SONY

VAIO Digital Studio™ Reference Manual

PCV-R556DS/PCV-R558DS

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Owner's Record

The model number and serial number are located on the back of your VAIO® computer. Record the serial number in the space provided here. Refer to the model and serial number when you call your Sony Service Center.

Model Number: PCV-R556DS/PCV-R558DS

Serial Number:_____

Safety Information and Caution

CD-RW Laser Diode Properties

Laser output	1.0mW(Read) 35mW (Write)
Wave Length	777–787nm

DVD Laser Diode Properties

Laser output	40mW(DVD) 0.14mW (CD)
Wave Length	650nm (DVD) 780nm (CD)

- To prevent fire or shock hazard, do not expose your desktop to rain or moisture.To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
- Never install modem or telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wire or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using the modem during an electrical storm.
- Do not use the modem or a telephone to report a gas leak in the vicinity of the leak.
- The socket outlet shall be installed near the equipment and shall be easily accessible.

- **To change the backup battery, contact your nearest Sony Service Center.**
- **Caution - The use of optical instruments with this product will increase eye hazard. As the laser beam used in this product is harmful to the eyes, do not attempt to disassemble the drive cabinet. Refer servicing to qualified personnel only.**
- **Danger - Visible and invisible laser radiation when open. Avoid direct exposure to beam.**
- **For CD-RW: Danger - Invisible laser radiation when open. Avoid direct exposure to beam.**
- **Caution: For ADSL modem models, to reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.**

- Pour prévenir tout risque d'incendie ou d'électrocution, garder cet appareil à l'abri de la pluie et de l'humidité.
- Pour prévenir tout risque d'électrocution, ne pas ouvrir le châssis de cet appareil et ne confier son entretien qu'à une personne qualifiée.
- Ne jamais effectuer l'installation de fil modem ou téléphone durant un orage électrique.
- Ne jamais effectuer l'installation d'une prise téléphonique dans un endroit mouillé à moins que la prise soit conçue à cet effet.
- Ne jamais toucher un fil téléphonique à découvert ou un terminal à moins que la ligne téléphonique n'ait été débranché de l'interface réseau.
- Soyez très prudent lorsque vous installez ou modifiez les lignes téléphoniques.
- Évitez d'utiliser le modem durant un orage électrique.
- N'utilisez pas le modem ni le téléphone pour prévenir d'une fuite de gaz vous êtes près de la fuite.
- L'appareil doit être le plus près possible d'une prise murale pour en faciliter l'accès.

! Pour changer la pile de rechange, veuillez contacter votre centre de service Sony le plus près.

! Avertissement - L'utilisation d'instruments optiques avec ce produit augmente les risques pour les yeux. Puisque le faisceau laser utilisé dans ce produit est dommageable pour les yeux, ne tentez pas de désassembler le boîtier. Adressez-vous à un agent de service qualifié.

! Danger : Radiation laser visible et invisible si ouvert. Évitez l'exposition directe au faisceau.

! Pour les CD-RW : Danger : Radiation laser visible et invisible si ouvert. Évitez l'exposition directe au faisceau.

! Attention : Pour ADSL modele modem, afin de réduire les risques d'incendie, n'utilisez qu'un cordon de communication N0. 26 AWG ou plus gros.

For questions regarding your product or for the Sony Service Center nearest you, call 1-888-476-6972 in the United States or 1-800-961-7669 in Canada.

Sony Customer Support can be reached at www.sony.com.pcsupport.

Regulatory Information

Declaration of Conformity

Trade Name:	SONY
Model No.:	PCV-R556DS/ PCV-R558DS
Responsible Party:	Sony Electronics Inc.
Address:	1 Sony Drive Park Ridge, NJ 07656
Telephone:	201-930-6970

This phone number is for FCC-related matters only.

This device complies with Part 15 of FCC Rules. Operation is subject to the two following conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Only peripherals (computer input/output devices, terminals, printers, etc.) that comply with FCC Class B limits may be attached to this computer product. Operation with noncompliant peripherals is likely to result in interference to radio and television reception.

All cables used to connect peripherals must be shielded and grounded. Operation with cables, connected to peripherals, that are not shielded and grounded, may result in interference to radio and television reception.

FCC Part 68

This equipment complies with Part 68 of the FCC rules. The FCC Ringer Equivalence Number (REN) for this equipment is 0.7. If requested, this information must be provided to the telephone company.

This modem uses the USOC RJ-11 telephone jack.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

If the terminal equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operations of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this modem, for repair or warranty information, please contact 1-888-4SONY-PC, or write to the Sony Customer Information Center, 12451 Gateway Blvd., Fort Myers, FL 33913. If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

Repair of this equipment should be made only by a Sony Service Center or Sony authorized agent. For the Sony Service Center nearest you, call 1-888-4SONYPC (1-888-476-6972).

This equipment cannot be used on public coin service provided by the telephone company. Connection to Party Line Service is subject to state and possible provincial tariffs. (Contact the state or provincial utility service commission, public service commission, or corporation commission for information.)

Telephone Consumer Protection Act of 1991 (United States)

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone facsimile machine unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message, and the telephone number of the sending machine or such business, other entity, or individual.

In order to program this information into your facsimile, see your fax software documentation

Telephone Consumer Guidelines (Canada)

Please refer to your telephone directory under 'Privacy Issues' and/or 'Terms of Service.' For more detailed information, please contact:

CRTC
Terrasses de la Chaudiére, Tour centrale
1 promenade du Portage, 5 étage Hull PQ K1A 0N2.

This Class B digital apparatus complies with Canadian ICES-003.

Cet àppareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

DISPOSAL OF LITHIUM ION BATTERY

You can return your unwanted lithium ion batteries to your nearest Sony Service Center or Factory Service Center.

In some areas the disposal of lithium ion batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you, call 1-888-476-6972 in the United States or 1-800-961-7669 in Canada.

! Do not handle damaged or leaking lithium ion batteries.

! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

! The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 212°F (100°C) or incinerate.
Dispose of used battery promptly.
Keep away from children.

! Ne pas manipuler les batteries au lithium-ion qui fuient ou sont endommagées.

! Une batterie non conforme présente un danger d'explosion. La remplacer seulement par une batterie identique ou de type équivalent recommandé par le fabricant. Évacuer les batteries usées selon les directives du fabricant.

! La manutention incorrecte du module de batterie de cet appareil présente un risque d'incendie ou de brûlures chimiques. Ne pas démonter, incinérer ou exposer à une température de plus de 100°C. Évacuer promptement la batterie usée. Garder hors de portée des enfants.

INDUSTRY CANADA NOTICE

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the userís satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection.

The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Equipment malfunctions or any repairs or alterations made by the user to this equipment may give the telecommunications company cause to request that the user disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5. The Ringer Equivalence Number for this equipment is 0.7.

AVIS DE L'INDUSTRIE CANADA

AVIS: L'étiquette d'Industrie Canada identifie le matériel homologué.

Cette étiquette certifie que le matériel est conforme aux normes de protection, d'exploitation et de sécurité des réseaux de télécommunications, comme le prescrivent les documents concernant les exigences techniques relatives au matériel terminal. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être coordonnées par un représentant désigné par le fournisseur. L'entreprise de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés

ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

AVIS: L'indice d'équivalence de la sonnerie (IES) assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface.

La terminaison d'une interface téléphonique peut consister en une combination de quelques dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5. L'indice d'équivalence de la sonnerie de ce matériel est de 0.7.

Contents

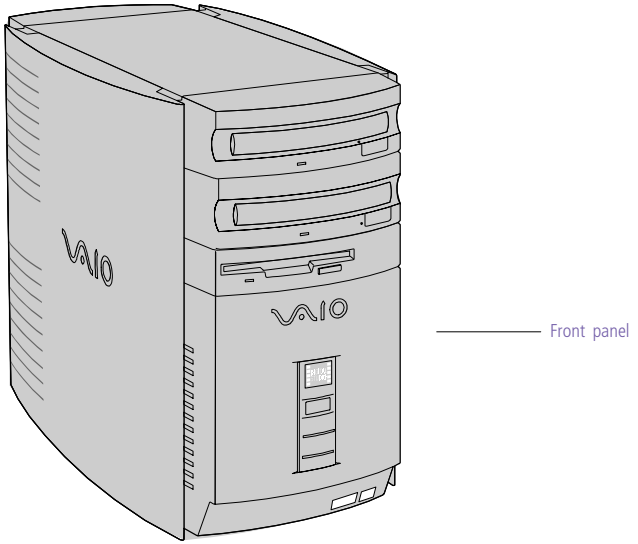
Chapter 3 — Removing, Installing, and Replacing Components

Chapter 4 — System Board

Chapter 1
Identifying Components

The following sections identify and describe each component that is visible from the exterior of the VAIO Digital Studio™ Computer. Internal components are identified in the appropriate section of this manual.

Front View



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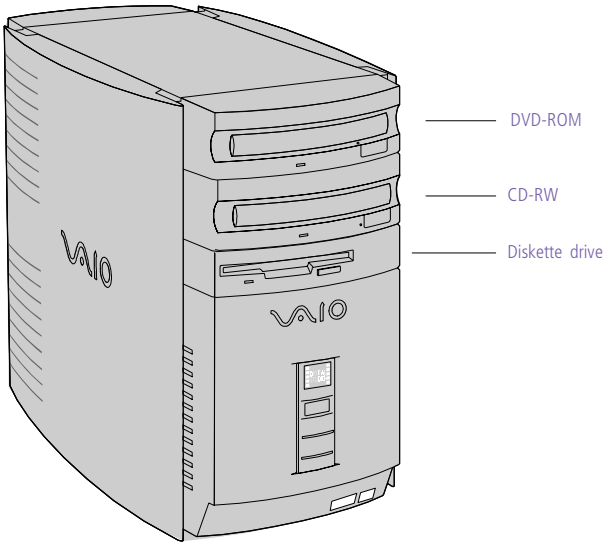
Drives



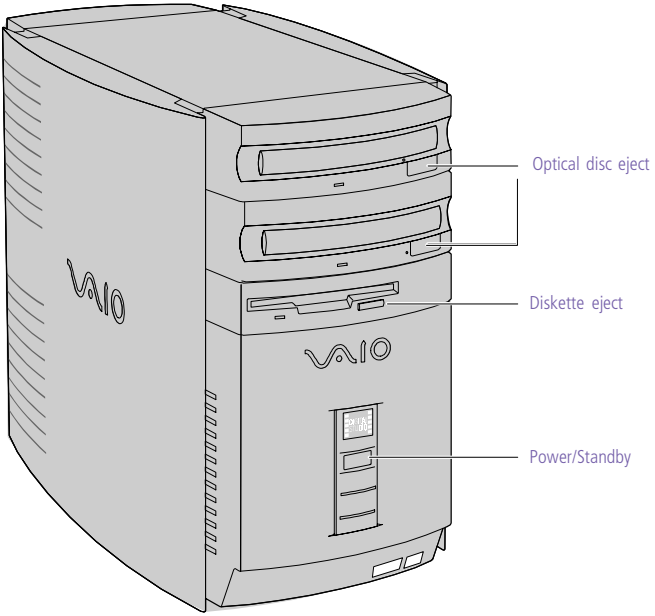
FRNTPNLA.VSD

Drive	Description
Diskette drive	3.5-inch, 1.44 Mbyte.
DVD-ROM drive*	DVD-ROM read: 16X (maximum performance). CD-ROM read: 40X (maximum performance).
CD-RW drive†	CD-RW read: 20X (maximum performance). CD-RW write: 4X (maximum performance). CD-R read: 32X (maximum performance). CD-R write: 8X (maximum performance). CD-ROM read: 32X (maximum performance).

* Data on a DVD-ROM is read at a variable transfer rate, ranging from 6.6X at the innermost track to 16X at the outermost track (the data transfer standard 1X rate is 1385 kbytes/s). The average data transfer rate is 11.3X (15,255 kbytes/s). Data on a CD-ROM is read at a variable transfer rate, ranging from 17.2X at the innermost track to 40X at the outermost track (the data transfer standard 1X rate is 150 kbytes/s). The average data transfer rate is 28.6X (4293 kbytes/s).

† CD-RW writing speed may vary, depending on the media. The maximum writing speed is 8X (1X = 150 kbytes/s). The maximum reading speed is 20X.

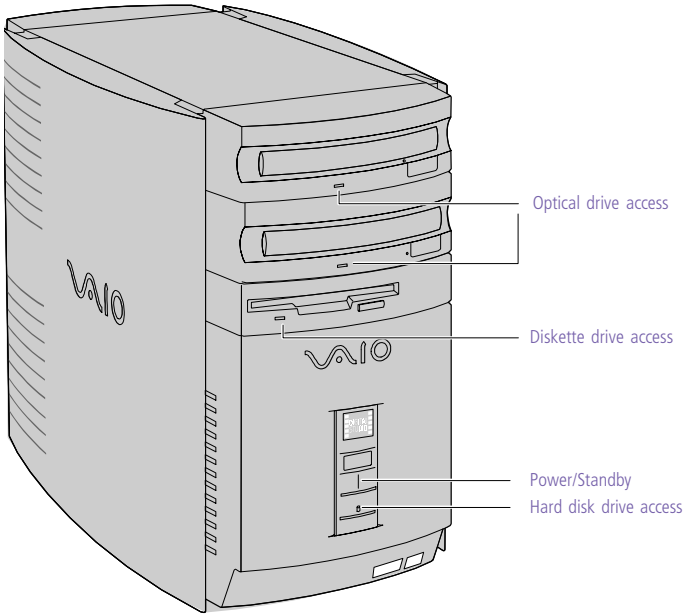
Buttons and Switches



FRNTPNLB.VSD

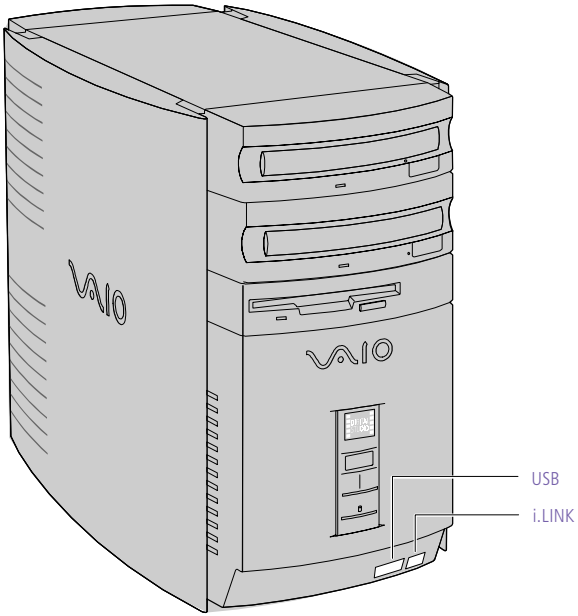
Button or switch	Description
Power/Standby switch	Turns system power on, off, or into standby mode.
Diskette eject button	Ejects a diskette.
Optical disc eject button	Automatically opens and closes the optical drive tray.

Indicators



Indicator	Description
Power/Standby indicator	Standby (amber) indicates the computer is in standby mode. On (green) indicates the computer is out of standby mode, ready to use. Off (no color) indicates the computer is turned off.
Diskette drive access indicator	On (green) indicates diskette drive activity.
Optical drive access indicator	On (orange) indicates CD-ROM activity.
Hard disk drive access indicator	On (amber) indicates hard disk drive activity.

