

The **Monitor**, or System Monitor, is a computer program that is used to operate the computer at the machine-language level.

Almost every program on the Apple IIe takes input from the keyboard and sends output to the display. The **Monitor** and the Applesoft and Integer BASICs do this by means of standard I/O subroutines that are built into the Apple IIe's firmware. Many application programs also use the standard I/O subroutines, but Pascal programs do not; Pascal has its own I/O subroutines.

This chapter describes the features of these subroutines as they are used by the Monitor and by the BASIC interpreters, and tells you how to use the standard subroutines in your assembly-language programs.

**Important**

High-level languages already include convenient methods for handling most of the functions described in this chapter. You should not need to use the standard I/O subroutines in your programs unless you are programming in assembly language.

**Table 3-1**  
Monitor firmware routines

Location	Name	Description
\$C305	BASICIN	With 80-column firmware active, displays solid, blinking cursor; accepts character from keyboard
\$C307	BASICOUT	Displays a character on the screen; used when the 80-column firmware is active (Chapter 3)
\$FC9C	CLREOL	Clears to end of line from current cursor position
\$FC9E	CLEOLZ	Clears to end of line using contents of Y register as cursor position
\$FC42	CLREOP	Clears to bottom of window
\$F832	CLRSCR	Clears the low-resolution screen
\$F836	CLRTOP	Clears top 40 lines of low-resolution screen
\$FDED	COUT	Calls output routine whose address is stored in CSW (normally COUT1, Chapter 3)
\$FDF0	COUT1	Displays a character on the screen (Chapter 3)