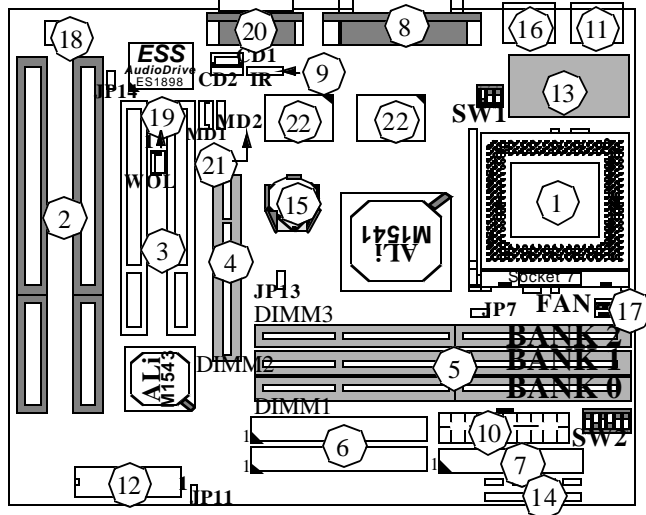


P5F97 Quick Reference

The User's Manual is located at Compact Disc's \manual\English or Chinese

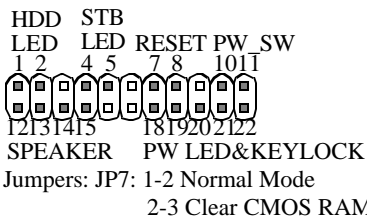
1. Mainboard Layout:



- 1: CPU Socket
- 2: ISA Expansion Slots
- 3: PCI Expansion Slots
- 4: AGP Slot
- 5: DIMM Module Sockets
- 6: IDE Connectors
- 7: Floppy Drive Connector
- 8: Parallel Port Connector (T)
Serial Port Connectors (B)
- 9: IR Port Header
- 10: ATX Power Connector
- 11: PS/2 Mouse Connector (T)
PS/2 Keyboard Connector (B)
- 12: Flash BIOS
- 13: Switching Regulator
- 14: Front panel Connectors
- 15: Battery (CR2032 Lithium)
- 16: Dual USB Connector
- 17: CPU FAN Connector
- 18: System Monitor W83781D(optional)
- 19: Wake On LAN Header
- 20: Game/MIDI Port (T)
Audio MIC/IN/OUT (B)
- 21: Voice Modem Connector
- 22: L2 Cache (Data Cache)

2. Jumpers & Connectors:

Front Panel Connector



4. CPU Core to Bus Clock Multiplier

DIP Switch (SW1) selects Bus Clock Multiplier

| Multiplier | SW2-P4 | SW2-P5 | SW2-P6 |
|------------|--------|--------|--------|
| x 2.0 | OFF | OFF | ON |
| x 2.5 | OFF | ON | ON |
| x 3.0 | OFF | ON | OFF |
| x 3.5 | OFF | OFF | OFF |
| x 4.0 | ON | OFF | ON |
| x 4.5 | ON | ON | ON |
| x 5.0 | ON | ON | OFF |
| x 5.5 | ON | OFF | OFF |

The CPU internal core clock is equal to the "CPU Bus Clock" times the "CPU Core to Bus Clock Multiplier".

3. DIMM Memory Configuration

| | |
|---------------------|--|
| BANK 0 (DIMM1) | EDO/SDRAM 4, 8, 16, 32, 64, 128, 256MB |
| BANK 1 (DIMM2) | EDO/SDRAM 4, 8, 16, 32, 64, 128, 256MB |
| BANK 2 (DIMM3) | EDO/SDRAM 4, 8, 16, 32, 64, 128, 256MB |
| Total System Memory | 8MB to Max. 768MB |

5. CPU Bus Clock (The CPU input clock)

DIP Switch (SW1) selects CPU Bus Clock

| Bus Clock | SW2-P1 | SW2-P2 | SW2-P3 | JP13 |
|-----------------|--------|--------|--------|-------|
| 60MHz | ON | ON | ON | Open |
| 66MHz (default) | ON | ON | OFF | Open |
| 68MHz | ON | OFF | ON | Open |
| 75MHz | OFF | ON | ON | Open |
| 83MHz | OFF | ON | OFF | Open |
| 95MHz | OFF | OFF | ON | Open |
| 100MHz | OFF | OFF | OFF | Open |
| 105MHz | ON | OFF | OFF | Close |
| 110MHz | ON | OFF | ON | Close |
| 115MHz | ON | ON | OFF | Close |
| 120MHz | ON | ON | ON | Close |

Ali Aladdin V chipset can only support CPU Bus Clock up to 100MHz. However, the clock generator of the P5F97 motherboard allows user to change CPU Bus Clock from 60to120MHz. Over clock (105~120MHz) may cause system intermittent lock up or fail to boot-up (no video).

6. CPU Core and I/O Voltages

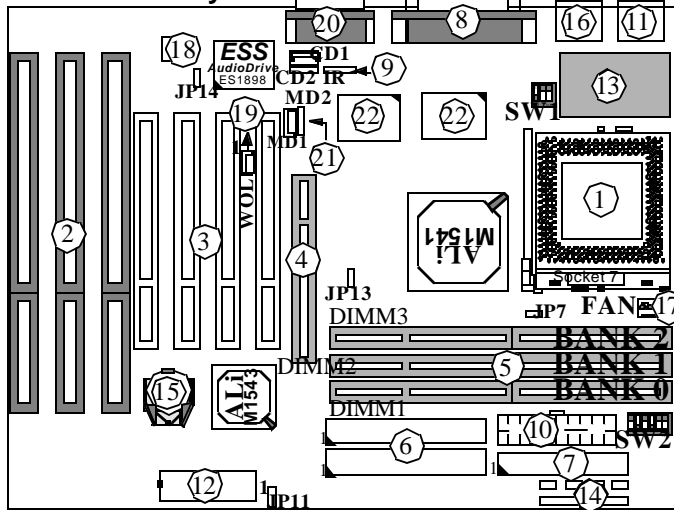
| CPU Voltage | 2.0V | 2.1V | 2.2V | 2.3V | 2.4V | 2.5V | 2.6V | 2.7V | 2.8V | 2.9V | 3.0V | 3.1V | 3.2V | 3.3V | 3.4V | 3.5V |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SW2-P1 | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON |
| SW2-P2 | OFF | OFF | ON | ON | OFF | OFF | ON | ON | OFF | OFF | ON | ON | OFF | OFF | ON | ON |
| SW2-P3 | OFF | OFF | OFF | OFF | ON | ON | ON | ON | OFF | OFF | OFF | ON | ON | ON | ON | ON |

Two voltages Vcore and Vi/o are required for Pentium class CPUs. The Vcore is used for CPU internal operation and the Vi/o is used to supply the voltage for external interface. The P5F97 motherboard has a jumper (JP2) which connect between Vcore and Vi/o. You need to short JP2 only when a Intel Pentium O.D.P. is installed.

P5F103 Quick Reference

The User's Manual is located at Compact Disc's \manual\English or Chinese

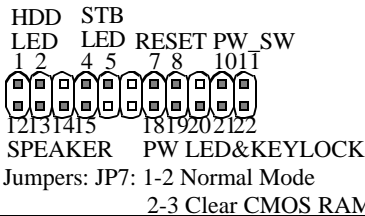
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- 2: ISA Expansion Slots
- 3: PCI Expansion Slots
- 4: AGP Slot
- 5: DIMM Module Sockets
- 6: IDE Connectors
- 7: Floppy Drive Connector
- 8: Parallel Port Connector (T)
Serial Port Connectors (B)
- 9: IR Port Header
- 10: ATX Power Connector
- 11: PS/2 Mouse Connector (T)
PS/2 Keyboard Connector (B)
- 12: Flash BIOS
- 13: Switching Regulator
- 14: Front panel Connectors
- 15: Battery (CR2032 Lithium)
- 16: Dual USB Connector
- 17: CPU FAN Connector
- 18: System Monitor W83781D(optional)
- 19: Wake On LAN Header
- 20: Game/MIDI Port (T)
Audio MIC/IN/OUT (B)
- 21: Voice Modem Connector
- 22: L2 Cache (Data Cache)

2. Jumpers & Connectors:

Front Panel Connector



3. DIMM Memory Configuration

| | |
|---------------------|--|
| BANK 0 (DIMM1) | EDO/SDRAM 4, 8, 16, 32, 64, 128, 256MB |
| BANK 1 (DIMM2) | EDO/SDRAM 4, 8, 16, 32, 64, 128, 256MB |
| BANK 2 (DIMM3) | EDO/SDRAM 4, 8, 16, 32, 64, 128, 256MB |
| Total System Memory | 8MB to Max. 768MB |

4. CPU Core to Bus Clock Multiplier

DIP Switch (SW1) selects Bus Clock Multiplier

| Multiplier | SW2-P4 | SW2-P5 | SW2-P6 |
|------------|--------|--------|--------|
| x 2.0 | OFF | OFF | ON |
| x 2.5 | OFF | ON | ON |
| x 3.0 | OFF | ON | OFF |
| x 3.5 | OFF | OFF | OFF |
| x 4.0 | ON | OFF | ON |
| x 4.5 | ON | ON | ON |
| x 5.0 | ON | ON | OFF |
| x 5.5 | ON | OFF | OFF |

The CPU internal core clock is equal to the "CPU Bus Clock" times the "CPU Core to Bus Clock Multiplier".

5. CPU Bus Clock (The CPU input clock)

DIP Switch (SW1) selects CPU Bus Clock

| Bus Clock | SW2-P1 | SW2-P2 | SW2-P3 | JP13 |
|-----------------|--------|--------|--------|-------|
| 60MHz | ON | ON | ON | Open |
| 66MHz (default) | ON | ON | OFF | Open |
| 68MHz | ON | OFF | ON | Open |
| 75MHz | OFF | ON | ON | Open |
| 83MHz | OFF | ON | OFF | Open |
| 95MHz | OFF | OFF | ON | Open |
| 100MHz | OFF | OFF | OFF | Open |
| 105MHz | ON | OFF | OFF | Close |
| 110MHz | ON | OFF | ON | Close |
| 115MHz | ON | ON | OFF | Close |
| 120MHz | ON | ON | ON | Close |

Ali Aladdin V chipset can only support CPU Bus Clock up to 100MHz. However, the clock generator of the P5F103 motherboard allows user to change CPU Bus Clock from 60to120MHz. Over clock (105~120MHz) may cause system intermittent lock up or fail to boot-up (no video).

6. CPU Core and I/O Voltages

| CPU Voltage | 2.0V | 2.1V | 2.2V | 2.3V | 2.4V | 2.5V | 2.6V | 2.7V | 2.8V | 2.9V | 3.0V | 3.1V | 3.2V | 3.3V | 3.4V | 3.5V |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SW2-P1 | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON |
| SW2-P2 | OFF | OFF | ON | ON | OFF | OFF | ON | ON | OFF | OFF | ON | ON | OFF | OFF | ON | ON |
| SW2-P3 | OFF | OFF | OFF | OFF | ON | ON | ON | ON | OFF | OFF | OFF | ON | ON | ON | ON | ON |

Two voltages Vcore and Vi/o are required for Pentium class CPUs. The Vcore is used for CPU internal operation and the Vi/o is used to supply the voltage for external interface. The P5F103 motherboard has a jumper (JP2) which connect between Vcore and Vi/o. You need to short JP2 only when a Intel Pentium O.D.P. is installed.

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1 Introduction

1.1 Overview

The P5F97/P5F103 is a high quality, high performance, function enhanced mainboard, based on the powerful Intel Pentium, AMD K6/ K6-2 and Cyrix MX/MII processor. This mainboard is designed around the latest ALi (Acer Lab) Aladdin V chipset in a Micro-ATX (P5F97) or ATX(P5F103) form factor.

