

USER'S MANUAL
Of
VIA P4M900 Chipset
&
VIA VT8237R Plus Chipset

M/B For LGA775 Conroe & Dual Core Ready
Intel Pentium-D Processor

No. G03-P900DMP-F

Rev:1.0

Release date: Dec 2006

Trademark:

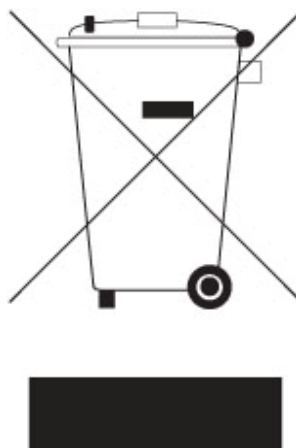
* Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.

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Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.



Chapter 1

Introduction of VIA P4M900 Chipset Motherboards

1-1 Feature of motherboard

The VIA P4M900 chipset motherboard series are designed for the innovative 65nm and 90nm Dual-Core Intel® Pentium® D Processor 8 and 9 Series, Intel® Pentium® D Processor, and Intel® Core 2 Duo® (Code Name: Conroe) Processor with Intel® Hyper-Threading Technology. With the cost-effective VIA P4M900 chipset that delivers a high performance and professional desktop platform solution.

The VIA P4M900 chipset motherboard series implement VIA P4M900 chipset which supports 400MHz/ 533MHz /800MHz/1066MHz system bus of data transfer rate and Hyper Threading technology. The VIA P4M900 chipset motherboard series provide 333MHz/266MHz/200MHz memory clock frequency for DDR2 667/533/400 system RAM Modules. The motherboard series are embedded with VIA VT8237R PLUS South Bridge offers **ULTRA ATA 133** and **Serial ATA with RAID 0, 1, JBOD** functions to provide speedier HDD throughout that boosts overall system performance. The VIA P4M900 Chipset motherboard series implement the VIA **VT6103L LAN PHY** chip Support Fast Ethernet LAN function provide 10/100 Mb/s data transfer rate.

The motherboard series also have an integrated 6-channel **AC'97 CODEC** on board which is fully compatible with Sound Blaster Pro® that gives you the best sound quality and compatibility.

.Featuring the VIA Chrome9™ HC IGP (Integrated Graphics Processor) core, the VIA P4M900 delivers DirectX® 9 graphics support with hardware pixel shaders to meet the requirements of the upcoming Windows® Vista™ operating system, and rising high definition video requirements. The core of the VIA P4M900 North Bridge lies the VIA Chrome9™ HC IGP, delivering a rich visual experience through the implementation of innovative features such a 128 bit 2D/3D engine with dual pixel pipeline. The P4M900 also features extensive display support for all HDTV output formats including 1920x1080p and additional advanced graphics capabilities include the Chromotion Video Display Engine, comprehensive de-interlace support, and DuoView™ for enhanced productivity and presentation capabilities.

The VIA P4M900 chipset motherboard series provide one PCI-Express x16 graphics slot of 4Gbyte/sec data transfer rate at each relative direction which gets 3.5 times of bandwidth more than AGP8X and it's up to a peak concurrent bandwidth of 8Gbyte/sec at full speed to guarantee the fully operational GPU graphics power; one PCI Express x1 I/O slot offers 512Mbyte/sec concurrently which is 3.5 times bandwidth more than PCI at 133Mbyte/sec. Two 32-bit PCI slots guarantee the rich connectivity for the I/O peripherals.

With USB controller as well as capability of expanding to 8x USB2.0 function ports delivering 480Mb/s bandwidth and rich connectivity, the motherboards meet future USB demand also have built-in hardware monitor function to monitor and protect your computer.

The motherboards provide high performance & meet future specification demand of the next generation operation system. It is a wise choice for your non-stop business computing.

Some special features---**CPU Thermal Throttling/ CPU Vcore 7-shift**) in this motherboard are designed for power user to use the over-clocking function in more flexible ways. But please be caution that the over-clocking maybe cause the fails in system reliabilities. This motherboard provides the guaranteed performance and meets the demands of the next generation computing. But if you insist to gain more system performance with variety possibilities of the components you choose, please be careful and make sure to read the detailed descriptions of these value added product features, please get them in the coming section.

