TIP #7: INSTANCEOF IS FASTER ON CLASSES

Performing `instanceof` on a class is far quicker than performing it on an interface. Java's single inheritance model means that on a class, `instanceof` is simply one subtraction and one array lookup; on an interface, it is an array search.

Where this overhead is a problem, we can make further optimizations. Observe that memory in the physical address space falls into three distinct categories:

RAM

Physical RAM is mapped from the zero address upward. It is frequently accessed and low latency.

ROM

ROM chips can exist at any address. They are infrequently accessed and low latency.

I/O

Memory-mapped I/O can exist at any address. It is fairly frequently accessed, but is generally higher latency than RAM.

For addresses that fall within the RAM of the real machine, we use a one-stage lookup. This ensures that accesses to RAM are as low latency as possible. For accesses to other addresses, those occupied by ROM chips and memory-mapped I/O, we use a two-stage lookup, as in Figure 9-3.

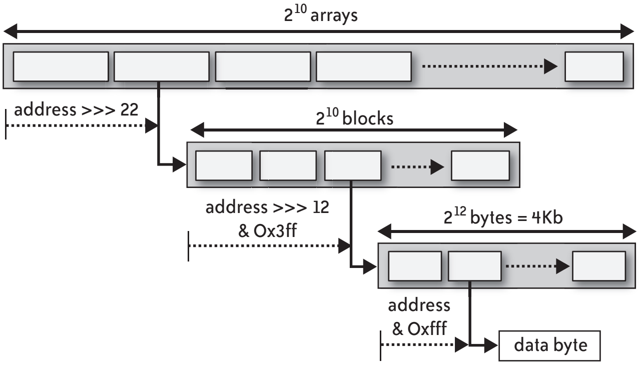

FIGURE 9-3. Physical address space with a two-stage lookup