

SONY

VAIO Digital Studio™ System Reference Manual

PCV-RX790 Series



NOTICE

© 2002 Sony Electronics Inc. Reproduction in whole or in part without written permission is prohibited. All rights reserved. This manual and the software described herein, in whole or in part, may not be reproduced, translated, or reduced to any machine-readable form without prior written approval. SONY ELECTRONICS INC. PROVIDES NO WARRANTY WITH REGARD TO THIS MANUAL, THE SOFTWARE, OR OTHER INFORMATION CONTAINED HEREIN AND HEREBY EXPRESSLY DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WITH REGARD TO THIS MANUAL, THE SOFTWARE, OR SUCH OTHER INFORMATION. IN NO EVENT SHALL SONY ELECTRONICS INC. BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES, WHETHER BASED ON TORT, CONTRACT, OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THIS MANUAL, THE SOFTWARE, OR OTHER INFORMATION CONTAINED HEREIN OR THE USE THEREOF.

Sony Electronics Inc. reserves the right to make any modification to this manual or the information contained herein at any time without notice. The software described herein is governed by the terms of a separate user license agreement.

This product contains software owned by Sony and licensed by third parties. Use of such software is subject to the terms and conditions of license agreements enclosed with this product. Some of the software may not be transported or used outside the United States. Software specifications are subject to change without notice and may not necessarily be identical to current retail versions.

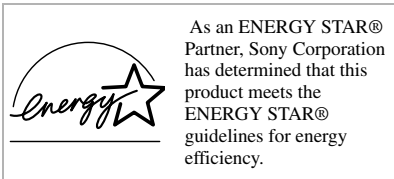
Certain product(s) included with this computer may include features such as copy protection and content management technology. USE OF THE SOFTWARE PRODUCT(S) REQUIRES AGREEMENT TO APPLICABLE END USER AGREEMENTS AND FULL COMPLIANCE WITH APPLICABLE PRODUCT ACTIVATION PROCEDURES. Product activation procedures and privacy policies will be detailed during initial launch of the software product(s), or upon certain reinstallations of the software product(s), or reconfigurations of the computer, and may be completed by Internet or telephone (toll charges may apply).

Updates and additions to software may require an additional charge. Subscriptions to online service providers may require a fee and credit card information. Financial services may require prior arrangements with participating financial institutions.

Sony, VAIO, the VAIO logo, VAIO Smart, VAIO Digital Studio, Giga Pocket, MovieShaker, DVgate, Handycam, Memory Stick, the Memory Stick logo, Net MD, Network Walkman, OpenMG, MagicGate, MICROMV, SonicStage, ImageStation, ATRAC3, and i.LINK are trademarks or registered trademarks of Sony.

Intel and Pentium are trademarks or registered trademarks of the Intel Corporation. Microsoft, Windows, the Windows logo and Windows XP are trademarks or registered trademarks of the Microsoft Corporation. PS/2 is a registered trademark of the IBM Corporation.

All other trademarks are trademarks or registered trademarks of their respective owners.



The International ENERGY STAR® Office Equipment Program is an international program that promotes energy saving through the use of computers and other office equipment. The program backs the development and dissemination of products with functions that effectively reduce energy consumption. It is an open system in which business proprietors can participate voluntarily. The targeted products are office equipment such as computers, displays, printers, facsimiles and copiers. Their standards and logos are uniform among participating nations. ENERGY STAR is a U.S. registered trademark of the Environmental Protection Agency.

Owner's Record

The model number and serial number are located on either the front or back panel of your Sony VAIO® computer. Record the model and serial number in the space provided here, and keep in a secure location. Refer to the model and serial numbers when you call your Sony Service Center.

Model Number:	
Serial Number:	

Safety Information and Caution

Your computer's installed optical drives may vary, depending on the system configuration you have purchased. See the online specifications sheet for details on your installed optical drives.

DVD-RW Laser Diode Properties

Laser Output	0.39 mW (CD-Read)
	0.18 mW (DVD-Read)
	2.58 mW (DVD-Write)
	11.5 mW (CD-Write)
Wave Length	650-662 nm (DVD)
	773-797 nm (CD)

DVD-ROM Laser Diode Properties

Laser Output	0.7 mW (DVD)
	0.4 mW (CD)
Wave Length	635-665 nm (DVD)
	770-810 nm (CD)

CD-RW Laser Diode Properties

Laser Output	1.0 mW (Read)
	53.0 mW (Write)
Wave Length	780-787 nm

CD-ROM Laser Diode Properties

Laser Output	1.0 mW
Wave Length	760-810 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, please 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 DVD-RW: 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 and V.90 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 recharge, 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 DVD-RW : Danger—Radiation laser visible 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 et V.90 modele 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 <http://www.sony.com/pcsupport>.

Regulatory Information

Declaration of Conformity

Trade Name: SONY
 Model No.: PCV-7751
 Responsible Party: Sony Electronics Inc.
 Address: 680 Kinderkamack Rd.
 Oradell, NJ 07649
 Telephone: 201-930-6972

This phone number is for FCC-related matters only.

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

Model No.: PCVA-IMB4A

This device complies with Part 15 of the FCC rules. Operation is subject to the following two 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 0.79B. 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 1-888-4-SONY-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 1-888-4-SONY-PC (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 machine, 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 Battery

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

 In some areas the disposal of lithium 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 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 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 maintenance 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 users 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: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved this equipment.

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 0.79B.

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 : Le présent matériel est conforme aux spécifications techniques d'Industrie Canada applicables au matériel terminal. Cette conformité est confirmée par le numéro d'enregistrement, signifie que l'enregistrement s'est effectué conformément à une déclaration de conformité et indique que les spécifications techniques d'Industrie Canada ont été respectées. Il n'implique pas qu'Industrie Canada a approuvé le matériel.

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 0.79B.

Contents

NOTICE	ii
Owner's Record	ii
Safety Information and Caution	iii
Regulatory Information.....	v
FCC Part 68	vi
Telephone Consumer Protection Act of 1991 (United States)	vi
Telephone Consumer Guidelines (Canada).....	vi
Disposal of Lithium Battery	vii
Industry Canada Notice.....	viii
Avis de l'Industrie Canada.....	viii
<i>Chapter 1 — Identifying Components.....</i>	<i>1</i>
Front View	2
Drives.....	3
Buttons and Switches	4
Indicators.....	5
Connectors	6
Rear View	7
Icon Labels	8
I/O Connectors	10
Expansion Slots	15
<i>Chapter 2 — Configuring Your System</i>	<i>17</i>
Accessing the BIOS Setup Utility.....	18
Changing Power Management Settings	19

Chapter 3 — Upgrading and Maintaining Components. 25

Removing the Side Panel	26
Replacing the Side Panel	27
Removing a PCI Add-in Card	28
Installing a PCI Add-In Card	30
Replacing the Lithium Battery	32
Removing a Memory Module	35
Installing a Memory Module.....	37
Removing a Slot Cover.....	41
Covering an Open I/O Slot	42
Installing an Internal Hard Disk Drive	43
To identify additional hard disk space	47
Removing the Power Supply.....	48
Replacing the Power Supply	49

Chapter 4 — System Board 51

Memory Module (RIMM) Slots.....	52
Power Supply and Aux Power Headers	53
CLR CMOS Jumper.....	55

Chapter 5 — CMOS Setup Options 57

Main Screen	59
Advanced Screen	61
Power Screen.....	63
Boot Screen	64
Exit Screen	65

Chapter 6 — Miscellaneous Technical Information 67

User and Supervisor Passwords	68
Beep Code Error Messages	69
PCI Configuration Status and Error Messages	70
DMA Channel Assignments	72
System I/O Address Map	73
Memory Map	75
IRQ Summary	76

<i>Chapter 7 — Specifications</i>	77
Processors	77
Chipset	77
AGP Bus	77
PCI Bus	78
Memory Modules	78
Memory Configurations	78
L2 Cache	78
Graphics	78
Audio	79
Communications	79
Giga Pocket I/O.....	79
I/O and Expansion Slots	80
Floppy Disk Drive and Controller	80
Hard Drives and Controller	80
Optical Drives.....	80
System BIOS	81
 <i>Index</i>	 83

Chapter 1

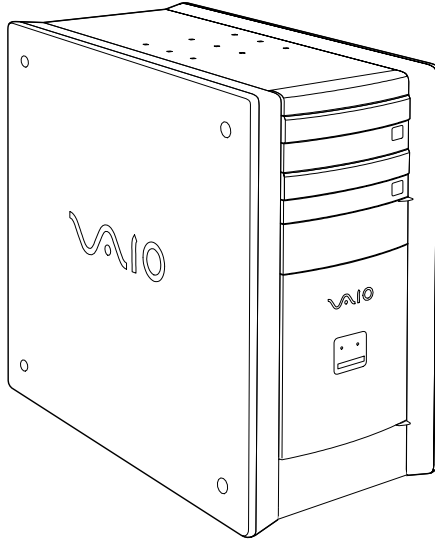
Identifying Components

The following sections identify and describe each component that is visible from the exterior of the VAIO Digital Studio™ computer. For details on the hardware configuration of your system, see the online specifications sheet.

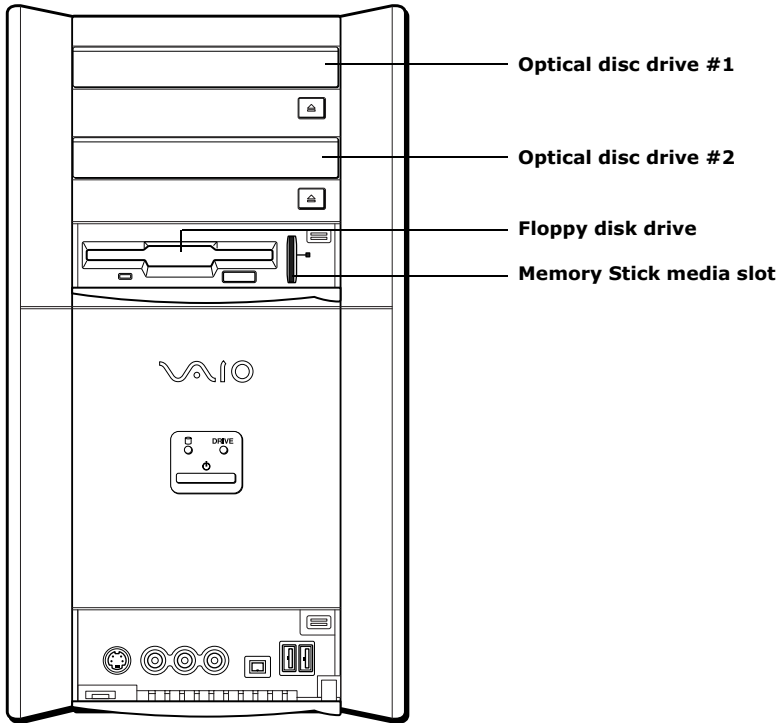
To view this online information:

- 1 Click **Start**, then click **Help and Support**.
- 2 Click **VAIO User Guide**, then click the **Welcome** link.
- 3 Click the link in the text, “Click [here](#) to view your computer’s hardware specifications and software information.”

