

## Box Contents

This VIA EPIA-V Mini-ITX Mainboard package should contain the following items:

- 1 x VIA EPIA-V Mini-ITX Mainboard
- 1 x User's manual
- 1 x ATA-33/66/100 Hard drive ribbon cable
- 1 x Floppy ribbon cable
- 1 x I/O Bracket
- 1 x Driver Utilities CD

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# 1

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## Specifications

The ultra-compact and highly integrated VIA EPIA-V Mini-ITX Mainboard is the smallest form factor mainboard specification available today, developed by VIA Technologies, Inc as part of the company's open industry-wide Total Connectivity initiative. The VIA EPIA-V Mini-ITX mainboard enables the creation of an exciting new generation of small, ergonomic, innovative and affordable embedded systems. Through high level of integration, mini-ITX only occupy 66% of the size of FlexATX mainboard form factor. The mainboard comes with an embedded VIA Processor, boasting ultra low power consumption and cool, quiet operation.

This chapter includes the following sections:

Mainboard Specifications	1-2
Mainboard Layout	1-4
Components Guide	1-5

## Specifications

### CPU

- Embedded VIA Processor
- Enhanced Ball Grid Array Package (EBGA)
- Internal L1 128KB and L2 64KB cache memory

### Chipset

- VIA 8601A North Bridge
- VT8231 South Bridge

### Graphics

- Integrated Trident Blade 3D graphics core

### Audio

- VT1612A 2 channel AC'97 Codec
- 3 Audio jacks: Line-in, Line-out and Mic-in

### Main Memory

- 2 x PC100/133 DIMM slots.

### PCI Bus IDE

- Ultra DMA 33/66/100

### LAN

- VIA VT6103 10/100 Base-T Ethernet PHY

### USB

- 2 USB ports
- 1 onboard USB pin header for up to 2 additional connections
- USB v1.1 and Intel Universal HCI v1.1 compatible

### TV-Out (Optional)

- VIA VT1621 TV-Out Controller

### Onboard I/O Connectors

- 1 USB connector for 2 USB 1.1 ports
- CD Audio-in connector
- FIR connector
- PS2 connector
- Wake-on-Modem
- CPU/Sys FAN

### Back Panel I/O

- 1 PS2 mouse port
- 1 PS2 keyboard port
- 1 Parallel
- 1 RJ45 LAN port
- 1 Serial port
- 2 USB 1.1 ports
- 1 VGA port
- 1 RCA port (S/PDIF or TV out)
- 1 S-Video port

