



## Epson's Equity I: Inexpensive Clone

By John Lombardi  
Review Board

Epson, one of the most successful printer manufacturers in the micro-computer business, has introduced a variety of microcomputers into the market. Its first entries, the QX-10 and QX-16, sported an easy-to-use interface and special keyboard. Unfortunately, the units' lack of speed and compatibility with market leader IBM hampered their success. (See "Epson Offers the QX-16: a Sophisticated Micro-computer," September 9, 1985.) The latest entry by Epson, represented by the Epson Equity I, is the least innovative and, ironically, is probably the most likely to succeed. It's in every way a plain vanilla IBM PC clone, save for only two virtues: its handsome exterior and its equally handsome price.

**FEATURES:** The Equity I has exactly what you would expect of an IBM PC clone, and no more. The machine tested came with 256K of random-access memory that can be expanded to 512K without using an expansion slot, a parallel printer port, two serial ports, one 360K floppy disk drive with room for another or a half-height hard disk drive, an IBM PC-compatible monochrome monitor, and three open expansion slots.

The system has a smaller footprint than the IBM PC and more graceful styling. However, the differences in features between this clone and the original IBM PC are minimal with a few exceptions, price the foremost among them. Unlike the IBM PC (and the Leading Edge Model D, with which the Epson Equity will be most often compared due to similar pricing), the Epson machine cannot accept an 8087 math coprocessor chip. The IBM PC has room for four half-height drives vs. the Equity's space for two. The computer accepts IBM PC-compatible expansion boards.

The Equity I improves on the IBM PC in some areas. It is better looking, it takes up less space on a desk, and it has a keyboard layout closer to that of the Selectric standard. There is a reset button on the front of the machine for restarting the electronics without turning off the power when the machine gets stuck on some program. There are built-in parallel and serial ports to attach printers or modems; these would be extra on an IBM and would take up some card slots. A special plug-in board is available from Epson to expand the main memory to 512K without using an expansion slot by plugging into a special piggyback slot on the motherboard.

The Equity I package includes MS-DOS 2.11, with some special utilities for the Epson computer, and the GW Basic programming language, which is sold as a substitute for the Basic found on the PC.

The Equity I version of MS-DOS 2.11 has a couple of utility programs unavailable in PC-DOS. One of these is a useful disk

utility that provides a menu-driven system for preparing and copying floppy disks. Another utility offers a menu for the mode command for setting operating characteristics such as printer and serial port defaults and video display mode.

Another set of utilities addresses hard disk management. Archive is a menu overlay for the backup and restore feature of MS-DOS that copies hard disk files to floppy disks for archival purposes. Four other small utilities handle the tasks related to preparing a hard disk for use.

The system also comes with a helpful disk utility program called Xtree from Executive Systems Inc. (See "DOS Shells Help Organize Disks, Make Executing DOS Syntax Easy," November 4, 1985.) Xtree provides a great deal of help and information to manage complex directories and multiple files. This help is especially needed when working with the many files and directories on hard disks. Xtree implements most of the MS-DOS file commands through a clear menu structure, permits manipulation of file attributes, and allows the display of file contents in ASCII (readable form) or hexadecimal form.

Finally, a special utility called Setprint uses a menu to set the special characteristics of Epson printers or printers that use Epson control codes. From the menu you can select print size, proportional spacing,

italics, and the like. For Epson printer users, this is a useful feature.

**SETUP:** As delivered, this machine takes no skill and practically no instructions to set up. All that's involved is plugging in the keyboard, the monitor, and the power cord. That's it. Instructions for setup are clear and explicit, and no one should have any difficulty.

The computer has front panel configuration switches to indicate the type of monitor and printer, the number of disk drives, and the amount of memory installed. This configuration is a significant improvement on the IBM PC switches buried on the system board inside the machine. The software provided to help use the operating system also eases the startup process.

