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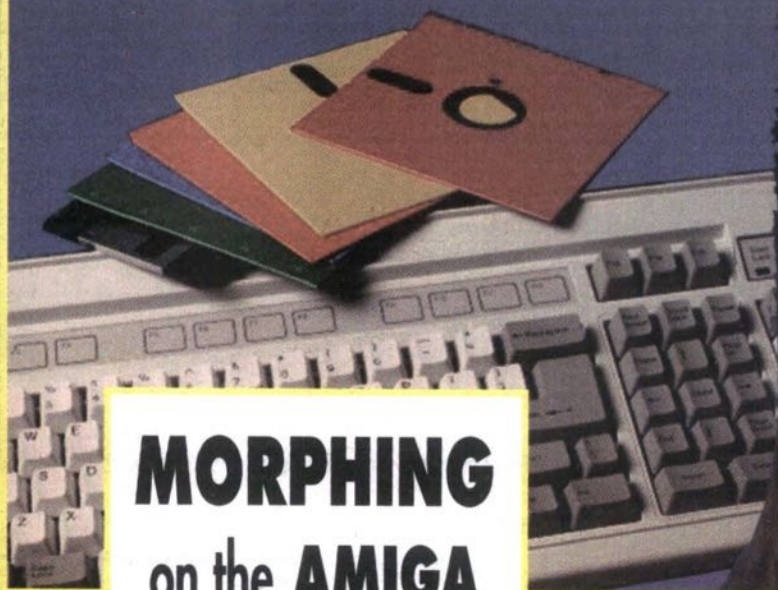
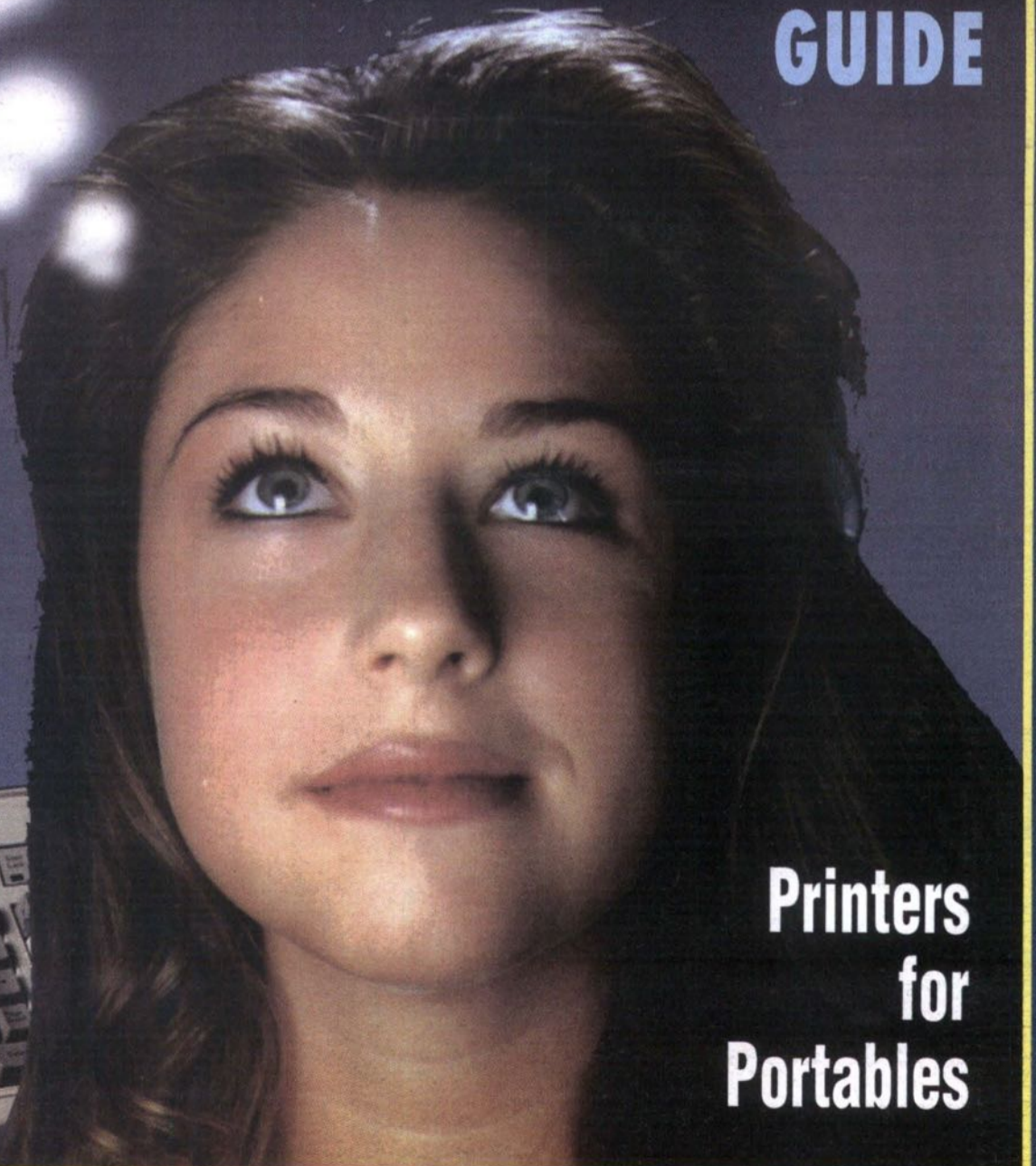


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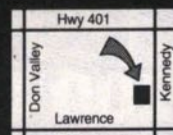
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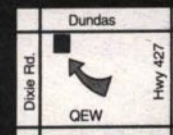


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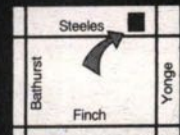
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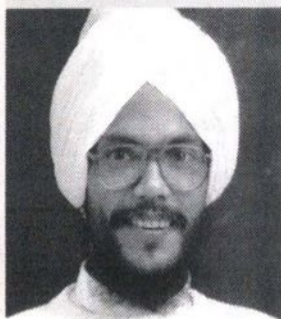


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From the Editor



1992 Canadian Computer Show Report

Toronto has a lot of computer shows now. In fact, some would say it is overburdened with shows. One of the longest running (it's the 23rd annual, according to ITCS literature) and certainly the largest is the Canadian Computer Show. It was held recently (Nov. 23-26th) at the Toronto International Centre on Airport Road. The location is large enough to allow the 250-plus exhibitors room to spread out and display their wares and over 30,000 visitors to have elbow room to explore. One day is too short

to see everything on the show floor, although many people have very specific "to see" lists and can manage with a cursor look.

The recession has taken its toll on many companies, who opted out or reduced their booth size. Even so, there were plenty of interesting products to see for the computer enthusiast. According to show organizers, the show was about even from last year in floor space and a bit up in attendance.

Headliners

Prominent features of the show included a 1,500-square-foot OS/2 Software Test Drive Centre, a well-attended demonstration of a virtual reality game, and a model home office featuring all the latest gadgets. Canadians got a first hand look at a credit-card-sized fax/modem for notebook and palmtop computers, the new BJ-200 Bubble Jet Printer, and Sharp Electronics' new pen-based IQ-9000 organizer (fresh from their Comdex launch the week before).

IBM's Notebooks

In the IBM booth, I got a close-up look at the IBM notebooks. They call them ThinkPads and they have a little red gear shift in the middle of the keys which you use as a mouse. I tried it and it worked surprisingly well. The trouble with all these mouse-replacements is that they all feel like mouse-replacements. I just want to use my mouse. Other than that, IBM has a very sturdy feeling notebook which you can purchase in a variety of configurations, including one with an active-matrix color screen. No doubt about it, IBM makes good hardware, not always the least expensive, however. Contact: IBM Canada 416-474-3900.

Lotus Notes

I also got a demo of Lotus Notes in the IBM booth. Some of you may have heard of this product before. It used to sell for \$70,000 to large corporations. Lotus has now figured out that they want to sell it to the rest of the world. I didn't really know what it did until I got the demo. It seems that Notes is a combination E-mail, electronic forms, multi-user database. The really cool thing about it is that you could use it on your network and have numerous desktop units running on it (it requires an OS/2 server, hence the IBM connection) as well as notebooks. People who are on the road can take their share of the data away with them and make changes to their database. Then when they come back, Lotus Notes merges the data back in with the rest of the corporate database. Lotus sells it for \$695 per station. Very useful for dynamic corporations. Contact: Lotus Canada 416-979-8000.

Database Heaven

Microsoft debuted FoxPro 2.5 for Windows and their new database, Access. FoxPro looks like a winner because of the installed base and some useful speed advances even under Windows. Access is still a question mark. It can read and write to dBASE files, the question is: are there enough benefits to switching so that people will want to drop their existing programs and move to Access? Time and the market will tell. Contact: Microsoft 416-568-0434

For more coverage of the show, see page 12.

Enjoy the issue.

Kirtan Singh Khalsa
Publisher/Editor

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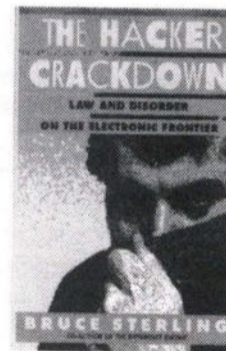
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DOS Upgrade

I've recently bought a second-hand laptop computer (Toshiba 3100 SX) from a friend. Another friend of mine tried to upgrade the system from MS-DOS 4 to MS-DOS 5 without my knowledge. Unfortunately this was not successful. Apparently he forgot to transfer the hidden files of MS-DOS 5 and when he rebooted the computer the computer gave an error message, something like: incorrect version and bad or missing command interpreter. I don't know what to do. What are my options?

Yoshi Yomato,
Scarborough, ON

Graeme Bennett replies: If you use the recommended procedure for installing DOS 5, this type of error will not occur. If necessary, start the computer from a floppy disk containing any version of DOS. Then, insert DOS 5's disk 1 and type

SETUP

Conspiracy Theory

I am glad to see quality work like "Commtalk" by James MacFarlane in your December '92 issue. It has really clarified something for me.

I knew you had to buy a special serial chip for use with Windows, but I have never known exactly why. According to James MacFarlane, the 16450 has a buffer for the times when Windows is just too slow to be a real operating system.

My question is, why can programs written in slow Pascal under DOS handle 19.2kbps with ease on a 4.77MHz XT while Windows has problems on a 386 or better with programs written in fast C? My only conclusion is, either Windows is using the impractical technique of polling, or Windows is treating serial communication as a resource that is managed by the operating system.

My complaint is, why should I buy an expensive piece of hardware to correct a bug in a lousy piece of software? Normally, programs are written to circumvent design faults on an expensive piece of hardware. Ideally, I think nobody should market their trash until they have gotten rid of all the bugs.

With Microsoft Windows competing with IBM OS/2, IBM OS/2 is the winner in the way of pricing because with Windows, you have to buy this expensive piece of hardware. I wonder if Microsoft is in cahoots with 16450 manufacturers or if Microsoft holds licensing rights to the 16450.

Terry Wong,
Toronto, ON

Graeme Bennett Replies: As much as I agree with you about the relative merits of OS/2, it should be noted that the OS/2 compatibility notes state that some terminal programs have problems running at high speeds under it, too, due to the amount of "interrupts" that OS/2 requires to operate. You must remember that DOS and its underlying BIOS running on an old XT had only 25 rows of 80 columns worth of characters to push around on the screen, and a total of one task running. Today's Windows or OS/2 system needs to handle several tasks, outline fonts, and a graphical environment.

If you use an external modem, the UART is in your computer; either on the motherboard or

Letters Continued on page 7

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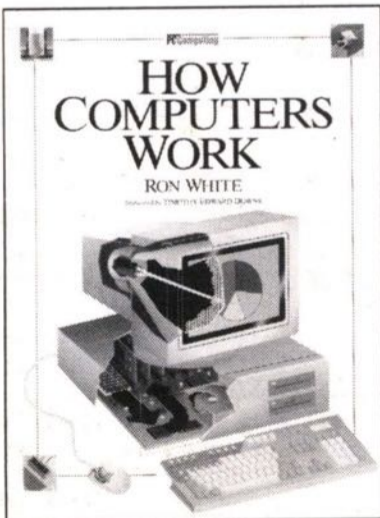
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on the card that has the serial port. Old XT's usually had an 8250 UART; the AT usually has a 16450. As mentioned in James' article, either can be upgraded to a 16550.

The 16550 UART (universal asynchronous receiver/transmitter) has a 16-byte FIFO (first in, first out) buffer that helps to prevent serial port performance degradation when several programs are running at the same time. If you are running Windows, Desview, OS/2 or any other multi-tasking environment, you should upgrade your UART to the 16550. It is standard in most IBM PS/2s and many 386- and 486-based computers. If you use an internal modem, the UART is on the modem. Internal modems from Practical Peripherals and Zoom use a 16550.

Parents! Buy an Atari for your Children

A few issues ago I read with interest that Graeme Bennett had some experience with Atari computers. So I was a little surprised when in subsequent issues articles by Graeme on MIDI and DTP the contribution Atari makes in these arenas was ignored! I can understand the lack of info on DTP, after all excellent programs (on par with QuarkXpress and WordPerfect) such as Calamus and Redacteur are from Europe and are not well known here. However, when it came to the MIDI article I was flabbergasted that Atari only got a one-line mention. Anyone would think it didn't exist. Tell that to Mick Fleetwood or Arsenio Hall's band! Every musician I know has an Atari! Since one can spend a lot of money on synthesizers, a computer that comes with MIDI included and with the best software (Notator) for such a good price is hard to pass up. But perhaps Graeme was not writing for professional musicians, especially since he did not even mention Notator in his software roundup.

I just shrugged and let it pass for it doesn't really concern me if others don't know about the Atari, even if he is supposed to have some experience with it. Despite computing on DOS machines since 1980 I use my Atari more than my 386 DX-33, because it's simpler, faster, and more fun to use.

But with your recent issue I got a little peeved and sat down to write this letter. The article by Roedy Green concerns me because parents may end up spending a lot of money, a lot more than they need to! For a very rough calculation I figured that the computer and options mentioned could cost anywhere from \$2000 to \$3500, and for what? Decent stereo sound which already comes on the Atari, color monitors when a TV would do (at first anyway), tons of memory and configuration headaches to avoid molasses screen redraws and silly 640K memory barriers, etc, which have already been licked on the Atari!...

When it came time to consider a computer for my daughter, based on my experience with Macs, IBMs and Atari, and considering my budget, Atari was the best choice. I bought a 1040ST off a friend, and it hooks up to her TV, since all she wanted to do at first was play games (\$300). As she becomes more proficient and more interested in computing, I will add on as required. This Xmas she is getting a color monitor, an external floppy drive and a modem (\$300). Next Christmas (or her birthday) I may get her a Spectre GCR (Mac emulation — she has Macs at school. If her school had IBMs I could get her ATSpeed (\$300) or a hard drive (\$300), and definitely upgrade her memory to 2 megs ram (\$80). I would like to get her a Falcon 030 as the TV image is 640X480 (non-interlaced), and the stereo sound is better than CD quality, but that is more than I could go to all at once (\$800).

As you can see, if I add a color 9- or 24-pin printer (\$150-\$250), and total up the dollars already spent I come out to approximately \$1,000. More importantly, I can buy as I/she needs, sharing an advantage with

IBM clones. No extra sound card to buy (included), no SCSI card to buy for CD-ROM (included), no special video card to buy (included), floppy drive included, etc.

Parents!, buy an Atari or Amiga for your children. It's easier on your pocketbook and more fun for them!

P.S.: I read the Amiga 600 article with interest. Would you compare on a rough point-by-point-to-dollars basis the Amiga, the Atari, the Mac, and equivalent IBM clone?

Ken MacDonald,
Toronto, ON

Graeme Bennett replies: I use an Atari for MIDI

purposes, as I have since 1985. I prefer Cubase over Notator, but I don't disagree that Notator is a great program. The main problem is that the Atari market is so weak that most of the major players have dropped out, or are putting their energies into other platforms instead. Look, for example, at Passport. It no longer supports the Atari. C-Lab, the makers of Notator, doesn't even exist anymore. The programmers now work for a company called EMAGIC. If you're looking to buy a Spectre GCR Mac emulator, I'll sell you mine. It doesn't run System 7. It seems that its maker, like so many other one-time Atari enthusiasts, is doing other things these days.



More Letters on page 11

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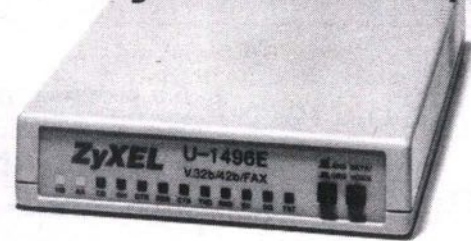
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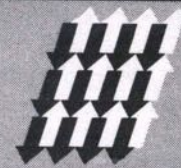
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WHAT'S NEW

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more than twice the 3-D graphics speed of other workstations. The two companies will market the product jointly.

Contact: Sun Microsystems of Canada (416) 477-6745

A Commodore Amiga can be your amigo in Toronto



Longtime Toronto residents and visitors alike will have noted a number of new computer-based touch screen information systems installed throughout the city in recent

months. At places such as Black Creek Pioneer Village, Tour of the Universe and the ever-popular McDonald's at the Skydome, you can use these systems to browse through information about theatre, night life, special events, hotels, shopping, attractions, tours — almost everything except Bob Rae's home phone number! At any rate, the whole thing is put together using Commodore Amiga 3000 desktop computers with touch screen interfaces. Spectrad Advertising Systems, developers of the software and interface, want to expand this "Touch Toronto" system to other parts of the city — and eventually elsewhere in the country.

Contact: Spectrad (416) 493-4173 or Commodore (416) 499-4292.

IBM's ExperComp opens store in Markham

New IBM subsidiary ExperComp, the company responsible for bringing the new Ambra PCs to the world earlier this year, has now moved into the retail sales business. The company opened its first retail store in Markham, Ontario in early November. Known as Home Computing, the store is a pilot project dedicated to testing out a new way of serving home and small business customers in the PC marketplace.

Contact: ExperComp Services Limited (416) 474-7004



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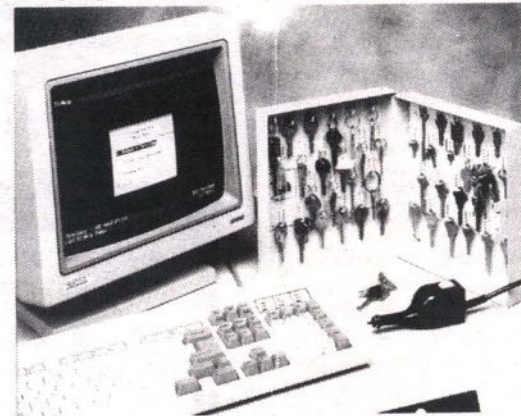
Seems like a simple problem to solve: Who's got the keys? And to which locks? A Montreal company has a program for DOS-based PCs that can help organize the distribution and administration of a security and tracking system for keys.

Similar in user-interface to Intuit's popular Quicken application, Keywatch cross-indexes all of your keys with personnel and locks. The program prints reports that can be placed in your company's personnel files. If an employee leaves the company on bad terms, it's nice to know if any locks need changing! It is especially helpful in tracking the the status

and possession of keys — it automatically issues a recall memo when changing locks.

There's some fairly heavy-duty hardware to go along with the software, too. Keywatch comes with an engraving gun and a 4-pound metal key box (lockable, of course). Even the mounting screws are provided.

According to Keywatch president Shell Bern, the program was originally developed for a lock



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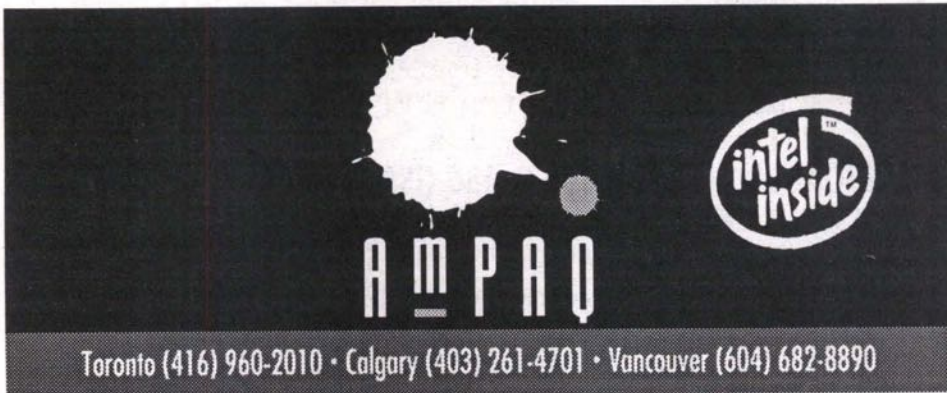
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WHAT'S NEW

Alpha Four version 2 announced

Alpha Software Corporation of Toronto has announced version 2 of its award-winning relational database, Alpha Four. Dubbed "The only fully relational non-programmer's database" the program allows users to create fully customized database applications, including custom menus and sub-menus, pop-up dialog boxes, action buttons — even help messages. A WYSIWYG report

editor aids in the creation of printed output.

PC Computing magazine called Alpha Four "our top choice for ease of use" in its June, 1992 issue. The program has a 60-day money-back guarantee.

Contact: Alpha at 1-800-451-1018, ext. 117

Faximum and HP Sign Agreement to Co-develop Next-generation Fax Product

SANTA CRUZ, CA — Faximum Software Inc. announced at the SCO Forum '92 show that it has entered into an agreement with Hewlett-Packard Company for joint development of a true client/server fax software product for Unix workstations. This product will make it easy for people on a Unix network to send or receive faxes directly from their screen and will employ intelligent dialing and least-cost routing to cut long-distance costs significantly.

Under the agreement, Faximum is contributing its fax software expertise and existing server technology while HP is contributing its expertise on human-factors engineering and client/server technology. The two companies will work together on the product, which each will be free to market independently.

This product will utilize TCP/IP networks to connect clients running an X-based Motif user interface to a fax server supporting one or more external fax modems. The client/server protocol has been developed by Faximum and is network- and host-independent. This will allow fax clients and servers to run on different architectures and versions of Unix and still work together. The product will support PCL and PostScript emulations as well as fax viewing under X. Special patented tech-

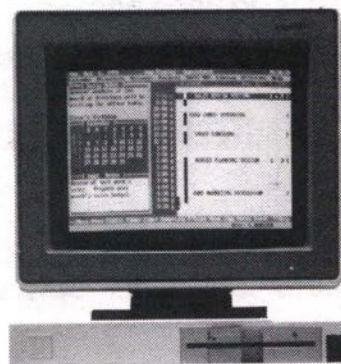
nology will be used to route incoming faxes to the appropriate client workstation automatically. Further details on the product's features and capabilities will be made available soon with the product announcement.

"Faximum's existing fax products have capabilities not found in any other product, features which led HP to choose Faximum in the first place and this was the foundation. The final design was developed cooperatively and includes exciting new ideas from the HP and Faximum teams. The resulting product will define the next generation of Unix fax software," said Carolanne Reynolds, Vice President of Faximum Software.

Faximum Software is a leader in the development of Unix fax software. Its products for Intel-based Unix include Faximum PLUS and Faximum ELS and started shipping at the end of 1990.

Hewlett-Packard Company is an international manufacturer of measurement and computation products and systems recognized for excellence in quality and support. The company's products and services are used in industry, business, engineering, science, medicine, and education in approximately 100 countries. HP has 90,000 employees and had revenue of \$14.5 billion in its 1991 fiscal year.

SuperTime ships enhanced groupware application



Ontario-based time management software specialist SuperTime is now shipping version 1.2 of its flagship SuperTime groupware time management system. The company says the new version is faster, uses memory better and provides a multilingual interface. The program is an appointment calendar/scheduler, contact management system, message center, project and task manager, with DOS/shell menuing routines and data reference libraries.

Contact: SuperTime Inc. (416) 764-3530

Visiontech offers new Mac fax modem with comms and bulletin board software

A low-cost fax modem bundle for the Mac is now available from Toronto-based Visiontech in the form of the new Aceex 1496V+/M. This \$519 high-speed desktop modem provides data communications at speeds up to 14,400 bits per second with V.42 error correction, MNP 5 with V.42 data compression — as well as Class 2, Group III send-and-receive fax capability at 9600 bits per second. The bundle also includes Microphone 1.7 terminal emulation software, the FirstClass bulletin board "client" software for accessing graphical bulletin boards and the FAXstf send-and-receive fax software.

Contact: Visiontech (416) 538-1212



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WHAT'S NEW

Staging a performance raid on RAID-compliant products

Want to know how good your RAID (Redundant Array of Inexpensive Disks) back-up and storage technology really is? Toronto's DynaTek Automation Systems wants to help you find out. The company has defined what it hopes will become a new standard in RAID and network-aware

benchmarking of storage subsystems. It is offering a copy of the benchmarking software free to anyone who wants it.