### Power

- Supports ATX type power supply

### Onboard Floppy

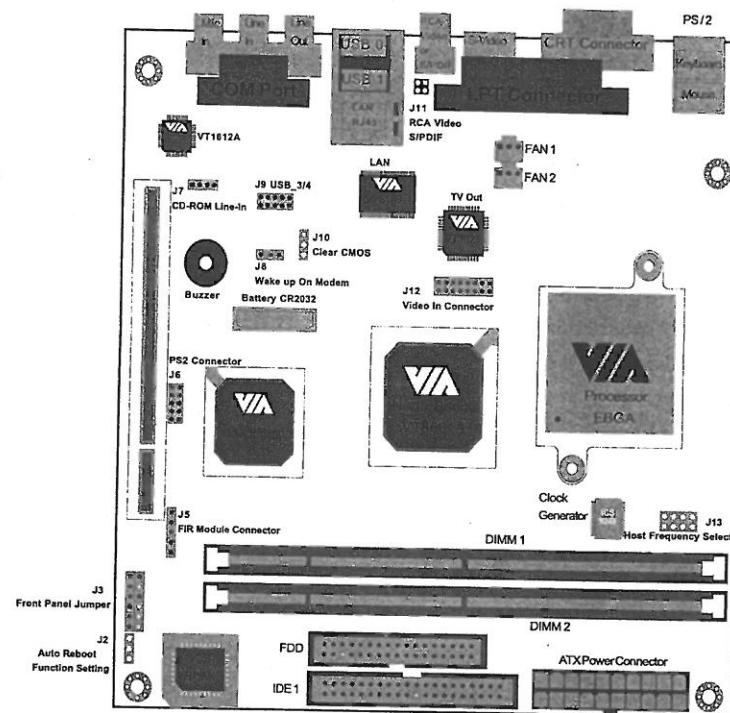
- 1 FDD connector

### BIOS

- Award BIOS
- 2/4Mbit flash memory

### Form Factor

- Mini-ITX (4 layers)
- 17 cm x 17 cm

**Layout****VIA EPIA-V Mini-ITX Mainboard****Connectors Guide**

Component	Function	Reference
Fan 1, Fan 2	Fan power connectors	See p. 2-2
DIMM1, DIMM2	DIMM slot	See p. 2-4
ATX Power Connector	Connecting ATX power supply	See p. 2-6
PS/2 Mouse	Mouse connector	See p. 2-7
PS/2 Keyboard	Keyboard connector	See p. 2-7
LPT Connector	Parallel port connector	See p. 2-8
RJ-45 Port	Connecting to a LAN	See p. 2-8
USB 0, USB 1	Connecting to USB devices	See p. 2-8
COM Port	COM port connector	See p. 2-9
Line Out	Connecting Headphones/Speakers	See p. 2-9
Line In	Connecting an audio device	See p. 2-9
Mic In	Connecting a Microphone	See p. 2-9
RCA Video or S/P DIF	Connecting to RCA Video or SPDIF	See p. 2-9
S-Video	Connecting to S-Video	See p. 2-9
VGA Out	Connect to a VGA monitor	See p. 2-9
IDE1	Connecting an IDE device	See p. 2-10
J3	Front panel connector	See p. 2-11
J7	CD-ROM Line in connector	See p. 2-11
J5	FIR module connector	See p. 2-12
J6	PS2 connector	See p. 2-12
J8	Wake on Modem	See p. 2-13
J9	USB Port 2 & 3 Connector	See p. 2-13
J12	Video in connector	See p. 2-14
FDD	Floppy disk drive connector	See p. 2-14
J10	Clear CMOS jumper	See p. 2-15
J13	Host Frequency Select	See p. 2-16
J2	Auto Reboot Function Setting	See p. 2-17
J11	RCA Video / S/P DIF	See p. 2-17
PCI Slot	Connecting to expansion cards	See p. 2-18
PCIIRQ	PCI Interrupt Request Routing	See p. 2-19

# 2

## Installation

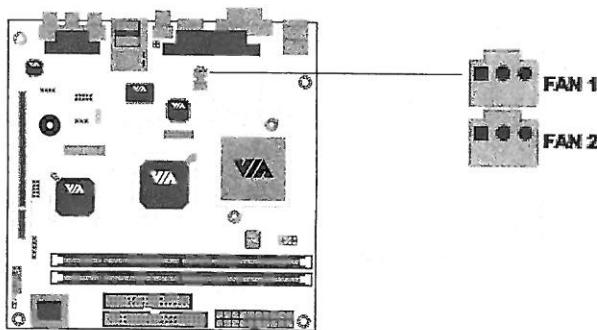
This chapter provides you with the information about hardware setup procedures. While installing, please be careful in holding the components and follow the installation procedures. Some components could be damaged if they are installed incorrectly. If possible, use a grounded wrist strap before handling computer components. The components can be damaged by static electricity.

This chapter contains the following topics:

Central Processing Unit (CPU)	2-2
Memory Installation	2-4
Power Supply	2-6
Back Panel	2-7
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Slots	2-18
PCI Interrupt Request Routing	2-19

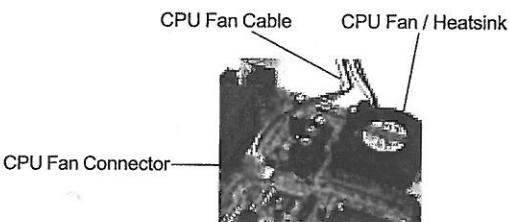
## CPU

The VIA EPIA-V Mini-ITX Mainboard includes an embedded VIA Eden Processor or VIA C3™ E-Series Processor. Two fan connectors (Fan 1 & Fan 2) are provided on the mainboard, allowing for the connection of a CPU fan and an additional system case fan.



