
Copyright Notice

©Copyright 1999.

The information contained in the user's manual and all accompanying documentation is copyrighted and all rights are reserved. This publication may not, in whole or in part, be reproduced, transcribed, stored in a retrieval system, translated into any language or computer language, or transmitted in any form whatsoever without the prior written consent from the manufacturer, except for copies retained by the purchasers for their personal archival purposes.

The manufacturer reserves the right to revise this user's manual and all accompanying documentation and to make changes in the content without obligation to notify any person or organization of the revision or change.

IN NO EVENT WILL THE VENDOR BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, THE VENDOR SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

All trademarks mentioned in this document are acknowledged.

The Specification on the manual is subject to change without notice.

Table Of Contents

Chapter 1

Introduction

1.1 Overview	5
1.2 P6F104 Specifications/Features	7
1.3 P6F104 Mainboard Layout	10
1.4 Microprocessor	11
1.5 Celeron Packaging	11
1.6 Chipset	12
1.7 Main Memory	12
1.8 Built-in Accelerated Graphics (AGP) Chip	13
1.9 Enhanced IDE Support	13
1.10 Keyboard, Mouse and USB Interface	14
1.11 Real-time Clock, CMOS RAM and Battery	15
1.12 IrDA Infrared Support	15
1.13 Power Management	15
1.14 System Power On/Off Control	16
1.15 System Sleep / Resume	17
1.16 Hardware Monitoring	17
1.17 Wake On LAN (WOL)	17

Chapter 2

Hardware Installation

2.1 Unpacking	18
2.2 Installation Steps	18
2.2.1 Installing CPU	19
2.2.2 Installing System Memory	20
2.2.3 Attaching Connectors	21
2.2.4 Set Jumpers on the Mainboard	27
2.2.5 Set CPU Speed in the CMOS Setup	29

Chapter 3

BIOS Configuration

3.1 Entering Setup	32
3.2 CMOS Setup Utility	33
3.3 Standard CMOS Features	34
3.4 Advanced BIOS Features	36
3.5 Advanced Chipset Features	39
3.6 Integrated Peripherals	41
3.7 Power Management Setup	45
3.8 PnP / PCI Configuration	47
3.9 PC Health Monitor	49
3.10 Frequency / Ratio Control	50
3.11 Load Optimized Default	51
3.12 Set Supervisor / User Password	51
3.13 Save & Exit Setup	52
3.14 Exit Without Saving	52

Chapter 4

Driver and Utility

4.1 Flash Utility	53
4.2 INF Update Utility for 810 Chipset	53
4.3 Intel 810 Chipset Graphic Driver Software	56
4.4 On Board Codec Drive	58
4.5 Intel Security Controller Driver	62
4.6 System Environment Monitor Utility (Optional)	64
4.7 Creative Lab SB Audio PCI 64V (Optional)	66

Chapter 5

Debug & Troubleshooting

5.1 Debug LED (Optional)	68
--------------------------	----

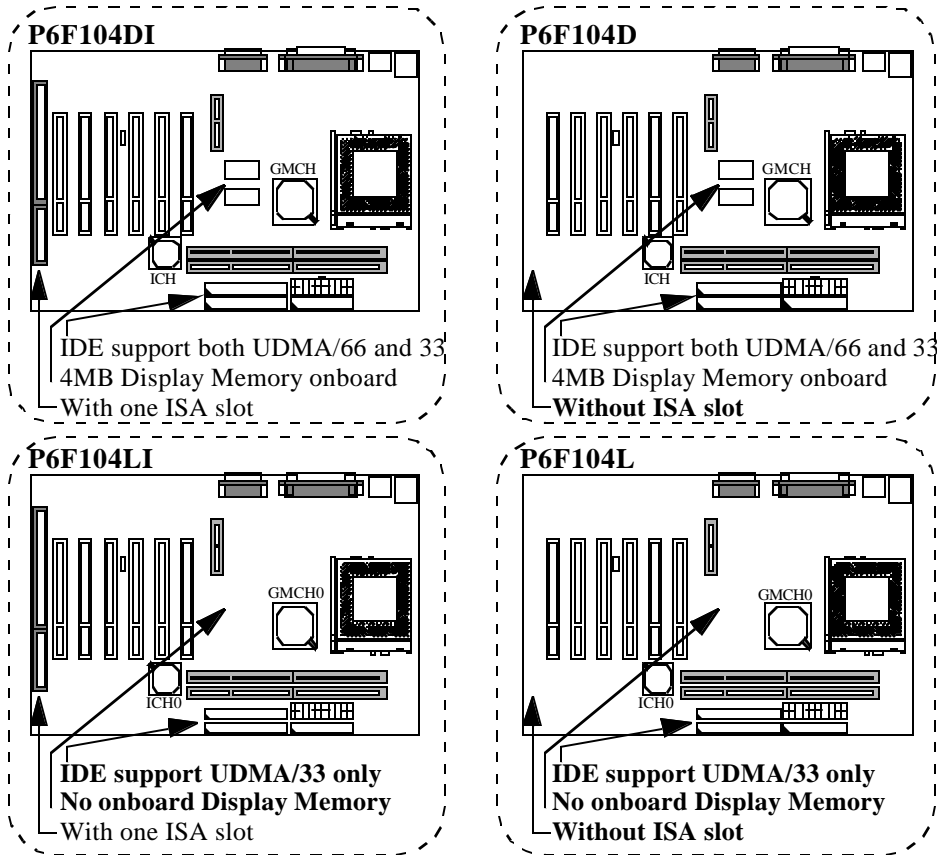
1 Introduction

1.0 Identify Your Model

There are four different models of P6F104. Please refer to table below to identify the model you purchased.

Model	Display Memory			UDMA/66 support	ISA slot support
	Total	Onboard	System		
P6F104DI	5MB	4MB	1MB	Yes	Yes
P6F104D	5MB	4MB	1MB	Yes	No
P6F104LI	1MB	None	1MB	No	Yes
P6F104L	1MB	None	1MB	No	No

note: P6F104LI, P6F104L only support bus master 1-4.



1.1 Overview

The P6F104 is a quality, high performance, function enhanced mainboard based on the powerful Intel Celeron processor in PGA 370 operating at 300A ~ 700+ MHz (66MHz FSB) and future CPU* (100MHz FSB). This mainboard is designed around the latest Intel 810 Whittney chipset in a standard ATX form factor. The Soft-menu (jumperless) design of the P6F104 uses the SMBus for clock frequency, and multiplier, jumper settings are no longer needed.

The P6F104 mainboard delivers high price/performance ratio with its integrated Intel I740 AGP Graphic chip, Audio codec, Bus Mastering EIDE (Enhanced IDE) controller, concurrent PCI bus, and its ability to accommodate PC-100 SDRAM (Synchronous DRAM) memory. When this high data stream bandwidth mainboard is equipped with Intel Celeron processor, your system has the power to handle future demanding communication, multi-media, multi-tasking and intensive 32-bit applications on advanced 32-bit operating systems.

The P6F104 mainboard offers outstanding I/O capabilities. It contains a full set of PC I/O, such as dual channel Ultra DMA 33/66 EIDE interfaces, a floppy controller, two FIFOed serial port connectors, an SPP/EPP/ECP capable bidirectional parallel port connector, an IrDA compatible infrared port, dual USB (Universal Serial Bus) connector, and a PS/2 keyboard connector and a PS/2 mouse connector. One AMR slot, six PCI local bus slots and one ISA bus slots provide expandability to add on peripheral cards.

P6F104 mainboard is OnNow PC, and Managed PC compliance. It also offers optimized system performance, integrated power management, Optional Creative Sound and system hardware monitoring.

Optimized System Performance: AGP improves the Graphics performance dramatically, Ultra DMA33/66 speeds up disk drive access, PC-100 100MHz SDRAM support for fastest access to memory, and Concurrent PCI enables simultaneous data transfer.

*Not available yet.

ACPI (Advanced Configuration and Power Interface): ACPI provides more ENergy Saving Features for future operating system (OS) supporting OS Direct Power Management (OSPM) functionality. With these features implemented in the OS, PCs can be ready around the clock, yet satisfy all the energy saving standards. The fully utilize the benefits of ACPI, and ACPI-supported OS such as Windows 98 must be used.

Integrated Power Management: ACPI supports enables O/S and application programs to direct the system power management.

STR (Suspend-to-RMA): Suspend-to-RMA provides maximum power savings as an alternative to leaving the computer ON and QuickStart™ so that you do not fall asleep waiting for system bootup (Suspend-to-RAM supported OS required).

Audio: AC'97 DAC/ADC built into the audio CODEC reduces noise to improve audio quality and performance for a SNR (signal to noise ratio) of +90dB. These features greatly improve voice synthesis and recognition.

AGP Graphics: The integrated motion compensation allows for smooth MPEG1 or MPEG2 video playback. fast 3D graphics engine allows for an exciting gameplay experience.

Hardware Monitoring: Winbond W83627HF I/O chip integrated with Hardware Environment Monitoring function enables the ability for system voltage, temperature and fan speed monitoring detection.

In addition to superior hardware capabilities, features like “Modem Ring on”, “Alarm On”, “Wake On LAN(WOL)”, “Auto Power On”, “Debug LED” (optional), “Keyboard Password or Mouse Power On”, Sleeping state indicator, fan off in sleeping state and BIOS upgradability are provided on the P6F104 platform.

1.2 P6F104 Specifications/Features

Hardware

CPU	Supports Intel® Celeron™ CPU (PPGA Package) at 300A ~ 700*MHz (66MHz FSB)/Future CPU (100MHz FSB)
VRM	Voltage Regulator Module on board Provides 1.8V to 3.5V operating voltage
Coprocessor	CPU built-in floating point unit
Speed	System bus clock 66/100 MHz PCI bus clock 33MHz ISA bus clock 8.33~10.1 MHz
Chipset	Intel's 810 AGPset Winbond's W83627xF I/O chip
L2 Cache	Incorporate 128-KB L2 Cache on CPU
DRAM	2 x 168-pin DIMM sockets Supports 8MB to 512MB PC-100 SDRAM memory (512MB requires 128M-bit chip)
EIDE Controller	Supports four IDE devices in two channels Supports PIO mode 0 through mode 4 drives Supports Bus Mastering DMA mode 2 drives Supports Bus Mastering Ultra DMA33/66 ² drives Supports Iomega ZIP or LS-120 removable drives
Enhanced I/O	One floppy disk controller One Standard/EPP/ECP parallel port connector One VGA Connector Two 16550 compatible serial port connectors One IrDA compatible Infrared port Two USB (Universal Serial Bus) ports
Mouse/Keyboard	PS/2 mouse connector PS/2 keyboard connector

1. Intel® Celeron™ CPU (PPGA) 500MHz is not available yet, it is for reference only.
2. There are an assemble optional to support UDMA/66 device.

Chapter 1: Introduction

Expansion Slots	Depend on model, see P4 “verify your model” for detail.
Power Management	Compliant with EPA, APM 1.2 and ACPI 1.0 ATX soft-off power control Power - On by Keyboard & PS/2 mouse Power - On by Modem Ring Power - On by Alarm Power - On by Network Card (WOL) Sleep state indicator Fan off in sleep mode
System Management	Winbond W83627xF hardware monitor function
Voltage Regulator	Switching regulator CPU voltage auto-detection
Form Factor	ATX Form Factor, 30.5cm x 18.5cm (12.0" x 7.3")

Software

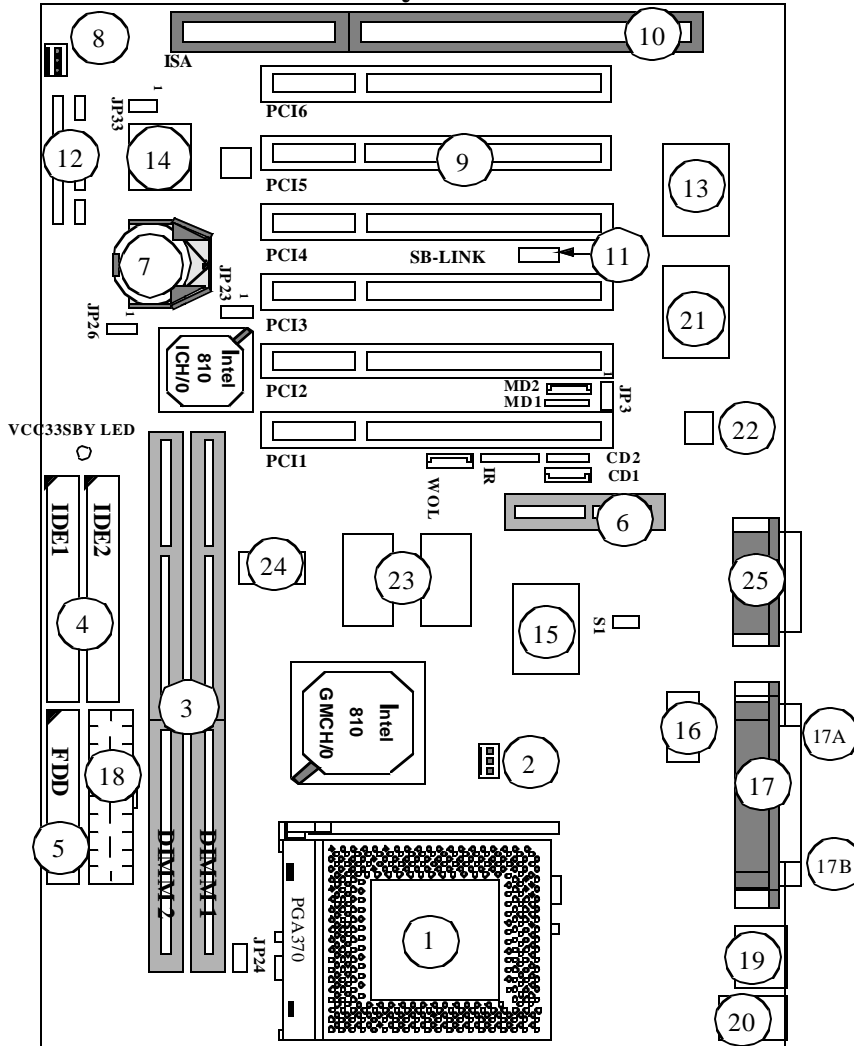
BIOS	Soft-Menu (Jumperless) design AWARD Pentium II AGP/PCI BIOS Intel AGP VGA BIOS 4M-bit Intel FWH Flash BIOS with lock/unlock function support Supports APM, PnP, Multi-Boot, DMI and EIDE devices Supports Removable Media Drive
Driver/Utility	Flash utility for BIOS upgrade System Information Update Utility Intel AGP VGA Driver Hardware Doctor Utility Intel Audio (AC '97) Driver Intel Security Controller Diver Optional ES1373 Audio drivers

O.S. Operates with MS_DOS 6.2x, Windows 3.x,
Windows 95, Windows 98, Windows NT4.x,
OS/2 Warp 4.0, Novell Netware, Novell
UnixWare 1.1 and SCO Unix 5.0.x

Environment

Ambient Temperature	0 ⁰ C to 50 ⁰ C (Operating)
Relative Humidity	0% to 85% (Operating)
Vibration	0 to 500 Hz
DC Voltage	4.8V to 5.2V
DC Voltage	1.8 V to 3.50V
DC Voltage	-5V, +12V, -12V, +5V _{SB} 5% tolerance.

