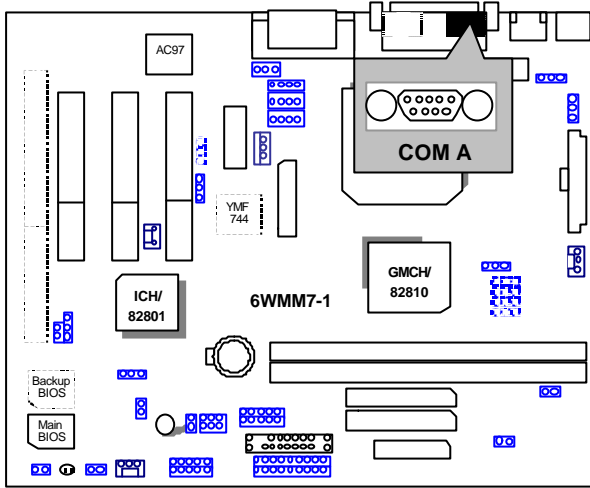
COM B / LPT Port



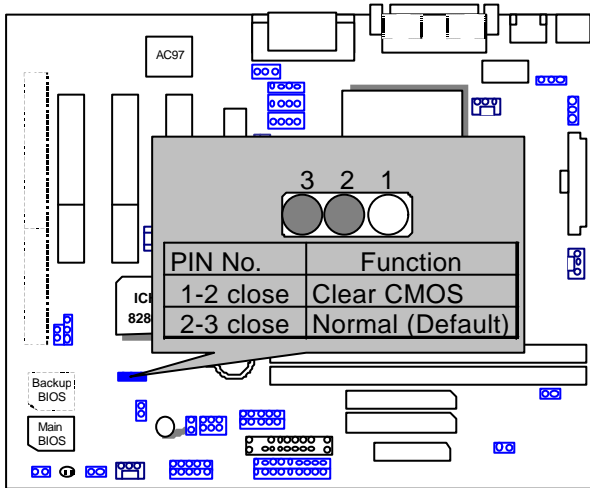
VGA : VGA Port



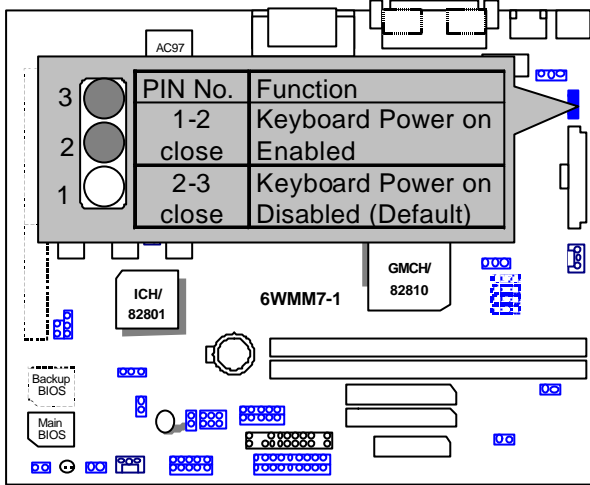
COM A : COM A Port



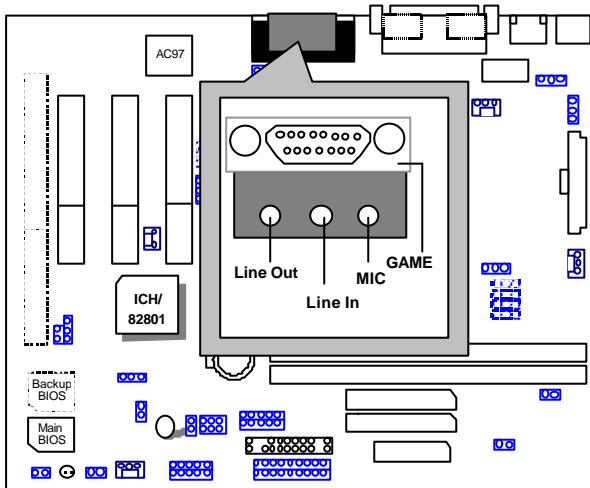
JP3 : Clear CMOS Function



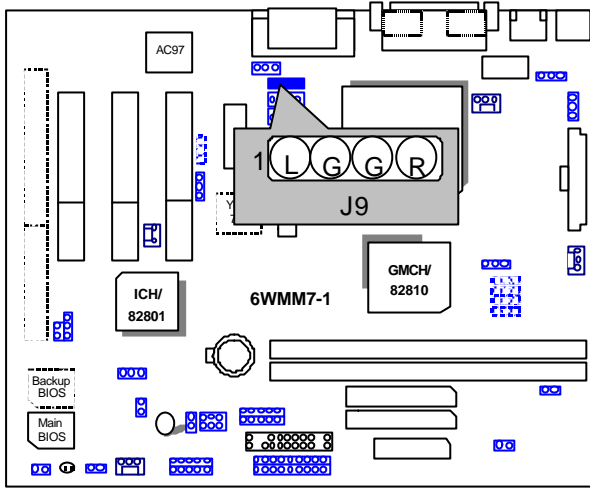
JP13 : PS/2 Keyboard Power On Selection (Optional)



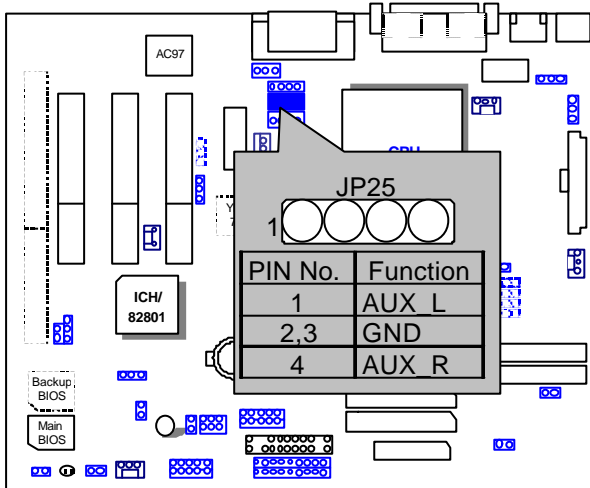
J8 : Game & Audio Port



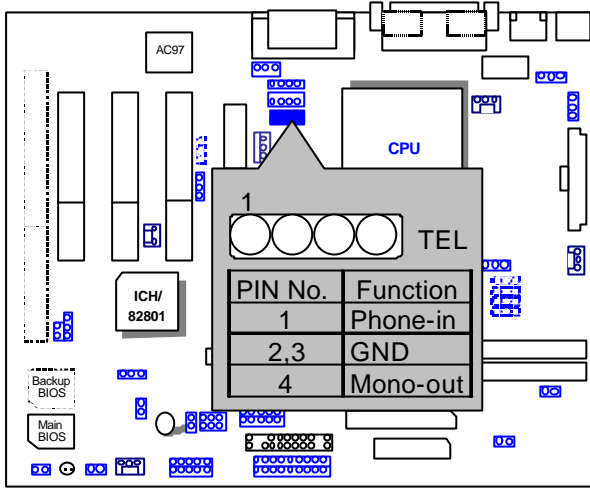
J9 : CD Audio Line In



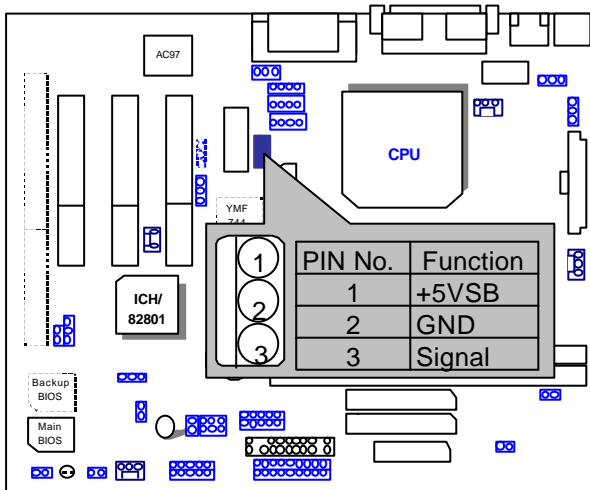
JP25 : AUX_IN



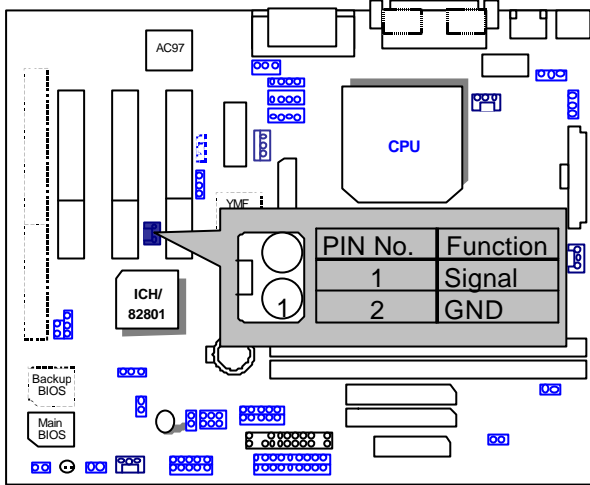
JP16 : TEL(The connector is for Modem with internal voice connector.)



