LV-666

MOTHER BOARD

User's Manual

Edition 1.1

October 19, 2004

Copyright Notice

Manual Guide

This manual is designed to help you build a reliable Personal Computer based on the LV-666 platform.

Chapter 1—Quick Reference

This chapter is for advanced users who want to quickly assemble a system. The motherboard layout along with jumper and switch settings, and memory configuration are provided.

Chapter 2—Introduction

This chapter includes an introduction, a checklist of the items that ship with this motherboard, and a summary of the principal features and components.

Chapter 3—Hardware Installation

This chapter explains how to prepare your motherboard for use and how to make the various connections to other computer components and peripheral items.

Chapter 4—BIOS Configuration

This chapter explains how to use the system setup utility that is stored in the motherboard's firmware.

Chapter 5—Driver and Utility

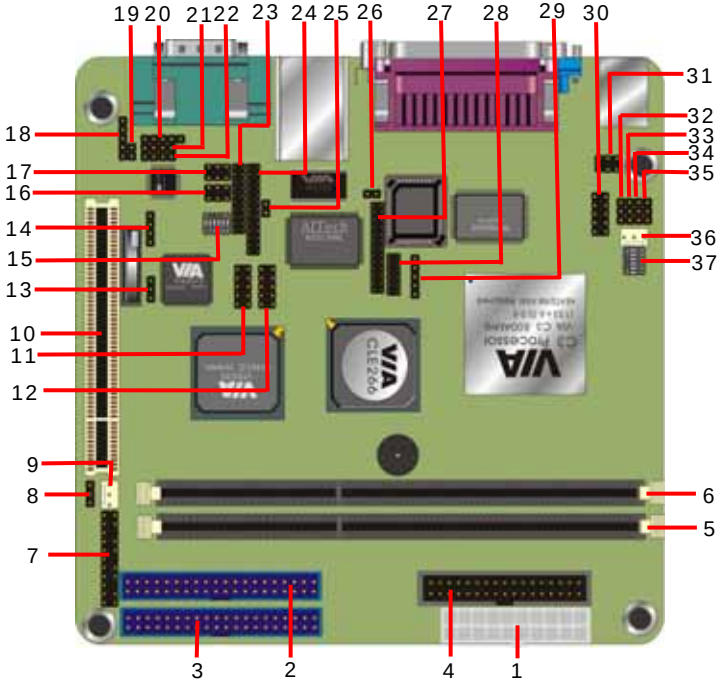
This chapter briefly describes the drivers and utility programs that are packaged with the motherboard.

Table of Content

1. LV-666 Quick Reference

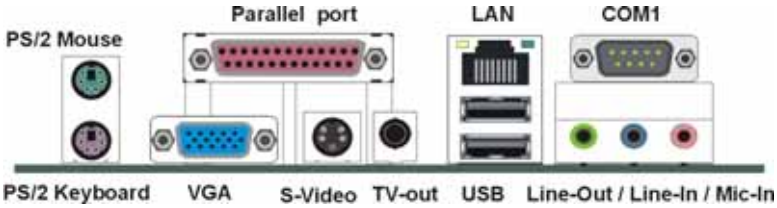
This section is for users to get started using the motherboard straight away.

1.1 Motherboard Layout



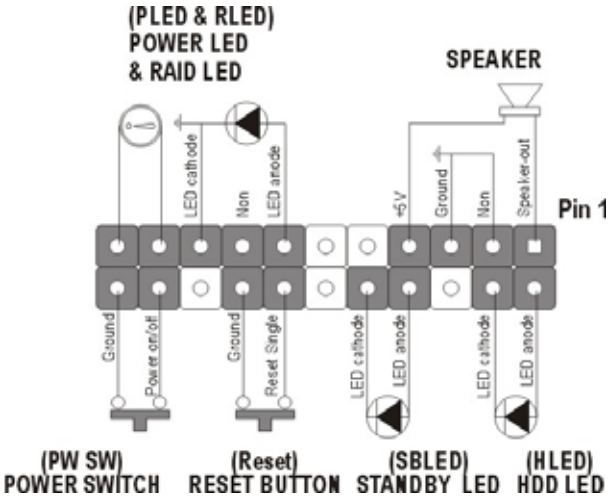
1	ATX Power connector (ATXPWR1)	21	Audio Aux-in connector (J1)
2	IDE connector (PRIMARY1)	22	Audio CD-in connector (J2)
3	IDE connector (SENCONDARY1)	23	DVO interface (JP7)
4	Floppy connector (FDD1)	24	TMDS interface (J11)
5	184-pin DDR DIMM socket (DIMM1)	25	I2C interface (J13)
6	184-pin DDR DIMM socket (DIMM2)	26	TV-RST (S3)
7	Front Panel Connectors (JP1)	27	LVDS interface (J12)
8	Compact Flash Type Jumper (JCFSEL1)	28	DVO interface (J10)
9	System Fan (CHIPFAN1)	29	IR interface (IR1)
10	PCI Slot (PCI1)	30	COM2 connector (COM2)
11	USB 1/2 connector (USB1/2)	31	COM2 Jumper (J5)
12	USB 3/4 connector (USB3/4)	32	COM2 Jumper (J6)
13	CMOS Clear Jumper (CLEAR_CMOS1)	33	COM2 Jumper (J7)
14	GPIO interface (JP8)	34	COM2 Jumper (J8)
15	TV-out mode switch (SW1)	35	COM2 Jumper (J9)
16	IEEE1394 connector (1394_1)	36	CPU Fan (CPUFAN1)
17	IEEE1394 connector (1394_2)	37	CPU Ratio Switch (SW2)
18	Audio Line-out connector (JP3)	38	
19	Audio MIC-in connector (JP2)	39	
20	Audio SPDIF connector (J3)	40	

1.2 I/O Ports



1.3 Front Panel Connector

The following illustration shows the front panel connector pin assignments:



1.4 Jumpers

CLEAR_CMOS1	Mode
1-2	Clear CMOS
2-3	Normal Operation

Default setting

JCFSEL	Compact Flash Mode
1-2	Master
2-3	Slave

Default setting

SW2					
CPU RATIO	**1**	**2**	**3**	**4**	**5**
3.0x	**OFF**	**ON**	**ON**	**ON**	**ON**
3.5x	**OFF**	**ON**	**OFF**	**ON**	**ON**
4.0x	**ON**	**OFF**	**ON**	**ON**	**ON**
4.5x	**ON**	**OFF**	**OFF**	**ON**	**ON**
5.0x	**ON**	**ON**	**ON**	**OFF**	**ON**
5.5x	**ON**	**ON**	**OFF**	**ON**	**ON**
6.0x	**OFF**	**OFF**	**ON**	**OFF**	**ON**
6.5x	**OFF**	**OFF**	**OFF**	**OFF**	**ON**
7.0x	**OFF**	**ON**	**ON**	**OFF**	**ON**
7.5x	**OFF**	**ON**	**OFF**	**OFF**	**ON**
8.0x	**ON**	**OFF**	**ON**	**OFF**	**ON**
8.5x	**ON**	**OFF**	**OFF**	**OFF**	**ON**
9.0x	**ON**	**ON**	**ON**	**ON**	**ON**
9.5x	**OFF**	**OFF**	**OFF**	**ON**	**ON**
10.0x	**OFF**	**OFF**	**ON**	**ON**	**ON**
10.5x	**OFF**	**OFF**	**OFF**	**ON**	**OFF**
11.0x	**OFF**	**ON**	**ON**	**ON**	**OFF**
11.5x	**OFF**	**ON**	**OFF**	**ON**	**OFF**

12.0x	ON	OFF	ON	ON	OFF
12.0x	ON	ON	OFF	OFF	ON
12.5x	ON	OFF	OFF	ON	OFF
13.0x	ON	ON	ON	OFF	OFF
13.5x	ON	ON	OFF	ON	OFF
14.0x	OFF	OFF	ON	OFF	OFF
14.5x	OFF	OFF	OFF	OFF	OFF
15.0x	OFF	ON	ON	OFF	OFF
15.5x	OFF	ON	OFF	OFF	OFF
16.0x	ON	OFF	ON	OFF	OFF

SW1	Switch Number				
RESERVE	1-OFF	Default			
OVERSCAN	2-ON	Enable			
	2-OFF	Disable			
TV-mode			3	4	5
NTSC			ON	ON	ON
NTSC-EIA			ON	OFF	ON
PAL-M			ON	ON	OFF
PAL-BDGHI			OFF	OFF	ON
PAL-Comb-N			OFF	OFF	OFF
PAL-N			OFF	ON	ON

COM2 RS232/485/422 Mode jumper setting

Mode	J5	J6	J7	J8	J9
RS232	1-2	1-2	1-2	1-2	1-2
RS422	5-6	1-2	1-2	2-3	2-3
RS485	3-4	2-3	2-3	1-2	1-2

1.5 PCI Frequency Setting

The PCI frequency settings are automatically set by the system

1.6 Memory Installation

Note: **This motherboard supports up to two double-sided or two single-sided DIMMs when the DDR DRAM interface is operating at 133 MHz. Installing DDR DIMM modules that exceed these specifications requires that the BIOS down-shifts the DRAM clocks to 100 MHz through a two-wire interface of the system clock generator.**

184-Pin DIMM DDR SDRAM Memory Configuration.