1.3 P6F104 Mainboard Layout



- | | | |
|---------------------------------|------------------------------------|-------------------------------------|
| 1: CPU Socket | 10: ISA Expansion Slots | 18: ATX Power Connector |
| 2: CPU FAN Connector | 11: SB-LINK | 19: Dual USB Connector |
| 3: DIMM Memory Module Sockets | 12: Front panel Connectors | 20: PS/2 Mouse Connector (TOP) |
| 4: IDE Connectors | 13: PCI to ISA Bridge | PS/2 Keyboard Connector |
| 5: Floppy Drive Connector | 14: Intel FWH Flash BIOS (Socket) | 21: Optional Hardware Audio chip |
| 6: AMR Slot | 15: LPC(low pin count) Super I/O | 22: AC97 Audio Codec chip |
| 7: RTC Battery (CR2032 Lithium) | 16: Serial Port Connector (COM2) | 23: Onboard Graphic's Display Cache |
| 8: System FAN Connector | 17: Parallel Port Connector (TOP) | 24: Clock Chip |
| 9: PCI Expansion Slots | 17A: VGA Connector (bottom-left) | 25: Audio/GAME Port (TOP) |
| | 17B: COM1 Connector (bottom-right) | |

1.4 Microprocessor

The P6F104 mainboard is designed to operate with the Intel® Celeron™ processor in PPGA (Plastic Pin Grid Array) package which runs at 300A ~ 700+ MHz (66MHz FSB) and future CPU (100MHz FSB). The Intel Celeron processor (PPGA), implements a Dynamic Execution Micro-architecture and executes MMX™ media technology instructions for enhanced media and communication performance. This processor includes an integrated 128KB second level cache with a separate 16K instruction and 16K data level one cache. The second level cache is capable of caching 4GB of system memory address space. An on board switching voltage regulator provides the required 1.8 to 3.5 volts for the processor. The Celeron processor will send 4 VID (Voltage Identification) signals to the switching voltage regulator, and the switching regulator will generate correct voltage for the processor accordingly.

The Celeron processor implements MMX™ technology and maintains full backward compatibility with the 486 and Pentium processors. The processor's numeric coprocessor significantly increases the speed of floating-point operations.

1.5 Celeron Packaging

The Celeron is packaged in an P.P.G.A. (Plastic Pin Grid Array). This packaging technology is similar to the mature Pentium processor package. This processor features a P6-microarchitecture-based core but in a PPGA package for use in low cost but high performance systems in the Basic PC market segment. Although the 0.25 micron manufacturing process, which reduces processor heat, enables the Intel Celeron processor to use a smaller heat sink but the highly integrates L2 cache design, it required a CPU cooling fan in order to protect CPU and make your system more reliable.

1. Intel® Celeron™ CPU (PPGA) 400 and 433MHz is not available yet, it is for reference only.

1.6 Chipset

The Intel 810 chipset consists of one FW82810 (GMCH/0) System Controller, one FW82801AB (ICH/0) PCI ISA/IDE Accelerator and N82802AB(FWH) 4M-bit flash BIOS memory.

- | | |
|------------------|---|
| FW82810 (GMCH): | <ul style="list-style-type: none">- CPU interface controller- AGP Graphic Interface controller- Integrated DRAM controller- Fully synchronous PCI 2.2 bus interface- Extensive CPU-to-AGP, CPU-to-DRAM, CPU-to-PCI, AGP-to-DRAM, AGP-to-PCI, PCI-to-AGP and PCI-to-DRAM data buffering |
| FW82801AB (ICH): | <ul style="list-style-type: none">- Interface between the PCI and ISA buses- Power Management Logic- USB controller- EIDE controller- Seven DMA channels, one timer/counter, two eight-channel interrupt controllers, NMI logic, SMI interrupt logic, and PCI/ISA bus arbitrator- SMBus interface- Real-Time clock- Power Management Logic- ACPI Controller |
| N82802AB (FWH): | <ul style="list-style-type: none">- Flash ROM DATA |

1.7 Main Memory

The P6F104 mainboard provides two 3.3volt 168-pin DIMM sockets to support 8MB to 512MB SDRAM (Synchronous DRAM). The DIMM sockets support 1M x 64 (8MB), 2M x 64 (16MB), 4M x 64 (32MB), 8M x 64 (64MB), 16Mx64(128MB) and 32Mx64(256MB) DIMM in single- or double-sided modules.

Memory Timing requires 100MHz or faster speed grade for SDRAMs. Each DIMM belongs to different banks, each bank can have different size, type, speed of memory. There are no jumper

settings required for the memory size and type, which are automatically detected by the BIOS.

1.8 Built-in Accelerated Graphics (AGP) Chip

The P6F104 mainboard built-in accelerated graphics chip is the integrated Graphics Memory Controller with 64/96-bit data interface. The 3D graphics with the texturing and visual enhancements are up to 1024x768x16bit at 85hz refresh. The 2D graphics are up to 1600x1200x8bit at 85hz refresh.

The default memory size for onboard graphic is 1M-byte. However there is an assemble option to add up 4M-byte display cache for graphic.

1.9 Enhanced IDE Support

The P6F104 mainboard provides two enhanced high performance PCI IDE interfaces capable of supporting four devices with PIO mode 0 through mode 4, bus-mastering DMA mode 2, and bus-mastering Ultra DMA/33 or Ultra DMA/66(depend on model) ATAPI devices. Detection of IDE device type and transfer rate is automatically performed by the BIOS.

The traditional PIO IDE device requires a substantial amount of CPU bandwidth to handle all the activities of IDE access including waiting for mechanical activities. The Bus Master logic designed in the Intel 810 Whittney chipset is intended to reduce the workload of the CPU, hence to increase CPU efficiency. The Bus Master will take care of the data transfer between IDE and memory and let the CPU handle other tasks. In true multi-tasking operating systems such as Windows 98, Windows NT, and OS/2, by using bus-mastering IDE, the CPU workload can be reduced to complete other tasks while disk data transfers are occurring. The driver must be loaded in order to make the EIDE drive operate in bus-mastering DMA mode.

The following is a data transfer rate comparison table for different IDE operating modes:

Operating Mode	Maximum Data Transfer Rate
PIO Mode 4	16.6 MB/Second
DMA Mode 1	13.3 MB/Second
DMA Mode 2	16.6 MB/Second
Ultra DMA/33	33.2MB/Second
Ultra DMA/66	66.7MB/Second

1.10 Keyboard, Mouse and USB Interface

PS/2 keyboard, PS/2 mouse, and USB connectors are located on the back panel of the P6F104 mainboard. The 5V line to the PS/2 Keyboard and PS/2 Mouse connectors are protected with a PolySwitch circuit that acts like a self-healing fuse which will re-establishing the connection after an over-current condition is removed. While this device eliminates the possibility of replacing fuse, you still need to be sure to turn off the system power before connecting or disconnecting a keyboard or a mouse.

The P6F104 mainboard has a dual USB connector to support two USB ports. The USB is a serial bus interface standard that is designed to bring the “Plug and Play” concept to the outside of the computer system chassis. The bus allows devices to be attached, configured, used and detached while the host system is in operation.

The USB will allow as many as 63 devices to be daisy chained in any combination per port. With up to 12Mbits/sec transfer rate, USB is suitable for devices such as keyboard, mouse, digital joystick, game pad, fax/modem, scanner, printer, ISDN and telephony device.

1.11 Real-time Clock, CMOS RAM and Battery

The integrated real-time clock (RTC) provides a time of day clock, and an 85-year calendar with alarm features. P6F104 also has 242 bytes battery backed CMOS RAM which stores the system setup information and password. The RTC and CMOS RAM can be set via the BIOS SETUP program. The content of the CMOS RAM can be cleared by placing a shunt to short pin2 and pin3 of JP23 for 5 seconds when the system power is off.

A coin-cell style Lithium CR2032 battery is used to provide power to the RTC and CMOS memory. The battery has a three year life if the system is not powered up. When the system powers up, the power for the RTC and CMOS RAM is supplied from the 5 V power supply to extend the life of the battery.

1.12 IrDA Infrared Support

A 5-pin header connector is used to connect a Hewlett Packard HSDSL-1000 compatible IrDA or Sharp ASKIR Infrared module. Once the module is installed, the user can use application software such as Laplink to transfer files between the computer system and portable devices such as laptops and printers.

1.13 Power Management

The integrated DPMA (Dynamic Power Management Architecture) features in the Intel 810 AGPSet go far beyond the original vision of the “Green PC” to create exciting new application models for the “OnNow” PC platform. The “OnNow” PC is a PC which is always on and ready for use but appears to be off when not in use. The P6F104 not only complies with EPA, APM1.2 and ACPI (Advanced Configuration and Power Interface)1.0, but also provides the following power management features.

- *Power-on by a modem ring in or a Alarm*

System could be powered on by phone ring, or by software that has requested the PC to wake up at a preset time.

- *Suspend mode indicator*

The power LED will be flashed when system is in suspend mode.

- *Fan off in suspend mode*

The CPU cooling fan will be turned off in suspend mode.

1.14 System Power On/Off Control

System power can be turned on by a power button, a modem ring, an alarm, a PS/2 Keyboard or a PS/2 Mouse. To enable the “Modem Ring on” feature, the option “Resume by Ring” in the BIOS Power Management Setup has to be set to “Enabled”. To enable the “Alarm on” feature, the option “Resume by Alarm” in the BIOS Power Management Setup has to be set to “Enabled”. To enable the “Power - On by PS/2 Keyboard or PS/2 Mouse” feature, the option “POWER On Function” in the BIOS Integrated Peripherals Setup has to be set to “Keyboard 98” or “Mouse Left/Right. in the BIOS accordingly.

System power can be turned off in one of two ways: a front panel power button or soft-off control. When the option “Soft off by PWR-BTTN” in the BIOS Power Management Setup is set to “Instant-Off”, pressing the power button will immediately turn off the system power. But if the “Soft-Off by PWR-BTTN” option is set to “Delay 4 Sec.”, you have to press the power button and hold it for more than 4 seconds to turn off the system power. The system power can also be turned off via software control. The system BIOS will turn the system power off when it receives the proper APM command from the Operating System. For example, Windows 98 will issue Soft Off APM command when the user selects “Shutdown” in Start Menu. In order for the Soft Off feature to work properly, Power Management/APM must be enabled in the system BIOS and Operating System.

The P6F104 Auto Power On feature gives you the option to turn on the system power automatically when the AC power failure happen, is especially useful for the server application. To enable the “Auto Power on” feature, the option “PWRON After PWR-Fail” in the BIOS Power Management Setup has to be set to “On”. When “PWRON After PWR-fail” sets to “Former-Sts”, system will remember the power status (on or off) before power failure and set according when AC power comes back.

1.15 System Sleep / Resume

When Advanced Power Management (APM) is activated in the system BIOS and the Operating System's APM/ACPI driver is loaded, Sleep mode (Suspend) can be entered in one of three ways: press the front panel power button, select "Suspend" in Windows 98 Start Menu or no system activity for a pre-defined length of time. To use the power button to control system sleep/resume, the option "Soft-Off by PWR-BTTN" in the BIOS Power Management Setup has to be set to "Delay 4 Sec."

When the system enters the sleep mode, the CPU stops running, the 810 Whittney AGPset and related circuits stay in the lowest power state, the HDD stops spinning, the monitor screen becomes blank, the power LED indicator on the front panel will be flashed, and the CPU cooling fan and secondary fan are turned off (Note: in order to turn off the fan in sleep mode, you need to connect the CPU cooling fan or Chassis fan to the on-board fan power connectors marked FAN1 or FAN2)

1.16 Hardware Monitoring

An Hardware monitoring function is built into onboard Winbond I/O chip. This allows user to monitor system environment such as fan speed (requires fan with tachometer output), system temperature and system operating voltages.

