

CRESCENDO™/WS G3 or G4

Processor Upgrade Card for Macintosh® PowerBook® G3 Series "Wallstreet" Computers

Quick Start Guide for Crescendo/WS

Macintosh PowerBook and Operating System Compatibility

Crescendo/WS processor upgrade cards are compatible only with Macintosh PowerBook G3 Series models (product family M4753) with 233, 250, 266, 292, or 300 MHz processors; do not install this product into models with faster (333 MHz or higher) processors. If you are unsure which PowerBook model you have, locate the label on the bottom with the product family number information.

At this printing, Crescendo/WS processor upgrade cards are compatible with Mac® OS 8.1 through OS X version 10.2.x. Mac OS 9 or higher is required for G4 processor AltiVec support. For up-to-date Mac OS compatibility information, check our web site.

You Should Have

The following items should be included in your product package:

- Crescendo/WS processor upgrade card
- Sonnet Installer CD
- Processor card removal tool
- *Powered by Sonnet* label

The following item is required for installation:

- Small Phillips screwdriver

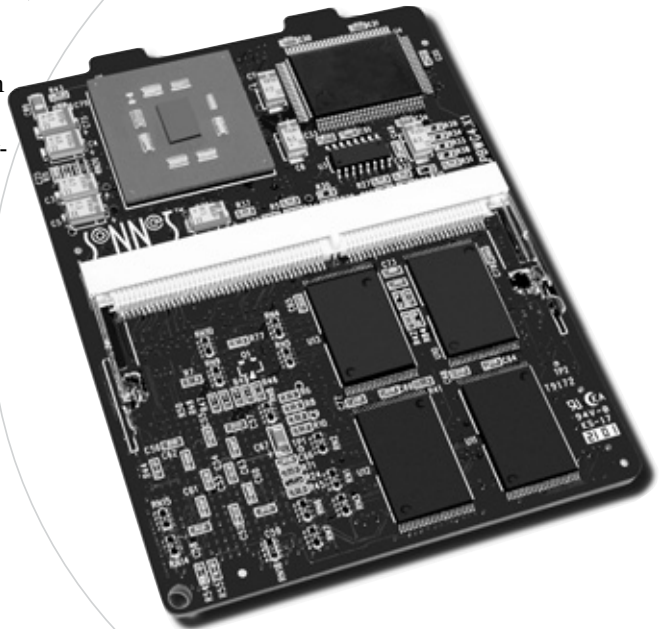
System Requirements

The Crescendo/WS requires the following in order to work in your system:

- Fully operational original processor (you must install Sonnet software prior to installing the processor upgrade)

Multiple Upgrade Recommendation

If you intend to perform multiple upgrades to your PowerBook, we strongly recommend that you first upgrade the Mac OS software. Next, install the Crescendo/WS processor upgrade. Finally, install any remaining upgrades; *complete each upgrade and test it before proceeding to the next.*



Support Notes: Please familiarize yourself with the following instructions before beginning the installation. If you feel you are unable to install the computer hardware, please contact a qualified computer technician.

Before proceeding with the installation, we recommend that you make a back-up of important information on your hard drive prior to installing new hardware or software.

SONNET
SIMPLY FAST
www.sonnettech.com

Remember to register your product online at <http://registration.sonnettech.com> to be informed of future upgrades and product releases.

Software updates and links are available from the Sonnet web site at www.sonnettech.com. • Online support form available at <http://supportform.sonnettech.com>.

Sonnet Technologies Customer Service hours are Mon.-Fri., 7 a.m.–5 p.m. Pacific Time • Customer Service Phone: 1-949-472-2772 • E-mail: support@sonnettech.com

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Install Software... First!

Install Mac OS Software

If you intend to upgrade your PowerBook's Mac OS software, you should do so first, *before* you run the Crescendo/WS installer application and install your Crescendo/WS card. This is especially important if you are planning to install or upgrade Mac OS X, and you are installing a Crescendo/WS G4 upgrade card; this will avoid certain compatibility issues reported in some PowerBook configurations.

1. If you are installing or upgrading your Mac OS software, do so now.
2. After you complete the installation or upgrade process, restart your computer.



WARNING: *Before* installing the Crescendo/WS processor upgrade card, you *must* run the Crescendo/WS Install utility. **If you do not run the utility, your PowerBook will not operate with the Crescendo/WS installed.**

Ensure your system is booted in Mac OS 8.x or 9.x to run this utility. Do not attempt this in Mac OS X Classic mode; this software will only function in Mac OS 8.x through OS 9.x. Also, quit any open applications and disable any security software installed in your system.