Front View

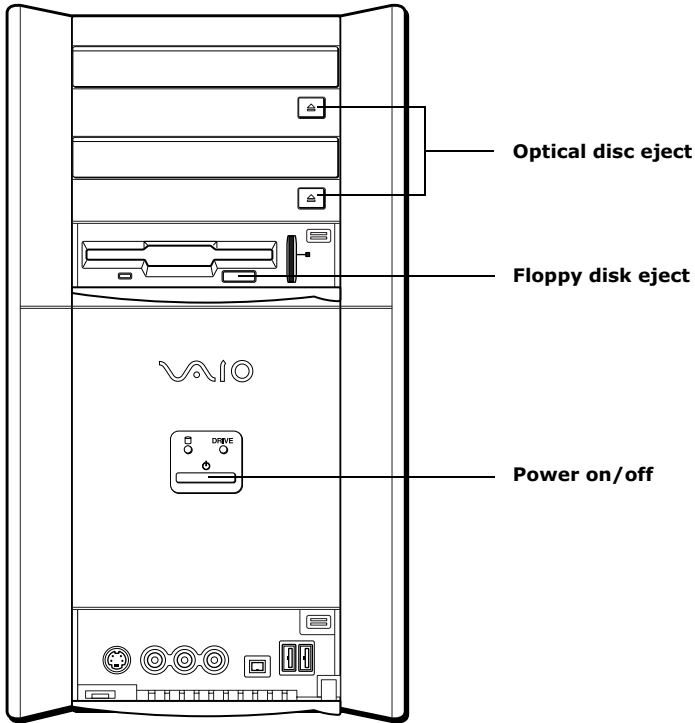


Drives

*Drive**Description*

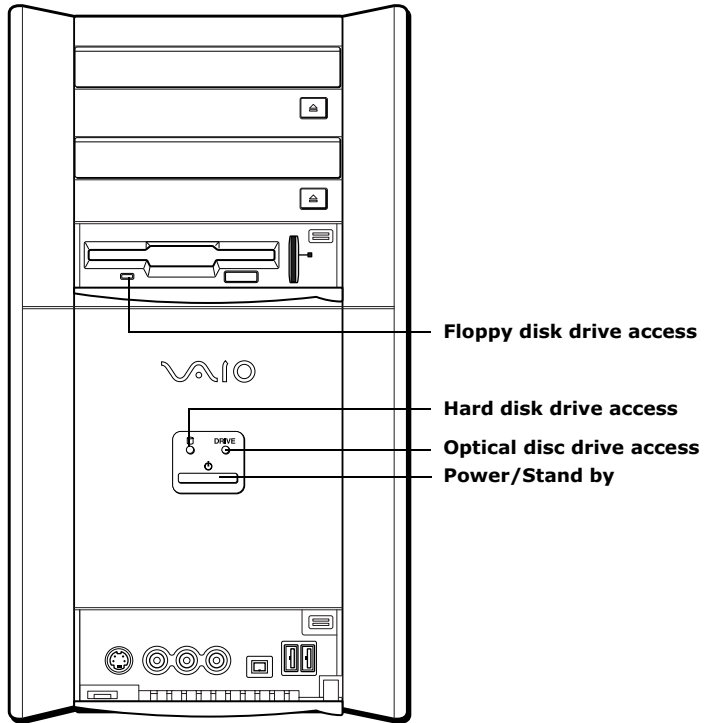
Optical disc drive #1	See online specifications sheet for details.
Optical disc drive #2	See online specifications sheet for details.
Floppy disk drive	3.5-inch, 1.44 MB.
Memory Stick® media slot	Accommodates Memory Stick media.

Buttons and Switches



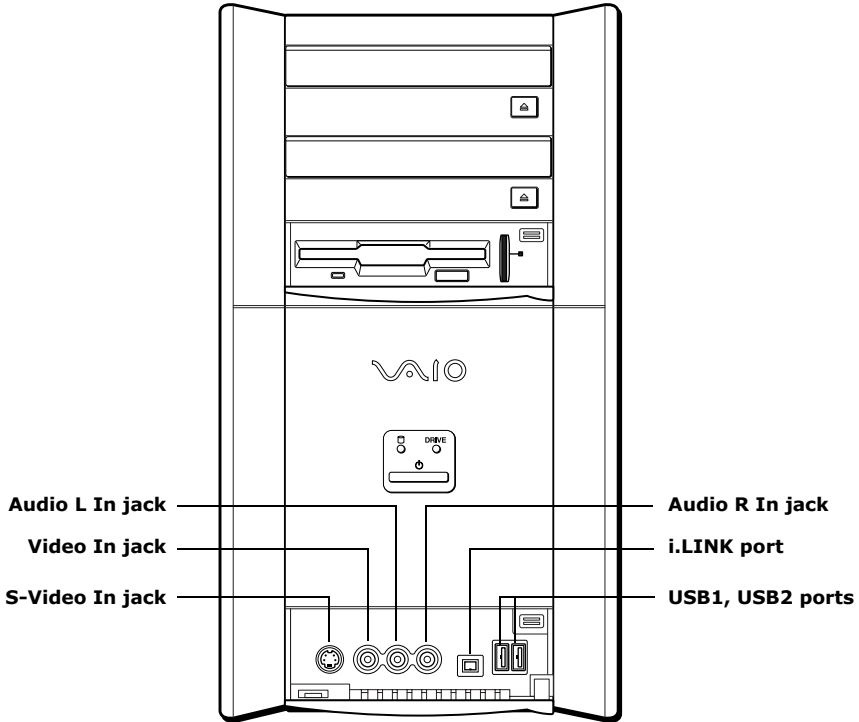
<i>Button or switch</i>	<i>Description</i>
Optical disc eject button	Automatically opens and closes the optical drive tray.
Floppy disk eject button	Ejects a floppy disk.
Power on/off switch	Turns system power on, off, or into Stand by mode.

Indicators



<i>Indicator</i>	<i>Description</i>
Floppy disk drive access indicator	On (green) indicates floppy disk drive activity.
Hard disk drive access indicator	On (red) indicates hard disk drive activity.
Optical disc drive access indicator	On (red) indicates optical drive activity.
Power/Stand by indicator	Stand by (amber) indicates the computer is in Stand by mode. On (blue) indicates the computer is out of Stand by mode, ready to use. Off (no color) indicates the computer is turned off, or in hibernation mode.

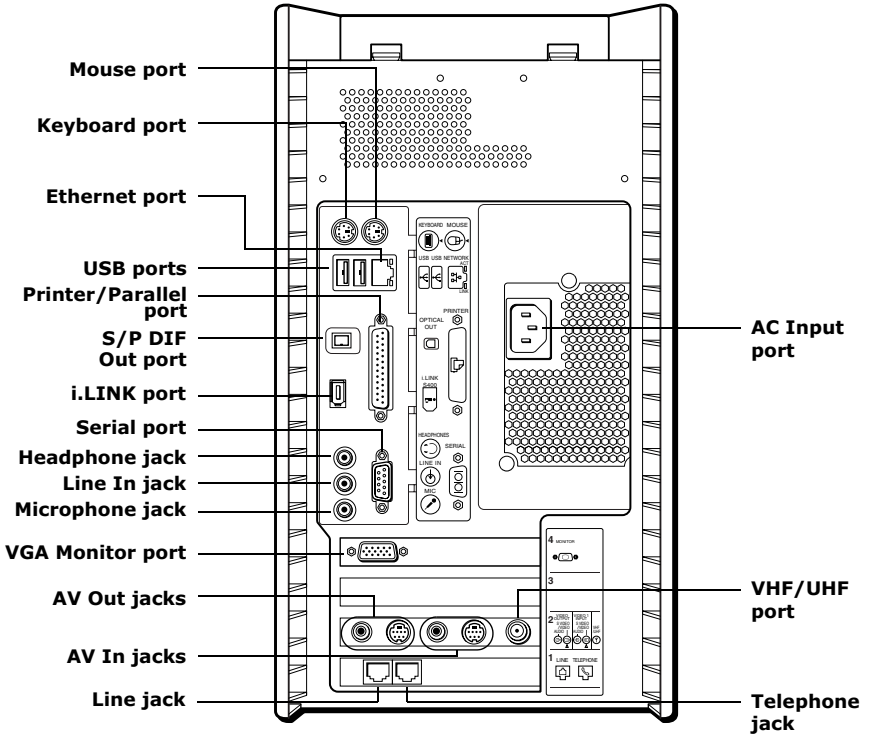
Connectors



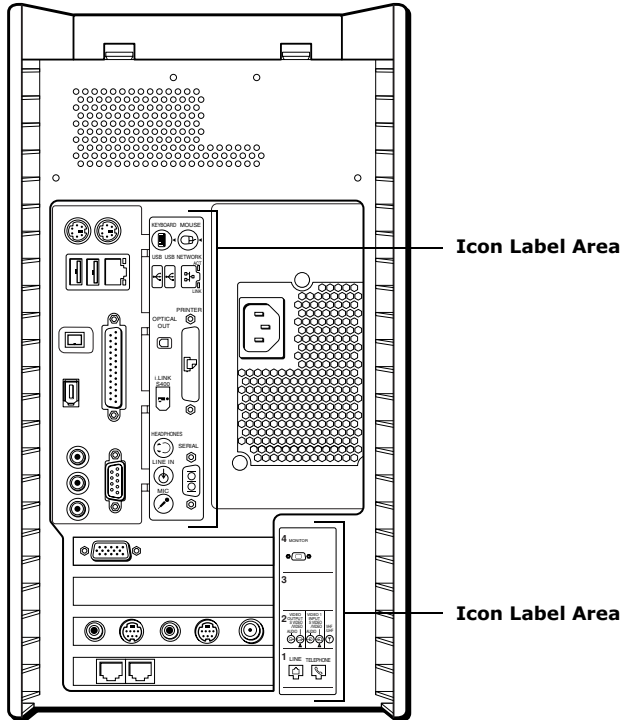
Connector	Description
Audio L In jack	Connects to an audio cable (supplied).
Video In jack	Connects to a video cable (supplied).
S-Video In jack	Connects to an S-video cable (optional).
Audio R In jack	Connects to an audio cable (supplied).
i.LINK® port (IEEE 1394)*	Connects to a digital device that has a 4-pin i.LINK header.
USB1, USB2 ports	Connects to USB devices.