Each **184-pin** DIMM bank can install from 64MB up to 1GB of PC1600/PC2100/PC2700 compliant 2.5V single or double side buffered with or without ECC DDR SDRAM modules.

Bank 0 (DIMM1)	64MB, 128MB, 256MB, 512MB, 1GB
Bank 1 (DIMM2)	64MB, 128MB, 256MB, 512MB, 1GB
Total	2 GB

1.7 Connectors

Connector	Function	Remark
DIMM1	184-pin DIMM Socket	Standard
DIMM2	184-pin DIMM Socket	Standard
PRIMARY1	40-pin Primary IDE Port	Standard
SECONDARY1	40-pin Secondary IDE Port	Standard
FDD1	34-pin FDD Port	Standard
COM2	10-pin COM2 RS-232/485/422 Serial Port	Standard
USB1/2	10-pin 1st / 2nd Hi-Speed USB 2.0 Port	Standard
USB3/4	10-pin 3rd / 4th Hi-Speed USB 2.0 Port	Standard
IR1	5-pin SIR IrDA Port	Standard
ATXPWR1	20-pin ATX Power Connector	Standard
1394_1	6-pin IEEE1394 port	Standard
1394_2	6-pin IEEE1394 port	Standard
J1	4-pin AUX-in connector	Standard
J2	4-pin CDIN connector for CD-ROM audio input	Standard
J3	5-pin SPDIF connector for Digital Audio Output	Standard
JP2	2-pin MIC-in connector	Standard
JP3	5-pin Line-out connector	Standard
JP7	20-pin DVO interface	Standard
JP8	4-pin General Purpose I/O (GPIO) interface	Standard
J10	12-pin DVO interface	Standard
J11	26-pin TMDS interface	Standard
J12	26-pin LVDS interface	Standard
J13	2-pin I2C interface	Standard
CPUFAN1	CPU FAN connector	Standard
CHIPFAN1	System FAN connector	Standard

2. Introduction

2.1 Overview

The high quality **LV-666** is a high-performance, enhanced function motherboard that supports VIA C3/Eden Embedded processor with 133 MHz front side bus (FSB). This motherboard is designed around the latest VIA CLE266 Chipset in Mini-ITX form factor.

The motherboard delivers workstation-level performance with bus mastering EIDE (Enhanced IDE) controller, and concurrent PCI bus. The motherboard accommodates DDR SDRAM (Synchronous DRAM) memory and supports ATA66/100/133.

In addition to superior hardware capabilities, provided with this platform are these features:

- Support VIA C3/Eden Embedded Processor
- Supports a 100/133 memory bus
- Supports up to 2 GB of PC1600/PC2100 DDR SDRAM
- Bus mastering EIDE driver
- Supports 6 x USB ports.
- Supports 5.1 Channel AC97 Audio
- Supports 2 x IEEE1394 firewire connector
- Soft-off APM (Advanced Power Management)
- ACPI (Advanced Configuration and Power Interface)
- BIOS upgrade

2.2 Motherboard Specifications and Features

2.2.1. Hardware

General Specification	
Form Factor	Mini-ITX at 170 x 170 mm (L x W)
CPU	VIA C3/Eden Embedded processor at 133MHz FSB
Memory	2GBytes DDR200/266 SDRAM on 2 x 184-pin DIMM socket
Chipset	VIA CLE266 and VT8235
BIOS	Phoenix-Award 2Mb PnP flash BIOS
Green Function	Power saving mode includes doze, standby and suspend modes. ACPI version 1.0 and APM version 1.2 compliant
Real Time Clock	VIA VT8235 built-in RTC with lithium battery
Enhanced IDE	PCI enhanced IDE interface supports dual channels and up to 4 ATAPI devices at UltraATA/100/133 Two 40-pin IDE ports
Expansive Slot	One PCI slot supports up to 2 bus master PCI bus interface via the additional riser card
Compact Flash	One Compact Flash Type I/II socket
Multi-I/O Port	
Chipset	VIA VT8235 integrated with Winbond W83697HF Super I/O controller
Serial Port	One external RS-232 serial port with 16C550 compatible UART and 16 bytes FIFO and one internal jumper selectable RS232/485/422 serial port
USB Port	6 x Hi-Speed USB 2.0 ports with 480 Mbps of data transfer rate 2 x external and 4 x internal USB ports
Parallel Port	One external bi-direction parallel port with SPP/ECP/EPP mode
Floppy Port	One FDD port supports up to two FDD
IrDA Port	One IrDA compliant Infrared interface supports SIR
K/B & Mouse	External PS/2 keyboard and mouse ports on rear I/O panel

VGA Display Interface	
Chipset	VIA CLE266 built-in internal AGP 4X 2D/3D graphics
Frame Buffer Size	BIOS selectable 8/16/32/64MB with system shared memory
2D Engine	128 bit
3D Engine	1 Pipe, 2 Texture, dedicated
MPEG-2 Hardware Acceleration	Slice Layer, IDTC & Motion Compensation
Video Support	2 video stream + Alpha Channel
Dual View Support	2 Contents, 2 Refresh Rates, 2 Resolution
Connector	External DB15 female connector on rear I/O panel Internal 26-pin LVDS connector
TV-out Interface	
Chipset	VIA CLE266 integrated with AITech AIT2139KL Codec
TV Mode	Support both of NTSC and PAL mode
Connector	External S-video and RCA Jack on rear I/O panel
Ethernet Interface	
Chipset	VIA PRO/100+ LAN interface with VT6103 PHY
Type	10Base-T / 100Base-TX, auto-switching Fast Ethernet Full duplex, IEEE802.3U compliant
Connector	External RJ45 connector with LED on rear I/O panel
Audio Interface	
Chipset	VIA VT8235 with Realtek ALC650 AC'97 3D audio codec
Interface	5.1 channel 3D audio with front (R/L), rear (R/L), center and bass S/P DIF digital audio encoding signal input and output Line-in, line-out, CD-in and MIC-in
Connector	External three phone jack for 5.1 channel audio on rear panel External S/P DIF connector on rear panel Internal 10-pin header for line-in/-out, MIC-out, 4-pin header for CD-in

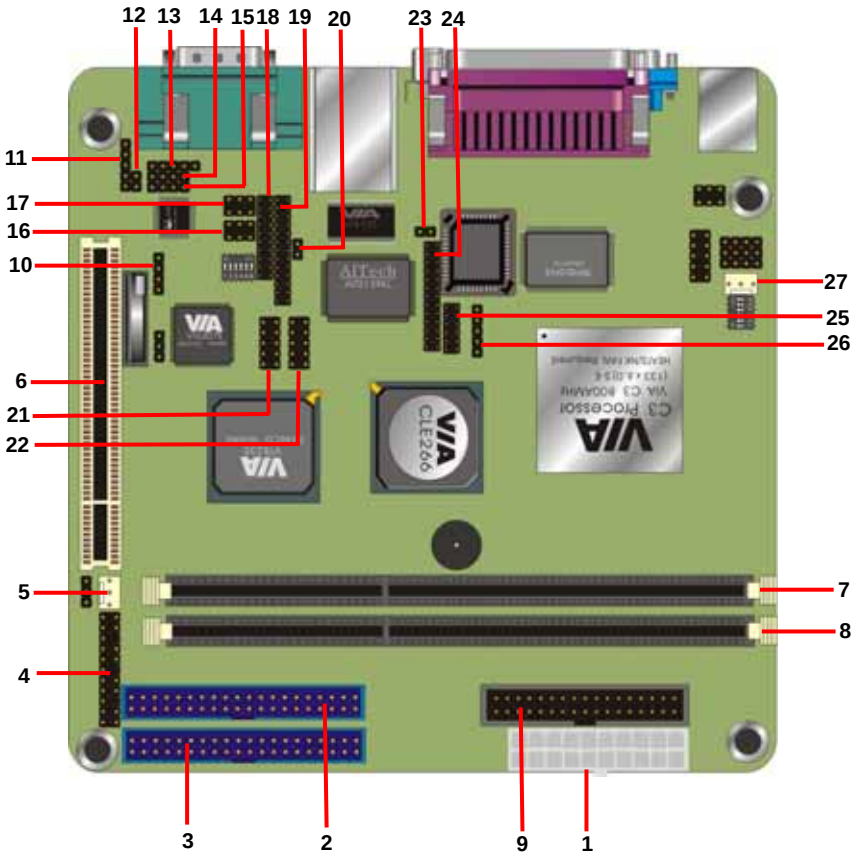
IEEE1394 Interface	
Chipset	VIA VT6307S PCI IEEE1394 controller
Interface	IEEE1394 with 100/200/400 Mbps of data transfer bandwidth
Connector	2 x internal IEEE1394 connector