1.17 Wake On LAN (WOL)

Wake on LAN (WOL) is a 1x3 pin header for remote wake up of the computer through a network. Wake on LAN requires a PCI add-in network interface card (NIC) with remote wake up capabilities. The remote wake up header on the NIC must be connected to the onboard Wake on LAN header. The NIC monitors network traffic at the MII interface and when it detects a Magic Packet (MP Wake-up) it asserts a wake up signal that powers up the computer.

Note: For Wake on LAN, the 5-V standby line for the power supply must be capable of delivering 5V with 5% tolerance at 720mA.

2 Hardware Installation

2.1 Unpacking

The P6F104 mainboard package contains the following:

- ☑ P6F104 mainboard
- ☑ One IDE 40-pin (or 80-pin, depend on model) ribbon cable
- ☑ One floppy 34-pin ribbon cable
- ☑ One serial port(COM2) 10-pin ribbon cable
- ☑ Driver and Utility Compact Disc

Before removing the mainboard from its anti-static bag, you need to eliminate any static electricity that may be accumulated on your body by touching a grounded or anti-static surface. If nothing is available, touch the housing of the power supply which is plugged into the AC outlet.

After removing the mainboard from its anti-static bag, place it only on a grounded or anti-static surface, component side up. Inspect the mainboard and call the vendor immediately if it is damaged.

2.2 Installation Steps

The P6F104 is designed to fit into a standard ATX form factor chassis. The pattern of the mounting holes and the position of the back panel connectors meet the ATX system board specification. Chassis may come with various mounting fasteners which are made of metal or plastic. It is highly recommended to use as many metal fasteners as possible to mount the mainboard in the chassis for better grounding.

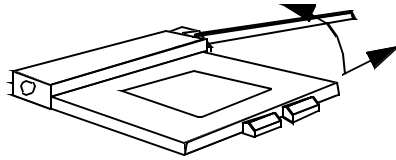
To install the mainboard you need to

- 1.Installing CPU**
- 2.Installing system memory**
- 3.Attach the connectors**
- 4.Set jumpers on the mainboard (if necessary)**
- 5.Set CPU speed in the CMOS setup**

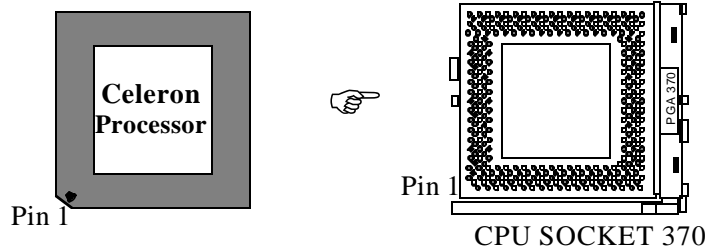
2.2.1 Installing CPU

To avoid being broken by the pressure of CPU insertion, the main-board must be placed on a flat anti-static surface before the CPU is installed. Do not touch the CPU pins with your fingers during the installation.

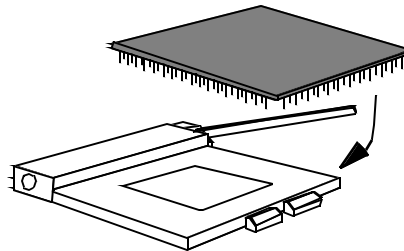
1. Push the CPU ZIF socket's lever to the side a little and raise it as far as it can go.



2. Align the CPU with the ZIF Socket 7 so that the pin 1 (cut corner) of CPU is at the pin 1 of the Socket 7 as shown in the figure below, then insert the CPU into the socket.



3. Press the lever down to snap it into place at the side of socket. You will feel some resistance as the pressure starts to secure the CPU in the socket.

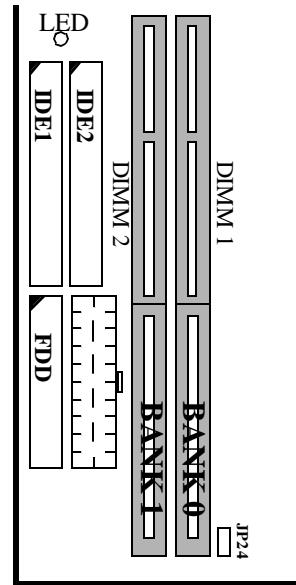


4. Install a heatsink with a cooling fan that is required to protect the CPU from being damaged due to overheat.

2.2.2 Installing System Memory

The P6F104 support 100MHz SDRAM up to 512MB. If more than maximum size memory are populated on the P6F104 mainboard, the portion of the memory which exceed the boundary will be invalidated.

The P6F104 Mainboard has two 168-pin DIMM Sockets. 100MHz-SDRAM DIMM is the only memory supported (no EDO). There are no jumper settings required for the memory size or type, which is automatically detected by the BIOS. Due to the P6F104 Mainboard high speed design, the memory modules for the P6F104 must meet all of the following requirement:



DRAM TYPE	SDRAM (Synchronous DRAM)
Requirements	3.3V unbuffered DIMM module Speed grade: 66.6 MHz or faster CAS latency: 3 or faster

Install 168-pin DIMM modules in any combination as follows:

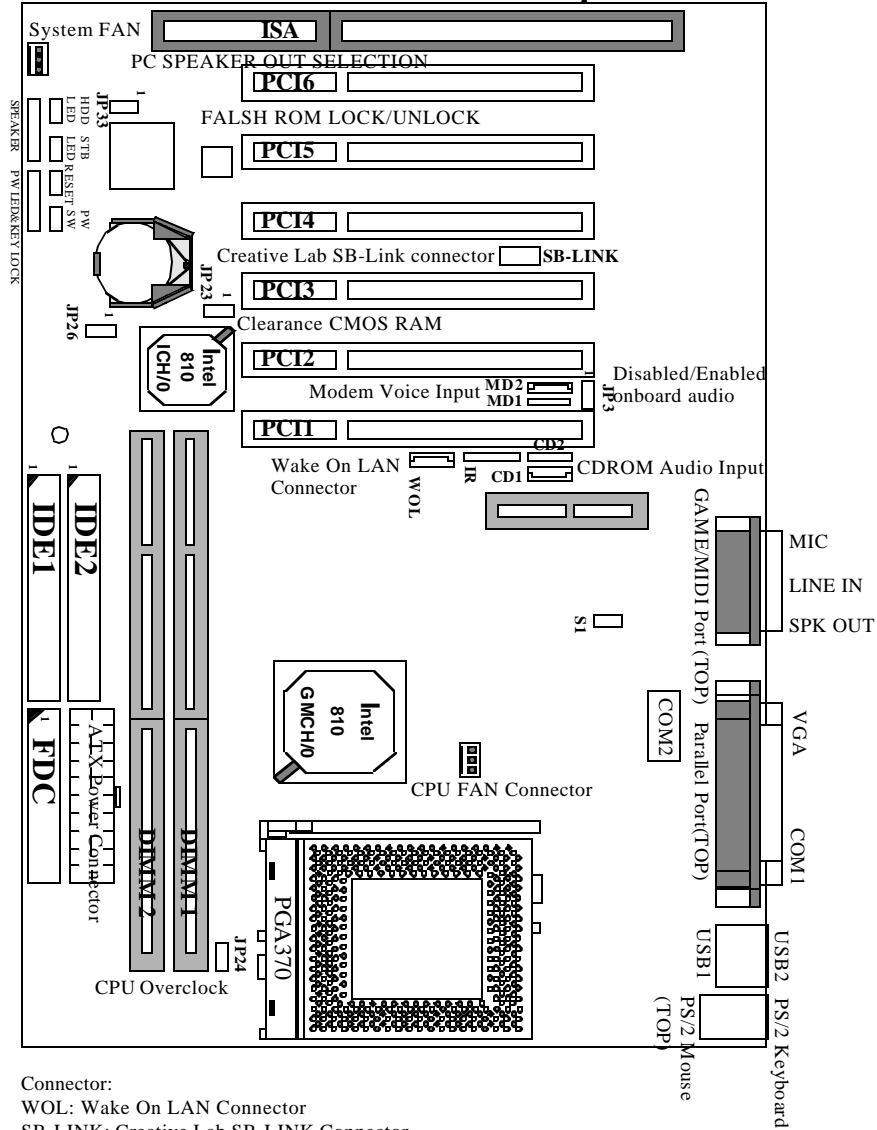
168-Pin DIMM Modules Memory Configuration.

BANK 0 (DIMM1)	SDRAM 8MB, 16MB, 32MB, 64MB, 128MB
BANK 1 (DIMM2)	SDRAM 8MB, 16MB, 32MB, 64MB, 128MB
Total System Memory	SDRAM 8MB to 256MB (with 16 or 64 M-bit technology) Max. 512MB (with 128M-bit technology)

Note: When the VCC33SBY LED is On, do not install or unload Memory Module (Must unplug power before load/unload memory).

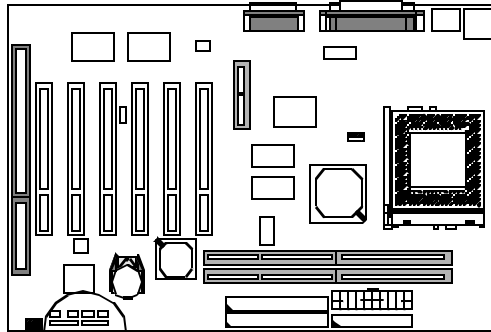
2.2.3 Attaching Connectors

P6F104 Mainboard Connector/Jumper Location



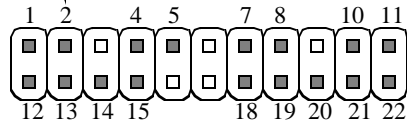
1. Front Panel Connectors

There are 7 connectors on the mainboard for speaker, switches and indicator lights on the system's front panel



Front Panel Connector

Function	PIN #
HDD LED	1-2
STB LED	4-5
RESET	7-8
POWER SWITCH	10-11
PC SPEAKER	12-15
POWER LED	18-20
KEYLOCK	21-22



Front Panel Connector
Pin Assignment

PIN	Function
1	HDD LED+
2	HDD LED-
4	STB LED+
5	STB LED-
7	Power Good
8	Ground
10	Power On/Off
11	Ground
12	Speaker out
13	Ground
14	Ground
15	+5V
18	PW LED+
19	N.C.
20	PW LED-
21	Keylock
22	Ground

HDD LED Connector

This 2-pin connector connects to the case-mounted HDD LED to indicate hard disk activity.

STB LED Connector

This 2-pin connector connects to the case-mounted STB LED to indicate standby or power status. The STB LED will still on when system is off to indicate the AC power condition.

Reset Connector

This 2-pin connector connects to the case-mounted reset switch and is used to reboot the system.

Power Switch Connector

This 2-pin connector connects to the case-mounted Power button to turn on/off the system power.

Speaker Connector

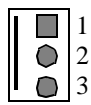
This 4-pin connector connects to the case-mounted speaker

Power LED & Keylock Connector

This 5-pin connector connects to the case-mounted keylock switch and the power LED. The keylock switch is used to lock the keyboard for security purposes. When system entering standby (sleeping) mode the power LED will start to blink.

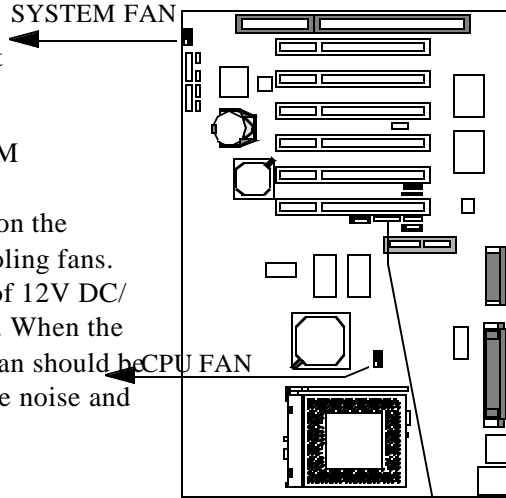
The front panel on your case may have a turbo switch to deactivate the Turbo mode when a slower speed is required for a specific application. The Intel 810 Whittney chipset does not support the hardware deturbo function. An alternative method of using <CTRL><ALT><+/-> keys to change the speed may be used if necessary.

2. Fan Connectors



Pin Assignment
 1. GND
 2. +12V
 3. SPEED / RPM

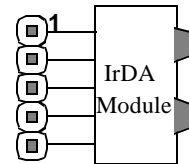
There are two fan connectors on the P6F104 mainboard for the cooling fans. The connectors support fans of 12V DC/ 500mAMP (6 WATT) or less. When the system goes into sleep state, fan should be shut down to eliminate audible noise and reduce power consumption.



3. IrDA-compliant IR (Infrared) Connector

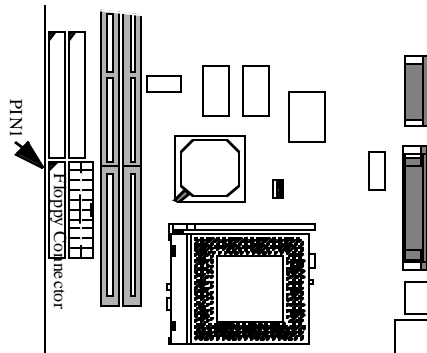
This 5-pin connector connects to an wireless transmitting and receiving infrared module via a cable and a bracket connect to back panel. This cable and mounting bracket should come with the IrDA modules.

