

U s e r ' s M a n u a l

AC-642 Barebone PC System



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If you do not properly set the motherboard settings causing the motherboard to malfunction or fail, we cannot guarantee any responsibility.

AC-642 Barebone System User's Manual

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Chapter 0 Preface

Introduction

This manual will tell you how to make settings for AC-642 barebone PC system. Please read this manual before you starting assembly/disassembly or make any settings.

Manual Overview

- Chapter 0 Preface**
- Chapter 1 Introduction of AC-642 Features**
- Chapter 2 System Hardware Settings**
- Chapter 3 Chassis Assembly Overview**

Audience Assumption

This manual is designed for people who are familiar with installing and understanding PC's system and its assembly. For example, the system integrator (SI), OEM customers, etc. You also need to be familiar with the software installation, such as Windows® 95/98, Windows® NT, Novel® NetWare®, IBM OS/2® or SCO UNIX operating system and its utility installation.

Unpacking the Barebone System

When you have unpacked your barebone system, make sure the following items are included in the box. If you find any items are missing or damaged, please contact your barebone retailer immediately.

Item Checklist

- System Unit
- AC Power Cord and Accessories
- This User's Manual
- Support Drivers and Utilities CD-ROM (or Diskettes)

Remove these items from the shipping carton. Do not throw away the packing material or shipping carton, in case you may need to use these components for future use.

Chapter 1 Introduction of AC-642 Features

This Chapter contains the following section:

- 1-1. System Overview
- 1-2. The Overview of the AC-642 Barebone System
- 1-3. Motherboard Specifications
- 1-4. Chassis and Power Supply Specifications
- 1-5. Motherboard Layout Diagram
- 1-6. Motherboard System Block Diagram

1-1. System Overview

This system is designed for Intel's new generation of Celeron™ processors. It supports the Intel® Celeron™ processor, with the PPGA (Plastic Pin Grid Array package) 370-pin design. Up to 256MB of memory (512MB using 128Mb technology), newer super I/O, and Green PC functions.

The WF-22/22L motherboard has a built in 2D & 3D graphics engines, and the integrated 24-bit 230MHz RAMDAC can provide up to 1600*1200 resolution in 8-bit color at an 85Hz refresh rate. The WF-22/22L uses the new generation Intel® 810 chipset for more efficiency and high integration of the system. The motherboard has built-in hardware monitoring functions that can monitor and protect your computer insuring a safe computing environment. The motherboard can provide high performance for workstations and meets the requirements for desktop systems for multimedia in the future.

The WF-22/22L motherboard uses the new generation Intel® 810 chipset for more efficiency and high integration of the system. The WF-22/22L will support Ultra ATA/66 IDE devices. Ultra ATA/66 is the new standard for IDE devices. It enhances existing Ultra ATA/33 technology by increasing both performance and data integrity. This new high-speed interface doubles the Ultra ATA/33 burst data transfer rate to 66.6 Mbytes/sec. The result is maximum disc performance using the current PCI local bus environment. You can connect either Ultra ATA/33 IDE devices or Ultra ATA/66 IDE devices to the IDE connectors on this motherboard.

What are the features of the Intel® 810 chipset? It's structure is shown in Figure 1-6. It is a combination of three chips: the FW82810, FW82801 and FW82802. The FW82810 is called the GMCH chip, Graphics and Memory Controller Hub. The GMCH functions and capabilities include:

- Support for a single Intel® Celeron™ processor configuration
 - 64-bit GTL+ based system bus interface at 66MHz/100MHz
-

- 32-bit host address support
- 64-bit system memory interface with optimized support for SDRAM at 100MHz
- Integrated 2D & 3D graphics engines
- Integrated H/W motion compensation engine

The FW82801 is also called the ICH chipset, the, **I/O Controller Hub**. The ICH is a highly integrated multifunctional component supporting the following functions and capabilities:

- PCI Rev. 2.2 compliant with support for 33MHz PCI operations
- Supports up to 6 Req/Gnt pairs (PCI Slots).
- Integrated IDE controller with Ultra DMA/66 support
- USB host interface with support for 2 USB ports
- AC '97 2.1 compliant link for audio and telephony CODECS
- Firmware Hub (FWH) interface support

The FW82802 is also called the FWH, **Firmware Hub**. The FWH component is part of several integrated Intel® chipsets. The FWH is key to enabling future security and manageability infrastructures for the PC platform. The device operates under the FWH interface/protocol. The hardware features of this device include a **Random Number Generator (RNG)**, five **General Purpose Inputs (GPIs)**, register-based block locking, and hardware-based locking. An integrated combination of logic features and non-volatile memory enables better protection for the storage/update of platform code/data, adds platform flexibility through additional GPIs and allows for quicker introduction of new security/manageability features into the current and future Intel® architecture platform. It's available in 8Mbit (82802AC), 4Mbit (82802AB), and 2Mbit (82802AA) densities. It uses the 32L PLCC or 40L TSOP industry standard packages.

The WF-22/22L motherboard has one AMR slot onboard, it is called the **Audio/Modem Riser (AMR)** slot. The Audio/Modem Riser is an open industry-standard specification that defines a hardware scalable **Original Equipment Manufacturer (OEM)** motherboard riser board and interface, which supports both audio and modem functions. The specification's main objective is to reduce the baseline implementation cost of audio and modem functionality. In accordance with PC user's demands for feature-rich PCs, combined with the industry's current trend towards lower cost PCs, all of these functions are built into the motherboard. But motherboard integration of the modem subsystem has been problematic to date, in large part due to FCC and other international telecom certification processes that may delay the introduction of a motherboard. Resolving the homologation/certification issue for modems is one of the AMR specification's key objectives.

In the future, not only OEM motherboards will have an AMR design, the AMR card will appear in the market and you can make a choice in buying this kind of card according to your budget. But your motherboard must have an AMR slot to be able to plug an AMR card. The WF-22/22L insures this expandibility for this issue.

As for the CPU, the PPGA processor is the newest addition to the Intel® Celeron™ processor product line, it implements a Dynamic Execution micro-architecture and executes MMX™ media technology instructions for enhanced media and communication performance. The PPGA processor also uses the same multi-transaction system bus used in the Pentium® II processor. The processor also supports multiple low-power states such as AutoHALT, Stop-Grant, and Deep Sleep to conserve power during idle times.

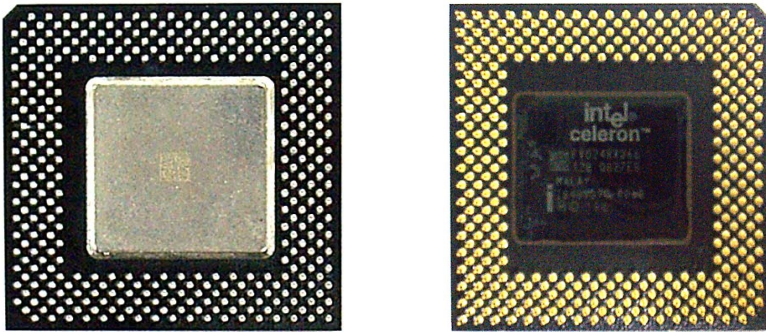


Figure 1-1. Intel® Celeron™ PPGA package processor

The PPGA processor includes an integrated 128K second level cache with separated 16K instruction and 16K data level one caches. The second level cache is capable of caching 4GB of system memory.

1-2. The Overview of the AC-642 Barebone System

Refer to the Figures below to identify the connectors and indicators location on the AC-642.

Figure 1-2 show you the AC-642 front panel indicators, switch buttons and others function that you can control and see them from front panel.

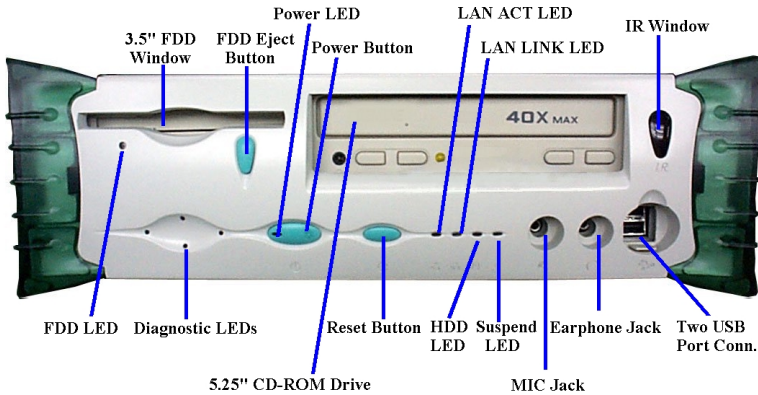


Figure 1-2. AC-642 Front Panel Description

The rear of the computer is where you connect power and peripheral devices, such as keyboard, mouse, display monitor, joystick, etc. Refer to the Figure 1-3 to identify components located at the rear of the AC-642.