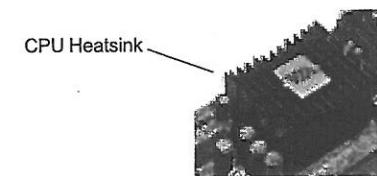
### The VIA C3™ E-Series Processor

With low power consumption and advanced thermal dissipation properties, the embedded VIA C3™ E-Series requires only a small fan to guarantee performance and reliability. Ensure that the CPU Fan Connector is correctly installed, as displayed below.



### The VIA Eden Processor

Providing ultra-low power consumption and advanced thermal dissipation properties, the VIA Eden Processor features a fanless design. The VIA Eden Processor requires only a heatsink, as shown below.

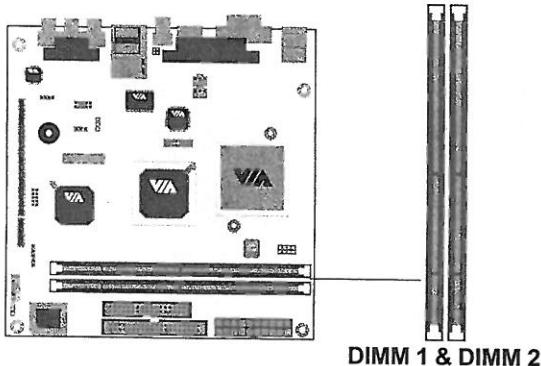


#### Overclocking

**STOP**  
This motherboard is not designed to support overclocking. Any attempt to operate beyond product specifications is not recommended. We do not guarantee the damages or risks caused by operation beyond product specifications.

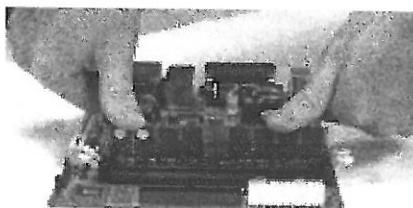
## Memory Installation

The VIA EPIA-V Mini-ITX Mainboard provides two 168-pin DIMM slots for PC 100/133 SDRAM memory modules. To operate properly, at least one module must be installed.



### SDRAM Module Installation Procedures

- 1.) Push the white retaining latches at either end of the DIMM slot outwards.
- 2.) Align the SDRAM module with the corresponding notches on the DIMM slot. The modules will only fit if placed in the correct position.
- 2.) With both hands, press the SDRAM module down into the DIMM slot so that the white retaining latches rotate up and secure the module in place (see picture below).



### Available SDRAM Configurations

Refer to the table below for available SDRAM configurations on the VIA EPIA-V Mini-ITX Mainboard.

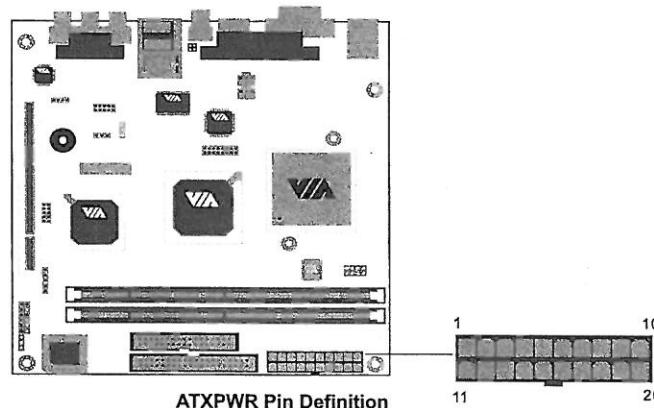
Socket	Memory Module	Total Memory
DIMM 1	32MB, 64MB, 128MB, 256MB, 512MB	32MB~512MB
DIMM 2	32MB, 64MB, 128MB, 256MB, 512MB	32MB~512MB
<b>Maximum System Memory Supported</b>		<b>1GB</b>

## Power Supply

The VIA EPIA-V Mini-ITX Mainboard requires an ATX power supply to be connected. Before inserting the power supply connector, always make sure that all components are installed correctly to ensure that no damage will be caused.

### ATX 20-Pin Power Connector

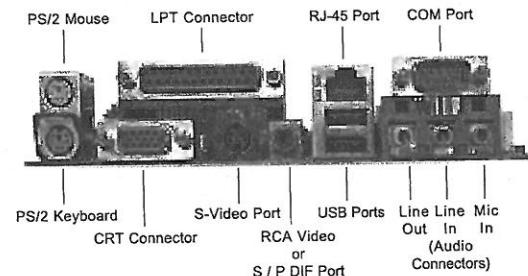
To connect the ATX power supply, make sure the plugs of the power supply are inserted in the proper orientation and the pins are correctly aligned. Then, push down the power supply plug firmly into the connector.



PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

## Back Panel

The back panel of the VIA EPIA-V Mini-ITX Mainboard contains the following connectors:



### Mouse Connector: JMS1

The mainboard provides a standard PS/2 mouse connector for attaching a PS/2 mouse. You can plug a PS/2 mouse directly into this connector. The connector location and pin assignments are as follows:



PS/2 Mouse (6-pin Female)



PS/2 Keyboard (6-pin Female)

### Pin Definition:

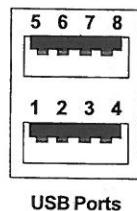
PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5.	Mouse Clock	Mouse clock
6.	NC	No connection

### Pin Definition:

PIN	SIGNAL	DESCRIPTION
1	Keyboard DATA	Keyboard DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5.	Keyboard Clock	Keyboard Clock
6.	NC	No connection

### USB Port Connectors

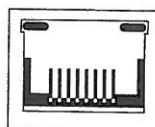
The mainboard provides 2 USB 1.1 ports (plus 1 pin-headers for up to 2 additional USB connections). USB-compatible devices can be plugged directly into these ports.



Pin Definition		
PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data 0	Positive Data Channel 0
4	GND	Ground
5.	VCC	+5V
6.	-Data 1	Negative Data Channel 1
7.	+Data 1	Positive Data Channel 1
8.	GND	Ground

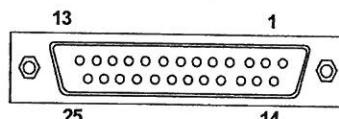
### RJ-45 NIC Port

The mainboard provides one standard RJ-45 port for connection to the Local Area Network (LAN). You can connect a network cable to the LAN port.



### Parallel Port Connector: LPT1

The mainboard provides a 25-pin female connector for LPT (parallel port). A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) modes.

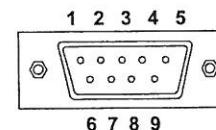


### Pin Definition

PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

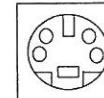
### Serial Port Connectors: COM 1

The mainboard offers one 9-pin male Serial Port connector (COM 1). You can attach a serial mouse or other serial devices directly to this port.



9-Pin Male DIN Connectors

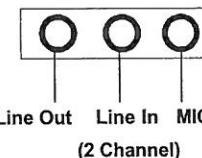
Pin Definition		
PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5.	GND	Ground
6.	DSR	Data Set Ready
7.	RTS	Request To Send
8.	CTS	Clear To Send
9.	RI	Ring Indicate



### S-Video Port

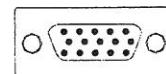
This port allows S-Video output in NTSC and PAL modes.

### 1/8" Stereo Audio Connectors



### RCA Video or S/PDIF Port

This dual function port may be used either as a RCA Video port or as a S/PDIF port.



### VGA Out

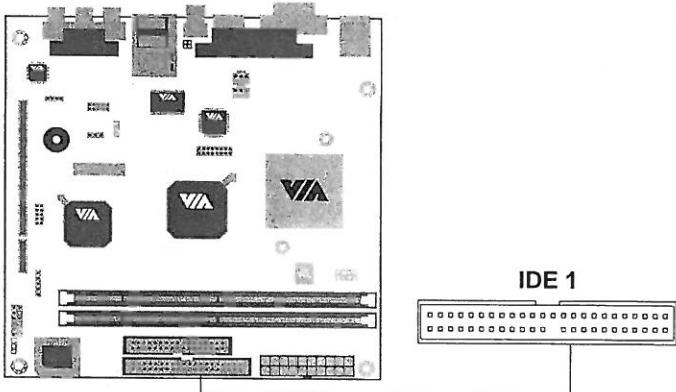
A DB-15 pin female connector that connects to a VGA monitor.

## Connectors

The VIA EPIA-V Mini-ITX Mainboard provides the following connectors:

### Hard Disk Connectors: IDE1

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100 functions. You can connect up to two hard disk drives, CD-ROM, LS-120 and other devices. These connectors utilize the provided IDE hard disk cable.