1-1.1 Special Features of Motherboard

CPU Thermal Throttling Technology---(The CPU Overheat Protection Technology)

To prevent the increasing heat from damage of CPU or accidental shutdown while at high workload, the CPU Thermal Throttling Technology will force CPU to enter partially idle mode from 87.5% to 12.5% according to preset CPU operating temperature in BIOS (from 40°C to 90°C). When the system senses the CPU operating temperature reaching the preset value, the CPU operating bandwidth will be decreased to the preset idle percentage to cool down the processor. When at throttling mode the beeper sound can be optionally selected to indicate it is in working.

CPU Smart Fan---(The Noise Management System(Not Support 3-pin CPU Fan))

It's never been a good idea to gain the performance of your system by sacrificing its acoustics. CPU Smart Fan Noise Management System is the answer to control the noise level needed for now-a-day's high performance computing system. The system will automatically increase the fan speed when CPU operating loading is high, after the CPU is in normal operating condition, the system will low down the fan speed for the silent operating environment. The system can provide the much longer life cycle for both CPU and the system fans for game use and business requirements.

CPU Vcore 7-Shift--- (Shift to Higher Performance)

The CPU voltage can be adjusted up by 7 steps for the precisely over-clocking of extra demanding computing performance.

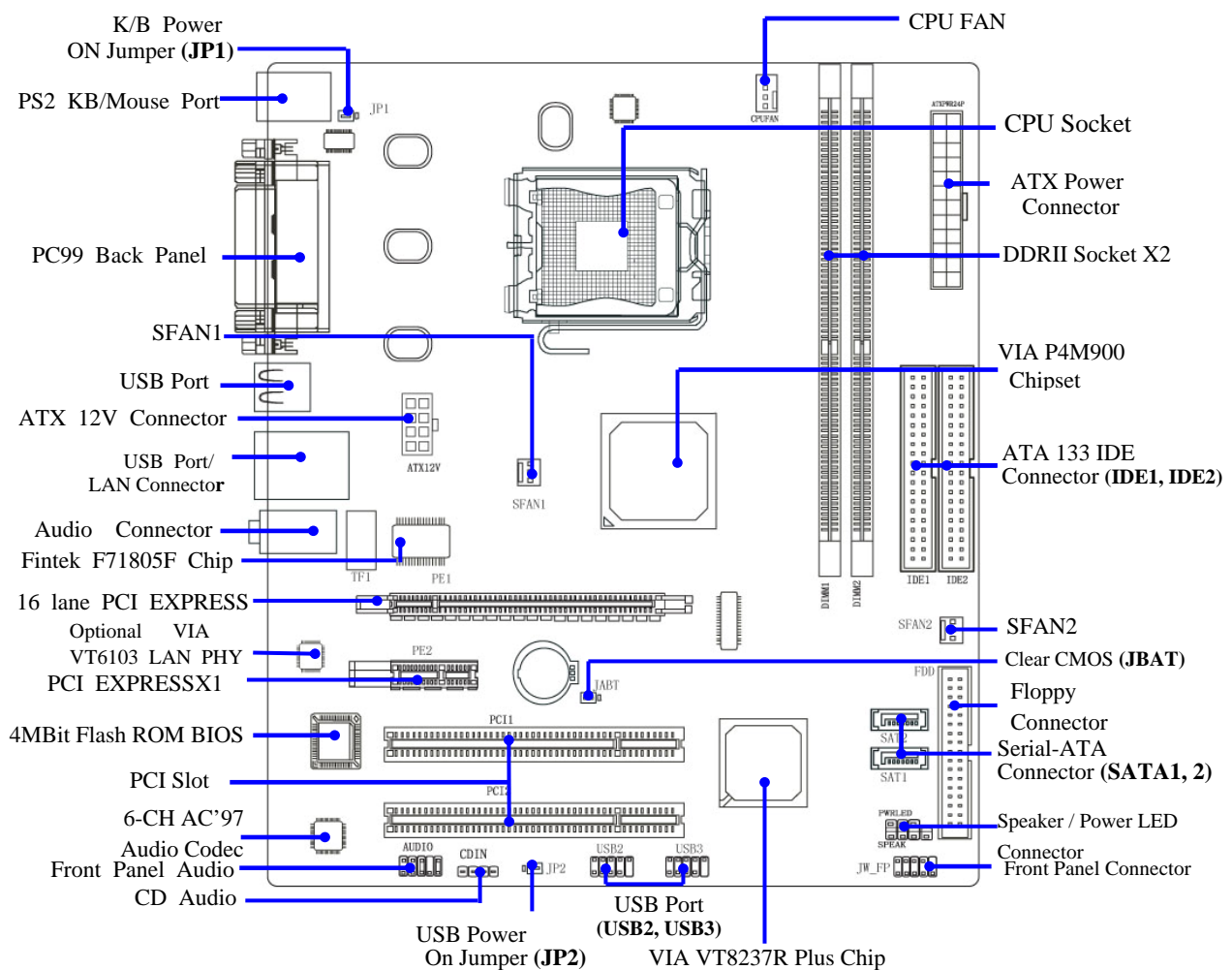
1-2 Specification

Spec	Description
Design	* Micro ATX form factor 4 layers PCB size: 24.4x21.0cm
Chipset	* VIA P4M900 North Bridge Chipset * VIA VT8237R Plus South Bridge Chipset
CPU Socket (LGA 775 Socket)	* Support Intel Pentium 4, Celeron D, Pentium D, and Core 2 Duo 775-Land LGA Package utilizes Flip-Chip Land Grid Array (FCLGA4) package processor * Support FSB Frequency 533MHz / 800 / 1066MHz