* To connect to a 6-pin i.LINK device, use the i.LINK port 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 port. A 4-pin i.LINK connector cannot supply power to the device.















Rear View



Icon Labels



Icon	Description
	Mouse port
	Keyboard port
	Universal Serial Bus (USB) ports
	Ethernet port (for LAN connection only)
	S/P DIF Optical Out port

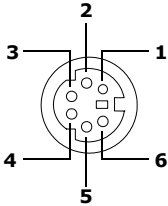
<i>Icon</i>	<i>Description</i>
	Printer/Parallel port
	i.LINK® (IEEE 1394) port
	Headphones
	LINE IN jack (audio)
	Microphone jack
	Serial port
	VGA Monitor port
	Line jack
	Telephone jack
	VHF/UHF port
	Audio In jack
	Audio Out jack
	Video/S-video In jack
	Video/S-video Out jack

I/O Connectors

The following section identifies the various I/O connectors.

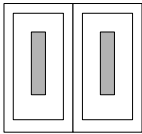
Keyboard and Mouse Ports

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



USB Ports

The USB ports are standard 4-pin USB ports. Two USB ports are located at the front, and two at the rear of the system.



Ethernet Port

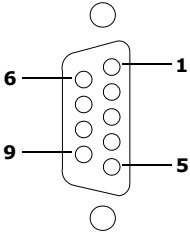
The Ethernet port at the rear of the system is used to connect to a 10Base-T/100Base-TX Ethernet network.

Ethernet



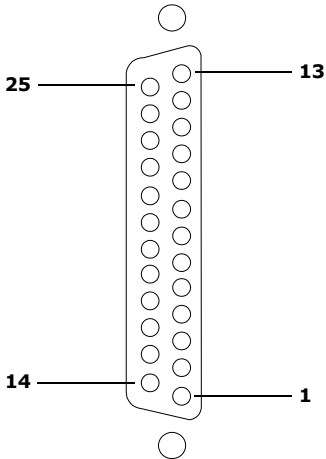
Serial Port

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



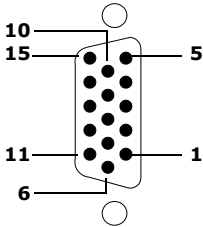
Printer/Parallel Port

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



VGA Monitor Port

The monitor port is a standard 15-pin female high-density VGA-type port located on the AGP plug-in card.



Mic, Line In, and Headphones Jacks

The microphone, line in, and headphones jacks are physically identical, but have different connections. They are standard 3.5 mm stereo mini-jacks.

Headphones



Line In



Mic

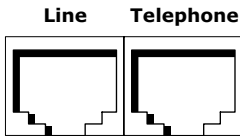


<i>Connector</i>	<i>Description</i>
Headphones	1.0 Vrms (typical).
Mic	Electret condenser microphone input.
Line In	1.0 Vrms (typical), 10 Kohm impedance.

Telephone and Line Jacks

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.

The modem installed on your computer may differ depending on the configuration you purchased.





S/P DIF Optical Out Port

The Plastic Optical Fiber (POF) output port for the Sony®/Phillips Digital Interface (S/P DIF) can be used to connect compatible audio or video equipment, such as CD/DVD players or MiniDisc recorders.

i.LINK (IEEE 1394) Ports

The 6-pin i.LINK® port 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 port. The 6-pin port supplies 10 V to 12 V and a maximum power of 6 watts.

-  i.LINK is a trademark of Sony used only to designate that a product contains an IEEE 1394 connection. The i.LINK connection may vary, depending on the software applications, operating system and compatible i.LINK devices. All products with an i.LINK connection may not communicate with each other.
-  Refer to the documentation that came with your compatible i.LINK device for information on operating conditions and proper connections. Before connecting compatible i.LINK devices to your system, such as an optical disc or hard disk drive, confirm their operating system compatibility and required operating conditions.

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

6-pin i.LINK port (IEEE 1394)



**On back of
system**

4-pin i.LINK port (IEEE 1394)



**At bottom of
front panel**

Expansion Slots

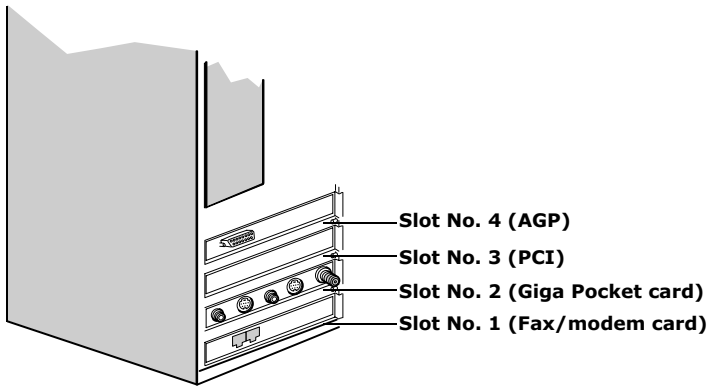
There are three expansion slots. Expansion slot No. 1 is occupied by the fax/modem card. A V.90 compatible modem has two jacks (Line and Telephone).

Expansion slot No. 2 is occupied by a Giga Pocket™ card.

Expansion slot No. 3 is available for expansion.

There is one AGP slot (No. 4), which is occupied by an AGP card.

See online specifications sheet for details.



Chapter 2

Configuring Your System

This chapter contains information on configuring your system.

- ❑ Making changes to the BIOS settings.
- ❑ Making changes to the display's power management settings.

Accessing the BIOS Setup Utility

Access the BIOS Setup Utility to make changes to the BIOS settings (see “CMOS Setup Options” on page 57 for information on BIOS settings).

! Before rebooting the system, save and close all open files, and exit open applications.

- 1 Reboot your computer by selecting Shut Down... from the Start menu, then selecting Restart.
- 2 When the Sony logo appears, press F3. The following message appears at the bottom of the screen.

Press <F2> for setup.

- 3 Press F2.

Each menu presents options for modifying the system configuration. Use the left and right arrow keys to select a menu from the menu bar. Use the up and down arrow keys to select items within a menu. Once an item is highlighted, use the plus/minus (+/-) keys to modify a setting.

If an item has a triangle (▶) to its left, this indicates that a sub-menu of options is available. Press ENTER to access a sub-menu. If a sub-menu contains items with a triangle, there is another layer of options from which to select.

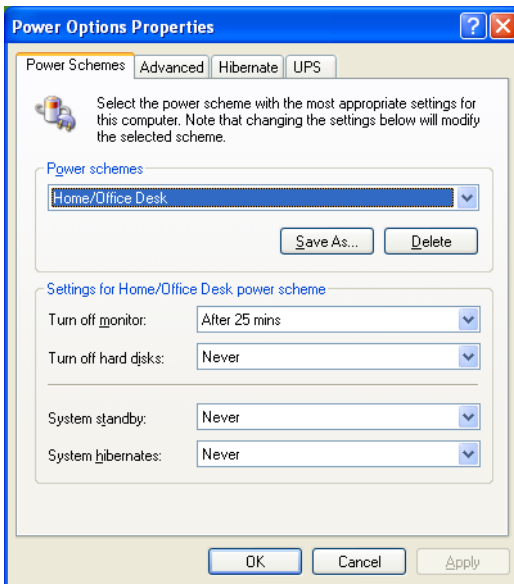
- 4 Once you select an option, press ESC to back out of each menu until you reach the top level, where the menu bar appears.
- 5 To exit the BIOS setup utility, press ESC from any top-level screen and follow the prompts.

Changing Power Management Settings

Power Management capability is designed to enable your computer to reduce power or shut itself off after being idle for a specified period of time.

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

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



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

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

The Turn off monitor option enables 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.

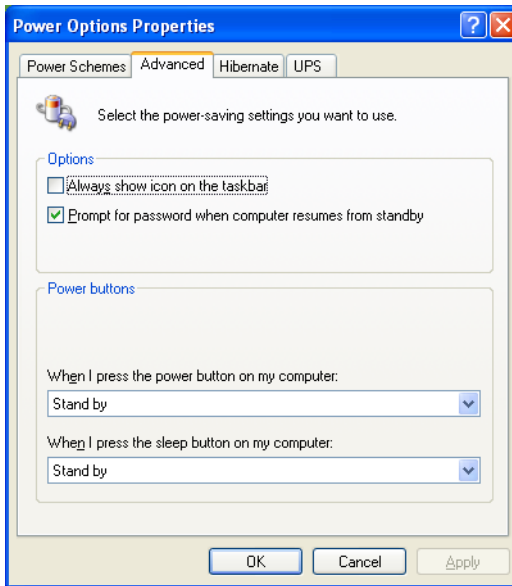
The Turn off hard disks option enables you to specify the period of inactivity (in minutes) that you want to elapse before your hard disks turn off when your computer is running on AC power.

The System stand by option enables you to specify the period of inactivity (in minutes) that you want to elapse before your computer goes on Stand by when your computer is running on AC power. Power is reactivated when you click the left mouse button or press spacebar on the keyboard.

The System hibernates option enables you to specify the period of inactivity (in minutes) before your computer goes in the hibernate state. Power is reactivated when you push the power button.

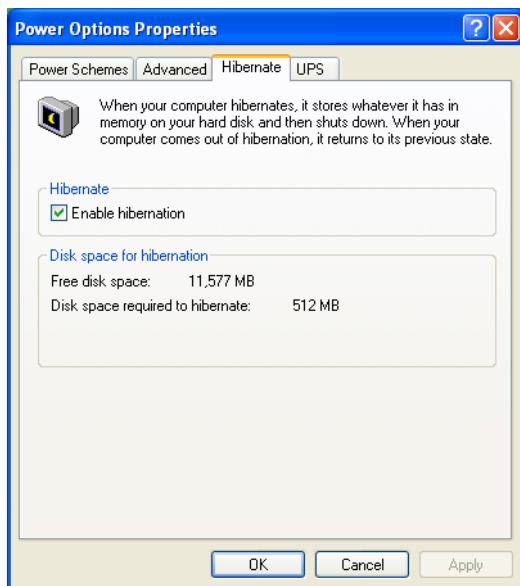
- 3 To save a new power scheme, first modify the settings, click Save As, type a descriptive name, and then click OK.

- 4 Click the Advanced tab.



- 5 Select the desired settings.


