

SONY®

VAIO Slimtop™ Computer Reference Manual

PCV-L640



Notice to Users

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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-L640

Serial Number: _____

Safety Information and Caution

CD-RW Laser Diode Properties

Max. Laser output (read)

UJDA310V	UJDA310T	UJDA320
1.8 mW	1.8 mW	1.8 mW

Max. Laser output (write)

UJDA310V	UJDA310T	UJDA320
21 mW	21 mW	21 mW

Wavelength

UJDA310V	UJDA310T	UJDA320
773-797 nm	773-797 nm	780-795 nm

- ❑ 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 modèle modem, afin de réduire les risques d'incendie, n'utilisez qu'un cordon de communication NO. 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-L640
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 Chaudière, Tour centrale
1 promenade du Portage, 5 étage Hull PQ
K1A 0N2.

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

Cet appareil 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 user's 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 combinaison 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.

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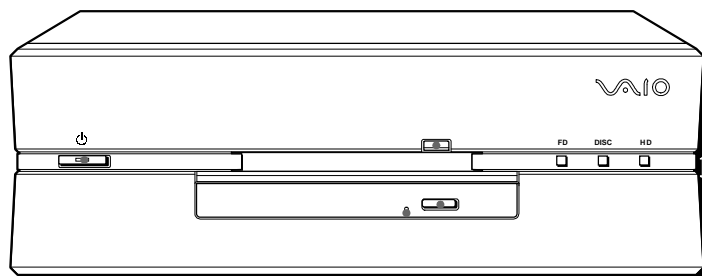
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Chapter 1

Identifying Components

The following sections identify and describe each component that is visible from the exterior of the VAIO® Computer. Internal components are identified in Chapters 3, 4, and 5 of this manual.

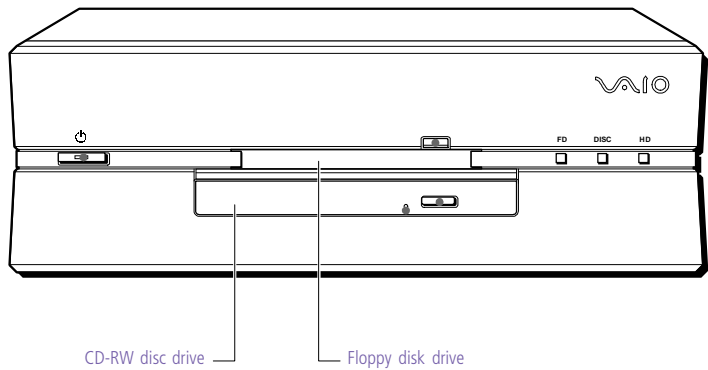
Front View



Flip-down panel

SHA0001.VSD

Drives

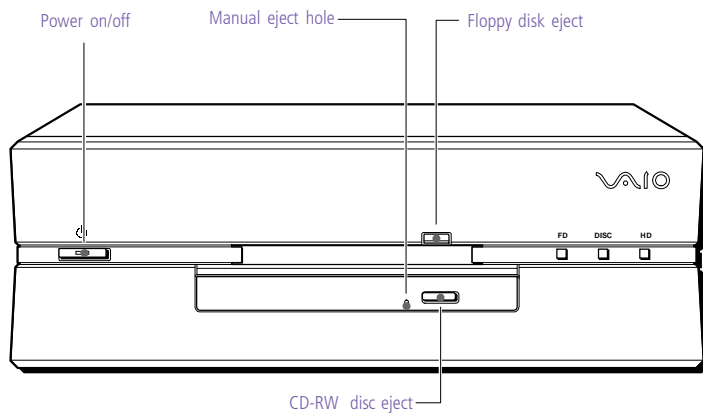


SHA0002.VSD

Drive	Description
Diskette drive	3.5-inch, 1.44 Mbyte.
CD-RW drive*	CD-ROM disc read: 20X (maximum performance). CD-R disc read: 20X (maximum performance). CD-R disc write: 4X (maximum performance). CD-RW disc read: 14X (maximum performance). CD-RW disc write: 4X (maximum performance).

* The CD-RW/CD-R/CD-ROM data transfer standard 1X rate is 150 kbytes/s. Data on a CD-RW is read at a variable transfer rate, ranging from 6X at the innermost track to 14X at the outermost track. The average data transfer rate is 10X (1500 kbytes/s). Data on a CD-R/CD-ROM is read at a variable transfer rate, ranging from 8X at the innermost track to 20X at the outermost track. The average data transfer rate is 14X (2100 kbytes/s). Data on a CD-RW/CD-R is written at a constant transfer rate of 2X or 4X, depending on the speed and media type you select.

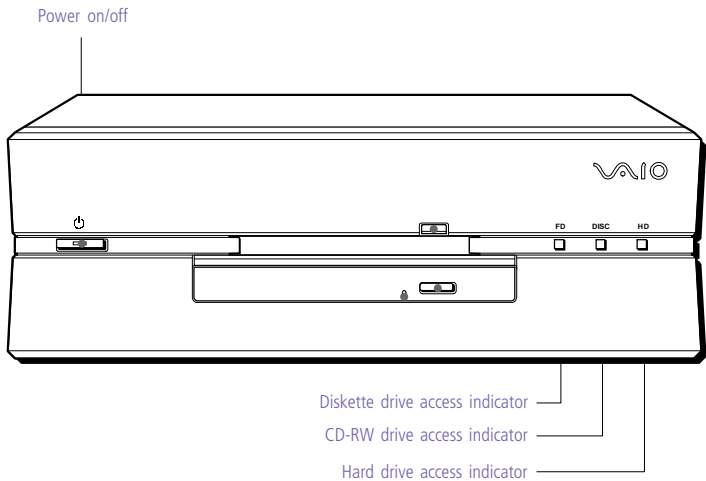
Buttons and Switches



SHA0003.VSD

<i>Button or switch</i>	<i>Description</i>
Power/Standby switch	Turns system power on and off.
Floppy disk eject button	Ejects a diskette.
CD-RW disc eject button	Automatically opens the CD-RW tray.
Emergency eject hole	Ejects an optical disc.

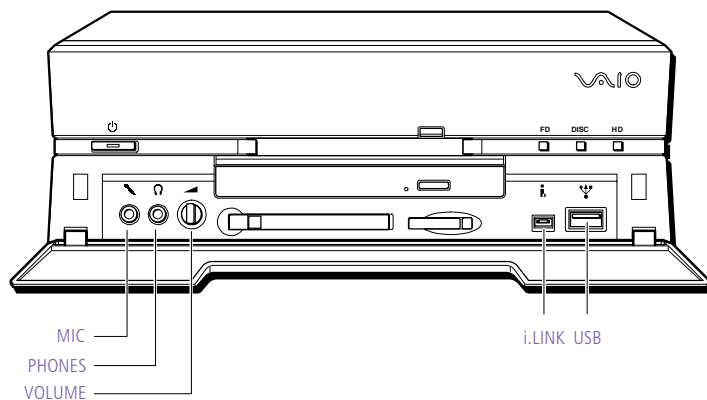
Indicators



SHA0004.VSD

<i>Indicator</i>	<i>Description</i>
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.
CD-RW drive access indicator	On (amber) indicates optical disc activity.
Hard disk drive access indicator	On (green) indicates hard disk drive activity.

Connectors

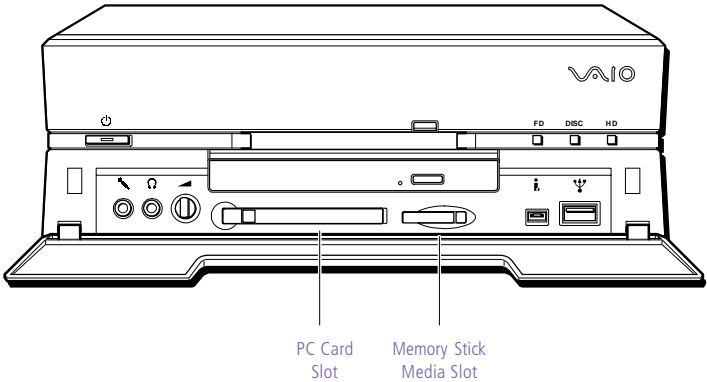


SHA0005.VSD

Connector	Description
MIC	Connects to microphone.
PHONES	Connects to headphones.
i.LINK® (IEEE-1394)*	Connects to digital devices that have a 4-pin i.LINK connector.
USB	Connects to USB devices.
VOLUME	Controls headphone volume.

* 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.

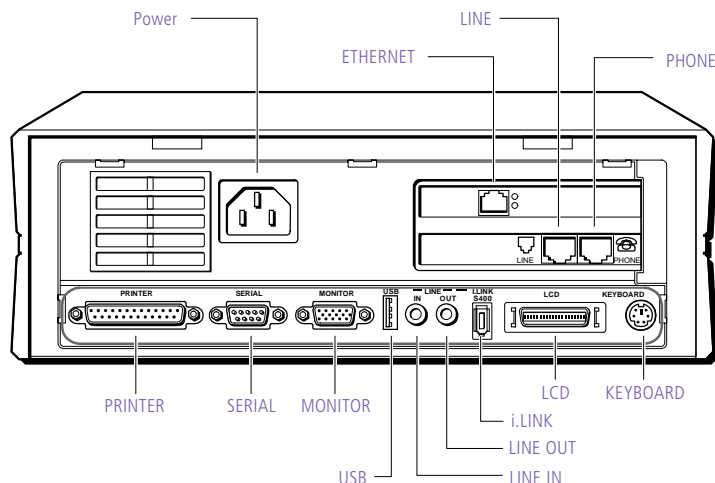
Slots



SHA0006.VSD

Slot	Description
PC Card Slot	Accommodates one Type I or Type II PCMCIA card.
Memory Stick [®] Media Slot	Accommodates Memory Stick media.

Rear View



SHA0007.VSD

Connector	Description
Power	AC input power.
ETHERNET	Connects to RJ-45 Ethernet connector.
LINE	Connects to phone cable from wall jack.
PHONE	Connects to telephone.
PRINTER	Connects to parallel device.
SERIAL	Connects to serial device.
MONITOR	Connects to VGA monitor (optional).
USB	Connects to USB devices.
LINE IN	Connects to output connector on audio device.
LINE OUT	Connects to input connector on audio device.
i.LINK (IEEE-1394)*	Connects to digital device that has a 6-pin i.LINK connector.
LCD	Connects to VAIO Slimtop™ LCD monitor.
KEYBOARD	Connects to keyboard.

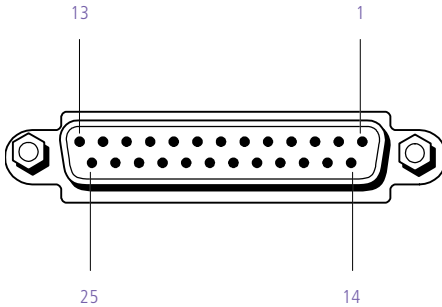
* To connect to a 6-pin i.LINK device, use the i.LINK connector on the back of the system. A 6-pin i.LINK connector can supply power from the computer to the device if the device also has a 6-pin i.LINK connector. A 4-pin i.LINK connector cannot supply power to the device.

I/O Connectors

The following section identifies the various I/O connectors.

PRINTER Port

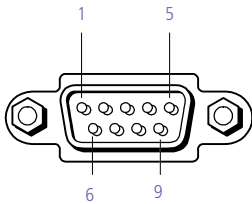
The PRINTER port is a standard 25-pin DB-25 female connector assigned as LPT1.



KY0005.VSD

SERIAL Port

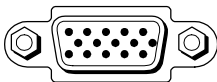
The SERIAL port is a standard 9-pin DB-9 male connector assigned as COM1.



KY0057.VSD

MONITOR

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

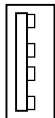


SHA0009.VSD

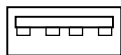
USB Connectors

A USB connector is located on the front and rear panels.

Rear panel



Front panel



KY0003.VSD

PHONE, MIC, LINE IN, and LINE OUT

The PHONES, MIC, LINE IN, and LINE OUT jacks are physically identical, but have different connections. They are standard 3.5 mm stereo mini-jacks. The PHONES and MIC jacks are located on the front panel. The LINE IN and LINE OUT jacks are located on the rear panel.

PHONES

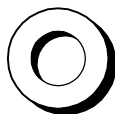


MIC

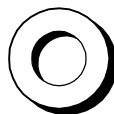


Front panel

LINE IN



LINE OUT



Rear panel

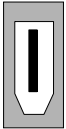
KY0013.VSD

Connector	Description
PHONES	1.0 Vrms output (typical) at 31 mW (32 ohm) output (max).
MIC	Electret condenser microphone input.
LINE IN	1.0 Vrms input (max), 50 Kohm impedance.
LINE OUT	1.0 Vrms out (max).

i.LINK (IEEE-1394)

The 6-pin i.LINK (IEEE-1394) connector on the rear panel can supply power from the computer to a device if the device also has a 6-pin i.LINK connector. The connector supplies 10V to 12V. The total power supplied by the 6-pin i.LINK connector cannot exceed 6 watts.

6-pin i.LINK
(IEEE-1394)



On rear panel

4-pin i.LINK
(IEEE-1394)



On front panel

KY0087.VSD

Ethernet

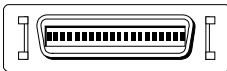
The Ethernet connector on the rear panel connects to a 10Base-T/100Base-TX Fast Ethernet network via an RJ-45 connector.



MAN009.VSD

LCD

The LCD connector is a 40-pin female MDR-type connector.

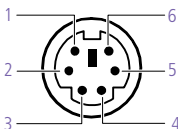


KY0004.VSD

! Do not connect any LCD monitor other than the Sony VAIO Slimtop LCD monitor.

KEYBOARD/MOUSE

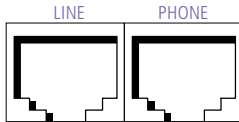
The KEYBOARD/MOUSE connector is a mini DIN-type female connector that can be used for the supplied VAIO Smart convertible keyboard with wheel mouse, and a standard PS/2 keyboard.