Memory Socket	* 240-pin DDRII Module socket x 2 * Support 2pcs DDRII 667/553 / 400 system memory modules which are expandable to 4.0GB
Expansion Slot	* PCI-Express x16 slot 1pcs deliver up to 8GB/s concurrent bandwidth * PCI-Express x1 slot 1pcs delivers up to 512MB/s concurrent bandwidth * 32-bit PCI slot x 2pcs
Integrate IDE and Serial ATA RAID	* Two PCI IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100/133 functions that deliver the data transfer rate up to 133 MB/s; Two Serial ATA ports provide 150 MB/sec data transfer rate for two Serial ATA Devices and offer RAID 0, 1, JBOD functions
VGA	* Integrated Chrome9™ HC IGP * 128 bit 2D/3D engine with dual pixel pipeline * 250MHz engine clock speed.
LAN	* Integrated VIA 6103L PCI-10 /100 LAN PHY * Supports Fast Ethernet LAN function provide 10Mb / 100Mb / s data transfer rate
Audio	* VIA VT1616B AC'97 Digital Audio controller integrated * 6-channel AC'97 Audio CODEC onboard * Audio driver and utility included
BIOS	* Award 4MB Flash ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1 * Serial port x1 * VGA port x1 * USB2.0 port x 4 and headers x 4 (connecting cable option) * Audio connector (Line-in, Line-out, MIC)

1-3 Item Checklist

- ☑ VIA P900DMP Chipset motherboard
- ☑ Cable for IDE
- ☑ CD for motherboard utilities
- ☑ Cable for Serial ATA IDE Port
- ☑ VIA P900DMP Chipset motherboard User's Manual

1-4 Layout Diagram & Jumper Setting



Chapter 2

Hardware Installation

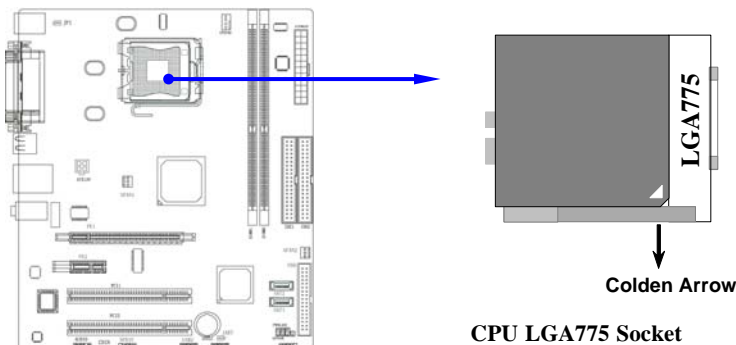
2-1 Install LGA775 Supported Intel CPU

This motherboard provides a 775-pin surface mount, LGA775 Land Grid Array socket, referred to as the LGA775 socket supports Intel Pentium 4 processor in the 775 Pin package utilizes Flip-Chip Land Grid Array (FC-LGA4) package technology.

The CPU that comes with the motherboard should have a cooling FAN attached to prevent overheating. If this is not the case, then purchase a correct cooling FAN before you turn on your system.