Power and Environment	
Power Requirement	20-pin ATX power connector
Dimension	170 (L) x 170 (H) mm, Mini-ITX form factor
Temperature	Operating within 0 ~ 60°C (32 ~ 140°F) Storage within -20 ~ 85°C (-4 ~ 185°F)

2.2.2 Software

BIOS	AWARD AGP/PCI BIOS 2M-bit Flash BIOS with ESCD (Extended System Configuration Data) block Supports APM, Plug and Play, Multi-Boot, DMI and EIDE devices Supports ACPI Supports high-capacity LS-120 and ZIP removable media drive
Driver and Utility	IDE Bus mastering Ultra DMA driver AC97 codec audio driver Flash utility for BIOS upgrade System Environment Monitoring Utility
Operating System	Operates with MS_DOS, Windows 3.x/9x/ME/XP/2000/NT, OS/2, Novell NetWare/UnixWare 1.1, and SCO Unix 4.2

2.3 Motherboard Layout



Note:	***Because of optional items and design changes, your motherboard may not be identical to the one shown in the illustration.***

Key to Motherboard Function

NO.	Name	Function
1	ATXPWR1	Standard ATX Power Connector
2	PRIMARY1	40-pin IDE1 Connector
3	SECONDARY1	40-pin IDE2 Connector
4	JP1	Front Panel Connector
5	CHIPFAN	System FAN
6	PCI1	32-bit PCI Slot
7	DIMM1	184-pin DDR SDRAM Socket
8	DIMM2	184-pin DDR SDRAM Socket
9	FDD1	26-pin Floppy Connector
10	JP8	4-pin General Purpose I/O Connector
11	JP3	5-pin Line-out Connector
12	JP2	2-pin MIC-in connector
13	J3	5-pin SPDIF connector
14	J1	4-pin AUX-in connector
15	J2	4-pin CD-IN connector
16	1394_1	2 x 3-pin IEEE1394 connector
17	1394_2	2 x 3-pin IEEE1394 connector
18	JP7	20-pin DVO interface
19	J11	26-pin DVO interface
20	J13	2-pin I2C interface
21	USB1/2	10-pin USB1/2 connector
22	USB3/4	10-pin USB3/4 connector
23	S3	TV reset connector
24	J12	26-pin LVDS interface
25	J10	12-pin DVO interface
26	IR1	5-pin IR interface
27	CPUFAN	CPU fan connector

2.4 Embedded Processor

The board supports embedded VIA C3/Eden EBGA368 processor from 300MHz to 1GHz. The C3 E-series provide best C/P rate performance, and the Eden series provide low power consumption solution.

2.5 AC'97 Codec

The board is integrated with Realtek ALC650 codec. The ALC650 is an 18-bit, full duplex, AC'97 2.2 compatible stereo audio codec. The ALC650 incorporates proprietary converter technology to achieve a high SNR, greater than 90 dB. The ALC650 AC'97 CODEC supports multiple CODEC extensions with independent variable sampling rates and built-in 3D effects.

2.6 Chipset

The board is integrated with VIA CLE266 and 8235 chipset, supports VIA embedded C3/Eden processor for low power consumption. The key features are below:

· 100/133MHz DDR/SDR Memory bus settings
· Support for Integrated VIA AGP 4X 2D/3D Graphics
· Supports up to 2.0GB DDR200/266 SDRAM
· V-Link 266MB/s high bandwidth North/South Bridge interconnect
· Integrated 6 channel Surround Sound AC-97 Audio Interface
· Integrated 10/100 Ethernet MAC
· Support for ATA 33/66/100/133
· Support for USB 2.0, 6 USB ports, UHCI compliant
· Advanced power management capabilities including ACPI OnNow

3. Hardware Installation

This chapter shows how to build your own system of the board. You may need the following components to built a fully function system.

1. Mini-ITX chassis with standard ATX power supply.
2. At least one 184-pin DDR200/266 SDRAM module.
3. One Floppy drive.
4. One Ultra DMA 66/100 EIDE hard drive.
5. One CD-ROM.
6. One CRT monitor.
7. One PS/2 keyboard and mouse.
8. One S-Video or RCA wire to connect with TV.
9. One 10/100Mps Ethernet wire to connect with your ADSL modem or HUB.
10. A speaker.

3.1 Packing List

Please check the package list below:

1. 1 x LV-666 motherboard.
2. 1 x IDE 66/100 40-pin ribbon cable.
3. 1 x Floppy 34-pin ribbon cable.
4. 1 x Drivers and Utility CD.
5. 1 x user's manual.

> After removing the motherboard from its anti-static bag, place it on a grounded or antistatic surface (component side up). Inspect the motherboard and contact your vendor immediately if it is damaged

3.2 Installation

The LV-666 is designed to fit into a standard Mini-ITX ATX form factor chassis. The pattern of the mounting holes and the position of the back panel connectors meet the Mini-ITX ATX system board specification. The chassis comes with various mounting fasteners, which are made of metal or plastic. It is highly recommended to use as many metal fasteners as possible to mount the motherboard in the chassis for better grounding.

To install the motherboard you need to install the DDR memory modules, attach the connectors, and set the correct CPU speed in the CMOS setup.

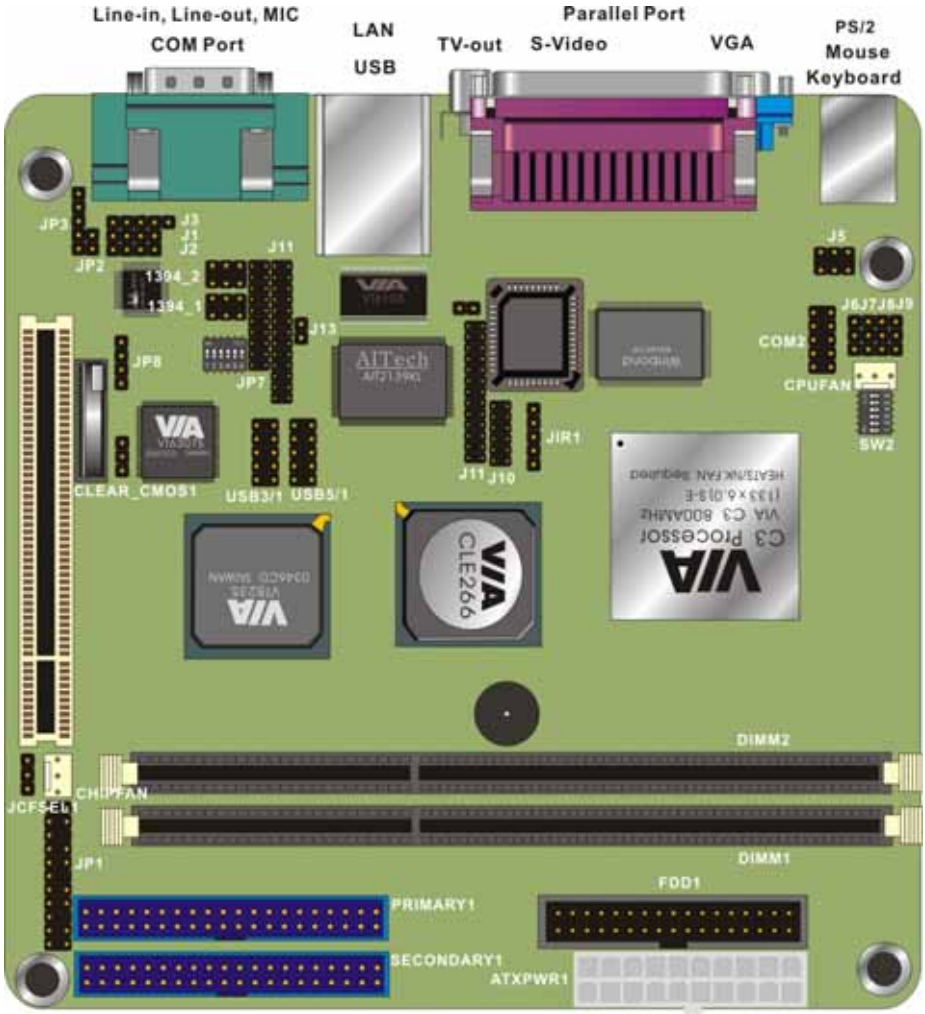
3.3 Safety Measures

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous. Follow the simple guidelines below to avoid damaging you computer:

