PA-2013

MOTHERBOARD MANUAL

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Part No. : 25-10864-20

Notice

Handling Precautions

Warning :

1. Static electricity may cause damage to the integrated circuits on the motherboard.
   Before handling any motherboard outside of its protective packaging, ensure that there is no static electric charge in your body**.**
2. There is a danger of explosion if the battery is incorrectly replaced.
   Replace only with the same or an equivalent type recommended by the manufacturer.
3. Discard used batteries according to the manufacturer's instructions.

Observe the following basic precautions when handling the motherboard or other computer components:

- Wear a static wrist strap which fits around your wrist and is connected to a natural earth ground.
- Touch a grounded or anti-static surface or a metal fixture such as a water pipe.
- Avoid contacting the components on add-on cards, boards and modules with the "gold finger" connectors plugged into the expansion slot. It is best to handle system components by their mounting bracket.

The above methods prevent static build-up and cause it to be discharged properly.

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Chapter 1

Overview

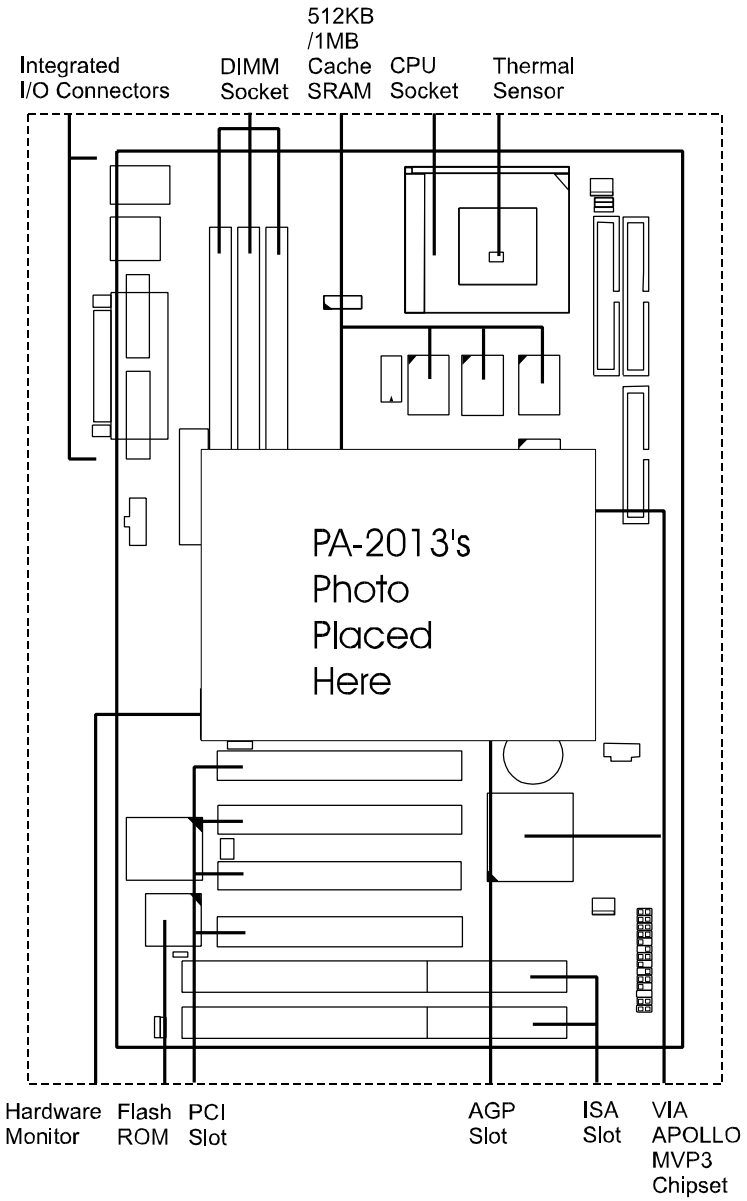
Based on the new highly-integrated VIA APOLLO MVP3 Chipset that offers 100MHz system bus operations and accepts 100MHz PC100 synchronous DRAMs, the PA-2013 combines blistering Pentium® processor performance with support for switching voltage regulator which allows the voltage from 2.0V to 3.5V intelligent diagnostic, and power management features. The new Accelerated Graphics Port (AGP) interface provides a dedicated path for memory-intensive graphics applications-delivering faster system performance and arcade-quality 2x mode 3D graphics. The PA-2013 has a versatile ATX-size platform for leading-edge PC '97 compliant systems. For the most up-to-date information and the latest FAQs and BIOS updates, visit FIC Online at http://www.fic.com.tw/.

Package Checklist

Please check that your package contains all the items listed below. If you discover any item is damaged or missing, please contact your vendor.

- The PA-2013 motherboard
- This user manual
- One IDE device cable
- One floppy disk drive cable
- Software Utilities

The PA-2013 Motherboard



Main Features

- Easy Installation
  BIOS with support for Plug and Play, auto detection of IDE hard drives, LS-120 drives, IDE ZIP drives, MS Windows 95/ 98/NT, and OS/2.

- Leading Edge Chipset
  VIA APOLLO MVP3 chipset with integrated DRAM and LII cache controllers as well as support for Intel's new Dynamic Power Management Architecture (DPMA), Concurrent PCI (PCI 2.0 and 2.1), AGP 1.0 compliant, and USB.

- Flexible Processor Support
  Onboard 321-pin ZIF socket and switching voltage regulator support complete range of leading-edge processors:
  Intel Pentium P54C 100/133/166/200MHz processors.
  Intel Pentium MMX 166/200/233MHz processors.
  AMD-K6-166 / K6-200 / K6-233 / K6-266 / K6-300, also K6-2/266 and K6-2/300 processors.
  Cyrix 6x86MX-PR166 / PR200 / PR233 / PR266 processors.
  Cyrix 6x86L-PR200+ / PR166+ / PR150+ processors.
  IBM 6x86MX-PR166 / PR200 / PR233 / PR266 processors.
  IBM 6x86L-PR200+ / PR166+ / PR150+ processors.

- Various External Bus and CPU/Bus Frequency Ratio Support
  The motherboard supports the Bus frequency of 66 / 75 / 83 / 100MHz and the CPU/Bus frequency ratio of 1.5x / 2x / 2.5x / 3x / 3.5x / 4x / 4.5 x / 5x / 5.5x by a switching voltage regulator which accepts from 2.0V to 3.5V. (Please read **Install the CPU** in Chapter 2 for more information).

- Ultra-fast Level II Cache
  Supports 512KB/1MB onboard Pipeline Burst Level II write-back cache.

- Versatile Main Memory Support
  Accepts up to 768MB DRAM in three banks by using of 8, 16, 32, 64, 128, 256MB with support for EDO and SDRAM (66/100MHz) DIMMs.

- ISA and PCI Expansion Slots
  Two 16-bit ISA Bus and four 32-bit PCI Bus expansion slots provide the room to install a full range of add-on cards.

- Onboard Accelerated Graphics Port (AGP)
  One 32-bit AGP slot supports 1x/2x AGP VGA cards for superior 3D video and graphics performance with transfer speeds up to 264MB/second under 1x transfer mode and up to 528MB/second under 2x transfer mode.

- Enhanced PCI Bus Master IDE Controller with Ultra DMA/33 Support
  Integrated Enhanced PCI Bus Master IDE controller features two dual-channel connectors that accept up to four Enhanced IDE devices, including CD-ROM and Tape Backup Drives, as well as Hard Disk Drives supporting the new Ultra DMA/33 protocol which doubles data transfer rates to 33MB/sec. Standard PIO Mode 3, PIO Mode 4, and DMA Mode 2 devices are also supported.

- Super Multi I/O
  Integrated Winbond 83877TF Plug and Play multi-I/O chipset features two high-speed UART 16550 compatible serial ports, one EPP/ECP capable parallel port, and one FDD connector.

- USB Support
  Two USB ports integrated in the rear I/O panel allow convenient and high-speed Plug and Play connections to the growing number of USB compliant peripheral devices on the market. One manufacturing optional USB connector that shared with one USB port for the front panel.

- Onboard IrDA Connector
  An IrDA connector for wireless infrared connections is available.

- Remote Wake On LAN Support
  Onboard RWU connector allows remote management on your network even the system is power off. This feature provides a simpler and convenient control to LAN-based networks.

- Intel LANDesk Client Manager (LDCM) Software Support (optional)
  LDCM is a DMI-compliant application for local and network management of desktop client systems. The application reduces the number of help desk calls by supplying the user with self diagnostics such as a PC health meter and local alert of potential problems.

Intelligent Properties

- Optimized MMX Performance

  The motherboard utilizes the advanced features of the VIA APOLLO MVP3 chipset to optimize the unrivaled performance of the Intel Pentium® processor with MMX technology. To provide you with additional flexibility, the motherboard also supports other leading-edge processors featuring MMX technology, including the AMD-K6, Cyrix 6X86MX, IBM 6x86MX processors.

- Onboard Accelerated Graphics Port (AGP)

  The motherboard is installed one 32-bit AGP bus with a dedicated 66MHz/133MHz path from the graphics card to the system memory (in 2x mode) offering much greater bandwidth than the 32-bit PCI bus does which currently operates at a speed of 33MHz. The board is fully compliant with the AGP 1.0 specification. AGP enabled 3D graphics cards can directly access main memory across this fast path instead of using local memory. To make use of the improved AGP performance, the motherboard should be installed with SDRAM type memory and the VGA card and drivers should also be fully AGP compliant. Using Microsoft's Windows 98 and Windows NT 5.0 which implement DirectDraw will allow the system to take full use of AGP's benefits without the need to install additional drivers.

- CPU Thermal Monitoring Alert

  An onboard sensor LM75 monitors the CPU temperature to make sure that the system is operating at a safe heat level. If the temperature is too high, the sensor automatically generates an SMI (System Management Interrupt) to slow down the CPU clock frequency. At the same time, the system warns you that the CPU is overheating if the LDCM is on. CPU utilization is restored to normal levels when the temperature returns to a safe level. This feature requires a power supply with a soft-off power controller. Please also read the feature of **CPU Warning Temperature** of BIOS Setup for related information.

- Lightning-Fast SDRAM Performance

  The motherboard supports general 66MHz and the new generation of lightning-fast 100MHz SDRAM via its onboard 168-pin DIMM sockets. SDRAM delivers an added boost to overall system performance by increasing the CPU-to-memory data transfer rate. SDRAM performance on

the PA-2013 is further boosted by the board's integrated I^2C controller, which optimizes the memory timing settings.

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Installation Procedures

The motherboard has several user-adjustable jumpers on the board that allow you to configure your system to suit your requirements. To set up your computer, you should follow these installation steps: 1). set system jumpers; 2). install RAM modules; 3). install the CPU; 4). install expansion cards; 5). connect devices; 6). set up BIOS feature. 7). set up supporting software tools.

CAUTION: If you use an electric drill to install this motherboard on your chassis, please wear a static wrist strap. The recommended electric drill torque is from 5.0 to 8.0 kg/cm to avoid damaging the chips' pins.