WARNING! Be sure that there is sufficient air circulation across the processor's heatsink and CPU cooling FAN is working correctly, otherwise it may cause the processor and motherboard overheat and damage, you may install an auxiliary cooling FAN, if necessary.

To install a CPU, first turn off your system and remove its cover. Locate the LGA775 socket and open it by first pulling the level sideways away from the socket then upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should point toward the end of the level. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.



When you put the CPU into the LGA775 socket. No force require to insert of the CPU, then press the level to Locate position slightly without any extra force.

2-2 Install Memory

This motherboard provides two 240-pin DDR DUAL INLINE MEMORY MODULES (DIMM) sides for DDR memory expansion available from minimum memory size of 64MB to maximum memory size of 4.0GB DDR SDRAM.

Valid Memory Configurations

Bank	240-pin DDR DIMM	PCS	Total Memory
Bank 0, 1 (DIMM 1)	DDRII667/DDRII533/DDRII400 DDR DRAM Module	X1	64MB~2.0GB
Bank 2, 3 (DIMM 2)	DDRII667/DDRII533/DDRII400 DDR DRAM Module	X1	64MB~2.0GB
Total	System Memory (Max. 4.0GB)	X2	64MB~4.0GB

Recommend DIMM Module Combination

1. *One DIMM Module ---Plug in DIMM1*
2. *Two DIMM Modules---Plug in DIMM1 and DIMM2*

Install DDR2 SDRAM modules to your motherboard is not difficult, you can refer to figure below to see how to install a 240-Pin DDR2 400 / DDR2 533 / DDR2 667 SDRAM module.

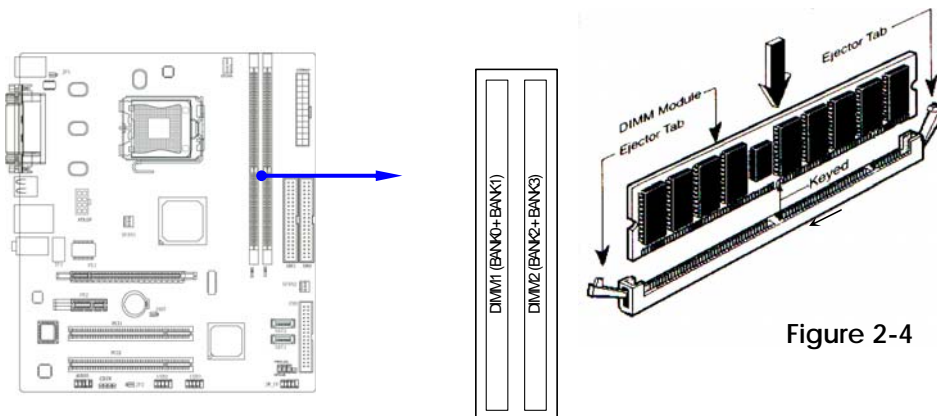


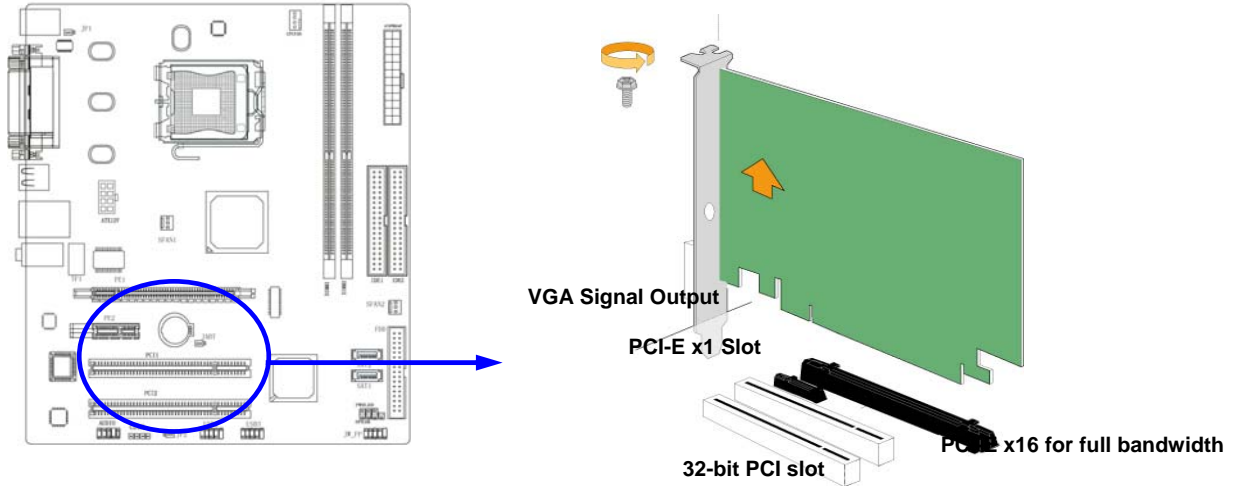
Figure 2-4

NOTE!