1. Always disconnect the motherboard from the ATX power supply, and disconnect the computer from the power outlet whenever you are working inside the computer case.
2. If possible, wear a grounded wrist strap when you are installing the motherboard or working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the computer case, or the bare metal body of ay other grounded appliance.
3. Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.

Leave each component inside the static-proof packaging that it ships with until you are ready to use the component for the installation.

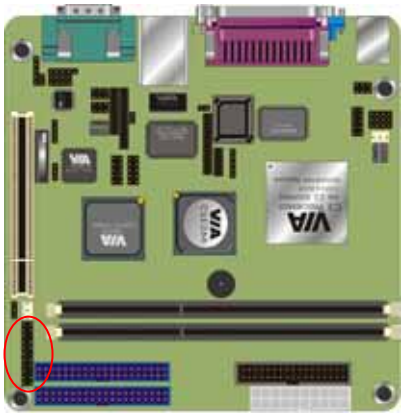
3.4 Connector and Jumper Location

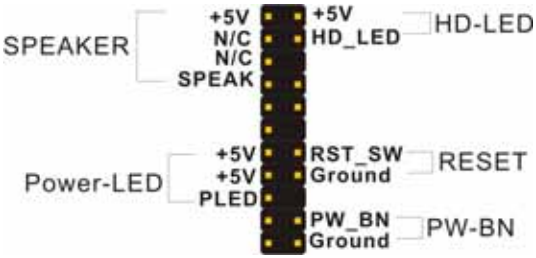


3.5 Attaching Connectors

3.5.1 Front Panel Connectors (JP1)

There are seven connectors on the motherboard for speaker, switches, and indicator lights on the system's front panel.

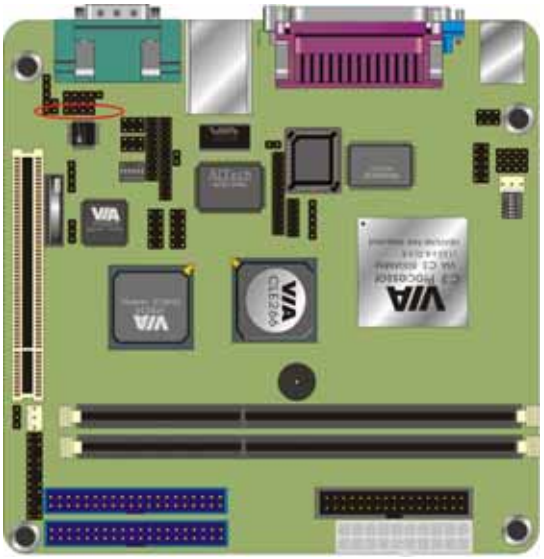




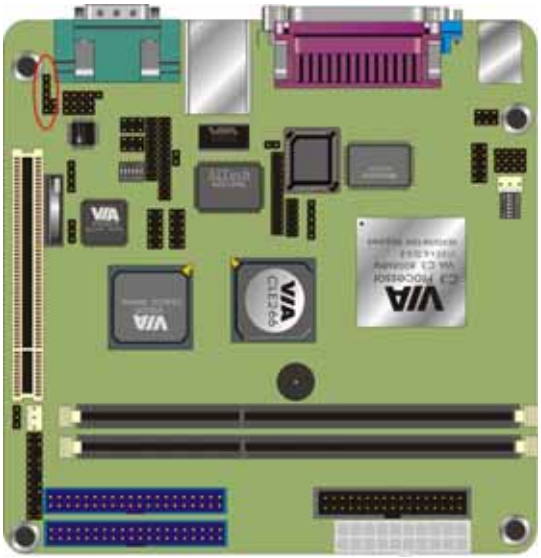
PW SW	This 2-pin connector connects to the case-mounted Power button.
RESET	This 2-pin connector connects to the case-mounted reset switch and is used to reboot the system.
SBLED	This 2-pin connector connects to the case-mounted Standby LED to indicate a standby status. The LED remains Lit even when the system is off to indicate that AC power is available. When the system enters standby mode, the LED starts blinking.
HLED	This 2-pin connector connects to the case-mounted HDD LED to indicate hard disk activity.
PWRLED & RLED	This 5-pin connector connects to the case-mounted and the power LED. The RLED switch is used to indicate Raid activity.
SPEAKER	This 4-pin connector connects to the case-mounted speaker.

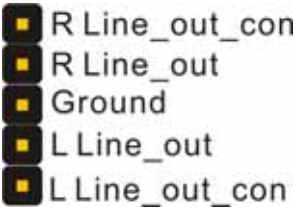
3.5.2 Audio CD-in connector (J2)

This connector enables you to connect a CD-ROM to the motherboard and receive stereo audio input



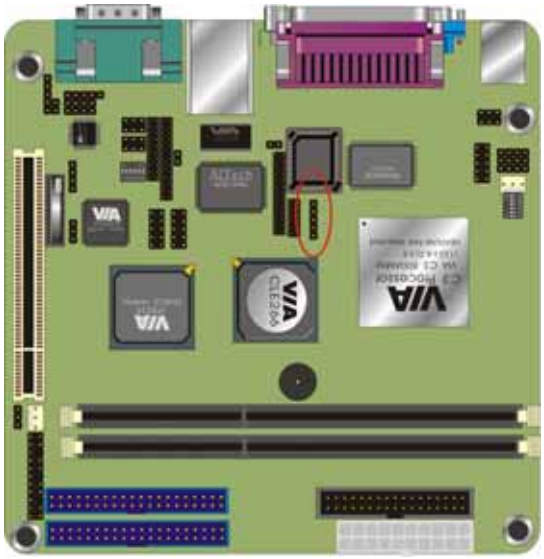
3.5.3 Audio Line-out connector (JP3)



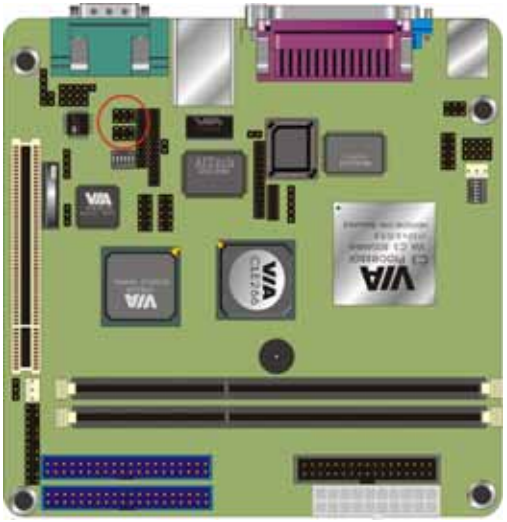


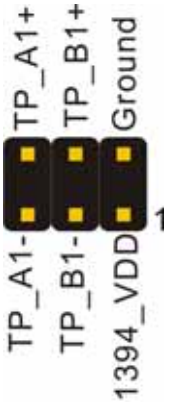
3.5.4 Infrared (IR) Connector (IR1)

This 5-pinheader connects to an optional wireless transmitting and receiving infrared module via a cable and a bracket. Configure BIOS to enable the IrDA port if you attach an infrared module to this connector. Refer to Integrated Peripherals in Chapter 4 for details.