KY0002.VS

LINE and PHONE

The LINE and PHONE 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 jack, and the PHONE jack is for connecting the computer to a telephone.



KY0014.VSD



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

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

Accessing the CMOS Setup Utility

You must access the CMOS Setup Utility to make changes to the CMOS settings (see “CMOS Setup Options” on page 75 for information on CMOS settings).

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

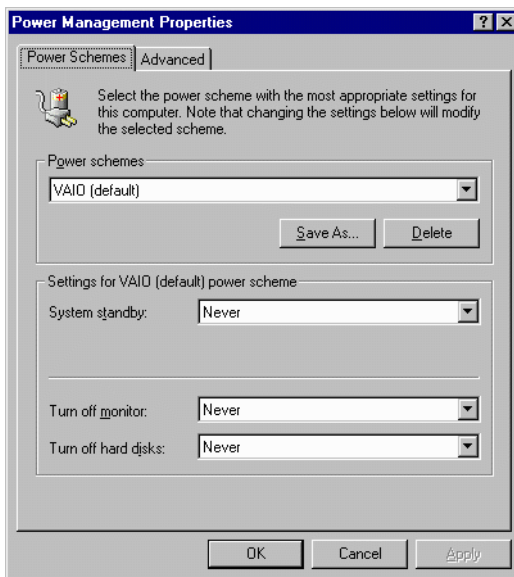
- 1 Reboot the system. The following message appears during the initial boot sequence:
Press TAB to show the POST screen, DEL to enter SETUP
- 2 Press DEL after the progress bar starts.
- 3 Use the arrow keys to select an item from the main menu.
- 4 Press Enter to display the options for the selected 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, type Y, then press Enter. Follow the onscreen 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 Click the **Power Management** icon.

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



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

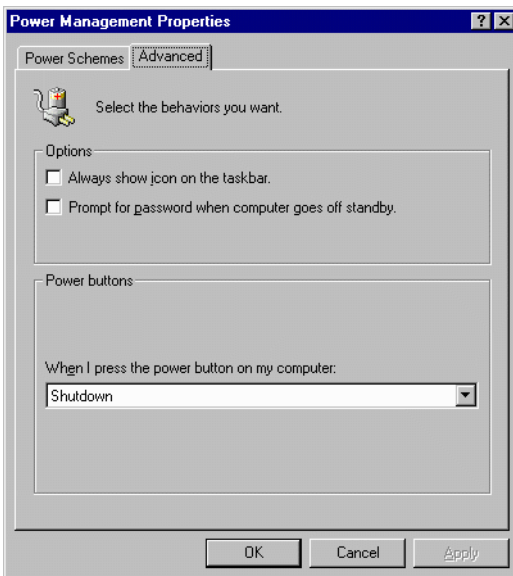
To change a power scheme, change the settings for **System standby**, **Turn off monitor**, and **Turn off hard disks**.

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 move the mouse 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.

- 4 To save a new power scheme, first modify the settings, click **Save As**, type a descriptive name, and then click **OK**.
- 5 Click the **Advanced** tab.



- 6 Select the desired settings, and then click **OK**.

Configuring the System Board

The system board contains the following configuration settings:

- ❑ CMOS jumper
- ❑ CPU Multiplier switches
- ❑ AGP_INT switch
- ❑ VGA switch



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 Windows, turn off the power of the computer and all attached peripherals, and unplug the power cord.

CMOS Jumper

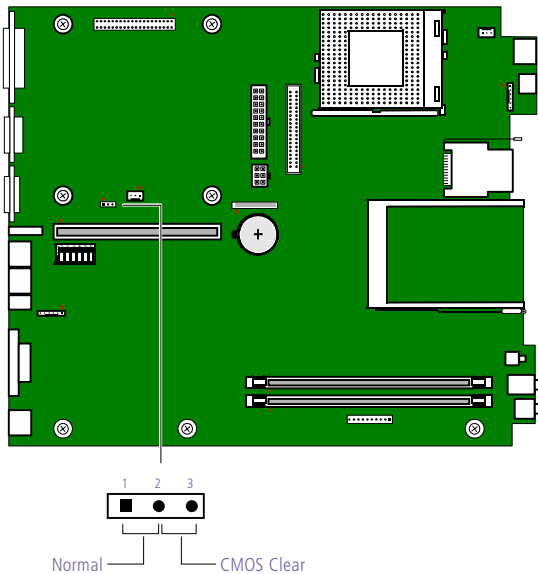
The CMOS jumper provides two modes of operation: Normal mode, and Clear CMOS mode.

Normal mode allows normal access to the BIOS Setup Utility. The Central Processing Unit (CPU) input clock is forced to remain at 100 MHz (fast mode), and the Basic Input/Output System (BIOS) uses the User CMOS settings (as opposed to the System CMOS settings). The CMOS and 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.

To change the CMOS jumper, perform the following steps:

- 1 Remove the system cover (see “Removing the System Cover” on page 24).
- 2 Set the jumper as directed by a service technician (also see “CMOS Jumper” on page 67).

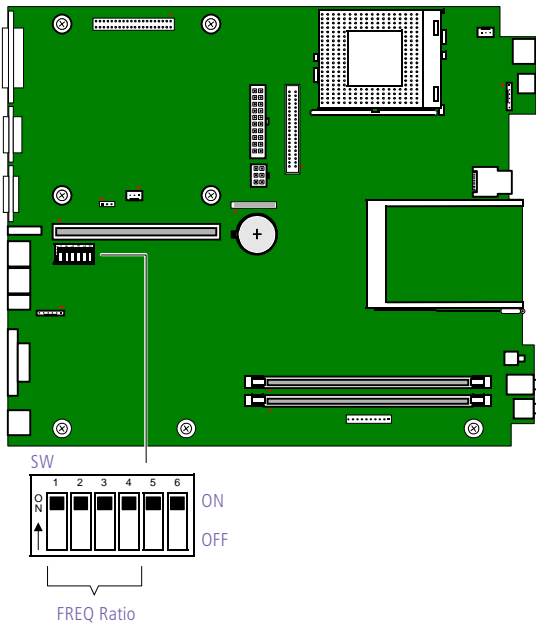


KYC

- 3 Reinstall the system cover (see “Replacing the System Cover” on page 25).

CPU Frequency Ratio Multiplier Switches

The computer ships with the FREQ Ratio multiplier set to X6.0 (see SW table for positions of SW 1 through 4). Changing the FREQ Ratio multiplier will not change the speed of your CPU. Do not change the position of any switch unless directed by a technical support person.



MAN006.VSD

SW

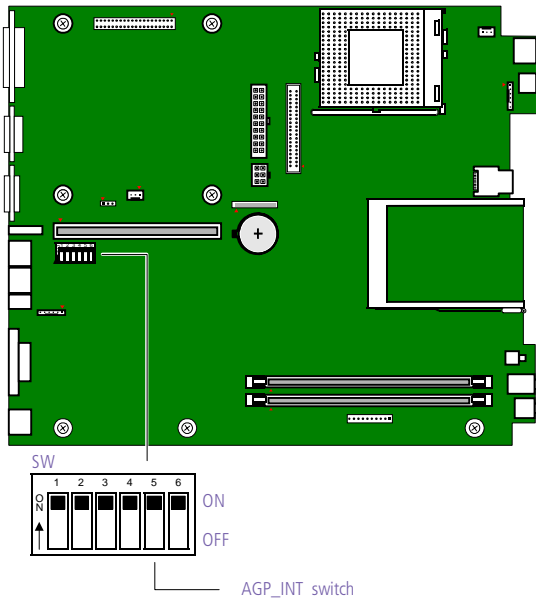
FREQ Ratio	SW 1	SW 2	SW 3	SW 4
X3.0	ON	OFF	ON	ON
X3.5	OFF	OFF	ON	ON
X4.0	ON	ON	OFF	ON
X4.5	OFF	ON	OFF	ON
X5.0	ON	OFF	OFF	ON
X5.5	OFF	OFF	OFF	ON
X6.0 (default)	ON	ON	ON	OFF
X6.5	OFF	ON	ON	OFF
X7.0	ON	OFF	ON	OFF

AGP_INT Switch

You can enable or disable the onboard AGP interrupt.

To enable or disable the AGP_INT, perform the following steps:

- 1 Remove the system cover (see “Removing the System Cover” on page 24).
- 2 Set the switch to ON (Enable) or OFF (Disable). The default is ON (see also “Configuration Switches (SW)” on page 68).



KYC

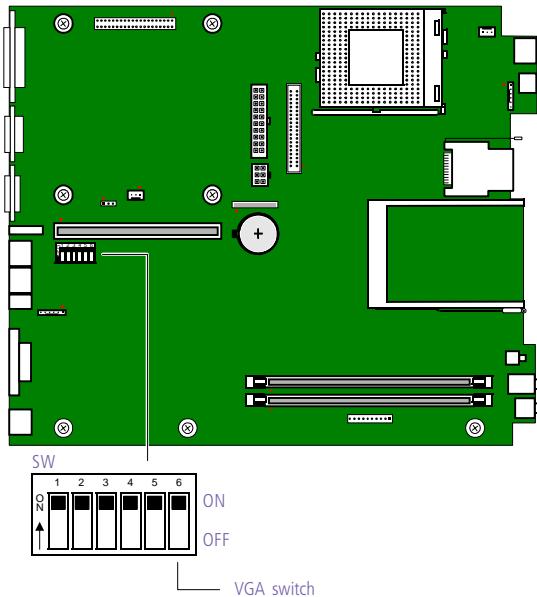
- 3 Reinstall the system cover (see “Replacing the System Cover” on page 25).

VGA Switch

You can enable or disable the onboard VGA controller if you install a VGA PCI add-in card.

To enable or disable the onboard VGA, perform the following steps:

- 1 Remove the system cover (see “[Removing the System Cover](#)” on page 24).
- 2 Set the VGA switch (SW6) to ON (Enable) or OFF (Disable). The default is ON (also see “[Configuration Switches \(SW\)](#)” on page 68).



KY01

- 3 Reinstall the system cover (see “[Replacing the System Cover](#)” on page 25).

Chapter 3

Removing, Installing, and Replacing Components

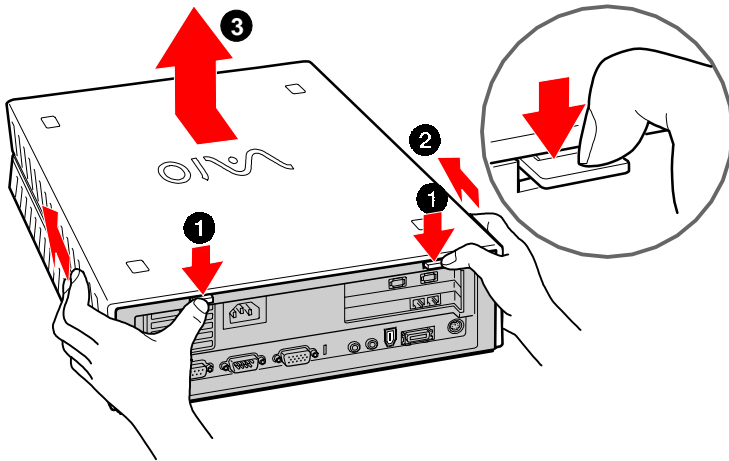
This chapter describes removing, installing, and replacing major components for upgrading, reconfiguring, and troubleshooting the components.

! 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 System Cover

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

- 1 From the rear of the unit, push down on the two tabs that secure the system cover to the chassis.
- 2 Slide the system cover back. The panel slides back about ½ inch.



KY0064B.VSD

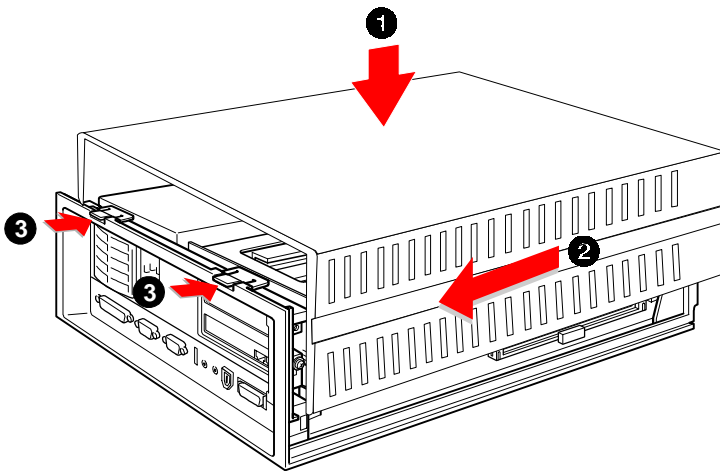


This works best if the spacers are installed on the unit, or the unit sits on a rubber mat.

- 3 Lift straight up to remove it.

Replacing the System Cover

- 1 Position the system cover over the chassis such that the front portion of the system cover extends past the front of the unit.
- 2 Carefully lower the system cover down over the chassis. The rear of the system cover should be about ½ inch in from the rear of the unit.
- 3 Carefully slide the system cover back until the tabs snap into place. Check the front to make sure all drives and connectors are correctly aligned.

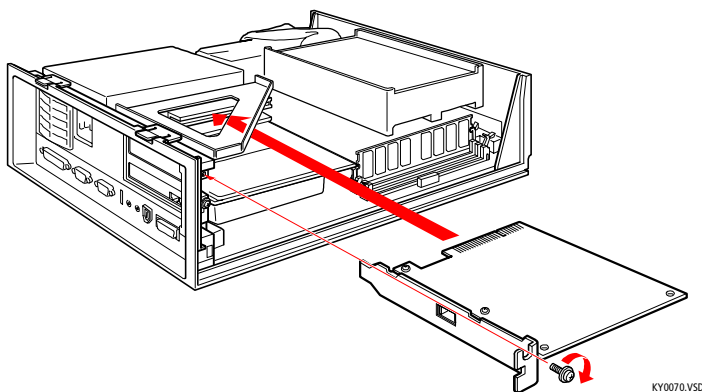



KY0077.VSD

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 system cover (see “Removing the System Cover” on page 24).
- 2 Remove the slot cover adjacent to the selected slot connector on the system board (see “Removing a Slot Cover” on page 44).
- 3 Insert the add-in card into the PCI slot connector. Use a gentle rocking motion, pressing down until the card is fully seated.



