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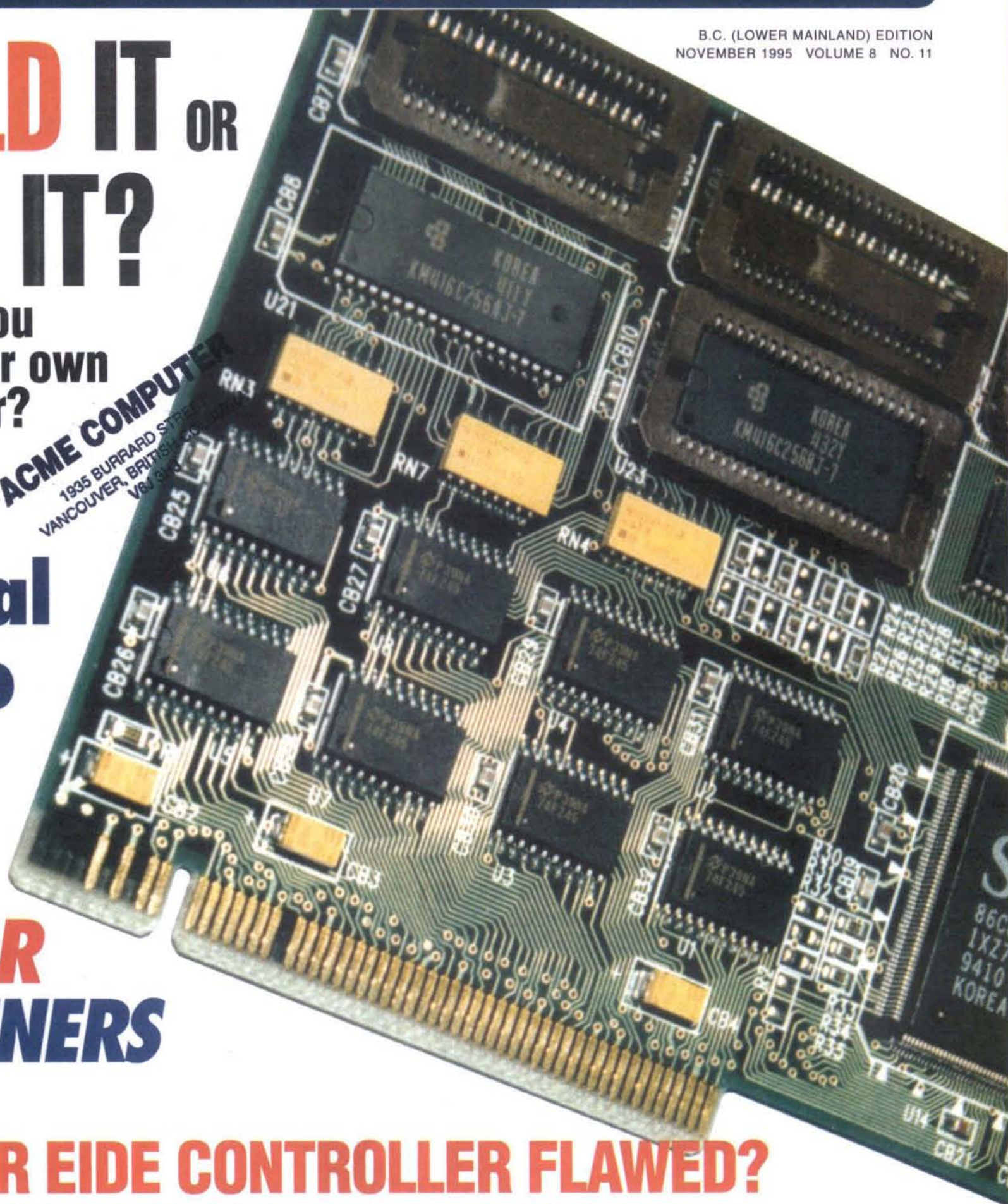
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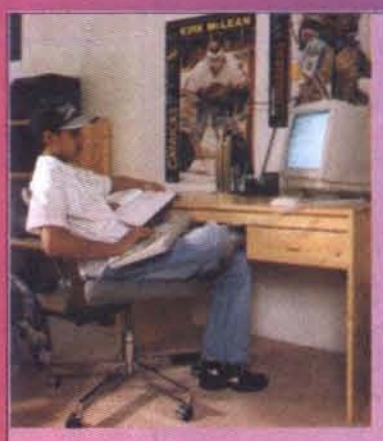
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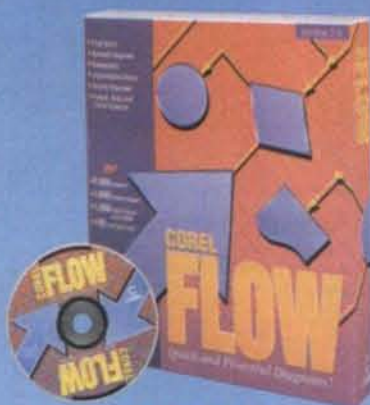
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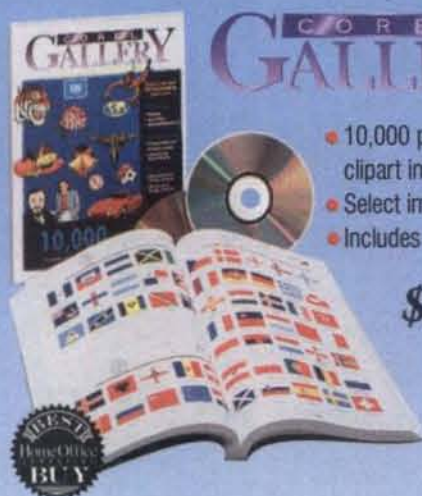
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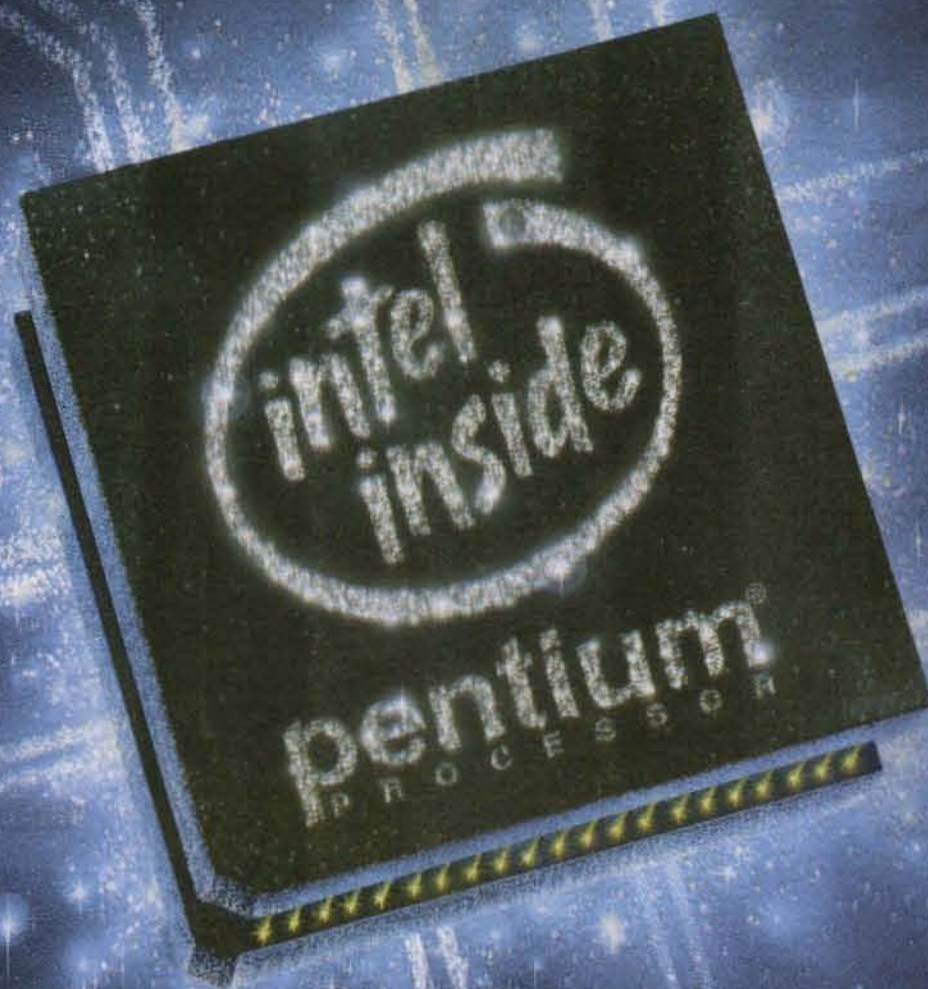


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50 Build It Or Buy It?

The Method and Madness of Building Your Own Computer

by Ross MacDonald

FEATURES

SCANNERS

- 16 TCP Test Labs: Looking For A Few Good Scanners**
by Chris Fisher
- 22 Scanners Buyers' Guide**
- 23 How To Get The Most Out Of Your Scanner**
by Graeme Bennett
- 26 Analysis: A Scanner For Everyone**
by Geof Wheelwright
- 31 The Delrina WinFax Scanner, and You**
by Jeff Evans
- 35 Yes, Hand Scanners**
by Jean Allen-Ikeson
- 39 ImpOS/2 A Fine Warp Image Editor**
by Jeff Hildebrand

DIGITAL VIDEO

- 42 Making Movies on Your PC**
Three Digital Video Packages Compared
by Ron Grebler
- 104 PC Video Capture Boards**
by Ron Grebler

TCP TEST LABS

- 61 TCP Test Labs: Fast Movers - Pentium Notebooks**
by Chris Fisher
- 66 Pentium Buyers' Guide**

NEWS

- 77 PC EIDE Controller Flaws Discovered**
by Roedy Green
- 81 Editorial: Windows & Orphans**
by Jeff Evans

NEWS & REVIEWS

SMALL & HOME OFFICE

- 36 Using a Media Release For Free Publicity**
by Douglas Gray
- 36 Budget Software Surprisingly Adequate**
by Gordon Goble

SOFTWARE

- 59 Object Desktop: Supercharges OS/2!**
by Jeff Hildebrand
- 74 3D Hard Target: SGI Rules**
by Jeff Evans

HARDWARE

- 82 Amiga Is Dead, Long Live Amiga!**
by Jeff Evans

- 84 Stunning Color From Phaser 340**
by Chris Fisher
- 89 Mac: Digital Photographs as a Way of Life**
by Adam C. Engst

ONLINE

- 80 TOC, Index For Web Arrive**
by Jeff Evans
- 90 Web.Publishing.Fun**
by James MacFarlane
- 92 Librarians of the Future**
by Martin P. Waterman
- 97 Canadian Anagrams on the Internet**
by John Robert Colombo
- 100 Lights! Camera! Log On! Virtual Film Festival**
by Jeff Evans

- 101 Interview: Point Survey Authors**
by Keith Schengili-Roberts
- 102 Point Communications Top Sites**

GAME, CD & BOOK REVIEWS

- 86 CD: Open Young Eyes to Art**
by Jean Allen-Ikeson
- 87 CD: A CD For Your Pet Project**
by Jean Allen-Ikeson
- 88 Game: Flight Unlimited**
by Graeme Bennett
- 111 Kid's Software: What's the Secret?**
by Pedro Arrais
- 106 Book Reviews**
 - 25 Steps to Safe Computing
 - A Day With Biff
 - Windows 95 Power Tools, 3rd Ed.
 - The SLIP/PPP Connection
 - Using E-mail Effectively

LEARNING

- 108 A Fresh Crop of Win 95 Tricks**
by Paul Howard
- 109 Cool Warp Tricks: Work Areas**
by Jeff Hildebrand

DEPARTMENTS

- 6** From the Editor
- 7** Letters
- 9** What's New
- 108** Learning
- 112** Classifieds
- 112** User Groups
- 112** Calendar of Events
- 114** Marketplace
- 119** Computer Directory
- 122** Index of Advertisers

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Higher Integration

The goal of most human beings, after they get enough to eat, find a condo close to work and a steady date, is to work on a higher state of integration. Or at least that is what my Psychology

professors told me at university. According to Abraham Maslow, an American psychologist and one of the founders of humanistic psychology, higher needs — ultimately the need for self-actualization — are expressed only after lower needs are fulfilled. It is my theory that businesses seek higher levels of integration through a variety of means, including the use of technology.

CEO's should . . . be able to think about implementing technology at the core of their businesses, not as an afterthought

Nirvana, the place, not the band

Businesses, or at least the ones I have watched, seem to develop a consciousness of their own over time. That consciousness is fed by awareness of the variables that directly impact on the success of the business. The Eastern religions talk about Nirvana, or cosmic consciousness, the ineffable ultimate in which a person attains disinterested wisdom, compassion and emancipation from ignorance. I am not sure that, because of the dynamic nature of business, there exists such a static state of perfect integration for businesses. However, most businesses could use better integration and monitoring of their processes. Better technology can help them do this.

Integration as the killer app

Integration is the killer app for businesses in the 1990s. According to Business Week (cover story Oct. 9, 1995), American (and presumably Canadian) productivity is way up due at least in part to new technologies like fax machines, better software, faster, more reliable computers and improved telecommunications. We are headed in the right direction. However, despite big improvements to their parts, many businesses still suffer — these improvements happen in departments but the overall benefits don't make it to the corporate level.

For many businesses, the key to success, in this modern world, is integration. The buzz words for today's large corporations are terms like data warehousing, data mining and products like SAP for mainframes, Lotus Notes and Executive Information Systems. Whatever happens for large corporations today is quickly emulated and passed down to small and medium sized businesses tomorrow. Each of these systems is an attempt to harness the disparate parts of business into a more integrated whole — to allow the parts to communicate so that the consciousness of the business is raised and the different parts become aware of each others needs and problems.

A year or so back, I attended a seminar on the then recently-announced Great Plains Dynamics. It was then (and remains so today, PC Magazine, just gave it their coveted Editor's Choice Award for high end accounting systems) an innovative system. The seminar

leader focused on the idea that Dynamics was designed as a management information system, instead of just an accounting system. It was designed with the ability to track all kinds of inputs that affect performance of a company above and beyond the normal accounting items.

Many companies have invested in Executive Information Systems (EIS) that can pull together many of the variables of a business and create a daily summary of how the business is doing so that management can monitor important processes on a dash board-like screen on a daily basis.

Structure is important, but so is rapid deployment

Microsoft, IBM and Apple are seeing these trends as well. They know that customers are demanding ever more customization of their software to refine it to the distinctive needs of each customer. A few years back Steve Jobs and his company, NeXT Computers Inc., came out with an operating system called NeXTStep. The big innovation of this operating system was an ability to create custom software quickly. On a NeXT computer, software was made from small applications that were integrated into the operating system. Corporate developers and consultants could quickly cobble together a system that did everything a company wanted, the way they wanted.

Now Microsoft is working with just such a concept with their OLE, (Object Linking and Embedding) which allows users to "snap together" building blocks of software into a more customized system that addresses specific needs. IBM and Apple are aiming for the same with OpenDoc, a cross platform standard that encompasses OLE and adds some interesting bits to it. They claim their system will be better because it is backed as an open standard that is not controlled solely by Microsoft. Time will tell which standard will prevail, but in either case, businesses and individuals will win because new things will be possible.

Business Nirvana

Right now many businesses focus on specific systems for Marketing, Production, Distribution, but do not try to see them all together into a conscious whole. It is as if they are creating elaborate systems for walking, seeing, touching, but not looking at how it all comes together into a central nervous system, a consciousness, a total being for the company. To do this effectively, management has to think about technology strategically all through the company. Basically CEO's should become CIO's, or at least be able to think about implementing technology at the core of their businesses, not as an afterthought. The boss needs to know enough about what is available to make intelligent choices for systems that will work together and help make the information within a company accessible to people at different levels when they need it. Integration results and business nirvana is achieved, at least until the next challenge comes along and everything starts again.

Enjoy the issue

Douglas Alder
Publisher/Editor
Editorial@TCP.Mindlink.bc.ca

Only as good as the measuring tool

I noticed in your article "No More Pencils, No More Books . . ." (TCP September 1995) that you tested a few Cyrix-based machines. You — unfortunately for your accuracy — tested them with Norton and then told your readers that these CPUs run slow. This is a very misleading statement.

Norton SI uses a very small loop (six instructions) repeated many times in order to test the CPU performance. One of these six instructions takes one extra clock cycle on a Cyrix CPU because Cyrix has its own design. This extra clock cycle adds up over the many loops and gives a VERY inaccurate reading of the CPU speed (up to 13 percent slow). Any other benchmark will give you the TRUE reading of two percent slower to two percent faster on a Cyrix DX2 CPU.

If Norton used a different instruction the Cyrix very well could have read 13 percent faster.

Kevin Reil, Edmonton

CF replies: Ouch, you're quite right. According to Cyrix's architectural comparison of Intel's 486 processor and its own 486 processor one-third of the instruction set runs faster, one-third the same and one third slower. Indeed, Norton Sysinfo 6.0 yields results showing the Cyrix to be 8-20 percent slower. Performance benchmarks that model real world applications such as BAPCO and PC Bench 8.0 show that Cyrix 486 CPU's can offer up to a 15 percent overall performance increase. The newer 5x86 offering from Cyrix has a similar story when compared to a Intel Pentium. Cyrix compared its 5x86-100 MHz processor using a variety of benchmark suites and got results showing the chip to be significantly faster and slower than a 75 MHz Intel CPU.

More DOS Tips

I read with interest the October article "Keeping a Clean House" by Cub Lea. I agree with many of his suggestions, however I take exception to the author's apparent bias against DOS. I would hold off on the deletion of DELTREE (a great deadwood pruner) SORT, TREE, HELP, EDIT, XCOPY, MOVE, etc., — all useful DOS tools. If you only speak English, COUNTRY.SYS could go and yes, there are some obscure .SYS and .COM files that you may never use, but their deletion will not free up a whole lot of space. Following are a few suggestions I would add for hard drive trimming.

- Get familiar with your computer, the DOS operating system and your programs. Read the Microsoft supplied DOS/Windows manual and aftermarket DOS books. Also, have another read through your program manuals.
- Organize your directories. Many programs by default locate your working files (the files you create using the software) in a

sub-directory of the program. It can be advantageous to locate working files in a separate branch such as C:\WORK\[program name]. Also, if you have customized the configuration of a program see if it will allow you to set a special directory for the configuration files. These two measures in turn, leave your program directory in it's original state, facilitate backups or archives and make it easier to remove or reinstall the software.

- Ask the questions: Am I using this? Will I

need this, and if so, when? Do I have the install disks and working copies? If you only use a program or a group of data files once a year or so, get it off the hard drive and onto floppies. It's safer there anyway.

- Do regular SCANDISK and/or CHKDSK and delete any lost clusters (often produced by re-booting while in a program). Follow up with DEFRAG/F C.
- Keep things in perspective. Don't puzzle over the importance of keeping a few small program files while in another directory

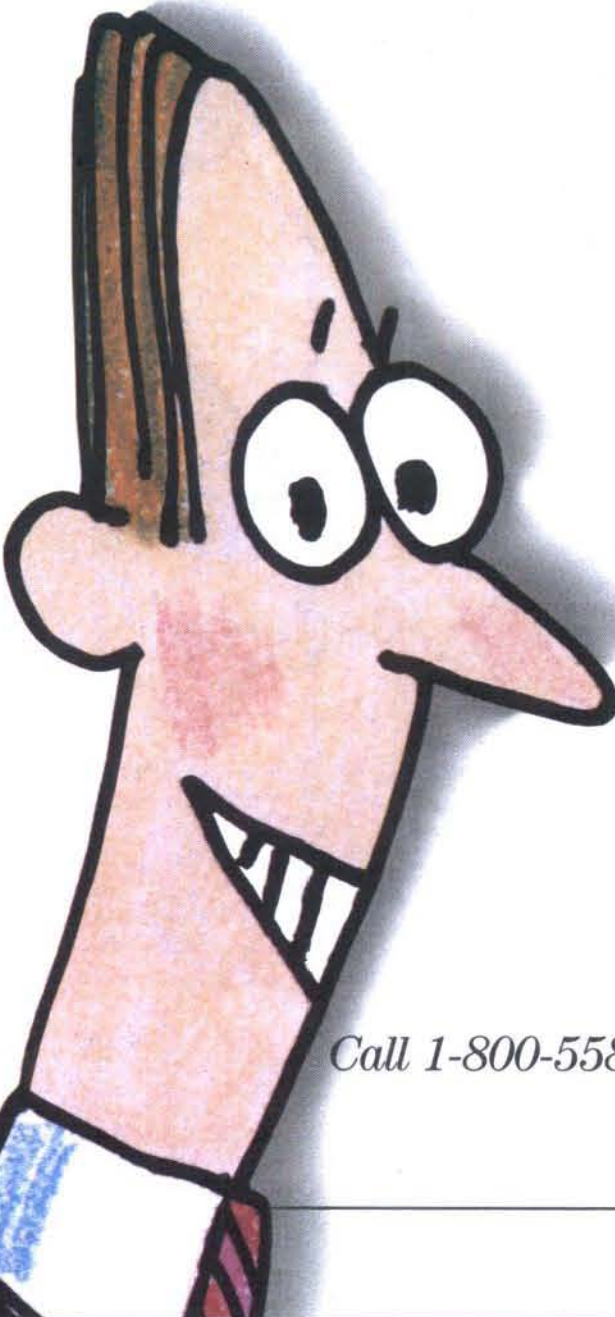
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Mendel Leisk
Coquitlam, BC

CL replies: The key word I used was "most." By that I mean that the present DOS/Windows environment is biased towards a GUI interface, so most users simply will never miss them. Those that still use tools that come with DOS will recognize the names of the ones they use, and will obviously not want to delete them.

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We Goofed

We'd like to extend our apologies to Xerox Canada Ltd. for an error that appeared in October's TCP Lab Test on Multifunction Devices. Not only did we list the 1-800 number incorrectly, but to add insult to injury, the number we *did* list belongs to Hewlett Packard, which makes a competing product.

For the record, the correct number for Xerox Canada is 1-800-ASK XEROX (1-800-275-9376).

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burst synchronous cache, it blows the doors off the competition. Adding a multimedia PCI video card with 2 MB VRAM and a speedy 1.6 GB Mode 4E-IDE hard drive gives you speed to burn. We finish the system off with a Quad speed CD-ROM drive, 16-bit sound card and a 14,400 bps voice/ fax/ data modem to make sure that the COMTEX **Winpack95-55CMS** leads the charge in the Windows® 95 hardware sweepstakes.



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WHAT'S NEW

HAPPINESS IS A THINKPAD 760CD • IBM has just announced the ultimate dream PC (for this month at least) a Pentium 90 MHz based notebook that incorporates the industry's largest, (12.1-inch) active matrix screen, 24-bit (16.7 million) color palette, MPEG-II high resolution 30 frame per second full screen digital video, digital signal processor (DSP) audio, quad speed CD-ROM, tiltable ergonomic keyboard, NTSC and PAL video input, video digitizing, overlay and output, 1 GB hard drive, up to 40 MB RAM, and a 28.8 kbps internal fax-modem. The system weighs about 7 pounds. A slimline, lighter version without provision for the CD-ROM drive, is also available.



This system, the ThinkPad 760, is now IBM's top of the line notebook. According to IBM, the product, which is currently shipping, is sold out and back-ordered. Depending on configuration, the ThinkPad 760 costs between \$7,799 and \$10,999. All models come with a three year warranty. —JE

Contact IBM Direct, 1-800-465-7999.

INTEL'S P6 GETS A NAME • Intel Corp. has named its forthcoming successor to the Pentium microprocessor the Pentium Pro processor, previously code-named the P6. The Pentium Pro processor contains 5.5 million transistors, and is expected to be introduced sometime in the last quarter 1995. Initially it will be aimed at workstations, high-end desktop machines and network servers. The Pentium Pro processor is expected to deliver the highest level of performance for 32-bit software using Intel architecture.

The name was chosen because of the high visibility of the "Pentium" name. G.C. Everett, Senior V-P of the Desktop Products Group at Intel says that "the Pentium brand has an awareness level as high as 95 percent," and believes that this "next-generation processor will benefit immensely from this association as we introduce it into the marketplace." —K S-R

XEROX UNVEILS UNDER-\$1,000 MULTIFUNCTION DEVICE • Xerox Canada last month began shipping the Document WorkCenter 250, a startlingly inexpensive, highly featured multifunction device aimed at the home and small office market. Multifunction systems are devices that integrate faxing, scanning, copying, and printing into one unit. Coming just weeks after TCP Test Labs had evaluated several of the market leaders in the multifunction category (the Lexmark Medley, a color multifunction model for under \$1,400, won our Editors' Choice Award), the B&W WorkCenter 250 sharpens the competition in this computer peripheral category by lowering the price of entry under the \$1,000 barrier while keeping the

feature set and overall capability high.

Of particular note, the WorkCenter 250 comes bundled with TextBridge Pro, Xerox's high-end OCR (Optical Character Recognition) software, a package that normally sells for around \$449. Based on a currently ongoing TCP Test Lab evaluation, TextBridge Pro is one of the best OCR packages on the market, featuring incredibly good character recognition, and intelligent page analysis (for interpreting page layouts including graphics, tables, headlines and footnotes). Also bundled with the system is Delrina



WinFax Lite for handling the faxing chores.

The WorkCenter 250 has been designed for the small office or home office with limited budget but high needs for creating and communicating professional quality documents. The built in 300 dpi scanner, when used with TextBridge Pro, allows printed documents to easily be turned into word processed files. A full review of the WorkCenter 250 will appear soon. —JE

Contact Xerox Canada Ltd., 1-800-ASK-XEROX

TIME



Balancing the demands of work and family is a greater challenge than ever before. As companies are forced

by competitive pressures to do more with less, individual employees are faced with an ever increasing variety

of tasks, many requiring new skills. At home, both parents often want to, but not, share the

responsibility of caring for the children. Now, more than ever, home requires

effective use of an increasingly limited resource—time. Traditionally reserved for management skills

are being rediscovered as the tools that can help people live more effectively at work or at

home, for business or personal growth, efficient time management is a top priority.

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O'REILLY ANNOUNCES PRELIMINARY INTERNET SURVEY RESULTS • O'Reilly & Associates, best known for publishing books



about the Internet, have released some preliminary results from a survey of Internet users that answers questions like: how big is the Internet? and what kinds of people are using it? The Online Research Group (a subsidiary of O'Reilly & Associates) has just completed "Defining the Internet Opportunity 1994-1995," which they claim is the first statistically defensible survey of Internet users.

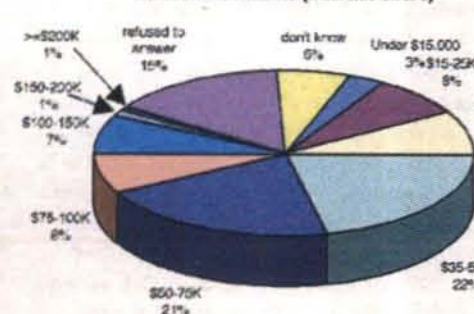
Final results will be available soon, but O'Reilly has released some interesting details from their census of online culture:

- women make up 34 percent of Internet

users — a significantly higher percentage than previous estimates had projected.

- the online population is generally older than is thought, with the majority falling between 33-45 years of age
- online users generally fall into the medium to high-income brackets, 43% earning between \$35-75,000 per year
- the Internet has penetrated pretty evenly into the business community,

Household Income (Internet Users)



with highest concentrations in organizations below 50 workers and those above 1,000 workers.

While the full text of final and in-depth results are available to research sponsors only, other general findings will be made public. The full survey will provide information on other topics, including the types of Internet services (FTP, Web, Gopher) most used, user's perceptions of the Internet, and the role Internet information plays in making purchase decisions. — K S-R

Contact: O'Reilly & Associates 1-800-998-9938
WWW: <http://www.ora.com/survey/>

IBM TO REPAIR FAULTY MONITORS • IBM Canada has begun a free repair service for its 9527 Series of color monitors, after the company discovered that some of them may have been improperly assembled. The affected monitors are not properly grounded, and may cause an electric shock, although IBM says no incidents have been reported.

The 17-inch monitors can be identified by a 17P, 17PT or 17XG model name on the front panel. Actual model numbers are 9527- followed by 001, 011, T01, T21, 005 or 015, and were manufactured after September 1993. — DT

Contact: IBM at 1-800-465-6666.

DELRINA'S CYBERJACK: POINT AND CLICK CYBERSURFING? • Delrina recently previewed its new Cyberjack 7.0 for Windows 95, at a special Cyberjack Cafe in the Royal Ontario Museum. Surrounded by ancient statues of Buddhist sages contemplating eternity, members of the press had a hands on opportunity to search for wisdom on the info highway with the aid of the Beta 2 pre-release version of Cyberjack. Cyberjack contains the fullest feature set of any of the commercial Internet navigation packages we've yet seen. It is designed for the Windows 95 environment, and in addition to the usual Windows 95 user interface features, it uses OLE 2.0 to help juggle all the 'applets', or small applications that enable the Cyberjack user to different Internet functions. With Cyberjack, you get a Web browser, UseNet News Reader, FTP file transfer, Internet Relay Chat, e-mail via MS Exchange, Gopher and Archie search capability, and remote access with Telnet. By taking advantage of Windows 95's multi-threaded multitasking, the user can access many features at once, while Cyberjack conceals the complexities behind a simple point and click interface.

Cyberjack is expected to ship in November 1995, bundled with Delrina's WinCom PRO 7.0, or as part of Delrina CommSuite 95 (which includes Win Fax Pro 7.0, TalkWorks, and WinComPRO 7.0). — JE

Contact: Delrina, 800-268 6082, or
<http://www.delrina.com>

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Max. HDD Capacity	1.3 GB	1.3 GB	1.3 GB
Internal Floppy	1.44 hi density	1.44 removable	1.44 hi density
Screen Size	10"	11.3"	10.5"
Max. External Resolution	1024 x 768 16 colours	1024 x 768 256 colours	1024 x 768 256 colours
Int. Screen Resolution	640 x 480	640 x 480	640 x 480
Ext. SVGA Monitor	Simultaneous	Simultaneous	Simultaneous
1 serial, 1 parallel, ext. video, 2 PCMCIA slots	high speed parallel high speed serial	high speed parallel high speed serial	Yes
Battery Type	NIMH	NIMH	NIMH
Built-in Pointing Device	integrated trackpoint	integrated trackpoint	25 mm trackball
Docking Chassis	No	Yes	Yes
Removable HDD	detachable	standard	standard
VESA Local Bus HDD	Yes	Yes	Yes
sound/speaker/mike	16-bit built-in	16-bit built-in	16-bit built-in
Dimensions (inches)	11.2 x 9.6 x 1.65	11.7 x 9.6 x 1.65	11.3 x 10 x 2.4
Weight (incl. battery)	5.2 lbs	5.8 lbs	6.2 lbs
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BIOS/Chipset	AMI BIOS, UMC/SIS	Award BIOS, Triton*
Cache	128K exp to 256k, 20ns	256K exp to 512k, 15ns
Hard Disk Drive	<12 ms	<12 ms
HDD controller	VLB, 1200 kb/s transfer	PCI dual channel on mbd
Transfer mode	enhanced IDE M2	enhanced IDE M4
Floppy Drive	1.44 mb hi-density	1.44 mb hi-density
Low rad/energy mtr.	14 or 15" .28dp SVGA	14 or 15" .28dp SVGA
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Power supply	235 watt	235 watt
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POWER PACKAGE

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265k 15ns cache	
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Quad-Speed CD-ROM, 16-bit sound card,	
2 speakers, 101-keyboard, 3 button mouse	
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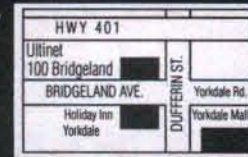
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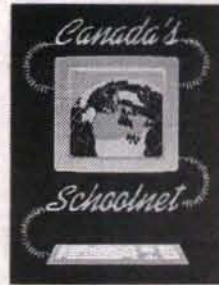
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Continued from page 10

SCHOOLNET MOVING TOWARDS NATIONWIDE VIRTUAL CLASSROOM

• SchoolNet, a national initiative aiming to link all of Canada's 16,000+ schools via computer and telecom technology, is apparently growing much faster than government planners anticipated. SchoolNet's first target was to link up 300 schools within a year of its inception, in



by at least some teachers and students to make more creative use of computers. As of June 1995, the total number of

September 1993. In fact, over 600 schools went online within the first month, (by October 15 1993). By June 1994, over 1,300 schools were online, pointing to a pent up readiness

Canadian schools with a SchoolNet connection has risen to 5,500, or about one third of all Canadian schools. Students and teachers have accessed SchoolNet over 4.4 million times since its inception in the fall of 1993.

At a recent demonstration at the William Lyon Mackenzie School in Toronto, students demonstrated to press, politicians and industry figures how they are using the Internet via SchoolNet to do research, talk to students around the world, and have fun.



William Lyon MacKenzie students Mark Dunn and Betty Tuong show (from left to right), Mr. Ian McElroy, President and CEO of Bell Horizon Services; Honourable Jon Gerrard, Secretary of State; and the Honourable Arthur Eggleton, President of the Treasury Board of Canada all the exciting things they can do with SchoolNet.

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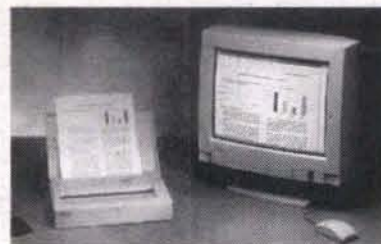
The ES-1000C 30-bit Colour Scanner



The ActionNote 880CX Notebook PC



The Epson Stylus PRO XL



Personal Document Station (PDS)



The ActionTower 8000 Multimedia PC

An indication that SchoolNet access is becoming even more widespread and inclusive is given by the recent announcement of a First Nations School Access Project, which aims to connect all First Nations (native Indian and Inuit groups) schools under federal government jurisdiction to SchoolNet over an eighteen month period. Ovide Mercredi, the National Chief of the Assembly of First Nations, urged his colleagues in First Nations schools and tribal councils to help implement the plan, to "enhance education services in our communities." The First Nations hope to use SchoolNet to develop educational and cultural 'content' to help develop native culture, share educational resources, and improve access to information and educational projects of interest to native people.

In the course of using SchoolNet, students are able to develop general computer skills, practice research and content authoring, and share learning with other students anywhere on the national SchoolNet or elsewhere on the Internet. —JE

Contact the National SchoolNet Office, 800-268-6608, or schoolnet@ic.gc.ca or The Assembly Of First Nations 613-241-5808.

MICROSOFT ANNOUNCES 32-BIT TOOLS

• Microsoft Canada has announced a wide range of new programming tools, including several aimed at the 32-bit Windows 95 developer community, as well as new programming titles for use with Windows 95 and a variety of other operating systems.

32-Bit Applications Made Easier

Visual Basic 4.0, Visual C++ 4.0, Visual Test Version 4.0, and 32-bit FORTRAN were all announced for Windows 95 product development. According to Microsoft, this range of new tools, taken together, will greatly spur the creation of

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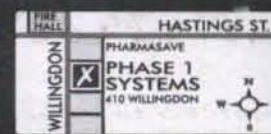
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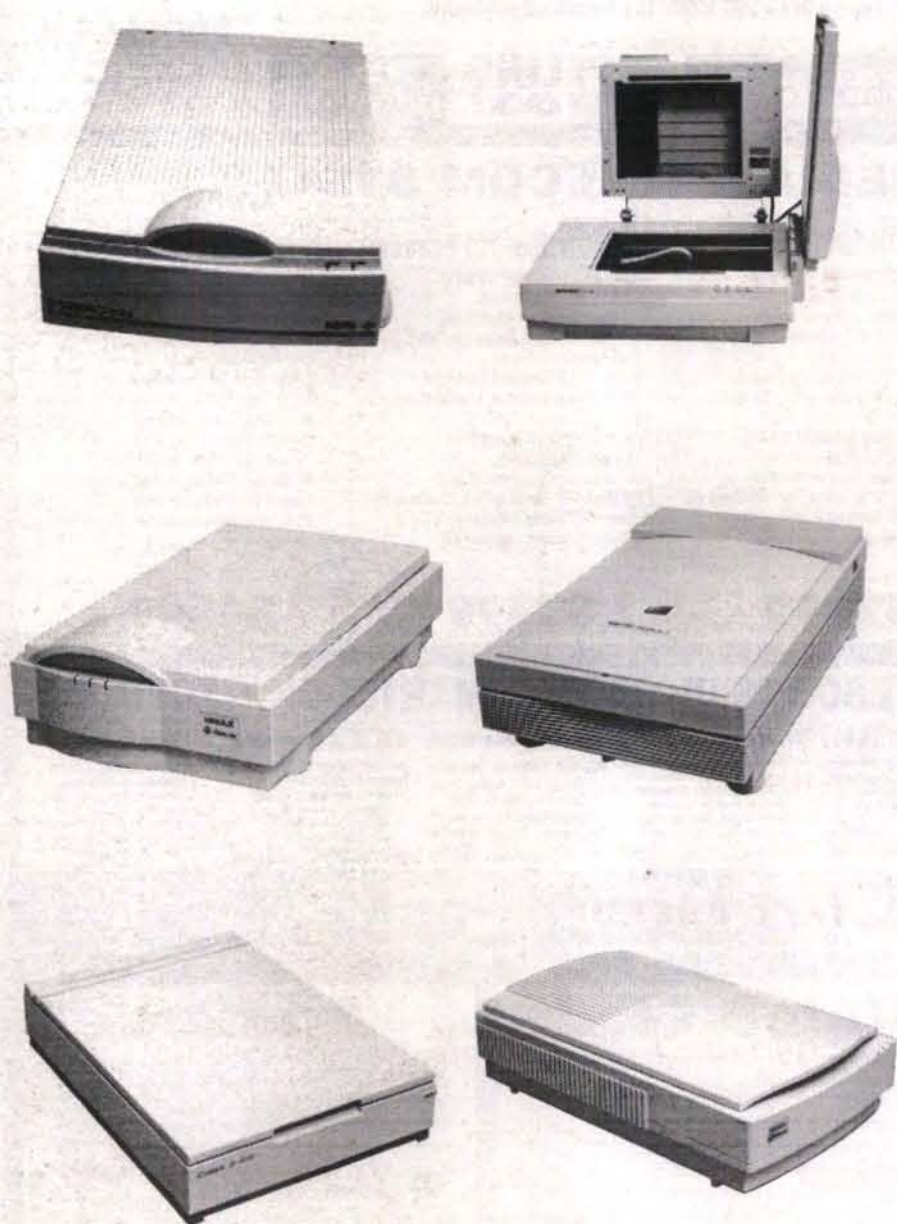


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Looking For A Few Good Scanners

BY CHRIS FISHER

For many of us, the addition of a color scanner to our personal computer system has seemed like a luxury we couldn't afford. For others, such as desktop publishers, graphic artists and computer animators, scanners are an essential part of the computing arsenal. If *The Computer Paper* didn't have a plethora of scanners scattered around our busy production departments, there would be little in the way of pictures and color in each issue.



Scanners from left to right, top to bottom: Agfa StudioScan IIsi, Sharp JX-330, Umax Vista S8, HPScanJet 3c, Canon IX-4015, and Umax PowerLook.

As the cost of scanners continues to decrease, they no longer belong solely in the realm of professional graphic arts. Today they can be found in many offices where they are used for creating marketing presentations and effective internal documents. They can also be used for optical character recognition (OCR) to quickly turn paper based text into computer-editable word processed text files. Scanners are increasingly useful to many professions and to the home office. They provide a means for making documents and even small three-dimensional objects digital, ready for manipulation, permanent storage, and communication to others.

The Captives

Scanners come in several varieties and are aimed at different markets. Physically, we can divide scanners into hand scanners (black and white hand held scanners have been the most affordable to the average PC user until now), single sheet feed scanners, and flatbed scanners. As well, video capture devices and digital cameras have sometimes been used as low end scanners. In this survey, we'll concentrate on color flatbed scanners.

We looked at 24-bit and 30-bit flatbed color scanners capable of putting pictures on the screen (video card and monitor permitting) with 16.8 million colors. The human eye can distinguish about two million shades of color, so 16.8 million color images (or "24-bit" images — each color using 24-bits of information per pixel to describe its color value) gives what is called a "true color" image: an image with the closest approximation possible to a continuous tone photograph.

We used an Express Micro Pentium 90 with 16 MB of RAM and an ATI ULTRA PRO with 4 MB of VRAM with the display set to 1280x1024 to test scanners on the PC Platform and Power Macintosh 7100/80 with 40 MB of RAM and 2 MB VRAM on the video card displaying at 1152 by 870.

Criteria

The main criteria for comparing the contenders in this review are: image quality, price, flexibility, speed, bundled software, ease of

installation, and documentation. Several of the scanners were used by our *Computer Paper* production department to add a real world perspective to the review. Many of the images you will see over the next months in our various publications will have been captured on one of these devices.

How They Work

Conceptually, it is easy to understand how the scanners in this review work. The main components are a light source and a linear charged-coupled device (CCD) array. Basically, when you scan an image it is illuminated by a light source. The light is then reflected back off the image, through a lens, and measured by the CCDs. The CCD, which is a photometer, converts the light measurement to an analog voltage. This analog voltage is then converted to a digital value. The light source is then mechanically moved a very small distance down the image, where the whole process is repeated. The strips of digital scanned information are assembled into a complete digital image on the computer.

Agfa StudioScan IIsi

This popular scanner gets top marks for looks: having one on your desk could even turn some heads. In fact, the whole package that accompanied the StudioScan IIsi was polished, attractive and well thought out. When we tried the Agfa on our PC, installation was an absolute snap. The software configured SCSI card was plugged in and the Plug and Play software run. There was no mention from the software of addresses or anything even remotely techie.

No more than a few seconds passed before we got a message indicating everything was OK. We used Corel PhotoPaint 5 running under Windows 95 to acquire scans from the Agfa. We had a few problems getting the TWAIN interface to initialize properly for this scanner, but suspect that this has much more to do with the Windows 95/ Corel PhotoPaint 5 combination than with the Agfa driver. (The copy of Windows 95 on the PC in the Lab doesn't know if it is coming or going, every time we restart the system it has a new piece of

Continued on page 21



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ATI MACH32 ISA SVGA Windows
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Power Station

Features:
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Gigabyte Pentium PCI/ISA Main Board
w/ 256KB External Cache (Max. 1MB)
8MB-70ns Fast Page DRAM exp. to 192MB
1.44MB Floppy Drive
540MB Fast IDE Hard Drive (Mode 3)
PCI Enhanced IDE Controller (Mode 3 & 4)
PCI Cirrus Logic 5434 Windows Accelerator
with 1MB DRAM (expandable to 2MB)
2x16550 UART Serial, 1 Bi-Directional Parallel
14" Non-Int Low Rad. SVGA Monitor .28mm dp
Mid-Tower Case with 230W CSA Power Supply
101-keys Enhanced Keyboard
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**64Bit
VIDEO**

PENTIUM

75MHz	\$1,650
90MHz	\$1,765
100MHz	\$1,825

Power Station Lite

Features:
Cyrix 5x86-100 Processor
Gigabyte PCI/ISA Main Board
w/ 256KB External Cache (Max. 1MB)
4MB-70ns Fast Page DRAM exp. to 192MB
1.44MB Floppy Drive
540MB Fast IDE Hard Drive (Mode 3)
PCI Enhanced IDE Controller (Mode 3 & 4)
PCI Trident 9440 Windows Accelerator
with 1MB DRAM
2x16550 UART Serial, 1 Bi-Directional Parallel
14" Non-Int. Low Rad. SVGA Monitor .28mm dp
Mini-Tower Case with CSA Power Supply
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**Faster Than
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CYRIX 5x86

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Multimedia System

Features:
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P24T upgradable w/ 256KB External Cache
4MB-70ns Fast Page DRAM exp. to 128MB
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540MB Fast IDE Hard Drive (Enhanced Mode 3)
VESA Local Bus FDD/Enhanced IDE Controller
VESA Cirrus Logic 5429 Windows Accelerator
with 1MB DRAM (expandable to 2MB)
2 Serial, 1 Parallel & 1 Game Port
14" Non-Int Low Rad SVGA Monitor .28mm dp
Mid-Tower Case with 230W CSA Power Supply
101-keys Enhanced Keyboard, Speakers
Sound Blaster 16 Card, 2x Speed CD-ROM
2 Year Parts & Service Warranty

486 INTEL AMD

DX2-66	\$1,415	\$1,332
DX4-100	\$1,477	\$1,392
DX4-120		\$1,417

Impression

Features:
Gigabyte 486 VESA/ISA Main Board
P24T upgradable w/ 256KB External Cache
4MB-70ns Fast Page DRAM exp. to 128MB
1.44MB Floppy Drive
540MB Fast IDE Hard Drive (Enhanced Mode 3)
VESA Local Bus FDD/Enhanced IDE Controller
VESA Cirrus Logic 5429 Windows Accelerator
with 1MB DRAM (expandable to 2MB)
2 Serial, 1 Parallel & 1 Game Port
14" Non-Int Low Rad. SVGA Monitor .28mm dp
Mini-Tower Case with CSA Power Supply
101-keys Enhanced Keyboard
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486 INTEL AMD

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pentium
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19" Mid Tower Case
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101 key Keyboard
14" N/I SVGA monitor, .28dp



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13" Mini-Tower Case
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14" N/I monitor, .28dp

486DX2-80 \$1,228⁰⁰
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*Shown in Optional Diamond Case

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Multimedia system with
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HUGE software bundle

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3COM 3C509B Combo 16 bit ethernet	\$ 175. ⁰⁰
3COM 3C509B TP or BNC 16 bit ethernet	\$ 159. ⁰⁰
OEM CNet TP/BNC 16 bit Ethernet	\$ 49. ⁰⁰
CNet PCI 32-bit Ethernet, TP/BNC	\$ 209. ⁰⁰
SMC EtherPower PCI Combo	\$ 219. ⁰⁰
3COM 3C510501 FMS 24 Port Hub	\$ 2,695. ⁰⁰
3COM 3C510500 FMS 12 Port Hub	\$ 2,019. ⁰⁰
GVC 16 Port 10BT Concentrator, w/BNC+AUI	\$ 249. ⁰⁰
GVC 8 Port Concentrator, w/BNC+AUI	\$ 249. ⁰⁰

NETWORK SOFTWARE

Novell Network 3.12, 10 user	\$ 1,977. ⁰⁰
Novell Network 3.12, 25 user	\$ 2,928. ⁰⁰
Novell Network 3.12, 50 user	\$ 3,900. ⁰⁰
Novell Network 4.1, 10 user	\$ 2,015. ⁰⁰
Novell Network 4.1, 25 user	\$ 2,985. ⁰⁰
Novell Network 4.1, 50 user	\$ 4,035. ⁰⁰
Microsoft Windows NT 3.5 Advanced Server	\$ 889. ⁰⁰
Microsoft Windows NT 3.5 Workstation	\$ 189. ⁰⁰
Microsoft Windows NT 3.5 Server upgr.	\$ 519. ⁰⁰
Microsoft Windows NT 3.5 Workstation Upgr.	\$ 129. ⁰⁰
Microsoft Windows NT 3.5 User License, ea.	\$ 59. ⁰⁰
Microsoft Windows for Workgroups V3.11	\$ 175. ⁰⁰
Microsoft Windows for Workgroups V3.11 MLP ea.	\$ 149. ⁰⁰
Microsoft Windows for Workgroups V3.11 upgr/addon	\$ 69. ⁰⁰
Microsoft Windows for Workgroups V3.11, OEM	\$ 99. ⁰⁰

STORAGE MEDIA

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Western Digital 850 MB EIDE	\$ 309. ⁰⁰
Western Digital 1.2 GB EIDE	\$ 439. ⁰⁰
NEC 1.06 GB EIDE	\$ 339. ⁰⁰
Quantum 1 GB SCSI-2	\$ 639. ⁰⁰
Quantum 2 GB SCSI-2	\$ 1,239. ⁰⁰
Fujitsu 3.1 GB SCSI-2	\$ 1,349. ⁰⁰
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Colorado PowerTape 25, 2 GB	\$ 1,485. ⁰⁰
Colorado PowerTape 50, 4 GB	\$ 1,749. ⁰⁰
Colorado DJ-35 340 MB Internal	\$ 799. ⁰⁰
Colorado DJ-25 680 MB Internal	\$ 309. ⁰⁰
Colorado JT-35 Tracker 340 MB	\$ 345. ⁰⁰
Colorado JT-25 Tracker 700 MB	\$ 509. ⁰⁰

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ADI 5EP/LR 17" SVGA monitor, .28dp	\$ 629. ⁰⁰
ADI 4GP/LR 15" SVGA monitor, .28dp	\$ 545. ⁰⁰
Daytek CMC1701 17" SVGA monitor, .28dp	\$ 719. ⁰⁰
Daytek CMC1501 15" SVGA monitor, .28dp	\$ 479. ⁰⁰
Acerview 7155 15" SVGA monitor, .28dp	\$ 435. ⁰⁰
Acerview 347 14" SVGA monitor, N/I, .28dp	\$ 325. ⁰⁰
Proview 14" SVGA monitor, N/I, .28dp	\$ 319. ⁰⁰
ADI 3GP/LR 14" SVGA monitor, N/I, .28dp	\$ 425. ⁰⁰
ADI 3V 14" SVGA monitor, .28dp	\$ 419. ⁰⁰
NEC XE17 17" SVGA monitor, .28dp	\$ 1,079. ⁰⁰
NEC XE15 15" SVGA monitor, .28dp	\$ 859. ⁰⁰
NEC XV15 15" SVGA monitor, .28dp	\$ 859. ⁰⁰
NEC 3.5" 1.44 MB floppy	\$ 65. ⁰⁰
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PRINTERS & MODEMS

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Hewlett Packard Laserjet 4+	\$ 2,165. ⁰⁰
Hewlett Packard Laserjet 5L	\$ 780. ⁰⁰
Hewlett Packard OfficeJet	\$ 780. ⁰⁰
Brother MFC Laser 5 in 1	\$ 1,639. ⁰⁰
Brother HL-641, 6PPM, 300 dpi	\$ 889. ⁰⁰
Brother HL-650, 6 PPM, 600 dpi	\$ 835. ⁰⁰
Brother HL-1250, 12 PPM, 600 dpi	\$ 1,059. ⁰⁰
US Robotics 28.8K PCMCIA FAX/MODEM	\$ 504. ⁰⁰
US Robotics 14.4K PCMCIA FAX/MODEM	\$ 259. ⁰⁰
US Robotics 28.8K internal FAX/MODEM	\$ 355. ⁰⁰
US Robotics 28.8K external FAX/MODEM	\$ 355. ⁰⁰
US Robotics 14.4K internal FAX/MODEM	\$ 165. ⁰⁰
US Robotics 14.4K external FAX/MODEM	\$ 165. ⁰⁰
Creative Labs Modem Blaster 28.8K internal	\$ 209. ⁰⁰
Creative Labs Modem Blaster 14.4K internal	\$ 89. ⁰⁰

VIDEO CARDS

Matrox Millennium PCI 4 MB VRAM	\$ 475. ⁰⁰
Matrox Millennium PCI 2 MB VRAM	\$ 345. ⁰⁰
Matrox OEM Millennium PCI 2 MB VRAM	\$ 705. ⁰⁰
Diamond Stealth 64 Video 4 MB VRAM	\$ 429. ⁰⁰
Diamond Stealth 64 Video 2 MB VRAM	\$ 329. ⁰⁰
Diamond Stealth 64 Video 3200 2 MB VRAM	\$ 429. ⁰⁰
Diamond Stealth 64D, 2 MB DRAM, VLB/PCI	\$ 328. ⁰⁰
Diamond Stealth 64D, 1 MB DRAM, VLB/PCI	\$ 280. ⁰⁰
ATI Graphics Pro Turbo, 4 MB DRAM, VLB/PCI	\$ 475. ⁰⁰
ATI Winturbo Mach 64, 2 MB VRAM, VLB/PCI	\$ 419. ⁰⁰
ATI Graphics Xpression 64, 2 MB DRAM, VLB/PCI	\$ 295. ⁰⁰
ATI Graphics Xpression 64, 1 MB DRAM, VLB/PCI	\$ 209. ⁰⁰
ATI Mach 32, OEM, 1 MB DRAM, ISA	\$ 109. ⁰⁰
S3 Trio64, 1 MB DRAM, PCI	\$ 79. ⁰⁰
Cirrus Logic 5429, 1 MB DRAM, VLB	\$ 95. ⁰⁰

ACCESSORIES

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ALL Gender Changers	\$ 4. ⁰⁰
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A Few Good Scanners

Continued from page 16

hardware to deal with). The Agfa StudioScan IISI has 30 bit color depth and scans at 400x800 dpi at the hardware level, up to 2400x2400 dpi through interpolation. It outperformed several of the scanners that we looked at in terms of scanning speed. The Agfa boasts one of the larger scanning areas of the scanners discussed here.