Connectors

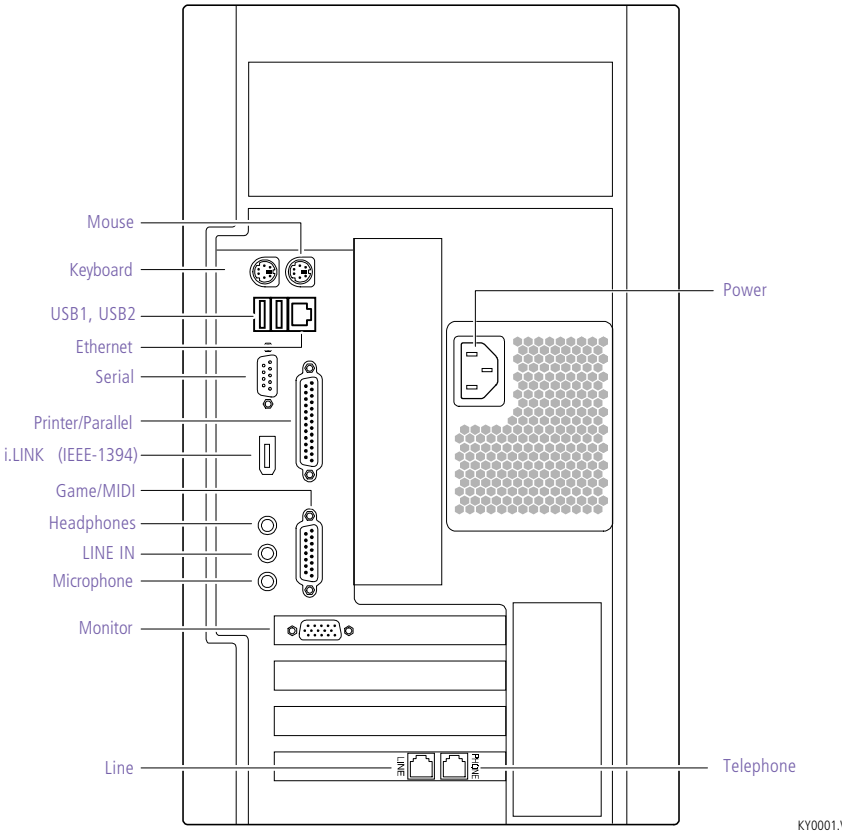


FRNTPNLD.VSD

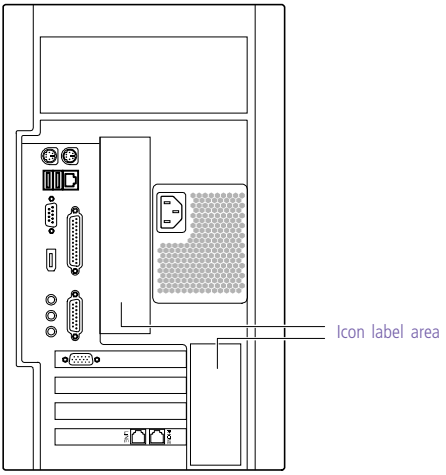
Connector	Description
i.LINK® (IEEE-1394)*	Connects to a digital device that has a 4-pin i.LINK connector.
USB	Connects to USB devices.

* To connect to a 6-pin i.LINK device, use the i.LINK connector on the back of the system. A 6-pin i.LINK connector can supply power from the computer to the device if the device also has a 6-pin i.LINK connector. A 4-pin i.LINK connector cannot supply power to the device.

Rear View


Mouse
Keyboard
USB1, USB2
Ethernet
Serial
Printer/Parallel
i.LINK (IEEE-1394)
Game/MIDI
Headphones
LINE IN
Microphone
Monitor
Line
Power
Telephone
LINE
PHONE
KY0001

Icons



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Icon	Description
	Mouse connector
	Keyboard connector
	Universal Serial Bus (USB) connector
	Serial port connector
	Printer port connector
	Game/MIDI port connector
	Headphones
	LINE IN jack (audio)
	Microphone jack
	Monitor connector
	Line jack (for telephone line from primary service jack)

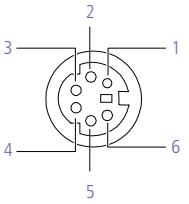
Icon	Description
	Telephone jack (for phone)
	i.LINK (IEEE-1394) connector
	Ethernet connector

I/O Connectors

The following section identifies the various I/O connectors.

Keyboard and Mouse

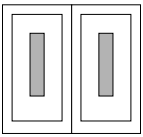
The keyboard and mouse connectors are physically identical and have the same pinout. They are standard 6-pin PS/2®-type female connectors.



KY0002.VS

USB Ports

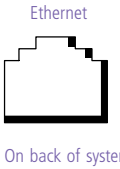
The USB ports are standard 4-pin USB connectors. One USB connector is located at the front, and two at the rear of the system.



KY0003.VS

Ethernet Connector

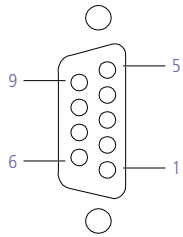
The Ethernet connector at the rear of the system is used to connect to a 10Base-T/100Base-TX Ethernet network.



KY0100.VSD

Serial Port

The serial port is a standard 9-pin DB-9 male connector.



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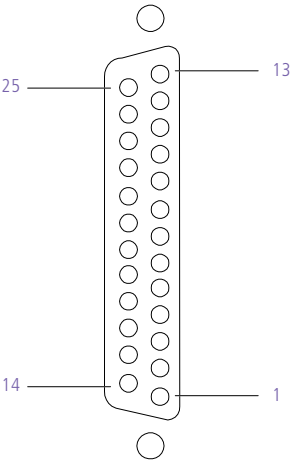
Printer/Parallel Port

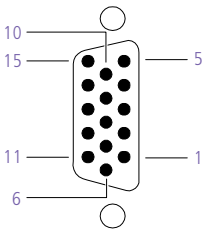
The printer/parallel port is a standard 25-pin DB-25 female connector.



KY0005.VSI

Monitor

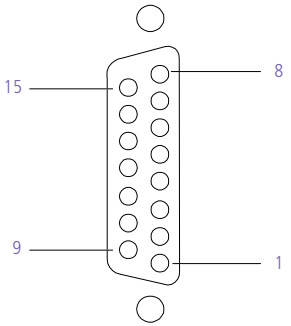
The Monitor connector is a standard 15-pin female high-density VGA-type connector.



KY0004.VSI

Game Port

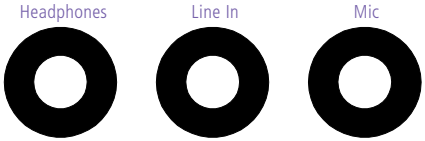
The Game port is a standard 15-pin DB-15 female connector. This port is also used to connect MIDI devices.



KY0012.VSD

Mic, Line In, and Headphones

The Mic, Line In, and Headphones jacks are physically identical, but have different connections. They are standard 3.5 mm stereo mini-jacks.

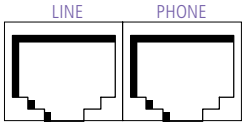


KY0013.VSD

Connector	Description
Headphones	1.0 Vrms (typical).
Mic	Electret condenser microphone input.
Line In	1.0 Vrms (typical), 10 Kohm impedance.

Telephone and Line

The Telephone and Line jacks are physically identical and have identical connections. They are standard RJ-11 female phone jacks. However, the Line jack is for connecting to a telephone line that comes from the wall, and the Telephone jack is for connecting the computer to a telephone.



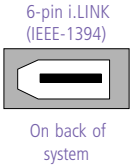
KY0014.VSD

Accidentally plugging a phone line from the wall into the modem's Telephone jack, and a telephone into the Line jack, will not damage the modem card or telephone equipment. However, the modem will not work correctly.

i.LINK® (IEEE-1394) Connectors

The 6-pin i.LINK connector on the back of the system can supply power from the computer to a device if the device also has a 6-pin i.LINK connector. The 6-pin connector supplies 10V to 12V and a maximum power of 6 watts.

The 4-pin i.LINK connector at the bottom of the front panel does not supply power.



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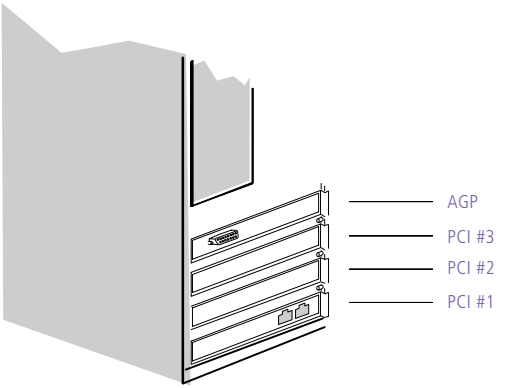
Expansion Slots

There are three PCI slots, two of which are available for expansion. The other PCI slot is occupied by the fax/modem card (#1).



OM04577B.VSD

Chapter 2
Configuring Your System

This chapter contains information on configuring your system. Configuring your system can consist of the following:

- Making changes to the BIOS settings
- Making changes to the display's power management settings
- Changing the system board jumper position

Accessing the BIOS Setup Utility

You must access the CMOS Setup Utility to make changes to the BIOS settings (see "CMOS Setup Options" on page 73 for information on BIOS settings).

! **Before rebooting the system, save any open files and exit Windows®.**

1. Reboot the system.
2. Press F2 after the progress bar starts.
3. Use the arrow keys to select an item from the main menu.
4. Press Enter to display the options for the selected item.
5. Use the arrow keys to select an option.
6. Press Page Up or Page Down to modify the setting.
7. Press ESC to return to the main menu.
8. Select SAVE & EXIT SETUP, then press Enter. Follow the on-screen prompts.

Changing the Display's Power Management Settings

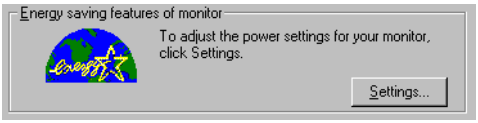
A display that has power management capability is designed to operate on reduced power or shut itself off after the system has been idle for a specified period of time.

1 From the **Start** menu, point to Settings, then click Control Panel.

2 Double-click the Display icon.

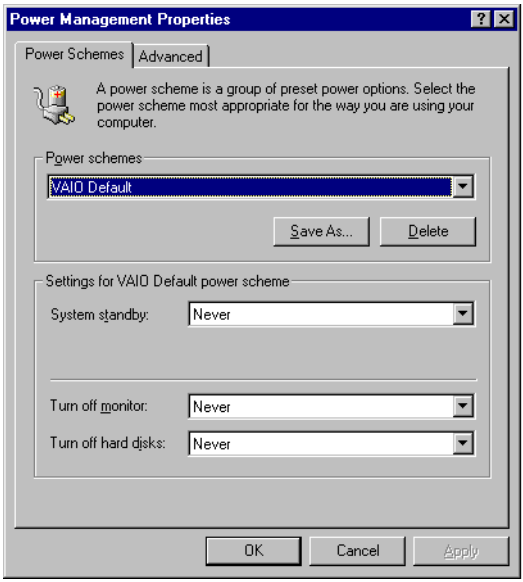
3 Click the Screen Saver tab.

If your display is Energy-Star compliant or has other energy-saving features, the Energy saving features of the monitor dialog box appear. Otherwise, the options in the dialog box are grayed out.



4 Click **Settings**.

The Power Management Properties dialog box opens, with the Power Schemes tab displayed.



5 Select the power scheme that is most appropriate for the way you use your computer.

To change a power scheme, change the settings for System standby, Turn off monitor, and Turn off hard disks.

The System standby option allows you to specify the period of inactivity (in minutes) that you want to elapse before your computer goes on standby when your computer is running on AC power. Power is reactivated when you click the left mouse button or press a key.

The Turn off monitor option allows you to specify the period of inactivity (in minutes) that you want to elapse before your monitor turns off when your computer is running on AC power. The display reactivates when you move the mouse or press a key.

The Turn off hard disks option allows you to specify the period of inactivity (in minutes) that you want to elapse before your hard disks turn off when your computer is running on AC power.

6 To save a new power scheme, first modify the settings, click Save As, type a descriptive name, and then click OK.

7 Click the Advanced tab.

8 Select the desired settings, and then click OK.

Configuring the System Board

The system board contains a CMOS Clear configuration jumper, and two sets of reserved jumper blocks (do not change).

The CMOS and Non-Volatile RAM (NVRAM) settings are only cleared if the checksum test returns false. Access to specific setup fields is controlled by a supervisor password or user password.

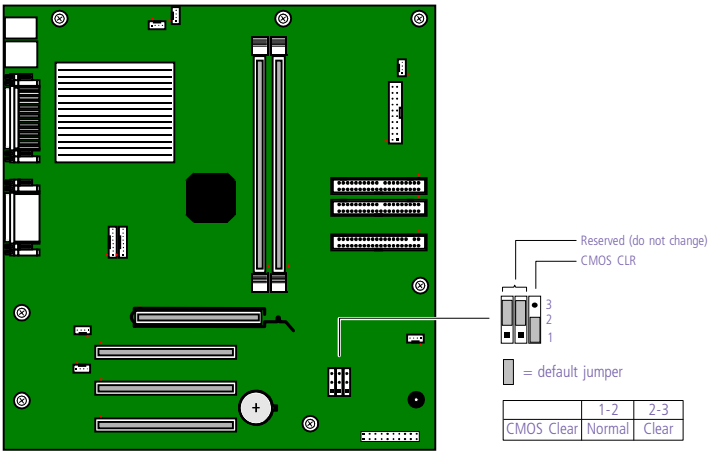
The Clear CMOS mode removes the password that is stored in CMOS. No other parameters are cleared.

The configuration jumpers should never need changing unless otherwise directed by a technical support or service technician.

! **Before opening the system, save any open files, exit the Microsoft® Windows® operating system, turn off the power of the computer and all attached peripherals, and unplug the power cord.**

1 Remove the cover (see "Removing the Cover" on page 22).

2 Set the jumpers as directed by a service technician (also see "Configuration Jumpers" on page 67).



3 Reinstall the cover (see "Replacing the Cover" on page 26).

4 Reinstall the front panel (see "Replacing the Front Panel" on page 25).

Chapter 3
Removing, Installing, and Replacing Components

This chapter describes removing, installing, and replacing major components for upgrading, reconfiguring, and troubleshooting the components.

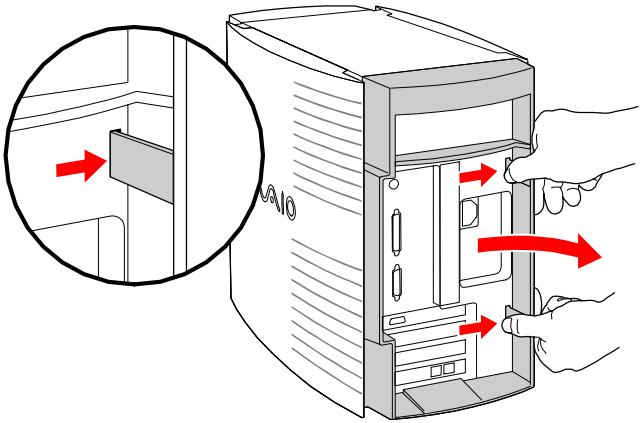
! **Before opening the system unit, save any open files, exit Windows, turn off the power of the computer and all attached peripherals, and then unplug the power cord.**

Removing the Cover

You must remove the cover to access the system board, add-in cards, power supply, battery, memory, and internal drives.