J3 : Wake on LAN

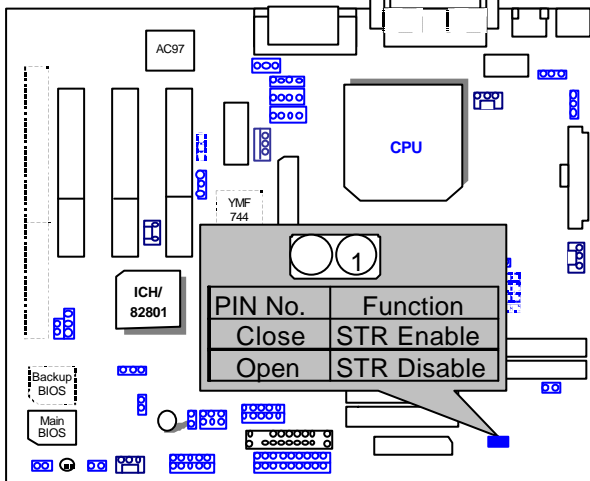


J6 : RING PWR ON (Internal Modem Card Ring PWR On)

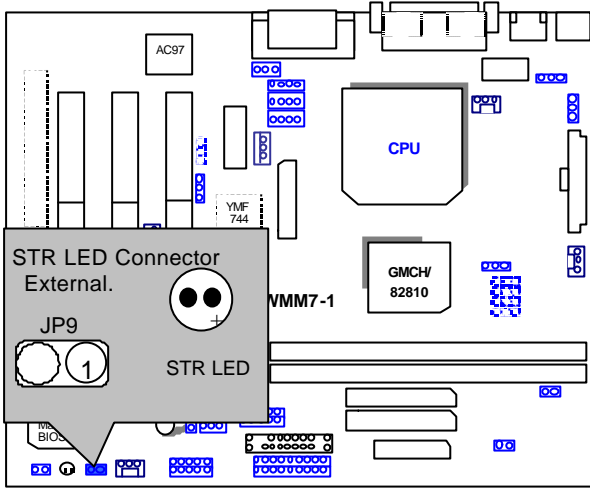


JP11 : STR Enable

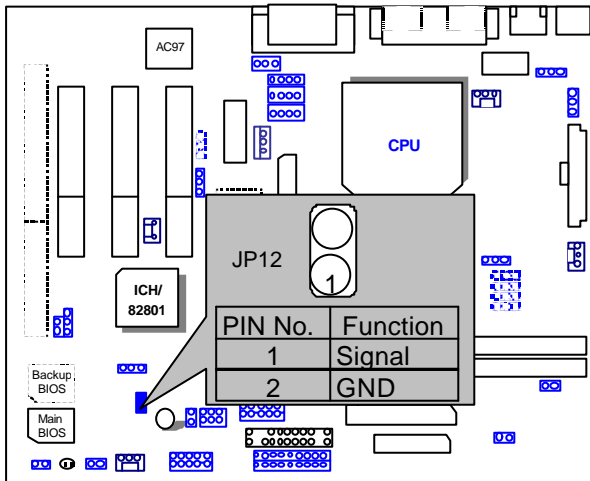
(If you want to use STR Function, please set jumper JP11 Closed.)



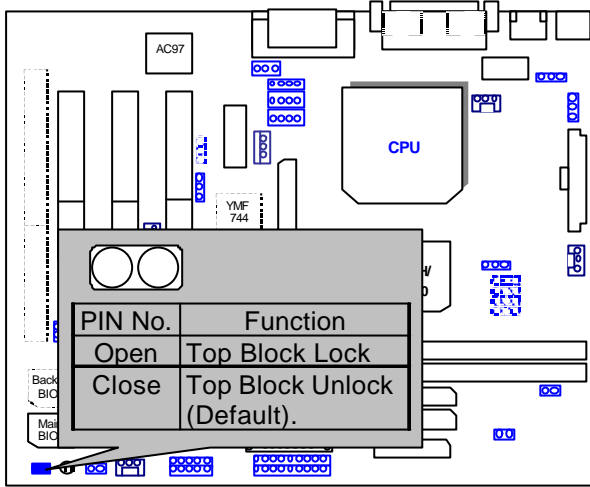
JP9 : STR LED CONN.



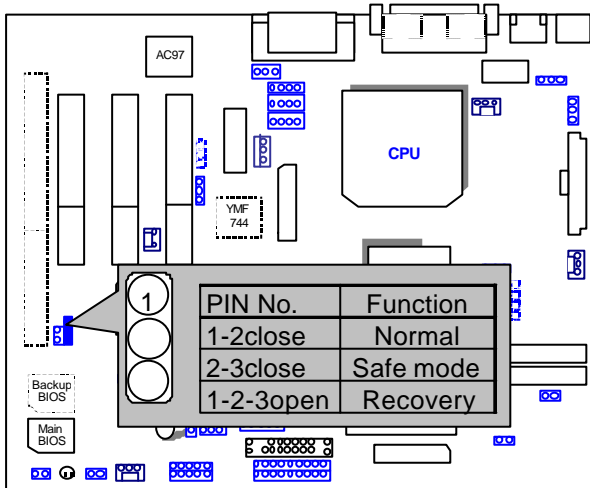
JP12 : Case Open



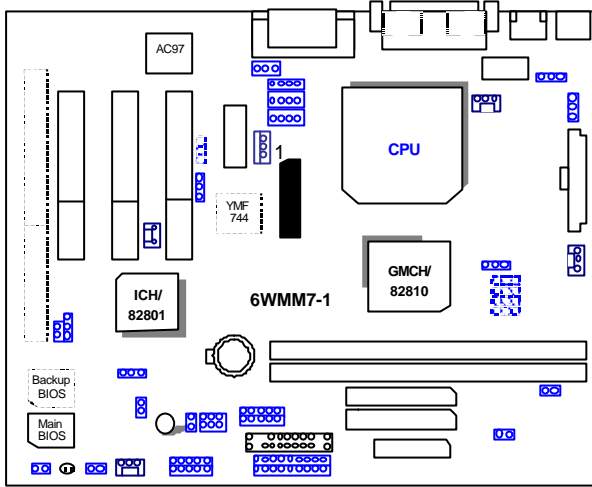
JP2 : Top Block Lock



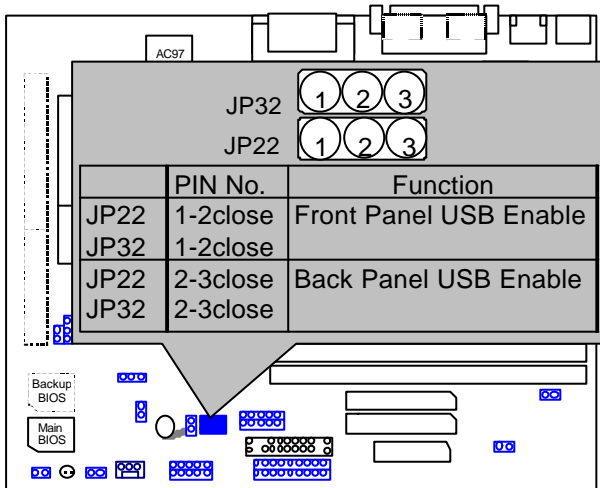
JP26 : System Boot Option



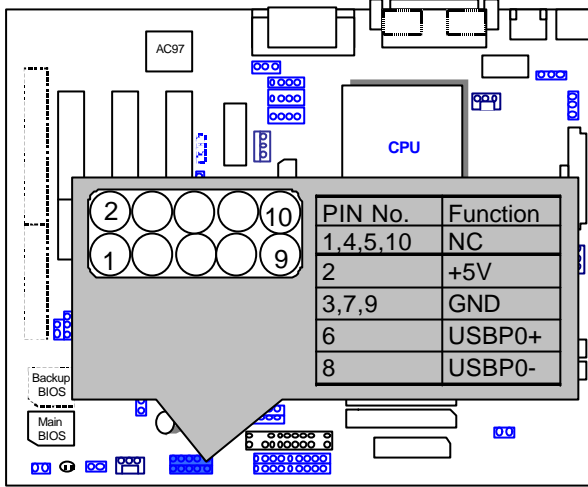
TV/DFP :TV-Out / Digital Flat Panel Daughter card connector.