1). Set System Jumpers

Jumpers

Jumpers are used to select the operation modes for your system. To set a jumper, a black cap containing metal contacts is placed over the jumper pins according to the required configuration. A jumper is said to be shorted when the black cap has been placed on one or two of its pins. The types of jumpers

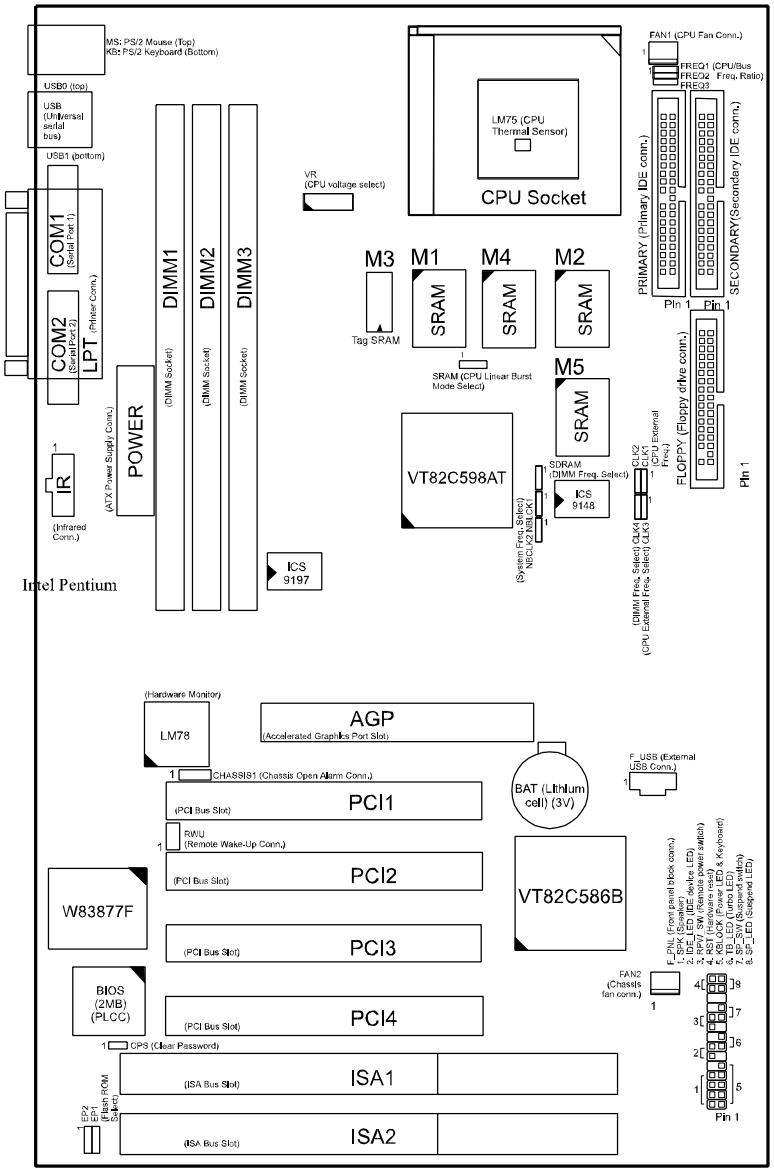
Jumper cap is shown as above

Jumpers in a Block

used in this manual are shown below:

NOTE: Users are not encouraged to change the jumper settings not listed in this manual. Changing the jumper settings improperly may adversely affect system performance.

Motherboard Layout



Onboard Mark	Meaning	Page
CPS	Clear Password	10
EP1, 2	Flash ROM Type Selection	10
SRAM	CPU to SRAM Data Transacting Mode Selection	11
CLK4, SDRAM	DIMM Frequency Selection	13
NBCLK1,NBCLK2	System Frequency Selection	13
CLK1, 2, 3	CPU External (Bus) Frequency Selection	16
FREQ1, 2, 3	CPU to Bus Frequency Ratio Selection	16
VR	CPU Voltage Selection	18
DIMM1, 2, 3	Memory Module Socket	11
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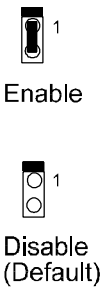
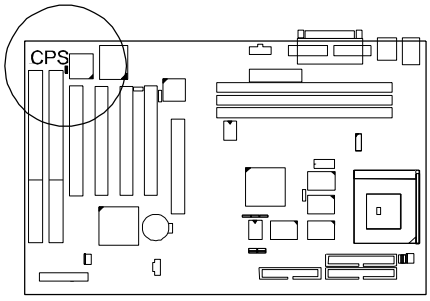
AGP	Accelerated Graphic Port Slot	19
PCI1, 2, 3, 4	PCI Bus Expansion Slot (32-bit)	19
ISA1, 2	ISA Bus Expansion Slot (16-bit)	19
FLOPPY	Floppy Diskette Drive Connector	20
PRIMARY, SECONDRAY	IDE Device Connector	20
POWER	ATX Power Connector	20
FAN1	CPU Fan Connector	21
RWU	Wake-On-LAN Connector	21
F_PNL*	Connectors for LEDs & Switches on Front Panel	22
FAN2	System Case Fan Connector	24
CHASSIS1	Chassis Open Alarm Connector	24
KB	PS/2 Keyboard Connector	25
MS	PS/2 Mouse Connector	25
LPT	Parallel Port	25
USB0, USB1, F_USB	Universal Serial Bus Connector	25
COM1, COM2	Serial Port	26
IR	Infrared Connector	26

** includes PWR_LED, KB_LOCK, TB_LED, SP_SW, SPK, SP_LED, IDE_LED, RPW_SW, and RST connectors.*

Clear Password: CPS

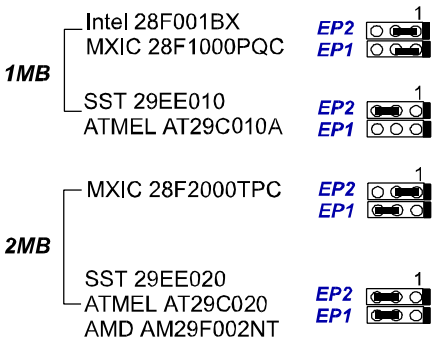
This jumper allows you to enable or to disable the password configuration. You may need to enable this jumper by shorting it with a jumper cap if you forget your password. To clear the password setting: 1. Turn off your computer, (2). Short this jumper by placing a jumper cap on it, (3) Turn on your computer, (4), Hold down the Delete key during bootup and enter BIOS Setup to re-enter user preferences, (5) Turn off your computer, (6) Remove the jumper cap, (7) Turn on your computer for the new settings to take effect.

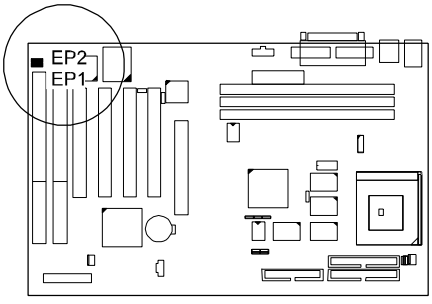




Flash ROM Type Selection: EP1, EP2

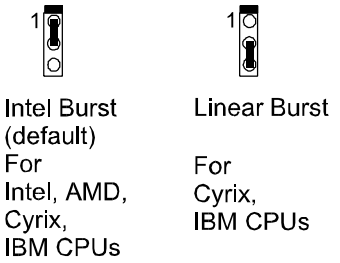
These two jumpers allow you to configure the type of flash ROM chip. This jumper setting is correct by manufactory default. If you want to know the flash ROM type installed on this motherboard, remove the sticker from the chip to see its type.

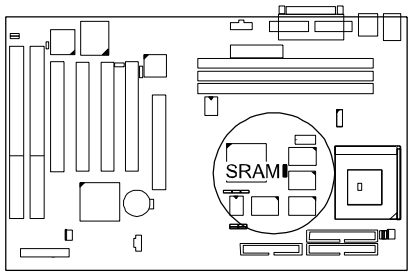




CPU to SRAM Data Transacting Mode Selection: SRAM

This jumper allows you to select the CPU to SRAM data read/write mode. If you install a Cyrix or IBM processor on this motherboard, please set at 2-3 pin pair. Please also read Linear Burst feature of BIOS Setup, Chapter 3 for more information.





2). Install System RAM Modules

RAM Module Configuration

This motherboard provides three onboard DIMM sockets for allowing 3.3V (unbuffered) EDO/SDRAM DIMM modules. Either 8, 16, 32, 64, 128MB, or 256*MB DIMM can be installed on these three sockets. The maximum total memory supported is up to 768MB*.

NOTE:

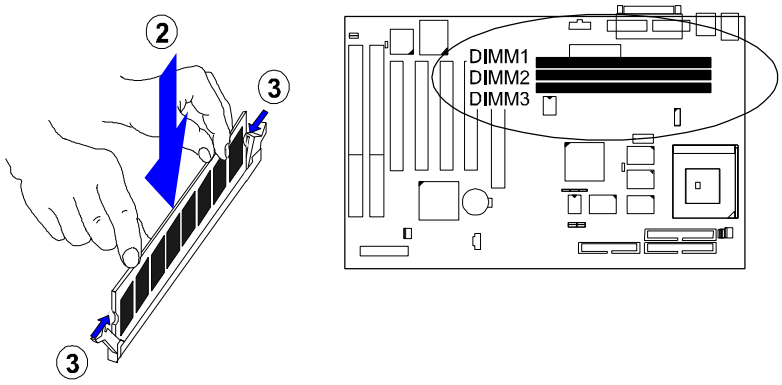
1. * A RAM module of this size was not available for testing at time of printing.
2. This board only supports 3.3V (unbuffered) EDO/SDRAM modules.
3. This motherboard supports DIMMs with data access time of 15ns, 12ns, 10ns, 8ns or less. ECC memory and parity check is also supported. Please also refer to the feature of **Memory ECC Check** of Chapter 3 for more information.
4. If DIMM runs at the speed of 100MHz, it must meet the PC100 Specification.

Install and Remove DIMMs

This motherboard supports 100MHz SDRAM DIMMs; that is, the system frequency of this motherboard runs in a higher speed rather than the speed of 66MHz.

Complete the following procedures to install DIMMs:

1. Locate the DIMM slots on the motherboard. (See figure below.)



2. Install the DIMM straight down into the DIMM slot with both hands.

3. The clips of the slot will close up to hold the DIMM in place when the DIMM touches the slot's bottom.

Press the clips with both hands to remove the DIMM.

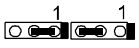
DIMM Frequency: CLK4, SDRAM

SDRAM Freq.
= CPU External Freq.

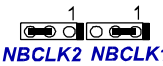
SDRAM Freq.
= AGP Bus Freq.

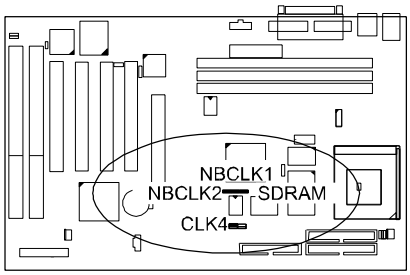
System Frequency: NBCLK1, NBCLK2

100MHz
83MHz



75MHz
68MHz
66MHz

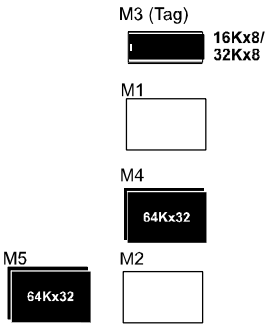


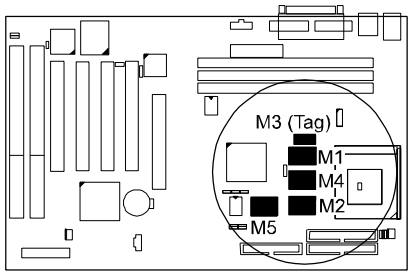


Cache Memory

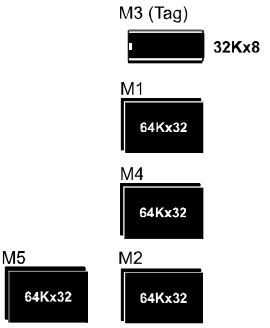
The PA-2013 comes with onboard 512KB (1MB is manufacturing optional) synchronous 3.3V Pipeline Burst SRAMs. Cache memory access is very fast compared to main memory access. Since cache memory is from five to more than ten times faster than main memory, the system performance is better.

512KB



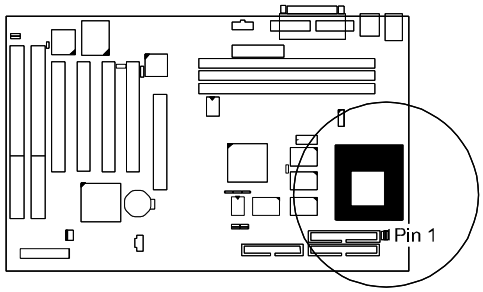


1MB



3). Install the CPU

The CPU module resides in the Zero Insertion Force (ZIF) socket on the motherboard.



