PC TAP

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PC TAP Update

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From the Editor's Desk

On this page in *PC TAP Consumer Report #12* we mentioned our plan to prepare a smorgasbord for our mid-summer offering. With all the strange happenings that are making headlines in the computer industry these days, it seems even more appropriate that we pause and examine some of the products from our changing environment.

Were you as surprised as we were at the announcement that Borland had acquired Ashton-Tate? It will be interesting to see what evolutionary path dBASE follows now. And who would have expected an IBM-Apple alliance, or that Big Blue would be entering into cooperative agreements with other third party vendors. Although such strange happenings are based less on technological breakthroughs than on organizational, philosophical, and business issues, they are sure to have a profound impact on the way we do our computing in the future. There's even talk of machines appearing "in the mid-90's" with an object-oriented operating system that will run applications written for both OS/2 and the Macintosh. Furthermore, a page-one article in the July 1, 1991, issue of *PC Week* contains references to ten companies with which IBM has agreed to exchange technology to help "offset dependence on Microsoft."

Speaking of Microsoft, pre-beta copies of Windows 3.1 are said to have been shipped to selected sites during June. Industry pundits speculate that in updating Windows a great deal of emphasis has been placed on making the product behave better when networked. Although Windows 3.0 was touted as being "LAN aware," it certainly has proved to be less than stable in a networked configuration. With the formidable forces of an IBM-Apple alliance looming on the horizon, Microsoft is well-advised to address the shortcomings in Windows. The unprecedented success Windows has enjoyed for the past year or so can't last forever; and if the product's momentum is to continue in the face of increasing competition, operating stability on LANs must be achieved.

Meanwhile, while we're waiting for the dust from the industry-giants-jockeying-for-position melee to settle, we can look around at some new products and bring you up to date on some topics we've addressed in past *Consumer Reports*. We haven't revisited everything we've ever done, and it certainly hasn't been possible to keep up with all the new developments in the industry. But we hope you'll find something of interest in the items we've included in this issue.

The very first *PC TAP Consumer Report* was published in August 1989, so this issue marks our second annivarsary! We've enjoyed researching the material and bringing you the reports, and we sincerely hope you all have found them worthwhile. Thanks for your readership, and for the feedback and encouragement many of you have provided.

David A. Taylor
PC TAP Coordinator

PC TAP Update

Introduction

This publication is not like any other *PC TAP Consumer Report* we've ever done. It doesn't focus on the merits of a particular hardware component or software package, nor does it reflect users' assessments of a specific product or a particular product type. Instead, we set out to bring you up to date on some topics we've addressed in the past, and to pass along selected items that have come to our attention. We've also included synopses of our experiences with some products that are interesting, but which aren't significant enough to justify making them the subject of a formal PC TAP evaluation project.

New Releases from Lotus Development Corporation

Lotus has released new versions of two products that are widely used within EPA: Lotus® 1-2-3® for DOS Release 2.3 (can 1-2-3 for Windows be far behind?), and Freelance Graphics™ for DOS Release 4.0. Because the time is fast approaching beyond which it won't be possible to modify the Interim PC Contract, based on a brief in-house assessment of both products PC TAP recommended a contract mod to make them available through Atlantic Coastal Industries.

A PC TAP evaluation project for these products currently is in progress. Results of the assessments of both products, as reported by participants in the PC TAP project, will be presented in an upcoming *Consumer Report*. Meanwhile, a synopsis of the features of the new releases follows.

Lotus 1-2-3 Release 2.3 for DOS

This release is tangible evidence of Lotus Development Corporation's commitment to supporting users of its DOS products, even in the face of the movement toward Windows versions of many popular products (including the imminent release of *1-2-3 for Windows*). Release 2.3 will run on XT-class or later machines running DOS version 2.1 or greater, and with its new WYSIWYG component it will execute in as little as 512K of RAM. Without WYSIWYG, the spreadsheet program alone requires only 384K.

1-2-3 Release 2.3 for DOS is completely compatible with .WK1 files, data, macros, and applications built with previous versions. Furthermore, Allways and Impress files from Release 2.2 are translated directly into Release 2.3's WYSIWYG format. WYSIWYG's new publishing format is also compatible with both 1-2-3 Release 3.1 and 1-2-3 for Windows.

Release 2.3 for DOS provides a graphical environment that the user can navigate using either cursor-control keys or a mouse. It comes with more than 200 graph variations, along with the capability to modify built-in graphics or create your own from scratch. An enhanced file management function called *Viewer* uses features and functions that will be familiar to Magellan users, and the new *Auditor* displays precedents or dependent calls associated with a single user-specified cell.

A comprehensive report about 1-2-3 Release 2.3 will be published upon completion of the current PC TAP evaluation project. Meanwhile, from all reports, users of earlier versions of 1-2-3 probably will consider this a worthwhile upgrade.

Lotus Freelance Graphics for DOS Release 4.0

This software is accompanied by a booklet entitled *What's New,* in which Lotus Development Corporation says "Freelance Graphics is a full-featured presentation graphics product that offers more power and is even easier to use than Freelance Plus 3.01." The enhancements incorporated into this product are said to have been based on extensive market research and feedback from users. In other words, Freelance Graphics for DOS emphasizes the features users told Lotus they want.