Please note that this installer only needs to be run once, prior to the hardware installation.

Install Sonnet Software

1. Insert the Sonnet Installer CD into your computer's CD-ROM drive. Double-click the Crescendo/WS Installer icon to start the utility.
2. Click the Install button to start the software installation; the process takes just a few seconds.
3. After the software installation is complete, click the Shut Down button to shut down your computer.

Hardware Installation



Support Note: When handling computer products, you must take care to prevent components from being damaged by static electricity. Before opening your computer or removing parts from their packages, always ground yourself first by touching a metal part of the computer, such as a port access cover, and work in an area free of static electricity; avoid carpeted areas. Handle all electronic components only by their edges, and avoid touching connector traces and component pins.

Shut Down and Open Computer

1. If you have not already done so, shut down your PowerBook. If the computer has been on for any length of time, wait a couple of minutes for it to cool before beginning the installation.
2. Disconnect all cables from your PowerBook, including the power cable. If necessary, move your PowerBook to an area with a flat, level surface where you can freely work.
3. Open the display on your PowerBook to a 90° angle; *you must do this to prevent it from tipping over during the installation process (Figure 1).*
4. Locate the expansion bay release levers on the front edge of the computer (Figure 2), then pull them out to eject and remove batteries and modules installed in both expansion bays.

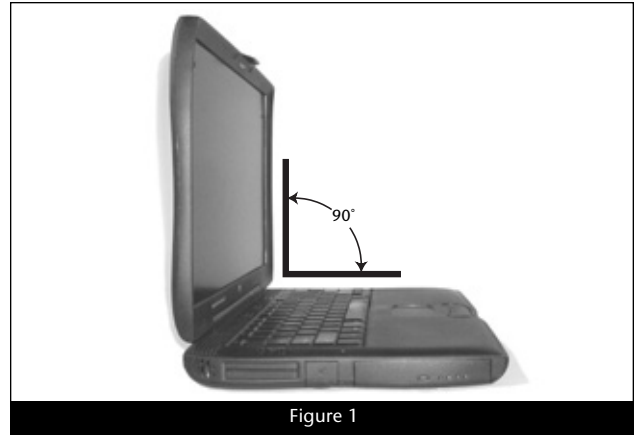


Figure 1

5. Reach inside the expansion bays to locate the two small, ridged plastic tabs; these are the keyboard release levers. Slide the levers toward you until the lower edge of the keyboard rises (Figure 3).

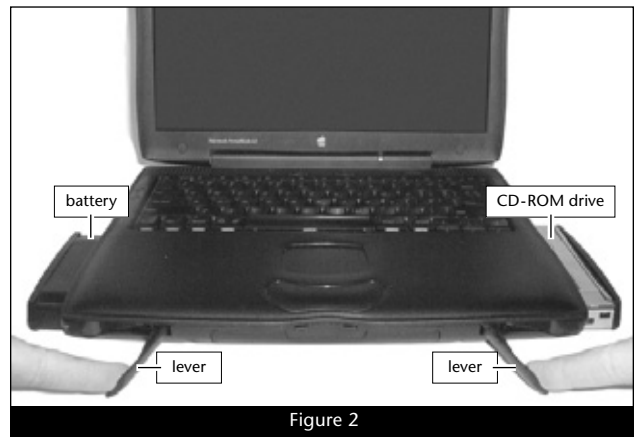


Figure 2

6. Lift up the lower edge of the keyboard slightly, and pull it toward you until the tabs on the upper edge of the keyboard are visible (Figure 4).

