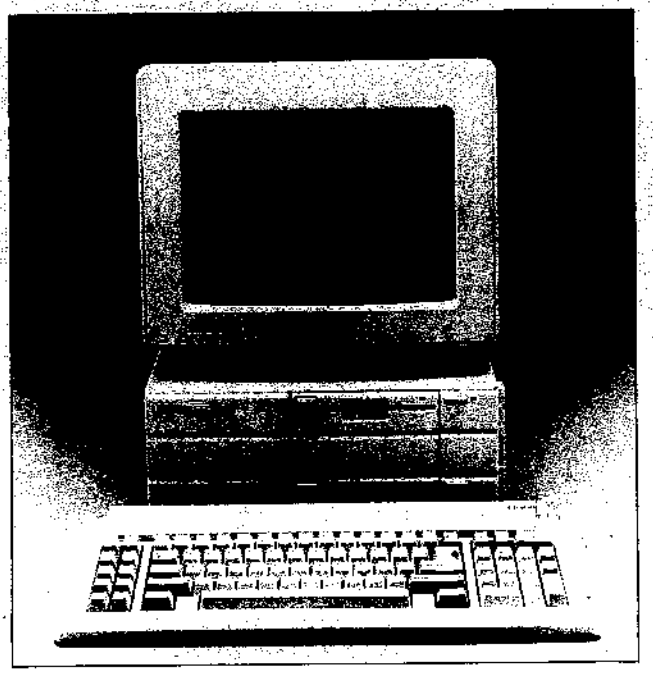

Epson's Equity II features dual-speed operation on the NEC V-30 processor, 640K of memory, and one disk drive.

Revved Up Equity II Offers Bargain Speed

By John Lombardi
Reviews Board

Taking a different tack from its competitors, Epson has souped up its Equity II with a two-speed NEC V-30 processor that doubles or triples the processing power of this IBM PC compatible.

The Equity II is aimed at those who want faster performance in a brand-name computer without paying the premium price of a PC AT. The Equity delivers. Epson also offers a slowpoke 20-megabyte hard disk drive to go with the machine — we firmly recommend you decline that offer. If you shop around for your hard disk drive, you'll find the Epson Equity II a good base for a high-performance system.

FEATURES: The Equity II is an IBM PC XT-compatible computer with a more powerful microprocessor, a relatively slow hard disk, and five 8-bit XT-style slots. The microprocessor is the NEC V-30, which can work just like the Intel 8088 that is the basic chip used in the PC and PC XT; however, the V-30 can process information faster. For one thing, the V-30 has a 16-bit bus. (The 8088, while a 16-bit processor internally, communicates with the rest of the computer through an 8-bit bus.) For another, the V-30 is capable of running not only at the standard PC speed of 4.77 MHz, but also at 7.16 MHz. The V-30 still manages to be fully compatible with the 8088, and the machine runs nearly all the PC software we were able to test. In addition, the Equity II has an option to further increase effective calculation speed by eliminating the processor wait state, though at some cost in compatibility.

The Equity II can accept an 8087 math coprocessor for faster calculations. The Equity II also accommodates two internal, half-height storage devices. Our test machine came with a Matsushita-built floppy disk drive (5¼-inch, 360K) and a Seiko-made Epson 20-megabyte half-height hard disk.

The Equity II includes a clock and battery-supported memory that you can set to turn on the computer at a predetermined time. The Equity II also comes standard with a serial port and a parallel port.

The Equity II comes with MS-DOS 3.10, GW-Basic, a variety of Epson utility programs, and Xtree, a program for managing hard disk files.

PERFORMANCE: Even running at the standard PC clock speed of 4.77 MHz, the Equity II shows the benefits of the V-30 processor's 16-bit bus. In the Norton utilities SI test, the Equity II processed information almost twice as fast as a PC running at the same clock speed. In the fast mode (set by pressing a few keys on the keyboard), the Epson is almost three times faster than a PC. This is even faster than PC clones using a 7.16-MHz 8088-2 processor, but still slower than a 6-MHz PC AT, which rates in the same tests as more than five times faster than a basic PC.

You can also increase speed by setting two jumpers on the main board to change the processor from one wait state to zero. With jumpers changed, the Equity II becomes more than two times faster in slow mode and more than three times faster in fast mode. However, you can't use most third-party video boards and expanded memory boards with the jumpers set, because the boards' memory chips can't keep up with a zero-wait-state processor.

The V-30 is an effective way of doubling or tripling the computer's processing performance. You'll see the most effect when using calculation-intensive programs like Lotus' 1-2-3, where the Equity II will operate quite a bit faster than a stock PC.