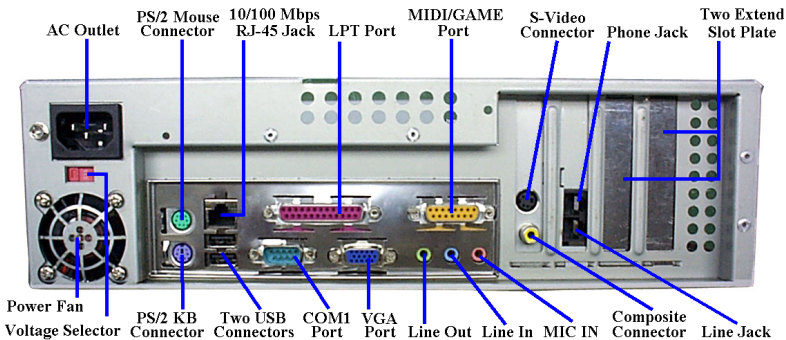


Figure 1-3. AC-642 Back Panel Description

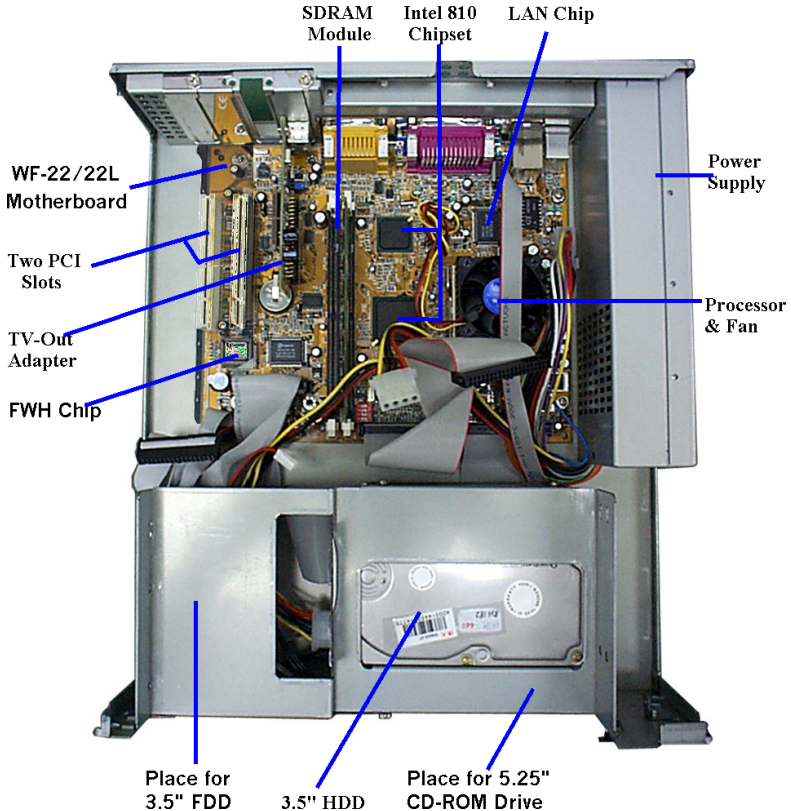


Figure 1-4. AC-642 Internal View

Figure 1-4 shows you the inside view of the AC-642 chassis. We only point out a part of the devices we thought it may important to identify.

1-3. Motherboard Specifications

■ CPU

- Supports Intel® Celeron™ 300A~533MHz processors (Based on 66MHz PPGA package)
- Supports 66 and 100MHz CPU external clock speeds
- Employs switching type regulators to stabilize CPU operation

■ Chipset

- ➔ Intel® 810L chipset (FW82810, FW82801 and FW82802AB)
- ➔ Supports Ultra DMA 33/66 IDE protocol
- ➔ Supports Advanced Configuration and Power Management Interface (ACPI)

■ Memory(DRAM)

- ➔ Two 168-pin DIMM sockets support SDRAM modules
- ➔ Supports up to 256MB (512MB using 128Mb technology)
- ➔ Video Memory use UMA

■ System BIOS

- ➔ AWARD BIOS
- ➔ Supports Plug-and-Play (PnP)
- ➔ Supports Advanced Configuration Power Interface (ACPI)
- ➔ Supports Desktop Management Interface (DMI)
- ➔ Year 2000 compliant

■ Multi I/O Functions

- ➔ Floppy port supports up to 2.88MB, and 3 mode floppies
- ➔ Ultra DMA/66 bus master IDE supports up to 4 IDE devices (Including LS-120 MB floppy drive)
- ➔ Built-in Standard/EPP/ECP parallel port connector
- ➔ One built-in 16550 fast UART compatible serial port connector
- ➔ One built-in 16550 fast UART compatible serial port header
- ➔ Built-in PS/2 keyboard and PS/2 mouse port connectors
- ➔ Built-in standard IrDA TX/RX header
- ➔ Two built-in USB connectors (Can extend to four USB connectors)
- ➔ Built-in VGA connector
- ➔ Built-in Audio connector (Line-in, Line-out, MIC-in, Game port)
- ➔ Built-in Wake on Ring header
- ➔ Built-in 10/100Mbps network chipset and jack (**RJ45 type, WF-22L only**)

■ Miscellaneous

- ➔ FlexATX form factor
- ➔ Two PCI slots and one AMR slot
- ➔ Supports PS/2 keyboard and PS/2 mouse wake-up functions
- ➔ **Wake On Ring (WOR)**
- ➔ Hardware monitoring: Included fan speed, voltages, and system environment temperature

■ Dimension

- ⇒ Board size: 229 * 191mm

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1-4. Chassis and Power Supply Specification

■ Device Bays

- ⇒ 3.5" shielded panel for FDD or ZIP drive ×1
- ⇒ 3.5" internal HDD ×1
- ⇒ 5.25" Slim type CD-ROM ×1

■ Front Panel

- ⇒ FDD/CD-ROM drive bays
- ⇒ Diagnostic LED ×4 / LAN LED ×2 / HDD LED ×1 / Suspend to RAM LED ×1 / Power switch / Power LED / IR Window
- ⇒ Front panel screw free

■ Rear Panel

- ⇒ Standard Low-Profile case, standard ATX form factor I/O shield
- ⇒ PS/2 keyboard connector ×1 / PS/2 mouse connector ×1
- ⇒ USB port connector ×2 / RJ-45 LAN jack ×1 / VGA port connector ×1 / Serial port connector ×1 / Parallel port connector ×1 / Game/Midi port connector ×1 / Audio line-in jack ×1 / Audio line-out ×1 / MIC jack ×1 / TV-out connector ×2 (One composite & one S-Video connector)

■ Power Supply

- ⇒ 100W internal power supply with cooling fan, 115/230V selectable by switch.