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

2-2 Expansion Cards

This motherboard provides one 16-lane PCI Express slot which offers 4Gbyte/sec data transfer rate at each relative direction intended for Video Graphics Array, and one x1 PCI Express Slot. Fully compliant to the *PCI Express Base Specification revision 1.0a*, support PCI Express VGA card, and other PCI Express device.



IMPORTANT!

To install the single PCI EXPRESS x16 interface supported VGA card to get the full speed of x16 bandwidth in the PCI EXPRESS x16 slot as being marked above. If you utilize the EXPRESS x16 slot to support the VGA card as the external display, please disabled the integrated VGA card in BIOS.

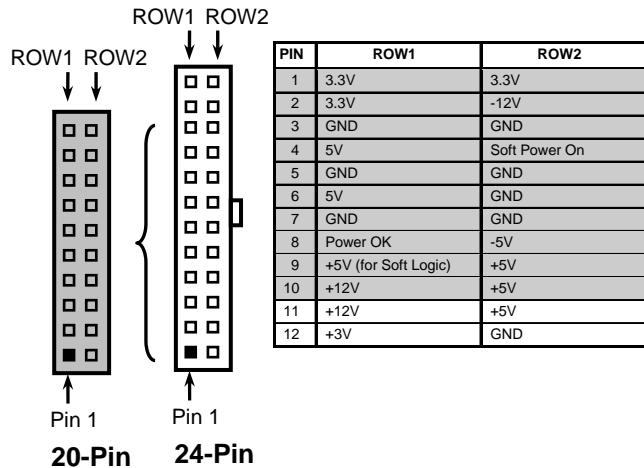
Chapter 3

Connectors, Headers & Jumpers Setting

3-1 Connectors

(1) Power Connector (24-pin block) : ATXPWR1

ATX Power Supply connector. This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.



- ** We recommend that you use an ATX 12V Specification 2.0-compliant power supply unit (PSU) with a minimum of 350W power rating. This type has 24-pin and 4-pin power plugs.
- ** If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15A on +12V and the power supply unit has a minimum power rating of 350W. The system may become unstable or may not boot up if the power is inadequate.

(2) ATX 12V Power Connector (8-pin block) : ATX12V1

This is a new defined 8-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully supports AM2 processor must including this connector for support extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.



(3) PS/2 Mouse & PS/2 Keyboard Connector: KB1

The connectors for PS/2 keyboard and PS/2 Mouse.

(4) USB Port connector: CN3

The connectors are 4-pin connector that connects USB devices to the system board.

(5) LAN Port connector: UL1

This connector is standard RJ45 connector for Network. The USB/LAN1 support 10M/100Mbps data transfer rate.

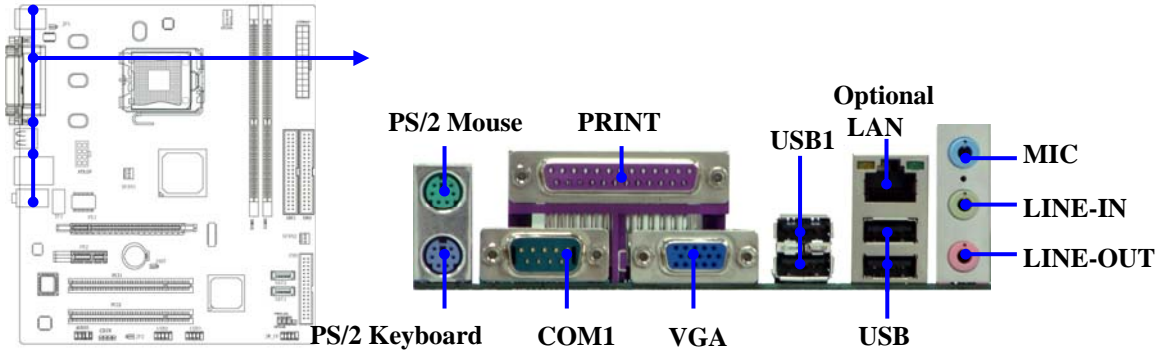
(6) Audio Line-In, Lin-Out, MIC Connector :