Contact: DynaTek Automation Systems (416) 636-3000 x330

Sounds of silence a thing of the past for PC-compatibles

There is a tremendous noise coming from one sector of the PC industry these days — the companies that produce IBM-compatible sound cards. Trying to be heard above the confusion is Oregon-based Covox, whose SoundMaster II sound card and other products are now being sold in Ontario through Northbrook Computer Corporation of Mississauga. SoundMaster II comes with Covox's Voice Master voice recognition software, support for 1024



"voice macros", two speakers, Windows 3.1 drivers, headset, microphone, MIDI interface and cabling for a suggested retail price of \$249.

Contact: Northbrook Computer Corporation (416) 828-1743

Letters Continued from page 7

Re: Editorial, December 1992 "Women, BrainSex and Computers"

I am writing in response to your letter from the editor in the December issue.

In your letter you make reference to male and female roles and participation in computing, and refer to *Brain Sex*, by Moir and Jessel.

I am somewhat disturbed to find that books such as *Brain Sex* (which I will hereafter refer to as *BS*) and the theory they espouse are accepted at face value and seem to have popular support. These works present pseudo-intellectual support for a very old theory: the biological inferiority of women. Such publications date back to at least the mid-nineteenth century; then "scholars" sought to uphold societal prejudice by dressing it up in the guise of science. *BS* continues to update this fine tradition. However, you should realize that, in academic circles, such works as this carry about as much weight as the ubiquitous detergent peddling, white-frosted "experts" who presumably convinced two decades of consumers to buy "Schlock" detergent because it was proven by "science" to be effective. This, of course, is only one of many such examples that could be given of vested interest masquerading behind the authority of "knowledge."

In asking why aren't women interested in computers the same way men are you should consider two things. First of all, a recent study in early education has shown that, if unchecked, boys tend to hog up to 90 per cent of learning and entertainment time on computers in both school and home environments. This behavior, the study shows, is not congenital. If given the opportunity girls will make use of computer time and facilities given to them; they are simply not willing, in most cases, to force their way in. The second thing to consider in asking your question is that male domination of business in general is clearly carried over into the computer industry. One

need only glance at the corporate hierarchy of Microsoft, as an example, or look at the predominance of computer war games, etc. to realize this. Is it any wonder that computers and software created mostly by men serve the needs and interests of males and so attract mostly males?

I write this letter not to engage in editorial discussion of the matter. I write with the assumption, despite the conclusions you have temporarily (I hope) drawn with the aid of *BS* and other such advocates of male superiority that one comes across all too frequently, in one form or another, these days, that your inquiry is sincere. If so, then I beg you to reconsider. A person in your position, as publisher and editor of a newspaper, has, I'm sure you know, a particular responsibility for what appears in print. By making and supporting such statements concerning male dominance in computing you are helping to justify the very system of domination that you presume to be questioning. Because you do so in a public forum, your support goes beyond the domain of computing, reinforcing societal prejudices on a much broader scale.

The inferred reinforcement of such discrimination tends to foster, I believe, a general compliance and acceptance of misogynist attitudes that is directly related to the more extreme violence against women, which is such a disgrace to our society. Moreover, as you may or may not be aware, misogyny and racial hatred run hand in hand, all under the general heading of xenophobia.

I am certain that it is not your intention to promote such an intolerance between peoples — whether the matter be of race, culture or gender — but please be aware of all that what I believe to be your sincere inquiry into the basis of unequal roles of women and men in the area of computers entails.

Charles Bolding,
Vancouver, BC



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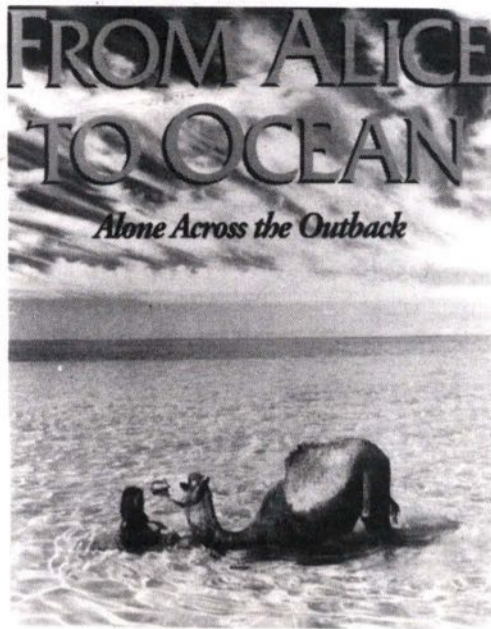
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Few New Products

TORONTO, ON (NB) — Exhibitors at the Canadian Computer Show seemed satisfied with attendance, which some said was up over previous years. Organizers said before the show that they expected some 30,000 people during the four days, and while no official figures were available, crowds seemed good on the first two days, despite heavy rain on opening morning.

There were about 300 exhibitors at the 23rd annual event, occupying slightly less of the International Centre of Commerce exhibit complex than in some previous years.

But for the news media and others hungry for new products, the Canadian Computer Show has become rather slim pickings since the rise of the giant Comdex/Fall show in the United States, which this year took place the week before CCS. Most of the major announcements at this year's show were in fact reruns of events that took place the previous week in Las Vegas.

Toshiba's new T4400C has a 25 MHz 486SX chip, four MB of RAM, a 120MB hard drive, and a larger color screen than the T4500C. Suggested list price is C\$5,849.

The T100X is a pen-input computer with no keyboard, intended for mobile computing applications. It is due to be available in Canada in January, and the price has not been set.

Toshiba also announced plans to sponsor a charity ski event to raise money for cystic fibrosis research. Bob Grossman, general manager and vice-president of Toshiba's Information Systems Group, said the company will sponsor an established invitational ski event run by former Olympic skier Ken Read in Lake Louise, Alberta, and a new spinoff of that event to be launched in Collingwood, Ontario, this year.

WordPerfect showed off WordPerfect 5.2 for Windows, WordPerfect Office 4.0, and WordPerfect Presentations (formerly DrawPerfect) 2.0 for DOS. WordPerfect 5.2 for Windows is to ship by month-end at a Canadian suggested retail price of C\$595, with various upgrade and competitive-upgrade offers available. Presentations 2.0, which began shipping in mid-November, costs C\$595 in Canada. WordPerfect Office 4.0 is due for shipment in the first quarter and no price was announced.

Richmond Software, of Vancouver, demonstrated the recently shipped Windows version of its Maximizer contact-management software. Tom O'Flaherty, president of Richmond, said a version for local area networks can be expected early in the new year.

Crowntek Computer Centres, a national computer reseller, launched the Crowntek Express Catalog.

The company said the 192-page catalog is aimed at small business and home office buyers, and lists products from 112 vendors along with "editorials" prepared by vendors and Crowntek.

Crowntek said orders will be accepted by toll-free telephone number anywhere in Canada, or by facsimile or mail. In many parts of Canada, the company said, products ordered before 4:30 pm on one day can be delivered by express before 10:30 am the next.

Contact: Industrial Trade and Consumer Shows, 416-252-7791, fax 416-252-9848; Computer Associates Canada, 416-676-6700, fax 416-676-6734; Crowntek, 416-507-5118; Microsoft Canada, 416-568-0434 ext. 4243, fax 416-568-1527; Toshiba of Canada, 416-4703478, fax 416-470-3541; Crowntek, 416-507-5000; WordPerfect, 801-225-5000, fax 801-222-5077.



For instance, Microsoft Canada rolled out its Access and FoxPro 2.5 for Windows database programs. Access is Microsoft's long-awaited Windows database package, while

FoxPro is the first Windows release of database software from Fox, the company Microsoft bought this past spring.

Tim Stewart, national marketing manager for Microsoft Canada, said Access is available now, while FoxPro will ship in the first quarter of 1993. Both packages will sell in Canada for C\$650, with licenses for additional users priced at C\$550. Microsoft Canada is offering Access at an introductory price of \$130 until January 31.

Computer Associates Canada was showing Visual Objects for Clipper — formerly known as Aspen when it was under development by Nantucket, the database company CA acquired earlier this year. Like the Microsoft products, Visual Objects for Clipper had made its debut the previous week at Comdex.

Toshiba held a press conference to show off its T4500 series of notebook computers, its T4400C color notebook, and a pen-based computer called the T100X. As reported in Newsbytes over the past month, all these units have already been launched in the U.S. market.

The monochrome T4500 notebook costs C\$4,249 in Canada, while the color version, called the T4500C, is C\$6,299. Both have 3.3-volt Intel 486SX processors running at 20 megahertz (MHz), four megabytes (MB) of RAM, and hard drives. Both use the emerging Personal Computer Memory Card Interface Association (PCMCIA) expansion-slot standard for integrated circuit cards. Both are to be available in January.

Season's Greeting

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Fujitsu Shows Printers, Drives



TORONTO, ON (NB) —Fujitsu Canada unveiled two color dot-matrix printers, a scanner, and a line of disk drives at the Canadian Computer Show. The company also announced that Ingram Micro will distribute its full printer line in Canada.

Fujitsu launched the DL1150 and DL1250 24-pin dot-matrix printers. Both can print color — the DL1150 as a standard feature, the DL1250 with a user-installable option. A company representative at Fujitsu's booth said the printers are aimed at the price-sensitive home and small-business markets. The DL1150 costs C\$649 and the DL1250 \$799. They print at about 30 characters per second in color letter-quality mode, faster in draft mode and/or black and white, the representative said.

Fujitsu also unveiled a line of 2.5-inch, 3.5-inch, and 5.25-inch hard disk drives, with capacities ranging from 105 megabytes (MB) to two gigabytes (GB). The line offers a choice of integrated drive electronics (IDE) or small computer systems interface (SCSI) connections.

The 2.5-inch M2637 250MB drive, offered with either IDE or SCSI interface, is meant for laptop and notebook computers, according to Fujitsu. Evaluation units are due in the second quarter of 1993, with general availability in the third quarter.

The M2617T and M2618T 3.5-inch drives come with the IDE interface and offer 105MB and 210MB of storage respectively. Evaluation units of both are available now, and production units will be shipped in the first quarter, Fujitsu said.

The one GB M2694 drive, also in a 3.5-inch package, has a SCSI interface. Evaluation models are available now and production units are due in the first quarter.

The M2654 is a 5.25-inch, two GB drive for which Fujitsu claims the industry's highest sustained data rate: 4.75 MB per second. Production units are now available.

Fujitsu also showed the M3097E 39-page-per-minute document scanner, an extension to the high end of its scanner line. It can scan documents from A6 (4.1-inch by 5.8 inch) size up to 11-by-17-inch paper. Due to be available in January, the M3097E will sell for C\$13,995.

Contact: Fujitsu Canada, 416-602-5454 or 800-263-8716.

'Don't Rely on Users for Security': Eubanks at CCS

TORONTO, ON (NB) — Companies can't rely on end-users to maintain the security of data on computers, said Gordon Eubanks, president and chief executive of California-based Symantec Corp.

As the second keynote speaker at the Canadian Computer Show and Conference, Eubanks focused on security. "Are we winning or are we losing?" he asked. "We're probably doing a little of both."

Whereas computing was once mainly a matter of large central systems, "today PCs are dominant in organizations," Eubanks said. And networking is becoming a more and more vital part of the information strategy.

Up to now networking has been used mostly for sharing files and printers, he said, but in the next few years there will be an evolution to wide-area networking and mobile computing.

And, "in the '90s we're getting a growing group of novice users who aren't really interested in all these technical things." They want the computer to help them be productive.

But organizations are paying a penalty: the loss of control that comes with the fact that computers are distributed, run by people who don't care about data management and security issues.

Treating PCs like mainframes isn't the answer, Eubanks said. Enterprise manage-

ment systems have to change to deal with this problem. "We can't kill the flexibility of PCs but at the same time we can't say that we're going to be responsible for information but at the same time not have any way to protect that information."

A vital point, he said, is that individual users don't care much about security. Thus educating the users is not the answer. The company must focus on the enterprise management system while giving users transparent access to computing power.

But MIS must be "in control, and own the problem," Eubanks said. He urged standardization on tools that are transparent to the user, saying that while user education matters, the ultimate responsibility for data

security can't be placed on users.

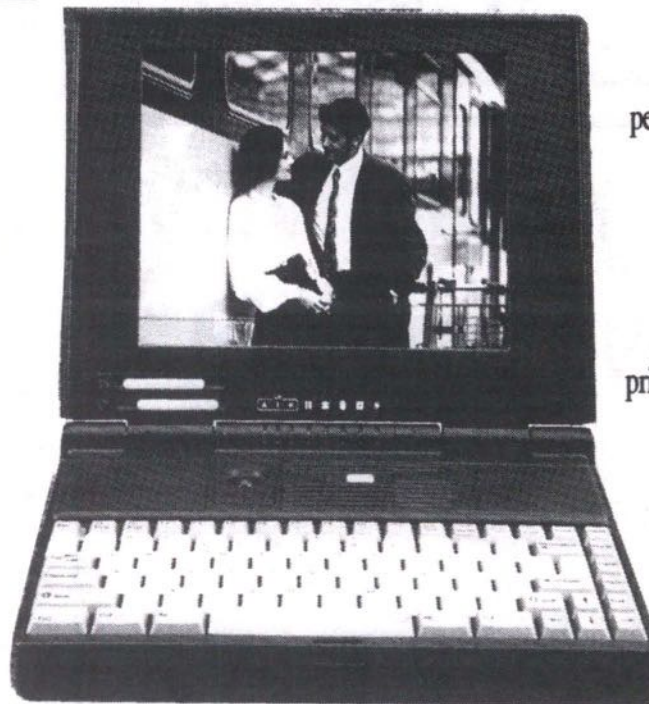
Security may be an issue of special concern to Eubanks. He and others are facing criminal charges in a civil suit levied by Borland International over former Borland employee Gene Wang. Wang, who joined Symantec on September 1 of this year, has been accused of sending Borland's confidential trade secrets by electronic mail over the company's MCI account to Eubanks.

Eubanks also talked about software development in the 1990s. He praised an idea that, as he admitted, has been around for many years: re-usable software components. Although the idea of re-using soft-

Continued on page 15

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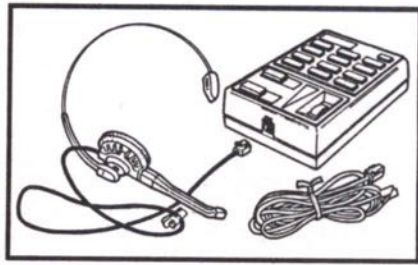
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B O O K R E V I E W

The Hacker Crackdown:

Order and Disorder on the Electronic Frontier

BY BRUCE STERLING

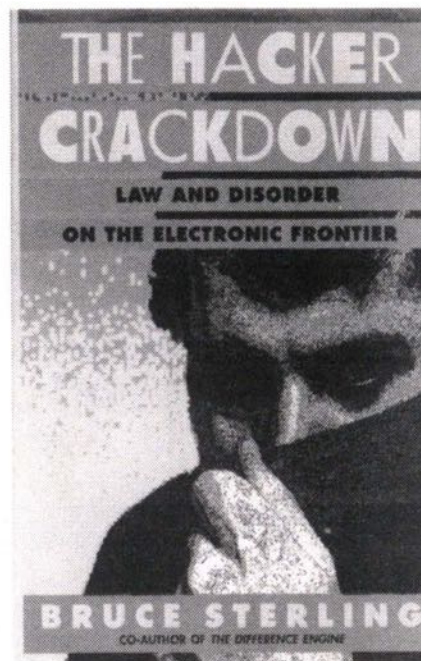
REVIEWED BY KEITH SCHENGLI-ROBERTS

Book: The Hacker Crackdown: Order and Disorder on the Electronic Frontier
Author: Bruce Sterling
Publisher: Bantam Books, 1992. 329 pages
Price: Hardcover. \$27.50

"Operation Sundevil" was set in motion. Bulletin board systems were seized and suspected hackers arrested. The crackdown was meant to be scare the hacker community, but instead Operation Sundevil was denounced by civil rights groups.

It all started with the crash of AT&T's long-distance service on January 15th, 1992. Law-enforcement agencies in the United States were becoming aware of the potential threat posed by malicious hackers to the telephone system, and were fearing that something big was going to happen soon. As the telephone system sequentially went off-line from coast to coast, telephone companies and law-enforcement officials thought they saw the realization of their worst fears. Bruce Sterling's look at the often murky world of the digital underground is probably the best yet written on the subject, and is a must-read for anybody interested in the impact computers have had on society.

One telling incident which provoked dissent against Operation Sundevil was its seizure of computer equipment from Steve Jackson Games. This firm develops Dungeons and Dragons role-playing games, and was developing a manual for a cyberpunk role-playing game with help from a person who, as it turned out, was targeted by the crackdown. When he was arrested, law-enforcement officials subsequently went to his place of work and seized equipment used to develop this game. This consisted of a book in development on how to play a cyberpunk game. It was not a "how to" manual for would-be hackers, and had nothing to do with the practical use of computers. This is where we find that *The Hacker Crackdown* involves Sterling personally.



Best known for his cyberpunk fiction (most recently collaborating with William Gibson on their novel *The Difference Engine*), Bruce Sterling has written the definitive book on the world of the hacker, covering topics that are both accessible and of interest to the general public and computer experts alike. The explanation of how AT&T's long-distance service was temporarily put out of action is complicated. It was not actually the work of a malicious hacker, but a fault in the software that runs the service which caused a chain reaction, shutting down the entire system. However, Sterling explains it in relatively simple language, while showing us the social relevance computers have on everyday life.

As a writer in the cyberpunk genre, there was some question as to whether his own publications might be seized by the authorities. This book is his quest into the issues surrounding electronic freedom of expression.

The book is separated into four sections: the telecommunications industry, the digital underground, law enforcement, and the civil rights groups that have become involved in the electronic frontier of cyberspace. Most interesting are the profiles we get of some of the central characters in each section, such as the hackers comprising the now-legendary Legion of Doom. But Sterling also looks at how each group operates, the roles they play within society, and how they interact. While caused by a software bug, the initial perception that the AT&T crash was caused by a hacker sent ripples of fear through the telecommunications industry. This incident prompted law-enforcement officials to do something about the perceived threat. By May of 1990 a nationwide police crackdown known as

Along the way Sterling destroys the myth of the "supreme hacker": a person so adept with computer systems that he would never be caught by the law. The vast majority of hackers who are arrested simply can't stop talking about what they have done, incriminating themselves and others in the process. He looks at the single most significant legal case dealing with cyberspace: the trial of Craig Neidorf (a.k.a. "Knight Lightning"), who published sections of an illicitly obtained phone-company document in his text file magazine *Phrack*. Sterling looks at the case in some detail, showing the reader how the prosecutor's case was effectively demolished with the help of an electronic civil liberties group.

While never glorifying the hacker mentality, Sterling offers the reader crucial insights into the workings of the digital underground and the people behind it. He does what few writers before him have done: place computers and computer crime into the larger context of their impact on society and on law. It is a very hip, yet critical look at the role of the hacker in society. ■

Continued from page 13

ware components has been talked about since the 1970s, he said, object orientation may finally make it happen.

Object-oriented technology makes it possible to build reusable components that can be moved among different hardware platforms, he said, and that is the key advantage of object-oriented development tools.

Symantec is working with Apple Computer on a reusable-component technology project called Bedrock.

Manzi Keynote Sets Groupware Tone at Canadian Show

TORONTO, ON (NB) — Jim Manzi, president and chief executive officer of Lotus Development Corp., set what may well have been the theme of this year's Canadian Computer Show and Conference in the opening keynote address, talking about a shift from a data-centric to a communications-centric view of computing.

It was not a new theme for Manzi, who said many of the same things at his company's 10th annual meeting this spring in Boston. One element new since that speech was the promise that the next release of Lotus' 1-2-3 for Windows spreadsheet software will incorporate Lotus' "group-enabling" Chronicle technology.

Chronicle will enable data sharing at a level below that of distributing files, Manzi said, allowing users to share single cells or groups of cells across networks.

The same technology will be incorporated into Lotus's Ami Pro word processing software for Windows later on, Manzi added.

Manzi referred to the 1980s as a "decade of disintegration" in which traditional business and organizational models and even the traditional office started to come apart. He said the 1990s must be a decade of "re-integration or else."

Networking will be the key ingredient in that, Manzi said, and he used that starting point to pitch his company's Notes workgroup software.

Manzi cited a study undertaken by a research firm under contract to Lotus, which he said found Notes produced an average return on investment of 400 percent, and did so in less than four months on average.

He also did not miss the chance for a dig at rival Microsoft, which recently introduced its own workgroup software product. In response to a question from the audience, Manzi said Microsoft's Windows for Workgroups is "a placeholder in this space, but it is nothing in function or capability compared to Notes."

Bright Future for Object Orientation Predicted



TORONTO, ON (NB) — Object-oriented systems will become more and more the norm over the rest of this decade as software complexity, keeping pace with growth in hardware power, demands more efficient development.

So said Hamid Mirza, vice-president and chief database architect at Borland International of Scotts Valley, California, at a Canadian Computer Show and Conference presentation here.

Object-oriented principles are beginning to be applied to programming languages, database, and user interfaces, Mirza noted. He predicted that by 1995 reusable

software "components" that can be plugged together to create complete systems will be sold, and by the year 2000 distributed component architectures will operate across distributed hardware platforms.

Mirza said object-oriented programming — of which his company has been one of the most active champions — will make software development more efficient and will ease software maintenance, which accounts for some 60 percent of the effort associated with any software system over its lifetime.

Pointing to the three "cornerstone concepts" that define object orientation, Mirza said encapsulation of data and program code in "objects," along with the principle

of inheritance that makes it easy to modify objects, will make possible the re-use of code, something software developers have aimed for since the 1970s.

Polymorphism, the third element of object orientation, means different objects will react to the same external request in their own ways, allowing generic code to be written without worrying about the properties of different objects.

On the database front, Mirza said that while the relational model has served well for some 20 years, increasingly complex applications make it necessary to move more procedural information into the database itself.

As for Borland's own database products,

Mirza said Paradox for Windows, now being demonstrated, is "very object oriented" in its user interface, and dBASE for Windows, when it arrives, will use many of the same concepts.

"Further down the road," he said, Borland will probably introduce more object-oriented semantics into the products' actual data structures.

Contact: Borland Canada, 416-229-6000.

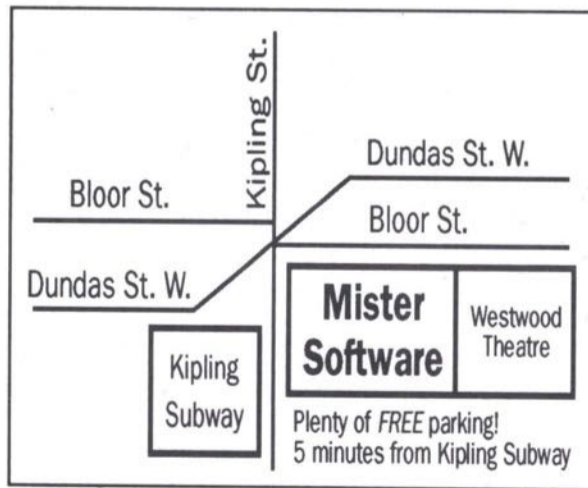
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TORONTO, ON (NB) — Markham, *Continued on page 44*

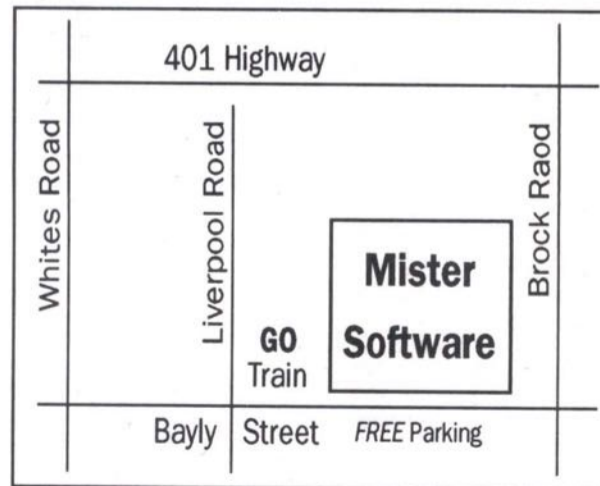
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The first thing one learns as a teacher is that not every student learns in the same manner. Some students have a linear, learn-it-by-following-the-steps style of learning, while others grasp ideas on a more conceptual level.

A Beginner's Guide to Computers

BY GRAEME BENNETT



This article is for the beginner just getting acquainted with the wonderful and sometimes frightening world of computers. Experienced users: please forgive a few of the generalizations and simplifications I will use here; my objective is to communicate with a minimum of jargon and numbers.

In his book *A Brief History of Time*, theoretical physicist Stephen Hawking recounts his publisher's advice that "every formula you include in the book will cut the number of sales in half." In other words, don't give beginners too many words they don't understand. (By the way, Hawking ended up with only one formula in his text: Einstein's famed $E=mc^2$). Here, too, I'll mention a bit of computerese when it seems necessary.

If you haven't yet purchased a computer

Consider yourself lucky. The bad old days of computing are more or less behind us. Computers are easier to set up and get started with than ever before. The most important thing you should consider is...

What do you want to do with a computer?

Computers are great for doing schoolwork, learning to type and playing games. Increasingly, too, they are also seen as a window to the world of information.

Most people will end up using a computer as a word processor more than anything else. A good word processor provides a spelling checker, thesaurus and perhaps even a grammar checker. With one of these programs, you can rearrange, edit and print out documents with ease. You can, of course, store files on a diskette and retrieve

them to work on at a later date. I'll talk more about specific word processors and other programs later in this article.

