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Quadra 800, Centris 610 & 650: SCSI Requirements (9/95)

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TOPIC -----

I have a Centris 650 and have had problems connecting certain SCSI devices. Is there a specific rule to follow regarding SCSI bus lengths and termination?

The information in this article relative to the Centris 610 and Centris 650 is also relevant to the Quadra 610 and Quadra 650.

DISCUSSION -----

Introduction

Like the Quadra 900/950, the Quadra 800 and Centris 610 and 650 allow for multiple internal SCSI devices. The Quadra 800, Centris/Quadra 610/650, and the Quadra 900/950 have SCSI Bus and termination requirements that are different from each other -- and different from other Macintosh models.

While the Quadra 900 and 950 have termination attached to the end of the internal cable (the end of the SCSI bus), the Quadra 800 and Centris systems' SCSI bus requires internal termination to be provided by the last internal SCSI device.

SCSI: Installing Internal HDA

In Macintosh Quadra 800 and Centris 610 and 650 computers, the device at the end of the internal SCSI cable MUST include terminators; all other internal SCSI devices should not be terminated. When installing internal SCSI devices, the installer must make sure that the device at the end of the cable has terminators and must remove any other terminators that may be present on the other internal SCSI devices.

IMPORTANT: When installing a SCSI device, make sure the internal drive supplied with the system is attached to the END of the internal SCSI cable. This assures that the SCSI bus is properly terminated; no other internal SCSI device should have separate termination. If internal SCSI devices are installed but none is terminated, the computer will malfunction. If terminators are present in more

than one internal device, the computer will malfunction and the logic board may be damaged.

Cables & Terminators

As described above, the SCSI bus and termination are different from other Macintosh systems. The Quadra 800 and Centris systems use a single SCSI driver for both internal and external devices and automatic termination on the logic board. The SCSI bus extends from the last device on the internal SCSI cable to the last device on the external SCSI Bus. The internal SCSI cable does not have built-in terminators; instead, the internal SCSI device at the end of the cable must include the appropriate terminations.

If the customer has a variety of different external SCSI cables, the computer may malfunction. Also, if the customer uses certain external SCSI cables, future system problems may occur due to damage to the disk directory code. Customers should always use cables with properly matched impedance and properly terminate the SCSI Bus. The best way to match impedance is to use cables from the same vendor rather than mixing and matching them.

System Failure Symptoms

Reported symptoms that indicate SCSI bus problems are:

- The computer will not boot, and shows a "blinking ?" on screen.
- Write errors when copying large files to disk.
- Erroneous character changes in files or documents.
- Inability to empty items from the trash.
- Inability to force quit an application.

Verify Proper System Configuration

Here's what to do if a unit experiences what appears to be disk failure:

Internal SCSI Connections:

- 1) If the disk is accessible, immediately back up the data to another device.
- 2) Shut down the system, following normal shutdown procedure, and remove any external SCSI devices.
- 3) Remove the computer's cover.
- 4) Make sure that the last SCSI connector on the internal SCSI cable is connected to the internal drive supplied with the system. If it's not, remove the internal SCSI cable and connect properly.
- 5) If there are any other internal SCSI devices installed, make sure they are NOT terminated.
- 6) Replace the cover.
- 7) Start up the computer to verify system integrity.
- 8) Restart the computer from Disk Tools, and run HDSC Setup.
- 9) Initialize the disk.
- 10) Reinstall system software, using the appropriate system software installer.
- 11) Restart the computer to verify System integrity.

External SCSI Connections:

- 1) With the computer powered down, connect the external SCSI devices.
- 2) Make sure the devices are connected with cables which have properly matched impedance
- 3) Terminate the last device on the SCSI Bus (terminate the last and only the last device on the SCSI bus).
- 4) Beware of external devices with internal termination. If there is question as to whether a device is internally terminated, check with the manufacturer. No Apple SCSI device has internal termination.
- 5) Be sure each device has a unique SCSI ID number.
- 6) Power on all external SCSI devices.
- 7) Start up the computer system and verify proper functionality.

If the previous procedure does not result in a properly functioning computer system, the external SCSI devices may not be compatible, or may have a different hardware failure. If that occurs, please refer your customer to an authorized Service Provider or the manufacturer of the suspected third-party device.

Article Change History:

- 21 Sep 1995 - Made minor corrections.
- 16 Nov 1994 - Reviewed for technical accuracy.
- 28 Jul 1994 - Added reference to Quadra 610 and 650 to aid in searching.

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