6 Click the Hibernate tab.

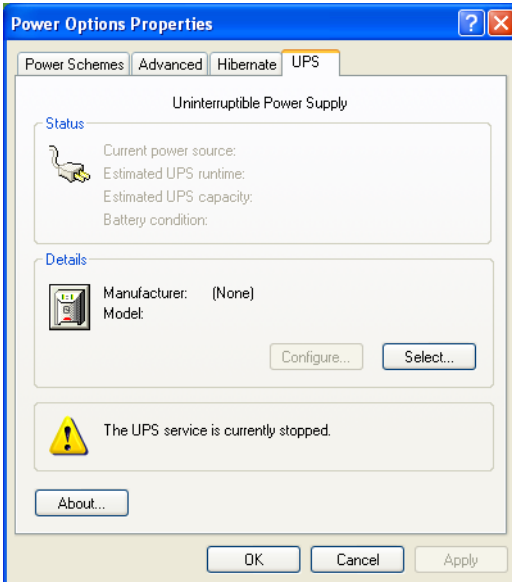


7 Select the settings most appropriate for your system.

- 8 Click the UPS tab.

The UPS tab enables you to select and configure an Uninterruptible Power Supply (UPS) device for your system.

 A UPS device is an optional accessory not supplied with your system.




- 9 Select the settings most appropriate for your system and click OK. For more information about configuring a UPS device, refer to your Microsoft® Windows® XP operating system Help.

Chapter 3

Upgrading and Maintaining Components

This chapter describes upgrade and maintenance procedures.

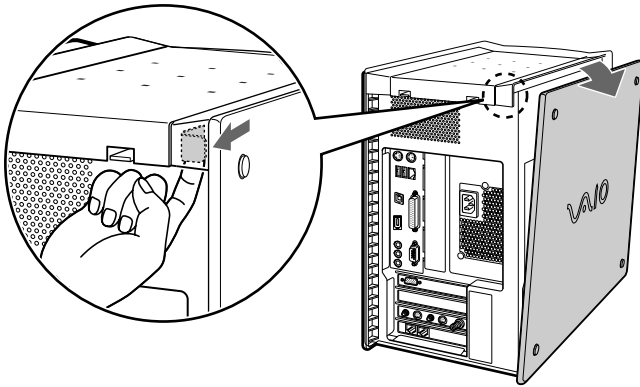
! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

 System configuration may vary, depending on the model purchased. Your computer may not include all of the hardware features shown in the illustrations of this section.

Removing the Side Panel

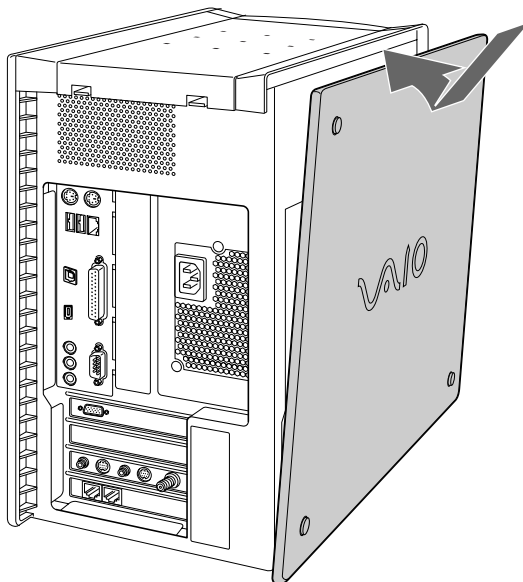
You must remove the side panel to access the system board, add-in cards, power supply, battery, memory, and internal drives.

- 1 Locate the tab on the upper right side of the rear panel, and pull it back until the side panel releases.
- 2 Lift the side panel away from the unit and set aside.



Replacing the Side Panel

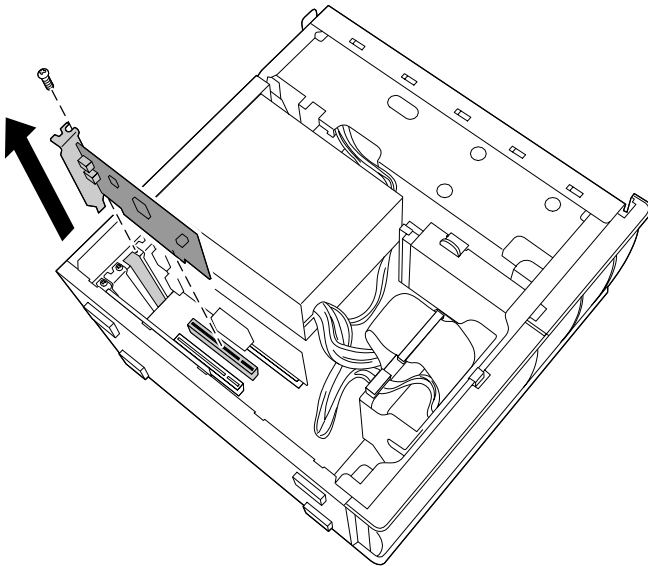
- 1 Align the tabs on the side panel to the chassis frame.
- 2 Press the side panel firmly against the unit until it snaps into place.




Removing a PCI Add-in Card

! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

- 1 Remove the side panel (see “Removing the Side Panel” on page 26).
- 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 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 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.

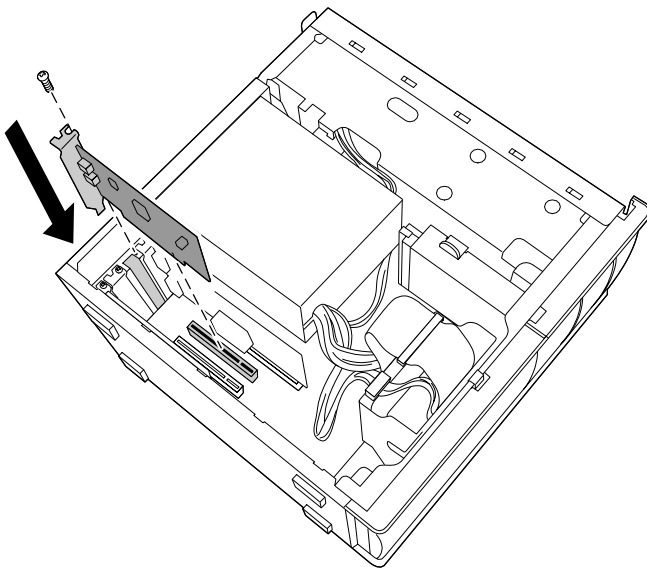
- 5 If you do not replace the card or install another add-in card, install a slot cover over the vacant slot at the rear of the chassis (see [“Covering an Open I/O Slot”](#) on page 42).
- 6 Replace the side panel (see [“Replacing the Side Panel”](#) on page 27).

Installing a PCI Add-In Card

! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

- 1 Remove the side panel (see [“Removing the Side Panel”](#) on page 26).
- 2 Locate an available expansion slot.
- 3 Remove the slot cover adjacent to the selected slot (see [“Removing a Slot Cover”](#) on page 41).
- 4 Insert the add-in card into the PCI slot. 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.



- 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 side panel (see [“Replacing the Side Panel”](#) on page 27).
- 8 Turn on the computer and follow any instructions that came with the add-in card.

Replacing the Lithium Battery

! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

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 18).

Do not handle damaged or leaking batteries.

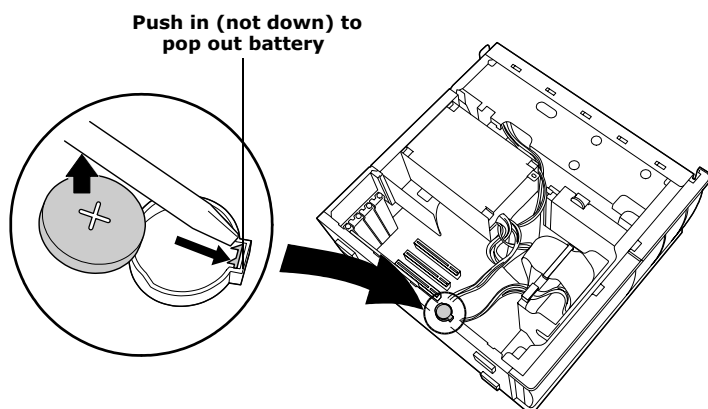
The lithium battery may explode if mistreated. Do not disassemble it or dispose of it in fire.

- 1 Reboot your computer by selecting Shut Down... from the Start menu, and then selecting Restart.
- 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 57). Make a list of all the BIOS options that are different from their default values. 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 side panel (see [“Removing the Side Panel”](#) on page 26).


- 8 If necessary, remove any add-in cards (see “[Removing a PCI Add-in Card](#)” on page 28) 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 in (not down) against the small tab at one end of the battery holder to pop out the battery.



- 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, and press down until the battery is secure.

 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 side panel (see “[Replacing the Side Panel](#)” on page 27).
- 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 57).
- 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.

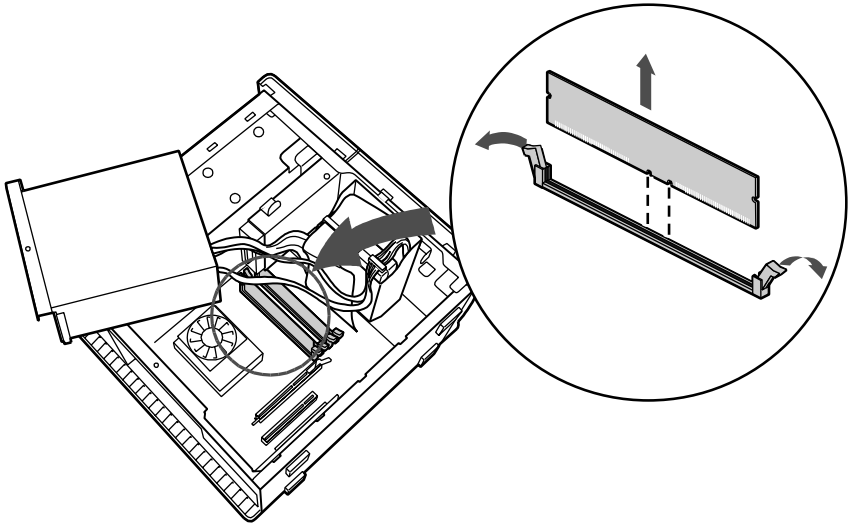
The computer’s BIOS settings are now restored.

Removing a Memory Module

You may need to remove a memory module if you change the memory configuration or replace a bad module. By default, all of your computer's memory sockets are filled with a pair of RIMM modules and a pair of CRIMM modules.

! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

- 1 Remove the side panel (see “Removing the Side Panel” on page 26).
- 2 Remove the power supply (see “Removing the Power Supply” on page 48).
- 3 Locate the memory module you wish to remove.



 The memory modules are located beneath the power supply.

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

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

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

! All empty sockets must be filled with either RIMM or CRIMM modules in pairs.