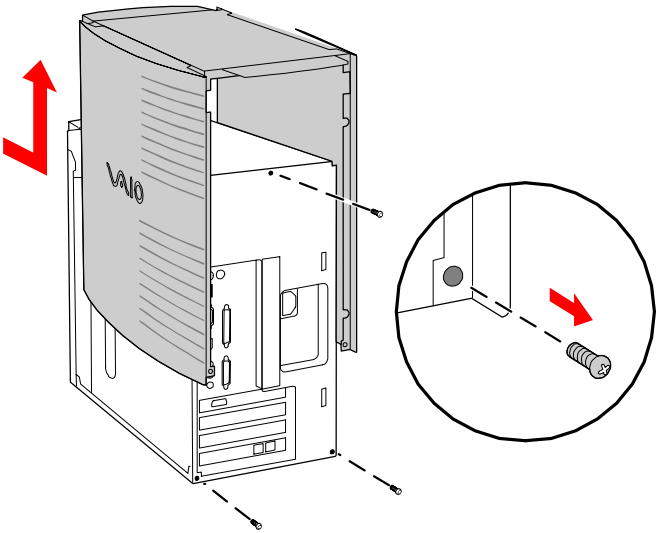
1 From the rear of the unit, press the two tabs on the right side.

2 Remove the frame from the unit by gently pulling it from left to right.



3 Remove the three screws from the metal back plate. The screws are located at the top center, and the lower left and right corners.

4 Lift the three-sided outer panel up and over the unit by pulling up on the large tab that extends from the top rear.

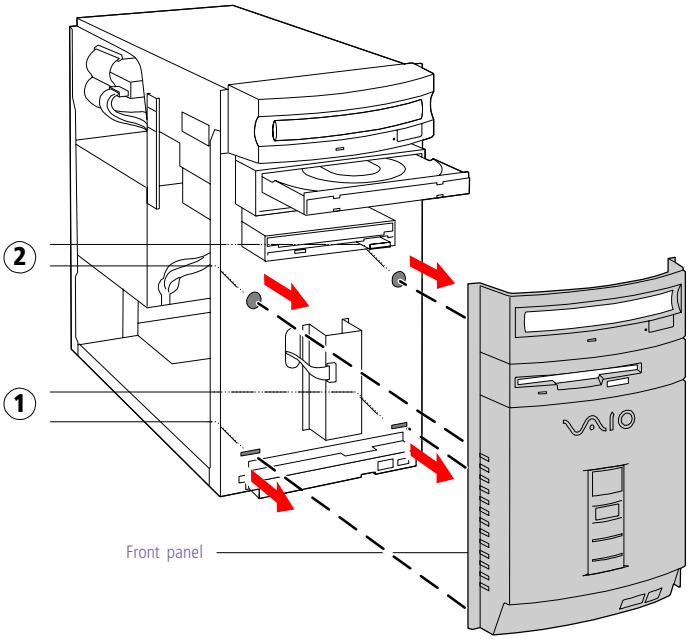


Removing the Front Panel

You must remove the front panel to install a 5¼" device.

1 Remove the cover (see "Removing the Cover" on page 22).

2 Push down and out on the two plastic tabs from inside the bottom of the chassis to release the bottom end of the front panel.



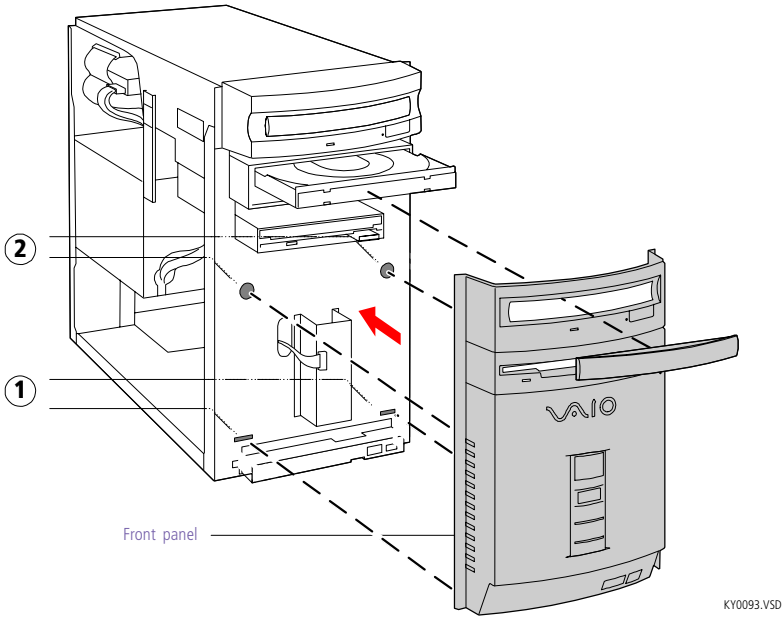
3 Pull out the top end of the front panel to remove it.

Replacing the Front Panel

1 Insert the two plastic tabs (located on the bottom of the front panel) into the slots at the bottom of the chassis.

2 Push the bottom of the front panel in until the tabs snap into place.

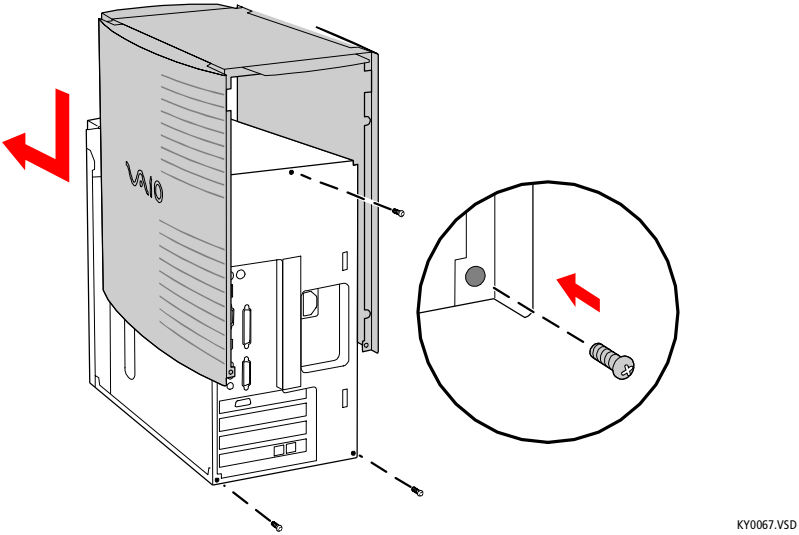
3 Push the top of the front panel in until it is flush with the chassis .



Replacing the Cover

1 Align the three-sided outer panel over the chassis and lower it onto the unit so that the tabs slip into the lips on the unit.

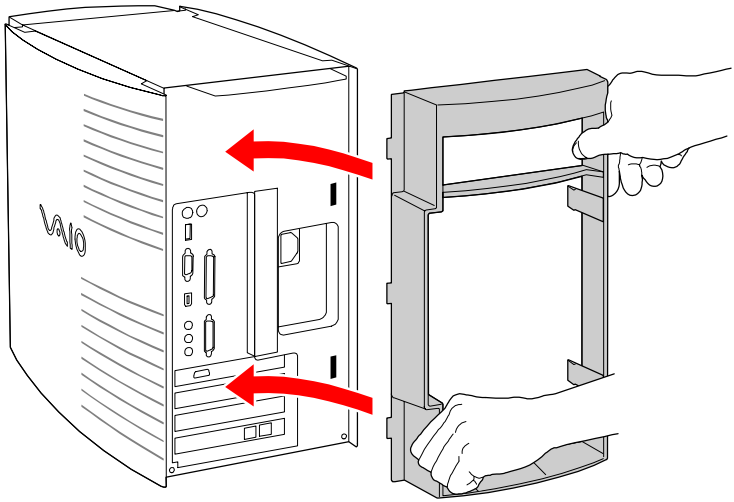
2 Insert the three screws (removed earlier) to secure the panel.



3 Insert the three small tabs on the frame into the slots on the left side of the unit.

4 Slip the two larger tabs on the frame into the slots on the right side of the unit.

5 Gently press the frame in until it clicks into position.



KY0068.VSD

Installing an Add-In Card

! **Before opening the system unit, save any open files, exit Windows, turn off the power of the computer and all attached peripherals, and then unplug the power cord.**

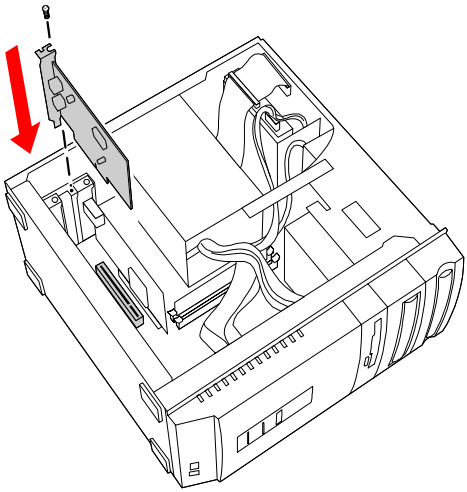
1 Remove the cover (see "Removing the Cover" on page 22).

2 Locate an available expansion slot connector.

3 Remove the slot cover adjacent to the selected slot connector (see "Removing a Slot Cover" on page 39).

4 Insert the add-in card into the PCI slot connector. Use a gentle rocking motion, pressing down until the card is fully seated.

Align the card's bracket so that the bottom of the bracket fits into the slot at the bottom of the chassis. Assure that the top of the bracket fits snugly against the chassis lip after the card is fully inserted.



KY0070.VSD

5 Replace the screw that secures the card.

6 Attach any necessary cables to the card (see the instructions that came with the add-in card).

7 Replace the cover (see "Replacing the Cover" on page 26).

8 Turn on the computer and follow any instructions that came with the add-in card.

Removing an Add-in Card

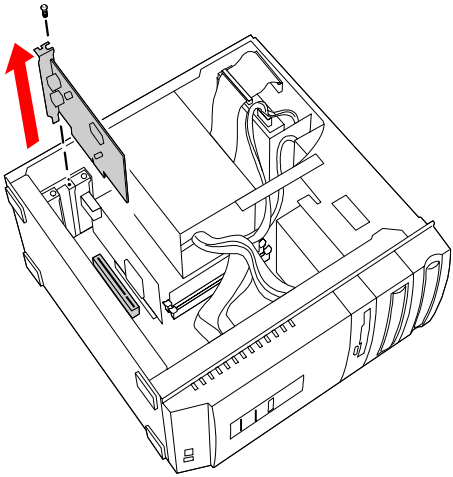
! **Before opening the system unit, save any open files, exit Windows, turn off the power of the computer and all attached peripherals, and then unplug the power cord.**

1 Remove the cover (see "Removing the Cover" on page 22).

2 Disconnect any cables attached to the add-in card you want to remove.

3 Remove the screw that secures the add-in card to the chassis.

4 Remove the add-in card from the PCI slot connector and store the card in an anti-static wrapper for future use.



KY0071.VSD

Grasp the card with one hand on each end, and gently pull up as you rock the card from side to side.

! **Hold the add-in card by its edges and do not touch any components or connector contacts on the card. Static electricity in your body may damage sensitive components on the card. As a precaution, touch any exposed metal part on the metal chassis (preferably the metal part on the power supply) before handling an add-in card to discharge any static electricity in your body.**

5 If you do not replace the card or install another add-in card, install a slot cover over the vacant slot at the rear of the chassis (see "Covering an Open I/O Slot" on page 40).

6 Replace the cover (see "Replacing the Cover" on page 26).

Replacing the Lithium Battery

You may need to replace the lithium battery if your computer consistently loses the date or time settings after turning it off. The lithium battery has a typical life of three years, after which the battery may be too weak to power the CMOS memory.

! **When you remove the lithium battery, all values stored in the CMOS memory (BIOS setup values and Plug and Play values) may be lost. Although the computer can hold the charge for a short time while replacing the battery, it is safer to assume that the settings will be lost. When the values are lost, the BIOS values revert to their factory-default settings (see "Accessing the BIOS Setup Utility" on page 16).**

Do not handle damaged or leaking batteries.

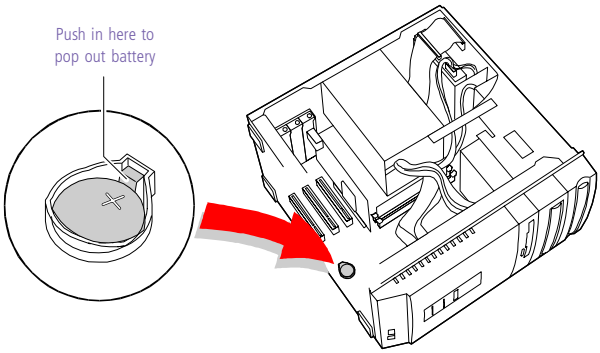
The lithium battery may explode if mistreated. Do not disassemble it or dispose of it in fire.

1. Reboot your computer by selecting Shut Down... from the Start menu, and then selecting Restart the computer.
2. If the error message "Error: Check date and time settings"appears during the reboot sequence, press F2 during the reboot process to access the BIOS Setup Utility. Otherwise it is not necessary to replace the battery at this time, and you can skip all remaining steps.
3. Compare all the BIOS options to their default settings (see "CMOS Setup Options" on page 73). Make a list of all the BIOS options that are different from their default values. You will refer to this list when you restore the BIOS settings later.
4. Select Exit Discarding Changes from the main menu using the right arrow key.
5. Press Enter, type Y when prompted to discard changes, then press Enter to exit the BIOS Setup Utility.
6. Turn off the computer and unplug the power cord.
7. Remove the cover (see "Removing the Cover" on page 22).

8 If necessary, remove any add-in cards (see "Removing an Add-in Card" on page 29) to gain access to the battery. You may also need to disconnect some cables.

! **Touch any exposed metal part of chassis to discharge static electricity in your body before handling an add-in card or other sensitive electronic component.**

9 Use a small flathead screwdriver or your finger to push out against the small tab at one end of the battery holder to pop out the battery.



KY0072.VSD

10 Gently lift out the battery and dispose of it according to the instructions that came with the new battery.

11 Insert the new battery into the battery holder, with the plus (+) side up.

The Sony CR2032 battery is recommended. Using a type of battery other than a CR2032 may present a risk of fire or explosion.

12 Replace any add-in cards that were removed.

13 Reconnect any cables that were disconnected.

14 Replace the cover (see "Replacing the Cover" on page 26).

15 Reconnect the power cord and turn on the computer.

16 If the error message "Error: Check date and time settings." appears during the reboot sequence, press F2 during the reboot process to access the BIOS Setup Utility. If no error message displays, the computer's BIOS settings were retained during the battery replacement and you can skip the remaining steps.

17 Refer to the list you made in step 3 and restore any non-default BIOS settings (see "CMOS Setup Options" on page 73).

18 Select Exit Saving Changes from the main menu using the right arrow key.

19 Press Enter, type Y when prompted to discard changes, then press Enter to exit the BIOS Setup Utility.

The computer's BIOS settings are now restored.

Installing System Memory

! **Before opening the system unit, save any open files, exit Windows, turn off the power of the computer and all attached peripherals, and then unplug the power cord.**

1 If necessary, remove the memory module you wish to replace (see "Removing a Memory Module" on page 37).

2 Remove the new memory module(s) from its anti-static package. Hold the memory module only by its edges to prevent static-electricity damage.