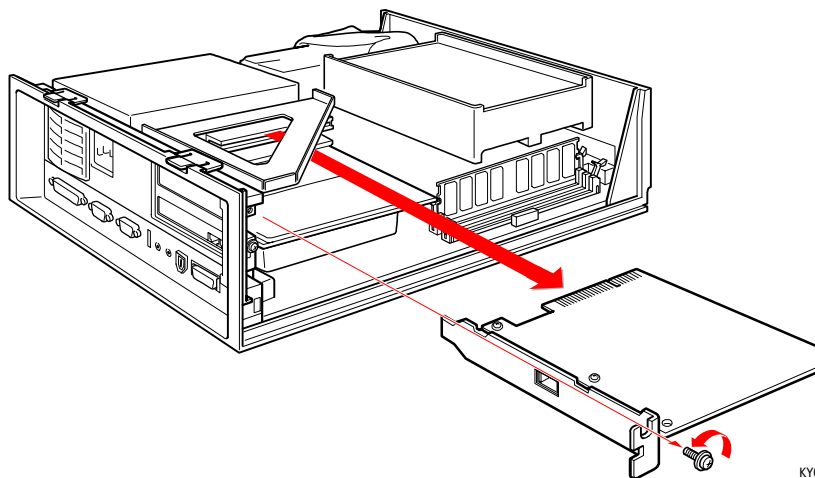
 Align the card's bracket so that the bottom of the bracket fits into the slot at the bottom of the chassis. Assume that the top of the bracket fits snugly against the chassis lip after the card is fully inserted.


- 4 Attach any necessary cables to the card (see the instructions that came with the add-in card).
- 5 Replace the system cover (see “Replacing the System Cover” on page 25).
- 6 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 system cover (see “Removing the System Cover” on page 24).
- 2 Disconnect any cables attached to the add-in card.
- 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.



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

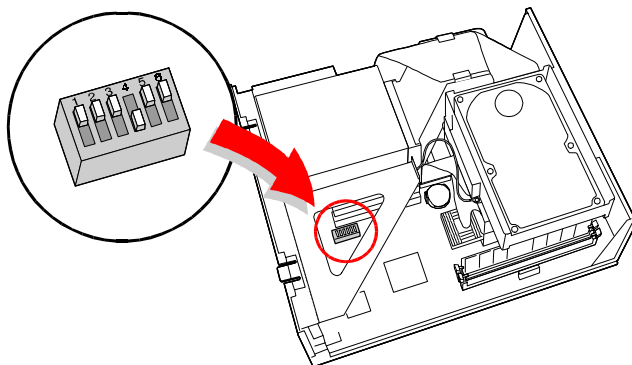
! Hold the add-in card by its edges and do not touch any components or connector contacts on the card. Static electricity in your body may damage sensitive components on the card. As a precaution, touch any exposed metal part on the metal chassis (preferably the metal part on the power supply) before 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 45).
- 6 Replace the system cover (see [“Replacing the System Cover”](#) on page 25).

Setting the Configuration Switches

! 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 any add-in cards (see “Removing an Add-in Card” on page 27).
- 2 Set the switches as needed (see “Configuring the System Board” on page 17).



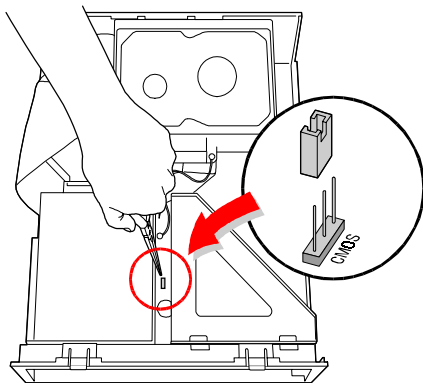
MAN008.VSD

- 3 Replace any add-in card removed in step 1 (see “Installing an Add-In Card” on page 26).

Setting the CMOS Jumper

! 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 system cover (see “Removing the System Cover” on page 24).
- 2 Use long-nose pliers to reposition the CMOS jumper as needed.



MAN007.VSD



Do not change the position of this jumper unless directed by a service technician.

- 3 Replace the system cover (see “Replacing the System Cover” on page 25).

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.

! Sony recommends that you use an authorized service dealer to replace the lithium battery. However, if you wish to replace the battery yourself, read the following cautions, notes, and procedure.

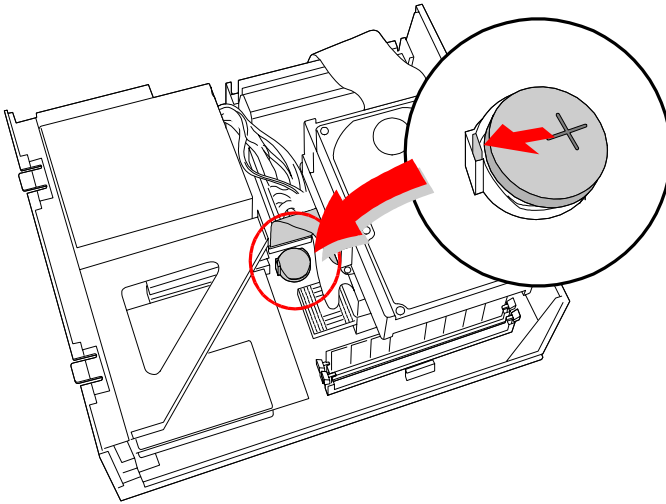
! When you remove the lithium battery, all values stored in the CMOS memory (BIOS setup values and Plug and Play values) may be lost. Although the computer can hold the charge for a short time while replacing the battery, it is safer to assume that the settings will be lost. When the values are lost, the BIOS values revert to their factory-default settings (see “[Accessing the CMOS Setup Utility](#)” on page 14).

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 F3, then 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 75). 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 Press ESC, then select Exit from the main menu using the right arrow key. The Exit Discarding Changes is automatically selected (it is the first item in the list).
- 5 Press Enter, type N when prompted to save, then press Enter to exit the BIOS Setup Utility.
- 6 Turn off the computer and unplug the power cord.
- 7 Remove the system cover (see “[Removing the System Cover](#)” on page 24).


- 8 Carefully reach under the ribbon cable with your finger and push on the battery-eject lever (see diagram). One side of the battery pops up.



KYOC

! Be carefull not to dislodge the ribbon cable. If it becomes dislodged, you may have to bring the unit in to a Sony-authorized service dealer.

- 9 Remove the battery with your finger and thumb and dispose of the battery according to the instructions that came with the new battery.
- 10 Insert the new battery into the battery holder, with the plus (+) side up, and press down until the battery feels secure.

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

- 11 Replace the system cover (see [“Replacing the System Cover”](#) on page 25).
- 12 Reconnect the power cord and turn on the computer.
- 13 If the error message “Error: Check date and time settings.” appears during the reboot sequence, press DEL to access the CMOS Setup Utility. If no error message displays, the computer’s CMOS settings were retained during the battery replacement and you can skip the remaining steps.

- 14 Refer to the list you made in step 3 and restore any non-default CMOS settings (see “[CMOS Setup Options](#)” on page 75).
- 15 Select SAVE & EXIT SETUP from the main menu using the arrow keys, then press Enter.
- 16 Type Y, then press Enter to save the changes and exit the CMOS Setup Utility.

The computer’s CMOS 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 36).
- 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)

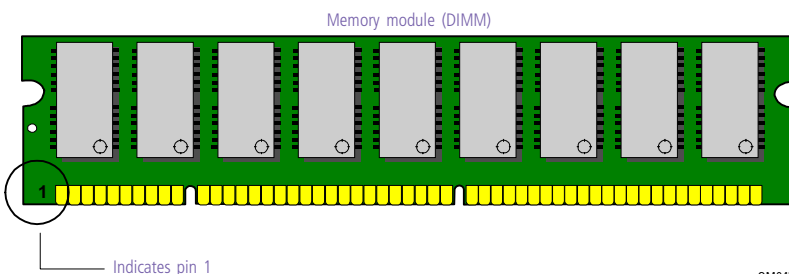
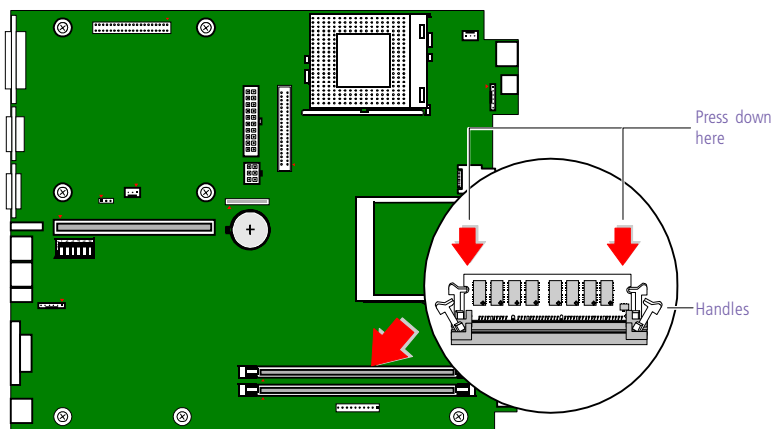
<i>DIMM1</i>	<i>DIMM2</i>
0, 8, 16, 32, 64, 128	0, 8, 16, 32, 64, 128

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



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

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



OM04586.VSI

- 5 Carefully but firmly insert the edge of the module into the socket.
- 6 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.

- 7 Replace the system cover (see “Replacing the System Cover” on page 25).

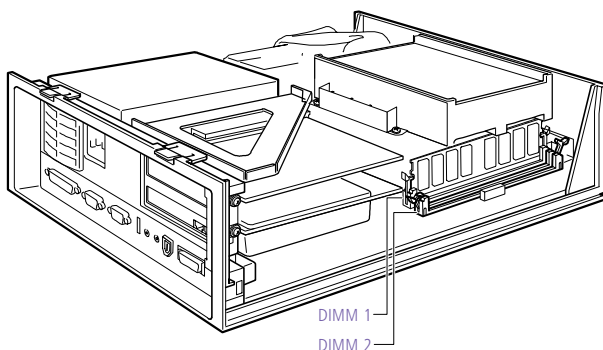
Your computer automatically recognizes the extra memory and configures itself accordingly when you turn it on. No further action is required.

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.

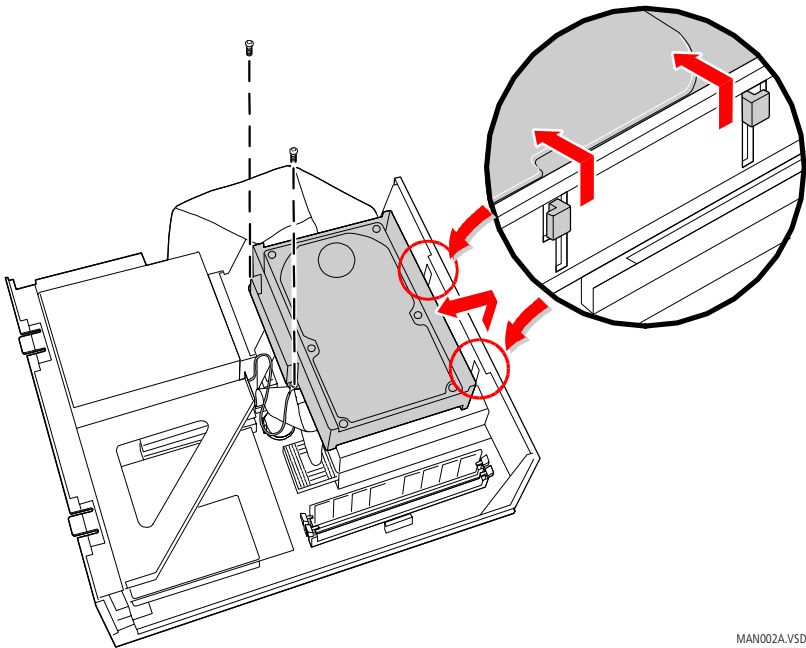
- 1 Remove the system cover (see “Removing the System Cover” on page 24).
- 2 Locate the memory module you wish to remove.



KY0073.VSD

 If the memory module you wish to remove is DIMM #2, skip steps 3 to 5. Otherwise, continue.

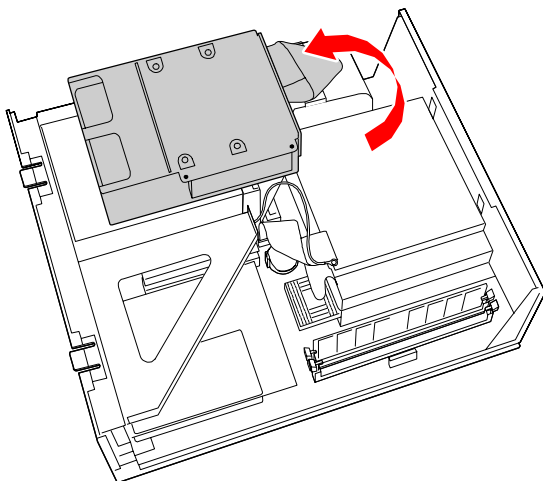
- 3 Remove the two screws that secure the hard drive carrier to the diskette drive housing.



MAN002A.VSD

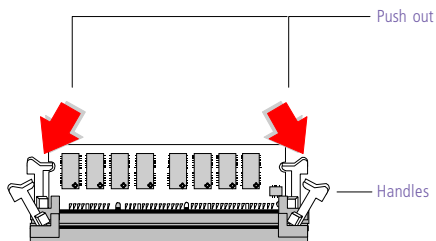
- 4 Lift up the hard drive carrier about $\frac{1}{2}$ inch (until the tabs reach the stops), then pull sideways (away from the front panel) until the hard drive carrier is clear.

