

CANADA'S COMPUTER INFORMATION SOURCE

The COMPUTER PAPER™

NEWS

REVIEWS

FEATURES

ONTARIO EDITION JUNE 1993 VOLUME 6 NO. 6

FREE



35¢ 1
JUNE
02

COMPUTER COMICS

SHOCKING SCIENCE

RESISTANCE IS FUTILE
HUMAN
YOU WILL SERVE ME NOW
FOREVER

“GASP!”
I-I’VE BECOME A...
SLAVE TO MY
COMPUTER!

TECHNO TERROR!

Portable PCs

Mac Software

Video Toaster 4000

Presentation Graphics



WE'RE MOVING...

WATCH FOR OUR NEW LOCATION
AND GRAND OPENING SPECIALS

MULTIMEDIA

MITSUMI CD ROM DRIVE 350MS	\$239
SONY 31A CD ROM DRIVE	\$349
NEC CDR-84i INTERNAL 280MS	\$689
NEC CDR-74 EXTERNAL 280MS	\$769
TOSHIBA 3301 SCSI INTERNAL	\$539
TOSHIBA 301 SCSI PORTABLE 325MS	\$639
TEXEL INTERNAL 265MS	\$689
SOUND BLASTER PRO DELUXE	\$169
SOUND BLASTER PRO 16	\$279
VIDEO BLASTER	\$469
DISCOVERY 16 KIT INTERNAL	\$599
DISCOVERY 16 BIT EXTERNAL	\$699
EDUTAINMENT 16 BIT INTERNAL	\$699
EDUTAINMENT 16 BIT EXTERNAL	\$799
AMPLIFIED SPEAKERS	\$29.95
MIXED UP MOTHER GOOSE	\$39.95
SHAREWARE EXTRAVAGANZA	\$69.95
2500 SHAREWARE GAMES	\$49.95
SHAREWARE OVERLOAD	\$14.95
WINDOWARE	\$14.95
MPC WIZARD	\$24.95

CD-ROM

CADDIES
CADDIES
CADDIES

\$6



CADDIES
CADDIES
CADDIES

\$6

MULTIMEDIA

FAMILY DOCTOR	\$39.95
CARMEN SAN DIEGO DELUXE	\$39.95
GREAT CITIES VOL. 1	\$34.95
NIGHT OWLS 8	\$59.95
CHESSMASTER 3000	\$19.95
WING COMMANDER/ULTIMA	\$19.95
PC SIG VOL. 11	\$59.95
SHERLOCK HOLMES CONSULTING	\$34.95
COMPTONS MULTIMEDIA/WIN	\$99.95
COMPTONS INTERACTIVE UPGRADE	\$159
SECRET WEAPON OF LUFTWAFFE	\$34.95
KODAK PHOTOEDGE	\$129
KODAK PHOTO CD ACCESS	\$39.95
CLIPART GOLIATH	\$14.95
TOO MANY TYPEFONTS	\$14.95
OUR SOLAR SYSTEM	\$14.95
BIBLES AND RELIGION	\$14.95
DESKTOP PUB. DREAM DISK	\$39.95
COMPLETE BOOKSHOP	\$14.95
DEATHSTAR ARCADE BATTLES	\$14.95
ENCYCLOPEDIA OF SOUNDS	\$14.95

HEWLETT PACKARD

HP 4 W/TONER	\$1779
HP 4M W/TONER	\$2549
HP IIP W/TONER	\$1099
HP IIP W/TONER	\$949
HP DESKJET 500	\$489
HP DESKJET 550C	\$929
HP SCANJET IIP+	\$1099
HP SCANJET IIC	\$1879



NOTEBOOKS

IBM THINKPAD 300 4/120	\$2679
NEC VERSA 486 4/80	\$3149
TOSHIBA 1850 386SX25 4/120	\$2279
AST 386-SL-25 4/60	\$1849
386-DX-33 4/120	\$2099
486-SL-25 4/120	\$1999
486-DX-33 4/120	\$2699
486-DX-33 ACTIVE 4/120	\$4549

MACINTOSH

STACKER 1.0	\$119
NORTON UTILITIES 2.0	\$115
S.A.M.	\$79
FILEMAKER PRO 2.0	\$289
MS WORD 5.1 UPG	\$139
LOTUS 1-2-3 1.1	\$329
ACCESS PC	\$79



WINDOWS FOR
WORKGROUPS
2 USER STARTER
KIT W/HARDWARE

\$399



IBM

NORTON UTILITIES 7.0	\$129
NORTON ANTIVIRUS/WIN 2.1	\$99
NORTON DESKTOP 2.2	\$129
QEMM 386 6.0	\$79
WINFAX PRO 3.0	\$99
MS WORD/WIN UPG	\$119
LOTUS 1-2-3 FOR WIN UPG.	\$119

ACCESSORIES

MS SERIAL MOUSE	\$14.95
MOUSE PADS	\$1.49
6' PRINTER CABLES	\$3.95
PLASTIC COMPUTER STAND	\$4.75
PLASTIC PRINTER STAND	\$4.75
3.5" & 5.25" DISKETTE BOXES	\$4.95
FAX PAPER 96' ROLL	\$2.29
POWER CONTROL CENTRE	\$28.95
1.44 MB FLOPPY DISKS	\$5.95



HARDWARE

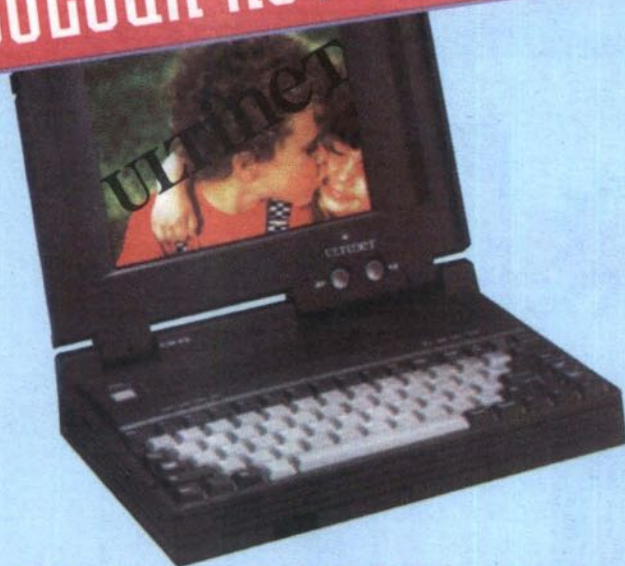
1 MB SIMMS	\$45
4 MB SIMMS	\$179
1.44 MB FLOPPY DRIVE	\$59
1.2 MB FLOPPY DRIVE	\$69
101 ENHANCED KEYBOARD	\$20
ATI ULTRA PLUS W/2.0 MB	\$389
ATI ULTRA PRO W/2.0 MB	\$595
QUANTUM 245MB HARD DRIVE	\$399
14.4 EXTERNAL FAX/MODEM	\$249