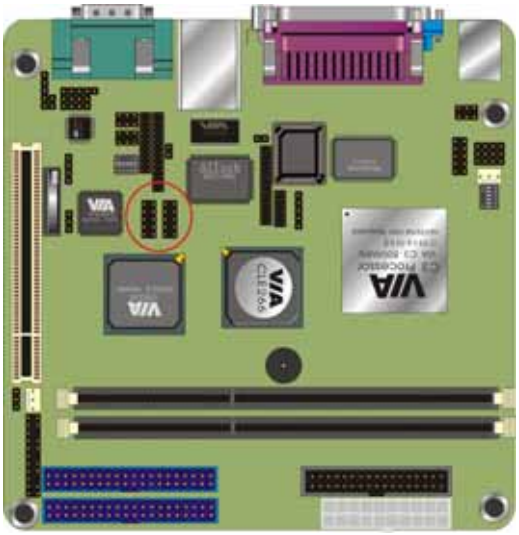


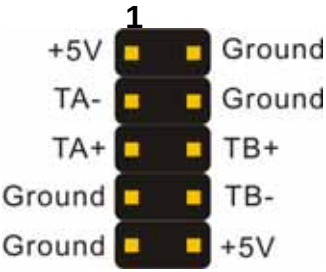
3.5.5 Front IEEE1394 connectors (1394_1 & 1394_2)



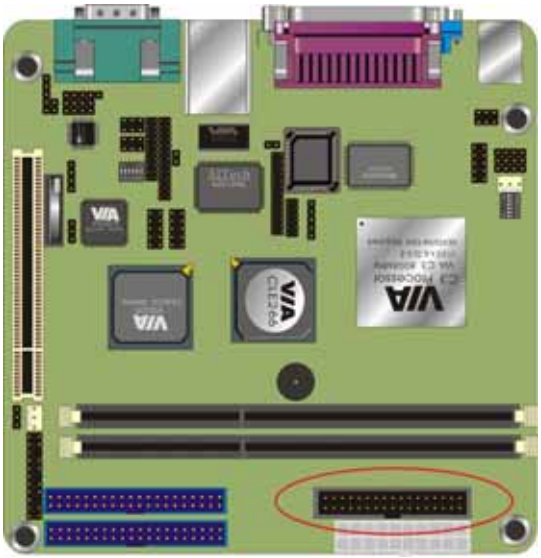


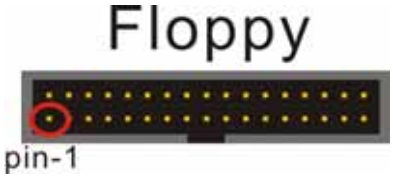
3.5.6 Front USB Header (USB1/2 & USB 3/4)





3.5.7 Floppy Driver Connector (FDD1)

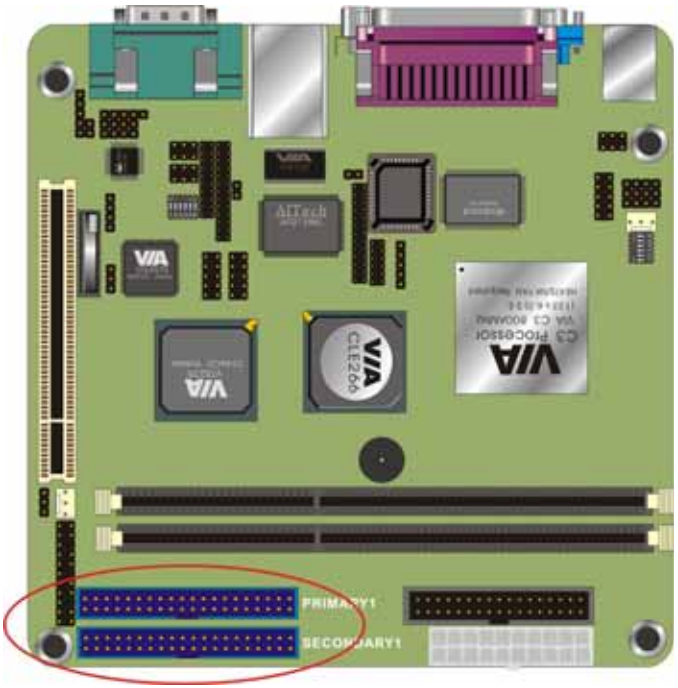




3.5.8 IDE connectors (PRIMARY1 & SECONDARY1)

An IDE drive ribbon cable has two connectors to support two IDE drives. If a ribbon cable connects to two IDE drives at the same time, one of them has to be configured as Master and the other has to be configured as Slave by setting the drive select jumpers on the drive.

Consult the documentation that came with your IDE drive for details on jumper locations and settings. You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to pin 1 of the I/O port connector.

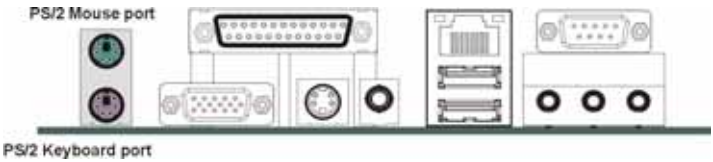


3.5.9 Back Panel Connectors

The back panel provides external access to PS/2 style keyboard and mouse connectors, two serial ports, one parallel port, dual USB ports, and audio Line-out, Line-in, MIC-in ports which are integrated on the motherboard. The figures below show the location of the back panel I/O connectors.

PS/2 Mouse and PS/2 Key board Ports

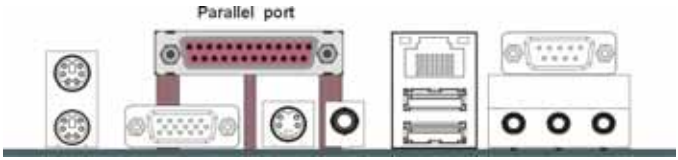
Connect a PS/2 mouse to the green 6-pin mini DIN connector. The system will automatically assign IRQ 12 to the PS/2 mouse if one is connected.



Connect a PS/2 keyboard to the purple 6-pin mini DIN connector. If you want to connect a standard AT size (large DIN) connector, you must use and adapter.

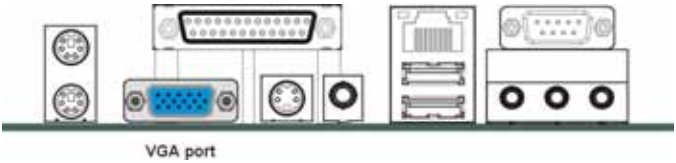
Parallel Port

Connect a printer or other parallel device to the burgundy-colored 25-pin parallel port. You can set the parallel port IRQ and parallel port mode in BIOS. Refer to Integrated Peripherals in Chapter 4 for details.



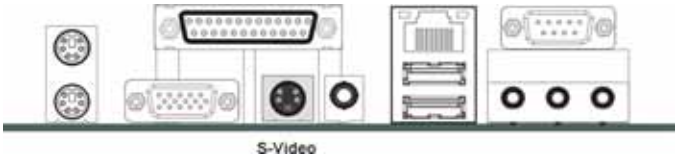
VGA Port

Connect an external monitor to the blue 15-pin VGA port.



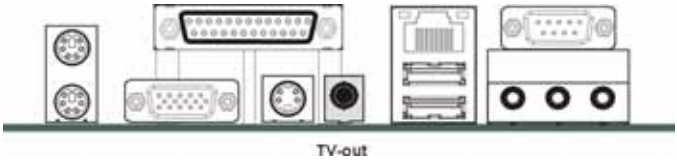
S-Video Port

You can connect S-Video devices to S-Video port on the back panel.



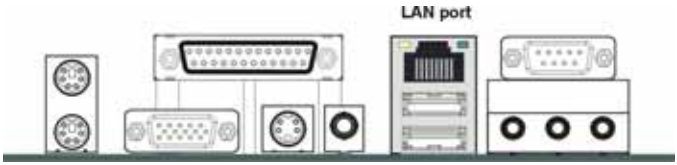
RCA Video (TV-Out)

You can connect RCA Video devices to RCA Video port (TV-Out) on the back-panel.



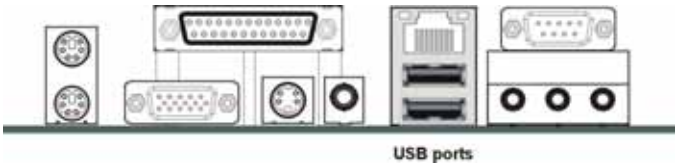
LAN Port

Connect a device to the LAN port on the back panel.



