

1. FEATURES

1.1 The CUW-AM

The CUW-AM motherboard is carefully designed for the demanding PC user who wants advanced features processed by the fastest processors.

1.1.1 Specifications

- **Latest Intel Socket 370 Processor Support**

Intel Pentium® III	100MHz FSB	Coppermine core	FC-PGA
Intel Celeron™	66MHz FSB	Mendocino core	PPGA

- **Latest Intel 810 Chipset!** The 810 (GMCH+ICH) supports 66/100MHz FSB and UltraDMA/66.
- **Integrated Graphics!** Controller supports 3D hyper pipelined architecture, parallel data processing and compression, precise pixel interpolation, full 2D hardware acceleration, and motion video acceleration.
- **Custom Graphics Driver!** You can gain about 12% performance over that of the standard graphics driver (2D highend graphics WinMark) using the custom graphics driver. The custom graphics driver also provides more features and provides selection of higher refresh rates and resolutions.
- **Versatile Memory Support!** DRAM controller supports asymmetrical addressing and two DIMM sockets support Intel PC100-compliant SDRAMs (16, 32, 64, 128, or 256MB) up to 512MB. (supports a maximum of 4 sides)
- **Latest Low Pin Count Multi-I/O:** Provides two high-speed UART compatible serial ports and one parallel port with EPP and ECP capabilities.
- **Integrated IDE!** Controller supports UltraDMA/66 up to 66MB/s, UltraDMA/33 up to 33MB/s, and PIO Mode 4 up to 17MB/s.
- **Firmware Hub!** Provides security and other latest power computing features.
- **Enhanced ACPI & Anti-Boot Virus Protection!** Programmable BIOS (Flash EEPROM), offering enhanced ACPI for Windows 98 compatibility, built-in firmware-based virus protection, and autodetection of most devices for virtually automatic setup.
- **Highest Audio Quality!** AC'97 DAC/ADC (software audio) built into the audio codec reduces noise to improve audio quality and performance for a SNR (signal to noise ratio) of +90dB. These features greatly improve voice synthesis and recognition. If more quality is required, an optional onboard Crystal PCI audio improves audio quality beyond software audio.

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1.1.2 Performance

- **UltraPerformance!** Onboard IDE Bus Master controller with two connectors that support four IDE devices in two channels. Supports UltraDMA/66, UltraDMA/33 (IDE DMA Mode 2), PIO Modes 3 & 4, and supports Enhanced IDE devices, such as Tape Backup, CD-ROM, CD-R/RW, and LS-120 drives.
- **Dual Speeds!** CPU frequency can operate at either 66MHz or 100MHz while system memory operates at 100MHz. This asynchronous design can optimize the VGA performance under shared memory configuration.
- **Double or Quadruple the IDE Transfer Speed!** IDE transfers using UltraDMA/33 Bus Master IDE can handle rates up to 33MB/s and up to 66MB/s using UltraDMA/66 technology. The best of all is that these new technology is compatible with existing ATA-2 IDE specifications so there is no need to upgrade current IDE devices or cables.
- **Concurrent PCI!** Concurrent PCI allows multiple PCI transfers from PCI master buses to memory to CPU.
- **SDRAM Optimized Performance!** ASUS smart series motherboards support the new generation memory, Synchronous Dynamic Random Access Memory (SDRAM), which increases the data transfer rate to 800MB/s max using PC100 SDRAM.
- **ACPI Ready!** ACPI provides more Energy Saving Features for future operating systems (OS) supporting OS Direct Power Management (OSPM) functionality. With these features implemented in the OS, PCs can be ready around the clock, yet satisfy all the energy saving standards. To fully utilize the benefits of ACPI, an ACPI-supported OS such as Windows 98 must be used.
- **Extreme Graphics!** The integrated motion compensation allows for smooth MPEG1 or MPEG2 video playback. Fast 3D graphics engine allows for an exciting gameplay experience.

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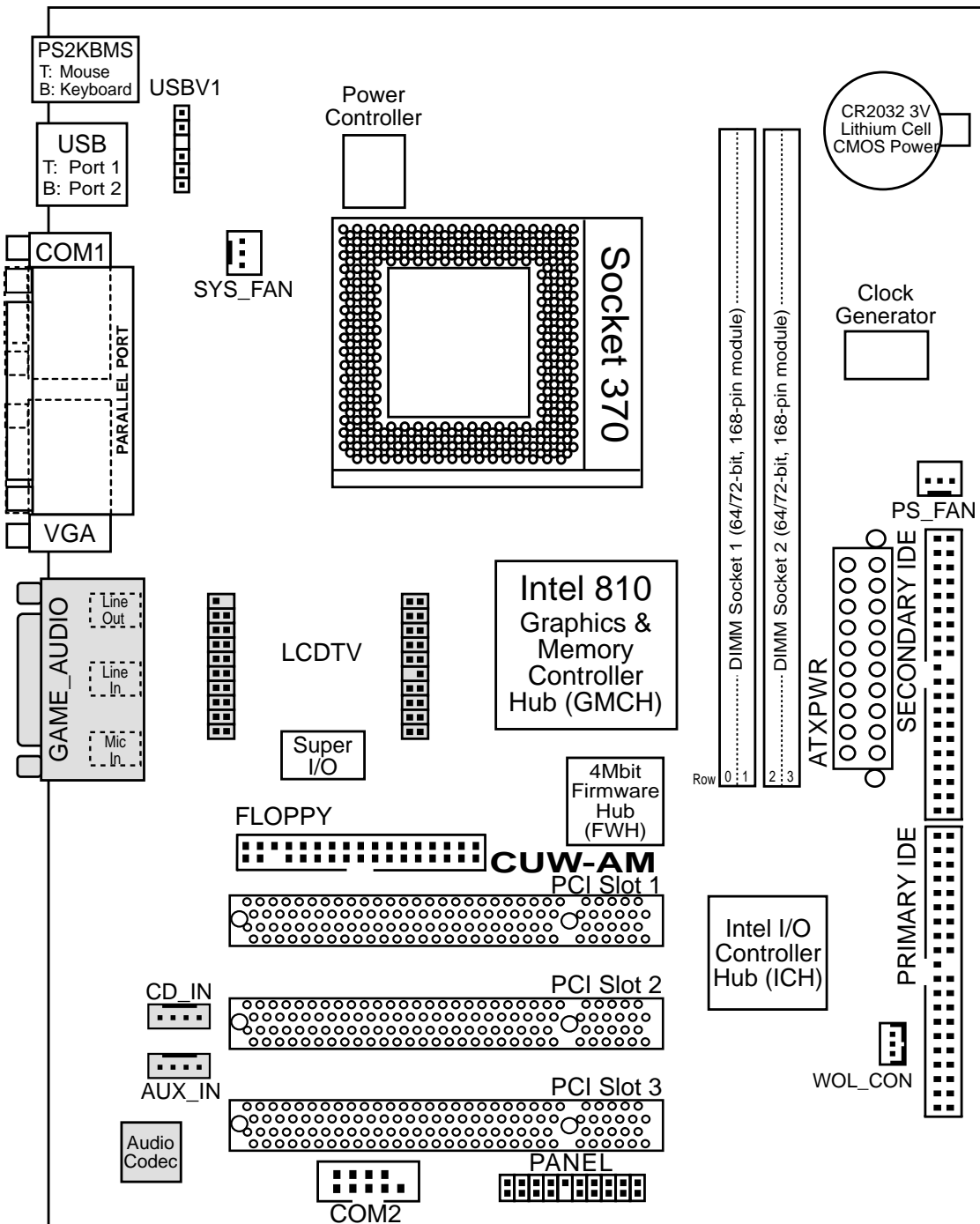
1.1.3 Intelligence

