Context Switching

Applications running in the background receive processing time when the front application makes an event call (that is, calls **WaitNextEvent**, **GetNextEvent**, or **EventAvail**) and there are no events pending for that front application. An application running in the background should relinquish the CPU regularly to ensure a timely return to the foreground application when necessary.

In System 7.0+ (or under **MultiFinder** in earlier versions), the available processing time is distributed among multiple applications through a procedure known as *context switching* (or just *switching*). When a context switch occurs, the **Process Manager** allocates processing time to a process that is different from the one that had been receiving processing time. Two types of context switching may occur: major and minor. All switching occurs at a well-defined time, namely, when an application calls **WaitNextEvent**.

A *major switch* is a complete context switch: an application's windows are moved from the background to the foreground, or vice versa. In a major switch, two applications are involved, the one being switched to the foreground and the one being switched to the background. The A5 worlds of both applications are switched, as well as the relevant low-memory environment. If those applications receive suspend and resume events, they are so notified at the time that a major switch occurs.

Major switching does not occur when a modal dialog box is the frontmost window, although minor switching (discussed next) can still occur. To determine whether major switching can occur, the Operating System checks (among other things) to see if the window definition procedure of the frontmost window is dBoxProc because the type dBoxProc is specifically reserved for modal dialog boxes. (Major switching can still occur when a movable modal dialog box is the frontmost window.)

A *minor switch* occurs when an application is switched out to give time to background processes. A minor switch always involves two applications, a background application and the application yielding time to it (which may be some other background application). In a minor switch, the A5 worlds of those two applications are switched, as are the low-memory environments. However, the layers of windows are not switched, and neither application receives either suspend or resume events.

Note: Your application can also get switched out if it calls a **PPC Toolbox** routine that makes an event call. For example, your application may get switched out when calling **ModalDialog**.