Universal Serial Bus Ports

You can connect two USB devices or USB hubs to the USB ports.



The USB ports provide a hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, scanner, printer and telephony devices, and also support MPEG-1 and MPEG-2 digital video. The USB ports have a maximum bandwidth of 480 Mbits/sec (equivalent to 60 Mbytes/sec), and up to 127devices can be attached. Fast devices can use the full bandwidth, while lower-speed ones can transfer data using a 60 Mbytes/sec sub-channel.

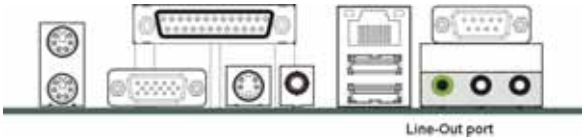
Serial Port

Connect a serial device such as a mouse or modem to the 9-pin serial port. You can set the serial port IRQs in BIOS. Refer to integrated Peripherals in Chapter 4 for details.

Note: Serial printers must be connected to the serial port.

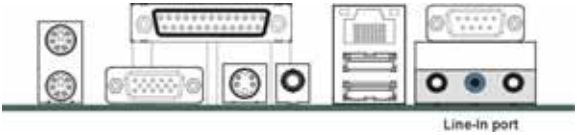
Audio Line-Out Port

You can connect various audio devices to this audio jack. Connect headphones or powered speakers to the lime-colored lineout connector.



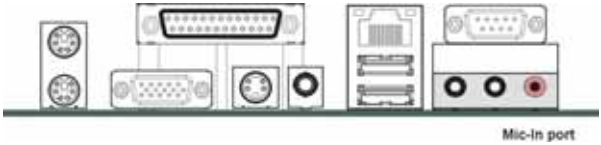
Audio Line-In Port

You can connect a tape player or another audio source to the light blue Line-in connector to record audio on your computer or to play audio through your computer's sound chip and speakers.



Audio MIC-In Port

You can connect a microphone to the pink microphone connector to record audio to your computer.

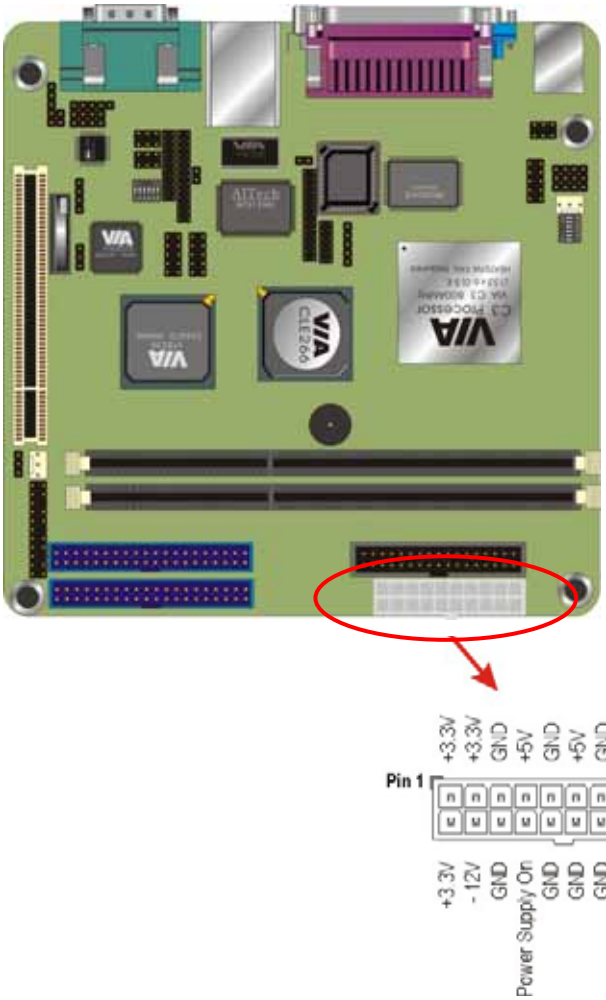


※ **For 5.1 channel output**

This board can support 5.1 channel audio output, when you connect the 5.1 channel speaker set, after installing audio drivers, the Line-in, Line-out and MIC-in and let you configure to support Rear, Front and center.

3.5.10 Power Supply Connector (ATXPWR1)

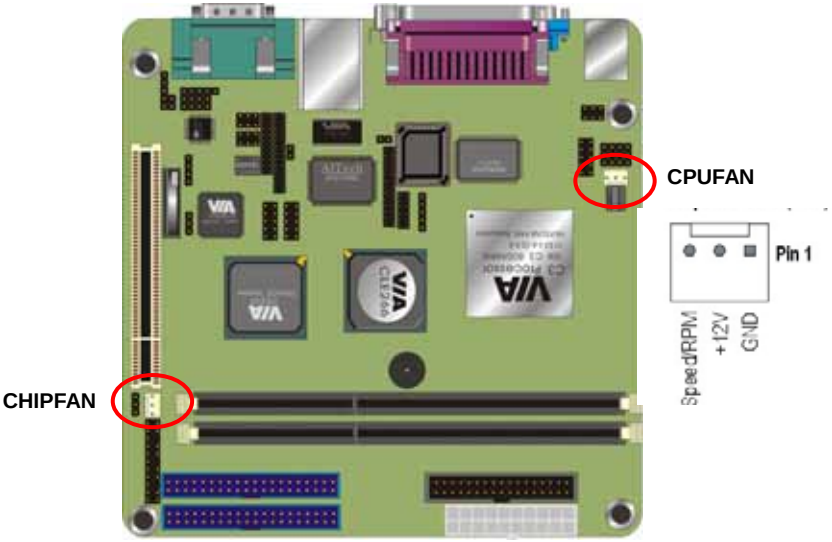
The ATX power supply has a single lead connector with a clip on one side of the plastic housing. There is only one way to plug the lead into to ATX power connector. Press the lead connector down until the clip snaps into place and secures the lead onto the connector.



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

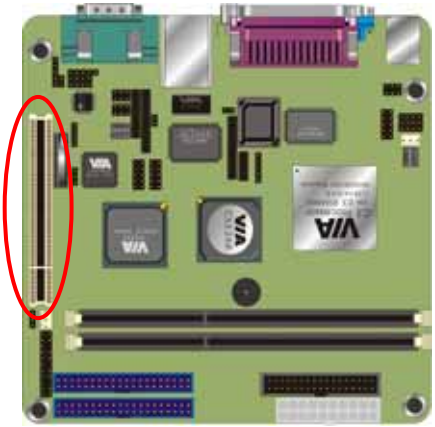
3.5.11 CPU/System Fan connectors

There are two fan connectors on the motherboard for the cooling fans. The connectors support fans of 12VDC/500mAMP (six watt) or less. When the system goes into sleep state, fans should be shut down to eliminate audible noise and reduce power consumption.