CAUTION:

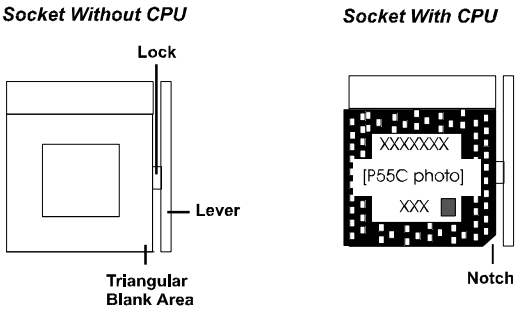
1. Always turn the system power off before installing or removing any device.

2. Always observe static electricity precautions.
See “Handling Precautions” at the start of this manual.

3. Inserting the CPU chip incorrectly may damage the chip.

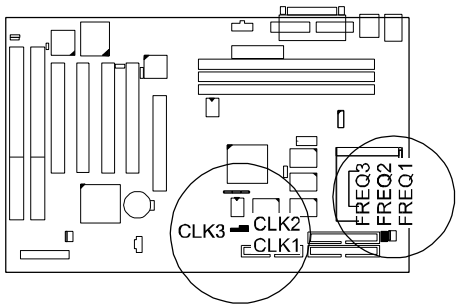
To install the CPU, do the following:

1. Lift the lever on the side of the CPU socket.
2. Handle the chip by its edges and try not to touch any of the pins.
3. Place the CPU in the socket. The chip has a notch to correctly locate the chip. Align the notch with pin one of the socket. Pin one is located in the blank triangular area. Do not force the chip. The CPU should slide easily into the socket.
4. Swing the lever to the down position to lock the CPU in place.
5. See the following sections for information on the CPU jumpers settings.

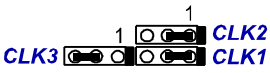

Socket Without CPU
Lock
Lever
Triangular
Blank Area
Socket With CPU
XXXXXXX
[P55C photo]
XXX
Notch

CPU External (BUS) Frequency: CLK1, CLK2, CLK3

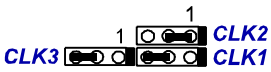
The motherboard may have two types of clock generator onboard. The table below shows the jumper settings for the different CPU speed configurations when the listed clock generator onboard.



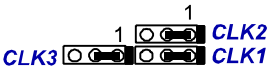
66MHz



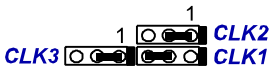
68MHz



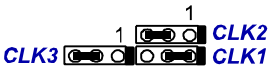
75MHz



83MHz

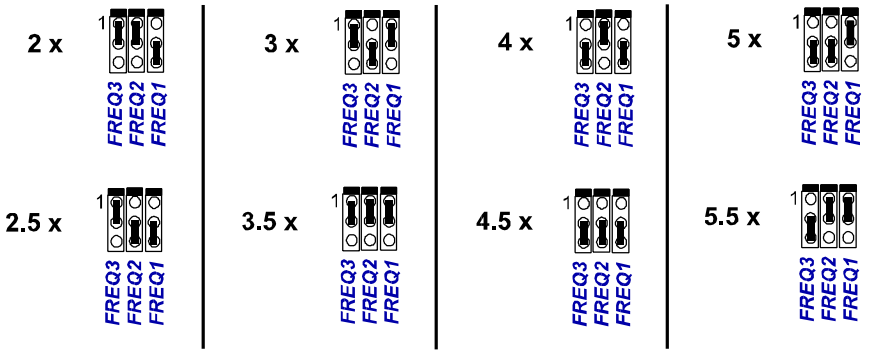


100MHz



CPU to Bus Frequency Ratio: FREQ1, FREQ2, FREQ3

These three jumpers are used in combination to decide the ratio of the internal frequency of the CPU to the bus clock.



Set CPU Frequency

Intel Pentium MMX (Unit of Freq. and Bus Freq. : MHz)

Type	Freq.	Bus Freq.	Ratio
Pentium P54C	200	66	3 x
	166	66	2.5 x
	133	66	2 x
	100	66	1.5 x
Pentium MMX	233	66	3.5 x
	200	66	3 x
	166	66	2.5 x

AMD-K6 (Unit of Freq. and Bus Freq. : MHz)

Type	Freq.	Bus Freq.	Ratio
K6-2/300*	300	100	3 x
		66	4.5 x
K6-2/266*	266	66	4 x
	250	100	2.5 x
K6-300	300	66	4.5 x
K6-266	266	66	4 x
K6-233	233	66	3.5 x
K6-200	200	66	3 x
K6-166	166	66	2.5 x

IBM/Cyrix 6x86L/6x86MX (Unit of Freq. and Bus Freq. : MHz)

Type	Bus Freq.	Ratio
6x86MX-PR266	83	2.5 x
6x86MX-PR233	83	2 x
	75	2.5 x
6x86MX-PR200	66	2.5 x
	75	2 x
6x86MX-PR166	66	2 x
6x86L-PR200+	75	2 x
6x86L-PR166+	66	2 x

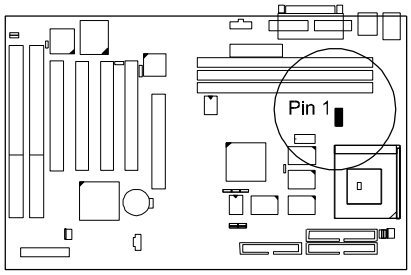
NOTE : 1. * This CPU was not available for testing at time of printing.

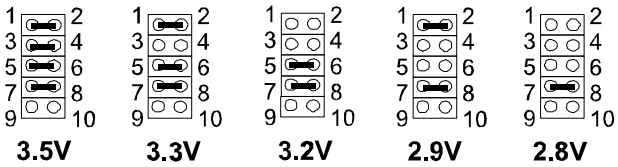
2. Please refer to your CPU top marking about the actual CPU speed and ratio.

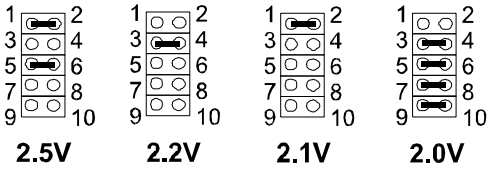
Set CPU Voltage

This section lists all possible CPU voltages that this board supports. There are two rows of CPU voltage (core voltage) jumper setting in the diagram below.

NOTE: Please refer to your CPU top marking about the actual CPU voltage. (It is core voltage, the IO voltage is 3.3V.)







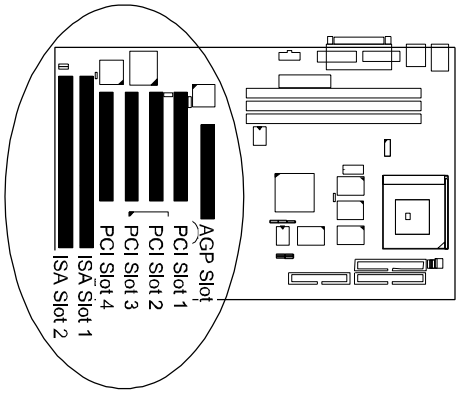
4). Install Expansion Cards

This section describes how to connect an expansion card to one of your system's expansion slots. Expansion cards are printed circuit boards that, when connected to the motherboard, increase the capabilities of your system. For example, expansion cards can provide video and sound capabilities.

Your PA-2013 features one 32-bit AGP Bus, two 16-bit ISA Bus, and four 32-bit PCI Bus expansion slots.

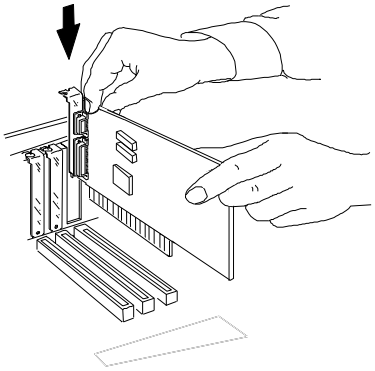
CAUTION:

1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions. See "Handling Precautions" at the start of this manual.



To install an expansion card, do the following:

1. Remove the chassis cover and select an empty expansion slot.
2. Remove the corresponding slot cover from the chassis. Unscrew the mounting screw that secures the slot cover and pull the slot cover out from the chassis. Keep the slot cover mounting screw nearby.
3. Holding the edge of the peripheral card, carefully align the edge connector with the expansion slot. (See figure below.)



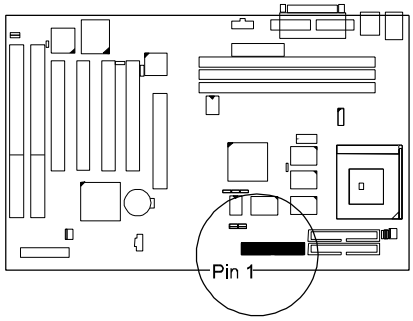
4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this "rocking" motion until the add-in card is firmly seated inside the slot.
5. Secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely into the expansion slot.

5). Connect Devices

Connectors to Internal Devices

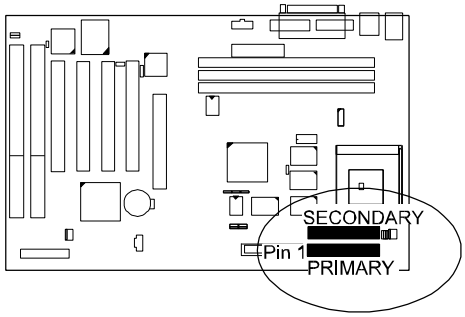
Floppy Diskette Drive Connector: FLOPPY

This connector provides the connection with your floppy disk drive.



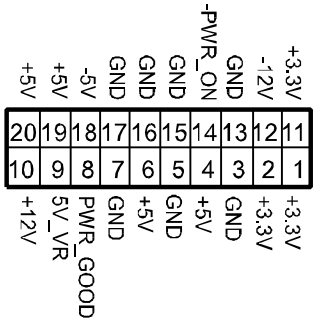
IDE HDD Device Connectors: PRIMARY, SECONDARY

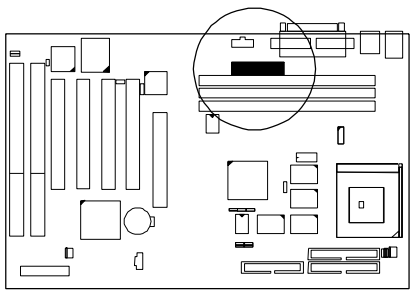
These two connectors are used for your IDE hard disk drives, CD drives, LS-120 drives, or IDE ZIP drives.



ATX Power Connector: POWER

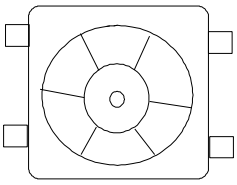
This 20-pin male block connector is connected to the ATX power supply.



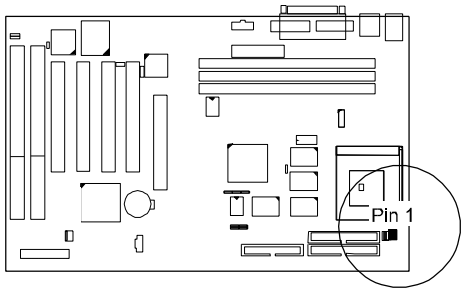


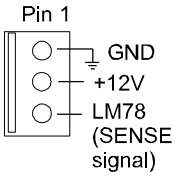
CPU Fan Connector: FAN1

This connector is linked to the CPU fan for cooling the processor temperature. Please read the CPU fan installation guide before connection.



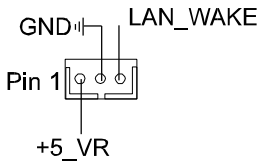
[CPU fan photo]

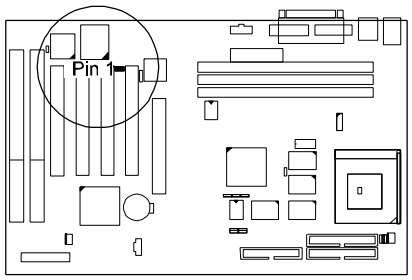




Wake-ON-LAN (WOL) Connector: RWU

This 3-pin connector allows LAN servers to manage the system that installed this board via network adapters support WOL. Please read the network card's guide for details and Page 37 **Resume on Ring & LAN**.

