

No. 94. To Buy or to Build?

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We hams love to tinker with electronic gadgets, and the personal computer has been around for over 20 years. Putting those two facts together means that there are a significant number of us who have the capability to build our own computer. This month, I would like to explore the advantages and disadvantages of "rolling your own" or simply purchasing a ready-made unit. This is a subject that I have explored when teaching my Computer Architecture classes, and I have personally both built and purchased computers. Moreover, there are some points on both sides of the issue that have received industry-wide consensus, so the conclusions I present to you here are shared by many others.

MONEY. First, be advised that you will not save significant dollars by building your own. A year ago, with a lot of comparison shopping for parts, you might have paid \$25 less for all the parts for a \$1,000 computer than if you purchased one ready-made. That is no longer the case. Today, you will probably pay more if you purchase individual parts to assemble (I will illustrate that for you later). Well, if price is not the issue, what then are the pros and cons of the two paths toward acquiring a new machine?

PURCHASING READY-MADE.

1. **Time.** You will receive your new toy within days of the time you order it.
2. **Warranty.** There is usually an overall warranty on the machine.
3. **Software.** Often bundled and installed when the machine arrives at your door.

BUILDING YOUR OWN

1. **Time.** Plan to spend at least several months in acquiring all the parts, and do not begin assembly until you have gathered them all. On the other hand, you will usually get complete documentation with each part you purchase (motherboard, floppy drive, CD-ROM drive, hard drive, etc.) which is often not the case when you buy ready-made.
2. **Warranty.** While each part may come with its own guarantee, there will be no overall warranty for the completed machine. If anything goes wrong, you will have to troubleshoot and identify the bad part yourself, then negotiate for a replacement from the manufacturer.
3. **Software.** You are totally on your own for this, including the OS (operating system). However, you will usually receive more comprehensive documentation for each software package you purchase separately. This is in contrast to the sometimes skimpy documentation you receive with a ready-made machine. In addition, you are assured of receiving complete copies of the installation medium when you purchase software yourself. That does not always happen (though it should!) when you receive software bundled with a purchased computer.
4. **Fun and Learning.** Building your own can be informative and downright fun. There is no question that you will acquire knowledge from the process. Furthermore, since you assembled it yourself, you should be able to fix it later by replacing defective parts. On the other hand, be prepared for this. The day you turn on your newly built computer for the first time, it will be obsolete! On the other hand, the industry is moving so fast that this is probably true for a ready-made computer, too.

In the late spring of 2000, I began gathering the parts for a new machine – a 500 MHz Pentium III with all the bells and whistles, including 512 megabytes of fast memory (RAM). I turned it on for

the first time during the early summer. It is a terrific machine and has given me great service since then. It cost just over \$1000, not including monitor or software.

A few weeks ago, I decided to upgrade my secondary machine, a 266 MHz Pentium MMX computer that was just too slow. This time, I shopped around for a ready-made machine, and wound up purchasing one from an eBay auction. Here is what I got.

800 MHz Pentium III, including mini-tower case and power supply
128 megabytes of PC 133 SRAM
20 gigabyte UDMA/66 hard drive
52x CD-ROM (reader only)
126 bit built in AGP graphics accelerator with 3D capability, and a VGA port on the motherboard
10/100 Mbps fast Ethernet connection, built in
56k FAX modem, built in
128 bit built in sound capability, and also a pair of external amplified stereo speakers
1.44 Mb floppy drive
PS/2 keyboard and mouse, and ports for them on the motherboard
2 USB ports, 1 parallel port, 1 serial port

No operating system or monitor was included, but a CD-ROM disk with drivers for all the motherboard features did come with the package. My total cost for this system, including shipping to my door, was \$433! That price is hard to beat, and the machine was completely assembled and ready to run when it arrived. Indeed, I am using it now to type this article. It works very well and is *v e r y* fast. Nevertheless, it is already obsolete – 1 GHz machines or higher are the norm at this writing.

I do not advise purchasing on eBay unless you really know what you are doing. If you do not have much experience with computers and wish to buy ready made, my suggestion is to look hard at a Dell Computer. They have had the best customer satisfaction rating in the industry for a number of years, and they build a good quality machine for the money. Gateway is good, too, but second best. Micron is also good. However, Dell is the best. Stay completely away from Packard Bell. Technicians in the field change the B to an H.

The statements made in the preceding paragraph can be easily confirmed by reading the results of nationwide polls covering thousands of purchasers. When thousands of people like or dislike a particular brand, it is a valid “heads up” for you to use when spending your hard-earned cash. A word to the wise ... Happy Computing!