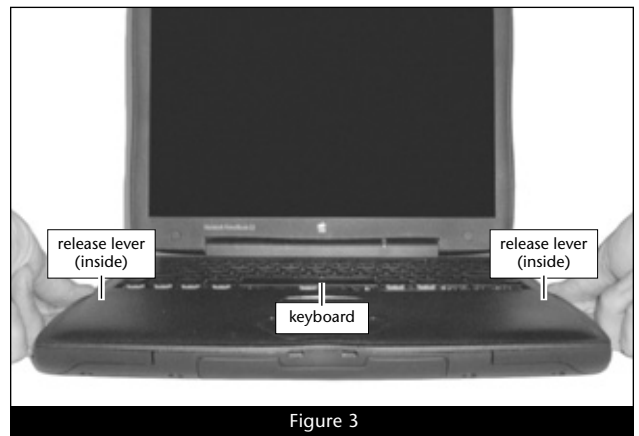


Figure 3

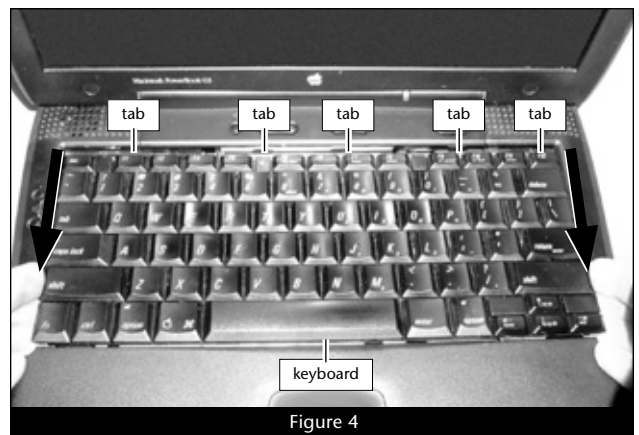
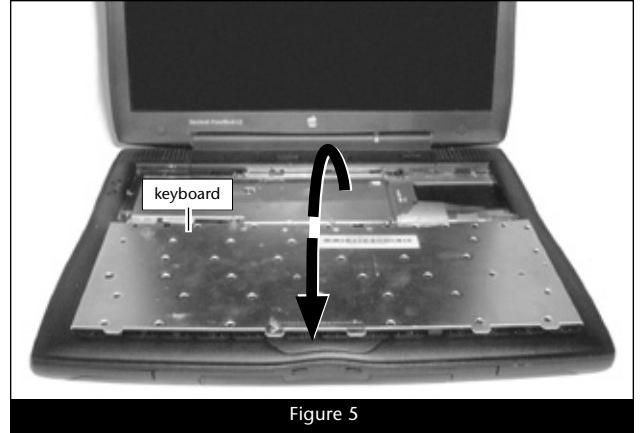



Figure 4

Hardware Installation

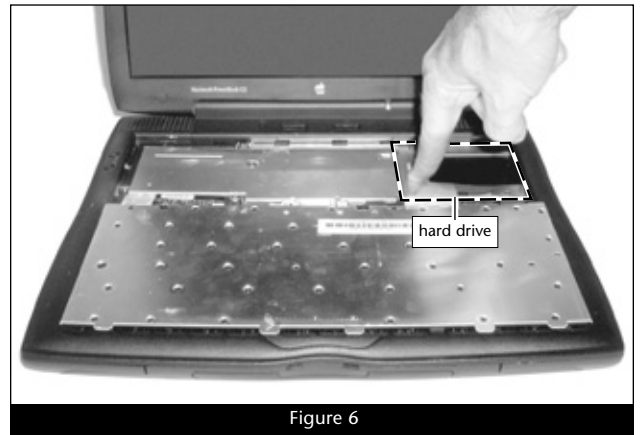
7. Gently flip the keyboard over on top of the palm rest and trackpad (Figure 5).



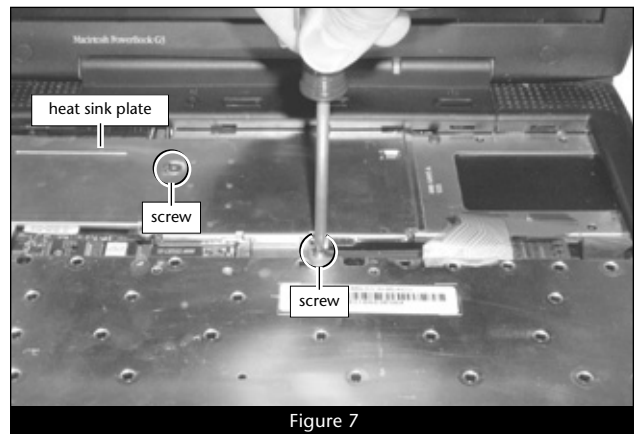
 **Support Note:** To avoid generating a static charge in your body, do not walk around the room until after you finish the installation, reassemble and close the computer.