CMSI

30 WEST BEAVER CREEK, UNIT 5
RICHMOND HILL, ONTARIO L4B 3K1
PHONE: (416) 889-1616
FAX: (416) 889-1199

ALL PRICING IS ALREADY CASH DISCOUNTED ***SOME QUANTITIES MAY BE LIMITED***

COLOUR NOTEBOOKS



386/486 SX & DX Mono & Colour Notebooks

- Fast 486SX/486DX-33/DX2-66 MHz "0" wait Intel CPU eff 83 to 220 MHz landmark 486DX with internal cache. We use Intel high performance CPUs, not **Cyrix!!**
- 4 mb high speed RAM (70 ns "0" wait state memory) exp. to 8/16 mb
- Fast full 32 bit math coprocessor (486 only), 386 optional, ideal for CAD
- 1.44 mb 3 1/2" high density floppy disk drive with auto detect for low density
- 120 mb (exp to 210) superfast hdd eff 9 ms with 64 kb cache and fast xfer rates
- 10" high quality 640 x 480 Mono VGA LCD or 9" brilliant colour screen
- 2 ser., 1 par, ext. 101 keyboard port & external VGA simultaneous colour monitor support
- AC adaptor/charger, battery, numeric keypad & carrying case included
- Dimensions: 11.7" x 8.47" x 1.95" (29.7 cm x 21.5 cm x 4.9 cm)
- Optional expansion chassis for two ISA cards e.g.. SCSI and LAN cards
- Battery life of approximately 2 hours or more, built-in trackball optional
- 2 year parts and labour depot warranty, with the fastest turnaround in Canada!
- Lease to own from \$38 per \$1000 (based on 36 months) and free software

TOTAL POWER SOLUTIONS

WORLD'S FASTEST 486DX COLOUR NOTEBOOK 66 MHz!

FREE!!

Software with every system
Wordprocessor Spreadsheet
Database Games

**NOW STANDARD!
TWO YEAR PARTS
& LABOUR DEPOT
WARRANTY ON ALL
NOTEBOOKS &
DESKTOPS!!**

ULTINET COLOUR & MONO NOTEBOOKS					Landmark Speeds
386SX-25	2 mb 60 hd	\$1400	\$53/mth	27 MHz	
386SX-25	4 mb 80 hd	\$1650	\$63/mth	27 MHz	
386-33/486SLC-25	4 mb 120 hd	\$2150	\$82/mth	51/78 MHz	
486SX-25	4 mb 80 hd	\$2075	\$79/mth	83 MHz	
486SX-25	4 mb 120 hd	\$2250	\$86/mth	83 MHz	
486SX-25 CLR	4 mb 120 hd	\$3250	\$124/mth	83 MHz	
486DX-33	4 mb 120 hd	\$2700	\$103/mth	112 MHz	
486DX-33	4 mb 210 hd	\$3100	\$118/mth	112 MHz	
486DX-33 CLR	4 mb 120 hd	\$3600	\$137/mth	112 MHz	
486DX2-66 CLR	4 mb 120 hd	\$4000	\$152/mth	224 MHz	
486DX2-66 CLR	8 mb 120 hd	\$4300	\$163/mth	224 MHz	
Upgrade to brilliant active Matrix colour screen, add			\$1300		
Upgrade each additional mb RAM, add			\$75		
Upgrade to 210 mb hdd, add			\$395		

**We will
beat any written
price quote!!**

**We use
genuine
Intel CPUs,
not Cyrix!**

**5 YEAR
Parts & Labour
Warranty on VESA
Local Bus
Motherboards**

COMPUTERS

Ultinet UltraPro Computers Feature

- Brand name processors from Intel (all 486DX systems) & AMD (386DX-40)
- Both 1.2mb & 1.44mb hi-density floppy disk drives
- 14" high res. .28 dp 1024 x 768 SVGA interlaced (386) or non-int. (486) monitor
- SVGA Video card with 512k (386) & 1mb (486) RAM, 256 clrs interlaced & non-int.
- We have the best mULTI CPU motherboard design with 240 pin Pentium CPU socket, as well as the new "VL" VESA local bus standard, with 3 VESA slots
- 2 year full parts and labour warranty, free mouse & genuine DOS 5.0 included
- Optional nationwide on-site warranty, add \$100/year
- Live telephone support during business hours and free after hours support using Ultinet's automated voice and tech fax VOICETEL system
- All Ultinet desktop and notebook computers use the Intel CPU except the 386DX-40
- Ultinet uses the latest system chipsets with surface mount designs. This results in reliable computers with high performance. Our VESA motherboard is the best in Canada!

ULTINET ULTRAPRO DESKTOPS

386SX-25	2 mb 80 hd	\$1143	\$43/mth
386DX-40	2 mb 80 hd	\$1198	\$46/mth
486SX-25	4 mb 120 hd	\$1490	\$57/mth
486DX-33 w/ CYRIX DLC CHIP	4 mb 120 hd	\$1495	\$57/mth
486DX-33 w/ INTEL CHIP	4 mb 120 hd	\$1695	\$64/mth
486DX/2-50	4 mb 120 hd	\$1795	\$68/mth
486DX-50	4 mb 120 hd	\$1895	\$72/mth
486DX/2-66	4 mb 120 hd	\$1995	\$76/mth
Upg to ATI-XL 24 1mb w/o mse.....		\$87	Upg 17" Mgm/Philips mtr 31 dp.....\$575
Upg to 210 mb WD fast 15ms hdd.....		\$138	Upg 17" Mitsubishi DiamondPro .26 dp.....\$945
Upg 240 mb Quantum 16ms hd.....		\$179	Int. fax/modem 9624 w/stwr.....\$75
Upg 340 mb WD fast 15 ms hd.....		\$345	Upg each mb of 70 ns fast RAM.....\$45
Upg 14" non-int Touch/View4 72 Hz.....		\$97	Upg to Keytronic/Honeywell kybd.....\$31
Upg 15" non-int 72 Hz.....		\$220	

VESA LOCAL BUS UPGRADES

Upg to the best VESA motherboard with 3 VLB slots & mULTI-CPU.....	FREE!	Upg to ATI UltraPro 2 mb VRAM c/w Mach 32 math engine.....	\$440
Upg to Tseng/Cirrus colour video card 1 mb true colour, 24 bit.....	\$82	Upg to VESA local bus IDE/IO controller w/o cache.....	\$78
Upg to VESA 53/Diamond Stealth c/w video copro 24 bit chr.....	\$149	Upg to VESA local bus hdd cache controller board w/1mb.....	\$340
VESA 32-bit Ethernet Card.....	\$310	Upg to VESA local bus SCSI.....	\$310

UPGRADEABLE 386/486

Our mULTI-CPU "VL" VESA Local Bus Systems offer the option of upgrading your 386DX to a 486-33, a DX2/66 or other advanced chips as they are released.