This Connector are 3 phone Jack for LINE-OUT, LINE-IN, MIC

Line-in : (BLUE) Audio input to sound chip

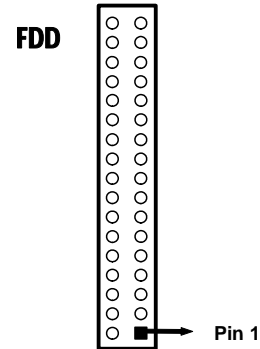
Line-out : (GREEN) Audio output to speaker

MIC : (PINK) Microphone Connector



(7) Floppy drive Connector (34-pin block): FDD1

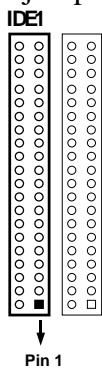
This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.



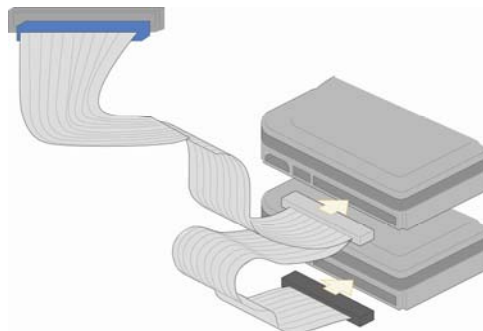
Floppy Drive Connector

(8) Primary IDE Connector (40-pin block): IDE1

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.



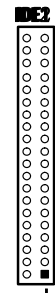
Primary IDE Connector



(9) Secondary IDE Connector (40-pin block): IDE2

This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.

- Two hard disks can be connected to each connector. The first HDD is referred to as the “Master” and the second HDD is referred to as the “Slave”.
- For performance issues, we strongly suggest you don’t install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop.

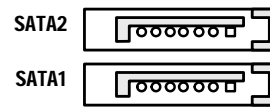


Secondary IDE Connector

(10) Serial-ATA Port connector:

SATA1 / SATA2

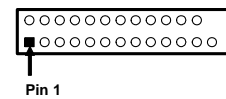
This connector supports the provided Serial ATA and Serial ATA IDE hard disk cable to connecting the motherboard and serial ATA hard disk.



Serial-ATA1 & 2 Compatible Connectors

(11) Parallel Port Connector (25-pin female): PARALLEL1

The On-board Parallel Port can be disabled through the BIOS SETUP.



PARALLEL Connector

(12) Serial COM Port: COM1

COM1 is the 9-pin connector. The On-board serial port can be disabled through BIOS SETUP.

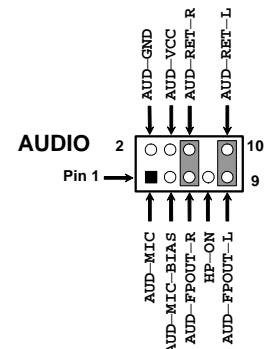
(13) VGA Connector (15-pin D-Sub) Connector: VGA1

VGA is the 15-pin D-Subminiature female connector for display monitor.

3-2 Headers

(1) Line-Out/MIC Header for Front Panel (9-pin): AUDIO1

This header connect to Front Panel Line-out, MIC connector with cable. Without install the cable, this header default setting is 5-6 short, 9-10 short. When you install the cable you have take off these jumpers.

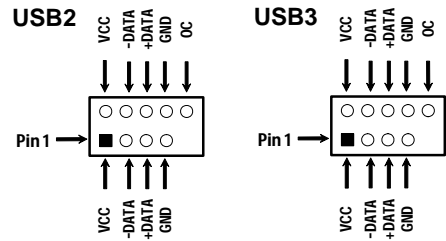


Line-Out, MIC Headers

(2) USB Port Headers (9-pin) :

USB2 / USB3

These headers are used for connecting the additional USB port plug. By attaching an option USB cable, your can be provided with two additional USB plugs affixed to the back panel.



(3) Speaker connector: SPEAK1

This 4-pin header connects to the case-mounted speaker. See the figure below.