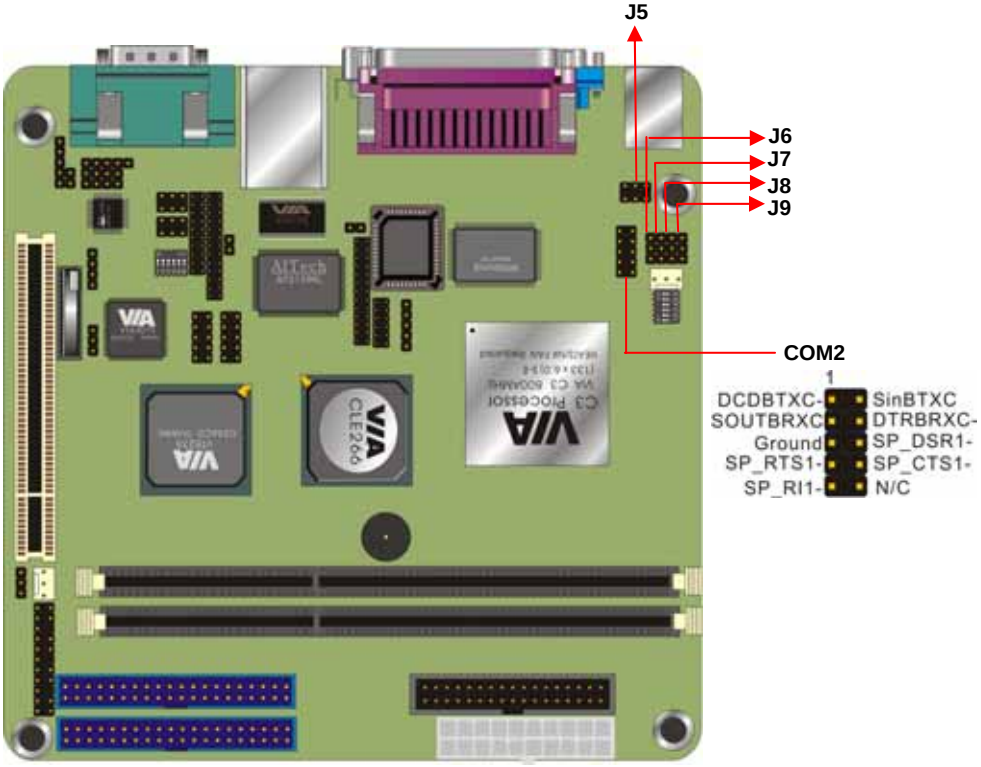
3.5.12 PCI Slot

PCI connector is one of equipment interfaces that connect peripheral equipment and motherboard. Its transfer speed is faster than traditional ISA. PCI is the mainstream transfer interface for extra adopter.



3.5.13 Serial COM2 connector (COM2)

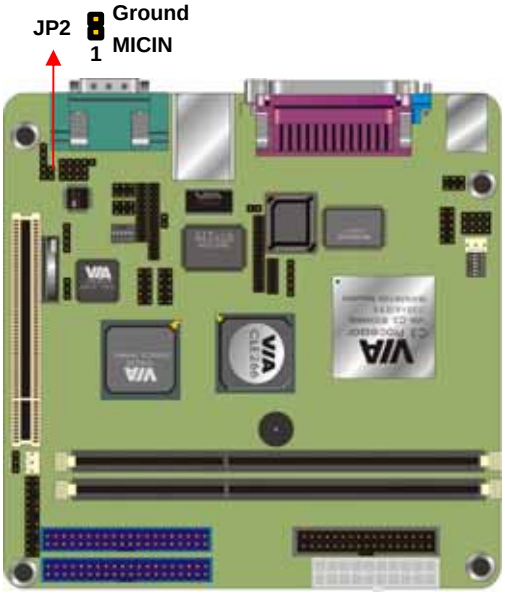
The motherboard provides one onboard serial COM2 connector. The COM2 connector has the same signal with COM1 on the back panel. The COM2 also support RS485/422 communication mode. Please follow the jumper setting below to select the mode you need.



COM2 RS232/485/422 Mode jumper setting					
Mode	**J5**	**J6**	**J7**	**J8**	**J9**
RS232	**1-2**	**1-2**	**1-2**	**1-2**	**1-2**
RS422	**5-6**	**1-2**	**1-2**	**2-3**	**2-3**
RS485	**3-4**	**2-3**	**2-3**	**1-2**	**1-2**

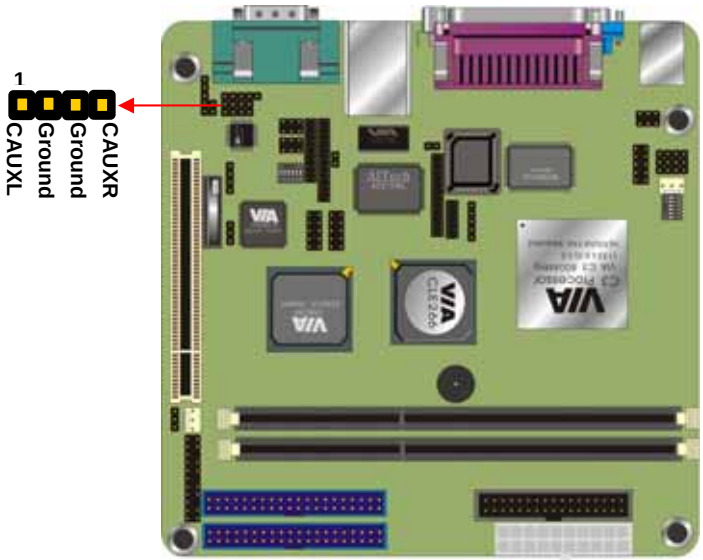
3.5.14 Front MIC-in connector (JP2)

Connect a microphone to the pink microphone connector to record audio to your computer.



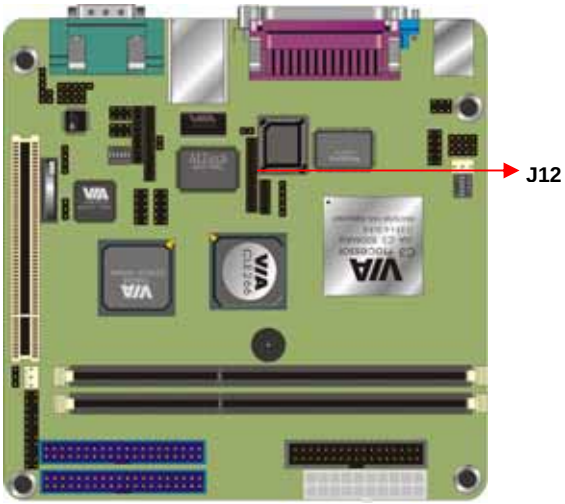
3.5.15 Front AUX connector (J1)

Connector the cable attached to line-out connector on front panel. This header shared same signal with line-out back panel.



3.5.16 LVDS connector

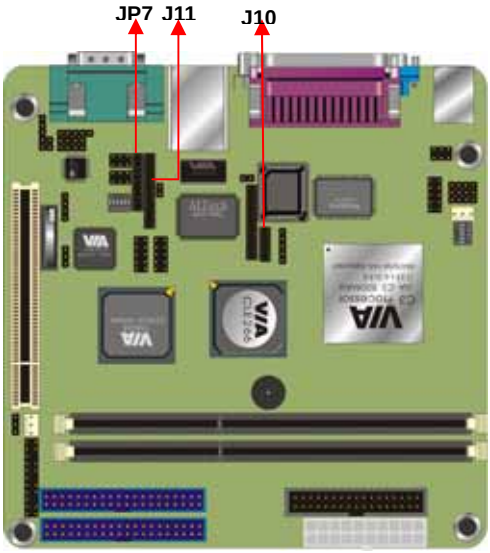
The board supports LCD LVDS interface, you can use a panel through this interface.



Pin NO	Pin Assignment	Pin NO	Pin Assignment
1	+3.3V	2	+3.3V
3	TVD0	4	+2.5V
5	TVD1	6	+2.5V
7	TVD2	8	+5V
9	TVD3	10	+5V
11	TVD4	12	Ground
13	TVD5	14	TVBLK
15	TVD6	16	DISPCLK1
17	TVD7	18	DISPCLK0
19	TVD8	20	TVCLK
21	TVD9	22	TVCLKR
23	TVD10	24	TVVS
25	TVD11	26	TVHS

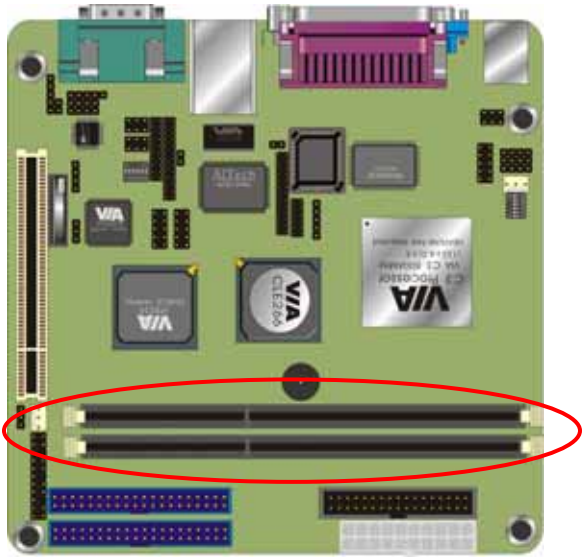
3.5.17 Optional DVO interface

The board supports DVO interface to support multimedia video input and output.