The P5F97/P5F103 mainboard delivers workstation level performance with its integrated AGP (Accelerated Graphics Port), Bus Mastering EIDE (Enhanced IDE) controller, concurrent PCI bus, and its ability to accommodate EDO (Extended Data Out) and SDRAM (Synchronous DRAM) memory. When this high data stream bandwidth mainboard is equipped with powerful processor with MMX technology, 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.

P5F97/P5F103 mainboard achieves the highest reliability by supporting the ECC (Error Checking and Correction) memory protection. This enables the P5F97/P5F103 mainboard to achieve superior data integrity and fault-tolerance, in respect to memory errors while running applications.

The P5F97/P5F103 mainboard offers outstanding I/O capabilities. It contains a full set of PC I/O, such as dual channel PCI 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) port, and a PS/2 keyboard and mouse connector. One AGP slot, two(P5F97) or four(P5F103) PCI local bus slots and two(P5F97) or three(P5F103) ISA bus slots provide expandability for add on peripheral cards.

The P5F97/P5F103 mainboard is OnNow PC, Managed PC and PC98 compliant. It also offers optimized system performance, integrated power management, and system manageability (optional).

Optimized System Performance: AGP improves the Graphics performance dramatically, Ultra DMA/33 speeds up disk drive access, Enhanced SDRAM support for fastest access to memory, and Concurrent PCI enables simultaneous data transfer.

System Manageability: Winbond W83781D Hardware Environment Monitoring chip (assembly option) enables the ability for system voltage, temperature and fan speed monitoring detection.

In addition to superior hardware capabilities, features like bus mastering EIDE driver, Plug and Play, Soft-off, APM (Advanced Power Management), External Modem Ring On, Wake On LAN (WOL), Watchdog timer wake up, Sleeping state indicator, fan off in sleeping state (requires Fan with tachometer output) and BIOS upgradability are provided on the P5F97/P5F103 platform.

1.2 P5F97/P5F103 Specifications/Features

1.2.1 Hardware

| | |
|-----------------|--|
| CPU | Supports the following CPUs in a ZIF Socket 7 Intel Pentium 90 ~ 200MHz. Intel Pentium w/MMX 166 ~ 233MHz. AMD K5 PR90 ~ 166MHz AMD K6 /166 ~ 300MHz AMD K6-2 /250 ~ 550MHz Cyrix/IBM 6x86 PR133 ~ 166MHz Cyrix/IBM 6x86L PR133 ~ 166MHz Cyrix/IBM 6x86MX PR166 ~ PR233MHz Cyrix/IBM 6x86MII PR233 ~ PR333MHz |
| VRM | Switching Voltage Regulator on board Provides 2.0V to 3.5V operating voltage for CPU core. |
| Coprocessor | CPU built-in FPU (floating point unit) |
| Speed | CPU bus clock 60/66/75/83/95/100 MHz AGP clock 60/66 MHz PCI bus clock 30/33 MHz ISA bus clock 8.33/10 MHz |
| Chipset | ALi Aladdin V (M1541) Chipset ALi's Aladdin V (M1543) chipset built in I/O ESS Audio Drive ES1898 sound chip Winbond's W83781D chip (assembly option) |
| L2 Cache | P5F97/P5F103 comes with 512KB(default) or 1MB(optional) Pipeline Burst SRAM |
| DRAM | 3 x 168-pin DIMM sockets Supports 8MB to 768MB memory Supports 3.3V EDO and SDRAM memory |
| EIDE Controller | Supports four EIDE devices in two channels Supports PIO mode 0 through mode 4 drives Supports Bus Mastering DMA mode 2 drives Supports Bus Mastering UDMA/33 mode 2 drivers |

| | |
|-------------------|---|
| Enhanced I/O | One floppy disk controller One Standard/EPP/ECP parallel port connector Two 16550 compatible serial port connectors One IrDA compatible Infrared port Two USB (Universal Serial Bus) ports |
| Mouse/Keyboard | PS/2 keyboard & mouse connector |
| Expansion Slots | One AGP Slot Two(P5F97) or Four(P5F103) 32-bit PCI slots Two(P5F97) or Three(P5F103) 16-bit ISA slots (one PCI/ISA shared slot) |
| Power Management | Compliant with EPA, APM 1.2 and ACPI Micro-ATX/ATX soft-off power control Power - On by External Modem Ring Power - On by Alarm Power - On by Wake On LAN (WOL) Sleep state indicator CPU Fan off in sleep mode |
| System Management | Winbond W83781D PC Environment Monitor (Assembly option) |
| Voltage Regulator | Switching regulator |
| Form Factor | P5F97 in Micro-ATX Form Factor 19.5cm x 24.5cm (7.7"x 9.6") P5F103 in ATX Form Factor 19.5cm x 30.5cm (12.0"x 7.7") |

1.2.2 Software

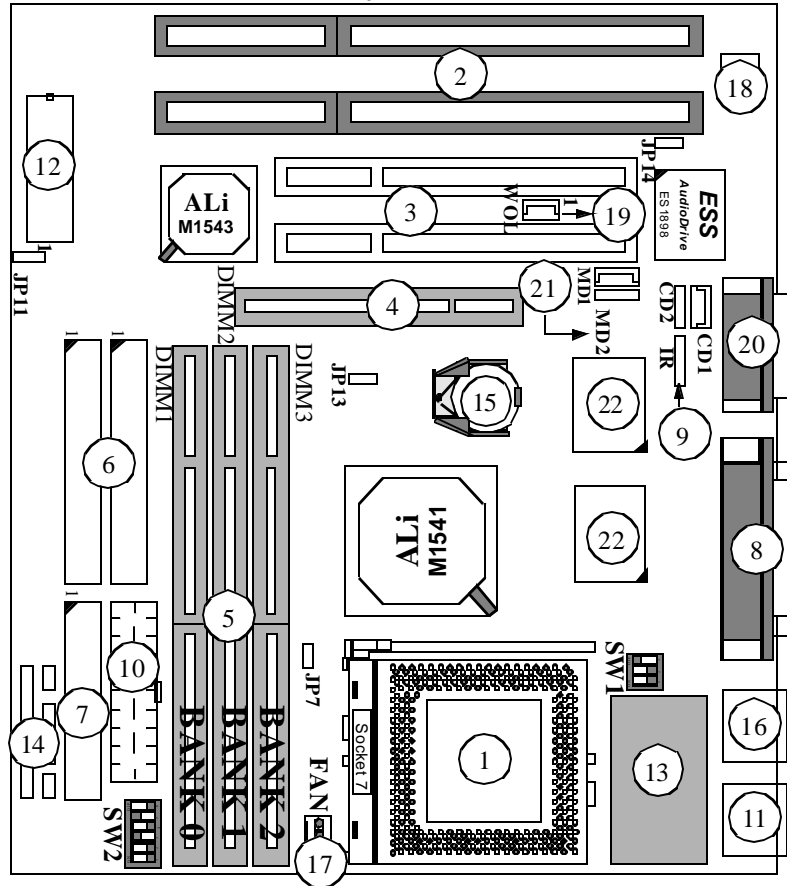
| | |
|------|---|
| BIOS | Flash BIOS with ESCD (Extended System Configuration Data) block Supports APM, PnP, Multi-Boot, DMI and EIDE devices Supports High-Capacity LS-120 and ZIP Removable Media Drive |
|------|---|

| | |
|---------|--|
| Driver | AGP driver & IDE Bus mastering driver |
| Utility | Flash utility for BIOS upgrade |
| O.S. | Operates with MS_DOS, Windows 3.x, Windows for Work Groups 3.x, Windows95, Windows 98, Windows NT4.0, OS/2, Novell Netware, Novell UnixWare 1.1 and SCO Unix 5.x |

1.2.3 Environment

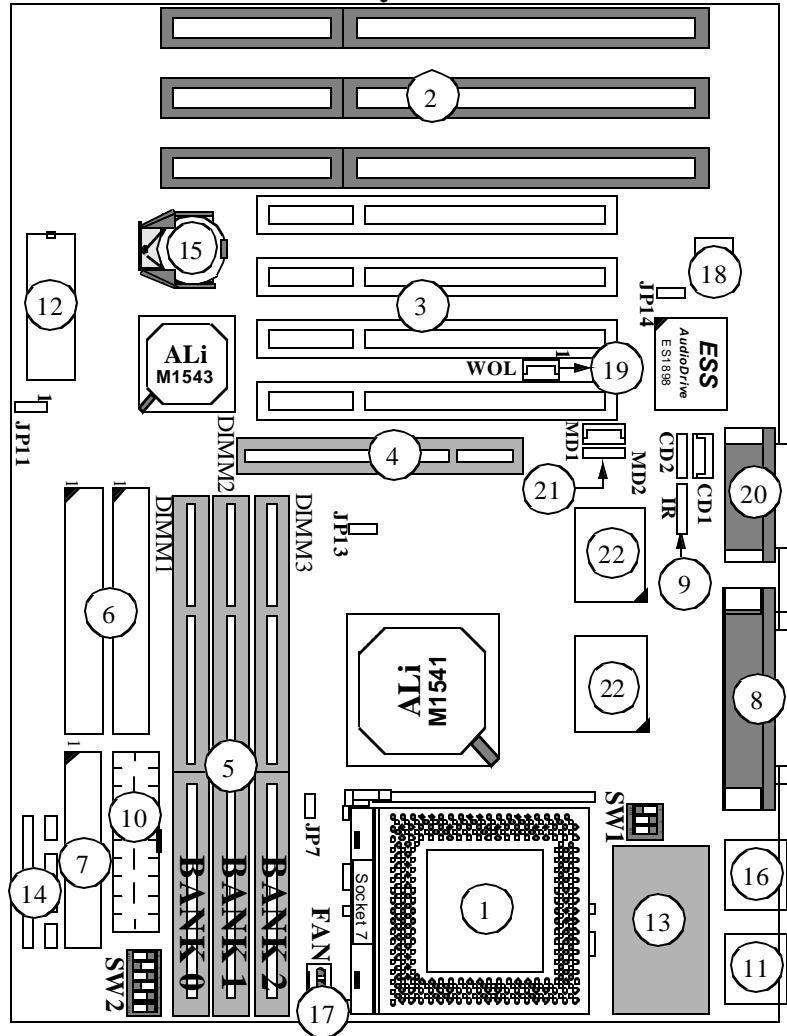
| | |
|---------------------|---|
| Ambient Temperature | 0 ⁰ C to 50 ⁰ C (Operating) |
| Relative Humidity | 0 to 85% (Operating) |
| Vibration | 0 to 500 Hz |
| DC Voltage | 4.9V to 5.2V |
| DC Voltage | 2.00V to 3.50V (depend on CPU) |
| DC Voltage | -5V, +12V, -12V, +5V _{SB} 5% tolerance. |

1.3 P5F97 Mainboard Layout



- | | |
|--------------------------------|--------------------------------------|
| 1: CPU Socket | 12: Flash BIOS |
| 2: ISA Expansion Slots | 13: Switching Regulator |
| 3: PCI Expansion Slots | 14: Front panel Connectors |
| 4: AGP Slot | 15: Battery (CR2032 Lithium) |
| 5: DIMM Module Sockets | 16: Dual USB Connector |
| 6: IDE Connectors | 17: CPU FAN Connector |
| 7: Floppy Drive Connector | 18: System Monitor W83781D(optional) |
| 8: Parallel Port Connector (T) | 19: Wake On LAN Header |
| Serial Port Connectors (B) | 20: Game/MIDI Port (T) |
| 9: IR Port Header | Audio MIC/IN/OUT (B) |
| 10: ATX Power Connector | 21: Voice Modem Connector |
| 11: PS/2 Mouse Connector (T) | 22: L2 Cache (Data Cache) |
| PS/2 Keyboard Connector (B) | |

1.3 P5F103 Mainboard Layout



- | | | |
|--|---|--|
| 1: CPU Socket | 10: ATX Power Connector | 19: Wake On LAN Header |
| 2: ISA Expansion Slots | 11: PS/2 Mouse Connector (T) PS/2 Keyboard Connector (B) | 20: Game/MIDI Port (T) Audio MIC/IN/OUT (B) |
| 3: PCI Expansion Slots | | 21: Voice Modem Connector |
| 4: AGP Slot | 12: Flash BIOS | 22: L2 Cache (Data Cache) |
| 5: DIMM Module Sockets | 13: Switching Regulator | |
| 6: IDE Connectors | 14: Front panel Connectors | |
| 7: Floppy Drive Connector | 15: Battery (CR2032 Lithium) | |
| 8: Parallel Port Connector (T) Serial Port Connectors (B) | 16: Dual USB Connector | |
| 9: IR Port Header | 17: CPU FAN Connector | |
| | 18: System Monitor W83781D(optional) | |

1.4 Microprocessor

The P5F97/P5F103 meets all requirements of a Pentium flexible mainboard.

