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Quadra/Centris 605/610/650/700:Frequently Asked Questions 11/95

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TOPIC ---

This article contains the answers to frequently asked questions (FAQ) on
mid-range Quadra computers, including the Macintosh Quadra 605 and 700, and
Macintosh Quadra/Centris 610 and 650.

Questions in this FAQ:
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1) What is an enabler and why do I need one?

2) What are the expansion options for the mid-range Macintosh Quadra computers?

3) How do I upgrade the memory on my Macintosh Quadra 605, 610, 650 and 700?

4) What is an FPU and does my computer have one?

5) What is 32-bit addressing and when does it need to be active?

6) What is "resetting the PRAM"? Do I need to do this often?

7) Rebuilding the desktop file: what is it and why would I need to do it?

DISCUSSION --

1) Question: What is an enabler and why do I need one?

Answer: Rather than create a new version of the system software each time a new
machine is released, Apple created system enablers. These enablers contain
system software code specific to a particular Macintosh computer. Enablers
provide older system software with the information necessary to run properly on
a newly released Macintosh.

The Macintosh Quadra 605, 610, 650, and 700 computers do not require an enabler when using System 7.5 or later.

If you are using System 7.1 on these machines, you will need the following enablers:

Macintosh Quadra 605: System Enabler 065
Macintosh Quadra 610: System Enabler 040
Macintosh Quadra 650: System Enabler 040
Macintosh Quadra 700: no enabler

2) Question: What are the expansion options for the mid-range Macintosh Quadra computers?

Answer: On the mid-range Macintosh Quadra computers, Apple provided several expansion options. One type of expansion slot on all these computers is the processor-direct slot (PDS).

The PDS allows expansion cards to have direct access to the processor. Video, network and accelerator cards, among others, have been created for the PDS slots in Macintosh Quadra models.

Note: Because different Macintosh computers use different processors, there are several implementations of the processor-direct slot; not all PDS cards are compatible with the different PDS types. To ensure compatibility, contact the manufacturer of any PDS card you plan to use.

An additional NuBus expansion slot is present in the Macintosh Quadra/Centris 650 and Macintosh Quadra 700 computers. NuBus is a standard designed by Texas Instruments. It features self-configuration and bus-mastering on a 32 data-bit card. Bus-mastering means a card can take control of the bus, which allows for multi-processor computing. The card self-configures using on-board ROM (Read Only Memory).

The NuBus slot is a one-piece socket (female) connector with two rows of pins. The card has a plug (male) connector that plugs into the socket. This slot type is not compatible with any other slot standard.

Here are the expansion slots available on all mid-range Macintosh Quadra computers:

Macintosh Quadra 605: LC III compatible PDS
Macintosh Quadra 610: PDS or 7-inch NuBus card (requires adaptor)
Macintosh Quadra 650: one 68040 PDS and three NuBus expansion slots
Macintosh Quadra 700: one 68040 PDS and two NuBus expansion slots

3) Question: How do I upgrade the memory on my Macintosh Quadra 605, 610, 650 and 700?

Answer:

Begin_Table

System	RAM Soldered on Board	Number of SIMM Slots	Possible SIMM Sizes	Physical RAM Configs(MB)	Speed	Notes
Quadra 605	4	1	1MB,2MB,4MB 8MB,16MB, 32MB	4,5,6,8,12, 20,36	80ns	1,2,5
Quadra 610	4	2	4MB,8MB,16MB, 32MB	4,8,12,20,28, 36,40,44,52,68	80ns	1,2,4
Quadra 650	8	4	4MB,8MB,16MB, 32MB	8,12,16,20, 24,28,32,36,40, 44,48,52,56,60, 64,68,72,76,80, 84,88,92,96,104, 108,112,120,136	80ns	1,2,3, 4
Quadra 700	4	4	1MB,4MB	4,8,20	80ns	1

End_Table

NOTES:
1. These systems have 32-bit-clean ROMs. Computers with 32-bit-clean ROMs can take advantage of more than 8MB of physical RAM under System 7.