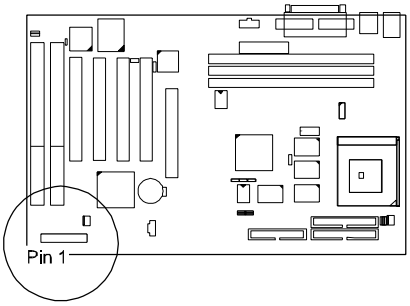




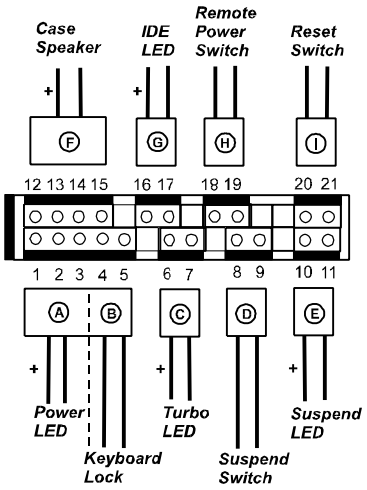
Connectors to System Case

Front Panel Block Connector: F_PNL

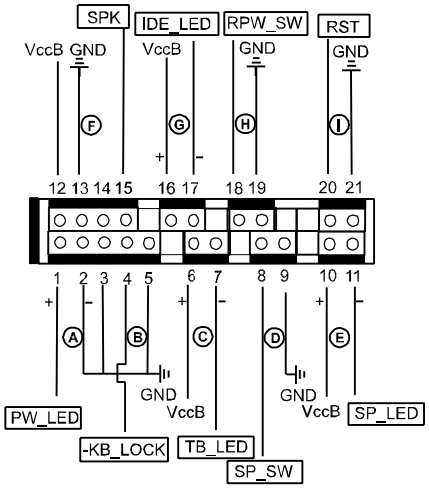
This block connector concludes: PWR_LED, KB_LOCK, TB_LED, SP_SW, SPK, SP_LED, IDE_LED, RPW_SW, and RST connectors.



Usually, the plugs with wires for above LEDs (indicators), speaker and switches come with the system case. Please identify polarities of plug wires for the case speaker and LEDs; that is, which wires are positive (+). Please ask vendor about this information when you buy them and install the system by yourself. The switches are called *Miniature Push Switches*. The plug wires' polarities of this switches will not affect the function.



Connection Diagram



Pin Assignment

PWR_LED (A) & KB_LOCK (B)
PWR_LED is connected with the system power indicator to indicate whether the system is on/off and the case-mounted keyboard lock to lock keyboard. KB_LOCK prevents keyboard access to the system (this feature is used in combination with the case-mounted keylock).

TB_LED (C) is connected with turbo indicator. It always lights.

SP_SW (D) is connected with suspend mode switch.

SP_LED (E) is connected with suspend mode indicator.

SPK (F) is connected with the case speaker.

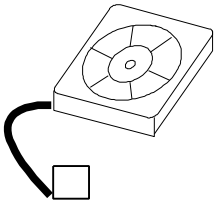
IDE_LED (G) is connected IDE device indicator.

RPW_SW (H) is connected with remote power (soft power) switch.
Push this switch will turn off and on the system instead of turning the power switch on the power supply.

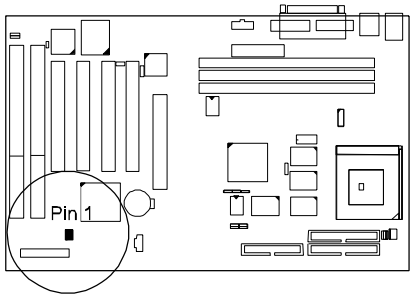
RST (I) is connected to the reset switch. Push this switch to reboot the system instead of turning power switch off and on.

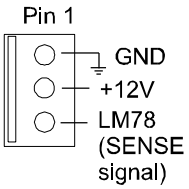
System Case Fan Connector: FAN2

This 3-pin connector links to your cooling fan on the system case to lower the system temperature.



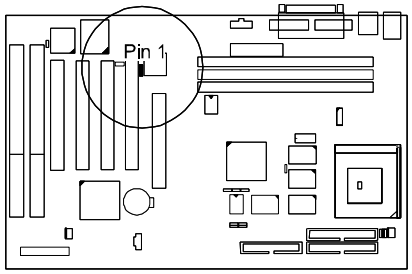
[case fan photo]

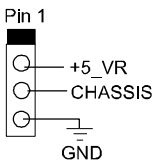




Chassis Open Alarm Connector: CHASSIS1

This 3-pin pinhead provides users with the functions that messages from the operating systems and system cases which support LDCM if the system cases intrusion occurred.



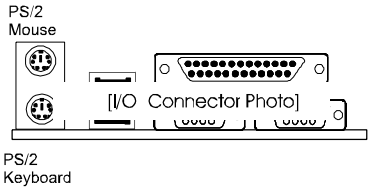


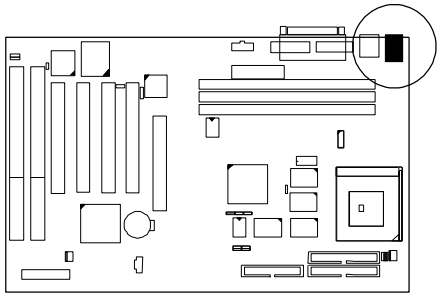
This feature is cooperated with the system case either by optical or mechanical way. If you purchase a case that supports the intrusion alarm by mechanical means; please check with your vendor carefully if it can work with this board. If this connector is unused, it is shortened on pin pair 2-3.

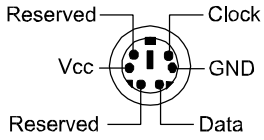
Connectors to External Devices

PS/2 Keyboard and Mouse Connector: KB, MS

These two 6-pin female connectors are used for your PS/2 keyboard and PS/2 mouse.

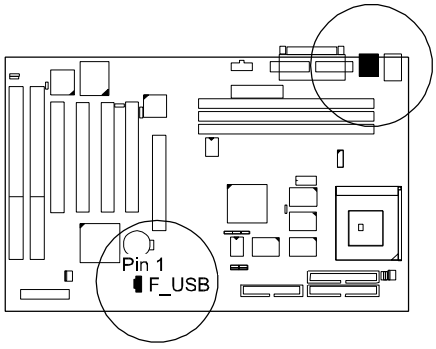




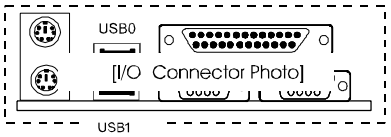


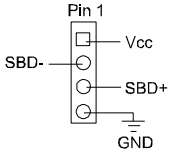
Universal Serial Bus Connectors: USB0, USB1, F_USB

These two connectors that integrated on the edge of the board are used for linking with USB peripheral devices. Also, this board provides an manufacturing optional connector F_USB (shared with USB0) for linking with the USB socket on the front panel of some system cases. If this connector is onboard and is used, the USB0 connector is disabled.



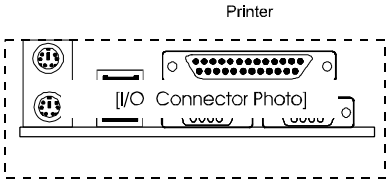
The figure above right is the pin assignments of the onboard F_USB connector.

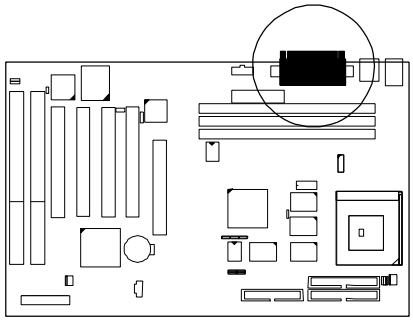




Printer Connector: LPT

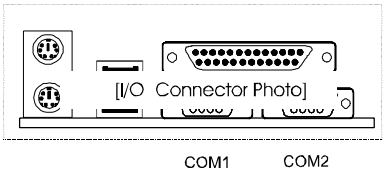
This 25-pin D-Sub female connector is attached to your printer.

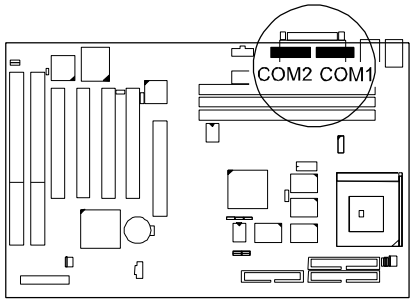




Serial Port Connectors: COM1, COM2

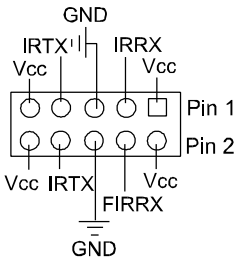
These two 9-pin D-Sub male connectors allow you to connect with your devices that use serial ports, such as a serial mouse or a modem.

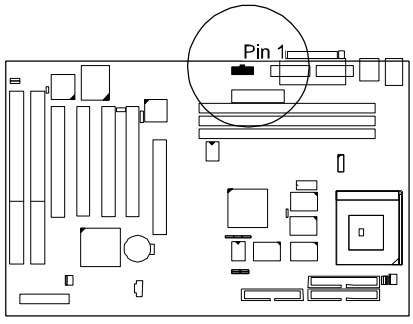




Infrared Connector: IR

This connector supports the connection to your IR device.

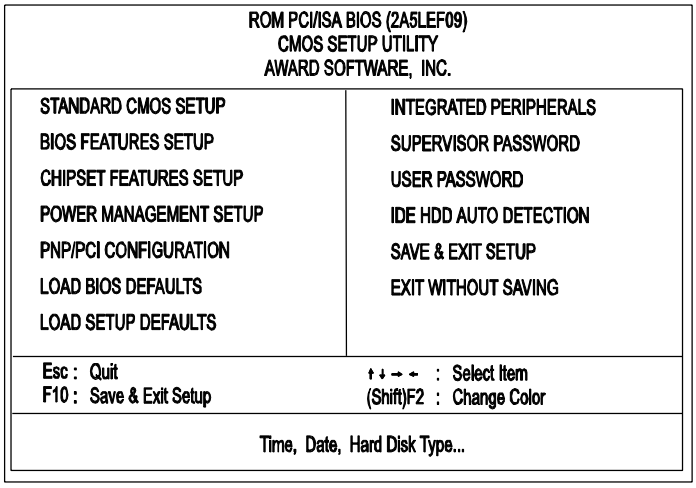




BIOS Setup

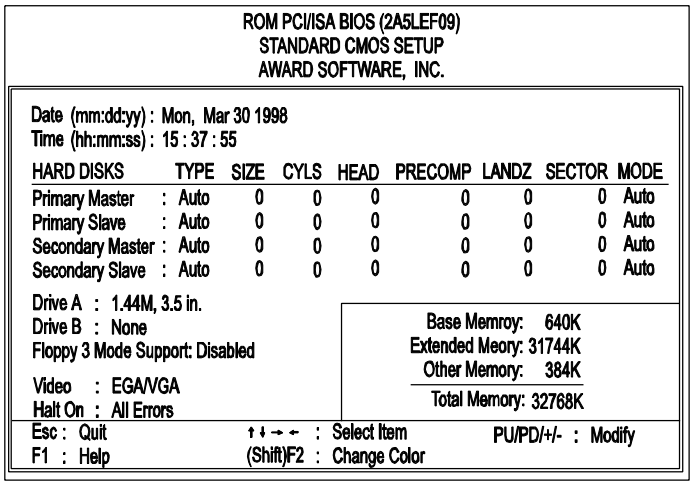
The motherboard comes with the Award BIOS chip that contains the ROM Setup information of your system. This chip serves as an interface between the processor and the rest of the motherboard's components. This section explains the information contained in the Setup program and tells you how to modify the settings according to your system configuration.