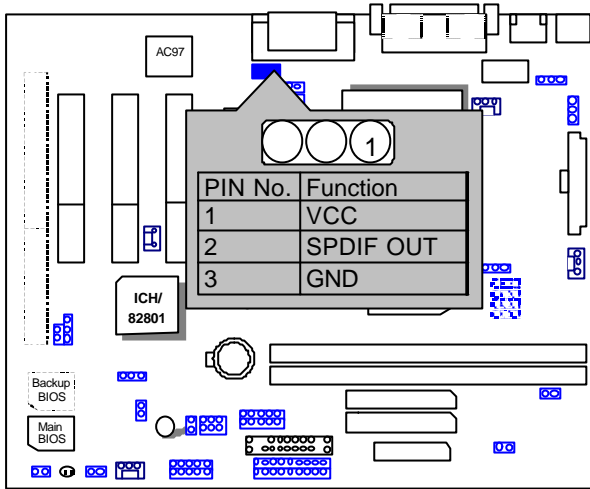
JP32/JP22 : USB Port Selection (Optional)



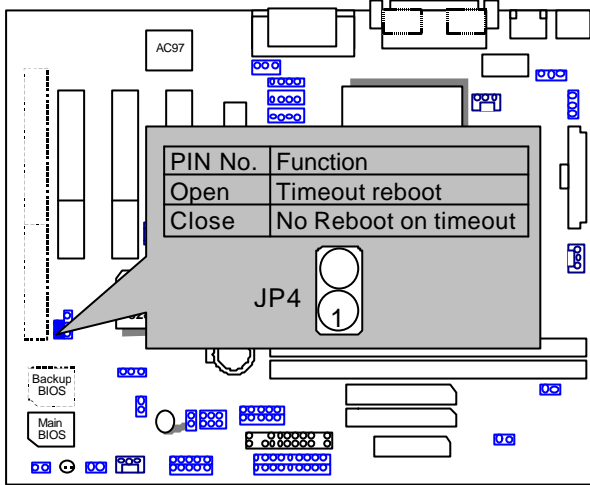
JP24 : Front Panel USB Port (Optional)



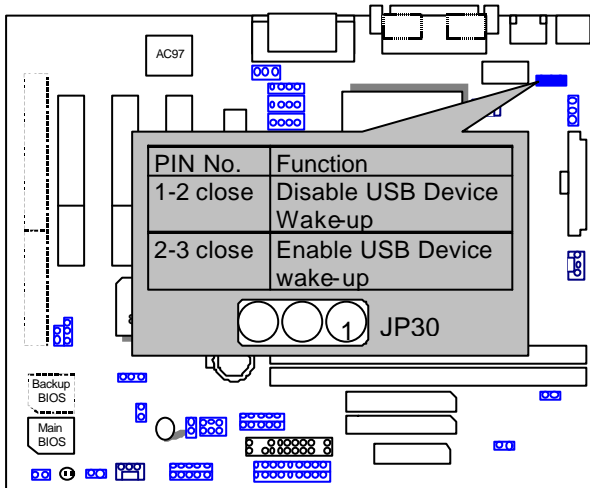
JP28 SPDIF: (Optional , the SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby digital decoder.)



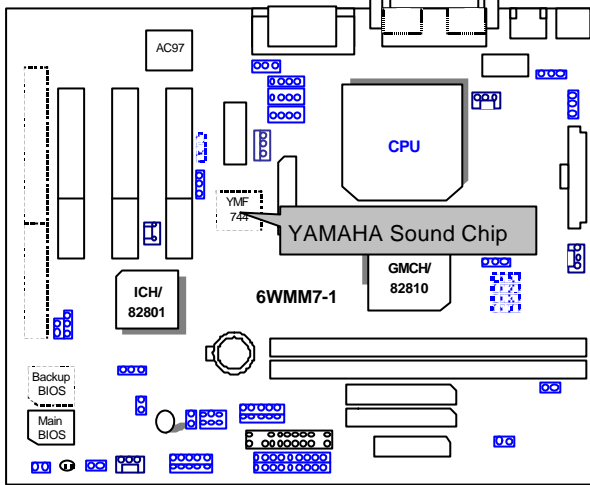
JP4 : Timeout Reboot Function



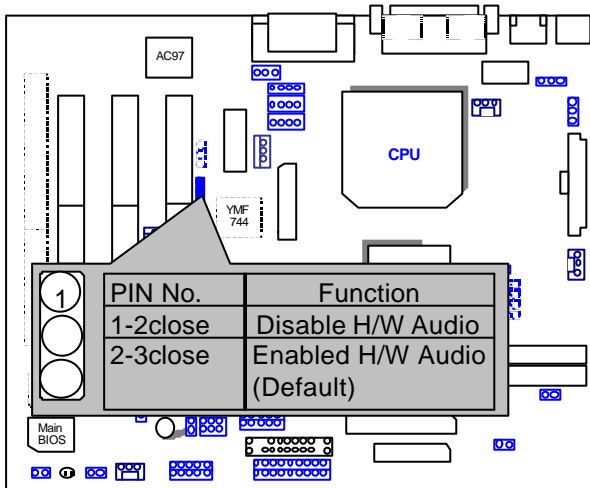
JP30 : USB Device Wake-up Function (Optional)



YMF 744 : YAHHAHA YMF744 (Optional).



JP27 : Onboard H/W Audio Function(Optional).



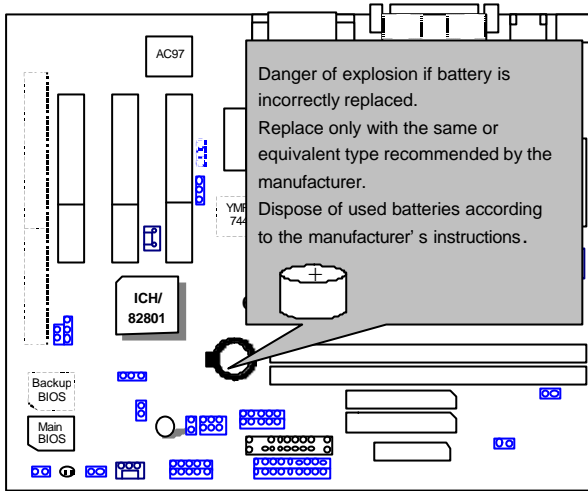
JP31 : AMR (Optional)

PIN No.	Onboard CDOEC	AMR Card
1-2 close	Primary	Secondary
2-3 close	Disabled	Primary

Note:
6WMM7/6WMM7-E:
 If M/B has hardware audio (YAMAHA YMF744), your modem riser has been set to "Primary" automatically. No Jumper JP31 for 6WMM7
6WMM7-1:
 JP31: 1-2 close: If you use software audio(onboard CODEC only), your modem riser must be "Secondary".
 JP31: 2-3 close: If you don't use onboard software audio, your audio/modem riser must be "Primary". Mainboard's software audio will be disabled.

JP29 : FPSW

BAT1 : For Battery



III. Top Performance Test Setting:

The following performance data list is the testing results of some popular benchmark testing programs.

CMOS Setup Utility-Copyright(C) 1984-1999 Award Software Advanced Chipset Features		
Item	Value	Item Help
Top Performance	Enabled	
SDRAM CAS Latency Time	2	
SDRAM Cycle Time Tras/Trc	5/7	Menu Level ▶
SDRAM RAS-to-CAS Delay	2	
SDRAM RAS Precharge Time	2	
SDRAM Buffer Strength	AUTO	
Delayed Transaction	Disabled	
Local Memory Frequency	100MHz	
* Onboard Display Cache Setting *		
Initial Display Cache	Enabled	
Display cache Timing	Auto	

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

Users have to modify the value for each item in chipset features as follow for top performance setting.

- * The above settings have to modify according to different kinds of CPU, SDRAM, and peripherals for your system to work properly.
- * **Note: The “Local Memory Frequency 133MHz” function is only available when motherboard use GMCH 82810E chipset.**

These data are just referred by users, and there is no responsibility for different testing data values gotten by users. (The different Hardware & Software configuration will result in different benchmark testing results.)

- CPU Intel® Celeron™ 533MHz Socket 370 processor
- DRAM (128x1)MB SDRAM (Winbond 902WB W986408BH-8H)
- CACHE SIZE 128 KB included in CPU
- DISPLAY Onboard Intel Corporation 810 Graphics Controller
Hi-End (4MB SDRAM)
- STORAGE Onboard IDE (IBM DTTA-371800)
- O.S. Windows NT™4.0 SPK5
- DRIVER Display Driver at 1024 x 768 x 16bit colors x 75Hz.

Processor	Intel® Celeron™ (Socket 370) 533MHz (66x8)
Winbench99	
CPU mark99	39.4
FPU Winmark 99	2860
Business Disk Winmark 99	3450
Hi-End Disk Winmark 99	5470
Business Graphics Winmark 99	142
Hi-End Graphics Winmark 99	367
Winstone99	
Business Winstone99	28.2
Hi-End Winstone99	22.5

IV. Suspend to RAM Installation

A.1 Introduce STR function:

Suspend-to-RAM (STR) is a Windows 98 ACPI sleep mode function. When recovering from STR (S3) sleep mode, the system is able, in just a few seconds, to retrieve the last "state" of the system before it went to sleep and recover to that state. The "state" is stored in memory (RAM) before the system goes to sleep. During STR sleep mode, your system uses only enough energy to maintain critical information and system functions, primarily the system state and the ability to recognize various "wake up" triggers or signals, respectively.

A.2 STR function Installation

Please use the following steps to complete the STR function installation.

Step-By-Step Setup

Step 1:

To utilize the STR function, the system must be in Windows 98 ACPI mode.

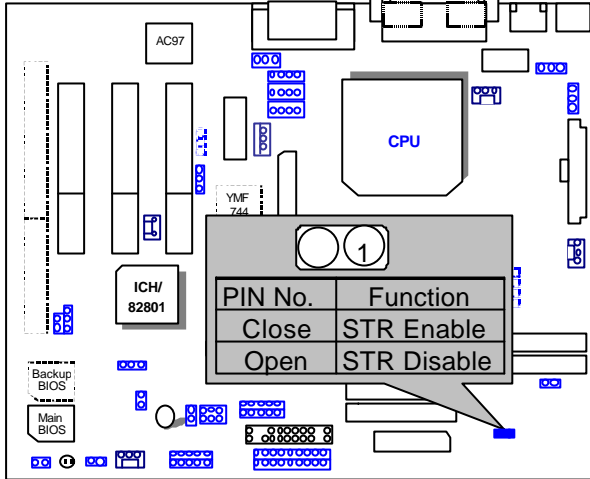
Putting Windows 98 into ACPI mode is fairly easy.