Canon IX-4015

The Canon IX-4015 is sold specifically to the PC market. It has the smallest footprint of all the scanners in this survey, small enough that one may find space for it on a cluttered desktop. This 24-bit image thief scans up to 8.5 x 11.7 inches at 400x800 dpi. This scanner is probably more than adequate for a casual user. Provided that you do not need to scan transparencies (as there is no transparency option) or oversized pictures, this scanner is a good alternative to other budget priced scanners.

Epson ES-1200C

The Epson ES-1200C has won several awards for value and excellence, including the *MacUser* Eddy Award and the *MacHome Journal* Four-Apple Rating. It is a 600x600 dpi 30 bit scanner boosted to 2400x2400 dpi through interpolation. It is sold in two versions for PC or Mac, with all the software trimmings, Adobe Photoshop 3.0 and Kai's PowerTools, or just the base unit and driver software.

Unfortunately, this most distinguished scanner arrived without the necessary software drivers for us to give it a spin. At press time, we were still scrambling around in efforts to make it go.

Hewlett Packard Scanjet 3c

So, what's a scanner like the HP way? The Scanjet 3c has been getting plenty of good reviews in recent months and, pitted here against its brethren, the 3c certainly holds its own. This 30-bit scanner offers hardware resolutions of 600x1200, which can be enhanced to 2400x2400 through interpolation. Installation was trouble free for the PC version. The scans we received from it were crisp, with good color.

One of our veterans in the production department pointed out that the TWAIN interface was a little less intuitive than the one she was accustomed to. Furthermore, each time you go to acquire an image, the 3c automati-

cally does a preview scan, whether you want one or not. At least the preview scan is quick. We didn't particularly like the automatic preview feature and wish it could be turned off. However, the software is still quite workable, and on balance, the 3c is an excellent product.

Sharp JX-330

The Sharp JX-330 is a 24-bit scanner capable of hardware resolutions of 600x1200 and 2400x2400 through interpolation. Scanners in general are quite plain looking devices. The Sharp is no exception, but it does somehow

have the look of a serious piece of equipment. We tested this scanner on the Macintosh platform, and were stunned by the speed of scanning and generally pleased with the overall quality of the images we acquired. The preview scan was the quickest that we have seen.

The unit was easy to set up, as much a tribute to the Macintosh as it is the scanner. We were shipped both the automatic sheet feeder and the transparency adapter with the JX-330. The automatic sheet feeder has a 50 sheet capacity and the film scanning unit comes in 600 or 1200 dpi models. Sharp sells

the JX-330 with or without software, thus if you already own image software that suits your needs, you can take the base unit alone for somewhere under \$1400.

Umax Vista S8

Of the two scanners we received from Umax, the Vista S8 is considered to be the lower end. We tried this scanner before attempting the more esoteric PowerLook model discussed below. The installation was reasonably easy. We simply inserted the supplied software-con-

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Bits Bits Bits

To get 16 million plus colors from a scanner, theoretically all you need is 24 bits. Each pixel is represented by three sets of eight bits which gives 2^{24} possible colors (2 to the power of 24 equals approximately 16.7 million colors, which as come to be known as "true" color or photorealistic color). However, even under good circumstances scanners do not get the full eight bits of data for each color channel. This is why we have 30 bit scanners. They use the extra range to pick up more information. The aim is to pick up the full eight bits per color channel, resulting in images that are truer to the source. This terminology is a little misleading, since the actual scan is still represented by 24 bits. — CF

SCANNER SURVEY

	Agfa StudioScan IISI	Canon IX-4015	Epson ES-1200C	HP Scanjet 3c	Sharp JX 330	Umax Vista-S8	Umax PowerLook
Hardware Resolution	400 x 800	400 x 800	600 x 600	600 x 1200	600 x 1200	400 x 800	600 x 1200
Res. w/interpolation	2400 x 2400	800 x 800	2400 x 2400	2400 x 2400	2400 x 2400	6400 x 6400	9600 x 9600
Color Depth	30 bits	24 bits	30 bits	30 bits	24 bits	24 bits	30 bits
Scanning Method	1 pass	1 pass	3 pass	1 pass	1 pass	1 pass	1 pass
Max Doc Size	8.5 x 14	8.5 x 11.7	8.5 x 11.7	8.5 x 14.7	8.5 x 14	8.5 x 11.7	8.3 x 11.7
Connectors	2 SCSI-2	2 SCSI-2	2 SCSI, 1 Bi-dir par	2 SCSI-2	2 SCSI-2	2 SCSI-2	2 SCSI-2
Bundled Software (PC)	Adobe Photoshop LE OmniPage Direct FotoTune Light, FotoSnap	OmniPage Direct Ofoto	Drivers*	Corel Photopaint 5 Calera WordScan 3.1	Adobe Photoshop 3.0 Xerox Textbridge	MagicMatch Vista Scan WordLinx	KPT Power Photos Kai's Power Tools MagicMatch, MagicScan, WordLinx
Bundled Software (Mac)	FotoFlavor, Photoshop LE FotoTune Light, FotoSnap OmniPage Direct	None	Drivers*	Calera WordScan plus 1.2 Adobe Photoshop LE 3.0	Adobe Photoshop 3.0	MagicMatch Vista Scan Adobe Photoshop LE 3.0	Adobe Photoshop Pixar Typestry Pixar Wordlinx
Transparency Option	\$650	No	\$1,159	\$1,084	\$1,259 (600dpi) \$1,429 (1200dpi)	\$745	Included
Automatic Sheet Feeder	\$900	\$469	\$729	\$798	\$889	\$495	None
Warranty	1 year	2 years	1 year	1 year	90 days	1 year	1 year
Price	\$1,495	\$1,599	\$1,519	\$1,679	\$1,958**	\$1,100	\$2,800
Contact	800-268-1331 Ext 4032	800-263-1121	800-463-7766	800-752-0900	800-56-Sharp	800-562-0311	800-562-0311

*Can be purchased with software

**Base unit no software \$1395

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	StudioScan	StudioScan IISI ^{NEW}
Optical resolution	300 x 600 ppi	400 x 800 ppi
Maximum resolution	2400 ppi	2400 ppi
Bit depth	24 bit	30 bit
Colour management	FotoTune (limited edition)	FotoTune Light
Scanning software	FotoSnap & FotoLook	FotoSnap & FotoLook
Image processing	PhotoShop (limited edition)	PhotoShop (full version)
OCR software	OmniPage Direct	OmniPage Direct
Suggested retail price	\$1,175	\$1,495

I'd like to know more, please send me information about ☐ StudioScan ☐ StudioScan IISI

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AGFA 
The complete picture

figurable SCSI card, plugged in the scanner, ran the installation and were away. We were supplied with a default address which worked fine. We used Corel PhotoPaint 6 to acquire images through UMAX Technologies' excellent TWAIN interface.

The default settings were a little on the dark side for the photograph we were scanning, but this was easily rectified. The Umax Vista-S8 is a 24-bit scanner with a hardware scanning resolution of 400x800 dpi, which can be boosted to a very healthy 6400x6400 dpi through interpolation. UMAX has recently started shipping new drivers for Windows 95 and one native to the Power Mac. Is this a capable and desirable flatbed? Yes.

Umax PowerLook

The 30-bit PowerLook is in a league of its own. Unlike the other scanners in this review, this Umax is designed to meet the needs of demanding "graphics, prepress and multimedia professionals." The PowerLook has hardware resolutions of 600x1200 and obtains fast

scanning speeds by virtue of a 2 MB output buffer and a proprietary bus caching design. Through interpolation, this scanner can do a whopping 9600x9600, which is much more than our own production machines are capable of.

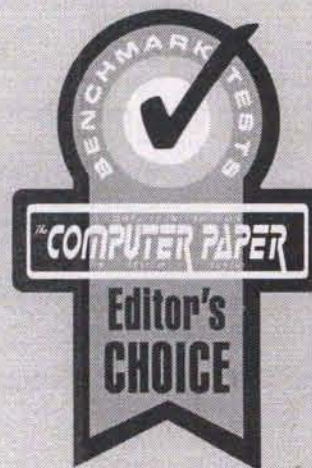
The price of this scanner dropped by over 30 percent on October 1st, bringing it down from US\$3000 to \$1995. The PowerLook comes with a standard transparency unit and ships with more software than you can shake a stick at. This bundle includes a full version of Adobe Photoshop 3.0. We set the PowerLook up on a Mac: it was a piece of cake. The addition of the transparency unit allowed us to scan both negative and positive photo transparencies, getting output that was true to the original. We did notice a slight moiré effect on our scan of a brochure, but this had more to do with the screened nature of the original than the quality of the scanner itself. Such moiré patterns can usually be diminished or eliminated using PhotoShop or Corel PhotoPaint image processing options.

Editors' Choice**High End: Umax PowerLook**

We are torn between the Sharp JX-330 and the Umax PowerLook, and at least one member of the production department prefers the Sharp over the Umax at this point in time. They are, in fact, directed at different markets. The PowerLook is strictly for desktop publishing and has no automatic sheet feeder option. We found the utility software that came with the Sharp JX-330 not as user friendly as the Power Macintosh variety that came with the Umax Powerlook. We take the PowerLook as the most capable scanner for desktop publishing. The fact that it has dropped in price by 30 percent makes this scanner a most attractive choice.

Budget: Umax Vista-S8

If you are looking for a scanner and are a little tight on the old green stuff, the AGFA Studio Scan IISI, and the Umax Vista-S8 are both very good candidates. We again choose the UMAX Vista-S8: it worked like a charm, it was easy to install and the price is great. □



How To Get The Most Out Of Your Scanner

BY GRAEME BENNETT

If you've purchased a scanner or are considering doing so, here are some tips that will help you get the most out of it.

Buying the right unit

If you can afford it, buy a single-pass color scanner. Three-pass color scanners are very slow. If your budget is tight, consider a sheet-fed or, if you primarily plan to scan grayscale or black-and-white images, a grayscale flatbed scanner. Don't bother with a hand-held type of scanner; they have too many limitations (but please read the accompanying article from a person who loves her hand scanner — Ed). If you use an operating system other than DOS/Windows 3.x, check with the manufacturer to determine if the scanner has drivers for your OS. Hewlett-Packard just released Windows 95 drivers for its line of scanners; most other manufacturers haven't yet released Windows 95, NT or OS/2 (etc.) drivers.

Interface

Most scanners for the PC come with a SCSI (small computer system interface) card that plugs into your computer. (Macintosh computers already have a SCSI port on the back and don't need an add-on card.) The SCSI card that ships with some scanners is proprietary. That is, it's specific to and usable only by the scanner. I'd normally say ask your dealer if the SCSI interface that ships with the scanner you are considering supports other SCSI devices, but based on my informal survey, it appears that most PC salespeople remain blissfully ignorant of the subtleties of SCSI, scanners and third-party compatibility issues. Mac retailers usually have a better understanding of SCSI and scanners, but tend to be unaware of PC connectivity and compatibility issues.

Nearly all SCSI-based scanners can connect to an industry-standard SCSI interface, such as those made for the PC by Adaptec or Future Domain. If you purchase one of these SCSI interfaces, you can connect several devices to the "SCSI chain" — say, a CD-ROM, internal or external hard drive, magneto-optical drive, tape-backup — in addition to your scanner. This is a great way

to make the most of a computer with a limited amount of free slots. SCSI interfaces are even available for portable computers, making it easy to add a CD-ROM, scanner or other SCSI device to a laptop computer.

If, for example, you purchased a Hewlett-Packard scanner, the software provided with the unit gives you the option of selecting an HP interface card or a third-party "ASPI compliant" SCSI interface. Rather than bog you down with a bunch of acronyms, suffice it to say that both the Future Domain and the Adaptec cards fall into this category and have proven to be no trouble to configure for use with a scanner.

Be aware, however, that the typical SCSI card bundled with or sold separately for use with a scanner is a low-cost, low-end (ISA bus) type of card. For decent hard drive performance, you'd want to spend extra and get a faster SCSI card that connects to your computer's PCI (or VL-bus) local bus. Darn those acronyms!

Recommendation: find out whether the scanner interface supplied with the scanner is able to support other SCSI devices. If not, check with the manufacturer of the scanner you are considering to see if it can be connected to third-party SCSI cards and, if so, which ones.

Software

Virtually all scanners come with a software bundle that typically consists of the following: a scanner driver, a graphics scanning and manipulation application and — sometimes — a utility for optical character recognition.

Here are the items you may find in your scanner's software bundle:

Scanner driver: Most scanners ship with a so-called TWAIN driver (reportedly, this stands for "technology without an interesting name"). A TWAIN compliant scanner gives you the highest level of software compatibility, as virtually all scanning utilities and mainstream graphics programs support the TWAIN standard.

Most scanners also ship with a direct scanner driver for accessing the scanner from applications that do not support TWAIN. Some scanners, such as the Hewlett-Packard ScanJet series, support more than one mode. The HP's AccuPage scanning mode is a little

slower, but produces better results when using an optical character recognition (OCR) program that supports it.

Recommendation: make sure the scanner you are considering supports TWAIN.

Paint programs

Most scanners also ship with an image-editing application for tweaking your scanned images. These programs fall into two categories: full versions and limited editions. Obviously, you're better off to get a full version of a program than a limited edition, but often you can upgrade the "light version" to the full release for a lot less money than it would cost to purchase the full package separately.

Recommendation: get a scanner that includes Adobe Photoshop. If you get the full version, great. If it is the "LE" version, pay Adobe the US\$149 to have it upgraded to the full version — you won't regret it.

OCR programs

As mentioned earlier, an optical character recognition utility can add value to your scanner by making it possible to scan in pages of printed material and convert it to text. While OCR programs often produce less than excellent results from faxes or magazine pages, they are certainly useful for lessening the drudgery of retyping many documents — particularly business letters and other fairly plain printed pages.

The most convenient kind of OCR software automatically pastes its OCR'd results directly into your word processor or other application.

Recommendation: don't put too much faith in OCR software, but look for a package that supports OCR from directly within your applications.

Other software goodies: If you're lucky, your scanner might also come with Kai's Power Tools — a nifty collection of special-effect add-ons for Photoshop and other programs that support the Photoshop plug-in standard (Corel's Photo Paint is a well-known example).

Some Macintosh scanners ship with Color-It, a surprisingly good image-manipulation program that also accepts KTP and other Photoshop plug-ins.

Scanning tips

Let's start with the obvious: keep the glass of your flatbed scanner clean. Don't use Kleenex or other cleaning materials that may leave lint or specks on the glass (or worse, scratch the surface).

Whenever you move a flatbed scanner, be sure to fasten the mechanism that locks

the scanning head assembly, so that it doesn't slide around and get damaged in transit. Some scanners, such as Umax, Microtek and Relisys, use a bolt for this purpose, while others, such as the HP ScanJet models, have a sliding lock on the back of the case.

Getting the best quality

Virtually all scanned images can be improved with a little tweaking. Naturally, the old saying, "Garbage in, garbage out," applies here. I find that most scans can be improved by adjusting the color balance (hue) and brightness/contrast (if you are using Photoshop, you'll find the Levels command produces superior results to the Brightness/Contrast command). Some software programs have an "automatic" setting. Try it first.

In many cases, the biggest improvement to your scanned images comes from a function called Unsharp Masking. But use it judiciously. Too much of this effect can produce an undesirable "halo" effect around objects; just the right amount will sharpen up the edges of images so that your scans look sharper and clearer. Generally, Unsharp Mask should be the last filter you apply to your image. Perform all other image manipulations first.

A common fallacy is that the higher resolution you scan at, the better your color or grayscale image will look when it is printed. Believe it or not, this is false, at least when we are talking about traditional printing processes. When we print a continuous tone scanned image to a laser printer, the printer has to translate the continuous tone image to one that is built from dots. There are a finite number of dots, depending on the printer's resolution, and the term that we use to describe and control this is known as the "lines per inch" setting. As the name implies, this sets the number of lines per inch (lpi) that the printer will use to output your print job. On a low-end laser, this lpi number might be as low as 53; on a \$200,000 image-setting machine, scanned images are usually output at 133 lpi or thereabout.

Now, here's why this lpi information is important: you only need to scan a color or grayscale image at double the lpi setting you are planning to print it at. In other words, if your 5"x5" original is destined to be printed at 133 lpi, you only need to scan it at 266 dots per inch (dpi), assuming of course that you are scanning an image at 100 percent of its original size. Scanning grayscale or color images at higher resolutions only wastes time and disk space.

AretêComputers

SCANNERS

The only exception to this rule is if you are scanning line art, you want to scan at as high a resolution as possible, for the clearest possible reproduction of your image.

Saving your files

High-resolution images tend to produce large files: especially if you are saving in CMYK mode for four-color printed output.

Here are the common file formats. Which ones should you use, and when?

Native — Use the native file format of the program you are using while you are working on your file. If you are using Photoshop, the native "PSD" format supports layers, pen paths, "alpha channel" masks and other features that may be lost when the file is saved or exported.

TIFF (Tagged image file format) — This file format is commonly supported by desktop publishing programs. TIFF files may be one-bit, 8-bit grayscale or color, RGB color or CMYK (cyan magenta yellow black) color.

In each of these categories, there are numerous variations of the TIFF file format, including (but not limited to) the following:

LZW compressed TIFF (generally, this option produces much smaller files, with no loss of image quality). There are other, TIFF compression schemes, including so-called CCITT and "Packbits" compressed TIFF files, too. Naturally, there are uncompressed TIFF files.

EPS (Encapsulated PostScript) — Although TIFF images are generally the best choice for compatibility with other desktop publishing programs, a few titles, don't support the TIFF format. To use a scanned image in Illustrator, you have to save it as an EPS file.

Although scanned images saved as standard EPS files tend to be a lot larger — and display less accurately on-screen — than TIFF files, some programs have EPS export options that can help reduce their bulk. For example, Adobe Photoshop has a Save as EPS option that optionally allows you to save the image with JPEG compression. EPS files require a PostScript printer to render correctly, and JPEG compressed EPS files require a PostScript Level 2 printer. Only use JPEG compressed EPS files if you're sure your printer or service bureau can support it.

JPEG (Joint Photographic Experts Group) is a file format that is said to be "lossy" as it loses quality each time you save the file. Thus, it is not well suited for saving work in progress, but is an excellent choice for saving your work when you are finished with it. Some DTP programs, such as QuarkXPress, CorelDraw, and PageMaker 6 can handle JPEG files, but older versions of PageMaker and many other common applications cannot. JPEG is gaining popularity as one of the standard graphics file formats on the World Wide Web.

Other file formats

As the old saying goes, standards are great; that's why there are so many of them. BMP, GIF, PCX, PICT, etc., are all relatively common file formats that may or may not be supported by your image editing program. All have their uses. (GIF files, for example, are common on the World Wide Web, while BMP files are the format Microsoft uses for its Windows Desktop pattern files). Chances are, however, that one of the previously mentioned file formats is a better choice for DTP applications.

Good luck and happy scanning! □

Home System

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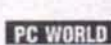
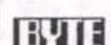
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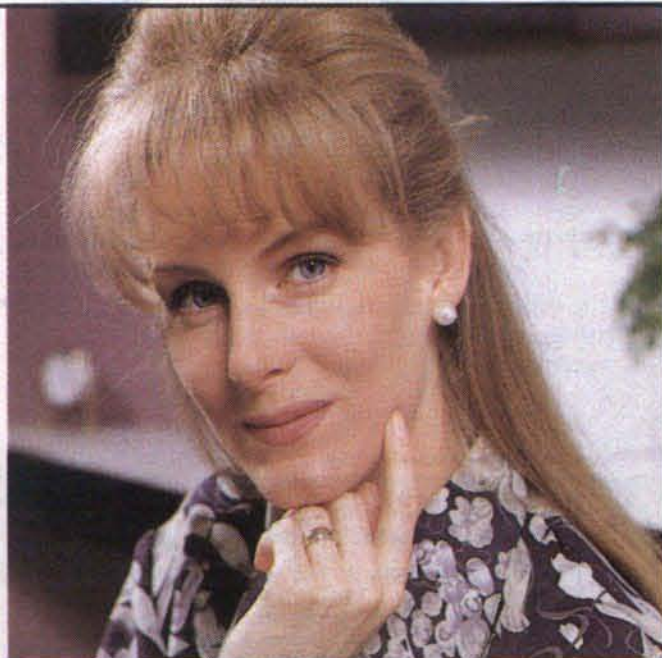
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DLH002

A Scanner For Everyone

BY GEOFF WHEELWRIGHT

ANALYSIS

The personal scanner has been a long time coming, but if the new products launched in recent months are

any indication, thousands of users may soon have a tiny single-sheet scanner beside their personal computer and their printer.

Major manufacturers such as Epson and Fujitsu have made a big splash with their

sub-\$1000 scanners, which allow users to "photocopy" images and text from paper to the computer's screen. These systems typically feed the paper into the scanner sheet-by-sheet rather than requiring you to place it on a glass surface (as is tradition-

ally the case with more expensive flatbed scanners).

Many users are now considering using these scanners as a potential solution to the urgent problem of how best to manage paper-based records. The solution lies in pairing these inexpensive scanners with software for digital imaging, optical character recognition (OCR) and document management.

Using standard personal computer fax modems, it is now easy to send information directly from your computer screen to someone else's fax machine or computer — and receive messages to your computer.

With digital imaging, computer software takes electronic "photos" of all the paper documents you run through your scanner and stores them as digital images on your computer's hard disk for later retrieval to your screen. The resulting image — say of a page of text — is just that: a picture. Another piece of software handles OCR. OCR allows your computer to read the text information in the image file and turn it into a real text file that can be imported into a word processor for editing. Meanwhile, document management technologies tie the original image and the OCR file together, indexing them in some manner so that the documents can be retrieved and managed more effectively.

Another big driving factor behind the interest in personal scanners is the increasing use of personal computers to send and receive fax messages. Using standard personal computer fax modems, it is now easy to send information directly from your computer screen to someone else's fax machine or computer — and receive messages to your computer.

The difficulty has been in getting paper documents into the computer for faxing. In order to use a fax modem to fax a legal document with signatures on it, for example, you would generally have to use a scanner to scan the document into the computer first, and then use the fax modem to send the scanned images as a fax. In recognition of this requirement, fax software market leader Delrina earlier this year announced a version of its WinFax software with a Fujitsu personal page scanner bundled into the product (see review elsewhere in this issue).

According to Delrina co-founder Mark Skapinker, the scanner will meet a long-

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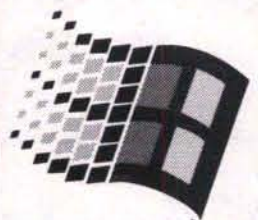
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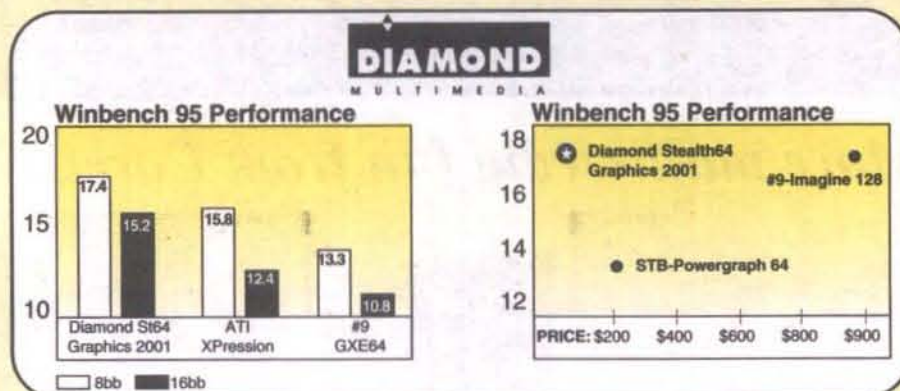
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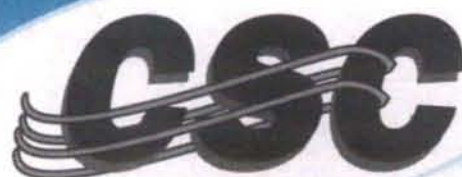
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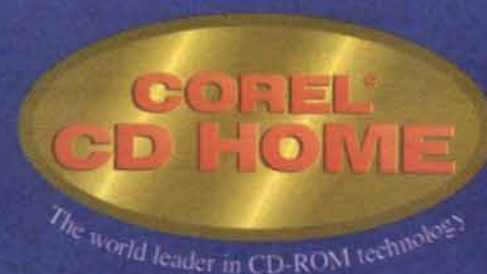
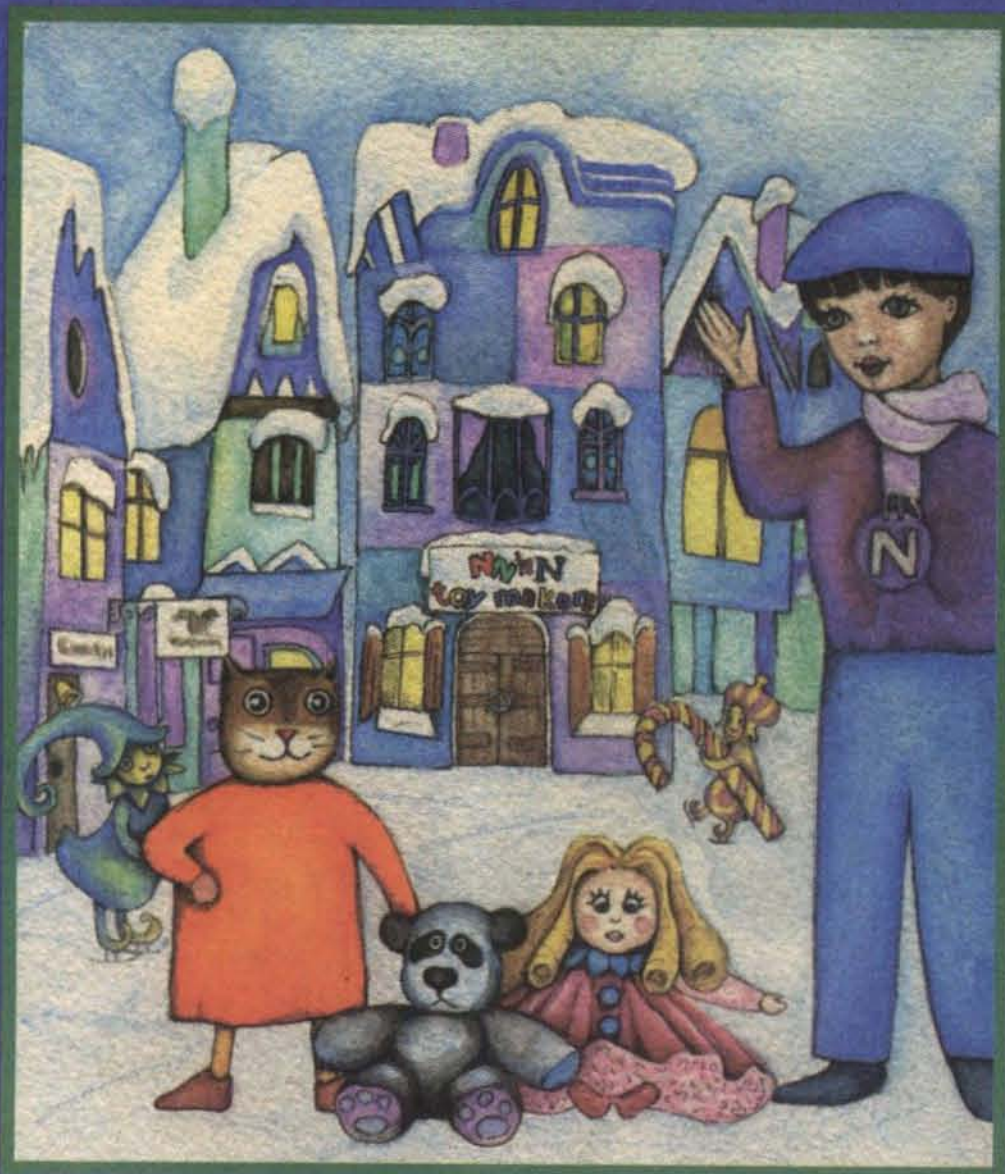
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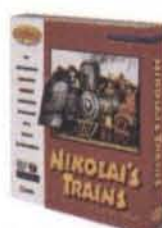
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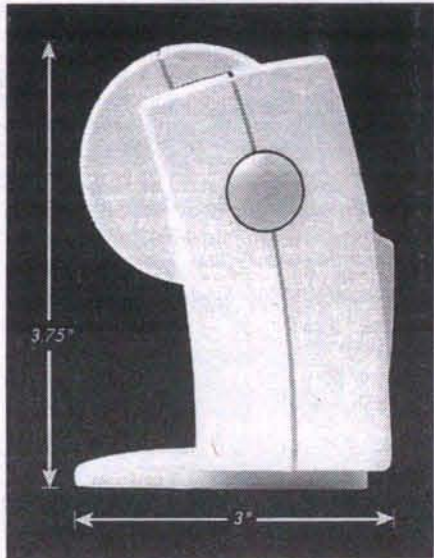
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A Scanner For Everyone

Continued from page 26



standing demand of WinFax users. "We know that the most frustrating aspect of computer faxing that most business users describe is not being able to fax a piece of paper using WinFax," he explained. "So we found a reliable hardware manufacturer and (have) launched a smaller personal scanner to be called 'Delrina WinFax Scanner' that is priced lower than the cheapest fax machines. It will be marketed directly to WinFax users."

According to US research company BIS Strategic Decisions, the personal scanner is now cheap enough — and finally offers high enough quality — that many users can now consider using them. "This emerging category promises to grow significantly over the next few years, as users discover the benefits of PC-based document input, and as more products become available," says Kristy Holch, director of scanning market strategies at BIS Strategic Decisions.

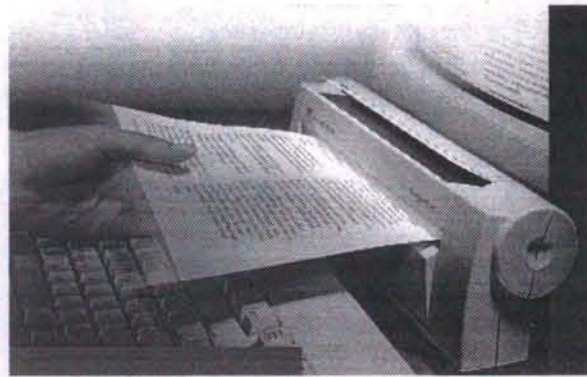
Meanwhile, the personal scanner to get the most attention earlier this year at Spring Comdex in Atlanta, came from a small US start-up company called Visioneer — which cannily arranged for its US\$399 Visioneer PaperPort 2.0 system to be installed in the trade show press room and had hundreds of journalists put a fleet of these machines through their paces during one hectic week.

PaperPort 2.0 for Windows is not just a scanner. The hardware comes with software that provides you with a new "personal filing system" (that can hold images), enhanced searching/retrieving and editing capabilities, direct links to more than 50 third-party applications, a built-in OCR package and a higher scanning resolution. PaperPort is also available for Macintosh, but the filing software isn't as advanced as in the Windows version.

One big difference between PaperPort and existing scanning products is that it provides direct links to more than 50 leading desktop applications, such as OCR, fax, contact management, and document

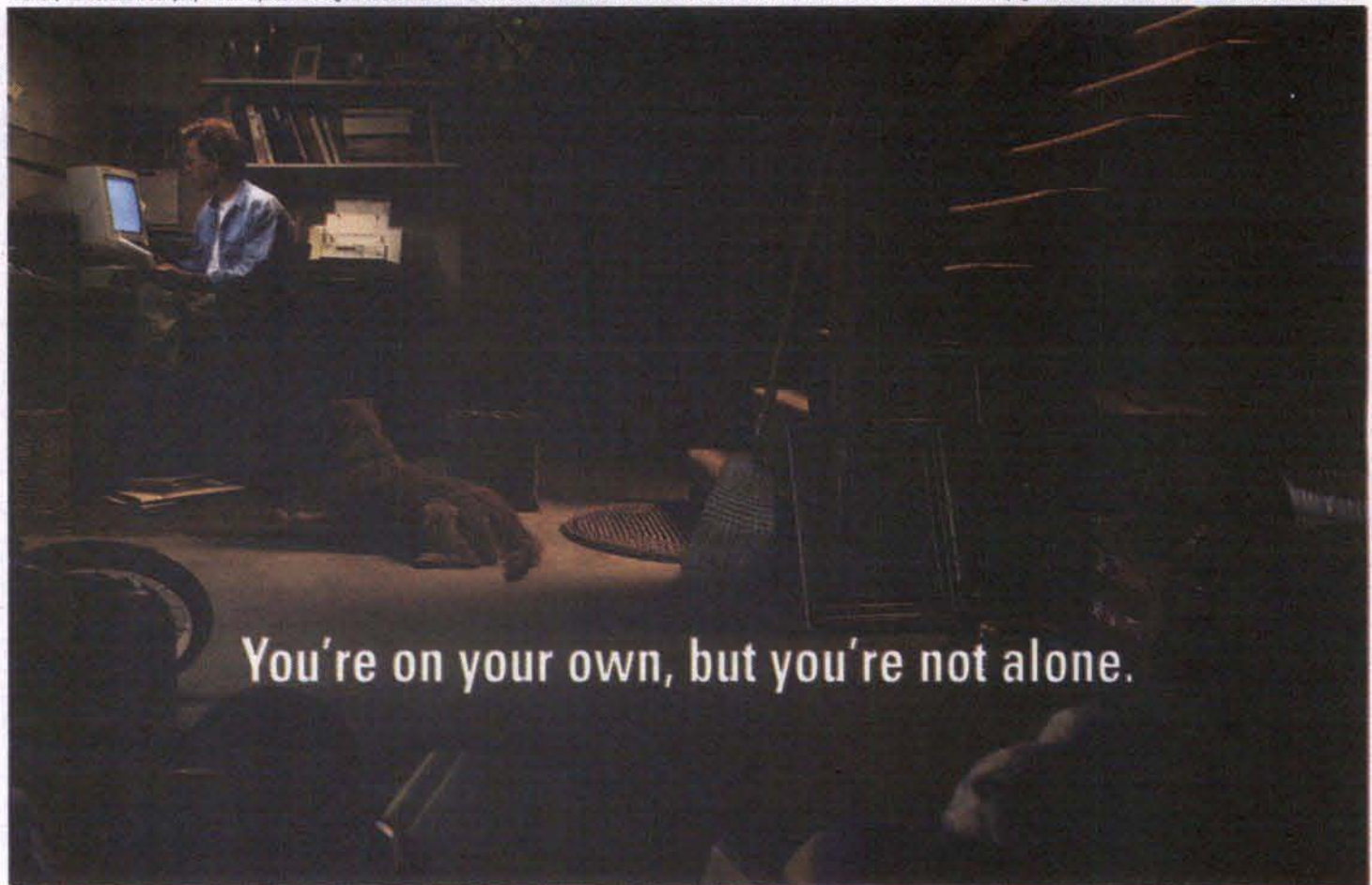
management. By dragging and dropping a document onto one of these links, PaperPort's AutoLaunch feature opens the application and places the PaperPort document within the application.

Among the links included in PaperPort 2.0 for Windows are three OCR software packages, Caere's OmniPage and WordScan and Xerox TextBridge; all popular Windows fax applications; Iomega Bernoulli and ZipDrive; Zylabs ZyFile; Cyphertech Cyperscan; and Corex Card-Scan. □



PaperPort 2.0 for Windows is not just a scanner. The hardware comes with software that provides you with a new "personal filing system"

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The Delrina WinFax Scanner, And You

BY JEFF EVANS

Delrina WinFax Scanner

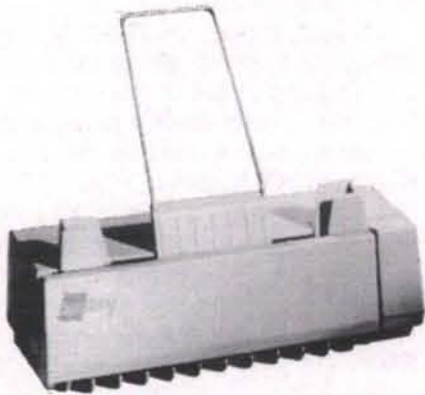
From: Delrina
Price: \$399 (\$449 with \$50 rebate)

Also mentioned: Fujitsu ScanPartner Jr.
From: Fujitsu Canada
Price: \$620 (est. street price)

minimum of a PC running Windows 3.1 or later, with 4 MB of RAM and at least 9 MB of hard disk space. To perform OCR, you need at least 8 MB of RAM. The WinFax Scanner was tested on an IPC 486 DX2/66 MHz, with 8 MB of RAM, an ATI internal fax/modem

card, and a Lexmark WinWriter 600. Set-up and installation of the Delrina model were straightforward, needing only occasional reference to the concise, clearly illustrated manual. The paper guides and extension wire were attached to the scanner, and the

scanner plugged into its external power supply. The scanner connects to your computer via a parallel cable running from the scanner port marked "To PC Parallel Port." A second cable runs from the scanner port



This Fujitsu ScanPartner Jr. looks identical (apart from a different label) to the Delrina WinFax Scanner.

The Computer Paper Test Labs recently tested several of the current crop of multifunction devices (computer peripherals that combine the functions of scanner, printer, copier, and fax), and found them to be efficient and productive tools for the home office. However, they are not cheap (ranging in price from about \$1,400 to \$3,000), and many users may already have some parts of a multifunction device in the form of a fax/modem and a printer, which the multifunction devices simply duplicate. What many users need is a device that can capture an image and communicate with the fax, the printer and the PC to provide additional functionality. The Delrina WinFax Scanner, which was recently tested in the lab, is an excellent product that can allow a user to complete the multifunction puzzle at a low cost.

Essentially, the Delrina WinFax Scanner is a Fujitsu sheetfed scanner bundled with Delrina fax, telecom, and OCR software. (Fujitsu Canada also sells the scanner, called ScanPartner Jr., as a separate product.) The combination of hardware and software allows your fax/modem to be used as a full fax machine (by feeding scans of documents from the scanner to the fax/modem), and allows your printer to be used as a copier (by feeding scanned images from the scanner to the printer).

Because the scanner allows you to input images from the scanner onto your PC, you can manipulate the scans, with either the scanner's included image processing software, or third party graphics programs such as Corel Draw and Adobe Photoshop. As well, scanned documents can be converted to editable word processed text files, using included OCR (Optical Character Recognition) software.

Out Of The Box

The Delrina WinFax scanner requires a

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SCANNERS

marked "To Printer." The scanner is intended to allow files being printed from the PC to "pass through" the scanner. The scanner must be powered up in order for this "pass through" to function, however.

The Fujitsu ScanPartner isn't as straightforward to set up. Although essentially identical to the Delrina model, the main difference is that the ScanPartner uses a SCSI interface and therefore requires a SCSI card to be installed in your computer. Depending on the number of other peripherals you have attached to your computer, this can be a straightforward or fiddly exercise — you may have to adjust IRQ and port settings. The Fujitsu brand is TWAIN compliant, so once installed, it can be used with any software that supports TWAIN.

Delrina's software installation is straightforward, and the full installation we chose took up about 14 MB of space on our PC's hard drive. To have the OCR feature enabled, you either have to do the Complete Install or enable the OCR features in a Custom Install. Either way, you will have to allocate nearly the full 14 MB of maximum hard drive space. If you don't already have Delrina WinFax PRO installed on your system, additional prompts will step you through that installation.

Scanner Operation

The scanner is capable of scanning line art, text or halftone illustrations at resolutions between 150 dots per inch, and with the number of greyscales between b/w(1 bit, black and white) and 256 grey scales. When using the scanner for sending a fax, you have to set the scanner software preferences to the 200 dpi resolution. You can also select black and white (OCR will only work on documents scanned in b/w), or greyscale scanning.

There is basic image processing software included, which you use to zoom in on scanned images, view multiple pages in thumbnail form, straighten and clean up scanned images.

Faxing

You can automatically fax documents using the scanner and WinFax Pro running on your PC. You have to choose the right settings ("Auto Detect, 200 dpi resolution, B/W, AutoScan and Use WinFax to Send as Fax"), but once that is done, the process is pretty straightforward. Alternatively, you can save an image as a WinFax Attachment (.FXS or .FXM.), and fax it via WinFax when you want to.

Pricing and Warranty

The WinFax Scanner is available for a street price of \$399, and comes with a one year Depot Exchange and Repair Warranty.

Oddly enough, the Fujitsu ScanPartner Jr. has a suggested price of \$675 (estimated street price of about \$620), and a Fujitsu representative was quite candid in saying that, for the average consumer, the Delrina bundle was obviously a better deal. The ScanPartner Jr.'s SCSI interface needs an interface card and cable, which adds a bit to the cost. Fujitsu is aiming the ScanPartner Jr. at a different market: business users who want to use it as part of a document management system. □

Contacts: Delrina, 416-441-3676, Delrina Fax
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Yes, Hand Scanners

BY JEAN ALLEN-IKESON



We all like to create impressive things with our computers and then pretend it's no big deal. So when the local orchid society asked me to "type up" a few invitations, the last thing I was about to do was "type up a few."

The first year, I imported an orchid from Corel Gallery. When the next year rolled around, Corel line-drawing clip art was old hat. So I imported a color photo of Dendrobium from a Corel Professional Photo CD for the cover. Since that looked so good with the title reversed over it in white, I had to come up with an orchid line drawing as a watermark for the inside page. My mother whipped one up and faxed it to me (oh, how I love the age of technology). Hand scanner to the rescue!

While I was doing the layout, my husband scanned the fax and turned it into an appropriately colored line drawing with all the fax dots/fuzz removed. It looked better than the original.

Around our house, who are we going to call? Not ghostbusters. Rather, we grab the hand scanner. It has a small head — most are about three or four inches in actual scanning width — attached to a handle. You pull it gently down or across the item to be scanned. As you do this, the image appears on the monitor at about the same speed that a fax machine pulls a document through. It's quick and easy, takes up virtually no room and gives us satisfying results for a modest price.

Because it is so versatile, we have used it to scan the label off the kids' jeans for an essay, the logo off our homemade wine because I lost the original, a couple of old ancestral photos to trade genealogy information over the Internet, and the write-up from the orchid society Awards Quarterly for my records.

They also do a great job of scanning text or figures out of a book, something that flatbed scanners do poorly. Our first hand scanner was a no-name 64-grey-scale cheapie, which happily produced "artwork" for articles in a newsletter. It had its limitations, however, and the resolution could have been better. For example, we were given a photo-

copy of a technical drawing, but with the hand scanner, the scan "lost" the labels in a blur.

Higher-quality grey-scale scanners work better and are still reasonably priced (less than \$150). I bought my husband a Logitech Color ScanMan (now often less than \$300 on the street) for his birthday and he was in heaven. The resolution, even on color photographs, expanded to fill a 15-inch monitor, was good. I lost a couple of pounds running up and down the stairs to admire his latest marvel. The technical drawing was now readable and had a "clean" appearance.

The enhancement software that comes with the scanner is what makes it so great. A friend faxed me a one-by-three inch "scumble" drawing that was a second-generation photocopy. Needless to say, it was a mess. Within a few minutes, it was scanned, "cleaned up" to remove the dots and photocopy "noise," and ready to be placed at the top of a flyer at double the original size.

The result was impressive — not just a bit better, it looked like a new original had been used.

Scanners come with a variety of tools that can be used to improve an image: you can remove noise, deskew, equalize (the dark and light areas), sharpen, crop and rotate. One feature allows you to outline an object in the image and then enlarge only that section on top of the original. With it, you could "bring forward" a background face to make it seem as if it were the most important feature in an image. Another useful option is to scan a color image as "grey-scale" if you are going to print the result in black and white. The conversion to grey scale gives a much better result, with improved crispness and shading.

Given their compact size, hand scanners can be trickier to use on full-page subjects. Graphics or text can be effectively "linked" into a smooth rendition of a full page. For example, two strips of print can be merged into a single full page document, which then may be "read" by a word processor as text rather than graphics. Most hand scanners offer what is called "twain" support, short for "technology without an important name."

This allows you to scan directly from a word processor or program, such as Corel Draw, using the command "acquire image." Within a word processor, for instance, an image may be converted to text by optical character recognition software (OCR). With OCR, the text may be edited or modified as with any other text file. When PC's were just catching on in business, OCR was particularly useful to transfer old typed manuals or documents into a PC file. The OCR software included with most hand scanners will recognize a variety of font changes or text from photocopies, something that only five or six years ago could only be accomplished with software that cost \$600 or more, and then often not as easily or efficiently.

Another perceived "problem" with hand scanners is "dragging" them straight across a page. If you are serious about going straight, the solution is to purchase a scanning aid. According to a user survey from Logitech, 40 percent of ScanMan users purchase a scanning aid and 68 percent of those who do not currently own one intend to buy one. Although hand scanners are designed to scan in a relatively straight fashion, scanning aids can still be useful in some situations. For instance, scanning small, curled photos works better where they may be sandwiched

in a guide. In a pinch, grilled photo album pages with plastic protectors will work. Logitech (510-795-8500) will be including, by late fall or winter, a Scan Guide with their ScanMan 256 and ScanMan Colour hand scanners. Upgrades should be available, but the exact details are not yet available.

The Scan Guide consists of a straight edge or rule with an attached template that guides the head while you move the scanner across the original. Scan:Align (American Business Concepts, 214-380-8724 or 800-877-4797) works similarly. You lift the plastic frame, place the original on a grid and sandwich it under a clear plastic cover and a frame. A "head" holds the scanner squarely in place so that it glides smoothly down the double-sided template. The head is customized for each brand of scanner and four are included with Scan:Align. Twenty different ones are available for both PC and Macintosh hand scanners. If the necessary one is not in the box, it may be requested free of charge. The street price is \$59.95 in Canada.

As an example, I have scanned a facsimile of a confederate dollar given as "money" to children at the Westfield Heritage Village in Ontario. It was a poor photocopy, probably second or third generation, and copied on dark buff-coloured stock.

You can see the grid from the Scan:Align in the background. Then I cropped the image to remove the grids and black-smudge at the bottom of the bill. The image was rotated 90 degrees. I also used "equalize" to soften the contrast between the darkest and lightest areas. From scan to final example only took a few minutes. There are many other enhancement options that may be tried and then "undone" if the result is not the desired one.

Besides being useful, hand scanners can be a great deal of fun. The latent artist in family members can be nudged into existence. They are another application, like modems and reference/hobby software, that is transforming home and small business computers from dedicated word processing/spreadsheet machines into much more: an essential partner at work, at school and in leisure. □

The OCR software included with most hand scanners will recognize a variety of font changes or text from photocopies, something that only five or six years ago could only be accomplished with software that cost \$600 or more

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Budget Software Surprisingly Adequate

BY GORDON GOBLE

Power Publisher
2000 Fonts
3000 Image Photo Gallery
Greeting Card Maker

From: Expert Software, Inc.
 Street Prices: Each title under \$25.

Expert Software has been doing a whole lot for thrifty individuals and small businesses who want to look good on paper. The company is in the low-end DTP game for keeps, and while they've got a lot of competition down there, they make their mark through their modular "building block" approach and rock-bottom pricing.

A Powerful Publisher

Power Publisher is the cornerstone of the Expert Graphics roster, and a shockingly slick little DTP program it is. Certainly, PP is a no frills package. It doesn't include any typefaces or clip art (that sort of stuff is available elsewhere in the Expert catalogue), and

it won't act as a spell checker or thesaurus. But as a versatile central hub between drawing and word processing programs, or by itself, it will let you work with some very professional tools to create virtually any type of document you can imagine.

FontS

In all honesty, there's not much the average newsletter or brochure would ever require that this little gem can't do. Text formatting in particular is quite powerful, with features such as customized text-wrapping, variable character, line and paragraph spacing, a fit-text-to-path tool, and auto-hyphenation showing the way.

Word groups do have an annoying habit of looking like they're falling outside the text

boundaries while being entered but, fortunately, they do conform when you're done.

The whole text sizing procedure is made even easier with a unique one-click on screen "slider." The idea here is to push the slider and watch as a selected text passage shrinks, grows or changes from font to font. When it looks right, just let go of the mouse button! Is this great? Why, yes it is.

Graphically, you'll have to save advanced stuff like extrusion or perspective manipulation for the CorelDraws of the world, but the basics are here. Objects such as ellipses and soft-cornered rectangles are quickly created through PP's impressive shortcut pop-up menu system, before being colored, shaded or pattern-filled. Bitmapped images can be imported in most popular formats, and then resized, cropped and rotated. PP also permits the direct acquisition of scanned images from within the program, supports OLE, and automatically separates color documents for printing while providing automatic knockouts — a feature almost unheard of at this level.

Single-click zooming runs all the way up to 400 percent, and is sensibly accessed from the bottom button bar, while the auto-save tool works at user-defined intervals. Sadly, the Undo command often won't, depending on the task at hand, and both the product manual and help files are minimal.

In all honesty, there's not much the average newsletter or brochure would ever require that this little gem can't do

Entry-level in definition only, Power Publisher is a page layout/light DTP package that, if priced on par with its direct competition (PFS:Publisher, Microsoft Publisher, Page Magic, etc.), would be considered a solid choice. But with a retail price of under twenty-five bucks, Power Publisher becomes a powerfully potent proposition.

