IBM PCjr

A COMPUTER MEANT FOR BOTH CHILDREN AND ADULTS

BY CHARLES H. GAJEWAY

The IBM PCjr has been the subject of curiosity and controversy since its official introduction last November. It has been eagerly accepted by some computer enthusiasts who think that IBM's first mass-market product will help stabilize the computer industry (see "Big Blue Enters the Home and Education Markets," in our January issue). But because PCjr is being touted as a bridge between home and office computers, as well as between home and school, skeptics have dwelled on its limitations—its conventional technology, lack of expandability, and "chiclet-style" keyboard. However, very few of these early impressions were based on any hands-on experience, so when I took PCjr home for a few workouts with my family, I didn't really know what to expect.

FIRST IMPRESSIONS

The first thing that struck me about the PCjr was its trim styling, in contrast to the hefty bulk of the standard PC. It's slim and sleek, and quite attractive in a no-frills, functional way. But, while it will blend unobtrusively into the decor of almost any home or office, its compact size allows for only one disk drive. This is definitely a limitation for business use: disk copying is an integral part of computing, and is extremely tedious with one drive.

Next, I was impressed with the variety of software released in tandem with the PCjr. Games, educational programs, and home management and productivity tools—a dozen or so programs are being offered by IBM, at least for the expanded PCjr. (A handful of cartridges are available for the basic 64K PCjr.) In addition, about 30 programs originally written for the IBM PC, mostly business-orient-

CHARLES H. GAJEWAY *is an assistant vice president for Merrill Lynch & Co. in Manhattan and a frequent contributor to* FAMILY COMPUTING. *He has tested programs under development for Lotus Development and Bruce & James. He wrote "HomeCalc" and "A Hands-On Review: Coleco's ADAM" for the January issue.*

ed, will also run on the expanded PCjr (128K). This cornucopia is in marked contrast to the meager selection of programs accompanying most newly introduced systems—including the original PC itself.

Last, I was pleased to see that IBM has taken pains to make the system convenient. When I borrowed the computer from a dealer (Future Information Systems, in New York City), I expected to spend some time dismantling connections and packing components back into shipping cartons. Instead, the dealer unplugged the cable fittings, packed the few pieces into an optional fitted carrying case the size of an overnight bag ($60), and I was on my way. Carrying the nine-pound PCjr was little more difficult than toting a full briefcase.

GETTING STARTED

Setting up the machine at home

PCjr consists of a keyboard and a system unit. The infrared "eye" is to the left of the disk drive and two cartridge slots on the system unit.

PCjr FACTS

MEMORY: 64K RAM, expandable to 128K
USER-AVAILABLE MEMORY IN BASIC MODE: 44K (for unexpanded model)
VIDEO DISPLAY: TV, monitor, RGB monitor
TEXT DISPLAY: 40 char. × 24 lines; 80 char. × 24 lines with 80-column card
GRAPHICS: 3 modes available: 16 colors, 160 × 200 resolution; 16 colors, 320 × 200 (128K required); 4 colors, 640 × 200 (128K)
SOUND: 3 voices
KEYBOARD: 62 rubber, unmarked keys
SUGGESTED RETAIL PRICE: $669; for "enhanced" model with 128K, built-in disk drive, and 80-column card, $1,269

was a breeze; I laid out the system unit, the keyboard, and a monitor on a card table, with plenty of room to spare. After plugging in the cords for the power supply, the joysticks, and the monitor, I was ready to go.

The unit I had was the fully equipped, "enhanced" model. In addition to the 64K RAM and dual cartridge slots of the entry model, it had the 64K RAM video-expansion unit ($140), the slim-line disk drive with 360K storage capacity ($480), two joysticks ($40 each), and a parallel-printer attachment ($99). (A modem is also available, for $199.) This fully expanded model is the one being shown in most IBM product centers; with the $30 connector for a TV, the total cost of this system is $1,478, so it is not to be confused with the $669 base price of the "entry" model.

To see what it would be like to expand the basic unit, I read the operations manual to check out the difficulty of initial assembly. Nearly all of the installations are plug-in, and don't even require tools. By far the trickiest piece to install is the disk drive, which takes about a half hour to install.