3 Choose the size of the memory module and configuration as shown in the following table. Memory modules can vary in size and speed between sockets. The minimum memory size is 8 MB. The maximum memory size is 256 MB. The BIOS automatically detects the type, size and speed of the memory modules.

Memory module configurations (MB)*

DIMM1	*DIMM2*
0, 8, 16, 32, 64, 128	0, 8, 16, 32, 64, 128

* The PCV-R556DS/PCV-R558DS ships with 128 MB. SDRAM is expandable to 256 MB.

! **Touch any exposed metal part of the chassis to discharge static electricity in your body before handling a memory module.**

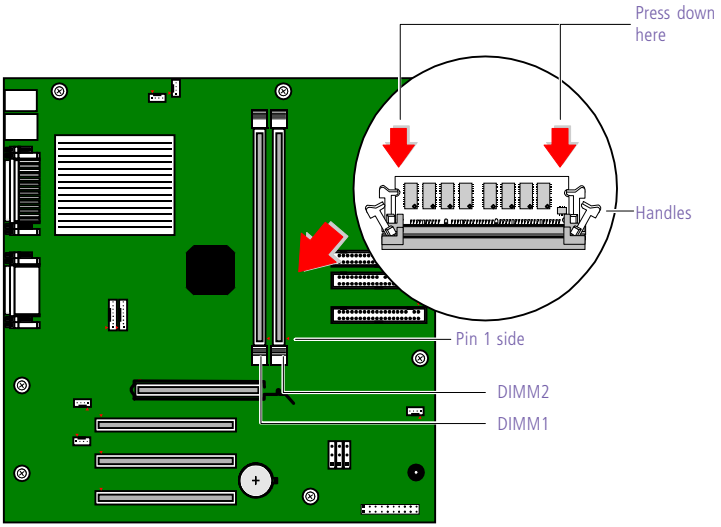
Use only 133 MHz FSB-supported memory. Do not mix 66 MHz or 100 MHz memory with 133 MHz memory. Supports SDRAM memory. Does not support EDO memory or buffered DIMM memory.

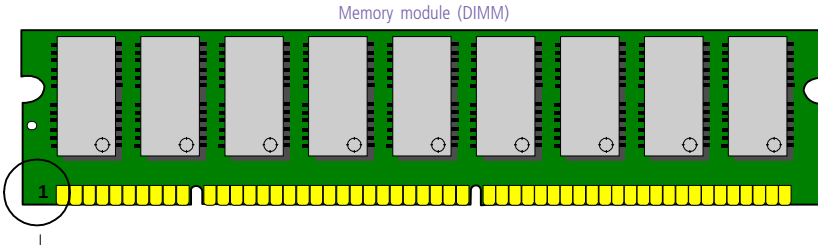
4 Disconnect the power cord from the computer.

5 Remove the cover (see "Removing the Cover" on page 22).

6 Remove the power supply (see "Removing the Power Supply" on page 45).

7 Align the module over the appropriate socket, noting the location of pin 1 on the module and pin 1 on the socket.





8 Carefully but firmly insert the edge of the module into the socket.

9 Press down firmly and evenly at both corners until the module is fully seated.

When the module is fully seated, the handles on each side are straight up and locked into the slot on each side of the module. If the handles are not totally straight upright, continue to press down on each side of the module until the handles lock into place.

10 Replace the power supply (see "Replacing the Power Supply" on page 48).

11 Replace the cover (see "Replacing the Cover" on page 26).

12 Reconnect the power cord and turn on the computer.

Your computer automatically recognizes the extra memory and will configure itself accordingly when you turn on the computer. No further action is required.

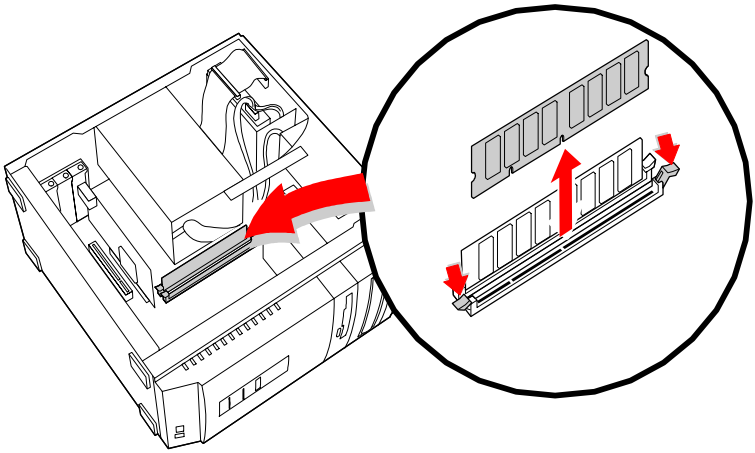
Removing a Memory Module

You may need to remove a memory module if you change the memory configuration or replace a bad module.

! **Before opening the system unit, save any open files, exit Windows, turn off the power of the computer and all attached peripherals, and then unplug the power cord.**

13 Remove the cover (see "Removing the Cover" on page 22).

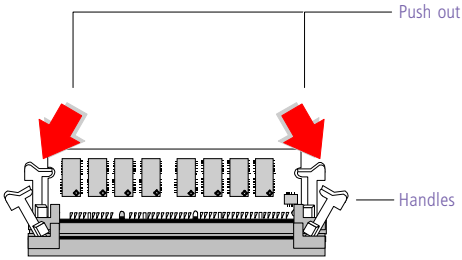
14 Locate the memory module you wish to remove.



KY0073.VSD

The memory modules are located beneath the power supply. You do not need to remove the power supply to reach the memory modules.

15 Reach around each side of the power supply and push down the handle on each side of the memory module to eject the module from its socket.



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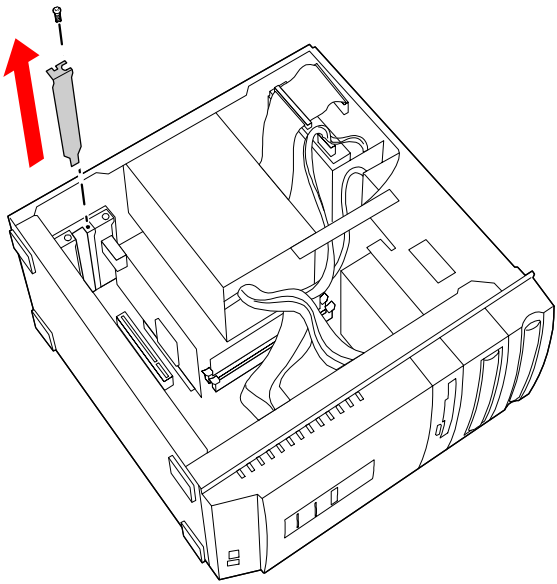
16 Grasp one edge of the memory module and lift out. Store the module in a static-free bag.

! **Touch any exposed metal part of the chassis to discharge static electricity in your body before handling the memory module.**

Removing a Slot Cover

You remove a slot cover when you install an add-in card that occupies a previously-empty slot.

1. Disconnect the power cord from the computer.
2. Remove the cover (see "Removing the Cover" on page 22).
3. Locate the slot whose cover you want to remove.
4. Lay the system on its side.
5. Remove the screw from the slot cover.
6. Remove the loose slot cover and retain it for future use.

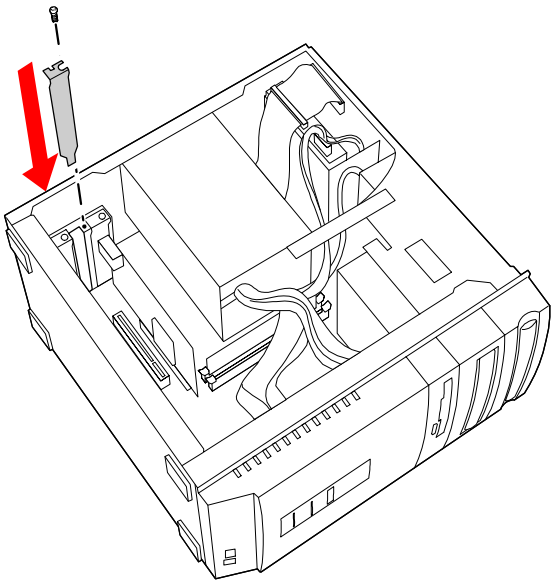


KY0069.VSD

Covering an Open I/O Slot

Slot covers prevent air from escaping through the empty hole. If air escapes, the components inside the computer cannot be properly cooled. This may damage some components, especially the main processor (which generates the most heat).

1 Slide the tip of the slot cover (removed earlier) between the chassis and system board.



KY0076.VSD

2 Push the slot cover down until it rests firmly on the lip in the chassis. All add-in card brackets and slot covers rest on this lip.

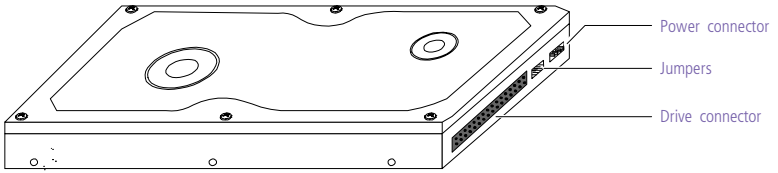
3 Replace the screw (removed earlier) to secure the I/O slot cover.

Installing a 3½" Internal Hard Disk Drive

Your system comes with an available bay to hold an additional 3½" hard disk drive. The drive you install must not require front panel access. The hard disk drive access light blinks when either internal drive is active.

! **Before opening the system unit, save any open files, exit Windows, turn off the power of the computer and all attached peripherals, and then unplug the power cord.**

1 Configure the jumpers on the new drive as a primary slave (see your drive's documentation for configuration instructions).



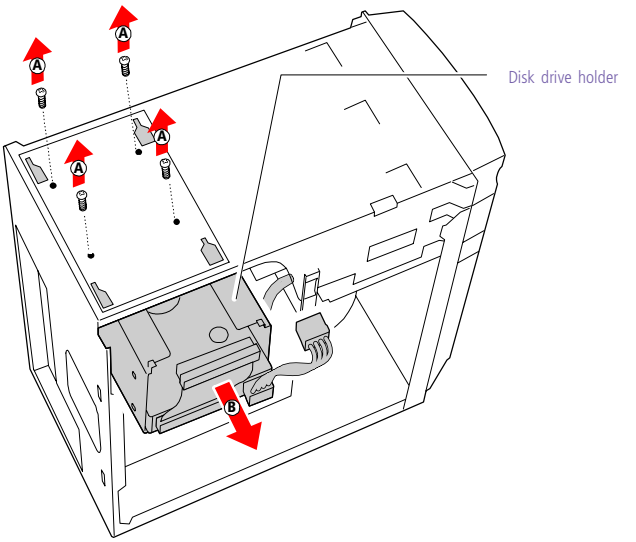
KY0084.VSD

2 Disconnect the power cord from the computer.

3 Remove the cover (see "Removing the Cover" on page 22).

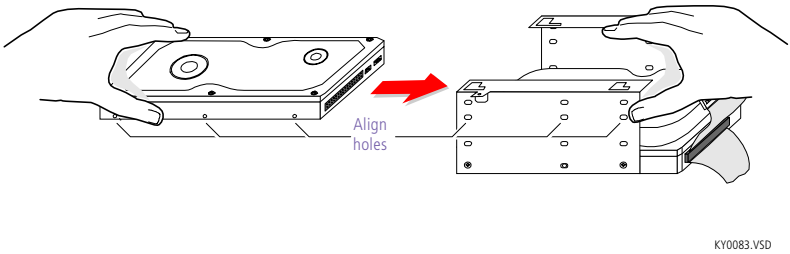
4 Remove the four screws (A in next diagram) that secure the drive holder to the top of the chassis.

5 Slide the drive holder forward (B), and then out.



6 Place the drive holder on top of the power supply.

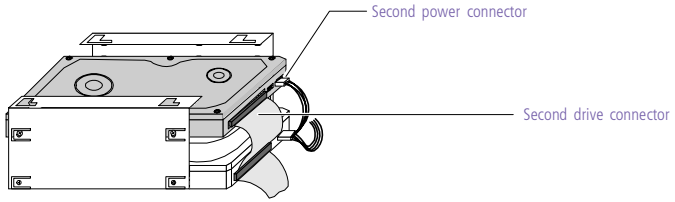
7 Slide the new drive into the drive holder and align the holes on each side of the drive holder.



8 Secure the drive to the drive holder using the two holes on each side of the drive holder (screws are provided with the new drive). Do not overtighten the screws.

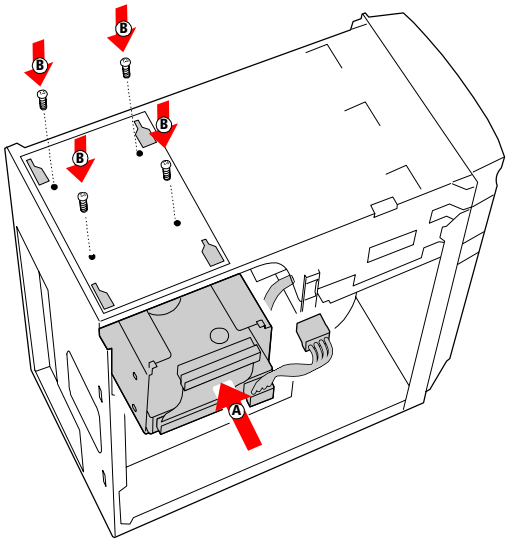
9 Connect the second drive connector to the new drive (see next diagram).

10 Connect the second power connector to the new drive.



KY0085.VSD

11 Make sure the drive connector is connected securely to the motherboard.



KY0086.VSD

12 Lower the drive holder down and slide it back into the chassis (A in next diagram). Be sure to align all four slots on the drive holder with the tabs on top of the chassis.

13 Slide the drive holder back so that the tabs slip into the notches.

14 Replace the four screws (B) that secure the drive holder to the chassis.

15 Replace the cover (see "Replacing the Cover" on page 26).

16 Reconnect the power cord and then turn on your computer.

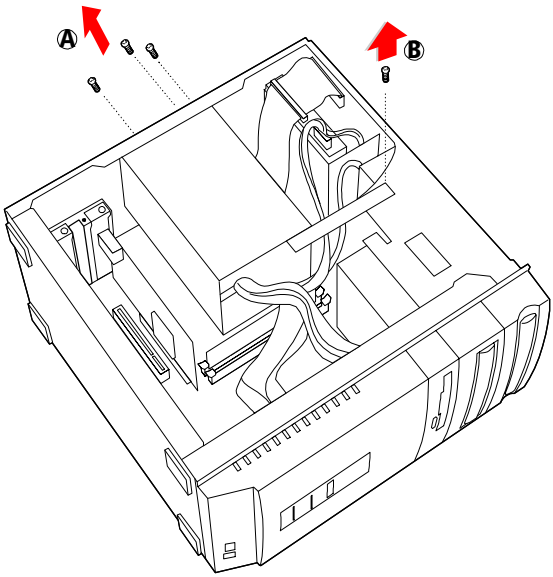
Your computer automatically recognizes the new drive and configures itself accordingly when you turn it on. Format and partition the new drive following the instructions provided with the drive.

Removing the Power Supply

You remove the power supply when you insert a memory module (see "Installing System Memory" on page 34).