NOW INCLUDED! FREE VESA 3 SLOT LOCAL BUS MOTHERBOARD—THE BEST VESA LOCAL BUS MOTHERBOARD IN CANADA!!



ULTINET

VAR INQUIRIES WELCOME

3200 Dufferin St., Bldg. 1B, Toronto, ON M6A 2T3

(3 blocks S. of 401, on N.W. corner of Samor and Dufferin)

Tel: (416) 256-2000 Fax: (416) 256-1449

OPEN: MON., TUES., FRI. 9-6: WED., THURS. 9-7; SAT. 10-6

CALL OUR 24 HOUR FAXBACK LINE AT (416) 256-9149

FOR PRODUCT INFORMATION BY FAX, OR NAME OF NEAREST AUTHORIZED ULTINET DEALER

486 VESA LOCAL BUS NOW STANDARD!

**VESA
486DX-33**

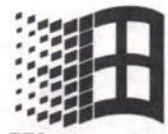
ONLY!

\$1551

4Mb
120Mb HD
1.44Mb FD
SVGA 14"
101KB
Math-co
DOS 6.0
WIN 3.1
MS Mouse



**5
YEAR
WARRANTY**



**WINDOWS
COMPATIBLE**

**VESA
486SX-33**

ONLY!

\$1351

4Mb
120Mb HD
1.44Mb FD
SVGA 14"
101KB
DOS 6.0
WIN 3.1
MS Mouse



Windows is a registered trademark of Microsoft Corp. All other trademarks are the property of their respective owners.

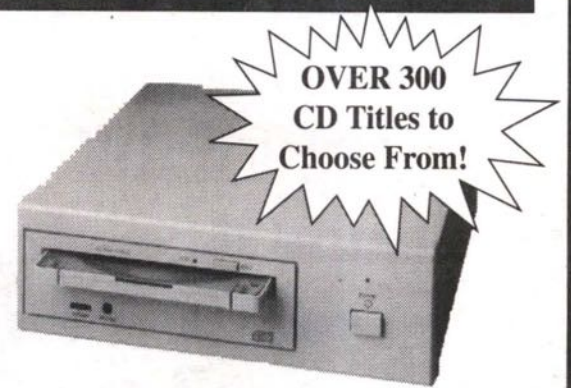
MPC

**MULTIMEDIA PC
UPGRADE KIT**

CD ROM by PHILIPS

PLUS: Sound Card
Stereo Speakers
CD Titles:
Microsoft Bookshelf

ONLY \$450.00
In Store Demonstration



Zoltrix

**14.400 Baud
Fax Modem
V.42bis**

**Super
Fast**

\$238 \$289
INTERNAL EXTERNAL

Bondwell

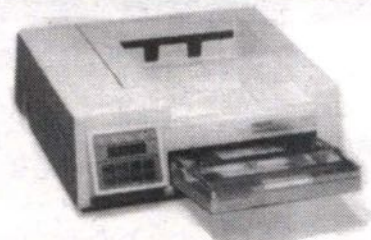
486 NOTEBOOK
4MB, 80MB, 1.44MB
9600 Fax Modem
Free Math-co
VGA, 5 lbs.
DOS



\$2259

OKIDATA OL-400

4 PPM
512k
17 fonts
200 sheet tray
font slot
HP II emulation



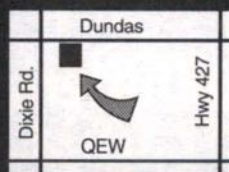
**\$695 IMPOSSIBLE
PRICE!!**

CompuTrend

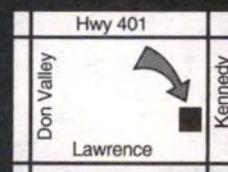
WE DELIVER!

HOURS: Daily - 10am to 7pm
Saturday - 10am to 5pm

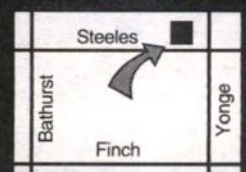
**SHOPPING
TILL
7:00PM**



1870 Dundas Street East
MISSISSAUGA
279-1988



1350 Kennedy Road
SCARBOROUGH
288-0325



330 Steeles Ave. West
THORNHILL
889-0199

From the Editor



If microprocessors (chips) are analogous to the brains of a computer, then the operating system is like the mother tongue. Productive work is done on top of the operating system—you add the applications programs (spreadsheets, wordprocessors and the like).

Mother tongues in the past few centuries were spread through the imperialism of the mother country. Just as English can't be said to be the "best" language, MS-DOS is certainly not the "best" operating system; however, through circumstance and good marketing, it has become the leader. MS-DOS and Windows have become pervasive, running on the lion's share of the world's estimated 80 million personal computers. Most of the computers that run MS-DOS also employ Intel chips for their brains.

Challenge to Intel and Microsoft

Intel (which makes the chips that run the majority of the world's computers) and Microsoft (which makes the best-selling operating system) are both being challenged for market dominance. The two big contenders for new microprocessors are the PowerPC from IBM/Apple/Motorola, and DEC's Alpha chip running NT. Both will offer upwardly mobile architectures that will no doubt challenge Intel's pricing structure.

Hot New DEC Alpha Chip

This month I had an opportunity to have a look at some of the new systems recently announced by Digital Equipment Corporation based on its new DEC Alpha AXP chip series. These chips are available now. They run about double the speed of the Intel Pentium (586) chip, are scheduled to run Windows NT within a month of the NT launch for Intel chips and start in pricing around \$7,000—very impressive systems and speed. The interesting thing about these systems, especially for corporate networks, CAD workstation users, desktop publishers, people who do 3-D rendering, etc., is that they are just the bottom-end of a series of systems that go up vastly in performance from where the Intel line stops. Of course you pay big bucks for the higher-end systems, but for many the price of one of these systems is cheap compared to the high-priced talent required to run them. If they can buy a workstation that runs at these speeds, and get twice the work done without hiring more staff, then they can quickly justify the purchase.

CISC vs RISC

Older style CISC (Complex Instruction Set Computer) chip design seems to be hitting the wall in terms of speed and a longer development cycle. Even Intel has recognized this and has incorporated many RISC (Reduced Instruction Set Computer) concepts into its Pentium chip. The other factor in this slowdown seems to be the efforts taken to maintain backward compatibility with older designs. RISC chip makers can start from scratch in their designs whereas Intel and Motorola have labored to ensure that software designed for the entire line continues to run on their newer model chips.

Speed and Compatibility

Performance will be a key issue in how these new operating systems and chips work together. Moving applications programs from one chip architecture to another is a non-trivial activity. In the short run, if software vendors try to "fake it" with emulations, they will penalize the users with lacklustre performance. Anyone who has seen PC emulations on the Macintosh or experienced hassles trying to run enhanced-mode applications under the Windows NT beta, will agree that speed, compatibility and driver support are all major issues. How fast these things get worked out will be a major factor in which ones succeed and which ones will fail.