The new features, which are aimed at automating the process of creating charts, diagrams, and presentation graphics, include interactive WYSIWYG displays, enhanced mouse support, new menu and key commands, performance improvements, and expanded device support. One capability that is sure to please users is the "smart chart update." Freelance Graphics stores chart data in the .DRW file with the chart itself, and whenever the data are revised the chart is automatically recomposed accordingly. Furthermore, whenever a chart is linked to an external data source like a spreadsheet, when the .DRW file is retrieved Freelance Graphics checks the source data and updates the chart if necessary.

Participants in the PC TAP evaluation of Lotus 1-2-3 Release 2.3 have also been provided a copy of Freelance Graphics 4.0. An upcoming *PC TAP Consumer Report* will contain an assessment summary of both products.

Other ACI Contract Modifications

In addition to the Lotus 1-2-3 R2.3 and Freelance 4.0 upgrades, within the past few months PC TAP has recommended several other modifications to the ACI contract under the "technology upgrade" provision. Two that should be of interest to a number of our readers are the CalComp ColorMaster Plus color printer and the DFI VG-7000 video board. Both are discussed in the following paragraphs.

The CalComp ColorMaster Plus

The CalComp ColorMaster Plus performed well in comparison with other color output devices with which we have experience. Output from the CalComp was judged comparable to output from competitive devices in terms of overall quality. In some cases, subtle differences in dithering patterns and hues were observed, but judging which is "best" is a subjective process; we felt that we were trying to differentiate between levels of excellence, rather than between an acceptable product versus an unacceptable one.

Output was produced on the ColorMaster Plus from both an IBM-compatible PC and a Macintosh, with high user satisfaction with the results in both environments. The device can be connected to both a PC and a Mac at the same time, and it accepts and queues print jobs from either or both devices.

Compared with earlier color hardcopy printers with which we have experience, the ColorMaster Plus is smaller, lighter, and easier to maintain. The media path is short and doesn't appear to be prone to jamming, and media loading and ribbon changing are easy due to ready accessibility of all pertinent components. However, it was noted that the "openness" that provides easy access to the ribbon also is a potential entry path for contaminants. In this regard, we did experience some streaking and spotting that apparently were caused by foreign material on media and/or ribbon surfaces. However, this problem tended to diminish over the time we used the device.

The DFI VG-7000 Video Board

The DFI VG-7000 card was evaluated for speed, performance, and compatibility with other add-in boards for AT class machines. Specifically, the VGA card was tested in combination with the IBM 8513 PS/2 color display, the NEC MultiSync 3D, and the IBM 8514 PS/2 color monitors attached to either an IBM AT or an Epson Equity III+ PC. Overall, the board seems to satisfy EPA's needs and requirements for a classic bus VGA upgrade board.

When installed in an Epson PC, the VG-7000 requires bus slot position 5 or higher due to either power consumption or signal degradation in the Epson bus. No such restriction applies on the IBM AT. This anomaly, which was also experienced earlier with the Renaissance VGA board, is specific to the Epson PC bus and is not a fault of either video board.

In the different test hardware configurations, the video board gave intermediate speed results using the Checkit software benchmarks. The BIOS speed did not slow significantly when connected to the LAN. No conflicts occurred between the VG-7000 and the two most common memory expansion boards in use in EPA, the Intel Above Board and the Boca Expanded Memory board. When high memory addresses were properly assigned, the VGA card worked well in conjunction with a memory expansion board and a Token Ring card.

The Windows 3.0 and Lotus 1-2-3 drivers work well with each monitor type, and according to specifications. No conflicts arose where the monitor was designed to support the proper resolution.
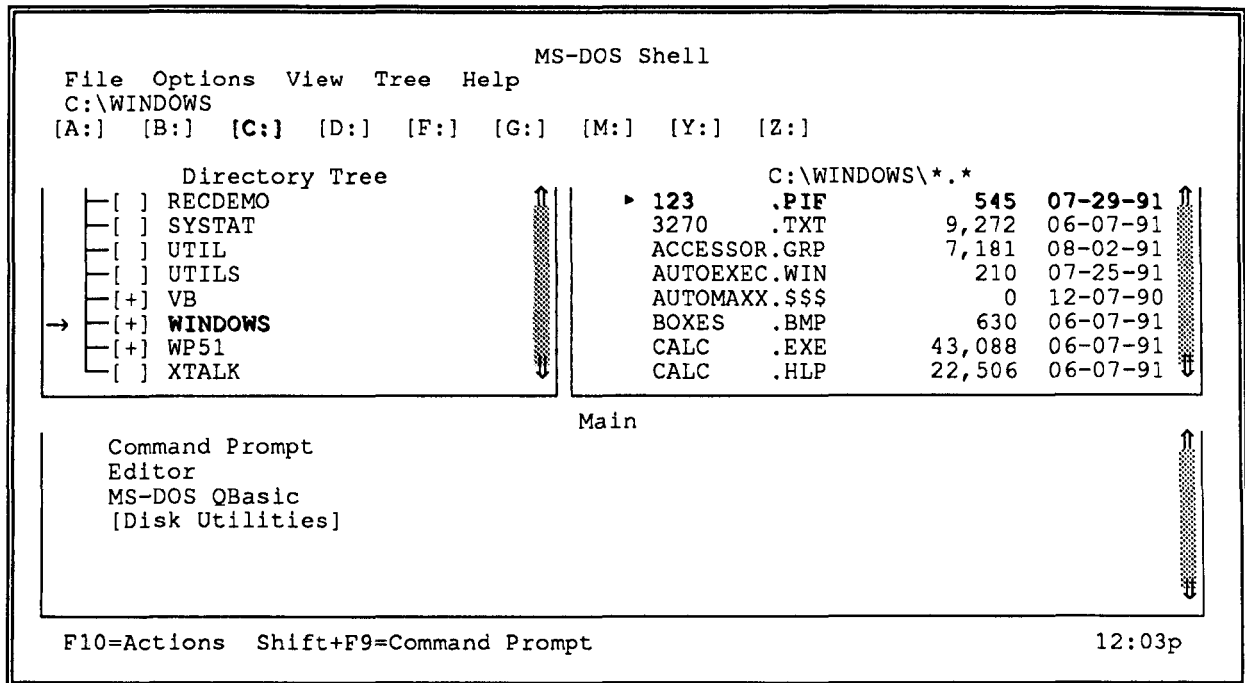
DOS 5.0