Setup with Windows 98 CD:

- A. Insert the Windows 98 CD into your CD-ROM drive, select Start, and then Run.
- B. Type (without quotes) "**D:\setup /p j**" in the window provided. Hit the enter key or click OK. ¶ In Windows 98 second edition version, all the bios version dated 12/01/99 or later are ACPI compatible. Just type "D:\Setup", the operating system will be installed as ACPI mode. ¶
- C. After setup completes, remove the CD, and reboot your system
(This manual assumes that your CD-ROM device drive letter is D:).

Step 2:

(If you want to use STR Function, please set jumper JP11 Closed.)



Step 3:

Power on the computer and as soon as memory counting starts, press . You will enter BIOS Setup. Select the item **“POWER MANAGEMENT SETUP”**, then select **“ACPI Suspend Type: S3 (Suspend to RAM)”**. Remember to save the settings by pressing "ESC" and choose the **“SAVE & EXIT SETUP”** option.

Congratulation! You have completed the installation and now can use the STR function.

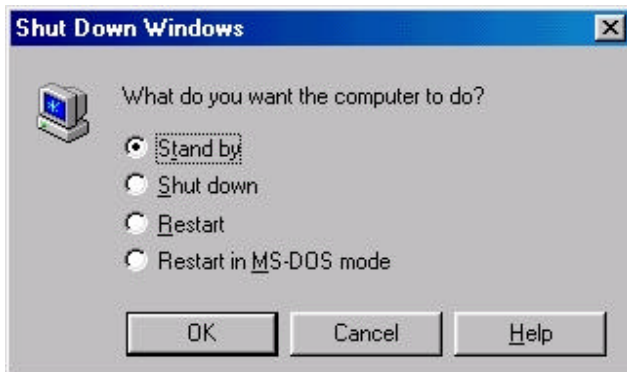
A.3 How to put your system into STR mode?

There are two ways to accomplish this:

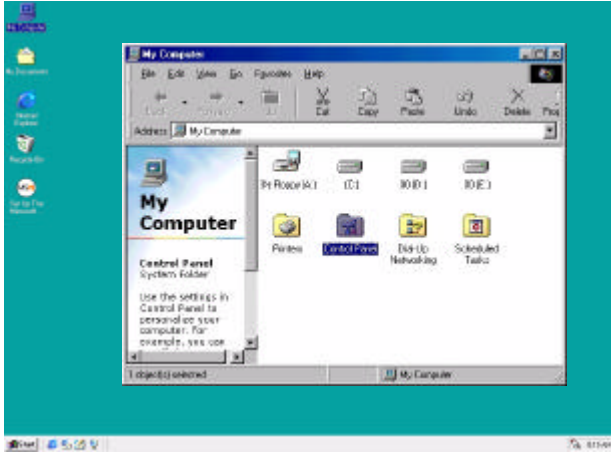
1. Choose the “Stand by” item in the “Shut Down Windows” area.
 - A. Press the “Start” button and then select “Shut Down”



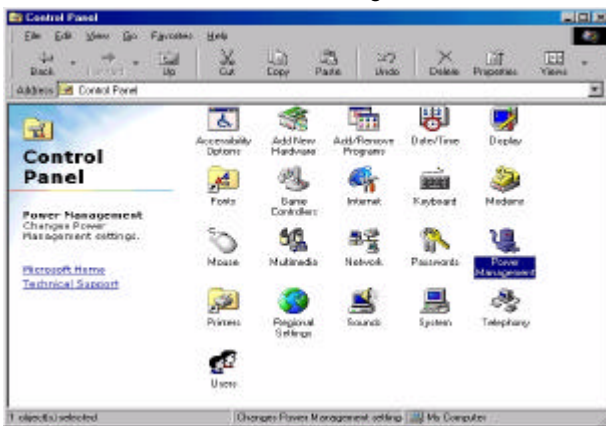
- B. Choose the “Stand by” item and press “OK”



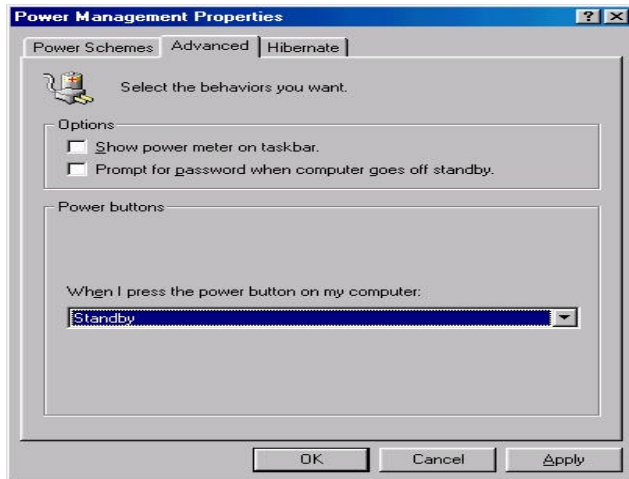
2. Define the system "power on" button to initiate STR sleep mode:



- A. Double click "My Computer" and then "Control Panel"
- B. Double click the "Power Management" item.



C. Select the “Advanced” tab and “Standby” mode in Power Buttons.



Step 4:

Restart your computer to complete setup.

Now when you want to enter STR sleep mode, just momentarily press the “Power on” button..

A.4 How to recover from the STR sleep mode?

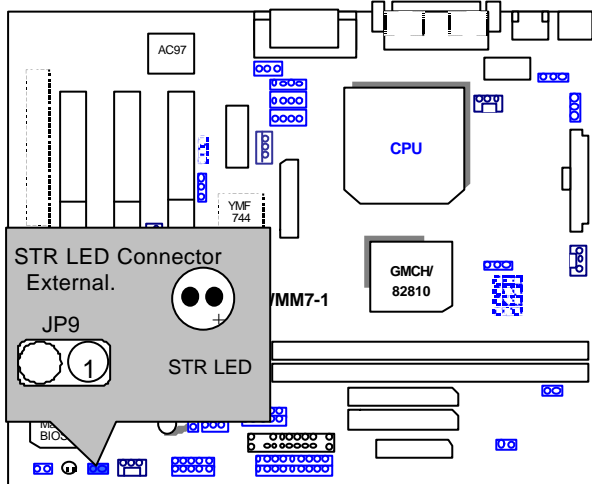
There are seven ways to “wake up” the system:

1. Press the “Power On” button.
2. Use the “PS/2 Keyboard Power On” function.
3. Use the “PS/2 Mouse Power On” function.
4. Use the “Resume by Alarm” function.
5. Use the “Modem Ring On” function.
6. Use the “Wake On LAN” function.

7. Use the “USB Device Wake up” function.

A.5 Notices :

1. In order for STR to function properly, several hardware and software requirements must be satisfied:
 - A. Your ATX power supply must comply with the ATX 2.01 specification (provide more than 720 mA 5V Stand-By current).
 - B. Your SDRAM must be PC-100 compliant.
2. Jumper JP9 is provided to connect to the STR LED in your system chassis. [Your chassis may not provide this feature.] The STR LED will be illuminated when your system is in STR sleep mode.



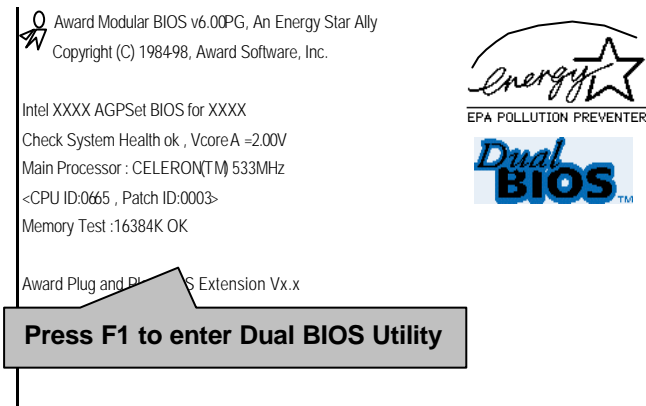
V. Introduce Dual BIOS (Optional)

A. What is Dual BIOS Technology?

Dual BIOS means that there are two system BIOS (ROM) on the motherboard, one is the Main BIOS and the other is Backup BIOS. Under the normal circumstances, the system works on the Main BIOS. If the Main BIOS is corrupted or damaged, the Backup BIOS can take over while the system is powered on. This means that your PC will still be able to run stably as if nothing has happened in your BIOS.

