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Quadra, Centris: Drawback of Switching Caches On the Fly 8/93

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TOPIC -----

When I:

- 1) Change my Quadra 800's cache switch from "faster" to "more compatible" using the Option key, then
- 2) insert a disk, use it, eject it, and put it back in, the disk is unreadable. I've seen this happen on a Centris 650 as well.

I tried this on a Quadra 700:

- 1) Holding option key, changed cache switch from "faster" to "more compatible."
- 2) Closed Cache control panel.
- 3) Inserted a disk.
- 4) Moved some files around, copied, or did nothing.
- 5) Ejected disk.
- 6) Re-inserted disk. The disk mounted fine

When I tried the same thing on a Quadra 800, the disk was unreadable. I then:

- 7) Reformatted the disk. When the format was complete, the disk would not mount.
- 8) Ejected disk (Command-Shift-1), and reinserted it. Still unreadable.

DISCUSSION -----

This sounds like a classic example of toggling the 68040 processor caches on/off on the fly.

Whenever the Quadra 700, Quadra 800, Quadra 840AV, Centris 650, or Centris 660AV -- or any other Quadra that doesn't contain Peripheral Interface Controllers (PIC chips) -- starts up, the system determines its effective processor speed (this has nothing to do with the 040's clock speed but with the mode of the processors caches) and sets certain internal timings according to this effective processor speed. Two of the more important timings are for the floppy drive and LocalTalk. Therefore, when these Quadras' caches are switched without a restart, the timings set at startup are no longer valid and the floppy and LocalTalk may not work... or won't work reliably.

The Quadra 900 and 950 feature the PIC chips of the IIfx. These Quadras

having these I/O processors seem to work fine after having the caches switched on/off on the fly.

Recommendation

On Quadras not having PICs, our recommendation is not to switch the 040 processor caches on/off on-the-fly.

Workaround

Alysis Software Corporation and others distribute cache switches they claim do not require users to restart to change the cache settings safely.
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