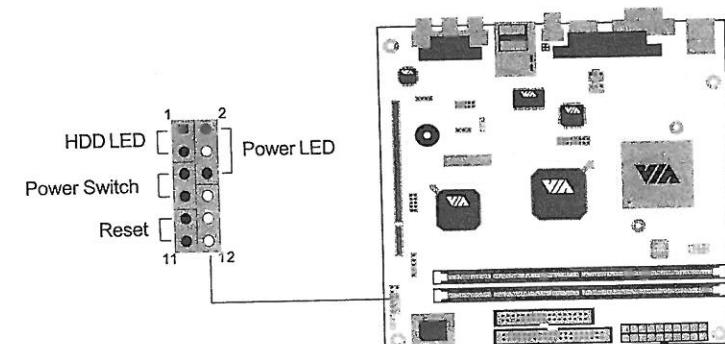
#### IDE1 (Primary IDE Connector)

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive.

- **TIP:** If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper.
- Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.

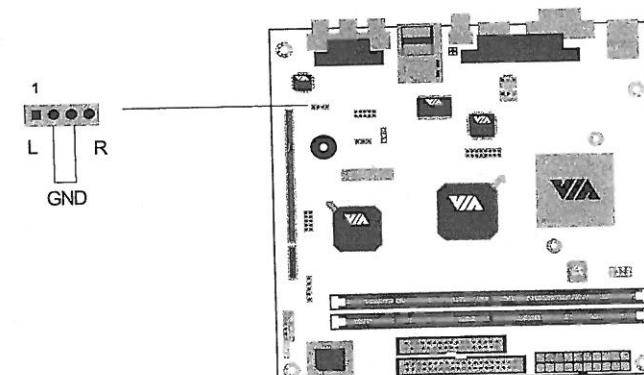
### Front Panel Connector (J3)

The J3 front panel connectors allow you to connect the Power Switch, Reset Switch, Power LED and HDD LED to the system case.



### CD-ROM Line In Connector (J7)

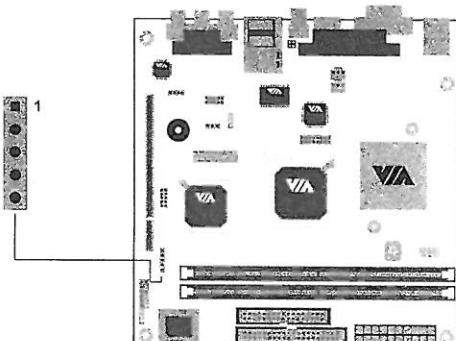
The J7 internal CD-ROM Line In Connector allows you to connect and receive audio input from a device such as a CD-ROM.



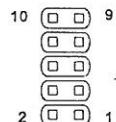
**FIR Module Connector (J5)**

The FIR Module Connector (J5) allows you to connect a Fast Infrared standard module. You must configure the setting through the BIOS setup to activate the IR function.

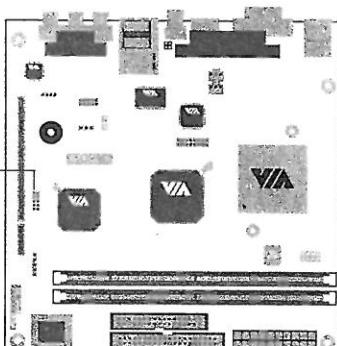
Pin Definition	
PIN	SIGNAL
1	+3V
2	IRRX
3	IRRX2
4	GND
5	IRTX

**PS2 Connector (J6)**

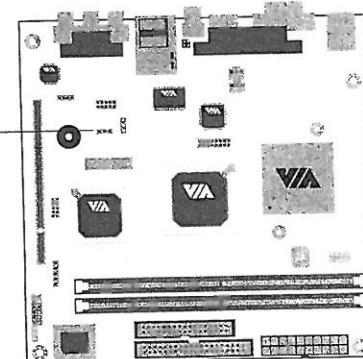
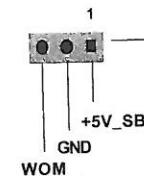
When this connector is not in use, please short pin 3&5, pin 4&6, pin 7&9, and pin 8&10.



