

THE COMPUTER CORNER

REAL AND PROTECTED MODES – MALE AND FEMALE?

- by Stan Kaplan, WB9RQR
105 Martin Drive
Port Washington, WI 53074-9654
(262) 284-9346
skaplan@mcw.edu

While preparing a lecture recently for my Computer Architecture class, it became clear to me that the differences between computer memory modes are a lot like the differences between male and female human beings! Although I risk being “politically incorrect”, let me explain by pointing out some male/female differences that are more or less generally accepted today in many medical/scientific circles. The differences exist because the sexes seem to emphasize the use of different parts of the brain, which makes for a different approach to the way we do tasks. Now, please be cautious in your interpretation of my statements. I am generalizing – emphasizing the differences you would find if you surveyed the personality characteristics of 1,000 men and 1,000 women. There are always exceptions to generalizations.

Nevertheless, some valid generalizations can be made. Generally speaking, men seem to be oriented more toward single tasks. The majority of men seem to prefer focusing on a single task and carrying that task to completion before starting another. Maybe that is because when we were still living in caves, it was necessary to stay quite focused in order to survive – while out hunting, for example. Staying focused on a single task probably helped us to keep from being dinner for some creature that was also out hunting for food. At any rate, we still today tend to focus best on a single activity. Wives sometimes view this negatively, and complain that their husbands “just do not listen”. They come in to the TV room while hubby is watching a game and say something like “Dear, please take out the garbage, and don’t forget to pick up some milk on the way home after work tomorrow”. Hubby grunts acknowledgement, but promptly forgets both tasks assigned to him. The wife just does not realize that hubby was focused on the game so intently that everything she said went in one ear and out the other! A gentle smack with a 2 X 4 might have helped to shift his focus enough to make the task list stick! The intense focusing ability probably helped us stay alive eons ago, but it sure doesn’t help keep marital peace today!

Women, on the other hand, do wonders when working at multiple tasks, all at the same time. A wife can be minding a batch of kids, whipping up a wonderful pot of something or other for dinner, talking on the telephone and paying bills, all simultaneously. Women are simply much better at handling multiple jobs at once. A guy, trying to accomplish the same tasks, would focus on the bill paying, to the exclusion of all other distractions, until that was finished. Then he would move on to the next task. Meanwhile, the kids would have destroyed the house and dinner would be burned to a crisp. Oh, yes, the answering machine would be full, too.

Well, guess what? DOS is just like a human male. It is a single-task operating system. When you run a program from DOS, it is the only program that runs, for while it is running, no other program can. Moreover, DOS lets the program take control of all memory resources (up to the maximum of 1 megabyte), directly. The program does not have to ask permission to use memory. When it is done with its job, it closes and relinquishes control to DOS. Then, and only then, can another program be started. DOS has only a 16-bit data path, which simply means, it has 16 wires over which it can send and receive data. Computer nerds call DOS a “Real Mode” operating system. Indeed, a synonym for Real Mode is DOS Mode.

Windows 95/98, on the other hand, is much more like a human female. It is a multitasking operating system, which means that more than one program can be running at the same time. On the other hand, to keep peace between programs, Windows manages all memory. If a

program needs some, it must ask Windows “please, can I have 700 kilobytes of RAM to store information while I am manipulating it?” Windows make the allocation but reminds the program “you gotta give it back to me when you are done!” There are some additional advantages to this type of system. Programs can have more than a maximum of 1 megabyte of memory while they are running. Moreover, the operating system can use 32 wires to send and receive data, instead of just 16. This type of operation is dubbed “Protected Mode”. Actually, Windows 95/98 is even more flexible. It can switch back and forth between Real Mode and Protected Mode as necessary. That is why we can still run DOS programs in Windows.

Well, there you have a fair definition of the difference between Real and Protected Mode operating systems. One is DOS and the other is Windows, right? Well, it is not quite as simple as that. Neither Windows 95 nor 98 are DOS-free, stand-alone operating systems. Both are just a DOS operating system enhancement, called a GUI (Graphical User Interface). You see, DOS underlies both Windows 95 and 98, and DOS elements start your computer long before Windows takes over. You don’t believe it? Look in your C:\WINDOWS\COMMAND subdirectory, and you will find all the old DOS programs right there. FDISK, FORMAT, LABEL, MODE, MOVE, SCANDISK, XCOPY are all there, just to name a few. When you ask Windows to format a floppy disk, it replies “sure”, then turns around and asks DOS to do it! That is why it takes up to 40% more time to format a disk in Windows, as compared to DOS. Windows is just an intermediary! Happy computing.