Classic DOS

While Joe and Jane Average computer user may not need the power of these systems immediately, they can be cost-justified in many situations. If you wish your computer were five times faster than the one you have, you may be a candidate. Most of the new operating systems are fairly demanding of all aspects of your computer system. To run them, you will probably need more RAM, a larger hard disk, a faster processor and more patience while the bugs are ironed out. Ultimately, these systems will become the lowest common denominator for new machines being purchased, just as last year's high-end 486 has become this year's minimum purchase. Which operating system and chips will dominate is unclear, although dislodging Microsoft and Intel from the lead will be no easy task. In many ways, the DOS/Intel combo has become like Classic Rock. It is everywhere, it is the standard and like it or not, it is hard to avoid.

Enjoy the issue.

Kirtan Singh Khalsa

Kirtan Singh Khalsa
Publisher/Editor

IN THIS ISSUE ...

Features

Choosing a portable computer18

Choosing a portable computer is getting to be a complicated business.

BY GEOFF WHEELWRIGHT.

A Tale of two CDs20



It was the best of drives, it was the worst of drives...

BY GRAEME BENNETT.

Audio for Multimedia...22

Do you need to improve upon the audio fidelity of your computer?

BY GRAEME BENNETT.

Newtek's Video Toaster 4000 ..24

Toaster 4000 debuts at NABs show.

BY GENE ENDRODY.

The Mac Software Family Tree ..29

An overview of Mac graphics programs.

BY GRAEME BENNETT.

Presentation Graphics32

Future directions in presentation graphics software.

BY GEOFF WHEELWRIGHT.

Departments

Mailbox	6	Calendar of Events	49
What's New	10	User Groups	51
On the Cover	39	Classifieds	52
Newsbytes	44	Index of Advertisers	57

Reviews

Show Report

IMEC East 199316

The first Interactive Multimedia Conference and Exposition.

BY KEITH SCHENGILI-ROBERTS.

Game Review

X-Wing38

A great fly-by-the-seat-of-your-pants sort of game.

BY KEITH SCHENGILI-ROBERTS.

Book Review

The Virtual Corporation.40



Technology Edge: Guide to CD-ROM41

The Desktop Multimedia Bible ..41

BY KEITH SCHENGILI-ROBERTS.

CommTalk

Puzzling over standards..42

BY JAMES MACFARLANE.

Editorial Schedule

ONTARIO EDITION

JULY 1993	AUGUST 1993	SEPTEMBER 1993
TOPICS • Mass Storage Options	TOPICS • Networking & LANS	TOPICS • Educational Software
• Hard Drives & Optical Drives	• The Home Office	• Buying a computer for your kids
• Databases	COPY & CLASSIFIEDS Tue., June 29	• Computer Skills Training
COPY & CLASSIFIEDS Wed., June 2	CAMERA READY ADS Wed., June 30	COPY & CLASSIFIEDS Wed., July 28
CAMERA READY ADS Thurs., June 3	DISTRIBUTION Fri., July 16	CAMERA READY ADS Thurs., July 29
DISTRIBUTION Fri., June 18		DISTRIBUTION Fri., Aug 13

CALL (416) 588-1580
FOR ADVERTISING INFORMATION.

High Quality Products *Open Sundays*

386 DX-40 128K Cache \$895 130 MB Hard Drive, 4 MB RAM, 1.44 MB
486 DX-33 256K Cache \$1,265 & 1.2 MB Floppys, 2 Serial, 1 Parallel, 1
486 DX-50 256K Cache \$1,490 Game Port, 101 Enhanced Keyboard, Mini
486 DX-66 256K Cache \$1,650 Tower Case, 230 Watts Power Supply, 48
 Hours Burn-in Test

VESA LOCAL BUS SYSTEMS

with Pentium upgrade Available

Government and Company Purchase Orders are Welcome.

Low Cost Networking! The Easy Solution



2000's Technologies
 (416) 502-2055

250 Consumers Rd.
 #100 Willowdale, Ontario

Everyone
 designs
 memory into
 their laser
 printers.
 Intelligence
 is another
 matter.



The new IBM 4039 LaserPrinters:
 10, 12, or 16 pages per minute.

Announcing highly intelligent, highly affordable, new IBM® LaserPrinters, by Lexmark. With PostScript® and PCL5 compatibility built in. Up to three simultaneous inputs. 600 and 300 dots per inch. Optional two-sided printing. Plus the built-in intelligence to make it all work together. And make it all less work for you. See your Lexmark dealer, or call 1 800 663-7662.

IBM Personal Printers by

LEXMARK™

Make Your Mark



IBM is a registered trademark of International Business Machines Corporation in the U.S. and other countries and is used under license. PostScript is a registered trademark of Adobe Systems Incorporated. Lexmark is a trademark of Lexmark International, Inc. ©1993 Lexmark International, Inc.

Mailbox

Really mad

I read your paper every month but your May '93 issue really got me mad.

When you compared the different operating systems, your source for the Macintosh System 7.1 was wrong in many areas. First, your cover. You mentioned Windows NT, OS/2 2.1, and DOS 6.0. I can understand why. They're operating systems for PCs. But really! You mentioned UNIX and AmigaDOS and left out the Mac's System 7.1! The leading computer vendor of 1992!

Then, on your chart, (pg.13), you made System 7.1 look very poor compared to Windows and the other systems because there were so many errors. System 7.1 can find files in the background. I even tried it to make sure! There is no limit to how many fonts can be in the System suitcase, and a third-party product is not needed. Also, there are other types of menus besides drag-down, like tear-off and pop-up. The system font can be changed in the menus using third-party products, including shareware. There is a language with System 7.1 HyperTalk. I know it's not as advanced as 'C,' but it is powerful and easy to use. Rebuilding the desktop (option+shift) can destroy some viruses. System 7.1 also comes bundled with At Ease, HyperCard and QuickTime!

Next time, you should receive your facts about the Mac environment from Apple, Apple Canada or two other sources and compare them. How soon we forget that in 1992 Apple sold more computers than any other computer company, (including IBM). System 7, I'm sure, was a big part of that!

Tony Vlismas
 Toronto, ON

Graeme Bennett replies: System 7 can find files in the background, eh? Okay, well try this. Select "all at once" in the Find options dialog, then choose a word or letter that is common to many files. Start the Find operation, then switch to a word processor (say, Microsoft Word). Now, how many words can you type per minute before the Find operation is done? None? One? I thought so. That's how many I got before I made that statement.

I disagree with you on the number of suitcases System 7 can support. Check your facts. I did. I also disagree with you on your claim that the HyperTalk "language" is bundled with System 7.1. Apple doesn't ship a programmable version of HyperCard with Macs anymore; just a run-time play-only version. For this reason, I opted not to classify the "tear-off menus" in HyperCard as "System software." I could only find "pop-up lists" inside modal dialog boxes. Doesn't that make them part of a dialog box, and not menus?

