

BUYING BY THE SPECS

A GUIDE THROUGH THE TECHNOLOGICAL JUNGLE

Buying a personal computer for the first time often involves difficult choices. Advertisements for PCs frequently consist of little more than a bewildering list of numbers and acronyms familiar only to computer enthusiasts. To illuminate the way through the technological jungle, Maclean's designed a fictional PC with many typical features. A user-friendly handbook explains the specifications for the imaginary MacClone computer.

386-25 MHz The first specifications listed in a personal-computer ad usually describe the tiny silicon chip that powers the PC. Small enough to fit on the tip of a finger, the chip is like the engine in a car. Chips for most IBM and IBM-compatible personal computers—including Dell, Compaq and Tandy—are in 286, 386 and 486 models, while chips for Apple computers have model numbers that begin at 6800. The higher the model number, the more powerful the chip.

In general, 286-based computers are powerful enough to run programs developed in the 1980s, including the older versions of the Lotus 1-2-3 spreadsheet programs for accounting or the WordPerfect and Microsoft Word writing-editing programs. But if users want a PC that can run newer programs, including Microsoft's Windows 3.1 or IBM's rival OS/2, experts recommend a 386-based machine or higher. Some 286-based machines can take close to a minute to perform complicated tasks with new programs that would take a 386-based machine only a few seconds. While there are a number of 486-based computers, so far there is little software designed for home users that takes full advantage of the 486 machines.

Next to the model number of the machine's chip, advertisements almost always list the speed of the chip in megahertz (MHz), or millions of cycles per second. Technically, a 33 MHz chip is twice as fast as a 16 MHz chip. But for most tasks or procedures that take only a few seconds on any 386 chip, a home user likely would not notice much of a difference.

2MB RAM RAM—random access memory—is the memory that the computer uses to hold words and images that appear on the screen or to perform calculations. The images and data that RAM holds, however, disappear when the user turns off the computer, unless the information is stored on the machine's hard disk drive (HDD) or a floppy disk drive (FDD). Memory is measured in so-called bytes—roughly the amount of memory required to store a single letter or number. 2MB is short for two megabytes, or two million bytes.

1MB of RAM is more than sufficient to run programs introduced in the 1980s, including older versions of the popular WordStar writing-editing programs and the Harvard Graphics illustration programs. But Microsoft, for one, recommends 4MB to run its new Windows 3.1 software. To take full advantage of IBM's more powerful OS/2 program, experts recommend as much as 6MB or 8MB. Indeed, many computer enthusiasts jokingly describe the new software packages as "memory hogs." Moreover, even more memory-intensive software packages are due on the market in the next two years. As a result, experts recommend that users purchase a PC with at least 4MB.

At the same time, manufacturers and experts caution owners of older machines not to panic and trade them in. As an alternative, they note that the memory of most models can be expanded by installing additional components that can increase RAM to as much as 32MB.

80MB HDD HDD is short for hard disk drive, the permanent memory storage inside the computer that retains the unit's basic operating codes and procedures, as well as programs installed by the user, when the PC is turned off. As well, most users keep files and information they

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- 386-25 MHz
- 2MB RAM
- 80MB HDD
- 1.2MB 5.25" and 2.88MB 3.5" FDD

work on and update regularly, such as monthly financial records, on the hard drive.

Just as most new programs on the market take up more RAM than older versions, they also take up more storage space on a computer's hard drive. A decade ago, 20MB of space on a hard drive was more than sufficient to store several programs. Now, many users complain that in order to install new software, including word-processing programs that contain entire spelling checkers, dictionaries or thesauri, they have to wipe out others to make room on their hard disk.

A typical home user usually requires at least a word-processing program, a basic graphics program and a spreadsheet or other financial record-keeping program. A rough rule of thumb is that a complete, up-to-date version of each type of program takes up about 10MB of space on the hard drive. As well, most users fill 10MB to 20MB of HDD space with current files. Experts say that a serious home user now needs a PC with at least a 60MB hard drive.

1.2MB 5.25" and 2.88MB 3.5" FDD

The acronym FDD is short for floppy disk drive, which stores program information in a transportable form and contains software programs. They are inserted in PC disk drives for the computer to read and absorb the program. In addition, manufacturers encourage users to keep backup copies of programs and data files (the documents, accounts or graphics that they have created on the computer) on floppy disks, in case the programs on the hard disk are damaged or wiped out.

Older IBM-compatible machines usually have one or two 5.25-inch floppy disk drives, capable of holding at least 145 double-spaced pages of text, while newer models and Apple computers have 3.5-inch disk drives, able to contain as many as 1,400 pages. Conveniently, many machines now can accommodate both sizes of disks.

• **14" SVGA (1024x768)** The first number indicates the size of the screen—monitor. There are two basic types of screens for personal computers: monochrome and color. Monochrome screens can project only a single color of images or characters—usually green, blue or orange—on a black background. VGA, which stands for video graphics array, and higher-level Super VGA screens (SVGA) are the most popular types of color screens. Other common types are the earlier CGA and EGA models. The two numbers that usually follow the monitor acronym refer to the detail, or resolution, of the screen. Like a television set, a computer monitor creates images with hundreds of tiny colored dots—so-called pixels. The greater the number of pixels, the clearer the image. The MacClone's 1024x768 pixel screen is typical of better-model monitors currently on the market.

• **SVGA Card With 1MB** Inside most personal computers there are slots for add-on cards containing components that can enhance the PC's memory and power to perform specialized tasks. The cards themselves are tiny, wallet-sized circuit boards. One of the most commonly used is the SVGA card, which allows the screen to display an enhanced range of color images. In this case, the card expands the memory of the computer by 1MB to allow the screen to display up to 256 colors at 1024x768 resolution instead of the 16 colors that are standard with SVGA screens. That allows the machine to run advanced versions of such programs as Harvard Graphics and the Canadian-made CorelDraw! software. Other widely used cards enable users to send and receive faxes, link up a network of computers or run several printers at once.

2 Serial, 1 Parallel, 1 Game Port

Ports are sockets in the computer that allow the user to connect it to other devices. Most computers come with at least one serial and one parallel port. Parallel ports are generally used to connect a dot-matrix printer or a laser printer. A serial port is required if a user wishes to use a modem to connect the computer over telephone lines to another computer or to widely popular computer "bulletin boards." Serial ports can be used to connect a "mouse" controller to the computer. A game port is needed to connect the so-called joysticks used in many varieties of computer games.

JOHN DALY with WILLIAM MAKI and CHRIS LEE in Toronto

acCLONE

- **14" SVGA (1024x768)**
- **SVGA Card with 1MB**
- **2 Serial, 1 Parallel, 1 Game Port**