B. How to use Dual BIOS?

a. Boot Screen



b. Dual BIOS Utility

Dual BIOS Utility V6.60.g.01K (C) 1999, Gigabyte Technology Co., LTD.	
Wide Range Protection	:Disabled
Halt On BIOS Defects	:Disabled
Auto Recovery	:Enabled
Boot From	:Main BIOS
BIOS Recovery	:Main to Backup
F3: Load Default	F5:Start BIOS Recovery
F7: Save And Restart	F9:Exit Without Saving
Use <Space> key to toggle setup	

c. Dual BIOS Item explanation:

Wide Range Protection: Disabled(Default), Enabled

Status 1:

If any failure (ex. Update ESCD failure, checksum error or reset.) occurs in the Main BIOS , just before the Operating System is loaded and after the power is on, and that the Wide Range Protection is set to "Enable", the PC will boot from Backup BIOS automatically.

Status 2:

If the ROM BIOS on peripherals cards(ex. SCSI Cards, LAN Cards,..) emits signals to request restart of the system after the user make any alteration on it, the boot up BIOS will not be changed to the Backup BIOS.

Halt On BIOS Defects : Disabled(Default), Enabled

If the BIOS occurs a checksum error or the Main BIOS occurs a WIDE RANGE PROTECTION error and Halt On BIOS Defects set to Enable, the PC will show messages on the boot screen, and the system will pause and wait for the user's instruction.

If Auto Recovery :**Disabled** it will show **<or the other key to continue.>**

If Auto Recovery :**Enabled** it will show **<or the other key to Auto Recover.>**

Auto Recovery : Enabled(Default), Disabled

When one of the Main BIOS or Backup BIOS occurs checksum failure, the working BIOS will automatically recover the BIOS of checksum failure.

(In the Power Management Setup of the BIOS Setting, if ACPI Suspend Type is set to Suspend to RAM, the Auto Recovery will be set to Enable automatically.)

(If you want to enter the BIOS setting, please press "Del" key when the boot screen appears.)

Boot From : Main BIOS(Default), Backup BIOS

Status 1:

The user can set to boot from main BIOS or Backup BIOS.

Status 2:

If one of the main BIOS or the Backup BIOS fails, this item "Boot From : Main BIOS(Default)" will become gray and will not be changed by user.

BIOS Recovery : Main to Backup

Auto recovery message:

BIOS Recovery: Main to Backup

The means that the Main BIOS works normally and could automatically recover the Backup BIOS.

BIOS Recovery: Backup to Main

The means that the Backup BIOS works normally and could automatically recover the Main BIOS.

(This auto recovery utility is set by system automatically and can't be

changed by user.)



DualBIOS™ Technology FAQ

GIGABYTE Technology is pleased to introduce DualBIOS technology, a hot spare for your system BIOS. This newest “Valueadded” feature, in a long series of innovations from GIGABYTE, is available on GA-6WMM7 motherboard. Future GIGABYTE motherboards will also incorporate this innovation.

What’s DualBIOS™?

On GIGABYTE motherboards with DualBIOS there are physically two BIOS chips. For simplicity we’ ll call one your “ Main BIOS” and the other we’ ll call your “Backup” BIOS (your “hot spare”). If your Main BIOS fails, the Backup BIOS almost automatically takes over on your next system boot. Almost automatically and with virtually zero down time! Whether the problem is a failure in flashing your BIOS or a virus or a catastrophic failure of the Main BIOS chip, the result is the same - the Backup BIOS backs you up, almost automatically.

I. Q: What is DualBIOS™ technology?

Answer:

DualBIOS technology is a patented technology from Giga-Byte Technology. The concept of this technology is based on the redundancy and fault tolerance theory. DualBIOS™ technology simply means there are two system BIOSes (ROM) integrated onto the motherboard. One is a main BIOS, and the other is a backup BIOS. The mainboard will operate normally with the main BIOS, however, if the main BIOS is corrupt or damaged for various reasons, the backup BIOS will be automatically used when the system powered-On. Your PC will operate as before the main BIOS was damaged, and is completely transparent to the user.

II. Q: Why does anyone need a motherboard with DualBIOS™ technology?

Answer:

In today' s systems there are more and more BIOS failures. The most common reasons are virus attacks, BIOS upgrade failures, and/or deterioration of the BIOS (ROM) chip itself.

1. New computer viruses are being found that attack and destroy the system BIOS. They may corrupt your BIOS code, causing your PC to be unstable or even not boot normally.
2. BIOS data will be corrupted if a power loss/surge occurs, or if a user resets the system, or if the power button is pressed during the process of performing a system BIOS upgrade.
3. If a user mistakenly updates their mainboard with the incorrect BIOS file, then the system may not be able to boot correctly. This may cause the PC system hang in operation or during boot.
4. A flash ROM's life cycle is limited according to electronic characteristics. The modern PC utilizes the Plug and Play BIOS, and is updated regularly. If a user changes peripherals often, there is a slight chance of damage to the flash ROM.

With Giga-Byte Technology' s patented DualBIOS™ technology you can reduce the possibility of hangs during system boot up, and/or loss BIOS data due to above reasons. This new technology will eliminate valuable system down time and costly repair bills cause by BIOS failures.

III. Q: How does DualBIOS™ technology work?

Answer:

1. DualBIOS™ technology provides a wide range of protection during the boot up procedure. It protects your BIOS during system POST, ESCD update, and even all the way to PNP detection/assignment.
2. DualBIOS™ provides automatic recovery for the BIOS. When the first BIOS used during boot up does not complete or if a BIOS checksum error occurs, boot-up is still possible. In the DualBIOS™ utility, the "Auto Recovery" option will guarantee that if either the main BIOS or backup BIOS is corrupted, the DualBIOS™ technology will use the good BIOS and correct the wrong BIOS automatically.
3. DualBIOS™ provides manual recovery for the BIOS. DualBIOS™ technology contains a built-in flash utility, which can flash your system BIOS from backup to main and/or visa versa. There is no need for an OS-dependent flash utility program.
4. DualBIOS™ contains a one-way flash utility. The built-in one-way flash utility will ensure that the corrupt BIOS is not mistaken as the good BIOS during recovery and that the correct BIOS (main vs. backup) will be flashed. This will prevent the good BIOS from being flashed.

IV. Q: Who Needs DualBIOS™ technology?

Answer:

1. Every user should have DualBIOS™ technology due to the advancement of computer viruses.

Everyday, there are new BIOS-type viruses discovered that will destroy your system BIOS. Most commercial products on the market do not have solutions to guard against this type of virus intrusion. The DualBIOS™ technology will provide a state-of-the-art solution to protect your PC:
Case I.) Vicious computer viruses may wipe out your entire system BIOS. With a conventional single system BIOS PC, the PC will not be functional until it is sent for repairs.

Case II.) If the "Auto Recovery" option is enabled in the DualBIOS™ utility, and if a virus corrupts your system BIOS, the backup BIOS will automatically reboot the system and correct the main BIOS.

Case III.) A user may override booting from the main system BIOS. The DualBIOS™ utility may be entered to manually change the boot sequence to boot from the backup BIOS.

2. During or after a BIOS upgrade, if DualBIOS™ detects that the main BIOS is corrupt, the backup BIOS will take over the boot-up process automatically. Moreover, it will verify the main and backup BIOS checksums when booting-up. DualBIOS™ technology examines the checksum of the main and backup BIOS while the system is powered on to guarantee your BIOS operates properly.
3. Power Users will have the advantage of having two BIOS versions on their mainboard. The benefit is being able to select either version BIOS to suit the performance system needs.
4. Flexibility for high-end desktop PCs and workstation/servers. In the DualBIOS™ utility, the option can be set, "Halt On When BIOS Defects," to be enabled to halt your system with a warning message that the main BIOS has been corrupted. Most workstation/servers require constant operation to guarantee services have not been interrupted. In this situation, the "Halt On When BIOS Defects" message may be disabled to avoid system pauses during normal booting. Another advantage you gain from Giga-Byte's DualBIOS™ technology is the ability to upgrade from dual 2 Mbit BIOS to dual 4 Mbit BIOS in the future if extra BIOS storage is need.

TABLE OF CONTENTS

1. INTRODUCTION

1.1. PREFACE..... 1-1

1.2. KEY FEATURES..... 1-1

1.3. PERFORMANCE LIST 1-3

1.4. BLOCK DIAGRAM..... 1-4

1.5. INTRODUCE THE INTEL® Celeron™ / Pentium® !!! Socket 370
Processor..... 1-5

1.6. INTRODUCE AMR..... 1-5

2. SPECIFICATION

2.1. HARDWARE..... 2-1

2.2. SOFTWARE..... 2-2

2.3. ENVIRONMENT 2-2

3. HARDWARE INSTALLATION

3.1. UNPACKING..... 3-1

3.2. MAIN BOARD LAYOUT 3-2

3.3. QUICK REFERENCE FOR JUMPERS & CONNECTORS..... 3-3

3.4. DRAM INSTALLATION 3-8

3.5. CPU SPEED SETUP..... 3-9

3.6. CMOS RTC & ISA CFG CMOS SRAM..... 3-10

3.7. SPEAKER CONNECTOR INSTALLATION..... 3-10

3.8. HARDWARE RESET SWITCH CONNECTOR INSTALLATION 3-10

3.9. POWER LED CONNECTOR INSTALLATION 3-11

3.10. IDE & ATAPI DEVICE INSTALLATION..... 3-11

3.11. PERIPHERAL DEVICE INSTALLATION.....	3-11
3.12. KEYBOARD & PS/2 MOUSE INSTALLATION.....	3-11
4. BIOS CONFIGURATION	
4.1. ENTERING SETUP.....	4-1
4.2. CONTROL KEYS.....	4-1
4.3. GETTING HELP.....	4-2
4.3.1. Main Menu.....	4-2
4.3.2. Status Page Setup Menu / Option Page Setup Menu.....	4-2
4.4. THE MAIN MENU.....	4-2
4.5. STANDARD CMOS FEATURES MENU.....	4-5
4.6. ADVANCED BIOS FEATURES	4-9
4.7. ADVANCED CHIPSET FEATURES	4-12
4.8. INTEGRATED PERIPHERALS.....	4-15
4.9. POWER MANAGEMENT SETUP.....	4-22
4.10. PNP/PCI CONFIGURATIONS	4-27
4.11. PC HEALTH STATUS.....	4-29
4.12. FREQUENCY/VOLTAGE CONTROL.....	4-31
4.13. LOAD FAIL-SAFE DEFAULTS.....	4-33
4.14. LOAD OPTIMIZED DEFAULTS.....	4-34
4.15. SET SUPERVISOR/USER PASSWORD.....	4-35
4.16. SAVE & EXIT SETUP.....	4-36
4.17. EXIT WITHOUT SAVING.....	4-37
APPENDIX	A-1