The July 1991 edition of *PC Magazine* calls DOS 5.0 "everything DOS should have been." They characterize the improvements and features of Microsoft's re-work of the venerable PC operating system more as "atonement for past neglect" than an attempt to produce a new state-of-the-art operating system.

The most obvious new features include a limited memory management capability, a decrease in the memory requirement of DOS itself, improved command line and shell interfaces, a new full-screen editor, and additional utility-type commands. Except for cases where the hard disk must be reformatted, the installation process has also been significantly improved.

We're running DOS 5.0 on a PS-2 Model 70 at PC TAP. Using the "Microsoft MS-DOS 5.0 Upgrade" kit is the easiest way to go if your existing DOS is version 2.11 or later. We backed up our system, reformatted the hard disk to a single partition, and ran DOS 5.0's *Setup* program. Setup includes several safeguards, including creation of "uninstall" disks that can be used to restore your previous version of DOS if you have trouble completing the installation. The process is a smooth one, however, and the likelihood that you'll need to uninstall is not great.

For those who have never been happy with the "C:\>" prompt, the DOS 5.0 shell will be a welcome relief. It's a full-screen home base for performing DOS functions that, like Windows 3.0's File Manager, provides a graphical picture of the file tree structures on all available disk drives. Pull-down menus allow the user to select among available display options and start up applications. The following figure shows the DOS shell with all available drives (including the LAN drives, which DOS 5.0 recognizes) shown near the top of the display. The Windows directory has been selected from

the list of drive C directories on the left-hand side of the display. The files in that directory are displayed on the right side of the display, opposite the directory list. On the bottom portion of the display, available functions other than file management may be invoked. Selection of drives, directories, files, or functions may be made either with keyboarding or using a mouse.

```
                                       MS-DOS Shell
       File   Options   View   Tree   Help
       C:\WINDOWS
       [A:]   [B:]   [C:]   [D:]   [F:]   [G:]   [M:]   [Y:]   [Z:]

              Directory Tree                          C:\WINDOWS\*.*
         ─[ ] RECDEMO                      ⇧    ► 123      .PIF        545   07-29-91 ⇧
         ─[ ] SYSTAT                             3270     .TXT      9,272   06-07-91
         ─[ ] UTIL                               ACCESSOR.GRP      7,181   08-02-91
         ─[ ] UTILS                              AUTOEXEC.WIN        210   07-25-91
         ─[+] VB                                 AUTOMAXX.$$$          0   12-07-90
     →   ─[+] WINDOWS                            BOXES    .BMP        630   06-07-91
         ─[+] WP51                               CALC     .EXE     43,088   06-07-91
         ─[ ] XTALK                              CALC     .HLP     22,506   06-07-91 ⇳

                                       Main
         Command Prompt                                                          ⇧
         Editor
         MS-DOS QBasic
         [Disk Utilities]

                                                                                 ⇳

       F10=Actions   Shift+F9=Command Prompt                              12:03p
```

The MS-DOS Shell Showing Directory of C:\WINDOWS

The memory management capabilities alone, although not as powerful or sophisticated as some other third-party memory manager products, are a strong inducement to upgrade. On our PS/2-70 at PC TAP, after loading DOS itself and some peripheral drivers into high memory, we still had 608K of memory available; 548K remained with the LAN drivers loaded.

A number of people around the Agency have already installed DOS 5.0, and it is being tested at NDPD. No significant problems have been identified, and most users report they are pleased with the upgrade. The Architectural Management and Planning Branch has asked ACI to place it on the PC procurement contract.

PC 286-to-386 Upgrades

This topic was addressed in Consumer Report #3 (October '89). A lot of progress has been made since then, but the process of bringing the power of the 386 microprocessor to a 286-based PC still is not without risk. Because of the large number of 286-based machines in EPA, we have been attempting to keep up with the ever-increasing number of approaches to implementing upgrades. A comprehensive survey of the current literature on upgrades yields more questions than answers. Opinions about the wisdom of upgrading 286-based PCs, and assessments of the ease with which upgrades can be performed, vary widely. Furthermore, new products appear regularly and costs appear to be on a steady decline, so it's necessary to constantly re-evaluate the options.