Installing a Memory Module


! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

- 1 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 128 MB. The maximum memory size is 1 GB. The BIOS automatically detects the type, size and speed of the memory modules.

Memory module configurations (MB)*

RIMM1	RIMM2
0, 128, 256, 512	0, 128, 256, 512

* All models ship with at least 512 MB of RIMM™ memory. RIMM memory is expandable to 1 GB. Your model may ship with more than 512 MB of RIMM™ memory depending on the configuration you purchased.

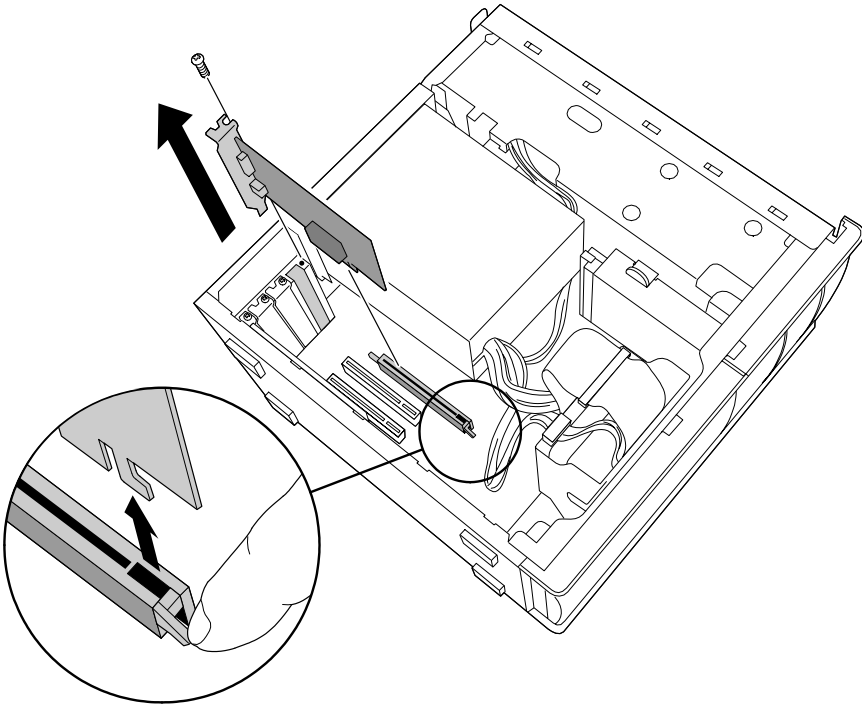
 Use only PC800-40 Rambus RIMM memory modules. Direct Rambus RIMMS must be upgraded in pairs. Do not leave the second slot of either bank empty. The second slot must be filled with either RIMM or CRIMM modules.


- 2 If necessary, remove the memory module you wish to replace (see “[Removing a Memory Module](#)” on page 35).

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

- 3 Remove the new memory module(s) from its anti-static package. Hold the memory module only by its edges to prevent static-electricity damage.
- 4 Remove the side panel (see “[Removing the Side Panel](#)” on page 26).
- 5 Remove the power supply (see “[Removing the Power Supply](#)” on page 48).
- 6 Remove the screw that secures the AGP add-in card to the chassis.
- 7 Press down on the handle at the edge of the AGP slot.

8 Remove the AGP add-in card.

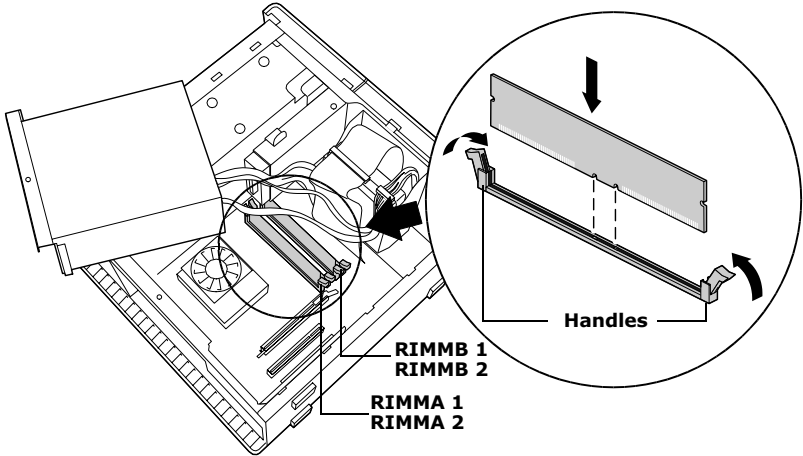


 Grasp the card with one hand on each end, and gently pull up as you rock the card from side to side.

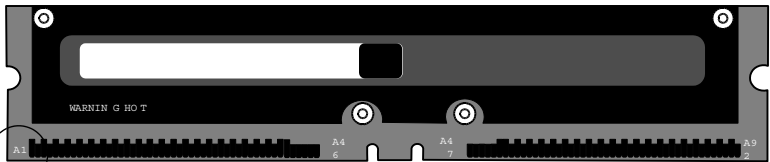
! Hold the add-in card by its edges and do not touch any components or contacts on the card. Static electricity in your body may damage sensitive components on the card. As a precaution, touch any exposed metal part on the metal chassis (preferably the metal part on the power supply) before handling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

! Do not remove the Giga Pocket™ card (located in PCI slot No. 2) unless directed by a service technician. The Giga Pocket card is a fragile hardware component.

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

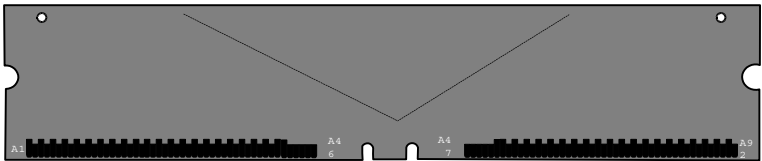


Memory module (in RIMM A1/B1)



Pin 1 side

Blank memory module (CRIMM)



- 10 Carefully but firmly insert the edge of the module into the socket.
- 11 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.

12 Replace the AGP card and secure using the screw removed earlier.



Be sure to press down firmly until the handle on the AGP slot is straight up and locked into the slot on the AGP card.

13 Replace the power supply (see [“Replacing the Power Supply”](#) on page 49).

14 Replace the side panel (see [“Replacing the Side Panel”](#) on page 27).

15 Reconnect the power cord and turn on the computer.

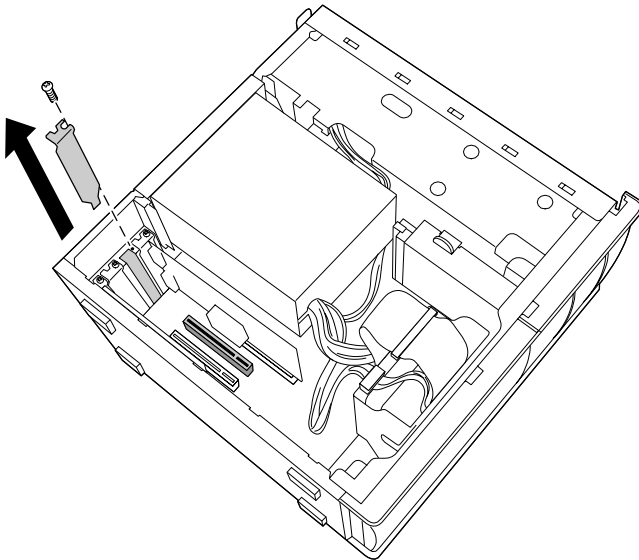
Your computer automatically recognizes the extra memory and will configure itself accordingly when you turn on the computer. No further action is required.

Removing a Slot Cover

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

! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

- 1 Remove the side panel (see “Removing the Side Panel” on page 26).
- 2 Locate the slot whose cover you want to remove.
- 3 Lay the system on its side.
- 4 Remove the screw from the slot cover.
- 5 Remove the loose slot cover and retain it for future use.

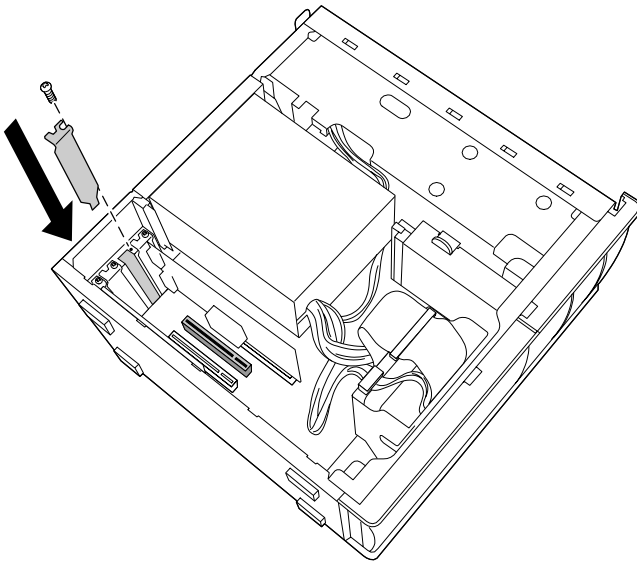


Covering an Open I/O Slot

! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

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 between the chassis and system board.



- 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 slot cover's screw to secure the I/O slot cover.

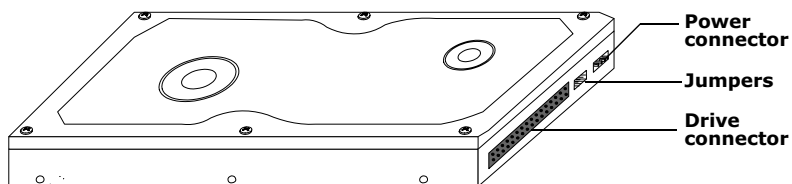
Installing an Internal Hard Disk Drive

Models that have one hard disk drive are equipped with an available bay to hold an additional 3.5-inch hard disk drive. Your system can support ATA-33, ATA-66 or ATA-100 hard disk drives. Sony recommends an ATA 100 hard disk drive to take full advantage of the system's features.

The drive you install must not require front panel access. The hard disk drive access light blinks when either internal drive is active.