Pin Assignment
 1. +5V
 2. IRM_IRR
 3. IR Receiver
 4. Ground
 5. IR Transmitter



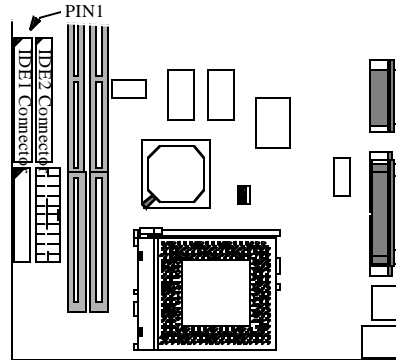
4. Floppy Drive Connector (One 34-pin Block)

A floppy disk drive ribbon cable has 34 wires and 2 connectors to support 2 floppy disk drives. The connector with twisted wires always connects to drive A, and the connector with untwisted wires connects to drive B. You must orient the cable connector so that the pin 1(color) edge of the cable is at the pin 1 of the I/O port connector.



5. IDE Connectors (Two 40-pin Block)

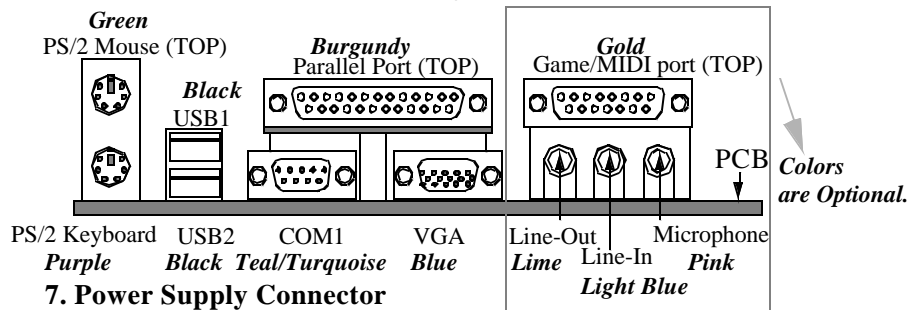
An IDE drive ribbon cable has 40 wires and 2 connectors to support two IDE drives. If a ribbon cable connects to two IDE drives at the same time, one of them has to be configured as Master and the other has to be configured as Slave by setting the drive select jumpers on the drive.



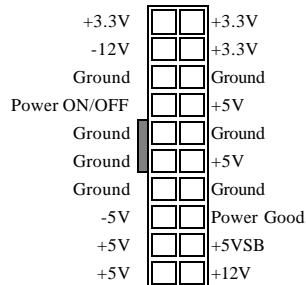
Consult the documentation that comes with your IDE drive for details on jumper locations and settings. You must orient the cable connector so that the pin 1(color) edge of the cable is at the pin 1 of the I/O port connector.

6. Back Panel Connectors

The back panel provides external access to PS/2 keyboard/mouse connectors, two serial port connectors, one parallel port connector, dual USB port connectors, game/MIDI port connector and microphone/Line-in/Line-out connectors which are integrated on the mainboard.



7. Power Supply Connector

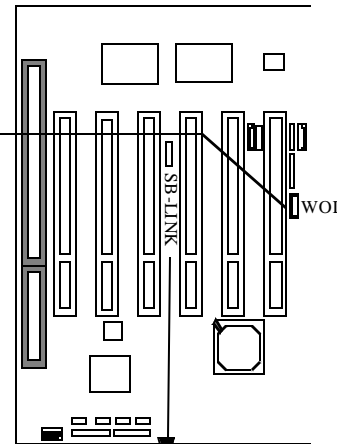
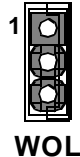


The ATX power supply has a single lead connector with a clip on one side of the plastic housing. There is only one way to plug the lead into the ATX power connector. Press the lead connector down until the clip snaps into place and secures the lead onto the connector.

8. Wake on LAN Connector:

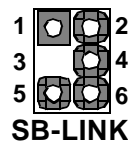
This 3-pin header is used for remote wake up of the computer through a network.

- Pin Assignment
1. +5V_{SB}
 2. GND
 3. Wake-up signal



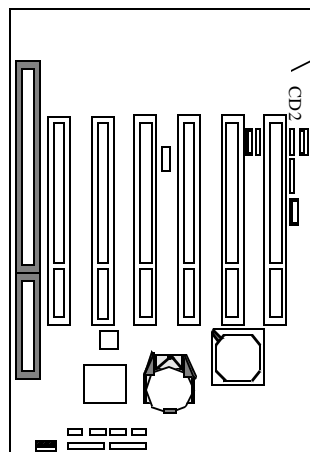
9. Creative Lab SB (Sideband) Link Connector:

This 2x3 ways, straight-3 header is used for Creative Lab PCI sound card (Ex. AWE64D PCI Audio WaveTable Card). In order to migrate the legacy Sound Blaster compatible audio to the PCI bus, the following signal have to be delivered to the PCI audio card through a flat cable.



- Pin Assignment
1. Grant
 2. GND
 3. N.C.(Key Pin)
 4. Request
 5. GND
 6. SER_IRQ

10. CD-ROM Audio Input Connector:



CD2 Pin Assignment

-
1. L_Input
 2. GND
 3. GND
 4. R_Input

CD1 Pin Assignment

-
1. L_Input
 2. GND
 3. R_Input
 4. GND

This 1x4 header is used for CD-ROM Audio input signal. The pin out and connect type are different between CD1 and CD2. CD2 is MPC2 type connector which is for SONY/ATAPI CD-ROM. CD1 is JST type connector which is for MITSUMI/PANASONIC CD-ROM.

11. Modem Voice Input Connector:

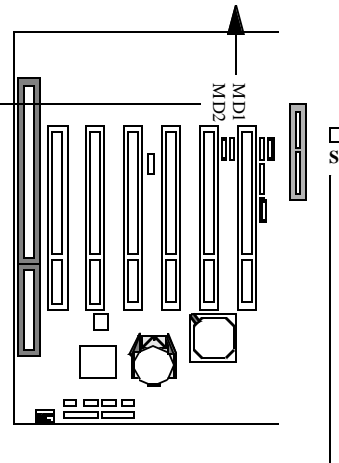
This 1x4 header is used for Voice Modem's internal connector. This allows modem's voice can be direct to the onboard sound chip and amplified by speaker. The pin out and connect type are different between MD1 and MD2. MD2 is a JST type connector and MD1 is a MPC2 type connector.

MD1 Pin Assignment

- | | |
|---|--------|
| 1 | 1. PHN |
| 2 | 2. GND |
| 3 | 3. GND |
| 4 | 4. MIC |

MD2 Pin Assignment

- | | |
|---|--------|
| 1 | 1. PHN |
| 2 | 2. GND |
| 3 | 3. MIC |
| 4 | 4. GND |



2.2.4 Set Jumpers on the Mainboard

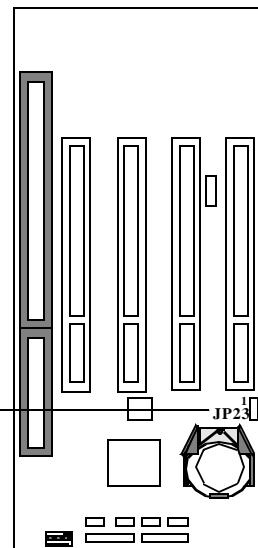
1. Case Open Switch (S1)

The default setting is "Open" means the case is close. when the S1 set as "Close" means the case is open. If you install the system monitor driver when S1 is "Close", there will have beep sound.

2. Clear CMOS and Password (JP23)

If your system can not boot up because you forget your password, or the CMOS settings need to be reset to default values after the system BIOS has been updated, the following instructions can be performed to clear the CMOS and password.

1. Power off the system
2. Place a shunt to short pin2 and pin3 of JP23 for 5 seconds
3. Put the shunt back to pin1 and pin2 of JP23
4. Power on the system



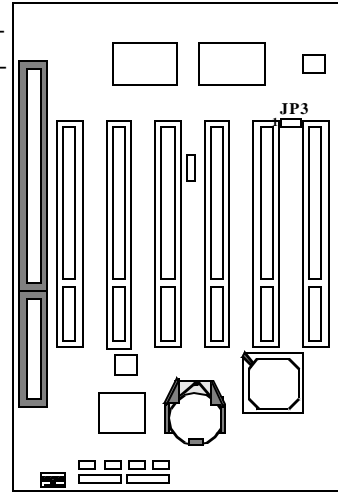
3. Audio Setting (JP3)

This jumper allows you to enable or disable the onboard audio. This setting normally set to enable unless you add an audio expansion card then you need to disable the onboard audio to prevent hardware conflict.

Enabled onboard Audio



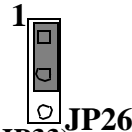
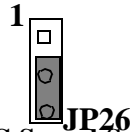
Disabled onboard Audio



4. Automatic Timeout Reboot Setting (JP26)

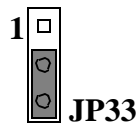
The jumper is set pin 2-3 are close so that when the BIOS detects a hang (time-out) during bootup, the mainboard will automatically reboot in order to try rebooting again. When the pin 1-2 are close, the auto-reboot will be disabled.

Reboot (2-3 Close) No Reboot (1-2 Close)

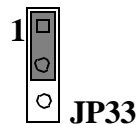


5. PC Sound Selection (JP33)

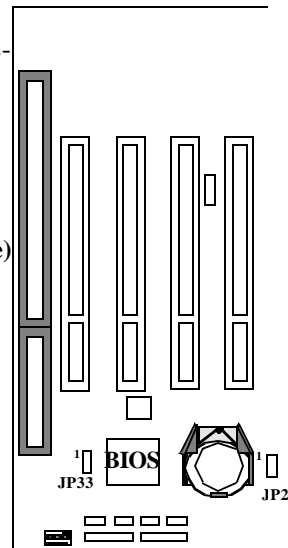
This jumper allows user to select PC sound come from either PC speaker at front panel or Stereo SPK_OUT at Audio connector.



PC Speaker



Back panel's audio port



6. CPU Overclock Selection (JP24)

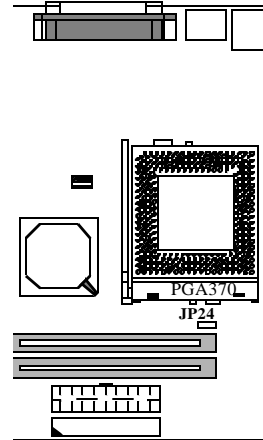
This jumper allows user to over CPU Front Side Bus (FSB) clock from 66MHz bus to 100MHz bus speed.



JP24
FSB=Auto
(Default)



JP24
FSB=100MHz
(When use
66MHz CPU)

**2.2.5 Set CPU Speed in the CMOS Setup**

The Soft-Menu (jumperless) design of the P6F104 allows the user to set CPU Bus Clock and CPU core to Bus clock multiplier through the BIOS. However Intel's Celeron CPU lock CPU Bus clock and CPU core to bus clock multiplier so most of the case you do not have to set these two options at all. You can just plug in the CPU and let mainboard take care all the setting for you.

CPU Bus Clock: The CPU Bus Clock is defined as the CPU input clock.

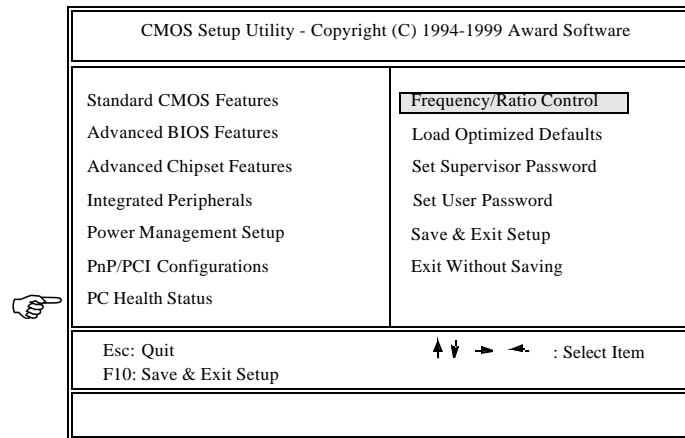
CPU Core to Bus Clock Multiplier: The CPU internal core clock is equal to the "CPU Bus Clock" times the "CPU Core to Bus Clock Multiplier". For example, if the CPU Bus Clock is 66.6MHz and the CPU Core to Bus clock Multiplier is 5.5, the actual CPU core clock will be 366MHz.

CPU Voltage: There is no hardware or BIOS settings needed for CPU operating voltage. The switching regulator circuit can auto-detect the CPU type on the P6F104 mainboard and generate the proper operating voltage for the CPU.

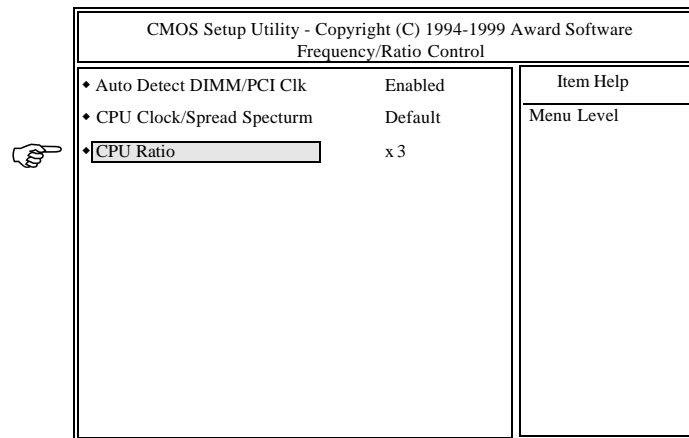
Chapter 2: Hardware Installation

Follow these three steps to setup CPU speed.