The requirements for a Pentium flexible mainboard are:

1. CPU ZIF socket is Socket 7.
2. BIOS can support various Pentium class processors with different CPU core frequency.
3. On-board switching regulators and heat sinks meet CPU's core and I/O voltage/current/thermal specifications.

The P5F97/P5F103 mainboard can support the following CPUs

Intel Pentium 90 ~ 200MHz.
Intel MMX Pentium 166 ~ 233MHz.
Cyrix/IBM 6x86 PR133 ~ 166MHz
Cyrix/IBM 6x86L PR133 ~ 166MHz
Cyrix/IBM 6x86MX PR166 ~ PR233MHz
Cyrix/IBM M II PR233 ~ PR333MHz
AMD K5 PR90 ~ 166MHz
AMD K6 /166 ~ 300 MHz
AMD K6-2 /250 ~ 550MHz

☞ A Cooling Fan And Heat Sink Assembly Are Required To Protect The Cpu From Being Damaged Due To Overheating.

1.5 Level 2 Cache

The P5F97/P5F103 mainboard provides standard 512KB synchronous pipelined burst SRAM cache on board as a manufacture default. However the 1MB synchronous pipelined burst SRAM cache are also available by special request.

1.6 Chipset

The ALi Aladdin V chipset consists of a M1541 System Controller, and a M1543 PCI ISA/IDE Accelerator.

- M1541:
- CPU interface controller
 - AGP Interface controller
 - Integrated DRAM/Cache controller
 - 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
- M1543:
- Interface between the PCI and ISA buses
 - Fully synchronous PCI 2.1 bus interface
 - 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
 - Super I/O and Keyboard controller

1.7 Main Memory

The P5F97/P5F103 mainboard provides three 168-pin DIMM sockets to support 8MB to 768MB of system memory. The 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. The DIMM have to be 3.3V & unbuffered memory.

The P5F97/P5F103 supports two types of DRAMs, Extended Data Out (EDO), and Synchronous DRAM (SDRAM). Memory timing requires 70ns or faster for EDO, and equal or faster speed than the CPU bus clock for SDRAMs.

The P5F97/P5F103 mainboard achieves the highest reliability by supporting the ECC (Error Checking and Correction) memory protections. The ECC is a hardware scheme which detects all single and dual-bit errors, and corrects all single-bit error during main memory access. The ECC can be supported only if all the DIMM

memory modules come with parity bits and the option “DRAM Data Integrity Mode” in the Chipset Features Setup has to be set to “ECC”.

EDO DRAM is designed to improve the DRAM read performance. It holds the memory data valid until the next memory access cycle, unlike FPM DRAM that tri-states the memory data when the precharge cycle occur, prior to the next memory access cycle. SDRAM uses the system clock to synchronize the flow of addresses, data, control and the pipelining of operation. This yields a significant memory performance improvement.

1.8 Accelerated Graphics Port (AGP) Slot

The P5F97/P5F103 mainboard is equipped with an Accelerated Graphic Port slot which is compliant to the AGP specification 1.0. The AGP runs at 66.6MHz (or 60MHz) clock and supports both 1x and 2x mode for 66.6MHz and 133MHz 3.3V devices. The data transfer rate on the AGP bus can be 4 times faster than PCI bus.

The following is a clock frequency for different system clock operating modes:

| System Clock | CPU Bus Clock | AGP Clock | PCI Clock |
|--------------|---------------|-----------|-----------|
| 60MHz | 60MHz | 60MHz | 30MHz |
| 66MHz | 66MHz | 66MHz | 33MHz |
| 75MHz | 75MHz | 60MHz | 30MHz |
| 83MHz | 83MHz | 66MHz | 33MHz |
| 95MHz | 95MHz | 63MHz | 31MHz |
| 100MHz | 100MHz | 66MHz | 33MHz |
| 105MHz | 105MHz | 70MHz | 35MHz |
| 110MHz | 110MHz | 73MHz | 36MHz |
| 115MHz | 115MHz | 76MHz | 38MHz |
| 120MHz | 120MHz | 80MHz | 40MHz |

1.9 Enhanced IDE Support

The P5F97/P5F103 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 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 ALi Aladdin V chipset is intended to reduce the workload of the CPU, hence increasing CPU efficiency. The Bus Master takes care of the data transfer between IDE and memory, and lets the CPU handle other tasks. In true multi-tasking operating systems such as Windows 95, Windows98, 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 3 | 11.1 MB/Second |
| 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 |

1.10 Keyboard, Mouse and USB Interface

The 5V line to the PS/2 keyboard, mouse connector and USB header, are protected with 3Amp/125V fuse.

The P5F97/P5F103 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, the 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. P5F97/P5F103 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 contents of the CMOS RAM can be cleared by placing a shunt to short pin2 and pin3 of JP11 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 Microsoft Infrared (MSIR) 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 ALi Aladdin V chipset 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 P5F97/P5F103 not only complies with EPA, APM1.2 and ACPI (Advanced Configuration and Power Interface), but also provides the following power management features.

- *Power-on by an external modem ring in or a watchdog timer (Alarm)*

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

- *Power Management mode indicator*

The standby LED will blink once a second when system entering DOZE Mode and blink twice a second when system entering STANDBY Mode. When system entering SUSPEND Mode, standby LED will stop blinking and stay on.

- *Fan off in suspend mode*

The CPU cooling fan will be turned off when the system is in suspend mode. (required cooling FAN cable connect to motherboard FAN connector).

1.14 System Power On/Off Control

If Micro-ATX or ATX power supply is used, you may enjoy a lot of special features as mentioned in the following. System power can be turned on by network card (WOL), power button, an external modem ring, an alarm. To enable the “Wake On LAN” feature, the option “Resume by LAN” in the BIOS Power Management Setup has to be set to “Enabled”. To enable the “modem ring on” feature, the option “Resume by Ring” in the BIOS Integrated Peripherals Setup has to be set to “Enabled”. To enable the “alarm on” feature, the option “Resume by Alarm” in the BIOS Integrated Peripherals Setup has to be set to “Enabled”.

System power can be turned off in one of two ways: a front panel power button or soft-off control. When the option “PWR-BTTN” in the BIOS Power Management Setup is set to “Power Off”, pressing the power button will immediately turn off the system power. But if the “PWR-BTTN” option is set to “Disabled”, 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 95 will

issue Soft Off APM command when the user selects “Shutdown” in Start Menu. In order to make Soft Off feature work properly, Power Management/APM must be enabled in the system BIOS and Operating System.

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 95/98 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 “PWR-BTTN” in the BIOS Power Management Setup has to be set to “Green Mode”

When the system enters the sleep mode, the CPU stops running, the Ali Aladdin V chipset and related circuits stay in the lowest power state, the HDD stops spinning, the monitor screen becomes blank, the STB LED (STANDBY LED) indicator on the front panel turn on, and the CPU cooling fan is turned off (Note: in order to turn off the fan in sleep mode, you need to connect the CPU cooling fan to the on-board fan power connectors).

1.16 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 an ATX power supply installed and 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 NIC interface and when it detects a Magic Packet (MP Wake-up) it asserts a wake up signal that powers up the computer.

Note:

For WOL (Wake on LAN), the 5Vsb (5V standby) line of the ATX power supply must be capable of delivering 5V with 5% tolerance at 720mA or higher.

2 Hardware Installation

⚡ Static Electricity Precautions

Before removing the Mainboard from its anti-static bag, you need to eliminate any static electricity that may be accumulated on your body. The charge that can build up in your body may be more than enough to damage integrated circuits on the system board. Therefore, it is important to observe basic precautions whenever you handle or use computer components. Although areas with humid climate are much less prone to static build-up, it is best to always safeguard against accidental damage that may lead to costly repairs. The following measures should be sufficient to protect your equipment from static discharge:

- After removing the system cover, discharge any static electricity that might have accumulated in your body by touching a grounded or anti-static surface (e.g. anti-static pads or using a grounding wrist strap). If nothing is available, touch the power supply housing. This assumes the system unit is plugged into the AC outlet. Be certain to do this before removing components from their anti-static coverings.
- When handling separate cards, boards or modules, be cautious to avoid contacting with the components on them, and also with the “gold finger” connectors that plug into the expansion slot. It is best to handle them either by their edges or by mounting brackets that attach to the slot opening in the system cases. However, the above recommendation are just intended to avoid the static discharge problem.
- Make certain that everything connects to the system case, including the power supply, is unplugged before doing the installation work.

2.1 Unpacking

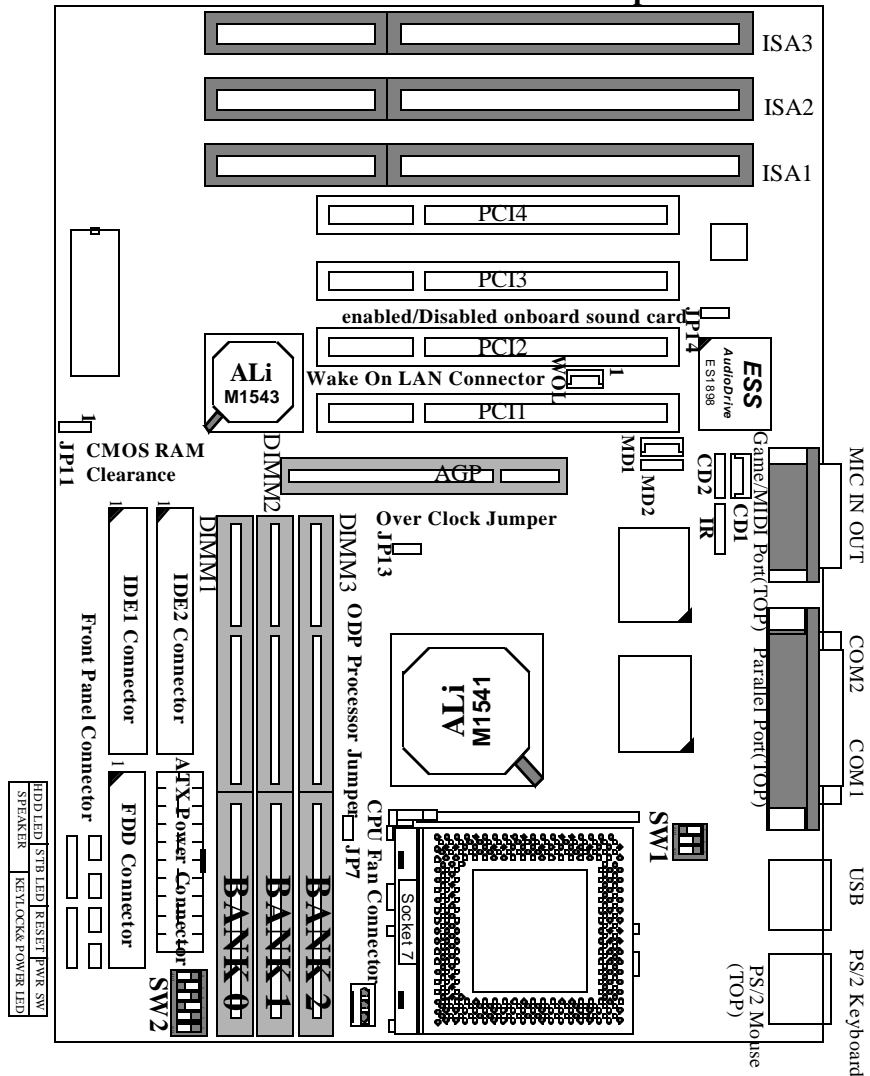
The P5F97/P5F103 mainboard package contains the following:

- ☑ Mainboard
- ☑ One IDE 40-pin ribbon cable
- ☑ One floppy 34-pin ribbon cable
- ☑ Driver and Utility diskettes
- ☑ User's manual

2.2 Installation

The P5F97/P5F103 is designed to fit into a standard Micro-ATX/ATX form factor chassis. It is highly recommended to use as many metal fasteners as possible to mount the mainboard in the chassis for better grounding.