Remove Heat Sink Plate

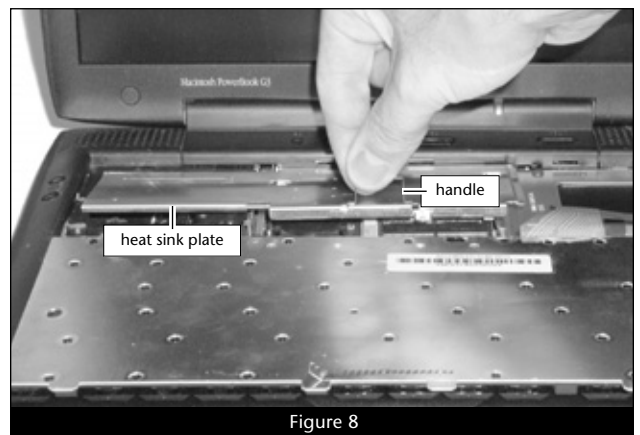
1. Touch the metal surface of the hard drive to discharge static from your body (Figure 6).



2. Remove the two screws securing the internal heat sink plate (Figure 7).



3. Pull up on the attached handle and remove the heat sink plate (Figure 8).



Hardware Installation

Remove Processor Card

1. While holding down your PowerBook with one hand, insert the hook end of the processor card removal tool under the bottom right corner of the processor card, then gently and slowly pull straight up on the edge of the card to disengage it from the logic board (Figure 9). Do not attempt to pry out the processor card; you may damage the card or the hard drive.
2. Grasping the processor card by its right edge and the edge of its RAM slot, move the card to the right to disengage its tabs from the processor card shield (Figure 10). Carefully lift the card up and away from the logic board.

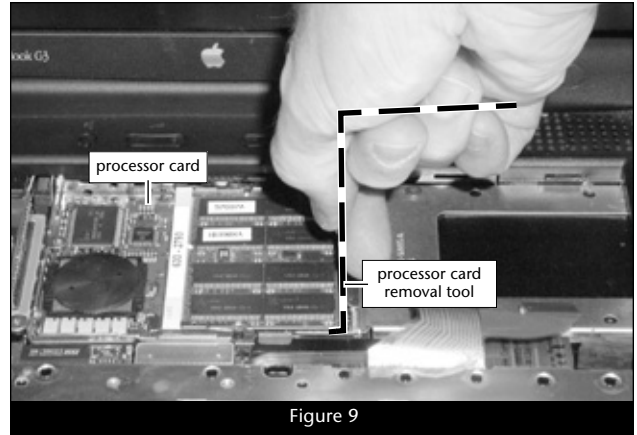


Figure 9

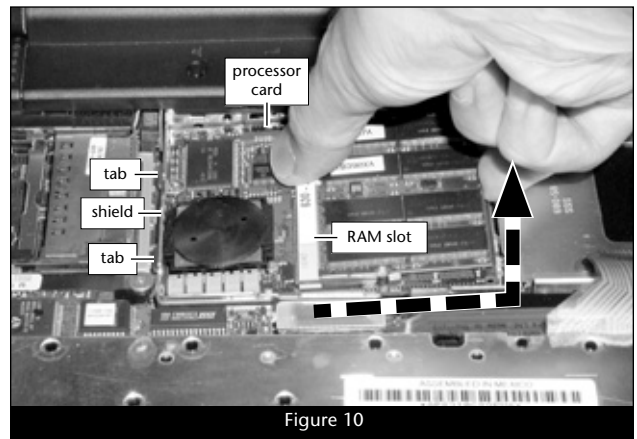


Figure 10

Move RAM (Memory) From Processor Card to Crescendo/WS

Depending on the configuration of your PowerBook, your processor card may have RAM modules installed on both sides of the processor card.

WARNING: Do not touch the RAM modules' pins; handle them only by their edges.

1. Turn the processor card over so the two connectors are face up (Figure 11). Grasping the processor card by its edges, gently spread apart the retainer clips on both sides of the RAM module (Figure 11); the module will pop up. Remove the module and set it aside on a static-free surface.
2. Remove the Crescendo/WS (Figure 12) from its anti-static package, making sure to handle the card by its edges.