2. These systems use 32-bit wide, 72-pin SIMMs (fast-paged mode) not previously used in Macintosh computers.

3. The Centris 650, and Quadra 800 use "memory interleaving" which occurs when SIMM pairs are used (for example: two 8MB SIMMs). This allows the memory subsystem to perform certain operations faster. Basically, it allows the memory subsystem to write to the same memory address in different banks of memory before incrementing the address. Depending on how memory intensive the application, this can improve performance 5 to 10%.

4. The Centris/Quadra 610, Centris/Quadra 650, and Quadra 800 have flexible memory systems, meaning that any supported SIMM size can go into any SIMM socket in any order, and these computers can run with partially populated banks. They don't support 1MB, 2MB, or 64MB 72 pin SIMMs.

5. The Macintosh LC 475, Performa 475/476 and Quadra 605 are functionally similar and have the same RAM specifications.

4) Question: What is an FPU, and does my computer have one?

Answer: Floating-point Units (FPUs or math coprocessors), such as the 68881/68882, offer the greatest benefit in applications that tend to be very

floating-point (arithmetic) intensive. The specific types of applications that benefit most from an FPU are those that process large amounts of floating-point instructions for precision, and will utilize an FPU extensively. Examples are CAD/CAM, 3-D modeling, scientific applications, and financial applications.

Below is a listing of which Macintosh Centris & Quadra products have a Math Coprocessor (FPU) and which do NOT:

Quadra 605 (NONE of the configurations have an FPU)

Macintosh Centris 610 (NONE of the below configurations have an FPU)

M1345LL/A Macintosh Centris 610 4 MB Hard Disk 80 CPU (no Ethernet)
M1392LL/A Macintosh Centris 610 4 MB Hard Disk 80 CPU
M1397LL/A Macintosh Centris 610 8 MB Hard Disk 230 CPU
M1398LL/A Macintosh Centris 610 8 MB (1 MB VRAM) Hard Disk 230 CPU w/CD-ROM

Macintosh Quadra 610 (first two configurations below HAVE an FPU)

M2098LL/A Macintosh Quadra 610 (512K VRAM) 8 MB Hard Disk 230
M2099LL/A Macintosh Quadra 610 8 MB Hard Disk 230 w/CD-ROM

M2319LL/A Macintosh Quadra 610 (512K VRAM) 8 MB Hard Disk 160 (NO FPU)

Macintosh Centris 650 (first four configurations have an FPU)

M1613LL/A Macintosh Centris 650 8 MB Hard Disk 80 CPU
M1337LL/A Macintosh Centris 650 8 MB Hard Disk 230 CPU
M1279LL/A Macintosh Centris 650 8 MB (1 MB VRAM) Hard Disk 230 CPU w/CD-ROM
M1209LL/A Macintosh Centris 650 8 MB Hard Disk 500 CPU

M1276LL/A Macintosh Centris 650 4 MB Hard Disk 80 CPU (NO Ethernet or FPU)

Macintosh Quadra 650 (ALL configurations have an FPU)
Macintosh Quadra 700 (ALL configurations have an FPU)

If your Quadra 610 has no FPU and you wish to upgrade, you need to purchase a third-party upgrade kit, as Apple does not offer this upgrade.

5) Question: What is 32-bit addressing and when does it need to be active?

Answer: With 32-bit addressing, you can install and access more than 8MB of physical RAM in the Macintosh. This means you can work with very large data files, very large applications, or many applications concurrently. 32-bit addressing is most attractive to Macintosh users working with large memory-intensive programs. While virtually anyone can benefit from the large amount of memory offered by 32-bit addressing, it will immediately benefit database users, color-graphic users, CAD/CAM users, and programmers.

More technically speaking, 32-bit addressing lets most recent Macintosh models access the entire memory range of the microprocessor.

32-bit addressing is fully implemented in the Macintosh Quadra series. If more than 8 MB of memory (RAM) is installed, the 32-bit addressing option should be turned on in the Memory control panel. If, for example, 16 MB is installed on a Macintosh Quadra 650 and 32-bit addressing is off in the Memory control panel, the system software will appear to take up most of the available memory. The solution to this situation is to activate 32-bit addressing in the Memory control panel and restart.