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General Considerations

A number of issues should be addressed when considering the upgrade question. Certainly the characteristics of the 286 platform are paramount. Within EPA there are three predominant 286-based machines: the IBM PC/AT, the Epson Equity III Plus, and the IBM PS/2 Model 30. Other models of which there may be significant numbers include PS/2 Model 50s and 60s, and Compaq 286s. A variety of other AT-class clones also can be found.

Three different methods were used to install the microprocessors during the manufacture of IBM PC/AT and other AT-class machines. The original IBM ATs used a pin-grid array (PGA) procedure, while later AT compatibles used leadless chip carriers (LCCs) and plastic leadless chip carriers (PLCCs). Knowing the type of microprocessor installation used in a given machine is a prerequisite to selecting an upgrade option, because most upgrade hardware uses the original microprocessor socket and must therefore be compatible with the socket type. Some upgrade vendors can accommodate any of the common socket types, but the buyer must specify the correct type when ordering the product. The bus type used in the machine is another key issue. Some upgrade options are compatible only with microchannel machines, others require the AT bus.

Upgrade Methods

In terms of upgrade alternatives, a number of products are available in the marketplace. Since they come from different companies, each has unique, product-specific characteristics; and each employs its own technology. However, three general methods dominate the field: motherboard replacement, microprocessor replacement, and installation of an expansion card. Each is discussed briefly below.

Motherboard Replacement: This probably is the most complete solution for upgrading, because when a 286 motherboard is replaced with a 386 motherboard the result is a true 386 machine. Some motherboard manufacturers now are making their 386 boards "upgradable;" that is, the capability to upgrade easily to a 486 is built in.

The June 3 issue of PC Week included a feature on motherboards in which it was emphasized that it isn't easy to identify a "good" board among the many available in today's marketplace. Manufacturing shortcuts and lack of quality controls by some suppliers have yielded boards that often aren't compatible with the machines in which they are installed. The article was accompanied by a "representative, not all-inclusive" list of 24 motherboards with list prices ranging from $200 to $2945. The warranty period for most of these boards is one year, but one listed only "one month," while the most expensive one has a 5-year warranty. Because of the considerable labor required, motherboard replacement was not considered a practical alternative for most users; hence, this study concentrated on the other two methods.

Expansion Board: Expansion boards take up from a half slot to a full slot in the host machine. Along with a 386SX microprocessor, most of these boards also offer additional options like onboard memory, a 387SX math coprocessor (or at least a 387SX socket), and caching. Some also have onboard clocks and memory management capabilities. If the board does not contain a clock, then except for the 386SX chip the components of the system in which the board is installed continue to operate at the speed of the original system clock—typically 8-10MHz. Installation of such a board yields a computer with the capability to run software designed for the 386 microprocessor, but at very slow speeds, relatively speaking.

Some upgrade options are called "accelerator cards." These boards may or may not contain an actual 386SX microprocessor. Some of them use memory management techniques and an onboard clock to maximize the operating speed of the original 80286 microprocessor.

The MicroWay FastCache-SX is a top-rated expansion board upgrade for AT-class PCs. It is advertised to work in "most ATs and compatibles," and is said to have been tested in over 50 different 286-based systems. A cable connects the board to a 386SX microprocessor chip that plugs into the CPU socket in the motherboard. Two versions—16MHz and 20MHz—are available at $495 and $595, respectively; a "Plus" board at either speed, which includes sockets for up to 8MB of extended memory is available for an additional $100. Other options include an onboard 387SX math coprocessor and extra memory to populate the board. An installation kit also is extra ($50-$95, depending on the type of machine into which the board is to be installed).

PC Week Labs' November 26, 1990 product review compared the MicroWay FastCache-SX with two other upgrade alternatives, the Cumulus 386SX and the 3EST Hyper 386SX. The "Analyst's Choice" was the MicroWay board, which was considered to be ". . . the most cost-effective way to bump the performance of AT-compatible computers nearly to the level of the 20MHz 386 processor."

Microprocessor Replacement: Within this category are products that simply replace the AT-class machine's 286 microprocessor with a 386SX chip. Some of these products are "daughtercards" that plug into the socket vacated when the 286 microprocessor is removed; others are true chip-for-chip replacements. The Cumulus and 3EST products that PC Week Labs tested with the MicroWay FastCache (see previous paragraph) are both daughtercards. Their performance lagged considerably in comparison with the FastCache, and in some operations—especially graphics operations in Windows 386 enhanced mode—were even slower than the original 286 AT. Such alternatives were characterized by PC Week Labs as appropriate only for 286 systems on which 32-bit processing is necessary, and for which performance can be sacrificed in order to gain that capability.

The StaX SX, from Aox, Inc., is a highly rated upgrade non-board alternative that packs a 386SX microprocessor, a 4K zero-wait-state cache, and a clock into a 1.5-inch-square by .6-inch thick package that plugs directly into the CPU socket. The StaX SX works with an existing 80287 math coprocessor, if present, eliminating the need to upgrade to a 387SX coprocessor. Aox markets both PGA and PLCC versions of the StaX SX at 16MHz and 20MHz, at list prices of $279 and $329, respectively.