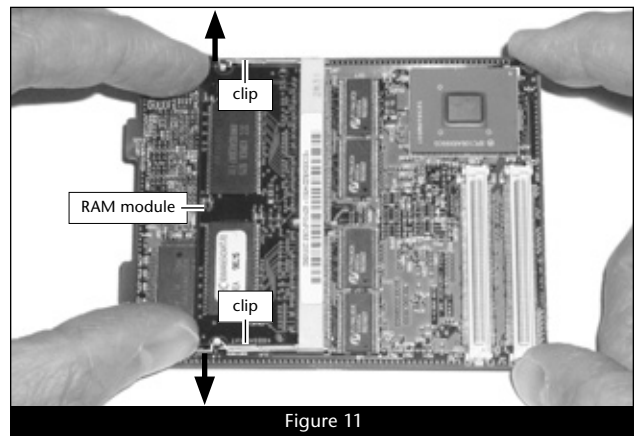


Figure 11

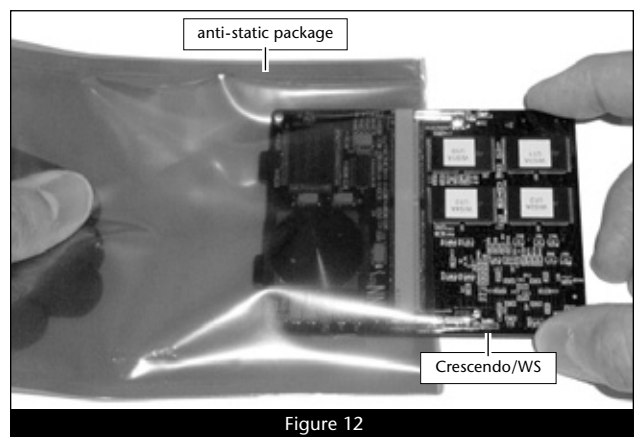


Figure 12

Hardware Installation



Support Note: If you are installing two RAM modules into the Crescendo/WS card, be sure to install them into the expansion slots that correspond to those on the original processor card. When you install RAM, note that the modules are designed to fit into the slot only one way; align the notch in the module to the guide in the slot.

3. Turn the Crescendo/WS over, so that the two connectors are face up (**Figure 13**). Align the RAM module removed from the bottom of the original processor card with the RAM slot on the Crescendo/WS, and insert it at a 30° angle, all the way into the slot (**Figure 13**).
4. Gently push down on the RAM module until the retainer clips snap into place (**Figure 14**).
5. If there is a second RAM module installed on the processor card, remove it, then install it on the Crescendo/WS card following the same procedure as for the first RAM module.
6. Place the original processor card in the Crescendo card's anti-static bag, and store it in a safe place.

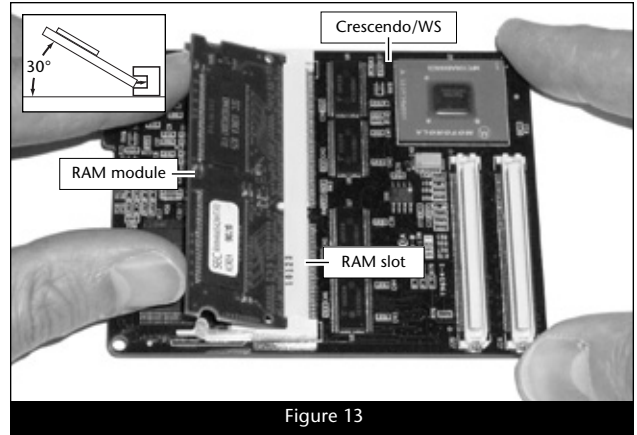


Figure 13

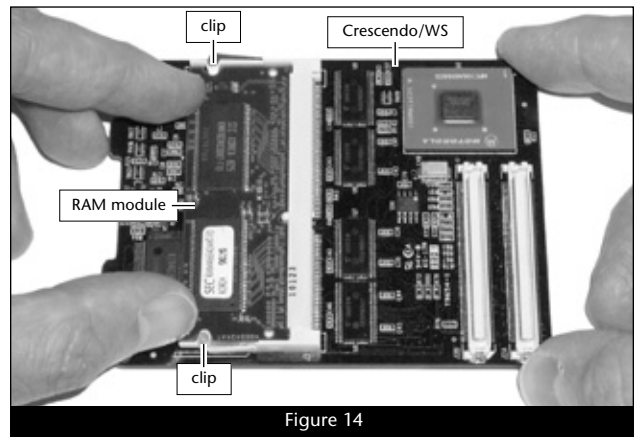


Figure 14

Install the Crescendo/WS

1. Turn the Crescendo/WS so that the connectors are face down, and the tabs on the edge of the card are facing left (**Figure 15**). Grasping the card by its right edge and the edge of its RAM slot, carefully insert the tabs into the processor card shield and align the connectors on the bottom of the card with the corresponding connectors on the logic board (**Figure 15**).
2. Press on the right side of the Crescendo card until the connectors are completely coupled (**Figure 16**); the Crescendo card should be level with the logic board.