P5F97/P5F103 Mainboard Connector/Jumper Location



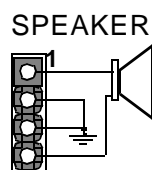
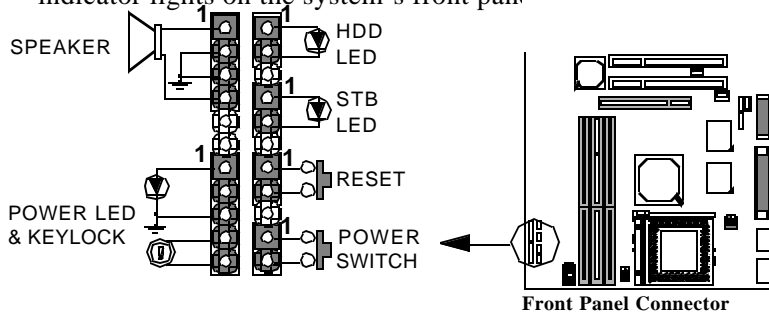
Jumper/Connector Quick Reference

| Jumper | Function description |
|--------|---|
| JP7 | “Close” for Pentium Over Driver (P54CTB) processor. “Open” for the others CPU. |
| JP11 | CMOS RAM Clearance. 1-2 Normal, 2-3 Clear CMOS RAM. |
| JP13 | Over Clock Jumper. “Open” over-clock disabled. “Close” over-clock enabled. |
| JP14 | “Close” enabled onboard sound chip. “Open” Disabled onboard sound chip. |

2.2.1 Attaching Connectors

1. Front Panel Connectors

There are 6 connectors on the mainboard for speaker, switches and indicator lights on the system’s front panel



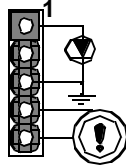
Pin Assignment

- 1. Speaker out
- 2. Ground
- 3. Ground
- 4. +5V

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

Chapter 2: Hardware Installation

Power LED & Keylock



Pin Assignment

1. LED Cathode
2. N. C.
3. LED Anode (Ground)
4. KEYLOCK
5. Ground

This 5-pin connector connects to the case-mounted keylock switch and the power LED.

HDD LED Connector



Pin Assignment

1. LED Anode
2. LED Cathode

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

STB LED Connector



Pin Assignment

1. LED Cathode
2. LED Anode (Ground)

This 2-pin connector connects to the case-mounted STB LED to indicate a standby status.

Reset Connector



Pin Assignment

1. Power Good
2. Ground

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

Power Switch Connector



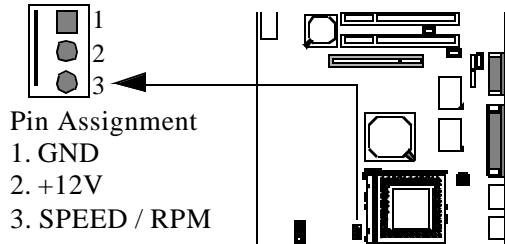
Pin Assignment

1. Power On/Off
2. Ground

This 2-pin connector connects to the case-mounted Power button.

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 ALi Aladdin V 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



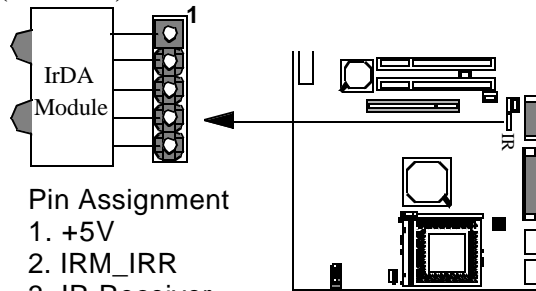
Pin Assignment
 1. GND
 2. +12V
 3. SPEED / RPM

There is a fan connectors on the P5F97/P5F103 mainboard for the CPU 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. You can monitor the fan speed by way of W83781D chip (optional) and the fan must come with a tachometer output.

3. IrDA-compliant IR (Infrared) Connector

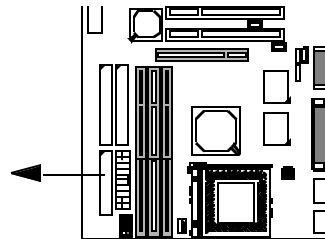
This 5-pin connector connects to an optional wireless transmitting and receiving infrared module via a cable and a bracket.



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

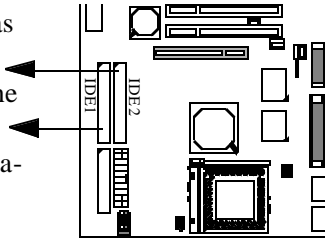
4. Floppy Drive Connector (One 34-pin Block)

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.



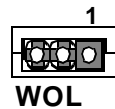
5. IDE Connectors (Two 40-pin Block)

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 came 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.

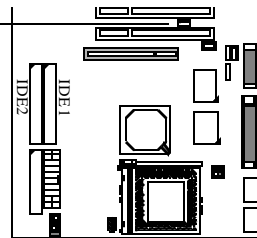


6. Wake on LAN Connector:

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

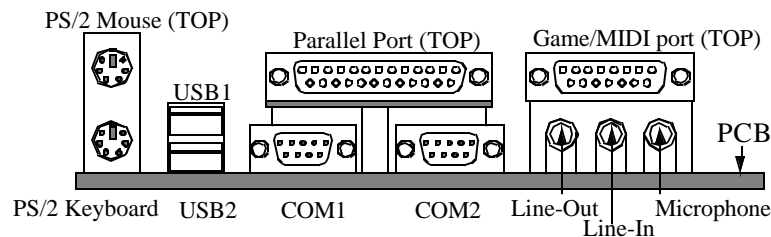


- Pin Assignment**
- 1. +5V_{SB}
 - 2. GND
 - 3. Wake-up signal



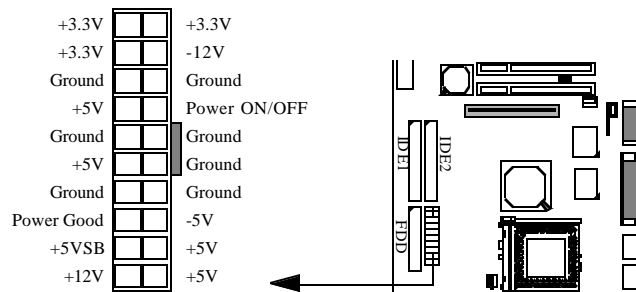
7. Back Panel Connectors

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.



8. Power Supply Connector

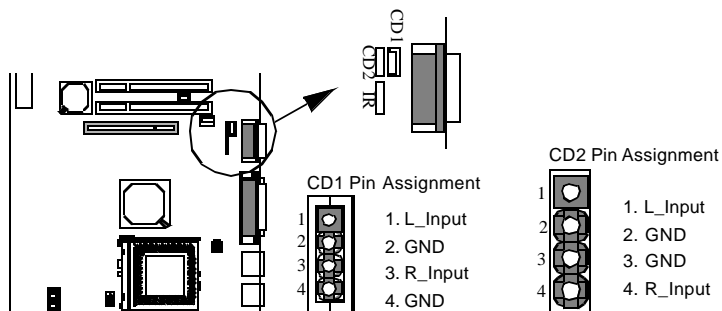
The Micro-ATX power supply has a single lead connector with a clip on one side of the plastic housing. There is only one way to plug the lead into the ATX power connector. Press the lead connector down until the clip snaps into place and secures the lead onto the connector.



⚠ *Incorrect installation of the power supply could result in serious damage to the mainboard and connected peripherals. Make sure the power supply is unplugged from the AC outlet before connecting the leads from the power supply.*

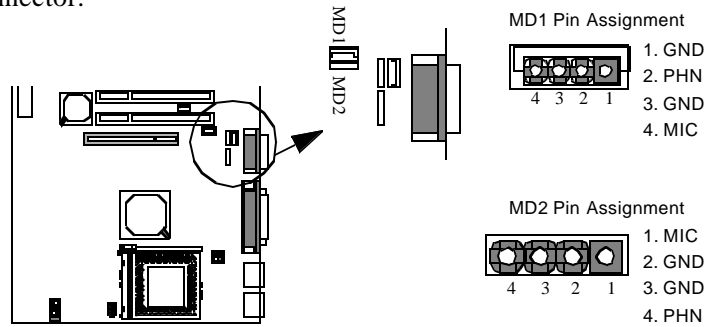
9. CD-ROM Audio Input Connector:

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 JST type connector which is for SONY/ATAPI CD-ROM. CD1 is MPC2 type connector which is for MITSUMI/PANASONIC CD-ROM.



10. Modem 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.

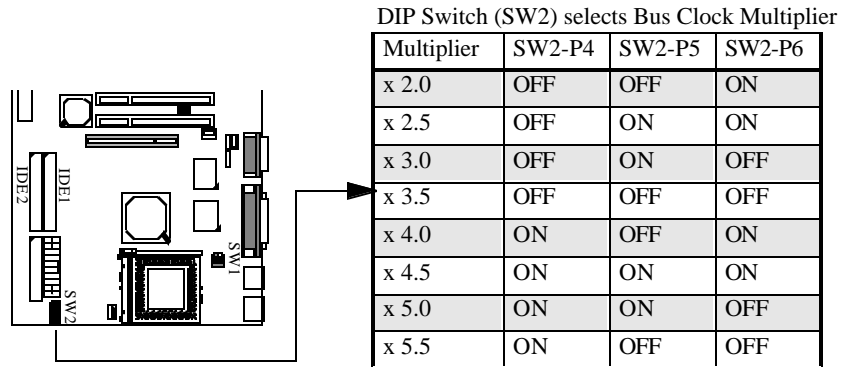


2.2.2 Setting DIP Switches

You need to configure DIP Switch to set the

- 1) CPU core to bus clock multiplier
- 2) CPU bus clock
- 3) CPU Core and I/O Voltage

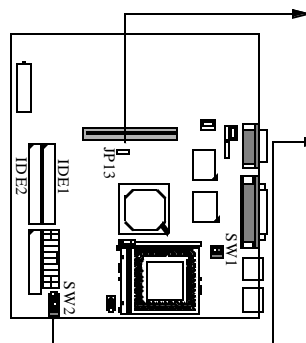
CPU Core to Bus Clock Multiplier: The CPU internal core clock is equal to the “CPU Bus Clock” times the “CPU Core to Bus Clock Multiplier”. For example, if the CPU Bus Clock is 100MHz and the CPU Core to Bus Multiplier is 3, the actual CPU core clock will be 300MHz.



Chapter 2: Hardware Installation

CPU Bus Clock: The CPU Bus Clock is defined as the CPU input clock. For example: the CPU Bus Clock for AMD K6, 266 and 300 MHz are 66 MHz and 100MHz for K6-2, 250 and 300MHz.