**PERFORMANCE:** Evaluating the performance of a PC clone is a relatively straightforward process since the standard is so well-known. The Equity I performs almost exactly like the IBM PC. The Norton Utility speed benchmark rates the Equity I identical to the IBM Personal Computer. Other benchmarks we ran using popular software or compiled Basic programs with considerable disk activity demonstrated equivalent efficiency.

The Equity I's monochrome screen provides quality almost identical to that of the well-regarded IBM Monochrome

Epson's first entry in the IBM PC-compatible market has a keyboard layout closer to that of the Selectric standard.

adapter and screen. We ran a representative sample of IBM PC software, including Topview, Sidelock, compiled Basic programs, and 1-2-3, and found they all ran fine. We also successfully tested a Hayes 1200B internal modem using PC-Talk III software. In our tests, we did not encounter any software that did not work on the Equity.

What is remarkable about this Epson Equity clone is its close duplication of the IBM standard, which shows that Epson, despite its long struggle to provide the market with an alternative, knows how to provide the market with an exact duplicate as well, resulting in a solid and inexpensive machine.

To attract attention with a low price, Epson offers a version of the Equity with 256K of memory and one 360K floppy disk drive. This is a configuration many will find of limited use, since few programs are suitable for single disk drive systems and there are a growing number of useful programs that will not run efficiently with this amount of memory. To run popular software, potential buyers should consider the model with two drives and should be prepared to buy more memory to get a unit capable of performing effectively.

**DOCUMENTATION:** Documentation is fine, although following the trend in microcomputer support, there is very little technical information provided about the hardware. The MS-DOS manual is first-rate, with clear explanations, easily as good as the IBM manual and equal to or better than other clone manuals. The GW Basic manual is exactly on a par with Microsoft Basic manuals available for the IBM PC and other clones.

Explanations about how to set up the machine and install options are clear and easy to follow.

**SERVICEABILITY:** The Equity I comes apart easily, providing access to the expansion slots and the disk drives for servicing. However, the main circuit board of the computer is located under the disk drives, covered by some sheet metal, making it difficult to change main board chips or perform other service operations. The advantage of this arrangement is a smaller cabinet; the disadvantage is somewhat more difficult access to infrequently serviced components. Otherwise, the machine seems well-built. It has room on the back of the case for outlets to five expansion boards, but there are only three slots inside the case.

Like all Epson products, the computer carries a limited warranty covering parts and labor for one year. Epson has a substantial dealer network and service should be relatively easy to find. Epson prides itself on the durability of its equipment, thinking of itself as the Maytag of the computer industry, with lonely, bored repairmen. And indeed its units are quite sturdy. When repairs are necessary,

however, they are **VALUE:** The great price paid to the equivalent IBM PC. A stand 256K of memory drives, monochrome graphics board, Hercules graphics, and three a list price of about IBM PC has a list according to an represents a 50 from a large computer sturdy hardware.

The principal 8087 support an slots. The Equity after installing a has three slots i only two slots v memory. On th competitors are motherboards, w and end up with loaded with the f

The other m market, the L computer ("Lead in IBM PC C December 16, 19 with this same \$1,495. It has fo comes bundled Word Processor.

The Epson E clone from a Although only c half-height drive most people wh drives or one D drive. The machi has included se managing the overlooked by m

Inf

RE C

BASI  
E

6.3

Q Q Q

Performance

Documentation

Ease of Use

Setup

Serviceability

Value

John Lombardi is a professor of history and author of five books. He has been working with computers since 1967.

however, they are expensive. **VALUE:** The Equity I's chief attraction is the great price differential when compared to the equivalent configuration in an IBM PC. A standard Epson Equity I with 256K of memory, two 360K floppy disk drives, monochrome monitor, color graphics board, Hercules-emulation monochrome graphics, and three expansion ports carries a list price of about \$1,700. An equivalent IBM PC has a list price of nearly \$3,400, according to an IBM spokesman. This represents a 50 percent savings, and it's from a large company with a reputation for sturdy hardware.