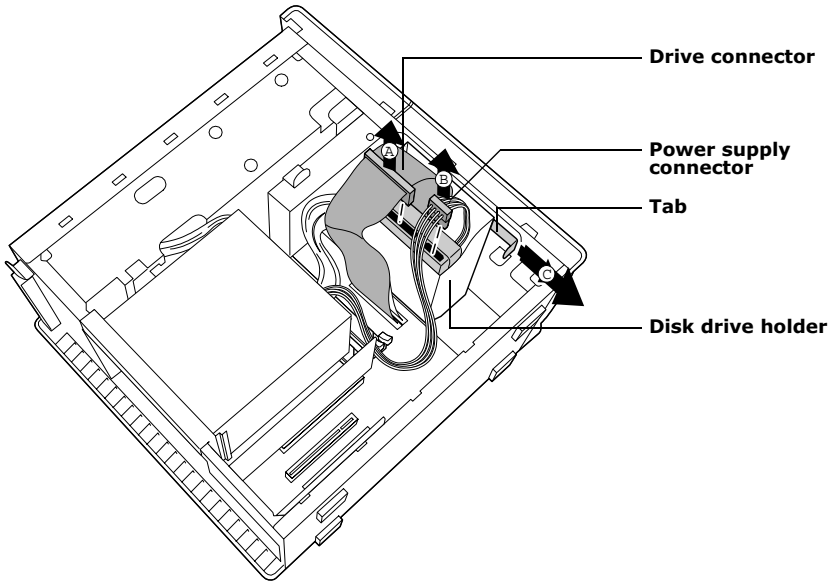
! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

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



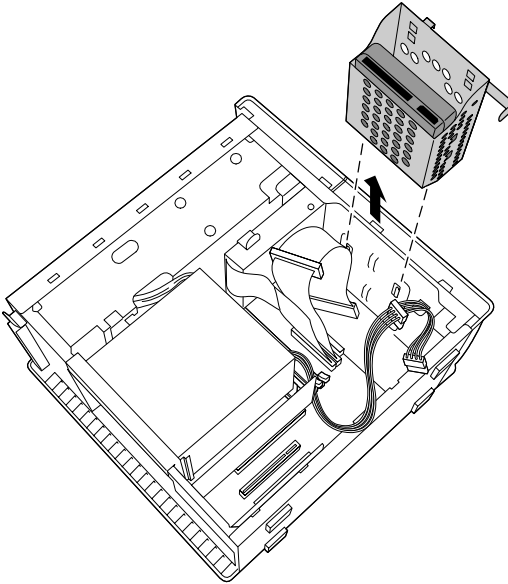
- 2 Remove the side panel (see [“Removing the Side Panel”](#) on page 26).

- 3 Disconnect the drive connector (A).

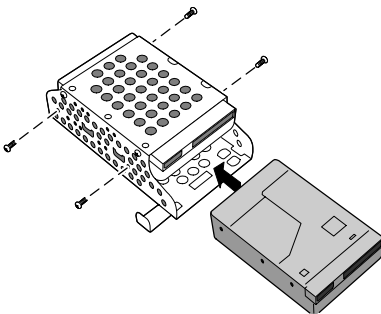


- 4 Disconnect the power connector (B).
- 5 Pull out on the tab (C) that secures the drive holder to the chassis.

- 6 Slide the drive holder up and out.

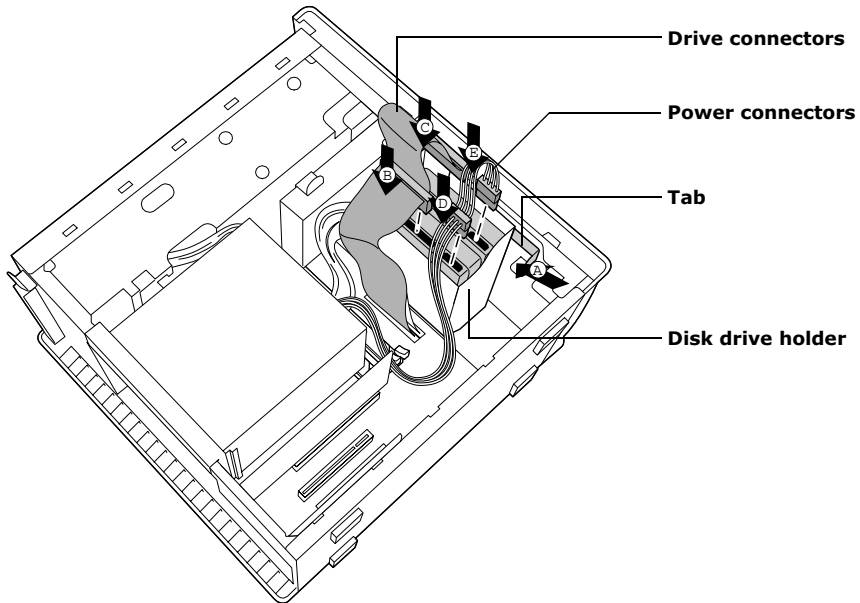


- 7 Slide the new drive into the bottom part of the drive holder and align the holes on each side of the drive holder.



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

- 9 Slide the drive holder back into the chassis so that the edge of the holder is flush with the chassis.
- 10 Push in on the tab (A) to securely latch the holder to the chassis.



- 11 Connect the inner drive cable connector (B) to the first drive.
- 12 Connect the outer drive cable connector (C) to the second drive.
- 13 Connect the first power connector (D) to the first drive.
- 14 Connect the second power connector (E) to the second drive.
- 15 Replace the side panel (see [“Replacing the Side Panel”](#) on page 27).
- 16 Reconnect the power cord to the system and then turn on your computer.

To identify additional hard disk space

When you initialize the new hard disk drive, it must be configured as an extended partition in Windows NT file system (NTFS) format.

- 1 Log on in Windows® as Administrator.
- 2 Click Start in the Windows taskbar and right-click on My Computer. A shortcut menu appears.
- 3 Select Manage. The Computer Management window appears.
- 4 From the file directory on the right, go to Storage and then select Disk Management.
- 5 Right-click on the newly installed, unformatted drive (Disk label identified with red marking), and from the shortcut menu, select Initialize Disk.
- 6 Click on the Unallocated area of the drive and then right-click to display the shortcut menu.
- 7 Select New Partition. The New Partition wizard appears.
- 8 Follow the onscreen instructions to complete the process.

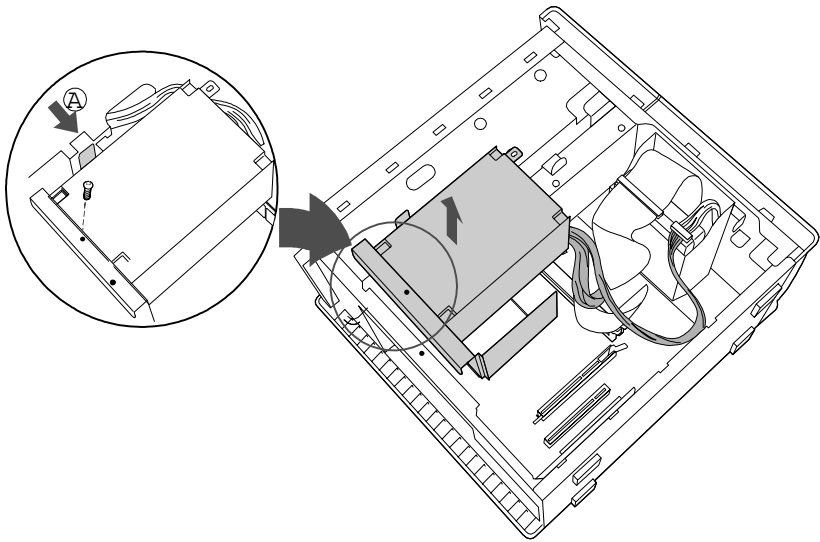
The Windows® XP operating system recognizes the new hard disk drive and applies the NTFS format.

Removing the Power Supply

You remove the power supply when you insert a memory module (see “Removing a Memory Module” on page 35).

! Before opening the system unit, save and close all open files, exit all open applications, turn off the power to all attached peripheral devices, shut down the computer, and unplug the power cord.

- 1 Remove the screw that secures the power supply to the rear of the chassis.
- 2 Pull the tab (A) that latches the power supply to the chassis.
- 3 Slide the power supply up until the power supply clears the chassis.



- 4 Rotate the power supply upside down and rest it on top of the chassis where the hard drive is located.

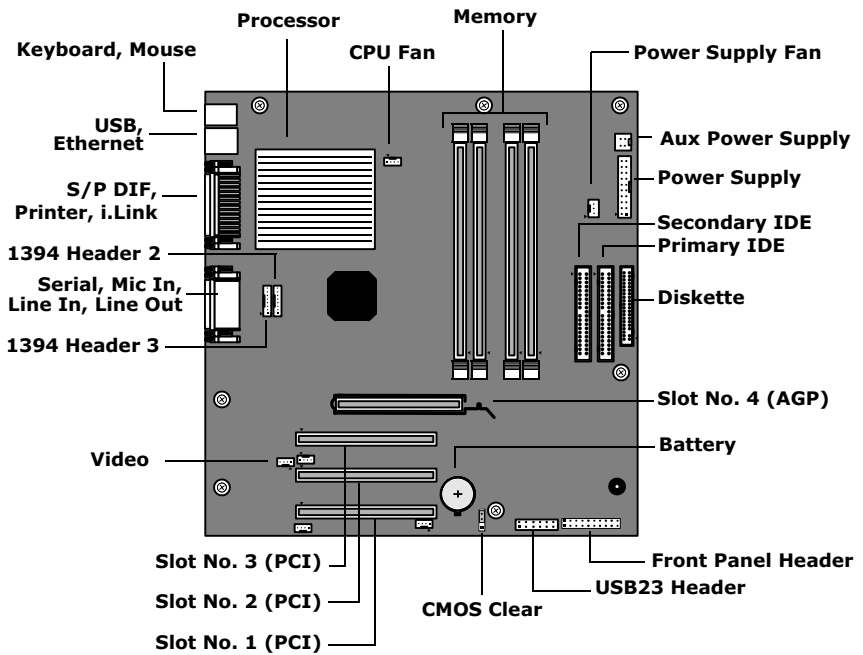
Replacing the Power Supply

- 1 Rotate the power supply down and slide it down along the rails on each side of the chassis opening.
- 2 Replace the screw that secures the power supply to the rear of the chassis.