Affordable Extras

And there's lots more budget-minded stuff where that came from. Among the stronger Expert titles is 2000 Fonts, which is, you guessed it, two thousand fonts presented in both True Type and Postscript Type 1 formats for use in any Windows application. The quality here is not stunning, yet is quite bearable for most users.

Included with all these typefaces is an install program that does much the same thing as Windows' Control Panel, with the added luxury of preview before installation (and that's good because there is no other visual representation in the package). Please remember that, although there's good variety here, from the sober Times to several fancy scripts and wacky dingbats, many of these are variants (light, bold, etc.) of the same base font.

Expert has also fielded the aptly titled 3000 Image Photo Gallery, a collection of photos that range from useful and exciting to somewhat bland. No, there are no images of scantily clad human bodies, but what is here has been thoughtfully grouped into categories (101 to be precise), and may be viewed in thumbnail form through the included Browser for PCs or the substantially more advanced Kudo Browser for Macs.

Finally, for those sentimental times of the year, there's the equally imaginatively entitled Greeting Card Maker. Certainly there are a lot of things like this on the market these days, but GCM allows more freedom than most. Supporting any Windows-installed font and the importation of all popular graphic formats, this is one card maker that won't confine you to pre-programmed designs and text structure, and that is a definite plus. Five pre-printed cards and envelopes are included in the package (with order forms for more cards, naturally). □

Contact: Expert Software, 305-567-9990

Using A Media Release For Free Publicity



Media or news releases can be an extremely effective and inexpensive means of obtaining publicity — that is, if you do the release correctly. Most small business owners haven't the remotest idea how to prepare a release, and therefore do not use the appropriate technique, or use it incorrectly.

The secret is to create a media release which is newsworthy, interesting and topical. Keep in mind that reporters and newscasters are constantly searching for material that could be of interest to their readers, listeners or viewers. Some days they may have little material, while other days may be packed with late-breaking news.

If your timing is right, your release could be used as a "filler" on an otherwise light news day. When submitting releases, be certain to allow sufficient lead time in order to enhance the likelihood of your release being used.

The term "media" refers to the communication vehicles of print (newspapers, magazines, newsletters), radio and television. When deciding where to send a media release, do your research to target the correct persons within the medium in question; whether publishers, general editors, section editors, journalists, reporters, freelance writers, syndicated columnists, book reviewers, news broadcasters, program directors, talk show hosts or researchers.

Where to Get Information

The following resources may help you to locate the various media and the best person in each category to send the release to:

- Look in the Yellow Pages under the headings "Radio," "Television," "Newspapers" and "Magazines". Also look at newsstands to become aware of publications in your area of business interest.

- Check with your public library for *Canadian Advertising and Rates Data (CARD)*, a directory listing all the media in Canada. Also check directories that list various trade publications and newsletters in Canada and the U.S.

The secret is to create a media release which is newsworthy, interesting and topical. Keep in mind that reporters and newscasters are constantly searching for material that could be of interest to their readers, listeners or viewers

- Contact the media concerned and enquire about the name of the editor, talk show host, program director, or news director, as well as address, postal code, etc.

- Check the print media and gather names of reporters, writers or columnists who write about subjects which could encompass your business area. And be aware of TV or radio news stories that you could "piggyback" on.

You may want to send the release to several key people within the same newspaper, radio, television or magazine organiza-

tion. For example, you may believe the subject matter of your media release would be relevant not only to a newspaper's business section, but also its lifestyles section and its seniors section. Usually, each section has a separate editor — though a community newspaper which is published once or twice a week, for example, may just have a general editor.

Initial Questions to Ask

Before you start preparing a release, there are a number of initial steps you have to take. You have to ask yourself what benefit you hope to get from the exercise. Do you want local, regional, provincial, national or international publicity? It will obviously make a difference in terms of your media contacts and the content of the release. Do you want to generate a telephone or letter response from prospective clients or customers? Your objective could be to stimulate sales orders, attract potential investors, or obtain consulting contracts, freelance work, or speaking engagements. Do you want just to make the public aware of your product so that they will look for it in specialty or general retail stores?

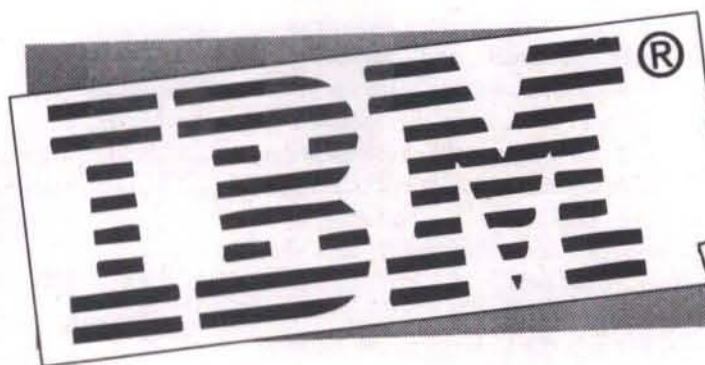
If you feel unsure about writing your own media release, you can refer to books for guidance, or take seminars offered by a school board, college or university community education program. Alternatively, you can pay a freelance writer to prepare the material for you. □

Douglas Gray, LL.B., is a Vancouver-based speaker, lawyer, columnist and author of 15 business books plus a real estate investment software program. His books include *Home Inc.: The Canadian Home-Based Business Guide* and *The Complete Canadian Small Business Guide* (both by McGraw-Hill Ryerson), *Start and Run a Profitable Consulting Business* and *Marketing Your Product* (both by Self-Counsel Press).

NOW YOU CAN WALK AWAY WITH A BUNDLE WITHOUT DROPPING ONE!

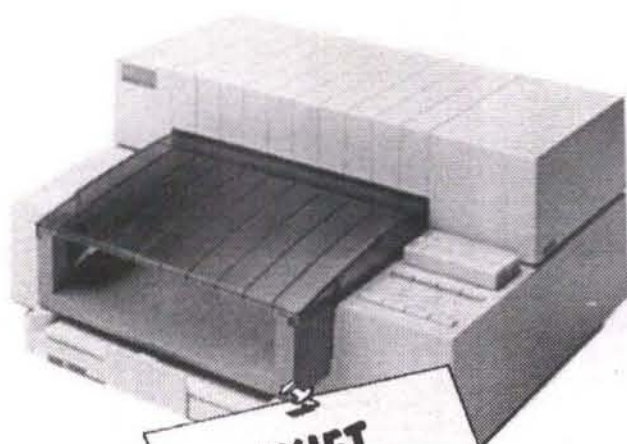
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V-Com Computers, located on the corner of Marine Drive and Kerr in Vancouver, has been in the business of PC sales and service for over 13 years and it's apparent, right away, why they continue to thrive in this ever changing market.

Hands on, sit down demonstration systems

The layout of the main showroom is both practical and comfortable. Demonstration models are set up on "hands on, sit down" workstations so you can try them out. Customers can better assess their particular needs and they have an opportunity to evaluate the exact system that they intend to buy.

A guide through the micro maze of products is handled by seasoned professional consultants that listen to the customer's questions and help in putting together the package that best suits their needs.

V-Com's strength is the ability to custom configure each system to the customer's specifications.

This is a real plus as the customer need not go over the budget right now as the system can be easily upgraded later.

There is one station set up just to take you for a little surf through the Internet. A great journey around the world via the net.

The sight and sound room is simply unbelievable

The Sight and Sound Room is simply unbelievable. If you really want to see the potential of today's computers you have got to see this! When I was there, the movie Top Gun was being displayed on 4 monitors of different sizes with a surround like sound blasting from the Pentium system driving the

display. This is a real help in showing the differences in monitors and speakers.

Obviously service is something that the company is proud of. Most places have the service department hidden away well out of view of the customer. Not at V-Com. The service area is in plain view and comfortable seating is available for the customer. (A cup of coffee is usually at hand as well)

Solid consulting

But when you get right down to it, it's a great place because there is someone there to really take the time, sit down and provide solid consulting on the needs of the customer.

Definitely, a must place to go when venturing out into the wild, wild world of computer buying.

V-COM
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of
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ImpOS/2

A Fine Warp Image Editor

BY JEFF HILDEBRAND

Product: Compant ImpOS/2 1.2d

From: Compant Systemhaus GmbH, Germany
Price: Approx. US \$95

I bought ImpOS/2 on a gamble. There was strong circumstantial evidence that it would work with my scanner. I had read the reviews, and I had even polled the informed users of the Internet, but no one knew for certain if it could handle my scanner. Well, it does, and very well. To save the rest of you from the agony I went through, here is a list of scanners that ImpOS/2 supports:

- Epson GT 8000, 9000
- HP ScanJet, ScanJet Plus, IIp, 3p, IIc, IIcx
- IBM PageScanner 3119
- Mustek CG 6000, 8000, 8400, MFS 6000 CX
- Highscreen Color18, Color24 GreyScan 256, Color II S, Color II SHR
- LogiTech ScanMan 32, 256
- Microtek ScanMaker II, II SP, II HR, III

ImpOS/2 also supports three video capture cards: CPS Video Blaster, CPS Movie Blaster, and CPS TV Movie Blaster. Facilities exist for screen captures and to read Kodak photo CDs. I tested ImpOS/2 with my Envivision ENVCOLOR hand scanner, which I eventually determined was Mustek compatible.

I bought ImpOS/2 with one thought in mind: "I must replace the Windows program I am using now." Don't get me wrong, HALO Desktop Imager came free with the scanner, and it's good, but tends to get unstable after I create about 20 MB of images — an easy task since it creates a new image every time an editing function is applied. There was one other compelling problem: if I switched back to my OS/2 desktop, the HALO would "lose" the scanner, and I would have to cold-boot to get it back. It was obvious that this was a DOS/Windows emulation problem, and the solution was to "go native."

ImpOS/2 comes on two high-density floppies, and consumes less than 3 MB once

installed on your hard drive. The exact amount varies depending on how many drivers you choose to install. If you select multiple scanners, they will all be available from the "Capture" menu in ImpOS/2.

The installation program is well done, allowing you to select which formats and devices you want installed. The CONFIG.SYS will be updated with the appropriate driver, but you may still have to edit it. The README file cautions people with SCSI scanners to make certain that all appropriate drivers are installed. Mustek and Highscreen users will probably have to change the I/O parameters passed to the device driver.

Scanning worked like a charm. I was pleased to note that the defaults for warm-up time for my scanner were the ones I had seen under Windows, so they were probably a safe bet. Similarly, the current resolution and color depth of my scanner was detected, although I noticed that the color depth was reported as 262144 Farben — it seems that

some of the original German was missed when this program was translated to English. If you know your scanner at all, this shouldn't be a problem.

ImpOS/2 offers all of the usual drawing, editing and retouching tools. Image editing is pretty mature, and the issue shouldn't be whether or not the tools are available, but rather how they are implemented. In this regard, I have some mixed opinions about ImpOS/2.

ImpOS/2 beats out HALO for speed and stability. It's no contest. However, HALO makes all of its functions available from the menubar (there's no toolbar). The interface is plain but consistent and it works. ImpOS/2 does something different: the menu bar only deals with functions like loading, saving, capturing and printing images. All of the image editing tools are found in the title-bar icon menu of the window. This is okay and

Continued on page 41



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Continued from page 14

the thousands of 32-bit software programs that will take advantage of the new features of Windows 95, and make the Windows 95 operating system a compelling choice for businesses and individual users alike.

A new version of MS Visual Basic, 4.0, is intended to speed the development of Windows 95, Windows NT and Windows 3.x software. Three versions of Visual Basic 4.0 are available: Standard, Professional and Enterprise editions, aimed at meeting the needs of different levels of software developer. All versions offer "full OLE technology support, improved data access: an open and visual development environment; and seamless migration from Visual Basic 3.0-based applications

to Windows 95 and Windows NT," according to Microsoft.

Visual C++ 4.0 claims to offer users the ability to rapidly develop new software applications by efficiently reusing block of code. This reuse is made easier via the Component Gallery, "an intelligent storage and management system for OLE Controls and C++ components." As well, Custom AppWizards, allow the creation and use of powerful application templates. Third party Custom AppWizards are available from companies such as Template Graphics Software, Inc.

The MS FORTRAN PowerStation 4.0 for Windows 95 is intended to ease the migration of "legacy FORTRAN code from mainframes, minicomputers, and UNIX workstations to Intel-based PCs running Windows 95," according to Microsoft. FORTRAN based applications

in specialized categories such as computer aided design and manufacturing, or scientific and statistical research, can also be ported to the PC using the new product. Microsoft's tender concern for corporate MIS departments struggling free from mainframe "Big Iron" may be appreciated by Chief Information Officers, but will doubtless make the remaining vendors of mainframes and minicomputers even more nervous than they have been lately.

Cross Platform Developers' Tools

As well, Microsoft announced a number of new programming tools variously suitable for developers of Windows 3.1, Windows 95 and Windows NT. Visual SourceSafe v. 4.0, an enhanced control/configuration management system for software development will be available

for all 4 development environments. Visual SourceSafe's "project-oriented approach to source-code control promotes code reuse and management of multiple releases, while preventing accidental code loss or alteration. These features make it an ideal tool for professional and corporate software-development teams," according to Microsoft. The user interface of Visual SourceSafe 4.0 takes many of its features from Windows 95 Explorer. A related SourceSafe for UNIX, developed by Mainsoft Corp. in cooperation with Microsoft, will support UNIX developers on HP-UX, Digital OSFI, IBM AIX, SUN OS and Solaris, and SGI IRIX.

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Microsoft Windows NT v3.51 client each	55
Microsoft Windows 95 upgrade/full version/ plus	129/255/65
Netware v4.1 (5/10/25/50/100)	\$1065/2425/3595/4850/6775
Intel Net Satisfaction ver 3.0 for Windows on Novell network	\$1250
2 user hardware Ethernet kit for NT/95 (no software) includes 2 GVC 10MB cards, 25' coax cable, 2 terminators	\$175
Lantastic AI v6.0 Starter Kit (complete setup for 2 node)	\$285
2 GVC 10MB cards, 2 software, 25' coax cable, 2 terminators	
Lantastic AI v6.0 Add-On Kit (complete setup for 1 node)	\$155
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Motherboard & RAM

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Asus SP3 486DX4-100MHz PCI/VLB MB, 256k, IDEIO	435
Asus TP4XE Pentium-75MHz PCI/ISA MB, 256k cache, IDEIO	635
Asus TP4XE Pentium-90MHz PCI MB, 256k cache, IDEIO	775
Asus TP4XE Pentium-100MHz PCI MB, 256k, IDEIO	925
Asus TP4XE Pentium-120MHz PCI MB, 256k, IDEIO	1225
Asus TP4XE Pentium-133MHz PCI MB, 256k, IDEIO	1445
*256k Pipelined Burst Cache available on TP4XE motherboards	
*ask about EDO Memory for Asus' Triton Chipset Motherboards	
AMD 486DX4-100MHz CPU 3V	\$145
486 CPU Heatsink / Pentium Heatsink	12/20
1MB/4MB SIMM-70ns (30pin)	55/195
4MB/8MB/16MB SIMM-70ns (72pin) w/o Parity	190/ 370/ 695
4MB/8MB/16MB SIMM (72pin) EDO Memory	225/ 445/ 895
*Please call on all Ram prices	

Monitor, Video Card

Daytek 14" SVGA Monitor, 28mm dp, INI	\$295/320
Daytek 15" SVGA Monitor, 28mm dp, NI, EStar	475
Daytek 17" SVGA Monitor, 28mm dp, NI, EStar	940
ADI 4Gp/LR 15" SVGA Monitor, 28mm dp, NI, EStar	540
ADI 5Ep/LR 17" SVGA Monitor, 28mm dp, NI, EStar	925
Sony 15ef 15" SVGA Monitor, 25mm dp, NI, EStar	725
Sony 17ef 17" SVGA Monitor, 25mm dp, NI, EStar	1340
Sony 17se 17" SVGA Monitor, 25mm dp, NI, EStar	1650
Cirrus Logic 5429 VLB Accelerator w/1MB	\$115
Cirrus Logic 5434 PCI Accelerator w/1MB	145
ATI Mach32 Accelerator w/1MB (ISA/ VLB/PCI)	145
ATI WinBoost Accelerator w/2MB Dram (VLB/PCI)	255
ATI WinTurbo Accelerator w/2MB/4MB Vram (VLB/ PCI)	365/625
Diamond Stealth 64 Video Accelerator w/2MB Dram (PCI)	275
Diamond Stealth 64 Video 3200 w/2MB Vram (PCI)	375
Diamond Stealth 64 Video 3400XL w/4MB Vram (PCI)	895

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Inventory Control

Job Costing

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Hard Drive, Controller

Western Digital 635MB EIDE HD, 10ms, 64k cache	\$255
Western Digital 850MB EIDE HD, 10ms, 64k cache	290
Western Digital 1.2GB EIDE HD, 10ms, 64k cache	420
Western Digital 1.6GB EIDE HD, 10ms, 64k cache	555
HP SureStore 1.2GB SCSI-2 HD, 10ms	620
HP SureStore 2.2GB SCSI-2 HD, 10ms	1220
*call for pricing on other drives	
IDE 1:1 HD/FD Adapter w/2S, 1P, 1G	\$25
Enhanced IDE HD/FD VLB Adapter w/2S, 1P, 1G	40
Promise 2300+ VLB Enhanced IDE Card w/Bios	85
Adaptec AH-1542CF ISA SCSI-2 Controller Kit	\$375
Adaptec AH-2842 VLB SCSI-2 Controller Kit	365
Adaptec AH-2940 PCI SCSI-2 Controller Kit	385

Modem, Mice, Scanner

USR Sportster 14.4 v.32bis Fax/Modem (Int/Ext)	\$139/159
USR Sportster 28.8 v.34 Fax/Modem (Int/Ext)	265/290
USR Sportster VI 28.8 v.34 Voice/Fax/Modem(Int/Ext)	290/320
USR Sportster 28.8 v.34 PCMCIA Fax/Modem	399
UART chip for High Speed Modems	25
MS Compatible 3-button Serial Mouse	20
Logitech Mouseman (Serial/Bus)	75/ 95
Logitech Trackball serial mouse	115
Microsoft Mouse v2.0 (Serial/Bus)	85/ 115
Logitech Scanman 256 w/Omnipage OCR	155
Logitech Scanman Easytouch	245
Logitech Scanman Colour w/Omnipage OCR	295
HP ScanJet 3P Full Page Grey-Scale Scanner	495
HP ScanJet 3C Full Page Colour Scanner	1395
Bar code laser scanner gun, auto trigger	550
Magnetic card reader (serial or keyboard interface)	195
Magnetic card read/writer	1850

2000

\$275

795

1025

1025

1435/2388/3225

Order Entry

Inventory Control

Job Costing

Plus

\$138

610

610

610

4 user 369

610

610

610

Tape, Case, Power

Colorado DJ-35 Tape Backup Drive (350MB Max.)	\$185
Colorado Travan T1000 Tape Backup Drive (800MB Max.)	245
Colorado DJ-50 Tape Backup Drive (1.4GB Max.)	345
Colorado Trakker 350 Parallel Backup (350MB Max.)	345
HP JetStore 2-8GB Internal 4MM Dat Drive	1275
3M DC2120 tape cartridge 120MB capacity	\$20
3M DC2120XL Tapes, (350MB Max.)	25
3M MC3000XL Tapes, (1.4GB Max.)	45
3M DG90M 4MM DAT Tapes	17
Mini-size 13" tower or Desktop w/200W Jaba PS	\$95
Mid-size 19" tower case w/200W Jaba PS	115
Full-size 25" tower case w/250W Jaba PS	165
Full-size 27" tower case w/300W PS 2 fans, wheels	245

CD-ROM & Others

Panasonic DoubleSpin CD-Rom	\$95
Toshiba QuadSpin CD-Rom 5302B IDE/3601 SCSI-2	225/ 445
SoundBlaster 16 Vibra Sound Card (OEM)	125
Multimedia Stereo Speakers, 25 Watts	50
Sony CSS-B100 Speaker Set	135
Creative Labs Multimedia Home Office 4X Kit	585
Teac 1.20MB 5.25" Floppy Drive	\$70
Teac 1.44MB 3.5" Floppy Drive / with frame	60/65
Fujitsu KB-8720 Keyboard, 101 Key Soft-Tactile	38
Fujitsu KB-4720 Keyboard, 101 Key Click Tactile	65
MS "Natural" Keyboard	125
Focus 2001/2 Keyboard, 101 Key Enhanced	55
APC Personal SurgeArrest Strip w/Tel	45
APC Professional SurgeArrest Strip	65
APC Back-UPS 280/400/450/600VA	145/215/250/350
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486DX4-100MHz (AMD) PCI/VLB Computer Sys. w/Monitor	\$1425
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Pentium-90MHz PCI/ISA Computer System w/Monitor	2025
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international developer community, launched by ObjectSoft in cooperation with Microsoft. At launch the online offerings include over 250 reusable OLE Controls, from Microsoft and any other companies. Steve Ballmer, executive vice president of sales and support at Microsoft, stated, "The global availability of certified, reusable components through OL Broker demonstrates that the software industry has finally reached the long-elusive goal of building software from reusable, language-independent components. The implications for realizing such widely diverse concepts as corporate re-engineering and rapid application development are incredible."

Microsoft Developer Network: To The Next Level

Microsoft's popular Developer Network has announced Level 3, targeted at ISVs (independent software vendors) and others who are developing software for the Microsoft BackOffice, an integrated

family of server software. "With Level 3, we're extending the Developer Network model to client-server development using Microsoft BackOffice," according to Neil Froggart, database and developer tools product manager for Microsoft Canada. "The idea is to put the most up-to-date technology into the hands of Microsoft BackOffice-based application developers."

What, Me Monopolistic?

With the release of all these new versions of developer tools, and the extension of

the Developer Network, Microsoft hopes to rapidly expand the appeal of Windows 95 with a flood of exciting new third party software products. Third party software developers, racing to market with hundreds of new 32-bit applications for Windows 95, may find that they rapidly create a new, multi-billion dollar software market for themselves. Far from stamping out competition, with these tools Microsoft is creating a whole new universe of business opportunities for the software development industry. □

Contact: Microsoft Canada, 905-712-0333

Microsoft Developer Network (Developers Only), [HTTP://WWW.MICROSOFT.COM/DEVONLY](http://www.microsoft.com/devonly) and The Microsoft Network, or email to DevWire@microsoft.com, with Subscribe DEVWIRE in the message body (leave the subject line blank).
ObjectSoft Corp,
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SCANNERS

ImpOS/2

Continued from page 39

it has its uses — like not wasting screen space on a menu bar when it can be used to show more of the image.

My problem is that the main window's toolbar combines some items from the menu bar with some of the editing tools: tools which are not attached to a specific image. Many of the buttons on the toolbar let you perform common functions on a preselected portion of the image. However, there is no button to let you make such a selection quickly.

One area where ImpOS/2 excels is color conversion. Anyone who has scanned images has probably noticed that once you reduce an image from 24-bit color (say, by saving it as a GIF), you can not perform many special effects on it. ImpOS/2 offers several options when reducing an image from true color to 256 colors. When moving in the other direction, each pixel is assigned a 24-bit color value, but the total number of colors is still 256 or less. This allows special effects to be applied to an image which is not in fact a true color image. The results of the special effects are limited by the low number of colors, but at least they can now be applied.

ImpOS/2 also employs some sophisticated methods when enlarging an image. If the image is in 256-greyscale or true color, the inserted pixels can be "interpolated" rather than just a duplicate of the adjacent pixel. This can help decrease the amount of "pixelation" when you enlarge an image. For my own use, I have found that these two functions are worth the price I paid for ImpOS/2.

Overall, I am quite happy with ImpOS/2. The only function I really miss is the ability to "lamininate" two partial scans into a single whole, so I can't get rid of HALO yet. If you are looking for a good image editing program, but don't have the US\$400 for ColorWorks, take a look at ImpOS/2. □

Compart ImpOS/2 1.2d developed by Compart Systemhaus GmbH, Germany available now.

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Making Movies on Your PC

Three Digital Video Packages Compared

BY RON GREBLER

If a picture is worth a thousand words, then perhaps a video clip is worth a million. Video provides an excellent venue for communicating and is rapidly becoming an accessible option for home and small business PCs. Once thought to be only for the high-end industrial and broadcast industry, the ability to manipulate sound and images in the digital domain is now available to all of us, and the best part is that it's not as expensive as you might think.

Video editing programs serve as multi-use tools in which the user can manipulate files and place them into sequences, creating "movies." These files are not restricted to only video types (such as .AVI or .MOV), but can also include still images, audio, animation, graphics, and text. There are at least three elements common to better video editing software.

One of these elements does the job of organizing files, which are stored, sorted and usually represented by thumbnails (a still image from the file). Another element operates much like Microsoft's Media Player, allowing the user to view the clip but adding such features as visible timecode numbers, the ability to mark in and out points, jog and shuttle options, and even variable viewing speeds, such as slow motion. The final element handles the actual editing and usually employs a graphical interface that includes a variable timeline with tracks for video, audio, transitions and effects.

MediaStudio Pro 2.0

From: Ulead Systems

Price: US\$349

System Requirements:

- 386 processor or higher
- Microsoft Windows 3.1 or higher
- 4 MB of RAM or higher
- 20 MB of available hard disk space or higher
- VGA, SVGA, XUGA, 851 4/A, 15-, 16- or 24-bit display adapter

Testing Platform

For this review, the testing was conducted on an AST Advantage! Adventure 8075p, which can be considered a higher-end home or AV business system. The system details: Pentium processor running at 75 MHz housed on a PCI bus with available ISA slots; 16 MB of RAM; 1 gigabyte hard drive; quad-speed CD-ROM drive and a standard SVGA and 16-bit sound card.

Ulead Systems' MediaStudio Pro 2.0 is a feature-packed application with quite a few powerful digital video tools. It installs from one CD-ROM and comes with both Video for Windows and QuickTime for Windows. It combines eight different programs that cover such areas as image manipulation, file organization, capture, editing and tutorials.

Filing and Viewing

The Image Editor is a program that functions much like a lighter version of Adobe's Photoshop or Corel PhotoPaint. It allows the user to affect many aspects of an image, including color, filtration, special effects, adding text, drawing and too many more features to mention here. The Morph Editor is another image manipulation tool. Reference points are selected from two different images so that one can merge into the other over a period of time. This is the special effect that you have seen in many commercials and films such as *Terminator 2*.

Under file organization are the programs Multimedia Converter, Album and Viewer. The Multimedia Converter is a versatile tool that enables MediaStudio to support a wide range of movie file formats. The Album works as a visual database. It organizes files using thumbnails but also offers the option of sorting by description, keyword, subject, file type and more. It helps you to organize and plan your movie before assembly. The Viewer allows you to see your clip play and permits trimming, marking in and out points, jogging forward and back, and other viewing options.

Capture

The capture section includes screen capture and video capture. Screen Capture is a unique program that enables the user to grab the entire frame right off the monitor. This is truly a what-you-see-is-what-you-get tool and is excellent for use in multimedia applications and for creating visuals for training or tutorials, or if you need to depict a specific action that occurs within a partic-

ular program. Video Capture is the software element that utilizes a video capture board to bring video images into the PC. Parameters that affect image quality while capturing, such as frame size, number of colors, frame rate, compression and others, are offered here.

Editing

Finally, the element of editing. MediaStudio has a graphical interface called the Video Editor in which all the assembling is done. It consists of pull-down menus, graphical icons and a timeline. It permits up to 99 video and 99 audio tracks with in-between tracks for the 44 available transitions and effects. There is even an audio editor that helps with mixing and adding effects in relation to sound.

Using the Program

MediaStudio Pro 2.0 is definitely a powerhouse. It is loaded with different features that can help you to create very impressive looking videos. It installed in less than five minutes with no problems. When the first program group icon was opened up, it revealed a whopping 18 icons representing all the different programs, help options, various tutorials and more.

The different programs genuinely stand alone and don't just act as small, related utilities within a larger application. The best part is they can be linked to the Album, so once you have worked on a particular file, you simply drag it to the Album for storage and organization.

The interface is well laid out. However, when you are editing it helps a lot to see the Album, Viewer and Timeline at once; consequently, the screen can tend to get a little bit cluttered. (That isn't a criticism of just Ulead — this seems to be the case with almost all video editors.) The other problem with the editing interface is that it's neither simple nor user-friendly. With all the pull down menus and the graphical icons, it takes time to learn and become proficient.

That goes for some of the other utilities as well.

This isn't the type of program you master in a few days. The tutorials are detailed and comprehensive, teaching you the basics and giving you tips and instruction on more complicated procedures. The documentation in the user's guide is good, albeit a little bit technical. You also get 400 MB of video, audio, and still clips to start playing with, as well as an excellent character generator and animator in the Video Editor that allows you to create broadcast-style text effects in mere moments.

The best way to characterize MediaStudio Pro 2.0 is as an all-in-one screwdriver. Although you have the tools to do different jobs, they're not necessarily the best or easiest to use. Still, they get the job done and in the long run that is what counts.

RAZOR Pro 2.0

From: in:sync

Price: US\$799

System Requirements:

- 486 processor or higher
- Microsoft Windows 3.1 or higher
- DOS 5.0 or higher
- 24 MB of RAM (?) or higher
- SVGA card with a min. 800 x 600 resolution
- recommends 500 HD on system and 2 GB separate HD for video storage
- mouse

The people at in:sync who've created RAZOR Pro definitely believe that simple is better. Compared to MediaStudio, Razor Pro looks pretty skeletal. One shouldn't be fooled by appearances, though. This is a sophisticated program with an extremely functional (almost minimalist and elegant) interface in which all the separate elements complement each other. There are three different tools, which represent organization, viewing and editing.

Continued on page 44



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Filing and Viewing

The RAZOR Library is a multi-use organizational utility with a simple, very easy-to-use interface. When you click on the MEDIA dialogue box, it organizes files through thumbnails, filename, and file statistics, even offering a memo section for notes. The TRANSITIONS dialogue box reveals a choice of 20 transitions, while the EFFECTS dialogue box has 38 effects. The ROW/COL box can organize any one of the above options into rows and columns. The open architecture design allows for easy additions of plug-

ins. Once an effect, transition or media clip is selected, it can be dragged to the Composition Window for placement in the timeline.

When a media clip is double clicked, it instantly summons the RAZOR Player, which has the typical viewer options such as marking in and out points, adding markers (which you use to snap to other markers along a timeline and still stay in synch), the ability to jog and shuttle, and slow motion playback.

Editing

The RAZOR Composition window works along a basic intuitive graphical timeline (which is alterable), into which clips of audio, video, graphics, text and animation can be dragged and dropped. It has an infinite number of video and audio tracks as well as tracks for the insertion of effects and transitions. Its menu of dialogue boxes has an UNDO feature, including multiple undo, enabling the user to change very complicated layered effects and edits. A SEPARATE box splits audio that's attached to video (as

in an .AVI file). A Razor icon creates cuts in the tracks on the timeline.

Using the Program

I really have a fondness for this program. It has a clean look and it's very practical. Of all the programs reviewed, it has by far the quickest learning curve. You will be editing and layering effects and transitions within minutes. The interface is clear and intuitive. An excellent feature is the inclusion of the NO MENU and POWER dialogue boxes in every utility. The first feature allows you to remove all the dialogue boxes so you can deal strictly with pull-down menus and save some valuable space. The latter feature is a quick way of shutting down the utility and getting it out of your way. As with the previously reviewed program, things can get cluttered on your monitor when you're juggling the open windows of the Library, Viewer and Composition.

To a degree, this program is scaled down and focused mainly on editing. There is no capture utility or image editor, something

Continued on page 46



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Interpreting the Numbers

Frames per second

15fps is the acceptable standard for multimedia and communications (e.g., video conferencing). Until a little more than a year and a half ago, it was the about the best you could do for home and small business computers. Recently, due to improvements in the technology of capture chips and boards in general, 30 frames per second is now possible. What's all the hubub about 30fps? It just happens to be the broadcast standard by which we view video. It offers normal-appearing movement, action and so on. A rate of 15 fps (even when the sound is in synch) is definitely more "stuttered" looking than 30fps. It has more of the look and feel of a stylish special effect than absolute realism. So from that, you can use 15fps if you don't want to portray absolute realism or, more likely, if you just can't afford the amount of hard disk space 30 fps is going to eat up.

Resolution and Image Size

If you figure that a VGA screen resolution is 640x480 and SVGA is 800x600, then a 320x240 video image takes up about a third to half of the computer screen. 240x180 is definitely less than a third of the screen, and 160x120 is what you call postage stamp size. But remember, at 320x240 resolution, an uncompressed video file (audio included) can take up 10 MB of disk space.

Frame Dropouts and Image Quality

The eye is a pretty sharp little guy, so the bottom line is that any dropped frames are noticeable. The ideal is zero dropped frames. The particular amount that is acceptable is something you really need to judge for yourself, but when you're dropping five or six frames per second, that's really noticeable. It's better to reduce other aspects of the image quality — by reducing the frame size or dropping the number of colors (24-bit to 8-bit) etc. — than to drop frames. — RG

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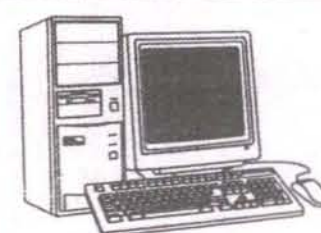
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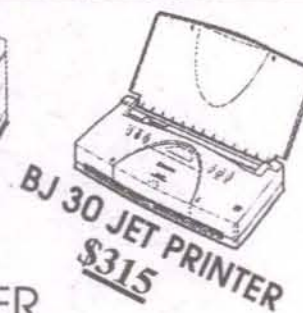
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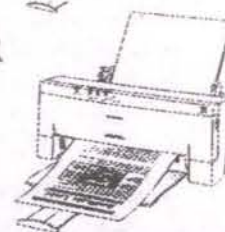
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DIGITAL VIDEO

Making Movies on Your PC

Continued from page 44

that seems to be standard on most applications. The tutorials are straightforward and can help you when you get stuck on more complicated functions. It took four disks to install and comes with an extra disk to install Video for Windows. Unfortunately, Razor does not support QuickTime for Windows.

The User's Guide is well written and very helpful. One odd thing related to RAZOR PRO's system requirements of 24 MB of RAM to operate. My 16 MB machine had no problem installing, running or rendering and never hung up or seemed to run slowly. The final word on RAZOR PRO 2.0 is that it's an easy to use and powerful editing program which needs a few relatively minor tools to be truly excellent.

Premiere Version 4.0

From: Adobe Systems

Price: US\$695

System Requirements:

- 386 or higher
- Windows 3.1 or higher
- DOS 5.0 or higher
- 8 MB of RAM
- 100 MB of hard drive space
- 8 bit color display adapter (24 recommended)
- CD ROM drive

Premiere Version 4.0 by Adobe Systems is a workhorse digital video program with the biggest and best reputation. At times it can seem to be intimidating, given its wide array of capabilities and functions. The interface is clear, composed of a few icons related to certain tasks and pull-down menus. The basic division of elements is similar to Razor Pro. There is the Project Window, which serves as the organizing tool for files; the Construction Window, where the editing (again, along the familiar timeline) is done; and a Clip Window, which serves as the viewer.

Filing and Viewing

In the Project Window, you can choose to display clips with thumbnails, title, file information and size. You can change thumbnail size, sort by name, comment, label, and have the choice to show or not show icons. You can even collect clips and

Continued on page 49

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DIGITAL VIDEO

Making Movies on Your PC

Continued from page 46

put them in folders. Double clicking on a clip or dragging it to the Clip Window will make it play. In this window, you have the familiar functions of jog and shuttle, marking in and out points, creating markers and so on.

Editing

The Construction Window allows you to place clips (dragged from the Project Window) into a timeline that offers 99 audio and 99 video tracks, as well as 97 superimpose tracks for layering effects transitions and other clips. Clips can be displayed in the Construction Window in a multitude of ways in order to save time, space or both. Adobe's well-known Photoshop comes bundled with Premiere (on the Deluxe Premiere CD) in scaled down form. It is an exceptional and diverse tool for image manipulation, allowing the user to affect color, add effects, filters, crop, paint, and much more. In terms of video capture, Premiere has a utility for single frame, video, audio and even batch capture functions. You can choose frame rate, compression, number of colors, frame size and have the option of capturing directly to memory or hard disk, as well as reporting dropped frames.

The program also comes with a character generator and fonts through the Adobe Type Manager which comes bundled as a CD-ROM. The Adobe Acrobat Reader also comes included on a disk and helps to expand and print full on-line versions of the Premiere User Guide and other manuals. The application allows importing and conversion of all standard files associated with audio, video, animation, graphics and text. In addition, Premiere bundles Video for Windows and QuickTime for Windows.

The learning curve is somewhere in the middle: you can start editing fairly soon, but will get stuck if you try something complicated. The documentation and the tutorials are very clear, concise and helpful and offer all sorts of shortcuts and tricks to create striking videos. It installs with six disks and includes two CD-ROMs as well as the disk for Acrobat Reader and some stock media clips.

In the final analysis, Premiere is an excellent program that is full of options and features that will keep you busy making movies. As a home and small business tool, it ranks slightly above the other products given its excellent track record and bundled goodies.

Other Products

These programs by no means cover the market in terms of digital video editing software for the PC. In fact, there are quite a few programs. Star Media Systems' Video Action Pro 2.0 is about to go into beta release and was unavailable for review. ATI has a program called MediaMerge which is also due for a late fall release and was also not available. Asymetrix makes a program called Digital Video Producer, and D-Vision Systems' make D-Vision Basic and Cineworks. □

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Build It Or Buy It?

The Method and Madness of Building Your Own Computer

BY ROSS MACDONALD

Part I: What and Wherefore

When it was first suggested that I build my own computer and then write about it, I wondered why anybody would bother with the former and bother reading the latter. After all, system prices have dropped to ultimately affordable levels while individual component upgrading has become almost commonplace. The writing part makes slightly more sense, though, because that's the source of my great wealth.

I actually know several people who have either built their own computers from scratch or upgraded their systems so often they might as well have. The "builders" claim two general advantages: 1) complete control over what goes into the system and 2) learning the intricacies of how the components work — confidence is an invaluable asset toward future upgrades and trouble-shooting. The "upgraders" agree, but add the more practical claim that the slow replacement of individual parts is economically easier because you only have to come up with a portion of the money involved at any one time.

Most people who have considered building their own system are invariably concerned about losing out on those system wide warranties and tech support. But that fear can be easily waylaid by the fact that virtually all the components have their own warranty and often offer better and more knowledgeable tech support.

The second biggest concern — cost — is, alas, a less happy situation. Anybody who thinks they're going to save money by building their own computer can forget it. In fact,

quite the opposite is true. Building a computer from individual parts will actually exact a premium because there are no opportunities for retailers to off-set the cost of some components by taking a cut on others (e.g., a system may have a good video card but a cheap motherboard to keep the price down).

Before you start, there is one absolute golden rule to keep in mind: establish a good relationship with the store where you buy all or many of your components because you're going to have a lot of questions during and after your purchases and a friendly and helpful expert will be of more value than any individual component.

It is not unusual to receive a great deal of time and attention from many retailers while you're buying, but that can deteriorate to short shrift once they've got hold of your dough. Fortunately, there are just as many specialty stores out there staffed by knowledgeable people who see follow-up service as inherent to a sale. Think of this service as a component of your project as important as any other. If you don't, you'll soon wish you had — don't shop for your bits and pieces on price alone!

Now that we've got that behind us and we're ready to start, here's what you'll need:

Basic Essentials

- Motherboard
- RAM
- I/O card (maybe)
- Video card
- Hard drive
- Floppy drive

- Case (plus power supply, usually included with case)
- Keyboard and mouse

Desirable Options

- Sound card
- CD-ROM drive
- Fax/modem

What You Need and What to Look For:

1) The Mother (or Main) Board and CPU

Price range: 486 — \$300 to \$500; Pentium — \$700 to \$1500 (depending on make and CPU speed)

This is the heart of any computer system and where you should start, because the motherboard you choose will greatly influence just about everything else in your system — to the extent of determining just what else you can and cannot buy. It's also the most befuddling component, because there are so many variables. However, if you can get a handle on this, the rest will trip lightly off the brain come shopping day.

Though they can be purchased separately, it's more usual to buy a motherboard already equipped with a chip (CPU). And which CPU is on the motherboard is generally the first thing most people look at.

Nowadays, a mother board with a 486 DX2/66 CPU is the absolute minimum you should even consider. With current prices between \$350 and \$450 (depending on make and quality), you can end up with a capable computer at a very reasonable price.

However, entry level Pentium equipped motherboards (entry level = 60 and 75 Megahertz (MHz) models) cost only about \$300 more and will ultimately serve you better for several reasons.

The first Pentium benefit comes from the fact that the chip itself is 64-bit, which essentially means it talks to the motherboard through 64 connections simultaneously. The 486 family of CPUs are all limited to 32. This, in turn, means that — theoretically, at least — you get faster and more efficient communication between the chip and the board.

Secondly, and actually of greater influence, is that Pentium motherboards use what's called a PCI Bus. This is the communications system between many of the cards you're going to be installing and the CPU, all

of which are matched to that 64-bit design. Not all the slots on a Pentium motherboard will be PCI so you have to make sure there are enough to accommodate all the cards that will either require or benefit from the technology. A sound card, for example, already operates fast enough for any computer so it won't benefit from a PCI interface. You'll stick that into a standard ISA (Industry Standard Architecture) or EISA (Enhanced Industry Standard Architecture) slot — it is a non-issue between the two for normal users, so don't worry about which you motherboard has. Your video card, on the other hand, needs all the help it can get, so that's a definite PCI buy

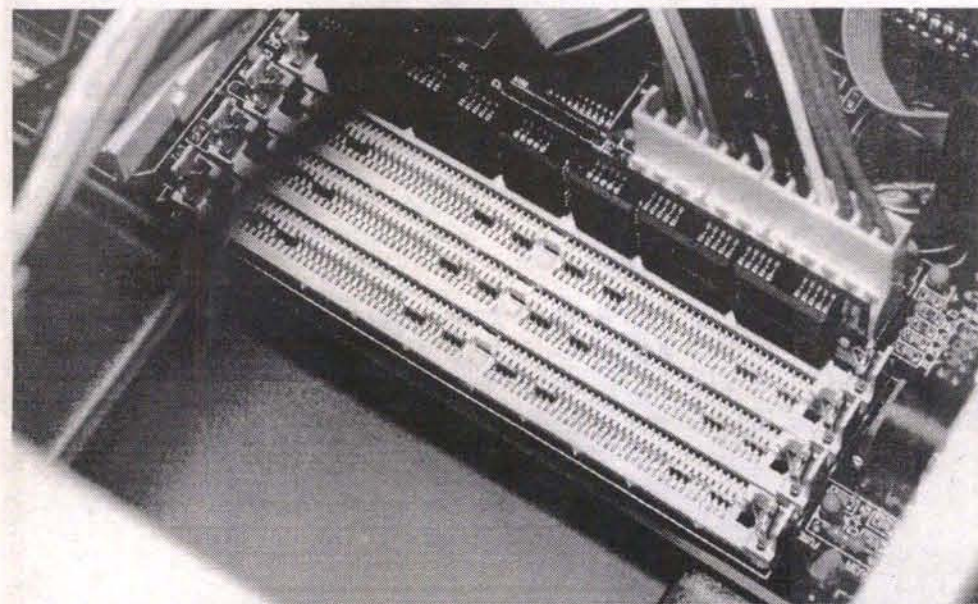
Before you start, there is one absolute golden rule to keep in mind: establish a good relationship with the store where you buy your components

for Pentium based machines.

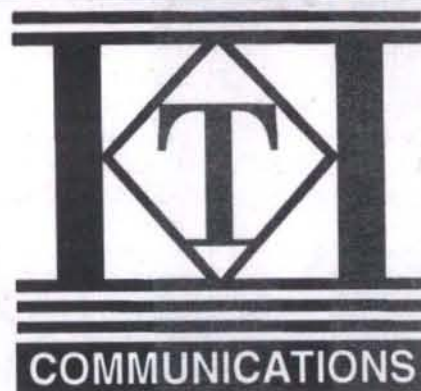
In the end, a Pentium-based motherboard combined with PCI cards will allow the critical bits and pieces to work at maximum speed and efficiency. It should be mentioned that the PCI Bus incorporates a new development called "Plug 'n' Play" which means you should be able to simply slide new cards into their slots and the CPU will be able to automatically recognize who and what they are, and then set things up accordingly. This has proven to work to some degree but not, of course, without problems. Fortunately, Windows 95 has something similar and equally dicey built-in to the avail of non-Pentium owners.

Jumping ahead slightly, another new feature that only Pentium buyers will have access to is built-in I/O (although throughout the short history of the PC, there have always been a few manufacturers that choose to design all-in-one motherboards incorporating I/O, video and sometimes even a fax-modem). I/O simply stands for Input/Output and is usually accomplished by installing an I/O card into one of the motherboard's slots. This I/O card contains connectors for your hard and floppy disk drives as well as the ports through which your printer, mouse, joystick, and many other items not built directly onto the motherboard, will talk to the computer. 486-based motherboards require that you purchase an I/O card separately.

Continued on page 52



SIMM—These SIMM memory slots are the newer 72-pin variety, although they look the similar to 30-pin SIMM slots. This assembly has one SIMM module installed.



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Continued from page 50

But 486 builders needn't despair. All you have to do is make sure it has what's called Vesa Local Bus (VLB or Vesa) slots. These are the 486 equivalent to the PCI slots for Pentiums but without the Plug 'n' Play. Just as with PCI, not all the slots on a 486 motherboard are going to be VLB so make sure that there are enough: two will usually be enough.

In either case, the other slots on the motherboard will be standard ISA or EISA slots for cards that don't require the speed of PCI or VLB. Overall, just make sure there are enough slots to allow you lots of opportunity for unanticipated future add-ons — three PCI or VLB along with four ISA is normal.

Whether going for 486 or a Pentium, you're also likely to hear a pitch for CPU upgradeability. In a sense, this fosters false hopes because the original speed of the bus on the motherboard will remain constant no matter what. Pentium buyers have an edge here, because the board is wired for true 64-bit operation, so if they buy a Pentium 60 (which operates at 60 MHz) then later install a Pentium 120, they will see an appreciable improvement in speed, though not nearly the two-fold increase that basic arithmetic would lead them to expect. That's because a Pentium 120 chip does run twice as fast as its 60 MHz cousin, but it's forced to communicate with the rest of the computer through a 60 MHz bus.

Upgrades for 486 based motherboards are even less appealing. Switching from a 486 of one speed to another presents the same problems as described above. However, many 486 motherboards are touted as Pentium upgradeable, leading you to think that you can throw in a Pentium chip at any time.

This is actually true... physically, you can replace your 486 with a Pentium chip on these boards. The reason you'll later curse the retailer is that the Pentium's true power is realized only through that PCI bus and you don't get any PCI slots on a 486 motherboard. In fact, an entry level Pentium CPU might even perform slower than the original 486.

Of course, a fast Pentium will make a difference, but the cost/benefit ratio is so low that such a move will not be recommended by any reputable dealer — at least, not until chip prices drop, in which case you'll be able to upgrade the whole motherboard anyway.

Finally, motherboards come with what's called a cache. These are special memory chips that store electronic information regularly needed by the computer to operate. The bigger the cache the better, but because cache RAM is expensive, cache size alone can make the price of two otherwise identical motherboards phenomenally different.

Basic tips: The 486 is cheaper, but make sure there are enough VLB slots. You're committed to VLB for other components once you make this purchase.

Pentium is faster, but make sure there are enough PCI slots — you're committed here too.

2) Random Access Memory (RAM)

Price Range: \$50/Megabyte, give or take a few bucks (used RAM paradoxically sells for the same maddening price).

Everybody who's even seen a computer knows about RAM because, with few exceptions, every computer owner wants or needs more. You're going to need a minimum 8 MB just to get started, so be prepared.

RAM chips are where information from the software is temporarily stored (while the computer is turned on) so that the CPU can grab it very quickly. RAM chips talk to the CPU much faster than any other part of the computer so the more storage you have in this form, the faster things are going to happen. RAM is measured in Megabytes (MB) and the more you can afford to put into your machine the better.

As straightforward as that might seem, there are a few variables to consider. First, for our purposes, RAM can be bought in what's

called 30-pin and 72-pin configurations. The 30-pin version is an older method of connecting the RAM chips to the motherboard and any soul searching you might anticipate about which way to go is already solved because you shouldn't even be looking at a motherboard wired for 30-pin RAM — it's simply too old and will likely lack other desirable features.

Conversely, if your build-it-yourself project is intended to replace an older computer, some new motherboards feature a RAM interface that accommodates both 30-pin and

72-pin RAM so you can keep your original RAM. Anyone starting completely from scratch, however, might as well ignore 30-pin RAM chips altogether because they're not any cheaper right now despite their age.