I put the training disk in the drive, turned on the machine—and ran into a problem. A minute or so into the program, I began to get disk error messages. For a moment, I thought that I had somehow damaged the machine or the disk. Quickly thumbing through the operations manual, I discovered that, though I had set the monitor, in time-honored tradition, on top of the system unit, this is a no-parking zone on the PCjr. Moving the monitor off to the side let the disk run normally. However, the neat little system setup had suddenly doubled in size, taking up most of the card table. This annoyed me; if IBM could design a fitted carrying case for the PCjr, they should have found a way to shield the disk drive from monitor interference.

HANDS ON THE KEYBOARD

IBM chose not to use the large 83-key keyboard from the PC. Instead,

the PCjr has a much smaller keyboard, with only 62 rectangular chiclet-style keys. The keys are unmarked; each is surrounded by a flat area, which is where the markings for characters and functions appear. This makes it possible to use overlays to label keys for a program that uses them in a nonstandard way. *HomeWord*, a simple word-processing program, comes with such an overlay, as do other programs, and IBM sells blank overlays ($10 for five) for users who want to make their own designations. Nonetheless, the unmarked keys may make it tough for unaccomplished typists.

The keyboard is not attached to the system unit with a cord. Keystrokes are sent to the system unit via infrared transmission, similar to the wireless remote controls on videocassette recorders and TV sets. With a 20-foot range for the infrared signal, it's possible to sit on the couch and play computer games at a distance, as if you were watching TV. For applications using a lot of text, you could sit closer to the monitor, with the keyboard on your lap. An optional cable connection ($20) is available for operating conditions—a brightly lit room full of people, for instance—that make the wireless connection unfeasible.

GOOD NEWS, BAD NEWS

In use, the keyboard is a combination of good news and bad news. The good news is that the wireless connection to the system unit works smoothly and reliably. IBM warns of potential problems in a brightly lit environment, but I had no trouble in any sort of normal room light as long as the "eyes" on the system unit and the keyboard were facing each other.

The bad news is that the keyboard is poorly designed from an ergonomic standpoint. While the key action is smooth and has a pleasant degree of positive feedback, the keys are too small (at least for adult fingers), and the markings are small and hard to read. To add to these difficulties, the PCjr requires using several keys in combination with the ALT, CTRL, or FUNCTION keys to make its 62 keys duplicate the functions of the PC's larger 83-key keyboard. Despite the color coding IBM used to ease this inconvenience, I found these multiple keystrokes distracting and slow, particularly since some of them require both hands to execute.

To get a second opinion, I had my wife—who is a good typist—try out a word-processing program, giving her plenty of time to get used to the keyboard, and without telling her my feelings. She also felt uncomfortable with the small keyboard, complaining that it slowed her down and caused her to make a lot of errors. Several other adults who tried the PCjr keyboard had uniformly negative reactions.

On the other hand, my six-year-old daughter, who has trouble finding the letters on a full-size keyboard, loved the junior-sized unit. She jumped right into the cute introductory program that comes with the computer, becoming so involved that we had trouble getting her to leave it for dinner.

However, the PCjr, particularly the expanded model, is supposed to be for the whole family—equally suitable for learning, playing, and working. The keyboard makes it frustratingly slow and inaccurate for adult users, a serious drawback that even nontyp-
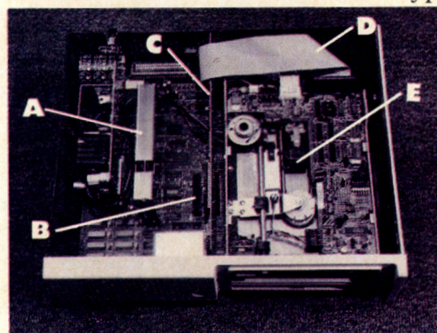
Inside the enhanced PCjr: A, memory- and display-expansion board; B, slot for modem; C, disk-drive controller board; D, disk-drive cable; E, disk drive.

ists should consider carefully, unless the machine is purchased primarily for children's use. After all, anyone who uses a computer won't remain a nontypist for long.