■ Dimension

- ⇒ 103mm (H) ×325mm (W) ×398mm (L)

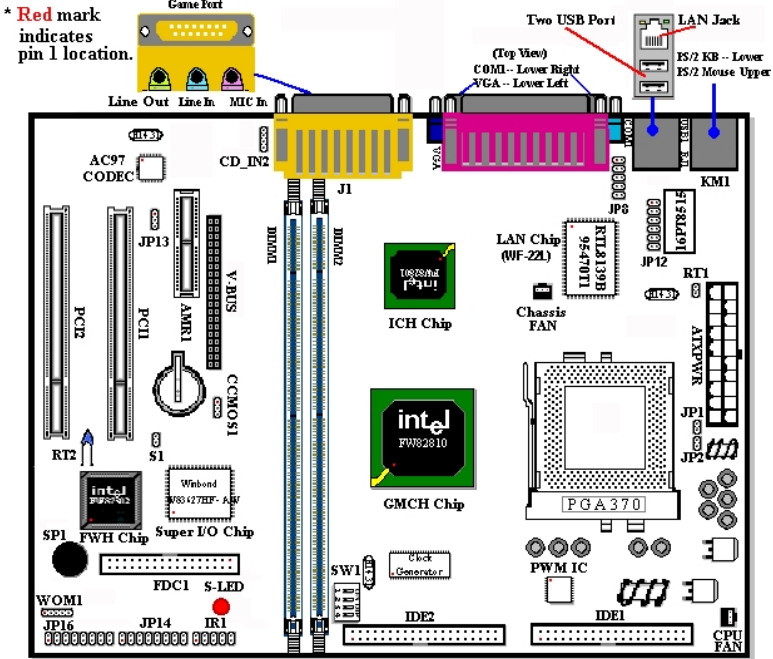
■ Options

- ⇒ Customer configuration options: FDD, HDD, Slim CD-ROM drive, MR Modem*1 and TV-Out adapter*2

*1. MR-Modem: AC'97, 56Kbps v.90 Data/Fax/Voice

*2. TV-Out: Chrontel CH 7007 NTSC/PAL

1-5. Motherboard Layout Diagram



WF-22/22L

Figure 1-5. Motherboard Layout Diagram

1-6. Motherboard System Block Diagram

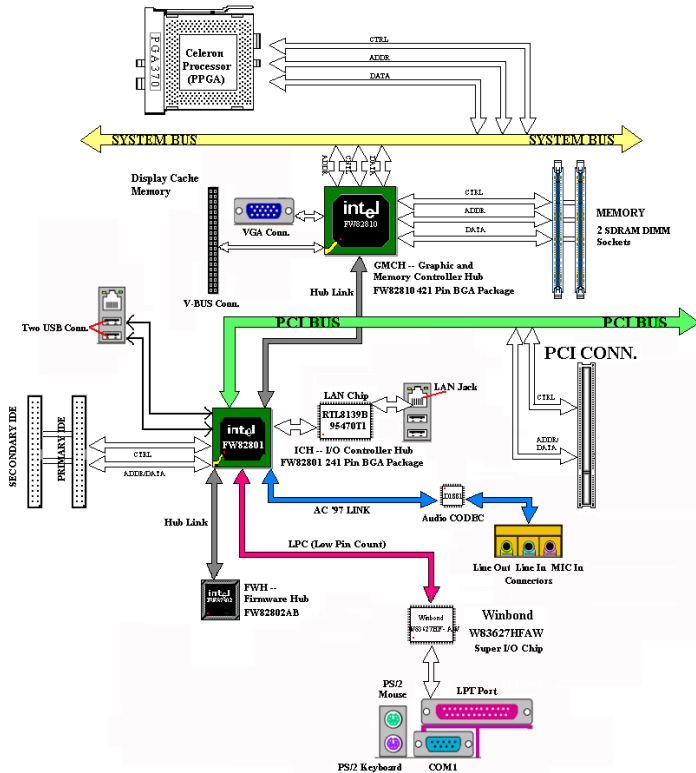


Figure 1-6. System Diagram of Motherboard

Chapter 2 System Hardware Settings

The WF-22/22L motherboard not only provides all of the standard equipment for personal computers, but also provides great flexibility for meeting future upgrade demands. This chapter will introduce, step by step, all the standard equipment and will also present, as completely as possible, future upgrade capabilities. This motherboard is able to support all Intel® Celeron™ PPGA processors now on the market. (For details, see specifications in Chapter 1.)

This chapter is organized according to the following features:

- 2-1 Installation of the Celeron™ PPGA processor
- 2-2 Installing System Memory
- 2-3 Connectors, Headers and Switches



Before Proceeding with the Installation



Before you install or unplug any connectors or add-on cards, please remember to turn the ATX power supply switch off (fully turn the +5V standby power off), or take the power cord off. Otherwise, you may cause the motherboard components or add-on cards to malfunction or be damaged.



User Friendly Instructions

Our objective is to enable the novice computer user to perform the installation by himself. We have attempted to write this document in a very clear, concise and descriptive manner to help overcome any obstacles you may face during installation. Please read our instructions carefully and follow them step-by-step.

2-1. Installation of the Celeron™ PPGA processor

The Intel® Celeron™ PPGA package processor installation, is easy, like Socket 7 Pentium® processors before. Because it uses the “Socket 370” ZIF (Zero Insertion Force) socket, it lets you easily fix the processor on to its position firmly.

Figure 2-1 shows you what the 370 socket looks like, and how to open the lever. Its pin count is more than socket 7. Therefore, a Pentium level processor cannot be inserted into socket 370.

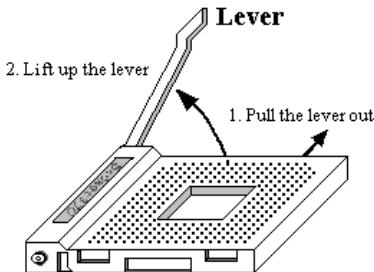


Figure 2-1. Socket 370 and open its lever

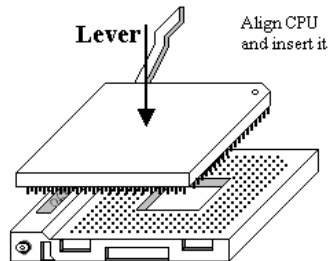


Figure 2-2. Install the CPU into socket 370

When you raise the lever, you have to loosen the socket lock. Please raise the lever to the end, and prepare to insert the processor. Next, you need to align the processor pin 1 to the socket pin 1. If you put it in the wrong direction, you will not be able to insert the processor easily, and processor pins will not fully go into the socket. If that is the case, please change the direction, until it easily and fully inserts into the 370 socket. See Figure 2-2.

When you finish the above, push the lever down to its original position, and you should feel the lever lock up the 370 socket. You have then finished the processor installation.

2-2. Installing System Memory

This motherboard provides two 168-pin DIMM sites for memory expansion. The DIMM sockets support 1Mx64 (8MB), 2Mx64 (16MB), 4Mx64 (32MB), 8Mx64 (64MB), 16Mx64 (128MB), and 32Mx64 (256MB) or double sided DIMM modules. Minimum memory size is 8MB and maximum memory size is 256MB SDRAM (512MB using 128Mb technology). There are two memory module sockets on the system board. (total four banks)

In order to create a memory array, certain rules must be followed. The following set of rules allows for optimum configurations.

- The memory array is 64 or 72 bits wide. (Depending on with or without parity)
- Those modules can be populated in any order.
- Supports single and double density DIMMS.

Table 2-1. Valid Memory Configurations

Bank	Memory Module	Total Memory
Bank 0, 1 (DIMM1)	8MB, 16MB, 32MB, 64MB, 128MB, 256MB	8MB ~ 256MB
Bank 2, 3 (DIMM2)	8MB, 16MB, 32MB, 64MB, 128MB, 256MB	8MB ~ 256MB
Total System Memory		8MB ~ 256MB

Generally, installing SDRAM modules to your motherboard is an easy thing to do. You can refer to figure 2-5 to see what a 168-pin PC100 SDRAM module looks like.

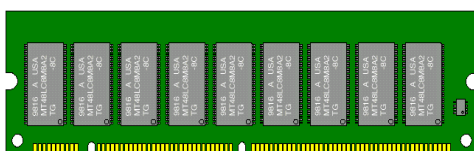


Figure 2-3. PC100 Module and Component Mark

Unlike installing SIMMs, DIMMs may be "snapped" directly into the socket. Note: Certain DIMM sockets have minor physical differences. If your module doesn't seem to fit, please do not force it into the socket as you may

damaged your memory module or DIMM socket.

The following procedure will show you how to install a DIMM module into a DIMM socket.

Step 1. Before you install the memory module, please place the computer power switch in the *off* position and disconnect the AC power cord from your computer.

Step 2. Remove the computer's chassis cover.

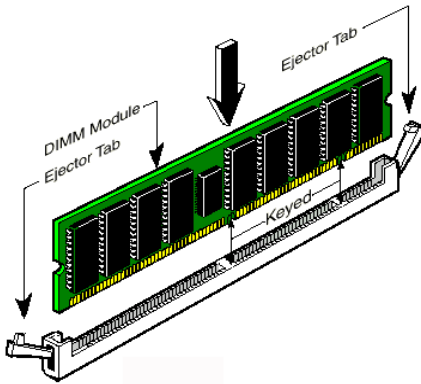


Figure 2-4. Memory module installation

details. *This insures the DIMM module will be plugged into the socket in one way only.* Firmly press the DIMM module into the DIMM socket, making certain the module is completely seated in the DIMM socket.