- **Auto Fan Off:** The system fans will power off automatically even in standby mode. This function reduces both energy consumption and system noise, and is an important feature in implementing silent PC systems.
- **Dual Function Power Button:** Pushing the power button for less than 4 seconds when the system is in the working state places the system into one of two states: sleep mode or soft-off mode, depending on the BIOS or OS setting. When the power button is pressed for more than 4 seconds, the system enters the soft-off mode regardless of the BIOS setting.

2. HARDWARE SETUP

2.1 CUW-AM Motherboard Layout

2. HW SETUP
Motherboard Layout



2. HARDWARE SETUP

2.2 Layout Contents

Expansion Slots

- | | |
|---------------------|---|
| 1) DIMM1, DIMM2 | p. 7 168-Pin DIMM Memory Support |
| 2) Socket 370 | p. 9 Central Processing Unit (CPU) Socket |
| 3) PCI1, PCI2, PCI3 | p.10 32-bit PCI Bus Expansion Slots |

Connectors

- | | |
|-------------------------|---|
| 1) PS2KBMS | p.11 PS/2 Mouse Connector (6-pin female) |
| 2) PS2KBMS | p.11 PS/2 Keyboard Connector (6-pin female) |
| 3) USB | p.12 Universal Serial Bus Ports 1 & 2 (Two 4-pin female) |
| 4) PRINTER | p.12 Parallel Port Connector (25-pin female) |
| 5) COM1 | p.12 Serial Port COM1 Connector (9-pin male) |
| 6) VGA | p.13 Monitor (VGA) Output Connector (15-pin female) |
| 7) GAME_AUDIO | p.13 Game/MIDI Connector (15-pin female) (optional) |
| 8) GAME_AUDIO | p.13 Audio Port Connectors (Three 1/8" female) (optional) |
| 9) PRIMARY/SECONDARYIDE | p.14 Primary/Secondary IDE Connectors (Two 40-1pins) |
| 10) FLOPPY | p.14 Floppy Disk Drive Connector (34-1pins) |
| 11) WOL_CON | p.15 Wake-On-LAN Connector (3 pins) |
| 12) COM2 | p.15 Serial Port COM2 Header (10-1 pins) |
| 13) CPU_FAN, PS_FAN | p.16 CPU and Power Supply Fan Connectors (3 pins) |
| 14) LCDTV | p.16 TV Out Connector (Two 20-1 pins) |
| 15) CD_IN, AUX_IN | p.17 Internal Audio Connector (4-pins) (optional) |
| 16) USBV1 | p.17 USB Header (6-1 pins) |
| 17) MLED (PANEL) | p.18 System Message LED (2 pins) |
| 18) KLOCK (PANEL) | p.18 Keyboard Lock Switch Lead (2 pins) |
| 19) EXSMI (PANEL) | p.18 System Management Interrupt Switch Lead (2 pins) |
| 20) SPEAKER (PANEL) | p.18 System Warning Speaker Connector (4 pins) |
| 21) PWR (PANEL) | p.18 ATX Power / Soft-Off Switch Lead (2 pins) |
| 22) HDLED (PANEL) | p.18 IDE Activity LED (2 pins) |
| 23) PLED (PANEL) | p.19 System Power LED Lead (3-1 pins) |
| 24) RESET (PANEL) | p.19 Reset Switch Lead (2 pins) |
| 25) ATXPWR | p.20 ATX Power Supply Connector (20 pins) |

2. HARDWARE SETUP

2.3 Hardware Setup Procedure

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

- **Check Motherboard Settings**
- **Install Memory Modules**
- **Install the Central Processing Unit (CPU)**
- **Install Expansion Cards**
- **Connect Ribbon Cables, Panel Wires, and Power Supply**

2.4 Motherboard Settings

WARNING! Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not to touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the component whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

WARNING! Make sure that you unplug your power supply when adding or removing system components. Failure to do so may cause severe damage to your motherboard, peripherals, and/or components. The onboard LED when lit acts as a reminder that the system is in suspend or soft-off mode and not powered OFF.

