

The old monitor

Apple II's and Apple II Pluses used a version of the System Monitor different from the one the Apple IIe uses. It had the same standard I/O subroutines, but a few of the features were different; for example, there were no arrow keys for cursor motion. If you start the Apple IIe with a DOS or BASIC disk that loads Integer BASIC into the bank-switched area in RAM, the old Monitor (sometimes called the *Autostart Monitor*) is also loaded with it. When you type `INT` from Applesoft to activate Integer BASIC, you also activate this copy of the old Monitor, which remains active until you either type `FP` to switch back to Applesoft, which uses the new Monitor in ROM, or type `PR#3` to activate the 80-column firmware. Part of the firmware's initialization procedure checks to see which version of the Monitor is in RAM. If it finds the old Monitor, it replaces it with a copy of the new Monitor from ROM. After the firmware has copied the new Monitor into RAM, it remains there until the next time you start up the system.

The standard I/O links

When you call one of the character I/O subroutines (`COUT` and `RDKEY`), the first thing that happens is an indirect jump to an address stored in programmable memory. Memory locations used for transferring control to other subroutines are sometimes called *vectors*; in this manual, the locations used for transferring control to the I/O subroutines are called **I/O links**. In a Apple IIe running without a disk operating system, each I/O link is normally the address of the body of the subroutine (`COUT1` or `KEYIN`). If a disk operating system is running, one or both of these links hold the addresses of the corresponding DOS or ProDOS I/O routines instead. (DOS and ProDOS maintain their own links to the standard I/O subroutines.)

By calling the I/O subroutines that jump to the link addresses instead of calling the standard subroutines directly, you ensure that your program will work properly in conjunction with other software, such as DOS or a printer driver, that changes one or both of the I/O links.

For the purposes of this chapter, we shall assume that the I/O links contain the addresses of the standard I/O subroutines—`COUT1` and `KEYIN` if the 80-column firmware is off, and `BASICOUT` and `BASICIN` if it is on.

For more information about the **I/O links**, see the section "Changing the Standard I/O Links" in Chapter 6.