I bought a System 7.1 upgrade, and it did not come with At Ease. You are referring to a bundle deal. That is not "part of the operating system." You are correct about changing the menu font using third party products. One such shareware product is Greg's Buttons. Also, please accept my apologies about leaving Macs off the cover this time. If it's any consolation, we left Atari off, too. While your comment about destroying viruses is true, surely that can't qualify as "virus control". After all, reformatting your hard disk is "virus control."

Letters Continued on page 8

THE COMPUTER PAPER

EDITORIAL

PUBLISHER / EDITOR Kirtan Singh Khalsa
MANAGING EDITOR Graeme Bennett
CONTRIBUTING EDITOR Geof Wheelwright
CONTRIBUTING WRITERS Graeme Bennett
 James MacFarlane
 Keith Schengili-Roberts
 Geof Wheelwright
 Mark Winder
NEWSBYTES
CANADIAN EDITOR Grant Buckler

PRODUCTION

ART DIRECTOR Carolyn Howse
PRODUCTION MANAGER Kit Griffin
PRODUCTION STAFF Jana Kolar
 Ernest Stelzer
 Ron Braunagel

COVER PHOTO "Shocking Science" image
 supplied courtesy of
 Flatlanders, Inc.
 (204-783-6931).
 Colorized and modified by
 Graeme Bennett.

PROOFREADER Tim Dunn

ADVERTISING

SALES MANAGER Hari Singh Khalsa
NATIONAL AD SALES John Oliver
 (416) 588-1580 Toronto

ACCOUNTING & ADMINISTRATION

ACCOUNTING MANAGER Dharm Kaur Khalsa
CONTROLLER Chris McPhie
ACCOUNTING ASSISTANT Joanne Campbell
ADMINISTRATION Amrit Kaur Khalsa

VANCOUVER OFFICE

B.C. AD SALES Dyal Singh Khalsa
 (604) 733-5596

DISTRIBUTION Ken Kemp & Co.

PRINTER Transcontinental West

TORONTO OFFICE

ONTARIO AD SALES Yvette Doucette
 (416) 588-1580
 John Oliver

OFFICE MANAGER Rosemarie Brown

CIRCULATION MANAGER Charles Oliver

PRODUCTION Tom Lewis

PRINTER Metroland

CALGARY OFFICE

ALBERTA AD SALES Patricia FitzGerald
 Calgary (403) 262-5737
 Tanya Bielenstein
 Edmonton (403) 459-3554

PRINTER Calgary Sun

WINNIPEG OFFICE

MANITOBA AD SALES Suzanne FitzGerald
 (204) 949-7720

SUBSCRIPTIONS

To have 12 issues of The Computer Paper mailed directly to your home (in Canada), send a cheque for \$24.95 to Suite #8, 3661 West 4th Ave., Vancouver, B.C. V6R 1P2. American subscriptions please send \$45 in US Funds. Overseas please send \$90 Canadian (first class).

THIS IS VOLUME 6, NO. 6, JUNE 1993

The Computer Paper is published monthly by Canada Computer Paper Inc. All rights reserved. Reproduction in whole or in part without the permission of the publisher is strictly prohibited. The opinions expressed in articles are not necessarily those of the publisher.

Canada Computer Paper Inc.

BRITISH COLUMBIA: 50,000 Circulation
 #8, 3661 W. 4th Ave., Vancouver, BC V6R 1P2
 Phone: (604) 733-5596, Fax (604) 732-4280

BBS Number: Mind Link! (604) 576-1214 (Log on with the name "Computer Paper") **Internet** electronic mail address contact the editor at: tcp@mindlink.bc.ca

ALBERTA: 50,000 Circulation

#300, 714 1st St. SE, Calgary, Alberta T2G 2G8
 Tel. (403) 262-5737, Fax (403) 265-5974
 Edmonton Tel. (403) 459-3554, Fax 491-0160

MANITOBA: 25,000 Circulation

130 Scott St., Winnipeg, Manitoba R3L 0K8
 Tel. (204) 949-7720, Fax (204) 949-7721

ONTARIO: 80,000 Circulation

408-99 Atlantic Ave., Toronto, Ontario M6K 3J8
 Tel. (416) 588-1580, Fax (416) 588-8574
BBS Number: Canada Remote (416) 629-7000

2nd Class Postage Registration #10251
 Printed in Canada ISSN 1187-5259

Membership in the BCA Division of CCAB
 applied for September 1992.

IT COMES WITH TWO BILLION DOLLARS WORTH OF SECURITY.

Few computer systems in the world come more highly protected than Dell's.

A fact that's been proven in over 17 customer satisfaction survey wins over the last 5 years alone. We've become the #3



industry-standard PC company in the world by offering our customers a direct rela-

tionship. And, with

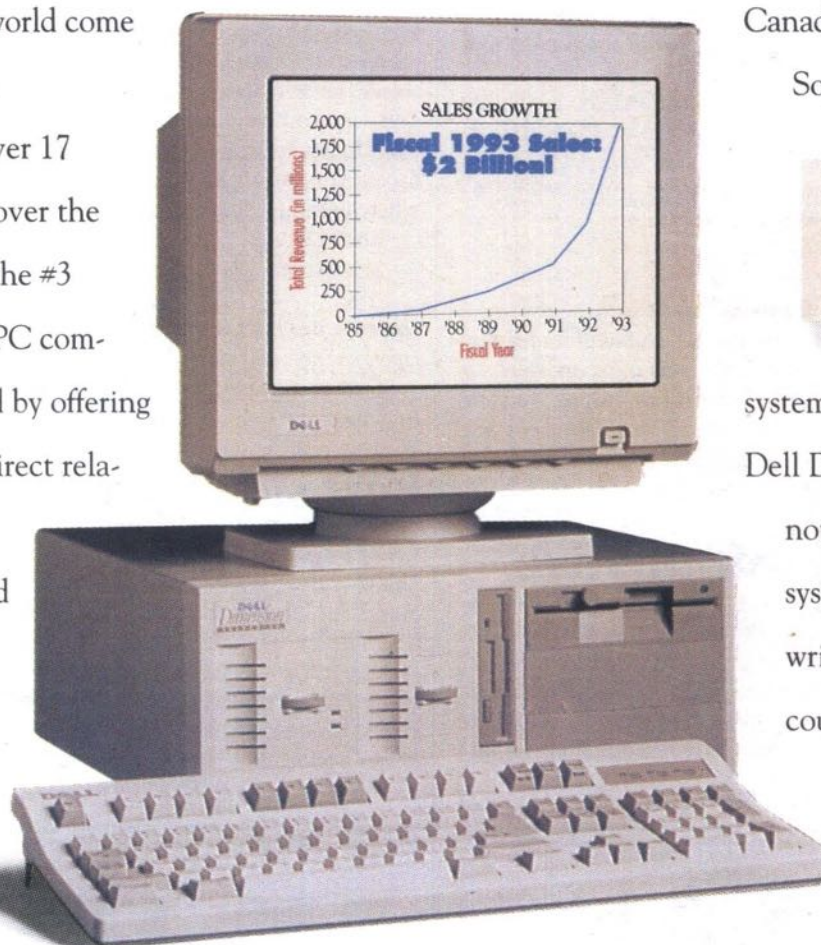
over 250 employees in Canada and

offices in Vancouver, Calgary,

Richmond Hill,

Ottawa, Montreal and

Halifax, we offer



Canadians exceptional service.

