

7VIA71A

User's Manual Version 1.1

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Chapter 1

1

Introduction

How This Manual is Organized

This manual is divided into the following sections:

- Chapter 1 Introduction** : Manual information and checklist.
- Chapter 2 Features** : Information and Specifications concerning this mainboard.
- Chapter 3 Installation** : Instructions on setting up the board.

Package Checklist

Please check that your package is complete. If you discover any item damaged or missing, please contact with your retailer immediately.

- ⌚ The 7VIA71A mainboard.
- ⌚ Retention Mechanism & Heat Sink Support.
- ⌚ 1 x IDE UDMA66 ribbon cable.
- ⌚ 1 x floppy ribbon cable.
- ⌚ 7VIA71A support software:
 - Flash Memory Write utility to update the FLASH BIOS.
 - Technical Support Form
- ⌚ This user's Manual

Chapter 2

2

Features

Features of the 7VIA71A Mainboard

The 7VIA71A is designed for the PC user's who want many new key features processed by the fastest CPU in a economical package. This mainboard :

- ⌘ **New general CPU support :**
 - AMD K7 SLOT-A (500 MHz-1GHz Athlon) processor.
 - CPU clock select support for 100MHz .
CPU bus speed configuration.

- ∞ **Chipset :**
VIA K133 chips with I/O subsystem
- ∞ **Biggest memory capacity :**
7VIA71A is equipped with two DIMM socket to support (16MB, 32MB, 64MB, 128MB, 256MB) 168 pin 3.3v SDRAM SPD (Special Presence Detect). Maximum memory up to 512MB.
- ∞ **AGP for fast VGA solution :**
AGP (Accelerator Graphic Port) will enhance and improve display performance and Application. The bus speed is Support AGP 2X/4X mode .
- ∞ **PCI Expansion Slot :**
Provide five 32 bit PCI slots.
- ∞ **PCI Bus Master IDE Controller :**
Cons with an on-board PCI Bus Master IDE, controller with two connectors that supports four IDE devices in two channels, Provides faster data transfer rate, and supports Enhanced IDE devices such as Tape Backup and CD-ROM devices (ATAPI). This controller supports PIO mode 3 and 4 (16.6MB/sec.), and Ultra DMA33/66(33/66MB/Sec.), also supports ZIP100 and LS-120. BIOS support IDE CD-ROM or SCSI bootup.
- ∞ **Super Multi-I/O**
Provides two high-speed UART2 compatible serial ports (match NS16C550A compatible) and one parallel port with SPP, EPP and ECP capabilities. UART2 can also be directed from COM2 to the Infrared Module for wireless connections. Two floppy drives of either 5.25" or 3.5" (1.25MB, 1.44MB or 2.88MB) are also supported without an external card. Supports Japanese standard "Floppy 3 mode" (3.5" 1.25MB).

∞ **CPU built-in Level 2 Cache :**

The AMD Athlon includes the largest L1 cache (128K total) for x86 platform. The AMD Athlon also features a high-speed, 64-bit backside L2 cache controller that supports L2 cache sizes ranging from 12K to a massive 8MB. This high-performance cache design takes advantage of the processor's high-speed systembus and minimizes bandwidth bottlenecks.

∞ **WD(Wake LAN) :**

Supports system power up from LAN ring up .

∞ **IrDA Port :**

Support this serial fast communication up to 115.2Kbps.

∞ **Support Ring on by modem/Alarm on :**

Support System power up from Modem ring up or timer of System Required enabled in Ring on by demand Alarm on in BIOS.

∞ To support CPU FAN On/Off indicator under Suspend mode.

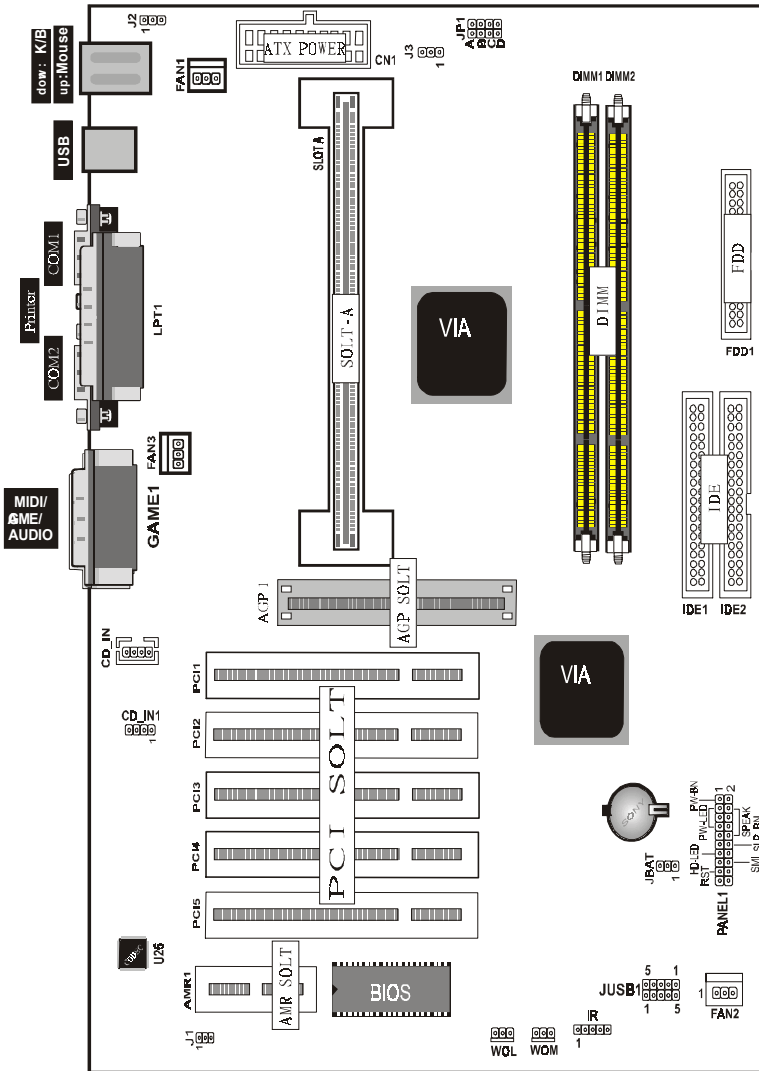
∞ **To support CPU temperature & Fan detect and Alarm warning by sound.**