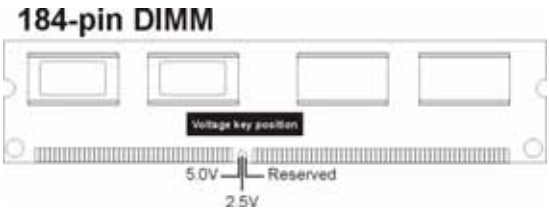


3.6 Installing System Memory

Maximum system memory supported by the motherboard is 2GB.The motherboard has two DIMM Sockets. Memory can be installed using 184-pin DDR SDRAM DIMM memory modules. These are no jumper settings required for the memory size or type, which is automatically detected by the BIOS.



The motherboard support DDR200/266 SDRAM. If you install higher frequency RAM module more than 266MHz, the system will force it to run under 266MHz.



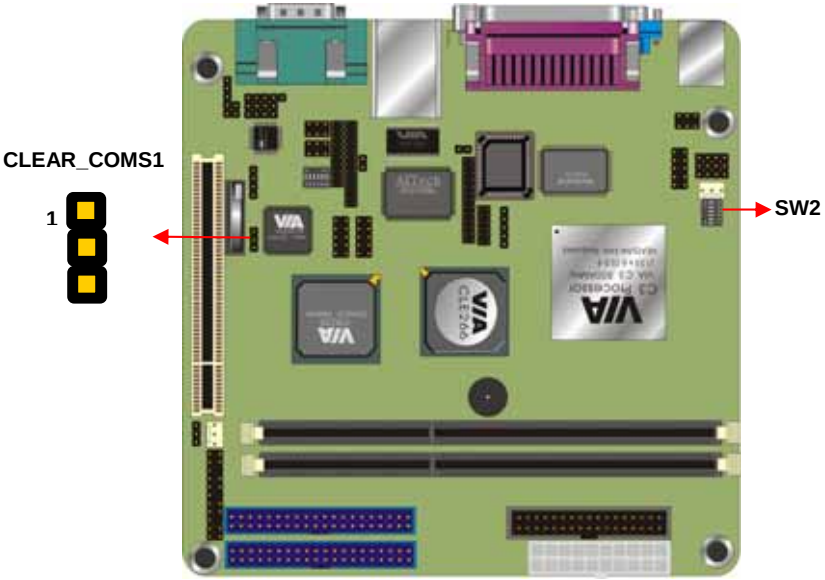
Install the 184-pin DDR SDRAM modules in any combination as follows:

Bank 0 (DIMM1)	64MB/128MB/512MB/1GB
Bank 1 (DIMM2)	64MB/128MB/512MB/1GB
Total System Memory	64MB ~ 2GB

3.7 CPU & CMOS Jumper Setting

Refer to the following illustration and instructions to set the jumpers on your motherboard.

Notice: the SW2 can let you configure the CPU ratio, but we have set done this before the board is shipped, please do not attend to overclock, this may due to the system unstable.



CLEAR_CMOS1	Mode
1-2	Clear CMOS
2-3	Normal Operation

Default setting

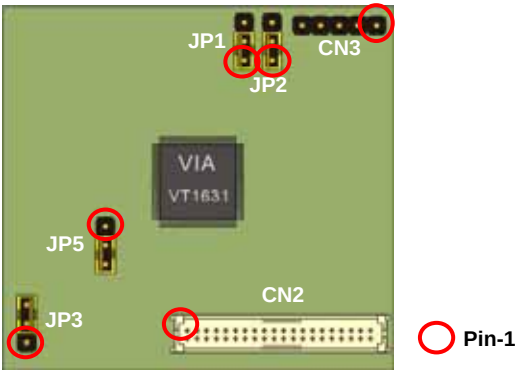
You may need to clear the CMOS if your system cannot boot up because you forgot your password, the CPU clock setup is incorrect, or the CMOS setting need to reset to default values after the system BIOS has been updated.

Please check the following ratio form of CPU clock ratio if your board runs the wrong frequency of your order.

SW2					
CPU RATIO	1	2	3	4	5
3.0x	OFF	ON	ON	ON	ON
3.5x	OFF	ON	OFF	ON	ON
4.0x	ON	OFF	ON	ON	ON
4.5x	ON	OFF	OFF	ON	ON
5.0x	ON	ON	ON	OFF	ON
5.5x	ON	ON	OFF	ON	ON
6.0x	OFF	OFF	ON	OFF	ON
6.5x	OFF	OFF	OFF	OFF	ON
7.0x	OFF	ON	ON	OFF	ON
7.5x	OFF	ON	OFF	OFF	ON
8.0x	ON	OFF	ON	OFF	ON
8.5x	ON	OFF	OFF	OFF	ON
9.0x	ON	ON	ON	ON	ON
9.5x	OFF	OFF	OFF	ON	ON
10.0x	OFF	OFF	ON	ON	ON
10.5x	OFF	OFF	OFF	ON	OFF
11.0x	OFF	ON	ON	ON	OFF
11.5x	OFF	ON	OFF	ON	OFF
12.0x	ON	OFF	ON	ON	OFF
12.0x	ON	ON	OFF	OFF	ON
12.5x	ON	OFF	OFF	ON	OFF
13.0x	ON	ON	ON	OFF	OFF
13.5x	ON	ON	OFF	ON	OFF
14.0x	OFF	OFF	ON	OFF	OFF
14.5x	OFF	OFF	OFF	OFF	OFF
15.0x	OFF	ON	ON	OFF	OFF
15.5x	OFF	ON	OFF	OFF	OFF
16.0x	ON	OFF	ON	OFF	OFF

Appendix A: LVDS Module Setup Information

A.1: Layout



A.2 Jumper and Connector Reference

Jumper: **JP1**
Type: Onboard 3-pin Header

JP1	Mode
1-2	24-bit data in
2-3	12-bit data in

Default setting

Jumper: **JP2**
Type: Onboard 3-pin Header

JP2	Mode
1-2	Single-ended clock mode using CLKIN+ only
2-3	Select clock mode using CLKIN+ and CLKIN-

Default setting

Jumper: **JP3**
Type: Onboard 3-pin Header

JP2	Mode
1-2	Panel power input +5V
2-3	Panel power input +3.3V

Default setting

Jumper: **JP5**

Type: Onboard 3-pin Header

JP2	Mode
1-2	12-bit input with 24-bit RGB data input/output
2-3	Two 12-bit input with 48-bit RGB data input/output

Default setting

Connector: **CN3**

Type: 5-pin header inverter connector

Pin	1	2	3	4	5
Assignment	+12V	GND	GND	GND	+5V

Connector: **CN2**

Type: onboard 40-pin connector for LVDS connector

Pin	Signal	Pin	Signal
2	PVDD	1	PVDD
4	GND	3	GND
6	ATX0-	5	BTX0-
8	ATX0+	7	BTX0+
10	GND	9	GND
12	ATX1-	11	BTX1-
14	ATX1+	13	BTX1+
16	GND	15	GND
18	ATX2-	17	BTX2-
20	ATX2+	19	BTX2+
22	GND	21	GND
24	ATX3-	23	BTXCK-
26	ATX3+	25	BTXCK+
28	GND	27	GND
30	ATXCK-	29	BTX3-
32	ATXCK+	31	BTX3+
34	GND	33	GND
36	N/C	35	N/C
38	N/C	37	N/C
40	N/C	39	N/C

A.3 BIOS Panel Type Table

Panel ID	Resolution	Channel	Dithering
0	640x480	1	Enable
1	800x600	1	Enable
2	1024x768	1	Enable
3	1280x768	1	Enable
4	1280x1024	2	Enable
5	1400x1050	2	Enable
6	1600x1200	2	Enable
7	1280x800	1	Enable
8	800x480	1	Enable
9	1024x768	2	Enable
A	1024x768	1	Disable
B	1024x768	2	Disable
C	1280x768	1	Disable
D	1280x1024	2	Disable
E	1400x1050	2	Disable
F	1600x1200	2	Disable

Dithering Enable is for 18-bit panel and Disable is for 24-bit panel

Contact Information

Any advice or comment about our products and service, or anything we can help you please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.

COMMELL IPC Division
Taiwan Commate Computer, Inc.

COMMELL www.commell.com.tw

Your Embedded Applied Computer Partner

Address	8F, No. 94, Sec. 1, Shin Tai Wu Rd., Shi Chih Taipei Hsien, Taiwan
TEL	+886-2-26963909
FAX	+886-2-26963911
Website	http://www.commell.com.tw
E-Mail	info@commell.com.tw (General Information) tech@commell.com.tw (Technical Support)