

SIMM Memory Systems

Today, most computer use SIMMs (single in-line memory modules) for main memory. SIMMS typically offer eight bit wide words (byte wide) with different number of addresses. The most common SIMMs in use today are 4 Mbytes (four million address by eight bit words).

Part A Suppose these four MByte SIMMS are used to build a 16 million address memory system with 32 bit words. Answer the following questions about this memory system:

How many address lines does each SIMM require? 22 address lines

How many address lines does the entire memory system require? 24 address lines

How many SIMMS are require for the entire memory system? $4 \times 4 = 16$ SIMMS

What kind of address decoder is required? 2 to 4 decoder

Part B Now use four of these SIMMs to build a eight million address by 16 bit word memory system. Be sure you label the memory system inputs, Addr, R/W, and Mem Sel, and the system's outputs D0, D1, D2, etc. Also label bus widths, and inputs and outputs of any required decoders. **Put a star on the chips containing memory location 0.**