CMOS Setup Utility



A Setup program, built into the system BIOS, is stored in the CMOS RAM. This Setup utility program allows changes to the motherboard configuration settings. It is executed when the user changes system configuration; user changes system backup battery; or the system detects a configuration error and asks the user to run the Setup program. Use the arrow keys to select and press Enter to run the selected program.

Standard CMOS Setup



The Standard CMOS Setup screen is displayed above. Each item may have one or more option settings. The system BIOS automatically detects memory size, thus no changes are necessary. Use the arrow keys to highlight the item and then use the PgUp or PgDn keys to select the value you want in each item.

Hard Disk Configurations

TYPE: Select from 1 to 45 to fill remaining fields with predefined values of disk drives. Select User to fill the remaining fields. Select Auto to detect the HDD type automatically.
SIZE: The hard disk size. The unit is Mega Bytes.
CYLS: The cylinder number of the hard disk.
HEAD: The read/write head number of hard disk.
PRECOMP: The cylinder number at which the disk drive changes the write timing.
LANDZ: The cylinder number that the disk drive heads (read/write) are seated when the disk drive is parked.
SECTOR: The sector number of each track defined on the hard disk.
MODE: Select Auto to detect the mode type automatically. If your hard disk supports the LBA mode, select LBA or Large. However, if your hard disk cylinder is more than 1024 and does not support the LBA function, set at Large. Select Normal if your hard disk supporting cylinders is below 1024.

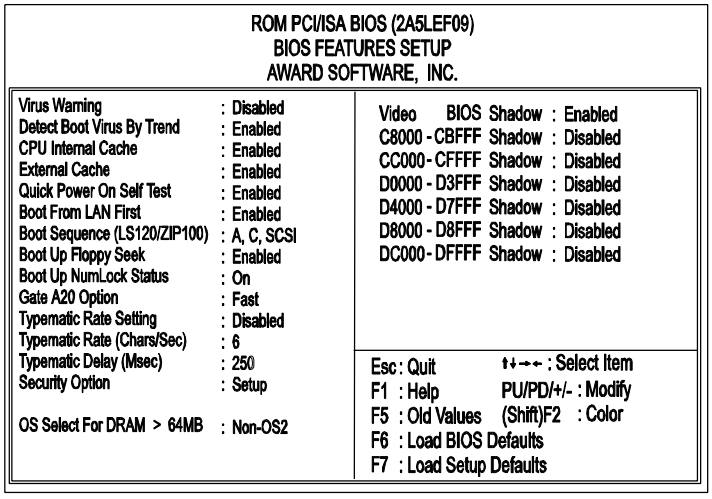
Floppy 3 Mode Support

This feature allows you to install a 3.5" (1.2MB) NEC 9801 floppy drive. The options are: Both , Disabled (Default), Drive A, Drive B.

Software Turbo Speed

The BIOS supports Software Turbo Speed feature. Instead of pressing the Turbo Speed Button on the front panel, simply press the **Alt, Ctrl, and +** keys at the same time to enable the Turbo Speed feature; and press the **Alt, Ctrl, and -** keys at the same time to disable the feature.

BIOS Features Setup



Virus Warning

When enabled, assigns the BIOS to monitor the master boot sector and the DOS boot sector of the first hard disk drive. If the opeating system is installed for the first time, keep this feature at Disabled to preven the errors. The options are: Enabled, Disabled (Default).

Detect Boot Virus By Trend

This feature starts the virus scan tool to detect if boot virus in boot sector of the first hard disk drive when booting up.
The options are: Enabled (Default), Disabled.

CPU Internal Cache

When enabled, improves the system performance. Disable this item when testing or trouble-shooting.
The options are: Enabled (Default), Disabled.

External Cache

When enabled, supports an optional cache SRAM. This feature allows you to disable the cache function when the system performance is unstable to run some software.
The options are: Enabled (Default), Disabled.

Quick Power On Self Test

When enabled, allows the BIOS to bypass the extensive memory test.
The options are: Enabled (Default), Disabled.

Boot From LAN First

This feature makes the system bootable by the remote server via LAN.
The options are: Enabled (Default), Disabled.

Boot Sequence (LS120/ZIP100)

Allows the system BIOS to first try to boot the operating system from the selected disk drive.
The options are: A, C, SCSI (Default); C, A, SCSI; C, CDROM, A; CDROM, C, A; D, A, SCSI; E, A, SCSI; F, A, SCSI; SCSI, A, C; SCSI, C, A; C Only; LS/ZIP, C.

Boot Up Floppy Seek

When enabled, assigns the BIOS to perform floppy diskette drive tests by issuing the time-consuming seek commands. The options are: Enabled (Default), Disabled.

Boot Up Numlock Status

When set to On, allows the BIOS to automatically enable the Num Lock Function when the system boots up. The options are: On (Default), Off.

Gate A20 Option

When set at Fast, allows a faster access response under Protected mode.
The options are: Fast (Default), Normal.

Typematic Rate Setting

The term typematic means that when a keyboard key is held down, the character is repeatedly entered until the key is released.
The options are: Disabled (Default), Enabled.

Typematic Rate (Chars/Sec)

This feature is available only if the above item, Typematic Rate Setting, is set at Enabled. Sets the rate of a character repeat when the key is held down.
The options are: 6 (Default), 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

This feature is available only if the item, Typematic Rate Setting, is set at Enabled. Sets the delay time before a character is repeated.
The options are: 250 (Default), 500, 750, 1000 millisecond.

Security Option

Allows you to set the security level of the system.
The options are: Setup (Default), System.

OS Select For DRAM > 64MB

If your operating system (OS) is OS/2, select the option OS2. Otherwise, stay with the default setting Non-OS2.
The options are: Non-OS2 (Default), OS2.

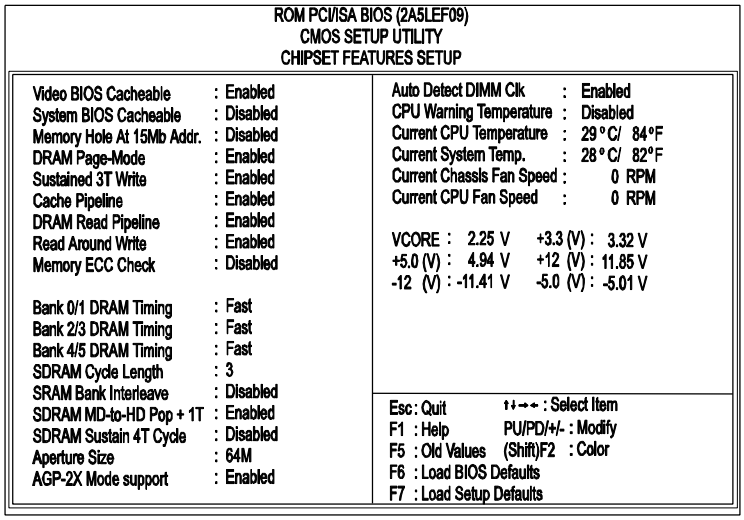
Video BIOS Shadow

Allows the BIOS to copy the video ROM code of the add-on video card to the system memory for faster access.
The options are: Enabled (Default), Disabled.

C8000-CBFFF to DC000-DFFFF Shadow

Allows the BIOS to copy the BIOS ROM code of the add-on card to system memory for faster access. It may improve the performance of the add-on card.
Some add-on cards will not function properly if its BIOS ROM code is shadowed. To use these options correctly, you need to know the memory address range used by the BIOS ROM of each add-on card.
The options are: Enabled, Disabled (Default).

Chipset Features Setup



Video BIOS Cacheable

When enabled, allows the system to use the video BIOS codes from SRAMs, instead of the slower DRAMs or ROMs.

The options are: Enabled (Default), Disabled.

System BIOS Cacheable

When enabled, allows the ROM area F000H-FFFFH to be cacheable when cache controller is activated. The options are: Disabled (Default), Enabled.

Memory Hole At 15M Addr.

When you install a Legacy ISA card, this feature allows you to select the memory hole's address range of the ISA cycle when the processor accesses the selected address area. Please read your card manual for detail information. When disabled, the memory hole at the 14MB (or 15MB) address will be treated as a DRAM cycle when the processor accesses the 14~16MB (or 15~16MB) address area.

The options are: 15M-16M, 14M-16M, Disabled (Default).

DRAM Page-Mode

It saves the time to resend CAS if DRAM access in the same page (RAS); therefore, increases the system performance.

The options are: Enabled (Default), Disabled.

Sustained 3T Write

When enabled, allows the CPU to compele the memory writes in 3 clocks.
The options are: Enabled (Default), Disabled.

Cache Pipeline

When enabled, it makes the read/write speed between the CPU and the cache RAMs faster. The options are: Enabled (Default), Disabled.

DRAM Read Pipeline

When enabled, it makes the data read speed from memory modules to cache RAMs faster. The options are: Enabled (Default), Disabled.

Read Around Write

This feature speeds up data read performance when it stays Enabled.
The options are: Enabled (Default), Disabled.

Memory ECC Check

Set at Enabled, if the RAM modules support ECC function.
The options are: Enabled, Disabled (Default).

Linear Burst

If a Cyrix or an IBM CPU installed, this feature appears and it allows you to configure the CPU to SRAM data read/write mode. If you use a Cyrix CPU, select Enabled; if you use an Intel CPU or AMD-K6 CPU, please stay with the default value, Disabled. Please refer to SRAM, Page 11, Chapter 2.

Bank 0/1 DRAM Timing;
Bank 2/3 DRAM Timing;
Bank 4/5 DRAM Timing

This feature allows you to select the DRAM read/write speed.
The options are: Fast (Default), Normal, Turbo.

SDRAM Cycle Length

This feature appears only when SDRAM DIMM/s is installed (BIOS auto detection). If the CAS latency of your SDRAM DIMM is 2, set at 2 to enhance the system performance. If the CAS latency of your SDRAM DIMM is 3, stay with the default setting, 3.
The options are: 2, 3 (Default).

SDRAM Bank Interleave

This feature appears only when SDRAM DIMM/s is installed (BIOS auto detection). It allows you to select 2 or 4 banks when the DIMM supported to achieve a better data transaction performance. The DIMM's manual or manufacturer will provide the specification how many banks the DIMM supported. The options are: Diabled (Default), 2 Bank, 4 Bank.

SDRAM MD-to-HD Pop + 1T

When set at Enabled, the required time period of DATA from SDRAM to CPU will be added 1T for the system stability and compatibility.
The options are: Enabled (Default), Disabled.

SDRAM Sustain 4T Cycle

This feature allows user to decide the SDRAM write cycle timing.
The options are: Disabled (Default), Enabled.

Aperture Size

It allows you to select the main memory frame size fo AGP use.
The options are 4, 8, 16, 32, 64MB (Default).

AGP-2X Mode Support

This feature allows user to select the AGP mode be to 1x or 2x when an AGP add-in card installed. However, when set at Enabled and the AGP card only support 1x mode, the system will fall back 1x mode automatically.
The options are: Enabled (Default), Disabled.

Auto Detect DIMM Clk

Keeping this feature at Enabled will allow the system to detect DIMM clock automatically.
The options are: Enabled (Default), Disabled.