∞ **Dimension : 30.5 cm x 21 cm**

∞ Supports 16-bits stereo audio controller. Sound Blaster 16/PRO compatible with stereo voice up to 48 KHz sampling rates.

∞ Dual channel gameport. (supports Microsoft gamepad up to 8 ports).

The 7VIA71A Mainboard layout



Chapter 3

3

Installation

Jumper

Jumper		Refer to page
◆ JP1	- CPU bus frequency selection	12
◆ JBAT	- Real timeClock RTC clean	12
◆ FAN1	- FAN CONN. for CPU	26
◆ FAN2	- FAN CONN. for AGP	26
◆ FAN3	- FAN CONN. for CPU	26
◆ WOL	- Wake ON LAN Function	31
◆ WOM	- Wake On Moderfunction	31

Expansion Slot **Which page**

♦ SEC(Single Edge Connector) CPU Slot-A	17
♦ 168 pin DIMM Socket	14
♦ AGP (Accelerated Graphic port) SLOT	24
♦ PCI SLOT 1,2,3,4,5 -32bits PCI SLOT	24

Connectors **Refer to page**

♦ PS2_KB - PS/2 Mouse port(UP).	25
♦ PS2_KB - PS/2 AT(mi DIM) Keyboard port(DP)	25
♦ COM1 - COM 1 serial port	25
♦ COM2 - COM 2 serial port	25
♦ USB - Universal Serial BUS Ports 0 &	25
♦ JUSB1 - Universal Serial BUS Ports 2 &	25
♦ PRINT - Parallel port	25
♦ FDD1 - FLOPPY connector	25
♦ IDE1 - Primary IDE connector	27
♦ IDE2 - Secondary IDE connector	27
♦ IR - IrDA connector	28
♦ J4 - HDD LED	29
♦ J4 - Reset Switch	29
♦ J4 - Speaker Connector	30
♦ J4 - Power LED	30
♦ CN1 - ATX Power Connector	30
♦ J4 - ATX Power switch	30
♦ CD_IN - CD Audio Connector	31
♦ CD_IN1 - CD Audio Connector	31

System Installation Setup

Before using your computer, you must finish the following steps:

1. Set jumpers on mainboard.
2. Install SDRAM module.
3. Install the Athlon Processor.
4. Connect Ribbon Cables, Cabinet Wires, and Power supply.
5. Install Add on Cards.
6. Setup the BIOS software.





Static Electricity Precaution

- ⌚ Keep the mainboard and other system components in their anti-static packaging until you are ready to install them
- ⌚ Do all preparative work on a static-free surface with the mainboard components facing up.
- ⌚ Unplug your computer when working on the inside.
- ⌚ Wear an Anti-static wrist strap.
- ⌚ Hold the system components, boards or cards by its edges only. Be careful not to touch any of IC chips, circuitry, contacts or connections, especially gold contacts on the mainboard.

Jumper Settings

Jumpers

Several hardware settings are made through the use of jumper caps to connect jumper pins (Jxx) on the mainboard. See "Map of the mainboard" for locations of jumpers.

The jumper settings will be described numerically such as [---], [1-2], [2-3] for no connection, connect pins 1 & 2, and connect pins 2 & 3 respectively. Pin 1 for our mainboard is always on top one or on the left when holding the mainboard with the keyboard away from yourself. "P1" is written besides pin 1 on jumper with three pins. The jumpers will also be shown graphically such as  to connect pin 1 & 2 and  to connect 2 & 3. Jumpers with two pins will be shown as  for Short (on) and  for Open (off). For simplicity it may be sharing pins from other groups. Use the diagram in this manual instead of following the pin layout on the board. Settings with two jumper numbers require that both jumpers be moved together. To connect the pin, simply place a plastic jumper cap over the two pins as diagramed.

AMR Function-J1

J1	AMR Function
[1-2]	Master (Default)
[2-3]	Slave

KB Wake UP Function-J2

J2	K/B Wake UP Function
[1-2]	Reserve
[2-3]	Enabled (Default)