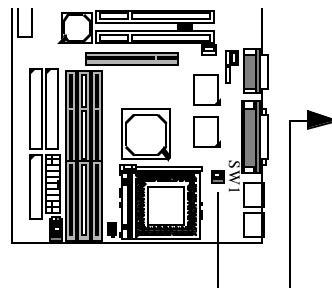
DIP Switch (SW2) selects CPU Bus Clock



| Bus Clock | SW2-P1 | SW2-P2 | SW2-P3 | JP13 |
|--------------------|--------|--------|--------|-------|
| 60MHz | ON | ON | ON | Open |
| 66MHz (default) | ON | ON | OFF | Open |
| 68MHz | ON | OFF | ON | Open |
| 75MHz | OFF | ON | ON | Open |
| 83MHz | OFF | ON | OFF | Open |
| 95MHz | OFF | OFF | ON | Open |
| 100MHz | OFF | OFF | OFF | Open |
| 105MHz | ON | OFF | OFF | Close |
| 110MHz | ON | OFF | ON | Close |
| 115MHz | ON | ON | OFF | Close |
| 120MHz | ON | ON | ON | Close |

CPU Core and I/O Voltages: Two voltages V_{CORE} and $V_{I/O}$ are required for Pentium class CPUs. The V_{CORE} is used for CPU internal operation and the $V_{I/O}$ is used to supply the voltage for external interface. The P5F97/P5F103 mainboard has a jumper (JP7) which connect between V_{core} and $V_{i/o}$. You need to short JP7 only when a Intel Pentium O.D.P. (Overdrive processor) is installed.

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DIP Switch (SW1) selects CPU voltage

| CPU Voltage | SW1-P1 | SW1-P2 | SW1-P3 |
|-------------|--------|--------|--------|
| 2.0V | OFF | OFF | OFF |
| 2.1V | ON | OFF | OFF |
| 2.2V | OFF | ON | OFF |
| 2.3V | ON | ON | OFF |
| 2.4V | OFF | OFF | ON |
| 2.5V | ON | OFF | ON |
| 2.6V | OFF | ON | ON |
| 2.7V | ON | ON | ON |
| 2.8V | OFF | OFF | OFF |
| 2.9V | ON | OFF | OFF |
| 3.0V | OFF | ON | OFF |
| 3.1V | ON | ON | OFF |
| 3.2V | OFF | OFF | ON |
| 3.3V | ON | OFF | ON |
| 3.4V | OFF | ON | ON |
| 3.5V | ON | ON | ON |

Note: Different voltage may have the same DIP switch setting. For example the DIP switch for 2.2V and 2.9V are identical same. The “SMART” switching regulator design can auto-detect the CPU type and generate the proper operating voltage for the CPU. For example, with the same DIP switch setting, when a AMD K6-266 or 300MHz CPU plug-in, switching regulator will set to 2.2V and if an AMD K6-200MHz CPU plug-in, switching regulator will set to 2.9V.

Intel Pentium CPU Clock DIP Switch Setting

| CPU Speed | SW1 | | | SW2 | | | | | | JP7 | JP13 |
|--|-----|-----|-----|-----|----|-----|-----|-----|-----|-------|------|
| | P1 | P2 | P3 | P1 | P2 | P3 | P4 | P5 | P6 | | |
| Pentium -90 60MHz x 1.5 | ON | OFF | ON | ON | ON | ON | OFF | OFF | OFF | Open | Open |
| Pentium -100 66MHz x 1.5 | ON | OFF | ON | ON | ON | OFF | OFF | OFF | OFF | Open | Open |
| Pentium -120 60MHz x 2 | ON | OFF | ON | ON | ON | ON | OFF | OFF | ON | Open | Open |
| Pentium -133 66MHz x 2 | ON | OFF | ON | ON | ON | OFF | OFF | OFF | ON | Open | Open |
| Pentium -150 60MHz x 2.5 | ON | OFF | ON | ON | ON | ON | OFF | ON | ON | Open | Open |
| Pentium Overdrive -150 60MHz x 2.5 (P54CTB) | ON | ON | ON | ON | ON | ON | OFF | OFF | ON | Close | Open |
| Pentium -166 66MHz x 2.5 | ON | ON | ON | ON | ON | OFF | OFF | ON | ON | Open | Open |
| Pentium Overdrive-166 66MHz x 2.5 (P54CTB) | ON | ON | ON | ON | ON | OFF | OFF | OFF | ON | Close | Open |
| Pentium - 200 66MHz x 3 | ON | ON | ON | ON | ON | OFF | OFF | ON | OFF | Open | Open |
| Pentium Overdrive- 200 66MHz x 3 (P54CTB) | ON | ON | ON | ON | ON | OFF | OFF | ON | ON | Close | Open |
| MMX Pentium - 166 66MHz x 2.5 | OFF | OFF | OFF | ON | ON | OFF | OFF | ON | ON | Open | Open |
| MMX Pentium - 200 66MHz x 3 | OFF | OFF | OFF | ON | ON | OFF | OFF | ON | OFF | Open | Open |
| MMX Pentium - 233 66MHz x 3.5 | OFF | OFF | OFF | ON | ON | OFF | OFF | OFF | OFF | Open | Open |

Note:

You need to shunt JP7 only when a Intel Pentium Overdrive processor installed. For the rest of the CPUs, this jumper should leave it open (default).

AMD CPU Clock DIP Switch Setting

| CPU Speed | SW1 | | | SW2 | | | | | | JP7 | JP13 |
|------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| | P1 | P2 | P3 | P1 | P2 | P3 | P4 | P5 | P6 | | |
| AMD-K5-PR150 60MHz x 1.75 | ON | ON | ON | ON | ON | ON | OFF | OFF | ON | Open | Open |
| AMD-K5-PR166 66MHz x 1.75 | ON | ON | ON | ON | ON | OFF | OFF | OFF | ON | Open | Open |
| AMD-K6/166 66MHz x 2.5 | ON | OFF | OFF | ON | ON | OFF | OFF | ON | ON | Open | Open |
| AMD-K6/200 66MHz x 3 | ON | OFF | OFF | ON | ON | OFF | OFF | ON | OFF | Open | Open |
| AMD-K6/233 66MHz x 3.5 | OFF | OFF | ON | ON | ON | OFF | OFF | OFF | OFF | Open | Open |
| AMD-K6/266 66MHz x 4 | OFF | ON | OFF | ON | ON | OFF | ON | OFF | ON | Open | Open |
| AMD-K6/300 66MHz x 4.5 | OFF | ON | OFF | ON | ON | OFF | ON | ON | ON | Open | Open |
| AMD-K6-2/250 100MHz x 2.5 | OFF | ON | OFF | OFF | OFF | OFF | OFF | ON | ON | Open | Open |
| AMD-K6-2/266 66MHz x 4 | OFF | ON | OFF | ON | ON | OFF | ON | OFF | ON | Open | Open |
| AMD-K6-2/300 100MHz x 3 | OFF | ON | OFF | OFF | OFF | OFF | OFF | ON | OFF | Open | Open |
| AMD-K6-2/333 95MHz x 3.5 | OFF | ON | OFF | OFF | OFF | ON | OFF | OFF | OFF | Open | Open |
| AMD-K6-2/350 100MHz x 3.5 | OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | Open | Open |
| AMD-K6-2/400 100MHz x 4 | OFF | ON | OFF | OFF | OFF | OFF | ON | OFF | ON | Open | Open |
| AMD-K6-2/450 100MHz x 4.5 | OFF | OFF | ON | OFF | OFF | OFF | ON | ON | ON | Open | Open |
| AMD-K6-3/450 100MHz x 4.5 | OFF | OFF | ON | OFF | OFF | OFF | ON | ON | ON | Open | Open |
| AMD-K6-2/500 100MHz x 5.0 | OFF | ON | OFF | OFF | OFF | OFF | ON | ON | OFF | Open | Open |
| AMD-K6-2/550 100MHz x 5.5 | ON | ON | OFF | OFF | OFF | OFF | ON | OFF | OFF | Open | Open |

Note: CPU with * Mark is not available yet, DIP switch setting table is for reference only.

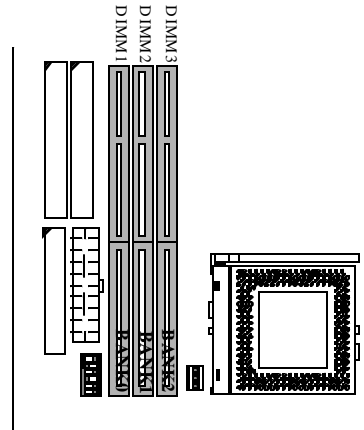
Cyrix IBM CPU Clock DIP Switch Setting

| CPU Speed | SW1 | | | SW2 | | | | | | JP7 | JP13 |
|--|-----|-----|-----|-----|----|-----|-----|-----|-----|------|------|
| | P1 | P2 | P3 | P1 | P2 | P3 | P4 | P5 | P6 | | |
| Cyrix/IBM 6x86L -PR150+ 60MHz x 2 | OFF | OFF | OFF | ON | ON | ON | OFF | OFF | ON | Open | Open |
| Cyrix/IBM 6x86L -PR166+ 66MHz x 2 | OFF | OFF | OFF | ON | ON | OFF | OFF | OFF | ON | Open | Open |
| Cyrix/IBM 6x86L -PR200+ 75MHz x 2 | OFF | OFF | OFF | OFF | ON | ON | OFF | OFF | ON | Open | Open |
| Cyrix/IBM 6x86MX-PR166 60MHz x 2.5 | ON | OFF | OFF | ON | ON | ON | OFF | ON | ON | Open | Open |
| Cyrix/IBM 6x86MX-PR166 66MHz x 2 | ON | OFF | OFF | ON | ON | OFF | OFF | OFF | ON | Open | Open |
| Cyrix/IBM 6x86MX -PR200 66MHz x 2.5 | ON | OFF | OFF | ON | ON | OFF | OFF | ON | ON | Open | Open |
| Cyrix/IBM 6x86MX -PR233 75MHz x 2.5 | ON | OFF | OFF | OFF | ON | ON | OFF | ON | ON | Open | Open |
| Cyrix/IBM 6x86MX -PR233 66MHz x 3 | ON | OFF | OFF | ON | ON | OFF | OFF | ON | OFF | Open | Open |
| Cyrix/IBM MII -PR233 75MHz x 2.5 | ON | OFF | OFF | OFF | ON | ON | OFF | ON | ON | Open | Open |
| Cyrix/IBM MII -PR233 66MHz x 3 | ON | OFF | OFF | ON | ON | OFF | OFF | ON | OFF | Open | Open |
| Cyrix/IBM MII -PR266 83MHz x 2.5 | ON | OFF | OFF | OFF | ON | OFF | OFF | ON | ON | Open | Open |
| Cyrix/IBM MII -PR333 83MHz x 3 | ON | OFF | OFF | OFF | ON | OFF | OFF | ON | OFF | Open | Open |

2.2.3 Installing System Memory

The maximum system memory supported by the P5F97/P5F103 is 768MB. If more than 768MB memory are populated on the mainboard, the portion of the memory which exceed the 768MB boundary will be invalidated.

The P5F97/P5F103 Mainboard has three DIMM Sockets to support up to 768MB of system memory. Each DIMM below to each BANK. Memory can be installed by using 3.3V168-pin EDO/SDRAM DIMM memory modules.