2. HARDWARE SETUP

2.5 System Memory (DIMM)

NOTE: No hardware or BIOS setup is required after adding or removing memory. This motherboard uses only Dual Inline Memory Modules (DIMMs). Sockets are available for **3.3Volt** (power level) unbuffered Synchronous Dynamic Random Access Memory (SDRAM) of 16, 32, 64, 128MB, or 256MB.

This chipset does not support ECC. However, ECC memory modules may still be used, but the ECC function will not be available.

Install memory in any combination as follows:

Location	168-pin DIMM SDRAM		Total Memory
DIMM1 (Rows 0&1)	Single-Sided/Double-Sided 16, 32, 64, 128MB, or 256MB	x1	
DIMM2 (Rows 2&3)	Single-Sided/Double-Sided 16, 32, 64, 128MB, or 256MB	x1	
	Total System Memory (Max 512MB)	=	

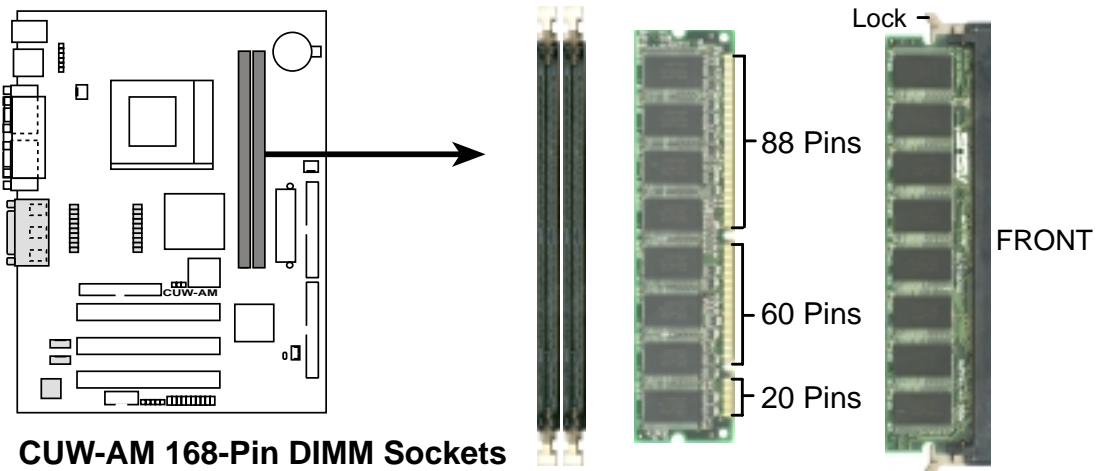
2.5.1 General DIMM Notes

- ASUS motherboards support SPD (Serial Presence Detect) DIMMs. This is the memory of choice for best performance vs. stability.
- SDRAM chips are generally thinner with higher pin density than EDO (Extended Data Output) chips.
- Single-sided DIMMs come in 16, 32, 64, 128MB; double-sided come in 32, 64, 128, 256MB.

2. HARDWARE SETUP

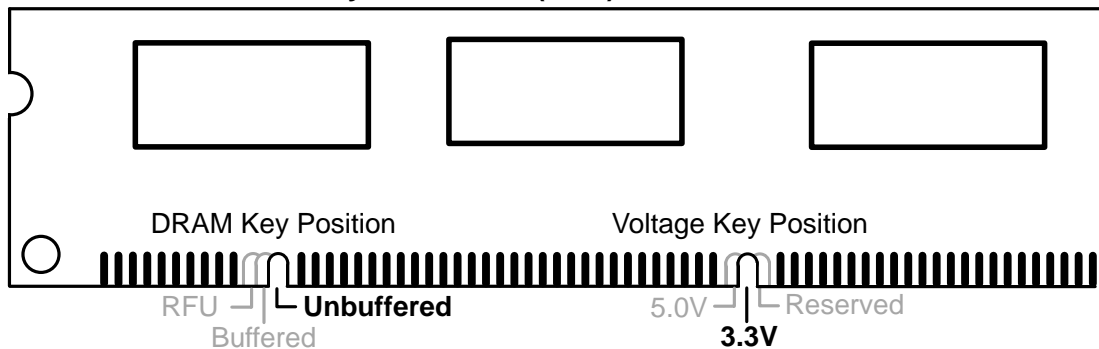
2.5.2 DIMM Installation

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



The DIMMs must be **3.3V Unbuffered** for this motherboard. To determine the DIMM type, check the notches on the DIMMs (see figure below).

168-Pin DIMM Notch Key Definitions (3.3V)



The notches on the DIMM will shift between left, center, or right to identify the type and also to prevent the wrong type from being inserted into the DIMM slot on the motherboard. You must ask your retailer the correct DIMM type before purchasing. This motherboard supports four clock signals per DIMM slot.

2. HARDWARE SETUP

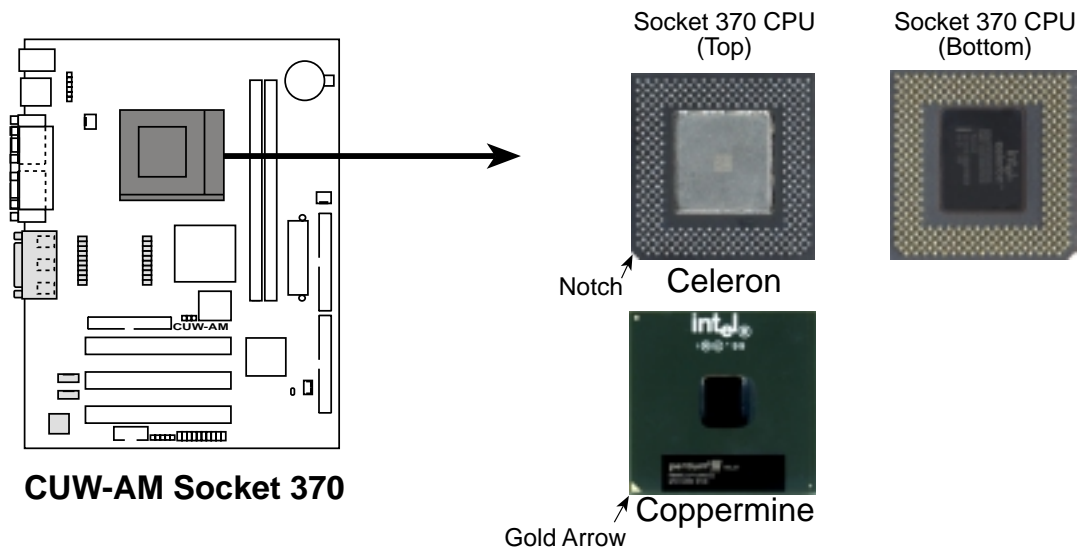
2.6 Central Processing Unit (CPU)