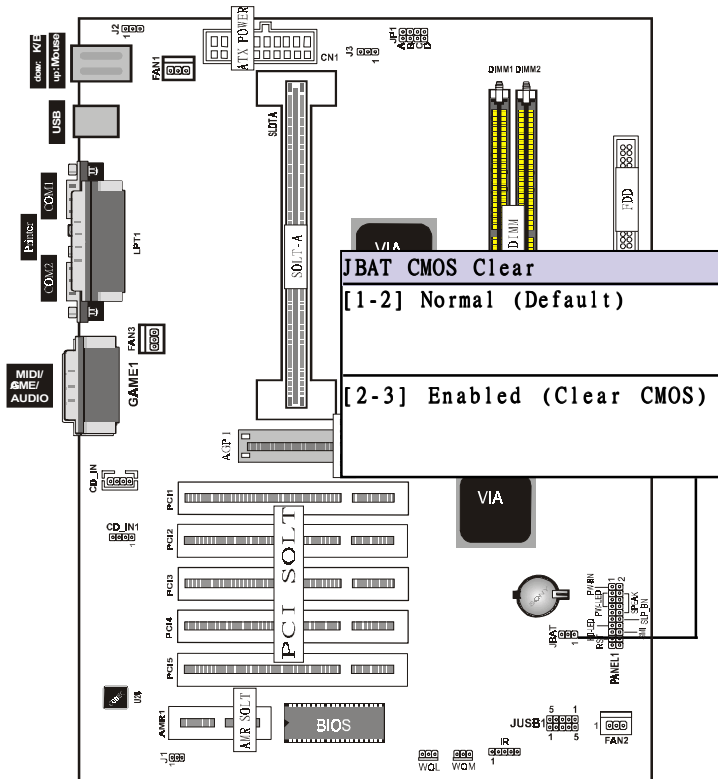
NOTE:

To use this feature in bios POWER MANAGERMENT any_key_wakeup must be Enabled.

Real Time Clock (RTC) RAM - JBAT :

The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data:

- (1) Turn off your computer,
- (2) Move this jumper to "2-3Pin Clear Data",
- (3) Move the jumper back to "Default",
- (4) Turn on your computer,
- (5) Hold down <Delete > during bootup and enter BIOS setup to re-enter user Preferences.



CPU External (Bus) Frequency Selection - JP1

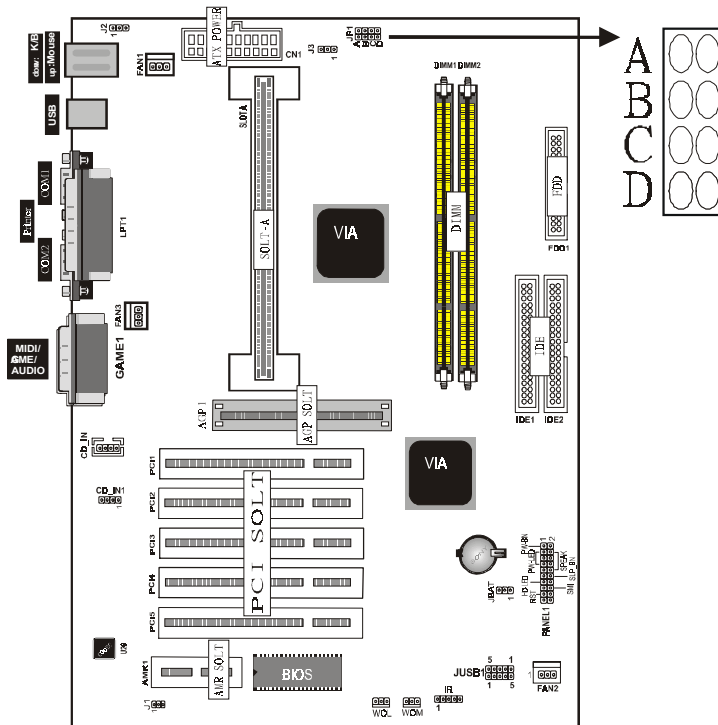
These jumpers tell the clock generator what frequency to send to the CPU. These allow the selection of the CPU's External Frequency (or Bus Clock). The Bus Clock times the BUS ratio equals the CPU's Internal Frequency (the advertised CPU speed).

These jumpers set the frequency ratio between the internal frequency of the CPU and the external frequency (called the BUS Clock) within the CPU. These must be set together with the above jumpers CPU external (Bus) frequency selection.

CPU Model Ratio Bus Freq.

NOTE:

Most of the CPU frequency are locked by the manufacturer. This motherboard is able to auto-detect the CPU frequency.



JP1	A	B	C	D	CPU(MH)	PCI(MH)
	OFF	ON	OFF	OFF	100	33.3
	ON	ON	ON	OFF	102	34.0
	OFF	OFF	OFF	ON	104	34.6
	ON	OFF	OFF	ON	106	35.3
	OFF	ON	OFF	ON	107	35.6
	ON	ON	OFF	ON	108	36.0
	OFF	OFF	ON	ON	109	36.3
	ON	OFF	ON	ON	110	36.6
	OFF	ON	ON	ON	111	37.0
	ON	ON	ON	ON	112	37.3
	OFF	ON	ON	OFF	133	33.3

STR Function(Suspend to RAM)-J3

J3 STR Function
[1-2] Enabled (Default)
[2-3] Normal

NOTE:

To use this feature in bios setup POWER MANAGERMENY must be S1(POS) set to S3(STR).

System Memory (DIMM Module)

This 7VIA71A main board supports two 168 pin DIMM (Dual Inline Memory Module) of 16 MB, 32 MB, 64 MB, 128 MB ,256MB to form a memory size between 16MB to 256MB.

The DRAM can be either 45ns,50ns,or 60ns 3.3v SDRAM,and 3.3v Enhanced Data Output (EDO) RAM.