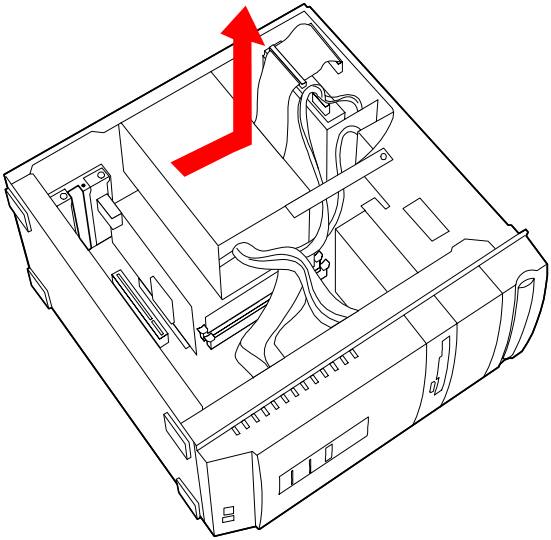
1 Remove the three screws (A in next diagram) from the rear of the chassis.

2 Remove the screw (B) from the power supply bracket.



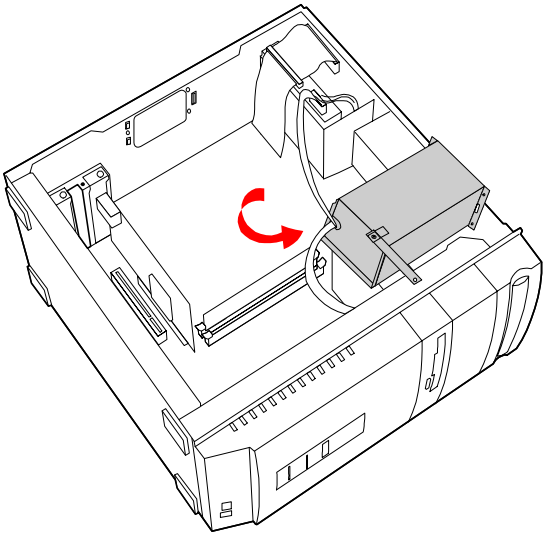
KY0096.VSD

3 Slide the power supply back (towards the 3½" drive bay) about ½" (or until the power supply detaches from the chassis tabs), then lift up until the power supply clears the chassis lip.



KY0097.VSD

4 Rotate the power supply horizontally by 180 degrees counterclockwise and rest it on top of the chassis where the CD-ROM/DVD-ROM drive is located.



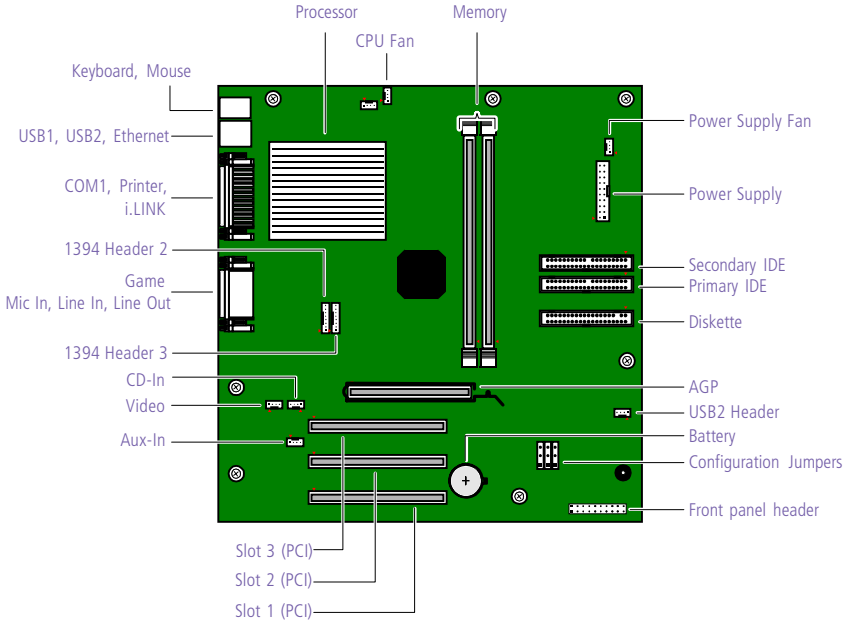
KY0098.VSD

Replacing the Power Supply

1. Rotate the power supply horizontally by 180 degrees clockwise and lower it into the chassis until it is flush against the square hole at the rear of the chassis.
2. Slide the power supply forward (away from the 3½″ drive bay) until the power supply latches onto the chassis tabs.
3. Replace the three screws that secure the power supply to the rear of the chassis.
4. Replace the screen that secures the power supply bracket to the chassis.

Chapter 4
System Board

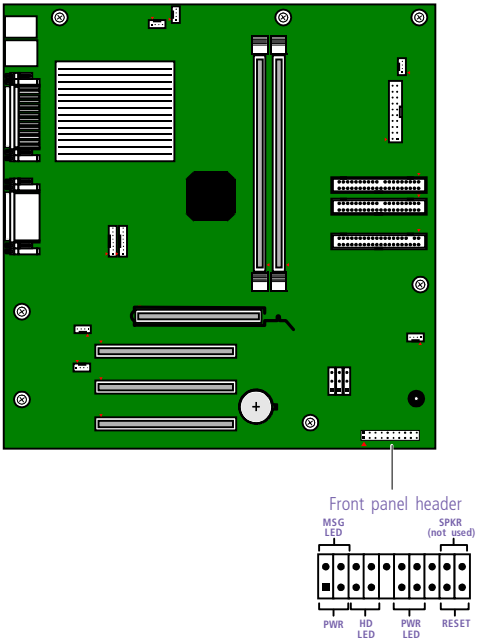
This chapter identifies each component on the system board and provides a detailed description of each connector, jumper, and switch on the system board.



Connectors

Front Panel Header (J25)

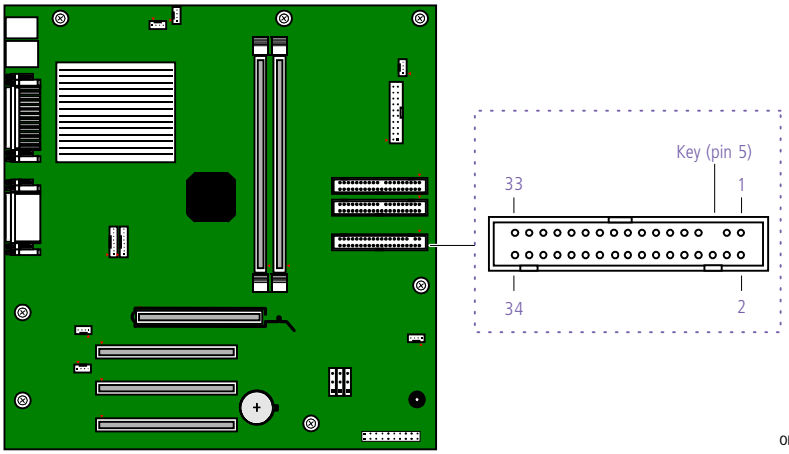
The front panel header is a 20-pin header (1 pin is removed for the key) that provides connections to various front panel functions. A 20-pin connector with only eight wires is used to interface the system board to the front panel.



KY0031.VSD

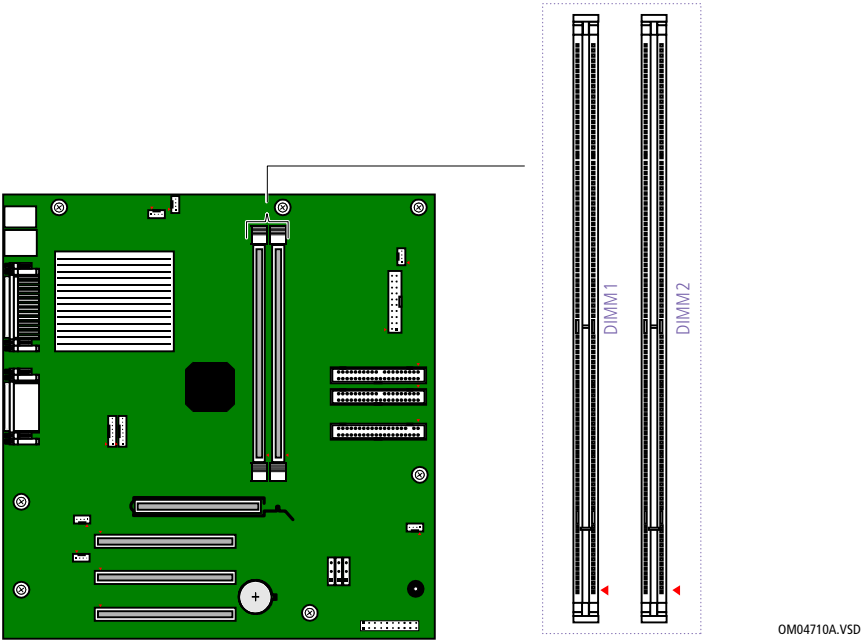
Name	Description
SPEAKER	(not used)
PWR LED	Connects to the power-on indicator light on the front panel
HD LED	Connects to the hard disk drive access light on the front panel
SLEEP	(not used)
PWR	Connects to the power-on switch on the front panel
RESET	(not used)
MSG LED	Connects to the standby indicator light on the front panel.

Diskette Drive Connector

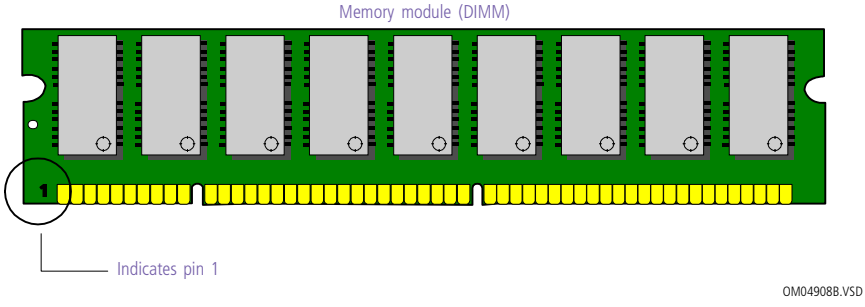


OM04701H.VSD

Memory Module (DIMM) Connectors

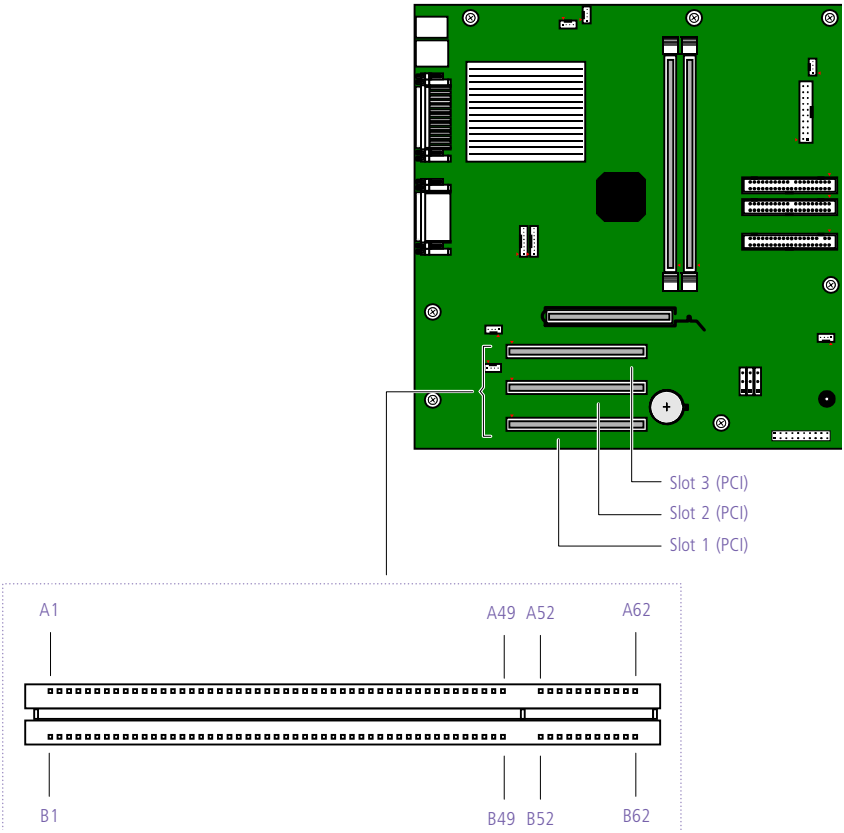


Both sides of each Dual Inline Memory Module (DIMM) look very similar. The side with pin 1 has a small "1" to the left of pin 1. Be sure to orient a DIMM correctly in the DIMM connector (a small triangle on the connector indicates pin 1).



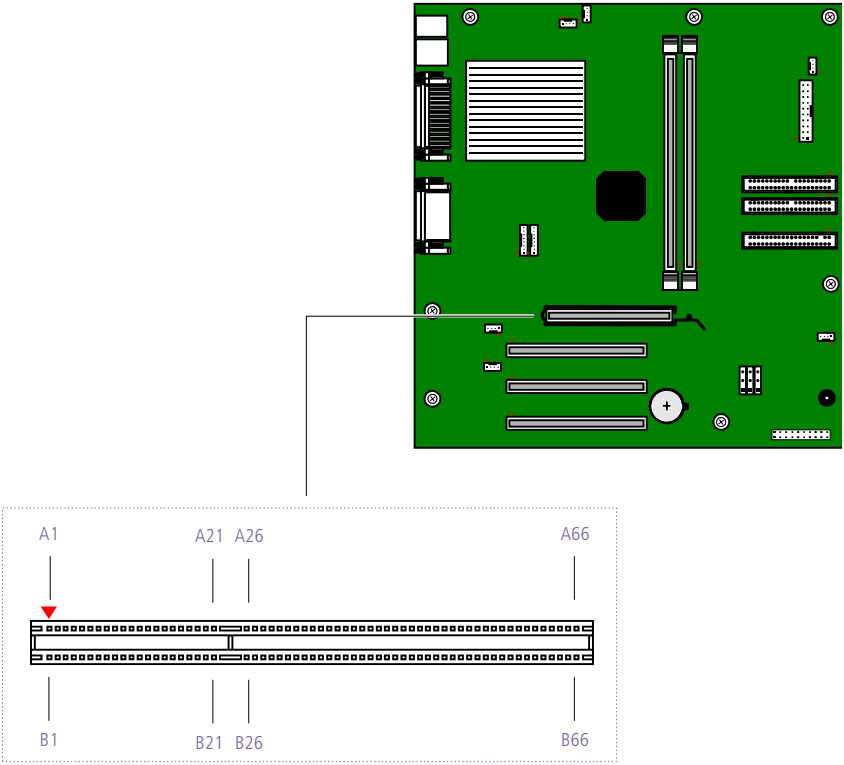
PCI Slot Connectors

There are a total of three PCI slot connectors (slot #1 to #3). Two PCI slots connector (#2 and #3) are available. The PCI slots support 32-bit 5V and Universal (3.3/5V) PCI add-in cards.



AGP Connector

There is one AGP slot connector that supports a 2x AGP graphics card or an AGP retention module.