Those who buy a computer to be more efficient and productive will want a program that files information, like an address book or inventory list. This is called a database.

People who want to keep track of their finances, calculate budgets and do other work with numbers will find a spreadsheet a handy tool.

Some people have other plans for a home computer, like playing games, or using it to create graphics or music. A computer in the home can be much more interesting than vegging out in front of the TV. Games can be educational in nature, or just for fun. Those who think that computer games are all about marauding aliens will be delighted to discover the joys of flight simulators, computer golf, chess and other gentle pleasures. Of course, even the most ardent pacifist usually finds that a good shoot-'em-up arcade adventure can be a great stress reliever.

Buying your first computer can be a stressful time. Those plaid-jacketed salesmen see you coming with a pocketful of

money, and it seems like they want to relieve you of as much of it as possible. Your \$1500 computer rapidly turns into a \$3,000 one.

If you are a complete computer novice, here are some suggestions:

- Ask your computer-using friends which computer and/or software they chose. You'll probably find that computer buffs enjoy answering questions and will help you to solve problems.

- It won't take long until they've filled your head with talk of megahertz and megabytes; don't be too concerned. To paraphrase Desiderata, there will always be greater and lesser computers than yours. Nobody ever has enough speed or storage, but a modestly equipped computer that is well configured with a few great programs is a far better buy than a superfast fire-breather with lousy programs (or good programs without proper documentation and support).

Choosing the right software is the most important decision you have to make when considering which computer to buy. Many people get so hung up on buying the latest, greatest hardware that they forget that computers don't do anything without software.

Choosing the right software is the most important decision you have to make when considering which computer to buy. Many people get so hung up on buying the latest, greatest hardware that they forget that computers don't do anything without software.

Your software choices can make the difference between a good investment and a bad one.

At the bottom of this software dilemma is the system software that every computer requires to operate. In IBM-compatible PCs, this has typically been DOS, or disk operating system. Other computer platforms, like the Mac and Amiga, use their own operating systems. We'll discuss these a little later. Despite the fact that both the Mac and Amiga operating systems are more powerful and easier to use, DOS remains the most popular (perhaps common is a better word) operating system.

Although people buy computers to run applications, not operating systems, the overall environment in which a computer operates is an important consideration, primarily because you have to deal with it on a regular basis. Each operating system has its strengths and weaknesses, but DOS' main drawback is that it has a complicated form of memory management. Some folks would use other, less-gracious terms.

DOS and Windows

Most people use Microsoft's version, known as MS-DOS, although sophisticated users may find advantages in alternatives such as Digital Research's DR DOS. Although everyone seems to agree that DOS is a dinosaur, it doesn't look as though second-generation operating systems like OS/2 2.0 are about to force it into retirement. Users with a year or two of experience can probably appreciate why OS/2 is vastly superior to DOS, but for now, stick with Microsoft's DOS version 5.0.

OS/2 and Macintosh users don't have to deal with these DOS-related problems. DOS is a dinosaur, but if you choose a PC,

you had better get used to it, unless you are feeling adventurous enough to jump directly into OS/2 or, when it comes out, Windows NT.

If it didn't have so many "device driver" (the software that controls a video or audio card, for example) compatibility problems, I would heartily recommend the clearly superior OS/2, but it's a DOS, DOS world.

It is a great advantage to have a dealer or a friend who is a PC expert help you to set up DOS and Windows for optimum performance.

PCs that use Windows still require DOS, and still suffer from some fairly severe limitations that DOS imposes on memory usage. Simply put, the problem is this: even if you install four or more megabytes (one "MB" is roughly a million characters' worth) of RAM (Random Access Memory), your PC is forced to treat all but 640 kilobytes (where one "K" is 1024 characters) as extended or expanded memory. Extended memory isn't the same as expanded memory, and some programs need to run in certain parts of the memory. If it sounds confusing, it is.

If you buy a PC that runs Windows, you still have to deal with DOS occasionally. And, unfortunately, DOS pretty much requires you to "get your hands dirty" and type some fairly obscure commands to solve the problems that I guarantee will crop up from time to time.

These "under the hood" situations are also quite common on the Amiga, less frequent with OS/2 and virtually non-existent on the Macintosh. You have been warned.

I recommend that you consider purchasing a major name-brand computer, as opposed to a dealer's in-house "clone" brand. A few years ago, big-name brands like AST, Compaq, Dell, IBM, and Zenith (just a few of the most well-known PC makers) cost significantly more than "clones," but today, due to heavy competition, their prices are extremely competitive, and their quality and service is much better.

Here are some hardware buying tips:

If you choose a PC, I'd recommend a system with three or more available slots. You don't need as many slots on Macs, Amigas and Ataris, which have built-in video, sound, and connectors for a mouse, modem and printer. At least one expansion connector is a good idea, though.

If the system you are planning to get uses a separate video card, ask for one that offers graphics acceleration, especially if you plan on using a program like Windows. Accelerated video cards for the PC start as low as \$200. The latest PCs come with high-performance video built right onto the motherboard of the computer; this is known as Local Bus Video.

Amiga and Atari computers come standard with accelerated graphics (they use a special chip called a blitter); it's a \$500-and-up option on color-capable Macs.

Every PC comes with a chip called a BIOS (Basic Input/Output System). Some BIOS chips are better than others in that they are more compatible with various programs and hardware that you might want to add later. Two good BIOS suppliers are AMI and Phoenix.

PC users who demand the best keyboard usually agree that IBM and Northgate make the best ones. There are lots of terrible keyboards out there. You should pay a little extra for a good keyboard and a high-quality mouse. Microsoft and Logitech make good "ergonomic" mice, although there are dozens of other manufacturers. One of the most radical designs comes from Sicos, which makes the ergonomic mouse. It's available for the PC and Mac.

The Mac, Amiga and Atari come standard with a mouse; however, third-party models are available that may have better ergonomics. Oddly enough, the mouse that Apple ships with every Macintosh is a particularly poor design. A replacement plastic shell called the Mouse Topper is available from a company called Contour Designs (415-941-1474). It is a great improvement over Apple's design. Reportedly, Apple will soon release a new mouse, and a new ergonomically designed keyboard.

If you choose a Mac, pay a little extra and get the enhanced keyboard. The standard model has cursor keys all in a row; the enhanced model has them in an inverted "T" shape.

Whether you are buying a PC, Mac, Amiga or other computer, buy an expandable machine. Macintosh Classic buyers who don't realize they can't upgrade their system's monochrome monitor to a color one are bound to be disappointed. The IBM PS/1 is less expandable than many other models in its price range. The same goes for an Amiga 600 or an Atari 1040ST.

All computer owners should pay a little extra and get a fast hard disk (a speed of 19 milliseconds is common these days; lower numbers are faster), and least 4 megabytes of RAM. It's inappropriate to clump everyone into one category and say "all PC users should get a 386 or 486," so use the recommendations (not the "minimum requirements") listed on the software package(s) you plan to use.

A good system is a balanced one. Most users focus on getting a blazingly fast CPU, when what they really need is a decent system with a good, clear display, a good printer, and software that can do the job. ■

What to look for when buying a computer or software

1 If you've read *The Computer Paper* in the past, you've probably heard this before, and it can't be said enough times: **choose your software first, then get the machine that best runs it.** These days, many applications run on both PCs and Macs (and occasionally other platforms, too). PCs, as you probably know, cost less up front, but require more time to set up, configure and maintain. These hidden costs are enough to justify the higher initial price of a Mac to many people.

2 If you really think a software program (a good example is Aldus PageMaker) on the PC is equivalent to the same title on the Mac, try this: **ask your dealer to show you the steps required to completely remove it from the hard disk.** In the case of PageMaker, the Mac can do it by dragging three items to the trash (one more click empties the trash). Find out for yourself how much work the PC version requires.

3 Beginners will particularly benefit from a computer that comes **pre-configured with the operating system, mouse, etc., already set up.** All Macs ship this way, and some PCs are labelled "Microsoft Windows Ready-to-Run." Some of IBM's lineup are preconfigured with OS/2.

4 **Get a machine with great service and support — and get it in writing.** When problems come up (and they will!), you'll be glad you did. Software companies like WordPerfect are famous for their support; hardware manufacturers like Dell and IBM are, too. These days, you can get a machine from several major manufacturers with a 30-day, no-risk money-back guarantee, 24-hour-a-day tech support, and next-day on-site service or 48-hour ship-in repairs. Why settle for

less?

5 Some people buy their computer via mail-order; some buy software that way. I'd recommend that you don't start out buying software and hardware this way. **Establish a relationship with a dealer in your area — preferably one that sells both hardware and software.** I sometimes buy software from software-only stores like Egghead, but I always try before I buy. Any good dealer will allow you to do this.

6 **Don't buy discontinued software or hardware, or any products from companies that have gone out of business,** unless you don't mind that you won't be able to get software updates and technical or warranty support.

7 **Remember that the IBM-compatible marketplace is very competitive, and almost totally price-driven. Vendors do everything possible to cut costs.** Reputable manufacturers will only cut corners so far, but you can usually find a local clone dealer with an ad for a machine that looks like a real bargain. It will have the cheapest possible components, the slowest hard drive, an out-of-focus monitor and a lousy keyboard. Yet, the specs will sound identical to those of a more-expensive product. So, don't base your purchase decision solely on specifications. Buying a system that has won an "Editor's Choice" award in a publication like *PC Magazine* is a safe bet. Experienced users can ask for premium-quality components by name, and get their dealer to assemble a better-quality system, but this is a lot to ask of a novice.

Virtual Reality, Multimedia & New Amigas Highlight 10th World Of Commodore Show

BY KAREL BARX

The tenth annual World of Commodore show, held on December fourth, fifth and sixth at Toronto's International Centre gave evidence of a much needed revival of Commodore Business Machines' Amiga computer line, which had been lagging badly over the last two or three years.

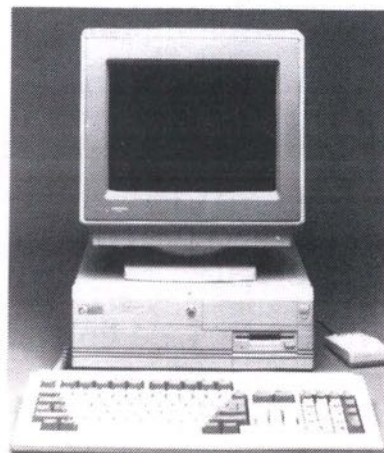
The Next Generation Of Amigas

The Amiga, which had been the leading edge graphics computer in its early days (1985-1987), had more recently been somewhat eclipsed by the increasing graphics capability of low-priced Macintoshes and PC clones. Any fears by Amiga boosters that their favorite computer

was becoming an orphan, however, were put to rest as Commodore unveiled the new Amiga 1200 computer, and also featured the recently released Amiga 4000 and Amiga 600 computers.

The A1200 and the A4000 excited particular interest, since they offer the new AGA, or Advanced Graphic Architecture chips, an entirely new reformulation of the Amiga graphics system, which now offers displays of up to 262,000 colours at a time from a palette of over 16.8 million, on a stock machine.

The A1200 generated the most intense excitement, as dealers took orders (no stock was available for the brand new machine-quantities were expected to arrive



in Canada before Christmas) at a show price of under \$700. The Motorola 86020-based A1200, which comes with 2 MB RAM (expandable to 8 MB with the use of plug-in PCMCIA memory cards) seems certain to become the standard Amiga for the home, multimedia delivery and education markets.

Demonstrations of its outstanding graphics and animation capability brought plenty of oohs and aahs from viewers. "Compared to seeing sixteen colours at a time in high resolution (on the old Amigas), 262,000 at a time is a big jump," said Dave Yang of Toronto, a long-time Amiga fan.

Continued on page 27

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Welcome To My PC Nightmare

BY STEVE WINTER



My skills as a consumer have been torture-tested in malls, flea markets, wholesale outlets and used-car lots across the continent. But never have I encountered a challenge to match the roll-your-own IBM-compatible PC. This was a nightmare on a par with the best Tobe Hooper films, a strategic challenge comparable to chess, and a test of patience only slightly less gruelling than being a Maple Leafs fan.

My first mistake was thinking that I had the expertise to assemble my own PC piece by piece. Armed with the information from several dozen hours studying PC magazines, ads and articles in The Computer Paper and hundreds of BBS postings from happy and unhappy users, I set out armed with a list of needed components and the rock-bottom prices I expected to pay for them.

On paper, it looks like I did reasonably well. My system includes a 386-DX20 motherboard with math coprocessor, five megabytes of RAM, a 105-megabyte 19 millisecond hard drive, two high-density floppies, 14" VGA monochrome monitor with 256K VGA card, hand scanner, mouse, a high-end "luxury" keyboard, case, power supply, DOS, Windows 3.0 and OS/2 2.0, and nearly all the hardware is name-brand Japanese or American made. Considering the extras, and the fact that the components are almost all respected Japanese and American makes, you might think that it was a good deal at \$1,300.

Figures can lie. At best, they do a good job of glossing over the truth. This was one of the worst deals I ever made. The time and headaches involved in tracking down and picking up each component, the downtime spent troubleshooting the completed system and the time lost by not having a fast processor when I needed it, when fig-

ured at minimum wage, probably places the actual cost of this system closer to \$2,500. I can't place a value on the stress and suffering that accompanied this ordeal. Here is what I learned:

Tip One: If you're going to roll your own from parts, buy as many of the parts as possible from one source. The more you spend at one location, the better your bargaining power will be when, not if, problems crop up with compatibility or assembly.

Tip Two: If you're upgrading from an XT-class clone or moving DOS-ward from another platform, don't get cocky. Your experience and hardware smarts are probably worth a lot less than you think.

Tip Three: If you absolutely must buy a second-hand motherboard, don't touch anything advertised as "lightly used" unless you are absolutely sure the warranties and/or service contracts are transferable. Microelectronics that survive their warranties without failing will almost always live out long, peaceful lives.

Tip Four: Try to acquire hardware that accepts SIMMs. Take note that SIMMs and SIPP's are often sold without any warranty. Everything you buy ought to be warranted, even used gear, and even if only for seven days to give you the opportunity to test it out.

Tip Five: Singaporean, Chinese and Korean electronics are not necessarily

poorly made, but they are significantly less consistent than Japanese and American tech. (Korean technology is catching up fast, however.) I would avoid anything in this area that has moving parts, such as a disk drive; however, motherboards and cards which have survived their warranties or new boards with one-year full replacement warranties can generally be considered safe buys...providing they are truly IBM-compatible.

If you place a value on being "politically correct," you might want to check with the Amnesty International local office about the possible origins of any Chinese hardware. Some products are alleged to be constructed by forced disident labor. Hardcore scrimpers won't care, but personally I'd prefer to buy hardware made by employees who are on the job by choice or depend on their jobs to support their families.

Tip Six: Don't buy any critical hardware packaged in a no-name box or that doesn't have a manufacturer's label. If you do, consider it as disposable as a Bic lighter, and with about the same resale value. Note also that some borderline counterfeits are surfacing, and unfortunately you can't always be sure your Japanese hard disk wasn't actually made by a Chinese firm called TECA. Think it doesn't happen here? I've heard of more than one person getting a hot deal on a "Rolo" watch.

Tip Seven: Avoid all cards and accessories, with the possible exceptions of mice and joysticks, with brand names you don't see advertised by your city's biggest computer retailers. The biggest dealers don't get that way by selling junk, and when developers write software, they tend to support the most popular brands of peripherals first, and often last.

And ignore the old saw that you get what you pay for. Wise or lucky shoppers get more than they bargained for, and the unwise and unlucky get less. Bargains can always be had.

Tip Eight: If you live within 100 miles

of the B.C. coast, your computer sucks salt air. Prairie folk can afford to skimp on cables and connectors. Vancouverites can't. If a used computer stops working, slight corrosion of chip contacts or cable connections is always the prime suspect. Gold contacts are always your best bet. Cheap gold plate will eventually flake off, but not if the contact is never broken, and unlike virtually every other type of contact surface, gold won't corrode until long after your computer becomes a museum piece.

Tip Nine: If possible, make a user-friendly organic interface the first item on your shopping list. This could be anything from the surf-punk power user down the

hall of your apartment building to Louise in accounting who's been computing since the tube transistor days to a retailer more than one friend has recommended. Caveat: It has been my observation that command-line DOS softens the mind and turns once-respectable and reliable

people into scatter-brained shadows of their former selves.

If I had it all to do over again, I wouldn't deal with anyone who wasn't weaned on Atari, Amiga, Mac or Windows. Nothing personal, but I find it easier to understand people who don't have 1,500 command-line switch options cluttering their consciousness.

Tip Ten: Don't let desperation drive you into ending up with a mongrel motherboard that won't run half of your software, a non-standard VGA card, a bizarre hard disk that dislikes certain DOS versions or a keyboard with a nonfunctional backslash key. Shoot for a system that actually tests out 100% IBM-compatible.

Oh, and don't undertake this task without first donning protective headgear. ■

Steve Winter is an ex-Atari ST user and shareware dealer from Burnaby who at this time is still puzzling out the difference between extended and expanded memory. He can be contacted at 604-520-7096 most days; if the line is busy, he's modeming.

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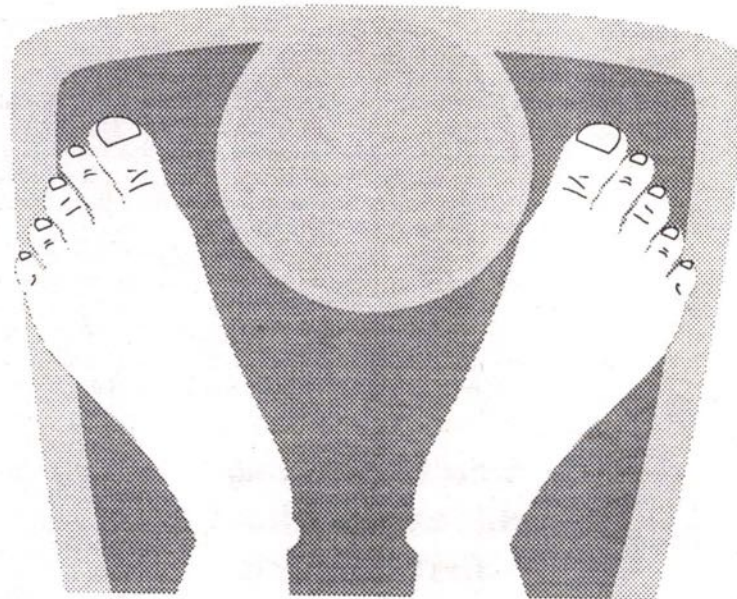
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Weigh Your Options

When Selecting a Notebook Computer

BY GREG FLECK

If you are thinking about buying a notebook computer, you may find the selection and various features quite overwhelming. In many ways, selecting a notebook computer is more complex than selecting a desktop model.

There are four factors that must be considered when comparing notebook computers: weight, performance, price, and battery life. Each of these factors usually mean a trade-off with one or all of the others. For example, if you choose to put the emphasis on a lightweight model, you may have to sacrifice performance. If you want a high-powered notebook, you may have to settle for shorter battery life and a slightly heavier model.

Before you decide what trade-offs to make, it's a good idea to start with a few specific models in mind, and then select the one with the best combination of trade-offs for your needs. *See below.*

Processor speed

The 386 processor is the current standard

for notebook computers. There are four basic versions: 386SX (lowest priced); the 386SL (a power saver variant of the SX), the 386SXL (shorter battery life) and 386DX (high processing power, uses lots of battery power, most expensive). Notebooks with a 486SX processor are significantly faster than the 386 family, but they require a heavier, more expensive system.

Memory

The amount of random access memory (RAM) a laptop has, and the speed at which the processor can access it, plays a major role in overall performance and in some cases can make the difference between being able to use high-level software and having to compromise with less powerful programs.

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Determine your Needs

Take a look at your working day and envision what type of notebook computer would best fit into it. Try to estimate:

- how much computing time you anticipate using per day;
- how much time you'll spend away from an AC power source;
- what type of software you will use;
- how much walking you'll do with your notebook; and
- how much data you'll be inputting on the road.

When you have answered these questions, take a close look at the models you think might suit your needs. In general, I recommend that you look at these features: processing speed, memory, disk storage, display monitor, power supply, and modem/fax capabilities.

Even if you are not currently a Windows user it's still important to buy a notebook computer with enough memory capacity to run in a Windows environment. This is because most software manufacturers are developing Windows versions of their programs and eventually you'll want to use them.

The minimum amount of RAM required to run Windows in its present form is two megabytes (MB). If you plan to run Windows applications like desktop publishing, or process large amounts of data in a database or spreadsheet applications, you'll need more RAM, up to eight megabytes. If you anticipate needing more memory at a future date, find out how much memory your laptop can be expanded to contain. As well, find out if it's possible for you to install the additional memory yourself. This could translate into significant savings.

Keyboard

The keyboard is the most used part of the computer. Judge its design with the same criteria you would use to evaluate a keyboard for a desktop system. It must be low enough (approximately 1.75 inches) from the desktop so shoulders won't ache after extended use. The travel of the keys should feel comfortable, with a positive response.

Disk storage

Your notebook computer should come with a 60-megabyte hard drive. Unlike with desktop computers, you can't just pop a second hard drive into your notebook when you've finished with the old one. Upgrading, if possible, can be costly. It's better to get a larger hard drive at first, than to realize you need to upgrade later.

Display monitor

The display standard for notebooks is VGA, with resolution of 640 by 400. Don't settle for anything less. All major brands use liquid crystal displays (LCDs) to create images on the screen in shadings of grey. Color LCD models are coming on the market, but they more than double the price of a notebook and demand a lot of your battery. Think twice about color. (It's far cheaper and more productive to buy a high-quality desktop color display for use at the office with your notebook.) Also, look for a display monitor that refreshes itself quickly. There's nothing more frustrating than waiting for your computer to catch up with you.

Power supply

Battery life is the Achilles heel of notebook

computers. Most notebook batteries last about two hours. Usually you carry two batteries and a recharger with you on the road. Nickel cadmium is the most widely used type of battery. The new nickel hydride batteries are said to provide more energy per unit of weight, but early reports indicate the gains are modest — and the price is higher. Take special note of the size and weight of the power adapter. A bulky and heavy adapter defeats the purpose of having a lightweight notebook.

Fax/modem capabilities

Mobility is the key advantage of notebook computers, but this freedom requires some form of data exchange between your notebook and your system at the office. For this reason, most notebook manufacturers offer a modem option. The standard speed of notebook modems is 2400 baud, although faster 9600 baud modems are also available on some models. In addition to modem capabilities, you might also consider a fax option. This will allow you to send and receive faxes directly to and from your notebook computer.

Final points

Notebook computers are subject to more wear and tear than desktop models. For this reason, they must be well built, and backed by a solid warranty. The warranty should also be supported across Canada. That way if your notebook breaks down on the road, you might be able to get it fixed on the spot.

Make sure that you test drive a few models. See if you can borrow a demonstration model for a few days. Try out the software you use everyday. Carry the notebook around with you. Is it light enough for you? Is it fast enough? Does it seem well built? Does it have the features you are looking for? Is the price within your budget?

Choosing a notebook computer can be more complicated than selecting a desktop model, but if you follow the steps outlined in this article you should find the right model for your needs. You will then be able to enjoy the freedom and productivity gains that make notebook computers an indispensable business tool in today's information age. ■

Greg Fleck is president of ServiceWorks Inc. one of Canada's leading computer companies. ServiceWorks markets, supports, and services a complete line of computer equipment under the Raven and DataTrain brand names.

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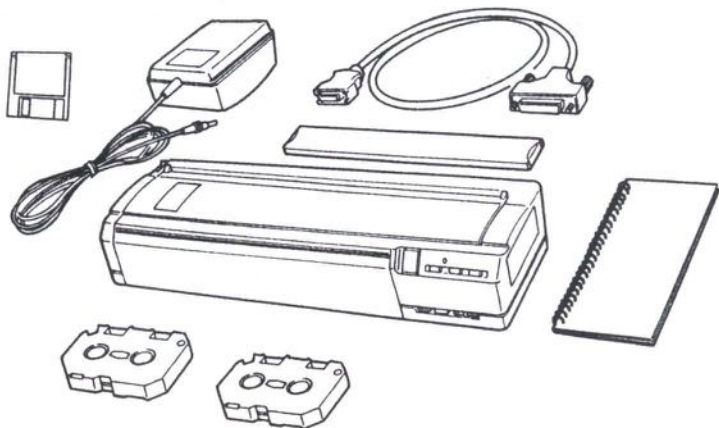
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Printers-to-go Going Strong

BY STEVE WEXLER

Portable computing has come a long way from the huggable luggables of yesteryear. Today's well-dressed professional comes complete with notebook, fax/modem, cellular phone and personal printer in his or her briefcase.



"I find a lot of people still don't know about portable printers," says Doug Cripps, product manager with Toronto-based DM&T Services. "They're really shocked when they see a printer running on batteries."

That may be the case today, but it won't be for long.