Step 6. Once the DIMM module has been installed, the installation is complete and the computer's cover can be replaced. Or you can continue to install other devices and add-on cards that are mentioned in the following section.

Note

When you install a DIMM module fully into the DIMM socket, the eject tab should be locked into the DIMM module very firmly and fit into its indentation on the both sides.

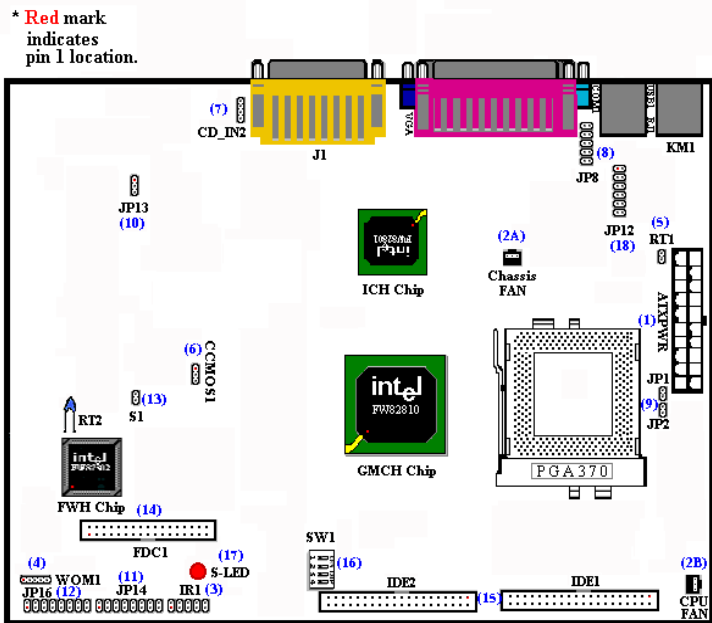
2-3. Connectors, Headers and Switches

Inside the case of any computer several cables and plugs have to be connected. These cables and plugs are usually connected one-by-one to connectors located on the motherboard. You need to carefully pay attention to any connection orientation the cables may have and, if any, notice the position of the first pin of the connector. In the explanations that follow, we will describe the significance of the first pin.

We will show you all connectors, headers and switches here, and tell you how to connect them. Please pay attention and read the whole section for necessary information before attempting to finish all of the hardware installation inside the computer chassis.

Figure 2-5 shows you all of the connectors and headers that we'll discuss in the next section, you can use this diagram to visually locate each connector and header we describe.

All connectors, headers and switches mentioned here, will depend on your system configuration. Some features you may (or may not) have and need to connect or configure depending on the peripheral. If your system doesn't have such add-on cards or switches you can ignore some special feature connectors.

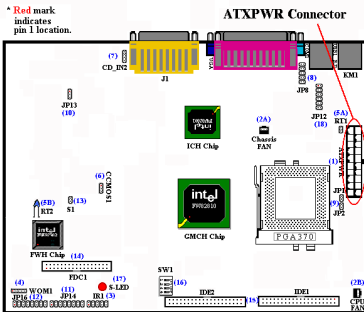


First, Let's see the headers that the WF-22/22L uses, and what their functions are.

2-3-1. ATXPWR: ATX Power Input Connector

Caution

If the power supply connectors are not properly attached to the ATXPWR connector, the power supply or add-on cards may be damaged.



Attach the connector from the power supply to the ATXPWR connector here. Remember you have to push the connector from the ATX power supply firmly to the end with the ATXPWR connector, insuring that you have a good connection.

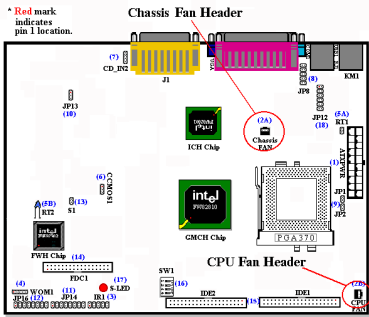
Note: Watch the pin position and the orientation

Pin number	Name of the signal or signification	Pin number	Name of the signal or signification
1	+3.3VDC	11	+3.3VDC
2	+3.3VDC	12	-12VDC
3	Ground	13	Ground
4	+5VDC	14	PS_ON
5	Ground	15	Ground
6	+5VDC	16	Ground
7	Ground	17	Ground
8	POWERGOOD	18	-5VDC
9	+5VSB	19	+5VDC
10	+12VDC	20	+5VDC

2-3-2A and 2-3-2B Headers: CPU Fan and Chassis Fan Headers

Attach the connector from the individual CPU fan to the header named CPU Fan, and attach the connector from the chassis fan to Chassis Fan header.

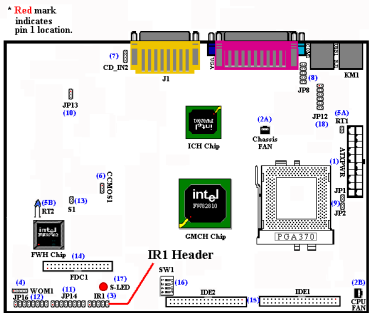
You must attach the CPU fan to the processor, or your processor will work abnormally or may be damaged by overheating. Also, if you want the computer case's internal temperature to be kept steady and not too high, you had better connect the chassis fan.



Note: Watch the pin position and the orientation

CPU Fan and Chassis Fan	
Pin number	Name of the signal or signification
1	GND
2	+12V
3	Fan Speed Sense

2-3-3. IR1: IR Header (Infrared)



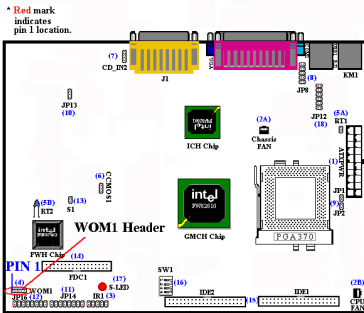
There is a specific orientation for pins 1 through 10, attach the connector from the IR KIT or IR device to the IR1 header. This motherboard supports standard IR transfer rates.

Note: Watch the pin position and the orientation

Pin number	Name of the signal or signification
1	+5V
2	No connection
3	IR_RX
4	Ground
5	IR_TX

2-3-4. WOM1: Wake On Modem Header

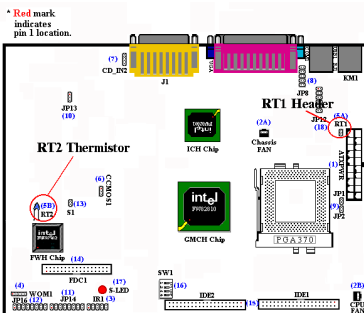
If you have an internal modem adapter that supports this feature, then you can connect the specific cable from the internal modem adapter to this header. This feature lets you wake up your computer via remote control through the modem.



Note: Watch the pin position and the orientation

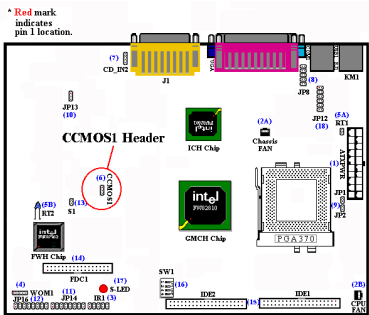
Pin number	Name or significance of signal
1	+5VSB
2	No connection
3	Sense Input
4	Ground
5	No connection

2-3-5. RT1 Header & RT2 Thermistor

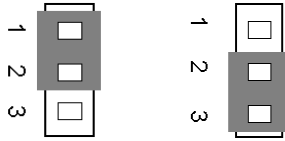


The RT2 thermistor is already onboard, and is used to detect the system environment temperature. The RT1 header is for you to connect an additional thermistor to detect the temperature in the location of your choice. You can buy the thermistor at an electronics store, ask for a 10KΩ thermistor (NTC type) which should be OK. Please don't use too long of a lead wire for the thermistor.

2-3-6. CCMOS1: CMOS Discharge Jumper



Jumper CCMOS1 discharges the CMOS memory. When you install the motherboard, make sure this jumper is set for normal operation (pin 1 and 2 shorted). See figure 2-6.



