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Macintosh II: New Managers

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TOPIC -----

The Macintosh II has a number of new managers in ROM and in system software that have no analog on the Macintosh Plus. This article provides a brief description of each of these new managers.

DISCUSSION -----

Color Manager

The Color Manager controls the task of translating an application's color requests to a color capable of being displayed by the current hardware. It keeps information about the display in a device record with information concerning the type of search mechanism to be used for color matching and inverting, as well as a handle to its pixel map.

The Color Manager sets up an initial color table for each GrafDevice with default values, which correspond to the colors defined by the original QuickDraw. Color Manager procedures can also manipulate individual colors in a color table, so that an application can "fine tune" the mapping of the program's color description to the color displayed on the screen device.

Color QuickDraw

Color QuickDraw includes the same types of procedures and calls found in "old" QuickDraw, but it has expanded to support color on the Macintosh II in GrafPorts, pixel maps, icons, polygons, and cursors.

Color cursors and color icons are implemented through two new data structures, CCrsr and CIcon. Each type of polygon has a new fill procedure

to permit color drawing. A typical definition is:

```
Procedure FillCRect(r: rect; ppat: PixPatHandle);
```

Script Manager

The Script Manager is used by TextEdit, or may be called by an application directly, to provide the means for an application to be written independently of the language (or script) in use.

The Script Manager provides a consistent interface to Roman and non-Roman alphabets, those that use right-to-left and left-to-right progression, and alphabets with other than the "standard" 26 Roman characters.

Start Manager

The Start Manager controls the bootup process on the Macintosh II. Once power is supplied to the Macintosh II and control has been transferred to the ROM, the Startup Manager determines which microprocessor is present, initializes ROM Managers, and checks for initialization code within the declaration ROM of all NuBus cards. The Start Manager then attempts to locate an appropriate startup device, and executes its boot blocks.

Apple Desktop Bus Manager

The Apple Desktop Bus Manager controls those devices on the Apple Desktop Bus (typically a keyboard and mouse). The ADB Manager supports calls to and from ADB devices and supplies information about keys pressed, mouse clicks, etc., to other managers.

Slot Manager

The Slot Manager in the Macintosh II provides the means for the on-board ROM and logic to communicate with cards in the NuBus slots. The Slot Manager interprets the information supplied by NuBus cards, and arbitrates requests for bus mastership.

The Slot Manager checks each NuBus card's declaration ROM and sets up a Slot Parameter Block data structure, which can be accessed by other Slot Manager routines. Applications, or more likely, device drivers, may then request the Slot Manager to read data of varying lengths from a card in a NuBus slot.

Sound Manager

The Macintosh II Sound Manager replaces the 64K and 128K ROM Sound Driver. All previous data structures, routines, and synthesizers are supported in the Sound Manager, and new routines have been added to take advantage of the new Apple Sound Chip on the Macintosh II logic board, including four standard synthesizers:

- Note synthesizer
- Wave table synthesizer

- M.I.D.I synthesizer
- Sampled sound synthesizer

A programmer may expand upon these synthesizers by defining a synthesizer or sound resource. The Sound Manager can call the new resources to play existing channels, using the rules defined by the new synthesizer.

Deferred Task Manager

Because the Macintosh II supports interrupts through all six NuBus slots, a manager is needed to handle the interrupts in an orderly fashion. The Deferred Task Manager determines the appropriate time to service each of the requested interrupts, depending on the level of interrupt requested and other activity occurring within the Macintosh II.

Shutdown Manager

The Shutdown Manager is designed to provide a consistent way for the Macintosh to be turned off or to be rebooted from the Finder as well as from within an application. It allows the system to perform some housekeeping prior to turning off or rebooting. Custom ShutDown procedures may be installed and removed through routines available in the ShutDown Manager.

Operating System Utilities

Routines in the Operating System Utilities provide the ability to switch between 24-bit address mode, required for compatibility with existing Macintosh applications, and 32-bit address mode allowing access to the full 32-bit addressing capability of the MC68020 and NuBus slots.

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