- 5 Flip the hard drive carrier upside down and let it rest on the power supply while you remove DIMM #1.



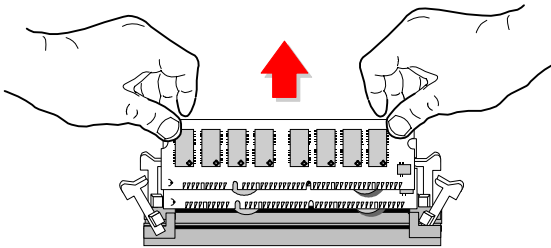
MAN003.VSD

- 6 Push out the handle on each side of the memory module to eject the module from its socket.



KY0042.VSD

- 7 Lift the memory module out by grasping it by its edges. Store the module in a static-free bag.



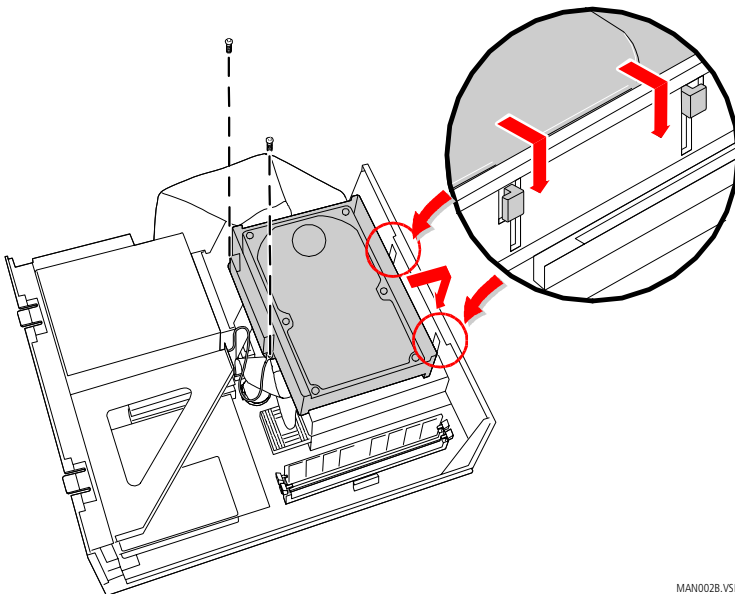
KY

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



If the memory module you removed is DIMM #2, stop. Otherwise, continue.

- 8 Flip the hard drive carrier back to its normal position.
- 9 Insert the drive carrier tabs into the chassis slots, then slip the drive carrier down until the holes in the hard drive carrier align with the holes in the diskette drive carrier.



- 10 Replace the two screws that secure the hard drive carrier to the diskette drive housing.



Be sure you reattach the ground wire located at each screw.

- 11 Replace the system cover (see [“Replacing the System Cover”](#) on page 25).

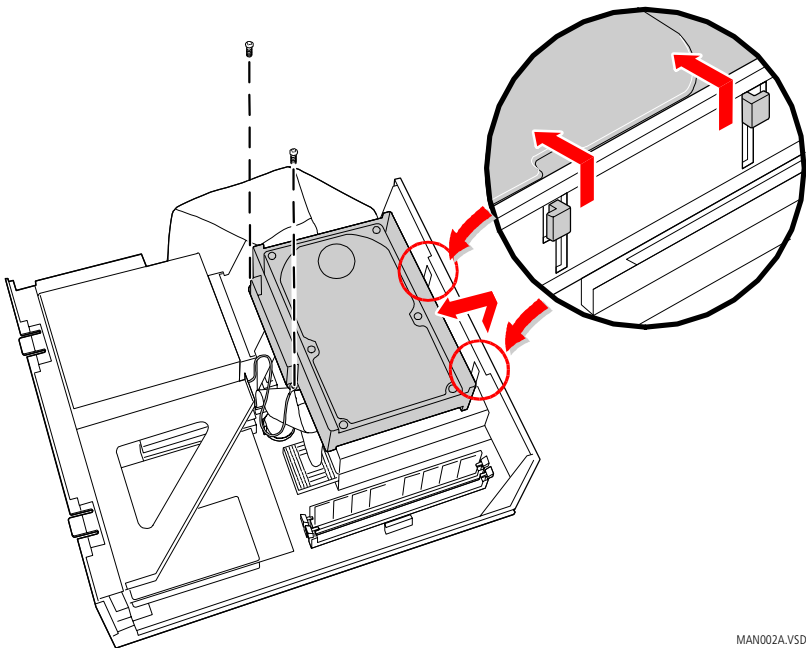
Replacing the Hard Drive

! 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.



Be sure to back up any files on your hard drive that you want to preserve before you replace the drive.

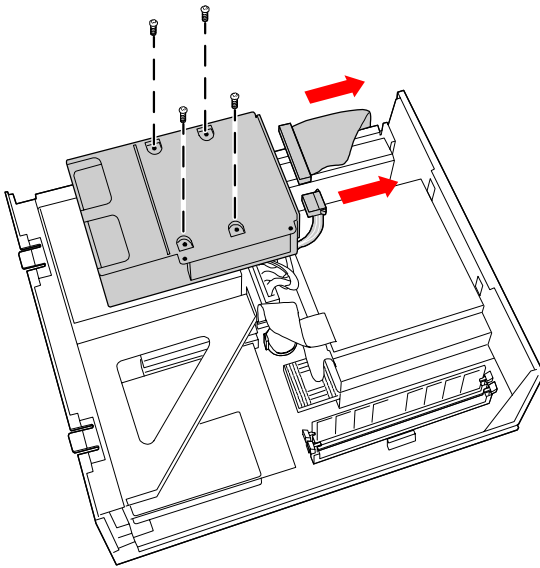
- 1 Remove the system cover (see “Removing the System Cover” on page 24).
- 2 Remove the two screws that secure the hard drive carrier to the diskette drive housing.



MAN002A.VSD

- 3 Lift the hard drive carrier about ½ inch (until it reaches the stops), then pull sideways (away from the front panel) until the drive carrier is clear.

- 4 Unplug the ribbon cable and power supply cable from the hard drive connectors.



MAN004.VSD

- 5 Remove the four screws that secure the hard drive to the bottom of the drive carrier.
- 6 Remove the hard drive from the drive carrier.
- 7 Set the jumpers on the new hard drive to be the Primary Master IDE drive (refer to the instructions that came with your new hard drive).
- 8 Insert the new hard drive into the drive carrier.
- 9 Replace the four screws that secure the drive to the drive carrier.



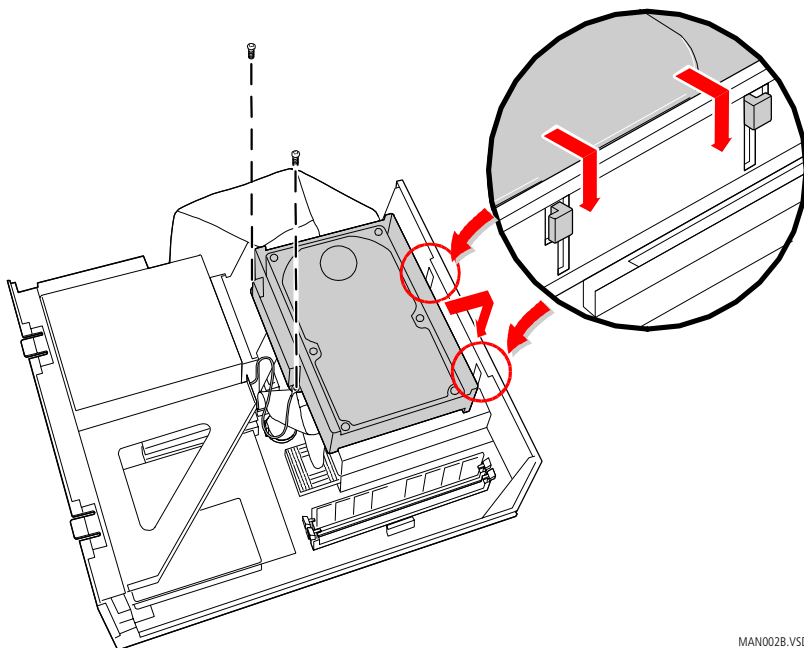
Be sure you reattach the ground tab at the position shown in the illustration.

- 10 Reconnect the ribbon cable and power supply cable to the new hard drive.



Be sure to insert the ribbon cable inside the plastic stress-relief slots on the drive carrier.

- 11 Insert the drive carrier tabs into the chassis slots, then slip the drive carrier down until the holes in the hard drive carrier align with the holes in the diskette drive carrier.



MAN002B.VSD

- 12 Route the longest ground wire through the white plastic cable-tie.
- 13 Replace the two screws that secure the hard drive carrier to the diskette drive carrier.



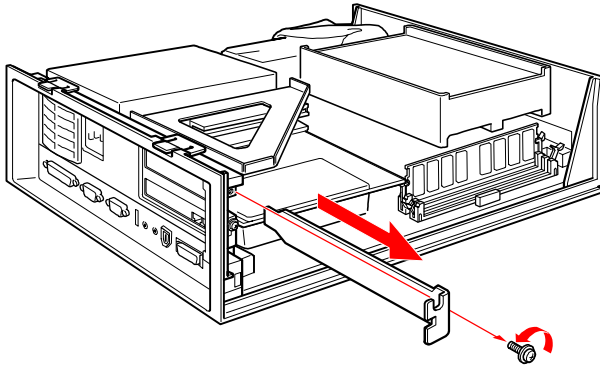
Be sure to reattach the ground wire at each screw location. You might need long-nose pliers to reach the ground wire closest to the drive's power-supply connector.

- 14 Replace the system cover (see “Replacing the System Cover” on page 25).

Removing a Slot Cover

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

- 1 Lay the system on its side with the open side facing up and the slot covers facing you.
- 2 Locate the slot of the cover you want to remove.
- 3 Remove the screw from the slot cover.
- 4 Carefully remove the loose slot cover and retain it for future use.

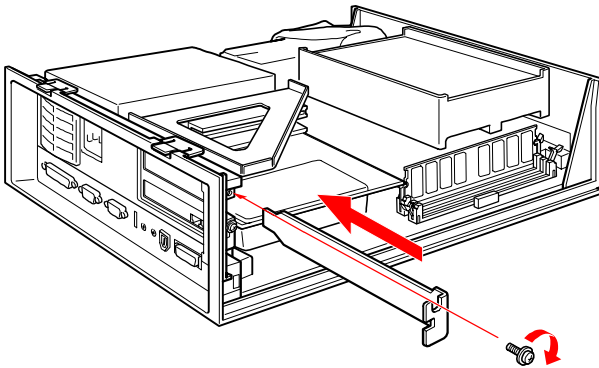


KY0069.VSD

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 Fit the bottom end of the slot cover (removed earlier) between the chassis and system board.



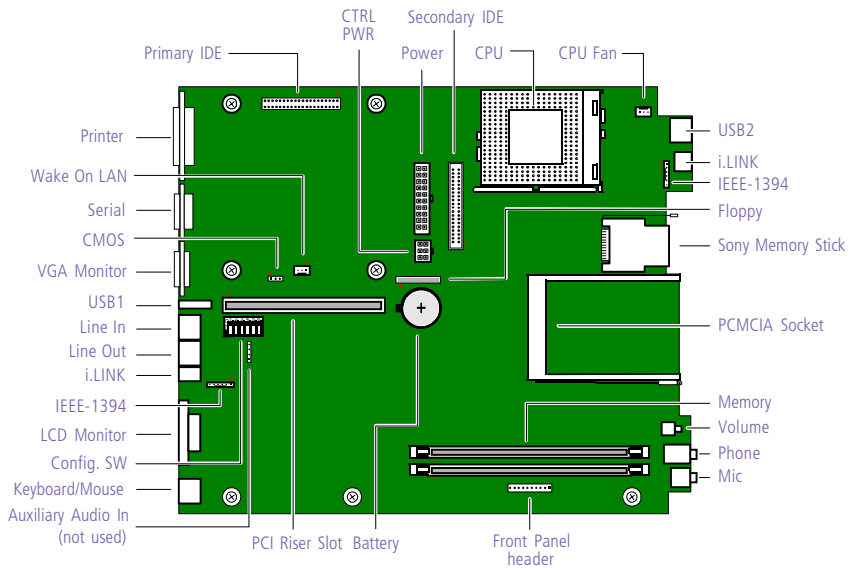
KY0076.VSD

- 2 Push the slot cover in 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.

Chapter 4

System Board

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

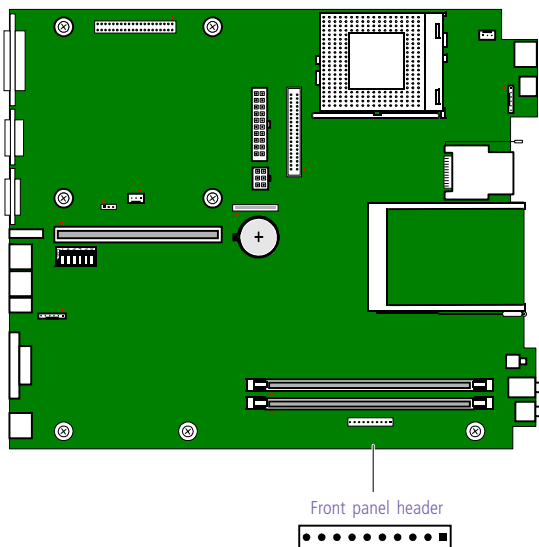


OM04581.VSD

Connectors

Front Panel Header

The front panel header is a 10-pin header that provides connections to various front panel functions.