Install memory in any or all Banks in Combination:

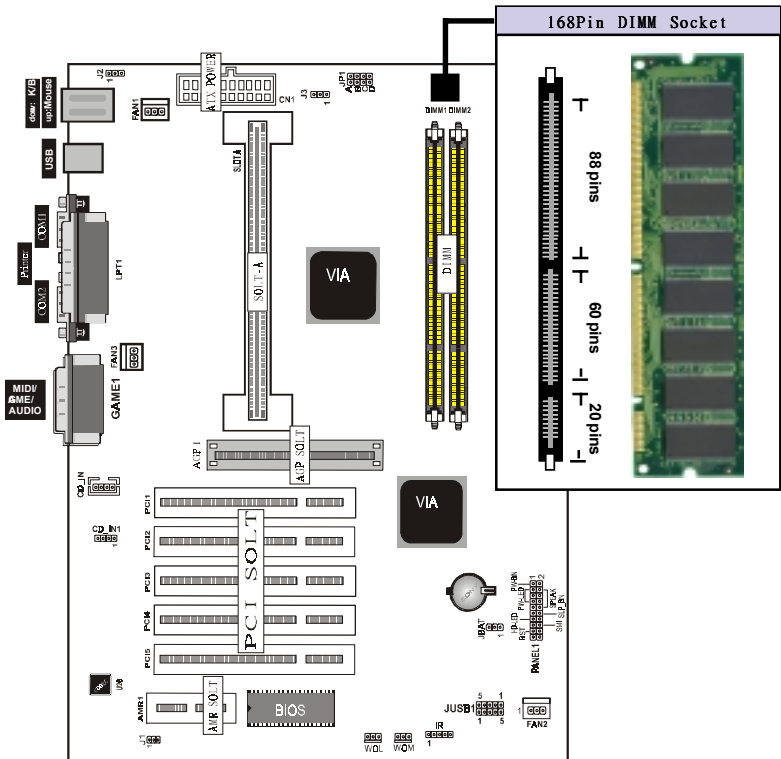
Bank	Memory module
DIMM 1	16MB,32MB,64MB,128MB,256MB
(Bank 0-1)	168 pin,3.3v SDRAM / EDO RAM
DIMM 2	16MB,32MB,64MB,128MB,256MB
(Bank 2-3)	168 pin 3.3v,SDRAM / EDO RAM
	Total System Memory(Max 512MB)

Note :

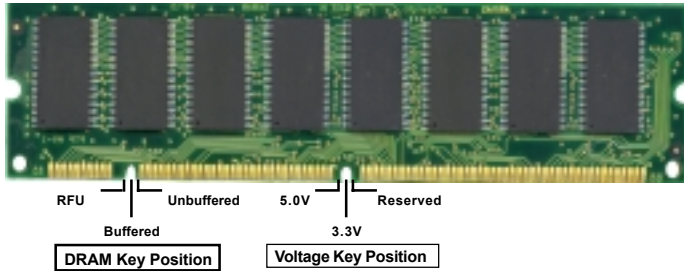
- ◆ The DIMM Slot does not support any 5v EDO DIMM module.
- ◆ The DIMM Slot does not support any 5v SDRAM DIMM module.
- ◆ Memory speed setup is required through "Auto Configuration" in BIOS chipset Setup of BIOS SOFTWARE. If several speed memories are used, You must set Auto Configuration to low. Example If both 50ns, 60ns are used, Please set Auto configuration to 60ns.
- ◆ It's allowed any DIMM module put in any DIMM slot. It's allowed there are different capacity DIMM module in all DIMM slot.

DIMM Memory Installation

Insert the module (s) as shown. Because the number pins are different on either side of the breaks, the module will only fit in the orientation as shown. SDRAM DIMM modules have different pin contacts on each side and therefore have a higher pin density.



The Dual Inline Memory Module (DIMM) module must be 3.3v Extended Data Output (EDO) DRAM or SDRAM. You can identify the type of DIMM module by the illustration below:



168 Pin DRAM DIMM Notch Key Definitions

The notch on the DIMM module will shift between left, center, or right to identify the type and also to prevent the wrong type to be inserted into the DIMM slot on the Mainboard. You must ask your retailer for Specifications before purchasing.

Four clock signals are supported on this mainboard

Central Processing Unit (CPU)

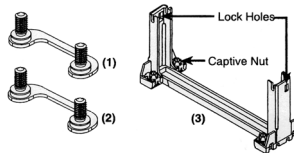
This main board provides a Single Edge Contact (SEC) slot for AMD Athlon processor packaged in an SEC cartridge. The SEC slot is not compatible with other non-Athlon Processors.

Installing the Retention Mechanism

The Mainboard package includes a Retention Mechanism. The Retention Mechanism is used to hold an AMD Athlon Processor to the AMD Slot-A connector. Make sure the system board is on a workbench (not in a chassis).

To install the Retention Mechanism, follow the steps below:

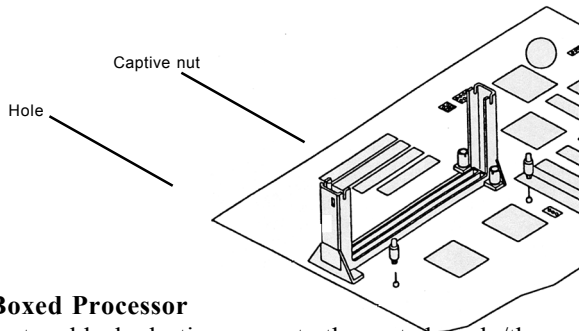
1. The Retention Mechanism package includes a Retention Mechanism with captive nut and four captive screws.



2. Hold the Retention Mechanism upright and position it above the AMD Slot-A connector.
3. Insert the captive screws attached from underneath the mainboard as shown, and four screws 2 nut bridges directly.

