
Setting bank switches

You switch banks of memory in the same way you switch other functions in the Apple IIe: by using soft switches. Read operations to these soft switches do three things: select either RAM or ROM in this memory space; enable or inhibit writing to the RAM; and select the first or second 4K-byte bank of RAM in the address space \$D000 to \$DFFF.

Warning

Do not use these switches without careful planning. Careless switching between RAM and ROM is almost certain to have catastrophic effects on your program.

Table 4-6 shows the addresses of the soft switches for enabling all combinations of reading and writing in this memory space. All of the hexadecimal values of the addresses are of the form \$C08x. Notice that several addresses perform the same function: this is because the functions are activated by single address bits. For example, any address of the form \$C08x with a 1 in the low-order bit enables the RAM for writing. Similarly, bit 3 of the address selects which 4K block of RAM to use for the address space \$D000–\$DFFF; if bit 3 is 0, the first bank of RAM is used, and if bit 3 is 1, the second bank is used.

When RAM is not enabled for reading, the ROM in this address space is enabled. Even when RAM is not enabled for reading, it can still be written to if it is write-enabled.

When you turn power on or reset the Apple IIe, it initializes the bank switches for reading the ROM and writing the RAM, using the second bank of RAM. Note that this is different from the reset on the Apple II Plus, which didn't affect the bank-switched memory (the language card). On the Apple IIe, you can't use the reset vector to return control to a program in bank-switched memory, as you could on the Apple II Plus.

- ❖ *Reset with Integer BASIC:* When you are using Integer BASIC on the Apple IIe, reset works correctly, restarting BASIC with your program intact. This happens because the reset vector transfers control to DOS, and DOS resets the switches for the current version of BASIC.