According to Sandy Corlett, vice-president printer marketing, Lexmark Canada Inc., the portable printer market should see a 48% compound annual growth rate (CAGR) over the five-year period 1991-1996. Quoting numbers from the Computer Industry Almanac, he says worldwide sales should climb from 343,000 units in 1991 to 1.6 million units in 1995.

George Bulat, a research analyst with International Data Corporation (Canada) Ltd. (IDC), says his company's data for the U.S. market forecasts a more modest 35% CAGR, although it expects substantially more than twice the number of shipments during the same period. "Our most recent study showed the U.S. portable printer market grew 185% from 1990 to 1991, and that by 1996 this market will reach 1.8 million units worth \$482.1 million (U.S.)."

While the estimated number of units being sold varies dramatically depending on who you talk to, everyone agrees that the portable printer market is undergoing tremendous growth — growth that will continue for several years.

Pent-up Demand

The only Canadian numbers available come from a recent report prepared by Toronto-based Evans Research Corporation (ERC). Its "Trends In the Canadian Printer Market" study predicts an 85% jump in Canadian portable printer shipments in 1992, to just under 50,000 units.

This represents less than 6% of total printers shipped in Canada, reports ERC. Given the number of notebook and other portable PCs being sold, this represents a lot of pent-up demand, says Ralph McNeil, Peripherals Program Manager, Hewlett-

Packard (Canada) Ltd.

"Portables have been growing faster than desktops, yet less than 15% are connected to printers, compared to 70-75% for desktops," says McNeil. "There's a huge latent market for printers, but people haven't wanted to get a printer if they couldn't get the same quality and functionality they could get in the office."

Paul Kennedy, president of IDC (Canada), was recently quoted as saying notebooks will own 87% of Canada's portable PC market by 1996, representing 160,000 units. While McNeil doesn't expect the portable printer market to be comparable to the desktop in number of units sold, he is confident there is a substantial component that has been waiting for the right printer.

Portable vs Personal

The right printer to purchase depends on the application. For those who work on the road or away from the office, a lightweight, durable printer fits the bill. But another sizeable market exists for personal or home printer applications. Taking up less space than desktop printers, and offering similar functionality, this is a growing segment of the portable market.

Hewlett-Packard, with the largest share of Canada's printer market, with 19% of units shipped and 28% of printer revenues (\$143 million in 1991), believes it has the right solution with its new 4lb. HP DeskJet Portable printer. Available in Canada as of the beginning of November, it lists for \$762 (with street already as low as \$499). Reportedly, it offers the same performance and laser-quality printing as HP's DeskJet 500 printer.

Another company committed to success in the portable printer market is Lexmark Canada, which recently introduced its IBM Portable Printer and IBM 4070 IJ inkjet printer. Listing for \$679, Lexmark's remarkably small 2.5lb. Portable Printer—it fits easily into a briefcase together with a notebook computer—features thermal

Continued on page 24

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transfer print technology, printing 53cps (characters per second) at 360x360dpi (dots per inch) resolution. The slightly larger 4lb. 4070 IJ, which starts at \$595, is targeted at users who want a transportable desktop printing solution. Providing laser-quality output at 132cps at 360x360dpi, the 4070 also comes with an optional 50-sheet automatic sheet feeder.

Introduced this summer, Lexmark's two portables were meant to address the personal and desktop/home markets, says Corlett. And so far, he adds, sales have borne that out. "We're seeing demand for the Portable Printer from travelling executives and sales force professionals, while the 4070 IJ seems to be finding its home in applications that don't require on-the-go printing."

While the quality of portable printers has improved dramatically, potential buyers must understand that no portable printer can currently match the functionality, speed and cost-per-page of a comparably priced desktop model.

Canon Top Canadian Seller

The company that currently has the majority of Canada's portable printer shipments is Canon, with its BJ family of bubblejet printers. With prices in the \$599 range, Canon shipped over 10,000 portable printers in 1991 and ERC forecasts that number will more than double in 1992.

In contrast, its closest competitor is Kodak and its Diconix family, with 22% of the market, or 5,990 units shipped in 1991. The 180si, which lists for \$499, weighs in at 2.9lbs. and offers 29cps and 192x192dpi. The Diconix 701 Mobile InkJet Printer lists at \$675 and provides a print speed of 3 ppm (pages per minute) and 300dpi resolution.

There are two other vendors with appreciable market share, GCC and Seikosha, as well as several vendors with 1991 shipments of under 3% each, including Citizen, Star, Brother, Toshiba and Mannesmann Tally. In total, ERC says inkjet printers accounted for 83% of Canada's portable printer market in 1991, with dot-matrix products expected to increase to 19% this year.

What To Look For

Currently, less than a dozen vendors offer portable printers for the IBM-compatible PC market. However, selecting the right portable printer for your requirements requires careful consideration of a number of issues. These issues include, but are not limited to, size, weight, speed, compatibility, print quality, printing costs, battery life and paper requirements.

Portable printers come in three flavors: dot-matrix, thermal transfer and inkjet.

The least costly to operate, dot-matrix printers let users print multipart forms. On the downside, their print quality is relatively poor and they are also the loudest. For near-laser quality, look at thermal transfer printers, but be prepared for the highest per-page costs. Inkjet printers offer a good compromise in terms of cost and quality.

Portable printers differ in more than their print engines. While most support an Epson and/or IBM emulation, you can also get HP DeskJet emulation, including HP's new DeskJet Portable, the Kodak 701 and the DECjet. Microsoft Windows users should also determine whether or not the printer comes with its own Windows 3.1 driver.

How often the printer is going to be used, and where, also influence the choice of printers. Portable printers differ in the number of pages they can print via a battery on a full charge, from less than 30 pages to more than 100.

McNeil agrees that power is a critical issue. The HP DeskJet Portable uses standard video camcorder batteries. "As well, we provide sophisticated battery/power management features, including sleep and drain modes. The drain mode enables a user to completely drain the battery and then fully recharge it, eliminating memory problems that arise from partially powered-up batteries."

And finally, says Lexmark's Corlett, a little extra protection doesn't hurt. For computer users on the go, his company offers the Lexmark Express Warranty. Under the warranty, which is good for the first 12 months of ownership of either portable printer, a free replacement printer is shipped, when required, within two business days. The non-functioning printer can be returned within the next 30 days. ■

Steve Wexler is with The Cohen Group in Richmond Hill, Ontario.



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WHAT DO THESE PRICES MEAN

To be fair, we used "suggested list prices" quoted directly by each manufacturer the first week of December, 1992. We made every effort to compare systems that are as similar as possible but each vendor has their own ideas about what is and isn't standard.

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Fax Modem

Buying Tips

BY JACK LEE

With current modem chipsets offering built-in fax capabilities, and economies of scale being what they are, fax modems are quickly becoming the standard offering of modem vendors, often at prices lower than what data modems were selling for a year ago. While a consolidation of both data and fax modem features has taken place, the fax side still has its own distinct standard. The fundamental difference is that the fax side sends and receives data in one direction for a dedicated purpose, as opposed to data standards such as V.32, which are bi-directional, even though they are rated at the same 9600 bps (bits per second, approximately 1200 characters per second, though that figure is almost impossible to achieve in real-world conditions).

When shopping for a modem, be wary of manufacturers' and dealers' claims. Transfer speeds are often exaggerated, or are misleading. Consider what kind of software, if any, is bundled with any particular product and whether or not you'll actually use the bundled software. Also, find out if the bundled software is fully functional, or a demo or a limited version of a particular package. And remember to verify that the modem does indeed support fax transfers, as many modems have non-fax counterparts.

V.22 2400 bps Modems with 9600 Fax

These are the most prevalent models on the market, simply because they've been around the longest, they're the cheapest, and still the lowest common denominator. When used as a modem, they function as 2400-bps data modems, but when sending or receiving faxes, they will generally comply to the Group III fax standards, which means that they will transfer faxes at speeds up to 9600 bps at resolutions up to 200x200 dots per inch.

Many will also include V.42 or MNP, standards that compress transferred data while connected, which can theoretically increase transfer speeds up to approximately 4800 bps, but the real-world performance varies depending on what exactly is being transmitted. With files compressed with compression programs such as PKZIP or LHA, you'll find almost no difference in transfer speeds. With uncompressed data that contains a lot of repetitive information, higher speeds can be achieved, but on average you'll find little increase in transfer speeds.

2400-bps fax modems can usually be found for \$100 to \$150, and if you don't anticipate needing higher data transfer speeds than 2400 baud, they're the most cost-effective way of getting the functionality of both a modem and fax. However, when shopping, beware of misleading or confusing performance claims, as many models are either advertised with speeds of 9600, inferring that they will connect to a V.32 modem, when in reality only fax transfers will support that speed. Some older fax modems are send only, or only support 4800 bps Group II fax protocols and often are not that much cheaper. Avoid them, since the price difference should be negligible.

V.32 9600 Baud Fax Modems

While V.32 models were cost effective a year ago, many newer V.32bis (14,400 baud) fax modems have been released, often at lower prices than their V.32 counterparts. The V.32bis standard features 50% faster data transfer speeds. It is best to avoid V.32 modems unless you find an exceptionally good deal.

V.32bis 14,400 Fax Modems

V.32bis fax modems have recently become quite common, and the market has many competitive offerings. V.32bis features data transfers of 14,400 baud, allows for 9600 bps fax transfers at resolutions up to 200x200 dpi. V.32bis, by design, is backward compatible with almost everything except manufacturer-specific proprietary protocols and will almost always include V.42 and MNP-5 data compression, V.42bis error correction and an auto-answer mode. Some fax modems will also include a voice/data/fax switch as standard, something which you'll otherwise pay an additional \$150 for if your plan is to share one phone line between your telephone, answering machine, and your modem.

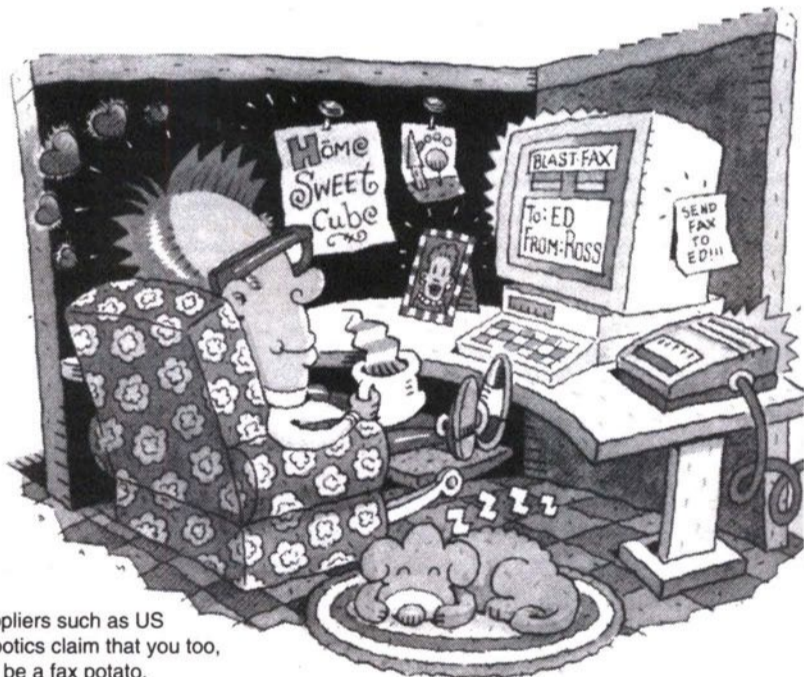
Prices for V.32bis fax modems vary a vast amount — as low as \$350 and as high as \$1,000. On the low end, they're a good buy, as the faster data transfer speeds are additive after waiting around for 2400-bps modems to wade through data, but if your primary application is faxes, then a good 2400-bps fax modem will do nicely, with no difference in fax transmission speeds.

Internal Or External?

Except for the Intel SatisFAXtion line of modems, there is little performance difference between internal and external models. Because internal models don't require a case, power supply and other aesthetic niceties, internal modems cost less for the most part than their external counterparts.

Consider how your PC is set up before you decide to purchase either an internal or external model. How many slots do you have free? How many serial ports do you have free? Remember that with standard PC configurations, you should have two standard serial ports, COM1 and COM2. One is often used by a mouse, one is often free, and an additional two can be added, COM3 and COM4. They may not necessarily be functional, however, as they share the same interrupts as the first two. Most importantly, do you like the comforting reassurance of blinking lights on an external modem? The difference in cost between internal and external modems is negligible, so the important point is to consider your optimal system configuration.

In some instances, especially with slower machines, you may want to consider upgrading your serial chip, called the UART, from the common 8520 to the buffered 16550 chip. This adds a small buffer to your serial port that may alleviate some of the bottlenecks that slower systems might encounter when running Windows and using the modem to send or receive files or faxes in the background under Windows. If you opt for an internal model, most will have their own dedicated serial chip, often a 16550 or a compatible serial



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controller, making this potential bottleneck less of a problem. We'll take a close look at two popular high-speed fax modems, specifically the Intel internal SatisFAXtion/400, and the U.S. Robotics external Sportster 14,400 fax modem.

INTEL SatisFAXtion/400 V.32bis Fax Modem

The SatisFAXtion/400, Intel's fastest model out of the four modems they offer, have received plenty of praise — and for good reason. The SatisFAXtion/400 has clear advantages over the competition, the most important of which is that it handles fax transfers transparently, entirely in the background. This internal board does this magical task by using its own Intel 80186 processor and 512K of RAM on board — in essence it has its own on-board computer which handles any processing burden that sending or receiving faxes may inflict on your PC. What all this fancy circuitry does is emulate a supercharged 16550 serial I/O chip that supports a much larger internal

serial buffer than any other common configuration, and ultimately prevents the prospect of lost data during transmission.

All this provides a surprisingly robust environment for background operation of fax software and data communications — so much so that the coprocessor feature is almost enough to justify the 400's hefty list price of \$579, especially to those wanting a flexible and error-free fax solution that will accommodate their slower 386 and 286 machines.

While most modems on the market are Class 2 fax compatible, the Intel is one of the few on the market that unabashedly supports CAS, a communications interface that handles input and output functions, emphasizing compatibility between different programs that support the CAS standard. One of the CAS features that I particularly liked is the ability to send actual data files using the fax protocol to another Intel SatisFAXtion or CAS-compliant modem. This is a handy and attractive feature if you need to send the occasional document or

computer file and you don't want to bother arranging the receiving machine's communications software to be set up in host mode.

With the internal 400 model, you also get what Intel calls Smart Line Sharing, essentially a voice/data/fax switch built in, and one that works surprisingly well. So well, that I ran fax software, a terminal host, and had the SatisFAXtion hooked up to a telephone with an answering machine all at the same time. Regardless of what kind of call the 400 received, it properly routed the call to the appropriate place. This feature works well with most phones; Intel has acknowledged, however, problems with some phones, especially Panasonic multi-feature phones where the modem preempts the use of the line to make outgoing calls.

Installation was the most painless hardware upgrade I've ever encountered on the PC platform, thanks to Intel's "Switchless" auto configuration firmware. During the

Continued on page 31

Fax Modem Glossary

CCITT Communications

Standards. The V series of modem standards defined by CCITT (Comité Consultatif International Telegraphique et Telephonique — the international governing body on communications standards) has become the undisputed standard for data communications. Good thing, too, as prior to the adoption of the CCITT standards, data communications was a sea of proprietary — and incompatible — standards.

CCITT also defines the fax standards.

"What does all this have to do with me?" you might be asking at this moment. Not much, except if you're shopping for a modem, fax or otherwise, these are handy terms to know about. You may not entirely understand what they all mean, or even want to understand what they all mean, so we'll italicize the important points for each one. Take a glance at them, and write the important ones down before you add "fax modem" to your shopping list.

V.32. A high-speed modem standard adopted in 1984 by CCITT. It specifies a full-duplex data transmission 4800 bps and 9600 bps. In other words, modems labeled V.32 compliant will send and receive data up to

9600 bps.

V.32bis. CCITT's high-speed standard that was adopted in 1991. It specifies full-duplex data transmissions at speeds up to 14,400 bps. In other words, modems labeled V.32bis-compliant will transmit data at speeds up to 14,400 bps, currently the fastest standard transmission speed available.

V.Fast. A future modem standard that is still in development. It features transmission speeds of up to 28,800 bps. The standard is still being defined, so none of the modems currently on the market complies with V.Fast, but U.S. Robotics promises V.Fast upgradability with their high-end Courier modems.

V.42. The CCITT standard adopted in 1988 that handles error detection and correction. Most modems will have either V.42 or MNP 2-4, which not only does the same thing, but is part of the standard. V.42 compliance insures error-free transmissions when transmitting data.

V.42bis. The CCITT standard adopted in 1989 that gives an approximate 4 to 1 data compression.

HST. A common proprietary high-speed transmission standard developed by U.S. Robotics. The top-of-the-line HST-compatible modem, the

U.S. Robotics Courier DUAL standard, not only supports HST, but V.32bis and fax as well. U.S. Robotics also sells HST-only modems, which will only connect at speeds higher than 2400 bps to other HST-compatible modems. The latest incarnation of HST also allows data transmission of up to 16,800 bps.

Group 1. A fax standard adopted in the '60s which allows for a transmission of a page in about 6 minutes. Obviously, this is a near-obsolete standard, but all the standards that come after it are backwards compatible.

Group 2. A fax standard adopted in the '70s which reduced the transmission of a page by about half of a Group 1 compliant fax machine; about 3 minutes. Also obsolete but supported in the Group 3 standard.

Group 3. This is the current fax standard which can send and receive faxes at speeds of 9600 to 14,400 bps and incorporates several compression schemes to speed things up where they can. The typical page can be transmitted in 30 to 60 seconds. This is the most supported standard right now, so it would be prudent to make sure your fax modem is Group 3 compliant.

Group 4. A forthcoming fax

standard that promises even faster fax transmissions through compression.

FAX MODEM STANDARDS

CAS, short for Communicating Applications Specifications is a fax modem interface standard developed by Intel and DCA in 1988. It provides software developers an easy way to integrate fax capabilities and other communications features into their application programs.

It also provides for standardized methods for treating fax documents and information such as phone books, the actual fax bitmap formats, and can accommodate true background operation exclusive of an environment.

Class 1 is a low-level standard for controlling fax modems. It is generally a superset of the Hayes "AT" modem command set and it relies on the host computer's processor for both establishing the fax connection and the transmission of data.

Class 2. A fax standard similar to Class 1 that places more of the burden of establishing a fax connection on the actual modem, while continuing to rely on the computer to process the fax data. ■

Virtually Stunning

A spectacular display of Amiga-powered virtual reality exhibits had the show attendees lining up for hours for free trips into cyberspace, and was undoubtedly the hit of the show.

Virtuality, a U.K.-developed, Amiga-based virtual reality system, was shown in the Commodore booth. Two Virtuality "pods" were networked together, allowing one player in each pod to strap on a helmet which sensed head movement and displayed an interactive view of a 3D environment. Players could then both move around in the same cyberspace and interact with each other.

The game being offered on the Virtuality system at the show was "Dactyl Nightmare," a very impressive, though rather violent, game where two players have a shootout in cyberspace with each other, running and jumping on a series of islands floating in a starry dimension as they try to outmaneuver each other. A predatory, 3D pterodactyl flaps menacingly in the sky above, ready to dart down and make a snack of the unwary player. As your correspondent can attest (having been alternately vaporized and devoured several times), the experience is uncannily realistic. Brian Rostenberger, the head of the firm franchising Virtuality in Canada, stated, "1993 should see additional versions of Virtuality, and a great increase in the number of software games offered on the system." According to Rostenberger, the demand to try the Virtuality system (at \$5 to \$10 for a 3 1/2 minute ride), has been "phenomenal, and we haven't even touched the potential market in Western Canada yet."

The more benign face of virtual reality was presented by the other VR exhibit, the "Mandala" from Toronto-based Very Vivid. With the Mandala system, people can see digitized images of themselves moving in a computer environment, where they can "touch" and operate musical instruments, sports equipment and other computer generated items just by moving their body.

Very Vivid's chief performer, Vincent John Vincent, was upbeat about the potential of virtual reality. Referring to the uninhibited eagerness of the younger visitors to try out the VR exhibits, he said "Children are going to take this technology for granted. It'll be in schools, at malls and eventually in the home." Vincent referred to the possible uses of VR in teaching, in medicine and in help for the handicapped as serious possible uses for systems like "Mandala" and "Virtuality" in the next few years.

A group of Centennial College Advertising students were hired by Commodore to assist in the Virtuality exhibit at the show, and they rapidly became expert cybernauts and enjoyed themselves immensely. "Couldn't I just keep doing this permanently, instead of going back to school?" said Student Debbie Share.

Professional Multimedia And Graphics: Battling To Be Number One

This year's show featured an unusually strong contingent from third party Amiga hardware and software developers.

Photo realistic Amiga graphics hardware seemed to be everywhere. Extremely impressive demonstrations of the Video Toaster from NewTek were shown by MDL of Montreal (the new distributor of the Toaster in Canada), AmiWare of Toronto and Very Vivid (in their "Transporter" sequence). The new, as yet unreleased version of the Toaster's LightWave Professional animation software was previewed, drawing praise for its much

Windows Fax Software: Winfax Pro 3 & UltraFAX

BY JACK LEE

Product: UltraFAX 1.0
Manufacturer: ZSoft Corporation,
 450 Franklin Road, Suite 100,
 Marietta, GA.
 (404) 428-0008
 FAX (404) 427-1150
Price: \$119 U.S.

Product: Winfax Pro 3.0
Manufacturer: Delrina Technology Inc.,
 895 Don Mills Road,
 Toronto, Ontario
Price: \$149 CDN

It seems like just yesterday that fax modems were still on the exotic side of communications hardware, just as fax machines a decade before were fairly obscure. Today, fax machines are in almost every business, big or small, and they're even making their way into the home, both for personal use and in home offices.

Fax modems, on the other hand, have taken their sweet time to appear in numbers, hindered by difficult-to-use hardware and software, and high prices. Until the last couple of years, fax modems often cost as much as a stand-alone fax machine, and were not nearly as functional as a real fax machine when confronted with the task of receiving the large numbers of faxes that many people would require.

Times change, however. Today, it's hard to find a modem without fax features, and even if you can find a simple data modem, it's often cheaper to buy a newer, comparable fax modem. With this trend, it's no surprise that one of the fastest growing soft-

ware markets is fax software. While DOS fax programs are still relatively cumbersome and finicky to use, Windows fax solutions have come into their own, even to the point of having several distinct advantages over the stand-alone fax machine.

Especially alluring in these eco-conscious times is the elimination of paper from the fax process. You now have the option of printing an incoming fax, at your discretion, rather than having meters of smelly-chemical-based thermal fax paper thrust upon you. The ability to send a fax directly from a program also eliminates the need to print a document to send an outgoing fax, both a paper and a time saver.

Another advantage is still relatively immature: the ability to use Optical Character Recognition (OCR) to convert incoming fax documents to ASCII text, a word processor document, or, with some juggling, a file that can be read by almost any program you might be using on your PC. Not only does this feature potentially provide a useful new twist to the technology, it may be a work around for the awkwardness of printing received faxes. After OCR conversion, you'll be able to print and massage the data at normal speeds from almost any program you wish.

Optical Character Recognition is potentially the most useful of the new features, and both of the products under review here include OCR functions. It is not, as we shall see, a perfect process. Even the best OCR engines I've encountered often have problems translating relatively straightforward documents at fax resolutions, which peak at 200 by 200 dots per inch.

Then there's the prospect of fax document management — something which is surprisingly mature in the new version of Winfax in particular.

Any one of these reasons is almost enough to give PC/fax technology a distinct edge, but the combination creates new and exciting possibilities that may make it a cost-effective addition to your PC arsenal, even if you've already invested in a stand-alone fax. In spite of lingering problems, PC-based faxing may have come into its own.

The Software

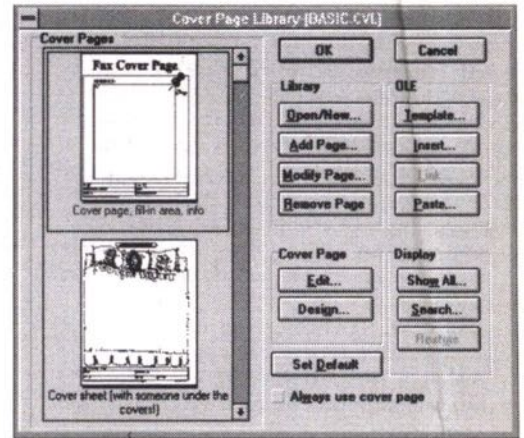
Both of the Windows fax software packages I tested work in a similar manner. The programs install themselves as Windows print drivers that you select in the application you're faxing from, or as the Windows default print driver. When you send a print command from an application, the fax software will intercept it, prompt you for a destination or destinations, and send the document as a fax, instead of printing to a printer. This makes faxing from Windows both convenient and painless.

Winfax Pro 3

Winfax has long been regarded as the leader in Windows fax software. And for good reason — Winfax Pro 2 set the standard for what has recently become a very crowded market, and its market penetration from retail sales and aggressive bundling with modems makes Winfax the most common Windows fax software around. Previous versions of Winfax have been exemplary cases of well-designed fax software: easy to use, easy to maintain, and a logical feature set that takes full advantage of fax modem hardware. As with most computer products, however, Winfax soon started to show its age.