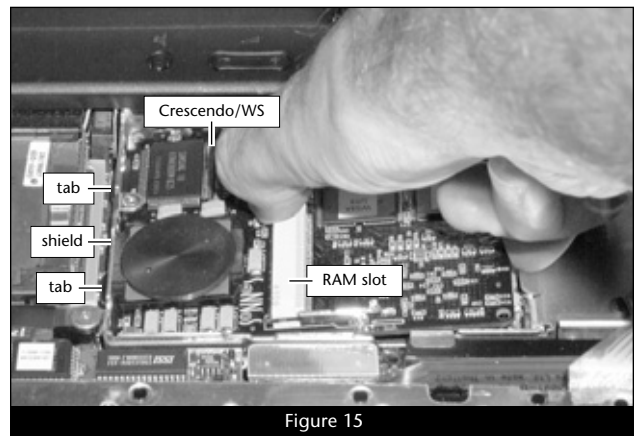


Figure 15

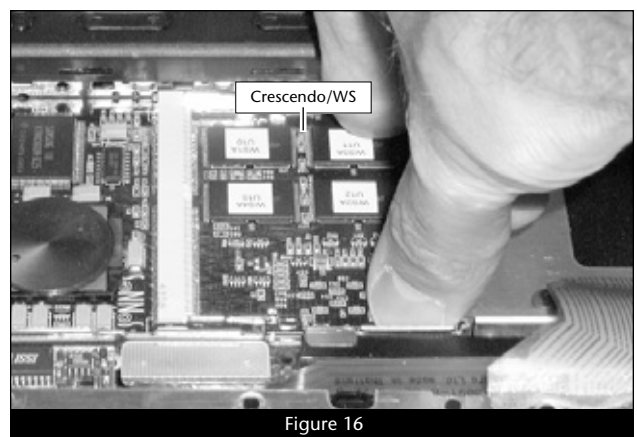
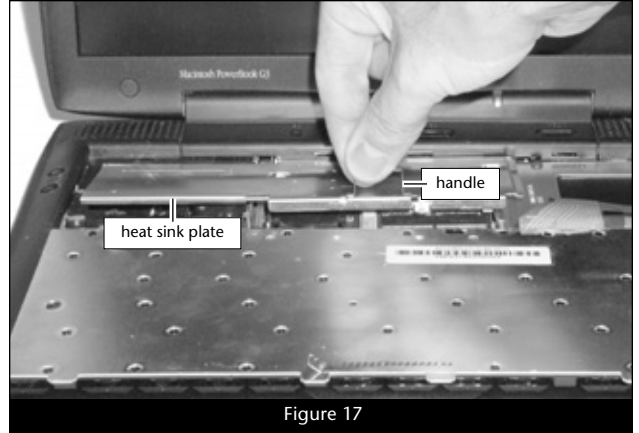


Figure 16

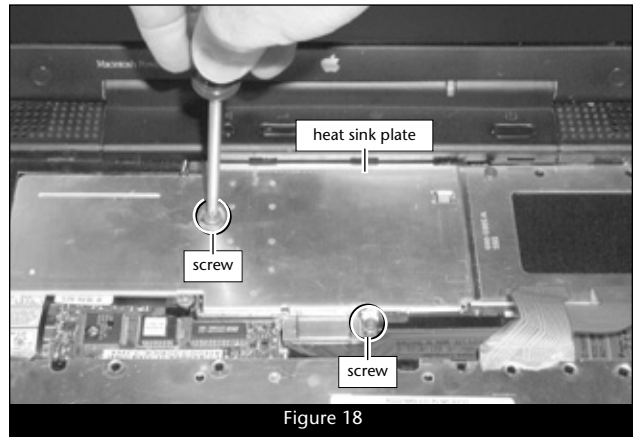
Hardware Installation

Reinstall Heat Sink Plate

1. Insert the tabs on the edge of the heat sink plate into the PowerBook, then lay the plate flat (**Figure 17**).

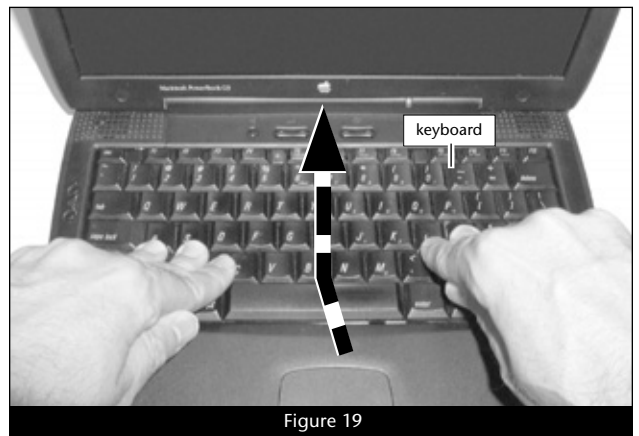


2. Gently press down on the lower section of the heat sink plate, then secure the plate with its two screws (**Figure 18**); do not overtighten the screws.