- 1) Turn the system on, then press key to access the AWARD BIOS SETUP program. A “CMOS SETUP UTILITY” will display on the screen. At “CMOS SETUP UTILITY” screen selects “**Frequency/Ratio Control**” and press <Enter>.



- 2) On the top right hand side of the “**Frequency/Ratio Control**” screen, there is a “**CPU Clock/Spread Specturm**” and “**CPU Ratio**” option. Refer to the table below and select the correct CPU speed.



CPU Bus Clock=66.6MHz:

CPU SPEED	Soft-Menu Setting	
	CPUs Clock/Spread Specturm	CPU Ratio
300A MHz	Default (66.6MHz)	x4.5
333 MHz	Default (66.6MHz)	x5.0
366 MHz	Default (66.6MHz)	x5.5
400 MHz	Default (66.6MHz)	x6.0
433 MHz	Default (66.6MHz)	x6.5
466 MHz	Default (66.6MHz)	x7.0
500 MHz	Default (66.6MHz)	7.5

- 3) After the “**CPU Clock/Spread Specturm**” and “**CPU Ratio**” are set, go to “**CMOS SETUP UTILITY**” screen and select “**SAVE & EXIT SETUP**” to save the setting information in the CMOS memory and continue with the booting process.
- 4) The available options for “**CPU Clock/Spread Specturm**” are “Default (66MHz/off)”, “66MHz/on”, “75MHz/on”, “75MHz/off”, “83MHz/on”, “83MHz/off”, “100MHz/on” and “100MHz/off”.

NOTE:

Over clock (75MHz, 83MHz, 100MHz) may cause system intermittent lock up or fail to boot-up (no video). If this happens there are two methods you can reset your CMOS setting and get your system back again.

Method 1:

Press and hold the <INS> key before power on the computer. Once BIOS detect the <INS> key is pressed, it will clear CMOS RAM and reset CMOS setting to the default values.

Method 2:

Set jumper to clear CMOS RAM

1. Power off the system
2. Place a shunt to short pin2 and pin3 of JP23 for 5 seconds
3. Put the shunt back to pin1 and pin2 of JP23
4. Power on the system

3 BIOS Configuration

After hardware configuration of P6F104 Mainboard is completed, and system hardware has been assembled, the completed system may be powered up. At this point, CMOS setup should be run to ensure that system information is correct.

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

3.1 Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways. If the error occurs before the display device is initialized, a series of beeps will be transmitted. If the error occurs after the display device is initialized, the screen will display the error message.

After the POST routines are completed, the following message appears:

“Press DEL to enter SETUP”

To access the AWARD BIOS SETUP program, press the key. The “CMOS SETUP UTILITY” screen will be displayed at this time.

3.2 CMOS SETUP UTILITY

Main Program Screen

CMOS Setup Utility - Copyright (C) 1994-1999 Award Software	
Standard CMOS Features Advanced BIOS Features Advanced Chipset Features Integrated Peripherals Power Management Setup PnP/PCI Configurations PC Health Status	Frequency/Ratio Control Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
Esc: Quit F10: Save & Exit Setup	↑ ↓ → ← : Select Item
Time, Date, Hard Disk Type...	

This screen provides access to the utility's various functions.

Listed below are explanations of the keys displayed at the bottom of the screen:

<ESC>: Exit the utility.

ARROW KEYS: Use arrow keys to move cursor to the desired selection.

<F10>: Saves all changes made to Setup and exits program.

3.3 STANDARD CMOS Features

Selecting “STANDARD CMOS Features “on the main program screen displays this menu:

Standard CMOS Features Screen

CMOS Setup Utility - Copyright (C) 1994-1999 Award Software Standard CMOS Features		
Date (mm:dd:yy)	Fri, May 21 1999	Item Help
Time (hh:mm:ss)	10 : 43 : 48	Menu Level
Daylight Saving	Disabled	Change the day, month, year and century
IDE Primary Master	Press Enter None	
IDE Primary Slave	Press Enter None	
IDE Secondary Master	Press Enter None	
IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, But Keyboard	
Base Memory	640K	
Extended Memory	30720K	
Total Memory	31744K	

The Standard CMOS Setup utility is used to configure the following features:

Date: Set Month, Day, Year.

Time: Set Hour, Minute, and Second. Use 24 Hour clock format (for PM numbers, add 12 to the hour, you would enter 4:30 p.m. As 16:30).

Daylight Saving: Disabled or Enabled the daylight saving function.

Hard Disks: There are four hard disks listed: “IDE Primary Master”, “IDE Primary Slave”, “IDE Secondary Master” and “IDE Secondary Slave”. For each IDE channel, the first device is the “Master” and the second device is “Slave”. Hard disk Types from 1 to 45 are standard ones; Press <Enter> key for IDE Auto detection otherwise, Type “Press Enter or None” is IDE HDD auto detection; Type “User” is user definable, and Type “None” is not installed.

There are six categories of information you must enter for a HDD: “CYLS” (number of cylinders), “HEAD” (number of heads), “PRECOMP” (write pre-compensation), “LANDZ” (landing zone), “SECTOR” (number of sectors) and “MODE” (Normal, LBA, LARGE and AUTO). The hard disk vendor’s or system manufacturer’s documentation should provide you with the information needed. The “MODE” option is for IDE hard disk drives only. The “MODE” has four options: NORMAL, LBA, LARGE and AUTO. Set MODE to NORMAL for IDE hard disk drives smaller than 528MB. Set MODE to LBA for IDE hard disk drives over 528MB which support Logical Block Addressing mode. Set MODE to LARGE for IDE hard disk drives over 528MB which do not support LBA mode. The LARGE type of drive is very uncommon and can only be used under MS-DOS. Currently most IDE hard disk drives over 528MB support LBA mode. Set MODE to AUTO to enable auto detection of your IDE hard disk drive during bootup.

Drive A and Floppy Drive B: The options are: “360K, 5.25 in.”, “1.2M, 5.25in.”, “720K, 3.5in.”, “1.44M, 3.5in.”, “2.88M, 3.5in.” and “None (Not Installed)”. Not Installed could be used as an option for diskless workstations.

Video: Set it to the type of graphics card installed in your system. If you are using a VGA or higher resolution card, choose the “EGA/VGA” option. The options are “EGA/VGA” (default), “MONO”, “CGA 40” and “CGA 80”.

Halt On: The options are “All, But Keyboard” (default), “No Errors”, “All, But Keyboard”, “All, But Diskette” and “All, But Disk/Key”. This setting determines which type of errors will cause the system to halt during bootup.

Base Memory/Extended Memory/Total Memory

Those informations are the system memory information. For MS-DOS format from 0~640K will assign to Base memory, the rest of memory will assign to Extended memory.

3.4 Advanced BIOS Features

Selecting “Advanced BIOS Features” on the main program screen displays this menu:

Advanced BIOS Features Screen

CMOS Setup Utility - Copyright (C) 1994-1999 Award Software Advanced BIOS Features		
Virus Warning	Disabled	Item Help
CPU Internal Cache	Enabled	Menu Level
External Cache	Enabled	Allows you to choose the VIRUS warning features for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.
CPU L2 Cache ECC Checking	Disabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS/ZIP	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up Numlock Status	Off	
GATE A20 Option	Fast	
Typematic Rate Setting	Disabled	
x Typematic Rate (chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
Report No FDD For WIN 95	Yes	

The following explains the options for each feature:

Virus Warning: The Virus Warning’s default setting is “Disabled”. When enabled, any attempt to write to the boot sector or partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus free, bootable floppy diskette to reboot and clean your system.

CPU Internal Cache: The default setting is “Enabled”. This Setting enables the CPU internal cache.

External Cache: The default setting is “Enabled”. This setting enables the Level 2 cache.

CPU L2 Cache ECC Checking: The default setting is “Disabled”. This setting enables the ECC (Error check and correction) function for CPU Level 2 cache. However, the ECC function for Intel Celeron CPU is not available, so you should leave this function “Disabled” all the time. The ECC function will check and correct signal bit error and report multi-bit errors

Quick Power On Self Test: The default setting is “Enabled”. This will skip some diagnostic checks during the Power On Self Test (POST) to speed up the booting process.

First/Second/Third Boot Device: The default setting is “Floppy, HDD-0, LS/ZIP”; the other options are “CDROM, HDD-0, Floppy”, “HDD-0, CDROM, Floppy”, “HDD-0, Floppy, SCSI”, “HDD-1, Floppy, SCSI”, “HDD-2, Floppy, SCSI”, “HDD-4, Floppy, SCSI”, “SCSI, Floppy, HDD-0”, “SCSI, HDD-0, Floppy”, “LS/ZIP, HDD-0” etc. The BIOS will load the operating system from the disk drives in the sequence selected here.

Swap Floppy Drive: The default setting is “Disabled”. This setting gives you an option to swap A and B floppy disks. Normally the floppy drive A is the one at the end of the cable, if you set this option to “Enabled”, the drive at the end of the cable will be swapped to B.

Boot Up Floppy Seek: The default setting is “Disabled”. If set to “Enabled”, during bootup the BIOS will check for installed floppy disk drives.

Boot Up Numlock Status: The default setting is “Off”. If set to “Off”, the cursor controls will function on the numeric keypad.

Gate A20 Option: the defaults setting is “Fast”. This is the optimal setting for the Mainboard. The other option is “Normal”.

Typematic Rate Setting: The default setting is “Disabled”. If set to “Enabled”, you can set the typematic Rate and typematic Delay.

Typematic Rate (Chars/Sec): This setting controls the speed at which the system registers repeated keystrokes. The choices range from 6 to 30 Chars/Sec. The default setting is “6” Chars/Sec.

Typematic Delay (Msec): This setting controls the time between the display of the first and second characters. There are four delay choices: 250ms, 500ms, 750ms and 1000ms. The default setting is “250” ms.

Security Option: This setting controls the password feature. The options are “Setup” and “System”. Selecting “Setup” will protect the configuration settings from being tampered with. Select “System” if you want to use the password feature every time the system boots up. The default setting is “Setup”. You can create your password by using the “SUPERVISOR/USER PASSWORD” utility on the main program screen.

OS Select For DRAM > 64MB: The default setting is “Non-OS2”. Set to “OS2” if the system memory size is greater than 64MB and the operating system is OS/2.

Report No FDD For Win95: The default setting is “Yes”. Set this option to “Yes” to request BIOS to report the FDD status to Windows 95.

After you have made your selection(s) in the BIOS FEATURES SETUP, press the <ESC> key to go back to the main program screen.

3.5 Advanced Chipset Features

Selecting “Advanced Chipset Features” on the main program screen displays this menu:

Advanced Chipset Features Screen

CMOS Setup Utility - Copyright (C) 1994-1999 Award Software		Item Help
Advanced Chipset Features		Menu Level
SDRAM CAS Latency Time	3	
SDRAM Cycle Time Tras/Trc	6/8	
SDRAM RAS-to-CAS Delay	3	
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
Memory Hole At 15M-16M	Disabled	
Delayed Transcation	Enabled	
On-Chip Video Window Size	64MB	
* Onboard Display Cache Setting *		
CAS# Latency	3	
Paging Mode Control	Close	
RAS-to-CAS Override	by CAS# LT	
RAS# Timing	Slow	
RAS# Precharge Timing	Slow	

The following explains the options for each feature:

SDRAM CAS Latency Time: The options are “2” and “3”. Slower rate “3” may be required for slower SDRAMs or more than 2 banks of SDRAM DIMMs are installed. The default setting is “3”.

SDRAM Cycle Time Tran/Trc: The options are “6/8” and “5/7”. This option controls the number of clocks between the assertion of SRAS# and the assertion of SCAS#. The default setting is “6/8”.

SDRAM RAS-to-CAS Delay: The options are “Fast” and “Slow”. This option controls the number of clocks between the assertion of SRAS# and the assertion of SCAS#. The default setting is “Fast”.

SDRAM RAS Precharge Time: The options are “Fast” and “Slow”. This option sets the length of time in terms of number of clocks required for the SDRAM RAS# precharge. The default setting is “Fast”.

System BIOS Cacheable: When set to “Enabled”, the System BIOS will be cached for faster execution. The default setting is “Enabled”.

Video BIOS Cacheable: When set to “Enabled”, the Video BIOS will be cached for faster execution. The default setting is “Enabled”.

Memory Hole At 15M-16M: The default setting is “Disabled”. Set to “Enabled” means that when the system memory size is equal to or greater than 16M bytes, the physical memory address from 15M to 16M will be passed to PCI or ISA and there will be 1MBytes hole in your system memory. This option is designed for some OS with special add-in cards which need 15M-16M memory space.

Delayed Transaction: This termination is used by targets that can't complete the initial data phase within the requirement of this specification. One advantage of a Delay Transaction is that the bus is not held in wait states while completing an access to a slow device. While the originating master rearbitrates for the bus, other bus masters are allowed to use the bus bandwidth that would normally be wasted holding the master in wait states. Another advantage is that all posted memory write data is not required to be flushed before the request is accepted. Chipset has an embedded 32-bit post write buffer to support delay transactions cycles. Select “Enabled” to support compliance with PCI specification version 2.2.