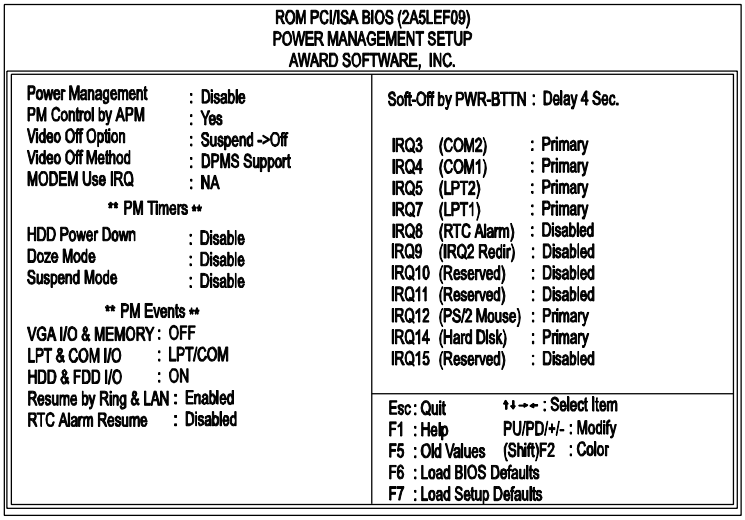
CPU Warning Temperature

This feature allows you to set the temperature to slow down the CPU clock frequency.
The options are: Disabled (Default), MaxCooling, 53°C/127°F, 56°C/133°F, 60°C/140°F, 63°C/145°F, 66°C/151°F, 70°C/158°F.

Current CPU Temperature; Current System Temp.; Current CPU Fan Speed; Current Chassis Fan Speed; VCORE (all optional)

This feature allows end users and technicans to monitor the data provided by the LDCM fucntion of this motherboard.

Power Management Setup



Power Management

This item allows you to adjust the power management features. Select Disable for disabling global power management features. Select User Define for configuring your own power management features. MIN Saving initiates all predefined timers in their minimum values. MAX Saving, on the other hand, initiates maximum values.

The options are: Disable (Default), User Define, MIN Saving, MAX Saving.

PM Control by APM

The option No allows the BIOS to ignore the APM (Advanced Power Management) specification. Selecting Yes will allow the BIOS wait for APM's prompt before it enters Doze mode, Standby mode, or Suspend mode. If the APM is installed, it will prompt the BIOS to set the system into power saving mode when all tasks are done.

The options are: No, Yes (Default).

Video Off Option

This feature provides the selections of the video display power saving mode. The option Suspend - Off allows the video display to go blank if the system enters Suspend mode. The option All Modes - Off allows the video display to go blank if the system enters Doze mode or Suspend mode. The option Always On allows the video display to stay in Standby mode even when the system enters Doze or Suspend mode.

The options are: Suspend - Off (Default), All Modes - Off, Always On.

Video Off Method

The option V/H SYNC+Blank allows the BIOS to blank off screen display by turning off the V-Sync and H-Sync signals sent from add-on VGA card. DPMS Support allows the BIOS to blank off screen display by your add-on VGA card which supports DPMS (Display Power Management Signaling function). Blank Screen allows the BIOS to blank off screen display by turning off the red-green-blue signals.

The options are: V/H SYNC+Blank, DPMS Support (Default), Blank Screen.

MODEM Use IRQ

This feature allows you to select the IRQ# to meet your modem's IRQ#.

The options are: NA (Default), 3, 4, 5, 7, 9, 10, 11.

HDD Power Down

The option lets the BIOS turn the HDD motor off when system is in Suspend mode. Selecting 1 Min..15 Min allows you define the HDD idle time before the HDD enters the Power Saving Mode.

The options 1 Min..15 Min will not work concurrently. When HDD is in the Power Saving Mode, any access to the HDD will wake the HDD up.

The options are: Disable (Default), 1 Min..15 Min.

Doze Mode

When disabled, the system will not enter Doze mode. The specified time option defines the idle time the system takes before it enters Doze mode.

The options are: Disabled (Default), 1, 2, 4, 8, 12, 20, 30, 40 Min, 1 Hr.

Suspend Mode

When disabled, the system will not enter Suspend mode. The specified time option defines the idle time the system takes before it enters Suspend mode.

The options are: Disabled (Default), 1, 2, 4, 8, 12, 20, 30, 40 Min, 1 Hr.

VGA I/O & MEMORY

ON enables the power management timers when a no activity events is detected in the VGA. *OFF* disables the PM timer even if a no activity event is detected. The options are: OFF (Default), ON.

LPT & COM I/O

LPT/COM enables the power management timers when a no activity event is detected in the LPT and COM ports. *LPT (COM)* enables the power management timers when a no activity event is detected in the LPT (COM) ports. *NONE* to disable the PM timer even if a no activity event is detected. The options are: LPT/COM (Default), LPT, COM, NONE.

HDD & FDD I/O

ON will enable the power management timers when no activity event is detected in the hard drive and floppy drive. *OFF* disables the PM timer even if no activity event is detected. The options are: OFF, ON (Default).

Resume on Ring & LAN

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.
The options are: Enabled (Default), Disabled.

RTC Alarm Resume

Enabled allows you to set the time the system will be turned on from the system power-off status. The options are: Enabled, Disabled (Default).

Soft-Off by PWR-BTTN

The selection Delay 4 Sec. will allow the system shut down after 4 seconds after the power button is pressed. The selection Instant-Off will allow the system shut down immediately once the power button is pressed.
The settings are: Delay 4 Sec. (Default), or Instant-Off.

IRQ# Activity

After the time period which you set at in Suspend Mode Feature, the system advances from Doze Mode to Suspend Mode in which the CPU clock stops and the screen display is off. At this moment, if the IRQ activity which is defined as Primary occurs, the system goes back to Full-on Mode directly.

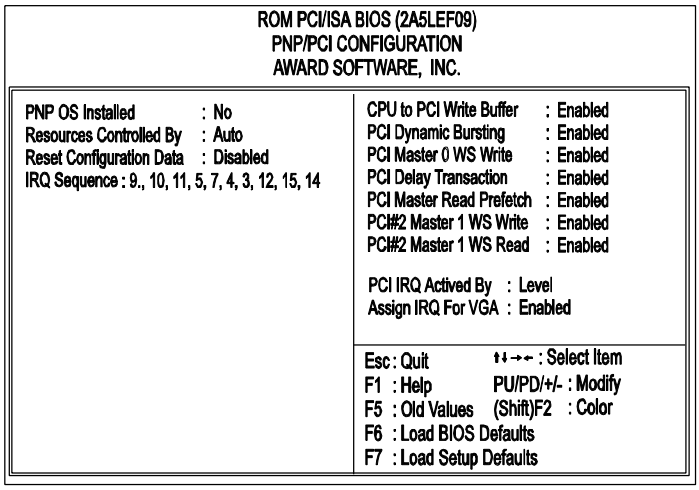
If the IRQ activity which is defined as Secondary takes place, the system enters another low power state, Dream Mode, in which the system will act as Full-on Mode except that the screen display remains off until the corresponding IRQ handler finishes, then back to Suspend Mode.

The options of IRQ 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15 are: Primary, Secondary, Disabled. The options of IRQ 12 are: Primary, Secondary.

The default values of IRQ 8, 9, 10, 11, 15 are: Disabled.

The default value of IRQ 3, 4, 5, 7, 12, 14 are: Primary.

PNP/PCI Configuration



PNP OS Installed

If your operating system is a Plug-and-Play one, such as Windows NT, Windows 95, select Yes. The options are: No (Default), Yes.

Resources Controlled By

If set at Auto, the BIOS arranges all system resources. If there exists conflict, select Manual. The options are: Auto (Default), Manual. The manual options of IRQ- / DMA- assigned to are: Legacy ISA, PCI/ISA PnP.

Reset Configuration Data

When enabled, allows the system to clear the last BIOS configuration data and reset with the default data. The options are: Enabled, Disabled (Default).

IRQ Sequence

This feature allows you to select the PCI IRQ sequence. The options are: 15, 11, 10, 9, 12, 14, 5, 7, 3, 4; 9, 10, 11, 5, 7, 4, 3, 12, 15, 14 (Default).

CPU to PCI Write Buffer

When enabled, allows data and address access to the internal buffer of the system controller; so the processor can be released from the waiting state. The options are: Enabled (Default), Disabled.

PCI Dynamic Bursting

When enabled, the PCI controller allows Bursting PCI transfer if the consecutive PCI cycles come with the address falling in same 1KB space. This improves the PCI bus throughput.
The options are: Enabled (Default), Disabled.

PCI Master 0 WS Write

When enabled, allows a zero-wait-state-cycle delay when the PCI master drive writes data to DRAM.
The options are: Enabled (Default), Disabled.

PCI Delay Transaction

Enable this feature to abort the current CPI master cycle and to accept the new PCI master request, it reaccepts the original PCI master and returns the PCI data phase to the original PCI master.
The options are: Disabled, Enabled (Default).

PCI Master Read Prefetch

When set at Enabled, the memory controller will prefetches data DRAM if the PCI bus master reads data from DRAM.
The options are: Enabled (Default), Disabled.

PCI#2 Master 1 WS Write

When set at Enabled, it allows a one-wait-state TRDY# response if PCI bus master writes data to target.
The options are: Enabled (Default), Disabled.

PCI#2 Master 1 WS Read

When set at Enabled, it allows a one-wait-state TRDY# response if PCI bus master reads data from target.
The options are: Enabled (Default), Disabled.

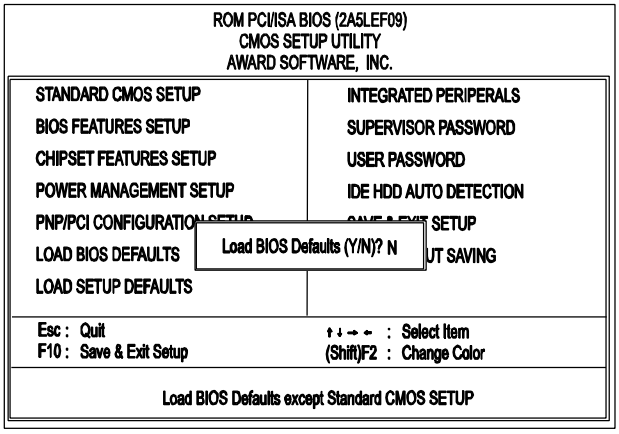
PCI IRQ Actived By

We suggest that you set this to its default configuration unless you are a qualified technician. The options are: Level (Default), Edge.

Assign IRQ For VGA

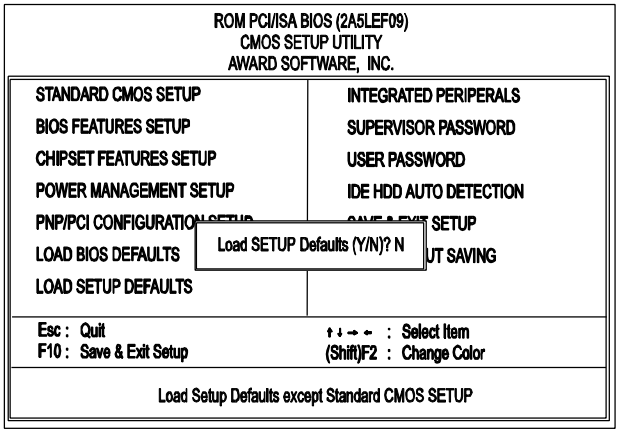
If your PCI VGA card does not need an IRQ, select Disabled; therefore, an IRQ can be released for the system use.
The options are: Enabled, Disabled (Default).

Load BIOS Defaults



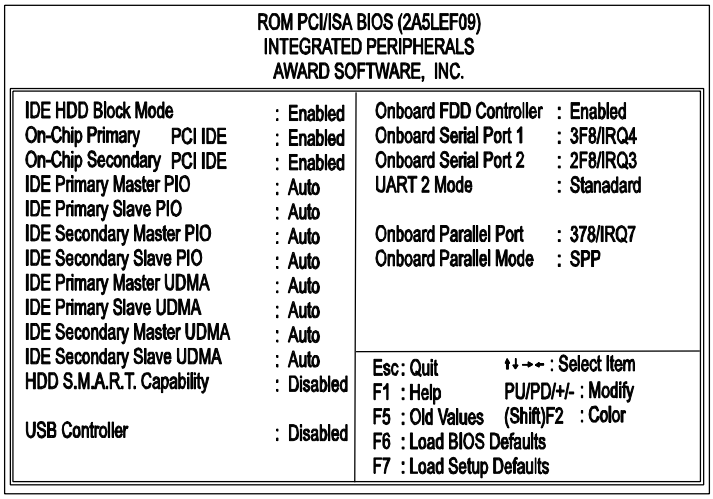
BIOS defaults contain the most appropriate values of the system parameters that allow minimum system performance. The OEM manufacturer may change the defaults through MODBIN before the binary image burns into the ROM.

