Quadra 610/650/800: Int. and Ext. SCSI Requirements (9/95)

Article Created: May 11, 1993
Article Reviewed/Updated: 21 September 1995

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.

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 termination; instead, the internal SCSI device at the end of the cable
must include the appropriate termination.

If you have a variety of different external SCSI cables, the computer may
malfunction. Also, if you use certain external SCSI cables, future system
problems may occur due to damage to the disk directory code. You should always
use cables with properly matched impedance and properly terminate the SCSI Bus.
The best way to match impenance 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) Reinitialize 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, it is best to use cables from one vendor.
3) Terminate ONLY the last device on the external 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, you will need to contact an authorized Apple
Service Provider or the manufacturer of the suspected third-party device.

Article Change History:
21 Sep 1995 - Made minor changes.

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Keywords: <None>

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19960215 11:05:19.00
Tech Info Library Article Number: 16762