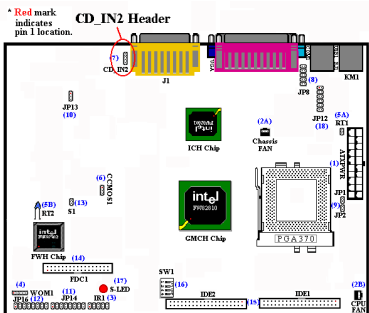
Normal Operation (Default) Discharge CMOS

Figure 2-6. CCMOS1 jumper setting

Note

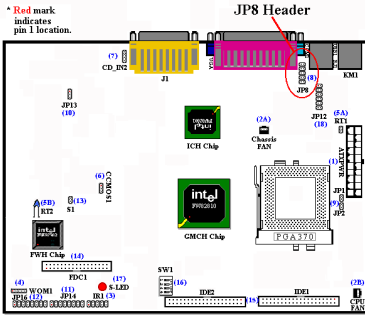
Before you clear the CMOS, you have to first turn off the power (including the +5V standby power), otherwise, your system may work abnormally or malfunction.

2-3-7. CD_IN2 Header: Internal CD-ROM Drive Audio Header



This connector is for the internal CD-ROM drive audio cable connection use. Please check your audio cable attached with the CD-ROM drive to see which type connector you have, then plug the fit connector to this header on the motherboard.

2-3-8. JP8 Header: Additional USB Plugs Header

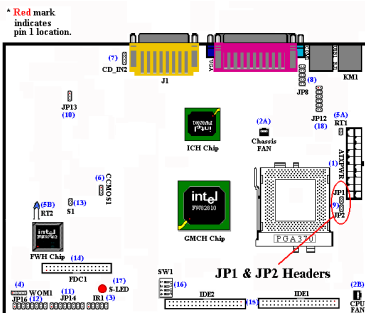


This header is for connection the additional USB plug used. You can use the special cable come with system vendor, then it can provides you additional two USB plugs, you can fix these USB plugs on the front panel or back panel. That's depend on chassis designed and customer request.

Pin number	Name or significance of signal
1	VCC0
2	Data +
3	Ground 0
4	Data -
5	Ground
6	Ground
7	Data 1 -
8	Ground 1
9	Data 1 +
10	VCC1

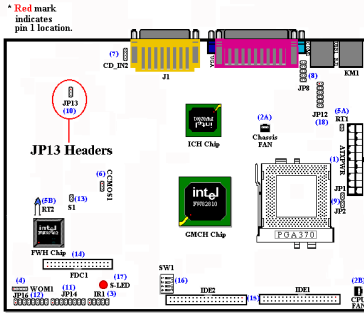
Note: Watch the pin position and the orientation

2-3-9. JP1 & JP2: CPU External Clock Speed Header



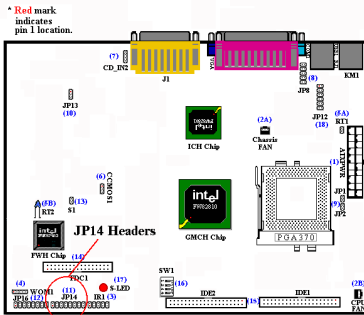
These two headers let you make selection for CPU external clock. You need to adjust these two headers at same time. When JP1 and JP2 are set to short, the system bus speed is 66MHz. When JP1 and JP2 set to open, the system bus speed is 100MHz.

2-3-10. JP13 Header: CODEC Selector

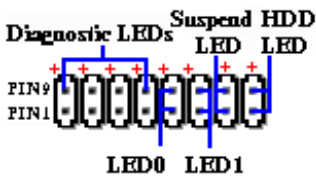


This jumper lets you select the CODEC mode on the AMR card. When pin 1 and pin 2 jumpers are shorted, the CODEC on the AMR card is set to secondary mode. If pin 2 and pin 3 jumpers are shorted, the onboard audio CODEC is disabled and CODEC on the AMR card is set to primary mode.

2-3-11. JP14 Header: LEDs Header



The LEDs header (JP14) allows you to connect LEDs and shows you the status of different situations on the front panel. Pin 1-9, 2-10, 3-11, 4-12 are system diagnostic LEDs. Pin 5-13 is LED0, and shows the Rx/Tx status. Pin 6-14 is LED1, and shows the 10/100Mbps speed. Pin 7-15 is LED1, and is for the suspend LED. Pin 8-16 is HDD LED and is for the HDD active status display.



JP14 Header

Note: Watch the pin position and the orientation

Installing the diagnostic LEDs connector

JP14 Pin 1 and Pin 9, Pin 2 and Pin 10, Pin 3 and Pin 11, Pin 4 and Pin 12:

These LEDs will show you the diagnostic situation of your computer. You can use the LEDs status to easily judge the current situation or failure of your system. The following table explains the LEDs display.

Pin number	Name or significance of signal
JP14 Pin 1	Control signal
JP14 Pin 9	Ground
JP14 Pin 2	Control signal
JP14 Pin 10	Ground
JP14 Pin 3	Control signal
JP14 Pin 11	Ground
JP14 Pin 4	Control signal
JP14 Pin 12	Ground

Installing the LAN LED connector

JP14 Pin 5 and Pin 13 (LED0), JP14 Pin 6 and Pin 14 (LED1): These headers have a specific orientation. Connect the two-threaded RX/TX LED connector to the LED0 header at JP14. Connect the two-threaded 10/100Mbps LED connector to the LED1 header at JP14.

Pin number	Name or significance of signal
JP14 Pin 5	RX/TX LED active
JP14 Pin 13	LED Power
JP14 Pin 6	RX/TX LED active
JP14 Pin 14	LED Power

Installing the suspend LED connector

JP14 Pin 7 and Pin 15: This header has a specific orientation. Connect the two-threaded suspend LED connector to the JP14 header on the motherboard.

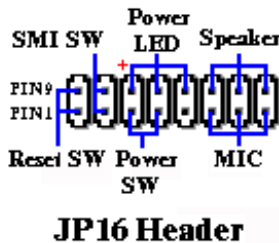
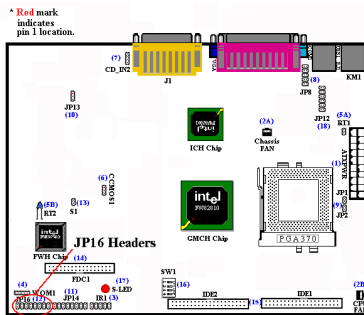
Pin number	Name or significance of signal
JP14 Pin 7	LED Power
JP14 Pin 15	Suspend LED active

Installing the HDD LED connector

JP14 Pin 8 and Pin 16: There is a specific orientation for JP14 pin 8 and pin 16. Connect the two-threaded IDE LED connector to the header on the motherboard

Pin number	Name of the signal or signification
JP14 Pin 8	HDD active
JP14 Pin 16	LED power

2-3-12. JP16 Header: Function Header



JP16 header contains several functions:

Pin 1-9 is connected to the system reset switch.

Pin 2-10 is connect to the SMI switch

Pin 11-12-13 is connect to the power LED

Pin 3-4 is connect to the power switch

Pin 5 is no connection

Pin 14-15-16 is connect to the speaker out jack at front panel

Pin 6-7-8 is connect to the MIC jack at front panel

Note: Watch the pin position and the orientation

Installing hardware reset switch connector

JP16 Pin 1 and Pin 9: Attach the cable from the case's reset switch on the front panel to this header. Press and hold the reset button for at least one second to reset the system.

Pin number	Name or significance of signal
JP16 Pin 1	Ground
JP16 Pin 9	Reset input

Installing suspend switch connector

JP16 Pin 2 and Pin 10: There is no specific orientation for JP16 pin 2 and pin 10. Connect the two-threads suspend switch connectors on the front panel of the computer case to the correct pins on the header of the motherboard. Since most computer cases do not support this feature (usually only the motherboard will), in most cases you can ignore this connector.

Pin number	Name of the signal or signification
JP16 Pin 2	Ground
JP16 Pin 10	Suspend signal

Note: If you enable the ACPI function in the BIOS setup, this function will not work.

Installing the power LED connector

JP16 Pin 11 ~ Pin 13: There is a specific orientation for pins 11~13. Insert the three-threaded power LED cable to JP16 Pin 11~Pin 13. Double-check the orientation of the pins to the header on the motherboard.