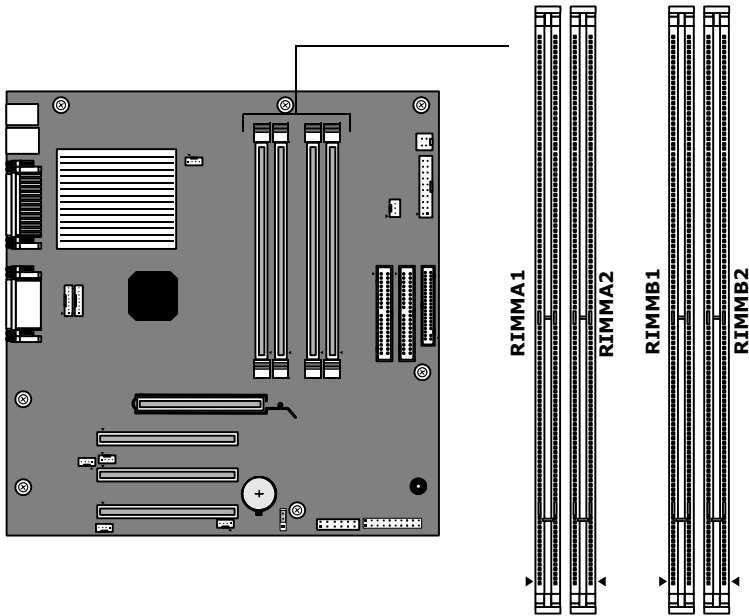
Chapter 4

System Board

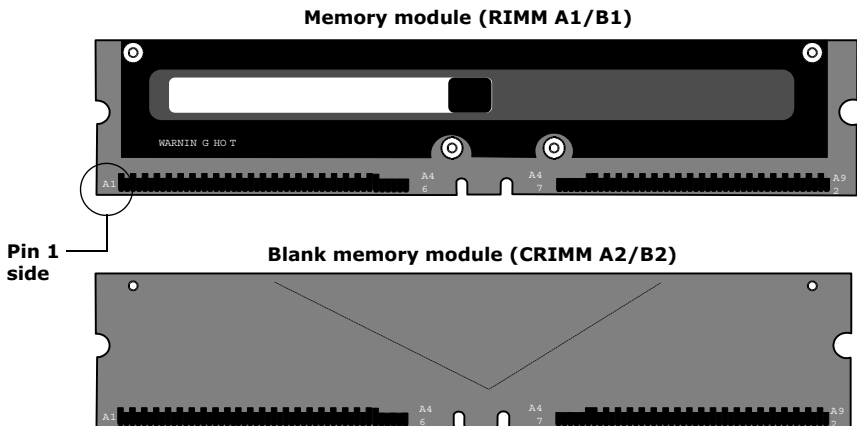
This chapter identifies and describes components on the system board.



Memory Module (RIMM) Slots

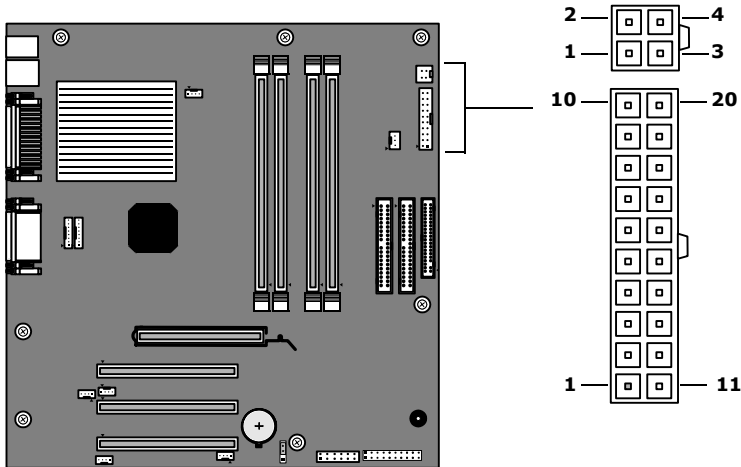


Be sure to orient a RIMM module such that pin 1 of the RIMM module is on the same side as pin 1 of the slot. The RIMM module shows "A1" on the pin 1 end, and the system board shows "Pin 1" next to the pin 1 end of the slot.



Power Supply and Aux Power Headers

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



Power Supply header

Pin *Signal Name*

1	+3.3 V
2	+3.3 V
3	Ground
4	+5 V
5	Ground
6	+5 V
7	Ground
8	PWRGD (Power Good)
9	+5 VSB
10	+12 V
11	+3.3 V
12	-12 V
13	Ground
14	PS-ON# (power supply remote on/off control)
15	Ground

Power Supply header (Continued)

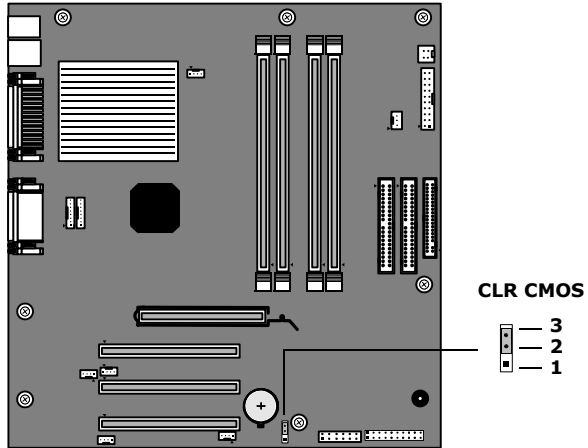
<i>Pin</i>	<i>Signal Name</i>
16	Ground
17	Ground
18	No Connection
19	+5 V
20	+5 V

Aux Power header

<i>Pin</i>	<i>Signal Name</i>
1	Ground
2	Ground
3	+12 V
4	+12 V


CLR CMOS Jumper

The CLR CMOS Jumper clears the BIOS password setting.



CLR CMOS Jumper settings

<i>Jumper Plug Position</i>	<i>Function</i>
2-3	Normal
1-2	Clear CMOS Password

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

Chapter 5

CMOS Setup Options

This chapter describes each screen in the Award BIOS Setup Utility (see “[Accessing the BIOS Setup Utility](#)” on page 18).

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	[01/01/2002]
▶Primary Master (see “IDE Sub-Menus” on page 60)	
▶Primary Slave (see “IDE Sub-Menus” on page 60)	
▶Secondary Master (see “IDE Sub-Menus” on page 60)	
▶Secondary Slave (see “IDE Sub-Menus” on page 60)	
Supervisor Password	[Disabled]
User Password	[Disabled]
Installed Memory	See online specifications sheet for details.
BIOS Revision/Version	1002 (depends on model)

▶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*	8422 MB
Maximum LBA Capacity*	40992 MB (depends on model)
Multi-Sector Transfers*	[Maximum] Disabled 2 Sectors 4 Sectors 8 Sectors 16 Sectors 32 Sectors
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 Internal Frequency [1500MHz]*

- ▶ I/O Device Configuration (see “I/O Device Configuration Sub-Menu” on page 62)
- ▶ PCI Configuration (see “PCI Configuration Sub-Menu” on page 62)

* CPU Internal Frequency may vary, depending on the model purchased.

▶ I/O Device Configuration Sub-Menu

Onboard AC97 Audio Controller	[Enabled] Disabled
Onboard 1394 Controller	[Enabled] Disabled
Onboard Lan Controller	[Enabled] Disabled
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

▶ PCI Configuration Sub-Menu

Slot 1 IRQ to Slot 3 IRQ	[Auto] NA 3 4 5 7 9 10 11 12 14 15
VGA BIOS Sequence	[PCI/AGP] AGP/PCI
Onboard LAN Boot ROM	[Disabled] Enabled

Power Screen

▶Power Up Control

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

▶Hardware Monitor

MB Temperature	[(displays actual temperature)] Ignore
CPU Temperature	[(displays actual temperature)] Ignore
CPU Fan Speed	[(displays actual RPM)] Ignore
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

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] INT18 Device (Network) SCSI Boot Device
Silent Boot	[Enabled] Disabled

Exit Screen

Exit Saving Changes

Exit Discarding Changes

Load Setup Defaults

Discard Changes


Save Changes

Chapter 6

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
- ❑ System I/O address map
- ❑ Memory map
- ❑ IRQ summary

 Models equipped with Giga Pocket features may require increased system resources due to additional hardware.

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.

<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.

If a system error occurs, the Sony Online Support technicians require the number of beeps your system produces.

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 floppy disk 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, floppy disk 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.

<i>Message</i>	<i>Meaning</i>
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. The Windows® operating system reassigns resources to best meet the needs of a particular configuration.

<i>DMA Channel</i>	<i>Default Assignment</i>
Channel 4	Direct memory access controller
Channel 2	Standard floppy disk controller

System I/O Address Map


<i>Address Range (hex)</i>	<i>Description</i>
0x00000000-0x00000CF7	PCI bus
0x00000000-0x00000CF7	Direct memory access controller
0x00000D00-0x0000FFFF	PCI bus
0x000003B0-0x000003BB	Intel Processor to AGP Controller
0x000003B0-0x000003BB	nVIDIA® GeForce4 MX 440 (Sony)
0x000003C0-0x000003DF	Intel Processor to AGP Controller
0x000003C0-0x000003DF	nVIDIA GeForce4 MX 440 (Sony)
0x0000D800-0x0000D8FF	Realtek RTL8139/810X Family Fast Ethernet NIC
0x0000D400-0x0000D4FF	Sony MPEG2 Encoder Board (WDM)
0x0000D000-0x0000D007	Lucent® Win Modem
0x0000B800-0x0000B8FF	Lucent Win Modem
0x00000A79-0x00000A79	ISAPNP Read Data Port
0x00000279-0x00000279	ISAPNP Read Data Port
0x00000274-0x00000277	ISAPNP Read Data Port
0x00000010-0x0000001F	Motherboard resources
0x00000022-0x0000002D	Motherboard resources
0x00000030-0x0000003F	Motherboard resources
0x00000044-0x0000005F	Motherboard resources
0x00000062-0x00000063	Motherboard resources
0x00000065-0x0000006F	Motherboard resources
0x00000074-0x0000007F	Motherboard resources
0x00000091-0x00000093	Motherboard resources
0x000000A2-0x000000BF	Motherboard resources
0x000000E0-0x000000EF	Motherboard resources
0x00000290-0x00000297	Motherboard resources
0x000003F0-0x000003F1	Motherboard resources
0x000004D0-0x000004D1	Motherboard resources
0x0000002E-0x0000002F	Motherboard resources
0x0000E400-0x0000E47F	Motherboard resources
0x0000EC00-0x0000EC3F	Motherboard resources
0x00000370-0x00000372	Motherboard resources
0x00000020-0x00000021	Programmable interrupt controller