The motherboard provides a ZIF Socket 370. The CPU that came with the motherboard should have a fan attached to it to prevent overheating. If this is not the case, then purchase a fan before you turn on your system.

WARNING! Be sure that there is sufficient air circulation across the processor's heatsink by regularly checking that your CPU fan is working. Without sufficient circulation, the processor could overheat and damage both the processor and the motherboard. You may install an auxiliary fan, if necessary.

To install a CPU, first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the lever sideways away from the socket then upwards to a 90-degree angle. Insert the CPU with the correct orientation as shown. The notched corner should point towards the end of the lever. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown. The picture is for reference only; you should have a CPU fan that covers the face of the CPU. With the added weight of the CPU fan, no force is required to insert the CPU. Once completely inserted, close the socket's lever while holding down the CPU.

CAUTION! Be careful not to scrape the motherboard when mounting a clamp-style processor fan or else damage may occur to the motherboard.



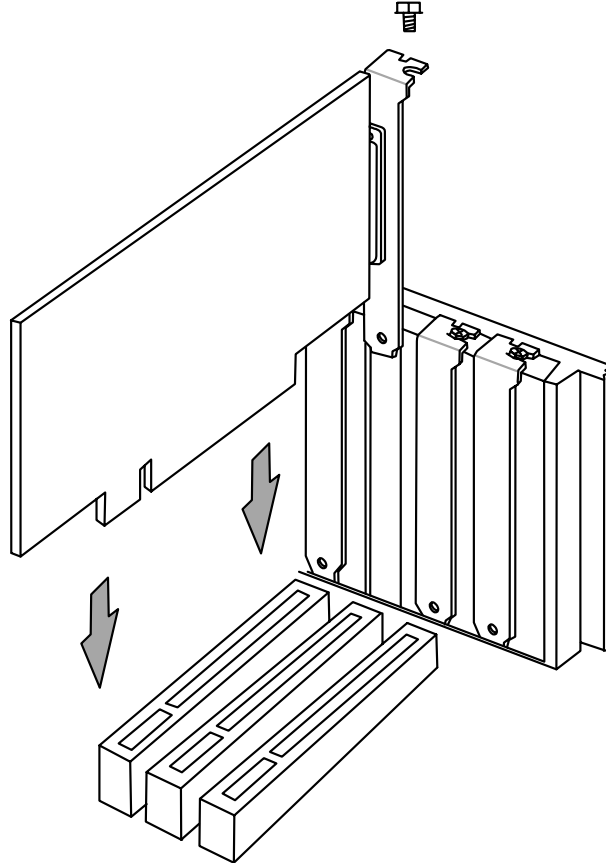
2. HARDWARE SETUP

2.7 Expansion Cards

WARNING! Make sure that you unplug your power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

2.7.1 Expansion Card Installation Procedure

1. Read the documentation for your expansion card and make any necessary hardware or software settings for your expansion card, such as jumpers or switches.
2. Remove your computer system's cover and the bracket plate with screw on the slot you intend to use. Keep the bracket for possible future use.
3. Carefully align the card's connectors and press firmly.
4. Secure the card on the slot with the screw you removed above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software drivers for your expansion card.



2. HARDWARE SETUP

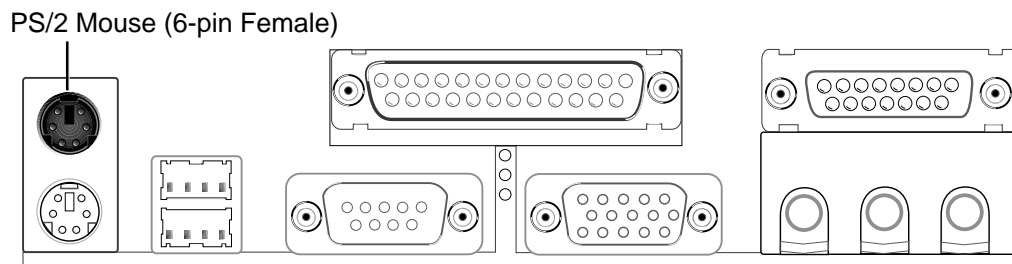
2.8 External Connectors

WARNING! Some pins are used for connectors or power sources. These are clearly distinguished from jumpers in the Motherboard Layout. Placing jumper caps over these connector pins will cause damage to your motherboard.

IMPORTANT: Ribbon cables should always be connected with the red stripe to Pin 1 on the connectors. Pin 1 is usually on the side closest to the power connector on hard drives and CD-ROM drives, but may be on the opposite side on floppy disk drives. Check the connectors before installation because there may be exceptions. IDE ribbon cable must be less than 46 cm (18 in.), with the second drive connector no more than 15 cm (6 in.) from the first connector.