The only other thing to consider with RAM is that it's available in different speeds. Measured in nanoseconds (ns), the smaller the number the better. It is possible to mix different speed chips — 60ns with 70ns for example — but the faster chips will be crippled by the pace of slower ones. (Mixing

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- Sliding Doors, 2nd Fan Optional
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- ATI Graphics Pro Turbo 2MB VRAM
- NMB Novell Certified Keyboard
- Genesis Tower Case
- 1.44MB Floppy, MS Mouse II
- MS Windows 95

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System Components

Mainboards

486DX2/66 VLB Upgrade Kit	\$ 229
■ Mixed (30 & 72-pin) SIMM sockets	
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Acer AP5C Pentium 75-133 PCI, Triton	299
Acer AP5C & Pentium 75	575
Acer AP5C & Pentium 90	695
Acer AP5C & Pentium 100	795
Acer Pipelined Burst SRAM upgrade	129
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Asus TP4 & Pentium 75	645
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Asus TP4 & Pentium 120	1139
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Hard Drives

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Seagate 540MB, Mode 4	239
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Seagate 850MB, Mode 4	319
Samsung 1.1GB, Mode 3	339
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Conner 1.2GB, Mode 3	359
Quantum 1.1GB Fast SCSI-2	549
Quantum 2.1GB Capella	1059
Quantum 4.0GB Grand Prix	1659
Seagate 4.0GB Hawk	1629
Micropolis 9.0GB Scorpio	4199
Legacy External SCSI case	179
Adaptec 2940 PCI SCSI card	315
Adaptec 2940 PCI SCSI kit	375
Adaptec 3940 PCI SCSI host	589
Adaptec 3985 RAID 5, 1, 0, 0/1	1059

Multimedia

SoundBlaster16 Vibra	\$ 109
Mitsumi 2xCD-ROM	79
Acer 4xCD-ROM, IDE	219
Toshiba 4xCD-ROM, IDE	239
Panasonic 2xCD-ROM	89
Panasonic 4xCD-ROM, IDE	239
Panasonic 4xCD-ROM, SCSI	339
DoubleSpd Kit (Pana/SB16/Spk)	209
QuadSpd Kit (Acer/SB16/Spk)	329
Modems	
Zoltrix 14.4 FaxModem, int	\$ 69
GVC 28.8 v.34, int	269
GVC 28.8 v.34, ext	289
Sportster 14.4, int	119
Sportster 14.4, ext	139
Sportster 28.8v, voice/callerID	309
Sportster 28.8v, ext	339

Network Software

Windows NT 3.51 Workstation	\$ 395
Windows NT 3.51 Wkstn Upg	125
Windows NT 3.51 Server	875
Lantastic AI 6.0 DOS/Win	110
Novell Network 3.12 or 4.1	
CD version, 5 user	945
CD version, 10 user	2295
CD version, 25 user	3395
CD version, 50 user	4695
CD version, 100 user	6595

Miscellaneous

Archive Python 4GB DAT	\$ 1,275
Focus 2001 click keyboard	59
Keytronics Win95 keyboard	49
Novell PerfectOffice CD	119
APC BackUPS Pro 250, PnP	379

Graphics Emporium

Video Accelerators

Trident 9440 PCI 1MB	\$ 99
ET4000 PCI 1MB, upgr to 2MB	149
ATI Graphics Expression, 1MB	209
ATI Graphics Expression, 2MB	279
ATI Graphics Pro Turbo, 2MB	429
ATI Graphics Pro Turbo, 4MB	669
Stealth64 Video 2120XL, 1MB	209
Stealth64 Video 2120XL, 2MB	279
Stealth64 Video 3200, 2MB	389
Stealth64 Video 3240XL, 2MB	489
Stealth64 Video 3240XL, 4MB	729
Matrox Millenium 2MB, max 6MB	475
Matrox Millenium 4MB, max 8MB	695

Video Capture & Output

Creative VideoBlaster SE-100	\$ 339
Creative VideoBlaster MP400	449
Creative ShareVision PC300	849
desktop video conferencing	
AverKey, VGA to NTSC ext	249
AverKey II, Video & Audio	349
AverKey III, Genlock	535
AverPro, Video in & out	789
Miro D1, in & out, 24-bit 320x200	449
Miro DC1, in & out, 1600x1200	889
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Targa 2000 60fps 20MB RAM	8350

Imaging Software

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Elastic Reality	575
CorelDraw 6.0 upgrade	339
Autodesk 3D Studio Consumer	599
Autodesk 3D Studio v4	3795
Autodesk Animator Studio	825
Macromedia Director	1495
Razor Pro	945

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Epson Stylus Color 2	648
Brother HL641	539
Brother HL660	788
Brother HL1240	1699
Lexmark Optra R 1200dpi PS2	2259

Exotic Memory

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Flash RAM, DIP, SOJ
- Performance PC
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- Systems & Notebooks
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memory chips should be avoided, because using chips of different speeds can lead to timing errors — can you spell crash? —Ed) 60ns is the fastest available right now and will be worth the extra few dollars per meg.

3) The I/O (Input/Output) Card

Price range: a bargain at \$15-25 for standard ISA, \$40-60 for VLB or PCI.

This is a relatively straightforward purchase that may need to be considered for Pentium builders (see built-in I/O above) but will be an

absolute must for 486s.

The I/O card has rows of pins on its surface where you can hook up your floppy disk drive, hard disk drive and any other internal add-ons like a tape back-up. It also provides the parallel and serial ports at the back of the computer for your mouse, printer, joystick, etc. This is one of the cards that directly benefits from a faster interface because your disk drives want to communicate with the CPU as quickly as possible. That means 486 buyers should look for a VLB type called Enhanced IDE (EIDE), while Pentium

people, of course, will want a PCI I/O card — if their mother board doesn't have the I/O built in.

Just remember that your disk drives, tape back-ups, etc. have to be wired for the type of I/O you buy (e.g., if you have EIDE I/O you have to get an IDE or EIDE hard drive).

4) The Video Card (Video Accelerator)

Price Range: <\$100 to \$500+.

As the price range indicates, there are many ways to go when it comes to a video card —

too many, in fact. The main concern here is speed because it takes a lot of computing resources to generate those millions of colors and move them around in video and animation.

Again, though there are standard ISA versions available, you should only consider VLB or PCI because this baby needs the boost. An even bigger boost comes from the amount of video RAM that's on the card and it's this feature that's largely responsible for much of the wide range in prices.

Yes, video cards have their own RAM chips, just like those on your mother board. And, also like on your mother board, the more the better... to a point. Only a few years ago, 512 kilobytes of video RAM was considered hefty. But now, with the sophisticated video and animation leaping off of CD-ROM and the newer games, that just isn't enough to store and generate all that information smoothly. One megabyte of video RAM is now the standard and will serve most people well enough. Two MB is, of course, better, and serious computerites will look for four. There's a point, though, at which you won't see any difference — depending on what you're planning on doing with your machine — so don't automatically shell out for the maximum amount of video RAM unless your intended applications can use it.

The nice thing about a good quality video card is that it will have sockets on it for adding more RAM at a later point. The average cost for a megabyte of video RAM is about \$80, which is affordable if not a bargain. Most good quality cards will come with 1 MB installed and sockets for one more. Upper range cards will come with 2 MB and sockets for two more. Discuss this with your dealer.

5) The Hard Disk Drive

Price range: a one Gigabyte (GB) drive can now be had for about \$385.

That's all you really need to know about hard drives. To everyone's delight, the capacity just gets bigger while the price just gets smaller. A Gigabyte equals one thousand megabytes, which might sound inexhaustible — and a few years ago it was — but that's rapidly becoming the standard storage capacity for many systems because modern software quite simply demands lots and lots of space. Some people are even finding it necessary to install a second hard drive — a relatively straightforward operation as long as you have the room (see "The Case" below).

Make sure you get a jumper diagram and CMOS information with your hard drive. You need these to set-up the drive and tell the CPU what kind of device it is.

6) The Floppy Disk Drive

Price Range: \$40 - \$80.

Again, not much to tell, but we are talking about the 3.5-inch, 1.44 MB capacity models here. Those old 5.25-inch drives can still be found for about \$5 but you're unlikely to ever need one. Even the 3.5-inch drives are called on less and less these days, though they're handy for installing non-CD-ROM based software and extracting files from your system. If you're planning on a lot of disk copying, you should consider installing two (see "The Case" below).

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GVC BNC & TP Combo Card	\$ 62
GVC 8-port 10BaseT hub	249
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3COM 3C509 ISA BNC or TP	145
3COM 3C590 PCI BNC or TP	255
3COM 3C590 EISA BNC or TP	350
3COM Linkbuilder-12	299
Novell NE2000+ ISA BNC or TP	125
Novell NE3300+ EISA Combo	299
Novell NE5500+ PCI Combo	235
Novell EH800 8-port hub	279
Novell EH1200 12-port hub	325
Intel EtherExpress Pro Combo	155
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Intel EtherExpress 10/100 PCI	345
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7) The Case (and Power Supply)

Price Range: \$50 - \$250 depending on make and design.

It's surprising how little thought many people put into what they want from a computer case. But this is a critical component because it greatly contributes toward determining just how much of a system you can create.

There are two basic designs: desktop and tower. The desktop design lies flat, usually under the monitor, and there isn't much

variation in design. They're the least popular because, above all else, they're cramped inside. Tower cases, on the other hand, can be had as mini-towers (about 14 inches high, mid-towers (17 inches) and full towers (21-24 inches), each with advantages and drawbacks.

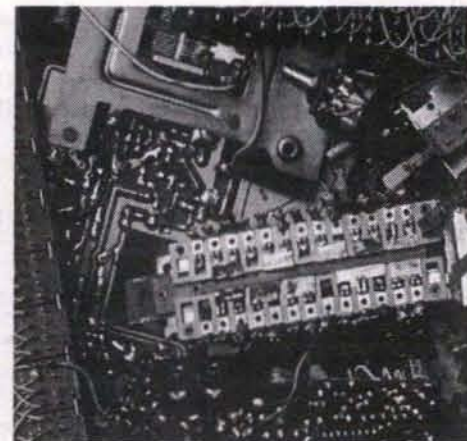
Mini-towers are easy to store but limit future expansion and the dissipation of all that heat that builds up inside. Mid-towers are the most popular because they accommodate some expansion and allow more air to circulate. I personally prefer the full

tower, however, because it maximizes both considerations.

Other things to look for are:

Lockability: nearly all cases will have a lockable panel or a key lock that kills the keyboard to keep long noses out of your files.

Bays and slot holes: bays are the spaces at the front of the case for housing anything you have to repeatedly access — CD-ROM drives, floppy drives, tape back-ups, etc. They're generally blocked by plastic



panels when empty to keep things looking nice. Slot holes are spaces at the back of the case for hooking connectors (monitor cable, printer cable, mouse, etc.) to your otherwise internal cards. These are generally covered by removable steel panels. Just make sure any case you buy has enough of each for now and for later.

Internal bays: you might want to install two hard-drives (which don't require external access) so you'll need room for them inside the case.

Power supply: this generally comes included with the case and already installed. Unless you're buying an older, used case, you'll find a 200 or 230 watt power supply inside and that's plenty for home use. Older cases might have a weaker power supply, in which case you should install a 230 Watt unit.

Screws, fittings and power cord: all the pesky little pieces that are only worth about two cents but can lead to emotional bankruptcy when you need them and they're not around.

Motherboard matching: simply make sure that the size of the motherboard matches the size of the case and the mounting holes and keyboard socket on the motherboard line up with the holes on the case.

8) Keyboard and Mouse

Price Range: \$25 - \$125 (keyboard), \$5 - \$50 (mouse).

These are arbitrary choices dictated by your own tastes for look and feel. Many people go for the new (and expensive) ergonomic keyboards—of which there are many variations—but my personal experience has been that most who try them just can't get used to their idiosyncratic demands. Mouses, likewise, can get expensive when you go for that ergonomic shape, but at least they don't require prestidigitous gymnastics.

Options: for our purposes, a sound card, CD-ROM drive and fax/modem are the most likely add-ons.

9) Sound Card

Price range: \$80 - \$400, but \$150 will get you a very good unit.

The sound card has become an option for nearly everyone because games and CD-ROM demand it. You can forget the really cheap sound cards, though, because they're usually 8-bit and what you want is 16-bit — which means the card is capable of many extra features and thousands more sounds.

Other things to look for are MIDI (Musical Instrument Digital Interface) features and connectors — in case you want to plug in a keyboard and make use of some of the fabulous composition and performance

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- ☐ 90 Mhz\$936
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- ☐ To 512K (Pent 586 only)\$85
 - ☐ To 8MB (586: 2x4MB)\$172
 - ☐ 16MB (486: 1x16MB)\$483
 - ☐ 16MB (586: 2x8MB)\$477
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 - ☐ To Mid-Tower 15"\$13
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 - ☐ To 32 Bit Enhanced (for 486)\$12
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 - ☐ PCI IDE Enhanced (for 486)\$22
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 - ☐ Fujitsu 4870\$20
 - ☐ Fujitsu 4700\$41
 - ☐ Omni 101\$91
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- ☐ 486 DX2-66 Mhz AMD\$77
- ☐ 486 DX2-66 Mhz Intel\$151
- ☐ 486 DX4-100 Mhz Intel (ovdr)\$239
- ☐ 486 DX4-100 Mhz AMD\$136
- ☐ Pentium 75 Mhz\$267
- ☐ Pentium 90 Mhz\$399
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Memory

- ☐ 1MB Simm 30Pin\$Call
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- ☐ 4MB Simm 72Pin/EDO\$Call

- ☐ 8MB Simm 72Pin/EDO\$Call
- ☐ 16MB Simm 72Pin/EDO\$Call
- ☐ 4MB EDO RAM\$205
- ☐ 8MB EDO RAM\$392
- ☐ 16MB EDO RAM\$797

MotherBoards (No CPU)

- ☐ 486DX/DX4, 256k, PCI, 72P\$142
- ☐ 486DX/DX4, 256k, VLB, 72/30P\$140
- ☐ 486DX/DX4, 256k, VLB, 72P\$145
- ☐ 586 Pentium 100Mhz 256k\$240
- ☐ 586 Pentium 133Mhz 512k\$315

Video Cards

- ☐ ATI Graphics Wonder VLB\$142
- ☐ ATI Expression PCI MACH64\$242
- ☐ Cirrus Logic 5429 VLB\$118
- ☐ Cirrus Logic 5434 PCI\$124
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- ☐ Diamond Stealth PCI 2MB\$279
- ☐ Trident 8900CL SVGA 1MB\$79
- ☐ Trident 9440 VLB\$86
- ☐ Trident 9440 PCI\$94

CD ROM

- ☐ Toshiba Quad Speed\$200
- ☐ Mitsumi Quad Speed\$208
- ☐ Panasonic Quad Speed\$203
- ☐ TEAC Quad Speed\$210
- ☐ Panasonic Dual Speed\$82

Hard Drives

- ☐ Maxtor 540MB 11ms\$244
- ☐ 850MB\$285
- ☐ 1.2GB\$370
- ☐ 1.6GB\$575
- ☐ Conner 850MB 12ms\$275
- ☐ 1.2GB 11ms\$361
- ☐ Quantum 540MB\$237
- ☐ 850MB\$273
- ☐ W.D.635MB\$256
- ☐ 850MB\$283
- ☐ 1.2GB\$400
- ☐ 1.6GB\$529

Floppy Drive

- ☐ Fujitsu/Epson 1.44MB\$37
- ☐ Fujitsu/Epson 1.2MB\$60

Tape Backup

- ☐ Colorado Jumbo 350MB Internal \$174
- ☐ Colorado Jumbo 350MB External \$324

Keyboards

- ☐ ACK-200\$20
- ☐ Fujitsu 4700\$56
- ☐ Fujitsu 4870\$30
- ☐ Nantan 101\$34
- ☐ Northgate Omnikey\$109

Fax/modem

- ☐ US Robotics SI 14.4 Int.\$78
- ☐ US Robotics SI 14.4 Ext.\$117
- ☐ US Robotics 28.8/V. 34 Int\$248
- ☐ US Robotics 28.8/V. 34 Ext.\$270
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- ☐ Mid-Tower 19"\$83
- ☐ Mid-Tower 13"\$63

Mice

- ☐ Logitech Mouseman OEM\$32
- ☐ Logitech Mouseman Ser\$65
- ☐ MS 2 button J-Mouse\$33
- ☐ Econ Mouse\$9

Monitors

- ☐ Datum DC-1428 14"\$285
- ☐ ADI 4GP 15" Microscan\$515
- ☐ Daytek 14" Non-Int/Low Rad.\$315
- ☐ Daytek 15" Non-Int/Low Rad.\$405
- ☐ Daytek 17" Non-Int/Low Rad.\$775
- ☐ Samtron 15"\$471
- ☐ NEC\$Call
- ☐ Sony\$Call

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- ☐ Canon BJ-4000 Bubble Jet\$445
- ☐ Citizen GSX230 24Pin\$310
- ☐ HP 660C Ink Jet\$536
- ☐ HP 560C Ink Jetclearance
- ☐ Epson stylus color 2\$589
- ☐ HP Laser\$Call
- ☐ Brother Laser HL 641\$560
- ☐ Brother Laser HL 660 600dpi\$780

I/O Controller Cards

- ☐ 16 Bit IDE\$19
- ☐ 16 Bit IDE w/16550\$25
- ☐ 32 Bit IDE\$25
- ☐ 32 Bit Enh. IDE w/16550\$29

Sound Cards

- ☐ SoundBlaster 16 MCD\$104
- ☐ Gravis Ultrasound Max 116 bit\$212
- ☐ Others\$Call

Others

Limited Quantity; Prices subject to change without notice; 6+ years in Business; Subject to manufacturer's warranty; Surcharge for credit card.

software that's out there — and Sound-Blaster compatibility which, unfortunately, is the industry standard to which most games and applications adhere. Ironically, some of the top sound cards are *not* Sound-Blaster compatible so, even though they produce superior sound and fabulous fidelity, some software just won't work with them.

10) CD-ROM Drive

Price Range: \$100 (2X drive) to \$600 (6X drive).

There's plenty to say about CD-ROM drives (see previous issues of TCP) but the budgetary minded will be quite happy for now with a 4X or even 2X model. That's because CD-ROM drive performance is more influenced by how it's connected than how fast it can spin. Most CD-ROM drives are capable of finding and lifting information off a disk at a pace fast enough for most needs. However, when they try to pump all that data to your CPU, they can get bottlenecked at the interface, which may not be able to send the data as fast as it's receiving.

The surest way to avoid this is with a SCSI (Small Computer Systems Interface) interface, because it can handle streams of data much faster than your CD-ROM drive will ever be able to pump it out. That means, however, adding a SCSI interface card which costs about \$70 (but you can "daisy chain" lots of future SCSI devices at no extra cost). However, those who already have EIDE I/O (see above) might be pleasantly surprised by the efficiency of that interface for this particular task.

Remember, you have to buy a CD-ROM drive that's wired for the type of interface you're planning to use, whether it's EIDE or SCSI. Ask to see how each performs while you're in the store.

11) Fax/Modem

Price Range: \$80 - \$300 (depending on speed).

Fax/modems are relatively simple devices in terms of purchase. The standard these days — although fading quickly — is 14,400/14,400, which means the fax and modem components are capable of sending and receiving data at 14,400 bps. A sturdy unit should be findable for under \$100. The current state-of-the-art, however, is 28,800/28,800. These are literally twice as fast but cost literally twice the price. Most people don't need top speed for normal usage but infobahn addicts can be frustrated even at 28,800 because surfing the Internet has pokey moments no matter how fast your fax modem.

Consider software, too. Virtually all fax/modems come bundled with something but many software packages are simpler and/or superior to many others. Check them out regardless of what you got free.

That's it for bits and pieces. Spend as much or as little as you like. Using our price ranges, you can expect to shell out between the following minimums and maximums which applied at time of writing.

Mandatory

Mother board	\$300 - 1500
8 Megs of RAM	400 (400)
I/O card	15 - 60
Video card	100 - 500
Hard-drive (1+ Gigs)	385 (385)

Floppy drive	40 - 80
Case	50 - 250
Keyboard and mouse	30 - 175
Optional	
Sound card	80 - 400
CD-ROM drive	100 - 600
Fax/modem	80 - 300

Total \$1580 - 4650

Part II: The Building...

It only took three guys—Fermi, Oppenheimer and Urey—to bring The Manhattan Project to explosive fruition. I needed four: me, Dmitri Boudrine, Rod Lamirand and Giovanni Boso—to complete The Vancouver Project... build a computer from scratch while avoiding any undue explosions. And that's not counting the help I got from Ed and Aidan at Code II and Scott Keller at Stream. On the upside,

though, the only tool we needed was a screw-driver.

The parts of my future system were as follows:

ASUSTek VL/I-486SV2GX4 mother board with three VLB and four EISA slots, four 72-pin SIMM RAM sockets, a 256k cache and a 486 DX2/66 CPU with cooling fan provided by Stream Computers in White Rock, British Columbia. ASUSTek is a reputable, high quality motherboard manufacturer as all

Pentium 95 System

Intel Triton PCI Motherboard
Award Pentium PCI BIOS
support Plug & Play
NCR PCI SCSI BIOS
16 MB RAM, 256KB Fast Cache
On Board PCI IDE & I/O
1.2GMB 10ms IDE Hard Drive
3.5" 1.44MB Floppy Drive
ATI MACH 64 PCI Video card W/2MB DRAM
MAG 15" DX15F .28 N L/R Monitor
GOLF 15" Tower Case W/230W P.S.
FK-2001 Keyboard & MS Mouse
Dynalink 28800 V.34 FAX/Modem
Toshiba 4X CD-ROM Drive (190ms)
Sound Blaster Vibra 16 Sound Card
Window 95 Pre-Installed Full CD Vison

P75	\$3299	P120	\$3699
P90	\$3499	P133	\$3979
P100	\$3579		

Fortrex 486 System

VISA Local Bus Green Motherboard
256K Cache 3 VLB & 7 ISA Bus slots
4MB 72PIN 70ns RAM
850MB IDE Hard Drive
3.5" 1.44MB Floppy Drive
32 bit S3 805 Video Card w/1MB
32 bit VLB Enhance IDE & Super I/O Card
14" SVGA 28DP NON-IN Monitor
101 Key Enhance Keyboard
13" Mini-Tower Case W/200W P.S.
3 BUTTON MOUSE

Intel DX2-66	\$1300	AMD DX2-80	\$1220
Intel DX4-100	\$1350	AMD DX4-100	\$1250
AMD DX2-66	\$1200		

Pentium Multimedia system

Intel Triton Chipset PCI Motherboard
256K Cache RAM Award BIOS
On Board Enhance IDE & Fast I/O
8MB 72 Pin 70 ns RAM
850 MB Enhance IDE Hard Drive
3.5" 1.44 MB Floppy Drive
PCI SVGA Card W/1MB DRAM
14" 28 NIN L/R Monitor
7-Bay 15" Tower Case W/230W P.S.
101 Key Keyboard & MS Mouse
Dynalink 14400 Fax/Modem W/Voice
ACER 4X CD-ROM Drive
Sound Blaster
Vibra 16W/IDE Sound Card
MLi-168 Speaker

P 75	\$2049	P120	\$2559
P 90	\$2149	P133	\$2759
P100	\$2199		

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MLI-691 PMPO 60W SPEAKER \$330
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MLI-691 PMPO 60W SPEAKER \$295

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VLB CL S3 805 W/1W	\$85
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CQUANTUM		
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MLI-168 2.5W X2	\$28
CP-55 2W X2	\$10

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DYNALINK 14.4 Fax Modem w/Voice	\$75
DYNALINK 28.8 INT Fax Modem	\$185
USR 14.4 FAX INT MODEM INT/EXT	\$153/155
USR FAX MODEM 28.8 INT/EXT	\$265/\$299
USR FAX MODEM 28.8 W/Voice	\$285

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SOUNDBLASTER VIBRA 16IDE	\$ 95
ACER 4X SPEED CD-ROM DRIVE	\$195
TOSHIBA 5302B 4XSP CD-ROM DR	\$210
SONY 76E 4X SP CD-ROM IDE	\$210
TEAC-55E 4X SP CD-ROM AT	\$205
PANASONIC 574 256K 4X SP IDE	\$195
PANASONIC 581 128K 4X SP IDE	\$185

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Toshiba 5302B 4X Speed	\$210	\$399
Sony 76E 4X Speed	\$210	\$399
Acer 645 4X Speed	\$195	\$385
Panasonic 574 4X Speed	\$195	\$385
Panasonic 581 4X Speed	\$185	\$375

B. Sound Blaster

Vibra 16 Sound Card

Creative Labs, VIBRA 16S Chipset 16 bit sound card
windows '95 plug & play
IDEInterface/UART MIDI Interface

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C. MLI-691 HI-FI Speaker

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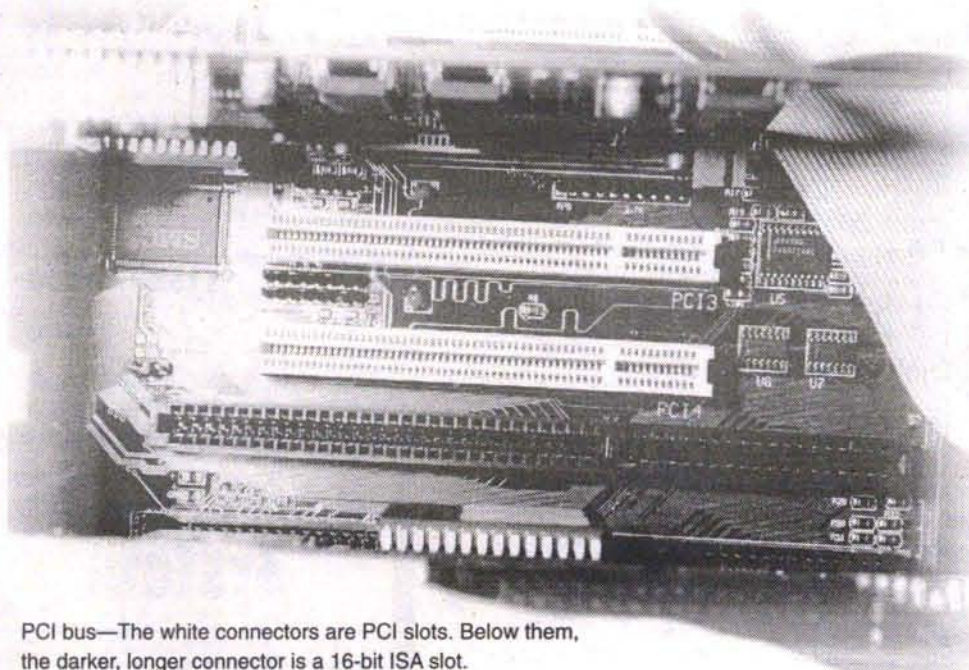
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For Complete Details!



PCI bus—The white connectors are PCI slots. Below them, the darker, longer connector is a 16-bit ISA slot.

these features testify. It came complete with an extensive and well illustrated manual. Another great feature is that all the jumpers are pre-set at the factory (something you'll appreciate later).

Four megs of 72-pin RAM - RAM's RAM. 'Nuff said.

UMC EIDE VLB I/O card provided by Code II Computers in Vancouver. Features 2 X16550 UARTs, which means the serial ports are capable of 28,800 kilobytes per second (kbps) transmission rates—currently the fastest you can get. Came complete with jumper setting chart and driver disk.

Actix GraphicsENGINE 64VL 2 meg VLB video card provided by Actix Systems Inc. in Santa Clara, California. This is an excellent video accelerator from the upper end of the price scale but comes with 2 megs of video RAM and slots for another two megs. I have the VLB version because my motherboard is based on a 486 CPU but this same card is also available for PCI. Comes with driver disk and excellent owner's manual.

Maxtor hard drive, includes CMOS information chart.

3-1/2" Floppy Drive. Generic.

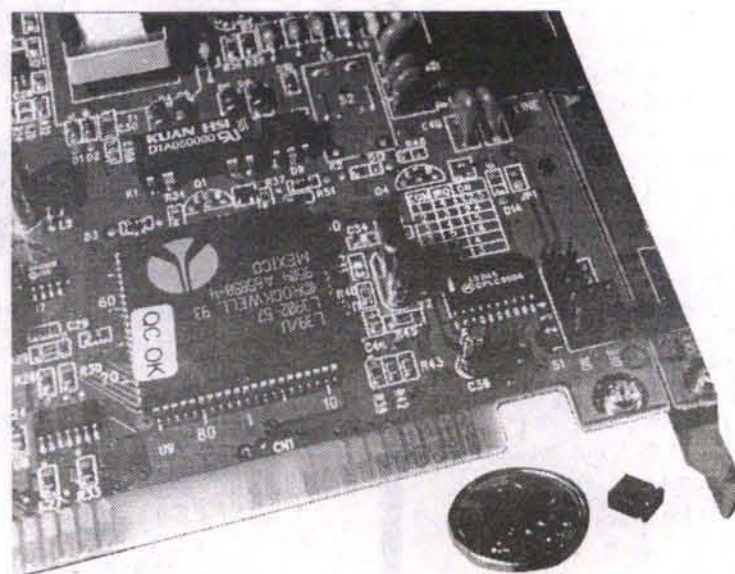
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by Code II Computers.

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Chicony keyboard and Microsoft Home Mouse. Standard stuff across the board and both at the lower end of the price range.

Construction began inauspiciously when the four of us agreed that the first step would be to mount the motherboard in the case. It took a while, but we were able to line up the keyboard jack and three of the board's four mounting holes with their counterparts on the case. Unfortunately, however, things stalled already — my little bag of nuts and bolts and screws contained none of the special plastic mounting pins needed to ensure that the motherboard doesn't touch the case.



Jumpers—The little black square next to the penny is a jumper commonly found on pre-Plug 'n' Play expansion cards. The trick is to slide the jumper over a pair of pins to complete or close a circuit. These pin pairs often appear in groups, along with instructions such as "to change the function to such-and-such, set bank A as open-closed-closed-open."

Dmitri was elected (while he was out of the room) to drive across town to Code II Computers and pick up those critical two-cent items while the rest of us meditated on the next stages of construction through our amber glasses of scotch (it was the only way I could get—and keep—everybody there). Rod studied the jumpers.

Jumpers are little (read: teeny weeny) sets of pins that stick up from the motherboard and configure its circuitry to work with the kind of CPU and cache chips that are installed. They're either open (no sleeve over the pins) or closed (sleeve over pins) and how the board works is affected by the various combinations of open and closed these pesky little items can get into. This is where an owner's manual for the motherboard is essential. It gives you all the jumper settings required for the various possible set-ups in case they're not pre-set or you decide to make a change (upgrade the chip or enlarge the cache) later on.

Rod diligently double-checked the jumper settings against the manual to avoid any possible headaches. Fortunately, those ASUSTek guys knew what they were doing so everything was correct. Save yourself a real headache and make sure the jumper settings are pre-set before you take the mother board home.

This is the kind of thing we really needed Rod for. He's an overhauler from way back. He's replaced just about every part of his system over the past couple of years and that kind of experience proved invaluable when it came to jumpers. But his official coronation as *Our Leader* came when we got to the next really confusing step in building a computer—hooking up the rat's nest of wires hanging out of the power supply and case.

After Dmitri returned with the plastic mounting pins, we lined up and installed the mother board without problem, then began the arduous task of hooking up all the wires that carry power to the mother board, power to the disk drives and signals between the mother board and the LEDs and speaker that are built into the case.

The pins that lead to the speaker and LEDs are labeled on all good quality motherboards so all you have to do is put the connectors running from these items onto the marked sets of pins on the mother board. The trouble is, sometimes you'll find that the connector from the case may have — say — three holes while the corresponding spot on the motherboard offers four. Trial and error is the answer here, and you have to use that same investigative technique to determine which is left and right on the connector because they're polarized.

Power is a different story. Where your video, sound, I/O and fax/modem, etc. cards all draw their power from the motherboard, the motherboard itself, the little chip cooling fan (if you have one) and your disk drives all need power direct from the power supply. This is provided through the flat, wide ribbon cables you'll find inside the case. They invariably have a red or yellow stripe painted down one side to indicate which end goes to what's called pin 1 of the 36 pins used to connect those devices. Pin 1 is simply the first of the 36 pins and tells you which way the connector should go. So, as you're mounting your motherboard and drives into the case, make sure you know where pin 1 is because it's a gymnastic nightmare to try and read the tiny little numbers after these devices are mounted. All you have to do then is snap the ribbon cable connector in place with the red or yellow

stripe to pin 1.

So, at this point we have our floppy drive mounted in the appropriate bay, the hard drive mounted in its own internal bay and the mother board mounted with all the holes lined up. We've also connected the LED wires from the case to the proper places on the mother board and the power connectors to the disk drives, the chip cooling fan and the motherboard. Everything looks right.

Installing RAM is mercifully easy. You just lay the little card into its slot at a prescribed angle — starting with the first RAM slot —

then swing the card upwards until the little clasps on the mother board snap it firmly into place. You simply can't screw this up because there are even off-center guides on the RAM card to ensure that you have it facing the right way around. You can, however, break those little clasps if you're over enthusiastic... so don't be.

We next installed the I/O card into one of the VLB slots. You don't have to worry about identifying which are the VLB (or PCI) and ISA/EISA slots because cards configured for them will only fit into the right type.

Mounting any card is as easy as lining it up over the slot you want, then pushing down. You'll find that all your cards also have a little screw hole at the end nearest the case to keep it firmly in place, so you do that too. Once the I/O card is mounted, you have to run another ribbon cable that comes with the card to the disk drives while, again, doing the pin 1 thing. Some I/O cards may also come with an additional set of ports to accommodate other devices. These will be on a separate plate to be mounted into one of the slot holes. It might

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sound like things are getting complicated, but all this is really quite simple when you see the parts involved.

Finally, we slipped the video card into another VLB slot and the sound card into one of the EISA slots. We double checked all our connections, plugged in the keyboard and monitor and everything was hunky dory. Until we turned it on...

The fan on the power supply hummed deceptively to life. So did the little CPU cooling fan. The monitor, however, remained resolutely black. As the four of us crawled and

climbed all over the beleaguered machine, we managed to determine that the hard drive status LED on the front of the case would light up if we pushed the turbo button, but nothing would make the turbo LED come on. Also, the LED that's supposed to tell you at which speed your CPU is operating (in this case 33 MHz when normal and 66 MHz on Turbo) had taken a stance suspiciously similar to that of the monitor.

About four hours had passed at this point, and we lost Dmitri and Giovanni. They'd had enough. I'd have gone home, too, if I hadn't

already been there. Rod, on the other hand, was determined to figure this out.

We re-checked all the power connections, re-connected all the LED wires, re-mounted all the cards and even punched it a few times (my contribution). Still, only the little fans showed any sign of life.

Rod left.

I picked up the phone.

My computer corpse and I enjoyed the sunny drive to Code II Computers.

Aidan contemplated my moribund machine for at least a full ten seconds. Leaving

all the wires hooked up, he undid the three plastic mounting screws holding the motherboard in place, plugged a monitor into the video card, then pushed the power button while the motherboard was outside the case. Beep! Suddenly we had the BIOS message on the screen.

As maddeningly simple as this solution sounds, the reason requires a bit of explaining...

It turns out that you'll find some brass pins pre-mounted inside your case which are meant to support the motherboard and keep it from bending whenever you press a new card into a slot. Me, Dmitri, Rod and Giovanni all saw them there when we started. These pins purposefully touch the motherboard but are supposed to be lined up with "isolated areas". In this, and in most cases (pun? what pun?), however, they touch spots on the motherboard which aren't isolated and therefore, ground the board out. The solution: put a little piece of electrical tape over the pins so the metal doesn't actually touch the board. That way they're still there to support it but won't ground it out.

My LED and speaker problems were more complex because it all boiled down to more pesky jumpers. It comes to pass that, in order to get the LEDs to spell out the right MHz numbers for your CPU, you have to move an inordinate number of jumpers around behind the display and create the appropriate combination. Some cases come with a chart. Mine didn't. But Aidan has, fortunately, built enough computers from scratch that he was able to figure it out by using some standard jumper patterns that he's come across.

I would never have figured this out on my own but you won't have to either if you make sure your case comes with its own LED jumper chart. And I didn't even ask about how he got the hard drive status and turbo LEDs to work properly. Suffice it to say that you either need that jumper chart, Aidan's vast experience or an excellent relationship with your retailer.

All in all it looks like my team and I had done everything right despite the copious flowings of scotch. After all, how could we ever be expected to know about those little brass pins or the mystery of LED jumper patterns? I returned from Code II with a working computer that only required software installation.

And you don't have to have built a computer to know what that's about. Anyone who's ever even used a computer is familiar with the curse of CMOS, the damnation of hard drive initialization and the frustration of I/O card, sound card and video card drivers.

IRQ? DMA? Whazzat?!

But that's another story entirely... ☐

Thanks!

I was extremely fortunate in having the guidance of three hearty specialists in the Vancouver area and they all deserve special mention for the invaluable contribution they made toward this project:

Ed Chan-Henry and his son, Aidan, operate Code II Computers on West Broadway in Vancouver, and Scott Keller is the owner of Stream Computers in White Rock. These are perfect examples of the kind of retailers you'll want (read: NEED). They were friendly, patient, willing and co-operative, no matter how numerous — or stupid — my questions. Much of the following information and pricing was kindly provided by Ed, Aidan and Scott at Code II and Stream Computers.

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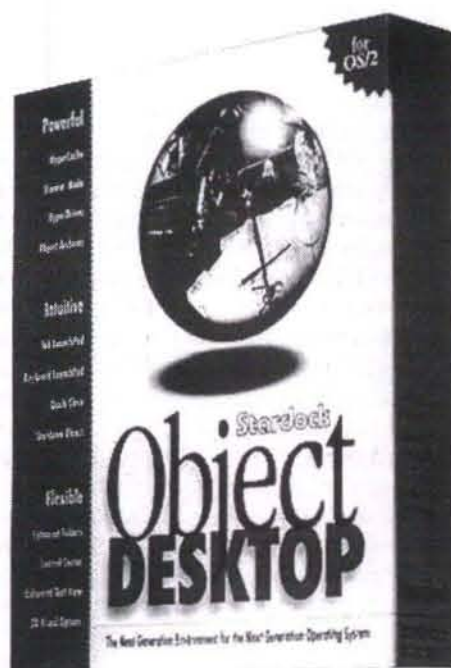
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Object Desktop: Super-charges OS/2!

BY JEFF HILDEBRAND



Object Desktop (OD) is a Workplace Shell enhancement from Stardock Systems (the guys that brought us Galactic Civilizations). This is not a replacement shell like, say, Norton Desktop. Due to the object-oriented nature of the Workplace Shell, programmers can add new capabilities by inheriting the capabilities of an existing WPS object and writing code for only the features they wish to add. What this means to users is that we can do even more from the desktop without having to learn how a whole new shell works, or even load up our hard drives with 10 MB of new programs.

OD comes on a single diskette and consumes about 2 MB of hard drive space. Since OD sets up some new WPS object classes, it also uses up some RAM. I tested OD Gamma 3 (the commercial release should be available as you read this) on a DX2/80 with 16 MB of RAM, and I noticed that OS/2 swaps stuff out to disk a little more often than it used to. Power has its price, but in this case I

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Installation

Even the beta copy of OD had a wonderful install program. OD consists of eight main enhancements, and you can pick and choose which ones you would like. You can, at any time, go back and install or remove any features. Your selections will become active after you shut down and restart. I can't possibly cover all of the enhancements that OD makes, so I

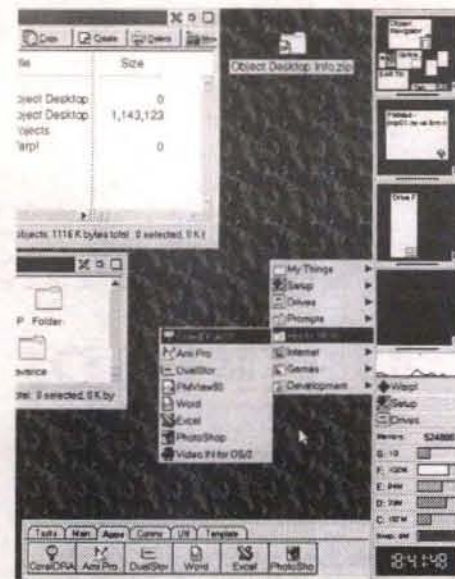
will concentrate on the eight major ones. If you are interested in Object Desktop and want to read more, Stardock Systems has a Web site with information and screen shots of OD (and many other products). The URL is:

<http://www.oonline.com/~stardock/>

1 Object Navigator — ON is basically a file browser/manager. However, because it is integrated with the WPS, you can drag and drop ON

items onto the desktop, printers, the Shredder (to delete it) and drive objects. You can even open two instances of ON and drag objects between them.

2 Enhanced Folder — Enhanced folders can have "HyperCache" enabled, which means that the icons for all objects in that folder are loaded at boot up time and stay resident in memory. Folders with HyperCache



The Control Center and Tab LaunchPad add another level of control to the Warp desktop

turned on open and populate themselves instantly. Enhanced folders can also be put in Browse Mode, where opening a sub-folder updates the title bar and icons in the current window. This is a little faster than opening a new window and doesn't clutter up the desktop. While in a sub-folder, a "back-up arrow" button appears on the title bar, allowing you to go back to the parent folder.

3 Enhanced Data File — Enhanced data files have a text viewer associated with them. This gives an easy way to view text files which OS/2 doesn't immediately recognize, like README.NOW or WHATS.NEW.

4 Task Manager — The Task Manager makes several important enhancements. The Window list now displays icons along with the program names; and it has buttons at the bottom of the window for all the usual functions: — close, hide, show, — and also for a couple of new ones, tile and cascade, to allow you to automatically arrange all your open windows. There is also a filter available so that you can exclude boring background tasks from the window list. Finally, the window list now has an input field where you can type the name of a program to run (rather than opening up a command-line session).

As well, Alt-Tab has been altered so that a small window pops up telling you which app you are switching to (rather than moving to it immediately). Pressing alt-tab repeatedly allows you to switch until you get the one you want, at which time releasing the keys will bring that app to the foreground.

5 Control Center — This is the hardest new object to describe because it can do so much and is totally configurable. Among the many things you can display on the control center are up to 16 virtual desktops, meters for CPU usage, disk usage, and swap file size, and a clock. One part of the control center can even be used like a Windows 95 Start button. Clicking on a disk usage meter will bring up the Object Navigator, opened to that drive.

Continued on page 89

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Fast Movers

The TCP Labs Pentium Notebook Survey

BY CHRIS FISHER

My dear old mum called me the other day for some help with setting up her new, state-of-the-art notebook computer. Now, my mother is not exactly the kind of person that you would call a geek, a nerd, a dweeb, or a road warrior.

However, she has big plans for her new digital assistant. Armed with a copy of Quicken's Quickbooks and a small arsenal of other productivity software, she will be setting up the books for the non-profit organization of which she is treasurer.

To my mother, the computer is just a tool, she has no desire to own or use the latest and greatest piece of equipment. Rather, she just wants enough technology to get her work done. Chances are that if my mum can make good use of a notebook, so can any personal computer user.

Why a Notebook?

Notebooks, especially the newer, powerful, full featured ones, can offer you great utility in your work. The trick is convincing those who walk in the halls of power to part with the several thousand dollars required to kit you out with such a beast.

Here are a few ideas on what you might do with one of these beauties. Perhaps you can string them together into a coherent argument to present to the boss. "I need a notebook for..."

Presentations And Sales Support

If you are involved in giving virtually any kind of presentation, a state-of-the-art notebook can help make a big impression. For meetings with several clients, you may choose to add an external LCD display and an overhead projector (see our review of the "Cruiser" presentation notebook in the September issue of TCP).

For smaller group presentations, you can probably get away without the projection unit, relying instead on an external RGB monitor or even the notebook's built in screen. A powerful multimedia notebook will enable you to give smooth presentations with color, sound and video. Further, the notebook itself may leave a lasting impression with some of your clients. A quality notebook adds to the overall professional image of your business. Perhaps I'm overly sensitive to these matters, but I certainly notice when someone presents their products to us using the latest and greatest piece of equipment. I've said it before, presentation is everything.



Think Tanks And Workgroups

A notebook is an excellent addition to certain types of group brainstorming activities. When difficult decisions involving large amounts of information from several sources (such as databases, graphs, spreadsheets and text) are to be made, a notebook is a good tool to have on hand enabling scenarios, outcomes and layouts to be tried on an ad hoc basis wherever the storming session is taking place.

Confidentiality

If you create information that you absolutely do not want others to have access to, keeping it on a notebook is one way to ensure that no one peeks. Naturally, you need to ensure that you don't lose it — many people have heard the horror story of the high-ranking US official losing a notebook that contained top secret information on troop movement in the Gulf War.

Base Stations For Telecommuters

The notebooks in this survey are all capable computers in their own right, comparable in raw speed to mainstream desktop PCs. With the addition of a full sized keyboard and an external monitor, they can be quickly transformed into the ergonomic equivalent of a desktop computer.

If you keep a set of peripherals at home and one at the office, then your office can move with you. All the notebooks here have optional docking stations that allow them to be quickly configured with extra storage capacity and connectivity as desktop computers.

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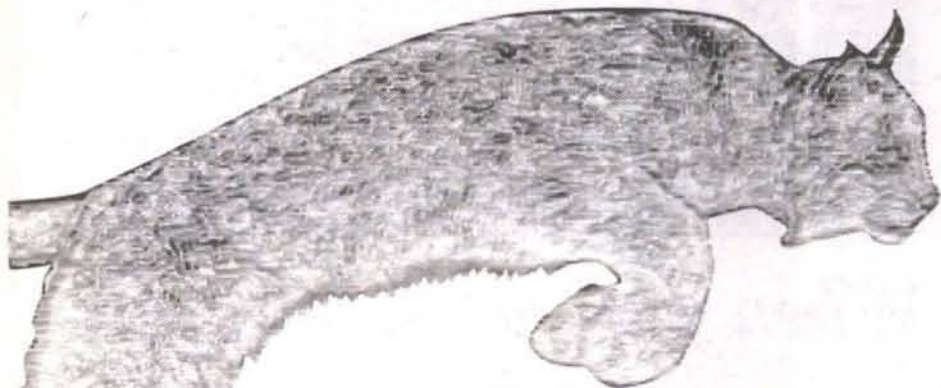
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Whether you're lucky enough to be dialing in from Maui, or stuck in Alaska, you can tap into the company network from anywhere on the globe. Many mobile users whose needs are confined to modest levels of word processing, telecommunications, spreadsheet and contact management, may not need a machine of the caliber discussed here. However, if you need to travel with a large database (an increasing likelihood in this age of online commerce) and are required to search for records quickly, you may be able to make the case to even the most hard nosed boss that you need a state-of-the-art-notebook.

The Captives

For this survey, we wanted to look specifically at Pentium-based notebook computers. Notebooks in this class are just starting to emerge in full force from vendors at the end of 1995, almost a year after Pentium desktop PCs began to take off in sales. The first notebook-based Pentium appeared in mid-1994. To say that these were plagued with problems is probably a little unfair. Let's just say they were hot little numbers indeed.

Intel has since introduced 3.3v Pentium processors that run cooler and require less voltage. We are also beginning to see Pentium-class notebooks with CPUs sourced from vendors other than Intel. In this survey, we have our first Lab test of a notebook based on the Cyrix 5x86 100 MHz processor. As alternatives begin to proliferate, expect to see the overall pricing structure become increasingly competitive.

Many companies we talked to have a Pentium notebook in the works, due to appear in the next few months. Some of the biggest names in the industry have not been quick to board the Pentium notebook boat. IBM just announced a Pentium ThinkPad that we managed to test mere days before we went to press. Compaq, on the other hand, didn't have Pentium based notebooks in enough quantities to ship one to *The Computer Paper* Test Lab.

The 18 notebooks that we did receive for review all represent current state-of-the-art. There is not one among them that wouldn't turn a co-worker green with envy. These notebooks all come with support for PC Card devices in the form of two Type II cards or one Type III card; as such, this will not be discussed further.

Baked Apples

We did try our darndest to get one of the new Apple PowerBooks based on the PowerPC processor into this month's survey. Apple usually has a thing or two to

teach the PC notebook makers about ergonomics, usability, and integration of features, and our preliminary hands on contact with the PowerBook 5300 led us to feel that it was a superb product. However, to our consternation (and Apple's), the 5300 was withdrawn from distribution following reports that some Lithium batteries had taken to overheating and burning the computers. We feel sure that Apple will have solved this problem before long, but in the meantime we regrettably must proceed without an Apple example.

Configuration And Benchmarking

The notebooks tested were mainly based on Intel Pentium 75 and 90 MHz processors, with one Cyrix 586 based machine. We also tested some 486 DX4/100 MHz units, to get some sense of the difference a Pentium makes over a 486.

Unlike lower-end notebooks, these models all came with at least 8 MB of RAM and 300+ MB hard drives. Most of them had internal 3.5-inch floppies, and a couple had internal CD-ROM drives. They

time for a change



ranged widely in street price, from a little over \$3,000 to around \$8,000.

Although many came with Windows 95 installed, we tested their performance using BAPCo SysMark 95, which required us to install Windows 3.1 on all systems.

Choosing Winners

The key aspects that determine whether a notebook is a good buy are: processor speed, screen quality (brightness, sharpness, size, resolution, number of colors displayable), battery life, hard drive capacity,

graphics subsystem, support for PC Cards (formerly called PCMCIA cards), keyboard size and comfort, multimedia features (audio and CD-ROM), pointing device (trackball, touch pad, trackpoint or joystick), ruggedness of construction, easy user upgradability, connectivity (to printers, networks and telecom), power saving smarts, warranty and support, and extras (such as built in modems).

New Ideas

Cruising the World Wide Web, we have

become aware that many of the products looked at in the Lab have home pages specifically dedicated to them. As these often offer full color images and extremely detailed product information, where possible we will begin to list the addresses. This will allow you to investigate the products that interest you more fully before making an investment.

AST Ascentia 950n

Having tested several AST notebooks in the lab over the last year, we've found AST to

be one of the most consistently good price/performance brands in the notebook market. The Ascentia 950n we tested was another solid offering. The 950n comes with a Pentium 75 MHz processor, 8 MB of RAM, a huge 1.3 GB hard drive, a bright 800 x 600 DS-STN display and 16 bit sound. This AST uses a J-Stick pointing device and has an IRDA infrared port built in. It is attractively laid out in the traditional AST notebook style. The 950n came with one of the better sets of documentation that we saw. At six lb. it is the lightest full sized notebook we reviewed. It is not heavy on bells and whistles, but is definitely a sturdy work horse.

Dell Latitude XPI 90T

The way that Dell builds systems makes it a wonder that they do not lead the market in sales. John Medica, the head of the team that developed Apple's PowerBook line, has done a superb job in leading Dell back into the notebook market with well engineered, easy to use (Mac like?) notebooks.

The Latitude XPI 90T is yet another good product in this line. The SysMark 95 performance indicators that we obtained for the Latitude XPI 90T represent the second highest in the round-up.

However, to be fair, one should note that our evaluation unit arrived with 16 MB of RAM, which boosts system performance considerably. The XPI 90T, weighing in at 6.2 lb., is among the lighter notebooks in the survey. It has a large palm rest and a comfortably placed track ball with two huge mouse buttons. The Lithium Ion battery (evidently not the combustible sort that the Apple PowerBooks have had troubles with) has five built in LEDs that allow its power level to be checked when it is removed,— a nifty feature. The Latitude XPI line of notebooks can be found on www.us.dell.com/prodinfo/portables/xp_xpi.html

Eurocom 9600T

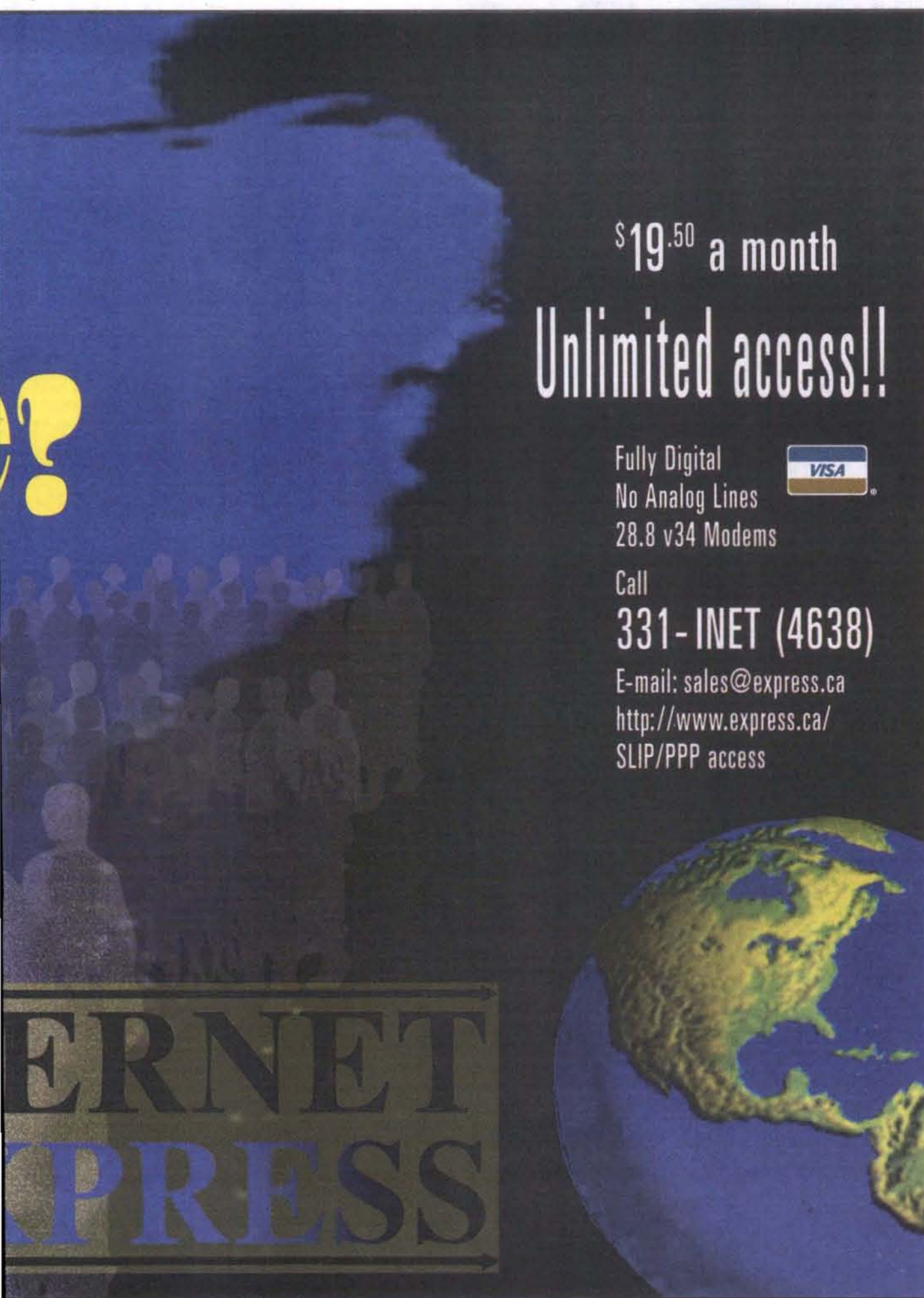
This last minute entrant's casework looks suspiciously like that of the Pacific Royal JetBook XP5, discussed later in this review. It has a noticeably different configuration, though: a somewhat brighter, crisper looking 10.2-in. TFT display, as compared to the JetBook's 10.3-in. DSTN screen, and the 9600T comes with a 540 MB hard drive, compared to the JetBook's 420 MB.