There are no jumper settings required for the memory size or type, which is automatically detected by the BIOS. Due to the P5F97/P5F103 Mainboard high speed design, the memory modules must meet all of the following requirement:

| DRAM TYPE | EDO (Extended Data Output) | SDRAM (Synchronous DRAM) |
|--------------|---|---|
| Module Size | Single-sided Asymmetric: 1Mx64, 2Mx64, 4Mx64, 8Mx64, 16Mx64 Double-Sided Asymmetric: 2Mx64, 4Mx64, 8Mx64, 16Mx64, 32Mx64 | Single-sided Asymmetric: 1Mx64, 2Mx64, 4Mx64, 8Mx64, 16Mx64 Double-Sided Asymmetric: 2Mx64, 4Mx64, 8Mx64, 16Mx64, 32Mx64 |
| Requirements | 3.3V unbuffered DIMM module DRAM Speed: 60ns or 70ns RAS Access Time : 60ns ~70ns CAS Access Time: 10ns ~20ns | 3.3V unbuffered DIMM module Speed grade: Faster than the CPU Bus clock CAS latency Time(CL)=3 or 2 |

Memory Configuration.

| | |
|------------------------|---|
| BANK 0 (DIMM1) | EDO/SDRAM 4MB, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB |
| BANK 1 (DIMM2) | EDO/SDRAM 4MB, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB |
| BANK 2 (DIMM3) | EDO/SDRAM 4MB, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB |
| Total System Memory | 8MB to Max. 768MB |

2.2.4 Clear CMOS and Password

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 JP11 for 5 seconds
3. Put the shunt back to pin1 and pin2 of JP11
4. Power on the system

3 BIOS Configuration

After hardware configuration of P5F97/P5F103 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

| | |
|--|--|
| ROM PCI/ISA BIOS (2A5KKF2B) CMOS SETUP UTILITY AWARD SOFTWARE, INC. | |
| STANDARD CMOS SETUP IDE HDD AUTO DETECTION LOAD SETUP DEFAULTS SAVE & EXIT SETUP EXIT WITHOUT SAVING | BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PNP/PCI CONFIGURATION INTEGRATED PERIPHERALS SUPERVISOR PASSWORD USER PASSWORD |
| Esc: Quit F10: Save & Exit Setup | ↑ ↓ → ← : Select Item <Shift>F2 : Change Color |

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.

<Shift> <F2>: Changes background and foreground colors.

3.3 STANDARD CMOS SETUP

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

Standard CMOS Setup Screen

| ROM PCI/ISA BIOS (2A5KKF2B) STANDARD CMOS SETUP AWARD SOFTWARE, INC. | | | | | | | | | |
|--|--------|------|------|------|-------------------------|-------|--------|------|--|
| Date (mm:dd:yy): Mon, Mar 23 1998 | | | | | | | | | |
| Time (hh:mm:ss): 10:10:10 | | | | | | | | | |
| HARD DISKS | TYPE | SIZE | CYLS | HEAD | PRECOMP | LANDZ | SECTOR | MODE | |
| Primary Master | : Auto | 0 | 0 | 0 | 0 | 0 | 0 | Auto | |
| Primary Slave | : Auto | 0 | 0 | 0 | 0 | 0 | 0 | Auto | |
| Secondary Master | : Auto | 0 | 0 | 0 | 0 | 0 | 0 | Auto | |
| Secondary Slave | : Auto | 0 | 0 | 0 | 0 | 0 | 0 | Auto | |
| Drive A: 1.44M, 3.5 in. | | | | | | | | | |
| Drive B: None | | | | | | | | | |
| Floppy 3 Mode Support: Disabled | | | | | | | | | |
| Video: EGA/VGA | | | | | | | | | |
| Halt On: All Errors But Keyboard | | | | | | | | | |
| | | | | | Base Memory: 640K | | | | |
| | | | | | Extended Memory: 15360K | | | | |
| | | | | | Other Memory: 384K | | | | |
| | | | | | Total Memory: 16384K | | | | |
| ESC: Quit ↑ ↓ → ← : Select Item PU/PD/+/-:Modify | | | | | | | | | |
| F1: Help (Shift) F2 : Change Color | | | | | | | | | |

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

Set Date: Month, Day, Year.

Set Time: 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).

Hard Disks:

There are four hard disks listed: “Primary Master”, “Primary Slave”, “Secondary Master” and “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; Type “Auto” is IDE HDD auto detection; Type “User” is user definable, and Type “None” is not installed (e.g. SCSI).

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.

Floppy 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.

Floppy 3 Mode Support: The options are “Disabled” (default), “Drive A”, “Drive B” and “Both”. This is the Japanese standard floppy drive which stores 1.2MB in a 3.5" diskette.

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 Errors” (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.

3.4 IDE HDD AUTO DETECTION

If your system has an IDE hard drive, you can use this utility to detect its parameters and enter them into the Standard CMOS Setup automatically.

If the auto-detected parameters displayed do not match the ones that should be used for your hard drive, do not accept them. Press the <N> key to reject the values and enter the correct ones manually on the Standard CMOS Setup screen.

Note: If you are setting up a new hard disk drive (nothing on it) that supports LBA mode, more than one line will appear in the parameter box, choose the line that lists LBA for an LBA drive.

Do not choose Large or Normal if the hard disk drive is already fully formatted when you install it, choose the mode which is used to format it.

3.5 LOAD SETUP DEFAULTS

“LOAD SETUP DEFAULTS” loads optimal settings which are stored in the BIOS ROM.

The defaults loaded only affect the BIOS Features Setup, Chipset Features Setup, Power Management Setup, PnP/PCI configuration setup and Integrated Peripherals Setup. 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.

3.6 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.

3.7 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.

3.8 BIOS FEATURES SETUP

Selecting “BIOS FEATURES SETUP” on the main program screen displays this menu:

BIOS Features Setup Screen

| ROM PCI/ISA BIOS (2A5KKF2B) BIOS FEATURES SETUP AWARD SOFTWARE, INC. | | | |
|--|--------------|---|------------|
| Virus Warning | : Enabled | Video BIOS Shadow | : Enabled |
| CPU Internal Cache | : Enabled | C8000 - CBFFF Shadow | : Disabled |
| External Cache | : Enabled | CC000 - CFFFF Shadow | : Disabled |
| Quick Power On Self Test | : Enabled | D0000 - D3FFF Shadow | : Disabled |
| Boot Sequence | : C, A, SCSI | D4000 - D7FFF Shadow | : Disabled |
| Swap Floppy Drive | : Disabled | D8000 - DBFFF Shadow | : Disabled |
| Boot Up Floppy Seek | : Disabled | DC000 - DFFFF Shadow | : Disabled |
| Boot Up NumLock Status | : On | OS Select For DRAM > 64MB | : Non-OS2 |
| Gate A20 Option | : Fast | Report No FDD For Win 95 | : Yes |
| Typematic Rate Setting | : Disabled | Assign IRQ For VGA | : Enabled |
| Typematic Rate (Chars/Sec) | : 6 | ESC: Quit ↑ ↓ → ← :Select Item F1: Help PU/PD/+/-:Modify F5: Old Values (Shift) F2: Color F7: Load Setup Defaults | |
| Typematic Delay (Msec) | : 250 | | |
| Security Option | : Setup | | |
| PCI/VGA Palette Snoop | : Disabled | | |

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.

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.

Boot Sequence: The default setting is “C, A, SCSI”; the other options are “CDROM, C, A”, “C, CDROM, A”, “A, C, SCSI”, “D, A, SCSI”, “E, A, SCSI”, “F, A, SCSI”, “SCSI, A, C”, “SCSI, C, A”, “LS/ZIP, C” and “C only”. The BIOS will load the operating system from the disk drives in the sequence selected here. You can bootup system from an LS-120 or ATAPI ZIP driver, if you set the boot sequence to “LS/ZIP, C”.

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 bootup disk in the floppy disk drives.

Boot Up Numlock Status: The default setting is “On”. 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.

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.

Video BIOS Shadow: The default setting is “Enabled” which will copy the VGA BIOS into system DRAM.

C8000-CBFFF Shadow to DC000-DFFFF Shadow: The default setting for the shadow feature is “Disabled”. When set to enable, the ROM with the specific address is copied into system DRAM. It will also reduce the size of memory available to the system.

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.

Assign IRQ For VGA: The default setting is “Enabled”. When set to “Disabled” BIOS will not assign any IRQ (Interrupt request line) for PCI VGA card. If your VGA card requires IRQ then set this option to “Enabled”.

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

DRAM Data Integrity Mode: The options are “ECC” and “Parity” and “Disabled”. Set to “ECC” or “Parity” only when DIMM modules with parity bits are used. “ECC” will enable the Error Checking and Correction function to ensure the DRAM data integrity.

Host Read DRAM Command Mode: The options are “Syn.” or “Bypass”. This option sets type of Host Read DRAM Command Mode.

SDRAM Burst X-1-1-1-1-1-1-1: The options are “Disabled” and “Enabled”. This feature set the DRAM Back-to-back burst read/write timing. This timing depends on performance parameters of installed memory chips (DRAM). The default setting is “Disabled”.

Pipelined Function: When set to “Enabled”, the controller signals of the CPU will latch a new memory address before all data transfers for the current cycles are complete, resulting in a faster performance.

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.

I/O Recovery Period: This option sets the delay between back-to-back 8-bit and 16-bit I/O instructions. The options are “0us” and “1us”. The default setting is “1us”.

Graphics Aperture Size: This option determines the effective size of the AGP Graphic Aperture, which memory-mapped graphic data structures can reside in. The options are “16M”, “32M”, “64M”, “128M” and “256M”. The default is “64M”.

Primary Frame Buffer: This option selects the size of PCI frame buffer. The size of the buffer should not impinge on local memory. The options are “All”, “1M”, “2M”, “4M”, “8M”, “16M” and “Disabled”.

VGA Frame Buffer: When set to “Enabled”, a fixed VGA frame buffer from A000h to BFFFh and a CPU-to-PCI write buffer are implemented. The options are “Enabled” (default) and “Disabled”.

Data Merge: This option sets the word-merge feature for the frame buffer cycles. When “Enabled”, this controller checks the eight CPU Byte Enabled signals to determine if data words read from the PCI bus by the CPU can be merged. The default setting is “Disabled”.

Passive Release: When set to “Enabled”, CPU-to-PCI bus accesses are allowed during passive release. When set to “Disabled”, only PCI bus-master access to local DRAM is allowed during passive release.

ISA Line Buffer: The PCI to ISA Bridge has an 8-byte bi-directional line buffer for ISA or DMA bus master memory reads from or writes to PCI bus. When “Enabled”, an ISA or DMA bus master can prefetch two doublewords to the line buffer for a read cycle. The default is “Enabled”. The other option is “Disabled”.

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 re-arbitrates 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 2.1.

AT Bus Clock: You can set the speed of the AT bus in the terms of a fraction of the CPU clock speed (CLK2). The options are “CLK2/2”, “CLK2/3”, “CLK2/4”, “CLK2/5”, “CLK2/6” and “7.16MHz”. The default setting is “CLK2/4”.

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.

Spread Spectrum: Options are “1.5% CNTR”, “0.6% CNTR”, “1.5% DOWN”, “0.6% DOWN”, “Disabled”. System clock frequency will automatically be modulated which helps reducing electromagnetic interference. Default is “Disabled”.

CPU Warning Temperature: This feature gives you the ability to set warning temperature for CPU. When the CPU temperature exceeds the set temperature, the PC speaker will beep. The beep sound will not off unless you turn off computer and change your CPU cooling condition. This feature gives you CPU overheat protection. This feature required W83781D chip install.

Current System Temp.: This is the current system temperature reading. This feature gives you the ability to monitor your system’s temperature without opening the chassis. This feature required W83781D chip install.

Current CPU FAN SPEED: This is CPU FAN RPM (Revolution Per Minute) reading. This feature gives you the ability to monitor conditions of CPU FAN. This feature required W83781D chip install.

Vcc3, Vccp, +5V, -5V, +12V, -12V: This is Vcc3(onboard 3.3 volt), Vccp (CPU Core voltage), +5V(power supply’s +5 volt), -5V(power supply’s -5 volt), +12V(power supply’s +12 volt) and -12V(power supply’s -12 volt) reading. This feature gives you the ability to monitor condition of system’s power. This feature required W83781D chip install.

After you have made your selections in the CHIPSET FEATURES SETUP, press the <ESC> key to go back to the main program screen.

