

memory, and optimization benefits they get when they use *OptiMem* in addition.

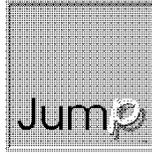
- For Macs without an MMU, and already at their physical memory barrier, *OptiMem* is the only alternative for more useful memory. Since *OptiMem* is designed to work with all Macintosh hardware and does not require any special processor support (such as the virtual memory mapping MMU available on 68030 and 040 processors) it will optimize any Mac running System 7—including 68000 Macs like the Plus, SE, or Classic; Macs with third party accelerators; and the new Power Macs.
- Unlike the other memory upgrade methods, *OptiMem* works on a per-application basis—so you can easily specify optimization for some applications and not others. This allows you to use any combination of optimized and unoptimized applications simultaneously. Other software methods require you to disable the

product and restart the computer in order to use any software which doesn't work well with it.

Introduction to Software Memory Upgrades

First let's clarify some terms used. The *logical memory space* in a Macintosh is what is seen by the user (for example, in the About This Macintosh window), or by the application software. This logical memory space is usually equivalent to what is provided by the *physical or hardware memory* (often referred to as RAM). The logical memory is most easily expanded by installing additional physical memory and maintaining the usual one-to-one mapping between physical and logical space.

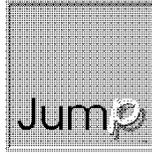
Providing a logical space that is larger than the physical memory requires a selective mapping of blocks of physical memory into the logical space. This differentiation of logical and physical memory access and the mapping between the two spaces is commonly called *virtual*



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memory. (The resulting logical space is also called the *virtual address space*.) As can be imagined, the constant address lookup and translation necessary to support such a scheme has considerable processing overhead. Therefore, it is only used on Macs that have special memory mapping hardware in their processors, to minimize this overhead.

With the standard Mac virtual memory, the extra blocks of logical memory (which are not mapped to physical memory at a given point in time) are stored on disk and swapped with other blocks in physical memory when



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usable memory (such as virtual memory and RAM Doubler). Jump Development Group has done a lot of testing with *OptiMem* and RAM Doubler and finds they work extremely well together, without any downside. The technologies are entirely different. RAM Doubler uses virtual memory techniques to expand the logical memory space, and then *OptiMem* is happy to optimize allocation of the increased logical space provided. And, in fact, the two together give you much more useful memory than either one alone.

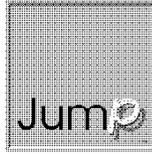
So, the two products really complement each other: *OptiMem* provides the reduction of initial application partitions and dynamic resizing of apps, while they remain open, so you get more into the memory you have. RAM Doubler compresses your in-memory data and maps in additional virtual address space, so you have more to allocate in the first place.

Since *OptiMem* works on any Mac running System 7, it is able to provide benefits for all Mac users,

including those unable to use virtual memory expansion for one reason or another. (Virtual memory and RAM Doubler can only be used on machines with the memory management hardware.) *OptiMem* is the only way to more useful memory for millions of Macs, including all the 68000 machines like the Pluses, SEs, and Classics—or for any Mac which is already at the limit of its physical memory capacity. Even Macs with third party accelerators and Power Macs can benefit from *OptiMem*.

The owners of many Macs with memory limitations have held off upgrading to System 7 because of the additional memory demands. Now, with *OptiMem*, these people can upgrade to the latest system and application software, keep multiple major applications open at the same time, and still have enough memory to work productively.

No memory upgrade is 100% compatible in all situations (yes, even adding physical memory can cause problems for some



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configurations of hardware and software). Unlike the other techniques, *OptiMem* applies its improvements on a per-application basis. That means it can be turned off for some applications while it continues to optimize others. This allows you to use any combination of optimized and unoptimized

applications simultaneously. Virtual memory and RAM Doubler require you to stop what you're doing, close/quit all of your work and restart the computer with the expanded space completely disabled in order to use any product which doesn't work well with them.