



# Tech Info Library

## Quadra 610: How to Tell If It Has An FPU, How to Upgrade (11/93)

Article Created: 11 November 1993

Article Reviewed/Updated: 16 November 1993

TOPIC -----

Some Quadra 610 configurations come with an FPU, and some don't. How can I tell whether one of these systems contains an FPU?

DISCUSSION -----

### Background

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There are three different Quadra 610 configurations sold the in the U.S.

- Two of them contain a Motorola 68040 processor, which has an integral FPU (floating-point unit, or math coprocessor).  
M2098LL/A\* Macintosh Quadra 610 (8MB RAM, 230MB HD)  
M2099LL/A\* Macintosh Quadra 610 (8MB RAM, 230MB HD, AppleCD 300i)
- One contains a Motorola 68LC040 processor, which has no integral FPU. This configuration is sold only in the U.S.  
M2319LL/A\* Macintosh Quadra 610 (8MB RAM, 160MB HD, no FPU)

### How to Tell If a Quadra 610 Has an FPU

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- Run MacCheck or other utility that reports whether an FPU is present.
  - Run a program that requires an FPU -- such as some rendering or CAD/CAM applications.
  - Open the case and examine the processor. A processor without an FPU will be labelled "68LC040".

### How to Upgrade

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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.

### Article Change History:

11/16/93 - Corrected reversed definitions of 68040 and 68LC040.

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Keywords: <None>

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19960215 11:05:19.00

Tech Info Library Article Number: 13877