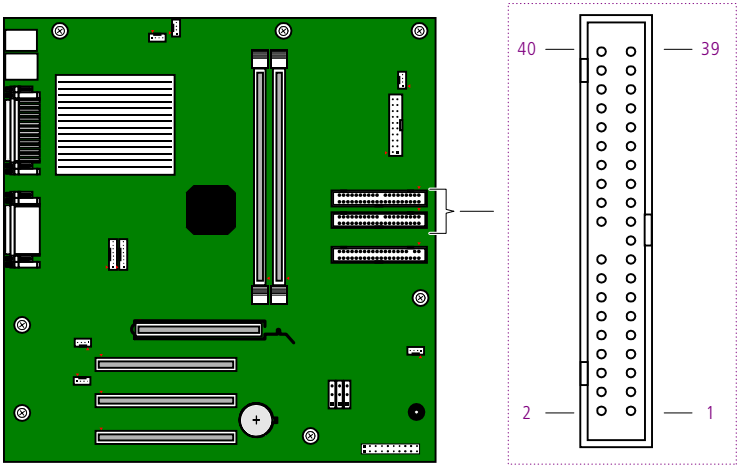


OM04599C.VSD

IDE Connectors

There are two IDE (Integrated Drive Electronics) connectors on the system board: a Primary IDE and a Secondary IDE connector.

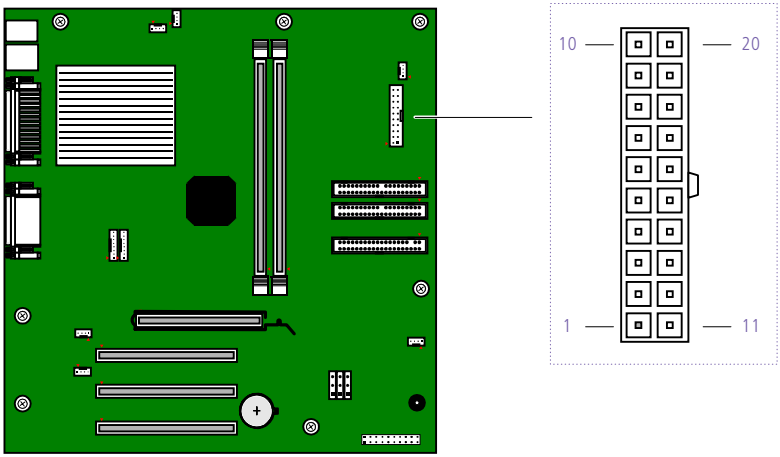
Each IDE connector supports up to two IDE drives using a ribbon cable with two connectors.



OM04701G.VSD

Power Connector

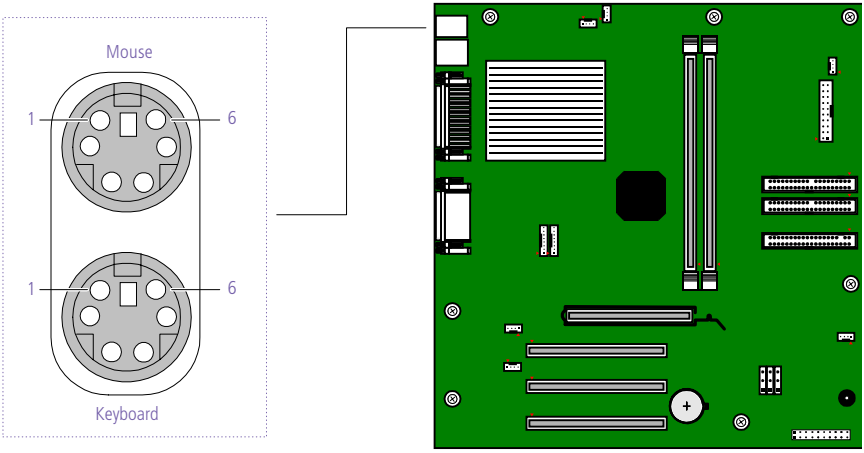
The power supply connector on the system board connects to the power supply connector labelled P1.



OM04701I.VSD

Keyboard and Mouse Connectors

The keyboard connector and the mouse connector are 6-pin female PS/2-type (mini-DIN) connectors. They have identical pinouts.



KY0032.VSD

Keyboard and Mouse connectors

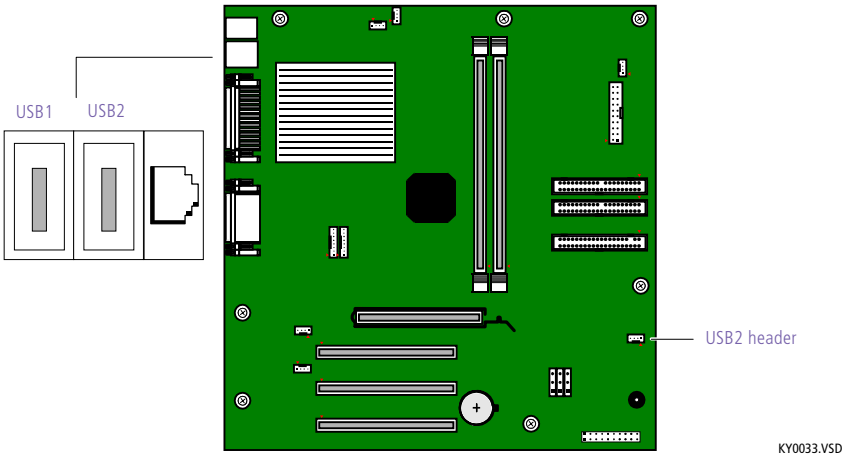
Pin	*Signal Name*
1	DATA
2	NC
3	LOGIC GND
4	+5V (fused)
5	CLOCK
6	NC

USB Connectors

There are two USB ports at the rear panel, and one UBS port at the front panel. Each permits connection of USB peripheral devices directly to the system without having to use an external hub.

USB2 and USB2 are standard USB connectors accessible from the rear panel. USB2 Header is a 4-pin single-line header that connects to a standard USB connector (USB1) accessible at the bottom of the front panel. An internal cable connects USB2 Header to an interface board behind the front panel.

If more USB devices are needed, connect an external hub to any USB connector.



USB2 Header (connects to USB1 on front panel)

Pin	*Signal Name*
1	USBVCC2
2	USBP1#
3	USBP1
4	Ground

USB1, USB2 connectors

Pin	*Signal Name*
1	USBVCC1*
2	USBP0#
3	USBP0
4	Ground

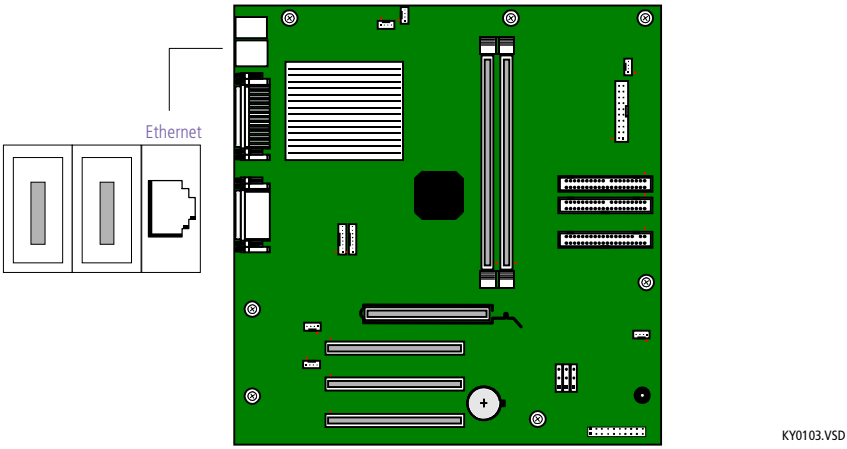
USB1, USB2 connectors (continued)

5	USBVCC2*
6	USBP1#
7	USBP1
8	Ground

* Uses over-current protector.

Ethernet Connector

There is one Ethernet connector at the rear panel, which permits connection to a 10Base-T/100Base-TX Ethernet network.

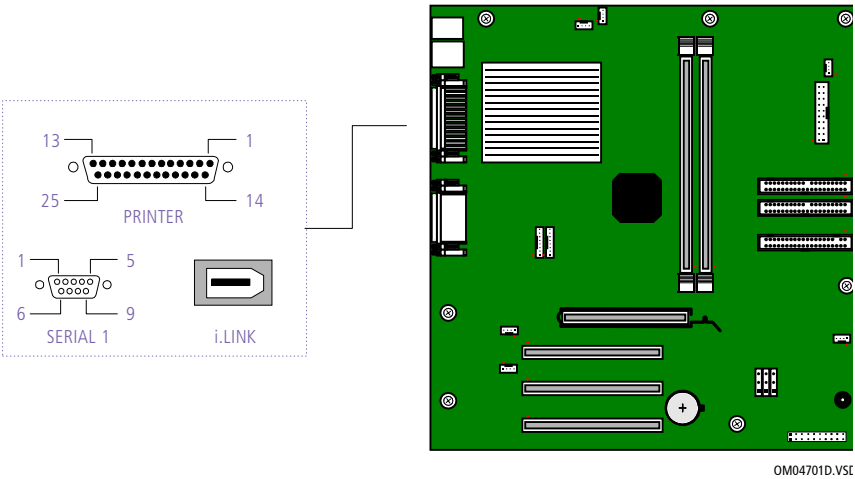


Ethernet connector

Pin	*Signal Name*
1	Tx+
2	Tx-
3	Rx+
4	N/C
5	N/C
6	Rx-
7	N/C
8	N/C

Serial 1, Printer, and i.LINK Connectors

The Serial, Printer, and i.LINK connectors are mounted in a single bracket on the system board. The Serial 1 connector is a DB-9 male connector. The Printer connector is a DB-25 female connector. The i.LINK connector is a 6-pin standard IEEE-1394 connector.



Serial 1 connector

Pin	*Signal Name*
1	DCD
2	RXD
3	TXD
4	DTR
5	LOGIC GND
6	DSR
7	RTS
8	CTS
9	RI

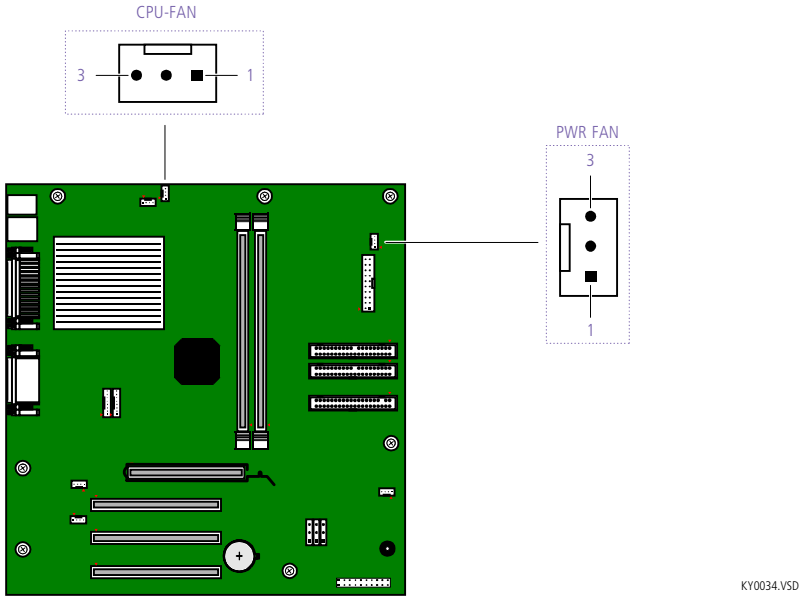
Printer connector	
Pin	*Signal Name*
1	STROBE -
2	DATA BIT 0
3	DATA BIT 1
4	DATA BIT 2
5	DATA BIT 3
6	DATA BIT 4
7	DATA BIT 5
8	DATA BIT 6
9	DATA BIT 7
10	ACK -
11	BUSY
12	PE
13	SELECT
14	AUTO-FEED -
15	ERROR -
16	INIT -
17	SELECT-IN -
18	LOGIC GND
19	LOGIC GND
20	LOGIC GND
21	LOGIC GND
22	LOGIC GND
23	LOGIC GND
24	LOGIC GND
25	LOGIC GND

i.LINK connector	
Pin	*Signal Name*
1	Ground VP (Power)*
2	Ground
3	TPB*
4	TPB
5	TPA*
6	Ground TPA

* Uses over-current protector.

Fan Connectors

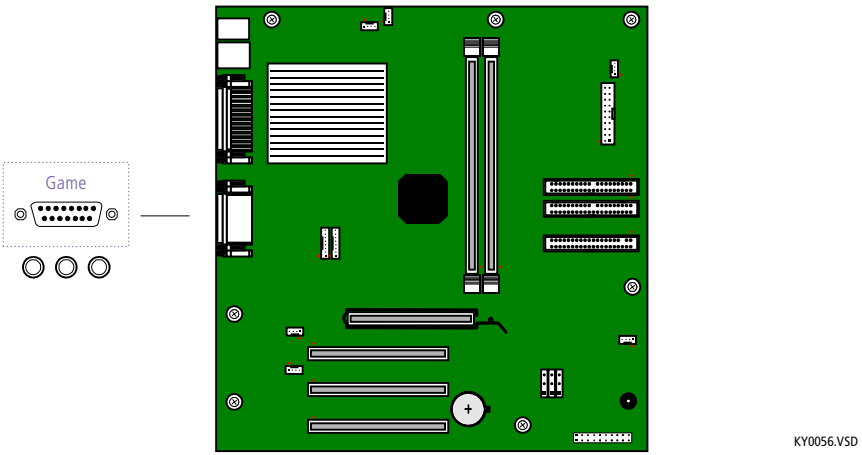
The CPU-FAN and PWR-FAN connectors are 1 x 3-pin straight header connectors. CPU-FAN controls the cooling fan on the CPU. PWR-FAN controls the cooling fan in the power supply.



CPU-FAN and PWR-FAN connectors	
Pin	*Signal Name*
1	Ground
2	FAN_CTRL (+12V)
3	FAN_SEN

Game Connector

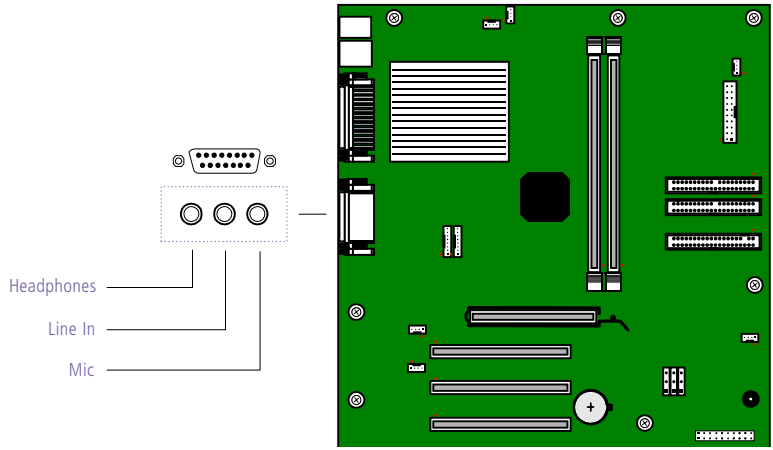
The Game connector is a female DB-15 connector for connecting to a game controller/joystick or MIDI device.



Game connector	
Pin	*Signal Name*
1	GAMEVCC
2	JPYB0
3	JOYA0
4	GND
5	GND
6	JOYA1
7	JOYA2
8	GAMEVCC
9	GAMEVCC
10	JOYB2
11	JOYA2
12	MIDI_TxD
13	JOYA3
14	JOYB3
15	MIDI_RxD

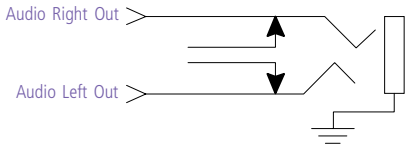
Headphones, Line In, Mic Connectors

The Headphones jack is a stereo mini-jack (3.5 mm) that connects to headphones. The Line In jack is a stereo mini-jack (3.5 mm) that connects to a stereo audio source (not an audio source from a video device). The Mic In jack is a stereo mini-jack (3.5 mm) that connects to a microphone.