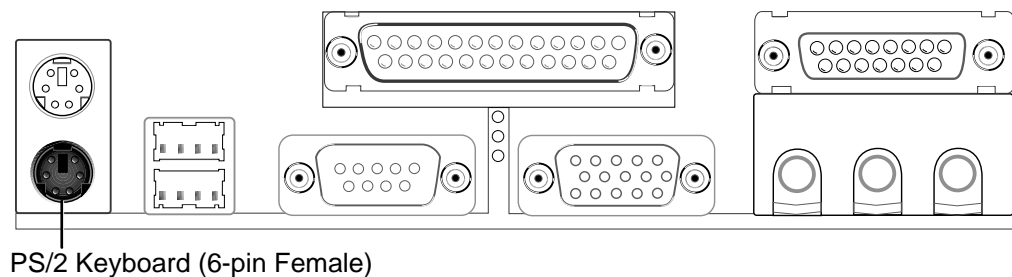
1) PS/2 Mouse Connector (6-pin PS2KBMS)

The system will direct IRQ12 to the PS/2 mouse if one is detected.



2) PS/2 Keyboard Connector (6-pin PS2KBMS)

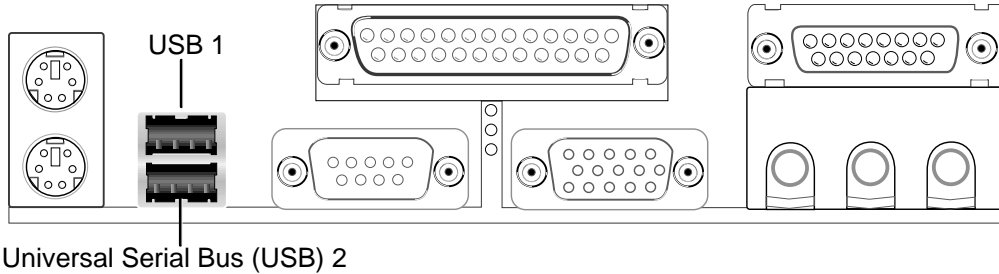
This connection is for a standard keyboard using an PS/2 plug (mini DIN). **This connector will not allow standard AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards.**



2. HARDWARE SETUP

3) Universal Serial Bus Ports (Two 4-pin USB)

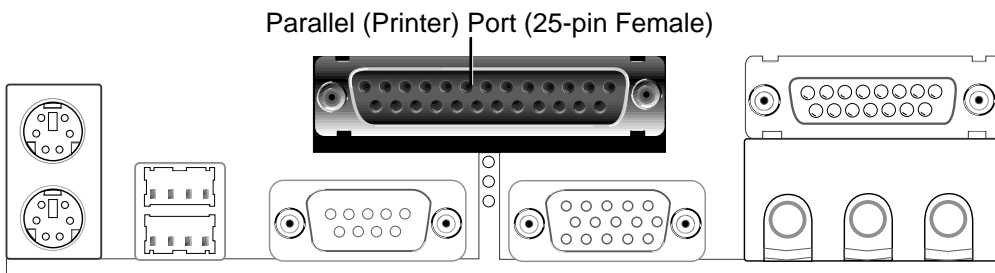
Two USB ports are available for connecting USB devices.



4) Parallel Port Connector (25-pin PRINTER)

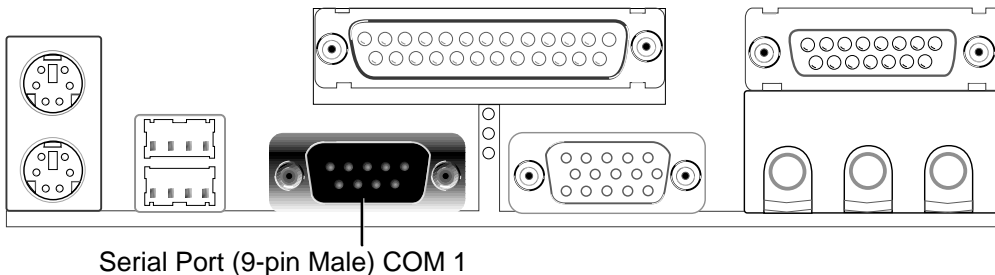
The parallel connector is used for a single parallel device such as a printer or a portable drive.

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



5) Serial Port Connector (9-pin COM1)

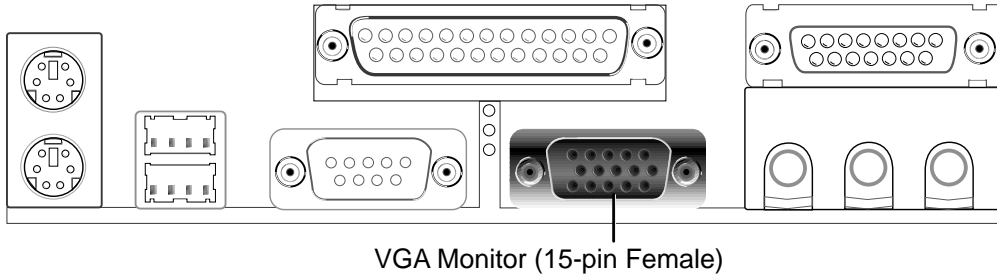
One serial port is ready for a mouse or other serial devices. A second serial port is available using a serial port bracket connected from the motherboard to an expansion slot opening.



2. HARDWARE SETUP

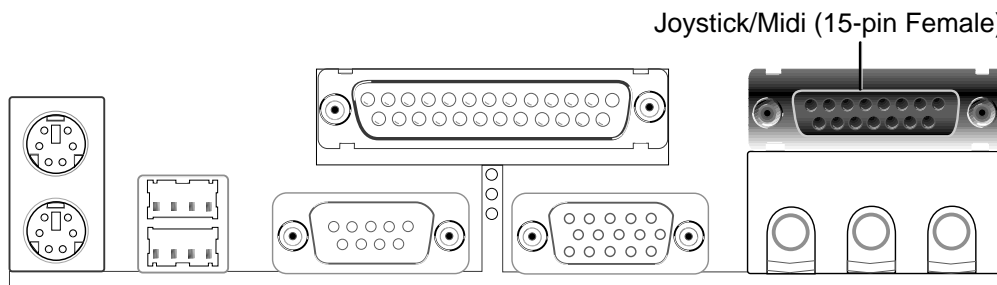
6) Monitor Output Connector (15-pin VGA)

This connector is for output to a VGA-compatible device.



