Apple Service - Troubleshoot and Repair

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TITLE

About Your Ultra SCSI PCI Card

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TOPIC

This article provides description and usage information for the Apple Ultra SCSI PCI Card for the Power Macintosh G3 (Blue and White), and the Power Mac G4 available as a Configure to Order option from the Apple Store at **http://www.store.apple.com**.

DISCUSSION

Congratulations on purchasing the Apple Ultra SCSI PCI Card. This peripheral component interconnect (PCI) expansion card allows you to connect devices that use the Small Computer System Interface (SCSI, pronounced "skuh-zee"). SCSI is a standard method for connecting disk and cartridge drives, CD-ROM drives, scanners, and other devices. The SCSI port permits high-speed communication between the computer and SCSI devices.

Installing the Card

To install the card, you'll need to open your computer, install the card, then close the computer. For detailed instructions on installing PCI expansion cards, please refer to the documentation that came with your computer.

About SCSI Devices

Once you've installed the card and closed your computer, you can connect and use up to seven external SCSI devices with your computer. You connect external SCSI devices to the SCSI port on the card in a chain. The first device in the chain plugs into the SCSI port; the second device plugs into the first device, and so on.

Before You Connect a SCSI Device

Before you connect a SCSI device to your computer, follow the instructions in this section.

IMPORTANT This section contains general instructions for attaching SCSI devices to your computer. Also, follow the specific instructions that came with your SCSI device that tell how to change a device's ID number and attach a SCSI cable or terminator to the device.

Make Sure Each Device Has a Unique ID Number

Each external SCSI device connected to your computer must have its own unique ID number from 0 to 6. The SCSI ID number helps the computer keep track of the devices when several devices in the SCSI chain are communicating with the computer simultaneously.

The SCSI devices can be in any physical order in the chain; it is not necessary to arrange them in numerical order. See the instructions that came with each SCSI device for information on checking and setting its SCSI ID number.

IMPORTANT If you use two or more devices attached to the SCSI interface with the same ID number, your computer will not start up properly, your equipment may malfunction, and you may lose data as a result.

Use the Right Type and Length of Cable

To attach a SCSI device to your computer or to another device in the chain, always use SCSI cables that are double-shielded, such as Apple SCSI cables. Never use printer-type RS-232 cables (commonly used with DOS and Windows computers). Poor-quality SCSI cables are often the cause of SCSI problems. Avoid mixing brands and types of SCSI cables.

If the device is the first or only one you're connecting, use a SCSI system cable to connect it to the computer's SCSI port. If the device is not the first one, use a SCSI peripheral interface cable to connect it to the last device in the chain.

Keep the cables between SCSI devices as short as possible. Cables 18 to 24 inches long are best. PowerBooks and some SCSI devices

(particularly scanners) may not be able to handle cables longer than 24 inches.

IMPORTANT The total length of the cables in a SCSI chain should not exceed 6 meters (about 20 feet). SCSI cables must have a 110-ohm impedance.

Terminate the SCSI Chain Properly

To ensure accurate transmission of information, a terminator must be present at each end of a SCSI chain. One terminator, at the beginning of the SCSI chain, is inside your computer. When you connect external SCSI devices, make sure that only the last external device in the chain has a terminator.

IMPORTANT In almost all cases, only the first and last devices in the SCSI chain should be terminated, with one exception noted later in this section. Make sure that no external SCSI device but the last one has a terminator.

To terminate the last device in the chain, do one of the following:

- Use a device that has a built-in terminator as the last device in the chain. If you wish to attach two or more SCSI devices that have built-in terminators, an Apple-authorized service provider can remove the extra built-in terminators.
- If the device at the end of the SCSI chain does not have a built-in terminator, attach an external terminator. You can attach or remove external terminators yourself. (Do not use a black terminator; the black terminators are for Macintosh IIfx computers and certain LaserWriter printers only.) Terminators are available at authorized Apple dealers.

IMPORTANT: Do not attach a terminator to a device that already has a built-in terminator. If you do, your computer may not start up properly.

Exception to the "first and last" rule: If the total cable length in the chain is greater than 10 feet, the chain may need a third terminator at the 10-foot point. Do not add the third terminator unless you are experiencing a SCSI problem, and check all other possible causes of the problem before adding the third terminator.

Connecting a SCSI Device

After you read the earlier section, "Before You Connect a SCSI Device," follow the instructions below. Use these general instructions in conjunction with the more specific instructions that came with your SCSI device.

1. Shut down your computer and make sure the SCSI device is turned off.

2. Connect one end of a SCSI cable to the SCSI port on your SCSI device.

3. Connect the SCSI adapter that came with your computer, shown below, to the other end of the SCSI cable.

4. Connect the SCSI cable with the adapter attached to the computer's SCSI port or to the last SCSI device already in the chain. IMPORTANT Make sure the last device in the SCSI chain is terminated properly.

5. Turn on all devices in your SCSI chain. Then turn on your computer. IMPORTANT Always turn on all external SCSI devices connected to your computer before turning on the computer itself. Otherwise, your computer won't recognize that the SCSI devices are connected to it and your computer may not be able to start up.

6. Install any necessary device drivers (software that makes a device work with your computer).

Drivers needed for a SCSI device usually come on a floppy disk with the device. Some older SCSI devices may require updated drivers to work with your computer. For more information about drivers, contact the manufacturer of your SCSI device.

Note: If you experience problems after connecting a SCSI device, see the troubleshooting documentation that came with your computer or Mac OS Help for solutions.

Keep in mind:

- If you are not going to use a SCSI device and want to turn it off, disconnect the device from the existing SCSI chain of devices before turning the device off. If you turn off a device while others in the chain are still on, you may experience data loss or corruption, poor performance, or your computer may freeze.
- If you use different types of SCSI devices (such as SCSI-2 and Ultra SCSI) in the same SCSI chain, all devices will perform at the level of the slowest connected SCSI device.

Technical Specifications
- Operating system: Mac OS 8.5 or later
- System requirements: Power Macintosh G3 (Blue and White) and Macintosh G3 servers

- Interface: One external, 50-pin Ultra Narrow SCSI connector
- Maximum data transfer rate: Up to 20 megabytes per second (MB/sec)
- Supports up to 7 SCSI external devices of the following types: SCSI-1, SCSI-2, Fast SCSI, Ultra SCSI
- SCSI ID number: Card uses SCSI ID 7

Note: While the Apple Ultra SCSI PCI Card is functionally equivalent to the Adaptec 2930 card, Apple has only tested, and therefore only supports the card using the external connector.

EXTENDED Information - Apple Internal Use - Service Providers and Support Professional

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Document Information
Product Area: Computers
Category: Power Macintosh
Sub Category: Power Macintosh G3 - Blue and White

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- SCSI ID number: Card uses SCSI ID 7