The latest version, Winfax Pro 3, builds on that solid foundation, and in some instances, it does so with a vengeance. New features include an entirely redesigned interface, a much-improved phone book that uses dBASE-compatible files to store your data, improved and very sophisticated scheduling and broadcasting features, image processing functions which attempt to clean up transmission glitches, an anti-aliasing fax viewer that makes faxes readable in smaller zoom sizes, image editing functions which let you annotate and alter a fax in bitmap form, a full complement of OCR functions based on Caere's OCR engine, and a large collection of fax cover sheets along with a cover sheet manager and designer to complement them, and TWAIN compliant scanner support.

And that's just the beginning really. Delrina has released a major upgrade to



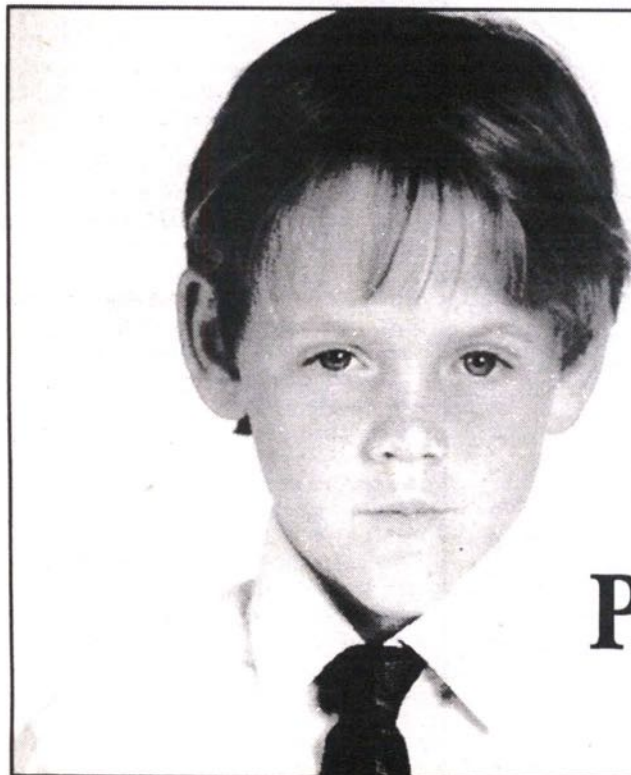
The Winfax Library screen

what was once a fairly simple program. Even with all that's been added, Winfax's interface remains fairly lean and straightforward, only giving you access to one aspect of the program at a time and keeping most related functions confined in neatly arranged dialogue boxes.

With all that's going for it, I also encountered a few things I didn't like. CAS, a fax modem standard, is supported by Winfax, but the implementation is eccentric, unable to directly share received faxes with other CAS-compliant programs. I also found the version I tested still had a few rough edges — ones that would usually manifest themselves as inexplicable errors when the program attempted to create Winfax's native .FXS image files. Most of these problems just as mysteriously disappear with a system reset.

I'm also a little tentative about TWAIN support. While it's a far-sighted move on Delrina's part to support this new scanner interfacing standard, it's unfortunate that Winfax currently only supports TWAIN-compliant scanners, estranging a good number of scanners which won't have or don't yet have TWAIN-compatible drivers.

My reservations are actually relatively minor when you consider how much of an improvement this new version is over the previous version. Winfax Pro 3.0 has succeeded in upholding its fine name, and



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perhaps even succeeded in holding its place as the premier Windows fax software.

UltraFAX

ZSoft, recently acquired by WordStar International, has been shipping some of the best PC-based paint programs, such as PC Paintbrush for DOS, or Windows-based PhotoFinish and Publisher's Paintbrush. With that heritage in mind, it's no surprise that UltraFAX's strength lies in its fax editing features and scanner support, with installation drivers for over 50 different scanner models ranging from common handheld models to expensive flatbed scanners.

UltraFAX is a feature-rich offering, matching Winfax in most areas. It includes an OCR function, an integrated cover page designer, fax archiving facilities, and one feature that none of its competitor's have without the help of Intel's SatisFAXtion line of CAS-compatible modems: file to fax sending — the ability to send files to another computer running UltraFAX.

For mundane chores like file viewing, UltraFAX generally provides more options than Winfax, with zooms of up to 600%, though this added functionality is traded off with noticeably slower speeds when navigating a fax bit map compared to the same operation in Winfax. UltraFAX's fax management features are minimal, but well implemented, providing a functional fax manager, but with far less flexible phone-book management options and limited phone-book import and export features. I also found UltraFAX's design philosophy a little awkward, since each module has its own group window, allowing for an arrangement that can have all the windows open at the same time. UltraFAX quickly took over my Windows desktop and made it appear to be as cluttered as the desk I usually sit at — something that would be nice to avoid on the computer.

I was extremely pleased by the extensive CAS support in UltraFAX, with the program taking advantage of everything that CAS has to offer as a fax modem standard. I also found UltraFAX to be quite unobtrusive, hiding itself as a collapsed status counter in Windows, and not a full-blown program that consumes proportionally more of the processor's idle time.

While in some ways lacking in comparison to Winfax, UltraFAX is no slouch and holds its own well, especially for the first release of such an extensive program. While a decision between the two products may seem difficult, further examination reveals the distinctive strengths of both products. Winfax has the edge if you're looking for document management and OCR; UltraFAX is indispensable for convenient, occasional file transfers and scanner support.

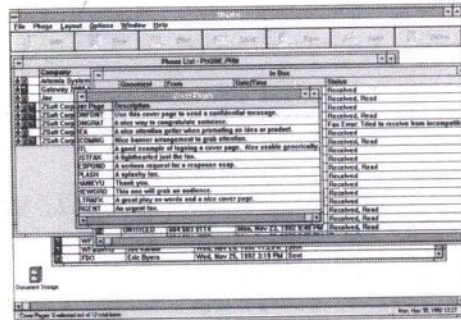
Conclusions

After several weeks with both products, I was frankly surprised and a little dismayed by the new generation of fax software. Surprised primarily by the growing sophistication of a software category that only a few months ago could barely handle basic chores like reliable sending and receiving. These new offerings take fax software much further. I was dismayed that while there is a growing sophistication to the programs, there's a sense that many of the features were only implemented to compete with other products on the market rather than having any tangible benefits or functionality.

Both Winfax Pro 3 and UltraFAX herald a new and increasingly sophisticated standard for Windows fax software — both are feature-rich to the point of silliness at times, as with, in my opinion, the dedicated cover sheet designers. They've also established a potentially flexible and usable consensus in fax software, and one that makes PC-based fax solutions not only an empowering alternative to stand-alone fax machines, but a cost-effective solution in almost every case

— especially if you send large numbers of the same document, and even if you never use the fax modem to receive faxes.

The usefulness of one of the most exciting new features, OCR, is still up for debate. While it certainly sounds like an impressive technology, I found that OCR accuracy in a "fine mode" fax — approximately 200 by 200 dots per inch — acceptable, but only if you're willing to hold the OCR's hand through the process. In "standard mode," or 200 by 100 dpi, the results were simply too inaccurate to be relied upon with any certainty.



Using a phone list, a fax modem can deliver a whole batch of faxes at one time.

Winfax Pro 3 includes a well implemented interactive text editor and spelling checker that allows instant referencing to the original document while you're checking the OCR document. More often than not, though, both products OCR function could easily be confused by any non-standard formatting, even with one as common as multiple text columns, or any fax which wasn't entirely clean, which by nature, are most traditionally transmitted faxes. Even with those caveats, I found it a nice option to have at your disposal, and opening new opportunities to what one can do with a fax after receiving it.

Between Winfax and UltraFAX, there is no doubt that Winfax's OCR engine is the winner. Licensed from Caere, renowned for its sophisticated OCR software, Winfax provides a workable OCR solution in often daunting and precarious circumstances. Its nice OCR module limited by the relatively low resolution of the fax standard.

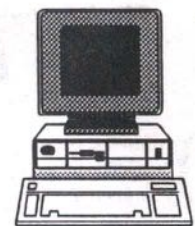
As if to compensate for a lesser OCR engine, however, UltraFAX provides one of my favorite new features — file transfers between fax modems in fax mode. Any two fax modems running UltraFAX can transfer files with each other directly, and accurately, without the need of expensive CAS compliance, or a cumbersome data host.

Another recent feature that both products have to varying degrees is fax management features. Here Winfax wins effortlessly, handling the archiving and management of as many faxes you wish to keep, while compressing them down to a fraction of their original size. Once archived, faxes can be stored and referred back to with little extra effort. UltraFAX took a much more minimalist approach to the problem, allowing you to copy fax files to any directory, but the program lacks compression and other niceties that Winfax offers.

If you're looking for Windows fax solutions, look no further than either of these programs, as they represent the best of Windows fax software currently available. Of the two, Winfax fares better, continuing its lineage of easy-to-use and flexible fax software. UltraFAX is no slouch, though, and with the file-to-fax transfer feature pulls a seductive benefit out of its bag of tricks.

Keep in mind that neither deliver the notion of the paperless office to anyone — what they do deliver is just a convenient, and sometimes beneficial, method of dealing with the de facto business communications standard of faxes. Meanwhile, the promise of bulletproof OCR and totally transparent computer-based fax management lies (hopefully) somewhere in the not-too-distant future. ■

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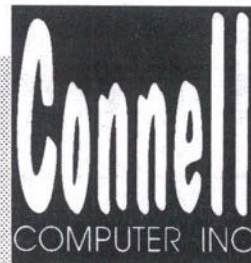
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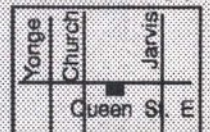
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MY FANTASTIC VOYAGE TO ANOTHER WORLD ...THE AMAZING

World of AMIGA

On Sunday, December 6th, I attended the last day of the "World of Commodore-Amiga" personal computer show in Toronto. The managing owner of AMSOFT, a major Scarborough Amiga retailer, and a long-time personal friend, thought I had the perfect qualifications to write a brief review of my perceptions and impressions of the show, since I am a professional writer, an ardent Macintosh user and, most importantly, completely ignorant of Amiga technology and terminology. If you can relate to that, join me for a brief personal tour of the show.

WHAT'S GOING ON HERE?

My first stop was the Video Toaster™ booth. I was attracted by a lot of high volume sound and a steady stream of curious onlookers. I took the next available seat for a demonstration being presented by a young (everybody is so young in this business) and quite informative presenter. To my surprise, the equipment in use was quite ordinary. Three video monitors, a couple of large speakers, a simple home stereo system, VCR unit, camcorder and, of course, an Amiga 3000 computer.

Video Toaster™ Version 2.0, including Toaster Paint™, is the latest release of this revolutionary technology, which the manufacturer advertises as "...the world's first all-in-one, broadcast quality, desktop video production studio..." and, for my money, it certainly lives up to the claim. The system offers 198 different effects, ranging from specialty wipes, dissolves, fades and bridges to a whole array of image manipulation, colour modification and sound mixing. All are accomplished instantly, with apparent ease, by simply keying in command controls and 'clicking' with the mouse on selected button icons, just as I do on my Mac.

There was even a "StarTrek" type 'beaming' demonstration in which a person seated in the front row of the audience appeared to break up molecularly and vanish. I also watched him demonstrate a simple, but impressive, example of 3-D animation. A 'see-through' linear model of a twin engine aircraft, drawn in several key positions and from different views, appeared on the monitor and, after a few key strokes, clicks and drags, began to show believable movement as the plane appeared to swoop, dive and soar over a dimensional airport and ground complex background. In addition to the commercial graphics applications such as logo designs, type styling and modification, charts, modeling and texture control, I watched amazed as a 3-D skeletal model of an apple quickly took on the shape, colour, feel and texture of a real crisp, juicy apple and then further transformed as the apple's smooth, shiny, deep red surface 'skin' morphed to the thick, porous texture of an orange.

The presentation concluded with a finale of three short video clips from productions by some of the leading creative artists in the field. In "Don't feed The daisies", a giant, robot-like bee buzzed and fanned its wings as it hovered and maneuvered like a helicopter within a tiny doll's house-scale interior. There were scenes from a darkly hypnotic feature called "Theology" by internationally renowned computer animation artist Todd Rungren, set in a bizarre, otherworldly environment of terrain and sound.

Finally, we were teased by a brief glimpse of the much anticipated new Hollywood space adventure series "Babylon 5", scheduled for a premier showing this fall. All of these were examples of leading edge computer animation and visual effects technology. All were created and executed entirely with Amiga equipment, peripherals and support software.

ANOTHER "JEWEL"

The OpalVision™ booth presented a superb graphics software package by Centaur Development Corporation. It was presented by a team of even younger computer wizards from Australia and the U.S. OpalVision™ is comparable to and somewhat competitive with Video Toaster™ but there are significant differences between the

two systems. OpalVision™'s strengths are as a graphic image processing and paint program, which its makers proudly claim to be the best 24 bit colour paint box for Amiga anywhere. From what I saw demonstrated that afternoon, I couldn't argue.

As a graphic artist, I was particularly fascinated by the astonishing, eye-defying, artistic effects such as "painterly" textures, watercolour blends and line quality variations for drawing — especially how easily and quickly they were accomplished. Best of all, it seemed to be a lot more fun than drudgery.

OpalVision™ is a software package only that extends Amiga's basic power and performance capabilities in desktop graphics. It retails in Canada for about \$1,495.00 from a limited number of retail sources so far.

HANDY GADGETS ANYONE CAN AFFORD

Great Valley Products™ (GVP) offered show visitors a variety of small GVP peripherals, plug-ins, add-ons, assorted 'black boxes' and software packages which they produce exclusively for Amiga systems and installations around the world. Their line tends to reflect more commercial applications that are in demand in Europe and the U.K. Of some two dozen different GVP products at the show, I was especially attracted to three which I both liked and understood.

- **A Tiny Sound 'Genie'** — an amazing little box, smaller than a miniature electric razor, that converts any Amiga computer model into a fairly respect-able desktop audial editing suite. It's called Digital Sound Studio™, or just DSS™. While the user base is primarily amateurs, the device provides a surprisingly wide range of capability and quality for more serious composition, sound editing and multi-track mixing using virtually any digitally recorded phonics, from voices and assorted sounds around the house to professionally-recorded MOD's of instruments, special sound effects and public domain music. Applications vary from simple home video

sound tracks to more sophisticated audial and video productions for around \$110 Canadian bucks retail. I don't know how you can beat that!

- **PhonePak™** — ... and hey, home office and small business people! I was inspired by the potential savings, convenience and efficiency this simple Amiga plug-in attachment, with its attendant software, has to offer the average independent entrepreneur. Imagine your own electronic receptionist (never late, sick or cranky) with an unlimited capacity for message retrieval, phone-mail message storage and distribution, manual or automatic Fax transmission that can be pre-scheduled and timed to avoid peak rate periods, incoming Fax messages that can be read on your Amiga computer screen while you listen to a live or recorded message about it, and many other convenient features. Cost of the basic PHONEPAK™ package is around \$625.00.

- **A Graphics Wizard...CHEAP!** — The last GVP product I reviewed was their new Image FX™. This is a simple but brilliant graphics processing program for the Amiga that does a lot for very little. It doesn't require a lot of memory power to run and it's fully multi-tasking. This means you can implement commands in the program and go do something else in the same or a different program at the same time without waiting around for the memory to be free — a basic advantage of Amiga design from the beginning. Image FX™ works easily and exactly with any kind of image, from scanned pictures and drawings to slides and captured video frames. A special feature automatically scales the image to fit your screen, regardless of screen size, so you don't waste a lot of time scrolling around to orient yourself and risk missing some effect you can't see happening and may

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not want. This inexpensive (\$99) full 24 bit paint box system is operated through a simple layered menu of control and access options that provide a broad selection of simple choices for creating highly complex effects.

VIRTUAL REALITY

This was by far the most popular spot of the entire Commodore-Amiga show. People stood in lines 30 deep for up to an hour for a chance to experience this sensory blast of techno-reality. Some even went more than once. Since my wife was about to deliver our second daughter any hour, I chose to forego the pleasure but my curiosity was certainly aroused. Each participant in turn eagerly stepped up onto the circular raised platform and stood within a magnetic ring surrounding their body at about waist height. An attendant helped them to don the wierd, 'space-age' helmet with scuba-like lines trailing behind, which I later learned was a sight and sound visor equipped with two miniature video monitors and quadrophonic headphones.

When the player was ready, the attendant placed a kind of 'joystick' gun device in their hand which was attached to a long cable that ran to an electronic control centre. When they became oriented to some new set of unfamiliar sensory parameters they were obviously experiencing, they began to move and dodge, thrust and aim with increasing energy and, judging by their facial expressions, enjoyment. A video monitor showed a 2-D version of what the player was experiencing in a full, 3-D 'sens-surround' environment. I was told that Virtual Reality™ is an incredible and indescribable experience. A very detailed, 5-page article was featured in the December 14th issue of Maclean's magazine which gives a complete rundown on the development of this radical new technology, which is in its infancy, and describes some amazing ways in which our lives — including our sex lives — might be affected in the future.

What neither the Maclean's article, nor the people at the show from Virtuality Canada Inc. who operate two of these units at Sherway Mall in Etobicoke for entertainment, mentioned nor emphasized was that all of this new technology runs on Amiga systems and software.

MANDALA

The same thing holds true for MANDALA, a by-now familiar phenomenon to Ontario trade show visitors. This set-up involves one or two persons standing in front of a dark coloured background while they move their arms, legs and bodies to activate, through a simple video camera and electronic sensors, a selection of pre-programmed visual images, sounds and other effects. The player appears to be in the scene and can cause immediate changes to their environment at will. For variety, a number of interesting background environments, including an underwater grotto, an ancient ruin, baseball pitching cage and floating musical instruments can be selected. This, too, is primarily an entertainment medium for now. But who knows what will develop in the future?

So what did all of this mean to me? The capabilities, advantages and applications of the Amiga computer seem to be limitless...and so affordable at under \$500 for the least expensive, entry-level hardware ... that virtually anyone can enter the fascinating world of Amiga whenever they choose. Given the impact computers have had on my profession, my perceptions and my life in the last five years, the future points more and more toward those computer systems that offer the most features and versatility at the lowest cost. What else but AMIGA?

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Continued from page 27

installation process, I encountered a disk error which prevented installation of one of the units, which gave me an opportunity to try Intel's customer support. I received a replacement disk within the week, and I was greeted by prompt and courteous support staff through Intel's support number. Beyond that, it was simply a matter of plugging the modem into a 16-bit ISA slot, and running SatisFAXtion's setup software, and the units were up and running.

The modem performed flawlessly in testing, with no noticeable performance degradation of our computers during fax transmissions or when they were used as data modems. I did however, encounter some problems connecting with older 2400 bps modems, but found that a firmware fix, available as a free file transfer using the fax protocol from the Intel FaxBack information service (1-800-525-3019) fixed the problem. The same firmware update is reported to also enable the 14,400 bps fax mode.

On the downside, you must install a DOS-based TSR in your AUTOEXEC.BAT file, as well as SatisFAXtion's DOS-based device driver, which consumes approximately 100K high memory above the 640K.

The required device driver reveals a limitation of the SatisFAXtion line of modems. It is inherently a DOS/Windows-based solution, since the device driver for the board also supplies the modem with its firmware upon boot-up. While this provides an easy upgrade path for firmware revisions, you should be aware that the SatisFAXtion/400's usefulness as a modem will depend on Intel's willingness to supply a device driver for other operating environments other than DOS/Windows. In other words, to run the 400 under Unix, for example, requires native device driver support from Intel.

While this is certainly a disadvantage for those looking for more flexible or generic communications solutions, it does provide an advantage to those running DOS or Windows for the foreseeable future. The device driver, which loads the firmware to the 400, can be updated by a quick toll-free phone call.

While the price on the SatisFAXtion is certainly at the high end, retailing at about C\$579, its virtues make it a worthy investment if you plan on using its fax features on a day-to-day basis. The modem is currently being bundled with Intel's Faxability Plus software, a version that doesn't include the OCR capability. While this package is a serviceable Windows alternative, the new versions of WinFax Pro 3 or UltraFAX provide a much more usable environment for day-to-day fax requirements.

I don't, however, recommend the external 400e model, as its high price and the lack of the internal model's unique advantages such as the coprocessor and smart line sharing, fail to distinguish it from the rest of the pack.

U.S. Robotics Sportster 14,400 Fax

U.S. Robotics has long held the reputation of making very reliable and capable data modems, such as the USR Courier and the Dual Standard series. They also have the distinction of being some of the highest-priced modems on the market. The Sportster model is USR's budget offering for the fax modem market, and to USR's credit, the same quality and reliability has been maintained in their Sportster line.

The external Sportster we reviewed supported V.32bis, V.42bis and Group III fax standards. The modem is enclosed in a stout-looking and thoroughly unimpressive white plastic casing, which includes a nice command and dip switch summary on the bottom of the housing. This summary is complete enough and if you're vaguely familiar with modem operations and installation, you may never need to open the manual. Another nice feature is its conve-

nient volume knob located at the front of the unit. Installation of the modem is painless, providing problem-free operation once the COM ports were properly configured. USR bundles their DOS-based Blastfax software with the modem, and although serviceable, it is not a very good software program. If you want a Windows-based fax solution, you'll have to buy an additional software package. (If you're considering Winfax, we discovered that some earlier versions of Winfax Pro 2 are not compatible with the Sportster. A small

patch is available to remedy this incompatibility from Delrina or it can be downloaded from Delrina's CompuServe support conference; the newer releases of Winfax Pro 2 and Winfax Pro 3 fix this.)

This moderately priced fax modem has performed well over a period of four months. So well, in fact, that there is really little to report except that it is a solid performer, though we found that the Sportster got quite warm when left on for prolonged periods, and its configuration was occasionally a little perplexing. Contributing to that

is the documentation. While quite clear, it's also a little on the technical side, especially for novice users.

Street price for the Sportster is from \$400 to \$500 CDN, which is competitive with other modems on the market, but less appealing for Windows users when you add the price of additional fax software for Windows. Even with that consideration, the USR Sportster fax modem is a good value backed by a reputable manufacturer and is a solid performer. ■

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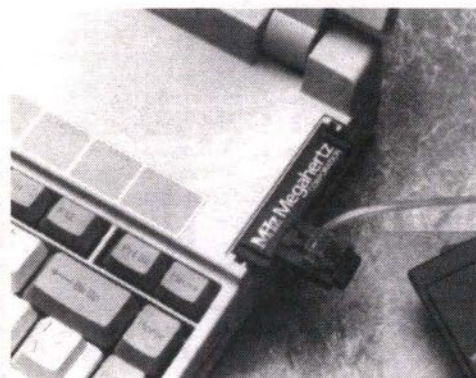
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commtalk BY JAMES MACFARLANE



I was lucky enough to be able to attend Comdex Fall '92 in Las Vegas this year.

It's a colossal show that takes the better part of a week to visit with any seriousness.



PCMCIA done right.

I found the show to be quite beneficial as I was able to find some exciting new products and trends, most of which should be appearing in stores in the new year.

Modems got smaller; in particular many vendors were exhibiting PCMCIA-format modems. These units fit into the credit-

The Incredible Shrinking Modems

card-sized slot on many notebook and palmtop computers.

I found most of the PCMCIA modems to be quite clumsy. They come in two pieces: the card itself and a phone-line adapter. The adapter is about the size of a "C"-size battery and plugs into the card with the help of a cable.

I don't see why people pay a premium for these units when cheaper pocket-modems are readily available. Sure, pocket modems are a little larger and you have to lug them around, but you still have to lug around the PCMCIA phone adapter.

One company, Megahertz Inc, has a much better design. They've patented what they call the X-Jack, a small flat phone connector that slides out of the PCMCIA card like a small drawer. The X-Jack means there's no external adapter, making the unit lighter and more compact.

Although the X-Jack looks flimsy, Megahertz claims it has been tested to over 60,000 phone-cord insertions.

Many vendors were also displaying 14,400 bps pocket modems. Until recently only a few vendors offered 14,400 modems in this format. Most already had 2,400 models.

Modems get faster

In response to US Robotics' offer of a 16,800 bps modem, two other vendors have announced product that's faster than 14,400. Motorola Codex is now shipping

their 326XFAST 28,800 bps modem. Although this is a 100% speed increase over 14,400, the company says most users will be limited to 19,200 bps because of the limitations of standard voice telephone lines.

Like the USR 16,800 modem, Motorola Codex is using a proprietary high-speed method for communicating at speeds faster than 14,400. This means you need two modems of the same model to communicate at beyond 14,400.

Motorola Codex says the unit will be upgradable to the CCITT V.fast standard, allowing it to communicate with V.fast modems made by other manufacturers. Expect to pay about US\$1300, if you can find one.

Zyxel is another manufacturer to offer speeds faster than 14,400. Their U1496E currently offers 16,800 operation, which is different from the USR 16,800 mode, and the U1496E+ will be upgradable to 19,200 soon.

Zyxel is usually quite conservative in their specifications; I wouldn't be surprised if their modems are capable of a lot more than is said.