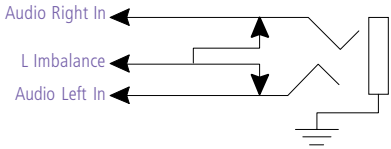
KY0058.VSD

Headphones



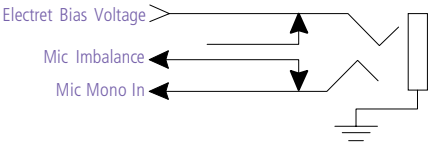
OM04713.VSD

Line In



OM04713B.VSD

Mic



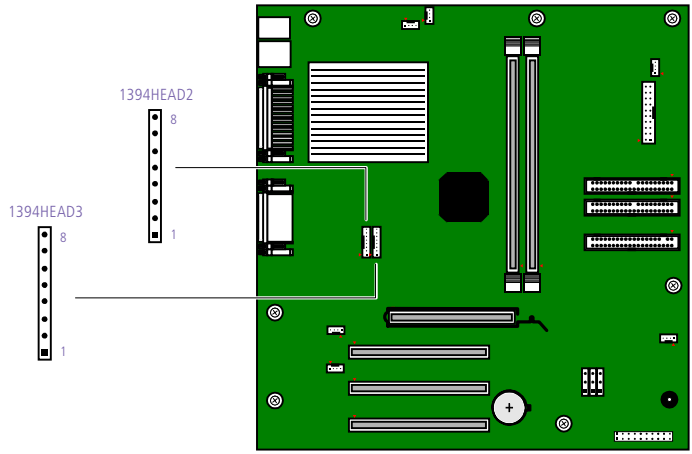
OM04713A.VSD

i.LINK Header Connectors

The system board has two i.LINK header connectors: 1394HEAD2 and 1394HEAD3.

A cable connects the 8-pin header connector (1394HEAD3) to an interface unit mounted behind the front of the chassis. The interface unit connects to the 4-pin i.LINK (IEEE-1394) connector at the bottom of the front panel.

The other 8-pin header connector (1394HEAD2) is not used.



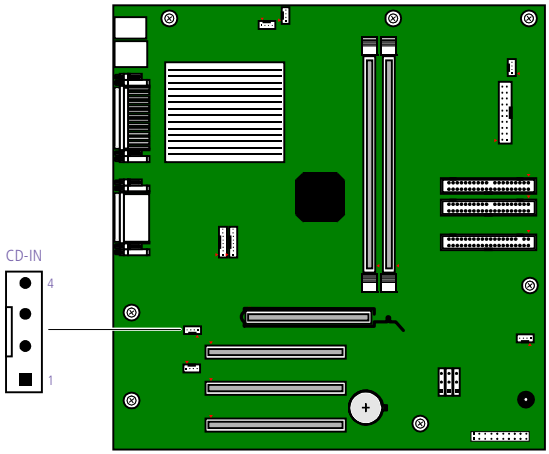
i.LINK Header connectors (1394HEAD2 and 1394HEAD3)

Pin	*Signal Name*
1	Shell Ground
2	Ground
3	TPA
4	TPB*
5	TPB
6	GroundTPB*
7	Ground
8	VP (Power)*

* Uses over-current protection.

CD-IN Connector

The CD-IN connector on the system board is a 1 x 4-pin header connector that connects to the CD-ROM/DVD-ROM drive's audio output connector.

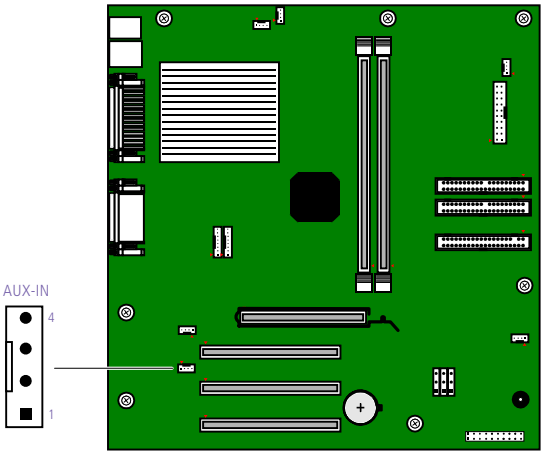


CD-IN connector

Pin	*Signal Name*
1	Left Line In
2	Ground
3	Ground
4	Right Line In

AUX-IN Connector

The AUX-IN connector on the system board is a 1 x 4-pin header connector that connects to the CD-RW drive's audio output connector.



KY0062B.VSD

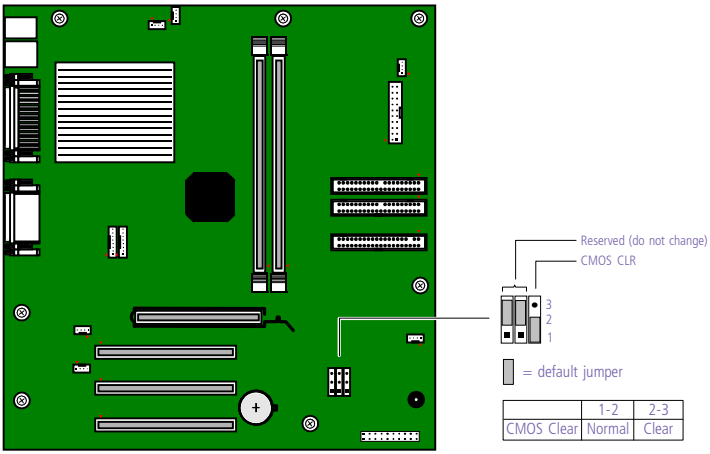
AUX-IN connector

Pin	*Signal Name*
1	Left Line In
2	Ground
3	Ground
4	Right Line In

Configuration Jumpers

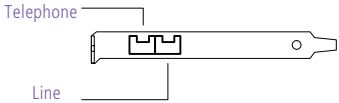
There is one user-configurable jumper for CMOS Clear. The other two jumpers are reserved (do not change).

The computer ships with CMOS Clear in the Normal position. Do not change the position of this jumper unless directed by a technical support person.



Chapter 5
Fax/Modem Card

The fax/modem card occupies PCI slot #1. There are two RJ-11 jacks: one to connect a telephone line, and one to connect a phone.



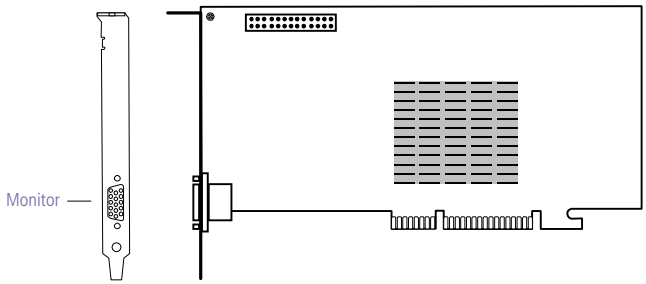
KY0038.VSD

Connectors

Name	Connector Type	Description
Telephone	RJ-11	Connects to phone
Line	RJ-11	Connects to telephone line

Chapter 6
Video Card

The video card occupies the AGP slot. The video card has a standard 15-pin high-density VGA-style connector on the front bracket, and a 26-pin header connector (not used). The video card has 16 Mbytes of SDRAM and has a 128-bit wide bus.



KY0104.V

Chapter 7
CMOS Setup Options

This chapter describes each screen in the Award BIOS Setup Utility (see "Accessing the BIOS Setup Utility" on page 16).

The Award BIOS setup has five menu items on the menu bar. These are:

- Main
- Advanced
- Power
- Boot
- Exit

Options that you can change are enclosed in brackets. Text that is not enclosed in brackets cannot be changed.

A small triangle (▸) indicates that there is a sub-menu with additional information and options. Press Enter to display the sub-menu. The information and options in a sub-menu are context-sensitive (they appear or disappear, depending on which options you select).

The item shown in [brackets] in this guide is the default option. The option shown in [brackets] on the screen is the option currently set for your system.

The other available options for each item are shown without brackets directly below the default option in this guide. The available options are listed in the order they occur when you press the + key.

Use the left and right arrow keys to choose a menu item. Use the up and down arrow keys to select an option. Press Enter to display a list of options, or press the + or - key to cycle through the other options.

If you display the list of options, use the up and down arrow keys to select an option in the list, then press Enter to choose the selection.

Press Esc to go back to the main menu.

Press F10 to save the changes and exit, or press Esc to discard the changes.

Follow the on-screen prompts for other choices. The bottom of the screen presents a summary of the keys to use for navigation and control.

Main Screen

System Time	[00:00:00]
System Date	[01/01/2000]
Legacy Diskette A	[1.44M, 3.5 in.] 2.88M, 3.5 in. None 360K, 5.25 in. 1.2M, 5.25 in. 720K, 3.5 in.
Legacy Diskette B	[None] 360K, 5.25 in. 1.2M, 5.25 in. 720K, 3.5 in. 1.44M, 3.5 in. 2.88M, 3.5 in.
Floppy 3 Mode Support	[Disabled] Drive A Drive B Both

- Primary Master (see "IDE Sub-Menus" on page 76)
- Primary Slave (see "IDE Sub-Menus" on page 76)
- Secondary Master (see "IDE Sub-Menus" on page 76)
- Secondary Slave (see "IDE Sub-Menus" on page 76)

Language	[English]
Supervisor Password	[Disabled]
User Password	[Disabled]
Halt On	[All but Keyboard] All but Disk All but Disk/Keyboard All Errors No Error
Installed Memory	128 MB

▸IDE Sub-Menus

Type	[Auto] User Type HDD CD-ROM LS-120 ZIP-100 MO Other ATAPI None
Translation Method*	[LBA] Large Normal Match Partition Table Manual
Cylinders†	[1024]
Heads†	[255]
Sectors‡	[63]
CHS Capacity*	8422MB
Maximum LBA Capacity*	30735MB
Multi-Sector Transfers*	[Maximum] Disabled 2 Sectors 4 Sectors 8 Sectors 16 Sectors 32 Sectors
SMART Monitoring*	[Disabled] Enabled
PIO Mode**	[4]
ULTRA DMA Mode†	[4]
Set Device As††	[Auto] Floppy Hard Disk

* This option appears when Type is set to User Type HDD.
† This option appears when Type is set to Auto or User Type HDD.
‡ This option appears when Type is set to Auto or User Type HDD.
** This option appears when Type is not set to None.
†† This option appears when Type is set to ZIP-100 or MO.

Advanced Screen

CPU Core:Bus Freq. Multiplier	[5.5x] 6.0x 6.5x 7.0x 7.5x 8.0x 2.0x 2.5x 3.0x 3.5x 4.0x 4.5x 5.0x
CPU Level 1 Cache	[Enabled] Disabled
CPU Level 2 Cache	[Enabled] Disabled
CPU Level 2 Cache ECC Check	[Disabled] Enabled
BIOS Update	[Enabled] Disabled
PS/2 Mouse Function Control	[Auto] Enabled
USB Legacy Support	[Auto] Disabled Enabled
OS/2 Onboard Memory > 64M	[Disabled] Enabled

- Chip Configuration (see "Chip Configuration Sub-Menu" on page 78)
- I/O Device Configuration (see "I/O Device Configuration Sub-Menu" on page 79)
- PCI Configuration (see "PCI Configuration Sub-Menu" on page 80)
- Shadow Configuration (see "Shadow Configuration Sub-Menu" on page 82)

- Chip Configuration Sub-Menu

SDRAM Configuration	[By SPD] User Define 7ns (143MHz) 8ns (125MHz)
SDRAM CAS Latency	[3T]
SDRAM RAS to CAS Delay	[3T]
SDRAM RAS Precharge Time	[3T]
SDRAM Cycle Time (Tras, Trc)	[6T, 8T] 5T, 7T
SDRAM Page Closing Policy	[All Banks] One Bank
CPU Latency Timer	[Enabled] Disabled
CPC	[Enabled] Disabled
Graphics	[64MB] 32MB
Video Memory Cache Mode	[UC] USWC
AGP 4X Support	[Enabled] Disabled
Memory Hole At 15M-16M	[Disabled] Enabled
PCI 2.1 Support	[Enabled] Disabled
High Priority PCI Mode	[Enabled] Disabled
Onboard PCI IDE Enable	[Both] Primary Secondary Disabled

▸I/O Device Configuration Sub-Menu

Onboard AC97 Audio Controller	[Enabled] Disabled
Onboard 1394 Controller	[Enabled] Disabled
Onboard Lan Controller	[Enabled] Disabled
Onboard FDC Swap A & B	[No Swap] Swap AB
Floppy Disk Access Control	[R/W] Read Only
Onboard Serial Port 1	[3F8H/IRQ4] 2F8H/IRQ3 3E8H/IRQ4 2E8H/IRQ10 Disabled
Onboard Parallel Port	[378H/IRQ7] 278H/IRQ5 Disabled 3BCH/IRQ7
Parallel Port Mode	[Normal] EPP ECP ECP+EPP
Onboard Game Port	[200H-207H] 208H-20FH Disabled
Onboard MIDI I/O	[330H-331H] 300H-301H Disabled
Onboard MIDI IRQ	[10] 3 4 5 6 7 9 11 12 14 15

- PCI Configuration Sub-Menu

Slot 1 IRQ to Slot 3 IRQ	[Auto] NA 3 4 5 7 9 10 11 12 14 15
PCI/VGA Palette Snoop	[Disabled] Enabled
PCI Latency Timer	[32]
SYMBIOS SCSI BIOS	[Auto] Disabled
USB Function	[Enabled] Disabled
VGA BIOS Sequence	[PCI/AGP] AGP/PCI
Onboard LAN Boot ROM	[Disabled] Enabled

- PCI/PNP IRQ Resource Exclusion Sub-Menu

IRQ 3 Reserved	[No/ICU] Yes
IRQ 4 Reserved	[No/ICU] Yes
IRQ 5 Reserved	[Yes] No/ICU
IRQ 7 Reserved	[No/ICU] Yes
IRQ 9 Reserved	[No/ICU] Yes
IRQ 10 Reserved	[No/ICU] Yes
IRQ 11 Reserved	[No/ICU] Yes
IRQ 12 Reserved	[No/ICU] Yes
IRQ 14 Reserved	[No/ICU] Yes
IRQ 15 Reserved	[No/ICU] Yes

- PCI/PNP DMA Resource Exclusion Sub-Menu

DMA 1 Used By ISA	[No/ICU] Yes
DMA 3 Used By ISA	[No/ICU] Yes
DMA 5 Used By ISA	[No/ICU] Yes

- PCI/PNP UMB Resource Exclusion Sub-Menu

ISA/MEM Block BASE	[No/ICU] C800 CC00 D000 D400 D800 DC00

- Shadow Configuration Sub-Menu

Video ROM BIOS Shadow	[Enabled] Disabled
C8000-CBFFF Shadow	[Disabled] Enabled
CC000-CFFFF Shadow	[Disabled] Enabled
D0000-D3FFF Shadow	[Disabled] Enabled
D4000-D7FFF Shadow	[Disabled] Enabled
D8000-DBFFF Shadow	[Disabled] Enabled
DC000-DFFFF Shadow	[Disabled] Enabled

