

Extended keyboard IIe

On the extended keyboard IIe the Solid Apple key is labeled *Option*; the Solid Apple and Option keys are functionally identical. Also note that manuals accompanying products with the Solid Apple labeled as *Option* may refer to the Open Apple key as simply the *Apple key*.

See Chapter 7 for a complete description of the electrical interface to the keyboard.

The electrical interface between the Apple IIe and the keyboard is a ribbon cable with a 26-pin connector. This cable carries the keyboard signals to the encoding circuitry on the main board.

Reading the keyboard

The keyboard encoder and ROM generate all 128 ASCII codes, so all the special character codes in the ASCII character set are available from the keyboard. Machine-language programs obtain character codes from the keyboard by reading a byte from the keyboard-data location shown in Table 2-1.

Table 2-1
Keyboard memory locations

Location		Description
Hex	Decimal	
\$C000	49152 –16384	Keyboard data and strobe
\$C010	49168 –16368	Any-key-down flag and clear-strobe switch

Hexadecimal refers to the base-16 number system, which uses the digits 0 through 9 and the six letters A through F to represent values from 10 to 15.

Your programs can get the code for the last key pressed by reading the keyboard-data location. Table 2-1 gives this location in three different forms: the **hexadecimal** value used in assembly language, indicated by a preceding dollar sign (\$); the decimal value used in Applesoft BASIC; and the complementary decimal value used in Apple Integer BASIC. (Integer BASIC requires that values greater than 32,767 be written as the number obtained by subtracting 65,536 from the value. These are the decimal numbers shown as negative in tables in this manual; refer to the *Apple II BASIC Programming Manual*.) The low-order seven bits of the byte at the keyboard location contain the character code; the high-order bit of this byte is the strobe bit, described below.