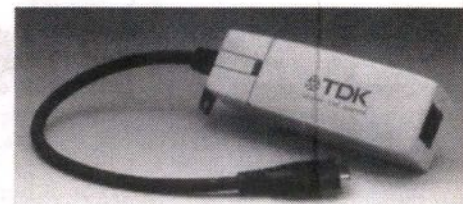
The Zyxel, aside from being a lightning-fast modem, also offers 14,400 fax operation, voice mail, caller ID and Ident-a-call. This thing is a home-office-in-a-box. The Zyxel U1496E lists for US\$469.

Is voice mail ready yet?

Chip manufacturer Rockwell International has been shipping its new modem/fax/voice-mail chipset to modem manufacturers for a few months now, but nobody is showing product yet.

Many software developers I spoke to at Comdex complained that the Rockwell voice-mail firmware still had some bugs to be ironed out.

Hardware and software developers are scrambling to get their products to the market first. Considering the bug reports, don't expect to see anything decent until



PCMCIA done wrong.

April.

Rockwell's previous modem chipset that lacks voice mail is used by the majority of modem manufacturers like Supra, Zoom, Practical Peripherals, Aceex and GVC.

Other manufacturers, like Zyxel, use their own chipset to gain voice mail capabilities.

A super Supra?

Supra has been advertising that their V.32bis fax/modem is upgradable to caller ID and voice mail. Both of these upgrades are user-installable through the swap of an EPROM chip.

Supra says they managed to figure out how to get the existing Rockwell chip to sit up and talk, so they didn't have to wait for the new one. To do this, Supra had to engineer their own modem firmware instead of using Rockwell's. The actual sound quality is said to be not as good as the new chip's, though.

The caller-ID upgrade costs US \$25.95 and is available immediately. The voice-mail upgrade will be available in January and will cost US \$80.

If you bought one of these when they first came out, you probably paid about C\$530. With a 25% exchange rate, add C\$33 for caller-ID and C\$100 for voice-mail upgrades. That's a total of \$663, less than the price of a Zyxel and you still don't get all the goodies.

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Video for Windows

BY GEOFF WHEELWRIGHT

The videophone has been a technological twinkle-in-the-eye of hundreds of intrepid inventors and science-fiction writers for the past 50 years or more, but it is the personal computer that may offer the way to finally bring this dream to life.

Videophones - in one form or another — have been around in experimental forms for more than a decade. They all suffered from two major problems — image quality and speed.

Until a few years ago, prototype videophones could either show images at either end as flickering, halting, black-and-white affairs or as even more halting color images. Voices also tended not to be in sync with the images of the people who were speaking.

The image quality problem had a lot to do with the lack of high-definition small screens that could be fitted inside a videophone. By its very nature, the videophone really needed to be not much larger than an existing telephone, and getting high-quality monochrome or color displays that could fit in that space was a tall order.

The biggest culprit in the whole sorry mess was the speed of transmission. If that could be fixed, all the other problems would melt away. Most of the videophone systems produced in recent years have only been able to show between 10 and 20 image frames per second. It is generally accepted that in order to achieve smooth, "full motion" video at least 30 frames per second is required.

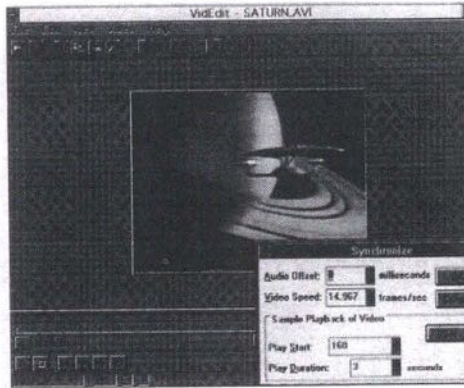
Sending 30 frames of complex video information down the telephone line every second is no easy feat — and one which gets even harder when you start adding in

the more detailed information needed to process color images.

The telecommunications industry thought it had licked part of the problem a few years ago by moving to install premium-cost "integrated service digital networks" (ISDN) — so that the information sent out over a 'phone line would be digital, just like that handled by computers and compact disc players.

When information is stored in digital format, it can be more easily manipulated by systems that incorporate computer processing power. Although these have been helpful, they are by no means installed universally and are not the only key to the solution.

And this is where the personal computer comes in. To get the kind of performance and quality necessary to make digital videophone technology an affordable reality, you really need a good deal of com-



puter processing power to "shuffle bits around" on the screen.

You also need high-quality, colour, flat-screen displays and data compression/decompression software. The usefulness of the former is obvious, while the latter is required by videophone systems to "squeeze down" the amount of information needed to be sent over the phone line and to expand it again when it has

been received the other end.

PCs have been doing all these things quite successfully in recent years. Processing power is now approaching that of the mini and mainframe computer world; high-quality, color flat-screen displays are in common use in notebook personal computers; and compression/decompression software is an everyday part of many PC users' software utility libraries.

The final link in the videophone/personal computer chain came last month when PC software and hardware giants

Microsoft and Intel announced Microsoft Video for Windows digital video software and Intel's Indeo performance enhancement software to go with it. These offerings open the way for creating, editing and incorporating digital video into personal computer applications.

The key to this is what both the computer and telecommunications industries call the CODEC — the code for compressing and decompressing video information. One of the barriers to real progress in the videophone market has traditionally been lack of a standard CODEC.

Video for Windows includes three CODECs — which offer a range of compression/decompression algorithms that start with the ability to show simple computer animations and extend to full-motion, color video at the top end. The CODEC you use depends on how powerful your computer is.

So what, you may well ask, has all this got to do with the videophone? The answer lies in the advances made by personal computers in telephone-based communications. It is now possible to communicate data between two computers at very high speeds using standard computer modems over ordinary telephone lines or ISDN switches.

By turning full-motion video into just another piece of digital data, Video for Windows opens up the way for personal

Continued on page 38

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Morphing on the Amiga

BY CONIAH CHUANG

Morphing has arrived on the Amiga in full force. What started as a trickle with Deluxe Paint IV and ImageMaster is now a tidal wave with the addition of CineMorph and Morph-Plus.



Deluxe Paint IV

Electronic Arts' Deluxe Paint introduced image morphing with the release of Version 4.0. It offers automatic morphing of any two bit-mapped brushes. While the effects were interesting, it offers no control on how the morph takes place. It is the easiest package to use.

To create a morph, load the destination image and cut it out as a brush. Copy the brush to the spare brush (menu item BRUSH/SPARE/BRUSH->SPARE). Load the source image and cut it out as a brush. Select the BRUSH/SPARE/MORPH from the menu and enter the number of frames you wish to render. The morph will take about 30 seconds per frame on an 68040-based system. Once the morphing is finished, you are left with an animated brush. You can save the animation brush or stamp the brush onto screens to create an animation file.

The morphing is quick (28 seconds per frame in our example), but not of high quality. It morph is more of a modified dissolve. Deluxe Paint is also limited by the Amiga's native resolutions. The advantage of Deluxe Paint is the fact that it is an extremely well-known Amiga title. Chances are, you purchased (or will purchase) it because it is the number-one-selling paint program. The morphing is just another feature in the most full-featured paint program available. (Figures 1 and 2)

ImageMasterFC (Version 9.11)

Black Belt Systems' Imagemaster introduced user-controllable morphing. Using

two screen quarter-screen images, you specified through control points where you want pixels in the source image to end up. Points around the control points were interpolated. Control points are specified by source and destination points placed on the source and destination images. A third figure at the bottom of the screen shows resulting movements in vector form.

To create a morph, load the source image into the primary buffer. Load the destination image into a secondary buffer (hold primary). Select the Image Composition button. Select the Special Compositions button. Select the Morph button. Add control points to the source image. Place control points at key locations such as at the corner of mouths, eyes, etc. After a large number (>200) points are added, select the Move Points button and move the corresponding points on the destination image. The active point on both images is highlighted to assist in determining where the destination point should go. Once all of the eye, ear, mouth, edge of head, etc. points are lined up, select the Set Controls button to specify the image size and number of frames you wish to render. Finally, select the Sequence Generate button to create the morphed frames. Be warned, this can take a long time with ImageMaster.

The major drawback with this package is its rendering speed. A 768 x 480 24-bit frame took over 38 minutes (2280s). The other strike against this program is the lack of precision in placing the control points. Since the source and destination images

are only quarter-screen sized and there is no option for zooming in, the control points are only accurate to within 4 pixels at best. The quality of images created is good and it always works with 24-bit images. ImageMaster can process image sizes limited only by memory. ImageMaster is best known for its long list of image-processing capabilities and not for morphing alone. While its morphing features have been superseded by newer software packages, its other features still make it a worthwhile investment for those in the graphic arts (Figures 3 and 4).

CineMorph

GVP's CineMorph is the first morphing-only package for the Amiga. It takes a different approach to specifying control points. Rather than using vectors, CineMorph uses a grid and rather than using points, it uses vertices. The analogy used is a flat elastic material which you can stretch and shrink at various points, but at no time can the surface overlap. The user-interface utilizes the classic two-image format (Figure 5), but adds the ability to resize the image windows to any size, up to full screen.

To create a morph, select the source image window and then choose the CELL/LOAD IMAGE menu item to load the source image. Select the destination image window and choose the CELL/LOAD IMAGE menu item to load the destination image.

Once both images are loaded, CineMorph automatically generates a 10 by

10 grid of control vertices on the images. Move control vertices that are close to key locations (eyes, etc.) to the exact location on both source and destination images. Add control vertices by adding either rows (Right-Amiga+<R>) or columns (Right-Amiga+<C>) below or to the right of the selected control vertices. Once all of the key locations have been accounted for, set the render type (menu title: RENDER) and then generate the animation by selecting the MORPH/RENDER ANIMATION (Right-Amiga+<G>) menu item. A status bar and quarter-screen representation keep you informed of the work in progress. You can alternatively choose to render a single frame or a sequence of individual frames rather than an animation file.

Out of the box, CineMorph is the easier of the two morphing heavyweights to learn since the grid clearly illustrates the concept. CineMorph is also very fast at rendering the frames, with our example taking only 98 seconds. The rendering times were the same for interlaced HAM (4096 colour 368 x 480) and 24-bit interlaced hires (16 million color 768 x 480) frames.

CineMorph uses the original images for the rendering and then remaps the output to fit the render size and type you specify. It supports variable image sizes but both source and destination images must be the same size.

The knocks against CineMorph are its lack of zoom and the restricted degrees of freedom of control vertices. Because of the elastic material analogy (and the grid), you cannot have control vertices cross each other. This simplifies the morphing algorithm, but puts restrictions on the types of morphing CineMorph can render realistically.

Advantages of CineMorph include its ease of use (especially out of the box), ability to automatically render animations and its very quick rendering times. For simple morphing operations, CineMorph is the quickest way to get the job done and an ideal tool for hobbyists. (Figures 5 and 6).

MORPHPLUS

The latest morphing package to appear on the Amiga is ASDG's MorphPlus. MorphPlus uses a modular approach. The package actually consists of two programs. MorphPlus is an update of ASDG's Art Department Professional with additional Savers, Loaders, and Convolutions. It is the image processing and morphing engine. Because of the scope of this article, I will not discuss the features in the MorphPlus module.

Morph is the user-interface module (Figure 6). It displays only one image at a time. The image can be the source, the destination or a combination of the two. The combination is a dissolve selectable at 10% increments. My initial reaction to the interface was one of confusion, but after using it

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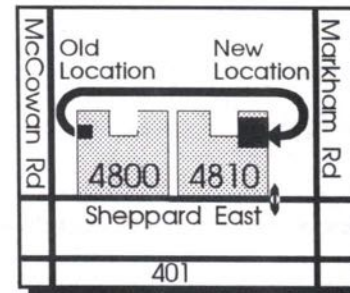
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newsbytes

EXCLUSIVE NEWS

New For Macintosh: Miniaturized Docking Unit For PowerBook

MINNEAPOLIS, MINNESOTA (NB) — Envisio Inc., has announced Dynamic Duo, a portable docking unit designed to compete with those just introduced by Apple Computer for its recently announced PowerBook Duos.

The Dynamic Duo is about the size of a deck of playing cards, incorporates 16-bit video and stereo sound capabilities, and can display up to 32,000 colors on 13-inch monitors at 640 by 480 resolution and 256 colors on 16-inch displays at 832 by 624 resolution. Envisio says the unit works with Apple monitors up to 16 inches, the Radius Color Pivot, most VGA-compatible monitors, and LCD (liquid crystal display) panels. Users can add an NTSC upgrade for output to a television or VCR. The unit weighs about five ounces.

Expected to ship in January, the Dynamic Duo will be priced at about \$600, and the company says it will be the first of several docking units offered.

Envisio also markets Color Frame, a flat-panel, active matrix color display for PowerBooks as well as most desktop Macs and PCs. ColorFrame can be combined with Dynamic Duo. Previous Newsbytes stories have reported Envisio's 8-bit and 16-bit color display adapters for the PowerBook, which are installed in the PowerBook's memory slot and are available with memory configurations up to 8MB.

Contact: Envisio, 612-339-1008, fax 612-339-1369.

New For Macintosh: Star Trek Screen Saver

BERKELEY, CALIFORNIA, (NB)—Berkeley Systems has gone where no one else has gone before. Three months after announcing an agreement with Paramount Pictures to create a line of Macintosh

screen savers based on the Star Trek television programs and movies, the company has introduced "Star Trek: The Screen Saver."

Screen savers are software programs that generate images on a computer monitor after a predefined period of inactivity, thereby protecting the screen from damaging "phosphor burn" caused by static images.

According to Wes Boyd, Berkeley Systems president and founder: "Yesterday's Star Trek generation is today's computer generation. In fact, 53 percent of all Americans call themselves Star Trek fans. With the Star Trek screen saver, these people will be able to beam themselves aboard the USS Enterprise with all of their favorite Star Trek characters. As Star Trek

fans, our standards are as high as the original series, so we have created an entertaining combination of Star Trek sights and sounds which capture the magic that has made the show a classic for more than 25 years.

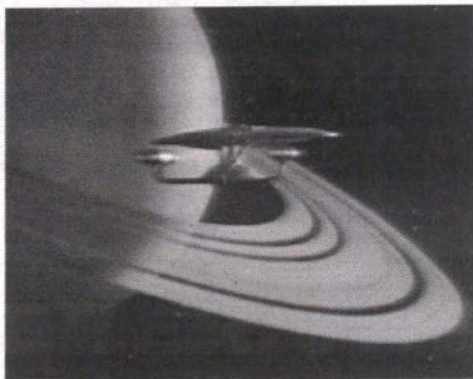
Captain Kirk, Spock, Scotty and Dr. McCoy all make "digitized and animated guest appearances" in the program, which, according to the company, features their actual voices. The program also features original theme music from the television series.

Newsbytes originally reported on Berkeley Systems'

agreement with Paramount Pictures in August.

The company is best known for its After Dark screen saver program for both the Macintosh and Windows platforms, which features such images as flying toasters. Newsbytes reported on the introduction of After Dark 2.0 for Windows at the beginning of 1992.

Contact: Ann Crampton, Berkeley Systems, 510-540-5535



COMDEX REPORT • COMDEX REPORT •

Comdex: Lunch With Pat at Piero's

LAS VEGAS, NEVADA (NB) — Reporters, who are not among America's wealthy, can seldom resist a free lunch. So one of the nicest ways to get away from the Comdex rat race during the show is to trek across the street to Piero's Italian restaurant, where PR person Pat Meier hosts daily lunches for keyboard-pushers.

Even amid the tortellini, chicken-and-eggplant and Caesar salad, however, you can't escape the show. Pat's picking up the lunch tab only because her clients are demonstrating their products all around you.

Compton's NewMedia drew the most attention with its new CD-ROM Compton's Interactive Encyclopedia for Windows. It features a new technology called Virtual Workspace, a new interface which lets you "map" research and save topics for easy retrieval. The system lets you open many windows simultaneously, so you could have a picture, sound, and text in the background all at once. The system lets you work the way you would in a real library, depositing information into piles, then retrieving and organizing it later.

Prosonus featured Mr. Sound FX, with sound effects done by comic actor Michael Winslow, best known for his work in the film "Police Academy." The same company offers MusicBytes, with license-free selections from rock musicians who have

worked with Pink Floyd, the Doobie Brothers, and Toto. DigiVox, meanwhile, offered Sound Impression, a desktop recording studio which combines recording, editing and mixing capabilities.

PC-Kwik was demonstrating its Power Pak and Super PC-Kwik Version 5.0, along with their WinMaster product for Windows. Power Pak includes tools for disk caching, multiple DOS boot configurations, and more. PC-Kwik used to be called Multisoft. Reference Software was showing its Grammatik style checker, although most writers seemed to prefer human editors.

Virtual Reality Laboratories had large color monitors for its Vistapro 3.0 program, which offers 3-D simulations using real data from the U.S. Geological Survey and NASA. And Viscorp — not Visicorp but Viscorp — offered ED, an information access appliance described as "videotext for the masses." It allows you to access on-line services through a TV, and includes a modem and speakerphone, as well as an address book and mouse pen.

Finally, a new product from Moon Valley Software is called Icon Make-It. This is a new utility under Windows which lets you freely create your own designed icons, along with customized sound. The product's box features a hologram of a rabbit.

Contact: Pat Meier Associates, 415-957-5999.

Kahn Keynote: Software Needs To Change



LAS VEGAS, NEVADA (NB) — Borland CEO Philippe Kahn presented the Comdex/Fall 92 keynote address to a packed house in the Hilton show room. His message was clear—that hardware

power is increasing at an exponential rate, and software has to change to be able to keep up.

Queues formed for almost two hours and many attendees were unable to get in, so popular was his presentation. Using a mixture of talk, live interview and live-to-video cuts he demonstrated that tomorrow's applications were already being seen, but that the rate of software development had to be accelerated.

Kahn said that Intel Chairman Gordon Moore created "Moore's-law" which said that every 18 months the number of transistors on a chip would double. He then introduced Intel's Andy Grove and they discussed what we could expect by the year 2000.

They decided that the "Pentium 2000" would have 100 million transistors, and that the machine it went in would have hundreds of megabytes (MB) of memory and gigabytes (GB) of hard disk space, yet still cost the same as an average PC of today. Grove said he expected memory to cost \$1 a MB by the year 2000.

Kahn then started to tell a story about the San Jose Police Force and its use of PCs. Stepping onto a platform he was transported (by pre-recorded video) to an outdoor scene where he rode off on a motorbike and was duly pulled over and booked.

The point of the exercise was to show a notebook application using object-oriented programming to create an interface that

was not only simple and intuitive, but that was many times more time-efficient than manual methods. The software's author was a user—a San Jose cop who came to Comdex last year and saw what was possible so he went home and wrote the software himself.

To demonstrate the changes needed in software writing, Kahn showed that using conventional code-writing techniques, by the year 2000 it would be virtually impossible for any size development team to create a large application before it became obsolete.

This is because it would require something of the order of 10 million lines of code. "Philippe's-law" says that the productivity of a software engineer in a team of N people is diminished by dividing it by the cubic root of N. For example, an engineer in a team of eight will only be half as productive.

However, by using object computing, full-powered applications can be developed using far less programming. He said that object-oriented programming could be summed up as "divide and conquer," so that reusable components could be shared between applications. It is also about using object component architecture and solving the usability issue.

And what does Kahn think that means for the industry? "It means that we fundamentally change our business. The software industry will become more like the semiconductor business with factories building various components. They could be full-scale products like word processors, or a simple text engine component."

He said that we will see some people producing software like PC components, and others assembling and marketing them like PC manufacturers. "Object-oriented computing will bring the power of computing to everyone, everywhere. Personal computing changed the way people worked — object computing will change the way the world works. This is the wave of the future!"

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COMDEX: Pulse-racing Displays At Sun Microsystems' Booth

LAS VEGAS, NEVADA (NB)—The video technology was confusing and while crowds were heavy it was difficult to find something COMDEX attendees were excited about. However, the pulse-racer of the show was Sun Microsystems' demonstrations of Windows 3.0 and Macintosh 6.0.7 applications on the SPARCstation 2 in its hands-on technology talks.

Sun started each morning at 10 am issuing tickets to its twenty-minute hands-on demonstration and by 10:30 all the tickets were gone. The company gave out totebags to those who attended the demonstrations, but Newsbytes saw several people leave the demonstration so excited they forgot their totebag.

The hands-on demonstration featured 20 SPARCstation 2 machines connected locally. Attendees were walked through a brief introduction to the Solaris operating system, a multimedia mail tool, calendar manager, Sun PC, Liken, and Show Me.

The multimedia mail tool allowed users to play a video clip and play back 16-bit compact disc-quality audio in a manner

similar to the way every other multimedia display did at the show. Attendees perked up, however, during the part of the demonstration in which they were able to start Sun PC, a DOS emulator and Liken, a Macintosh emulator. During the demonstration, users started Sun PC, got the DOS prompt in a window on the screen, then typed "win" to start Microsoft Windows 3.0. The Windows application was left running while show-goers were instructed to start Liken for the familiar Macintosh environment on the screen.

The most fun part of the presentation that prompted people to laugh and joke with each other was the demonstration of Show Me, a shared whiteboard application. Users were instructed to start Show Me, then draw with their cursor that took the shape of a small pen on the white screen surface. Users were instructed to give a command that made it obvious that each set of two SPARCstations were networked, because two Licens appeared on each station, a red line representing one user and a blue one representing the person seated

next to it. That's when the demonstration became fun. Users began playing, scribbling over each other's drawings, erasing parts, adding funny symbols to the other person's artwork and generally just having a good time. Typing on the keyboard produced text on the whiteboard in the same color. After playing for a while, one user of the pair connected was instructed to expand the Show Me window over the entire screen and give a command which produced their screen on the display of their partner. Then both users viewed a spreadsheet on one screen, making notes and drawing symbols on top of the spreadsheet itself.

During the demonstration, a 486-based add-on board was displayed to the audience as an optional addition to a SPARCstation which allows it to run DOS and Windows applications. Plans have also been announced for SunPC to support Windows 3.1 emulation and Liken to support System 7.

Sun was also demonstrating its new SPARCclassic, a \$4,295 (\$3,995 in quanti-

ties of 12) low-end Sun workstation. The Classic, however, will not yet support SunPC or Liken, Sun representatives told Newsbytes. The new \$7,995 SPARCstation LX was also being demonstrated, as was Sun's technology for downsizing, the SPARCcenter 2000.

Sun was also demonstrating technology planned for Solaris in which Microsoft Windows 3.1 applications including Program Manager from Windows 3.1 (which is simply another Windows 3.1 application) was running on a SPARCstation. Sun representatives declined to comment on when users can expect to see a Solaris operating system that will run Windows 3.1.

Contact: Carrie Dillon, Sun Microsystems, tel 415-336-3564, fax 415-969-9131

Comdex: The Logistical Nightmare

LAS VEGAS, NEVADA (NB) — It's the show that ate Las Vegas whole. Comdex/Fall '92 had an estimated 145,000 people attending its exhibits and conferences, making getting around Las Vegas a logistical nightmare.

Getting a cab from the Convention Center at 11 am was not too bad. Getting back was. No cabs were available at most hotels, even mid-day, and lines at the show sites for buses stretched for blocks.

Getting to far-off show sites like Bally's and the Tropicana became an all-day affair. Even more complaints than usual were heard about surly hotel clerks, who dislike Comdex because, while it fills their rooms, it empties their casinos. Many exhibitors added to the confusion by refusing to use the new system of showcases the Interface Group employed a few years ago to help visitors make some sense of the exhibits. IBM was the only "good guy," dutifully

buying booths everywhere, including the Main Hall.

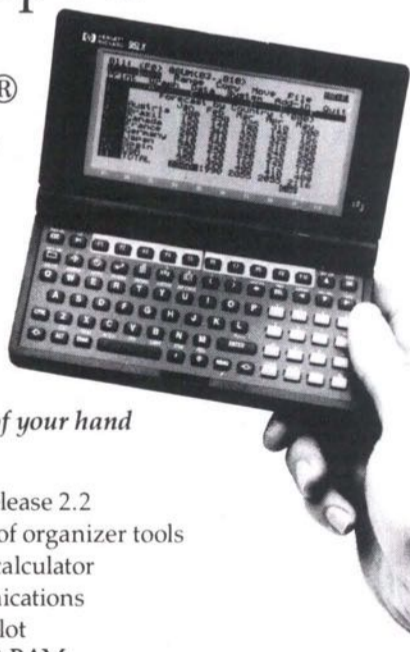
But if you wanted multimedia, leading vendors like Apple and Microsoft were only in the Main Hall. If you were interested in mobile computing, vendors were spread everywhere: the Sands, the Main Hall, and the South Annex, formerly the West Hall. Only the networking showcase, moved this year from the Mirage to a new section of the Las Vegas Convention Center called

the North Hall, seemed to have all this technology's major players in one place.

Much of this could have been avoided had the Interface Group been able to build the second leg of its Sands Convention Center, as it had hoped. All the outlying show sites — the Riviera, Bally's, and the Tropicana — could have fit easily inside a second section of the Sands, with room to spare.

Contact: The Interface Group, 617-449-6600.

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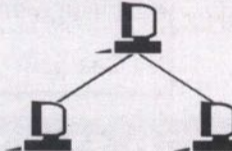
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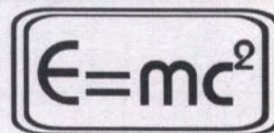


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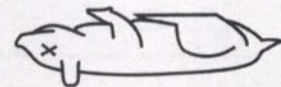
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Continued from page 33
 systems. Computer... long been used to having on-line conversations, dialling into central computer systems and typing messages to one another.