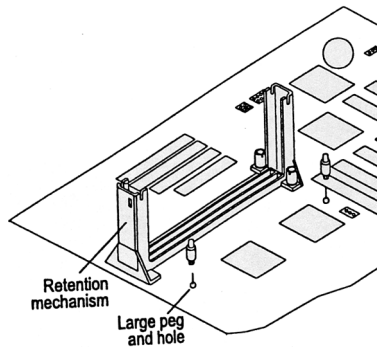
Note:

- ◆ Don't forget to attach the screw seal before inserting.
- ◆ Nut is built into the base of Retention Mechanism. It's convenient to tighten screw directly.

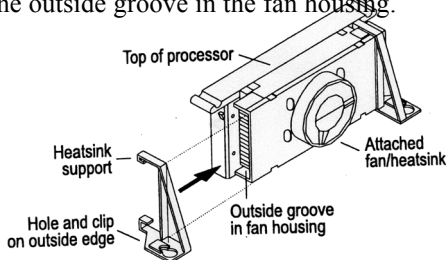


Installing Boxed Processor

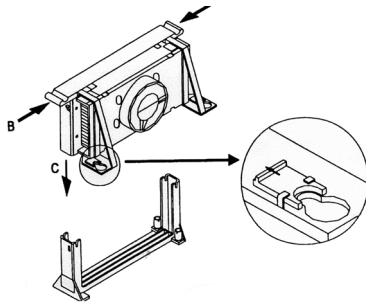
1. Mount the two black plastic pegs onto the systemboard. /these pegs will be used to attach the fan heatsink supports. Notice that one hole and the base of one peg are larger than the other hole and peg base. Push each peg into its hole firmly until you hear it Click into place.



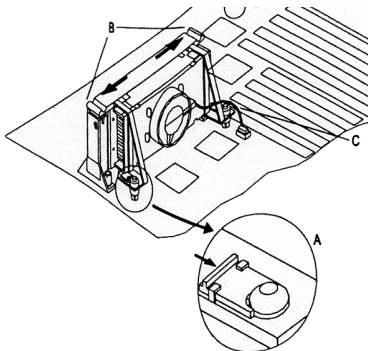
2. Slide a black plastic heatsink support onto each outside edge of the fan heatsink, making sure that the hole and clip are on the outside edge of the support. (If the supports are reversed, the holes will not line up with the pegs on the main board). Slide each heatsink support toward the center of the processor until the support is seated in the outside groove in the fan housing.



- Slide the clip (A) as shown on each support toward the processor, exposing the hole that will fit over the peg on the main board . Push the latches (B) on the processor toward the center of the processor until they click into place.
- Hold the processor so that the fan shroud is facing toward the pegs on the main board. Slid the Processor (C) into the Retention Mechanism and slide the supports onto the pegs. Make sure that the pegs on the main board slide into the holes in the heatsink support and that alignment notch I the processor fit over the plug in Slot 1. Push the processor down firmly, with even pressure on both sides of the top, until it is seated



- Slide the clips on the support (A) forward until they click into place to hold the pegs securely. (Apply slight pressure on the peg and push the peg toward the clip while pushing the click forward) Push the latches in the processor (B) outward until they click into place in the Retention Mechanism. The latches must be secured for proper electrical of the processor.



- Attach the small end of the power cable to the three-pin connector in the processor, then attach the large end to the three-pin connector on the main board.

Removing the Processor

To Remove the processor from the system board, follow these steps (the reverse of the installation processor) :

1. Disconnect the fan power cable from the main board. (We recommend that you leave the cable connected to the processor) .
2. Slide the clips on the supports backward to release the pegs in the mainboard . Push the latches on the processor toward the center of the processor until they click into place.
3. Lift one end of the processor until it is free from SLOT A. Lift the other end of the processor until it is freed from SLOT A. Lift the entire processor (with the fan heatsink support attached) until it is freed from the Retention Mechanism
4. Remove the heatsink support pegs from the mainboard and discard them. With one hand, squeeze together the two halves of the peg on the bottom side of the mainboard . With the other hand, pull the peg out of the hole in the mainboard . Do not reuse the pegs.

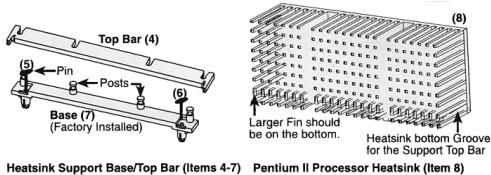
Caution :

When handling the processor, avoid pressing directly on the label area of the fan. When removing the processor, avoid pressing down on the system board or components. Instead , press down on the plastic connectors.

Installing EM Processor

If you are using AMD Athlon Processor in OEM package, Please follow the steps below:

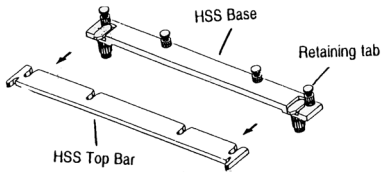
1. Your OEM package may include the following items:



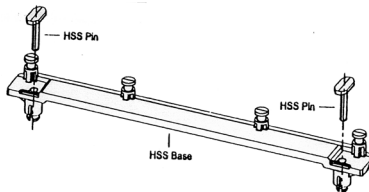
Note :

- ◆ Make sure your heatsink is attached with a fan to prevent overheating the processor.
- ◆ Contact your heatsink manufacturer to check whether your processor requires a Heatsink Support (HSS) installed on the mainboard.

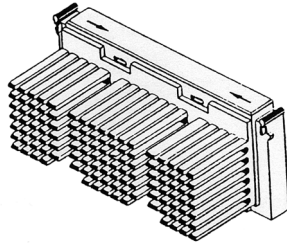
2. Push the HSS top bar sideways to free the HSS Top bar from the retaining "tabs" of the HSS Base.