Load Setup Defaults



Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

Integrated Peripherals



IDE HDD Block Mode

When enabled, the system executes read/write requests to hard disk in block mode. The options are: Enabled (Default), Disabled.

On-Chip Primary PCI IDE

When enabled, allows you to use the onboard primary PCI IDE.
The options are: Enabled (Default), Disabled.

On-Chip Secondary PCI IDE

When enabled, allows you to use the onboard secondary PCI IDE.
The options are: Enabled (Default), Disabled.

IDE Primary Master PIO

Allows an automatic or a manual configuration of the PCI primary IDE hard disk (master) mode.
The options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary Slave PIO

Allows an automatic or a manual configuration of the PCI primary IDE hard disk (slave) mode.

The options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Secondary Master PIO

Allows an automatic or a manual configuration of the PCI secondary IDE hard disk (master) mode.
The options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Secondary Slave PIO

Allows an automatic or a manual configuration of the PCI secondary IDE hard disk (slave) mode.
The options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary Master UDMA

Allows you to select the first PCI IDE channel of the first master hard disk mode or to detect it by the BIOS if the hard disk supports UDMA (Ultra DMA, faster than DMA).
The options are: Auto (Default), Disabled.

IDE Primary Slave UDMA

Allows you to select the first PCI IDE channel of the first slave hard disk mode or to detect it by the BIOS if the hard disk supports UDMA (Ultra DMA, faster than DMA).
The options are: Auto (Default), Disabled.

IDE Secondary Master UDMA

Allows you to select the second PCI IDE channel of the secondary master hard disk mode or to detect it by the BIOS if the hard disk supports UDMA (Ultra DMA, faster than DMA). The options are: Auto (Default), Disabled.

IDE Secondary Slave UDMA

Allows you to select the second PCI IDE channel of the secondary slave hard disk mode or to detect it by the BIOS if the hard disk supports UDMA (Ultra DMA, faster than DMA). The options are: Auto (Default), Disabled.

HDD S.M.A.R.T. Capability

“S.M.A.R.T” is the abbrevation of “Self-Mointoring, Analysis and Reproting Technology”. To enable it will assist you in preventing some (but not all) system down time due to hard disk drive failure. The harddisk must be S.M.A.R.T-comptiblel in order to use this feature.
The options are: Enabled, Disabled (Default).

USB Controller

If you do not use the onboard USB feature, it allows you to disable it. The options are: Enabled, Disabled (Default).

Onboard FDD Controller

When enabled, the floppy diskette drive (FDD) controller is activated.
The options are: Enabled (Default), Disabled.

Onboard Serial Port 1

If the serial port 1 uses the onboard I/O controller, you can modify your serial port parameters. If an I/O card needs to be installed, COM3 and COM4 may be needed.
The options are: 3F8/IRQ4 (Default), 3E8/IRQ4, 2F8/IRQ3, 2E8/IRQ3, Disabled.

Onboard Serial Port 2

If the serial port 2 uses the onboard I/O controller, you can modify your serial port parameters. If an I/O card needs to be installed, COM3 and COM4 may be needed.
The options are: 2F8/IRQ3 (Default), 3E8/IRQ4, 2E8/IRQ3, 3F8/IRQ4, Disabled.

UART 2 Mode

Allows you to select the IR modes if the serial port 2 is used as an IR port. Set at Standard, if you use COM2 as the serial port as the serial port, instead as an IR port. The options are: HPSIR, ASKIR, Standard (Default).

IR Function Duplex

This feature is available only if the above item, UART 2 Mode, is set at ASKIR or HPSIR. It allows you to select the infrared data transaction way.
The options are: Half (Default), Full.

RxD , TxD Active

This feature is available only if the item, UART 2 Mode, is set at ASKIR or HPSIR. The feature allows you to select the active signals of the reception end and the transmission end. This is for technician use only.
The options are: Hi, Hi (Default); Hi, Lo; Lo, Hi; Lo, Lo.

Onboard Parallel Port

Select from a given set of parameters if the parallel port uses the onboard I/O controller.
The options are: Disabled, 278/IRQ5, 3BC/IRQ7, 378/IRQ7 (Default).

Onboard Parallel Mode

Allows you to connect with an advanced printer. Select SPP for standard parallel port (SPP) used on IBM PC/XT, PC/AT and bi-directional parallel port found on PS/2 system. Select EPP/SPP mode for enhanced parallel port and the standard parallel port. Select ECP mode for Microsoft and HP Extended Capabilities Parallel Port. Select ECP/EPP mode for both ECP and EPPmodes.

The options are: SPP (Default), EPP/SPP, ECP, ECP/EPP.

ECP Mode Use DMA

If you set the above item, Onboard Parallel Mode, to be ECP or ECP/EPP, this feature allows you to select Direct Memory Access (DMA) channel.

The options are: 3 (Default), 1.

Parallel Port EPP Type

If you set the above item, Onboard Parallel Mode, to be EPP/SPP or ECP/EPP, this feature allows you to select the EPP type version.

The options are: EPP1.9 (Default), EPP1.7.

Supervisor/User Password

To enable the Supervisor/User passwords, select the item from the Standard CMOS Setup. You will be prompted to create your own password. Type your password up to eight characters and press Enter. You will be asked to confirm the password. Type the password again and press Enter. To disable password, press Enter twice when you are prompted to enter a password. A message appears, confirming the password is disabled.

Under the BIOS Feature Setup, if System is selected under the Security Option field and the Supervisor Password is enabled, you will be prompted for the Supervisor Password every time you try to enter the CMOS Setup Utility. If System is selected and the User Password is enabled, you will be requested to enter the User Password every time you reboot the system. If Setup is selected under the Security Option field and the User Password is enabled, you will be prompted only when you reboot the system.

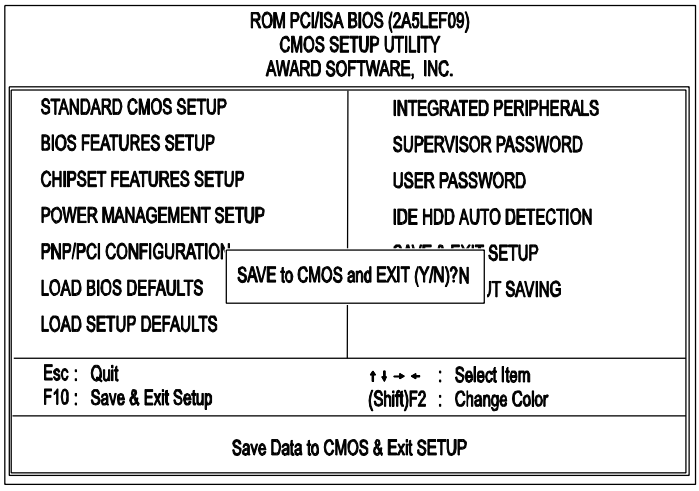
Clear Password

If you forget your password, turn off the system power first and remove the system unit cover. Locate Jumper CPS and cap it. Remove Jumper CPS and reset the system. At this point, you will not be asked for the password to enter Setup.

IDE HDD Auto Detection

The IDE Hard Disk Drive Auto Detection feature automatically configures your new hard disk. Use it for a quick configuration of new hard drives. This feature allows you to set the parameters of up to four IDE HDDs. The option with **(Y)** are recommended by the system BIOS. You may also keys in your own parameters instead of setting by the system BIOS. After all settings, press Esc key to return the main menu. For confirmation, enter the Standard CMOS Setup feature.

Save and Exit Setup



After you have made changes under Setup, press Esc to return to the main menu. Move cursor to Save and Exit Setup or press F10 and then press Y to change the CMOS Setup. If you did not change anything, press Esc again or move cursor to Exit Without Saving and press Y to retain the Setup settings. The following message will appear at the center of the screen to allow you to save data to CMOS and exit the setup utility:

SAVE to CMOS and EXIT (Y/N)?

Exit without Saving

If you select this feature, the following message will appear at the center of the screen to allow you to exit the setup utility without saving CMOS modifications:

Quit Without Saving (Y/N)?

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Software Utilities

The motherboard comes with helpful supporting software utilities CD-ROM that contains software utilities to promote performance. This chapter introduces the detail installation procedures.

Starting Installation

To run each feature, simply click on the wanted software item in the main menu.

LANDesk Client Manager (manufacturing option)

The LDCM software must be installed to use the hardware manager. It is used for remote management over network and is of no use to non-networked systems.

Three Options of LDCM Setup

LDCM Local Setup: Install software to monitor the *local* system. **(Recommended)** Settings can be auto-detected or changed. The installation of it is straight forward. First select *LDCM Local Setup in the main menu*, then all the way down to the end of the installation. Reboot the system.

LDCM Administrator Setup: Installs software to monitor PC systems on the network within the same bridge address with Local software installed. The installation of it is straight forward. First select *LDCM Administrator Setup in the main menu*, then all the way down to the end of the installation. Reboot the system. The administrator should install both Local and Administrator Software. (First install *Local Setup*, then install *Administrator Setup*.)

LDCM Custom Setup: (For *Experienced* Users). Please read the following information.

1. Choose *File* | *New* from the pull-down menu of the "Untitled" screen. Enter a system name.
2. Make the appropriate settings on the right-hand side.

I^2C and Network should not be modified. Currently only ATI Video cards can be monitored by LDCM, do not select Video ATI if using other video cards.

3. Choose *LM78* from the pull-down menu. Change *Chassis Fan* to *CPU FAN*, *CPU A Fan* to *Chassis Fan*, *CPU B Fan* to *No Fan*. Change the *Threshold RPM* to *1,800 RPM*. Change the *Threshold RPM Min* to *1,320 RPM*.
4. Click *Save* button to save settings and exit.
5. Choose *File*|*Save* from pull-down menu, enter a file name, click *Save*.
6. Exit the program screen.
7. Run *SETUP.EXE* and choose the system configuration file that just created.

NOTE :

1. System will hang if you click the "Workstation Summary" or "Drives" Icon when a floppy drive is not installed. For a faster response, insert a floppy diskette before choosing this function.

2. When you setup Administrator LDCM, **t**he LDCM only displays half the actual fan RPM. Multiply the displayed fan RPM by 2 for the actual fan RPM.

3. Chassis Fan and CPU Fan RPM must be at least 2,640 RPM to be monitored by the LDCM.

4. Fan labels are not consistent, use this table for reference:

PC Health	LDCM Notification Config.	BIOS/Mainboard
CPU Fan	CPU Fan	CPU_FAN
Chassis Fan	Chassis Fan	Chassis_FAN
No Fan	No Fan	No

5. LDCM currently can only detect ATI video cards, choose *Non-ATI* in *Local Setup*; otherwise, a one-time message will show (Error [1] retrieving Mach64 attributes). You may ignore this message by clicking the *OK* button.

6. The administrator LDCM cannot cross a network bridge to other workgroups.

7. The COM port that is in use will not show up in "Input/Output Ports."

8. LDCM Administrator installation requires a network card; otherwise, the administrator features will run very slowly.

9. Mouse (Pointer) information will not be shown when there is mouse activity after *Workstation Summary* is selected in Windows NT.

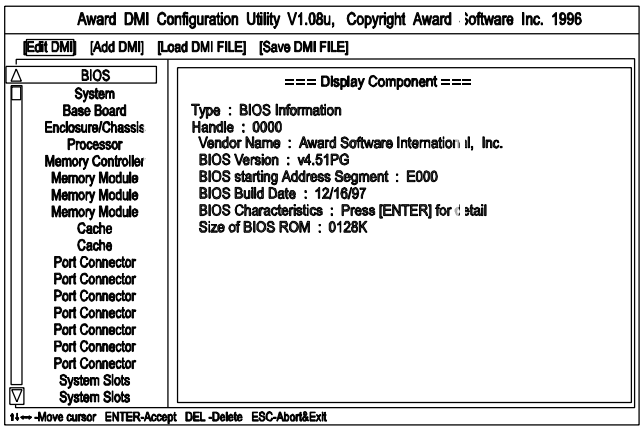
Desktop Management Interface (DMI)

DMI (Desktop Management Interface) is a standard for organizing system configuration information. Using DMI, computer configuration can be made much simpler, quicker, and easier. Computer system configuration information can be read and modified from remote locations, permitting remote configuration and boot up.