If you then treat this video information in the same way, live video signals from an ordinary camcorder video camera can then be sent down a phone line without the need for any additional equipment. Sound, meanwhile, would take its regular route on a shared data/voice line (quite common in many ISDN systems).

While this isn't the way that the telecommunications companies such as AT&T, Japan's NTT and British Telecom

— which have each invested heavily in their own form of videophone technology — would like the market to evolve, the performance edge and sheer marketing skill of the PC companies may move things in another direction.

Cost will be a major factor. Video for Windows, for example, will only cost you 139 pounds sterling and can be used on most modern desktop PCs. Although the cost of a basic video camera and some video communications software will add to that bill, the production volumes for such products will inevitably make them only a small premium over the cost of a PC.

And that could change the way you look at your PC forever. ■

Editorial: Comdex BY DANA BLANKENHORN

LAS VEGAS, NEVADA (NB) — Every Comdex has its own texture, its own flavor, which can usually be summed up in just a few words. In the decade I've been covering the shows, I've seen Comdexes dominated by new chips, by new concepts like desktop publishing, and by new software like Windows.

This show was different, having not one but two themes. Multimedia, while it remains a technology looking for a market, was one of those themes. IBM has grabbed for the complexity of multimedia in order to find new uses for its "big iron" ES-9000 mainframes, now pushed as multimedia file servers. Digital Equipment, Texas Instruments, and other big computer makers have the same hope. Video for Windows and QuickTime for Windows, along with products supporting one or both, added sizzle.

How high the flame burns depends on real people finding real uses for all this great technology — there remains no guarantee of that happening.

The other theme here was mobile computing, which I prefer to call field computing, if only because it describes the idea from the point of view of the person, rather than the computer. Half of all US workers remain uncomputerized, unautomated. Many others find themselves in that situation part-time. Reporters at this show lugged around laptop computers, but took most of their notes using pads and pens.

This show offered a way out, with hardware and communications which adapt to people, rather than force an adaptation. AT&T's Personal Communicator embodies all these themes, with its Go PenPoint operating system, its links to cellular networks and fax systems, and its promise of more to come. Pen-based hardware, on the whole, remains primitive. Some reporters were hoping for a voice-to-text translation system that would let them take notes automatically for use later, requiring that they only

identify speakers in some way. That's coming. So are cellular packet networks, and radio data networks running fast enough to be useful.

Some companies have already used elements of this technology to do amazing things. Abbott Labs salesmen use cellular modems to report on their sales calls from their cars, and to get more appointments from their offices. WalMart uses a version of this technology to check prices in its aisles, and to pick new inventory from warehouse shelves. Of course, we all know about the FedEx guy and the UPS gal, carrying handheld terminals with bar-code readers so operators can tell us exactly when our package was delivered, and who signed for it.

The challenge now, and it's a big challenge, is to use field computing technology to automate knowledge workers: reporters, engineers, doctors, lawyers. All these people know how to use technology, they get PC benefits in their offices all the time, then they walk out the door and — boom — they step back in time 20 years, to an era when personal computers were only a dream. If they do have laptop units, they're used as glorified typewriters, or presentation tools.

Field computing, bringing computer and communications technology to our lives outside the office, is just beginning its evolution, and already people are creating valuable, cost-effective applications with it. Multimedia, which seems to have reached a climax of simplicity and power at this show, may still be looking for a market.

But time will tell on all of this. Just as supporters of losing political candidates content themselves knowing there's always another election, supporters of every technology know that, for all its hassles, there will always be another Comdex.

Contact: Kim Pappas, The Interface Group, 617-449-6600.

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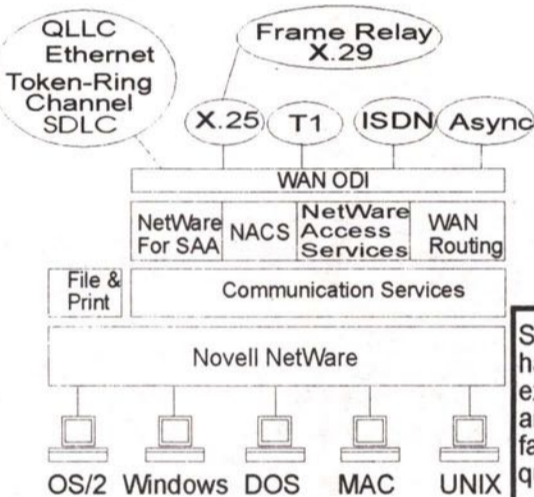
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PC NEWS

New For PC: UltraFAX From ZSoft

MARIETTA, GEORGIA (NB)—ZSoft Corp. has announced UltraFAX 1.0, a Windows fax communication and management program.

UltraFAX features include image processing, unattended file transfer, multi-document viewing, drag and drop, plus the ability to create cover pages with Windows-based programs. The program also has optical character recognition (OCR) capabilities, supports scanners, and can send and receive faxes in the background while the user is working in another application.

Once a fax has been received it can be converted into an editable text file using the built-in OCR capability to edit faxes with the user's favorite word processor. The received fax can then be re-faxed. UltraFAX also includes a viewer, and the editing software includes drawing capabilities.

The package's document management allows the user to drag documents between windows to create files and cover pages in different applications then combine them into a single fax document.

In July Newsbytes reported that Wordstar International had signed an agreement to acquire ZSoft, best known for its popular PC Paintbrush program. Earlier this month the two companies announced an upgrade to Photofinish, a Windows image editor that ships with 200 clip-art images.

Contact: David Manning, ZSoft, 404-514-6387, fax 404-427-1150

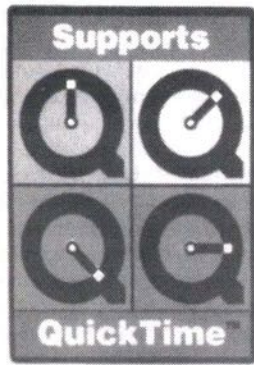
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"Well, as it turns out, the turkey in the company raffle is none other than old Edsy down in accounting."

Indeo Codec For QuickTime



SYDNEY, AUSTRALIA (NB) — New Video Corporation, a California company specializing in multimedia hardware and software, has announced QuickTime Support of the Indeo codec technology.

The Indeo technology allows real-time compression (when authoring) and decompression of full-motion video at up to 30 frames per second.

The work on the Indeo codec was carried out in collaboration with Apple Computer, whose QuickTime system extension allows users to view multimedia images and sound on almost any Macintosh. QuickTime has also recently been announced for Windows, and will be available worldwide on November 23rd.

The announcement of Indeo support in QuickTime would heat up the Microsoft Video for Windows vs QuickTime debate—one of Microsoft's reasons for its claim that Video for Windows is superior in its built-in support of Indeo. Apple has also announced that the newly developed Indeo codec will be incorporated in future versions of QuickTime.

Apple will now be able to lay claim to a cross-platform, persistent interface for video/audio playback and recording through QuickTime, an important feature of QuickTime as more and more companies, both hardware and software, announce plans to release multimedia-

based products. The companies that have already announced support for QuickTime for Windows include Claris (which has announced its FileMaker Pro 2.0 for Windows will support QuickTime for Windows), SuperMac Technology (supported in its VideoSpigot real-time digital-video capture card), and Creative Labs (makers of the Sound Blaster sound card). Apple already claims over 500 Mac applications have been announced to take advantage of QuickTime, and 300 have already reached the marketplace.

The New Video codec will allow any Mac to play back files from both the Mac and PC environments in the Indeo format. For companies involved in the Indeo multimedia titles, when used with the EyeQ Authoring system, compression is performed in real-time as the data is recorded. New Video claims this makes Indeo video the only software-based real-time compression system available. Although best results in playback will be achieved with the EyeQ Playback system on the Mac or a PC or PC-compatible with Intel i750-based hardware, with the inclusion of the codec in QuickTime, almost any user of either version of QuickTime will be able to view the video data with no additional hardware (although a sound card will need to be installed on the PC for sound support, and quality degrades with less powerful machines on both platforms).

The New Video Indeo software-based QuickTime codec will be available from January 1, 1993.

Contact: Suzanne Fulko, New Video Corporation, phone (310) 449 7000,

TRENDS

Cyber Arts Show Overview

PASADENA, CALIFORNIA (NB) — The Cyberarts Show, held in Pasadena, California, recently was more corporate and less artsy than in previous years. Some of the home-made look is leaving the show, and the show was much more about sales and much less about art than last year.

Art was still there, but booths that once held artists whose multimedia statement was an old motorcycle helmet with a Viewmaster in front, Walkman headphones taped inside, and a Vicks Vaporub Inhaler at nose level were replaced by Edison Brothers Entertainment, who were letting attendees have a turn at the type of virtual reality planned for the Star Trek mall attractions announced by Paramount in September.

Cyberarts attendees were lined up to play the Edison Brothers shoot-out game, where two players on round, raised platforms put on headgear and hold guns that look like laser pistols to chase each other through laser columns in a black-and-white tiled virtual world. Edison Brothers employees told Newsbytes this is just one of the games players will be able to choose from and the actual game introduced in the malls.

Autodesk was there demonstrating its Animator Pro and 3D Studio products, HSC was demonstrating its 3-D software for the Macintosh, Pactal was trying to sell cellular phones, artists were selling lighted pieces of old circuit boards as jewelry or wall decorations, and other high-tech trinkets were being offered. Much more emphasis was placed on movies and animation than in the past and much less emphasis on sound and music was present this year compared to last year.

One artist, F.C. Tull, was offering Cyberart "talking" paintings, a collection of

paints backlit and run together on a 28 by 24-inch old circuit board so the circuits visually echoed through with a voice recognition system on an IBM clone personal computer. The painting talks using a Covox Speech Thing with a hidden microphone and the artist said a user could program the painting to respond to pre-programmed "cue" words with one of over 1,000 twenty-four second recorded responses. The paintings were priced at about \$3,500.

Show attendees could put a \$5 deposit on a card with an embedded chip which was encoded with their personal address and information. On the show floor, a group of PCs with slots to insert the card offered attendees the chance to ask questions; and vendors could also take the cards instead of asking for a business card or written information.

A new magazine on disk, "Cyber Rag" from Electronic Hollywood, was available in monochrome or color for Macintosh computer users. Electronic Hollywood says the magazine was programmed in Macromind Director and includes art, animations, editorials and cyber art reviews for only \$6 an edition. The disk was produced by Jaime Levy, who was at the show and describes herself as a "hacker chick."

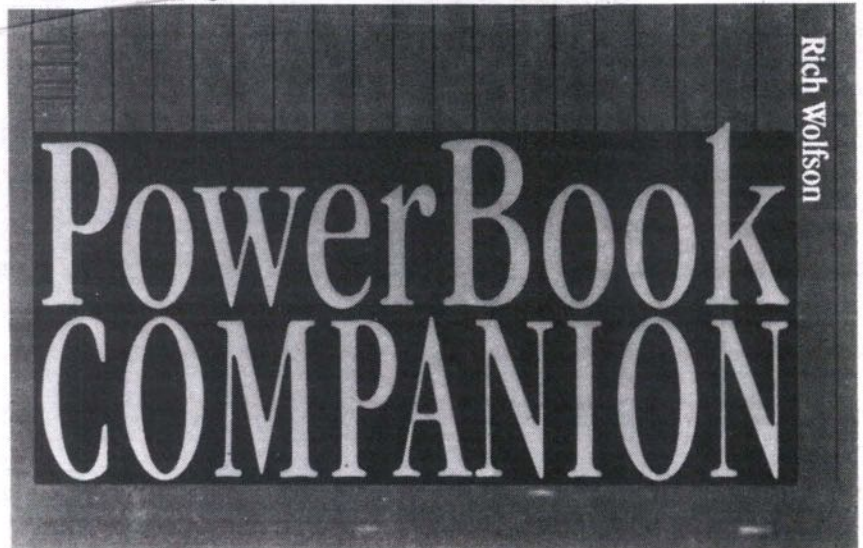
The show was an unusual one as it offered child care for \$6 an hour during the show and from 8 pm until midnight on Halloween for parents who wanted to attend the Cyberarts Halloween party held at the Pasadena Hilton and sponsored by Keyboard magazine.

Conference sessions were also offered during the show with a lot of emphasis on developing multimedia titles.

Contact: F.C. Tull, tel 510-455-6927, fax 510-462-8330.

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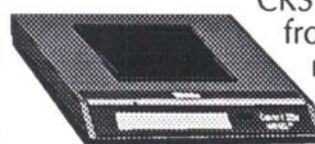
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opinion BY KATE ANDRUS

Women, Brain Sex & Computers — A Reader's Response

This letter was received in response to last month's Letter from the Editor on this topic.

The question was, "Why aren't women as interested in computers as men?" The answer given used the nouveau science of "Brain Sex." Physiological differences, interpreted once again to read that women just don't have the "hard wiring" to be drawn to computers. Hogwash — from several points of view.

I'll begin with the baby studies. The facts may be as reported; the conclusions drawn have an interesting male bias. The fact that male babies will gurgle and react equally to an adult as a crib toy is interpreted as indication of some great interactive process at work. The researchers, Moir and Jessel, never consider that the male babies are less able to distinguish between the real and inanimate than the female babies, an equally valid conclusion.

The fact that the girls react more to human faces than geometric shapes or toys is taken as a sign that females are more interested in people and feelings than spatial concepts. The possibility that they simply react more to some source they know will react back is not discussed. The studies showing male babies more wakeful and active are suspect on several levels. The unconscious bias toward encouraging boys to be active and wakeful has probably skewed the results.

Females are encouraged to be quiet, good babies; boys are expected to be wakeful and assertive. Self-fulfilling prophecies. Especially if these statistics are based on older babies, the influence of that unconscious parental bias can't be measured or eliminated. The conclusion that this wakefulness is indicative of a greater awareness or curiosity is nonsense. Being awake doesn't guarantee that some kind of learning process is occurring. Remember, when dealing with statistics: statistically, there is no life in the universe because one inhabited planet divided into an infinite number of planets comes as close to zero as you can get.

So much for the genetic reasoning, let's try looking at the real reasons why more women aren't into computers. Let's examine the differences in the two sexes' lives. Socialization begins very early in this culture. By the age of two most children have been taught that there is gender-related behavior and are absorbing its lessons. Already, the ropes that bind women are forming. Exploration, independence and mechanical inclinations are still actively discouraged in young girls. "Don't play in the mud, you'll get your dress dirty." "Little ladies don't do that." "Is she a tom-boy or what?" These phrases are still commonly heard.

Contrast this with the encouragement that young males get when imitating their fathers' mechanical or technically oriented behaviors. "Look, he's daddy's little helper; he can hammer a nail, too." Or the validation assertive behavior gets: "He's a real boy, he never sits still."

If, by chance, these lessons are not taught by parents, they are taught by peers, teachers and the most powerful one of all, Television. Advertising is specifically targeted at children and the values the commercials show are extremely traditional. That

they are successful in reaching their market cannot be disputed. The toys aimed at females rarely allow the development of skills that would lead to an interest in math or science or computers. Lego blocks for girls exist, but they only build pink houses and baby furniture. Compare that with the tools, building sets, racing cars, that inundate the toy market for boys.

The girls learn that to be accepted they play with the toys their friends do, the toys they see on TV, the proper toys for girls. The limitation of type of toy ultimately leads to a limitation of the definition of what is play and what is fun. According to the toys marketed to girls, fun is defined as structured, purposeful play. Fun is play that imitates life in the role society wants girls to assume: that of a female object of beauty or mother.

Contrast this idea of fun with the one supported for young males in our culture. For them, fun is accepted as any activity that gives gratification whether running and yelling or doing in Mario's enemies. For females, play must have a purpose or a point. Create, produce, emulate, but never do something for the sheer joy of doing it. It's a lesson many of us learn, too well.

Skipping ahead a few years, our education system is just beginning to actively recruit females into the "non-traditional" fields. A scant 20 years ago, I was confronted with a male math teacher who refused to give aid to the females in the class when teaching trigonometry. In his opinion we had no need to understand the subject. He also refused to allow females to join the computer club. Fortunately, these attitudes are slowly changing, but for the majority of women from 25-40, this was our reality; women had no business attempting the "hard" subjects of math, science and computers.

Advancing to the teenage years, when many people have their first contact with computers, socialization has much to do with the level of interest. Despite the efforts of the education system, socially, the values from 20 years ago concerning females are still prevalent. Contrast the lives of teenage boys to that of teenage girls. The male is more likely to have a part-time job and access to money. The female, if she does work, has the expectation of providing her own clothing, sanitary supplies and make-up. The male will likely have his interest in a specific hobby encouraged and the money available to pursue it. Society again supports his play for its own sake.

For most females, acceptable fun is centered around her appearance, fashion and shopping for a potential mate. Lacking the technical skills, money and encouragement to experiment with something for its own sake, many teenage females play the role assigned, afraid to be thought different or

Continued on page 41

Morphing Amiga *Continued from page 34*
combination is a dissolve selectable at 10% increments. My initial reaction to the interface was one of confusion, but after using it for a couple of weeks, I now prefer it to the two-image layout.

To create a morph, select the PROJECT/NEW/STILL MORPH menu item. Fill in the string requesters for Project Name, Source Image, and Destination Image. You can either type in the appropriate paths and filenames or use the file requester by selecting the button to the left of the text string. Select Accept when done. Select Accept for the type of GUI to use. You will have to make sure that MorphPlus is running to continue.

Once MorphPlus finishes loading the two images, you will be greeted with the source image. Use the Scr/Dst slider to adjust the picture so that you can see both source and destination images.

Add control points by using the VECTORS/NEW VECTORS menu or by pressing Right-Amiga+<N>. A line with an open diamond on one end and a filled diamond on the other will appear.

Move the pointer so that the closed diamond is over a key location on the source image. Click the left mouse button to place the vector. Deselect the vector by selecting an area of the screen with no vectors.

Select the open diamond and drag it to the corresponding key location on the destination image. A diamond (end point) is selected when it is outlined. A vector is selected when both end points are outlined. Select a vector by clicking on the line segment.

Using this method, you can move complete vectors or just one of the end points. Add vectors until all of the key locations that change have been specified. To finish defining the morphing action, add points to areas that do not move during the morph. Add points by selecting the VECTORS/NEW POINTS menu item or by pressing Right-Amiga+<M>. A point is represented by a filled circle. Stamp it down with the left mouse button. Once all moving and non-moving areas have been defined, select the OPTIONS item from the PROJECT menu. Specify the number of frames to render, the image size, and where to save the image(s), then choose Accept. Select the PROJECT/ACCEPT menu item to start generating the morph.

While the interface is unique in morphing software, those dedicated enough to learn it will find it very powerful. The single-image display is actually a feature. By using a 20% dissolve at either the source or destination end of the spectrum, one can clearly see the source and destination points without having to move one's focus all the way across the screen. While this is a small issue, when manipulating hundreds of points, the time and eye-movement savings do add up.

MorphPlus allows an infinite zoom to

provide exact precision when specifying control points. Control points are defined by MorphPlus as either a vector (with source and destination points being the ends) or a point (vector with zero magnitude) for specifying points that move and points that don't.

MorphPlus has the longest list of morphing features. It allows you to group, name, save and reload control points. It allows you to hide groups of control points, source or destination points. This permits you to work on one section at a time without cluttering the screen with control points associated with another group. For more sophisticated morphing projects, MorphPlus offers the features to get the job done.

The only drawbacks to this package are its longer learning curve and demand for a well-equipped system. MorphPlus will not run on 68000-based computers and should have at least 6 MB RAM. These requirements are not of concern to the professional user, but may prohibit those who just want to play around with morphing.

Both CineMorph and MorphPlus work on both stills and sequences of pictures for full-motion morphs. ImageMaster, CineMorph and MorphPlus work on 24-bit images.

Conclusions

Deluxe Paint is the easiest to use, but it is also the most limiting in terms of image resolution and user control. CineMorph is the easiest true morphing package to learn. Its output is excellent, but the restrictions on how far control points can move and the lack of zoom limit user control.

ImageMaster produces good image quality and adds many other special effects to image processing, but its morphing feature is hampered by long rendering times. It is over ten times slower than the other three packages reviewed. The quarter-screen representations of the source and destination images provide a good user interface, but the lack of a zoom feature limits the accuracy of the control point placement.

MorphPlus is the most powerful package. It offers all of the tools that a graphic artist would want in morphing software. You can add, group, hide, move, save and load points. You can zoom in or out of an image. Control points have no restrictions on movement.

MorphPlus can handle any size image at up to 24-bit resolution. It takes a bit longer to learn, but the rewards are definitely worth the effort.

Having now used all four of the above packages extensively, I have to agree with ASDG's claim that "MorphPlus is the choice you should make". If you have the hardware to support it, that is. Otherwise, CineMorph will produce very good results for those with 68000s. ■

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Opinion *Continued from page 40*
 unusual. For them, developing an interest in computers is considered both.

Moving onwards to the later years. Women make only 70% of the income men do, on average. Many of them are raising children. Lacking time and resources, how does a woman cultivate a hobby that is hardly inexpensive and major consumer of time? The hobbies society does accept for women are productive ones: sewing, knitting, making or producing something tangible. Running a BBS won't produce winter sweaters or pictures for the wall. Nor will benching the NRAM settings in a new modem put dinner on the table, read bedtime stories or do the laundry.

Our priorities have been set for us by society: caretake the others first, then think of ourselves. We are trained to feel guilty if we spend four hours setting up a memory configuration, because there is always so much else we are expected to be doing. For most adult women, first long-term exposure to computers comes on the job-site. Data entry, word processing are what a computer means to them. It is a tool, a means of getting work done. Who encourages them to find out otherwise?

The reality of less money, less time, more personal responsibilities and a society that defines fun for women as only an extension of her duties as caretaker and nurturer, are the real reasons most women don't pursue computing as an interest. It has nothing to do with "hardwiring" of the brain.

Fortunately, humans come with source code — our behavior is modifiable. There are some of us who escaped the modeling for women. We were encouraged somewhere along the line to explore our technical competence. With that competence came confidence to try the new and unexplored and have fun with it. We learned to redefine fun as the ability to enjoy something for the sheer joy of doing it, because it was there. As soon as the opportunity pre-

sented itself, we poured our time, effort and energies into conquering the new technology.

Our numbers are growing. Daily, on the network my BBS is connected to, I see new females posting in the Front Door echoes, see new female sysops asking about software. From young teenage girls to grandmothers, women are rejecting the role and starting to make their presence known. But it's a slow process without help. This is where women with computers are and why.

Some of the problems keeping women from computers such as lower levels of income will take years to change. But others can be changed now, before some bright light decides a pink computer or a fashion column in *PC Magazine* will hasten the interest of women in computers.

Listen carefully: you don't have to change the computers nor the articles about them. Change instead the attitude that says, "Computers are really a Male thing that only men truly understand." End the conspiracy of silence that says "Shhh! don't tell anyone, but computers are really fun!"

Most importantly, women of all ages have to be encouraged to "just wanna have fun." How? The most effective way possible: a one-to-one basis. In practical terms: show you reject the attitudes that limit women to the stereotypical role by sharing the burdens placed on the women in your life more; encourage the time spent learning and doing. Help them deal with the guilt at doing something outside the norm by supporting the action, loudly. Help your daughter, your mother, your mate to learn to enjoy "climbing the mountain, just because it's there." She'll be quoting IRQ addresses and demanding a 16.8K upgrade in no time.

Kate Andrus is a freelance journalist, moderator for the IMEX Feminist Echo, ombudsperson for IMEX Canada, and mother of three.

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Baud Rate			14.4 Kb	9600	2400
PC Support		Yes		Yes	
Mac Support	Yes	Yes	Yes	Yes	Yes
Other Support					
PC Mac File Conversion	Yes	Yes	Yes	Yes	
Laser Output DPI	300 DPI	800 DPI & 300 DPI	300 DPI	300 DPI	
Laser Output	GCC BLP II	LaserMaster & Apple	Apple LW II NTX, IIF	Apple LW	
Laser Output Max size	8.5x14	8.5 x 14	8.5 x 14	8.5 x 14	
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Imagesetter Brand			AGFA Project 9800	Linotype 200P	Linotype
Imagesetter Max size			13.3" wide x 54" length	12" wide	11.7" x 24"
Color Output DPI		360 DPI	300 DPI	300 DPI	
Color Output Brand of Printer		Canon	AGFA Tabscrip C500	Tektronix	
Color Output Type of Printer		Bubble Jet	Thermal Wax Transfer		
Color Output Max Size		11" x 17" Tab	11.7" x 17.1"	8.5" x 14"	
Color Scanning DPI		600 DPI interpolation	up to 1200 DPI	400 DPI	
Black and White Scanning DPI	300	600 DPI interpolation	up to 1200 DPI	Yes	
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This is an update to the original Service Bureau Survey that ran in our November 1992 issue.

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faster and more sophisticated rendering ability.

