



Thinking Inside The Box

IN THE PAST few years computer prices have fallen dramatically. With those lower prices comes a tendency for people to under-invest in technology. Having been down that road, I thought it would be prudent to share with readers the knowledge that I have gained in this area.

It is difficult to fight the urge to save several hundred dollars or more when purchasing a computer. While comparing the difference between makes and models, the specifications may seem close or even the same, yet the prices vary significantly. There are reasons for this.

The first thing one must realize is that most computer manufacturers have several different lines of computers. Take Compaq for example: It has the Presario and Deskpro lines, while Dell offers the Dimension, Optiplex, and Precision lines of computers. Each line offers better components than the previous one. Upon closer inspection the user will note that it is not how the computer looks on the outside that matters; it is what's inside the box that makes the difference.

If, like myself, the producer finds himself clicking among five or six programs at any given time, he or she quickly will realize that the \$400 he thought he saved by going the cheap route is costing him big bucks right now. Take it from personal experience, those low-end units can't deliver the performance required to process all that data.

So for what should a producer look when considering a computer purchase? There's plenty, and I will explain it without too much boring technical jargon. The next time computer shopping comes up on the agenda you will be prepared.

The Modem

Regardless of whether the producer needs it or not, one of the first things for which to look in a computer is its modem. The kind of modem used in a system is a good key indicator as to the kind of components used in the rest of the unit.

If the producer sees the term "Win modem," he should not simply walk away from that computer, he should run! In a nutshell, a "Win modem" is an inexpensive piece of hardware that eliminates most of the processing on the modem card and instead diverts it to the CPU by way of software. By eliminating these processing chips on the card, a manufacturer can shave up to \$50 or more off the system's price, making it more appealing to the price conscious consumer.

This little piece of advice will weed out a good chunk of the computers the producer will want to avoid.

Integrated Components

Another no-no for which to look is the term "integrated." A synonym of integrated is "built in." This term refers to the sound, network, and video processing cards. Integrated equals bad for several reasons. Audio and video processing are becoming more and more important in today's sophisticated multimedia applications. Good components will lift most of the burdens of processing this data off the CPU, freeing the CPU to do what it is supposed to do, run programs. Much like the "Win modem," substandard components will hand processing tasks to the CPU, bogging it down.

Also, having components built onto the main board usually does not allow for easy upgrading of individual components should the need arise. Even though the integrated components used are getting better and the manufacturers claim that the user can disable them, it has been my experience that some of these integrated components still hog resources when disabled. Ideally, a computer system will have a separate processing card for each function.

Shared Video Memory

The last no-no keyword for which to look is "shared." This term is used in conjunction with the video memory specifications, something along the lines of "8MB shared AGP accelerated graphics card." This means that the manufacturer is stealing the RAM from the system board to run the video card. It's like robbing Peter to pay Paul, and again is a way for the manufacturer to save some money and lure the producer into buying a PC on price. The producer should avoid any computer with "shared" memory. He should be smart, and make sure that the video card has its own.

Hard Drives

The hard disk drive does not get much attention outside of its size. A 20-gigabyte hard drive is a 20-gigabyte hard drive, right? Not so fast — or should I say not so slow! As with the other components inside the box, there are items for which to look in the hard drive.

Speed on a hard drive is measured in several different ways and can offer a tremendous performance boost to a system. There is platter speed, transfer speed, and access speed. Platter speed is measured in rpms, and anything less than 7200rpm is not acceptable by today's standards. Transfer speed is shown as "Ultra DMA," "ATA/66," or ATA/100. A computer that has an "Ultra DMA" hard drive and that offers no other specification most likely is transferring information at the old standard of 33mb/sec, whereas an Ultra DMA ATA/66 or ATA/100 drive will transfer information at two or three times that speed respectively.

The access speed is the average time the hard drive takes to get to the data for which it is looking and is measured in milliseconds. An average access time of under 9ms is a good rule to follow. This is not an easy specification to find, as manufacturers tend not to publicize it. With all of the computer's data stored on the hard drive, getting one without a high-speed interface and good performance is like buying a Corvette with a four-cylinder engine. If that little hard disk light on the box is continuously on and that hard drive is non-stop chugging away, now you know the reason.

CPU

Surprisingly, the most touted specification, while important, does not play into the

overall scenario as heavily as the previously mentioned items. A fast processor does no good if it is spending time handling all the other tasks low-end or poorly designed components throw at it. Nor is it any good if it continuously is waiting for information from the hard drive.

To put this into perspective, in the amount of time it takes to perform one random hard disk access, one of today's CPUs can execute over a million instructions! Making the CPU fast enough to process two million instructions while it waits doesn't really gain you much unless the CPU has something to do with that time.

White Box

A good alternative to buying a brand name PC is to purchase what is called a "white box." These are computers that are assembled at a local computer store and can be customized to the user's specifications. The tremendous advantage to these units is that they are easy to upgrade and repair because they rely on industry standard parts and components. While "integrated" audio and video can be found in these boxes as well, it should not be difficult for a purchaser to negotiate an upgrade to individual components. Most owners of these stores are willing to work with their customers.

While negotiating this purchase, the producer should have the store include some sort of "on site" warranty. This way, if there should be a problem with the unit, the service staff will come out to the producer's home or office.

Owning a "white box" computer built with high-quality components greatly will ease the cost of keeping up with technology. On average, a minor upgrade every six months or so should keep the system up to par.

The Budget

How fast should a computer be and how much should it cost? That depends on the budget available and the producer's needs. The producer should not make the mistake of buying two \$600 computer systems, however, and think that he is getting a deal. (That is, unless all he is doing is typing letters.) You get what you pay for. A producer probably is better off buying in the mid to upper grade PC lines (\$1,200 to \$1,800 price range). A better grade computer is more important than buying one with the fastest CPU and poor quality components.

So now you know. It is not just the mega- or gigahertz of the computer that makes it fast. It is the overall design and the individual components used inside "the box." By knowing what to look for and what to avoid, the decision of which computer to buy should be a little easier. Having a slacker component inside the box only slows everything down. As the term "computer system" says, it is a system, a collection of hardware components that work together in harmony.