For disk-intensive applications, such as database or accounting work or using programs with a lot of overlays, however, performance depends on the speed of the hard disk drive. Epson provided us with its 20-megabyte drive, which was a real disappointment. In our tests, the Epson drive had an average access time of 98 milliseconds, compared with the PC XT hard drive's rating of 85 milliseconds. Our tests confirmed that in disk-intensive work, the Epson hard drive was up to 20 percent slower than the XT hard drive. Anyone buying the Equity II for performance and then matching it up with the Epson hard drive is hitching a hot rod to a plow horse.

This computer, while a compatible, is not really a clone because of the different processor; nevertheless, we found the Equity II to be highly compatible in both hardware and software with the PC. The only problem we found was with IBM's Topview windowing program. The Equity II comes with a software patch to make it compatible, however, and the vendor says machines now being shipped have been modified to be compatible with Topview, so the patch is no longer needed. The Equity II will apparently accept most PC XT-compatible expansion cards. As noted, using the jumpers to speed up the chip will render some add-on memory cards with dynamic random-access memory inoperable. We recommend that you test the hardware and software you expect to use before making a decision, since full compatibility cannot be assured in a machine that uses a different processor.

Compared to the PC and other clones with similar features, the Equity II is a mixed performer. Its dual-speed processor definitely gives superior performance, better than so-called turbo PCs. On the other hand, the hard disk drive is not merely as slow as a standard, unremarkable XT drive, it is noticeably slower. Were this machine to sport a faster drive, its performance rating would fully reflect the performance improvement of the V-30. As it is, the slow hard drive offsets the faster processor. We rate the Epson Equity II satisfactory in performance compared with a PC XT.

DOCUMENTATION: The Equity II's documentation is concise and well-written. Although MS-DOS is mostly a standard item, Epson has made Microsoft's MS-DOS manuals considerably more helpful than some MS-DOS manuals we have seen. The manuals weave the special Epson utility information into the flow of the documentation very nicely. In addition, Epson's version of MS-DOS is very unusual in that it includes on-line help that displays information about all MS-DOS commands.

No hardware manual is supplied with the computer, and the documentation as a whole is light on technical details. Given the technical nature of changing main board jumpers and even increasing processor speed, a hardware manual with more detail would have been helpful. However, thanks to the high quality of the manuals and the existence of on-line help, we rate the documentation as very good.

EASE OF USE: The Equity II is quite easy to use, primarily because of Epson's enhancements to MS-DOS. These enhancements include menu-driven printer setup and screen mode settings, and a file management program. The on-line DOS help also increases the ease of use.

The Epson Equity II, like its companion models I and III, comes with Xtree, a hard disk file directory manager. Xtree does a fine job of managing directories and files and handling the routine tasks of copying, deleting, and moving files. (See "DOS Shells Help Organize Disks, Make Executing DOS Syntax Easy," November 4, 1985.) Epson also provides its own Archive program, which is better than the PC-DOS Backup/Restore commands for backing up hard disk files. Unfortunately, it also produces files incompatible with Backup/Restore. We think that Epson should provide both.

Menu-driven utilities are included for selecting and configuring printers, selecting screen modes, handling the automatic start-up feature, selecting processor speed, and the like. As an alternative, processor speed and reverse video can also be selected from the keyboard with a Ctrl-Alt key combination. Another useful Epson utility program lets you print a graphics screen on a graphics printer.

Behind the computer's front panel are all the necessary configuration switches for identifying internal and external devices. This is a significant improvement on the IBM system of placing such switches on the main board. As a small bonus, the Equity II has a smaller case than a PC, so it takes up considerably less space on a desk.

Because of the many helpful utilities and the accessible configuration switches, we rate ease of use as excellent.

SETUP: It is quite easy to start the Equity II. The manual has excellent instructions for such tasks as formatting the hard disk and transferring the system. Although many users will likely receive the machine ready to run, as we did, we nevertheless ran through the entire setup procedure and found that the instructions work well in practice.

Setting up an MS-DOS or PC-DOS computer system is no trivial task for a

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novice, especially when there is a hard disk. Because of the clear explanation in the manual, though, you'll find it easy to perform even such daunting operations as changing the jumpers to improve the computer's speed.

Unfortunately, the instructions don't indicate exactly what the jumper accomplishes and why it might not work with memory and video boards. Nonetheless, within this class of computer, the Epson is easier than most to set up because of the good instructions and accessibility of needed switches. We therefore rate setup as very good.

SERVICEABILITY: Epson is a major computer company with a long and successful track record of making reliable devices. We expect the Epson computers to be reliable and relatively easy to fix.

The keyboard on our unit was poorly made. The keys stuck in the down position, producing odd results. We dismantled the keyboard and managed to get it to work reliably, but most users would have had to return the faulty keyboard. This appears to be simply a flawed sample. The Epson warranty covers parts and labor for one year, a longer warranty period than most computer makers offer.

The Equity II's main board is relatively inaccessible underneath the disk drive subassembly. It is easy to remove the disk drives for repair but still awkward getting at some features on the main board, such as the 8087 socket.