GUTS OF THE MACHINE

The system unit is a low-profile rectangular box with the disk drive and the cartridge slots on the right.

The ports on the back panel are clearly labeled. In use, the top of the unit gets warm, but not alarmingly so. The fit and finish are excellent, with no sharp edges, clunks, or rattles. The PCjr evidences all the quality construction expected from IBM.

Unlike some other computers that use plug-in ROM cartridges for program storage, the PCjr allows you to remove or insert cartridges while the unit is turned on. Inserting a new cartridge causes the computer to reset, automatically reading the new program with no annoying bursts of sound or video snow. The cartridges are small and easy to handle, and snap into their slots with a reassuring, positive click.

The disk drive operates in the usual fashion, except that the slim-line drive (about half the height of a nor-

mal disk drive) closes with a pivoting lever instead of the more familiar latching door. The drive is smooth and relatively quiet.

Unfortunately, the system unit's well-engineered compactness has limited the versatility of the PCjr rather sharply. There is no room for additions beyond the disk drive, extra memory, and modem—all of which fit inside the system unit. While these are certainly sufficient to support most home applications, many of the more recent business packages (like *Lotus 1-2-3* and *MultiMate*) require more than 128K of memory and/or two disk drives. This reduces the PCjr's usefulness as a home extension of the office PC.

There is an expansion connector on the right side of the system unit, and third-party manufacturers are likely to offer additional expansion in the future—a second disk drive is to be expected—but this will compromise the trim neatness of the unit, and drive up the price.

As with many computers, most of the sound generated by the PCjr does not come from the built-in speaker; a separate amplifier and speaker are required. I used the audio circuit in my monitors, but not all monitors have this feature. But the PCjr's sound capability, with three voice channels, is a big improvement over the PC's.

A SHARP VIDEO DISPLAY

While I did most of my testing with a monochrome monitor, I also tried a composite color unit. The video image was sharp and clear, and the colors (up to 16 are available) were bright and well balanced. As usual, the color monitor could not resolve the 80-column display mode sharply; this would hold for using an RF modulator with a color TV as well. Most of the software gets around this problem by utilizing the 40-column display mode. I would recommend using a monochrome monitor (several good units are available for $100 or less) for word processing and text-oriented programs, and a color TV for games and graphics.

Please note that many dealers are demonstrating the PCjr with the IBM color monitor; this is an RGB (Red-Green-Blue) unit ($680 plus $20 adapter cable) that provides extremely good color and is not to be compared with a regular color monitor or a TV. Thus, what you see in the store may not be what you get at home. Second, the 128K PCjr, which I tested and most stores are demonstrating, has superb resolution—much better than the 64K computer. In fact, the resolution on the 64K model (160 ×

200, the number of pixels horizontally and vertically) is lower than that on several less expensive computers.

SOFTWARE

The basic PC*jr* will run software stored on cassettes (with a $30 adaptor) or ROM cartridges. At the moment, there is little of either available, and most of these packages are games. While there is no reason that many useful programs could not be distributed in this format, it seems that IBM's emphasis is on disks. This situation limits the usefulness of the basic unit, since a disk drive is required to run the vast majority of the currently available software.

The PC*jr*'s disk drive operates under PC-DOS 2.1, a slightly revised version of the IBM PC's DOS 2.0. The new release will work with the IBM PC and XT. However, previous releases of PC-DOS may not work correctly with the PC*jr*. PC-DOS is fairly difficult to learn and can be time-consuming to use. A new, simplified user's guide helps ease the user through the technical maze, though, as does the introductory program.

Microsoft Cassette BASIC is built into the computer. The cassette version can be expanded through Cartridge BASIC ($75), which is required for several cartridge programs. (That's why there are two cartridge slots in the system unit.) It's a good implementation of the language (better than Advanced BASIC on the PC), with plenty of graphics and sound commands. But, like earlier versions, it utilizes only 64K of user memory. This is annoying, as half the potential memory is not available with the 128K model.