However, due to its 24 MB of RAM, it did post slightly faster benchmark speeds than the XP5 on the sections of the BAPCo suite we were able to run on it successfully. For more details on this notebook, skip down to the section on the JetBook XP5. An impressive, premium quality and priced product.

Explorer PentMedia II

Fully featured, the Explorer comes with a removable double speed CD-ROM. This bay, when not in use by the CD-ROM, houses the notebook's battery. The system reviewed came with a Pentium 90 MHz processor, 8 MB of Ram, a 340 MB HD, 16 bit sound and a bright, cheerful 10.2-in. TFT screen.

The explorer uses a J-Stick pointing device located on the palm rest. The keyboard lifts out for easy access to the motherboard for upgrade or repair. It comes with all the standard ports plus a joystick/midi port. Optionally, you can purchase a PC-Video kit that enables the note-



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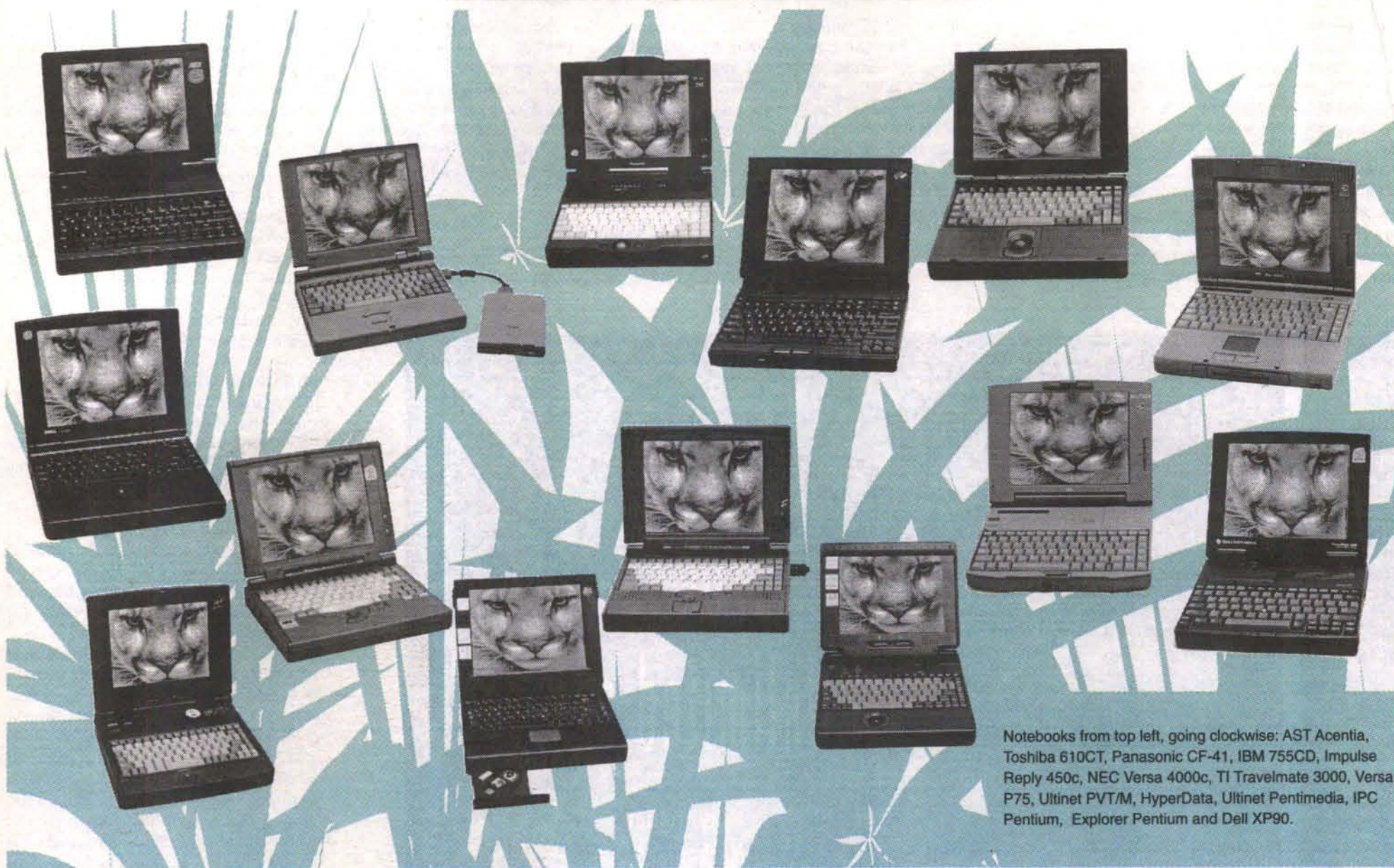
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Notebooks from top left, going clockwise: AST Acentia, Toshiba 610CT, Panasonic CF-41, IBM 755CD, Impulse Reply 450c, NEC Versa 4000c, TI Travelmate 3000, Versa P75, Ultinet PVT/M, HyperData, Ultinet Pentimedia, IPC Pentium, Explorer Pentium and Dell XP90.

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HP Omnibook 5000 CTS

We hate to gush like this, but you should be warned, this notebook may cause mouth watering and palm sweating. The Hewlett Packard Omnibook 5000 CTS made it in the door as we were going to press on the Pentium Notebook lab test.

We were issued a Beta unit of the 5000CTS. When we booted the Omnibook, the firmware reported "BETA 1.0 Evaluation Only". This unit certainly didn't behave like any Beta product that we have seen, though. Sporting a 90 MHz Pentium processor, a PCI bus, 16 MB of RAM, a 1 GB hard drive and a crystal clear 10.4-in. SVGA TFT screen, this healthy athlete easily outpaced most of the other notebooks in the survey on the benchmark test.

Extras are something that the Omnibook has in abundance. How about NTSC/PAL video-out, making it possible to use a color TV as an external monitor, a SCSI-2 port, a MIDI/Joystick port, 16 bit sound, an instant-on feature, an infrared port, support for Microsoft Plug-and-Play and the ability to swap an optional battery for the built-in floppy drive.

How much, you ask? Well, at a suggested list of \$9,821, this one's targeted at the CEO's, power users and lottery winners amongst us. But what a notebook!

HyperData HY-630

HyperData's notebooks are both attractive and competitively priced. The HY-630 model reviewed came with a 10.4-in. active matrix display, 8 MB of RAM and an 810 MB hard drive. We found the somewhat unique micro joystick pointing device easier to navigate with than the more standard J - stick implementation. The system uses an external floppy drive, shipped with the unit. The HY-630 has built in Sound Blaster Pro audio and a SCSI Adaptec 6360 port.

Computron, the Canadian distributor of HyperData products, ships these standard with a car plug in power adapter and a carrying case. If you could settle for a dual scan screen and a smaller hard drive, a HyperData could be yours for just over \$3000. HyperData also carries a line of Pentium based CD-ROM notebooks with speeds up to 133 MHz which are exceptionally priced and worth looking at if you are in the market. The HyperData models we tested go a long way to bringing desktop performance and desktop affordability to the notebook market.

IBM ThinkPad 755CX

IBM recently extended its classic and successful line of ThinkPad notebooks to include two Pentium models. The 755CX's both come with a 75 MHz Pentium processor. IBM categorizes them as "The high powered price performance model" and "the advanced-function premium performance model," respectively.

Verbose marketing aside, these new entries from IBM have a lot going for them. Styled in the well known ThinkPad fashion the premium model we reviewed was a treat to use. It is a full size notebook so, to our disappointment, the keyboard did not do a butterfly imitation. The notebook came with a 10.4-in. SVGA (800 x 600) active matrix display, an 810 MB hard

drive, 8 MB of RAM, an infrared port, Lithium Ion batteries and an integrated Mwave speakerphone data/fax modem.

We were please to see that the ThinkPad came with that "other" operating system, OS/2 Warp, as well as Windows 3.1. The cheaper, but still capable and desirable 755CX is configured with a TFT VGA display (640 x 480), a 540 MB or 810 MB hard drive and a nickel metal hydrate battery. The benchmarks we got for our 755CX were higher than those of any comparable system and beat several notebooks

based on 90 Mhz processors in this review.

As a long time computer enthusiast, I have often been annoyed at the price premium that IBM sees fit to charge for many of its products. With these ThinkPad notebooks, this premium seems justified.

Impulse Reply 450c

The Impulse Reply 450c is truly one of the most interesting notebooks to come into the shop for this roundup. This machine gave *The Computer Paper* Test Lab its first look at the Cyrix 5x86 100 MHz processor

in all its glory. The system came pre-installed with MS Windows 95, which had to be removed in order to run the BAPCo benchmark suite. However, due to an incompatibility with the systems flash BIOS, BAPCo never did run.

Calls to the Canadian distributor and to Cyrix caused a small buzz that went all the way back to Taiwan, where technicians busied themselves looking into the problem. One should note that this incompatibility has nothing to do with the Cyrix

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PENTIUM NOTEBOOK SURVEY

	AST Ascentia 950n	Dell Latitude XPI P90T	Eurocom 9600T	Explorer PentiumMedia II	HP Omnibook 5000 CTS	Hyperdata HY-630	IBM 755 CX	Impulse Reply 450c	IPC Pentium
Processor	Pentium 75 MHz	Intel Pentium 90MHz	Intel Pentium 90MHz	Intel Pentium 90MHz	Intel Pentium 90 MHz	Intel Pentium 75MHz	Intel Pentium 75 MHz	Cyrix 5x86 100MHz	Intel Pentium 100 MHz
Screen	10.4 DS-STN	10.4 Act. Matr TFT	10.2 TFT Active	10.2 TFT LCD	10.4 SVGA TFT	10.4 Act. Matr	10.4 SVGA TFT	10.3 DS Color	DS 800 x 600
Pointing Device	J-Stick	Trackball	Trackball	J-Stick	Trackball	Micro Joystick	TrackPoint	Trackball	Micro joystick
Hard Disk	1.3 GB	340 MB	540 MB	340 MB	1 GB	810 MB	810 MB	510 MB	530 MB
Ram Standard/Max	8 MB / 40 MB	8 MB / 40 MB	8 MB / 24 MB	8 MB / 32 MB	16 MB / 64 MB	8MB / 40 MB	8 MB	8 MB / 20 MB	8 MB / 40 MB
Weight, pounds	6	6.2	6.6	6.7	7	6.5	6.3	6.2	6.5
Battery Type	Lithium Ion	Lithium Ion	Dual Ni-Mh	Ni-Mh	Lithium Ion	Ni-Mh	Lithium Ion	Ni-Mh	Ni-Mh
Dimensions (W x D x H)	11.5 x 8.5 x 1.8	11 x 8.75 x 2.3	11.1 x 8.75 x 2.2	11.7 x 9.9 x 2.2	11.6 x 8.8 x 2	11.6 x 8.9 x 2	11.7 x 6.3 x 2.0	11.4 x 8.7 x 1.9	11.6 x 8.9 x 2
Keyboard	82 Key	85 Key	86 Key	87 Key	86 Key	85/86 Key	86 Key	86 Key	85/86 Key
Floppy Drive	1.44	1.44	1.44	1.44	1.44	1.44 (Ext.)	1.44	1.44	1.44 (Ext.)
Palm Rest, in.	N/A	3.5	2.5	1.8	2.8	3	None	3.5	3
Video Card	LB 1 MB	LB 1 MB	Vesa LB	Vesa LB	PCI	Vesa LB 1MB	Vesa LB 1MB	VL LB 1 MB	Vesa LB 1MB
Max. Colors	16.8 Million	16.8 Million	65,536	65,536		65,536			
Ext. Mon. Res., Colors	1024 x 768, 256	1024 x 768, 256	1024 x 768, 256	1024 x 768, 256	1024 x 768, 256	1024 x 768, 256	1024 x 768, 256	1024 x 768, 256	1024 x 768, 256
Audio	16 bit SB compat.	None	16 bit SB compat.	16 bit SB compat.	16 bit SB compat.	Stereo SB Pro compat.	16 bit stereo	Optional	Stereo SB Pro compat.
Extras	Infr. Port		2 batteries	2x CD-ROM	Infr. Port, NSP SCSI-2 port, NTSC/PAL output	SCSI	Mwave Phone, Fax Modem Infr. Port		SCSI 14.4 PC Card Modem
Windows Benchmarks									
Word Processing	N/A	213.76	173.18	143.79	237.53	116.70	160.38	N/A	115.11
Spreadsheet	N/A	239.41	ERR	203.14	257.58	164.60	213.30	N/A	161.75
Database	N/A	248.75	ERR	97.87	296.81	86.340	112.98	N/A	84.190
Desktop Graphics	N/A	299.00	291.60	258.14	309.56	217.07	245.18	N/A	214.31
Desktop Presentation	N/A	205.55	197.71	143.49	227.20	118.45	154.49	N/A	116.47
Desktop Publishing	N/A	192.36	180.43	142.59	218.92	119.48	154.40	N/A	117.05
Sysmark	N/A	240.54	N/A	158.29	266.37	131.90	170.22	N/A	129.64
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Suggested Retail Price	\$6,999	\$6,099*	\$6,260***	\$5,200	\$9,821	\$4,278	\$7,699	\$3,199**	\$3,399
Warranty	3 years	3 years	1 years	2 years	3 years	1 year parts and labour	3 years	3 years	

*Price as reviewed 16 MB RAM

**For standard configuration 4 MB 340 HD 9.5 Active

*** Price as tested with 24 MB RAM; 8 MB model is \$4,820

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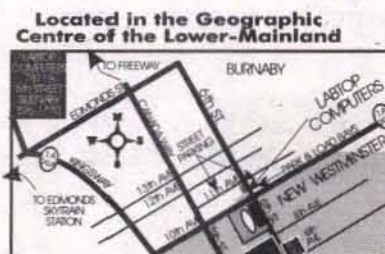


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Processor	Intel Pentium 75MHz	Intel Pentium 75MHz	Intel Pentium 75MHz	Intel Pentium 90 MHz	Intel Pentium 75 MHz	Intel Pentium 75MHz	Intel Pentium 90 Mhz	Intel Pentium 75MHz	Intel Pentium 100 MH
Screen	9.5 TFT	10.4 High Res TFT	10.1 Act. Matr TFT	10.3 DSTN	10.5 Act. Matr TFT	10.4 Act. Matr	9.5 TFT Act. Matr	10.3 DS	11.3 DS
Pointing Device	Front Mounted Trackball	Front Mounted Trackball	Touch Pad	Trackball	Trackball	J-Stick	J-Stick	Trackball	Trackpad
Hard Disk	540 MB	810 MB	810 MB	420 MB	650 MB	772 MB	686 MB	520 MB	520 MB
Ram Standard/Max	8 MB / 40 MB	8 MB / 40 MB	8 MB / 40 MB	8 MB	16 MB	8 MB / 32 MB	8 MB EDO	8 MB	16 MB
Weight, pounds	7.1	7.1	6.6	6.6	8.5	6.7	4.8	6.2	7
Battery Type	Ni-Mh	Ni-Mh	Lithium Ion	Dual Ni-Mh	Ni-Mh	2 lithium Ion	Lithium Ion	Ni-Mh	Ni-Mh
Dimensions (W x D x H)	11.7 x 9.5 x 2.1	11.7 x 9.5 x 2.1	11.7 x 9.5 x 2.1	11.1 x 8.75 x 2.2	11.7 x 9.25 x 2.25	11 x 8.5 x 2.3	9.8 x 7.9 x 1.9	11.1 x 9.4 x 2.1	11.8 x 8.75 x 2.25
Keyboard	83 Key	83 Key	83 Key	86 Key	83 Key	86 Key	82 Key	86 Key	86 Key
Floppy Drive	1.44	1.44	1.44	1.44	1.44	1.44	1.44 (Ext.)	1.44	1.44
Palm Rest, in.	N/A	N/A	3.25	2.5	N/A	N/A	2.8	2.6	3
Video Card	LB	LB	LB	Vesa LB	VESA LB 1 MB VRAM	2 MB PCI	LB	LB 1MB	LB 2 MB
Max. Colors	65,536	65,536	16.8 Million	65,536	65,536	16.8 Million	16.8 Million	256	16.8 Million
Ext. Mon. Res., Colors	SVGA	SVGA	SVGA	1024 x 768, 256	1024 x 768, 256	1280 x 1024, 256	SVGA	1024 x 768, 256	1280 x 1024, 256
Audio	SB compat.	SB compat.	Stereo SB Pro compat.	16 bit SB compat.	16 Bit Stereo	16 bit	SB Pro	16 bit	16 bit
Extras			Infr. Port	2 batteries	CD-ROM Drive	Infr. Port PCI		Infr. Port	Joystick
Windows Benchmarks									
Word Processing	159.12	ERR	155.16	151.34	196.34	148.10	ERR	133.96	233.61
Spreadsheet	214.14	214.76	203.44	217.16	216.41	200.57	236.79	129.83	261.69
Database	108.83	110.53	109.05	98.37	230.75	102.92	139.03	92.64	278.77
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Suggested Retail Price	\$6,465	\$7,725	\$5,995	\$3,925	\$8,100	\$7,699	\$6,999	\$3,272	\$5,815
Warranty	3 years	3 years	3 years	3 years	1 year	3 year	3 year	2 years	2 years

*Price as reviewed 16 MB RAM

**For standard configuration 4 MB 340 HD 9.5 Active

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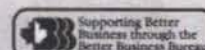
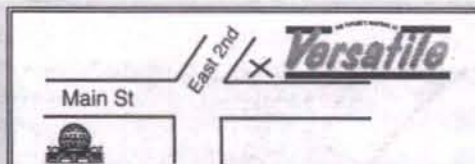
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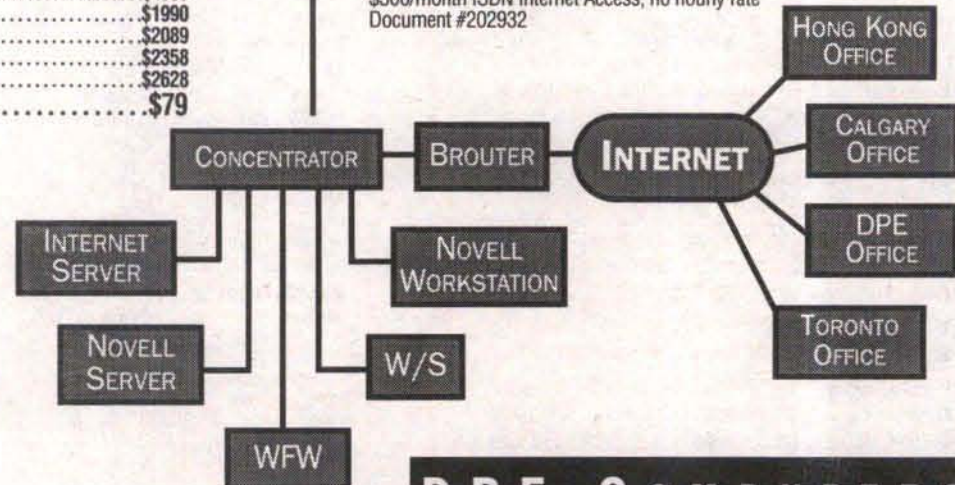
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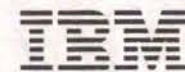
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Fast Movers

Continued from page 65

5x86 processor itself. Our benchmark suite also would not run one of our Intel based machines. The official word from Cyrix is that in most cases a 5x86 100 MHz will outperform a similarly configured Intel Pentium 75 MHz, but confirmation of this claim will have to wait for the BAPCo compatibility problem to be ironed out.

The Reply 450c comes standard with 4 MB of RAM and a 340 MB hard drive. It is available with a 10.3 inch dual scan, a 9.5-in. active matrix screen, or a 9.4-in. monochrome 64 grey shade display. Physically, the Reply is similar in appearance to the Dell Latitude discussed earlier. Starting at \$3099, the base model is well priced and will soon be found in retail outlets such as the Business Depot.

IPC Pentium Notebook

This notebook is very similar in design to the Hyperdata notebook discussed elsewhere in this review. The case work, with the exception of a slight repositioning of the pointer buttons, is identical. We noticed a discrepancy between the spec sheet and what the system reported for the processors clock speed. Indeed, we discovered that the system was clocked to 100 MHz using a 75 MHz Pentium processor. This worked just fine; however, for our benchmark we put the clock speed back down to 75 MHz. You may want to try this, but do so at your own risk, —we don't recommend it.

This IPC comes with 8 MB of RAM and a 540 MB hard drive. It has enough features to do your bidding and is a good contestant on price and performance. The system came with Windows 95 pre-installed. Like the Hyperdata, it uses a supplied external floppy and is shipped with a car adapter and carrying bag.

JetBook XP5

The unit we looked at featured a Pentium 90 MHz processor with 8 MB of RAM, 256K cache, 420 MB hard drive, 16 bit sound and a 10.3-in. DSTN display. The XP5 series has dual batteries and allows for hot swapping of low batteries for fresh ones. The XP5 line of notebooks starts at around \$3775 for the 75 MHz Pentium model and goes up to \$4075 for the 100 MHz model with DSTN displays. The JetBook has a track ball pointer interface mounted on its 2.5-in. palm rest. The JetBook XP5's are progressive notebooks at an equally progressive price.

NEC Versa 4000c

NEC bills the Versa 4000 series as the most innovative multimedia notebooks now available, and its overall quality of engineering and vast feature set were impressive. The most obviously striking feature of the Versa 4000c is the way in which the pointer is implemented. The VersaGlide touch pad with double tap capabilities mounted in the palm rest of the 4000c is an excellent solution to the problem of mousing around in

the constricted notebook environment. For us, at least, it just felt better than the more common stick or trackball.

The Versa 4000 series comes with a 75 MHz or 90 MHz Pentium processor, 8 MB of RAM, and a 540 MB hard drive. It is packed with multimedia features, including two stereo speakers, a microphone, a Sound Blaster Pro compatible sound system, four audio ports, a volume control, and full motion MPEG video support.

The Versa 4000s also feature a front loading drive bay that allows the standard

floppy drive to be pulled out and replaced with a double speed CD-ROM drive, a second hard drive or a second battery. Other features include two (front and rear mounted) IRDA infrared ports for printing and file transfer, and a 10.1-in. active matrix 640 x 480 color display capable of displaying 16.8 million colors.

Other models in the 4000 line offer resolutions of 600 x 800 pixels. Our test unit came with the option of installing either Windows 95 or Windows for Workgroups 3.11. NEC is giving the traditional leaders

in the premium notebook field, Apple, IBM and Toshiba, a run for their money with this new line.

NEC Versa P75

Many manufacturers are still scurrying around to get a Pentium notebook to market. NEC, on the other hand, already has two generations of Pentium based notebooks. The Versa 4000c, described above, is the leading edge line, while the

Continued on page 70



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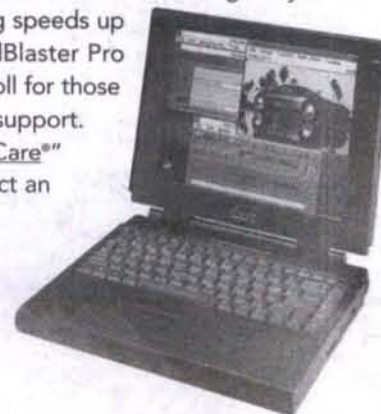
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P75s represent the first generation. We received two Versa P75s, one with 8 MB of RAM, a 540 MB hard drive and TFT screen, and the other with 8 MB RAM, an 810 MB hard drive and SVGA screen. The Versa P series comes in two basic types with a subset of possible configuration choices in each. The difference is determined by screen size. The 10.4-in. models offer a large viewing area and come in a standard TFT color model or a high resolution 800 x 600 model.

The Versa P series uses an oddly positioned front mounted track ball which we found to be a little tricky to get used to. With a bit of practice, though, it became quite natural to use. If you want to learn more about NEC's Versa series of notebooks, or their SX-4 Supercomputer, for that matter, you can visit NEC's home page at www.nec.com.

Panasonic CF-41



The CF-41 was far and away the fastest Pentium 75 MHz notebook that we bench marked. This is no doubt due to its standard compliment of 16 MB of RAM and 256K of cache. To get an idea of how fast this system is, consider that we have bench marks from a brand name Pentium 75 MHz desktop configured with 8 MB of RAM that ran close to 30 percent slower than this notebook.

This system is slightly larger and heavier than the rest of the systems in the

round up; however, it also has a feature set to justify this extra baggage. The CF-41 features a built in double speed CD-ROM that is conveniently accessed by lifting up the keyboard panel. Stereo sound and a 10.4-in. TFT display in either an active or passive configuration, combined with a 650 MB hard drive and full-motion video support at 30 frames per second, make for a very powerful computing implement. The price of the CF-41 may be a little disconcerting, but in lieu of a new sub compact car, you can take home the Rolls Royce of notebooks.

Texas Instruments TravelMate 5000

This notebook is light years away from the TI calculators that people of my generation were so proud to carry around in high school. The TM5000 we reviewed came equipped with a 75MHz Pentium processor, a 10.4-in. TFT active matrix color display, 8 MB of RAM, and a 772 MB hard drive. Let no one say that TI isn't innovative.

The TM5000 comes with some brilliant features that you are hard pressed to find in other notebooks. Dual lithium Ion batteries allow for trouble free "hot" swapping of low batteries for charged ones. The batteries, mounted from the front of the unit, have built in LED indicators which show the present charge state of the battery by a simple push of a button.

This little powerhouse uses a PCI bus to achieve fast video, and the PCI bus is also used to connect the TM5000 to its optional docking station. External peripherals also can be PCI based. The whopping 2 MB of video memory and PCI architecture allow the system to support smooth

full motion video, while 16 bit sound and a dual mode microphone, internal speaker, an IRDA compliant infrared port, and a J-stick pointing device round out the feature set of this no compromise system. For a more detailed look at the TravelMate 5000, you can see it on Texas Instruments' web page, located at www.ti.com/notebook/docs/np.htm

Toshiba 610 CT: "I checked my notebook"



Now, we don't watch too much TV around here, but if you haven't seen Toshiba's notebook commercial, you must be living in a cave. Somehow, though, we can't imagine someone who owned the 610 CT checking it as

luggage. For one thing, its small size gives it a closer resemblance to a paperback book than a piece of luggage. For another, we suspect that if you owned the 610 CT, you would be very tempted to keep it under your pillow while sleeping, and under your arm while traveling.

At 4.8 lb., this is the smallest and lightest system of the crop and falls within the realm of subnotebook category. Don't let the tiny size of this unit fool you, though: the benchmarks we were able to obtain for it show it to be faster than many of the full sized Pentium notebooks in this review. The unit comes standard with heavy artillery, a 90 MHz processor, 8 MB EDO RAM (the only notebook with this feature), 686 MB hard

drive, Sound Blaster Pro compatible sound system, lithium Ion battery and a Microsoft Plug and Play BIOS. A 9.5 active Matrix TFT SVGA display with local bus video architecture, which is remarkably clear, rounds out this system. This notebook was an absolute joy to use on the move.

Check out Toshiba's home page for more information on their line of notebooks: www.tais.com/tais/csd/products/

Ultinet PVT/M and Pentimedia

These two swifties from Ultinet are well engineered machines with a solid feel. The PVT/M came with a Pentium 75 MHz processor, 8 MB of RAM, a 520 MB hard drive, 16 bit sound and a 10.3 MB hard drive. The unit uses 12 LEDs, as opposed to an LCD, to show the various states the system is in. These are well labeled and easy to understand. The track ball is housed in a circular depression just off centre to the left on the palm rest.

The Pentimedia model, complete with double speed CD-ROM, gets the prize for being the most unusual notebook in the survey. It posted the fastest benchmark scores, which was no surprise as we were shipped the 100 MHz version with 16 MB of RAM. The display is, at 11.3-in., a huge clear dual scan 800 x 600 LCD. The feature sheet of the Pentimedia reads like that of a fully configured desktop.

Like the NEC VERSA 4000c discussed earlier, it uses a built in touch pad as its pointer device. We found the tracking on this touch pad to be not quite as good as that of the Versas. Two MB of video RAM makes resolutions of 1280 x 1024 at 256

Continued on page 72

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Fast Movers

Continued from page 70

There is still a gap in price/performance between Pentium desktop PCs and Pentium notebooks, but it is narrowing rapidly.

colors possible on an external monitor. The unique and unusual thing about this notebook is its built in joystick located to the left of the touch pad. This looks suspiciously like that of a Nintendo or Sega video game. Naturally, the folks here at the lab have little use for the joystick but we are confident that one or two of our readers may have some ideas about what to do with this little extra.

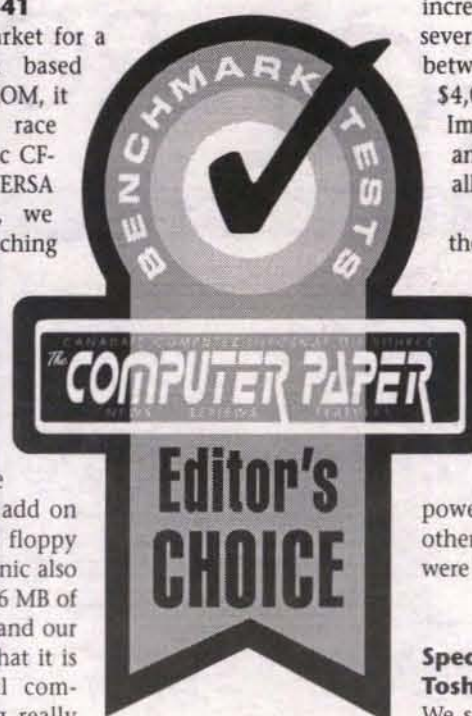
Editor's Choice

We are pigs in a sty and these notebooks are our mud. Asking us to choose between them is like asking a hungry child what kind of chocolate bar he/she would like. Chocolate is good, give me one of everything!

There is still a gap in price/performance between Pentium desktop PCs and Pentium notebooks, but it is narrowing rapidly. The lowest-priced notebooks we tested this month, starting at a little over \$3,000, were lacking some of the features of a desktop PC (such as a CD-ROM drive, and expansion ports), but otherwise offered much the same performance as a desktop model.

Best Pentium Notebook With CD-ROM: Panasonic CF-41

If we were in the market for a multimedia Pentium based notebook with a CD-ROM, it would be a tight race between the Panasonic CF-41 and the NEC VERSA 4000c. At the gate, we would probably be reaching for the Panasonic. It is a little larger, heavier and more expensive than the latter, but the CD-ROM is a standard feature and a permanent fixture (With the VERSA 4000c it is an add on that is housed in the floppy drive bay). The Panasonic also comes standard with 16 MB of RAM instead of 8 MB and our benchmarks indicate that it is a very fast, powerful computer. The only thing really missing from the Panasonic is an infrared port for data interchange.



incredible systems, but with an equally incredible price tag. There are several systems that come in between the \$3,000 and \$4,000 price range — the Impulse, the Jetbook XP5 and the Ultinet PVT/M are all attractive choices.

This time we choose the NEC Versa 4000c. It is considerably cheaper than the Texas Instruments, with the option of a CD-ROM. The touch pad was great, lithium ion batteries offer long, reliably mobile power supply, and all the other goodies such as MPEG were icing on the cake.

Special 'Tardis' Award: Toshiba 610 CT

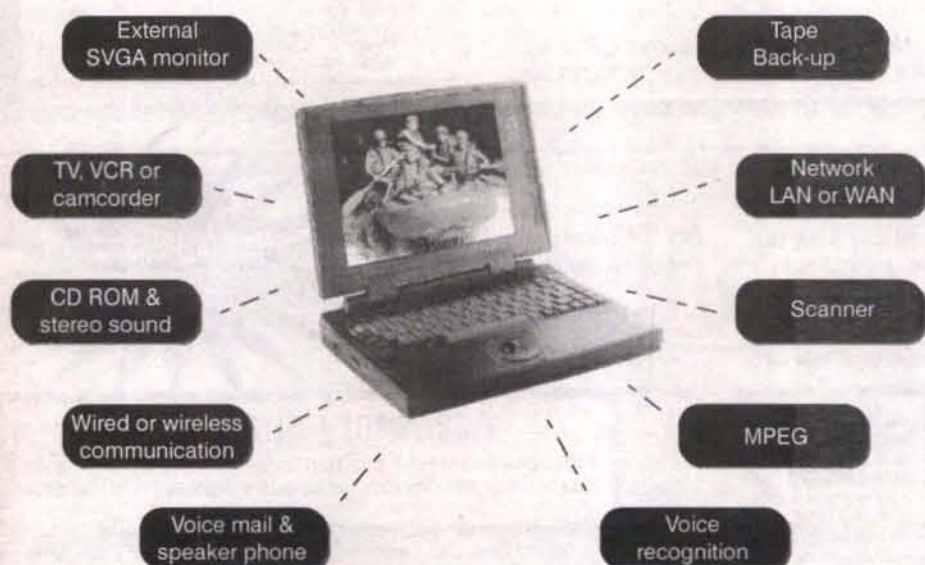
We simply must give a most notable achievement award to the Toshiba 610 CT for packing so much into so small a space. Dr. Who fans will understand our meaning if we say that this sub notebook would have been more aptly named Tardis. (If you didn't know, Dr. Who is a time lord and the Tardis is his time travelling machine. The Tardis looks like a telephone booth on the outside but much bigger on the inside.) Fact is, if someone told us, "go buy yourselves a notebook, money is no concern," we'd have one of these in our hands fast. □

Best Pentium Notebook Without CD-ROM: NEC Versa 4000c

For a portable without a CD-ROM it's again a tight race and a difficult decision. The Texas Instruments Travel Mate 5000 is a beautiful piece of equipment with an incredible set of features but its suggested retail price is perhaps a little high considering that it does not include a CD-ROM. The new models from Hewlett Packard and IBM are both

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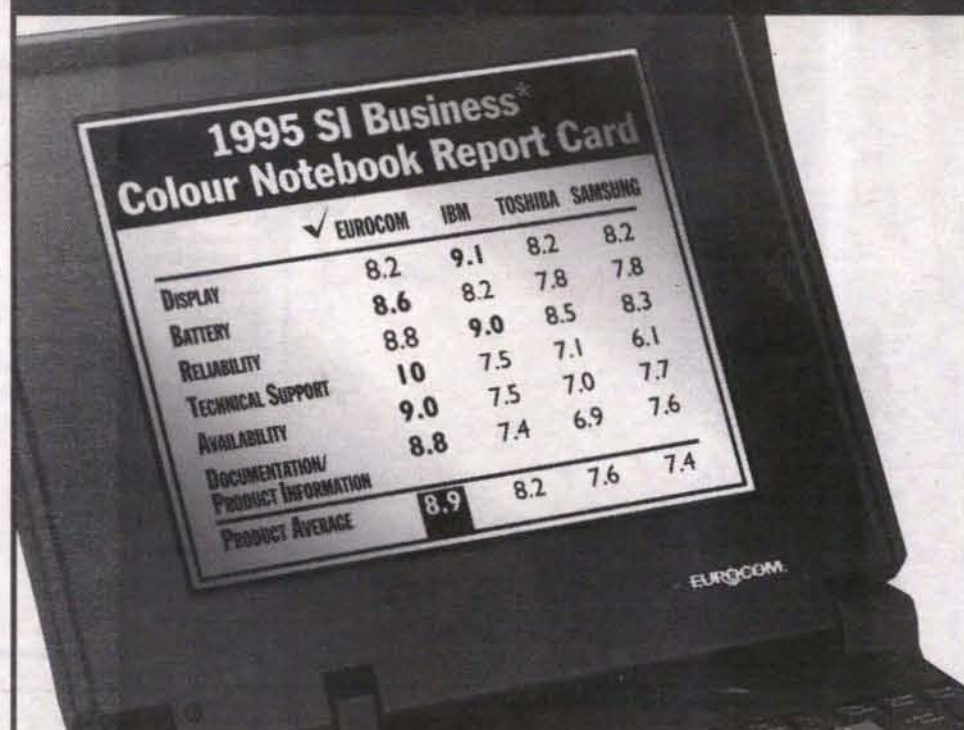


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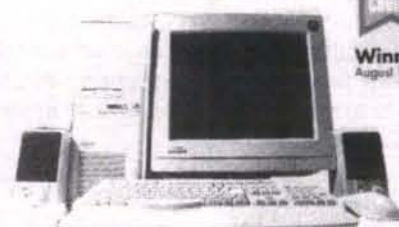
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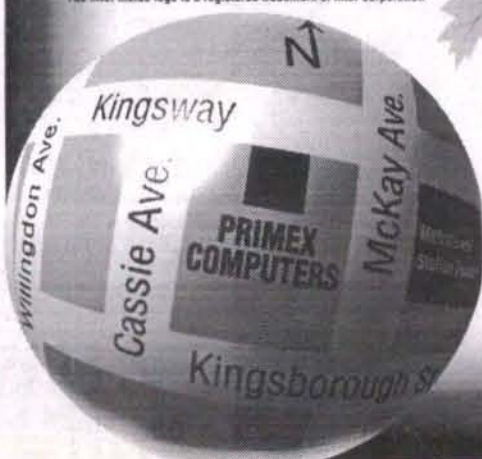
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3D Hard Target: SGI Rules

BY JEFF EVANS

PCs Are Gunning For The 3D Animation Market, But Silicon Graphics And Alias Still Hold The High Ground-For Now



In our recent coverage of PC-based animation software, we've looked at the increasing sophistication of low cost animation programs that run on Pentium or RISC-based Windows PCs and Power Macs. However, it must be admitted that until recently, most PC-based animation systems were uncompetitive in the highest end animation markets (feature film and network broadcast animation and effects), compared to the much more expensive computer workstations or mainframe based systems.

The Great Exception

The Commodore Amiga once looked like it might become the next great thing in high end/low cost animation (Amiga animators took to wiring together roomfuls of Amiga Video Toaster systems to create the great graphics for shows like Babylon Five and SeaQuest DSV), but the Amiga stalled when Commodore folded in 1994. The lock that high end hardware platforms have traditionally had on high end animation is being challenged by powerful, inexpensive new generations of PCs, and much more sophisticated PC-based animation programs. However, the traditional leader in the field of high end 3D hardware, Silicon Graphics, still has a few tricks up its sleeve.

SGI Rules The CG Roost

Mountain View, California-based Silicon Graphics, Inc., has become the world leader in computer graphics (CG) and ani-

mation hardware in the decade since its founding. Unlike other high end computer vendors who have lost market share in the graphics market (like Sun and Digital), SGI has deliberately concentrated on excellence in visual computing technology in the development of all their computer systems. That has proven to be a farsighted move, as multimedia, 3D simulation, 3D CAD and virtual reality have become major growth areas in computing. For example, as SGI's equipment has become cheaper in recent years, software publishers have become more hungry for the mind-boggling graphics that can be created with SGI equipment and 3D software like Alias animator. According to one SGI source, "Three years ago, no game developers in the world were using SGI. Now there are around 200 companies developing game graphics on our equipment."

All SGI systems are optimized for high speed 3D rendering, and SGI has consistently led the world in the creation of custom graphics processing silicon chips that give it an edge in performance over other graphics processors. SGI has also developed additional products, including its Silicon Studio, to facilitate the creation and editing of digital video. SGI systems run a flavor of UNIX called IRIX, and they offer a graphical user interface called Magic that makes IRIX much more palatable to the average creative user. As well, SGI systems are designed from the ground up for seamless, automatic integration into a high speed network, which makes sharing calculation intensive tasks, such as 3D rendering, very easy.

SGI is the only vendor to offer a complete spectrum of solutions, ranging from the desktop (with its Indy model) on

up through high powered workstations (such as the Indigo, Indigo Impact and Indigo2 models), all the way through its Onyx multiprocessor systems and up to its Challenge class supercomputers—all running the same operating system and compatible with the same applications software.

They're Everywhere

SGI is also moving aggressively into the low end of the animation and multimedia market, with its set top boxes for interactive cable TV services (being tested in conjunction with Time Warner), and its MIPS processor technology being utilized in the next-generation Nintendo Ultra-64 video game system, slated for release in 1996.

SGI is aware of the potential of the other PC-based animation architectures, and is attempting to stay ahead of the PC pack with innovations such as its forthcoming R10000 processor, and a 3D accelerator for the Indigo Impact that performs nearly real time complex 3D rendering.

Indy On My Desktop

I had the use of an SGI Indy workstation on my desk at home for several weeks, and found it to be an extremely fast, well engineered and easily connectable computer. Without any background in UNIX, I found the Magic GUI (graphic user interface) let me get around the system easily and intuitively. The system I had came with a CD-ROM drive, a 1 GB hard drive, and 32 MB of RAM—a minimal config as SGI machines go. It also came with Alias Animator software and the SGI WebForce World Wide Web authoring software. For about \$15,000, the Indy is a great

There'll have to be an enormous improvement in the suitability of the Mac and Windows platforms for 3D graphics before they match the inherent virtues built into the SGI line



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animation, Web publishing or digital video system. I had none of the configuration or hardware/software compatibility headaches I usually encounter when trying to set up a PC, or even a Mac or an Amiga, for high end and graphics production. The Indy is beautifully engineered to do high end graphics on a network, and it worked flawlessly. The Indy is the best personal animation system in its price range, and it integrates easily into a networked animation production environment.

It's Only Silicon

Why is SGI running so fast to stay ahead? A look at the upcoming wave of PC hardware shows why. Lots of other people (such as Miro, Number Nine, ATI, Matrox, S3, Weiteck, Hitachi, and Sony) are making great processors, and Silicon Graphics is the target of a great deal of competing companies' R&D efforts. Intel's P6 chip will go a long way towards challenging SGI's MIPS line of RISC processors. Expect to see multiprocessor P6 desktop computers being used for high speed rendering beginning in 1996. Also, the Open GL standard for Windows graphics is stimulating developers to create Open GL 3D graphics accelerator cards for the next generation of PCs, which will challenge the speed of the Indy and the Indigo Impact. Windows NT workstations, such as the Post Station from Amiware (based on DEC Alpha processors) will become an option for animators and video producers looking to stay in the Windows environment.

However, there'll have to be an enormous improvement in the suitability of the Mac and Windows platforms for 3D graphics before they match the inherent virtues built into the SGI line. Wherever personal computers try to go in the 3D imaging market in the 90s, they'll find that SGI was there first, and has set a hard standard for the PC upstarts to meet.

Alias Animation

Just as SGI is the standard for 3D animation hardware, so a Canadian company, Toronto's Alias Research, has set the standard for high quality 3D software for almost a decade. The current version of Alias Animator, V.6.0a, is still regarded as the most all-around capable animation program on the market. Since Alias was bought by Silicon Graphics some months ago, it has been merged with Wavefront, another of the handful of top 3D software companies in the world. SoftImage, a Montreal based firm recently bought by Microsoft, is Alias' chief competitor in the top end software market.

I've been using Alias Animator for about a year, and comparing it to the other 3D programs I'm personally familiar with (Autodesk 3D Studio, Imagine, LightWave, TrueSpace), I would have to say that Alias is the most powerful, and in many ways the most versatile, in the world. SoftImage's software has some features that Alias lacks, and has an easier user interface, but overall Alias is still the top package in the field. It is not cheap (about \$8,000 per license), but it is capable of

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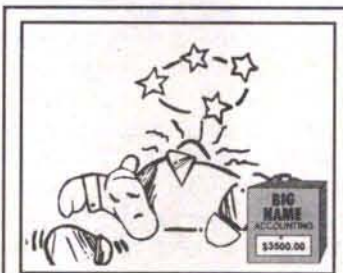
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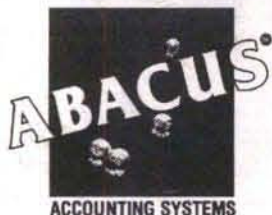


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Alias allows you to work with pre-defined primitive 3D objects, or make your own objects with a very powerful set of curve drawing tools. Professional Adobe Illustrator users tend to find Alias' 3D drawing tools extremely impressive.

Once you have objects and characters made, you can add skeletal structures and apply "inverse kinematics" to give lifelike structure and movements. Virtually any kind of shading, texture and transparency imaginable can also be applied. Alias allows you to create hierarchies of animation moves and transformations that are almost infinite in their possibilities.

You can make and animate fog, clouds, and waves, morph objects' shapes, animate colors, textures, cameras and lights. You can apply motions captured from living actors to your animated characters. You can even cause your characters to grow realistic hair or fur, and create fires, explosions and smoke that are amazingly convincing.

My only complaint about Alias is that the user interface seems about 10 years behind the powerful features hidden inside the program. Although the program comes with good tutorials and examples to help the novice, features and processes are needlessly obscure and difficult to get at. As one Alias representative confessed, "The programmers [of Alias] are great code jockeys, but they don't know much about user interface." Alias makes a 3D illustration product for the Mac called Sketch, which has a much more reasonable user

interface: they should apply some of the lessons from that project to the next release of Alias.

The Competition Dreams On

Nipping on Alias' heels are a spate of good, new 3D products that run on the Power Mac or Windows and Windows NT systems. One of the most interesting we saw recently was RayDream Studio (for Mac and PC), which has a feature set that includes many of the most powerful features of Alias (such as inverse kinematics). Autodesk's 3D Studio is about to undergo some major transformations that Autodesk hopes will make it the choice of the PC-based 3D market. Soft-Image is coming out

with a Windows NT version of its software, which may be the one development that Alias, whose Animator software only runs on the SGI platform, is worried about. □

Correction: In our August 1995 survey of "Power Users' PCs", we quoted a price for an SGI INDY system of \$12,000. Although a bare-bones INDY could be had for this price, for a "complete" system, including useful amounts of RAM and hard disk space, a monitor and a CD-ROM player, expect to pay about \$21,000, all told.

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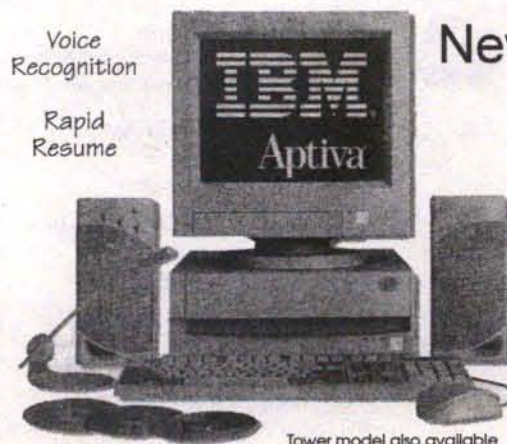
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PCI EIDE Controller Flaws Discovered

BY ROEDY GREEN

Introduction

There are serious flaws affecting about one-third of all PCI motherboards. The flaws affect any motherboard or EIDE controller paddleboard containing the PC-Tech RZ-1000 PCI EIDE controller chip or the CMD PCIO 640 PCI EIDE controller chip.

The flaws affect motherboards from ASUSTeK, AT&T, DEC, Dell, Gateway, Intel, Micron, NEC, Zeos and others. Since Intel makes so many of the motherboards sold under other brand names, the flaws affect many machines, both 486 and Pentium PCI.

The flaws show up most frequently when you run a true multitasking operating system such as OS/2 Warp or NT. They also show up under Windows For WorkGroups in 32-bit mode during tape or floppy backup and restore. In theory, the flaws

The flaws show up most frequently when you run a true multitasking operating system such as OS/2 Warp or NT. They also show up under Windows For WorkGroups in 32-bit mode during tape or floppy backup and restore.

could do damage under DOS, DESQview, Windows and Windows For WorkGroups in 16-bit mode, but so far there have been no damage reports. Windows-95 contains code to bypass the flaws.

The RZ-1000 has two flaws. The CMD-640 has those same two flaws, plus three others. To make matters worse, most motherboard manufacturers using these two flawed chips connected them up incorrectly. There are software bypasses for these flaws. However, the Warp fix for the CMD-640 reduces performance by 50 percent.

What are the symptoms?

When you are using an IDE or EIDE hard disk attached to the EIDE motherboard port, the flaws subtly corrupt your files by randomly changing bytes every once in a

while. The flaws introduce bugs into EXE files, subtle errors into your spreadsheets, stray characters into your word processing documents, changes to the deductions in last year's tax return files, and random changes to engineering design files.

This corruption happens when you are simultaneously using your EIDE or IDE hard disk and some other device, most commonly the floppy drive or mag tape backup. The same sort of problem may occur on reading a CD-ROM drive attached to an EIDE port.

Unfortunately, correcting the problem just stops further file corruption. It will not help to clean up the existing damage to your files. Right now, the focus is on bypassing the flaws. Preventing further corruption

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is child's play compared with the nightmare of trying to track down all the existing random errors in files. Backups, even from day one, may be corrupt. If you have either of the flawed chips, you will probably never be able to completely eliminate the effects of past corruption.

Testing For The Flaws

I wrote two test programs that run under DESQview, Windows, Windows For WorkGroups, Windows 95, NT and OS/2. EIDEtest verifies that your hard disk is working properly, and CDtest verifies your CD-ROM. If these tests fail, it proves you have a serious problem, but not necessarily that you have the RZ-1000 or CMD-640 chip.