OnChip Video Windows Size (MB): This option determines the effective size of the AGP Graphic Aperture which memory-mapped, graphics data structures can reside in. When use PCI VGA Card, it must set as “Disabled”.

***Onboard Display Cache Setting/CAS Latency:** The options are “2” and “3”. Slower rate “3” may be required for slower onboard Display Cache. The default setting is “3”. Please do not change this timing because it is being verified by manufacture.

***Onboard Display Cache Setting/Paging Mode Control:** The default setting is “Close”. The options are “Open” and “Close”.

***Onboard Display Cache Setting/RAS-to-CAS Override:** The options are “by CAS# LT” and “Override”.

***Onboard Display Cache Setting/RAS# Timing:** The options are “Fast” and “Slow”. This option sets the length of time in terms of number of clocks required for the RAS# Timing. The default setting is “Slow”.

***Onboard Display Cache Setting/RAS# Precharge Timing:** The options are “Slow” and “Fast”. This option sets the length of time in terms of number of clocks required for the RAS# precharge timing. The default setting is “Slow”.

Note: P6F104LI/P6F104L models do not have “*” features.

3.6 Integrated Peripherals

Selecting “Integrated Peripherals” on the main program screen displays this menu:

Integrated Peripherals Screen

CMOS Setup Utility - Copyright (C) 1994-1999 Award Software		Item Help
Integrated Peripherals		Menu Level
On-Chip Primary PCI IDE	Enabled	
On-Chip Secondary PCI IDE	Enabled	
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	Enabled	
USB Keyboard Support	Disabled	
Init Display First	PCI Slot	
AC97 Audio	Enabled	
AC97 Modem	Disabled	
IDE HDD Block Mode	Enabled	
POWER ON Function	BUTTON ONLY	
* KB Power ON Password	Enter	
* Hot Key Power ON	Ctrl-F1	
Onboard FDC Controller	Enabled	
Onboard Serial Port1	Auto	
Onboard Serial Port 2	Auto	
UART Mode Select	Normal	
* Rx/D, Tx/D Active	Hi, Hi	
* IR Transmittion Delay	Enabled	
* Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
* EPP Mode Select	EPP1.7	
* ECP Mode Use DMA	3	
PWRON After PWR-Fail	OFF	
Game Port Address	201	
Midi Port Address	330	
Midi Port IRQ	5	

The following explains the options for each feature:

On-Chip Primary/Secondary PCI IDE: The default setting is “Enabled”. This option enables the onboard Primary / Secondary PCI IDE controller.

IDE Primary Master PIO, IDE Primary Slave PIO, IDE Secondary Master PIO, IDE Secondary Slave PIO: There are six options “Auto”, “Mode 0”, “Mode 1”, “Mode 2”, “Mode 3” and “Mode 4”. The default setting is “Auto”. When set to “Auto” the BIOS will automatically set the mode to match the transfer rate of hard disk. If the system won’t boot up when set to “Auto”, set it manually to the lower mode, e.g, from Mode 3 to Mode 2. All IDE drives should work with PIO mode 0.

IDE Primary Master UDMA, IDE Primary Slave UDMA, IDE Secondary Master UDMA, IDE Secondary Slave UDMA: The options are “Auto” (default) and “Disabled”. When set to “Auto” the BIOS will automatically load Ultra DMA 33 driver to match the transfer rate of IDE hard disk drive which supports Ultra DMA 33 mode. The default setting is “Auto”.

USB Controller: Set this option to “Enabled” if an Universal Serial Bus (USB) Device is connect to your system USB1 or USB2 port. The default setting is “Enabled”.

USB Keyboard Support: Set this option to “Enabled” if an Universal Serial Bus (USB) keyboard is used in your system. The default setting is “Disabled”.

Init Display First: The options are “PCI Slot” or “Onboard Display”. When set to “PCI Slot” BIOS will initial PCI slot Display first and set primary display as PCI VGA unless there is not PCI VGA card plug in then BIOS will set onboard display as primary display device.

AC 97 Audio: The option are “Enabled” or “Disabled”. When set to “Enabled” the onboard Audio codec or Audio codec on the AMR slot will function. When set to “Disabled” it will disabled onboard audio codec and AMR slot , this allows system use PCI audio. The default is “Enabled”.

AC 97 Modem: The options are “Enabled” or “Disabled”. When set to “Enabled” the Software Modem codec on the AMR slot will function. Set “Disabled” can use other type PCI/ISA modem. The default is “Disabled”.

IDE HDD Block Mode: The Default setting is “Enabled”. This feature enhances hard disk performance by making multi-sector transfers instead of one sector per transfer. Most IDE drives, except very early design, have the Block Mode transfer feature.

Power On Function: There are five options “Button Only” (default), “Password”, “Hot KEY”, “Mouse Left” and “Mouse Right”. When set to “Button Only”, system power can be turned on by power button. When set to “Password”, system power can be turned on by entering password. When set to “Mouse Left/Right”, system power can be turned on by pressing PS/2 mouse left/right key. This function works with a standard two-button PS/2 mouse only. You have to enter “password” to activate this option.

Note: If “Password” is selected for this option, the power button will not be able to turn on the system. If you forget the password, then you need to clear CMOS RAM. (see section 2.2.4 for detail).

KB Power ON Password: Enter the password.

Hot Key Power On: When “Power On Function” set to “Hot KEY”, system power can be turned on by pressing keyboard function key, i.e., <Ctrl>+<F1> through <Ctrl>+<F12>.

Onboard FDC Controller: The default setting is “Enabled”. This option enables the onboard floppy disk drive controller.

Onboard Serial Port 1 and Onboard Serial Port 2: These options are used to assign the I/O addresses for two onboard serial ports. They can be assigned as follows:

3F8/ IRQ4, 2F8/ IRQ3

3E8/ IRQ4, 2E8/ IRQ3

Auto (default)

Disabled (Disable the onboard serial port)

UART Mode Select: The options are “Normal” (default), “IrDA” and “ASKIR”. The IrDA is Hewlett Packard infrared communication protocol with maximum baud rate up to 115.2K bps, and the ASKIR is Sharp infrared communication protocol with maximum baud rate up to 57.6K bps. The UART mode setting depends on which type of infrared module is used in the system. When set to “ASKIR” or “IrDA”, the UART 2 is used to support the infrared module connected on the mainboard. If this option is not set to “Normal”, a device connected to the COM2 port, will no longer work.

Onboard Parallel Port: This option is used to assign the I/O address for the onboard parallel port. The options are “378/IRQ7” (defaults), “278/IRQ5”, “3BC/IRQ7” and “Disabled” (disable the onboard parallel port).

Parallel Port Mode: There are four options “SPP” (default), “EPP”, “ECP”, “ECP+EPP”. Change the mode from “SPP” to the enhanced mode only if your peripheral device can support it.

EPP Mode Select: When set on-board parallel port to EPP mode, the parallel port has option to use “EPP1.7”(default) or “EPP1.9”.

ECP Mode Use DMA: When set on-board parallel port to ECP mode, the parallel port has option to use DMA “3”(default) or “1”.

PWRON After PWR-Fail: The options are “Off”, “On” or “Former-Sts”. It gives the user the option to turn on the system power automatically when the AC power failure happen, is especially useful for the server application. To enable the Auto Power on feature, it has to be set to “On”. When it sets to “Former-Sts”, system will remember the power status (on or off) before power failure and set according when AC power comes back.

GAME Port Address: The options are “201”, “209” or “Disabled”. This will set onboard Game port I/O Address.

MIDI Port Address: The options are “330”, “300” or “Disabled”. This will set onboard MIDI port I/O Address.

MIDI Port IRQ: The options are “5” or “7”. This will set onboard MIDI port IRQ.

3.7 Power Management Setup

The “Power Management Setup” controls the mainboard’s “Green” features. Selecting “Power Management Setup” on the main program screen displays this menu:

Power Management Setup Screen

CMOS Setup Utility - Copyright (C) 1994-1999 Award Software Power Management Setup		
ACPI Function	Enabled	Item Help
ACPI Suspend Type	S1(POSSTR)	Menu Level
Power Management	User Define	
Video Off Method	DPMS	
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
MODEM Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-off by PWR-BTTN	Instant-off	
Power On by Ring	Disabled	
CPU Thermal-Throttling	87.5%	
Resume by Alarm	Disabled	
x Date (of Month) Alarm	0	
x Time (hh:mm:ss) Alarm	0 0 0	
** Reload Global Timer Events **Disabled		
Primary IDE 0		
Primary IDE1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ[A-D]#	Disabled	

The following explains the options for each feature:

ACPI Function: There are two options: “Enabled” (default) and “Disabled”.

ACPI Suspend Type: There are two options: “S1(POS)” (default) and “S3(STR)”. STR (Suspend-to-RMA) is an energy-saving feature. In Suspend-to-RMA state, all devices on the computer are turned off, except for the system RAM. Thus, the PC consumes less than 5 Watts of power. “S3(STR)” allows the BIOS to detect if your power supply **can supply at least 720mA on the +5VSB lead to support the SSTR function**. If the power supply meets the requirement, the STR function will be enabled; if not, this function will be disabled. If the expansion cards you use on the mainboard do not support the STR function, you must leave this field on the default setting “S1(POS)”.

Power Management: This setting controls the Suspend Mode Timer and HDD Power Down Timer features. There are three options:

User Define: Allows you to customize all power saving timer features.

Min Saving: This will set 1hour in suspend mode and 15 minutes in HDD Power Down.

Max Saving: This will set 1minute in suspend mode and 1 minute in HDD Power Down.

Video Off Method: This setting controls the video off method in power saving mode. The default setting is “DPMS” which will disable V/H SYNC signals and blanks the screen. Other options are “DPMS” and “Blank Screen”. The “DPMS” option allows the BIOS to control the video card if it has the DPMS (Display Power Management System) feature. The “Blank Screen” option is used when you do not have a “Green” monitor.

Video off In Suspend: Options are “Yes” and “No”. When this option is sets to “Yes”, the Video will turn off if the system goes into power management “suspend” mode.

Suspend Type: There are two options: “Stop Grant” (default) and “PwrOn Suspend”.

Modem Use IRQ: To enable the internal PnP modem ring to wake up your system from suspend mode, the IRQ assigned to the modem has to be the same as the setting in this option.

Suspend Mode: Sets the time period before the system goes into suspend mode. Configuration options: [Disabled] [1Min] [2Min] [4Min] [8Min] [12Min] [20Min] [30Min] [40Min]... [1Hour]. The default setting is “Disabled”.

HDD Power Down: Options are from “1 Min” to “15 Min” and “Disabled”. The IDE hard drive will spin down if it is not accessed within a specified length of time.

Soft-Off by PWR-BTTN: The options are “Instant-Off” and “Delay 4 Sec.”. When set to “Instant-Off”, pressing the power button will turn off the system power. When set to “Delay 4 Sec.”, you have to press the power button and hold it for more than 4 seconds to turn off the system power. Otherwise the system just goes to the suspend mode. Note: During the booting process, the power button is ignored. The default setting is “Instant-Off”.

Power On by Ring: If “Disabled”, the system power will be turned on if an FAX/Modem receives an incoming telephone ringing.

CPU Thermal-Throttling: There are 7 options to set up the CPU Thermal Throtting: “87.5%” (default), “75.0%”, “62.5%“, “50.0%“, “37.5%“, “25.0%“, and “12.5%“.

Resume by Alarm: If “Enabled”, you may set the date (day of the month), hour, minute and second to turn on your system. When you set “0” (zero) for the day of the month, the alarm will power on your system every day at the specified time.

Press the <ESC> key to go back to the main program screen, after you have made your selections in the POWER MANAGEMENT SETUP.

3.8 PnP / PCI Configuration

Both the ISA and PCI buses on the Mainboard use system IRQs & DMAs. You must set up the IRQ and DMA assignments correctly thru the PnP/PCI Configuration Setup utility, otherwise the Mainboard will not work properly.

Selecting “PNP / PCI CONFIGURATION” on the main program screen the following menu will display:

PNP / PCI Configuration Screen

CMOS Setup Utility - Copyright (C) 1994-1999 Award Software PnP/PCI Configuration		
PNP OS Installed	<input type="text" value="No"/>	Item Help
Reset Configuration Data	Disabled	
Resource Controlled By	Auto (ESCD)	Menu Level Select Yes if you are using a Plug and Play capable operating system. Select No if you need the BIOS to configure non-boot devices.
x IRQ Resources	Press Enter	
x DMA Resources	Press Enter	
x Memory Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	

PNP OS Installed: The default setting is “No”.

Reset Configuration Data: The system BIOS supports the Plug and Play feature so the resources assigned to each peripheral have to be recorded to prevent them from conflicting. The location to store the assigned resources is called ESCD which is located in the system flash EEPROM. If this option is set to “Disabled” the ESCD will update automatically when the new configuration varies from the last one. If set to “Enabled”, the ESCD will be cleared and forced to update and then automatically set this option to “Disabled”.

Resources Controlled By: The default setting is “Manual” which allows you to control IRQs and DMAs individually. The other option is “Auto” which will detect the system resources and automatically assign the relative IRQs and DMAs for each peripheral.

IRQ, DMA and Memory Resources: If there is a legacy ISA device which uses an IRQ or a DMA, set the corresponding IRQ or DMA to “Legacy ISA”, otherwise you should set to PCI/ISA PnP.