Pin number	Name of the signal or signification	Item Name
JP16 Pin 11	+5VDC	POWER LED
JP16 Pin 12	Ground	POWER LED
JP16 Pin 13	Ground	POWER LED

Installing the power switch connector

JP16 Pin 3 and Pin 4: There is no specific orientation for JP16 pin 3 and pin 4. Connect the two-threaded power switch connector on the front panel of the computer case to the correct pins on the motherboard.

Pin number	Name of the signal or signification
JP16 Pin 3	Ground
JP16 Pin 4	Power On/Off Signal

Installing the speaker out jack connector

JP16 Pin 14 ~ Pin 16: There is no specific orientation for JP16 pin 14 to pin 16. Connect the three-threaded speaker cable to the JP16 header pins on the motherboard.

Pin number	Name of the signal or signification
JP16 Pin 14	Right channel signal
JP16 Pin 15	Ground
JP16 Pin 16	Left channel signal

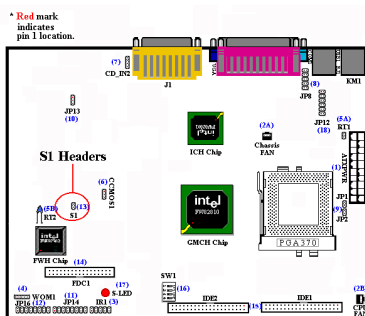
Installing the MIC in jack connector

JP16 Pin 6 ~ Pin 8: There is no specific orientation for JP16 pin 6 to pin 8. Connect the three-threaded speaker cable to the JP16 header pins on the motherboard.

Pin number	Name of the signal or signification
JP16 Pin 6	MIC in signal
JP16 Pin 7	Ground
JP16 Pin 8	MIC in signal

Note: This MIC input is **MONO** signal input.

2-3-13. S1 Header: Chassis Open Detect Header



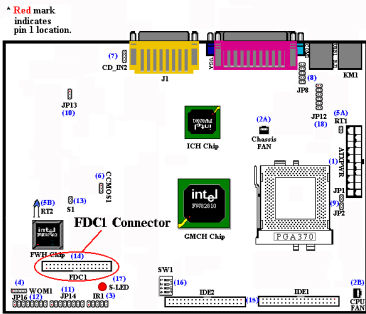
This header is for chassis open switch cable connection, when the computer chassis cover opening, then motherboard super I/O will shutdown the system. At this situation, system can't turn on the power and can't make any operation. You have to replace the cover back to the chassis, then system can recovery to the normal operating situation.

This designed can prevent the unauthorized person to open the computer chassis and make any data duplicate action. Although can protect the system data won't be changed by unauthorized person.

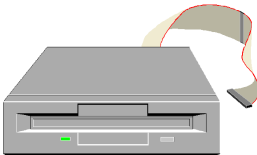
2-3-14. FDC1 Connector

Watch the pin position and the orientation

This 34-pin connector is called the “floppy disk drive connector”. You can connect a 360K, 5.25”, 1.2M, 5.25”, 720K, 3.5”, 1.44M, 3.5” or 2.88M, 3.5” floppy disk drive.



A floppy disk drive ribbon cable has 34 wires and two connectors to provide for the connection of two floppy disk drives. After connecting the single end to the FDC1, connect the two connectors on the other end to the floppy disk drives. In general, people only install one floppy disk drive on their computer system.



3.5" Floppy Disk

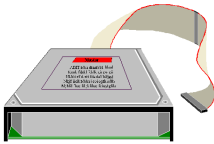
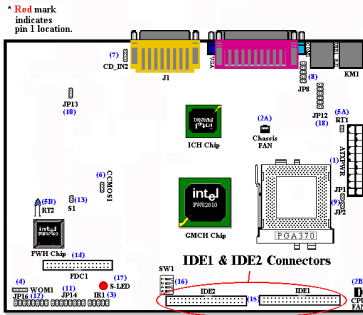
Note

A red mark on a wire typically designates the location of pin 1. You need to align the wire pin 1 to the FDC1 connector pin 1, then insert the wire connector into the FDC1 connector.

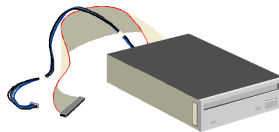
2-3-15. IDE1 and IDE2 Connectors

Watch the pin position and the orientation

An IDE hard disk drive ribbon cable has 40 wires and two connectors to provide a connection for two IDE hard disk drives. After connecting the single end to the IDE1 (or IDE2), connect the two connectors on the other end to the IDE hard disk drives (or CD-ROM drive, LS-120, etc.).



Hard Disk Drive



Internal CD-ROM Drive

Note: before you install a hard disk, there are some things you need to be aware of:

- ◆ “Primary” refers to the first connector on the motherboard, that is, the IDE1 connector on the motherboard.
- ◆ “Secondary” refers to the second connector on the motherboard, that is, the IDE2 connector on the motherboard.
- ◆ Two hard disks can be connected to each connector:
The first HDD is referred to as the “Master”, The second HDD is referred to as the “Slave”.
- ◆ For performance issues, we strongly suggest you don’t install a CD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop. (How much drops depends on your CD-ROM drive performance)

Note

- The Master or Slave status of the hard disk drive is set on the hard disk itself. Please refer to the hard disk drive user's manual.
- A red mark on a wire typically designates the location of pin 1. You need to align the wire pin 1 to the IDE1 (or IDE2) connector pin 1, then insert the wire connector into the IDC1 (or IDE2) connector.

The WF-22/22L supports the Ultra ATA/66 (Also known as Ultra DMA/66) specification. It enhances existing Ultra ATA/33 technology by increasing both performance and data integrity. This new high-speed interface doubles the Ultra ATA/33 burst data transfer rate to 66.6 Mbytes/sec. The result is maximum disc performance using the current PCI local bus environment. Figure 2-7 shows you the different between the Ultra ATA/33 and Ultra ATA/66 Conductor Cable.

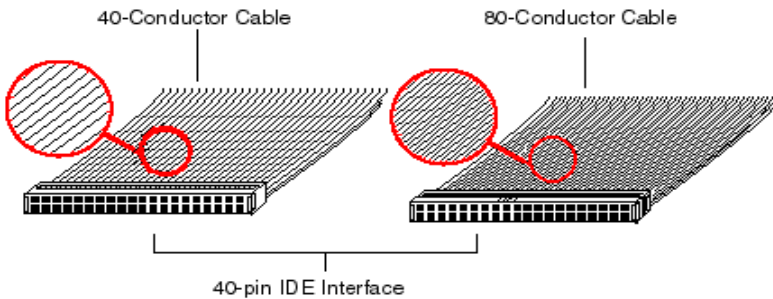


Figure 2-7. The difference between Ultra ATA/33 and Ultra ATA/66 Conductor Cables

Figure 2-8 shows you a photo of an Ultra ATA/66 Conductor Cable. An Ultra ATA/66-capable cable is a 40-pin, 80-conductor cable with a black connector on one end, a blue connector on the other end and a gray connector in the middle. In addition, line 34 on the cable should be notched or cut (this may be difficult to see).

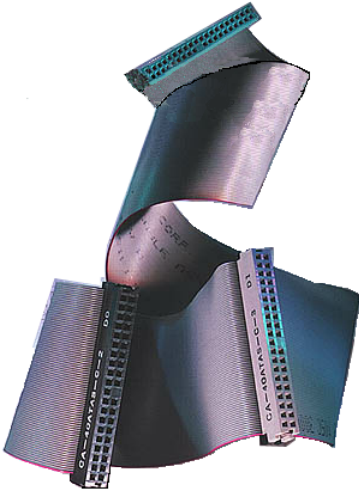


Figure 2-8. Photo of an Ultra ATA/66 Conductor Cable

Ultra ATA/66 is backwards compatible with all Ultra ATA/33 systems, but it will be limited in its transfer mode to the Ultra ATA/33 (Ultra DMA Mode 2 - 33 Mbytes/sec) or PIO Mode 4 (16.6 Mbytes/sec). Ultra ATA/66 hard drives are 100 percent backward compatible with both Ultra ATA/33 and DMA and with existing ATA (IDE) hard drives, CD-ROM drives, and host systems. The Ultra ATA/66 protocol and commands are designed to be compatible with existing ATA (IDE) devices and systems. Although a new 40-pin, 80-conductor cable is required for Ultra ATA/66,

the chip set pin connector remains the same at 40. Hard drives that support Ultra ATA/66 also support Ultra ATA/33 and legacy ATA (IDE) specifications.

