



#176: Macintosh Memory Configurations

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This Technical Note describes the different possible memory configurations using Single Inline Memory Modules (SIMMs) for all models of the Macintosh family. Special thanks to Brian Howard for the Macintosh Plus and original SE drawings, and for the inspiration for the other drawings.

Changes since March 1988: Added configurations for a new Macintosh SE motherboard with a jumper switch, the Macintosh SE/30, and the Macintosh IIX.

Here in Macintosh Technical Support we have received numerous questions about the many different possible configurations of the SIMMs on the different Macintoshes, so I'll attempt to answer these questions in this Technical Note, as well as provide a showcase for some outstanding artwork by Apple engineer Brian Howard.

Macintosh Plus

The Macintosh Plus has the following possible configurations (see Figure 1):

- 512K, using two 256 Kbit SIMMs
- 1 MB, using four 256 Kbit SIMMs
- 2 MB, using two 1Mbit SIMMs
- 2.5 MB, using two 1Mbit SIMMs and two 256Kbit SIMMs
- 4MB, using four 1Mbit SIMMs

It is important to place the SIMMs in the correct location when using a combination of SIMM sizes, as in the 2.5 MB example, and to make sure the right resistors are cut. Refer to Figure 1 for the correct location of the SIMMs and size resistors.

Macintosh SE

The Macintosh SE configurations, the original motherboard as well as the revised motherboard with a memory jumper selector, are the same as the Macintosh Plus, except physical locations on the motherboard are different. In addition, memory configurations with only two SIMMs (e.g., 512K and 2 MB) use slots 3 and 4 on the revised SE motherboard instead of slots 1 and 2 like the original motherboard and Macintosh Plus. Refer to Figures 2 and 3 for the correct locations and settings.

Macintosh SE/30, II, and IIfx

Since these machines use a 32-bit data bus with eight-bit SIMMs, you must always upgrade memory in four SIMM chunks. The eight SIMM connectors are divided into two banks of four SIMM slots, Bank A and Bank B.

On the Macintosh SE/30, Bank A is located next to the ROM SIMM while Bank B is next to the 68882 co-processor. On the Macintosh II and IIfx, Bank A is the bank closest to the edge of the board. Refer to Figure 4 for the proper locations of Banks A and B on all three machines.

Unlike the Macintosh Plus and the Macintosh SE, these machines have no resistors to cut and no jumpers to set; you need only install the SIMMS in the correct banks and you'll be up and running. The configurations you can have are as follows:

- 1MB, using four 256 Kbit SIMMs in Bank A
- 2MB, using eight 256 Kbit SIMMs in Banks A and B
- 4MB, using four 1 Mbit SIMMs in Bank A
- 5MB, using four 1 Mbit SIMMs in Bank A and four 256 Kbit SIMMs in Bank B
- 8MB, using eight 1 Mbit SIMMs in Banks A and B

Again, it is important to make sure the right size SIMMs are in the right Bank; when you are using a combination of SIMMs, the larger SIMMs (in terms of Mbits) must be in Bank A. When you are using only four SIMMs, they must be in Bank A as well.

Further Reference:

- *Inside Macintosh*, Volume V-1, Compatibility Guidelines