1. INTRODUCTION

1.1. PREFACE

Welcome to use the **6WMM7** motherboard series. It is a Celeron™ / Pentium® !!! Socket 370 Processor based PC / AT compatible system with PCI / ISA Bus, and has been designed to be the fastest PC / AT system. There are some new features allow you to operate the system with just the performance you want.

This manual also explains how to install the motherboard for operation, and how to set up yo ur CMOS CONFIGURATION with BIOS SETUP program.

Note: The 6WMM7 motherboard series includes 6WMM7(use 82810-DC100 chipset), 6WMM7-1(use 82810 chipset) and 6WMM7-E(use 82810E chipset).

1.2. KEY FEATURES

Intel Celeron™ /Pentium® !!! Socket 370 Processor based PC / AT compatible main board

Socket 370 Pins ZIF white socket on board.

Built-in AC 97-Link software audio and YAMAHA 744 Hardware audio (Optional).

Supports Celeron™ /Pentium® !!! Socket 370 processor running at 300-733 MHz. .(The PCB version 2.0 and above have supported Intel Pentium® !!! 256K Socket 370 Processor.).

INTEL FW82810 chipset, Supports SDRAM / Ultra DMA33/ATA66 IDE / Keyboard and PS/2 Mouse Power On / ACPI features.

Supports 2xDIMMs using 3.3V SDRAM DIMM module.

Supports 4MB SDRAM Display cache.(Optional)

Supports external Modem Ring-On on COMA & COMB and internal Modem Ring-On.

Supports PC100 SDRAM 16MB~512MB memory on board.

Supports Wake-up on LAN.

Supports AMR Function.

Supports feature connector for TV-Out or DFP (Digital Flat Panel).

3xPCI Bus slots, 1xISA Bus slots(Optional).

Supports 2 channels Ultra DMA33/ATA66 IDE ports for 4 IDE Devices.

Supports 1x Line in, 1x Line Out, 1x Mic in, 1x CD Line in,1x GAME Port 1

x TEL, 1x SPDIF OUT(Optional).

6WMM7 Series Motherboard

Supports 2xCOM (16550), 1xLPT (EPP / ECP/ SPP), 1x1.44MB Floppy port.

Supports Dual BIOS Function.

Licensed AWARD BIOS, 4M bits FLASH ROM.

24.4 cm x 24.2 cm Micro ATX SIZE form factor, 4 layers PCB.

The PCB version 2.0 and above have supported Intel Pentium® !!!256K Socket 370 Processor

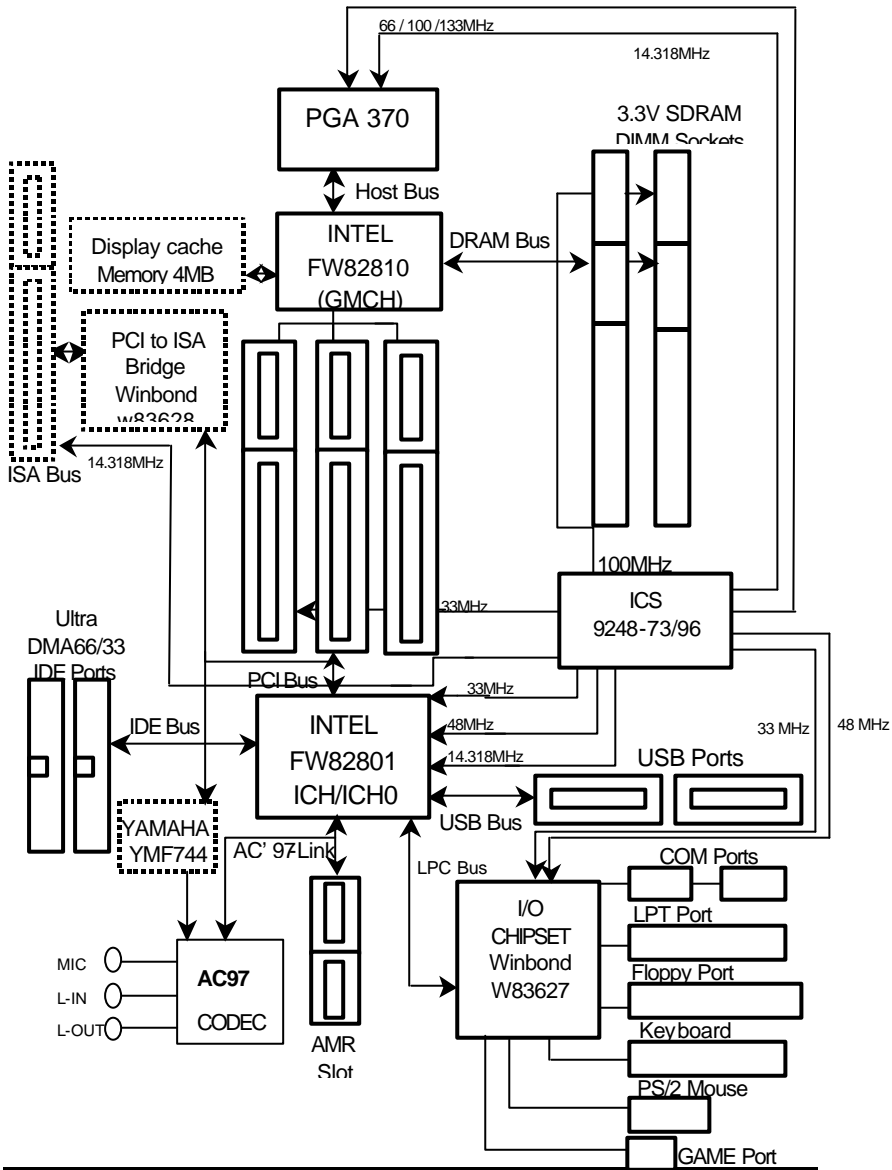
1.3. PERFORMANCE LIST

These data are just referred by users, and there is no responsibility for different testing data values gotten by users. (The different Hardware & Software configuration will result in different benchmark testing results.)

- CPU Intel® Celeron™ 533MHz Socket 370 processor
- DRAM (128x1)MB SDRAM (Winbond 902WB W986408BH-8H)
- CACHE SIZE 128 KB included in CPU
- DISPLAY Onboard Intel Corporation 810 Graphics Controller Hub) (4MB SDRAM)
- STORAGE Onboard IDE (IBM DTTA-371800)
- O.S. Windows NT® 4.0 SPK5
- DRIVER Display Driver at 1024 x 768 x 16bit colors x 75Hz.

Processor	Intel® Celeron™ (Socket 370) 533MHz (66x8)
Winbench99	
CPU mark99	39.4
FPU Winmark 99	2860
Business Disk Winmark 99	3450
Hi-End Disk Winmark 99	5470
Business Graphics Winmark 99	142
Hi-End Graphics Winmark 99	367
Winstone99	
Business Winstone99	28.2
Hi-End Winstone99	22.5

1.4. BLOCK DIAGRAM



1.5. INTRODUCE THE INTEL® Celeron™ /Pentium® !!! Socket 370 Processor

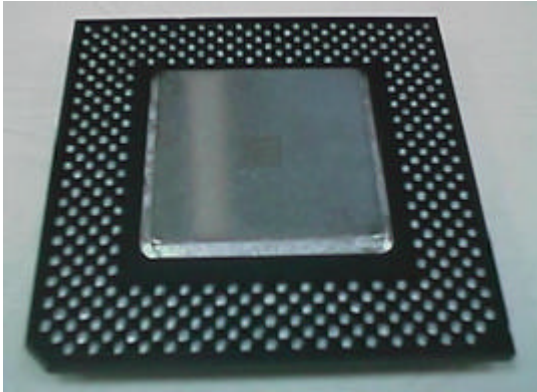


Figure 1.1: INTEL® Celeron™/Pentium® !!! Socket370 Processor

1.6 INTRODUCE AMR

The Audio Modem Riser (AMR) is a new port that supports both audio and modem. The main purpose of the AMR port is to provide lower cost and higher levels of integration at all levels of the PC platform.