There are four requirements for attaining Ultra ATA/66:

- *The drive must support Ultra ATA/66.
- *The motherboard and system BIOS (or an add-in controller) must support Ultra ATA/66.
- *The operating system must support Direct Memory Access (DMA); Microsoft Windows 98 and Windows 95b (OSR2) support DMA.
- *The cable must be 80-conductor; the length should not exceed 18 inches. If all the above requirements are met, you can enjoy the Ultra ATA/66 features of your computer system.

How to install the Ultra ATA/66 Cable Assembly:

- The **BLUE** connector **MUST** be plugged into the motherboard or your system will not work.
- Each connector on the Ultra ATA/66 cable assembly has a small polarization tab centrally located on the body of the plastic. This fits into the matching slot on the mating plugs on the motherboard and the drives, thus assuring positive mating (pin #1 to pin #1)
- The red line on the cable should be aligned with pin #1. On the drives this will result in the red line facing the power connector. Attach the BLUE connector to the appropriate 40 pin IDE plug on the motherboard.
- Attach the BLACK connector to the mating plug on the master hard drive. Attach the GREY connector to the mating plug on the slave drive (secondary hard drive, CD-ROM, or tape drive). Please refer figure 2-9.

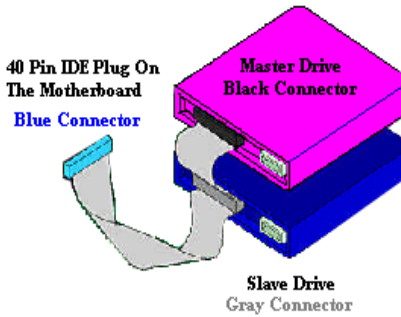
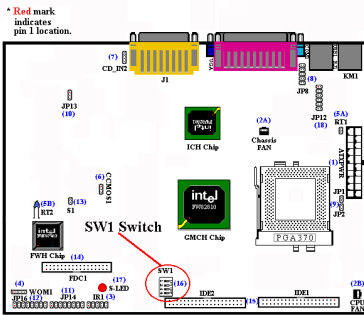


Figure 2-9. How to connect an ATA/66 Cable to the Motherboard

2-3-16. SW1: CPU Standard Settings Switch



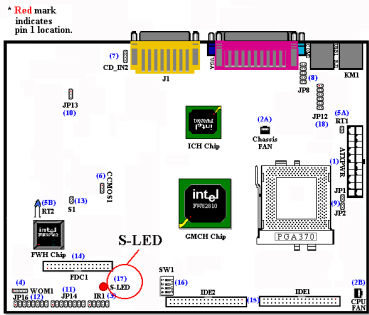
You can use this switch to set the CPU external clock frequency, please refer the table below for suitable processor that you used.

SW1: CPU Standard Settings

External Clock Frequency	SW1			
	DS1	DS2	DS3	DS4
133.6	OFF	OFF	OFF	OFF
129	ON	OFF	OFF	ON
124	OFF	OFF	OFF	ON
119	ON	ON	ON	OFF
114	OFF	ON	ON	OFF
110	ON	OFF	ON	OFF
105	OFF	OFF	ON	OFF
100.2	OFF	ON	OFF	OFF
95	OFF	ON	OFF	ON
90	OFF	ON	ON	ON
83.3	ON	ON	ON	ON
75	ON	OFF	ON	ON
66.8	ON	ON	OFF	OFF

* We don't suggest you use any settings outside of the PCI or chipset specifications, since doing so may compromise the stability of your system.

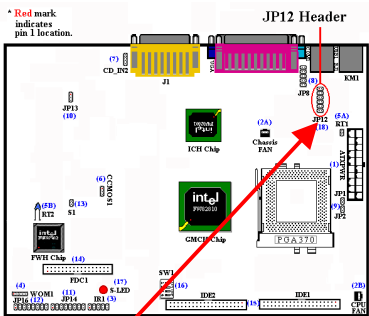
2-3-17. LED1: Standby-LED



This LED is called the Stand-By LED. It shows if the motherboard is in the power on state, or is fully powered down. If this LED light is on, that means your motherboard is not fully powered down. You can't disassemble any components, add-on cards, CPU, or RAM modules in this state. You have to fully check and shutdown the system power, before this LED will turn off. Only then can you disassemble any components, add-on cards, CPU, or RAM

module.

2-3-18. JP12: USB Port Selector



These jumpers are used to set how many USB ports you will use.

When you use two USB connectors (Onboard USB ports), the JP12 pins 1-2, 3-4, 9-10 and pins 11-12 have to be shorted. If you use the USB-HUB adapter to connect to JP8 for two additional USB ports, you have to set JP12 pins 5-6 and pins 7-8 to be shorted.



Figure 2-10 shows the motherboard back panel connectors, these connectors are for connections to outside devices to the motherboard. We will describe which devices will attach to these connectors below.

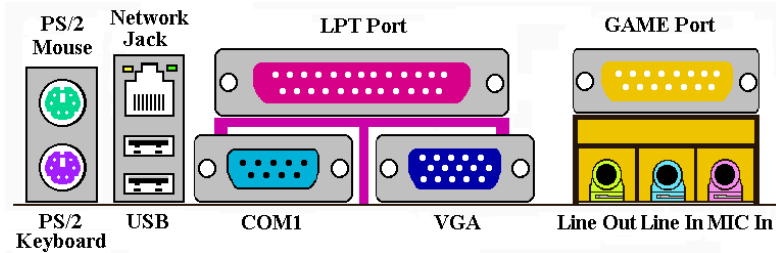


Figure 2-10. Motherboard back panel connectors

2-3-19. Installing PS/2 keyboard to the connector

Watch the pin position and the orientation

KM1 lower connector: Attach a PS/2 keyboard connector to this 6-pin Din-connector. If you use an AT keyboard, you can go to a computer store to purchase an AT to ATX converter adapter, then you can connect your AT keyboard to this connector. We suggest you use a PS/2 keyboard for best compatibility.

2-3-20. Installing PS/2 mouse to the connector

Watch the pin position and the orientation

KM1 upper connector: There is an orientation pin. Connect your PS/2 mouse connector to the connector on the backside of the motherboard.

2-3-21. USB Port Connectors

Watch the pin position and the orientation

This motherboard built-in two USB ports connectors. Attach the USB connector from the individual device to these connectors.

You can attach USB devices such as a, scanner, digital speakers, monitor, mouse, keyboard, hub, digital camera, joystick etc. to one of each USB connector. You must make sure your operating system supports this feature and you may need to install an additional driver for individual devices. Please refer to your device user's manual for detailed information.

2-3-22. Installing the RJ-45 cable to the network jack***Watch the pin position and the orientation***

This jack is for connecting the RJ-45 cable from the local area network hub to your computer. We suggest you use the category 5 UPT (Unshielded Twisted Pair) or STP (Shielded Twisted Pair) cable to make this connection. The connection length from the hub to the computer is best to be kept under 100M.

The green LED (active as LED0) shows the connection situation. If the network active well, this LED will light on. The yellow LED (active as LED1) shows if the data is active or not. If the computer is translating or receiving data from the network, this LED will flicker.

2-3-23. Installing the printer connector to the parallel port connector***Watch the pin position and the orientation***

LPT: There is an orientation pin. Connect the DB-25 pin cable that comes with the hardware device to the LPT connector on the motherboard. This parallel port is also called an “LPT” port, because it usually connects to the printer. You can connect other devices that support this communication protocol, like a EPP/ECP scanner, etc.

2-3-24. Installing the serial device to the COM1 port***Watch the pin position and the orientation***

COM1: There is an orientation pin. Connect the DB-9 pin connector that comes with the serial hardware device.

2-3-25. Installing the VGA monitor connector to the VGA port connector***Watch the pin position and the orientation***

VGA: This DIN 15 pin Female connector is for a VGA output signal to the monitor. You can connect the plug from the monitor to this connector. If you don't move your system often, we suggest you fasten the two screws from the plug with this connector. It will assure the quality of your display.

2-3-26. Installing the Line Out, Line In and Mic In Connector

Line Out connector: You can connect an external stereo speaker signal input plug to this connector, or you can connect the plug from here to the stereo audio equipment AUX signal input socket. Remember, the motherboard does not have a built in amplifier to drive

the speakers. You have to use speakers with a built in amplifier. Otherwise, you may only hear a faint sound, if any at all, from the speakers.