3.10 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

| | |
|--|--|
| ROM PCI/ISA BIOS (2A5KKF2B) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC. | |
| Power Management : User Define PM Control by APM : Yes Video Off Option : Susp, Stby -> Off Video Off Method : V/H SYNC+Blank ** PM Monitor ** Doze Mode : Disabled Standby Mode : Disabled Suspend Mode : Disabled HDD Power Down : Disabled ** PM Monitor ** Primary HDD : Disabled Floppy : Disabled COM Ports : Disabled Keyboard : Enabled LPT Ports : Disabled | PWR-BTTN : Power - Off Resume by LAN : Disabled Modem Use IRQ : 3 ESC: Quit ↑ ↓ → ← :Select Item F1: Help PU/PD/+/-:Modify F5: Old Values (Shift) F2: Color F7: Load Setup Defaults |

Power Management: This setting controls the System Doze Mode, Standby Mode and Suspend Mode Timer features. There are four options:

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

Optimize: This is the recommended setting for general use.

Test/Demo: This is for test/demonstration purposes.

Disabled: Disables the power management features.

PM Control by APM: The default setting is “Yes”. When set to “Yes”, system BIOS will wait for APM’s prompt before it enters any PM mode. If your system power management is controlled by APM and there is a task running, the APM will not prompt the BIOS to enter any power saving mode after time out. Note: If APM is not installed, this option has no effect.

APM (Advanced Power Management) should be installed to keep the system’s time updated when the computer enters suspend mode activated by the BIOS Power Management. For DOS environments, you need to add `DEVICE=C:\DOS\POWER.EXE` in your `CONFIG.SYS`. For Windows 3.1x and Windows 95, you need to install Windows with the APM feature. Double-click a battery and power cord icon labeled “Power” in the “Control Panel” and choose “Advanced” in the Power Management field.

Video Off Option: When enabled, this feature allows the VGA adapter to operate in a power saving mode. When this option set to “Always on” system monitor will remain on during power saving modes. When set to “Suspend -> off”, system monitor will blanked out when system enters the suspend mode. When set to “Susp, Stby ->off” system monitor blanked out when enter either suspend mode or standby mode.

Video Off Method: This setting controls the video off method in power saving mode. The default setting is “V/H SYNC+Blank” 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.

Doze Mode: Options are from “1 Min” to “1 Hour” and “Disabled”. The system speed will change from turbo to slow if no Power Management events occur for a specified length of time. Full power function will return when a Power Management event is detected. When system entering DOZE Mode the STB LED will start blinking once a second, indicates your system at DOZE Mode.

Standby Mode: Options are from “1 Min” to “1 Hour” and “Disabled”. The system speed will change from turbo to slow and the video signals will be suspended if no Power Management events occur for a specified length of time. Full power function will return when a Power Management event is detected. When system entering Standby Mode the STB LED will start blinking twice a second, indicates your system at Standby Mode.

Suspend Mode: Options are from “1 Min” to “1 Hour” and “Disabled”. The CPU clock will be stopped and the video signal will be suspended if no Power Management events occur for a specified length of time. Full power function will return when a Power Management event is detected. When system entering Suspend Mode the STB LED will stop blinking and stay on, indicates your system at Suspend Mode.

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.

PM Events (Primary HDD/Floppy/COM Ports/Keyboard/LPT Ports): When a PM event (Primary HDD/Floppy/COM port/Keyboard/LPT ports) is enabled, the occurrence of a corresponding event will reload global timer to prevent the system from entering any Power Management mode.

PWR-BTTN: The options are “Disabled”, “Green Mode” and “Power-off.”. When set to “Power-off”, pressing the power button will turn off the system power. When set to “Disabled.”, you have to press the power button and hold it for more than 4 seconds to turn off the system power. When set to “Green Mode”, pressing the power button will force your system entering suspend mode which will turn off CPU FAN and HDD spin if there are no PM Events active. *Note: During the booting process, the power button is ignored. The default setting is “Disabled”.*

Chapter 3: BIOS Configuration

Resume by LAN: If “Enabled”, the system power will be turned on if the network card receives an incoming Wake On LAN(WOL)’s Magic Packet signal. This feature required an ATX power supply installed.

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.

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

3.11 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 displays this menu:

PnP / PCI Configuration

| ROM PCI/ISA BIOS (2A5KKF2B) | |
|---|-----------------|
| PNP / PCI CONFIGURATION | |
| AWARD SOFTWARE, INC. | |
| PNP OS Installed | : No |
| Resources Controlled By | : Manual |
| Reset Configuration Data | : Disabled |
| IRQ-3 assigned to | : Legacy ISA |
| IRQ-4 assigned to | : Legacy ISA |
| IRQ-5 assigned to | : PCI / ISA PnP |
| IRQ-7 assigned to | : Legacy ISA |
| IRQ-9 assigned to | : PCI / ISA PnP |
| IRQ-10 assigned to | : PCI / ISA PnP |
| IRQ-11 assigned to | : PCI / ISA PnP |
| IRQ-12 assigned to | : PCI / ISA PnP |
| IRQ-14 assigned to | : Legacy ISA |
| IRQ-15 assigned to | : Legacy ISA |
| DMA-0 assigned to | : PCI / ISA PnP |
| DMA-1 assigned to | : PCI / ISA PnP |
| DMA-3 assigned to | : PCI / ISA PnP |
| DMA-5 assigned to | : PCI / ISA PnP |
| DMA-6 assigned to | : PCI / ISA PnP |
| DMA-7 assigned to | : PCI / ISA PnP |
| PCI IDE 2nd Channel | : Disabled |
| PCI IRQ Activated By | : Level |
| PCI IDE IRQ Map To | : PCI-AUTO |
| Primary IDE INT# | : A |
| Secondary IDE INT# | : B |
| ESC: Quit ↑ ↓ → ← :Select Item | |
| F1: Help PU/PD/+/-:Modify | |
| F5: Old Values (Shift) F2: Color | |
| F7: Load Setup Defaults | |

PnP OS Installed: Setting this option to “Yes” allows the PnP OS, instead of BIOS to assign the system resources such as IRQ and I/O address to the ISA PnP device. The default setting is “No”

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.

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”.

IRQ and DMA Assigned to.: 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 IDE IRQ Map To, Primary IDE INT#, Secondary IDE INT#: If you disable onboard PCI IDE controller and install a PCI IDE card on the Mainboard, you need to set this option. If a PCI IDE Card uses ISA IRQ directly thru a paddle card installed on an ISA slot, select “ISA” for the option “PCI IDE IRQ Map To”. If a PCI IDE Card uses PCI “INT” and is compliant to PCI Plug and Play specification, select “PCI-AUTO” for the option “PCI IDE IRQ Map To”. Otherwise select “PCI-SLOT n” (PCI-SLOT 1, PCI-SLOT 2, PCI-SLOT 3 or PCI-SLOT4) depending on which slot the PCI IDE Card is installed.

Only INT A and INT B are available for a PCI IDE Card, therefore you must set the PCI IDE Card’s primary interrupt to INT A and secondary interrupt to INT B. The INT A is routed to IRQ 14 and the INT B is routed to IRQ 15 thru a hardware router in the chipset.

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

3.12 INTEGRATED PERIPHERALS

Selecting “INTEGRATED PERIPHERALS” on the main program screen displays this menu:

Integrated Peripherals Screen

| ROM PCI/ISA BIOS (2A5KKF2B) INTEGRATED PERIPHERALS AWARD SOFTWARE, INC. | | | |
|---|--------------|-------------------------|----------------------|
| On-Chip Primary IDE | : Enabled | Onboard Parallel Port | : Normal |
| Master PIO | : Auto | Parallel Port Mode | : SPP |
| Slave PIO | : Auto | ECP Mode Use DMA | : 3 |
| Master Ultra DMA | : Auto | On-Chip USB Controller | : Enabled |
| Slave Ultra DMA | : Auto | USB Keyboard Support | : Disabled |
| On-Chip Secondary IDE | : Enabled | Init Display First | : AGP |
| Master PIO | : Auto | Resume by Ring | : Disabled |
| Slave PIO | : Auto | Resume by Alarm | : Disabled |
| Master Ultra DMA | : Auto | | |
| Slave Ultra DMA | : Auto | | |
| IDE HDD Block Mode | : Enabled | | |
| Onboard FDD Controller | : Enabled | | |
| Onboard Serial Port 1 | : 3F8 / IRQ4 | ESC: Quit | ↑ ↓ → ← :Select Item |
| Onboard Serial Port 2 | : 2F8 / IRQ3 | F1: Help | PU/PD/+/-:Modify |
| UR2 Mode | | F5: Old Values | (Shift) F2: Color |
| Half Duplex time-out | : Enabled | F7: Load Setup Defaults | |

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

Master PIO, Slave PIO, Master Ultra DMA, Slave Ultra DMA: There are six options “Auto”, “Mode 0”, “Mode 1”, “Mode 2”, “Mode 3” and “Mode 4” for PIO Mode HDD. There are two options “Enabled” or “Disabled” for the Ultra DMA Hard Disk. The default setting is “Auto”. When set to “Auto” the BIOS will automatically set the PIO or Ultra DMA 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 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.

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 (Serial Port 1 default)
- 2F8/ IRQ3 (Serial Port 2 default)
- 3E8/ IRQ4
- 2E8/ IRQ3
- Auto
- Disabled (Disable the onboard serial port)

UR2 Mode: 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 “Normal” (default), “EPP”, “ECP”, “ECP+EPP”. Change the mode from “Normal” to the enhanced mode only if your peripheral device can support it.

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”.

On-chip USB Controller: Set this option to “Enabled” to activate the on-chip USB function. 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 “AGP” and “PCI-Slot”. When set to “AGP”, system BIOS will initial VGA from AGP to PCI-slot. When set to “PCI-slot” system BIOS will initial VGA from PCI-slot to “AGP”.

Resume by Ring: If “Enabled”, the system power will be turned on if the external FAX/Modem receives an incoming telephone call. This feature required an ATX power supply install.

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. This feature required an ATX power supply install.

3.13 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.

Note:

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 JP11 to short pin 2 and pin 3 for 5 seconds, then putting the shunt back to pin1 and pin2 of JP11.

4 Driver and Utility

4.1 Flash Utility

Q: How to update my motherboard BIOS?

A: The BIOS of the P5F97/P5F103 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 FLASH utility can be extract from the BIOS files that you download or at manufacturer diskette under FLASH directory which comes with the motherboard.

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 EIDE Bus Master Driver

Q: What are the Bus-Mastering doing?

A: The Bus Master EIDE logic designed in the ALi Aladdin V chipset is intended to reduce the workload of the CPU and make the CPU running more efficiently. It will take care the data transfer between IDE drives and system memory and let CPU handle other tasks.

Q: Do I need to install the Bus-mastering driver?

A: You don't need to install the Bus-Mastering driver for Windows95 (OSR2.1 or greater version) and Windows98. Those OS will install the **ALi M5229 PCI Bus Master IDE controller** during the Windows installation.

Q: Where can I get the Bus-mastering driver?

A: There are several self-extracting archive file in the manufacturer diskette under BMIDE directory. Make copy of those file into your hard disk and run it. A new version of the bus-mastering drive can be downloaded from the factory's BBS and Web site.

| | |
|----------|--------------------------------|
| DOSWIN | For DOS and Windows3.1x |
| Novell | For Novell 3.x and 4.x |
| OS/2 | For IBM OS/2 Warp4.0 |
| Win95 | For early version of windows95 |
| WinNT3.5 | For Windows NT 3.5x |
| WinNT4.0 | For Windows NT 4.0 |

4.3 USB Driver

Q: How to configure the USB controller on P5F97/P5F103?

A: USB controller requires the USB supplement install, so please make sure your system install the USB supplement first. You can click at “Control panel” and “Add/Remove Program” icon to check the USB supplement install or not?

