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Centris 610 & 650, Quadra 800: Accelerated Graphics (7/94)

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TOPIC ---

The Macintosh Centris 610, Centris 650, and Quadra 800 are marketed as having "accelerated graphics" support. What is accelerated graphics?

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

DISCUSSION ---

The Centris 610, Centris 650, and Quadra 800 have a video RAM (VRAM) based, processor direct, accelerated video display architecture. This architecture radically improves the redraw speed of text and graphics on the screen. This architecture is similar to that found on earlier Quadra models. It is called accelerated graphics because of four key architectural features:

• Local bus
• VRAM based
• 68040-specific QuickDraw routines
• Video controller circuitry improvements by using the DJMEMC (Memory
  Controller)

Local Bus

The entire graphics subsystem is on the 68040 bus located on the logic board. Thus, the memory controller and the video controller can communicate at very high speeds over a 32-bit data path.

VRAM Based

The video sub-system uses separate VRAM for its screen buffer, which is accessed directly by the processor. The VRAM is dedicated to the task of displaying video information and the more VRAM added, the more colors or the larger display

that can be supported.

68040 Specific QuickDraw Routines

The 68040 memory instruction (MOVE16) is used to accelerate certain QuickDraw
routines. This causes routines such as vertical scrolling and solid fills to
execute up to three times faster. With 1MB of VRAM installed, up to 16 bits per
pixel -- or 32,768 colors -- are supported.

Video Controller Circuitry Improvements

The Centris 650 and Quadra 800 utilize 80ns VRAM instead of the 100ns SIMMs used
in the Centris 610. The video controller in the Centris 650 and Quadra 800 has
been programmed to take advantage of the faster VRAM, which speeds performance
up to 20% compared to the Quadra 700.

Article Change History:
28 Jul 1994 - Added reference to Quadra 610 and 650 to aid in searching.

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