Reassemble Computer

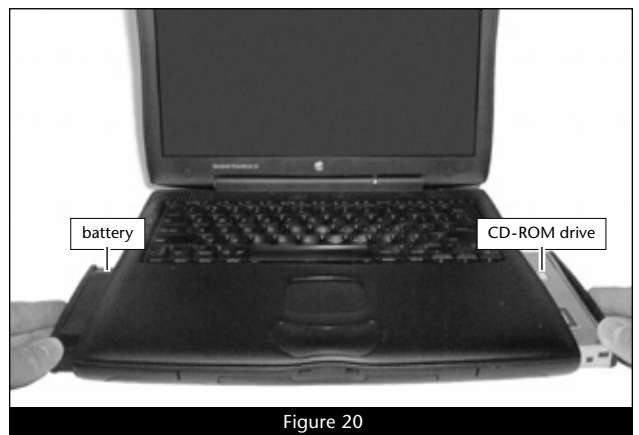
1. Flip the keyboard over, and insert the tabs at the top of the keyboard into the slots in the PowerBook case (**Figure 19**). Press down on the keyboard until it snaps into place.
2. Install the battery and expansion module(s) back into the expansion bays (**Figure 20**).
3. Connect the power cable to the PowerBook, but leave other cables disconnected for now.
4. Affix the *Powered by Sonnet* label to your computer.



WARNING: Do not shut down or otherwise interrupt the operation of your PowerBook during the next three steps. If this process is interrupted, your PowerBook may be left in a disabled condition that is very difficult to remedy.

Turn On Computer

1. Press the Power button on your PowerBook. *You will NOT hear the normal startup sound, but a long tone instead; the display will remain blank.*
2. During the next 30 to 45 seconds, the hard drive will spin up and you will hear eight tones.
3. Your PowerBook will restart. Your accelerated machine should boot normally. If you have just installed a Crescendo/WS G3 card, your PowerBook is ready to use and your installation is complete. *If you have just installed a Crescendo/WS G4 card, continue to page 8.*



Additional Software Installation—Crescendo/WS G4



Support Note: The Crescendo/WS G4 processor upgrade card features AltiVec (dubbed Velocity Engine™ by Apple), an on-chip vector processing unit that greatly speeds certain operations in AltiVec-enabled applications. To take advantage of AltiVec-enabled applications, your system must be running Mac OS 9.0 or higher. If your PowerBook is running Mac OS 9.1 or later, AltiVec-support is already enabled.

The following section covers the installation of additional software your PowerBook may require to fully support the Crescendo/WS G4 processor card. Complete the steps on the following pages after you have successfully installed the Crescendo/WS G4 card.

Check the requirements listed below to determine which, if any, additional software you must install. If you have multiple operating systems installed, install software into the appropriate System folder for each operating system (OS). **If you have already installed Mac OS X on your system, be sure to also read the important information on page 10 regarding updating your Mac OS X software.**

- **Mac OS 8.1–8.6:** No additional software installation is required; you may skip this section if OS 8.1–8.6 is your system's only OS.
- **Mac OS 9.0.x:** You must rerun the Mac OS 9 install application to install AltiVec libraries into your System Folder (instructions follow).
- **Mac OS 9.1.x or 9.2.x:** No additional software installation is required; you may skip this section if OS 9.1.x or 9.2.x is your system's only OS.
- **Mac OS X (any version):** You must download and run the Sonnet X Tune-Up install application. This software installs a control panel that enables your Crescendo/WS G4-upgraded PowerBook to switch between Mac OS 9.x and OS X (see page 10).

Enable AltiVec—Existing OS 9.0 installation



Support Note: In some cases, the following procedure will not work properly, and AltiVec support will not be installed. If this is your experience, you should upgrade your system to Mac OS 9.1 or higher. When you upgrade to Mac OS 9.1 or higher, AltiVec support is installed automatically.

This section describes how to update an existing Mac OS 9.0 installation to enable AltiVec on your Crescendo/WS G4-upgraded PowerBook. If you are upgrading to Mac OS 9.0 at this point, go to the next section.

