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PowerBook: SCSI Disk Mode and Termination (5/95)

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TOPIC -----

Macintosh PowerBook computers, with the exception of PowerBook 140, 145, 145B, 150, and 170, can function as an external hard drive to a desktop Macintosh via SCSI Disk Mode. Also even though PowerBook computers have internal termination, an external terminator is needed when using SCSI Disk Mode.

DISCUSSION -----

Overview

SCSI Disk Mode (in the PowerBook's ROM) allows you to use a PowerBook as an external SCSI device. You can then connect the PowerBook to any other SCSI-equipped Macintosh and transfer files directly from the desktop Macintosh to and from the PowerBook.

Preliminaries

The two hard-drive volume names (the one in the desktop Macintosh and the one in the PowerBook) CAN'T be identical.

To use SCSI Disk mode, you need:

- The HDI-30 SCSI disk adapter, which plugs into the SCSI port of the PowerBook.
- A SCSI system cable and SCSI terminator.

Making the Connection

The Macintosh User's Guide for Macintosh PowerBook computers contains instructions for making the connections between the PowerBook and various desktop Macintosh systems. Just as with any other SCSI device, both the PowerBook and the desktop Macintosh MUST BE POWERED OFF when the cable connections are made. Make sure your PowerBook is not in Sleep mode.

Activating SCSI Disk Mode

- 1) Once you connect the cables, power up the PowerBook by pressing the

appropriate key. The drive will then spin up.

2) Power up the desktop system. The PowerBook's hard drive should appear on desktop system's display (the PowerBook display will show a moving SCSI icon with the selected SCSI ID number.) In SCSI Disk Mode, treat the PowerBook like an external hard drive.

Exiting From SCSI Disk Mode

To exit SCSI Disk Mode, press the PowerBook's Reset switch or the interrupt switch, or both together. This shuts down the PowerBook to allow removal of the SCSI Disk Mode adapter.

The next time you turn on the PowerBook, it will start up as usual.

Termination

All PowerBook computers, as well as the Macintosh Portable, provide internal hard disk drive termination. The 1.3 KOhm pull-up resistor provides a minimal amount of termination. Therefore, even though the system has internal termination, it requires an external terminator when used in SCSI Disk Mode.

While in SCSI Disk Mode with a Macintosh IIfx, remember to use the black terminator between the adapter and the SCSI system cable. With other desktop Macintosh models, use the standard gray terminator.

Technical Notes

You enter SCSI Disk Mode by starting the PowerBook with a special adapter plugged into the SCSI connector on the back of the computer. The ROM code checks for the presence of the SCSI Disk Mode adapter. If the adapter is absent, the ROM sets the SCSI address to seven (normal CPU SCSI address), and continues to start up normally. If the cable is present, the ROM checks the battery voltage to see if it's high enough to enter SCSI Disk Mode. The ROM then changes the hard disk address to the address stored in PRAM, sets backlighting to minimum, turns on the hard drive, and begins animating the screen.

The SCSI Disk Mode ID number is set in the PowerBook control panel. The default is 1, but you can select any number from 1 to 6. This number is stored in parameter RAM (PRAM).

It's important to connect the SCSI Disk Mode adapter only when the PowerBook has been shut down. The firmware necessary to enter SCSI Disk Mode is executed only at startup. Because the SCSI Disk Mode firmware isn't executed when you connect the adapter during sleep, the SCSI bus potentially has two bus masters and two devices with SCSI ID 0, leading to potential data loss.

To prevent data loss in this situation, a modal warning dialog window appears and the menu bar isn't accessible. You have two options:

- Disconnect the SCSI Disk Mode adapter. Removing the adapter removes the warning dialog box, and you can resume using the system. Although this

procedure is counter to the suggestion of always making connections while the system is shut down, you can do it with no problems under these circumstances. You can then shut down the system from the menu bar.

- Simultaneously press the Reset and Interrupt buttons. This shuts down the system, but all RAM data will be lost with no opportunity to save the data.

Article Change History:

16 May 1995 - Added termination information to article.

08 Feb 1995 - Noted that PowerBook 150 will not support SCSI disk mode.

08 Sep 1994 - Clarified what will display on PowerBook when in disk mode.

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