The principal trade-offs are the lack of 8087 support and the limited number of slots. The Equity has two slots left over after installing a video card; the IBM PC has three slots in this configuration, but only two slots when you go to 512K of memory. On the other hand, most PC competitors are selling IBM PC XT-type motherboards, which start with eight slots and end up with four or five slots when loaded with the features of the Equity.

The other leading competitor in this market, the Leading Edge Model D computer ("Leading Edge: Superior Value in IBM PC Clone Market Contest," December 16, 1985), is an even better buy, with this same configuration listed at \$1,495. It has four expansion slots free and comes bundled with the Leading Edge Word Processor.

The Epson Equity I is a good IBM PC clone from a reputable manufacturer. Although only capable of accepting two half-height drives, this should suffice for most people who want two floppy disk drives or one floppy and one hard disk drive. The machine is attractive, and Epson has included several useful utilities for managing the system, an area often overlooked by manufacturers.

## Poor Support, Compatibility Mar Ace 2200 Performance

By Cynthia E. Field  
Review Board

In its up-and-down history, Franklin Computer Corp. has long been an underdog as one of the only surviving vendors of Apple-compatible computers. Nearly four years ago, Apple Computer filed a copyright infringement suit charging Franklin with using Apple's proprietary disk operating system (DOS). The result was tumbling sales for Franklin's computer line. In 1984 Franklin filed for protection from its creditors under the Federal Bankruptcy Code. (See "Franklin Files for Chapter 11," July 23, 1984.) After settling its suit with Apple, a newly reorganized Franklin is trying a comeback with its Franklin Ace 2000 series of Apple II-compatible computers, running an Apple-approved Franklin DOS 2 operating system.

The Franklin Ace 2000 series is a family of three personal computers poised to draw off some of the market share from the Apple II computers that have proven durably popular in schools and small businesses. Franklin's sales literature claims its computers are built more sturdily than Apple's, cost half as much, and can run "nearly all of the newest and most popular Apple-compatible software." Our experience with the new Franklin Ace shows that, although this is a sleek machine with some nice features, each of Franklin's claims should be modified.

**FEATURES:** The members of the Franklin Ace 2000 family are distinguished only by the number of 5¼-inch disk drives built in; the Ace 2000 has no drives, the Ace 2100 offers one, and the Ace 2200 has two drives. Otherwise, they are identical including 128K of memory, a printer port, 80-column capability, detachable keyboard, built-in disk drive, and joystick. We tested the Ace 2200 with the Franklin MG-120TS monochrome monitor, which is available separately.

The main unit of the Franklin Ace is contained in a beige metal case. The black plastic front panel has five light-emitting

diodes (LEDs) that monitor system activity: In addition to a power light, there are a diagnostics light, a light that tells when double high-resolution graphics mode is activated, an LED that brightens to show the amount of CPU (central processing unit) activity, and an LED that lights when there is a disk error.

The two disk drives use rotating latches rather than flip-up drive doors. The drives have lights to show when the drive is writing or reading. The back of the unit includes a volume control access hole, through which you can adjust the volume of the speaker with a screwdriver. A bank of option switches is used to do things like invoke Ace's alternate character set or add a line feed with each carriage return sent to the printer.

The main unit is opened by removing two screws, sliding the case forward a bit, and then lifting the cover from left to right. Inside, you find many built-in features that Apple II owners would add by buying expansion cards: 128K of random-access memory (RAM), 40- and 80-column display, 16-color graphics capability, parallel printer interface, alternate character set, and disk drive controller.

The Ace, in effect, falls in between the lack of slots in the complete IIc and the more expandable but more expensive IIe system. The Ace 2200 offers two expansion slots, compared to the Apple IIe's seven. An Apple IIe would have four usable slots remaining after being configured like the Ace. The Apple IIc, which is already configured like an Ace but with one internal disk drive, has no available slots.