Moving on to more pleasant ground, the IBM-distributed software for the PC*jr* comes packaged in hinged plastic cases that resemble giant cassette boxes. The instruction manuals are clear and nontechnical, with lots of color graphics to illustrate keystrokes and system requirements and operation.

The PC*jr* packages are all of recent vintage, and from quality publishers. There is, however, very little that is special or unique. Nearly all of the programs I tried are currently available for other machines, though in some cases they have been improved to take advantage of the 128K capability. The most compelling software advantage for the new IBM unit is its ability to run a fair number of programs for the PC.

I tried some of these (*VisiCalc, Multiplan, PFS: File,* and *WordVision*) and they ran quite well, but considerably slower than they do on the PC. Software written for the PC*jr*

did not seem to suffer from such a problem. I also noticed that PC programs ran even more slowly on PC*jr* when I used the optional keyboard cable.

PERIPHERALS

Joysticks. The optional joysticks IBM distributes for the PC*jr* are the familiar, high-quality Kraft units, with spring-loaded self-centering mechanisms that can be easily detached or assembled by the user. They worked smoothly and reliably.
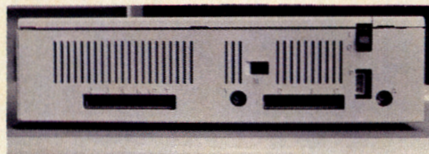
The connecting sockets, or ports, on back of PC*jr* are clearly labeled: "J" for joystick, "LP" for light pen, "M" for modem, "S" for serial, etc.

Printer. The standard printer is a neat little thermal unit that couples to the built-in serial interface, works well enough, and fits in nicely with the trim lines of the basic system. A better choice, if you plan to do any word processing or business work, would be a parallel-interface dot-matrix printer (like the Epson-made unit IBM markets for the PC) or one of several low-cost daisy-wheel printers that have been introduced. (To use any parallel printer, you must add the parallel-printer attachment, which sells for $99.)

While thermal-print technology has made large strides in the past few years, thermal print tends to be low-contrast, making it hard to read and duplicate on occasion, and thermal paper is fairly expensive. However, at $175 plus $40 for the cable, the thermal printer has a substantial price advantage over most printers. And, because it works by "burning" print

into heat-sensitive paper, costly ribbon cartridges are not required.

FINAL IMPRESSIONS

Entry Model. Until more software is available, I feel that the PC*jr* entry model is overpriced in relation to its competition. For the same money, one can buy more complete systems (with a disk drive and a monitor) from other manufacturers and have access to a large and growing library of excellent software that would not be initially available to the owner of a basic PC*jr*. The software will come, of course, as most major publishers are developing packages for the new IBM machine—but its quality will be limited by the constraints of the cartridge format.

The seemingly high price for the entry model can be explained two ways. First, you are paying a premium for the ability to upgrade to a 128K computer that is compatible with the PC. This expanded PC*jr* should run most PC software that requires only 128K.

Second, when you buy an IBM product, you are paying a certain "surcharge" for the IBM name, which translates to stability and service. With the present chaotic state of the industry—Texas Instruments has dropped out of the home market, Osborne is in Chapter 11, and other manufacturers are shaky—stability is not to be sneezed at. It means you can be assured of service and product support over the long haul. Deciding how important this is to you should be part of your checklist when assessing the PC*jr*.

Enhanced Model. While the enhanced PC*jr* is a good machine, it is by no means outstanding. The cramped keyboard dilutes the clear advantages of compact size, 128K memory, and PC compatibility. Several other computers, while they are bulkier and have no PC compatibility, offer large, established libraries of software (including many of the programs offered for the PC*jr*), can be expanded with additional disk drives and other useful peripherals, and have full-sized keyboards suited for serious adult usage. Many of these expansion peripherals will probably be made for the PC*jr* by third-party manufacturers. But by the time you total the cost of, say, buying a new keyboard to replace the original, you might be better off buying a computer with a typewriter-style keyboard at the outset.

The PC*jr* seems best suited for a family in which the primary users will be younger children, with occasional adult usage for home management or light professional tasks. ◼