If the tests pass, you still may have a problem since, especially under DOS, DESQview and Windows, the flaws may only show up rarely. If you run the tests under Windows 95 they will always pass, even if you have the defective chip, because the operating system already bypasses the flaws.

What Can You Do If You Have A Flaw?

Pester the manufacturer. Unfortunately, the EIDE controller chips are soldered in. The only way to repair a flaw is to replace the whole motherboard, recycling the socketed chips: the CPU, DRAM and SRAM cache. It would be very expensive for computer and motherboard manufacturers to fix a flaw.

Buy a new, unpopulated Triton PCI motherboard and recycle the CPU, DRAM and SRAM cache chips from the old motherboard.

Run the controller in degraded mode. Some BIOSes have a feature to disable the EIDE prefetch buffer. Vendors may offer a BIOS upgrade to allow you to manually disable prefetch. The BIOS may also turn it off automatically if either of the defective chips is present. This will bypass both RZ-1000 flaws and two of the five CMD-640 flaws.

Buy a PCI EIDE paddleboard controller, such as the Promise 2300+ or the BusLogic BT-910, to replace the one on the motherboard. You must disable the EIDE controller on the motherboard. This fix will waste one of your precious slots. Be careful. You could

be leaping out of the RZ-1000 frying pan into the CMD-640 fire, since paddleboards often use the CMD-640.

Buy a SCSI hard disk and CD-ROM, and avoid using the EIDE ports entirely. Under OS/2 and Linux, SCSI gives better performance, but costs more. DOS, Windows, Windows For WorkGroups and Windows 95 are unable to exploit the advanced features of SCSI, but at least avoid the EIDE flaws when you go to pure SCSI.

Find a software work-around. There are fixes for Warp to bypass all the flaws in the RZ-1000 and CMD-640. Fixpack 5 and pre-release Fixpack 9 do not bypass the flaws. Now that Intel and IBM have revealed the technical details, all the operating system writers can patch their EIDE drivers to bypass the flaws. There are also fixes for NT 3.1 and 3.5.

Get a BIOS upgrade. For DOS, DESQview, and Windows 3.1, to bypass the flaws you may need a new BIOS: an EPROM chip. If you have a flash BIOS, you can update it simply by downloading a file. Most BIOSes already have code to bypass

the flaws for DOS, DESQview and Windows. However, more advanced operating systems bypass the BIOS, so even a smart BIOS will not protect you. However, the BIOS CMOS settings may allow you to disable prefetch, which also protects you in even true multi-tasking operating systems.

Cut the trace. Cut the trace on the motherboard from the floppy changeline to the EIDE controller. However, this only bypasses one of the CMD-640's five flaws and one of the RZ-1000's two flaws.

Whatever method you use to bypass the flaws, retest with EIDEtest and CDTest afterwards to be sure your fix worked and you caught all the problems.

Cleaning Up The Mess

Once you have bypassed the flaws, you can start working on the problem of cleaning up your files.

The first thing to do is to re-install your operating system and all your application programs. This will replace any damaged EXE and DLL files.

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Catching errors in your data files is more difficult. Keep your eyes peeled for any improbable spreadsheet results. You may have to hire a programmer to write you some comb programs to sniff through your databases, looking for suspicious values.

If you routinely use the verify feature of Lotus Magellan, it can detect changes to files that should not have changed. This may help you uncover some of the damage. The flaws are not polite enough to redact the files they corrupt. :-)

If you have backups from before the time you bought the faulty machine, you can restore them and re-key everything.

Most people will not be so fortunate. All their backups will also be corrupt.

Most people with flaws will just have to put up with random errors dotting their data files ever after.

What Are the Flaws?

IBM confirmed the RZ-100 has two different flaws:

In prefetch mode, multi-sector reads often fail.

The chip erroneously responds to floppy status commands and corrupts the hard disk or CD-ROM I/O in the process.

IBM confirmed the CMD-640 has five different flaws. It has the same prefetch problem as the RZ-1000. It has the same floppy status problem as the RZ-1000. It does not support simultaneous I/O on the primary and secondary EIDE ports. There is confusion over legacy and PCI mode. Finally, it does not support 32-bit writes.

Test Programs

When requesting files on the Internet, you must generally use lower case.

Below are the addresses for Roedy Green's EIDETest and CDTest programs for DOS, DESQview, Windows, Windows For WorkGroups, Windows 95, NT, OS/2 and Warp. By the time you read this newer version, I will likely have posted newer versions.

<ftp://garbo.uwasa.fi/pc/diskutil/eidete16.zip>
<ftp://ftp.cdrom.com/4/os2/incoming/eidete16.zip>

Intel's RZ-1000 chip detect program:

<http://www.intel.com/procs/support/rz1000/rztest.exe>
 Intel's CMD-640 and RZ-1000 chip detect program, coming soon:
<http://www.intel.com/procs/support/ctrltest/ctrltest.exe>

IOtest from PowerQuest, the makers of Partition Magic, a Warp test for the flaws.
<http://www.powerquest.com/download/iotest.zip>

Fixes

Warp bypass for the RZ-1000 chip flaws:
<ftp://service.boulder.ibm.com/ps/products/os2/fixes/v3.0warp/english-us/pj19409/pj19409.zip>

Warp bypass for the CMD-640 chip flaws:
<ftp://ftp.os2.cdrom.com/pub/os2/drivers/cmd640x.zip>

Microsoft Windows NT 3.1 ATDISK.SYS fix for the CMD-640 chip:
<http://www.microsoft.com/KB/softlib/mslfiles/pclatdisk.exe>

Microsoft Windows NT 3.5 fix for the CMD-640 chip:
 CMD's BBS at (714) 454-1134.
 File 640XNT35.ZIP

Essays

Roedy Green's FAQ (Frequently Asked Questions) a 19-page unabridged version of this article.
<ftp://garbo.uwasa.fi/pc/diskutil/eidete16.zip>
<ftp://ftp.cdrom.com/4/os2/incoming/eidete16.zip>

PowerQuest essay:
<http://www.powerquest.com/>

Intel's FAQ
<http://www.intel.com/procs/support/rz1000>

PC-Tech's essay:
<http://www.mel.micron.com/rz1000/rz1000.txt>
 Catch Pat Duffy's (duffy@theory.chem.ubc.ca) essays each Sunday in:
comp.os.os2.misc, comp.os.os2.setup.misc,
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Check out Pat Duffy's Web site at:
<http://warp.eecs.berkeley.edu/os2/workbench/work.htm>
<http://ftp.netcom.com/pub/ab/abe/>

Roedy Green is a computer consultant who prefers to work on Forth, C++, Delphi, DOS, OS/2 and Internet Web projects. If you send \$5 (US or Canadian) to cover duplication, postage, and handling, he will send you a diskette containing the relevant test programs, fixes, Internet postings and essays. Send email to: Roedy@bix.com or discuss this problem on the Internet newsgroup in: comp.os.os2.bugs.

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Table of Contents, Index For Web Arrive

BY JEFF EVANS

*OpenText And Yahoo! Demonstrate An Index For Everything
In The World, And Everything In The World In The Index*

At a product rollout staged simultaneously via satellite link in New York and Toronto, Canadian software developers OpenText Corp. of Waterloo, ON and Yahoo! Corp., of Mountain View, CA announced that they have teamed up to provide a new search engine. The new search engine will catalogue, index and retrieve every word on the World Wide Web, plus other segments of the Internet, including Usenet newsgroups. To demonstrate this claim, OpenText representatives showed how to search through over 1.4 billion words on hundreds of thousands of Web pages world wide in real time, and retrieve all references to a particular subject. The searches took between one and five seconds, and



depending on the search parameters, yielded anywhere from thousands of hits to a mere handful.

According to OpenText representatives, the new Internet search engine effectively allows the enormous and ever-growing mass of data on the Web to be easily accessible to anyone using a Web search service equipped with the OpenText engine.

OpenText, a firm founded by University of Waterloo professors and students, developed the indexing software for the Oxford English Dictionary on CD-ROM, a task which they claimed was excellent preparation for indexing the Web.

The OpenText Web Search Server product employs software robots to crawl the World Wide Web automatically, recording all the

textual information on it, in any language. The information is summarised in a database system (described by an OpenText representative as "a whole lot of UNIX boxes") running OpenText software. The test system that OpenText uses in-house currently has over 1.4 billion words stored on it, all fully indexed. OpenText hopes to sell Web Search Server software (at US\$12,000 per license) to Internet service providers, schools, government agencies, and businesses, to be used as research and business information tools.

Yahoo!

OpenText and Yahoo! are teaming up to incorporate the Open Text Web Search Server OEM technology into Yahoo!'s hierarchical index format. Yahoo! has become one of the most heavily used Web sites in the world in recent months, with over 400,000 users logging on per day, and over seven million hits or requests being made by users daily. Most users accessing Yahoo! currently are using it to find the addresses of particular Web pages in certain subject areas.

In the words of an OpenText representa-

tive, "Yahoo! has built the table of contents for the Web, we've built the index: between the two of us, it is now practical to use the Web effectively and easily to find out anything or talk to anyone on the World Wide Web."

This should come as a very welcome development to Web surfers, who have likened the rapidly growing Internet to a telephone service that doesn't publish a phone book or offer directory assistance. There is an awful lot out there, but until now, no practical way for many users to find what they want. OpenText has fifteen local offices around the world, and plans to sell the Web Search Server product through this network, beginning in mid to late October. Beta versions of the engine are currently available. The browser software will be distributed free, but will require a connection to a Web index provider. □

For more information, contact OpenText Corp., <http://www.opentext.com> or (519) 888 7111, and Yahoo!, <http://www.yahoo.com>

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Windows and Orphans

BY JEFF EVANS

In the computer industry, we frequently experience that slightly sad feeling that accompanies once-leading-edge technology becoming obsolete. If we sit with our dusty old computers watching all the shiny new models hogging the limelight, we feel a bit like technology orphans — nobody makes a fuss over the equipment on which we still get good work done. It can be disheartening for a user of older computers to find less and less coverage in the computer press of the generation of equipment that they still use. This "orphaning" of the user base for XT's, 286 and 386 PCs, and black and white Macs and Mac Pluses, is somewhat inevitable given the progress of computer technology, but it still hurts.

When The Majority Becomes The Minority

With the introduction of Windows 95, we are now in a situation where the majority of computer users world wide will probably never get any advantage from the new version of Windows on their current, low powered PCs. Dr. Michael Cowpland, the founder of Canada's Corel Corp., estimated that 80 percent of Windows 95 sales will be in the form of copies pre-installed on new model PCs, mostly Pentium-based systems with 8 MB of RAM or more. Only about 20 percent of Windows 95 licenses, in his view, will go to PC users upgrading older computers to the new operating system.

There may be up to 60 million Windows PCs sold world-wide in 1996, to add on to the 200 million or so PCs already in use, so within a few years the majority of PCs will likely be running Windows 95, simply due to the expansion of the installed PC base. However, many PC owners understandably feel that there is more of a barrier to them migrating from Windows 3.1 to Windows 95 than there was in moving from Windows 3.0 to Windows 3.1, due to the higher hardware requirements of Windows 95.

Many of the largest software companies (including Canada's Corel Corp. and Delrina Corp.) are aiming their R&D efforts at new products for Windows 95. Corel Draw 6, for example, will only run under Windows 95. Users who plan to stick with Windows 3.x may feel that they are being increasingly left out.

A Personal Example

I just got Windows 95 installed on my desktop PC at work, and I like it just fine. On my office desktop, a 486 DX2 with 16 MB of RAM and a 300 MB hard drive (which I plan to use data compression to increase to around 600 MB), Windows 95 is impressive. My system is no speed demon, but the performance is entirely acceptable, and I expect to be merrily testing Windows 95 applications

on this computer well into next year. This PC, of course, is paid for by the company, and is a necessary expense for me to do my daily work. The multitasking, user interface and other features are all very useful.

At home it's another story, though. There, my IPC 486 DX2 has only 8 MB of RAM, and a puny 170 MB hard drive (320 MB capacity with data compression). To really get any advantage from running Windows 95, I would have to spend about \$900, including taxes, to add another 8 MB of RAM and buy a 1 gigabyte drive. The cost of this personal home PC upgrade would come out of my pocket. I don't have the cash in the household budget for this expense, and I'm not sure that I want to invest \$900 in upgrading this system. I think I'll save up my money, and in 1996, will buy a new Pentium (or P6) running Windows 95, and relegate my current system to the kids as the "homework computer." I think a lot

of PC users are in a similar situation to me: we may wait til we get a new computer before jumping to Windows 95.

Vox Populi

When I presented some seminars on Buying A Computer at the ComputerFest show in Toronto recently, I had occasion to talk to several hundred people who were in the market to upgrade or replace their existing PC, or to buy their first computer. Virtually none of them were running Windows 95. In some cases, they specifically wanted to run Windows 95, but the majority were using 486SX or slower machines, with 4 MB or less of memory. For these people, Windows 95 is not an option without either a major upgrade, or a new computer.

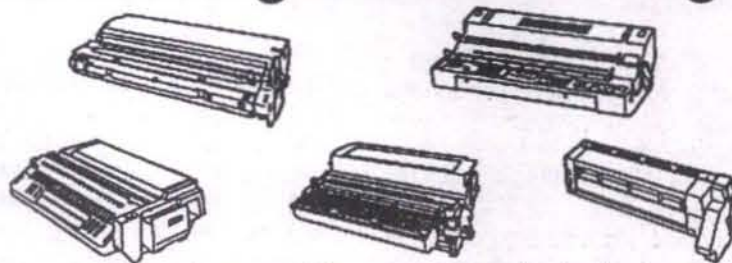
What does all this mean? Well, to put it simply, I think that it means that Windows 95 is going to take a couple of years to become the majority operating system in the personal computing world. It'll take that long before there is a big enough installed base of high powered 486 or Pentium machines running the new O/S, there is a huge number of compelling Windows 95 software titles, and it'll take at least that long before the majority of home computer users and businesses can afford to replace their existing computers and make the switch.

Although an increasing number of the most interesting and powerful new software applications and hardware devices will be oriented to Windows 95 users, the majority of PC users will still need information about the "old" 16-bit computing world for the next few years. A graceful transition from the old Windows 3.1 world to the new world of Windows 95, and beyond, will require some patience, tolerance, and a sense of humor. □

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Amiga Is Dead, Long Live Amiga!

BY JEFF EVANS

Commodore Business Machines Canada, Ltd. is no more. The final Canadian remnant of the company was scheduled to close its Markham, Ontario office on September 30th.

Commodore, a multinational computer company that began as a typewriter and office equipment shop on Davenport Road in Toronto over 30 years ago, sold over 20 million personal computers worldwide before voluntarily liquidating itself on April 29, 1994. The company's failure was the result of a confusing set of circumstances, involving mounting losses, changes in inventory values, and a refusal by creditors to advance more credit to allow production of Amiga computers to continue.

Commodore PCs Alive and Well

Production of Commodore brand Windows PCs continued in Canada, as Commodore licensed its name and logo to 3D Micro, one of Canada's largest makers of IBM compatible PCs. Commodore brand computers currently being sold and supported by 3D Micro, and several recent models have been favorably reviewed in TCP.

The Canadian branch of Commodore,

which was run as an independent entity named Commodore Business Machines, Ltd., maintained a presence in the Toronto area for the 17 months following Commodore International's liquidation, in the hope that something would turn up — that a purchaser of Commodore's assets might want to re-start distribution of the Amiga computer line in Canada.

Tough To Kill

Commodore had hundreds of thousands of loyal customers among the personal computer using community in Canada, including users of its PET, VIC 20, C64, C128, DOS/Windows and Amiga computers. Its annual World Of Commodore Show, held every December at Toronto's International Centre, was one of Canada's best attended computer shows, sometimes claiming over 40,000 attendees. With its Amiga line of computers, Commodore led the world in the late 1980s in the fields of personal computer graphics, computer games, multimedia, desktop video and 2D and 3D animation. The Amiga user community was perhaps the most loyal of all user groups. In spite of its successes, technological advantages and

loyal customers, Commodore International's senior management in its last decade seemed to have an uncanny knack for screwing up its opportunities.

Even after the international company's demise, Amiga loyalists continued to hope that someone would restart Amiga production and further the development of their favorite computer.

Good News, Bad News

As most Amiga dealers and third party developers either went out of business or moved away to the Windows PC or Mac markets, Amiga users waited in a kind of limbo, making do with an apparently orphaned platform. Eventually, virtually the only active Amiga retail chain in Canada was Wonder Computers, which has opened stores in Ottawa, Toronto, Montreal, London, and Vancouver, and provides a friendly, ongoing source of Amiga-related products, service, information and encouragement. Wonder is hoping to organize a World of Amiga show at the Toronto International Centre, December 8-10 (more on this as it develops).

In the spring of 1995, Escom AG of

Germany bought the remaining assets of Commodore and prepared to re-start production of the Amiga. The latest word is that the A1200 will be built in France, and the A4000T model will be made in the US.

The bad news is that Escom has yet to declare a plan for North America. But it is feasible that Amiga users may be able to arrange for dealers such as Wonder Computers to import Amigas into Canada as early as November, when supply resumes. According to a Wonder Computers representative in the new Vancouver store, the Amiga community is greatly buoyed now that there is a new owner of the Amiga technology and a supply of product in the offing.

A late note: Service Management Group of Columbia, Maryland, USA has been awarded the North American distributorship for Amiga products by the Amiga Technologies division of Escom. SMG can be reached at (410) 992 9975, fax: (410) 992 9979. □

For more information, contact Wonder Computers at (416) 286 0001 (Toronto), (613) 596 2542 (Ottawa), (519) 681 0004 (London), (514) 279 0002 (Montreal), (604) 279 4240 (Vancouver), <http://www.wonder.ca>



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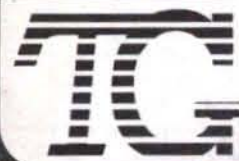
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Stunning Color From Phaser 340

BY CHRIS FISHER

**Product: Tektronix Phaser 340**

From: Tektronix

Price: \$7,195 for base model; \$9,795 as tested

Hot Wax

The Phaser 340 is a wax thermal printer that produces 300 x 300 dpi output at four pages per minute in full color with its standard 8 MB of RAM. If you can spare the extra for a 16 MB upgrade, the 340 can achieve print resolutions of 600 x 300 dpi.

Many reviews of printers based on this technology will explain that the output scratches easily and has a tendency to melt in the heat. We gave the output from the Phaser 340 somewhat of a beating and found that these are relatively moot points. In order to flake off or scratch the printed page, one really has to get quite boisterous. We took one of our letter-size pages of art and placed it in a car in the sweltering Ontario summer heat for four hours. This seemed to have no impact on the output. Trying to smudge the output using thumb and forefinger as it came out of the oven also proved fruitless. The quality of the print, both graphic and text, from the Phaser 340 with all the options added is stunning. Glenn Hayworth and Chuck Glassier (Tektronix marketing people) informed us that the wax used in the 340 is even edible, but neither would demonstrate.

The printer is easy to network and share between PC, Mac and UNIX workstations, as all protocols are simultaneously active. The Phaser 340 breaks a barrier for color printing, at 15 cents a page for five percent coverage and about five cents a page for black and white at five percent coverage. The printer also isn't fussy about the paper that it uses, even the cheapest paper we could find produced great looking output.

Control and maintenance of the printer is simple, as the printer has been clearly designed with the user in mind. It uses a 32 MHz RISC processor, has Adobe Level 2 PostScript, HP-GL, PCL 5 and a 200 sheet capacity tray. The price of our lost love is a mere \$7,195 for the standard version and \$9,795 for the printer as tested.

Do I have anything bad to say about the Phaser 340? No, it was yummy. Other reviewers have tended to agree, and you need not look very far to find a flattering review of this printer. Just add this one to the pile. □

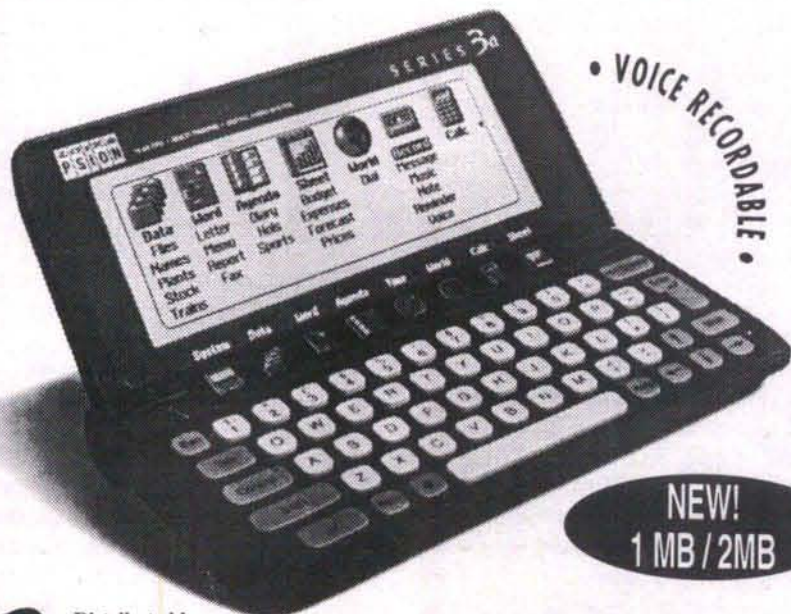
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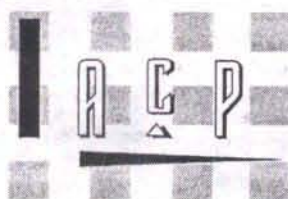
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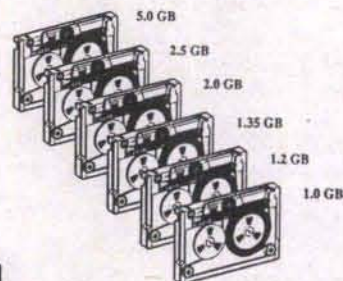
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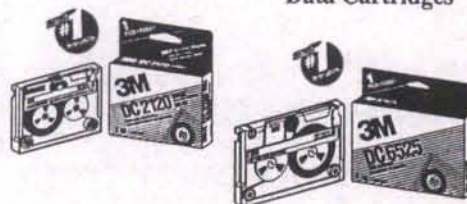


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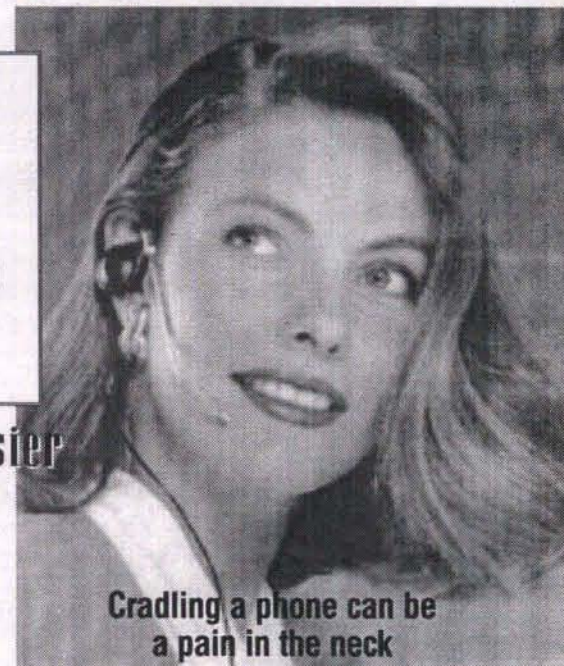
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Opening Young Eyes To Art

BY JEAN ALLEN-IKESON

With Open Eyes introduces children of all ages to the appreciation of great art and artifacts selected from the Chicago Institute of Art's extensive collection.

Before you yawn, my six-year-old son rated it as "cool." This pronouncement was during the same time slot that Power Rangers was on television and PC games were calling from the D drive.

With Open Eyes represents the branching out of "edutainment" software away from reading, writing, coloring and arithmetic.

Teaching art and art appreciation is about getting children to carefully look at the world around them and analyze what is there and how each aspect relates to the whole. In this CD, kids explore and are encouraged to analyze art works at their own speed and in their own way without being prodded by an adult. Wonderful full-screen photos of over 200 works of art were obviously chosen to appeal to children. St. George Slaying the Dragon is followed by a medieval suit of armor and an ancient piece of pottery decorated with a dragon. The program talks about the significance of St. George and discusses the importance of dragons in the art of other cultures.

Three paintings from a series of 11 by Monet compare the artist's interest in how the color and lighting on a farmer's wheat stack appear to change with the time of the day and with the season. Like docents in museums, With Open Eyes discusses each work of art and asks questions that encourage thinking about how and why the artist produced the piece. This can be viewed as text or heard as an audio clip.

My only complaint is that at the end of the clip, the program jumps abruptly to another view of the work without letting children contemplate the question. The jump is distracting. However, the audio is useful for young children and the text provides the spelling of names and titles — helpful if the program is used for a school report. A time line and map showing (and pronouncing) the source of the art reinforce the program's usefulness for school.

To help children relate to the size of the work, a ruler icon switches to a view in a gallery with adults or children standing next to it. Or children may switch to a full-screen version, or explore with a magnifying glass. The graininess of the canvas or individual brush strokes come alive. A camera "captures" a picture and adds it to the scrapbook, which can be viewed as a customized mini-version of the program.

Games simple enough for very young children encourage looking at and thinking about art. Kids love the "froggie" and "couch potato" icons. Froggie jumps through the program randomly, providing surprises with each new photo. The couch potato automatically moves from painting to sculpture or artifact at a pace set by the child. The entire interface is intuitive and a "life saver" sets help on or off.

Clicking on anything in the screen starts an audio clip that explains what it is and how to use it. However, my six-year-old seemed to find his way around the program faster than I did.

With Open Eyes represents the branching out of "edutainment" software away from reading, writing, coloring and arithmetic. The program comes from Voyager (1-800-4462001 or on the web at <http://www.voyagerco.com>) —



which is a rather interesting company in itself — and the Chicago Institute of Art.

Voyager's listing for adults includes CDs on poetry (American Poetry: the Nineteenth Century or Poetry in Motion: Vol. 1 and 2), "rockumentary" (This is Spinal Tap from Rob Reiner and A Hard Days Night — yes, it's about the Beatles and their movie), theatre (Macbeth), and science (First Person: Stephen Jay Gould on Evolution). Certainly a change for those of us who have overdosed on slash and kill games.

For children, astronomy takes life in the Planetary Taxi, while Dazzleoids is pure whimsy for young children from artist Rodney Greenblatt. Voyager's motto is 'bring your brain.' Innovative titles separate them from the pack. They should be applauded for daring to produce programs aimed at specific audiences rather than going for mass appeal. Their modest prices should also have general appeal. With Open Eyes retails on the street for \$54.95 and is available over the phone from City TV in Toronto (416-591-5757 ext. 2814) if your local software store does not carry it.

Both the Macintosh and Windows versions come on the same CD. Both require a double speed CD and 8 MB RAM. For Windows you will need a 486SX33 or better, 640x480, 256-color display and a sound card. For the minimum Macintosh configuration, a MHz 68030 or better, System 7, and a 13-inch or larger display are needed. □

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A CD for Your Pet Project

BY JEAN ALLEN-IKESON

It's raining cats and dogs on three new CDs. Between Microsoft's Dogs and Inroads Interactive's Multimedia Dogs 2.0 and Multimedia Cats, domestic pets and wild kin come alive in videos, descriptions and anecdotes.



Dogs

From: Microsoft Canada
Price: Approximately \$50

Multimedia Dogs, Multimedia Cats

From: Inroads Interactive
Price: Approximately \$45 ea.

These are a must buy for anyone considering looking for a new family pet. All three contain questionnaires or ask you to rate your ideal pet on such things as temperament, activity level, size or suitability for children. Then they analyze your answers and come up with a selection of breeds that should be the closest match.

The two from Inroads Interactive allow you to turn off the categories that you are not interested in. You might only want to search for a sociable dog that is good with children. Microsoft's Dogs, however, will not activate the "fetch" button unless you have answered all the questions.

I warn you, there can be some surprises. I told Microsoft Dogs that I would like a medium-large dog as a companion rather than a hunting dog, that we live in the country, we're not enthusiastic about doing extensive grooming and it should get along with other pets and children. The top choice was a bloodhound. Another of the top choices suggested "training needed as a puppy as they tend to be aggressive," even though I had emphasized that the dog should get along well with children. Oh, well, our faithful but uncharacteristically not-too-bright German Shepherd only ranked a ho-hum second. It is true that he thinks that cats, turkeys, sheep and baby carriages should all be ejected from the herd, so I suppose they were right on that score.

Multimedia Dogs "fetched" a Pharaoh Hound as the top choice dog for similar criteria. Maybe we should consider a hound as a second dog.

These programs accomplish what quality CDs should in providing features not available in high quality books. The search features for the ideal pet are good, and numerous video and audio clips add pizzazz and interest. You could easily slip into spending an entire afternoon exploring Microsoft Dogs because the "guides," facts and trivia are so entertaining.

All three programs are loaded with facts and photos for each breed from an exhaustive list. Multimedia Dogs comes with a list of breeders for each breed in both the USA and Canada.

The three also allow you to search the globe and explore breeds by geographical area. I discovered an ancient Peruvian hairless dog that was thought to have been related to dogs brought across the Bering

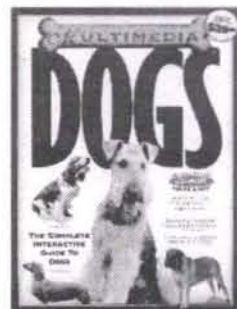
Strait by the earliest inhabitants of the Americas. I also found a wild dog that closely resembles a raccoon and is appropriately called a raccoon dog. I wonder if they do the same voodoo with the garbage at night.

You could easily slip into spending an entire afternoon exploring Microsoft Dogs because the "guides," facts and trivia are so entertaining

Want to get serious? Possible genetic flaws of each breed, general health, parasites, and diseases are also covered. Since so many pedigreed pets have been inbred too closely, it is helpful to know what to watch for and ask about in each breed before buying a puppy or kitten.

Care and training are also extensively described and illustrated. These programs also gently raise questions about general care and breed selection that should help you become a more sophisticated and responsible pet owner.

Cat lovers will enjoy Multimedia Cats: just as "fetch" helps to find the best dog for you, "cat-scan" provides a fun approach to exploring possible breeds. Over 50 domestic breeds and wild species are displayed with full-motion video and color photography. On my system, the photographs were a bit grainy compared to Microsoft Dogs. The reference value, however, is terrific, providing information on evolution, anatomy, coat colors, buying a new cat, health, feeding, grooming, and training (yes, training cats!).



The child in you may enjoy the games, such as "name that cat" and a cat breed quiz. Domesticated cats share this program with wild cousins. I

was surprised to find the variety of wild cats that inhabit the Americas. Information in this section on habitat, population status (such as endangered), and behavior would make nice background material for a nine to 12 year-old's school essay.

Inroads Interactive is also releasing Multimedia Exotic Pets, Horses, Birds, Aquatics and Pocket Pets this fall. As the titles suggest, you can find out about the "other pets," including pot-bellied pigs, cockatiels, snakes or tarantulas.

A 'pick-a-pet' search function works like cat-scan and fetch. This one worries me a bit. A bloodhound was bad enough, but what if it picked an iguana as the perfect pet for my

husband to buy me for Christmas, when I really was hoping for an exotic bird!

Performance

Microsoft Dogs requires a 386 or better and runs under Windows 3.1 but Microsoft claims it runs best under Windows 95. So I tried it on a 486 DX2-66 with 8 MB RAM and Windows 3.1. I also installed it on a new Aptiva Pentium 60 with 8 MB RAM and Windows 95. As per the advertising, under Windows 95, the program installed itself and loaded automatically. I like the autoinstall but it means that the kids will have to remove CD's before they turn the computer off. Not handy with a six-year-old.

The Pentium was a bit faster in screen changes but the videos were still grainy. The specs for Microsoft Dogs suggest you need 4 MB RAM, a CD-ROM drive, soundcard, SVGA and a mouse. The program told me that I needed to upgrade the ancient video driver on my DX2-66 (the card is 18 months old and the driver was upgraded a little over a year ago—seems it needs the new "WinG" file). However, the program still ran smoothly and the photos were fine. The street price is \$49.99.

Multimedia Dogs 2.0 and Multimedia Cats are from Inroads Interactive but distrib-

uted by Broderbund as an affiliated label. Broderbund seems to be actively adding to its home and hobby label with these CD's and the recent acquisition of Banner Blue Software and their Family Tree Maker genealogy software. It will be interesting to see what other titles are added to their home computing line-up.

These two CD's come with both Windows and Macintosh versions on the same CD, a rather nice touch for families or schools that cannot make up their mind which format to settle on. Minimum requirements for Windows are a 386, 4 MB RAM, 256-color display, Quicktime 2.0 and a sound card. A note about their version of QuickTime: if you have a later version installed, instead of bowing to that, the program asks you to remove *all* versions of QuickTime. To get around this, turn Quicktime installation off on the first installation screen if you have a later version. For Macintosh, you will need at least a 68040 CPU computer with 256-colors, 4MB RAM, 13-inch display, System 6.07 or higher and QuickTime 2.0. The street price is around \$44.99 each. □

Contacts: Inroads Interactive, 1-303-444-0632; Microsoft Canada, 1-800-563-9048

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GAMES

Flight Unlimited

BY GRAEME BENNETT

We'll get right to the point: this is the best flight simulator we've ever tested. Flight Unlimited is a CD-ROM for IBM-compatible PCs with 8 megabytes of RAM or more that combines stunningly realistic scenery with an easy interface and great flight physics.

As you might expect, the more powerful your computer is, the more impressive the simulation. The package claims — and our tests confirm — that Flight Unlimited is "optimized for Pentium" but we ran it with good results on a 486DX/75 with 8MB of RAM, too. You can set the program to display terrain and atmospheric conditions in any one of several resolutions, ranging from 320x200 (blocky but fast) to 1024x768 (gorgeous, but slow on all but the fastest Pentium PCs). We found that 640x480 mode gave us the best tradeoff between performance and visual appeal on our Pentium 60 and P90 test systems.

The program runs directly under Windows 95, without requiring a special boot disk or any special settings. We also ran it under DOS 6.2, although this took a lot more fiddling, as we had to edit our CONFIG and AUTOEXEC files to free up memory. Score one for Win95. The software automatically detected our sound card (it supports several well-known models, including all models of Sound Blaster, as well as cards from Gravis, Ensoniq, Roland, and Media Vision) and works with or without a joystick. Although we didn't test it, Flight Unlimited also supports a variety of special flight-con-

troller gear, such as the head-mounted display and flight sticks reviewed in Gord Goble's articles in TCP, May 94, Dec. 94, and Jan. 95.

As those of you who have tried to fly (in virtual or real skies) know, the actual flying is relatively easy: it's the taking off and landing that's tricky. Flight Unlimited nicely addresses these difficulties in a number of ways. The program comes with a "Training mode" where a flight instructor verbally guides you through basic maneuvers, or if you'd rather just get out into the wild blue yonder, there are program options that allow you to skip the takeoff procedures. And if — heaven forbid — you crash and burn, there's a little tip you may be interested in: a simple press of the Tab key and, lo! It's a miracle! Accompanied by the sound of an angelic choir (no kidding!), you're back in one piece. It's even possible to repeatedly press the Tab key to "teleport" your plane many thousands of feet into the sky to give yourself plenty of airtime before those photo-realistic mountains you're hurtling towards put a damper on your high-flying fun.

Several different planes, each with their own unique flight characteristics, are included with Flight Unlimited. Some of the sportier models are able to perform aerobatic maneuvers so intense that the program simulates a "blackout" as you succumb to the terrifying G-Forces. Must...press...TAB.... □

Contact: L&S Communications for Looking Glass Software, 617-577-9777.

MacSimize Your Computer Productivity

A Macintosh Tip

Macintosh and Internet: Smooth Sailing Once You Leave the Dock

Cruising the information highway is easy, but negotiating the on-ramp has frustrated many people. An individual user needs a modem (the faster the better), an account with an Internet provider (Mindlink, Wimsey, Internet Direct, or a university), and some free software. Some of the software is for connecting to the Internet (e.g. MacTCP, and either MacSLIP or PPP) while some is for using the Internet after you connect (e.g. Netscape, Eudora).

Even though this software is free, it must be configured for your specific Internet provider and brand of modem. We strongly recommend getting expert assistance the first time you connect. After that it will be easy and fun!

When setting up, beware of "the modem speed trap": you often must enter a "port speed" value into your software, and the obvious choice would be the speed of your modem, 14400 or 28800. But the computer's ports will not operate at these speeds! For a 14400 modem, enter 19200; for a 28800 modem, enter 38400 or 57600. Were these things created just to be confusing? Probably.

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Digital Photographs as a Way of Life

BY ADAM C. ENGST



Tonya and I recently acquired one of Apple's QuickTake 150 digital cameras, and it's probably the Apple device that's most affected us since the PowerBook 100 (the machine I'm using to write this, by the way).

The QuickTake 150 holds either 16 or 32 pictures, depending on whether you shoot in high or low resolution. You can switch between resolutions on a per picture basis, but we've settled on using only the high resolution setting. I'm not quite sure (and the manual is singularly unhelpful on this count, as it is on most technical issues) what the difference between high and low resolution is, since both claim to be 640 by 480 and 24-bit color. I suspect the difference is in the level of lossy compression performed within the camera. For product information visit

<http://www.info.apple.com/qtake/>

What's made the difference with the QuickTake over the previous cameras we've owned is that there's little or no penalty to shooting a bad picture with the QuickTake. Perhaps the only thing to concern yourself with is the number of pictures left at any given time. When we went to a friend's wedding several weeks ago, we solved the capacity issue by simply bringing a PowerBook and the serial cable necessary to download the pictures from the camera to the PowerBook's hard disk. Downloading the pictures is, for a computer person, probably easier and faster than changing a roll of film, and it's instant gratification.

From a cost standpoint, once you've bought the US\$700 (it sells for about \$1,200 in Canada — Ed) QuickTake camera (which isn't cheap, especially considering the low-quality optics), your only recurring expense will be batteries, and the lithium batteries that come with our QuickTake 150 have lasted for several hundred images with no indication of dying yet. You can buy a lot of film and developing for the difference in price between the QuickTake and a point-and-shoot camera, but if you take many pictures, the QuickTake will eventually win out. And, if you're like us, it always takes so long to get a roll of film developed that you forget some of the details of what was going on when you took the picture. We never would have taken 200 pictures in the last eight weeks with our regular camera, and we would have felt awful about the 50 or so photos that came out badly. With a digital image, a simple drag to the Trash solves that problem entirely.

Although the physical dimensions of the camera make it a conversation piece (it looks a bit like high-tech binoculars and garnered

numerous comments at our high school reunions this July), you can use it in some interesting and subtle ways because it's digital. For instance, most cameras make noise when the film winds, but the QuickTake, apart from a low click, gives almost no indication that you've taken a picture (assuming it's bright enough that the flash doesn't kick in). Add this to the fact that you can crop and manipulate images in PhotoFlash — the image-editing application that Apple ships with the QuickTake 150 — and you realize that you can more easily take pictures from the hip, or holding the camera in a strange position in which you cannot see through the viewfinder. Sure, you might center the subject in the frame badly, but if you get it at all, you can fix the image later. It makes for some interesting pictures of people who aren't expecting to be photographed, although the quality on motion shots isn't good.

Once you've become accustomed to the relative freedom of taking pictures whenever you want, you start to realize how much additional freedom you're afforded by having the images in digital form. For instance, you can attach the images to e-mail and send them to friends and family, you can put them up on a personal Web page, or you can easily edit them and send them in to the National Enquirer as evidence that communist space aliens have taken over the domestic ketchup industry. Physical photos are a pain to duplicate, and you probably wouldn't get more than two copies of any standard image. But, of course, you can make as many copies of digital images as you want, which makes it easier to share them more widely. And since PhotoFlash is highly scriptable, anyone who knows AppleScript or Frontier at all well could write scripts that let you select images in a PhotoFlash catalog file and save them in an appropriate format and either attach them en masse to an e-mail message or create a simple Web page using the captions you can add to each image.

So no, the quality you'll see in the images from the QuickTake 150 won't hold a candle to a 35-mm camera even a quarter of the price. But you can make up for a fair number of the quality issues with the editing capabilities in PhotoFlash (or Photoshop, if you're more serious), and in my opinion, the flexibility and freedom afforded you by having the images in digital format is well worth the trade-off. Of course, the quality only stands to improve over time, so even if you don't feel the 150 is sufficient for your needs, how long can it be before Apple or another company melds the technology (which will improve with time as well) with higher quality optics?

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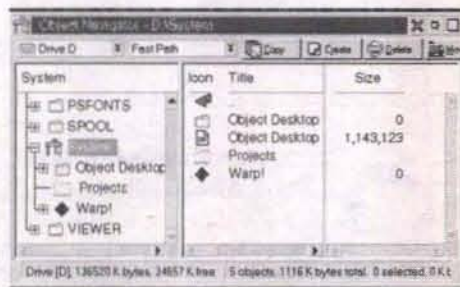
Object Desktop

Continued from page 60

6 Object Archive — The total coolness of this feature can not be understated. Any ZIP, ZOO, LZH or ARC file is now a folder. You can open it, drag stuff out, drop stuff in, even run programs or edit files from within the archive. Templates are created so that you can drag out empty archives, drop them in a directory and then start dropping the files you want compressed into them.

7 Keyboard LaunchPad — This is pretty straightforward. You can assign key combinations to open programs you use a lot. Configuring the keyboard launchpad is great, — open the settings and start dragging apps into it. Keystrokes are easily assigned; click in the entry field and press the key combination that will launch the apps.

8 Tab LaunchPad — This is my personal favorite. The original launchpad was good, but the Tab LaunchPad is a good idea done one better. This launchpad takes up less space and also promotes organization. From the settings, you can add all the tabs you like. Each of these tabs corresponds to a row (or column) of icons. So I can name a tab Games, click on that tab to bring it to the front, and then drop game icons into it. Some tasks are so common that you always want them available (like Find, Shutdown, and



The Object Navigator is WPS-smart, allowing you to drag items from it to the desktop or other objects.

Lockup on the old launchpad). The Tab LaunchPad lets you select which objects should always be available. One last feature that really shines with the Tab LaunchPad is the "Tasks" tab. If you like, all minimized apps can be made to appear on this tab. As well, there is a setting which causes the tab to become the active one after you launch an app from the LaunchPad. This is a real godsend if you are frequently switching between minimized apps.

There are many other enhancements provided by Object Desktop and I understand that there may be even more features on the way before OD becomes available at the end of September. □

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BY JAMES MACFARLANE



A Web Authoring Tool You Already Have

A lot of people ask me what I use to create Web pages. "Windows Notepad," I tell them. They usually get a confused look on their face. Yup, it's true: back to knives and bearskins.

While Windows Notepad has virtually zero features (well, it does have a clipboard) it's my favorite tool for authoring Web pages.

Notepad is never out of date. When new HTML standards came out I didn't have to upgrade my software. Notepad just purred along and kept its mouth shut. Sure, learning how to use HTML effectively takes some time, but so does learning how to use many of those so-called authoring tools.

InContext Spider

I recently looked at two different HTML authoring tools for Windows: InContext Spider (<http://www.incontext.ca>) and Quarterdeck WebAuthor. Each takes a very different philosophical approach to assembling HTML code.

InContext Spider (see last month's review on HTML authoring tools) is a stand-alone package that has everything you need to write Web pages built-in. I think the user interface for this product is enigmatic, using confusing icons and a difficult to understand layout.

The product is designed to keep you within a very rigid framework, but this isn't always a disadvantage. For those who don't know how Web pages are constructed, Spider's attention to structure keeps you from breaking the rules.

you still have to learn what all these options mean, which requires some knowledge of HTML coding.

While the editor does give you a rough idea of how the document is going to look, it is not a true representation of the final HTML page as it will look on the 'Net. In order to see that, you need to click on the preview button, which loads the included Mosaic browser (which does not support Netscape 1.1 enhancements).

My machine crashed immediately when I selected preview. A call to InContext tech support revealed that you need at least 10 MB of free RAM in order to load the browser. My machine had eight, and about 5 MB free after loading Spider.

There are a few other things I didn't like about Spider. It gets the color palette wrong on imported images, making them look awful. It has difficulty displaying large JPEG images, and when you're selecting an image, it displays a list of all files, including .EXE files, something the program should never allow to be selected.

To me, Spider is isolating me from the guts of what HTML is all about. There's little sense of subtlety or experimentation.

While Spider certainly has a lot of features, I don't really like the user interface. Being the

first version of the software, it still has a lot of rough edges. InContext Spider is available for \$99 through HMV (1-800-567-8468.)

Quarterdeck WebAuthor

Quarterdeck WebAuthor (\$109) is an add-on for Microsoft Word 6.0, which means that if you know how to use Word, getting used to HTML is pretty simple. I like Quarterdeck's approach much better than that of InContext. They're taking a product that is already well-known and feature-packed and adapting it to a new application.

WebAuthor gives you a more realistic WYSIWYG interface and allows you to build a document the same way you'd naturally build one with a word processor. Things are a little more complicated when it comes to dropping in an image: a dialog asks you to fill in some information about how the image is to appear on your Web page. It's still pretty straightforward to use, even for Web beginners.

Editing text with WebAuthor is pretty simple. Instead of selecting text and doing things like changing font size, you're given a list of HTML tag options, such as selecting header sizing, item lists and more familiar things like bold and italics.

Like most other editors on the market, it lacks the Netscape 1.1/HTML 3.0 enhancements, but a patch is to ship soon which promises to update these functions. One

Spider allows you to drop HTML elements into the editor, and then edit their attributes by right-clicking on the item as it appears in the editor window

By the time you've mastered these packages you might as well have mastered coding HTML by hand. It probably takes the same amount of time, not to mention the frustration of not being able to keep up with new standards.

Spider allows you to drop HTML elements into the editor, and then edit their attributes by right-clicking on the item as it appears in the editor window. A form pops up and displays just about every option available for that item. While this is handy,

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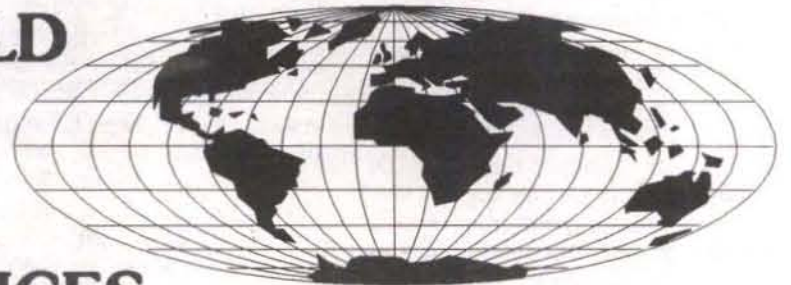
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major drawback for WebAuthor at the moment is a complete lack of JPEG file support, meaning you're forced to use GIF images only. Hopefully, the patch will fix this as well.

WebAuthor is a handy tool and worth picking up if you are already an owner of MS Word 6.0 for Windows.

WebAuthor gives you a more realistic WYSIWYG interface and allows you to build a document the same way you'd naturally build one with a word processor

Your Own Web Site Without UNIX

Starting your own Web site used to mean knowing UNIX. But recently released Web software for Macintosh, Windows for Workgroups, and Windows NT mean you can use almost any computer to put yourself or your company on the web.

The web uses something called HTTP (hypertext transfer protocol) to send Web pages over the Internet. Browser software, such as Netscape and Mosaic, are HTTP clients, meaning they are usually on the receiving end of a network arrangement. In order to send Web pages to other people, you need HTTP server software, which is exactly what these packages are.

Once the software is running, there isn't

much you need to do, aside from authoring the HTML pages themselves.

These server packages sit quietly in the background and only come to life when someone requests a web page. In Geek-speak, this is called a *daemon* process. An HTTP daemon is commonly referred to simply as *HTTPD*.

Having Web software running on your machine is one thing, connecting it up to the Internet is another. In order to talk to the Internet, your machine needs an Internet Protocol (TCP/IP) network driver. Configuring TCP/IP can be pretty tricky if you don't know much about networks. The other piece of the puzzle is a physical device to connect to the 'Net. This can be something as simple as a modem, which is usually too slow for most commercial-grade applications, or something heftier, like an ISDN or T-1 router.

Once you have all that in place, you need to find an Internet service provider that will hook you up. Setting all this up can be pretty tricky and is something you probably want to hire a consultant to do, or to make special arrangements with your provider to do for you. It can get expensive.

Installing and running the Web server software is pretty simple and something you can probably do yourself. Most software installs just like other applications — it simply asks you where you want to install the data files. It's highly suggested that you simply accept the defaults. A standard setup is much easier to troubleshoot.

For Windows 3.1 or 3.11, Quarterdeck makes an excellent product, and is also the least expensive way to get started. Quarterdeck WebServer (\$239.95) comes with everything you need, including a TCP/IP driver. You really need a decent 486 and 8MB of RAM to make use of the package, but once running, it will run in the background, as long as you don't expect to run

something like Photoshop at the same time.

While Quarterdeck WebServer is at the low end of the market, it does include many of the features you get in high-end packages, such as the ability to use external programs through CGI, indexing, secure directories, and clickable image map support. WebServer can handle 16 simultaneous connections and up to 25,000 requests per hour. <http://www.quarterdeck.com>.

If you expect higher traffic, you may want to put a little more power behind your site. For Windows NT, there are two contenders: Website, from O'Reilly and Associates, and Netscape Server.

The O'Reilly Website package is very similar to Quarterdeck WebServer: it follows many of the same configuration conventions and is code-compatible with the same CGI scripts. It sells for US\$379.

Netscape, on the other hand, includes many more advanced features, such as secure data encryption and better multi-treading performance. It comes in two flavors, Netscape Communications Server, which does not include secure encryption capabilities (US\$795), and Netscape Commerce Server (US\$2995), which does.

If you're of the Macintosh persuasion the product everyone is raving about is WebStar, by StarNine Technologies. This commercial-grade product requires System 7 and at least 4 MB RAM (most say, go for eight). It, too, can handle thousands of requests per hour. For an entry-level product, it's a bit pricey (at US\$599). <http://www.starnine.com>.

Internet Slows Down

No, it's not you, the Internet is getting slower. The number of users coming online and the types of applications being used are bringing the 'Net to its knees.

Once upon a time, most of the 'Net traffic

was text: e-mail, newsgroups and Internet relay chat (IRC). Now there are big demands from Web users for new multimedia capabilities. Instead of receiving an average of 10-30K per user per week, traffic for the average Web user can now top 300K a day. High-resolution images (GIF, JPEG), along with audio clips (WAV, AU, and RealAudio), chew up bandwidth like there's no tomorrow, and there's no end in sight. Did someone mention VRML?

The Internet phone, being slated as the next killer application, may actually be killer of the 'Net itself. Here's how it works: if you have an audio-capable machine, you can record and send messages in *almost* real-time to any similarly-equipped user on the 'Net. Yeah, it's really more like an Internet intercom than a phone, but the idea is the same. Developers are working on some real-time applications of this technology. Did I forget to mention that it's like constantly uploading and downloading a file simultaneously, as fast as your modem will go? Multiply that by a million or so users and do the math.