PCI/VGA Palette Snoop: If there are two VGA cards in your system (one PCI and one ISA) and this option is set to “Disabled”, data read and written by CPU is only directed to the PCI VGA card's palette registers. If set to “Enabled”, data read and written by CPU will be directed to both the palette registers of the PCI VGA and ISA VGA

cards. This option must be set to “Enabled” if any ISA VGA card installed in your system requires VGA palette snooping to fix improper color problem.

After you have made your selections in the PNP / PCI Configuration SETUP, press the <ESC> key to go back to the main program screen.

3.9 PC Health Monitor

Selecting “PC Health Monitor” on the main program screen displays this menu:

PC Health Monitor Screen

CMOS Setup Utility - Copyright (C) 1994-1999 Award Software		Item Help
PC Health Status		Menu Level
CPU Warning Temperature	: Disabled	
Current CPU Temperature	: 37°C/88°F	
Current CPU FAN Speed	: 4383 RPM	
Current SYSTEM FAN Speed	: 0 RPM	
Vcpu(V)	1.98 V	
V1.8(V)	1.76 V	
V3.3(V)	3.34 V	
+ 5 V	4.94 V	
+12 V	11.97 V	
- 12 V	12.28 V	
- 5 V	4.99 V	
VBAT(V)	3.04 V	
5VSB(V)	5.45 V	
Shutdown Temperature	75°C/167°F	

CPU Warning Temperature: When set to “Disabled”, system will automatically turn off CPU temperature warning system. There are total 7 different temperature warning setting options: “50°C/122°F”, “53°C/127°F”, “56°C/133°F”, “60°C/140°F”, “63°C/145°F”, “66°C/151°F”, and “70°C/158°F”.

Current CPU Temperature: The onboard hardware monitor is able to detect the CPU temperatures.

Current CPU FAN and SYSTEM FAN Speed: The onboard hardware monitor is able to detect the CPU fan speed and the system fan speed. The presence of the fans is automatically detected.

VCORE Voltage, +1.8V Voltage, +3.3V Voltage, +5V Voltage, +12V Voltage, -12V Voltage, -5V Voltage: The onboard hardware monitor is able to detect the voltage output by the onboard voltage regulators.

VBAT (V) and 5VSB (V): The onboard hardware monitor is able to detect the voltage output by the VBAT and 5VSB.

Shutdown Temperature: The onboard hardware monitor is able to shutdown the sytem when the temperature is equal to or higher than the setting options: “60°C/140°F”, “65°C/149°F”, and “70°C/158°F”.

3.10 Frequency/Ratio Control

Selecting “Frequency/Ratio Control” on the main program screen displays this menu:

CMOS Setup Utility - Copyright (C) 1994-1999 Award Software		Frequency/Ratio Control	
Auto Detect DIMM/PCI CLK	<input type="text" value="Enabled"/>	Item Help	
CPU Clock/Spread Spectrum	Default	Menu Level	
CPU Ratio	x 6		

Auto Detect DIMM/PCI Clk: When set to “Enabled”, system will automatically turn off PCI and DIMM clock which is not use and reduce electromagnetic interference.

CPU Clock/Spread Spectrum: The options are “Default”, “66MHz/on”, “66MHz/off”, “75MHz/off”, “83MHz/off”, “95MHz/off”, “100MHz/on”, “100MHz/off”, “112MHz/on”, “117MHz/on”, “124MHz/off”, “133MHz/on”, “133MHz/off”, “138MHz/off”, 140MHz/on”, and “150MHz/off”. This option sets the CPU Bus Clock and Spread specturm modulation. When set to “xxMHz/on”, system clock frequency will automatically be modulated around xx frequency, which helps reducing electromagnetic interference.

CPU Ratio: This option sets the CPU Core to Bus Clock Multiplier. The options are “3”, “3.5”, ”4”, “4.5”, “5”, “5.5”, “6”, “6.5”, “7”, “7.5”, “8”.

3.11 Load Optimized Default

“LOAD Optimized Default” loads optimal settings which are stored in the BIOS ROM.

The defaults loaded only affect the Advanced BIOS Features, Advanced Chipset Features, Integrated Peripheral, Power Management Setup, PnP/PCI configurations, PC Health Monitor and Frequency/Voltage Control. There is no effect on the Standard CMOS Setup. To use this feature, highlight on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the Setup default values. Press the <Y> key and then press the <Enter> key if you want to load the Setup defaults. Press <N> if you don't want to proceed.

3.12 Set Supervisor/ User Password

The “SUPERVISOR/USER PASSWORD” utility sets the password. The Mainboard is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt enter your new password. The password is case sensitive and you can use up to 8 alphanumeric characters, press <Enter> after entering the password. At the next prompt, confirm the new password by typing it and pressing <Enter> again.

To disable the password, press the <Enter> key instead of entering a new password when the “Enter Password” dialog box appears. A message will appear confirming that the password is disabled.

If you have set both supervisor and user password, only the supervisor password allows you to enter the BIOS SETUP PROGRAM.

If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt on the JP23 to short pin 2 and pin 3 for 5 seconds, then putting the shunt back to pin1 and pin2 of JP23.

3.13 Save & Exit Setup

Selecting this option and pressing the <Enter> key will save the new setting information in the CMOS memory and continue with the booting process.

3.14 Exit Without Saving

Selecting this option and pressing the <Enter> key will exit the Setup Utility without recording any new values or changing old ones.

4 Driver and Utility

4.1 Flash Utility

The BIOS of the P6F104 mainboard can be upgraded by using a Flash utility. A new version of the BIOS can be downloaded from the factory's BBS and Web site. The system BIOS is stored in a 4M-bit Flash EEPROM which can be erased and reprogrammed by the Flash utility.

There are two files in the Compact Disc's FLASH directory.

FLASH.EXE The Flash utility for AWARD BIOS upgrade
README.TXT A text file of instructions

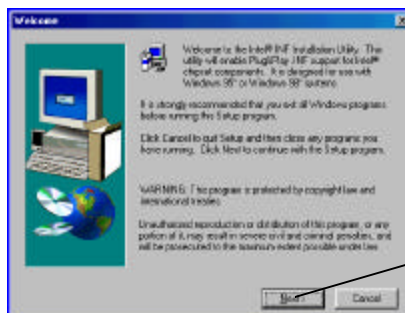
The Flash utility will not work with any memory manager software running in the system. In order to make sure no memory manager software is running, boot your system from a bootable floppy diskette which does not contain CONFIG.SYS and AUTOEXEC.BAT files. If you are using MS-DOS 6.x, you can press <F5> function key while the "Starting MS-DOS..." message appearing on the screen to bypass the CONFIG.SYS and AUTOEXEC.BAT.

4.2 INF Update Utility for 810 Chipset

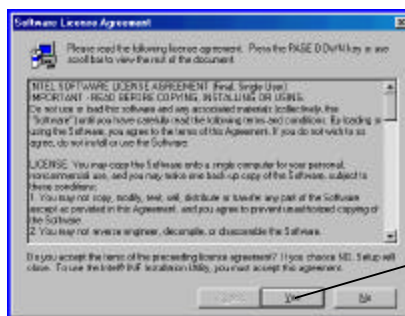
The Installation Steps:

- Step 1. Insert the manufacturer CD-ROM to your PC.
- Step 2. Click the "Install Driver" option in your installation screen.
- Step 3. Click the "Intel\INF Installation" option to start the installation.
- Step 4. Follow the instruction to finish the installation:

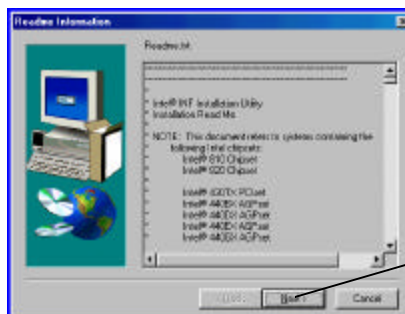
Chapter 4: Driver and Utility



Click “Next” to Continue the Installation.

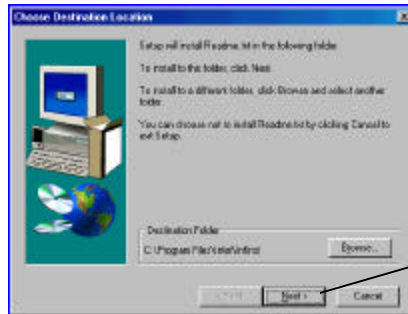


Click “Yes” to Accept the Agreement.

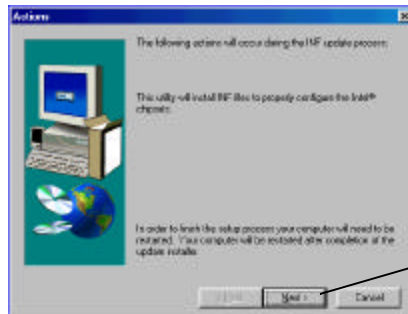


Click “Next” to Agree Installing the Read Me.

Chapter 4: Driver and Utility



Click **“Next”** to Install the Read Me to the Default Folder. Otherwise, Click **“Browse”** to Choose Desire Folder Location.



Click **“Next”** to Install the INF Files to Properly Configure the Intel Chipsets.

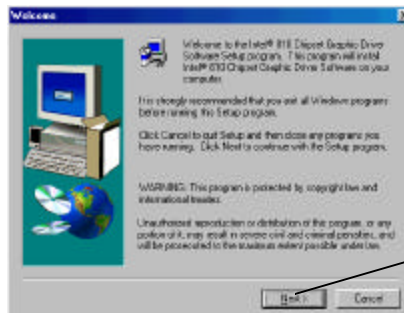


Click **“Yes”** to Restart the Computer and Finish the Installation.

4.3 Intel 810 Chipset Graphic Driver Software

The Installation Steps:

- Step 1. Insert the manufacturer CD-ROM to your PC.
- Step 2. Click the “Install Driver” option in your installation screen.
- Step 3. Click the “Intel\AGP” option to start the installation.
- Step 4. Follow the instruction to finish the installation:

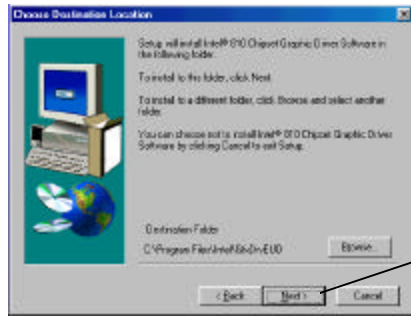


Click “Next” to Continue the Installation.

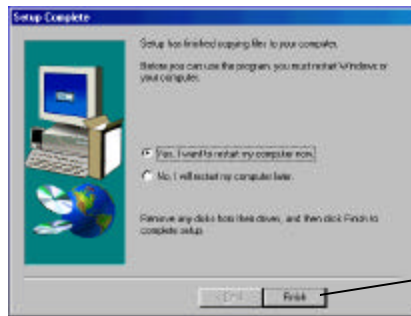


Click “Yes” to Accept the Agreement.

Chapter 4: Driver and Utility



Click **“Next”** to Install the Chipset Graphic Driver to the Default Folder. Click **“Browse”** to Choose Desire Folder Location.

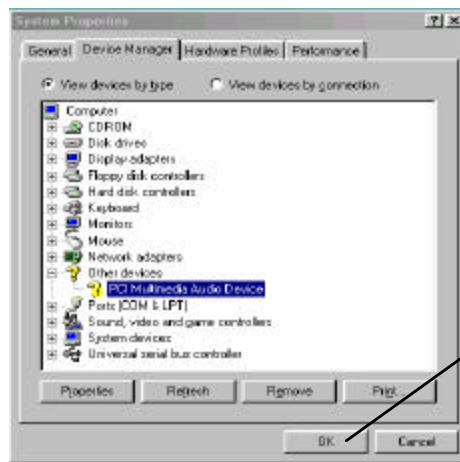


Click **“Yes”** to Restart the Computer and Finish the Installation.

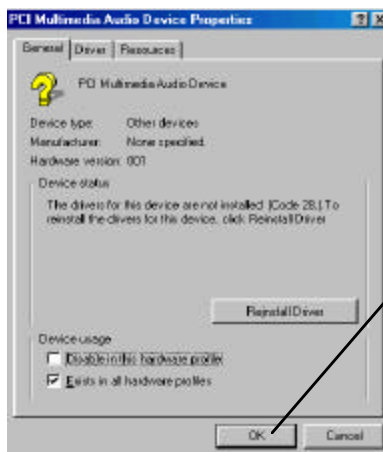
4.4 On Board Codec Driver

The Installation Steps:

- Step 1. Insert the manufacturer CD-ROM to your PC.
- Step 2. Under the “Control Panel”, choose the “System” to find and install the new On Board Codec Driver.
- Step 3. Follow the instruction finished the installation:



Under the “Device Manager”, Click “OK” to Start the Installation Setup Process.

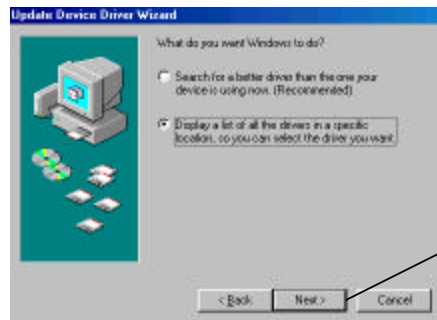


Under the “General” Properties, Click “OK” to Continue the Installation Setup Process.