For Windows 95 (OSR2.1 or later) users, The USB supplement can be located at the Windows95 OSR2.1 CD's \others\usb\usb-supp.exe directory. For Windows95 (OSR2.0 or before) users, you need to update your system to OSR2.1 or contact Microsoft for update information.

After USB supplement installed, system will reboot and find the “**Standard OpenHCD USB Host Controller**” and ask for file “openhci.sys”. The “openhci.sys” file is locate at **C:\windows\system** directory. Click on “Browser” icon and give the path for “openhci.sys”. After the file loaded, then you are complete the configure of USB controller and ready to install the USB device driver.

Note: You do not need to install USB supplement or configure the USB controller for Windows98, windows will automatically configure it during the installation.

4.4 AGP Driver

Q: Does P5F97/P5F103 have an AGP driver that supports Win NT4.0?

A: No because Win NT4.0 does not support AGP. AGP requires support for Direct X instructions and Microsoft will only add this support into Win NT5.0. An AGP card will still run on NT4.0 but only in 2D mode.

Q: Is my motherboard compatible with the Intel 740 graphics chipset?

A: Yes, the P5F97/P5F103 is compatible with the Intel 740 graphics chipset. In order to work with Intel 740 graphics chip, you need to install ALi AGP driver. *It is recommend you to install the ALi AGP driver before install the VGA driver.* It also suggest using the latest Intel 740 driver ver.1.5 or later.

Q: How to install the ALi AGP Driver on P5F97/P5F103 motherboard?

A: There is a self-extracting file in the motherboard manufacture diskette at the AGP directory “agpdx.exe”. This file can help Windows95/98 to configure the AGP VGA chip correctly. *It is recommend you to install the ALi AGP driver before install the VGA driver.* The following procedure will help you to install the ALi AGP driver.

Most of the AGP VGA card requires the USB supplement install, so please make sure you install the USB supplement first. For USB supplement installation, please refer to Chapter 4.3 USB Driver

Copy “agpdx.exe” into your hard disk and double click it. The ALi AGP installation screen will pop out, please follows the instruction shows on the screen to finished the installation. system will restart.

After system back on then you are complete the installation of ALi AGP driver and ready to install the driver for AGP VGA card. A new version of the ALi AGP drive can be downloaded from the factory's BBS and Web site

4.5 ESS Audio Driver

There are two ESS audio driver diskettes include with the mainboard. DISK 1 is for ESS audio driver and Disk2 is for ESS Audio Rack driver.

There are three auto-extract files in the DISK1.

| | |
|-------------|--------------------------------------|
| ESSDOS.EX | EES Audio driver for DOS/Windows3.x. |
| ESSW95.EXE | ESS Audio driver for Windows95 |
| ESSNT40.EXE | ESS Audio Driver for Windows NT4.0 |

4.1.1 Install ESS Audio driver

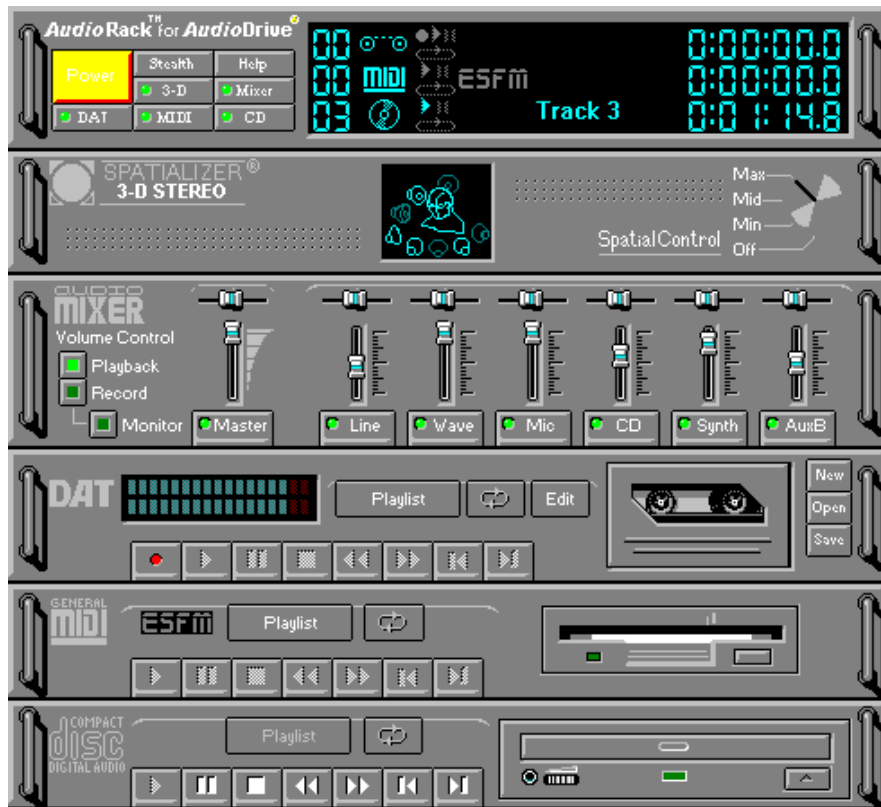
- 1) Make **C:\ESS** directory at your hard drive and copy those files into **C:\ESS** directory.
- 2) Selects correct file according to your operation system and execute this file. For example, **ESSW95.EXE** for Windows95.
- 3) Go to **“Control panel”** and click at **“Add New Hardware”** and **“Next”**. Windows will prompts a screen and ask **“Do you want Windows to search for a new hardware?”** answer **“No”** and **“Next”**.
- 4) At **“Hardware type”** screen selects **“Sound, video and game controllership** click **“Next”** and **“Have disk”** then **“Installation from disk”** screen will prompt out. Click on **“Browser”** and give the correct path for ESS audio driver (**C:\ESS\oemsetup.inf**)
- 5) Selects **“ES 1869 Plug and Play Audiodrive”** and **“OK”**.
- 6) Windows will load ESS Audio driver and ask windows95or NT CD for some system file, after file copy is done, system will reboot to complete the installation.

4.1.2 Install ESS Rack driver

There are two auto-extract files in the DISK2.

| | |
|--------------|-------------------------------------|
| AudioW31.EX | ESS Rack driver for DOS/Windows3.x. |
| AudioW95.EXE | ESS Rack driver for Windows95 |

- 1) Make **C:\Rack** directory at your hard drive and copy those files into **C:\Rack** directory.
- 2) Selects correct file according to your operation system and execute this file. For example, AudioW95.EXE for Windows95.
- 3) Click the **“setup”** and follows the instruction shows on the screen to complete the installation.



System Environment Monitor (optional)

The System Environment Monitoring utility with the onboard Winbond 83781D 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. This software have to be installed under Windows95, the feature version may run on different OS.(like windows NT)

1.0.1 Hardware Doctor Setup

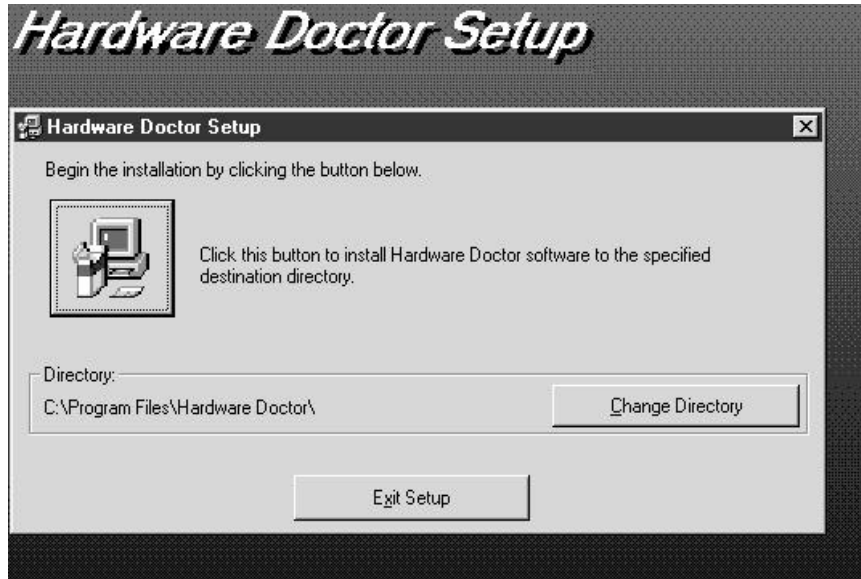
There are two diskettes for the Hardware Doctor software.

- 1) Insert the diskette label with DISK1 into the 1.44M floppy drive and run setup.exe under Windows95.
- 2) The following screen will appear



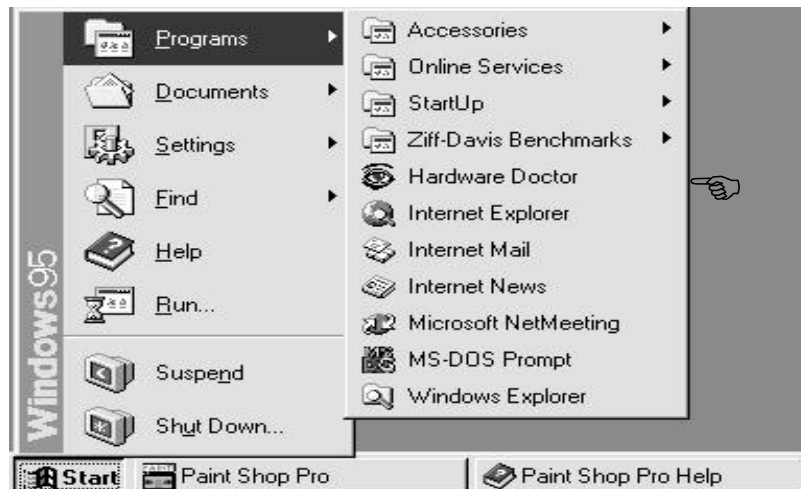
Click "OK" and continue setup procedure.

- 3) Select the directory to install Hardware Doctor program. The default directory is “:\Program Files\ Hardware Doctor\”



Follow the instructions on the screen to complete the installation. After setup is completed, you need to restart the computer before you can activate the program.

- 4) The “Hardware Doctor” option will be added to the “program” directory. Click on the “Hardware Doctor” icon to access the program.



1.0.2 Setting the Threshold:

Set the threshold you want for system temperature, voltages and FAN speeds, by moving the slide bars or by clicking the increase/decrease buttons

Voltage detection items. Vcore stands for voltage for CPU core.
Increase low margin.
Decrease low margin.
Increase high margin.
Decrease high margin.

The screenshot shows the Winbond Hardware Doctor application window. It features a menu bar with 'File', 'Tools', and 'Help'. The main area is divided into several sections: 'Voltage' with a table of settings, 'CPU' and 'FAN2' RPM sections with sliders and numerical values, and a 'Temperature' section with a slider and numerical values. Arrows from the text above point to specific controls: 'Voltage detection items' points to the 'Voltage' table; 'Increase low margin' and 'Decrease low margin' point to the left and right arrows of the 'Vcore' row; 'Increase high margin' and 'Decrease high margin' point to the left and right arrows of the 'High Limit' column. Arrows from the text below point to the 'CPU' and 'FAN2' RPM sliders and the 'SYSTEM' temperature slider.

| Voltage | Low Limit | High Limit | Status |
|---------|-----------|------------|----------|
| Vcore | 2.59 | 2.99 | 2.80 V |
| +3.3V | 3.10 | 3.50 | 3.34 V |
| +5V | 4.76 | 5.24 | 4.97 V |
| +12V | 11.01 | 13.02 | 12.29 V |
| -12V | -12.99 | -10.98 | -11.93 V |
| -5V | -5.25 | -4.75 | -4.75 V |

CPU: 1055, 4,327 RPM
FAN2: 1055, 4,441 RPM
Temperature: SYSTEM 0.0 -40, 127, 60.0, 39.0 C

System Temperature detection
CPU Fan RPM detection
Secondary FAN(FAN2) RPM detection

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