No phone number is provided in the documentation for technical support, but Epson said there is a toll-free number (1800) 421-5426). Epson claims 1,000 dealers are authorized to provide repairs, with three regional centers and 12 branch offices as alternatives for service.

Epson's good reputation for making reliable hardware, extensive dealer network, and long warranty earn it a very good rating in serviceability.

VALUE: This computer purports to offer improved performance to someone in the market for a jazzed-up PC but not willing to spring for the price of an AT. Epson delivers on this promise only in part: The processor markedly improves the Equity II over a stock IBM PC, but Epson's hard disk drive offering is not worth considering either for performance (it is slower than an XT) or for price (the list price for the drive and controller is $800).

An Epson spokesman shrugged off our complaint about the hard disk drive with the remark that dealers could substitute faster or cheaper drives to suit their customers' needs. It appears that Epson is pushing the basic system, without a hard drive, as a platform for a customized full system, rather than as a complete system itself. Since the Epson drive is neither faster than the slow drives nor cheaper than the cheap drives, this seems like a good plan. We strongly recommend that users considering the Equity II pass over the Epson hard drive and select a third-party drive instead.

Matching the Equity II with the Epson hard drive is like hitching a hot rod to a plow horse.

Hard disk drive aside, Epson is effectively charging for the faster processor between $500 and $700 over the price you'd pay for a 4.77-MHz 8088-based computer from a national name-brand vendor such as Leading Edge or Tandy, and $200 to $300 more than you would pay for a dual-speed 8088-2 system. For the increased processing power and the security of buying an Epson, this seems like a fair premium, so we rate value satisfactory. Bear in mind that you can buy mail-order brands for considerably less and even some AT compatibles for the same as the list price on the Equity. We can only recommend this system in its base configuration; buy your hard disk drive separately.

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

InfoWorld REPORT CARD

BASIC COMPUTERS
EQUITY II

6.0

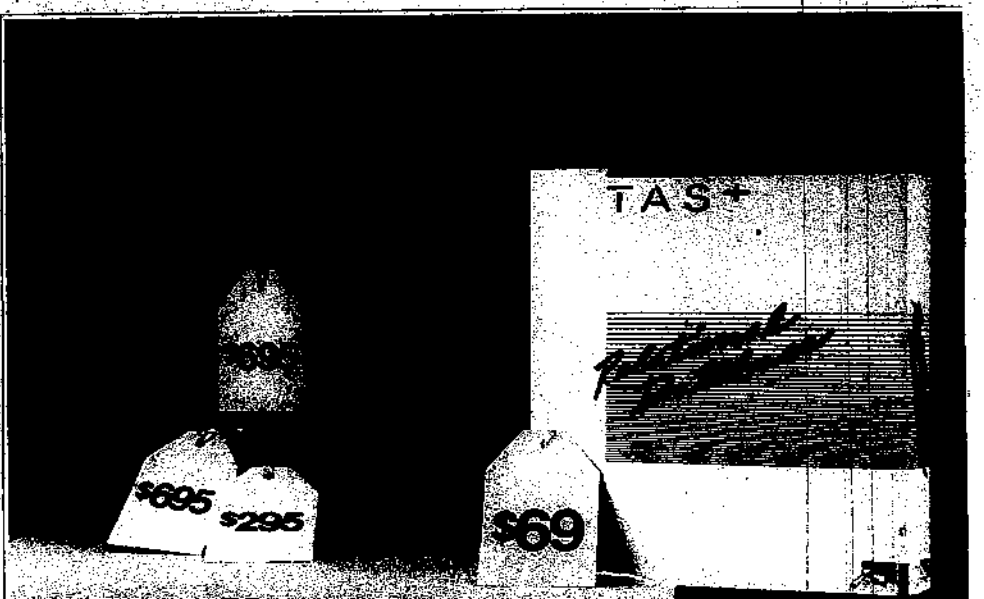
	Unacceptable	Poor	Satisfactory	Very Good	Excellent
Performance			■		
Documentation				■	
Ease of Use					■
Setup				■	
Serviceability				■	
Value			■		

STRENGTHS

Epson's PC-compatible Equity II offers faster processing with a high-speed V-30 chip (7.16 MHz as well as 4.77 MHz); however, Epson's 20-megabyte hard drive is slow. On-line help for DOS, Xtree for building files, menu-driven printer support, and front-panel configuration switches enhance its use. Great for processor-intensive applications, but get your hard disk drive elsewhere.

PRODUCT DETAILS

List price (base model) $1,695 with NEC V-30 processor, one drive, 640K of RAM, monochrome/color graphics card, five slots, keyboard, MS-DOS 3.10, Xtree, utilities. Model tested ($2,690) includes 20-megabyte hard disk drive, serial and parallel ports, TTL monochrome monitor. Epson America Inc., P.O. Box 2854, Torrance, CA 90509; (213) 539-9140.



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