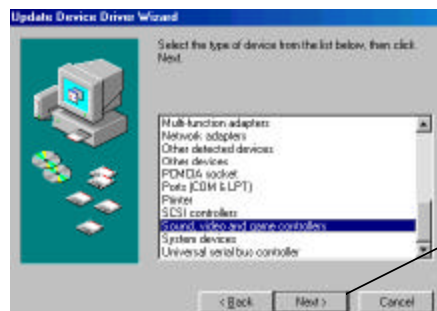
Chapter 4: Driver and Utility



Click “Next” to Continue the Installation Setup Process.

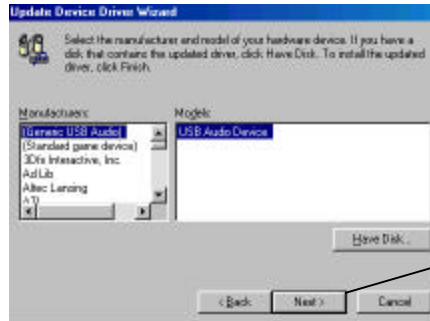


Click “Next” to Continue the Installation Setup Process After Choose the One of the 2 Options that is Shown on the Screen.



Select the Type of Device, then Click “Next” to Continue the Installation Setup Process.

Chapter 4: Driver and Utility



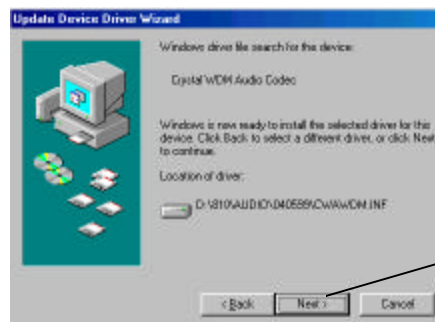
Choose the Right Manufacturer and the Model, then Click “Next” to Continue the Installation Setup Process.



Choose the Correct Drive and Click “OK” to Continue the Installation Setup Process.

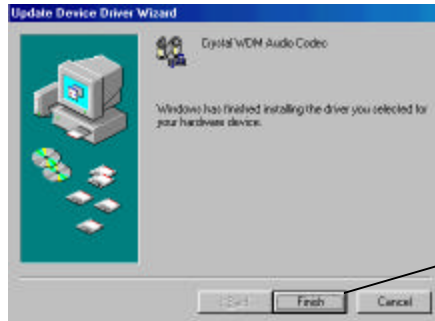


Click “OK” to Continue the Installation Setup Process.



Click “Next” to Start the Installation.

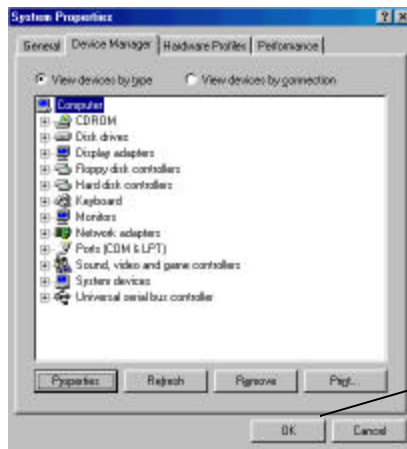
Chapter 4: Driver and Utility



Click **"Finish"** to End the Installation.



Click **"Close"** to Finish installing Crystal WOM Audio Codec Driver.



Click **"OK"** to Finish Check the Driver Install OK.

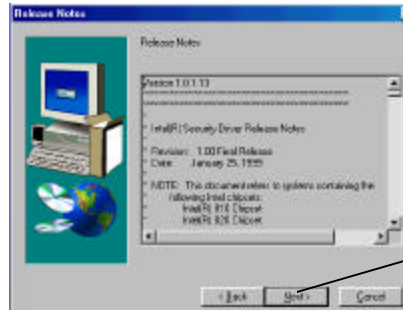
4.5 Intel Security Controller Driver

The Installation Steps:

- Step 1. Insert the manufacturer CD-ROM to your PC.
- Step 2. Click the “Install Driver” option in your installation screen.
- Step 3. Click the “Intel\Security” option to start the installation.
- Step 4. Follow the instruction to finish the installation:

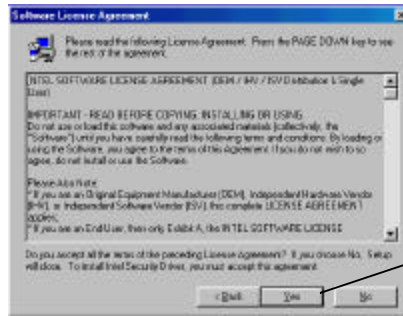


Click “Next” to Continue the Installation.

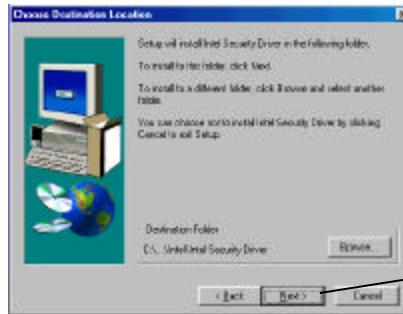


Click “Next” to Agree the Notes.

Chapter 4: Driver and Utility



Click **"Yes"** to Accept the Agreement.



Click **"Next"** to Install the Security Driver to the Default Folder. Otherwise, **"Browse"** to Choose Desired Folder Location.



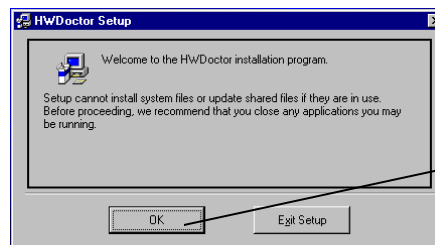
Click **"View Readme"** to View the Readme Document. Or, Click **"Restart"** to Restart and Complete the Installation. Or, Click **"Restart Later"** to Complete the Installation Later.

4.6 System Environment Monitoring Utility

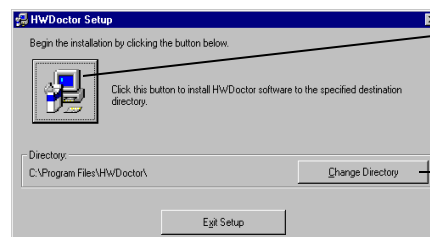
The System Environment Monitoring utility with the onboard Winbond 83627HF system monitor chip allow you to monitor your system's temperature, Fan speed and CPU voltage. Using this utility, you can setup the upper and lower limits of these monitored parameters. A pre-warning message will pop up on the screen when the monitored parameters is out of the preset range.

The Steps to Install the System Environment Monitor Driver

- Step 1. Insert the manufacturer CD-ROM to your PC.
- Step 2. Click "Install Driver" option in your installation screen.
- Step 3. Click "DRIVER\MONITOR\WINBOND\62X" option to start the installation.
- Step 4. Follow the instruction to finish the installation:



Click "OK" to Start the Installation if the System Files Are not in Use. Otherwise, Click "Exit Setup" to Close Files to Restart the Installation Process Again.



Click the button to start the installation.

Click "Change Directory" to Change the Install Direction which Other than the Default -- C:\Program Files\HWDoctor\.

Chapter 4: Driver and Utility



Click “OK” to Complete the Installation. Then, the Following Screen will Show Up in Your Screen.

Winbond Hardware Doctor Ver 2.50

File Tools Help

Voltage

	Low Limit		High Limit	Status
Vccp	1.79	1.00	4.10	2.19 1.97 V
+3.3V	3.10	2.30	4.00	3.79 3.36 V
+5V	4.49	4.00	6.00	5.51 4.95 V
+12V	11.01	10.00	14.00	13.02 11.80 V
-12V	-13.01	-14.00	-10.00	-11.04 -12.19 V
-5V	-5.49	-6.00	-4.00	-4.49 -4.89 V
Vsb	4.49	4.00	6.00	5.51 5.43 V
Vbat	2.50	1.50	4.10	3.50 3.09 V

Fan Speed

	Low Limit	Unit
CPUFAN	1055	4,219 RPM
FAN2	1055	5,819 RPM

Temperature

CPU 0.00 -40 127 60.00 41.00 C

PC Case is closed

4.7 Creative Lab SB AudioPCI 64V (Optional)

The Compact Disc comes with your mainboard may have Sound Blaster AudioPCI 64V utility which is the driver for onboard optional ES1373 audio chip. The driver supports Windows95/98 and WindowsNT 4.x operating system.

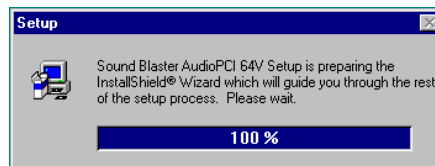
:\\Audio\\English\\NTdrvSB AudioPCI 64V driver for Windows NT4.x.
\\Audio\\English\\win95drvSB AudioPCI 64V driver for Windows95/98

Install SB AudioPCI 64V driver

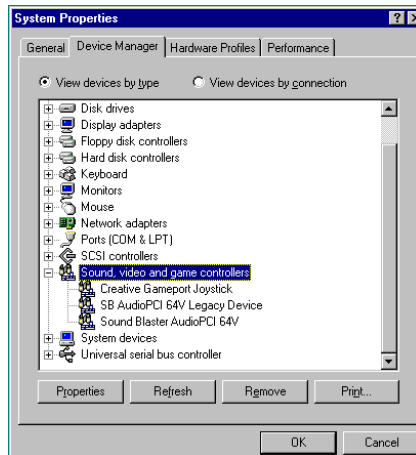
- 1) Usually, the auto-insertion notification function will pop-out the installation screen automatically when you insert the Compact Disc into your CDROM. If the Installation screen is not pop-out automatically, please check the “auto insert notification” which is under **/control panel/system/device manager/CD ROM/property/setting.** or use the windows explorer and go to the **\\CTRUN** directory and executes the **CTRUN.EXE** command, which will force the installation screen to pop-out.



- 2) Click on “install” and follows the instruction on the screen to create the directory and finished the installation.



- 3) After driver install complete, system need to restart and new hardware (like SB AudioPCI 64V Legacy Device/Creative Game Joystick/Sound Blaster Audio 64V) will find.



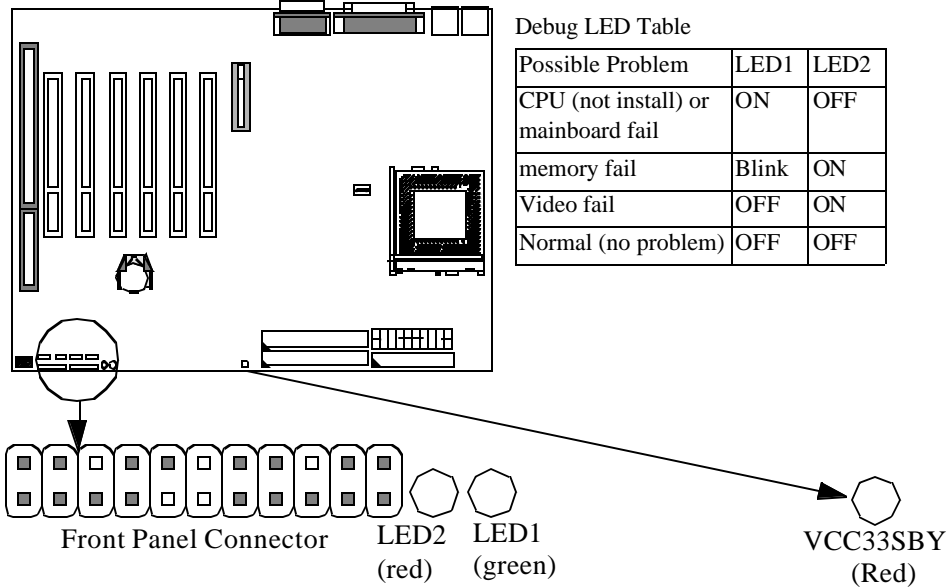
- 4) For windows NT4.x installation, please use the **multimedia icon** which is under the control panel and selects "Add Audio Device". The WindowsNT 4.x driver can be found in the **\Audio\English\NTdrv** directory of the CD.
- 5) There are eight category will create after the driver installation:
- | | |
|--------------------|--|
| Creative CD | For CD Audio tools |
| Creative MIDI | For the MIDI audio edit tools |
| Creative Remote | This function is not support yet. |
| Creative Wave | For the WAV audio edit tools |
| SB Audio 64V Mixer | For Audio Mixer |
| Sound 's LE | For Line-in or Microphone record |

5 Debug & Troubleshooting

5.1 Debug LED (Optional)

The P6F104 mainboard comes with a unique debug LED design to help system integrator to catch up the problem right away.

There are three debug LED close to the front panel connector LED1 LED2, LED3. The LED1 is a GREEN color and LED2 and LED3 is RED. The table below will help you to trouble-shooting the problem before video is available.



Note: The VCC33SBY LED indicates power status of system memory. When the LED3 turn on which means system memory use 3.3V standby power. When LED3 is off system memory use 3.3V power. For safety, it is necessary to turn off power supply's switch whenever replace DIMM module.

Online Services

Freetech is a leading designer and manufacturer of high performance system boards for desktop PCs, workstations and network servers. Since its inception in the heart of Silicon Valley in 1990, it has continued to provide valued products to its customers by focusing on service, quality and technology.

If you need technical support, information on products, and updated version of BIOS, driver and utility, access the Internet and go to:

<http://www.freetech.com/>