So, if you're looking for a computer

DELL
Dimension

system that offers more value, look at the

Dell Dimension series – high-quality

notebook, desktop and floorstanding

systems – name-brand computers with

written service guarantees. What more

could you ask for? Oh – the prices.

They're great too! Just call.

CUSTOMER SATISFACTION SURVEY

Source: Reliability Ratings™ 1992 PC Vendor Survey¹

SERVICE	TECHNICAL SUPPORT	PRICE	RELIABILITY	UPGRADEABILITY	FUNCTIONALITY	MONITOR	OVERALL SATISFACTION
1. DELL (8.63)	1. DELL (8.09)	1. DELL (8.82)	1. DELL (8.96)	1. DELL (8.52)	1. DELL (8.73)	1. DELL (8.31)	1. DELL (8.77)
2. APPLE (8.06)	2. IBM (7.99)	2. COMPAQ (6.62)	2. COMPAQ (8.95)	2. APPLE (7.64)	2. COMPAQ (8.45)	2. APPLE (8.08)	2. COMPAQ (8.45)
3. IBM (8.01)	3. APPLE (7.72)	3. APPLE (6.58)	3. APPLE (8.58)	3. COMPAQ (7.48)	3. APPLE (8.40)	3. COMPAQ (7.60)	3. APPLE (8.14)
4. COMPAQ (8.00)	4. COMPAQ (7.71)	4. IBM (6.01)	4. IBM (8.54)	4. IBM (6.91)	4. IBM (7.96)	4. IBM (7.38)	4. IBM (7.89)

¹Based on customer ratings from a sample of the 500 largest corporate PC sites in the USA

Survey was conducted by Reliability Ratings, Needham, MA. The data is quoted from a publicly available 40-page report. Reliability Ratings, the research company, is not affiliated with Dell Computer Corporation and does not endorse its products. Survey responses are not specific to Dell Dimension products.

DELL™

CALL 1-800-265-6874

FAX 1-800-387-5753

Hours: Mon. - Fri. 8 a.m. - 8 p.m. EST.

Dell Computer Corporation, 121 Granton Drive, Richmond Hill, Ontario L4B 3N4
Halifax • Montreal • Ottawa • Toronto • Calgary • Vancouver

Dell cannot be responsible for errors in typography and photography. DELL is a registered trademark and the Dell logo is a trademark of Dell Computer Corporation. Intel and the Intel Inside logo are registered trademarks, and 486 is a trademark of Intel Corporation. Dell disclaims proprietary interest in the marks and names of others. Price and specifications are subject to change without notice. Shipping, handling and applicable sales tax not included in price. © 1993, Dell Computer Corporation. All rights reserved.

AD CODE: BCP06

CAD CONNECTION Mon - Sat 10:00 - 7:00
1600 Bloor St. West
 Toronto (between Keele & Dundas)
 Tel: 537-0509 Fax: 537-1354

386SX-33 MONO
 1 MB RAM, Mini Tower
 20 MB Hard Drive
 1.44 MB FLD.
 Mono Monitor
 25/1P/1G Ports
 101 Enh.Keyboard
\$565

386DX-40 VGA
 4 MB RAM 128K Cache
 120 MB Hard Drive
 1.2 & 1.44 FLD.
 SVGA 512K Card
 VGA Color Monitor
 25/1P/1G Ports
 Mini Tower Case
\$1095

486DX-33 SVGA
 4 MB RAM 128K Cache
 120 MB Hard Drive
 1.2 & 1.44 FLD.
 SVGA 512K Card
 SVGA Color Monitor
 25/1P/1G Ports
 101 Enh.Keyboard
 Mini Tower Case
\$1485

3 YEARS LABOUR 1 YEAR PARTS WARRANTY

NEW Multimedia System
Bondwell 486MPC \$1990
 CD ROM Sound Blaster
 Compatible Card
 Ms DOS 6.0
 Ms Windows 3.1
 CD's & Times
 4 MB RAM
 120 MB Hard Drive
 1.2 & 1.44 FLD.
 SVGA Monitor
 SVGA 512K Card
 25/1P/1G Ports
 101 Enh.Keyboard
 Mini Tower Case

WE UPGRADE YOUR OLD SYSTEM
 XT/286 to 386 from **\$205**
 1 MB RAM to 4 MB **\$145**
 2 MB RAM to 4 MB **\$95**

Prices are cash discounted and subject to change without notice.

Letters to the Editor

Continued from page 6

Re: Comparing Operating Systems

I was browsing the May '93 issue of your paper and found what must be a mistake.

Your article "Comparing Operating Systems" on page 13, under the row designated "Type of Multitasking", states that Windows NT (tm) is a "preemptive" operating system.

In fact, Windows NT is a preemptive, multi-threaded operating system, just as OS/2 is. This is an important feature of an operating system and can affect people's decision whether or not to use a particular system.

I feel this omission hurts the credibility of Windows NT and I wanted to express my views in this area.

Timothy D.A. Cox
 TDAC Software Inc.
 Toronto, ON

Graeme Bennett Replies: Right you are. I knew that Windows NT is multithreaded, but accidentally omitted it from the chart. Oops. Of course, technically, it is not "wrong" to state that NT's multitasking is preemptive, it's just that it looks as though it is not multithreaded when compared to the others.

Very informative

I read your newspaper occasionally and enjoy it very much. This month's edition was very informative to me. In this issue, Graeme Bennett wrote an article called "Comparing Operating Systems." As a person who just purchased a computer, I want-

ed to know what type of operating system would be best suited for my computer. I also have another computer that is currently running on MS-DOS 6.0 and Windows 3.1. These programs run fine on my new computer (which is a 486DX-33), but I feel that these operating environments do not begin to utilize the potential of my computer.

With help from the article ("Comparing Operating Systems"), I have been able to find two environments that I am interested in running. These two environments are Windows NT and NeXTStep. I would like to know if you can send me some more detailed information on these two environments (such as Hardware Requirements and Suggested Hardware Configurations). I would greatly appreciate any information you can send on these environments. Also, I would like to know if you could supply me a beta version of the operating systems, or where I can get a copy to test.

Khalid Eidoo
 Mississauga, ON

Graeme Bennett Replies: We'll continue to report on these and other operating systems.

Contact Microsoft and NeXT for hardware requirements.

Best side-by-side comparison

The operating system chart featured in the May issue of *The Computer Paper* was the best side-by-side comparison of operating system features I have seen yet. I'm sure many professionals will wonder what possessed you to end off with, "The Amiga makes a good choice for a home computer."