The backbone of the AMR interface is on AC' 97 compliant AC-Link with support for codes. Motherboard support for an AMR interface are not only capable of achieving the lowest possible cost for basic PC audio and modem, but have also introduced increased motherboard flexibility enabling robust, cost effective scalability.

The AMR is done through software and controlled by the motherboard's I/O Controller Hub (ICH). There are two types of AMR, one defined as primary and another defined as secondary. If the motherboard with onboard sound YAMAHA 744, the AMR must be used primary.

2. SPECIFICATION

2.1. HARDWARE

- CPU
 - Celeron™/Pentium® !!! Socket 370 processor 300–733 MHz.
 - 66/100/133MHz Socket 370 on board.
- PROTECTION
 - Speaker Alarm when detect "CPU FAN Failure" or "CPU Overheat".
 - Automatically slow down CPU speed when "CPU Overheat".
 - H/W monitor power status ($\pm 5V$, $\pm 12V$, VGTL, 5VSB, CPU voltage & CMOS battery voltage).(Optional)
- SPEED
 - 66/100/133 MHz system speed.
(133 MHz system speed is only available when the motherboard use 82810E chipset).
 - 33 MHz PCI-Bus speed.
 - 8 MHz AT bus speed.
- DRAM MEMORY
 - 2 banks 168 pins DIMM module sockets on board.
 - Use 16 / 32 / 64 / 128 / 256MB DIMM module DRAM.
 - Supports PC-100 SDRAM 16MB–512MB.
- CACHE MEMORY
 - 32 KB 1st cache memory included in CPU.
 - 128KB L2 cache memory included in CPU.
 - Supports DIB speed mode for L2 Cache.
- I/O BUS SLOTS
 - 3 33MHz Master / Slave PCI-BUS.
 - 1 8MHz 16 bits ISA BUS (Optional).
- IDE PORTS
 - 2 Ultra DMA33/ATA66 Bus Master IDE channels on board.(Using IRQ14,15)
 - Supports Mode 3,4 IDE & ATAPI CD–ROM.
- I/O PORTS
 - Supports 2 16550 COM ports.
 - Supports 1 EPP/ECP LPT port.
 - Supports 1 1.44/2.88 MB Floppy port.
 - Supports 2 USB ports.
 - Supports PS/2 Mouse & Keyboard.

- Audio Ports
 - 1x Line in
 - 1x Line out
 - 1x Mic in
 - 1x Game Port
 - 1x CD Line in
 - 1x TEL (Optional)
 - 1x SPDIF OUT (Optional)
- GREEN FUNCTION
 - Suspend mode support.
 - Green switch & ACPI LED support.
 - IDE & Display power down support.
 - Monitors all IRQ / DMA / Display / I/O events.
- BIOS
 - Support Dual BIOS (Optional).
 - Supports Plug & Play, DMI Function.
- DIMENSION
 - Micro ATX Form Factor, 4 layers PCB.
- Display Cache
 - 4MB SDRAM (Optional)

2.2. SOFTWARE

- DRIVER
 - IUCD (Bus Master + Sound Driver + LDCM + Utility)
 - INTEL 82810 Driver.
- BIOS
 - Licensed AWARD BIOS.
 - AT CMOS Setup, BIOS / Chipset Setup, Green Setup, Hard Disk Utility included.
- O.S.
 - Operation with MS-DOS[®], Windows[®]95, Windows[®]98, WINDOWS[™] NT, OS/2, NOVELL and SCO UNIX.

2.3. ENVIRONMENT

- Ambient Temp. – 0°C to +50°C (Operating).
- Relative Hum. – 0 to +85% (Operating).
- Altitude – 0 to 10,000 feet (Operating).
- Vibration – 0 to 1,000 Hz.
- Electricity – 4.75 V to 5.25 V. (Max. 20A current at 5V.)

3. HARDWARE INSTALLATION

3.1. UNPACKING

The main board package should contain the following:

- The **6WMM7 Series** motherboard.
- USER'S MANUAL for main board.
- Cable set for IDE, Floppy devices, [COMB Port Cable (Optional)].
- CD for main board Utility. [IUCD (Bus Master + Sound Driver + LDCM + Utility), INTEL 82810 Driver.]

The main board contains sensitive electric components, which can be easily damaged by static electricity, so the main board should be left in its original packing until it is installed.

Unpacking and installation should be done on a grounded anti-static mat. The operator should be wearing an anti static wristband, grounded at the same point as the anti -static mat.

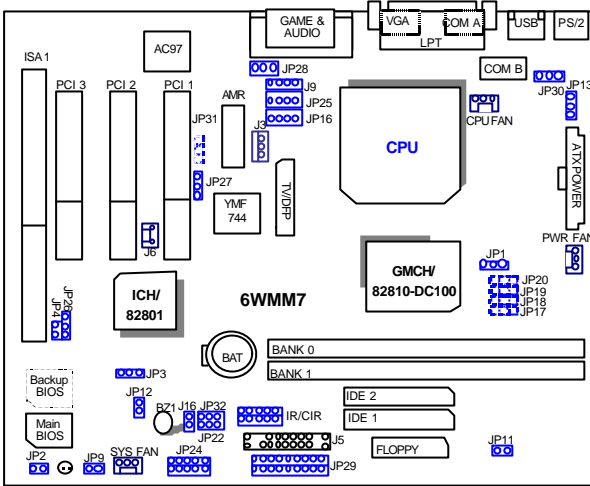
Inspect the main board carton for obvious damage. Shipping and handling may cause damage to your board. Be sure there are no shipping and handling damages on the board before proceeding.

After opening the main board carton, extract the system board and place it only on a grounded anti-static surface component side up. Again inspect the board for damage. Press down on all of the socket IC's to make sure that they are properly seated. Do this only on with the board placed on a firm flat surface.

 **DO NOT APPLY POWER TO THE BOARD IF IT HAS BEEN DAMAGED.**

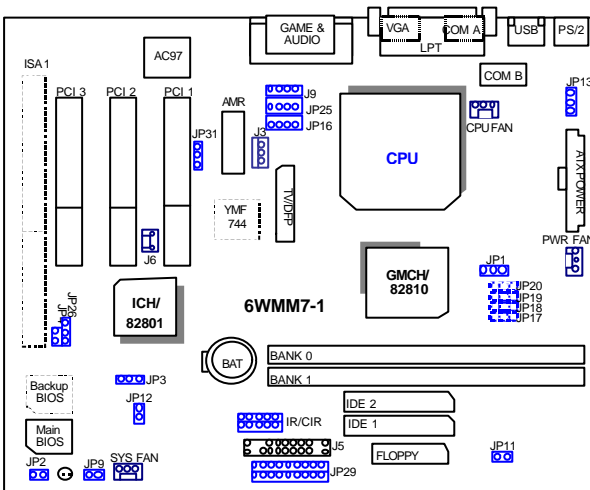
3.2 MAIN BOARD LAYOUT

6WMM7



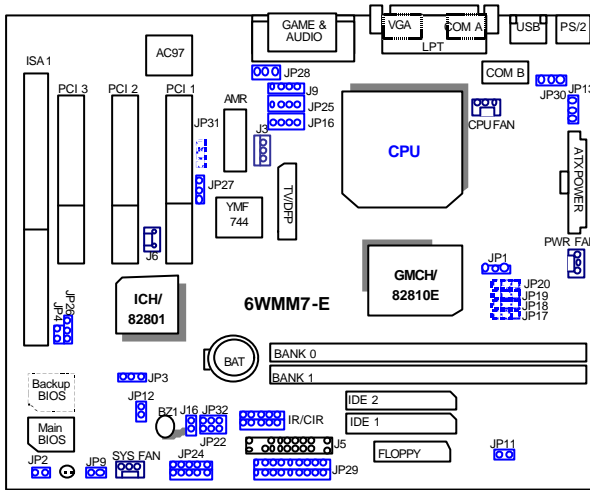
<Figure 3.1>

6WMM7-1



<Figure3.2>

6WMM7-E



<Figure3.3>

3.3. QUICK REFERENCE FOR JUMPERS & CONNECTORS

◆ I/O Ports Connector	
USB	USB port.
IDE1	For Primary IDE port.
IDE2	For Secondary IDE port.
PS/2	For PS/2 Mouse & Keyboard port.
FLOPPY	For Floppy port.
COMB	For Serial port2 (COM B){Support Modem Ring On}.
COMA	For Serial port1 (COM A){Support Modem Ring On}.
LPT	For LPT port.
VGA	For VGA Port.
ATX Power	For ATX Power Connector.
GAME & Audio	For GAME & MIC LINE-IN, LINE-OUT, TEL Port, AUX_IN, CD_IN, SPDIF OUT.
◆ Socket 370	

For Celeron™ /Pentium® !!! Socket 370 Processor installed

◆ IR : INFRARED Connector (IR / CIR) -- Function Option	
Pin No.	Function
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX
6	NC
7	CIRRX
8	VCC
9	NC
10	NC

◆ CPU FAN : CPU FAN Connector	
Pin No.	Function
1	GND.
2	+12V
3	SENSE

◆ PWR FAN: Power FAN Connector	
Pin No.	Function
1	GND.
2	+12V
3	SENSE

◆ SYS FAN: System FAN Connector	
Pin No.	Function
1	GND.
2	+12V
3	SENSE

◆ J16:Buzzer Enable (Optional)	
Pin No.	Function
Open	Internal Buzzer Disable
Short	Internal Buzzer Enable

◆ J6 RING PWR ON :Internal Modem Card Ring PWR On	
Pin No.	Function
1	Signal

2	GND
---	-----

◆ JP13 : PS/2 Keyboard Power On Selection (Optional)	
Pin No.	Function
1-2 short	Enabled PS/2 Keyboard power on.
2-3 short	Disabled PS/2 Keyboard power on(Default).