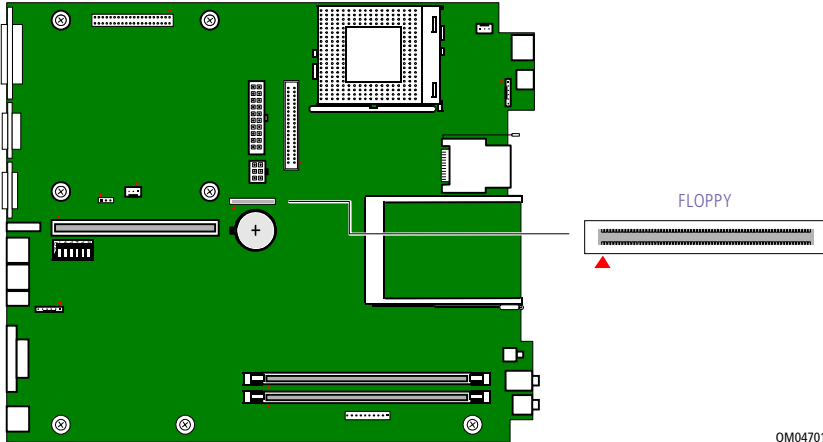


KY0031.VSD

Pin #	Name	Description
1	+5	+5V from power supply.
2	LED (DVD-ROM)	Connects to LED on DVD-ROM.
3	LED (FDD)	Connects to LED on floppy disk drive.
4	LED (HDD)	Connects to LED on IDE hard disk drive.
5	LED (MODEM)	Connects to LED on modem card.
6	Reserved	Not used.
7	LED3	Connects to Standby/Sleep (red) signal from power supply.
8	LED4	Connects to Power (green) anode signal from power supply.
9	POWER SW	Connects to power switch.
10	GND	Connects to signal ground.

Diskette Drive (FLOPPY) Connector

The FLOPPY connector is a 26-pin connector for a slim notebook-type diskette drive.



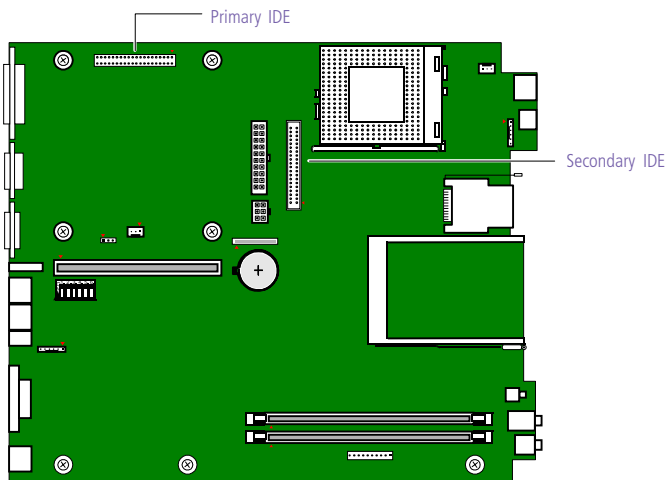
OM04701H.VSD

IDE Connectors

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

The Primary IDE connector is a 40-pin 2.54 mm pitch header-type connector for the 3.5-inch hard disk drive.

The Secondary IDE connector is a 50-pin 2 mm pitch header-type connector for the slim notebook-type CD-RW drive. The audio from the CD-RW passes through the Secondary IDE connector.

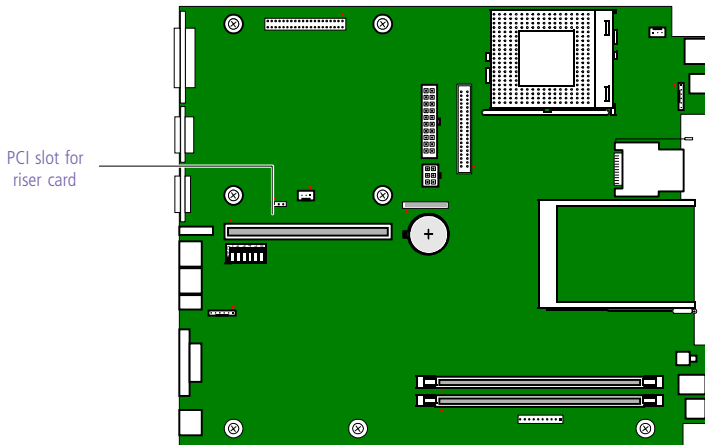


OM04701G.VSD

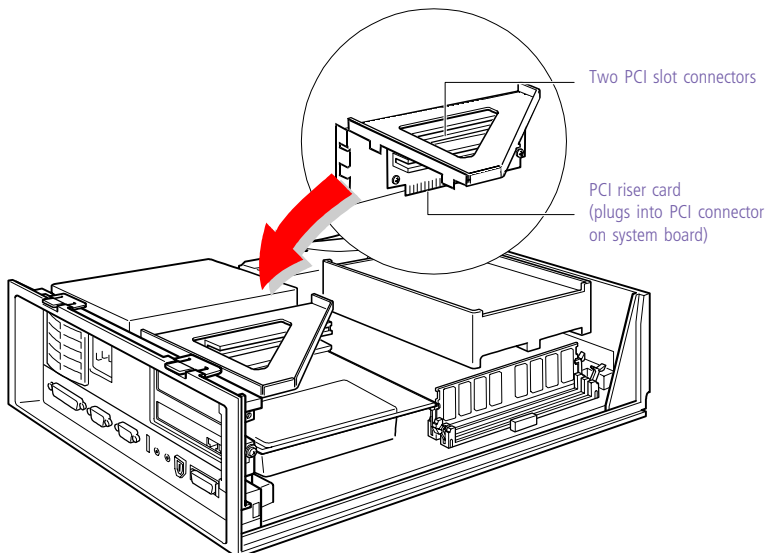
PCI Slot Connectors

The system board contains one PCI Riser slot connector for a PCI riser card. The PCI riser card in turn provides two PCI slot connectors for PCI add-in cards. The PCI slot connectors are occupied by the Ethernet card (slot #1) and the fax/modem card (slot #2).

The PCI slots in the riser card support 32-bit 5V and Universal (3.3/5V) PCI add-in cards.

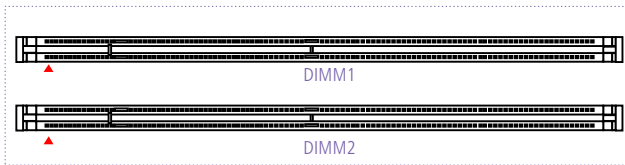
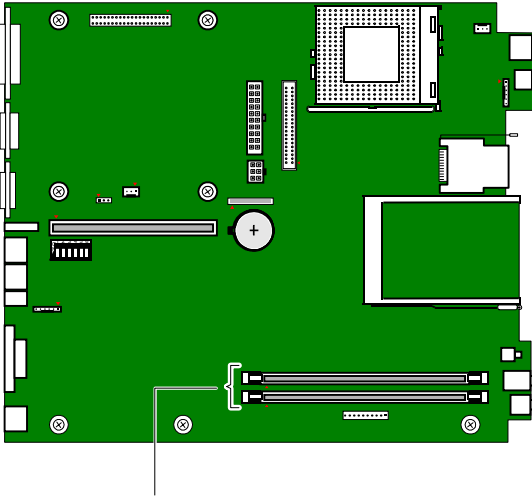


OM045998.V1



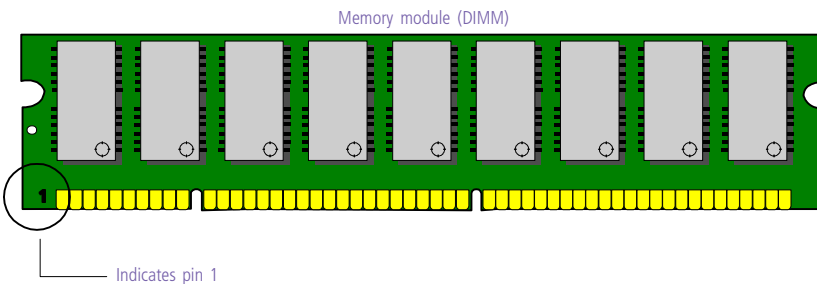
KY0091.VSD

Memory Module (DIMM) Connectors



OM04710A.VSD

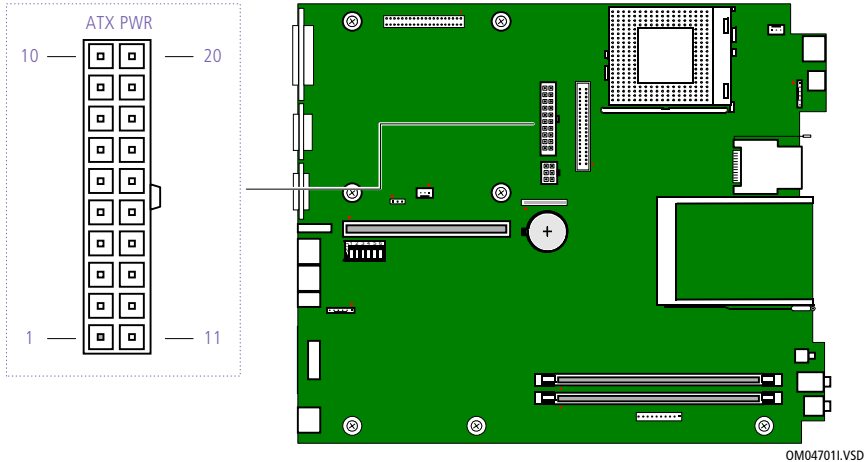
Both sides of each Dual Inline Memory Module (DIMM) look very similar. The side with pin 1 has a small "1" to the left of pin 1. Be sure to orient a DIMM correctly in the DIMM connector (a small triangle on the connector indicates pin 1).



OM04908B.VSD

Power (ATX PWR) Connector

The ATX PWR connector is a 20-pin Molex-type header connector that provides power to the system board.



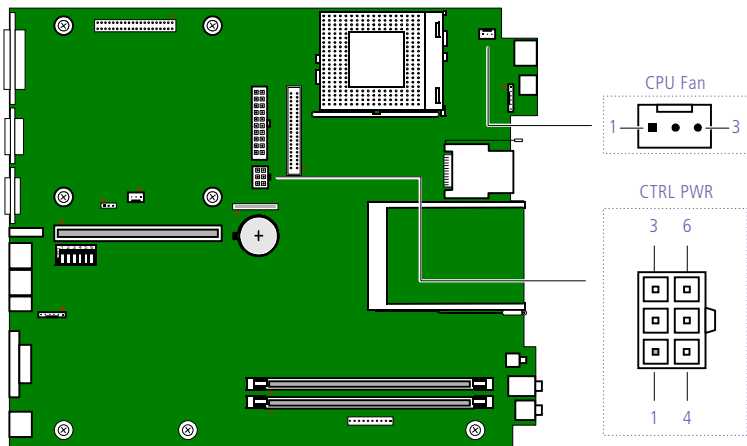
Power connector

Pin #	Name	Pin #	Name
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS-ON# (power supply remote on/off control)
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PWRGD (power good)	18	NC
9	+5VSB	19	+5V
10	+12V	20	+5V

Fan (CPU FAN, CTRL PWR) Connectors

The CPU Fan connector is a 1 x 3-pin straight header connector that controls the CPU cooling fan.

The CTRL PWR connector is a 2 x 3-pin connector that controls the power supply cooling fan. It connects to P3 from the power supply.



KY0034.VSD

CPU Fan connector

Pin	Signal Name
1	GND
2	FAN_CTRL (+12V)
3	FAN_SEN

1	GND
2	FAN_CTRL (+12V)
3	FAN_SEN

CTRL PWR connector

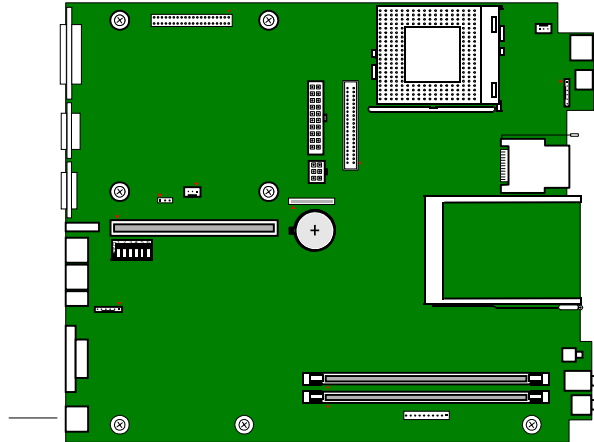
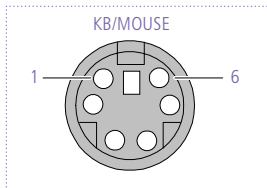
Pin	Signal Name
1	Fan M
2	Fan C*
3	3.3V sense
4	NC (key)
5	Reserved
6	Reserved

1	Fan M
2	Fan C*
3	3.3V sense
4	NC (key)
5	Reserved
6	Reserved

* Power supply provides 12V to this pin when system is in Power On mode (for fastest fan speed), and 6V when system is in Suspend mode (to reduce fan noise).

Keyboard/Mouse (KB/MOUSE) Connector

The combination keyboard/mouse connector is a 6-pin female PS/2® type (mini-DIN) connector that can accommodate the supplied VAIO Smart convertible keyboard and wheel mouse, or a PS/2 keyboard only.