Of course it does. Compared to the hassles of MS-DOS based systems, the Amiga should be first on most home-owners' lists.

However, this ignores the contributions that Amiga users have made to pushing forward the state-of-the-art in video, multimedia and 3D animation. Not the kinds of things you do with a "home-computer." Still in 1993, other brands are fooling people into buying systems that fall short of what the Amiga was capable of in 1985, 1990 and far from what it is capable of today.

Comparing AmigaDOS to UNIX was a bit misleading too true, it features powers close to UNIX in some respects but it is far less complicated than UNIX's legendary hieroglyphics. A more accurate statement might be that it takes the best of MS-DOS and Macintosh environments and takes off from there.

Incidentally, since Windows NT is still not available at your local dealer, I might as well add that AmigaDOS 3.1 should be out by summer featuring a host of new features including built-in networking and Digital Signal Processor support. If you want to see where personal computing is going, start by looking where the Amiga is at.

Zolton Hunt
 Beeton, ON

Graeme Bennett Replies: But, but ... an Amiga does make a fine home computer. After all, the home is where most of us listen to and/or play music, and watch and/or record videos, animations, etc. That sounds like an Amiga would fit in there, don't you think?

I continue to maintain AmigaDOS has more in common with Unix than it does with MS-DOS or Macintosh. That's a compliment. ■

Pixel
POINT
 Technologies Inc.

Computers
 Quality & Service

Guaranteed

High Quality Parts - High Quality Performance - Let us POINT you in the right direction!

Pixel
POINT

**VESA Local Bus
 486 DX-33 Mhz.**

INTEL 486 DX-33 Mhz CPU, with 256K Cache (exp to 1 Meg)
 VESA Local Bus "Bus Mastering" Motherboard
 VESA Local Bus 1 MEG GUI Accelerator Video Card (16.8 M Colours)
 VESA Local Bus IDE Hard Drive Controller

Complete \$2495

245 Megabyte Fast Quantum Hard Drive
 4 Megabytes System Memory (RAM)
 Mid-Tower Case with 230 Watt Power Supply
 ViewSonic .28 SVGA Colour Monitor (Non-Interlaced, Low Rad.)



We also carry a wide range of Name Brand computer products.....Call or Fax today!



2 YEARS Owned &
PARTS AND LABOUR Operated
WARRANTY

Complete Windows Ready (ISA) Systems

SVGA 0.28 Samsung Colour Monitor 130 Meg Maxtor Hard Drive
 1 MEG Accelerator Video Card Both High Density Floppy Drives
 4 MEG System RAM Keyboard / Mouse / Mouse Pad
 DOS 6.0 & Windows 3.1 Installed Mini-Tower w/220 Watt P/S
 System Tested & Burned-in Full Customer Support

Pixel
POINT
 |||||386
 386 DX-40
\$1,399

Pixel
POINT
 |||||486
 486 DX-33
\$1,699

Pixel
POINT
 |||||486
 486 DX-50
\$1,879

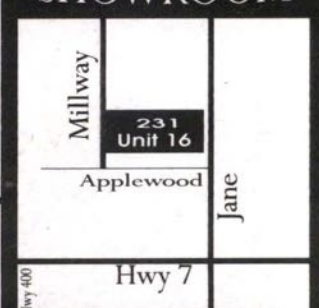
Other configurations are possible...Call Us

Pixel Point Technologies Inc.
 231 Millway Ave., Concord, ON, Unit 16, 2nd Floor, L4K 3W7

Tel: (416) 660-1047
Fax: (416) 660-1423

Open Weekends -- Feel Free to Call -- Prices are subject to change without notification.

Visit Our
SHOWROOM



No "Sales," No "Gimmicks" Just Low Prices Day In/Day Out



\$64⁹⁵

**OVER 1000 TITLES
IN STOCK**

**WE DO TAKE
SPECIAL ORDERS**

**HARD TO FIND TITLES
TOLL FREE CANADA WIDE**

**IF ITS CHOSING
BETWEEN PRICE AND
SELECTION YOU HAVE
NO CHOICE!**

Price Protection Guarantee

10% OFF ON THE SPOT
We're constantly checking the competition to ensure that our prices are unbeatable — day in/day out. but if you should find any identical item we sell at any store at a lower price that can be verified, we'll not only match that price, we'll beat it by 10% on the spot... guaranteed!



**Chess
Maniac**

\$54⁹⁵

CorelDRAW!

Full Package \$179⁹⁵ LTD. QTY.



**Tony La Russa
BASEBALL II**

\$54⁹⁵



MICROPROSE

\$54⁹⁵



**'STRIKE
COMMANDER'**
• Witness the most powerful 3-D system ever written for a PC, featuring real space, real time bitmapped images, fractal terrain and visuals of unparalleled realism! • Pilot four different fighters against more than 15 different types of enemy aircraft, from Chinook helicopters to F-15s.

ORIGIN

\$64⁹⁵



'JUMP JET' is a state of the art flight simulator based on the most unique aircraft in the world today. Features up to 6 sorties per day, fatigue factor in combat, digitized views of weapons and the ability to hover, fly backward and land vertically.

MICROPROSE

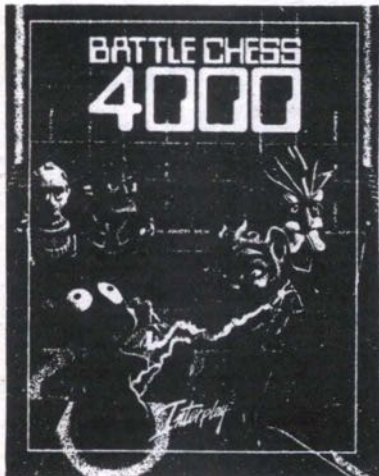
\$59⁹⁵



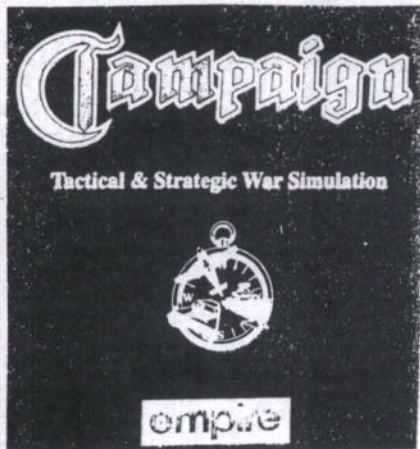
'CONQUEST OF JAPAN' is a miniature-style war simulation in which you start with 5 randomly placed cities and hire armies in order to conquer Honshu, Japan's main island. Features real time combat, colorful animation, authentic troop formations, strategic planning, and individual troop movement in VGA graphics.