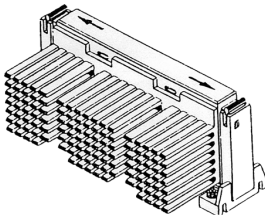
3. Remove the HSS Pins located on the each end of the HSS base.



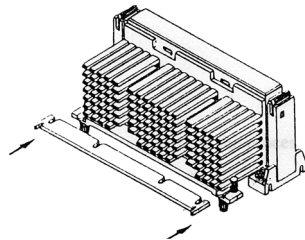
4. Install the HSS Base by pushing each side down firmly into the holes on the mainboard. (HSS Base can only be installed in one direction). Make sure it locks into place.
5. Replace the HSS Pins on each end of the HSS Base. These pins will insert through the HSS Base to secure it to the mainboard.
6. Hold the processor and push the latches toward the center of processor until they click into place.



7. Hold the processor so that the heatsink is facing toward the HSS base on the mainboard. Slide the processor into the Retention Mechanism. Make sure that the alignment notch in the processor fits into the Plug & Play in SLOT A. Push the processor down firmly, with even pressure on both sides of the top, until it is seated.



8. Push the latches on the processor outward until they click into place in the Retention Mechanism. The latches must be secured for proper electrical of the processor.



9. Slide the HSS Top bar into the heatsink until it locks into place.

10. Attach the **small** end of the power cable to three-pin connector in the processor, then attach the large end to the three-pin connector on the **main** board.

Clearance Requirements

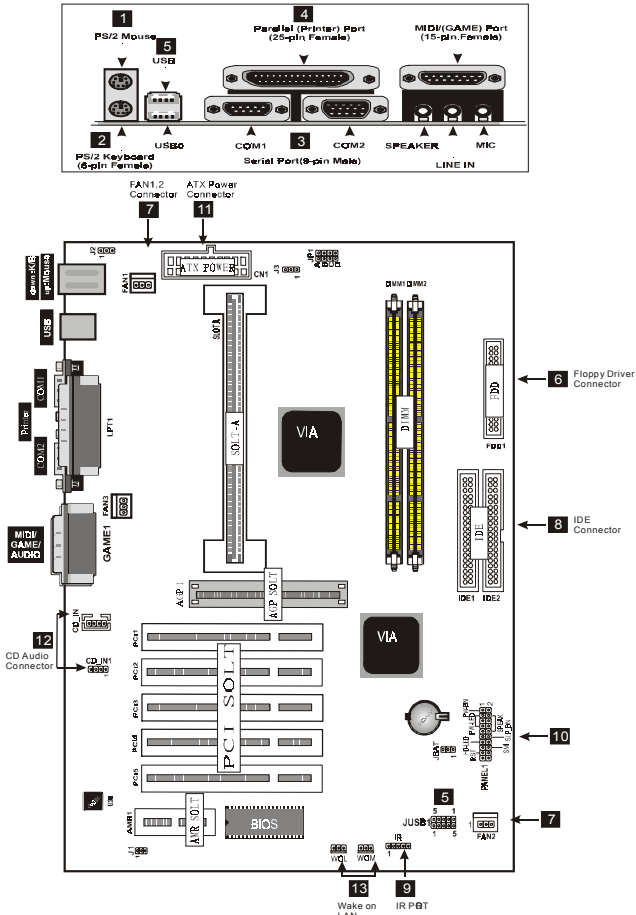
To **maintain** proper airflow once the processor is installed on the **mainboard**, the processor and fan heatsink require certain space clearances. The clearance above the processor **must** be at least 0.3 inch. The clearance on at least 3 of 4 sides of the processor and fan heatsink **must** be at least 0.2 inch. All cables (for Floppy drive, Hard drive, CD-ROM, and so on) **must** be routed clear of the processor and its airspace.

Fan Exhaust

The processor **must** be kept cool by using a processor with heatsink and fan attached. The **temperature** of the air filled with the fan/heatsink cannot exceed 45 °C (113 °F). The **ambient** or **room** **temperature** **must** be below 37 °C (99 °F).

EXTERNAL CONNECTORS

Both Ribbon cable and Connectors on board are with direction signs to avoid that user insert wrong direction. On other hand, the ribbon cables should always be connected with the red stripe on the pin 1 of side of the connector.



1. **PS/2 Mouse port**

This system will direct IR 12 to PS/2 mouse.

2. **PS/2 AT Keyboard port**

This connection is for a standard keyboard using an PS/2 plug (mini DIN) . This connector will not allow standard AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards.

3. **Universal Serial BUS Ports 0,1,2 & 3**

Four USB ports are available for connecting USB devices.

4. **Parallel Printer port**

You can enable the parallel port and choose the IR through " Onboard Parallel Port" in Chipset. Feature Setup of the BIOS SOFTWARE.

5. **Serial Port COM 1 and COM 2 port**

The two serial ports can be used for pointing devices or other serial devices. See "Onboard Serial Port" in chipset Feature Setup of the BIOS SOFTWARE.