KY0032.VSD

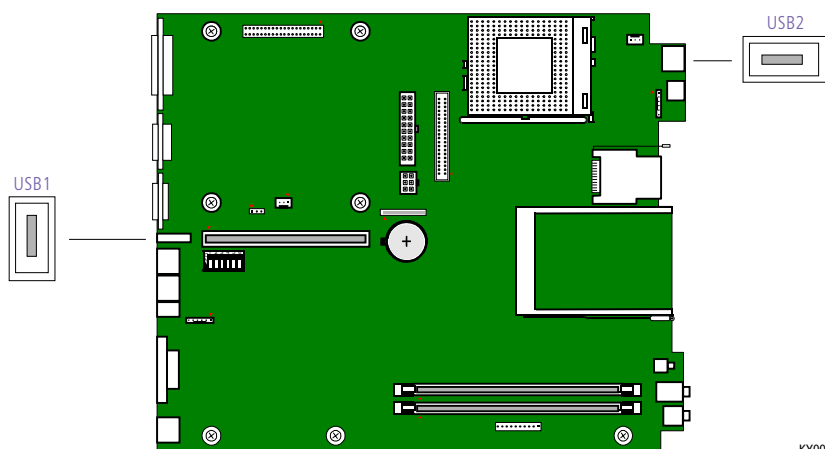
Keyboard/Mouse connector

Pin	Signal Name
1	Keyboard data
2	Mouse data
3	GND
4	+5V (fused)
5	Keyboard clock
6	Mouse clock

USB Connectors

There are two USB ports that permit connection of two USB peripheral devices directly to the system without having to use an external hub. If more USB devices are needed, connect an external hub to either USB1 or USB2.

USB1 is a standard USB connector accessible from the rear panel. USB2 is a standard USB connector accessible from the front panel.



KY0033.VSD

USB1 connector (rear panel)

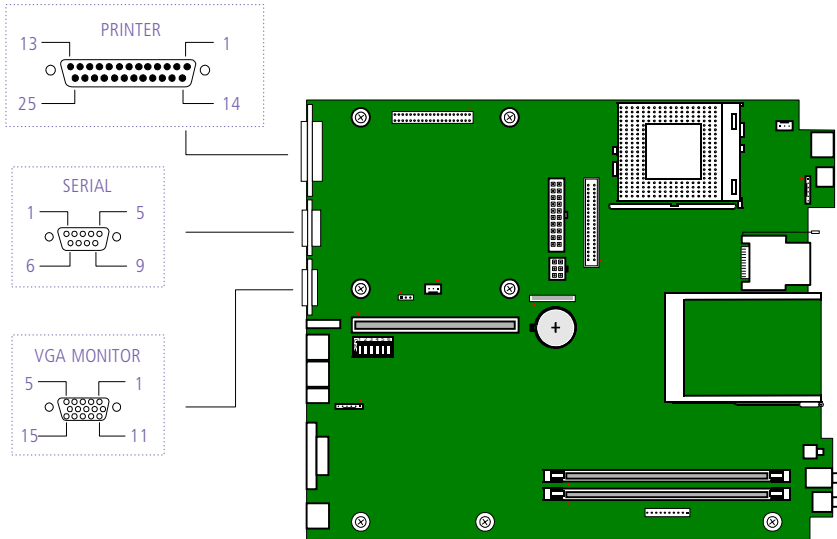
Pin	Signal Name
1	Power
2	USBP0#
3	USBP0
4	GND

USB2 connector (front panel)

Pin	Signal Name
1	Power
2	USBP1#
3	USBP1
4	GND

PRINTER, SERIAL, and VGA MONITOR Connectors

The SERIAL connector is a DB-9 male connector. The PRINTER connector is a DB-25 female connector. The VGA MONITOR connector is a 15-pin D-sub female connector.



OM04701D.VSI

PRINTER connector

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

SERIAL 1 connector

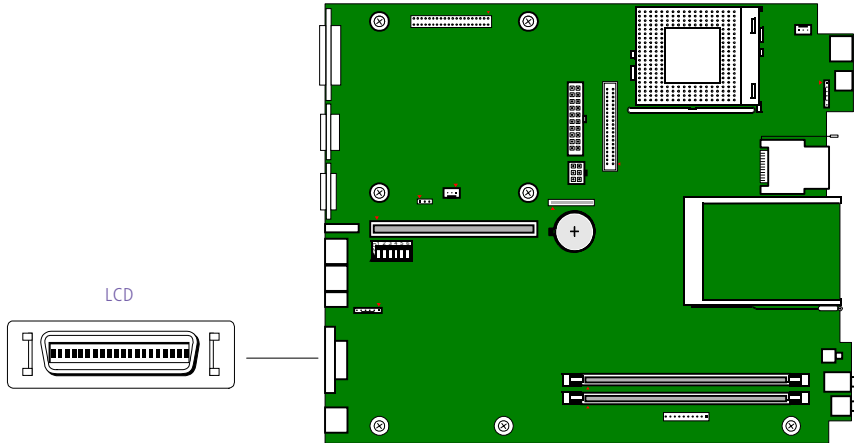
<i>Pin</i>	<i>Signal Name</i>
1	DCD
2	RXD#
3	TXD#
4	DTR#
5	GND
6	DSR
7	RTS
8	CTS
9	RI

VGA MONITOR connector

<i>Pin</i>	<i>Signal Name</i>
1	RED
2	GREEN
3	BLUE
4	GND
5	DDC GND
6	RED GND
7	GREEN GND
8	BLUE GND
9	NC
10	GND
11	GND
12	SDA
13	HORIZONTAL SYNC
14	VERTICAL SYNC
15	SCL

LCD Connector

The LCD connector is a 40-pin MDR-type connector for the Sony VAIO Slimtop LCD monitor.

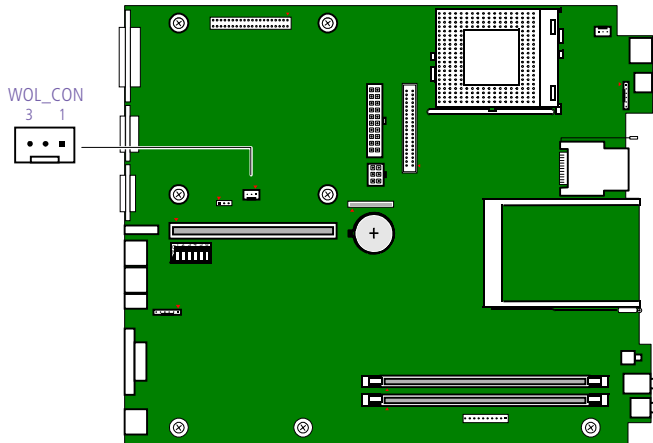


KY0094.VSD

! Do not connect any LCD other than the Sony VAIO Slimtop LCD monitor that came with the PCV-L640. The Sony VAIO Slimtop LCD monitor that came with the PCV-L620/L630 is not compatible with the PCV-L640 system.

Wake On LAN (WOL_CON) Connector

The WOL_CON connector is a 3-pin header connector that provides the Wake On LAN function to JP1 on the Ethernet card.



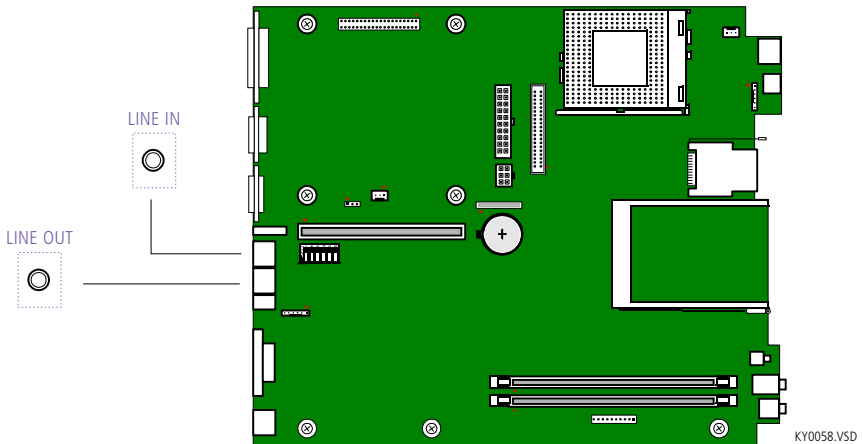
KY0096.VSD

Wake On LAN connector

Pin	Signal
1	+5V SB
2	GND
3	WOL signal

LINE IN and LINE OUT Connectors

The LINE IN and LINE OUT jacks are stereo mini-jacks (3.5 mm) that connect to a stereo audio device (not an audio source from a video device). Connect a stereo audio output jack to the LINE IN jack, and the LINE OUT jack to a stereo audio input jack.



KY0058.VSD

LINE IN jack

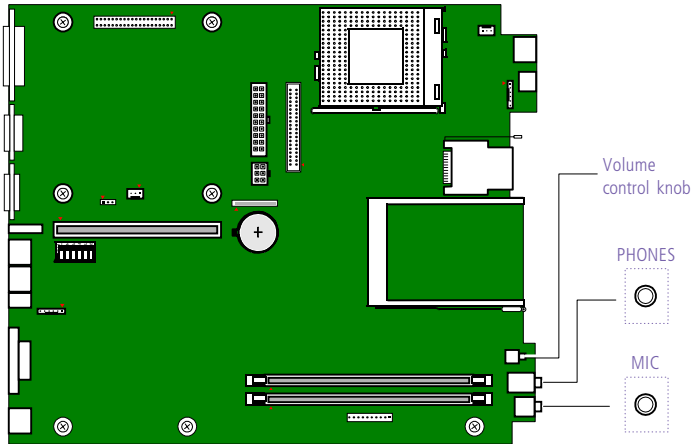
Pin	Signal
Sleeve	GND
Tip	Audio-Left In
Ring	Audio-Right In

LINE OUT jack

Pin	Signal
Sleeve	GND
Tip	Audio-Left Out
Ring	Audio-Right Out

PHONE and MIC Connectors

The PHONES jack is a stereo mini-jack (3.5 mm) that connects to headphones. The MIC jack is a stereo mini-jack (3.5 mm) that connects to a microphone.



KY0058A.VSD

PHONES jack

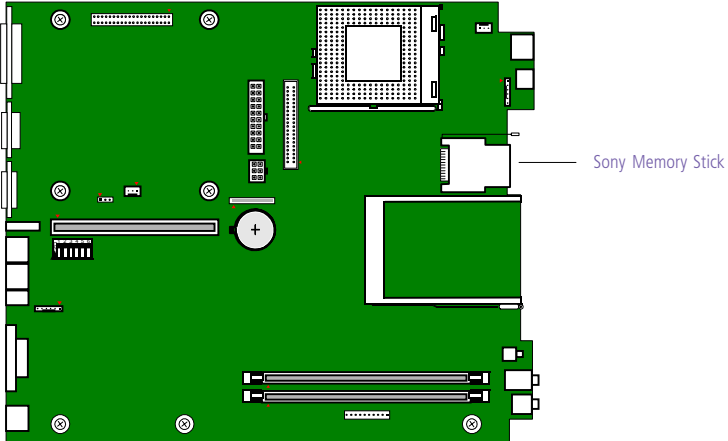
Pin	Signal
Sleeve	GND
Tip	Left out
Ring	Right out

MIC jack

Pin	Signal
Sleeve	GND
Tip	Microphone mono in
Ring	Electret bias voltage

Sony Memory Stick Slot Connector

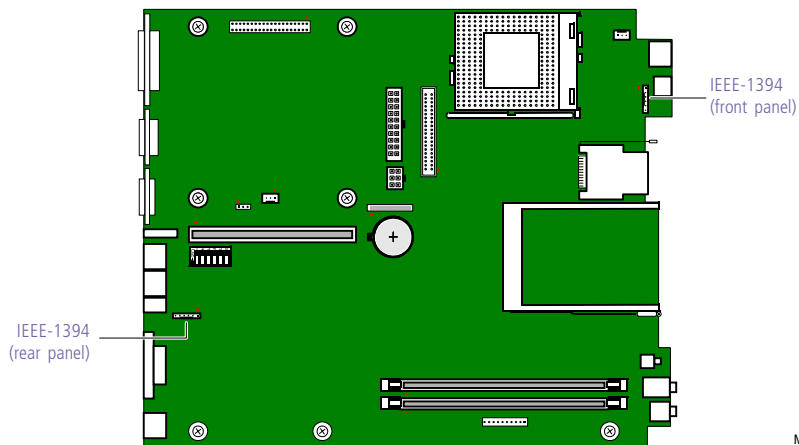
The Sony Memory Stick slot connector is a 10-pin MCR 103-10S connector.



KY0097.VSD

i.LINK Interface Header Connectors

The system board has two i.LINK (IEEE-1394) interface header connectors. A cable connects each 6-pin header connector to the riser card.



MAN001.VSI

IEEE-1394 interface header connector (rear panel)

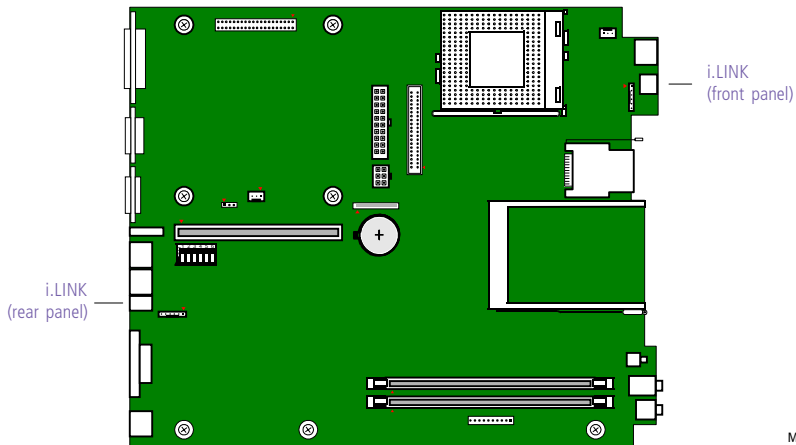
Pin	Signal Name
1	Ground
2	TA1+
3	TA1-
4	TB1+
5	TB1-
6	Ground

IEEE-1394 interface header connector (front panel)

Pin	Signal Name
1	Ground
2	TPA2+
3	TPA2-
4	TPB2+
5	TPB2-
6	Ground

i.LINK Connectors

The system board has two i.LINK (IEEE-1394) connectors: a 4-pin connector is accessible from the front panel, and a 6-pin connector is accessible from the rear panel. Use the front-panel connector to connect to devices that use a 4-pin i.LINK (IEEE-1394) connector. Use the rear-panel connector to connect to devices that use a 6-pin* i.LINK (IEEE-1394) connector.

