

Your program can find out whether any key is down, except the Reset, Control, Shift, Caps Lock, Open Apple, and Solid Apple (or Option, on the extended keyboard IIe) keys, by reading from location 49152 (hexadecimal \$C000 or complementary decimal -16384). The high-order bit (bit 7) of the byte you read at this location is called *any-key-down*; it is 1 if a key is down, and 0 if no key is down. The value of this bit is 128; if a BASIC program gets this information with a PEEK, the value is 128 or greater if any key is down, and less than 128 if no key is down.

The Open Apple and Solid Apple keys are connected to switches 0 and 1 of the game I/O connector inputs. If OA is pressed, switch 0 is "pressed," and if Solid Apple is pressed, switch 1 is "pressed."

Extended keyboard IIe

On the extended keyboard IIe, the Shift key is connected to switch 2 of the game I/O ports via the X6 jumper (single-wire Shift-key mod jumper).

The strobe bit is the high-order bit of the keyboard-data byte. After any key has been pressed, the strobe bit is high. It remains high until you reset it by reading or writing at the clear-strobe location. This location is a combination flag and switch; the flag tells whether any key is down, and the switch clears the strobe bit. The switch function of this memory location is called a *soft switch* because it is controlled by software. In this case, it doesn't matter whether the program reads or writes, and it doesn't matter what data the program writes: the only action that occurs is the resetting of the keyboard strobe. Similar soft switches, described later, are used for controlling other functions in the Apple IIe.

Important

Any time you read the any-key-down flag, you also clear the keyboard strobe. If your program needs to read both the flag and the strobe, it must read the strobe bit first.

After the keyboard strobe has been cleared, it remains low until another key is pressed. Even after you have cleared the strobe, you can still read the character code at the keyboard location. The data byte has a different value, because the high-order bit is no longer set, but the ASCII code in the seven low-order bits is the same until another key is pressed. Table 2-2 shows the ASCII codes for most of the keys on the keyboard of the Apple IIe.