Line In Connector: You can connect the TV adapter audio output signal, or external audio sources such as a CD walkman, video camcorder or VHS recorder. Connect the audio output signal plug on these devices to this connector. Your audio software can control the input level for the line-in signal.

Mic In Connector: You can connect the plug from the microphone to this connector. Do not connect other audio (or signal) sources to this connector.

2-3-27. Installing the MIDI/GAME device to the game port connector

Watch the pin position and the orientation

Game Port: You can connect your joystick, game pad, or other simulation hardware devices. DIN 15-pin plugs in to this connector. Please refer to the “further connection” notes of the device’s user’s manual for further details.

2-4. Installation of Add-On Cards

This section will tell you how many kind add-on card you can use with this barebone system motherboard. All items will be optional, you can choose the suitable add-on card as different features or for specify purpose.

(2-4-1) Installing the MR adapter to the AMR1 slot (Optional)

Watch the pin position and the orientation

AMR1: If you want to use the MR modem adapter as your default modem device, you need to install the modem riser adapter into this slot. Remember you also need to install the corresponding driver and utility for the modem riser adapter. Otherwise, it may not function normally.

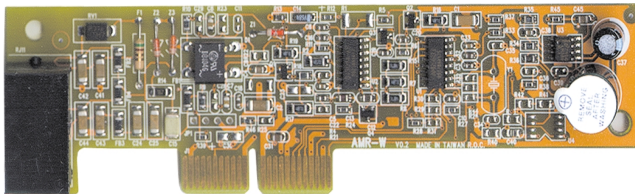


Figure 2-11. MR Adapter

2-4-2. Installing the TV-Out adapter to the V-BUS connector (Optional)

Watch the pin position and the orientation

TV-Out Adapter: You can install the TV-Out adapter to get the video output capability. When you install the TV-Out adapter, you can get two video output capabilities. One is general video output and the other is S-Video output (Super-Video output). S-video output will give you the best display quality on your TV monitor. Of course, your TV monitor must have the S-Video input jack for S-Video cable connection. This card supports both PAL and NTSC systems for various purposes.

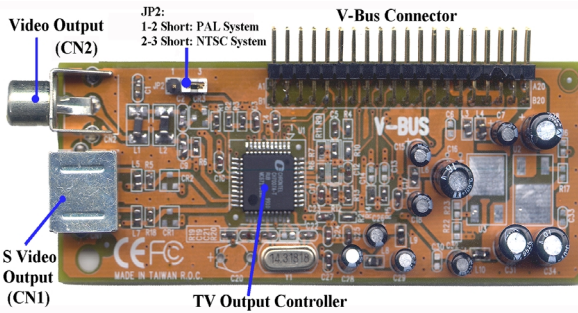


Figure 2-12. TV-Out Adapter

2-4-3. Installing the USB-HUB adapter (Optional)

Watch the pin position and the orientation

USB-HUB: You can extend your USB port to up to four, if you use USB-HUB adapter. You need to install the USB-HUB adapter into the JP8, and use its cable to extend two additional USB ports.

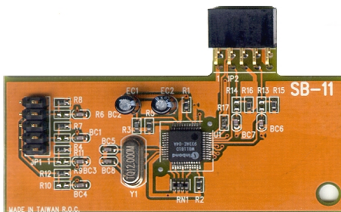


Figure 2-13. The USB-HUB Adapter

Installing the DFP adapter to the V-BUS connector (Optional)

Watch the pin position and the orientation

DFP: For all-digital trend, the WF-22/22L can be equipped with the SiI 154 chipset (Optional). The SiI 154 uses PanelLink[®] Digital technology to support displays ranging from VGA (25MHz, 640*480) to SXGA (112MHz, 1280*1024) which are ideal for desktop and specialty applications. It supports VESA[®] P&D[™] and DFP (Digital Flat Panel) Hot Plug Detection plus the RxDetect feature. The SiI 154 operates with all PanelLink[®] receivers and leads the way in promoting the digital display interface as a standard feature in all PCs by enabling all multimedia accelerators with a flexible 12 or 24-bit interface in a cost-effective package. Featuring a 12-bit dual-edge clock interface that supports

resolutions up to SXGA, the SiI 154 is designed to work with feature-rich, high-end multimedia accelerators that typically don't have enough pins available to support a 24-bit interface.

Its fully digital interface is designed to drive the Flat Panel Display (FPD), not an analog interface. You will get the better display quality than an analog interface. Figure 2-14 below shows the difference between digital and analog interface display quality. You can see why we chose this chipset.

Figure 2-14. Quality of Digital and Analog Interface Display Comparison

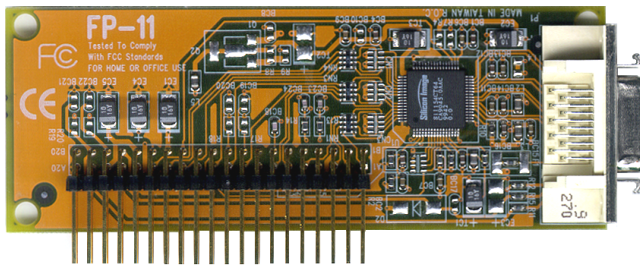


Figure 2-15. The DFP Adapter



Figure 2-16. The DFP Adapter Connector

2-5. Chassis Assembly and Disassembly

The figure 2-14 shows the exposure diagram of AC-642. You can see the detail components in this diagram. The disassembly and assembly is very easy with this chassis, you only need to remove the upper cover, then install the FDD,HDD, CD-ROM driver or others components (add-on cards) you want to install in this barebone system computer. For what kind components can use in this barebone system, please refer to the Chapter 1: motherboard specifications and Chapter 2, section 2-1 ~ 2-4 for detail information.

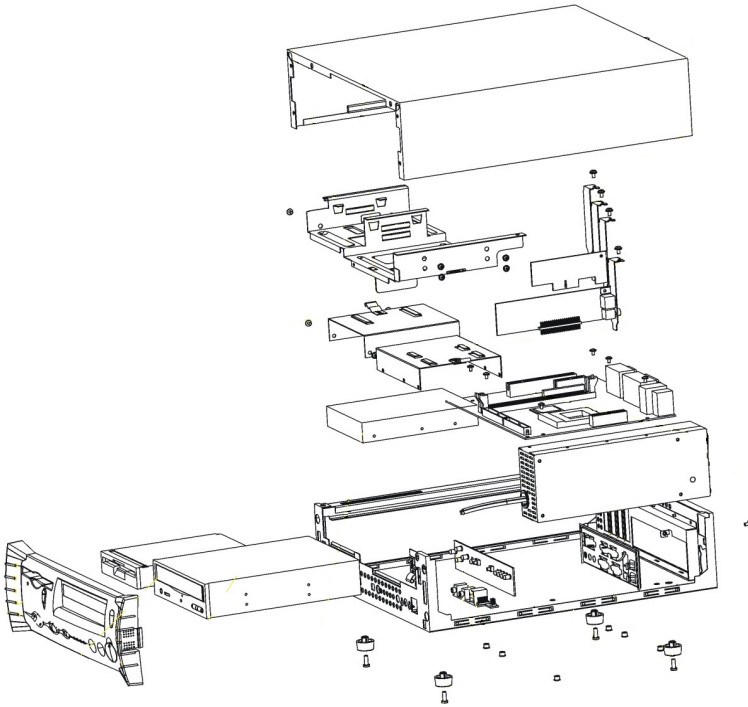


Figure 2-17. The Exposure Diagram of AC-642

Chapter 3 BIOS Setup

When you power on your computer, you will see the following message appear briefly at the bottom of the screen during POST:

PRESS DEL TO ENTER SETUP

If you want to configure the BIOS, you can press the **DEL** key immediately to enter the BIOS setup menu.

Note: Don't change the parameters inside the BIOS unless you absolutely know what you are doing.

Chapter 4 Drivers Installation

AC-642 is a highly integrated barebone system computer, many functions are build-in in the system. Like: audio, video. If for specify purpose also can build in the Modem/FAX/Voice, TV-Out functions.

For specify function, it may need the additional drivers and utilities. Please read the readme file in the CD-ROM we attached to you. The CD will include the all drivers and utilities for this barebone system.



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