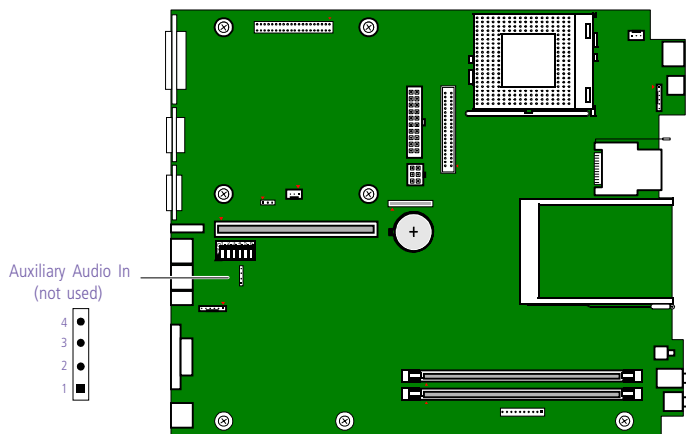


MAN001A.VSD

* 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 a device.

Auxiliary Audio In Connector

The system board has an Auxiliary Audio In connector that is not used.



MAN011.VSD

Auxiliary Audio In connector (not used)

<i>Pin</i>	<i>Signal Name</i>
------------	--------------------

1	Audio, left channel
---	---------------------

2	Ground
---	--------

3	Ground
---	--------

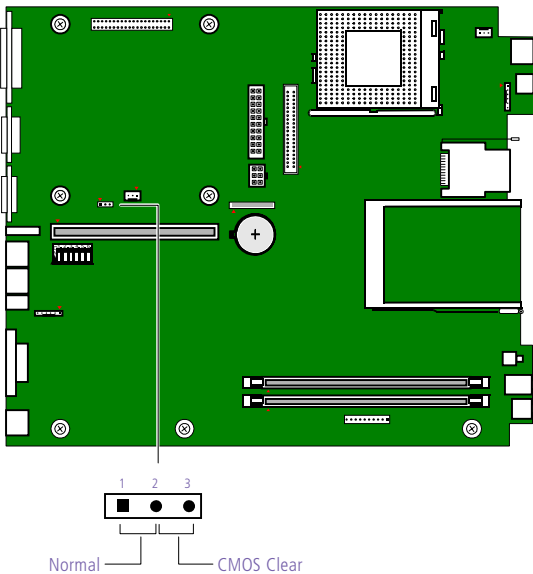
4	Audio, right channel
---	----------------------

Configuration Jumper and Switches

There is one configuration jumper (CMOS), and a bank of six configuration switches (1-6) that sets the CPU speed multiplier, AGP interrupt state (AGP_INT), and on-board VGA state (VGA).

CMOS Jumper

A jumper cap is installed on pins 1 and 2 (Normal) of the CMOS jumper when the computer is shipped. Do not move the jumper cap to the CMOS Clear position unless directed by a Sony-authored technical support person.

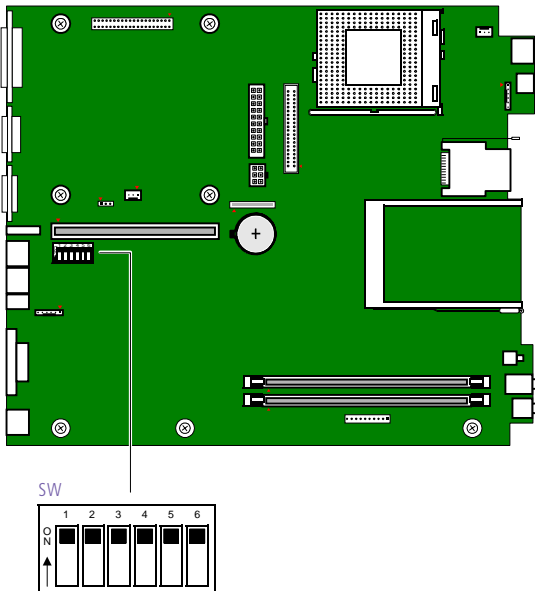


KY0059.VSD

Configuration Switches (SW)

A 6-switch dual inline package (DIP) provides configuration settings for FREQ Ratio (CPU multiplier), AGP_INT (AGP Interrupt) Enable/Disable, and onboard VGA Enable/Disable. The CPU determines the CPU core frequency.

The computer ships with AGP_INT (SW 5) set to OFF (Disable) and VGA (SW 6) set to OFF (Disable), and with the FREQ Ratio multiplier set to X6.0 (see SW table for positions of SW 1 through 4). Do not change the position of any switch unless directed by a Sony-authorized technical support person.



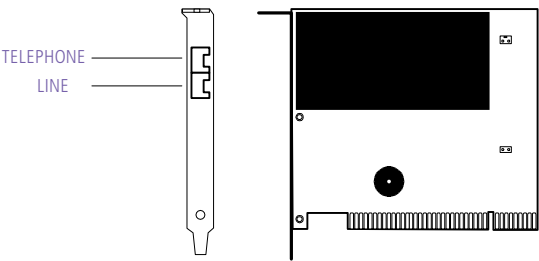
SW

<i>Function</i>	<i>SW 1</i>	<i>SW 2</i>	<i>SW 3</i>	<i>SW 4</i>	<i>SW 5</i>	<i>SW6</i>
AGP_INT Enable	N/A	N/A	N/A	N/A	ON	N/A
AGP_INT Disable	N/A	N/A	N/A	N/A	OFF	N/A
VGA Enable	N/A	N/A	N/A	N/A	N/A	ON
VGA Disable	N/A	N/A	N/A	N/A	N/A	OFF
FREQ Ratio = X3.0	ON	OFF	ON	ON	N/A	N/A
FREQ Ratio = X3.5	OFF	OFF	ON	ON	N/A	N/A
FREQ Ratio = X4.0	ON	ON	OFF	ON	N/A	N/A
FREQ Ratio = X4.5	OFF	ON	OFF	ON	N/A	N/A
FREQ Ratio = X5.0	ON	OFF	OFF	ON	N/A	N/A
FREQ Ratio = X5.5	OFF	OFF	OFF	ON	N/A	N/A
FREQ Ratio = X6.0	ON	ON	ON	OFF	N/A	N/A
FREQ Ratio = X6.5	OFF	ON	ON	OFF	N/A	N/A
FREQ Ratio = X7.0	ON	OFF	ON	OFF	N/A	N/A
FREQ Ratio = X7.5	OFF	OFF	ON	OFF	N/A	N/A
FREQ Ratio = X8.0	ON	ON	OFF	OFF	N/A	N/A

Chapter 5

Fax/Modem Card

The K56flex™ technology /V.90-compatible data fax/modem card occupies PCI slot #2 in the Riser card. The fax/modem card has two RJ-11 jacks that are accessible from the rear panel: one to connect a telephone line, and one to connect a phone.



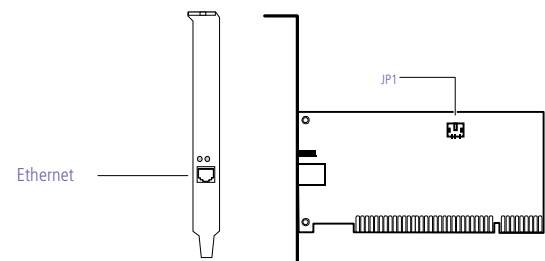
KY0038.VSD

<i>Name</i>	<i>Connector Type</i>	<i>Description</i>
TELEPHONE	RJ-11	Connects to phone.
LINE	RJ-11	Connects to telephone line.

Chapter 6

Ethernet Card

The Ethernet card occupies PCI slot #1 in the Riser card. The Ethernet card has one connector that is accessible from the rear panel.



MAN010.VSD

<i>Name</i>	<i>Connector Type</i>	<i>Description</i>
Ethernet	RJ-45	Connects to 10Base-T/100Base-TX Fast Ethernet network.
JP1	3-pin header	Connects to WOL_CON (Wake On LAN) connector on system board.

Chapter 7

CMOS Setup Options

This chapter describes each screen in the CMOS SETUP UTILITY (see “Accessing the CMOS Setup Utility” on page 14).

The CMOS Setup Utility presents the following menu items on the main screen:

- ❑ STANDARD CMOS SETUP
- ❑ BIOS FEATURES SETUP
- ❑ CHIPSET FEATURES SETUP
- ❑ POWER MANAGEMENT SETUP
- ❑ PNP AND PCI SETUP
- ❑ LOAD SETUP DEFAULTS
- ❑ SUPERVISOR PASSWORDS
- ❑ USER PASSWORD
- ❑ IDE HDD AUTO DETECTION
- ❑ SAVE & EXIT SETUP
- ❑ EXIT WITHOUT SAVING

Use the arrow keys to choose a menu item. Press Enter to display the item’s options. Use the arrow keys to select an option. Use the Page Up or Page Down keys to modify a setting.

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 keyboard keys to use for navigation and control.

The current setting is shown in [brackets] unless the item cannot be modified. Items beneath the current setting indicate available settings.

STANDARD CMOS SETUP Screen

Date (mm:dd:yy) [Sat, Oct 16 1999]

Time (hh:mm:ss) [14 : 52: 53]

HARD DISKS

Primary Master
Primary Slave
Secondary Master
Secondary Slave

TYPE [Auto]
None
User

MODE [AUTO]
NORMAL
LBA
LARGE

Drive 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.

Drive 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

Video [EGA/VGA]
CGA 40
CGA 80
MONO

Halt On [All, But Keyboard]
All, But Diskette
All, But Disk/Key
All Errors
No Errors

BIOS FEATURES SETUP Screen

CPU Internal Core Speed	700MHz*
Boot Virus Detection	[Enabled] Disabled
Processor Serial Number	[Disabled] Enabled
BIOS Update	[Enabled] Disabled
Quick Power On Self Test	[Enabled] Disabled
HDD Sequence SCSI/IDE First:	[IDE] SCSI
Boot Sequence	[CDROM,A,C] D,A E,A F,A C only LS/ZIP ,C LAN,A,C A,C C,A A,CDROM,C CDROM,C,A
Floppy Disk Access Control	[R/W] Read Only
IDE HDD Block Mode Sectors	[HDD MAX] Disabled 2 4 8 16 32

* MHz denotes microprocessor internal clock speed. Other factors may affect application performance.

HDD S.M.A.R.T. capability	[Disabled] Enabled
Silent Boot	[Enabled] Disabled
Boot Up Sound	[Disabled] Enabled
Boot Up Volume*	[Medium] High Mute Low
PCI/VGA Palette Snoop	[Disabled] Enabled
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
Boot Up NumLock Status	[Off] On
Typematic Rate Setting	[Disabled] Enabled

* Becomes enabled only when Boot Up Sound is enabled.

Typematic Rate (Chars/Sec):	[6] 8 10 12 15 20 24 30
Typematic Delay (Msec)	[250] 500 750 1000
Security Option	[System] Setup
PS/2 Mouse Function Control	[Auto] Enabled

CHIPSET FEATURES SETUP Screen

SDRAM Configuration	[By SPD] Disabled 7ns (143MHz) 8ns (125MHz)
SDRAM CAS Latency*	[2T] 3T
SDRAM RAS to CAS Delay*	[2T] 3T
SDRAM RAS Precharge Time*	[2T] 3T
SDRAM Idle Timer*	[8T] 10T 12T 16T 32T Infinite 0T 2T 4T
SDRAM MA Wait State	[Normal] Slow Fast
Graphics Aperture Size	[64MB] 128MB 256MB 4MB 8MB 16MB 32MB
Video Memory Cache Mode	[UC] USWC
PCI 2.1 Support	[Enabled] Disabled
DRAM are 64 (Not 72) bits wide	
Data Integrity Mode†	Non-ECC
Onboard FDC Controller	[Enabled] Disabled

* These settings depend on the setting in SDRAM Configuration, and become enabled only when SDRAM Configuration is Disabled.

† Read only.

Onboard Serial Port 1	[3F8H/IRQ4] 2F8H/IRQ3 3E8H/IRQ4 2E8H/IRQ10 Disabled
Onboard Serial Port 2	[2F8H/IRQ3] 3E8H/IRQ4 2E8H/IRQ10 3F8H/IRQ4
Onboard Parallel Port	[378H/IRQ7] 278H/IRQ5 Disabled 3BCH/IRQ7
Parallel Port Mode	[Bi-direct] EPP ECP ECP+EPP
ECP DMA Select*	[3] 1
Onboard PCI IDE Enable	[Both] Primary Secondary Disable
IDE Ultra DMA Mode	[Auto] Disable
IDE0 Master PIO/DMA Mode	[Auto]
IDE0 Slave PIO/DMA Mode	0/0
IDE1 Master PIO/DMA Mode	1/0
IDE1 Slave PIO/DMA Mode	2/0
(each has identical options)	3/1 4/2

* This setting is enabled when Parallel Port Mode is set to ECP or ECP+EPP.

POWER MANAGEMENT SETUP Screen

Power Management	[User Define] Disable Min Saving Max Saving
Video Off Option	[Suspend -> Off] Always On
Video Off Method	[DPMS OFF] DPMS Reduce ON Blank Screen V/H SYNC+Blank DPMS Standby DPMS Suspend
** PM Timers **	
HDD Power Down	[Disable] 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
Suspend Mode*	[Disable] 30 Sec 1 Min 2 Min 4 Min 8 Min 20 Min 30 Min 40 Min 1 Hour
** ACPI **	
ACPI Mode	[S3] S1

* Enabled only when Power Management is not set to Disable.