6) Question: What is "resetting the PRAM"? Do I need to do this often?

Answer: The parameter RAM (PRAM) is used to keep many settings for the Macintosh. The PRAM keeps track of the date, time, status of serial ports, which printer has been chosen in the Chooser and numerous other settings.

Occasionally, a corrupt setting in the PRAM can adversely affect the operation of the computer. Resetting the PRAM can sometimes return the computer to its normal state.

There is no need to reset the PRAM on a regular, scheduled basis.

To reset the PRAM, restart the computer with the following keys held down at the same time: Command, Option, P and R. Continue holding these keys down until you hear the computer restart (or the screen image flash) at least three times. Let go of all the keys and allow the computer to start up.

7) Question: Rebuilding the desktop file; what is it and why would I need to do it?

Answer: The Desktop file is an invisible file found in the main level of your hard drive. It is the file that keeps track of all the documents and applications that are on your hard drive.

The file name is Desktop for versions of System 6 and earlier. System 7.0 and later versions use the invisible files named Desktop DB and Desktop DF.

Occasionally your Desktop file may become too large or may be damaged.

One symptom of a damaged Desktop file is the icons on your desktop appear as "generic" rather than "custom" icons. The Desktop file manages all icons on a particular hard drive or floppy disk. When you insert a new or customized icon, the Desktop file may not load it or may load a previous version of the icon. To have the special icon appear on the desktop, the Desktop file must be rebuilt to update the Desktop file and register the icon.

Icons change to generic document (blank page with a corner turned down) or application (diamond with a hand) icons for several reasons, including the following:

* Utilities such as compression or security software can alter icons.
* Custom icons become damaged or deleted.
* The Desktop file has been damaged.

* Applications that create files may not assign icons to the files.
* An application that created a file and assigned an icon may no longer be
available.
* A file may have lost the bit that indicates a custom icon (this is known as
the bundle bit).

If the Desktop file becomes too large, the computer may have difficulty reading
it efficiently and speedily. This can cause the Finder to access files more
slowly. Rebuilding the Desktop file can clean up old information and speed up
Finder access.

You can also make a file-by-file backup of the drive, re-initialize the drive,
and then restore the files. This re-groups all the files, defragments them, and
increases the efficiency of the drive.

To rebuild the desktop using System 7.0 through System 7.1.2, follow these
steps:

Step 1

Hold the Shift key down while starting up the computer.

Step 2

As soon as you see "Welcome to Macintosh Extensions Off", release the Shift key
and hold down the Command and Option keys.

Step 3

Continue pressing the Command and Option keys until you see the dialog that says
"Are you sure you want to rebuild your desktop on your disk? All of your info
window comments will be lost," release the keys and click OK.

Step 4

Let go of the keys and click on the OK button.

After the desktop has been rebuilt, restart the computer, and all extensions and
control panels will be active again.

To rebuild the desktop using System 7.5 or above, follow these steps:

Step 1

Before you rebuild your desktop, use the Extensions Manager to save a record of
the extensions that are currently turned on.
• Open the Extensions Manager.
• Open the Sets pop-up menu, and choose Save Set.
• When the Save Set dialog box opens, type a name for your currently selected
extensions (for example, 'My Extensions'). When you close the dialog box, the
name of your set is added to the Sets pop-up menu.

Step 2

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Open the Sets pop-up menu again and choose All Off.

Step 3
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Find Macintosh Easy Open in the list of Control Panels and click it to put a checkmark beside it. Close the Extensions Manager.

Step 4
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Restart your computer while holding down the Command and Option keys.

Step 5
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When you see the dialog that says "Are you sure you want to rebuild your desktop on your disk? All of your info window comments will be lost," release the keys and click OK.

Step 6
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When the desktop is rebuilt, open the Apple menu and choose Control Panels.

Step 7
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Open the Extensions Manager control panel.

Step 8
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Open the Sets pop-up menu and choose the name you gave your set of extensions in step 1 (for example, 'My Extensions').

Step 9
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Restart your computer to activate the extensions.

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