7) Game/MIDI Connector (15-pin GAME_AUDIO) (optional)

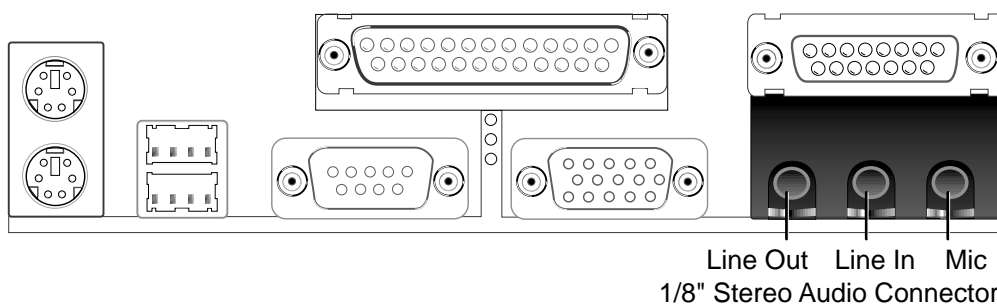
You may connect game joysticks or game pads to this connector for playing games. Connect MIDI devices for playing or editing professional audio.



NOTE: The onboard game port is to be used only if you are not using any PCI or ISA audio card with a game port.

8) Audio Port Connectors (Three 1/8" GAME_AUDIO) (optional)

Line Out (lime) can be connected to headphones or preferably powered speakers. **Line In** (light blue) allows tape players or other audio sources to be recorded by your computer or played through the **Line Out** (lime). **Mic** (pink) allows microphones to be connected for inputting voice.



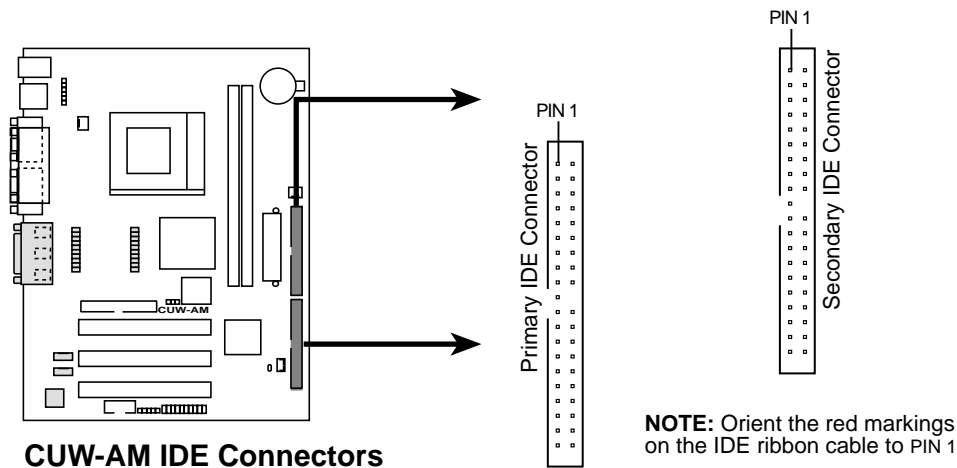
2. HARDWARE SETUP

9) Primary / Secondary IDE Connectors (40-1pin PRIMARY/SECONDARY IDE)

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(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper accordingly. Please refer to your hard disk documentation for the jumper settings. **(Pin 20 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 20 plugged).**

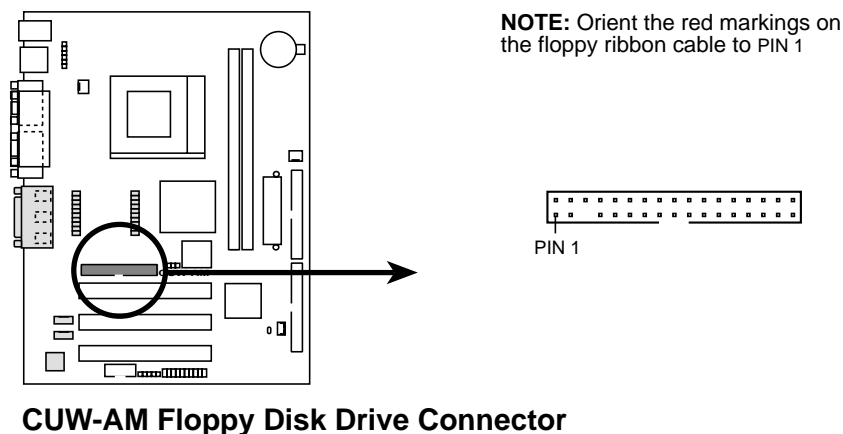
TIP: You may configure two hard disks to be both Masters with two ribbon cables – one for the primary IDE connector and another for the secondary IDE connector and select the boot disk through the BIOS.

IMPORTANT: UltraDMA/66 IDE devices must use an 80-wire IDE cable or else devices will automatically be limited to UltraDMA/33 mode.



10) Floppy Disk Drive Connector (34-1pin FLOPPY)

This connector supports the provided floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drives. **(Pin 5 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 5 plugged).**

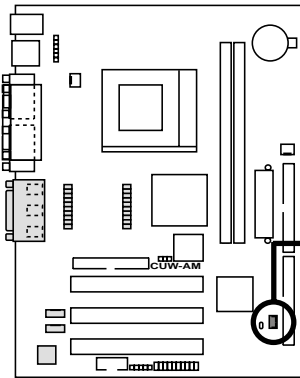


2. HARDWARE SETUP

11) Wake-On-LAN Connector (3-pin WOL_CON)

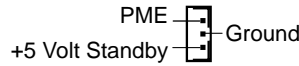
This connector connects to a LAN card with a Wake-On-LAN output. The connector powers up the system when a wakeup packet or signal is received through the LAN card.