1. Make sure your PowerBook is plugged in, and if necessary, open the Energy Saver control panel and set it so your PowerBook will not go to sleep.
2. Insert the Mac OS 9 CD into your CD-ROM drive. In the Finder menu, select Special: Restart, then immediately press and hold down the C key on your keyboard until your system restarts and the Welcome to Mac OS screen appears.

Additional Software Installation—Crescendo/WS G4

Enable Altivec—Existing OS 9.0 Installation (continued)

3. Double-click the Mac OS Install icon. Proceed through the next several screens until the installer tells you that Mac OS 9 is already installed. Click the Add/Remove button to continue until you reach the *Install Mac OS 9* window.
4. Click the Customize button. In the *Custom Installation and Removal* window deselect all software components except for Mac OS 9. Click the pop-up menu to the right of Mac OS 9 and change “Recommended Installation” to “Customized installation.” The *Select Mac OS 9 Features to Install* window will appear shortly. Change “Recommended Installation” to “None” from the pop-up menu. Click the Core System Software checkbox (it should be the only checkbox with a checkmark). Click OK, Start, then Continue to complete the installation. After the software is installed, quit the Mac OS Install application and restart your PowerBook; your PowerBook is ready to use and your installation is complete.

Enable Altivec—Upgrade to Mac OS 9.0

This section describes how to upgrade to your PowerBook's system software to Mac OS 9.0 from a previous version; Altivec support for your Crescendo/WS G4-upgraded PowerBook will be installed automatically.

1. Make sure your PowerBook is plugged in, and if necessary, open the Energy Saver control panel and set it so your PowerBook will not go to sleep.
2. Insert the Mac OS 9 CD into your CD-ROM drive. In the finder menu, select Special: Restart, then immediately press and hold down the C key on your keyboard until your system restarts and the *Welcome to Mac OS* screen appears.
3. Double-click the Mac OS Install icon. In the *Select Destination* window, click the Options button and click the Perform Clean Installation check box that appears in the subsequent screen. Click the Select button. Proceed through the next several screens until you reach the *Install Software* window. Click OK, Start, then Continue, and complete the installation. After the software is installed, quit the Mac OS Install application and restart your PowerBook; your PowerBook is ready to use and your installation is complete.

Additional Software Installation—Crescendo/WS G4

Download and Run Sonnet X Tune-Up



Running the Sonnet X Tune-Up install application is necessary only when Mac OS X (any version) is installed on your system along with Mac OS 9.1.x or 9.2.x. Remember to install this software when you upgrade to Mac OS X. For complete information on Sonnet X Tune-Up, please refer to the Read Me notes provided with the software.

1. Boot your system in Mac OS 9.1.x or 9.2.x from a hard drive or partition, not a CD-ROM.
2. Log onto the Internet and type in the following address:
www.sonnettech.com/downloads/osx_upgrade_sw.html
3. Click on the Sonnet X Tune-Up link, and then click on the pulsing Download button; after downloading the file, move it to the Desktop.
4. Insert the Mac OS X Install CD into your CD-ROM drive and allow it to mount to your Desktop; if the Mac OS X CD was not inserted when you started this installer, the Sonnet software will not be installed.
5. Run Sonnet X Tune-Up in Mac OS 9.1.x or 9.2.x. (Only the active drive or partition from which your system is booted can be updated.)
6. From the Apple menu, select Control Panels: Startup Disk X. Select your Mac OS X volume (not the Mac OS X CD), then click Restart; your installation is complete.

Updating and Maintaining Mac OS X

At some time in the future, you may wish to upgrade to Mac OS X, or upgrade your Mac OS X software to a higher version using a Mac OS X Update CD, you may need to run Disk Utility from the Mac OS X Install CD, or you may even need to reinstall Mac OS X software. Every one of these tasks require you to boot from an Apple CD.

In some instances, your Crescendo/WS G4 processor-upgraded PowerBook may not boot from the CD as expected. If this is the case with your PowerBook, please do the following:

1. Insert the Mac OS X CD into your PowerBook's CD-ROM drive. If your system is booted in Mac OS X, select Restart from the Apple Menu. If your system is booted in Mac OS 9.x, select Special: Restart from the Finder.
2. Wait for a few seconds after the startup chime. While holding down the *ctrl* and  keys, press and release the Power button four times, waiting for the chime to sound between each button press.
3. After the fourth startup chime sounds, release the *ctrl* and  keys; your PowerBook should boot from the Mac OS X CD.

If the above method does not work for you, please contact Sonnet Customer Support for further assistance.