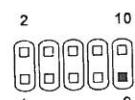
Pin Definition			
PIN	SIGNAL	PIN	SIGNAL
1	+5V	2	GND
3	KB_CLK	4	KB_DATA
5	EXT_KBCLK	6	EXT_KBDATA
7	MS_CLK	8	MS_DATA
9	EXT_MSCLK	10	EXT_MSDATA

**Wake On Modem Connector (J8)**

This connector (J8) allows you to connect to a modem with the Wake On Modem function. The connector will power up the system when a signal is received through the modem.

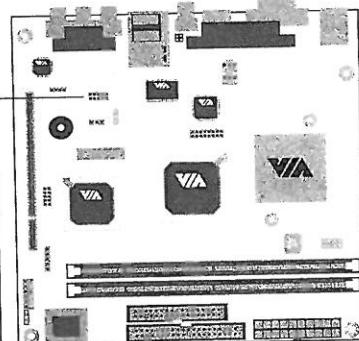
**USB Port 3&4 Connector (J9)**

This connector (J9) allows you to connect an additional two Universal Serial Bus (USB) ports, in case the two USB ports on the back panel are not sufficient. To utilize the additional two USB connections, please plug the USB 2-port module onto this pin-header.



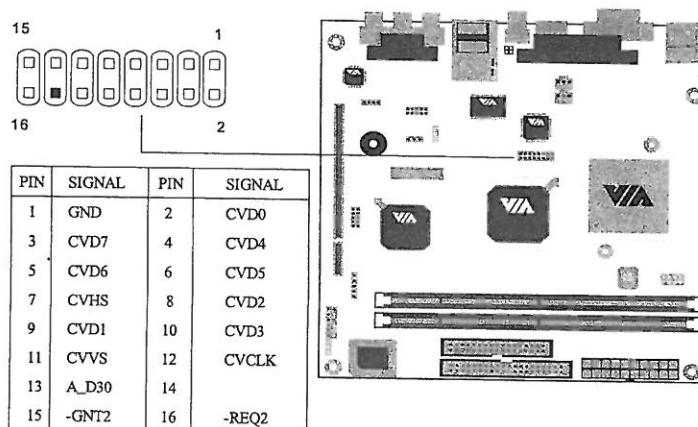
USB 3/4 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB2-	4	USB3-
5	USB2+	6	USB3+
7	GND	8	GND
9	NC	10	GND



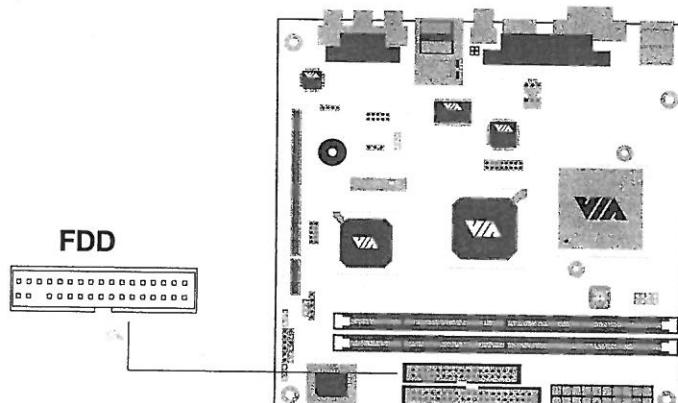
#### **Video In Connector (J12)**

The Video In Connector allows you to connect an external video source.



## Floppy Disk Drive Connector: FDD

The standard floppy disk drive connector supports 360K, 720K, 1.2M, 1.44M, and 2.88M.

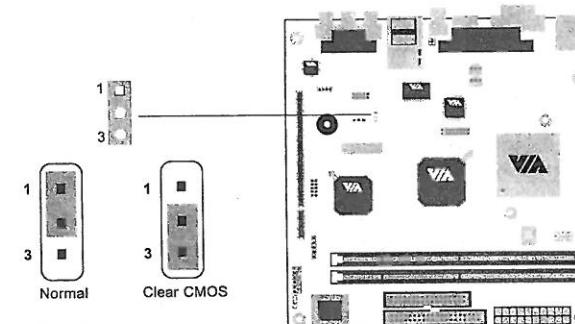


Jumpers

The Mainboard provides a series of jumpers to set the computer's functions. This section explains how to change settings for your mainboard's functions through the use of the jumpers.