Starting DMI

1. Format a bootable MS-DOS 6.22 system diskette, copy the DMICFG.EXE from the CD-ROM to the diskette.
2. Reboot the system by using this bootable system diskette to enter real mode.
3. After the DOS prompt, type *DMICFG* and press *Enter* key. The display below will appear on the monitor screen.

NOTE: Do not run this utility from Windows, it might cause the BIOS damage.

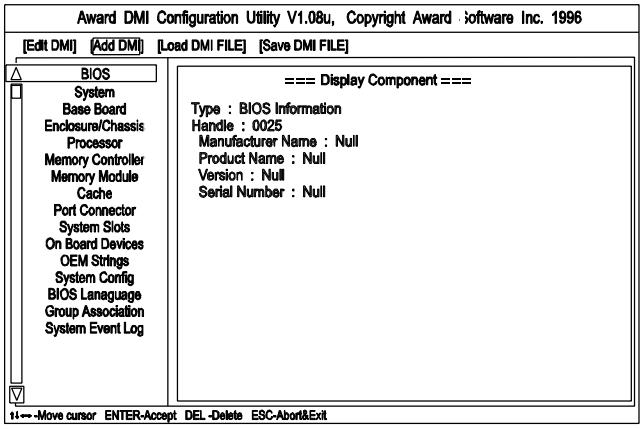


Editing DMI

It provides record data about your computer system. The feature allows you to select editable DMI items by pressing arrow keys. The button *Press [ENTER] for detail* will pop up a sub menu. Use "+,-" keys to change configurations. Press *Esc* key to abort the configuration and exit. Press *Enter* key to save and exit. The screen field under *Show Only Component* means that the items are

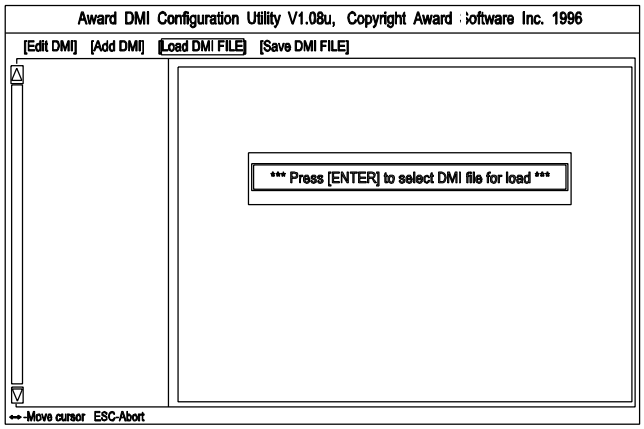
automatically detected by BIOS. The screen menu leading by *Edit Component* indicates the items under it are allowed to be changed by users.

Adding DMI



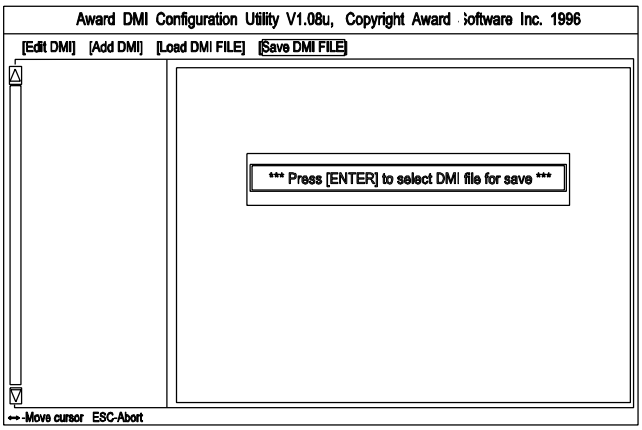
This menu allows users to add new information such as Manufacturer Name, Product Name.

Loading DMI



If users need the old DMI information, use this feature to load the DMI information.

Saving DMI



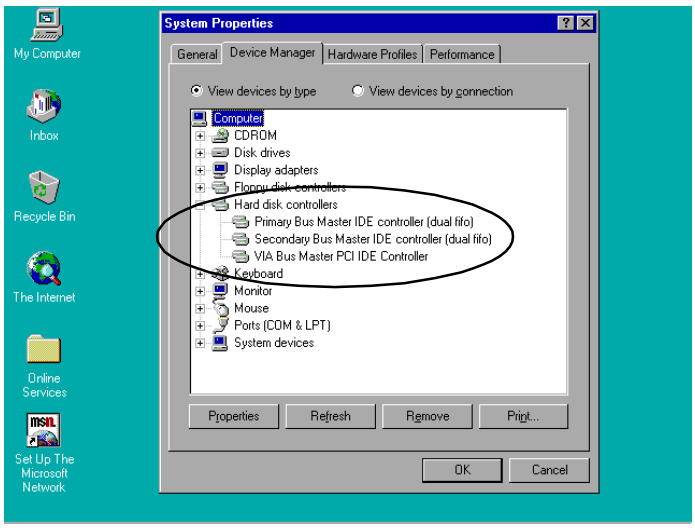
If users need to keep the DMI information that just changed, use this feature to save the DMI information.

If you exit DMI installation but cannot boot up (this case rarely occur), please ask local dealer to help you. (It might need another BIOS flash ROM chip.)

Bus Master IDE Driver

The motherboard package provides VIA Bus Master IDE driver in the software utilities for Windows 95 and Windows NT to improve the system performance. Please read the relating README files first before install it.

This motherboard supports Ultra DMA/33, but Windows 95 does not recognize it. When the operating system detects the board and the Bus Master IDE driver not installed, information in the circle like the display below indicates the system will treat it as a standard dual PCI IDE controller. It cannot take advantage of the Ultra DMA. (The attached peripheral devices must support UDMA.)

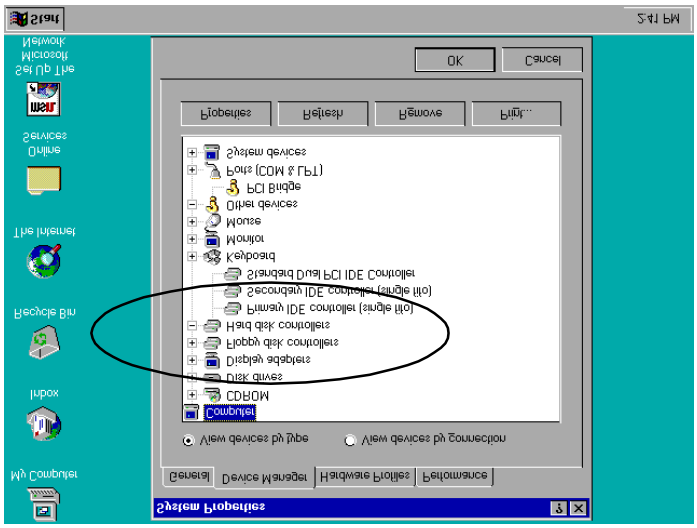


Installation

The installation is straight forward by clicking on *IDE Bus Master* item of the main menu. There is no option to be selected while the installation procedure goes. After the installation, the system should be rebooted.

Patch for Chipset

The motherboard package provides INF update file in the software utilities. Before you run the SETUP file, please read the relating README file first. This software is necessary for the operating system to recognize VIA Apollo MVP3 chipset implemented on this motherboard; otherwise, the question marks in the circle will appear in your Window 95 environment.



Installation

The installation is straight forward by clicking on *Patch for Chipset* item of the main menu. There is no option to be selected while the installation procedure goes. After the installation, the system should be rebooted.

AGP VxD Support Utility

The motherboard package provides AGP VxD support utility for VIA chipset-based motherboard. Before you start to install it, please read the relating README file first. **This software is necessary if you install an AGP VGA card.**

System Requirements

The VIA VxD driver is **only supported by Windows 95 OSR 2.1 (4.00.950 B) or later version**.

For Windows 95 users -

1. Run USBSUPP.EXE from Microsoft, which includes the USB supplement and a new memory manager (VMM32.VxD) needed for the AGP DIME (Direct Memory Execute) feature.
2. Run DirectX 5.0 from Microsoft.
3. Run AGP Master (i.e., AGP VGA) Driver from VGA Supplier.
4. Run the VGA card driver, VIAGART.VXD, a virtual device manager which usually will be installed in the following installation procedure of the Windows 95 card driver.
5. Exit the system.
6. Reboot the system.

For Windows NT users -

VIA VxD will be supported when Windows NT 5.0 is released.

Installation

Click on AGP VxD utility on the main menu and it will install the VIA VxD driver automatically onto your Windows 95 system.

BIOS Flash Software

The board package provides BIOS flash software tool in the software utilities. This software feature is provided for upgrading BIOS use. To start the program, click on *Browse CD* in the main menu, select *Flash*, then choose the BIOS vendor that provided the BIOS this board came with. Please print the relating README file and read it first. For more information about, please visit FIC Web Site http:// www.fic.com.tw/.

Downloading BIOS File

Format a bootable system diskette by inserting an empty floppy disk into floppy disk drive and by typing **format a: /s**, visit the FIC Web Site http:// www.fic.com.tw/. Please visit *BIOS Update* page in FIC's Technical Support section, then select the BIOS file you need. Download it to your bootable diskette.

Upgrading BIOS File

Place the bootable diskette containing the BIOS file in the diskette drive (Assume the diskette drive is A.), and reboot the system by A drive. At the A: > prompt, execute the BIOS upgrading procedure by entering the Flash BIOS utility and the BIOS file with its extension. Backup the old BIOS file.

Command: {flash tool file}{space}{downloaded BIOS file} / cc <Enter>
Parameter **CC** stands for **Clear CMOS**. It is most frequently used. The other parameters are listed in AWDFlash.txt file or Type {flash tool file}/?, please read it if need.

After press *Enter* key, a FLASH MEMORY WRITER menu will appear. Enter the new BIOS file name with its extension file name into the text box after **File Name to Program** . If you want to save your old BIOS (this is recommend), select **Y** to **Do You Want To Save Bios,** then type the old BIOS name and the extension after **FILE NAME TO SAVE:**. Select **N** to **Do You Want To Save Bios**, if you do not want to save your old BIOS.

After the decision on saving the old BIOS or not (saving the old BIOS file is strongly recommended), select **Y** to **Are you sure to program** when the next menu appears; wait until a message shows **Message: Power Off or Reset the system.**

WARNING: Do not turn off or reset the computer during the flash process.

Loading New BIOS Defaults

Once the BIOS has been flashed successfully,

1. remove the diskette and reboot the system.
2. Press *Delete* key to enter **CMOS SETUP UTILITY** menu while system booting-up.
3. Select **LOAD SETUP DEFAULTS** and load the new BIOS default values.

Finally execute **SAVE AND EXIT SETUP** to complete the whole process.

Anti-Virus Tool

The motherboard package provides a virus scan tool, PC-cillin '95 Virus Scanner, for the Windows 95 environment. This tool allows you to perform virus scan and cure when it is necessary. Please read the relating README file first before installing the corresponding executable file.

Hardware Requirements

PC-cillin '95 Virus Scanner is fully compliant with Windows 95.
Minimum: Intel P54C CPU (100MHz or above) with 8MB (or above) RAM.
The total disk space requirement to install PC-cillin '95 Virus Scanner is approximately 4.0 MB.

Technical Notes

PC-cillin '95 Virus Scanner will be installed to the program group "PC-cillin '95 Virus Scanner" by default. The PCCWIN95.EXE command will be added to the Startup group, and the AUTOEXEC.BAT will be modified to add PCSCAN commands to fully protect your system from computer viruses at system boot up.