Power Macintosh 9500 Series: Memory Questions & Answers (1/96)

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TOPIC ---

The following is a list of common questions and answers (Q&A) concerning the new type of RAM, DIMMs (Dual Inline Memory Modules) used in the Power Macintosh 9500 series computers.

Questions Answered in this Article:
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1) How many SIMM (Single Inline Memory Module) slots are available in the Power Macintosh 9500 computers?

2) What are the sizes and specifications of the DIMMs that I can use in the Power Macintosh 9500?

3) Is the 16 MB standard configuration of these computers using up any slots or is the RAM soldered onto the logic board?

4) Does memory (DIMMs) have to be installed in pairs?

5) Are there any guidelines I should follow if I want to take advantage of memory interleaving?

DISCUSSION --

1) Question: How many SIMM (Single Inline Memory Module) slots are available in the Power Macintosh 9500 computers?

Answer: There are no SIMM slots in the Power Macintosh 9500 computers. Memory expansions slots on the Power Macintosh 9500 are called Dual Inline Memory Module (DIMM) slots, not SIMM slots. There are 12 DIMM slots total in the Power Macintosh 9500.

2) Question: What are the sizes and specifications of the DIMMs that I can use in the Power Macintosh 9500?

Answer: Your computer can use any DRAM configuration with DIMMs of these sizes: 8, 16, 32, or 64 MB. The exact configuration depends on the density of the DRAM

chips that are mounted on the DIMMs. (The DIMMs support both 2K and 4K refresh rates.)

You can increase you computer's DRAM to up to 768 MB using 16-megabit (Mbit) DRAM technology. The main logic board has 12 slots (each with a 64-bit data bus) where DIMMs can be installed.

Note: The Power Macintosh 9500 series is designed to expand to a DRAM capacity of up 1.5 gigabyte (GB) using 128 MB DIMMs. However, these DIMMs are not currently readily available and have not been tested by Apple Computer, Inc. for use in the Power Macintosh 9500 series computers.

IMPORTANT
The DIMMs should be 5-volt, 64-bit-wide, 168-pin fast-paged mode, with 70-nanosecond (ns) RAM access time or faster. DIMMs taller then 1.25 inches cannot fit in to the Power Macintosh 9500 computer. The Single Inline Memory Modules (SIMMs) from older Macintosh computers are not compatible with the 9500 and cannot be used.

3) Question: Is the 16 MB standard configuration of these computers using up any slots or is the RAM soldered onto the logic board?

Answer: The Power Macintosh 9500 series computers come standard with 16 MB of memory. Since there is no memory soldered on to the logic board Apple currently configures the computer with either two 8 MB DIMMs or one 16 MB DIMM depending on availability.

4) Question: Does memory (DIMMs) have to be installed in pairs?

Answer: Unlike the original Power Macintosh computers, the Power Macintosh 9500 DIMMs do not have to be installed in pairs. If you decide to have additional DRAM installed in your computer, the DIMMs can be installed one-at-a-time in any order in any of the memory slots.

However, if you intend to take advantage of the increase in performance that memory interleaving offers, you will need to install the DIMMs in identical pairs. With memory interleaving you can see up to an 8% increase in performance depending on various factors including the applications being used.

One of the main reasons that the SIMMs have to be installed in pairs on the original Power Macintosh computers is that the 72-pin SIMMs used in those computers are 32-bit wide SIMMs. However, the data buses of the Power Macintosh computers prior to the 9500 series are 64-bits wide. Thus you have to install two SIMMs to accommodate the 64-bit wide data bus.

The Power Macintosh 950, on the other hand, uses 168 pin, 70ns or faster DIMMs which are 64-bit wide. Therefore, it only takes one DIMM to meet the 64 bit wide data bus requirement, and you only have to install one DIMM at a time.

5) Question: Are there any guidelines I should follow if I want to take

advantage of memory interleaving?

Answer: if you wish to take advantage of the Power Macintosh 9500 series computers' memory interleaving capability, which provides maximum performance, you must have the DIMMs installed in pairs, and in paired slots. (A1 and B1 are the first pair of slots, A2 and B2 are the second, and so on.) Memory interleaving allows the computer to read or write its memory while other memory reads or writes are occurring, thus providing faster performance.

Paired DIMMs should be the same size and speed. DIMMs purchased for different manufacturers can be paired as long as they are the same size and speed.

Article Change History:
24 Jan 1996 - Added information about memory interleaving and revised format.
08 Aug 1995 - Added information about size of DIMMs included.
28 Jul 1995 - Added explanation on number of DIMM slots

Support Information Services

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