What does it all mean? Well, either the net is going to come to a crawl, as everyone tries to call Hong Kong and Belgrade and Melbourne for free, or the big Internet carriers are going to have to spend big bucks to upgrade their networks.

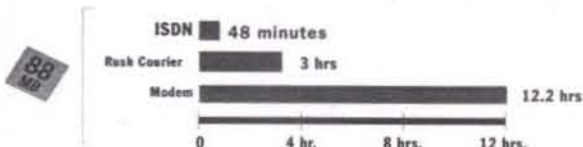
If you've ever dealt with a big carrier (I have), you soon realize that they're too busy hooking up you, me and our neighborhood Internet provider to stop long enough to notice that they've run out of bandwidth. Oops.

Wow! Imagine, all the long distance calls you want to make for *free*. As Heinlein said, TANSTAAFL (there ain't no such thing as a free lunch). We can expect pay-per-packet to be the ticket to clean up this mess real soon now. Suddenly everything becomes less novel and fun when the meter is running, doesn't it? ☐

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Librarians of the Future

BY MARTIN P. WATERMAN

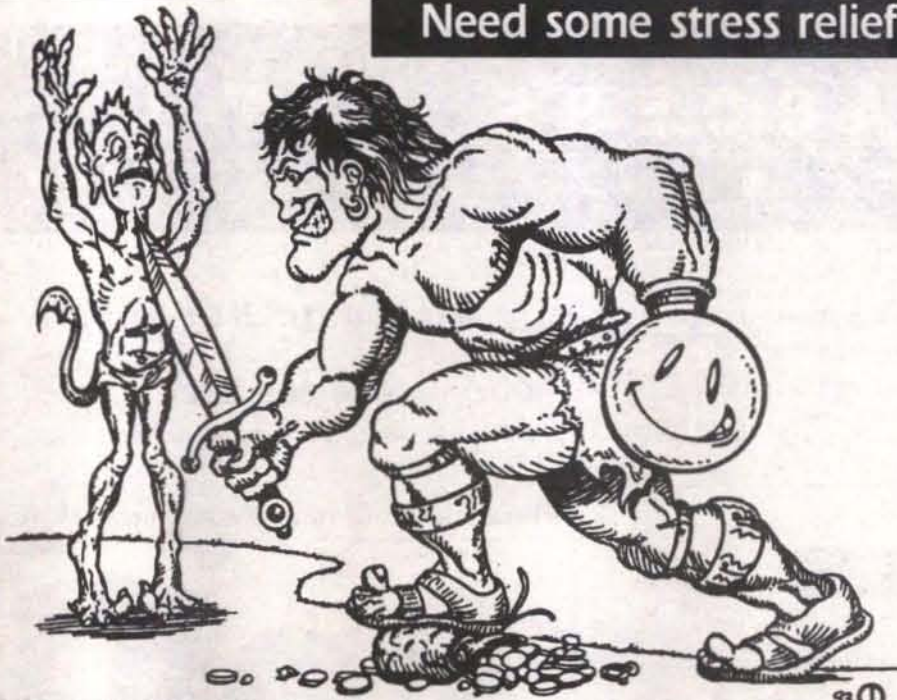
No matter the reason that information is needed, more and more organizations are finding they need someone to handle this task. This is usually because most managers, who need the information the most, do not have the time to surf and build an inventory of useful sites and find the information that they need.

When I first heard the word "cybrarian" I had an image in my mind of some futuristic public employee that was half bookworm and half RoboCop. Cybrarians are, of course, librarians, but instead of being surrounded by books, they are nestled into a computer workstation. There they are connected to the Internet and search the four corners of the globe in order to harvest information from thousands of universities, the World Wide Web, from newsgroups, governments, businesses, organizations, professionals and, of course, other libraries such as the Library of Congress.

Just as there are many facets of the 'Net, there is more than one type of cybrarian. There is the traditional, institutional librarian who has made the leap to the Internet. The other type of cybrarian is more of a freelance librarian: a cybrarian for hire. A third type of cybrarian that has evolved is the corporate cybrarian. Many large businesses have always had corporate researchers to find market and other information. However, with the birth and unprecedented growth of the

Continued on page 94

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Librarians of the Future

Continued from page 92

Information Highway, many businesses have found a need for their own in-house or part time cybrarian, if for no other reason than to monitor their competition.

No matter the reason that information is needed, more and more organizations are finding they need someone to handle this task. This is usually because most managers, who need the informa-

tion the most, do not have the time to surf and build an inventory of useful sites and find the information that they need.

I caught up with Lorna Peers, a real live cybrarian at the DISCscribe site which is located in Fredericton, New Brunswick. The site has dozens of interesting aspects, including Child Find Canada, as well as things of particular interest to people in New Brunswick.

Lorna holds a Masters degree in Library and Information Science from the University of Western Ontario. She can be

reached at <http://www.dscribe.ca/cybrar.htm> or e-mailed at lornap@dscribe.ca. You can also telephone her at 1-506-455-3108 or 1-800-567-6288. If you visit her WWW home page, you will see her photo and see that cybrarians are not chrome plated info hunters from the future.

I spoke (via e-mail, of course) with Lorna Peers.

Martin Waterman: What is your primary function as a Cybrarian?

Lorna Peers: My primary function is to locate information for clients or members of the company using the Internet or commercial online databases. I think your term information bounty hunter is quite accurate.

This includes

- Individual requests from businesses and individuals.
- Locating competitive information for use by the company.
- Background research and online promotion of clients who are on our Web server.

MW: What percentage of your work do you find deals with online promotion?

LP: I would estimate at least 50 percent and growing. I'm always finding new search engines and other places to promote our clients' Web sites. A lot of the time is spent locating the most appropriate category in a directory such as Yahoo.

MW: How do you typically promote a company online?

LP: At the design stage, I typically do some research to see what similar sites may exist and where they are located in directories or indices. Once the site is ready, we write a brief press release or promo and post it in the appropriate newsgroups, mailing lists, search engines (i.e. Lycos, etc.), subject directories, and What's New pages. Online promotion is very important to Web sites. Regardless of a site's value, it is of little use if it cannot be easily located.

MW: What areas of the Internet do you find you use the most to find information for your clients?

LP: I would have to say that I use the Web most often, primarily because of the Web design we do for clients. For more general requests, I use the Web (usually first, as it is the fastest growing portion of the Internet), gopher (less so, I often find the information out-of-date or reach dead ends), as well as newsgroups and mailing lists. On occasion, I may come across a Web site with a contact name and send a request by e-mail to see if he or she can supply more information. Others sources include library catalogs and periodical databases.

MW: Is there such a thing as a common question you receive?

LP: Not really, we've done some consulting for national organizations that want to get their offices on the Internet so I'm often updating my list of Canadian ISPs (Internet Service providers).

MW: What is the biggest information request you have received?

LP: One client wanted a fairly comprehensive list of Canadian companies that design and host Web pages, with contact and pricing information. Finding the companies wasn't difficult, but locating their list of services and pricing information (when available) took a while. (Do you realize that some companies didn't have contact information on their pages? Not very useful for the client who didn't have Web access!)

Continued on page 96



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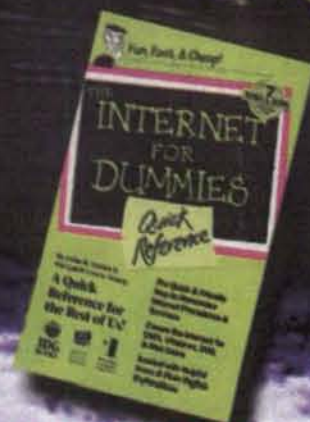
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Librarians of the Future

Continued from page 94

MW: Do you find that your customers are preoccupied with the status of their competitors' presence on the Internet?

LP: No. Not as much as they should be. Some businesses still see barriers to the Internet (e.g., cost of hardware, cost of access, learning curve) despite the fact that their competitor may already have a presence online. This spring we held two free seminars on using the Internet for local businesses. I think once they have the opportunity to see the capabilities for themselves, they may realize its potential.

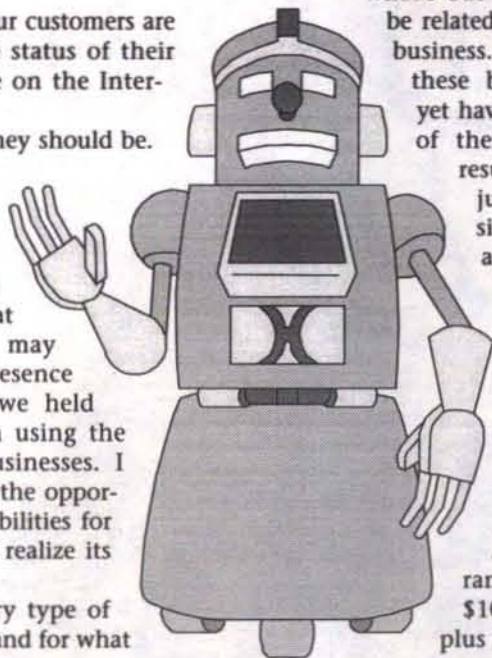
MW: What is the primary type of research you conduct and for what

type of companies?

LP: In terms of individual requests, many companies request a synopsis of "what's out there" that may be related to their type of business. In many cases these businesses don't yet have Internet access of their own, so the results may help justify the decision to purchase access. I would estimate that many of these companies are small businesses.

MW: What does a Cybrarian typically charge?

LP: My rates range from \$65 to \$100 (Canadian) plus applicable taxes



per hour for searching and formatting results. The rate depends on the volume of work and the urgency of the information. Additional charges may occur for reprints, and with some commercial services, there are extra charges that may be required.

MW: Could you categorize for us the types of businesses that you find most often require the use of a Cybrarian and for what purposes?

LP: I've done a number of searches for government departments, where they required information for presentations, or for decision-making purposes (e.g., whether or not to proceed with a particular program). I've done research for insurance companies, telephone companies, manufacturing, public utilities, hotels, nonprofit organizations. The businesses, individuals and organizations that have purchased our Web services, range from the Chamber of Commerce to music groups. They like the fact that I can put together a list of links to other sites with related

information, as well as the promotion of their site.

MW: What do you like and dislike about being a Cybrarian as opposed to a conventional librarian in a book-filled environment?

LP: I like the fact that the Internet is constantly changing and evolving. It's all I can do to keep up on all the new sites, software, etc. Navigating the Internet can be a challenge, since there is no absolute list of its resources, but the tools and indices have improved significantly. I can't say I dislike anything. Who wouldn't love to surf the net all day (and get paid)? I'm also adjusting to being (for the most part) a telecommuter and working from home. I missed the daily interaction with co-workers at first, but there are lots of benefits.

Also, since most of the communication and transfer of my results is done electronically, I rarely meet my clients face-to-face. ☐

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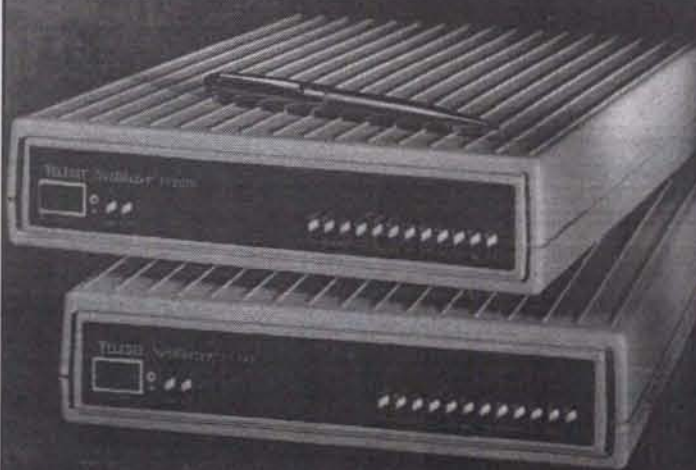
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Canadian Anagrams on the Internet

BY JOHN ROBERT COLOMBO

I assume readers are familiar with the Internet and the World Wide Web. But there might be readers who are unfamiliar with the word anagram. A popular form of word-play, an anagram is made when the letters that form one word are rearranged to create a new word. The original word and the anagram may be short or long, one word or a number of words in length, but most anagrams are quite terse.

One of the great joys of using the Internet is discovering things that are both novel and useful. The other day I made just such a two-fold discovery on the Internet's World Wide Web. My discovery is called The WWW Anagram Generator

What is most important is that the meaning of the new word or words sheds some light on the meaning of the old word or words. When this happens, the anagram takes on the air of the uncanny. It yields a message that seems mysterious, even oracular. Anagrams refamiliarize us with the familiar. A case in point is one of the most intriguing of anagrams, the word anagram itself. Rearranged, its letters spell out the words ARS MAGNA, Latin for great art.

When I turned on the computer and began to cruise the Internet, I had no idea that there was an anagram generator lurking among the hundreds of thousands of destinations that are accessible through the World Wide Web.

The WWW Anagram Generator (its location is <http://csugrad.cs.edu/burke/anagrams.html> or <http://csugrad.cs.vt.edu/htbin/anagram-generator.pl>) produces a page on the screen with a dialogue box that invites you to keyboard in a word or phrase. Then you click the search key, and within a few seconds all the recognized permutations and combinations of those letters appear in the form of a list. It would take hours, even days, to accomplish the task mechanically that the computer perfunctorily performs. Each anagram is called a hit, and hits may range in number from none to thousands, depending on the length of the original word or words.

The anagram generator on the WWW is a free service introduced last year by Eli Burke, a student of computer science at the Virginia Tech, Blacksburg, Virginia. Because he is still an undergraduate, Burke lists his degree as B.S., Computer Science, May 1997. He produced the generator "For people to play with." If I ran a computer company, I would hire him the day he graduates.

His generator produces permutations and combinations and permits you to scroll line

by line, screen by screen. Buoyed up by the possibilities inherent in his anagram generator, and basking in a nationalistic frame of mind, I decided to keyboard in the names of the provinces and territories as well as those

of some politicians of the day. All the while I wondered what would happen. Here are the surprising results.

When I keyboarded in the words "British Columbia," I got an astonishing number of

hits: 4,656! Most of the anagrams, although they are composed of everyday words, make no sense at all. But I liked four of them. RICH MOB SUIT BAIL sounds like it might

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be a newspaper headline. Does HIT MUSIC BLOB AIR have something to say about pop music? Ditto for HOT LIMBIC BUS AIR. The sole anagram that seems to fit the western-most province is HISTORIC BUM BAIL.

There were 23 hits for Alberta: all duds except for two. The ones I like are ABLE TAR (it seems to say something about the Alberta Tar Sands) and LATE BAR (maybe the taverns are open late in that province). A long word, Saskatchewan, produced 526 anagrams. Three of the combinations lord it over the rest: WEAK CAN STASH, HEW KANSAS ACT, and ASK WHEAT SCAN!

Eleven hits followed the keyboarding of Manitoba. The most appropriate ones are MAIN BOAT (perhaps a nod to the replica of the vessel in drydock at the Manitoba Museum of Man and Nature) and BATON AIM (possibly a nod to one of the province's orchestra conductors). Ontario produced a dozen hits, including RAIN TOO, IRAN TOO, and IRON TAO. (Is the latter term New Age jargon?) Curiously, the anagram generator did not list the best of all the province's anagrams: ORATION. Its failure to do so shows

Canadian Places on the Internet

How would you like to live in a city called TORN TOO or GIN ERA? Perhaps you would rather set up shop in VITO RICA or LOAN MART.

If these seem unusual places in which to live, bear in mind that these words and phrases are anagrams of familiar Canadian place names. After keyboarding into the WWW's Anagram Generator the names of provinces and territories, I decided to explore the lexicographical peculiarities of our cities.

TORN TOO is a rearrangement of the letters that make up the place name Toronto. GIN ERA is one of a number of anagrams for the place name Regina. VITO RICA and LOAN MART are anagrams of Victoria and Montreal.

Here are the liveliest anagrams I found for our major places. Some of them make sense; others are oddly mysterious. (The number in parentheses refers to the

number of anagrams each word generated — the number of hits.)

Victoria (2): VITO RICA
Vancouver (3): CURVE NOVA
Calgary (9): RACY GAL, LACY RAG, CRY GALA, GAY CARL, LAY CRAG
Edmonton (8): NOT DEMON, MOON DENT, ONTO MEND
Saskatoon (9): KANSAS TOO, OAK NOT ASS
Regina (6): NAG IRE
Winnipeg (6): PINE WING, WINE PING
Sudbury (4): RUDY BUS
Toronto (7): TORN TOO
Thunder Bay (389): THUD NEARBY, HANDY BRUTE, BAN HER DUTY, HURT ANY BED
Hamilton (17): HALO MINT, THIN LOAM
Kitchener (21): ENTER HICK, THIN CREEK
London (2): OLD NON
Windsor (4): DOWN SIR, RID SNOW
Oshawa (2): SAO HAW

St. Catharines (1,097): ARISTAN CHEST, CHASTISE RANT, SANS HER ATTIC, STAIN HER ACTS, TARNISH CASTE
Sherbrooke (5): KOSHER BORE, BROKE HORSE
Montreal (63): MELON TART, TORN MALE, LONE MART, TERM LOAN, LATE MORN, NOT REAL
Trois-Rivieres (94): REVISE RIOT SIR
Saint John (2) JOT ASH INN
Whitehorse (117): WITH HEROES, SHE WITH ORE, WISH THE ORE
Yellowknife (154): FILL NEW YOKE, ONLY ELK WIFE

Unfortunately, the following place names yielded no hits: Ottawa, Quebec City, Chicoutimi, Halifax, and St. John's. No words or phrases could be made with them. Perhaps they yield meanings using a French-language Anagram Generator. Or perhaps the cities should be renamed!

— John Robert Colombo

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that the built-in dictionary of the generator is incomplete and that no software meets all specifications.

No anagrams at all were generated by Quebec. (To be accurate, there was one hit: the word QUEBEC itself, which appeared on the screen along with the following pleasantly ungrammatical explanation: "You had 1 hits!" In the future I will allow someone with access to a French-language anagram generator to deal with Quebec.)

When I keyboarded Newfoundland, I was surprised to find 263 hits. All but two of them are wide of the mark. The ones I do like are NOW ADD FUNNEL and NUDE AND FLOWN.

Instead of producing anagrams, Prince Edward Island gave me the following message: "There are too many possible anagrams to calculate all in the allotted time slice." When I keyboarded the abbreviation P.E.I., I had to settle for a slice of PIE.

Nine hits resulted from keyboarding New Brunswick. The two most appropriate messages are CREW WINK SNUB (sounds good!) and SCREW WINK BUN (sounds better!). Nova Scotia generated 38 hits, including OVA IN TO SAC (anatomically impossible) and VISA CAN TOO (sounds like a commercial for the well-known credit card).

When I keyboarded Newfoundland, I was surprised to find 263 hits. All but two of them are wide of the mark. The ones I do like are NOW ADD FUNNEL and NUDE AND FLOWN. (I did not find the traditional anagram AND NO LEWD FUN.) Whether apt or not, these words will never appear as mottos for the Great Island.

Yukon Territory generated 442 hits, but only one of them sounds serious, if slightly frivolous: TOOK RYE TRY RUIN. I had a problem with Northwest Territories, as it generated screen after screen of hits, but I have no idea how many because at the point when the system clocked 200,000 bytes of information, my memory-poor PS/1 computer entered the state of gridlock. Before that happened, however, I managed to rescue two anagrams: WROTE HIS INSERT RETORT and WROTE NORTH RESIST RITE. They sound pretty awful!

To complete the coverage of the country, I keyboarded the name Canada, only to find no legitimate hits. Undaunted, I tried the country's title: Dominion of Canada and hit the jackpot with 1,863 anagrams. After such excitement it is sad to relate that they are uniformly uninteresting, though I do favour three of them: FOOD AND ION MANIAC, INDIA CAN MOAN FOOD and OAF MANIAC DID NOON.

Luck was with me with the country's official motto. Here are four of the 523 hits generated by the words From Sea to Sea: MOOSE ARE FAST, FAME TOO SOARS, SEE SOFT AROMA, and (rather mysteriously) SEE MARS AFOOT.

I had a lot of fun with the names of political personalities. Quebec Premier Jacques Parizeau will be pleased to know that his name may be anagrammatized 39 ways, including AJAR ZEUS QUIP ACE and JAR SUEZ AQUA EPIC. Bloc Quebecois leader

Lucien Bouchard weighs in with 5,144 hits. The best of these is BUILD OR CHANCE, and the worst of these is ENRICH LOUD CUBA. In between are HAD RUBE COUNCIL and COUNCIL HUE DRAB. Am I reading significances into HEAD RUN BUCOLIC and CLOUD RUIN BEACH?

Two provincial premiers scored well. Alberta's Ralph Klein (with 56 hits) is HELL KIN PAR, and Ontario's Mike Harris (with 69) is RAKISH MIRE or MARK HIS IRE. Prime Minister Jean Chretien's name elicited 36 inspiring hits: EACH INNER JET and CAN JET HEREIN.

It's nice to know that former Prime Minister Joe Clark, with ten hits, is either CARL JOKE or a REAL JOCK. Former Prime Minister Brian Mulroney wins hands down with 3,443 hits. Many of his anagrams are thoughtful commentaries on the man's character and political career: RUIN BALMY NERO, NOR RUE ANY LIMB, LUNARY BROMINE, MINOR BLUE YARN, and (best of all) RURAL MONEY BIN.

I entered the name Trudeau but received the following standard message: "Sorry, I couldn't make an anagram out

of...Trudeau." I would try the gentleman's full name "Pierre Elliott Trudeau," but I am afraid — like "Northwest Territories" — it will send the system into gridlock.

My final check was the word "Internet" itself. It produced nine anagrams, including ENTER NIT and INERT NET. □

John Robert Colombo, the author of many books about Canada, is the general editor of The Canadian Global Almanac (Macmillan). Five hits resulted from the word "Colombo," but the only one of any interest is "cool mob."



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Lights! Camera! Log On!

Virtual Film Festival Offers Film Pros And Fans An Online Forum

BY JEFF EVANS

At the annual Toronto Film Festival, now in its 20th year, you might expect to see the old media in all their glory: film stars, directors, dealmaking movie

moguls with their entourages, hordes of newspaper writers and photographers. At this year's Festival Of Festivals, however, in one noisy corner of the Sutton Place Hotel, a

Mac glowing amongst the movie posters and camera crews pointed to an experiment in which the info highway is being routed to do an end run around Hollywood.



The Virtual Film Festival, a lavishly designed World Wide Web page (<http://www.virtualfilm.com>), has been launched, and unlike a film festival that is only on for a few days each year, this online festival hopes to run uninterrupted for the foreseeable future.

The Virtual Film Festival is a Web Site created by filmmakers and film enthusiasts, intended to provide an ongoing virtual meeting place to socialize, plan projects, do deals, schmooze, gossip, do research, and have film and video related fun.

When the Virtual Film Festival debuted at the Festival Of Festivals on September 8, it presented a very slick user interface with a lot of interesting places to go. Subsidized initially by Telefilm Canada, the National Film Board and Heritage Canada, the site offers a lot of interesting stops. Among them, the VFF offers a lobby for visitors to get their bearings and choose a place to go; a screening room to view film clips and trailers from current and upcoming films; a press conference centre, including real-time press conferences with stars and filmmakers; forum rooms for discussion on particular topics; a cafe to schmooze in; an online magazine; a concession stand where videos and other products can be ordered; a library; and an accredited media only industry room where one can pitch concepts and engage in negotiations with other industry players.

TCP talked to Virtual Film Festival co-founder Peter Wintonick (creator of the film *Manufacturing Consent: Noam Chomsky and the Media*) about the VFF. Wintonick stated that in the film and television business as it currently exists, there are few convenient channels for film professionals to communicate and plan projects internationally outside the control of the major media corporations.

According to Wintonick, the VFF offers a free channel of communication between anyone interested in film and video production, anywhere in the world. He sees it developing into an alternative system for making and promoting films. Although the VFF is intended to provide an alternative to the existing commercial filmmaking system, it is aware of the economic reality of paying its own way, and will attempt to pay the costs of operation through the concession stand, advertising, and professional media membership fees to the industry room (the other areas of the VFF are all free admission to Web surfers). □

Contact: The Virtual Film Festival, (514) 278 3140, <http://www.virtualfilm.com>

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The Best Web Sites

Interview with Point Survey Authors

BY KEITH SCHENGILI-ROBERTS

Recently *The Computer Paper's* World Wide Web site (<http://www.tcp.ca/>) was reviewed and selected as being in the Top Five Percent of all sites on the Web for content, presentation and overall quality by Point Survey. The Point Survey is a production of Point Communications (<http://www.pointcom.com/>), who have been compiling a "Best of the Web" list with short ratings of thousands of the Web's top sites.

Intrigued by this, we spoke to Chris Kitze, the President of Point Communications and Todd Whitney, their Director of Network Relations about how the rating system got started, what their goals are and what they think of the future of the Internet.

TCP: Where did you get the idea of rating the best Web sites?

CK: The reason Point came into existence was simply the overgrowth of "Network Spam" and the time-consuming difficulty in finding quality Web sites. Exploring dead ends, poor sites and so on is alright on a T-1 line, but intolerable at 14.4 or 28.8.

TCP: What do you believe you are trying to promote with your rating system?

CK: We are trying to promote the concept that the quality of a site is more impor-

tant than the volume of sites out on the Net.

TCP: You award "Top Five Percent" badges to Web sites that meet your criteria. Why five percent?

CK: In the early days, we went through Yahoo, which had the most consistent catalog of the 'Net and found 40 percent didn't even connect, 50 percent were garbage sites, five percent were decent sites, but either duplicated a better site, were pornographic or weird, or weren't places consumers would be interested in. Five percent was the best of the Web.

TCP: You have both obviously visited a lot of commercial and non-commercial Web sites. What do you think goes into making a "successful" site?

TW: We rate sites on presentation, content and experience (how the user feels after visiting the site). Not all sites must have top scores in all three (however, it may help!). Many sites do very well by supplying content or links that are well organized to other sites (a much-needed feature.) Others are visually great; *Batman Forever* and *Apple Computer*, to name just two. We don't think

there is a pattern which all successful sites should follow. That would be too boring. The experience could be the real deciding feature to bring users back to a site. If the user can feel good about going to a site, it will always be successful.

CK: Successful sites offer things people want to see or do. They capture people's imagination through compelling content, presentation or experience. They are also marketed well through newsgroups, P.R. and cooperative ventures with other web sites.

TCP: What personally do you like most and the least about the Web sites you visit?

CK: I like innovative sites that tell me something I didn't know before I went there and make me wonder how I got along for so long without knowing. Great graphics and gee-whiz technical wonders are fun, but at the end of the day you ask "what kind of soul and point-of-view does the site have?"

TCP: Where do you think the future of Web-based business is?

CK: Advertising, free to the user, is the future.

TW: In consumer and home use. Much of

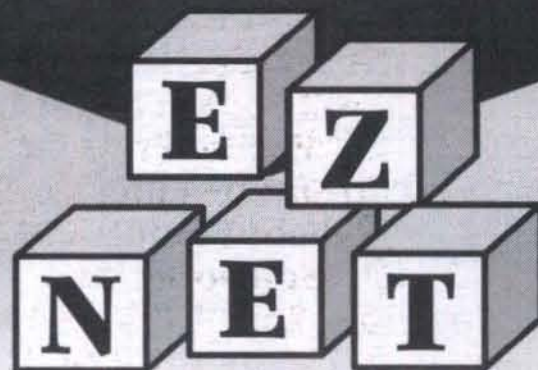
the 'Net is geared toward PhDs and techies. However, that will change. We are trying to bring the Web to the users who don't spend hours and hours on the 'Net. The more interesting (and tested) areas will become very big.

Also, people should keep things in check. For instance, I don't think the Web will ever replace a book. Yes, some books will be replaced by the 'Net, but that number will be very small. The Web will only replace areas that are becoming obsolete. The 'Net will never replace a summer paperback read on vacation. Most techies aren't honest about that thought yet, they are too busy selling future possibilities.

TCP: How do you think new developments like the Java programming language and HTML 3.0 will affect the Web?

CK: It will provide another hurdle for developers to reach and excel, and continue the separation between sites that get lots of traffic, and those that don't. Everyone will eventually have to have them. Much like on television, all shows are now produced in color — in fact you don't even think about it any more. □

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Content: 47 Presentation: 40 Experience: 45

The Detroit News

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Discovery Channel Online

<http://www.discovery.com/> Content: 42 Pre-

sentation: 45 Experience: 46

The Ebola Page

<http://ichiban.objarts.com/ebola/ebola.html>
Content: 46 Presentation: 42 Experience: 45

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Environmental Education Network

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ESPN SportsZone

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Japan Infoweb

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Kids' Space

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Content: 45 Presentation: 45 Experience: 44

The Legal List

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Content: 47 Presentation: 20 Experience: 32

Literary Kicks

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Lycos: the Catalog of the Internet

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Madagascar

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Mel's Godzilla Page

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The Price Is Right FAQ

http://silver.ucs.indiana.edu/~wlambert/TPiR_FAQ.html

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Thomas: Legislative Information on the Internet

<http://thomas.loc.gov>

Content: 48 Presentation: 31 Experience: 43

Tripod Travel Services

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Content: 45 Presentation: 45 Experience: 45

Trojan Room Coffee Machine

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The TVplex

<http://www.gigaplex.com/wow/tv/index.htm>

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Utne Lens

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<http://www.pathfinder.com/@@9PUqJK-DAQAMAQDsw/vg/Welcome/welcome.html>

Content: 45 Presentation: 45 Experience: 45

Virtual Software Library

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Welcome to the North Pole

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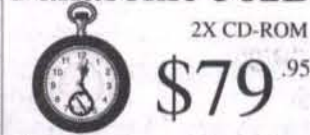
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a source such as a VCR, camcorder or laserdisc recorder and
convert them into digital information that the PC understands.*

The best video decoder chip today is manufactured by Phillips. All boards have composite inputs and some also have S-Video inputs. The former input is an RCA plug, commonly used in stereos, televisions and VCRs. The latter is found on higher end and "prosumer" video equipment and is notable because it separates chrominance and luminance information into two

signals. This in turn means a higher quality when converted to digital information.

All the boards we reviewed were ISA or EISA based, but some of the newer and higher end boards are built for the PCI bus. Very few boards have signal output because this requires another form of conversion technology, which accomplishes the reverse from getting the information into the PC (in this case, a digital-to-analog conversion.)

Most boards are calibrated to accept the North American television analog standard (NTSC), although some can accept the European types (PAL and SECAM). Compression is integral to digital video and the hardware-based variety does the best job. For J-PEG type compression, look for the Zoran chip and LSI's chip and for the newer and controversial MPEG compression look for C-CUBE's playback chip. Intel's chip, known as the i750, is a 64-bit, 50 MHz compressor

miroVideo
DC1

— It was a pleasure to install with no jumpers to worry about.



Top Sites Hall of Fame

Continued from page 103

net search tools are as likely to create such a hypnotizing stream of cyberspace consciousness, and the ten-million-plus search requests answered prove Lycos's popularity. Every word that every Web author writes has a chance of showing up in this catalog, no matter the context. For a test, we chose the name of a vice president who knew a lot of big words, just like our pal Lycos: "Spiro Agnew" got us eight direct hits, ranked in order of how closely they matched the search words. Each offered a full summary of the site, and we could visit with a click. Lycos really is "A launch pad into the unknown."

Mel's Godzilla Page

Content: 44 Presentation: 37 Experience: 47

This Godzilla fan site is as towering and hulking as the flame-spewing matinee idol himself. He greets you here with a reptilian shriek. Flip through the Great One's filmography, or see him in action, fighting off Mothra and taking a death-ray hit from shiny nemesis SuperMechaGodzilla. A stats sheet shows results from some of history's major monster matches, and pictures put faces with the names — from first-string contender Rodan to Manda, a monster your "grandma could whoop." Furthermore, it seems a first draft of the latest Godzilla flick has been leaked. Get the gory details here.

Street Cents Online

Content: 45 Presentation: 41 Experience: 42

Street Cents is a Canadian consumer awareness TV show for kids — sort of Ralph Nader meets 21 Jump Street. This online version features transcripts from the show plus supporting material. Each show

has a different focus, such as health; on our last visit, four football players were testing lite fast food by shoveling down burgers and salads and voting for the tastiest. Despite the mainly Canada-centric info, surfers call this a good service with useful buying tips.

50 Greatest Conspiracies of All Time

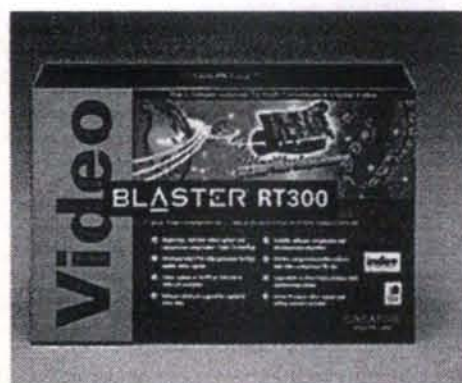
Content: 46 Presentation: 40 Experience: 42

At last, someone shows us just how entertaining conspiracy theories can be. These guys provide the grain of salt required to digest some mighty wacky theories — without calling anyone a liar. The layout is slick enough to have come from a CIA photolab! Hardcore fans of conspiracies can still get their JFK-UFO-Vince Foster fix here; they don't mess with tradition. The true spirit of 50GCAT, however, lies in Lyndon LaRouch explaining why British intelligence "grew" the Grateful Dead out of mind control experiments, and stories like *Jonestown: Population Zero*, complete with Mr. Koolaid icon.

Cape Breton Pictorial Cookbook

Content: 42 Presentation: 45 Experience: 43

Anglophiles will love this pictorial cookbook, which offers selections from the paper version by Chef Yvonne LeVerte and Warren Gordon. (You can order the full version here, of course.) The hearty traditional recipes from the eastern tip of Nova Scotia are mixed with Cape Breton Island lore and a virtual landscape of photographs. Selections include traditional Mi'kmaq Rabbit Stew (you'll have to play "skin the bunny" first) and that savory breakfast treat, Mi'kmaq Hash. And old-fashioned Roast Beef & Yorkshire Pudding (don't forget the gravy!) is hard to beat. The pictures are as sumptuous as the dishes. □



VideoBlaster RT300 — It won points for multiple inputs and Premiere LE bundled.

that uses the Indeo v3.2 algorithm. One last introductory note is that audio information that comes from the source must come in through a sound card input and be compressed via software compression.

Testing Method

Tests were conducted on the same AST system used with the video editing software (see accompanying article) and the video source was an 8mm Sony Handycam with composite outputs. Two tests were conducted, with one setting at 15 frames per second and the other at 30 frames per second. Quality rate was set at 95 percent and frame sizes of 320x240, 240x180, and 160x120 were examined. The length of the clip was 30 seconds. Sound capture was set at the minimum of 8-bit, 11 MHz mono. Unfortunately, boards by ATI and Matrox were unavailable due to upgrades and anticipated new releases.

Product: miroVideo DC1

From: miro Computer Products Inc.

Price: US\$599

The first board tested was miroVideo's DC1 equipped with C-Cube's J-PEG compression chip. It is the only board we tested that had two inputs and two outputs (composite and S-Video). It was a pleasure to install with no jumpers to worry about. It was configured in Windows and allowed for a possible 16 I/O addresses as well as four IRQs and four DMA channels, making it easy to find an available setting.

The board dropped absolutely no frames during the 15 frames per second capture used in our test. We found out the hard way that it is impossible to preview the video as it's being captured unless you have a separate monitor. It also has no setting of 240x180. Our 30 fps test showed a drop of 523 frames at 320x240 and 0 frames at 160x120. All in

all, a good board with a few flaws. The key to this board is to set the quality down just a bit. The difference that as little as 15 percent makes is visible in the drastically reduced number of dropped frames. The ability to output or print to video also makes this board a good buy, saving the cost of a digital-to-analog converter. It comes bundled with Adobe Premiere LE for video editing.

Contact: miro Computer Products Inc.
955 Commercial St., Palo Alto, California, 94303
(800) 249-6476

Product: Video Blaster RT300

From: Creative Labs

Price: US\$499.95

Creative Labs (famous for their Sound Blaster) provided us with their Video Blaster RT300 based on Intel's 750 chip. It has three composite and one S-Video input. It has twelve jumpers: eight to configure the base I/O address and four for IRQ's. To be honest, it took a long time to configure this board, even with the available jumper options. Like the previous board, it

cannot preview video being captured.

Aside from that, it captured flawlessly at 15fps and started dropping massive amounts of frames at the 30fps settings. At 320x240 it dropped 901 frames, at 240x180 it dropped 517 frames, and 181 at 160x120. Some playing around revealed that setting the capture utility in Adobe Premiere LE (that comes bundled) to Capture to Memory created a situation in which no frames were

Continued on page 111

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Using a Computer to Edit Video



Bob Delaney uses the Media 100 video editing system to edit sample video footage and add special effects.

Taken from Delta Technology website at:
<http://130.102.169.38/delta/rp-vg-a3.htm>

Tips For Safe Computing

by Keith Schengili-Roberts

25 Steps to Safe Computing

Author: Don Sellers
Publisher: Peachpit Press
Price: \$7.95
ISBN: 0-201-88366-X
Softcover 72 pages 1995

Worried about how your computer might be affecting your health? Are you thinking about getting a low radiation monitor, but want to know the facts beforehand? Heard about carpal tunnel syndrome and are wondering what you can do to prevent it? You can find all of the information you need in *25 Steps to Safe Computing*, a slim book crammed with facts



on how you can improve your health when working with your computer.

This is a concise follow-up to the popular (and bigger) *Zap! How Your Computer Can Hurt You*. It takes much of the basic information contained in *Zap!* and lays out

all of the basic facts and info in point-form.

The information in the book is top-notch, and will tell you how to improve your office environment and routine to make a difference to your health.

It takes a look at common symptoms many computer workers suffer from, like headaches, dry eyes, and cumulative trauma disorders of the hand, and looks at ways you can prevent these from occurring. It also gives you the facts on things like electromagnetic radiation from

your computer monitor, potential risks for pregnant women and what to do if you suspect you are beginning to suffer from a cumulative trauma disorder. There's also a good listing of other books and sources you can turn to for more information.

A twinge of hand pain makes many of us fear we have carpal tunnel syndrome. Possible, but unlikely. Carpal tunnel syndrome has gotten a lot of press — but it's less common than many other injuries associated with computer use.

— from *25 Steps*

This book is filled with good info, but you can only cram so much into a slim 72 page book. While you do get a lot of info with this book, one of the problems with condensing so much stuff into such a small space is that there is no depth to any of the subjects covered in *25 Steps*. If you are looking for a lot of info on a wide range of computer health-related issues, this is a good book to start. But if you are looking for a book that takes a good long look at a specific issue, this isn't it.

25 Steps to Safe Computing is filled with lots of useful information that will definitely improve the health of any computer worker who follows its tips. It covers the subject of computer health in a broad way but without depth. This book makes for a good primer on health in the computer workplace, but will leave many people wanting more. □

Ratings

Content: ***

Readability: ****

Intended for: Beginner / Intermediate

Overall Rating: ***

Contact: Addison-Wesley Publishers Limited
(416) 447-5101 WWW: <http://www.peachpit.com>

Biff Antics: Storybook as Clipart

by Keith Schengili-Roberts

A Day with Biff

Author: By Ron and Joe

Publisher: Peachpit Press

Price: \$30.00

ISBN: 0-201-88368-6

Softcover 90 pages 1995

Comes with one Macintosh 3.5-in. diskette

A storybook with a computer angle for youngsters? Well, why not? Peachpit Press, always one of the more innovative computer publishers, has just released *A Day with Biff*, a storybook that comes with a diskette loaded with pictures from the book. Once the child has finished with the book, they can take the diskette, put it in their parent's Macintosh and create their own stories using the pictures. It is a great idea, and this fun book should provide lasting entertainment for a kid.



Biff is a morning dog. A slave to his get up and go routine.



Start Your Morning Right, Biff says, and the Day Will Take Care of Itself. Biff tends to the cliché.

— book excerpt

This book looks at a day in the life of Biff, a busy, urban dog who just happens to work as a desktop publisher. Every dog has his day, and on this day Biff has to get "The Very Important Project" in to his manager. Unfortunately, Biff is having trouble getting a focus on the day. As a result, we follow Biff through his day as he successfully finds ways to avoid doing the project for his manager. In the course of the book Biff falls in love, bites a baseball umpire, gets lost in the sewers and has to find his way out of a creepy cemetery. Various mazes, games and word puzzles are strewn throughout the book.



Kids will lap this up, and there's enough hidden humor here to give any parent a chuckle while reading it to their kids. The illustrations are a feast for the eyes — big, colorful graphics with enough detail and humor to keep you glued to the book.

The diskette that comes with the book is filled with images from the book. Make sure your kid is familiar with using your Mac, otherwise much of the fun associated with this book/diskette combo will be lost.

The book and disk come from "disgruntled graphic designer" Ron Romain and "disgruntled graphic illustrator" Joe Crabtree. Their disgruntled desktop-publishing dog Biff has a great day, and so will your kids with this hip little book.

P.S. For those worried about the moral content of the book, Biff does manage to get "The Very Important Project" finished for his manager in time.

Ratings

Content: Either extremely insightful or extremely silly (or both)

Fun content: ****

Readability: *****

Intended for: Young Children

Overall Rating: ***

Contact: Addison-Wesley Publishers Ltd. (416)
447-5101 WWW: <http://www.peachpit.com/>

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Tools For Win 95 Power Users

by Keith Schengili-Roberts

Windows 95 Power Tools, 3rd. Edition

Author: Martin Matthews
Publisher: Random House Electronic Publishing
Price: \$53.00
ISBN: 0-679-75587-X
Softcover 630 pages 1995 Comes with one CD-ROM

Now that Windows 95 is finally out, a lot of people want to know how they can use it to get things done. They just want the basics — enough to get by. That's all very well, but there is another group of people out there comprising users who want to know more than just the basics about the new operating system. These mavericks don't want to know enough to just get by, they want to understand how everything works, so they can make Windows 95 fly. If you fit into the latter category, then *Windows 95 Power Tools* will appeal to you. However, the book lacks the real punch that will be demanded by hard-core users.

Windows 95 Power Tools takes a function-oriented approach to the various new tools and features of the operating system. After familiarizing you with the re-designed user-interface, it then precedes to peer more closely at the finer details of the operating system. It covers topics like the functions in the revamped Control Panel, and how to use Windows 95 Networking features, and will help you understand the intricacies of setting up a dial-up connection to the Inter-

net. The book's numerous side-bars point out special features or issues to be aware of when using some of Windows 95 special functions.

The primary purpose of this book is to explain all of the new functions built into Windows 95 for the intermediate/advanced computer user. While this book does contain plenty of useful tips, it is best used as a reference. It will give you the tools to set up DOS sessions to play your favorite memory-greedy games, but don't expect it to explain any strange symptoms you may experience when playing the game in Windows 95.

If you are looking for a book on interesting and useful Windows 95 tips and tricks, wait for another book to appear. But if you are looking for a book that explains the nitty-gritty details of how Windows 95 works, and how to tweak your system for better performance, this thick book will lay it all out for you.

Ratings
Content: ***
Readability: ***
Intended for: Intermediate
Overall Rating: ***

Contact: Random House of Canada Ltd.
(416) 777-9477

Basic Advice on Graphic Internet Access

by Keith Schengili-Roberts

The SLIP/PPP Connection: The Essential Guide to Graphical Internet Access

Author: Paul Gilster
Publisher: John Wiley & Sons
Price: \$32.50
ISBN: 0-471-11712-9
Softcover 442 pages 1995

The main reason why the Internet has become so popular is the graphically-based programs that make traversing the Internet as easy as pointing and clicking on your screen. Programs like Mosaic and

Netscape have made the World Wide Web the most popular way of getting around the 'Net. But that's the easy part.

Unfortunately, setting up the SLIP or PPP connection that makes these programs possible is not easy to do, and Internet communications jargon is intimidating to many people. If you are trying to set up an Internet

Continued on page 110

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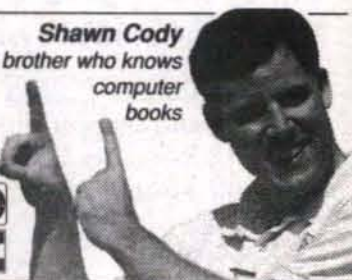


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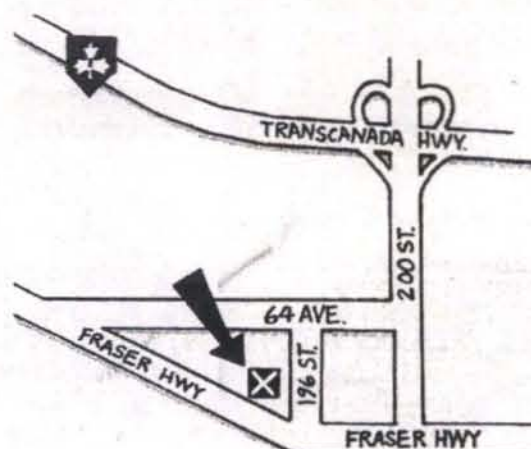
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A Fresh Crop Of Windows 95 Tricks

BY PAUL HOWARD

Finally, we have our hands on Microsoft's long awaited new operating system, Windows 95, and are happily tinkering away with its new features. Poppycock to pre-emptive multitasking and all of the asso-

ciated jargon. Here are some of my favorite things that Windows 95 can do for you.

Bitmap Icon Previews

To see bitmap images as icon previews when

you look at folders, try this:

- From the start menu, choose run, type REGEDIT.
- Click on HKEY_CLASSES_ROOT.
- Scroll down to PAINT.PICTURE, click on it.

- Under this you'll find DefaultIcon, click on it.

- On the other side of the registry screen you'll see the location of the icon to be used for bitmaps, or the word "default."
- Click on this and change the value to %1.

Now, when you look at bitmaps with explorer or by opening a folder, you will see an icon preview of the picture.

Faster Start Menu

Didn't have time to rush out and spend a few thousand on new hardware, as Microsoft said you wouldn't need to? This trick supposedly makes your start menu a little more snappy.

- Run REGEDIT and create a new string under HKEY_CURRENT_USER\ Control Panel\ desktop\ called MenuShowDelay, and set its value to 1. You can set this number between 1 and 10, the latter being slower.

Scraps

Select some text, numbers or graphics from the application you are working in and drag it to the desktop. You have now created a document, "Scrap," that can be reused when needed. This is great for reorganizing documents and sharing multiple snips between applications. This seems to work with many different applications, even those archaic 16-bit applications of yesterday morning. Welcome to the postindustrial information age.

Probing the EXE

Here's one for the mutant ninja programmer types lurking in our ranks. In Explorer, right click on an executable file (*.exe) and then choose Quick view. This will give you a tremendous assortment of information on the program. If you understand half of it, consider a holiday.

A picture of Monty Python's Grim Reaper suits my sense of justice for a logoff screen, —here's how to change yours.

- Edit the files Logow.sys and Logos.sys with Paintbrush, or simply overwrite the two files with bitmaps of your choosing which are 320x400 and 256 colors.

- To really finish off Microsoft's new found cloud fetish, add the line logo=0 under the options section of the file Msdos.sys. (You will need to take the "Read Only" attribute off to accomplish this editing. Use Explorer and find the file in the root of your boot disk, select it, right click, click properties and uncheck the read only box — Yes, Msdos.sys is now a text file).

Away From MSN Temptation

If you click on the now infamous Microsoft's Network icon (MSN), Billy's going to get your credit card number. Lead yourself away from temptation.

- Click on the start button, point at settings, click on control panel, choose Add/Remove programs, click on the Windows setup, scroll down to the icon that says The Microsoft Network and uncheck the box. Click in the "Apply" button.

Fast Restart

Want to quickly restart Windows, but not reboot the entire system? Click on "Shut

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Down," then choose "Restart the Computer."
Now here's the trick, hold down your shift key and click "OK."

Deleting The Unrecyclable

There are a few nasty icons on the desktop that can't be simply deleted or "recycled." Here's how to get rid of 'em. Let's take the Recycle Bin as an example. Run REGEDIT and choose edit find.

Now, search for "Recycle Bin" (if you see folders in the left hand pane that are named with a ridiculously long amalgamation of letters and numbers, you're probably in the right place).

Don't touch that mouse — you will easily get lost. Hit the TAB key then the + key to expand the tree. Now select Shellfolder. On the right hand side, you will see "Attribute" click on it once to select it, and hit delete. Now select the recycle bin and hit your trusty delete key. Bingo, one vaporized blue box (but make sure you really want to delete what you're attempting to delete).

Controlling DOS

Go to the Windows directory using Explorer, find the DOS file you want to change settings for, and right click and choose Properties. You are now confronted with a plethora of options in a tabbed page format, — have fun.

To change settings for the short cut "Exit To DOS" in your Windows folder: Use Explorer to bring up its properties, go to the program tab and choose *advanced*. Specify custom Autoexec.bat and Config.sys commands for your DOS environment.

Minimize All

You've opened more Windows than you can remember and you would like to be able to see the desktop to open another. Right clicking on the task bar gives you a "Minimize All Windows" option.

Adding Control Panel and Submenu to Start button.

Click start with the right mouse button, choose explore, put the cursor on the right side of Explorer and then right click the mouse. Choose new and then folder and type the following exactly:

Control Panel.[21EC2020-3AEA-1069-A2DD-08002B30309D]

TCP/IP Tracking

Microsoft, bless their hearts, have included a couple of applets for your benefit. Run "winipcfg" to see your TCP/IP configuration.

For some real excitement (apologies for my sense of fun), open a DOS session and type "tracert xxx," where xxx is an IP address such as an e-mail account, a World Wide Web page or an ftp site. This little application will now trace the route between your Internet provider and the destination address you provided, showing you all the computer systems along the way.

Tips Galore

If you have a desire to know almost everything about Windows 95, you need to invest \$67.95 in the *Microsoft Windows 95 Resource Kit*. Published by Microsoft Press (who else?), this thick manual is the definitive guide to Windows 95. If you suspect you will one day be faced with configuring networks, or will need to come to the rescue when users cry foul, you should probably purchase this book.

Mental Trick: That Warm and Fuzzy Feeling

You'll be wanting to buy a new computer so that you can meet the true requirements of Windows 95. Feel good about yourself (and your lighter bank account) by donating your old hardware to one of the several organizations that redistribute computers to schools and others in need. □

Cool Warp Tricks: Work Areas

BY JEFF HILDEBRAND

On my desktop at work, I have a folder called *documentation* which is a shadow of a directory on my HD. Inside this folder are a number of other folders, including one called *Radio* which has a couple of IBM Works data files in it.

Essentially, work areas remember what you were working on, and return you there

I opened the settings for Documentation, selected the File tab, checked the work area check-box and closed the settings. This folder is now a work area.

Essentially, work areas remember what you were working on, and return you there.

When I open and close Documentation, it will remember the status of the objects it contains and restore them. For example, if I open the Radio folder, and then close Documentation, Radio will disappear as well. The next time I open Documentation, Radio will open as well. This works even if I turn my machine off in the interim.