Pros and Cons of Upgrading

Opinions about the advisability of upgrading 286 PCs versus replacing them with new equipment are almost as numerous and varied as the upgrade alternatives that continue to crop up in the marketplace. Articles have appeared in some trade publications, and even in the Wall Street Journal, proclaiming quick, easy 386SX upgrades that can be accomplished in 10 or 15 minutes. Such claims usually are accompanied by the advice that the task can be accomplished "simply by installing a snap-in expansion board into any slot," or by using only the "handy chip extractor tool provided with the product."

On the other hand, computer professionals with good credentials have related some real horror stories associated with implementing some of the so-called "easy" upgrades. In the previously mentioned PC Week Labs report, difficulties installing the Cumulus 386SX were noted. The tightness of the unit's

fit within the computer case was compounded by the need to make connections between very delicate wires to connect the unit to the motherboard.

Last year an ICB-RTP staffer with a lot of experience repairing and modifying PCs obtained an upgrade kit for an IBM PC/XT. The kit came with a 386 microprocessor and a tool with which to remove the 286 chip. This was one of the "10-minute, snap-in" upgrade alternatives. Things began to sour as soon as the cover was taken off the machine. The 286 chip refused to come out of the motherboard, and when considerable force was exerted to remove it the tool supplied by the vendor for that purpose broke. Eventually the chip was extracted, but it took two men (one holding the motherboard down while the other pried the chip loose) to accomplish the task. The upgrade ultimately was accomplished satisfactorily, but at the expense of considerable time and effort.

An interesting article entitled "SX Upgrade Boards: Not for the Fainthearted" appeared in the April 1991 issue of Byte magazine. The author, Steven J. Vaughan-Nichols, is a freelance consultant and writer who claims to "know my way around under the hood of a PC clone." He cites numerous problems installing both the Cumulus 386SX and the MicroWay FastCache-SX, and recommends that "only the most grizzled hardware veterans try to install the MicroWay board." He continues, "You'll need technical expertise and patience to install either of these boards. Even when they work, you'll probably run into some software incompatibilities. And the prices are just too high for what you get." Including the installation kit, the 20MHz MicroWay FastCache-SX with 32K cache costs $760. The Cumulus product, which operates under the original system clock, is $590.

For those who decide to upgrade, Vaughan-Nichols recommends investing in a new motherboard. He predicts that, despite the additional work required for installation, the end result will be much more satisfactory. Keep in mind though, that after all is said and done a machine with a typical upgrade installation is essentially just the same computer with all the same old components, but with a new microprocessor.

At the Windows World Conference in May, PC TAP attended a forum on the subject of optimizing Windows performance. On the panel of experts were Bruce Schechter, of Intel; Charles Petzold, of PC Magazine; Ben Myers, of Spirit of Performance, Inc.; and Will Fostie, an independent consultant and publisher of "The Fostie Report." A member of the audience asked the panel to recommend an upgrade procedure for 286-based machines. Mr. Myers said that, after carefully examining that question for a number of his clients, his advice was "throw the 286 in the trash can and buy a new 386 machine." This reply brought smiles and head nods from the other three panelists, who commented that in the long run buying new machines is the more cost effective alternative. They suggested that those who can't afford to buy new hardware would be better off using their installed base of 286's until they can afford 386 machines, rather than investing now in upgrades. They panelists also were unanimous in recommending the addition of "as much memory as you can afford" as the most practical way to enhance Windows performance on a 286-based PC.

Customer Feedback

Several organizations within the Agency responded to a recent request from PC TAP for feedback from anyone who had experience with 286-to-386 upgrades. Based on a variety of experiences, one person simply commented that physical fit often is a problem, and that PC covers or parts of the frame sometimes have to be modified to accommodate the upgrade. This was noted to have made as many as two slots unusable, and to result in other hardware-related problems. In addition, use of accelerator cards was reported to often result in various compatibility problems.

From the lab in Athens, GA, Kit McCormick reported that he has installed a SOTA 386SX upgrade in a PS/2 Model 60. The purpose of upgrading was to gain 386 functionality more than increased processing speed. While the hardware installation was easy, numerous problems were encountered with incompatibilities, most notably a 3COM Ethernet card. According to Kit, "after days of tinkering and hundreds of reboots," he discovered the CPU cache was conflicting with the network card. He adds "the solution was not obvious." He eventually determined that the cache operation conflicted with the BIOS addresses of the network card. Resolution of this conflict cured the problem, and the upgrade now is performing satisfactorily.

Columbia PCs were upraded from 8088 to 80286 microprocessors, and an IBM PC-XT was converted to a 20 Mhz 80386 at EMSL-Las Vegas. They report that their greatest frustrations resulted from having to work with the cheapest available components, which often were available from vendors who weren't knowledgeable about their products. Hardware modifications were required in these installations to accommodate ill-fitting parts, and, as reported earlier, slots were sacrificed in the process. Although these installations eventually worked "usually," it was determined that any cost savings realized by upgrading versus buying new equipment were negated by the labor required to perform the modifications and computer downtime associated with the project.