IMPORTANT: This feature requires that your system has an ATX power supply with at least 720mA +5V standby power.



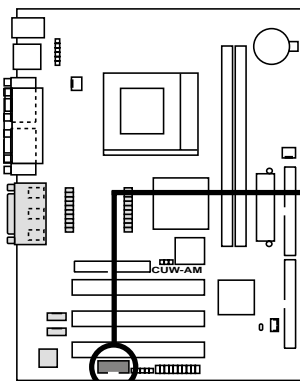
CUW-AM Wake-On-LAN Connector

IMPORTANT: Requires an ATX power supply with at least 720mA +5 volt standby power

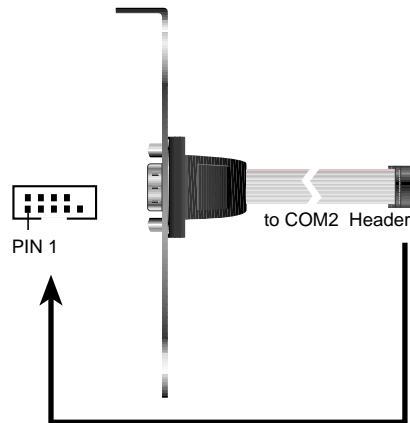


12) Serial Port Header (10-1 pin COM2)

The optional serial port bracket can be used to add an additional serial port for additional serial devices.



CUW-AM Serial COM2 Bracket



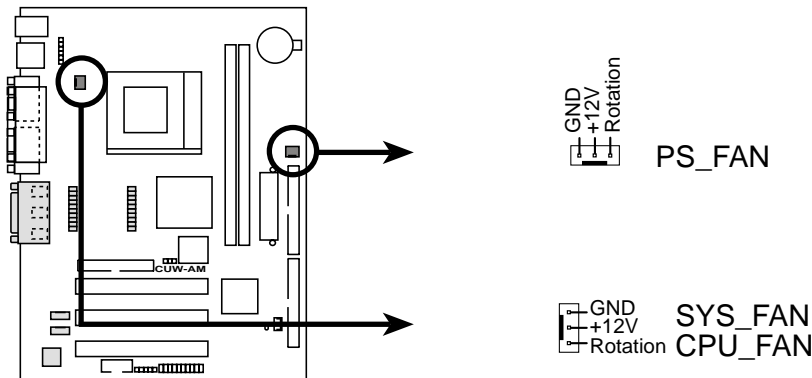
2. HARDWARE SETUP

13) CPU and Power Supply Fan Connectors (3-pin CPU_FAN, PS_FAN)

Orientate the fan so that the heat sink 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 connector.

NOTE: The "Rotation" signal cannot be monitored on this motherboard.

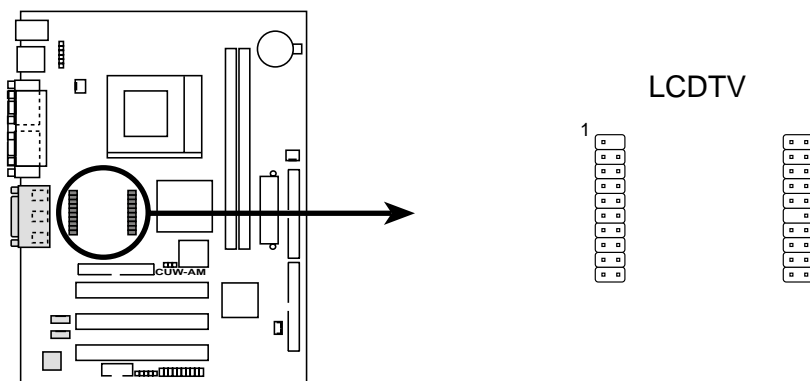
WARNING! The CPU and/or motherboard will overheat if there is no airflow across the CPU and onboard heatsinks. Damage may occur to the motherboard and/or the CPU fan if these pins are incorrectly used. **These are not jumpers, do not place jumper caps over these pins.**



CUW-AM 12-Volt Cooling Fan Power

14) LCD-TV Headers (Two 20-1 pin LCDTV)

These headers require an optional LCD module for LCD output or a TV-out module for TV output.

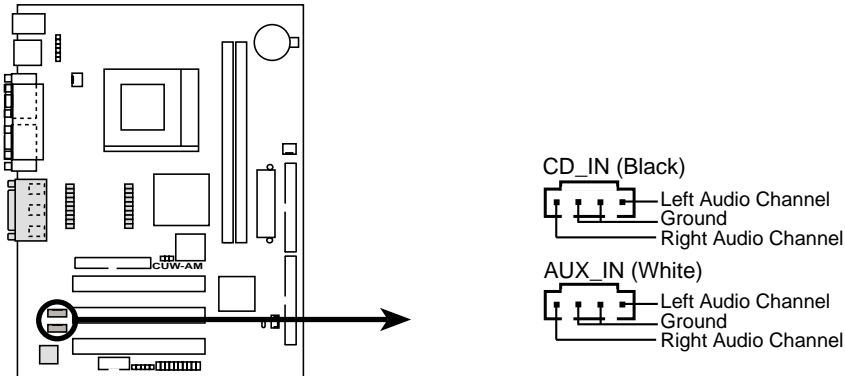


CUW-AM LCD-TV Headers

2. HARDWARE SETUP

15) Internal Audio Connector (4-pin AUX_IN, CD_IN) (optional)

