

## CPUs, RAM, External Data Bus, Address Bus

30-pin SIMMs      8 bits wide  
 72-pin SIMMs      32 bits wide  
 168-pin DIMMs    64 bits wide

Number of sticks to populate a bank =  
 External data bus width ÷ RAM width

### 30-pin SIMMs (x8, x9, x3 chips)

common sizes: 256 KB, 1 MB, 4 MB

x8 = 8 x1 chips (non-parity)  
 x9 = 9 x1 chips (parity)  
 x3 = 2 x4's and 1 x1 chip (parity)

"I need 2 sticks of by-3 60's"

One bank =  $16/8 = 2$  30-pin SIMMs per bank for a 286

One bank =  $64/8 = 8$  30-pin SIMMs per bank for a Pentium

CPUs, External Data Bus, and Address bus Sizes		
CPU	External Data Bus Bits	Address Bus Bits
Intel 8086	16	20
Intel 8088	8	20
Intel 80286	16	24
Intel 80386DX	32	32
Intel 80386SX	16	24
AMD AM386DX	32	32
AMD AM386SX	32	24
Intel 80486DX	32	32
AMD AM486DX	32	32
Intel Pentium	64	32
AMD Athlon	64	32
AMD Duron	64	32
Intel Pentium Pro	64	32
Intel Pentium II	64	32
Intel Pentium III	64	32

### 72-pin SIMMs

32 bits wide  
 x32 (non parity)  
 x36 (parity)

depth x width

$1 \times 32, 1 \times 36 = 1 \text{ MB} \times 4 (32/8) = 4 \text{ MB}$

$2 \times 32, 2 \times 36 = 2 \text{ MB} \times 4 = 8 \text{ MB}$

### 168-pin DIMMs

64 bits wide

One bank = 64 bits wide for Pentium / 64 bits width = 1 stick of DIMM for a Pentium