The first Ace slot is configured as the equivalent of slot 2 on an Apple II, used for interfaces for serial devices like modems. The second slot can be defined as slot 4, commonly used for a mouse, or as slot 7, used for add-on disk drives such as a hard disk. We defined this slot as slot 4 and inserted an Applemouse IIe interface card.

The detachable Franklin keyboard is another element that distinguishes the Ace 2200 from any Apple computer. Its coiled cable stretches to five feet for lap use and has rear lift supports for desktop use. Strongly resembling the IBM PC keyboard, the Ace's keyboard has 90 keys, including typewriter keys and computer function keys like the control, escape, delete, caps lock, reset, and cursor keys. Instead of open and closed Apple keys, Ace uses an open and closed letter F.

The keyboard offers 12 programmable function keys arranged in a row at the top of the sleek black keyboard. The Franklin system master disk containing FDOS 2, Version 5.0 also contains preprogrammed functions for these keys.

A keyboard feature that is certain to appeal to financial professionals is the numeric keypad located on the right-hand side of the keyboard. As on the IBM PC

For IBM PC/PC DOS:  
and compatibles

With TOMINY'S

**DATABASIC**

you can create data base applications that you could only dream about before.

You can:

- Write programs in your old friend — BASIC.
- Create custom data base, using the DataBASICplus Creation Utility.
- Automatically pass data back and forth between them with BASIC Language Interface Commands.

And you can take advantage of all these advanced features:

- KEYED File Access
- Structured Relational Data Base
- Full Data Base Manager
- Functional Data Base Analysis
- Rapid Maintenance Capability
- Versatile Backup/Restore Capabilities

Now you don't need a mainframe or an expensive programmer. You can do it your way, with complete control over your data base structures and the expanded computational power of BASIC. And you can do it for only \$74.95 (regular value \$99.95). Just be sure you use our coupon. If someone else has already grabbed it, that's serious business. So call us on our toll-free number **1-800-543-8628**. (In Ohio 1-513-781-6605).

Send Name or Order Immediately! By Phone 1-800-543-8628

**\$25 Off Coupon**

Please send me one copy of Databasicplus

Check Enclosed      Single User Copy Priced at \$74.95

Money Order      Single User, Unprotected      62 \$99.95

Mastercard       VISA      Shipping & Handling \$4.00 (In OHIO)

Sales Tax Ohio readers \$1.00

Name \_\_\_\_\_ Title \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

Signature \_\_\_\_\_

Total \$ \_\_\_\_\_

**Tominy** *Creativity through Automation*  
DATABASICplus Division  
P.O. Box 166 • Cincinnati, Ohio 45242

Data Base in BASIC? Now You Can Do It!

## Infoworld

### REPORT CARD

#### BASIC COMPUTERS EQUITY I

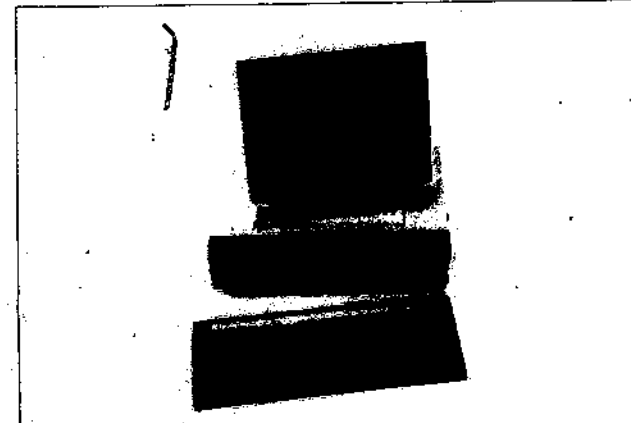
6.3



Unacceptable  
Poor  
Satisfactory  
Very Good  
Excellent

Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Setup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serviceability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Value	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cynthia E. Field is a freelance writer who regularly contributes to computer publications and lectures at an East Coast university.



The Franklin Ace 2200 is an Apple II-compatible computer that looks more like an IBM PC. The machine runs an Apple-approved Franklin DOS 2 operating system.