To take this one step further, I make Radio a work area just like I did with Documentation. Now, if I open, say, the IBM Works spreadsheet in Radio and close Documentation, it will close both folders and shut down the spreadsheet (possibly asking me to save changes). When I open Documentation the next time, both folders open and the spreadsheet starts up again. □

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Book Reviews

Continued from page 107

connection and want to understand how it works, *The SLIP/PPP Connection* is the only book that comes close to being comprehensive. The fact that it is well-written and easily understandable is a bonus for any reader interested in the subject.

The Serial Line Internet Protocol (SLIP) and the Point-to-Point Protocol (PPP) are the two communication protocols which can

translate your actions into commands your Internet Service Provider can understand. Author Paul Gilster is a veteran of the Internet scene, and has produced several highly readable books on the topic.

Gilster has a knack for translating jargon into comprehensible English, and does so again with this book. Gilster looks at the advantages and the characteristics of each communication protocol, gives good advice on what to look for when shopping for an Internet account, and (most importantly) holds your hand through the process of

setting up a SLIP or PPP connection.

With that out of the way, the book then looks at what you can do once you've got your SLIP/PPP connection set up. Much of the material here will be familiar to any reader of his previous books, but if you are new to the 'Net the material here will be invaluable. Gilster also points out the many freeware and shareware programs available, how to set them up, and what you can do with them. Learn to surf the Web, retrieve space images from NASA via ftp or understand how to use e-mail.

If you want to set up an Internet connection, *The SLIP/PPP Connection* will provide you with the advice you need to set things up with a minimum of grief. It also gives you the tools and the information you need to begin driving down the information highway. While this book is already beginning to date itself, if you want to understand what's going on with the graphical revolution that is taking place on the Internet, don't let this book SLIP away from you. □

Ratings
Content: ****
Readability: ***
Intended for: Beginner/Intermediate
Overall Rating: ****

Contact: John Wiley & Sons Canada Limited
(416) 675-3580

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What You Need To Know About E-mail

by Keith Schengili-Roberts

Using E-mail Effectively

Author: Linda Lamb and Jerry Peek
Publisher: O'Reilly & Associates
Price: \$14.95 U.S.
ISBN: 1-56592-103-8
Softcover 146 pages 1995



O'Reilly is best known for producing some great books on Unix and on the Internet. Their books tend to be big, technically-oriented and very thorough. They also tend to scare people who are looking for a simple introduction to a topic. *Using E-mail Effectively* is part of O'Reilly's new *What You Need to Know* series, aimed at beginning users who might be put off by some of O'Reilly's weightier tomes. If you've just been thrown into a situation where you need to know more about e-mail, look for this book on the shelves.

Using E-mail Effectively keeps to O'Reilly's tradition of producing genuinely useful and comprehensive books on a topic. If you are looking for a book to teach you enough about e-mail that you'll feel comfortable about using it, *Using E-mail Effectively* is an excellent primer. □

Ratings
Content: ****
Readability: *****
Intended for: Beginner
Overall Rating: ****

Contact: O'Reilly & Associates Inc. 1-800-998-9938

What's The Secret? Explains The World Around Us

BY PEDRO ARRAIS

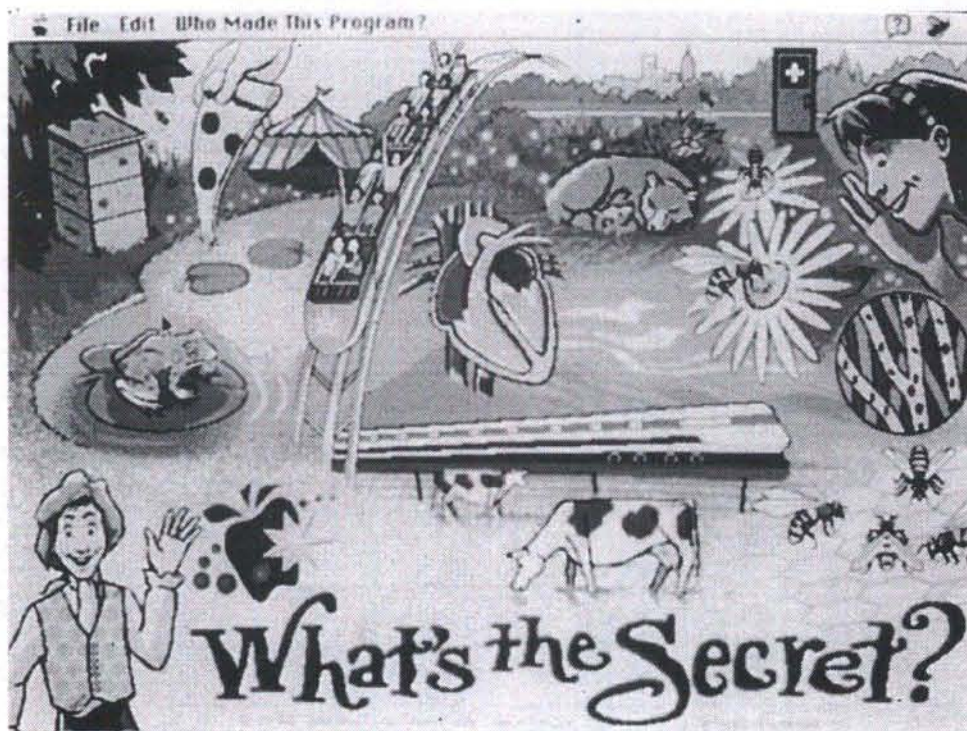
What's the Secret?

From: 3M Learning Software
Street Price: \$64.95
Recommended Ages: 8-12
System Requirements: 486/25 or better MPC equipped PC, Windows 3.1 (runs fine on 95) w/CD-ROM. Mac version also available.

Imagine you are a bee and you are trying to tell your buddies where you found a particularly sweet patch of clover. Any idea how you will do it?

In *What's the Secret?* you can learn how to speak bee, understand how a roller coaster works, analyze how frogs croak or your heart beats. All these activities and more are crammed into 3M's first interactive CD-ROM, based on their Newton's Apple award winning family science public television show.

There are a dozen topics to explore, with something for everyone. All the subjects are presented in a manner meant to inspire thinking and experimentation. It also deals with everyday real world events that surround our lives. Each subject is dealt with in a different — and sometimes unorthodox —



manner, the result being a relatively long time spent on the modules. The level of interactivity is a step above the more usual click and tell programs, with different outcomes dependent on the student's actions and answers.

The content is organized so that it is easy to move into related subjects after under-

standing the topic at hand. As the children successfully complete each module, they can save notes as well as earn patches. To keep the action interesting, each module includes some video footage (approx 45 minutes in total) as well as audio on every screen. For straight fun, you can even manipulate the position and the level of friction of a roller

coaster to understand the relationship between friction, kinetic energy and potential energy.

Each module also includes a doctor's office that helps you understand how your body works or reacts to the subject at hand. For example, you can determine whether somebody is experiencing an allergic reaction to a bee sting or how your eardrum reacts to sound waves. A simple experiment (which can be printed) can be tried with a few simple items. If you are still curious, the program can also recommend related books and movies pertinent to the subject. For the career minded, it even lists occupations that are most likely to appeal to the young scientist.

If you have a young adult in your household curious about the world, this title is a must. It will not take the place of an encyclopedia, but will complement one nicely. If you find you like it, look for the sequel (exploring the human brain, memory and flight) which is due to be released about the time you read this. □

Contact: 3M, 1-800-219-9022

PC Video Capture Boards

Continued from page 105

dropped. Another good board with points won for multiple inputs and Premiere LE bundled, but points lost for difficult and long set up time.

Contact: Creative Labs 1901 McCarthy Blvd., Milpitas, California, 95035, (800) 998-1000

Product: Intel Smart Video Recorder

From: Intel Corp.
Price: C\$775

Intel's Smart Video Recorder Pro is to home and small business capture boards what Adobe Premiere is to digital video editing. It installed simply and effortlessly with no jumpers to bother with. It comes bundled with Asymetrix' Digital Video Producer, which serves as a simple video editor and capture utility. It has two inputs; a composite and an S-Video. For all our tests, it performed perfectly, not dropping a single frame throughout. Previewing while video is being captured is not a problem. It also comes bundled with DigiClips, which is a collection of over 130 MB of royalty free video, stills and audio. An excellent board, with excellent performance at an excellent price.

Contact: 2200 Mission College Blvd., Santa Clara, California, 95052-8119, (800) 628-2283

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USER GROUPS

ATTENTION USER GROUPS. Send in your listing (maximum 120 characters) for the December issue by Monday November 6, 1995. Submissions run for one month only in the local edition. *The Computer Paper* reserves the right not to print submissions which are deemed unsuitable.

ACM/SIGGRAPH Computer Graphics. 2nd Tuesday, at 201-1140 Homer St. Call Tom Berryhill at 734-3976.

ADAM OWNERS! Vancouver Island Senior ADAMphiles (Visa): newsletter, meetings, supplies. Contact David Cobley, #17, 885 Berwick Road, Qualicum Beach, B.C. V9K 1N7. (604) 752-1984.

AMIGA USER GROUP (PaNorAmA) For meeting times and place call: Ray Norman 589-7199 or Robert Hardy 942-8364. BBS numbers 231-0363 or 231-0364.

APPLES B.C. COMPUTER SOCIETY. A User Group for Macintosh and Apple IIs. Macintosh meetings are on 3rd Wednesday of each month at the York House School in Vancouver at 7 p.m. Novice and other special-interest groups are held mid-month. Apple II meetings are on 1st Monday of each month at 7 p.m. at the Century House in New Westminster. For further information call 437-9935 or 299-9597.

ATARI USERS! Vantari, P.O. Box 3614 Main Post Office, Vancouver, B.C., V6B 3Y6. Bill Sutherland 988-1450; Don Hatch 433-8055. Meets 2nd Wednesday, 7:30 p.m., Hastings Comm. Ctr., 3096 E. Hastings.

B.C. INTERGRAPH USERS GROUP (BCIUG). Contact: Mike Barnes 528-1936 (voice) or 528-2944 (Fax) for info on next meeting.

B.C. OPENSTEP GROUP. Regular monthly meetings focus on various themes, for single users, corporate users and developers in the Vancouver area. NextStep and Open Step are the preferred platform for rapid development. For meeting information and email server call 988-4204 or nickj@wimsey.com

B.C. REGIONAL USERS GROUP SOCIETY of Hewlett-Packard Users. For information, call Daren Statchuk at 661-8753 or BCRUG at 661-8048.

B.C. VAX/VMS Local Users Group (BCVAXLUG) provides a forum for the professional growth and education of its members through the exchange of solutions, ideas, and opinions. User group meetings are held the 2nd Wednesday of every other month at 7:30 p.m. usually at Digital Equipment, 150-13571 Commerce Parkway, Richmond, BC. For further info please contact Lila Chan (604)279-5724.

BIG BLUE AND COUSINS. P.O. Box 5309, Station B, Victoria, V8R 6S4. General meeting last Wednesday, 7:30 p.m. at U. Vic.-Elliott Bldg., Lecture Theatre 168. Also, special interest group meetings. 382-

3934.

CA VISUAL OBJECTS User Group being formed. Meetings are planned for the first Monday of every month. For more meeting details call 944-7285 and leave your name and telephone number.

CANADIANS ON COMPUSERVE. Canadians around the world and anyone interested in things Canadian are joining the Canadian issues section of The Issues forum on CompuServe. Lively discussions centre around politics, society, customs and conflicts. Plus, there's a growing library of Canadian files. Go Issues at any CompuServe prompt. Dial 1-800-848-8199 for more info.

CIPS VANCOUVER SECTION. (Canada's largest Association for Computer Professionals). CIPS Members enjoy unparalleled networking and professional development opportunities at our monthly meetings and special events. Discounts offered for student members. PO Box 20522, Howe St. Vancouver, B.C. V6Z 2N8. Phone (604) 681-2796 or Fax (604) 689-1879 for next meeting date.

COREL ARTISTS USER GROUP. Last Tuesday of every month, 7:00 to 10:00 pm, at Kwantlen College in Richmond, BC. Monthly newsletter. Contact: Bev Harscus, 533-5854.

DATA-LINK/USERS GROUP. Tel 321-3387. PC support BBS: 321-8873 (24 hr service), with specialized self-made BBS softwares. The purpose of this User group is to allow users to get together for problem solving, discussion of setup and to meet people. Call by voice 8 a.m.-4:30 p.m. ONLY please. This group is dedicated to RoboBOARD by Seth Hamilton. Other BBS softwares are welcome. Membership is FREE!

DATA PROCESSING MANAGEMENT ASSOCIATION, DPMA International joint dinner meeting. Contact: Sheila Chessor at 252-3049.

FOXSOFT, EDMONTON'S FOXPRO USERS GROUP-second Tuesday, 7:00 p.m., Grant MacEwan City Centre Campus, East Wing, Room C-137/C-135, 10700-104 Ave. Contact: Ken Rayner at 437-0315 or Robin Stuart at 460-3712 (days). Info Bulletins on BBS 457-4105.

GENERIC CAD USERS GROUP. Contact: Frank Zander (604) 582-8283. BBS: 294-8287 (9600 n.8.1).

GREAT PLAINS ACCOUNTING SOFTWARE USER GROUP. Meetings are held 3-4 times per year. For information on the next meeting call Linda at Rosenbaum Systems

Consulting Inc at 879-9125.

HELP DESK INSTITUTE LOCAL CHAPTER. An organization providing training, education and a networking forum for Help Desk Professionals: Those people who help computer users with hardware or software problems. For more information on memberships, please call Gary Taylor at 665-0728 or Karen Yuen at 665-5799.

MACWEST COMPUTER SOCIETY. Meetings for members and visitors include PD copy sessions. General meetings: 2nd Wednesday of each month; Beginner's meetings: 3rd Wednesday of each month. 7:30 p.m., Guildford Public Library, Surrey. Messages and information at 268-9530.

MS ACCESS TECHNICAL USER'S GROUP. For those who want to participate in learning more about MS Access. For information call Greg Hind at 454-0262, from 9:00 to 5:00.

NANUGS (Northern Alberta Novell Users Group Society) meets on the 2nd Tuesday of each month at 5:30 pm in the amphitheatre of the CompuSmart store on Mayfield Road at 104 Avenue. For information write to PO Box 11037, Edmonton, AB T5J 3K4, or

e-mail to nanugs@freenet.edmonton.ab.ca or telephone Mike Brown at 487-7666.

OBJECTS USER SOCIETY. See British Columbia OpenStep Group (B.C.O.G.).

OPENSTEP USER SOCIETY (VNUS). See British Columbia OpenStep Group (B.C.O.G.).

PORT COQUITLAM COMPUTER CLUB. Commodore, Amiga & IBM. 1st & 3rd Tuesday, 7:30 p.m., Room 104, George Parkes Jr. Sec. School, 1390 Laurier Ave., Port Coquitlam. Mike Evans 942-4286.

POWER BUILDER. User group being formed. Meetings are planned for first Wednesday. To enroll call Perform System Developers at voice mail 604-264-0247.

SQL SERVER. User group being formed. Meetings are planned for first Monday. To enroll call Perform System Developers at voice mail 604-264-0247.

T.I. 99/44 COMPUTER B.C. 99er Users Group, every Thursday 7-10 p.m. For information, call Ron: 522-2598. 1st Thursday Tutorials, 2nd Thursday General, 3rd Thursday Tutorials, 4th Thursday Library night. BBS "Dial A TI" 522-9830 TI only please.

VANCOUVER ACCESS USER GROUP (VAUG). For those who are interested in gaining new knowledge of Microsoft

Access and meeting other users. For more information contact Terry Toth 683-3658 (voice) or 688-0109 (fax).

VANCOUVER AUTOCAD USERS SOCIETY. 1st Wed. of the month, 7:30 p.m., B.C.I.T. Bby. Campus Bldg. SW5 Room 1850. Contact: Frank Zander (604) 582-8283.

VANCOUVER CLIPPER DEVELOPERS ASSOC. 1st Tuesday, 6:30 p.m., Doppler Computer Store, 485 W. 8th Ave, Vancouver. Meeting agenda is distributed via fax monthly. Contact Michael Li at (604) 432-1709 to add your name to their database.

VANCOUVER DATABASE USER GROUP is official user group sponsored by Borland Canada for dBase and Paradox (both DOS and Windows). The group meets on the 2nd Wed. of each month, 6:30 p.m. at Doppler Computer Store, 485 W. 8th Ave., Vancouver. Meeting agenda is distributed via fax monthly. Contact Michael Li at (604) 432-1709 to add your name to their database.

VANCOUVER ENTERPRISE FORUM. 432-8761.

VANCOUVER FOXPRO USER GROUP (VFUG). September-June, 2nd Tuesday, at 1900 hours; 200-1177 W. Broadway. Info Doug at 736-2922, BBS 231-9709 and e-mail to joytan@universe.com

VANCOUVER GEOWORKS USERS CLUB. For further info. please call: 683-7490 (eves).

VANCOUVER GEOGRAPHIC INFORMATION SYSTEMS USER GROUP. Meetings are held on the 1st Wednesday of each month, September through May, at B.C.I.T. Town Square Room 'C' at 7:30pm. Contact Dwight at 322-4919 for information.

VANCOUVER KAYPRO USERS GROUP-VANCOUVER PORTABLE COMPUTER CLUB (VPCCL). AMO 17, Jay Siegel, 4251 Lancelot Dr. Richmond, B.C., V7C 4S4, 271-1519; BBS 271-5934.

VANCOUVER NETWORK USERS GROUP (VNUG) is an official user group recognized by the Network Users' International Assoc. and supported, in part, by Novell. Meetings are held on the first business Monday of every month at The Stanley Park Dining Pavilion. All aspects of the networking environment are discussed and presented with emphasis on the Network network operating system. The workshop begins at: 4:00p.m., buffet dinner at 6:00p.m., at 7:00p.m. is a Q&A session followed by a presentation ending at around 8:30p.m. Member, no-member and student pricing applies to the workshop and/or dinner-presentation. For further informa-

tion or meeting topic announcements call our voice mail at 689-VNUG (689-8684) or Fax us at 689-8656.

VANCOUVER PC USERS SOCIETY (VPCUS). 2nd Thursday, 7pm at Science World, \$5 guest admission. General Q&A session, feature presentation. Special Interest Group (see also separate listings) and educational seminar registration. On-disk newsletter. Telephone: 290-0660; BBS: 736-6001

VANCOUVER SMALLTALK USERS GROUP (VSMUG) is a group of individuals and organizations interested in object-oriented analysis, design, and programming with a particular emphasis on Smalltalk. Primarily for individual developers to meet, share ideas and experiences, discuss technical issues and learn cool stuff. It's designed not to be a forum for sales pitches from vendors. RSVP to Ann Patrick (apatrick@mpr.ca or 604-293-5144). For more information check out our web site at <http://lucy.csc.uvic.ca/~bnbf>.

VISUAL OBJECT DEVELOPERS ASSOCIATION OF VANCOUVER - For information on our next meeting, contact Ferdinand Ho 682-7744 or fax 682-5474.

VPCUS Clarion SIG — Clarion is a full-featured DOS & Windows application development platform. This current dark horse of software development tools will soon be acknowledged and acclaimed as a world class star, attracting market share and attention. Clarion uses a superior high level language that can be template driven and/or hand coded to produce stand-alone EXE files that are ROYALTY FREE. Check out the excitement. This lively SIG attracts a range of participants from seasoned professional programmers to new users and the curious. Our local group has its own area on the VPCUS BBS system. Members are linked with the rest of the Clarion world on Fidonet and CompuServe forums. Meets second Tuesday, 6:00 pm. Contact John Golka, 736-7762.

VPCUS CorelDraw SIG — On hiatus. CorelDraw users claim you cannot be a serious user of graphics unless you use CorelDraw. Come, share your secrets, learn new tips, or just enjoy the company of other graphic artists and artists-to-be. Contact Stew Woolverton, 681-0516 or 689-9460.

VPCUS DBUG (Data Base Users Group) Emphasis is on solving problems of data management with special reference to Paradox and dBASE. Sponsored by database vendor, Borland Inc. Bring a blank 3.5 inch disk to pick up goodies from the

meeting. Meetings are on the 2nd Tuesday of each month at 6:30pm. Contact Brad Froese, 939-3093.

VPCUS Educational Seminar — Members \$5. Contact Gwenda Ellwood, 737-8674.

VPCUS HTML SIG-Want to learn how to create a home page on the web? Do you want to share your expertise? HTML SIG meets the 2nd Tuesday of each month at Drake Computer Training offices 888 Dunsmuir 3rd floor @ 6pm. For more information call Jerry Catalfo 669-2035.

VPCUS Internet SIG Meets last Wednesday of month, 7pm at 1129 Main Street. Contact Jerry Catalfo at 668-2035 for more details.

VPCUS LINUX SIG-Just forming. Time and dates of meetings are still being worked out. For further information please call Stan Clausson 581-6614 clausson@direct.ca.

VPCUS Novel Netware SIG. This is the place for you if you are a network administrator with Novel glory stories and tips to share, or if you just want to get together with other Novel users to explore its ins-and-outs. Contact Brenda Delaney 224-2143.

VPCUS MICROSOFT OFFICE SIG. The place to come if you are a user of any of the Microsoft office Pro products and want to learn more and share your tips. For more details call: Joanne MacInnis 421-1283 before 9 p.m.

VPCUS OS/2 SIG-Attended by OS/2 gurus and novices alike and well-supported by IBM. The large and lively meeting is held at BC Tel Building, 3777 Kingsway, Burnaby, 7:00 pm. Each Sat. following the monthly meetings, join us for an informal workshop at the Metrotown branch of the Burnaby Public Library. Contact: Jim Shewchuk 876-4780.

VPCUS Windows/C++. For programmers and intermediate-to-expert Windows users who are interested in C, Access, Visual Basic. Held 2nd Tuesday of each month at 6:30. Contact Casey Hawthorne 879-2703 or caseyh@wimsey.com.

VPCUS WordPerfect SIG Participants share tips and tricks, occasional presentations by WordPerfect Corp. Meets second Tuesday of month at Drake Computer Training offices, 601-889 W. Pender, 6:00 pm. call Danae Tilley, 926-1842 after 6PM.

WINDOWS NT. User group being formed. Meetings are planned for first Saturday. To enroll call Perform System Developers at voice mail 604-264-0247.

CALENDAR

OCTOBER

WOMAN IN MULTIMEDIA. A five part breakfast series starting Tuesday, October 24 to November 21, 1995 at the Design Exchange, Toronto. \$35.00 per session or \$150.00 for all five. For more information call Barb Angles at (416)363 6316.

ENTERTAINMENT FEST at the Parents and Kids Show. October 27-29, at the Vancouver Trade & Convention Centre. For more information call Corporate Events Management Inc. at (416)869-0141.

NOVEMBER

CLIENT SERVER EXPO. November 7-8, 1995. Toronto, ON. For more information call National Productions at 508-745-6010.

ENTERTAINMENT FEST at the Parents and Kids Show. November 10-12, 1995 at the Metro Convention Centre. For more information call Corporate Events Management Inc. at (416)869-0141.

METRO EAST COMPUTER EXHIBITION & SALE. November 10-12, 1995 at the Metro East Trade Centre. Pickering, ON. For more information contact LCE during regular business hours at 1-800-265-7081.

THE HOME COMPUTING & ENTERTAINMENT SHOW - November 18 & 19, 1995 at the Toronto Congress Centre (650 Dixon Rd at Highway 27). Sat. 10am - 6pm, Sun. 11am - 6pm. Admission \$7 per person. For more information call Bob Poldon, Show Manager at (416)497-9562 ext.403.

CIO SUMMIT. Information Technology, the competitive edge for the 90's, will be explored in depth at the third annual, two-day CIO SUMMIT. Nov. 27 & 28 at the Toronto Marriott Eaton Centre Hotel. Registration fee is \$975 plus GST (advance registration discounts available). For more information call Judith Sykes Public Relations at (416)780-1068.

DECEMBER

COMPUTERFEST. December 1-3, 1995 at the International Centre, Toronto, ON. For more information call Showfest Productions at 925-4533.

LAP & PALMTOP. December 4-5, 1995. Toronto, ON. For more information call Laptop Exhibitions at 212-682-7968.

JANUARY

COMDEX. January 16-18, 1996. Vancouver, BC. For more information call 416-283-3334.

MARCH

SOUTHWESTERN ONTARIO OFFICE & TECHNOLOGY EXPO. March 28-30, 1996 at the Western Fairgrounds, London, ON. For more information contact LCE during regular business hours at 1-800-265-7081.

TRAINING

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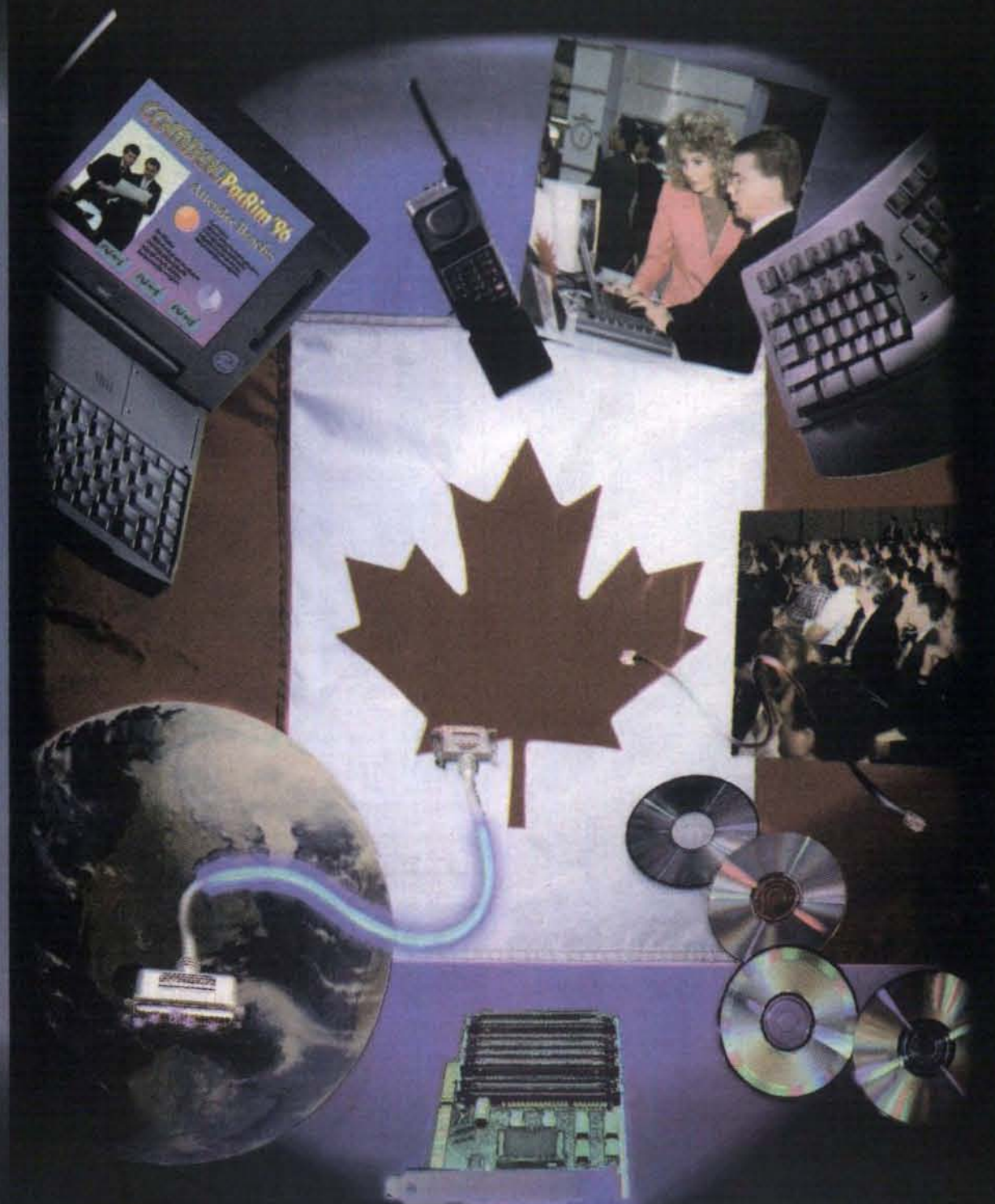
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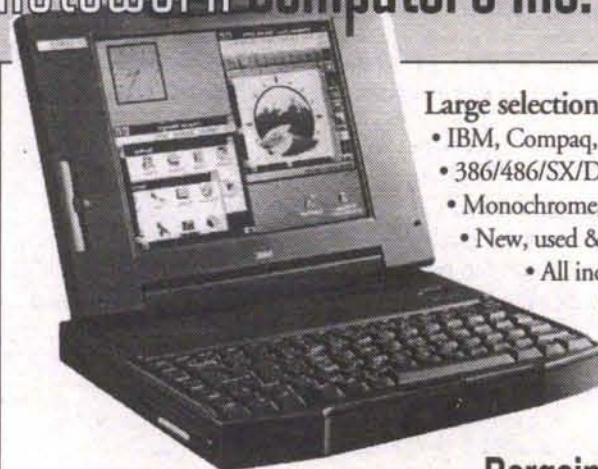
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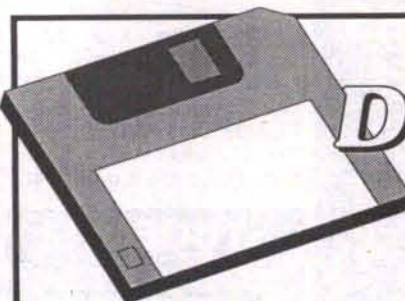
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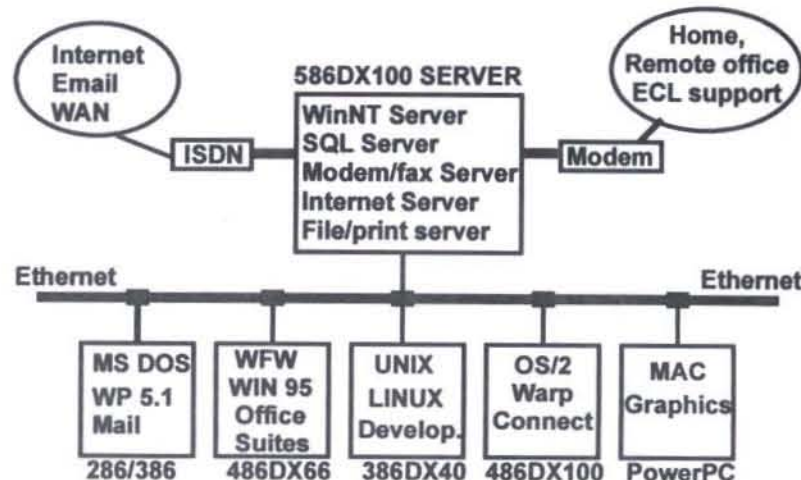
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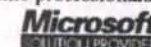
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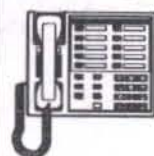


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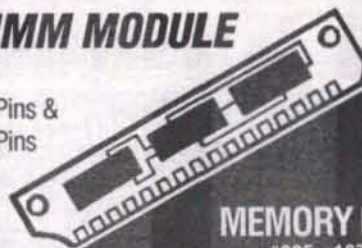
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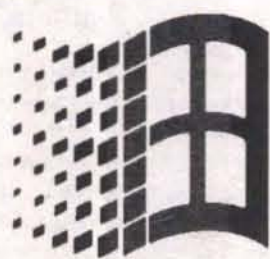
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Index of Advertisers

Accounting		TKP Electronic Canada	55
Abacus Accounting	76	TLD Computers Inc.	120
DacEasy Canada Inc.	77	Tricera Computer Center	57
Books		Trison Electronics Inc.	120
Book Warehouse	107	Tucson Computer Corp.	118
Cody Books	107	Ultinet	13
CD-Recordable		V-Com Comp. Warehouse	38
Recall Hypermedia Grp.	104	Versatile Comp. Products	67
CD-ROM		Wisecom Group	81
AO Rom City	114	Wonder Computers Inc.	88
CD Rom Place	118	YHC Cassette Industrial	117
Media Mountain	114	ZED Data Systems	96
Mr. CD Rom	114	Laptop/Palmtop	
StockCD	118	A & L Electronic	85
Communications		Networks Computers	116
Allo Communications	85	Location Rental	
Celluland Commun.	118	Computer Space for Rent	120
Computer Cleaning		Macintosh	
CARE Computers	120	BYTE Computers	120
Computer Memory		Mac Station	89
Memory House Inc.	120	MacSimize	88
Computer Security		Paul Gossen Consulting	111
Grizzly Cables	118	Tomorrow's Graphics	89
Database Design		Multi Media	
Compuwork Pacific	119	ICA	106
Desktop Publishing		ael Enterprises	118
ARTISTAT	87	Avermedia	105
Employment		Discovery Multimedia	116
Showmaker Productions	117	Multimedia Technologies	103
Events		Music / Midi	
Comdex PacRim	113	Ward Music	115
Computer Fair & Swap	110	Networks	
Furniture		DPE Electronics	68
Caltron Office Furniture	79	Drake Training Centre	117
Hardware & Software		ECL Computing	117
3J Computers	78	Online	
Acme Computer	76	CompuServe	12
ACP Marketing	85	Deep Cove BBS	92
AE Electronics	40	Dial-A-File	96
Agfa	22	Dowco Computer Sys.	48
Akom Computers	116	E-Z Net Internet Serv.	101
Ano Office Automation	26	Ice Online	92
Anovation on Campus	34	Ice Online	94
Arete Computers	24	Info Match	98
ATIC Computer	32	Infoserve	90
Bahn Systems	64	Internet Canada Corp.	102
Battery Express	117	Internet Express	62
Best Computers	74	Internet Express	63
Bestop Computers	45	Internet Gateway	95
C.C. Tech	82	Internet Portal Services	96
Campus Computers	122	KTK Communications	51
Cell-ect Communications	120	Lynx Internet	102
CLT/Commercial Laser	116	Millennia Net Inc.	91
Comet Computer Centre	58	Mind Link	93
Compu 2000	68	npsnet	116
Computer Exchange	20	Powercore Online	118
Comp. Liquidation Center	116	The Electric Mail Co.	103
Comtex Micro Systems	8	Wimsey Info. Services	92
Comtronic	65	Wimsey Info. Services	100
Corel	3,28,47	Point of Sale	
CSC Computer Service	27	Valley Imaging	118
D-Link	25	Publishing	
Daiwa	121	Buy & Sell Press	84
Datafile	75	Service & Consulting	
Datahome	114	BDP Systems Consult.	119
DataWorld Computers	78	Bryan McDicken	119
Discount Software Club	82	Creelman Consulting	119
Epson	14	Crescent City Software	118
Eurocom	79	Dataget Systems Corp.	119
Fastech Computer Ltd.	46	Data Recovery	120
Friendlyware Computers	73	DC Computer Hospital	117
Frog Computers	88	ECL Computing	119
Frontier Computer	30	Harder Software	119
Future Shop	37	Iwasan Consulting	119
G.S. Computer	83	M3 Enterprises	119
Hewlett Packard	7,9	Peak Computing Serv.	119
Hyuen Enterprise	114	Phil Kushnir	119
IBM Direct	39	Platinum Upgrades	118
IC Technology	85	Pronto Data Systems	119
Impulse	69	RMP Computer Serv.	118
InfoWave Computer Inc.	60	Robert Higgins Consult.	119
Intel	4	ScanSource	117
Intelligent Software Eng.	119	Triton Comp. Systems	118
International PC	59	Ucora Corporation	119
Intertech Computers	71	Ucora Corporation	119
IPC	124	Xerox Service Centre	72
Iso-Soft	115	Service Bureau	
JRS Computers Inc.	86	Copies Plus	118
Laptop Computers	66	Mountain Colors Image	118
Logical Software Corp.	119	Northwest Graphics	118
Lonson Group	41	Western Pro Imaging	114
Maple Oak Computer	80	Western Pro Imaging	115
Medatrix	31	Software & Consulting	
Micro Drives Canada	6	Locutus Codeware	118
MicroConcept	18,19	Subscription	
Microsoft Canada	21	NEWSBYTES	83
Multilink Computers	49	TCP	83
Mycom Computers	80	Toner Remanufacturer	
Nantron Systems	35	Alouette Laser Products	81
Network Control	70	Canadian Labels Etc.	117
New Tech	54	Save On Laser Services	56
Nu Age Computer Plus	17	Training	
Pacific Royal Enterprises	72	David Neises / Den Pac	119
PC Auction	84	Digital Equipment of Cda.	61
PC Connection	75	Drake Training Centre	109
PC Outlet	120	Internet Connect	117
Phase 1 Systems	15	Northwest Digital Ltd.	44
Portacom Services	120	PBSC Computer Training	108
Primex Computers	73	SAIT	120
Progress Marketing	115,116	Training / Macintosh	
Quantum Technologies	52,53	Simon/Ross + Associates	109
Rock Computers	71	Video	
Roland Canada	117	Edipix	104
Romware	115		
Seamix Technology Inc.	2		
SoftArc Inc.	99		
Software Alley	123		
Sony of Canada	10		
Strong Computers	83		
SuperData Technologies	33		
Supra	97		
Systematic Electronic	115		
Texas Instruments	11		
The Document Company	-		
Xerox	29		

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- 16-Bit Stereo sound card
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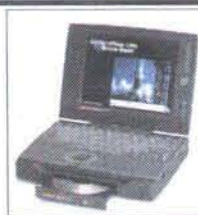
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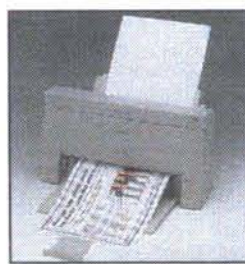
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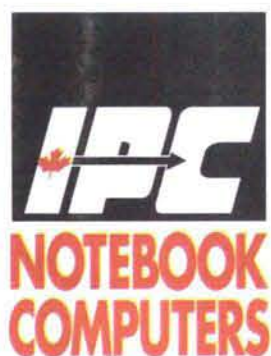
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Inside

- Accessing the Internet
- Choosing an Internet Provider
- Detailed Internet Diagram
- Access vs. Flat Rate Access
- Metered Facts
- Internet Facts

Issue 1

virtual vocabulary:

- **E-mail**- Electronic mail is a method of sending messages to other Internet users without having to pay long distance charges.
- **World Wide Web**- The most popular, interactive, visual and aural component of the Internet.
- **Browsers**- Software, such as Netscape and Mosaic, that allow different computers to view the same information or "sites" on the World Wide Web.
- **Web Pages**- Pages containing text, images and sounds which you can view or listen to with a browser.
- **Hyperlinks**- "Clickable" areas of text or images in Web pages which move you to another directory or location on the Internet.
- **HTML**- Hyper Text Markup Language is the standard code used to create Web Pages. Your browser will automatically translate HTML into a readable format on your screen.
- **Download**- The term used for "pulling down" information from the Internet for your own use.
- **Upload**- The term used for sending data files on the Internet. Information can be uploaded and sent to other users on the Internet or "posted" to newsgroups.
- **FTP**- File Transfer Protocol is the standard used for uploading and downloading different files on the Internet.
- **Newsgroups**- On-line discussion groups on thousands of subjects. You can post messages and read what others have posted. Everyone is welcome to voice an opinion.

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LETTER FROM THE PRESIDENT

I would like to take this opportunity to welcome you to the revolution that is the Internet. Across the planet individuals, businesses, universities and governments are linked together to provide information and services, share opinions and ideas, and hold discussions on thousands of subjects.

Internet Direct has become Canada's largest provider of Internet services by building a corporate philosophy around streamlined, user-friendly, and most of all, affordable access to the Internet. Our goal is to help you incorporate all the benefits of the Internet into your daily life.

I feel that the impact the Internet will have on modern life can be symbolized only by referring to such great communication inventions as the radio and telephone, and even the Gutenberg printing press. As futurist Frank Ogden said:

"...in the past there were the Have and the Have Nots, now we have the Know and Know Nots. During Gutenberg's time the very rich had the access to knowledge through books and writings. This gave them power over the common folk...this changed forever the social structure."

Internet Direct is committed to simplifying the process of Internet access for all Internet users. No matter what your Internet needs are now, or what they will be in the future, Internet Direct is your efficient and reliable gateway to the Internet.

We are committed to quality service by constantly upgrading and adding to our already state-of-the-art technology. Our technical and customer support staff provides personalized assistance to new and existing subscribers.

I invite you to get connected with Internet Direct; try our services and experience first-hand the advantages and intrigue of the Internet.

David Schulz
David Schulz
President and Co-founder
Internet Direct

GET CONNECTED 1-800-987-8884

What Is The Internet?

Think of the Internet as a communication system for computers. It is a huge, international network that allows computers to talk to each other, regardless of type or location. This network, and all the information and capabilities it contains, is evolving and growing at a spectacular rate.

Each day the Internet is expanded and "re-invented" by the people using it. It has been called "the great leveller" because everyone is welcome to participate. Internet users around the globe have become a community of peers uniting diverse societies, cultures, economies and viewpoints.

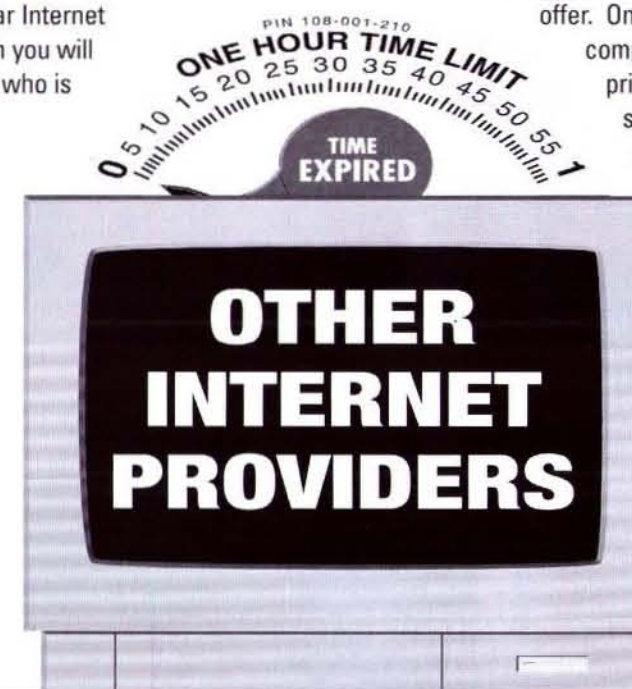
Why Would I Use It?

There are countless uses for the Internet and something to interest everyone "on-line". As a communications system you can send messages and "talk" to other users anywhere in the world without long distance charges. You can send long, complicated files or quick notes. You can communicate with your friends and family, business associates, clients, or people you've never met before who share similar opinions or interests. The Internet also has the potential to be the most revolutionary educational tool in history. Many of the world's prestigious centres of learning share their knowledge on the Internet. Adults and children alike can benefit from free and

easily accessible scientific knowledge, current events reports, literary and cultural experiences. Both small and large businesses can benefit from both quick and efficient Internet communication and from marketing opportunities. On-line advertising options range from displaying your catalogue of products, to describing services, or allowing customers to contact you from the comfort of their home. And then there is the purely recreational pleasure of the Internet. Discussion groups exist on an almost endless supply of topics. Images, sounds and text are yours to encounter and explore. Discover new information locally and globally. Get connected!

Advantages Of Flat Rate Service

Recently there has been an explosion in the number of Internet Service Providers, or ISPs, offering what may seem to be similar Internet connection services. Investigating how and how much you will be charged for your account is a good way to pinpoint who is actually offering superior service. Pricing structures for ISPs fall into two main categories of "metered" or "flat-rate" access. Customers of metered ISPs must pay for each minute they use the Internet. While paying only for the time you're "on-line" may seem logical and simple on the surface, you might want to consider a few of these facts before committing to a metered provider. For instance, should you find more and more uses for the Internet in your life, and consequently spend more and more time on-line, you will definitely be paying more and more! Also, if there is one activity during which it is easy to lose track of time it's "surfing the net." Internet users in some cities in the United States who subscribe to metered ISPs spend a whopping \$165.00 per month, on average. And, if you are on a budget, keeping track of your time with



metered providers could inhibit your enjoyment of what the Internet has to offer. On top of this, many metered ISPs use frustratingly complicated formulas to determine your monthly bill. Their prices can vary according to the time of day, day of the week, sessions per week, and even modem speed that you use to access the Internet.

Flat-rate Internet service provides you with peace of mind when compared to these run-away costs that are hard to verify. A stable rate can be more easily incorporated into a monthly budget, while still accommodating a growing interest and amount of use. Internet Direct's success as an Internet Service Provider is closely related to its assurance of flat-rate service to its customers. With Internet Direct there are no surprises or guessing games each month. Full Internet access with free software and delivery starts from as low as \$19.95 per month in the Vancouver area. For connection and flat rate information in Vancouver call (604) 488-1900. In Victoria, Kelowna and Alberta regions call Toll-Free: 1-800-987-8884

QUICK INTERNET FACTS

- In the late '60s the Internet starts as a United States military experiment to create a rugged communications system to withstand nuclear war.
- In the early '70s researchers and scientists start to discover social uses for their experiment, and create accounts for their own personal communications.
- During the '70s and '80s groups and individuals other than government begin to own powerful computers and are able to access the existing networks.
- At the same time, similar computer networks in other countries begin to link up and the "network of networks" starts to look more like the Internet we see today.
- In the late '80s and early '90s widespread knowledge of the Internet hits the media. Individuals and groups join the Internet phenomenon at an increasing rate.
- Over 157 countries are connected to the Internet by 1995.
- At present, no one knows the exact number of Internet users but estimates vary to 40 million, with one million new users joining per month.

THE INTERNET

This is what you've been waiting for! Take the kids to see paintings in the Louvre in Paris. Voice your political opinions to a local MLA, or the Prime Minister. Transmit your lengthy business files to international colleagues. Download images, movies, games and sound files. E-mail a note to your cousin about next year's family reunion. Swap chili recipes with new acquaintances. Set up an E-mail order system for your business. Relax to the sights and sounds of a South American rainforest. Search university libraries and laboratories for information on any topic under the sun. Catch up on movie and music gossip, ticket information and events in your area.

INTERNET SERVICE PROVIDER (ISP)

Internet Service Providers, such as Internet Direct, are linked to the Internet 24 hours of the day, every day of the year. Your choice of ISP determines the quality and strength of your connection to the Internet, the rates you pay, and the amount of support and assistance you receive in getting on-line. For tips on choosing an ISP see "Choosing an Internet Service Provider."

TELEPHONE LINE

One regular, residential telephone connection is all you need. However, two lines are advised if you want to ensure that one line is always free for you to take phone calls. All telephone companies are capable of connecting your modem to an Internet Service Provider. You won't need to change from the company you already use.

MODEM

This is the communications device that connects your computer, through a phone line, to the Internet. Internet experts generally agree that you get what you pay for when shopping for modems. Minimum requirements:

- 9600 baud modem
- Internet Direct recommends: an external modem (rather than an internal modem) 14.4 to 28.8 speed modems are optimum.

COMPUTER

The quality of the system you purchase will reflect the reliability of your connection to the Internet. The foundation of your Internet connection depends on your hardware, and you should aim for as strong a foundation as possible.

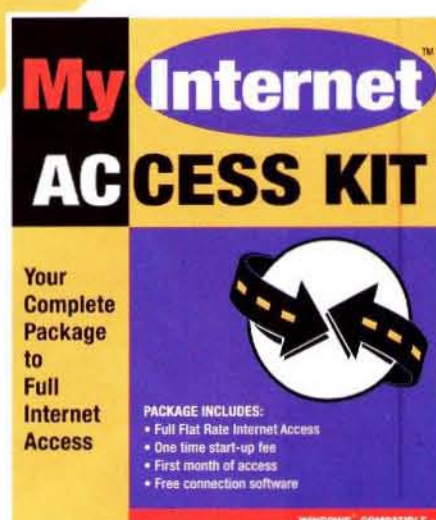
- Minimum requirements: 386 or higher PC-compatible
- MS-Windows version 3.1 or higher
- 4 Megabytes of RAM
- Internet Direct recommends: SVGA colour monitor.

SOFTWARE

At your local computer retailer, you will find a range of software packages, such as My Internet Access Kit. These programs are necessary to access the Internet. Internet Direct provides and delivers full-access software packages free of charge to new subscribers.

Internet Direct provides:

- Trumpet Winsock version 2.0 revision B
- Win FTP released June 11, 1994
- Eudora version 1.4.4
- Win VN Usenet News Reader Public Domain
- Netscape Navigator version 1.0N



INTERNET DIRECT

**PERSONAL WEB
PAGES**

**\$4.95 per month
Coming Soon!**

CHOOSING AN INTERNET SERVICE PROVIDER

The following are points to consider before committing to an Internet Service Provider (ISP):

Hardware and Technology

- Is the ISP using high-quality modems?
 - Are the modems well known brand names?
 - What speed and volume are they capable of delivering?
- At this time T1 connections and 28.8 speed modems are top of the line.

Telephone Connection

- ISPs are linked to the Internet by phone connections.
- Is your ISP working with a well-established, international telephone company?

Rates

- Will the ISP give you a clear guarantee of monthly rates?
- If not, is their formula for determining monthly rates easy to keep track of?

Technical and Customer Support

- Does the ISP have staff standing by to answer your questions and provide assistance in getting connected?

Corporate Reputation

- How many subscribers have already opted for the services the ISP provides?
- Is the ISP serving only a small group of Internet users, or a cross-section of the whole community?
- Does the ISP have a strong reputation with local businesses?
- Do they have the financial resources and backing to expand with this fast-paced industry?

INTERNET DIRECT

In 1994, two young Vancouver entrepreneurs, already successful in the communications industry, were having dinner with friends and discussing their idea of the perfect Internet Service Provider. What kept many people from experiencing the Internet, they agreed, was fear of the unknown. Not just the fear associated with a new form of technology, but fear of the potential cost and the hassle of signing up before even getting close to the Internet. Later that year David Wolstenholme and David Schulz ran a number of focus groups that confirmed their assumptions. Then they set out to create the solution. "Internet Direct's motto has been 'ease of access' from day one," says David Wolstenholme, "your Internet account is now just a phone call away."

Internet Direct's registration centre signs up all new subscribers by phone. At this point subscribers receive a "user id" and choose a password to activate their account. This phone call triggers free delivery of Internet access software for Windows that is pre-configured and ready to slip into a computer. The same simplicity is reflected in the company's pricing structure. Now the largest provider of Internet services in Canada, Internet Direct was the first company to offer Internet access at a flat fee per month. There is a one-time only registration fee upon sign-up, each month thereafter is a set price that does not vary with the amount of time users spend on the Internet. "As the number of subscribers choosing Internet Direct grows, so will the system and its capacity," says David Schulz. Internet Direct currently houses over 800, 28.8 speed modem lines. New lines are being added each month according to closely monitored statistics on the number of users and volume of Internet traffic. For registration with Internet Direct call: 488-1900 in Vancouver. For connection information outside the Lower Mainland call: 1-800-987-8884. Call Internet Direct's customer service line for general information about service at: (604) 602-1800 or e-mail info@direct.ca.