PS/2 Model 30's used by two managers at the WIC were upgraded with Evergreen 386SX chips. The original chips for both machines were faulty, and had to be replaced by the vendor. On one machine, lines appeared on the screen around the mouse pointer when MS Windows was invoked, and it would not operate in 386 enhanced mode at all. Attempts to benchmark the upgrade with Norton Utilities resulted in program terminations, and machine hangups were frequent. When the Evergreen chip was removed, all the problems cleared up.

The most positive feedback received about any upgrade of a 286-based PC came from Jim Kinn, of HERL in RTP. Jim installed StaX SX chips from Aox, Inc., in both an Epson Equity III+ and a PS/2 Model 30. The Stax SX is a relatively new upgrade solution which we had not tested (but had read about) when our original upgrade report was prepared. We have since obtained several StaX SX upgrade kits and are testing them in different hardware configurations. Should any significant findings result from our efforts, we will report them in a future *Consumer Report*.

Conclusions

We think upgrading 286-based PCs probably is appropriate in certain specific situations. For example, where there is a need to run applications that require 32-bit processing, or when true multitasking is a requirement, then the 286 microprocessor is inadequate. If the PC or PCs in question have VGA video, adequate memory (minimum 4MB), and sufficient hard disk capacity, then upgrading may be a viable option. However, the age of the equipment and the cost of buying and installing the upgrade should be weighed against other alternatives.

Installation of upgrade technology should be attempted with care, and only by those with experience modifying PC hardware/software configurations. Notwithstanding the claims of upgrade product vendors and reviews in the media, first-hand reports by experienced individuals of difficulties they experienced implementing upgrades suggest the process is not without risk.

There is no apparent all-purpose solution. Upgrade products seem to be sensitive to hardware configuration and to the software running on the system. Some alternatives have features that are necessary for some applications, but are needless extra costs in other situations. The most prudent

course of action would be to consider each upgrade decision individually, and choose the best product or technique on a case-by-case basis.

Although the subject of PC upgrades is still under study at NDPD, currently the official position is that upgrading is not recommended. We will keep you informed of any significant developments.

Optical Scanning

In our report on desktop scanners in *PC TAP Consumer Report #5* (January 1990), we gave high marks to Caere Corporation's *OmniPage* and to *TrueScan* from Calera Recognition Systems. Since then, both products have been improved significantly. As we noted in the earlier report, good optical character recognition (OCR) software is essential for satisfactory scanning of text. The latest versions of these two leading OCR packages are discussed below.

WordScan™ Plus

WordScan™ Plus is the name of the latest OCR product from Calera Recognition Systems, Inc. In our January 1990 desktop scanning report we rated its predecessor, TrueScan, highly; we also noted that it was the most expensive product among those we tested.

Since WordScan Plus is a Windows product, you need Microsoft Windows 3.0 on your machine in order to run it. The user's guide says WordScan's performance when Windows is executing in standard mode can be up to twice as fast as when Windows is running in 386 enhanced mode. As with any Windows product, pull-down menus and dialog boxes are used for program control. With respect to supported hardware, scanners from Canon, DEST, Hewlett Packard, Microtek, and Panasonic are supported on AT-class machines; on microchannel PCs support is provided for Canon, Hewlett Packard, and Microtek scanners.

A very nice WordScan Plus option is the *Pop-Up Verifier.* After a scanned document is in memory, this nifty feature displays words or characters about which the text recognition program was doubtful, or that it failed to find in its dictionary. The word or character in question is displayed in a pop-up window that is superimposed on the page of text, and the software waits for the user to either correct the questionable item or indicate that it is ok. The corrected document can be saved as ASCII text or in the format of any one of more than 40 word processor formats, including WordPerfect versions 3.0 through 5.1. Spreadsheet formats of Lotus 1-2-3, Microsoft Excel, and Quattro Pro also are supported.

If your scanner has an automatic document feeder (ADF) attached, WordScan Plus will handle two-sided scanning. You put a stack of pages in the feeder and scan in all the odd-numbered pages, then turn the stack over and scan even-numbered pages (the reverse sides of all pages). The software sequences the pages in the proper order (1, 2, 3, 4, 5, etc.) when it creates the scanned document file.

Pages containing different blocks of text, like multiple columns, or pages containing both text and graphics are handled with ease. Scanning in *preview* mode enables you to display the entire page as it resides in memory, with all its blocks or columns of text and its graphics. The mouse can then be used to draw boxes around page segments you want to identify as separate "text zones" or "image zones." After these selections have been made, WordScan Plus processes the page and creates a

word processing file containing the selected text and a graphics file for each identified image. Supported image formats include .TIF, .PCX, .PDA (Calera's own Processed Document Architecture format), and .DCX (used by some FAX software).

The improvements Calera has made in their microcomputer-based scanning product are impressive. Street prices for WordScan Plus are in the $650-$700 range.

OmniPage Professional

Like TrueScan Plus, OmniPage Professional™ is a Windows 3.0 product. According to Caere Corporation, "a Windows 3.0-compatible 80386 system with 4 megabytes of RAM, a hard disk with 8 megabytes of storage space, and a Windows-compatible pointing device" are required in order to run this product. It is said to support scanners from "Hewlett-Packard, Microtek, VXKI and most other scanner manufacturers."