Power Screen

Power Management	[User Define] Disabled Min Saving Max Saving
Video Off Option	[Suspend -> Off] Always On
Video Method	[DPMS OFF] DPMS Reduce ON Blank Screen V/H SYNC+Blank DPMS Standby DPMS Suspend
HDD Power Down	[Disabled] 1 Min 2 Min 3 Min 4 Min 5 Min 6 Min 7 Min 8 Min 9 Min 10 Min 11 Min 12 Min 13 Min 14 Min 15 Min
ACPI Mode	[S3] S1
Suspend Mode	[Disabled] 1~2 Min 2~3 Min 4~5 Min 8~9 Min 20 Min 30 Min 40 Min 1 Hour
PWR Button < 4 Secs	[Suspend] Soft Off

- Power Up Control (see "Power Up Control Sub-Menu" on page 84)
- Hardware Monitor (see "Hardware Monitor Sub-Menu" on page 84)

- Power Up Control Sub-Menu

AC PWR Loss Restart	[Disabled] Enabled
PWR Up On Modem Act	[Disabled] Enabled
Wake On LAN	[Disabled] Enabled

- Hardware Monitor Sub-Menu

MB Temperature	[(displays actual temperature)] Ignore
CPU Temperature	[(displays actual temperature)] Ignore
CPU Fan Speed	[Ignore] (displays actual RPM)
Power Fan Speed	[(displays actual RPM)] Ignore
VCORE Voltage	[(displays actual voltage)] Ignore
+3.3V Voltage	[(displays actual voltage)] Ignore
+5V Voltage	[(displays actual voltage)] Ignore
+12V Voltage	[(displays actual voltage)] Ignore
-12V Voltage	[(displays actual voltage)] Ignore
-5V Voltage	[(displays actual voltage)] Ignore

Boot Screen

1. ATAPI CD-ROM	[(displays installed drive)] Disabled
2. Removable Device	[Legacy Floppy] LS120 ZIP-100 ATAPI MO Disabled
3. IDE Hard Drive	[(displays installed drive)] Disabled
4. Other Boot Device	[Disabled] Network SCSI Boot Device
Plug & Play O/S	[No] Yes
Boot Virus Detection	[Enabled] Disabled
Quick Power On Self Test	[Enabled] Disabled
Boot Up Floppy Seek	[Disabled] Enabled
Silent Boot	[Enabled] Disabled

Exit Screen

Exit Saving Changes

Exit Discarding Changes

Load Setup Defaults

Discard Changes

Save Changes

Chapter 8
Miscellaneous Technical Information

This chapter contains information on the following subjects:

- User and Supervisor password
- Beep code error messages
- PCI configuration status and error messages
- DMA channel assignments
- IRQ assignments
- System I/O address map
- Memory map
- PCI configuration space map

About User and Supervisor Passwords

The system allows you to specify up to two passwords (a User password and a Supervisor password) in the CMOS Setup Utility. The User password is required; the Supervisor password is optional.

Access to the CMOS Setup Utility depends on which passwords were previously set, as indicated next.

If you set these passwords...	*...the following passwords are required:*
User password only	User password is required at bootup.
Supervisor password only	No password is required at bootup. Supervisor password is required by most setup options.
Both passwords	User password is required at bootup. Supervisor password is required by most setup options.

Beep Code Error Messages

During a normal bootup, a single short beep signifies that the system is OK. Other beep patterns signify errors. The number of beeps indicates the specific error that occurred.

The Sony Online Support technical representative will need to know how many beeps your system produces if there is an error, so be sure to count the number of beeps before calling for support.

PCI Configuration Status and Error Messages

The following is a list of status and error messages that may appear on your system from time to time.

Message	Meaning
Floppy Disk Controller Resource Conflict	The diskette controller has requested a resource that is already in use.
NVRAM Checksum Error, NVRAM Cleared	The NVRAM data was reinitialized due to an NVRAM checksum error.
NVRAM Cleared By Jumper	The Clear CMOS jumper block has been changed to the clear position.
NVRAM Data Invalid, NVRAM Cleared	Invalid entry in the NVRAM.
Parallel Port Resource Conflict	The parallel port has requested a resource that is already in use.
PCI Error Log is Full	This message is displayed when more than 15 PCI conflict errors are detected. No additional PCI errors can be logged.
PCI I/O Port Conflict	Two devices requested the same resource, resulting in a conflict.
PCI IRQ Conflict	Two devices requested the same resource, resulting in a conflict.
PCI Memory Conflict	Two devices requested the same resource, resulting in a conflict.
Primary Boot Device Not Found	The designated primary boot device (hard disk drive, diskette drive, CD-ROM drive, or network drive) could not be found.
Primary IDE Controller Resource Conflict	The primary IDE controller has requested a resource that is already in use.
Primary Input Device Not Found	The designated primary input device (keyboard, mouse, or other, if input is redirected) could not be found.
Primary Output Device Not Found	The designated primary output device (display, serial port, or other, if input is redirected) could not be found.
Secondary IDE Controller Resource Conflict	The secondary IDE controller has requested a resource that is already in use.
Serial Port 1 Resource Conflict	Serial port 1 has requested a resource that is already in use.

Static Device Resource Conflict	A non-Plug and Play ISA card has requested a resource that is already in use.
System Board Device Resource Conflict	A non-Plug and-Play ISA card has requested a resource that is already in use.

DMA Channel Assignments

This shows the factory default values. Windows 98 reassigns resources to best meet the needs of a particular configuration.

DMA Channel	Default Assignment
0	Open
1	Open
2	Standard diskette drive controller
3	Open
4	Direct Memory Access controller
5	Open
6	Open
7	Open

System I/O Address Map

Address Range (hex)	Description
0000 - 000F	Direct memory access controller
0010 - 001F	Motherboard resources
0020 - 0021	Programmable interrupt controller
0022 - 002D	Motherboard resources
002E - 002F	Motherboard resources
0030 - 003F	Motherboard resources
0040 - 0043	System timer
0044 - 005F	Motherboard resources
0060 - 0060	Standard 101/102-Key or Microsoft Natural Keyboard controller
0061 - 0061	System speaker
0062 - 0063	Motherboard resources
0064 - 0064	Standard 101/102-Key or Microsoft Natural Keyboard controller
0065 - 006F	Motherboard resources
0070 - 0073	System CMOS/real-time clock
0074 - 007F	Motherboard resources
0080 - 0090	Direct memory access controller
0091 - 0093	Motherboard resources
0094 - 009F	Direct memory access controller
00A0 - 00A1	Programmable interrupt controller
00A2 - 00BF	Motherboard resources
00C0 - 00DF	Direct memory access controller
00E0 - 00EF	Motherboard resources
00F0 - 00FF	Numeric data processor
0170 - 0177	Intel 82801AA bus master IDE controller
0170 - 0177	Secondary IDE controller (dual FIFO)
01F0 - 01F7	Intel 82801AA bus master IDE controller
01F0 - 01F7	Primary IDE controller (dual FIFO)
0200 - 0207	Gameport joystick
0220 - 022F	Vortez AU8810 Sound Blaster Pro emulation
0290 - 0297	Motherboard resources
0330 - 0331	MPU-401 compatible

Address Range (hex)	Description
0376 - 0376	Intel 82801AA bus master IDE controller
0376 - 0376	Secondary IDE controller
0378 - 037F	ECP printer port (LPT1)
03B0 - 03BB	NVIDIA Riva TNT2 Pro (Sony-English)
03CO - 03DF	NVIDIA Riva TNT2 Pro (Sony-English)
03F0 - 03F1	Motherboard resources
03F2 - 03F5	Standard diskette controller
03F6 - 03F6	Intel 82801AA bus master IDE controller
03F6 - 03F6	Primary IDE controller (dual FIFO)
03F7 - 03F7	Standart diskette controller
03F8 - 03FF	Communication port (COM1)
04D0 - 04D1	Motherboard resources
0CF8 - 0CFF	PCI bus
B400 - B41f	Intel 82801AA USB universal host controller
B800 - B807	Primary IDE controller (dual FIFO)
B800 - B80F	Intel 82801AA bus master IDE controller
B808 - B80F	Secondary IDE controller (dual FIFO)
C000 - DFFF	Intel 82810AA PCI bridge
D400 - D407	Lucent WinModem
D800 - D807	Lucent WinModem
E000 - E0FF	Yamaha AC-XG audio device
E100 - E13F	Yamaha AC-XG audio device
E400 - E47F	Motherboard resources
E800 - E80F	Intel® 82801AA SMBus controller
EC00 - EC3F	Motherboard resources

Memory Map

Address range	Default configuration
00000000 - 0009FFFF	System board extension for ACPI BIOS
000A0000 - 000AFFFF	NVIDIA Riva TNT2 Pro (Sony-English)
000B0000 - 000BFFFF	NVIDIA Riva TNT2 Pro (Sony-English)
000C0000 - 000CA7FF	NVIDIA Riva TNT2 Pro (Sony-English)
000CA800 - 000CFFFF	Not available
000F0000 - 000FFFFF	System board extension for ACPI BIOS
00100000 - 07FFFFFF	System board extension for ACPI BIOS
DE000000 - DE003FFF	Sony OHCI i.LINK (IEEE-1394) PCI host controller
DE000000 - DFFFFFFF	Intel 82801AA PCI bridge
DE000000 - DE8007FF	Sony OHCI i.LINK (IEEE-1394) PCI host controller
DF800000 - DF8000FF	Lucent WinModem
E0000000 - E0FFFFFF	NVIDIA Riva TNT2 Pro (Sony-English)
E0000000 - E1EFFFFF	Intel® 82815 processor to AGP controller
E1000000 - E100FFFF	NVIDIA Riva TNT2 Pro (Sony-English)
E1F00000 - E3FFFFFF	Intel® 82815 processor to AGP controller
E2000000 - E3FFFFFF	NVIDIA Riva TNT2 Pro (Sony-English)
E4000000 - E7FFFFFF	Intel® 82815 processor to AGP controller
FFB80000 - FFBFFFFF	Intel® 82802 firmware hub device
FFF80000 - FFFFFFFF	Intel® 82802 firmware hub device

I/O addresses that may be used by add-in cards are not listed.

Chapter 9
Specifications

This chapter describes the technical specifications for the Sony PCV-R556DS/PCV-R558DS computer.

Processors

PCV-R556DS: 733 MHz Intel Pentium® III processor
PCV-R558DS: 866 MHz Intel Pentium® III processor

Chipset

Intel 815 chipset

AGP Bus

AGP interface specification, version 2.0

1 AGP slot (open)

PCI Bus

PCI Level 2.1, 33 MHz zero wait state

3 PCI slots (2 open)

Memory Modules (DIMMs)

Installed memory	128 Mbytes PC-133 SDRAM (133 MHz)
Maximum memory	256 Mbytes (128Mbytes in each socket)
Voltage	3.3 V memory only
Pins	168-pins with gold-plated contacts
SDRAM type	PC-133, 60 ns, unrestricted CAS latency 3, unbuffered, Intel 4-clock, 64 bits (non-ECC)

DIMM Configurations

DIMM1*	DIMM2*
0, 8, 16, 32, 64, 128	0, 8, 16, 32, 64, 128

* The PCV-R556DS/PCV-R558DS is shipped with 128 MB. SDRAM is expandable to 256 MB. Computer SDRAM is unbuffered DIMM, specification Rev. 1.0 or later. Supports SDRAM memory. Does not support EDO memory or buffered DIMM memory. Memory can be installed in either socket. Memory size can vary between sockets. DIMMs can be single- or double-sided. DIMMs must be 133 MHz SDRAM module. Use only 133 MHz FSB-supported memory. Do not mix 66 MHz or 100 MHz memory with 133 MHz memory.

L2 Cache

Installed	256 kbytes of Advanced Transfer cache

Graphics

AGP Controller*	NVIDIA Riva TNT2 Pro
Video memory	16 Mbytes SDRAM @ 166 MHz
Resolution (displayed resolution depends on the graphics display you use)	
True color (32 bits)	Up to 1600 x 1200 at 85 Hz non-interlaced
High color (16 bits)	Up to 1600 x 1200 at 100 Hz non-interlaced
256 colors (8 bits)	Up to 1600 x 1200 at 100 Hz non-interlaced

* Supports DDC-1 and DDC-2b standards for Plug and Play displays.

Audio

Sound chip	Yamaha AC-XG audio
Wave synthesis	Software synthesis
Sound effects	DirectX
Audio sampling rate	Up to 48 kHz at 16 bits
Rear panel connectors	Mic (for microphone) Line In (from stereo audio source) Headphones (for stereo headphone)

Communications

Modem	Lucent 1648 technology V.90-compatible data/fax modem (REN 0.7)*
Fax	14.4 kbps maximum
i.LINK (IEEE-1394)	400 Mbps, OHCI chip set

* Your modem is capable of downloading at 56 Kbps using K56flex™ technology/V.90. Your phone service, online service, or Internet Service Provider may not support this technology or operate at this speed.

I/O and Expansion Slots

Serial ports	One high-speed NS16C550-compatible port
Parallel port	One high-speed bi-directional Centronics-compatible port with ECP and EPP modes
MIDI/game port	One (supports MIDI in/out or two joysticks — adapter cable not supplied)
Modem ports	Two RJ-11 connectors (for line and phone)
USB ports	USB1 (front panel) and USB1 and USB2 (rear panel)
PCI slots	Two available slots. Maximum length for add-in cards is 7.75 inches
IDE connectors	Primary and secondary (each supports two IDE drives)

Drives and Controllers

Diskette controller	82077-compatible (supports up to 2.88 MByte)
Diskette drive	1.44 MByte 3.5-inch MFDD
EIDE controller	Supports up to four EIDE drives (supports PIO Mode 4 EIDE drives and Ultra DMA/66 Mode drives)
IDE hard drive*	PCV-R556DS: 30 GByte PCV-R558DS: 40 GByte
DVD-ROM drive†	DVD-ROM read: 16X (maximum performance). CD-ROM read: 40X (maximum performance).
CD-RW drive‡	CD-RW read: 20X (maximum performance). CD-RW write: 4X (maximum perfornance). CD-R read: 32X (maximum performance). CD-R write: 8X (maximum performance). CD-ROM read: 32X (maximum performance).

* Bus-mastering EIDE driver installed.

† Data on a DVD-ROM is read at a variable transfer rate, ranging from 6.6X at the innermost track to 16X at the outermost track (the data transfer standard 1X rate is 1385 kbytes/s). The average data transfer rate is 11.3X (15,255 kbytes/s). Data on a CD-ROM is read at a variable transfer rate, ranging from 17.2X at the innermost track to 40X at the outermost track (the data transfer standard 1X rate is 150 kbytes/s). The average data transfer rate is 28.6X (4293 kbytes/s).

‡ CD-RW writing speed may vary, depending on the media. The maximum writing speed is 8X (1X = 150 kbytes/s). The maximum reading speed is 20X.

System BIOS

Make and model	Award-based
ROM	2Mbit flash-ROM*
Passwords	User and supervisor passwords supported
Power management	APM 1.2
Advanced features	ACPI-1.0 compliant hardware for use with APM and PNP BIOS APIs
Plug and Play devices	Supported with steerable DMA channels and interrupts
Special features	PC-99 compatible, multi-boot, PCI add-in card auto-configure

* Flash-ROM update utility is available from Sony's web site at http://www.sony.com/pcsupport.

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