(4) Power LED: PWR LED1

The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

(5) IDE Activity LED: HD LED

This connector connects to the hard disk activity indicator light on the case.

(6) Reset switch lead: RESET

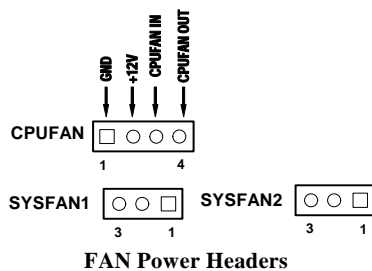
This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply. See the figure above.

(7) Power switch: PWR BTN

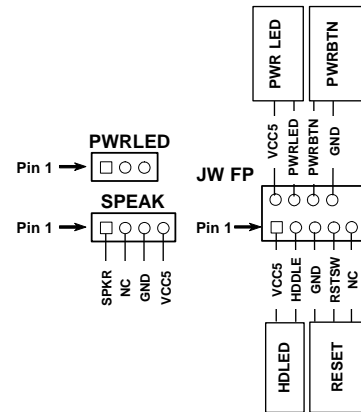
This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.

(8) FAN Power Headers: SYSFAN1, SYSFAN2 (3-pin), CPUFAN (4-pin)

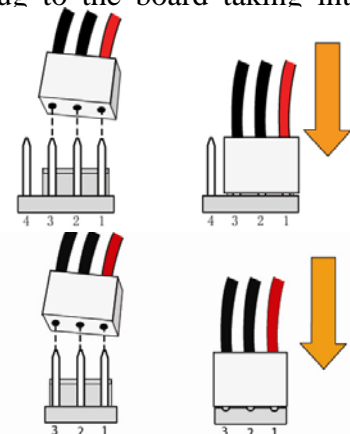
These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.



USB Port Headers

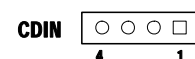


System Case Connections



(9) CD Audio-In Headers (4-pin) : CDIN

CDIN are the connectors for CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.



CD Audio-In Headers

Chapter 4

USEFUL HELP

4-1 HOW TO UPDATE BIOS

Before updating the BIOS, users have to “Disable” the “Flash Part Write Protect” selection in “Miscellaneous Control” of BIOS SETUP. Otherwise the system will not allow you to upgrade BIOS by Award Flash Utility.

STEP 1. Prepare a boot disc. (you may make one by click START click RUN type SYS A:click OK)

STEP 2. Copy utility program to your boot disc. You may copy from DRIVER CD
X:\FLASH\AWDFLASH.EXE or download from our web site.

STEP 3. Download and make a copy of the latest BIOS for **VIA P4M900** PPC motherboard series from the web site to your boot disc.

STEP 4. Insert your boot disc into A:;

start the computer, type “Awdflash A:\ **VIA P4M900**.BIN /SN/PY/CC/R”

VIA P4M900 xxx.BIN is the file name of latest BIOS it can be **VIA P4M900**.BIN or **VIA P4M900**.BIN

SN means don't save existing BIOS data

PY means renew existing BIOS data

CC means clear existing CMOS data

R means restart computer

STEP 5. Push ENTER to update and flash the BIOS, then the system will restart automatically.

4-2 Trouble Shooting

Problem	Solution
No power to the system to the all power light don't illuminate, fan inside power supply doesn't turn on.	1. Make sure power cable is security plugged in. 2. Replace cable. 3. Contact technical support.
System inoperative. Keyboard lights are on , power indicator lights are lit, and hard drive is spinning.	Using ever pressure on both ends of the DIMM , press down firmly until the module snaps into places.
System doesn't boot from hard disk drive, can be booted from optical drive.	1. Check cable running from disk to disk controller board. .Make sure both ends are securely plugged in, check the drive type in the standard CMOS setup. 2. Backing up the hard drive is extremely important .All hard disks are capable of breaking down at any time.
System only boots from optical drive .Hard disk can be read and applications can be used but booting from hard disk is impossible.	1. Back up date and applications files. 2. Reformat the hard drive. Reinstall applications and date using backup disks.
Screen message says “Invalid Configuration” or “CMOS Failure”	Review system 's equipment .Make sure correct information on is in setup.
Can not boot system after installing second hard drive.	1. Set master /slave jumpers correctly. 2. Run SETUP program and select correct drive types. Call the drive manufacture for compatibility with other drives.