Many OCR products are "teachable." That is, when the software encounters a word or letter that it can't recognize because the word or character isn't in its dictionary, the user can define that character or word. The new definition then can be added to the software's dictionary, and it will be correctly interpreted thereafter. OmniPage Professional has taken this process a step further by providing the capability to train the software to recognize custom characters or symbols, such as logos or icons. In our ever-more-graphic desktop computing environment, this is a nice feature.

OmniPage Professional has two previously separate Caere products, OmniSpell™ and OmniDraft™, built in. OmniSpell is an advanced 100,000-word spell checker; OmniDraft lets OmniPage read draft-mode dot-matrix characters almost as quickly and accurately as it processes typeset characters.

We tested OmniPage Professional on an IBM PS/2 Model 70. Software installation was easy and straightforward with minimal difficulty. Of the required eight megabytes of hard disk space, four megabytes are used as a Windows swap file. The documentation clearly explained the procedure required to create the swap file.

The sample text used for our tests was scanned using the automatic document feeder (ADF) attachment on our Hewlett Packard ScanJet Plus. The ADF really speeds up the scanning of multiple pages, and the software places a hard page break after each scanned page. The user must remember to select "Multiple Pages" under Scan Options.

As with most scanning software, OmniPage Professional works well with clear, clean original documents. The program does not recognize hand-written text or poor quality photocopied text. Some of the most common errors occurring with poor quality originals were interpreting the letter "i" and both opening and closing brackets as "l," and reading "q" as "x." Commas often were replaced with periods, and the software seemed to have difficulty recognizing the "@" symbol. We also observed that results tended to be better with fonts typical of typeset material, rather than typewriter fonts like Courier. The *Transitional Editor*, functionally similar to WordScan Plus's Pop-Up Verifier, made it easy to clean up the text.

OmniPage Professional supports a large variety of word processors, including WordPerfect 5.1. One of the product's best features is its ability to retain column format. When we scanned an original document with three columns, the columnar format was preserved. Remember to turn on WordPerfect's column definition before retrieving the scanned document, or only one column will be

apparent. A capability to recognize multiple zones and special zones allows you to identify multiple blocks of text (or text and graphics) on a single page, and each zone is processed and saved as a separate file. Another way to explicitly create separate files is to place blank sheets of paper between pages in the automatic document feeder at the points where an "end of file" is desired.

Like its competitor, Calera Recognition Systems, Caere Corporation has made many improvements in its product since we originally reported on it. Both are worth your consideration. OmniPage Professional's street prices are in the $600-$650 range.

Mouse Alternatives

There seems to be a growing proliferation of devices for those who want a pointing device other than the conventional mouse. We have acquired several, and have tested them with mixed results. What follows is a subjective assessment of several of these devices.

The UnMouse

The UnMouse is advertised to be three tools in one: a Supermouse, a Power Keypad™, and a Graphics Tablet. The device is a 3x4½-inch touch-sensitive tablet that plugs into a serial port. Its glass surface is coated with a conductive material that senses the touch of a finger, and moves the cursor to the point on the screen corresponding to the touched location. When used in mouse mode, you simply move your finger around on the tablet and the cursor follows a corresponding path on the computer screen. Clicking is accomplished by pressing lightly on the tablet's surface with your finger.

When the UnMouse is employed as a power keypad, a template upon which function buttons are displayed is placed over the tablet's surface. You can execute macros assigned to the function keys simply by pressing the appropriate button on the surface. Two templates are provided with the device, or you can create your own.

To use the UnMouse as a graphics tablet, you put it in "absolute mode." The device's 1,000 by 1,000 touch points are then mapped onto your computer screen. You can draw on the pad with your finger or a stylus, or by placing a picture under its transparent surface you can make a tracing tool out of it.

The UnMouse is advertised as "the most intuitive pointing device ever devised." From a conceptual point of view, we agree. What could be more intuitive than having the cursor control correspond to the movement of your finger? In practice, however, contrary to claims in the user's guide that "you won't believe how smooth it is until your try it," we found cursor control in mouse mode to be erratic. One of our testers put it like this: "I really had trouble controlling the cursor using the UnMouse pad . . . my index finger was a poor mouse substitute."

The UnMouse is a product of MicroTouch Systems, Inc., 55 Jonspin Road, Wilmington, MA 01887; telephone 1-800-UNMOUSE. The device lists for $235, and is available for both the PC and the Macintosh.

The MousePen*Professional*

The MousePen*Professional* is a stylus with a small roller ball in its tip. Our PS/2 version plugged right into the mouse port on the machine, and worked with the Microsoft mouse driver (although it has its own driver if you want to install it). The wire that connects it with the computer comes out of the top

end of the stylus—that is, the end opposite the roller ball. The device comes with a small pad, similar to a mouse pad, into which a pen holder is incorporated; it is similar to the pen holder on a conventional executive desk set. To use the MousePen*Professional*, you just pick up the stylus and roll it around on the pad like a ballpoint pen; the cursor path on the screen corresponds to pen's movements.

