
Bank-switched memory

The memory address space from 52K to 64K (hexadecimal \$D000 through \$FFFF) is doubly allocated: it is used for both ROM and RAM. The 12K bytes of ROM (read-only memory) in this address space contain the Monitor and the Applesoft BASIC interpreter. Alternatively, there are 16K bytes of RAM in this space. The RAM is normally used for storing either the Integer BASIC interpreter or part of the Pascal Operating System (purchased separately).

You may be wondering why this part of memory has such a split personality. Some of the reasons are historical: the Apple IIe is able to run software written for the Apple II and Apple II Plus because it uses this part of memory in the same way they do. It's convenient to have the Applesoft interpreter in ROM, but the Apple IIe, like an Apple II with a language card, is also able to use that address space for other things when Applesoft is not needed.

You may also be wondering how 16K bytes of RAM are mapped into only 12K bytes of address space. The usual answer is that it's done with mirrors, and that isn't a bad analogy: the 4K-byte address space from 52K to 56K (hexadecimal \$D000 through \$DFFF) is used twice.

Switching different blocks of memory into the same address space is called *bank switching*. There are actually two examples of bank switching going on here: first, the entire address space from 52K to 64K (\$D000 through \$FFFF) is switched between ROM and RAM, and second, the address space from 52K to 56K (\$D000 to \$DFFF) is switched between two different blocks of RAM.

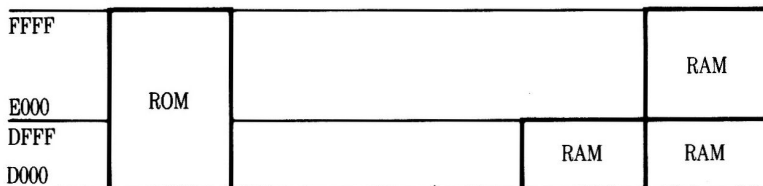


Figure 4-3
Bank-switched memory map