<i>Address Range (hex)</i>	<i>Description</i>
0x000000A0-0x000000A1	Programmable interrupt controller
0x00000080-0x00000090	Direct memory access controller
0x00000094-0x0000009F	Direct memory access controller
0x000000C0-0x000000DF	Direct memory access controller
0x00000040-0x00000043	System timer
0x00000070-0x00000073	System CMOS/real time clock
0x00000061-0x00000061	System speaker
0x000000F0-0x000000FF	Numeric data processor
0x000003F2-0x000003F5	Standard floppy disk controller
0x000003F7-0x000003F7	Standard floppy disk controller
0x00000378-0x0000037F	Printer Port (LPT1)
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000060-0x00000060	Standard 101/102-Key or Microsoft® Natural PS/2® Keyboard
0x00000064-0x00000064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x00000240-0x00000247	Sony Memory Stick controller(WB)
0x0000A800-0x0000A80F	Intel® 82801BA Bus Master IDE Controller
0x000001F0-0x000001F7	Primary IDE Channel
0x000003F6-0x000003F6	Primary IDE Channel
0x00000170-0x00000177	Secondary IDE Channel
0x00000376-0x00000376	Secondary IDE Channel
0x0000A400-0x0000A41F	Intel® 82801BA/BAM USB Universal Host Controller - 2442
0x0000E800-0x0000E80F	Intel® 82801BA/BAM SMBus Controller - 2443
0x0000A000-0x0000A01F	Intel® 82801BA/BAM USB Universal Host Controller - 2444
0x0000E000-0x0000E0FF	YAMAHA AC-XG Audio Device
0x0000E100-0x0000E13F	YAMAHA AC-XG Audio Device

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

Memory Map

<i>Address range</i>	<i>Default configuration</i>
0x0000-0x9FFFF	System board
0xF0000-0xFFFFF	System board
0x100000-0x1FFFFFFF	System board
0xFEC00000-0xFEC000FF	System board
0xFEE00000-0xFEE00FFF	System board
0xFFB80000-0xFFBFFFFF	System board
0xFFF80000-0xFFFFFFFF	System board
0xA0000-0xBFFFF	PCI bus
0xA0000-0xBFFFF	Intel Processor to AGP Controller
0xA0000-0xBFFFF	nVIDIA® GeForce4 MX 440 (Sony)
0xC8000-0xDFFFF	PCI bus
0x20000000-0xFFAFFFFFFF	PCI bus
0xEE000000-0xEF6FFFFFFF	Intel Processor to AGP Controller
0xEE000000-0xEF6FFFFFFF	nVIDIA GeForce4 MX 440 (Sony)
0xEF700000-0xF7FFFFFFF	Intel Processor to AGP Controller
0xF8000000-0xFBFFFFFFF	Intel Processor to AGP Controller
0xF0000000-0xF7FFFFFFF	nVIDIA GeForce4 MX 440 (Sony)
0xEF800000-0xEF87FFFF	nVIDIA GeForce4 MX 440 (Sony)
0xED800000-0xED8000FF	Realtek RTL8139/810X Family Fast Ethernet NIC
0xFFAFB800-0xFFAFBFFF	Texas Instruments OHCI Compliant IEEE 1394 Host Controller
0xFFAFC000-0xFFAFFFFFFF	Texas Instruments OHCI Compliant IEEE 1394 Host Controller
0xEC000000-0xEC00FFFF	Sony MPEG2 Encoder Board (WDM)
0xEB800000-0xEB8000FF	Lucent® Win Modem

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

IRQ Summary

<i>IRQ</i>	<i>Description</i>
0	System timer
1	Standard 101/102-Key or Microsoft® Natural PS/2® Keyboard
4	Communications Port (COM1)
5	Sony Memory Stick controller(WB)
6	Standard floppy disk controller
8	System CMOS/real time clock
10	Intel® 82801BA/BAM SMBus Controller - 2443
12	PS/2 Compatible Mouse
13	Numeric data processor
14	Primary IDE Channel
15	Secondary IDE Channel
16	nVIDIA® GeForce4 MX 440 (Sony)
17	YAMAHA AC-XG Audio Device
18	Texas Instruments OHCI Compliant IEEE 1394 Host Controller
19	Intel® 82801BA/BAM USB Universal Host Controller - 2442
20	Microsoft ACPI-Compliant System
21	Realtek RTL8139/810X Family Fast Ethernet NIC
22	Sony MPEG2 Encoder Board (WDM)
23	Lucent® Win Modem
23	Intel® 82801BA/BAM USB Universal Host Controller - 2444

Chapter 7

Specifications

This chapter describes the technical specifications for your VAIIO Digital Studio™ computer.

Processors

See online specifications sheet for details.

Chipset

Intel 850 chipset

AGP Bus

AGP interface specification, version 2.0 (supports 2x/4x)

1 AGP slot

PCI Bus

PCI Level 2.2, 33 MHz zero wait state

3 PCI slots - not all slots are available. (See online specifications sheet for details.)

Memory Modules

Installed memory	See online specifications sheet for details.
Maximum memory	1 GB (256 MB in each socket)
Voltage	2.5 V memory only
Pins	184-pins with gold-plated contacts
Memory type	Non-ECC 40ns PC800-40 Direct Rambus RIMM module

Memory Configurations

<i>RIMMA1/RIMMA2*</i>	<i>RIMMB1/RIMMB2*</i>
0, 128, 256, 512	0, 128, 256, 512

* System memory is 2.5 V non-ECC 40ns PC800-40 Direct Rambus RIMM modules. Your computer does not support EDO memory or buffered DIMM memory. Memory must be installed in pairs. Memory size can vary between sockets. RIMM modules can be single- or double-sided.

L2 Cache

Installed	512 KB of Advanced Transfer cache
-----------	-----------------------------------

Graphics

AGP Controller*	See online specifications sheet for details.
Video memory	See online specifications sheet for details.
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® software
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 headphones)

Communications

Modem*	V.90 compatible data/fax modem†
Fax	14.4 Kbps maximum
i.LINK® (IEEE 1394) interface	400 Mbps, OHCI chip set

* Installed modem may vary, depending on the system configuration purchased.

† This modem is capable of downloading at 56 Kbps. Your phone service, online service, or Internet Service Provider may not support this technology or operate at this speed.

Giga Pocket I/O

Rear	Audio L/R In jack Video/S-Video In jack Video/S-Video Out jack Audio L/R Out jack VHF/UHF port
Front	Video/S-Video In jack Audio L/R In jack

I/O and Expansion Slots

Serial port	One high-speed NS16C550-compatible port
Parallel port	One high-speed bi-directional Centronics-compatible port with ECP and EPP modes
Modem jacks	Two RJ-11 jacks (telephone and line). (See online specifications sheet for details.)
USB ports*	USB1 and USB2 (front panel) USB3 and USB4 (rear panel) (See online specifications sheet for details.)
PCI slots	Not all PCI slots are available for expansion. (See online specifications sheet for details.)
IDE headers	Primary and secondary (each supports two IDE drives)

* Universal Serial Port (USB) technology only supports version 1.1

Floppy Disk Drive and Controller

<i>Drive</i>	<i>Description</i>
Floppy disk controller	82077-compatible (supports up to 2.88 MB)
Floppy disk drive	3.5-inch, 1.44 MB.

Hard Drives and Controller

<i>Drive</i>	<i>Description</i>
IDE hard drive*	See online specifications sheet for details.
EIDE controller	Supports up to four EIDE drives (supports PIO Mode 4 EIDE drives and Ultra DMA/100 Mode drives)

* Bus-mastering EIDE driver installed.

Optical Drives

<i>Drive</i>	<i>Description</i>
Optical drive #1	See online specifications sheet for details.
Optical drive #2	See online specifications sheet for details.

System BIOS

Make and model	Award-based
ROM	2 Mb 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 compliant, multi-boot, PCI add-in card auto-configure

Index

A

- address map, system 73
- AGP bus specifications 77
- audio specifications 79

B

- battery - See lithium battery
- beep codes 69
- BIOS Setup Utility
 - See CMOS Setup Utility
- BIOS setup utility
 - advanced screen 61
 - boot screen 64
 - exit screen 65
 - main screen 59
 - options 57
 - power screen 63
 - screens 57
- BIOS specifications 81

C

- chipset specifications 77
- CLR CMOS Jumper 55
- CMOS - See Also BIOS
- CMOS Setup Utility 18
- codes, beeps 69
- communications, specifications 79
- computer
 - lithium battery vii
- configuring
 - power management 19
- connectors
 - i.LINK 6
 - monitor 12
 - power 53
 - USB 6

- cover, slot 41
- covering I/O slot 42
- CPU - See processor

D

- display, power management 19
- disposal of lithium battery vii
- DMA channel assignments 72
- drive
 - installing additional drive 43

E

- Energy Star ii
- error messages
 - beep codes 69
 - PCI configuration 70
- expansion slots 15
 - specifications for 80
- expansion slots - See Also slots

F

- fax/modem - See modem card
- floppy disk drive
 - specifications 80
- front view 2
 - buttons and switches 4
 - connectors 5, 6
 - indicators 5

G

- Giga Pocket specifications 79
- graphics controller - See graphics
- graphics specifications 78

H

- hard drive specifications 80

I

- i.LINK connector 6
- I/O address map 73
- I/O connectors
 - i.LINK 14
 - keyboard and mouse 10
 - mic, line in, headphones 12
 - monitor 12
 - printer port 11
 - serial port 1 11
 - telephone and line 13
 - USB ports 10
- I/O slot covering 42
- I/O slot specifications 80
- icons, description of 8
- IEEE 1394 - See i.LINK
- installing
 - hard disk drive 43
 - PCI add-in card 30
 - system memory 37

K

- keyboard connector 10

L

- L2 cache specifications 78
- lithium battery
 - disposal vii
 - safety precautions vii
- lithium battery, replacing 32

M

- map - See I/O address map and memory map
- memory - See Also system memory
- memory configuration
 - specifications 78
- memory module
 - connector 52
 - removing 35
 - specifications 78
- messages
 - error 69
 - status and error 70

- microprocessor - See processor
- modem - See Also communications
- monitor - See display
- monitor connector 12
- mouse connector 10

O

- online specifications 1
- Optical drive
 - performance of discs 3, 80

P

- panel 27
 - removing 26
- passwords, user and supervisor 68
- PCI add-in card
 - installing 30
 - removing 28
- PCI bus specifications 78
- power connector 53
- power management, configuring 19
- processor specifications 77, 78

R

- RAM - See system memory
- rear view 7
 - I/O connectors 10
 - icons 8
- removing
 - memory module 35
 - panel 26
 - PCI add-in card 28
 - slot cover 41
- replacing 27
 - panel 27
- replacing lithium battery 32
- resolution - See graphics
- RIMM - See memory module

S

- See Also communications
- slot - See I/O slot
- slot cover, removing 41

specifications

- AGP bus 77
- audio 79
- BIOS 81
- chipset 77
- communications 79
- floppy disk drive and controller 80
- Giga Pocket 79
- graphics 78
- hard drives and controllers 80
- I/O and expansion slots 80
- L2 cache 78
- memory configurations 78
- memory module 78

- PCI bus 78
 - processor 77, 78
- status and error messages 70
- supervisor password 68
- system board
 - CLR CMOS Jumper 55
 - memory module connector 52
 - power connector 53
- system I/O address map 73
- system memory, installing 37

U

- USB connectors 6
- user password 68