NOTE:

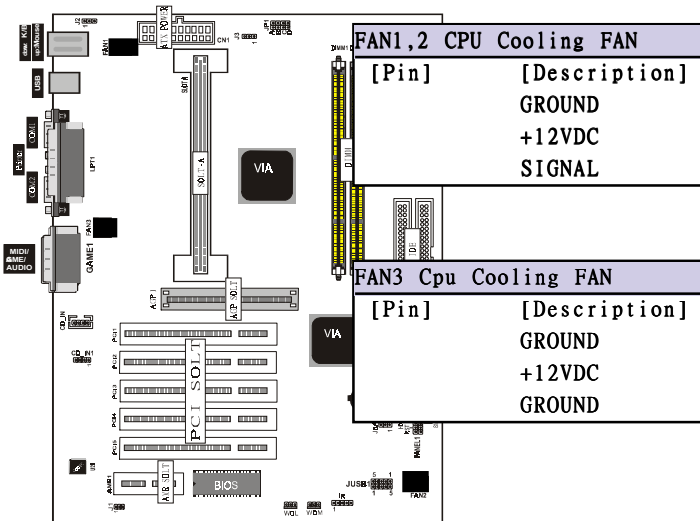
Serial {D-type 25pin (F) } must be connected to the serial port.

6. **Floppy drive connector**

This connector supports the provided floppy drive ribbon cable. After connecting the single end to the board, connect the two plus on the other end to the floppy drives.

7. FAN1 , 2,3 CPU Cooling Fan (FAN/PWR)

These connectors support cooling fans of 500mA (6Watt) or less. Orientate the fans so that the heatsink fins allow airflow to go across the onboard heat sink(s) instead of the expansion slots. Depending on the fan manufacturer, the wiring 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 the this connector.



NOTE :

The "Rotation" signal is to be used only by a specially designed fan with rotation signal.

WRING :

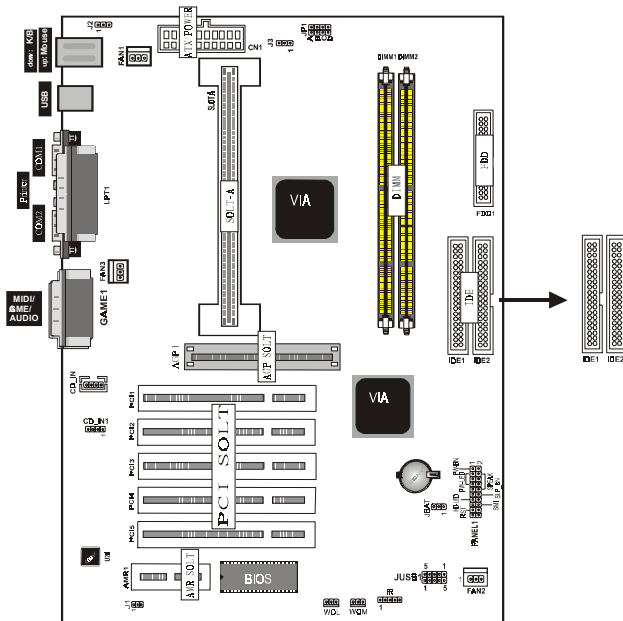
The CPU and/or motherboard will overheat if there is no air flowing across the CPU and onboard heatsinks. Damage may occur to the motherboard and/or the CPU fan if there pins are incorrectly used. These are not jumpers, do not place jumper caps over these pins.

8. Primary / Secondary IDE connectors (Two 40-pin Blocks)

These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs at the other end to your hard disk no space(s) . If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper setting. BIOS now supports SCSI device or IDE CD-ROM boot up (see "HDD Sequence SCSI/IDE First" & "Boot Sequence" in the BIOS Features Setup of the BIOS SOFTWARE) (Pin 20 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 20 plugged) .

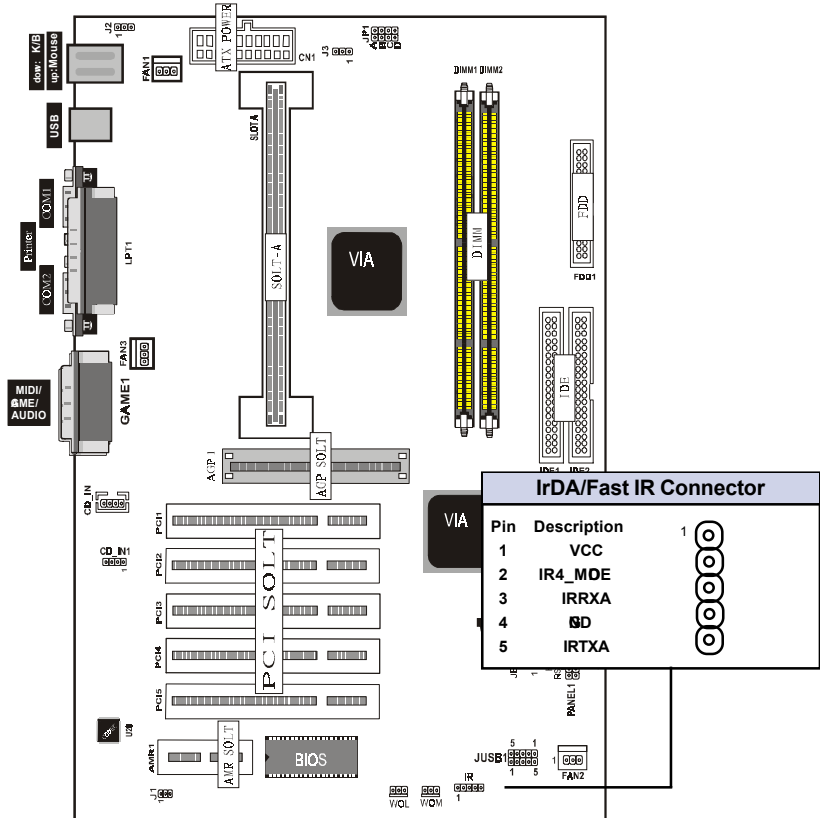
Tip :

You may configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector. You may install one operating system on an IDE drive and another on a SCSI drive and select the right onethrough BIOS Feature Setup.