**** Power Up Control ****

PWR Button < 4 Secs	[Soft Off] Suspend
Automatic Power Up	[Disabled] Everyday By Date
Time (hh:mm:ss) Alarm [*]	[3: 2: 0]
Date Of Month Alarm [†]	[1] 2 . . . 31

**** Fan Monitor ****

Power Fan Speed	[(displays actual RPM)] Ignore
-----------------	-----------------------------------

**** Thermal Monitor ****

CPU Temperature	[(displays actual temperature)] Ignore
MB Temperature	[(displays actual temperature)] Ignore

**** Voltage Monitor ****

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

^{*} Displays only when Automatic Power Up is Everyday or By Date.

[†] Displays only when Automatic Power Up is By Date.

PNP AND PCI SETUP Screen

PNP OS Installed	[No] Yes
Slot 1 IRQ	[Auto]
Slot 2 IRQ	NA 3 4 5 7 9 10 11 12 14 15
PCI Latency Timer	[32] PCI Clock . . . 255 PCI Clock 0 PCI Clock 1 PCI Clock . . . 31 PCI Clock
IRQ 3 Used By ISA	[No/ICU] Yes
IRQ 4 Used By ISA	[No/ICU] Yes
IRQ 5 Used By ISA	[Yes] No/ICU
IRQ 7 Used By ISA	[No/ICU] Yes
IRQ 9 Used By ISA	[No/ICU] Yes
IRQ 10 Used By ISA	[No/ICU] Yes
IRQ 11 Used By ISA	[No/ICU] Yes
IRQ 12 Used By ISA	[No/ICU] Yes

IRQ 14 Used By ISA	[No/ICU] Yes
IRQ 15 Used By ISA	[No/ICU] Yes
DMA 1 Used By ISA	[No/ICU] Yes
DMA 3 Used By ISA	[No/ICU] Yes
DMA 5 Used By ISA	[No/ICU] Yes
ISA MEM Block BASE	[No/ICU] C800 CC00 D000 D400 D800 DC00
USB IRQ	[Enabled] Disabled
ONB VGA BIOS First	[No] Yes
Onboard Audio	[Enabled] Disabled]
Onboard Cardbus	[Enabled] Disabled
Onboard 1394	[Enabled] Disabled

LOAD SETUP DEFAULTS Screen

Press Enter to load setup defaults except standard CMOS setup.

SUPERVISOR PASSWORD Screen

Press Enter to change, set, or disable the supervisor password. Follow the prompts.

USER PASSWORD Screen

Press Enter to change, set, or disable the user password. Follow the prompts.

IDE HDD AUTO DETECTION Screen

Press Enter to auto-configure the hard disk drives.

SAVE & EXIT SETUP Screen

Press Enter to save changes in the CMOS and exit CMOS Setup Utility. Follow the prompts.

EXIT WITHOUT SAVING Screen

Press Enter to exit CMOS Setup Utility without saving the changes. Follow the prompts.

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

About User and Supervisor Passwords

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

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

<i>If you set these passwords...</i>	<i>...the following passwords are required:</i>
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.

<i>Message</i>	<i>Meaning</i>
Floppy Disk Controller Resource Conflict	The diskette controller has requested a resource that is already in use.
CMOS Checksum Error, CMOS Cleared	The CMOS data was reinitialized due to a CMOS checksum error.
CMOS Data Invalid, CMOS Cleared	Invalid entry in the CMOS.
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, DVD-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.

DMA Channel Assignments

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

<i>DMA Channel</i>	<i>Default Assignment</i>
2	Standard diskette drive controller
4	Direct memory access controller

IRQ Assignments

IRQ #	Default Assignment
00	System timer
01	Standard 101/102-Key or Microsoft Natural Keyboard
02	Programmable interrupt controller
03	Communications port (COM2)
04	Communications port (COM1)
06	Standard floppy disk controller
07	Printer port (LPT1)
08	System CMOS/real-time clock
09	Intel 82371AB/EB PCI to USB universal host controller
09	Lucent WinModem®
09	ACPI IRQ holder for PCI IRQ steering
09	Ricoh RL5C475 CardBus controller
09	Vortex AU8810 multifunction PCI platform
09	Vortex AU8810 PCI audio
09	SCI IRQ used by ACPI bus
09	ACPI IRQ holder for PCI IRQ steering
10	Sony OHCI i.LINK(IEEE-1394) PCI host controller
10	ACPI IRQ holder for PCI IRQ steering
10	Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC
11	Sony PCI to Memory Stick® interface controller
11	Rage™ 128 Pro 4XL (English)
11	ACPI IRQ holder for PCI IRQ steering
12	WheelMouse1 (PS/2)
13	Numeric data processor
14	Intel 82371AB/EB PCI bus mMaster IDE controller
14	Primary IDE controller (dual FIFO)
15	Intel 82371AB/EB PCI bus master IDE controller
15	Secondary IDE controller (dual FIFO)



This shows the factory default values. Windows 98 will reassign resources to best meet the needs of a particular configuration. PCI IRQs can be shared between several PCI devices.

System I/O Address Map

<i>Address Range (hex)</i>	<i>Description</i>
0000h-000Fh	Direct memory access controller
0010h-001Fh	Motherboard resources
0020h-0021h	Programmable interrupt controller
0022h-003Fh	Motherboard resources
0040h-0043h	System timer
0044h-005Fh	Motherboard resources
0060h-0060h	Standard 101/102-Key or Microsoft Natural Keyboard
0061h-0061h	System speaker
0062h-0063h	Motherboard resources
0064h-0064h	Standard 101/102-Key or Microsoft Natural Keyboard
0065h-006Fh	Motherboard resources
0070h-0073h	System CMOS/real-time clock
0074h-007Fh	Motherboard resources
0080h-0090h	Direct memory access controller
0091h-0093h	Motherboard resources
0094h-009Fh	Direct memory access controller
00A0h-00A1h	Programmable interrupt controller
00A2h-00BFh	Motherboard resources
00C0h-00DFh	Direct memory access controller
00E0h-00EFh	Motherboard resources
00F0h-00FFh	Numeric data processor
0170h-0177h	Secondary IDE controller (dual FIFO)
0170h-0177h	Intel 82371AB/EB PCI bus master IDE controller
01F0h-01F7h	Intel 82371AB/EB PCI bus master IDE controller
01F0h-01F7h	Primary IDE controller (dual FIFO)
0290h-0297h	Motherboard resources
02F8h-02FFh	Communications port (COM2)
0376h-0376h	Intel 82371AB/EB PCI bus master IDE controller
0376h-0376h	Secondary IDE controller (dual FIFO)
0378h-037Fh	Printer port (LPT1)
03B0h-03BBh	Rage 128 Pro 4XL (English)
03C0h-03DFh	Rage 128 Pro 4XL (English)

<i>Address Range (hex)</i>	<i>Description</i>
03F0h-03F1h	Motherboard resources
03F2h-03F5h	Standard floppy disk controller
03F6h-03F6h	Primary IDE controller (dual FIFO)
03F6h-03F6h	Intel 82371AB/EB PCI bus master IDE controller
03F7h-03F7h	Standard floppy disk controller
03F8h-03FFh	Communications port (COM1)
04D0h-04D1h	Motherboard resources
0CF8h-0CFFh	PCI bus
9800h-98FFh	Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC
A000h-A0FFh	Lucent WinModem
A400h-A407h	Lucent WinModem
A800h-A81Fh	Intel 82371AB/EB PCI to USB universal host controller
B000h-B007h	Primary IDE controller (dual FIFO)
B000h-B00Fh	Intel 82371AB/EB PCI bus master IDE controller
B008h-B00Fh	Secondary IDE controller (dual FIFO)
B400h-B407h	Vortex AU8810 multifunction PCI platform
B400h-B407h	Vortex AU8810 PCI audio
B800h-B807h	Vortex AU8810 multifunction PCI platform
B800h-B807h	Vortex AU8810 PCI audio
D000h-DFFFh	Intel 82443BX/DX/ZX Pentium® II processor to AGP controller
D800h-D8FFh	Rage 128 Pro 4XL (English)
E400h-E43Fh	Motherboard resources
E800h-E80Fh	Motherboard resources

Memory Map

Address Range	Description
00000000h-0009FFFFh	System board extension for ACPI BIOS
000A0000h-000AFFFFFh	Rage 128 Pro 4XL (English)
000B0000h-000BFFFFh	Rage 128 Pro 4XL (English)
000C0000h-000CA7FFFh	Rage 128 Pro 4XL (English)
000F0000h-000FFFFFh	System board extension for ACPI BIOS
00100000h-07FFFFFFh	System board extension for ACPI BIOS
10000000h-10000FFFh	Ricoh RL5C475 CardBus controller
DC000000h-DC0000FFh	Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC
DC800000h-DC8000FFh	Lucent WinModem [®]
DD000000h-DD0003FFh	Sony PCI to Memory Stick [®] interface controller
DD800000h-DD83FFFFh	Vortex AU8810 PCI audio
DD800000h-DD83FFFFh	Vortex AU8810 multifunction PCI platform
DE000000h-DE003FFFh	Sony OHCI i.LINK(IEEE-1394) PCI host controller
DE800000h-DE8007FFFh	Sony OHCI i.LINK(IEEE-1394) PCI host controller
DF000000h-DFEFFFFFFh	Intel 82443BX/DX/ZX Pentium [®] II Processor to AGP controller
DF000000h-DF003FFFh	Rage [™] 128 Pro 4XL (English)
DF020000h-DF03FFFFh	Rage 128 Pro 4XL (English)
DFE00000h-E3FFFFFFh	Intel 82443BX/DX/ZX Pentium [®] II Processor to AGP controller
E0000000h-E3FFFFFFh	Rage 128 Pro 4XL (English)
E4000000h-E7FFFFFFh	Intel 82443BX/DX/ZX Pentium [®] II Processor to PCI bridge
FFFE0000h-FFFFFFFFh	System board extension for ACPI BIOS

Chapter 9

Specifications

This chapter describes the technical specifications for the Sony PCV-L640 computer.

Processor

700 MHz * Intel® Pentium® III processor (with 100 MHz FSB)

* MHz denotes microprocessor internal clock speed. Other factors may affect application performance.

Chipset

Intel 440BX-100 AGP/PCI/ISA chipset

PCI Bus

PCI Level 2.1, 33 MHz zero wait state

2 PCI slots (none open)

Memory Modules (DIMMs)

Installed memory	128 Mbytes SDRAM
Maximum memory	256 Mbytes (128Mbytes in each socket)
Voltage	3.3 V memory only
Pins	168-pins with gold-plated contacts
SDRAM type	PC100 (100 MHz), unrestricted CAS latency 2, unbuffered, 64 bits (non-ECC)

DIMM Configurations

<i>DIMM1</i> *	<i>DIMM2</i> *
0, 16, 32, 64, 128	0, 16, 32, 64, 128

* The PCV-L640 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 3.3V unbuffered 4-clock, 64-bit or 72-bit, 100 MHz SDRAM module. Use only 100 MHz FSB-supported memory. Do not mix 66 MHz memory with 100 MHz memory.

L2 Cache

Installed	256 kbytes secondary write-back cache (in processor), direct-mapped organization, on-chip cache
Controller	Intel 440BX Host Bridge/Controller

Graphics

Controller*	Rage™ 128 Pro 4XL 64-bit 2X AGP 3D graphics accelerator
Video memory	8 Mbytes
Resolution (displayed resolution depends on the graphics display you use)	
True color (32 bits)	Up to 1600 x 1280 at 85 Hz non-interlaced
High color (16 bits)	Up to 2048 x 1536 at 70 Hz non-interlaced
256 colors (8 bits)	Up to 2048 x 1536 at 70 Hz non-interlaced

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

Audio

Sound chip	Aureal 8810 PCI sound controller plus AC97
Wave synthesis	Aureal wavetable synthesis effect
Sound effects	A3D stereo
Audio sampling rate	Up to 48 kHz at 16 bits
Front panel	Mic (for microphone) Phones (for stereo headphone) Volume control (for headphone)
Rear panel	Line In (from audio output connector) Line Out (to audio input connector)

Communications

Modem	K56flex technology, V.90-compatible data/fax modem*
Fax	14.4 kbps maximum

* Due to FCC limitations, the maximum permissible data speed is 53 kbps during download transmissions. Actual data speeds may vary due to a variety of factors.

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
Modem ports	Two RJ-11 connectors (for line and phone)
USB ports	USB1 (front panel) and USB2 (rear panel)
PCI slots	No available slot. Maximum length for add-in cards is 6.6 inches
IDE connectors	Primary and secondary

i.LINK Interface

Ports	Two (one at front panel, one at rear panel)
Speed	Up to 400 Mbps
Chipset	TI TSB12LV22 and TSB41LV03 OHCI
Enable/disable function	From BIOS

Ethernet Interface

Connector	RJ-45
Type of LAN	Ethernet
Speed	10Base-T/100Base-TX

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 PIO Mode 4 EIDE drives and Ultra DMA/33 Mode drives
IDE hard drive [*]	30.0 GByte [†]
CD-RW drive [‡]	CD-ROM disc read: 20X (maximum performance). CD-R disc read: 20X (maximum performance). CD-R disc write: 4X (maximum performance). CD-RW disc read: 14X (maximum performance). CD-RW disc write: 4X (maximum performance).

^{*} Bus-mastering EIDE driver installed.

[†] GB means one billion bytes when referring to hard drive capacity. Accessible capacity may vary.

[‡] The CD-RW/CD-R/CD-ROM data transfer standard 1X rate is 150 kbytes/s. Data on a CD-RW is read at a variable transfer rate, ranging from 6X at the innermost track to 14X at the outermost track. The average data transfer rate is 10X (1500 kbytes/s). Data on a CD-R/CD-ROM is read at a variable transfer rate, ranging from 8X at the innermost track to 20X at the outermost track. The average data transfer rate is 14X (2100 kbytes/s). Data on a CD-RW/CD-R is written at a constant transfer rate of 2X or 4X, depending on the speed you select.

System CMOS

Make and model	Award
ROM	2Mbit flash-ROM
Passwords	User and supervisor passwords supported
Recovery boot block	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 compliant, multi-boot, PCI add-in card auto-configure

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