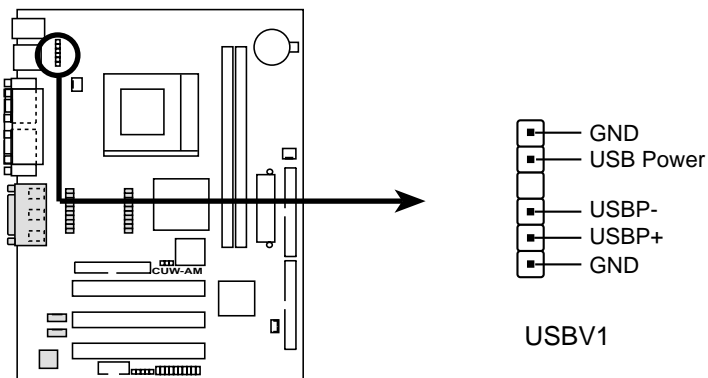
These connectors allow you to receive stereo audio input from such sound sources as a CD-ROM, TV tuner, or MPEG card.



CUW-AM Internal Audio Connector

16) USB Header (6-1 pin USBV1)

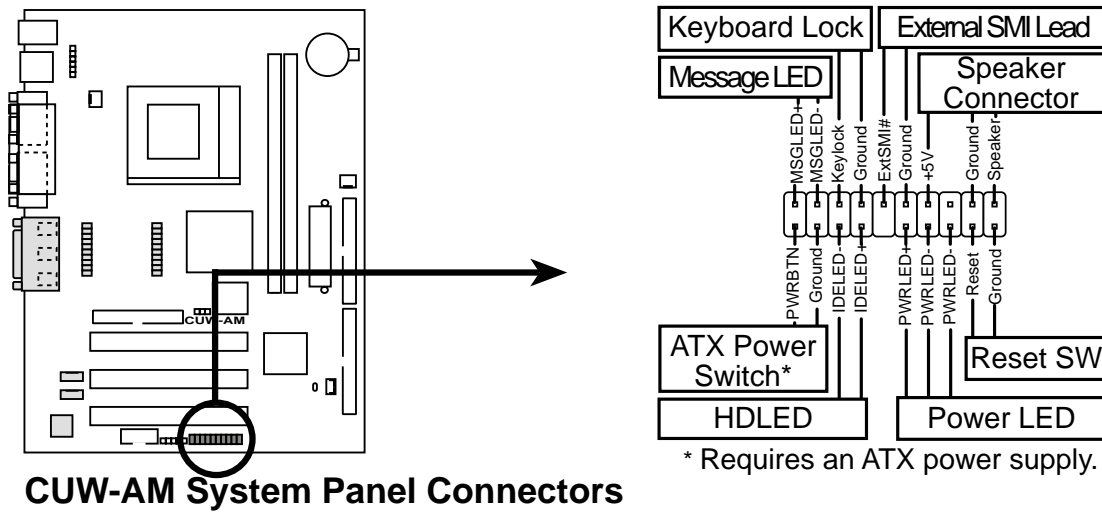
If the USB port connectors on the back panel are inadequate, a USB header is available for additional USB port connectors. Connect the USB header to an optional USB connector set and mount it to an open slot on your chassis.



CUW-AM USB Header

2. HARDWARE SETUP

The following PANEL illustration is used for items 17-24



17) Message LED Lead (2-pin MLED)

This indicates whether a message has been received from a fax/modem. The LED will remain lit when there is no signal and flash when there is data received. This function requires an ACPI OS as well as application and driver support.

18) Keyboard Lock Switch Lead (2-pin KLOCK)

This 2-pin connector connects to the case-mounted key switch to allow keyboard locking.

19) System Management Interrupt Lead (2-pin EXSMI)

This allows the user to manually place the system into a suspend mode or “Green” mode, where system activity is decreased to save electricity and expand the life of certain components when the system is not in use. This 2-pin connector connects to the case-mounted suspend switch.

20) System Warning Speaker Connector (4-pin SPEAKER)

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

21) Reset Switch Lead (2-pin RESET)

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

22) System Power LED Lead (3-1 pin PLED)

This 3-1 pin connector connects the system power LED, which lights when the system is powered ON and flashes when it is in standby (suspend) mode.

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23) IDE Activity LED (2-pin HDLED)

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

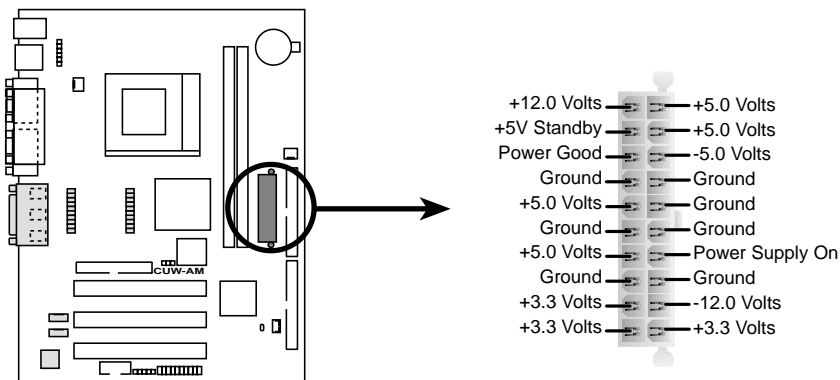
24) ATX Power Switch Lead (2-pin PWR)

The system power is controlled by a momentary switch connected to this lead. Pressing the button once will switch the system between ON and SOFT OFF. Pushing the switch while in the ON mode for more than 4 seconds will turn the system off. The system power LED shows the status of the system's power.

25) ATX Power Supply Connector (20-pin block ATXPWR)

This connector connects to an 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 your ATX power supply can supply at least 10mA on the +5-volt standby lead (+5VSB). You may experience difficulty in powering ON your system if your power supply cannot support the load. For Wake-On-LAN support, your ATX power supply must supply at least 720mA +5VSB.



CUW-AM ATX Power Connector

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