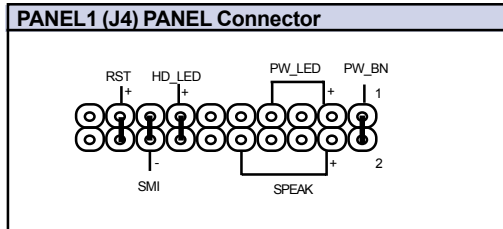


9. IrDA / Fast IR-Compliant infrared module connector - IR

This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure the setting through UART2 Use Infrared in Chipset Feature Setup to select whether UART2 is directed for use with COM2 or IrDA. Use the five pins as shown on the Back View and connect a ribbon cable from the module to the motherboard according to the pin definitions.



10. PANEL1 (J4)



a. IDE activity LED (H_LED)

This connector supplies power to the cabinet's IDE activity LED. Read and write activity by devices connected to the Primary or Secondary IDE connectors will cause the LED to light up.

b. Power LED Lead (PW_LED)

The system power LED lights when the system power is on.

c. SMI Suspend Switch Lead (SMI)

This allows the user to manually place the system into a suspend mode or Green mode where system activity will be instantly decreased to save electricity and expand the life of certain components when the system is not in use. This 2-pin connector (see the figure below) connects to the case-mounted suspend switch. If you do not have a switch for the connector, you may use the Turbo Switch since it does not have a function. SMI is activated when it detects a short to open circuit and therefore leaving it shorted will not cause any problems. It may require one or two pushes depending on the position of the switch. Wake-up can be controlled by settings in the BIOS but the keyboard will always allow wake-up (the SMI lead cannot wake-up the system). If you want to use this connector, "Suspend Switch" in the Power Management Setup of the BIOS SOFTWARE section should be on the default setting of Enable.

d. Reset Switch Lead (RST)

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 power supply.

e. **Speaker Connector (SPEAKR)**

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

f. **ATX Power Switch (PW_BN)**

The system power is controlled by a momentary switch connected to this lead. Pushing the button once will switch the system ON. The system power LED lights when the system power is on.

11. **ATX Power Supply Connector (20-pin block) - CN1**

This connector connects to a ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.

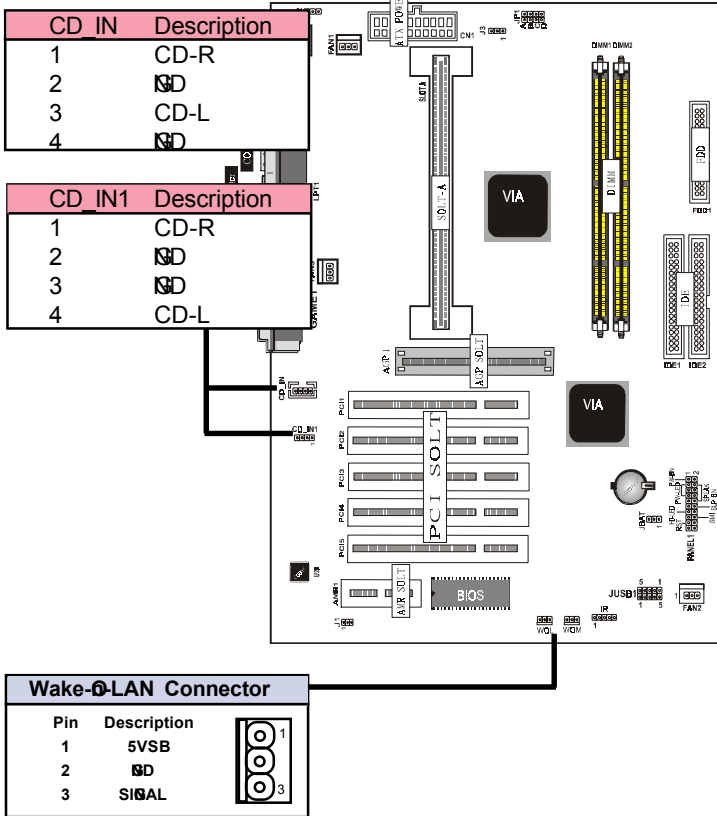
IMPORTANT:

Make sure that the ATX power supply can take at least 10mAmp load on the 5Volt standby lead (5VSB). You may experience difficulty in powering on your system without this.

Pin	Description	Pin	Description
1	3.3V	2	3.3V
3	⊘	4	5V
5	⊘	6	5V
7	⊘	8	PW-⊘
9	5VSB	10	12V
11	3.3V	12	-12V
13	⊘	14	PS-⊘
15	⊘	16	⊘
17	⊘	18	-5V
19	5V	20	5V

12. CD Audio Connector- CD_IN/CD_IN1

The 4-pin connectors enable the system to receive the audio output from the CD-ROM.



13. Wake Up LAN : WOL/WOL

This connector connects LAN cards and a Wake On LAN output. When the system is in soft-off mode LAN activity will power on the system

Date : / /

Garantee Sheet/Technical Fault Report

M/B Model No.: _____ Vender

Serial No. : _____

Date of Purchasing: _____

Hardware Configuration Used :

CPU	
RAM	
Video Card	
Hard Drive	
Other Card	

Diagnostic Software Used :

Fault Description :

Technical Support :

WWW : www.acorp.com.tw

FAE : fae@acorp.com.tw