**Clear CMOS Jumper: CLEAR\_CMOS (J10)**

The onboard CMOS RAM stores system configuration data and has an onboard battery power supply. The long-life battery has a lifetime of at least 5 years. If you want to clear the system configuration data from the CMOS RAM, use the CLEAR\_CMOS (Clear CMOS jumper). Follow the instructions below to clear the data:



## 1-2: Normal

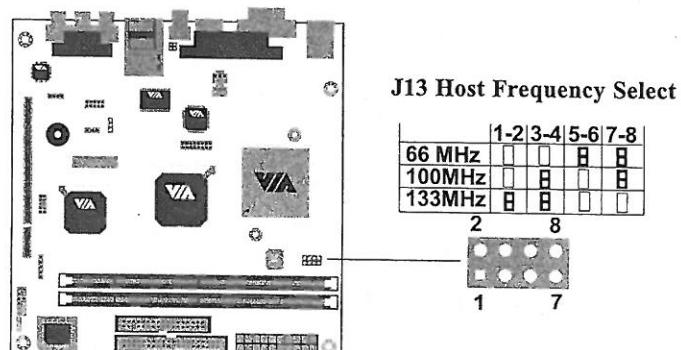
## 2-3: Clear CMOS



You can clear the CMOS by shorting 1-2 pin while the system is off. Then return it to the 2-3 pin position. Avoid clearing the CMOS while the system is on; this will damage the mainboard.

**Host Frequency Select (J13)**

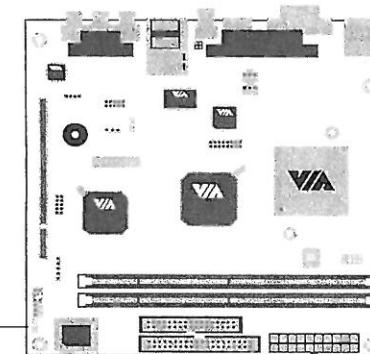
This jumper can be used to select the host frequency bus speed of the mainboard. The three available options are 66MHz, 100MHz and 133MHz.

**WARNING!***Overclocking*

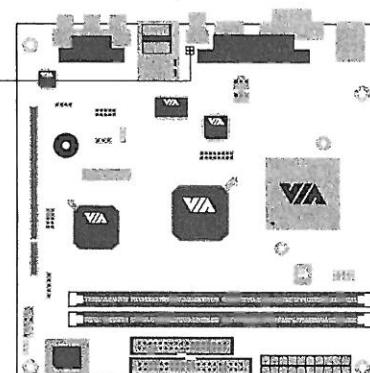
*This motherboard is not designed to support overclocking. Any attempt to operate beyond product specifications is not recommended. We do not guarantee the damages or risks caused by operation beyond product specifications.*

**Auto Reboot Function Setting (J2)**

This jumper enables or disables the Auto Reboot Function Setting. When enabled, the system will automatically reboot in the event of sudden power outage.

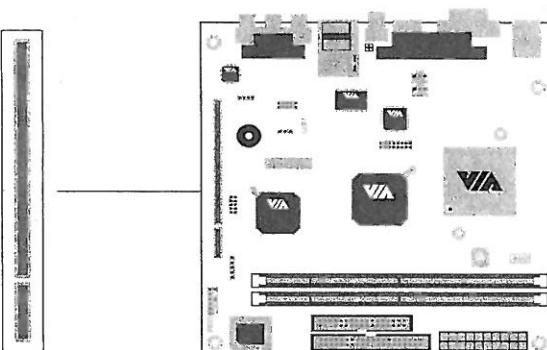
**RCA Video or S/PDIF Select (J11)**

Users can select either RCA Video or S/PDIF as the enabled function on the dual-purpose port. For TV-out composite function, please short 1-2. For S/PDIF out, short 3-4.



**Slots****PCI Slot**

The PCI slot allows you to insert PCI expansion card. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

**PCI Interrupt Request Routing****PCI Interrupt Request Routing**

The IRQ (Interrupt ReQuest) is the mechanism for devices to request services from the microprocessor. The “PCI & LAN” IRQ pins are typically connected to the PCI bus INT A# ~ INT D# pins as follows:

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INT B#	INT C#	INT D#	INT A#
LAN	INT B#			