

## LESSON 128

### UPGRADING COMPUTER RAM – WHAT YOU REALLY NEED TO KNOW

Adding more RAM is the single-most cost effective upgrade you can make to your computer. How will you know when to do a RAM upgrade? If you are planning to upgrade to Windows ME when it arrives on September 14th, you'll find that your computer will run at about the same level of performance it did with Windows 98.

When you see the Windows hourglass hover on your screen for any length of time, the main system RAM is full and Windows is using the Swap File located on your hard drive. Swap Files are seen by Windows as "virtual memory" and data is moved back and forth between RAM and the Swap File.

If you run memory-intensive programs like Auto Cad, or large data base programs, more RAM makes perfect sense, and 256MB of RAM really works well.

Otherwise, 128MB is what I call the "sweet spot" in RAM upgrades, since adding more than 128MB of RAM doesn't really improve system performance that much.

If your computer is a brand name, like Micron, Dell, Gateway, H/P and the like, **www. crucial.com** has your computer make and model listed on the web site so that selecting the correct RAM for an upgrade is easy.

If you have a clone (no brand name), the Crucial web site can still help you purchase the proper RAM for your upgrade. Watch the splash screen on your monitor when you first boot up the computer. If the chip set on the motherboard is listed on the splash screen, you can upgrade RAM based on the motherboard chip set. If you can located the name, brand and model of the motherboard (usually printed somewhere on the motherboard) you can upgrade RAM based on that information. Lastly, you can remove one of your current RAM SIMM (single in line memory module) or DIMM (double inline memory module) chips, and using the exact numbers printed on the SIMM chip, order a RAM upgrade based on that number set.

Note that some older motherboards with the HX Intel chip set will only cache 64MB of RAM at a time, and once you exceed that limit, your computer will read RAM one page at a time. This method is slower than caching 128MB of RAM but it's still faster than using the swap file.

Unless you plan to purchase a new computer, upgrading RAM is the only way to give "old faithful" a boost in energy. Crucial can also sell you RAM chips to upgrade the amount of RAM in your printer, which will give your printer a boost in performance. It may not print faster but can print larger files without overloading the printer RAM and ending a print job before it is completely printed.