◆ J9: CD Audio Line in	
Pin No.	Function
1	Left
2	GND
3	GND
4	Right

◆ JP25:AUX_IN	
Pin No.	Function
1	AUX_L
2	GND
3	GND
4	AUX_R

◆ J3:Wake on LAN	
Pin No.	Function
1	+5V SB
2	GND
3	Signal

◆ TEL : The connector for Modem with internal voice connector.	
Pin No.	Function
1	Phone-in
2,3	GND
4	Mono-out

◆ JP11:STR Enable	
Pin No.	Function
Close	STR Enable
Open	STR Disable

◆ JP12: Case Open	
Pin No.	Function
1	Signal

2	GND
---	-----

◆ JP26 : System Boot Option	
Pin No.	Function
1-2 short	Normal
2-3 short	Safe Mode
1-2-3open	Recovery

◆ JP2: Top Block Lock	
Pin No.	Function
Open	Top Block Lock.
Short	Top Block Unlock (Default).

◆ JP4: Timeout Reboot	
Pin No.	Function
Open	Timeout Reboot.
Short	No Reboot.

◆ JP27: Onboard H/W Audio (Optional)	
Pin No.	Function
1-2 short	Disabled H/W Audio.
2-3 short	Enabled H/W Audio.(Default)

◆ JP32/ JP22: USB Port Selection (Optional)	
Pin No.	Function
1-2 short	Front Panel USB Port Enabled.
2-3 short	Back Front Panel USB Port Enabled.

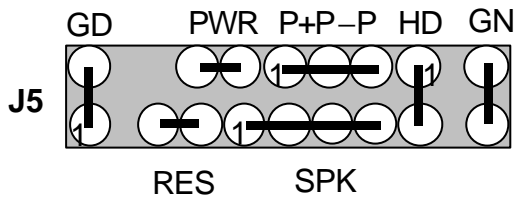
◆ JP28: SPDIF (Optional)	
Pin No.	Function
1	VCC
2	SPDIF OUT
3	GND

◆ JP3 : CLEAR CMOS	
Pin No.	Function
1-2 short	Clear CMOS
2-3 short	Normal operation (Default).

◆ JP24: Front Panel USB Port (Optional)	
Pin No.	Function
1,4,5,10	NC
2	+5V
3,7,9	GND
6	USB P0+
8	USB P0-

◆ JP30: USB Device wake-up (Optional)	
Pin No.	Function
1-2	Disable USB Device wake-up.
2-3	Enable USB Device wake-up.

J5 : For 2X11 PINs Jumper



Soft PWR: Soft Power Connector



Open: Normal Operation
Short: Power On/Off

RES: Reset Switch



Open: Normal Operation
Short: For Hardware Reset System

P+P- P- : Power LED



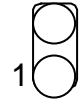
PIN 1 : LED anode (+)
PIN 2 : LED cathode (-)
PIN 3 : LED cathode (-)

SPK: Speaker Connector



PIN 1 : VCC (+)
PIN 2 : NC
PIN 3 : NC
PIN 4 : Data (-)

HD: IDE Hard Disk Active LED



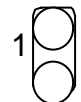
PIN 1: LED anode (+)
PIN 2: LED cathode (-)

GN: Green Function Switch



Open : Normal operation
Short : Entering Green Mode

GD: Green LED



PIN 1 : LED anode (+)
PIN 2 : LED cathode (-)

3.4. DRAM INSTALLATION

The main board can be installed with 16 / 32 / 64 / 128 / 256 MB 168 pins DIMM module DRAM, and the DRAM speed must 100 MHz for SDRAM when system bus speed is set to 66MHz ,100MHz, the DRAM memory system on main board consists of bank 0 and bank 1.

Since 168 pins DIMM module is 64 bits width, therefore 1 piece of DIMM module may match a 64 bits system. The total memory size is 16 MB ~ 512MB SDRAM . The DRAM installation position refer to Figure 3.1, and notice the Pin 1 of DIMM module must match with the Pin 1 of DIMM socket. Insert the DIMM module into the DIMM socket at Vertical angle. If there is a wrong direction of Pin 1, the SDRAM DIMM module could not be inserted into socket completely.

3.5. CPU SPEED SETUP

The system bus frequency can be switched between 66MHz and 133MHz by adjusting JP1 & JP33. The CPU Frequency is control by BIOS.

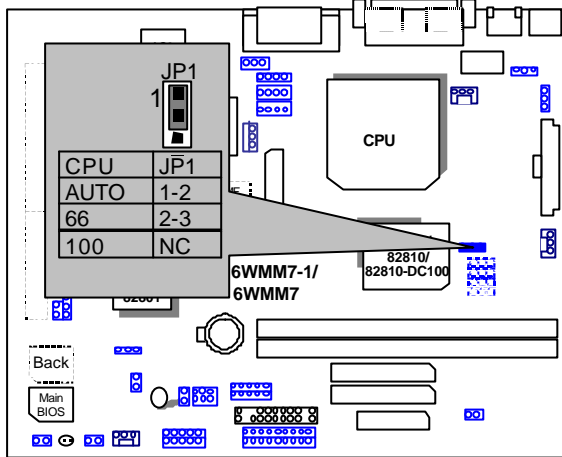


Figure 1: other chipset CPU speed setup

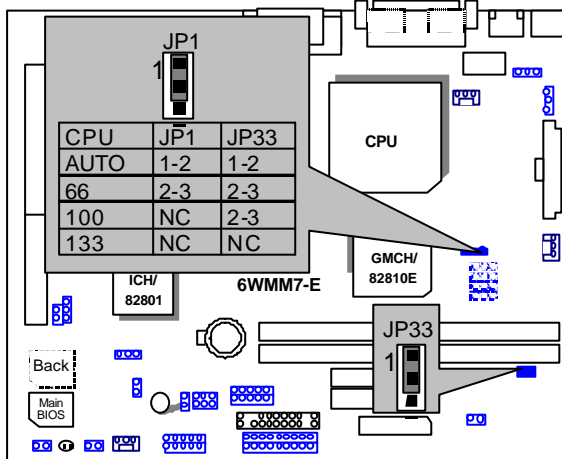


Figure 2: for 82810E chipset CPU speed setup

- The CPU speed must match with the frequency RATIO. It will cause system hanging up if the frequency RATIO is higher than that of CPU.

★ Note: Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets, SDRAM, Cardsetc.

★ Note: JP33 is only available when the motherboard use 82810E chipset.

3.6. CMOS RTC & ISA CFG CMOS RAM

There're RTC & CMOS RAM on board; they have a power supply from external battery to keep the DATA inviolate & effective. The RTC is a REAL -TIME CLOCK device, which provides the DATE & TIME to system. The CMOS RAM is used for keeping the information of system configuration, so the system can automatically boot OS every time. Since the lifetime of internal battery is 5 years, the user can change a new Battery to replace old one after it cannot work.

- Danger of explosion if battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer' s instructions.

3.7. SPEAKER CONNECTOR INSTALLATION

There is a speaker in AT system for sound purpose. The 4 - Pins connector **SPK** is used to connect speaker.

3.8. HARDWARE RESET SWITCH CONNECTOR INSTALLATION

The RESET switch on panel provides users with HARDWARE RESET function. The system will do a cold start after the RESET switch is pushed and released by user. The RESET switch is a 2 PIN connector and should be installed to **RES** on main board.

3.9. POWER LED CONNECTOR INSTALLATION

System has power LED lamp on the panel of chassis. The power LED will light on off or flash to indicate which step on the system. The connector should be connected to **P+P-P-** of main board in a correct direction.

3.10. IDE & ATAPI DEVICE INSTALLATION

There are two-Enhanced PCI IDE ports (**IDE1, IDE2**) on board, which following ATAPI standard SPEC. Each IDE port can connected to two ATAPI devices (IDE Hard Disk, CD-ROM or Tape Driver), so total four ATAPI devices can exist in a system. The **HD** is the active LED port for ATAPI devices.

3.11. PERIPHERAL DEVICE INSTALLATION

After the I/O device installation and jumpers setup, the main board can be mounted into the chassis and fixed by screw. To complete the main board installation, the peripheral device could be installed now. The basic system needs a display interface card. If the PCI - Bus device is to be installed in the system, any one of three PCI - Bus slots can be used.

3.12. KEYBOARD & PS/2 MOUSE INSTALLATION

The main board supports PS/2 Mouse. The BIOS will auto detect whether the PS/2 Mouse is installed or not & assign IRQ12 for PS/2 Mouse port if it is installed. After installing the peripheral device, the user should check everything again, and ready power-on the system.