Our evaluators felt the MousePen*Professional* was "ok," but not up to par with a conventional mouse. The device seems to suffer from its construction; plainly put, it has a cheap feel to it. The plastic roller ball sometimes seems to "slip"—that is, you're moving the pen, but the cursor doesn't follow. At other times, lesser movements sent the pointer accelerating clear off the screen!

Upon examining the device to see if something was inhibiting the movement of the movement of the ball, one of our testers concluded that there is insufficient traction between the components in the plastic-on-plastic mechanism. We didn't try to confirm that diagnosis, but it sounds reasonable. We all agreed that the MousePen*Professional* would be improved by heavier construction, perhaps using stainless steel.

The MousePen*Professional* retails for $99. It is manufactured by Appoint, 1332 Vendels Circle, Paso Robles, CA 92336; for sales information call 1-800-448-1184.

The Microsoft® BallPoint™ Mouse

Microsoft's BallPoint Mouse comes with connections for both a serial port and a PS/2 mouse port. The device itself can be attached to the side or bottom edge of the PC's keyboard with a clamp provided with it. Or, if you prefer, you can leave it unattached and just hold it in your hand or rest it on your desktop. After it's attached to a keyboard, the angle of the BallPoint Mouse can adjusted for the user's comfort.

When we first tried the BallPoint Mouse, we just plugged it into the mouse port on our PS/2 Model 70 and went on our merry way (remembering, of course, to turn off the machine before doing so—*NEVER* plug anything into a PS/2 mouse port with the machine powered up or you'll fry the motherboard). After using it for a week or two and noting some erratic cursor movements under certain specific conditions, like within a DOS application launched from Windows, we decided to see if installing the new driver that comes with the BallPoint Mouse would cure the problems. It did.

Of the three mouse alternatives discussed here, we like the BallPoint Mouse best. Although it is manufactured of plastic, it doesn't feel flimsy or unstable. Operation is smooth and responsive, and once you get the hang of it, cursor control is very fast and positive. A control program allows you to tailor the speed and track of the device to your own preferences.

Using your thumb to roll the ball instead of moving a mouse around on a pad or desktop takes a little getting used to, as does using the "click button" on the edge of the BallPoint Mouse. However, we found that we adapted fairly quickly. We haven't decided yet to abandon our old conventional mouse, but we're still using the BallPoint Mouse and liking it better every day. Street prices for the device are in the $120-$125 range.

A couple of other mouse alternatives have come to our attention recently, and we plan to investigate them at the first available opportunity. We'll keep you advised about any interesting findings.

How to Submit Items for Open Forum

In keeping with the PC Technology Assessment Program's objective to have the user community actively involved in TAP projects, users are encouraged to submit items for inclusion in future *PC TAP Consumer Reports*. If you have independently investigated the capabilities of a software product or a hardware component, we would like to hear from you. We'd also like you to share with others your solutions to any problems you may have encountered with a particular application or device, and about tricks, shortcuts, or unique applications you have devised. Although we can't promise to publish every contribution, we will evaluate them all in terms of their potential interest to our readers and their conformance to the spirit and intent of PC TAP.

There are no additional rules for *Open Forum* contributions, but here are some guidelines:

1. Contributions must be typed. Our first preference is that they be submitted in WordPerfect format through ALL-IN-1 mail to PCTAP, EPA30647. Another option is to send a WordPerfect file to us on a floppy disk; our address is on the front cover of this issue. The least preferable method, but still acceptable, is to mail a typewritten article to PC TAP.

2. The length of your contribution will be determined somewhat by its complexity. However, keep in mind that we're primarily interested in the purpose of your study project and how pleased you were with the results, not in the nitty-gritty details of how you did it. We will publish your name, address, and phone number for those who want more details. Two to three pages is probably a reasonable maximum length. On the other hand, a paragraph containing a nugget that may be useful to others would be equally welcome.

3. All material submitted by users is subject to our editing, and you will not be given an opportunity to review the final manuscript before publication. Sorry, you'll just have to trust us. If we have questions or don't understand any part of your text, we'll contact you for clarification.

We hope you enjoy *PC TAP Consumer Reports,* and we look forward to hearing from individuals who have insights or discoveries to share with others. Thanks for your interest and your participation in the PC Technology Assessment Program.

This & That

PC TAP Study Topics

In the volatile world of microcomputing, there is seldom a lack of hardware or software about which to conduct technology assessments. However, we want to remember our commitment to publish reports *for* users, *by* users of those products. And while we can't promise to look into topics you suggest immediately, we do want to plan with your input in mind.

Below is a list of topics we are considering for future *PC TAP Consumer Reports*. Please indicate those about which you would be interested in reading by placing a check mark in the box beside the topic. In addition, at the bottom of the page you may write in topics you would like us to look into, and we'll do our best to schedule studies of those most frequently requested.

When you have completed the form, please remove the page, fold it as indicated on the reverse side, and mail it back to us. It is pre-addressed, but we ask you to supply the postage. Thanks for your input.

Possible PC TAP Study Topics

☐ PC Utility Software Packages   ☐ Grammar Checker Update

☐ More About Microsoft Windows   ☐ Memory Manager Software Packages

☐ Multi-Media for PCs   ☐ Update on Graphics Files: Formats, characteristics, portability, etc.

☐ Your suggestions: _____

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