Somewhat atypically for a computer that is sometimes accused of not having enough first rate software, the show was the scene of some serious jockeying for first place by rival Amiga software developers with superb new programs. Toronto based Gold Disk previewed their new versions of Professional Page, Pagesetter and Professional Draw desktop publishing products, while a few yards away. St. Louis-based SoftLogik showed PageStream 2.2, and their new Art Expressions and font editor programs. Both publishers offer compatibility with the new Amigas. On balance, although Gold Disk may still retain a slight lead as the preferred DTP software vendor, particularly in Europe, Soft-Logik's latest offerings are at least as good.



Similarly, Electronic Arts, whose Deluxe Paint for the Amiga (in its four incarnations, versions I through IV) has been the uncontested leader in Amiga paint software since 1985, was finally faced with a serious contender, Digital Creations' "Brilliance" paint program.

E.A. made a strong showing for the latest version of Deluxe Paint (version 4.5), with E.A.'s San Mateo multimedia director Orlando Guzman, and Toronto computer

Animator Derek Grime wowing a constant crowd with 262,000-colour graphics on the new Amigas.

Over at the Digital Creation booth, John Botteri, president of Folsom, CA-based Digital Creations stated, "We think that our new Brilliance paint program will offer a new standard in high end graphics and

video capability on the Amiga. We have some of the creators of Deluxe Paint working on this program (Brilliance), and they have basically taken all the things that they didn't like about DPaint, and fixed them,

and all the things that they did like, and made them better, and then added a whole bunch of great things that nobody at E.A. has even thought of yet, and added them." There were many other offerings to the solid display of high-end multimedia and graphics products from the Amiga developer community. Toronto animators Derek Fullerton and Rick Dolyshny showed an astonishing new 3D character animation program called "Playmation" at the Commodore booth, and two top notch new MIDI music titles from Atlanta-based Blue Ribbon Soundworks, "Super Jam" and "Bars and Pipes Professional" were shown at the Media Innovations booth. Media Innovation head Martin Ricketts said.

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Continued from 42

"The Most Popular Computers On Earth:" Taking A Trip Down Memory Lane

Commodore showed some awareness of the abiding affection that many show visitors have for its older computer offerings by including a large historical display of Commodore products since the company was founded in Toronto by Jack Tramiel in 1958. A 1974-vintage K.I.M. computer (2 kilobytes of RAM!), a very rare original PET 2001, VIC 20, C64 and Amiga 1000 cpu's shared exhibit space with less well remembered items, such as Commodore thermostats (?) adding machines, typewriters, digital watches and calculators.

An informative multimedia display, running on Amigas using the Scala Multimedia 200 program, gave background information on the events and decisions that led to Commodore becoming the largest vendor of personal computers ever (around twenty million CPU's sold so far, and counting).

Long time Commodore guru Jim Butterfield was hired to be a kind of living-

history exhibit, and answered questions from legions of Commodore fans.

And, Still To Come...

One of the best-attended events was the talk on Saturday night by Lou Eggebrech, the Commodore International VP of Engineering on the future of Commodore R&D. Reports from the meeting indicate that Commodore has a very ambitious long term vision aimed at keeping the Amiga the leading edge multimedia platform of the 1990's. Eggebrech has greatly overhauled and rationalized what often seemed to be an inefficient and poorly directed R&D program at Commodore. He seems to have been given the human and financial resources (including over 200 engineers and technicians working on the Amiga) to do his job, and if this year's show is any indication, Commodore may be back on track as an innovator and significant player, especially in the multimedia market. Now, we'll all just have to wait and see how Commodore goes about marketing their hot new products. ■

Show Report

Continued from page 15

Ontario-based Freehand Systems showed an office sign-in system using pen computing technology at the Canadian Computer Show.

The Freehand Name Delivery System (FRENDS) is intended to replace the guest book in which visitors to an office enter their names and other information, said John Halse, president of the startup company. He said the system's advantage over the book is that it can capture information electronically for use as sales leads and other purposes.

Visitors enter their names by printing on the screen with an electronic pen. Newsbytes tested this function and found that, as with other pen-based devices at the show, it can be difficult to print letters the software will recognize correctly. Some data is entered by tapping a "yes" or "no" box on

the screen, however, and the system can ask if a visitor has been to the office before, and retrieve company information if so, saving some data entry.

The complete hardware and software system uses a Calcomp digitizing tablet and a clone personal computer, Halse said. A dot-matrix printer for printing visitor badges will be an option. The total system will sell for C\$3,995. The system is packaged in a floor-standing kiosk. Freehand also plans to sell the software on its own for C\$495.

Halse said his company will be field-testing the system in the next few weeks and plans to ship it in January. Freehand was incorporated in May of this year, specifically to develop vertical applications for pen computers, he said.

Contact: Freehand Systems, 416-470-7337, fax

USER GROUPS

ANIMATOR'S GROUP—Interested in the creation of 2-D and 3-D animation? Zimgraphics Ltd. offers hands-on training and memberships for those interested in computer graphics. For more information call (416) 601-1785.

CANADA ROUNDTABLE ON GENIE—Nightly and weekend meetings. Discuss Canadian Politics, Sports, Canada-U.S. Relations, Travel, Entertainment...Try En Français, which includes a French tutorial. More info? 1-800-638-9636.

CASE: Computer Aided Software Engineering is open to anyone interested in being tool independent, and technology independent. 1-1 1/2 hours, monthly scheduled meetings. Vendor presentations as well as individual. BBS 497-5263, (log on if MIS Affiliated messages, into Tech 2nd category called CASE). Contact Joe Da Silva at 252-1408 or Rob Beckman at 928-2694.

CASE Special Interest Group: A special interest group or SIG is currently being formed to help meet the needs of people interested in learning more about CASE. The purpose is to provide a forum where members may share their experiences. Experienced users or those contemplating introducing CASE to their organization are invited to call either Joe Da Silva at 252-

1408, or Rob Beckman 928-2694.

CLUB CUBASE: Toronto area users of Steinberg Software products, especially their powerhouse sequencer Cubase, now have a forum to share information and develop their skills. Club Cubase meets at 7:30 PM on the last Monday of every month, in Room C426 at the Casa Loma of George Brown College - 160 Kendall Ave. For more information contact Club Cubase at 62 Hamworth Drive, Willowdale, ON, M2H 3C2 or call 416-496-9905.

CLUB MAC COMPUTER GROUP OF ONTARIO—All Mac users, Macintosh OS & related issues, meets 2nd Tuesday, Michener Institute, 222 St. Patrick St., Toronto, 7 pm to 10 pm, Infoline 416-462-1702.

THE CANADIAN AUTODESK MULTIMEDIA USER GROUP—Interested Users of Autodesk Multimedia products are invited to call Pia Zimperi at (416) 601-1785.

CANADIAN COMPUTER GRAPHICS ASSOCIATION: CCGA's mission is "to provide education and information in computer graphics technology and its applications". At special events members are informed of developments in the industry, and provided a networking forum to develop career and business opportunities. Additional benefits

include; insurance, newsletters, subscriptions, employment liaison office, and annual art & design competition. CCGA, 2175 Sheppard Ave. E., Suite 110, Willowdale, Ontario, M2J 1W8. Fax: (416) 491-1670 Tel: (416) 491-2886.

COMPUTER TRAINERS' NETWORK: A group of teachers, tutors and consultants who meet the first Thursday of every month, to discuss training or computer-related issues. Meeting format consists of refreshments, business portion, guest speaker and open discussion. There are three different memberships available. Location: The McGill Club, 21 McGill St., Toronto, Ontario 977-4122. For more information please call Veronica of Vision Computer at (416) 323-0406.

IRMAC—Information Resource Management Association of Canada: dedicated to data management, IRM, data dictionaries, C.A.S.E., and strategic planning in the corporate environment. Monthly meetings in Toronto, Ottawa, and Victoria. (416) 960-6508.

KW-MUG, 376 Peel Street, New Hamburg, ON N0B 2G0, (519) 662-2627. Focus: Public domain distribution; reviews of current software; meetings variable, no fees.

NEXT USERS GROUP, NeXT computer

support, 2nd Thursday, McLennan Physics Lab (University of Toronto), 60 St. George St., Room 118, 7 pm, 416-365-1899.

NETWORK/BUSINESS COUNCIL: Etobicoke lead exchange meets second Thursday every month for light, informal breakfast and networking. 255-0217 x463.

PCCT (PERSONAL COMPUTER CLUB OF TORONTO) PC users, 3rd Tuesday, St. Gabriel's Community Centre, 672 Sheppard Ave. E. (2 blocks east of Bayview, north side), North York, 7 p.m., membership includes shareware, BBS, special interest groups (SIGs) & workshops, information 244-6786.

STC, Society for technical communication: Dedicated to the advancement of the theory and practice of technical communication in all media. The Toronto chapter has over 200 members. Meetings from Sept.-June, at Sun Life Assurance Company of Canada, 150 King St. W., on the 2nd Tuesday of each month. For more information contact Christine Mills at 595-7690, or George Kilma at 448-3623.

TANG NORTH Monthly meeting, 2nd Thursday of each month. McLennan Physics Lab (U. of T.) Room 118, 7:00 PM (Corner of Huron & Russell). Everyone Welcome. For info call Daniel (416) 365-

1899.

THE TORONTO COLOUR COMPUTER GROUP meets on the 2nd and 4th Mondays of each month. For more information, call Larry Osborne at 972-1809.

TORONTO USERS GROUP: User members support of AS/400/38 imaging. Meetings held at the Airport Marriott Hotel every two months. Next meetings on Jan. 20, 1993, Feb. 19, 1993, Mar. 24, 1993, and May 19, 1993. Please contact Wende Boddy at Suite 2550, P.O. Box 77, Toronto Dominion Centre, Tor., ON, M5K 1E7 for more information, or call (416) 607-2546.

THE ELITE GROUP OF 3-D PROGRAMMERS (E.G.3D P.) in association with L.T.P.D. Dedicated to Atari users. For more information write to L.T.P.D. c/o (E.G. 3D P.), 37 Monty Ave. Box #2, Toronto, Ontario M6S 2G8.

K.R.D. 1995 (The Kidstuff Reunion Drive Group For 1995) At 144 Gillard Ave., Riverdale. Tel. 461-1343. Call for meeting dates 11AM Saturdays. Group's focus is to collect 1975-6 Canadian pennies in order to reassert interest by signing a petition to reinstate the 1975-6 CTV Show "Kidstuff." Computer Kidstuff 1995?? 2005??. Ask for Jeffrey Leitner.

LOGIC, An Independent Apple User Group: Provides a support and information network to users at all levels. LOGIC accomplishes this by: holding monthly meetings, hosting Special Interest Group meetings, providing an electronic bulletin board, publishing the Maple Orchard magazine (free to members), and maintaining an extensive library of shareware and public domain software. Meetings 1st & 3rd Tuesday of the month, North York Centre, 5110 Yonge St. in the Memorial Hall at 7:00 PM. Messages (416) 323-0828 BBS (416) 487-9771.

TAF (TORONTO ATARI FEDERATION) Atari users, 3rd Thursday, North York City Centre Library, 5110 Yonge St. (at Park Home), public domain library, regular demonstrations & guest speakers, Infoline 416-425-5357, BBS 235-0318. Non-member admission \$2, membership \$30 (incl. newsletters).

TPUG (TORONTO PET USERS GROUP, INC.) Commodore users (PET, 64/128, Amiga, CDTV, MS-DOS, etc.), meets Tuesdays (1st, 12th, 2nd, Amiga; 3rd, GEOS; 4th, 6th), York Public Library, main branch, 1745 Eglinton Ave. W. (near Dufferin), 7:30 p.m.; 3rd Thursday, Alderwood United Church, 44 Delma Drive, Etobicoke, 7:30 p.m.; software library,

newsletter & BBS, Information 416-253-9637.

TORONTO PARADOX GROUP, meets 2nd Thursday of every month at 5:00 PM Free BBS (416) 271-9795. Call for next meeting Loc. & list of presentations. Learn about 'PAL' (Paradox Application Language), add-in products, Paradox tips and traps. For membership info., contact Doug Campbell (416) 496-0061.

TORONTO TIMEX-SINCLAIR USERS CLUB. All Timex and Sinclair computers. 1st Wednesday, Forest Hills Collegiate Inst., 732 Eglinton Ave. W., 7 p.m., demonstrations, bi-monthly newsletter. Voice Information (416) 751-7559.

TRACE - Toronto Regional AutoCAD Exchange: Presentations on the last Tuesday of every second month. Upcoming dates: November 24th 1992 and January 26th 1993. Held at the Malton Community Centre, 3540 Morningstar Drive. For details call Tim Lucas at 750-9765.

ZIM USERS GROUP: Revival of the Toronto Zim Users Group. Emphasis on exchange of ZIM technical expertise in a friendly environment. January 13th 1993. Contact Fay Rakoff. Phone (416) 979-6216, or Fax (416) 979-4888.

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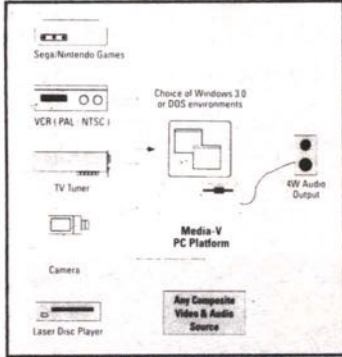
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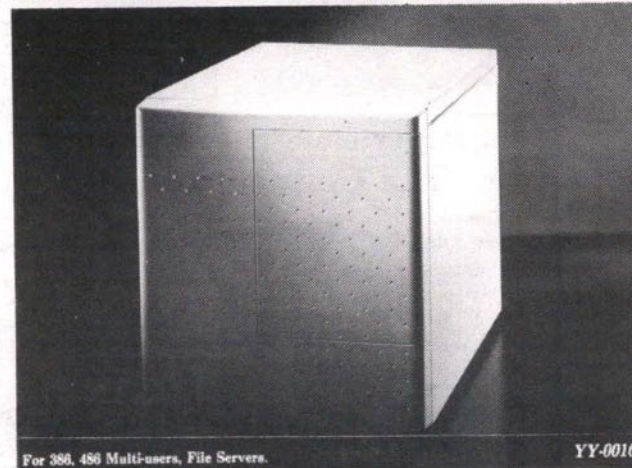
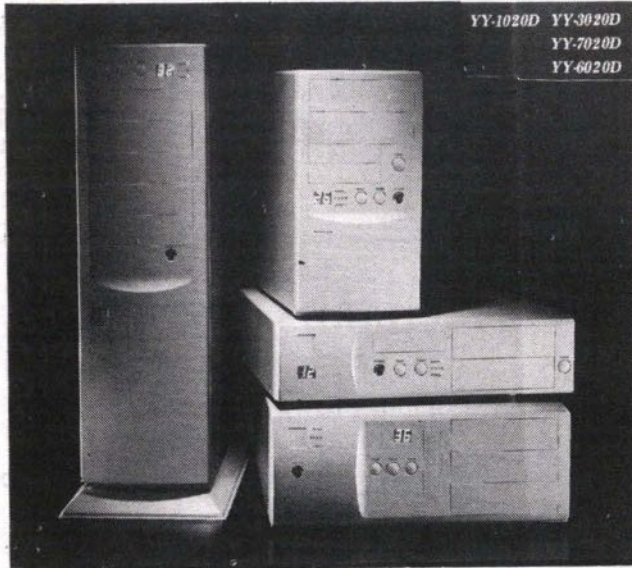
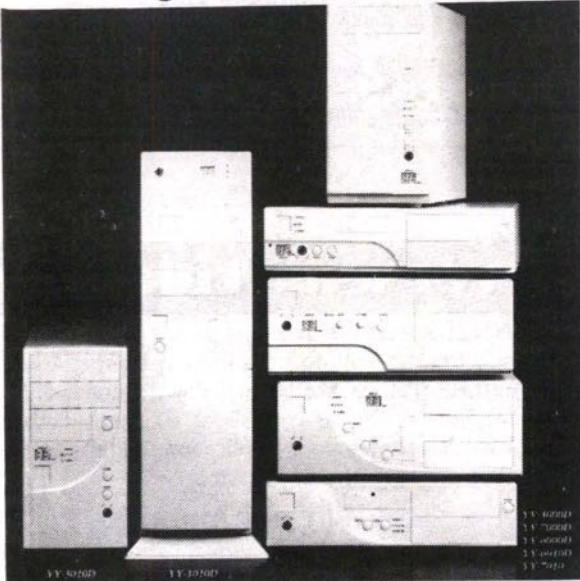
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CONSUMER ELECTRONICS SHOW INT'L—WINTER Las Vegas, NV. Jan 7-10, 1993. Contact: Electronic Industries Association (202) 457-8700.

NETWORLD Boston, MA. Jan. 12-14, 1993. Contact: Nat'l Blenheim Expos, Inc (800) 829-3976.

DECUS, W. Palm Beach, FL. Jan. 16-19. Contact: Digital Equipment Computer Users Society (508) 470-3880.

WINDOWS & OS/2-WEST San Jose, CA. Jan. 20-22, 1993. Contact: Miller Freeman Expos-West (415) 905-2222.

OUTSOURCING: THE DATA CENTER AND BEYOND, January 21-22, 1993, The Adolphus Hotel, Dallas, TX. Project directors: Frost & Sullivan, Inc., 106 Fulton St, New York, NY 10038. To register call (212)233-1080, Fax: (212)619-0831.

COMPUTER GRAPHICS SHOW New York, NY. Jan 26-28, 1993. Contact: MIJO (301) 587-4545.

DEMO '93, Palm Springs, CA. Jan 31-Feb 3, 1993. Contact: DEMO '93 (415) 592-8880.

MARCH

PC WORLD EXPO '93 and PC WINDOWS/Canada Expo will merge together at the Metro Toronto Convention Centre on March 10-12, 1993. Produced by International Conferences & Exhibitions Inc. For further information contact Roland Klassen at (416) 581-8797.

CeBIT '93 Hannover, Germany. 6,000 exhibitors from 45 countries will showcase technology from the entire information & communications sector. Information Technology, Network Computing, Local Networks, CIM (Computer Integrated Manufacturing), Software & Consulting, Telecommunications, Office, Banking & Security Technology, Strategic Research Center, Conferences, Company Presentations and Special Displays. March 24 - 31, 1993. Contact Jennifer Cooke, representative for Canada, at Co-Mar Management Services Inc (416) 364-5352.

THE BUSINESS TO BUSINESS EXPOSITION '93 and Home Office Show, will run concurrently at the Metro Toronto Convention Centre, March 30 & 31, 1993. Sponsored by The Board of Trade of Metropolitan Toronto. For more info call 416-869-0141.

APRIL

THE SECOND INTERNATIONAL BEAM ROBOT OLYMPICS AND MICROMOUSE COMPETITION: Ontario Science Centre, Toronto. Thurs, April 22 to Sun, April 25, 1993. Robot Judging will be based on sophistication of behavior, novelty of design, efficiency of power source, and quality of hardware. Rules and guidelines are available. Please contact Mark Tilden (519) 885-1211, Ext. 2454.

WORLD COMPUTER LAW CONGRESS '93 "Global Success in the Computer Industry: Putting the Business, Legal and Marketing Resources Together". April 25-28, 1993, Hotel Del Coronado, San Diego, California. For more info contact: Michael D. Scott, World Computer Law Congress, (213)689-5186.

THE CANADIAN HIGH TECHNOLOGY SHOW: April 27 & 28, 1993 at Place Bonaventure, Montreal. An electronics showcase of exhibitors. Four show sections: Components & Microelectronics, Design Automation; Electronic Production & Packaging; and Test, Measurement & Instrumentation. For professionals from the high-technology industry or users of electronics. Trade only. The Show and the Conference Program will be running concurrent. For more information call Reed Exhibition Companies (416) 479-3939.

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RADIOCOMM '93 Canada's only trade show dedicated to mobile communications. Location: Metro Toronto Convention Centre from May 26-28, 1993. Hours: Wed, May 26th 10 a.m.-6 p.m., Thurs, May 27th 10 a.m.-6 p.m., Fri, May 28th 10 a.m.-3 p.m. For more info contact: Harley Austin, Show Manager, or Carole Meyer, Assistant Show Manager (416) 252-7791. Fax (416) 252-9848.

VARDEX '93 with an added Unix section. May 5 & 6 at Toronto's International Centre. Contact: Marina Perry, Reed Exhibitions (416) 479-3939.

SEMINARS

SEMINARS FROM CANADA REMOTE SYSTEMS: Thursday evenings 7 p.m.-9 p.m.. Free to members and non-members alike. CRS has short informal new-user seminars every Saturday 11 a.m.-12 p.m. Pre-registration required for Thursday nights. For more information call 620-1439.

SEMINARS ON PEN-BASED COMPUTER SYSTEMS: The series will run monthly. Location: the Honeywell Building, 155 Gordon Baker Road. The first four seminars feature horizontal software for pen-based systems. Buyers can talk to vendors and experts, and try out the hardware and software. Contact "Second Office Inc." (416) 932-2379.

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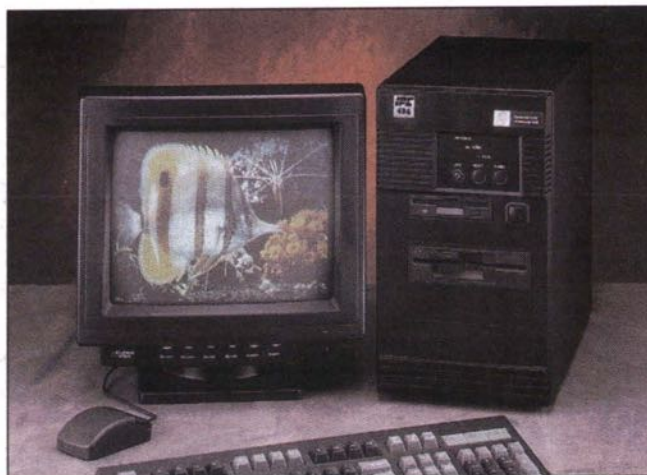
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WHAT DO THESE PRICES MEAN.

To be fair, we used "suggested list prices" quoted directly by each manufacturer during the week of November 2, 1992. We made every effort to compare systems that are as similar as possible but each vendor has their own ideas about what is and isn't standard.

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are your best value.



Here's why.

Specifications	Fujitsu DL1150	Fujitsu DL1250
Print Speed/12 cpi High Draft Draft Correspondence Letter Quality	240 cps 216 cps 144 cps 72 cps	240 cps 216 cps 144 cps 72 cps
Colour	Standard	Optional
Resident Fonts	15	15
Scalable Font Capability	6-192 pt.	6-192 pt.
Input Buffer	24K Standard	24 K Standard
Print Width/12 cpi	132 characters	163 characters
Number of Forms	4-part	4-part
Resident Emulations	DPL24C+, Epson LQ2550, XL24	DPL24C+, Epson LQ2550, XL24
Acoustic Noise	Quiet 52 dbA	Quiet 52 dbA
Footprint	177.4 sq. inches	203 sq. inches
MTBF** (Reliability)	6,000 hrs.	6,000 hrs.
Fujitsu Canada Warranty	2 years	2 years

** Mean Time Between Failures (MTBF) @ 25% Duty Cycle.

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When you're trying to make an important printer purchase decision and are looking for the best value, you need the facts.

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Take a look at Fujitsu's new Ultimatrix printers and then decide. The launch of the Ultimatrix Series signals a new era in affordable high performance dot matrix technology.

Here are just some of the best features of Fujitsu's DL1150 and DL1250. Four versatile print speeds to meet your varying quality requirements. Standard colour* for the production of superior presentations and reports. A 24K standard input buffer so you can store up to 12 pages of data right in the printer while you

continue to use your PC. And 132 column width for spreadsheet applications.

If it's 163-column spreadsheets you need, choose the wide carriage model - the Ultimatrix DL1250.

With an MTBF rating about 50% higher and a footprint almost 30% smaller than other printers in their class, the Ultimatrix series' unique compact design will save you valuable working space and Fujitsu's legendary quality and reliability will provide peace of mind for years to come.

So when you're looking for an affordable printer that's got it all, tear out this ad and do some real comparison shopping.

You'll find Ultimatrix is the value you want in the printer you need.

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* DL1150 only; optional on DL1250.

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Clearly,
Fujitsu's new
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Now you can enjoy
quality and capability at an affordable
price with Fujitsu's new DL1150 and
DL1250 dot matrix printers.

The DL1150 prints seven brilliant colours and has scalable font capability from 6 to 192 points for the creation of impactful presentations. For regular print, just snap in a black ribbon in seconds. The DL1250 can print colour with an optional easy to install kit.

Both the DL1150 and DL1250 Ultimatrix printers are quiet, compact and can run up to 240 characters per second. The upright design ensures a smooth paper path for producing up to four-part forms. The zero tear-off feature prevents



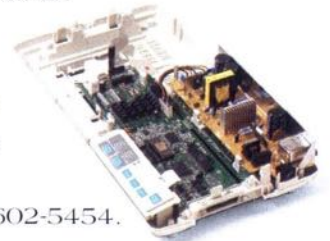
wastage when printing cheques and other forms. "Paper park" allows you to switch from continuous forms to single sheets at the touch of a button.

Ultimatrix printers are affordable to maintain because they don't require expensive consumables like other printer technologies.

The Ultimatrix Series printers are compatible with virtually all PC hardware and software and if you have special printer driver

requirements, we can help.

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