**Impressions
Software**

\$49⁹⁵



\$49⁹⁵



empire \$49⁹⁵



\$29⁹⁵



\$69⁹⁵

WITH THE NEW LANGUAGE ASSISTANT SERIES FRENCH ASSISTANT & SPANISH ASSISTANT YOU CAN GET SENTENCE-BY-SENTENCE TRANSLATION IN BOTH DIRECTIONS-FROM ENGLISH TO THE FOREIGN LANGUAGE, AND VICE VERSA! IT TRANSLATES WORDS, SEARCHES FOR PHRASES, CONJUGATES VERBS, PROVIDES GENDER AND NUMBER AGREEMENT, AND WORKS WITH WORD ORDER.

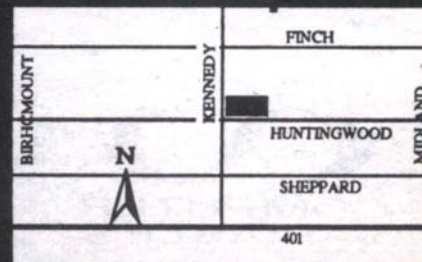
NTC SOFTWARE

2695 Kennedy Rd.

Southlawn Plaza, Scarborough

(416) 292-9000 • 1-800-461-2379

Hours
Mon-Fri 10-9 pm
Saturday 10-6 pm
Sunday 11-5 pm



486 For The Price Of 386

WHY PAY MORE when for the price of our competitors' 386 you can have an Elite 486—2 to 20 MB of RAM and up to 340 MB Hard Disk. Available in both 64 gray scale monochrome and crisp active matrix colour combined with the DXII processor, the Elite Colourpro provides the best price performance second to none. All Elite notebooks come complete with exclusive 2 year warranty.



Elite Notebooks

Elite 5500 486SLC-25 4M RAM 80M HDD	\$1,999
Elite 5500 486SLC-25 4M RAM 120M HDD	\$2,199
Elite 5500 486SLC-25 4M RAM 200M HDD	\$2,499
Elite 5525 486SX-25 4M RAM 80M HDD	\$2,199
Elite 5525 486SX-25 4M RAM 120M HDD	\$2,399
Elite 5525 486SX-25 4M RAM 200M HDD	\$2,699
Elite 5533 486DX-33 4M RAM 120M HDD	\$2,699
Elite 5533 486DX-33 4M RAM 200M HDD	\$2,999
Elite 5550 486DXII-50 4M RAM 120M HDD	\$2,999
Elite 5550 486DXII-50 4M RAM 200M HDD	\$3,299
Passive Matrix Colour	\$1,000
Active Matrix Colour	\$2,444

Lease from
\$69
per month

40 Vogell Road, Unit #4, Richmond Hill, Ontario L4B 3N6

Tel: (416) 508-6211 • 744-3067 Fax: (416) 508-6217

Dealer OEM Inquiries Welcome



what's new

Teckn-O-Laser moving to fill recycling gap

Laser printers, as we know them, were designed for simplicity. Since the retail cost often dips to under \$1,000, manufacturers have to have foolproof mechanisms to minimize service calls. They achieve this by putting the "guts" of the laser in a disposable cartridge. This makes service simple, since most of the breakable or wear-outable parts are replaced whenever you replace the toner. This has its downside in that it generates a lot of waste. The development of laser toner cartridge recyclers is a move to eliminate this waste. Last year, according to Teckn-O-Laser VP Richard Cook, disposed laser cartridges added eight million pounds of non-biodegradable plastic and metal waste to landfill sites. By 1995, the company expects to keep that much out of landfill sites through the use of re-manufactured laser printer cartridges. To encourage the reuse of cartridges, Teckn-O-Laser is donating \$1 per cartridge to the United Way.

Teckn-O-Laser has recently moved its Toronto office to 850 Magnetic Drive, Downsview, Ontario.

Contact: Teckn-O-Laser (416) 663-8494.

Service Bureau brings high-end imaging tools to Joe Photographer



Digital imaging has had a big impact on the world of photography, but many of the fancy tools for image editing are out of reach

of mere mortals because of high-priced hardware and software. Toronto Image Works, a downtown darkroom rental facility and custom photo lab, is expanding its services to include computer workstation rentals, scanning, output services and educational workshops. The workstations are based on Macintosh Quadra 800s, with a minimum of 40 megabytes of RAM, along with 1 gigabyte hard drives loaded with Photoshop, Illustrator, QuarkXPress and a variety of other graphics software. Throw in a 4,000 dpi Leaf scanner, a high-res film recorder and Canon color laser printer, and photographers and artists will get a powerful set of tools with which to edit their images.

Contact: Toronto Image Works Ltd., 80 Spadina Ave., Ste 207, Toronto (416) 363-1999.

CompuBridge & Communication Inc.

3021 Markham Road, Unit 52, Markham & McNicoll Centre, Scarborough, Ontario. M1X 1L7

Tel : (416) 291-1073

Fax : (416) 291-1663

3

86 SX40

2Mb RAM, 1.44Mb FDD
0.41dp VGA Monitor w/256K
Samsung 120 Mb HDD

\$ 969.00

86 DX40 128K

4Mb RAM, 1.2/ 1.44Mb FDD
0.39dp SVGA Monitor w/512K
Seagate 130 Mb HDD

\$ 1239.00

4

86 DX33 128K

4Mb RAM, 1.2/ 1.44Mb FDD
0.28dp SVGA Monitor w/512K
Seagate 130 Mb HDD

\$ 1569.00

86 DX2\50 128K

\$ 1909.00

86 DX1\50 128K

\$ 1959.00

2 VESA Local Bus

4Mb RAM, 1.2/ 1.44Mb FDD
N.I. 0.28dp SVGA Monitor w/1Mb
Quantum 170 Mb HDD



All system included Mini-Tower 230W and 101 Keyboard

Monday to Friday 9:30 am - 8:00 pm
Saturday : 10:00am - 7:00pm



Commodore Amiga 600 1200 and 4000 From \$349

MS Access v1.0
MS-DOS 6.0 Upgrade

\$129
\$59



NCC i486DX/33



\$939.00

System includes 1 Mb RAM, 1 3.5" floppy drive, Mini tower case, 2 serial, 1 parallel and 1 game ports, 42 Mb hard drive, 2 YEARS PARTS AND LABOUR WARRANTY

FAX QUOTE FORM

Fax to 771-6810 or Call 771-6807
Ask for Lawrence or Bryan

SYSTEM

NCC 386SX/25 [] ISA
NCC 386DX/33 [] EISA
NCC 386DX/40 []
NCC 486DX/33 [] Local Bus
NCC 486DX/50 []
NCC 486DX/66 []

MEMORY

1Mb
2Mb
4Mb
8Mb
16Mb

MONITOR

14" VGA
14" SVGA
14" UVGA
17" SVGA
21" SVGA

HARD DISK

42Mb
85Mb
127Mb
170Mb
240Mb

MODEM

2400 Baud
9600 Baud
14400 Baud
FaxModem

FLOPPY

5.25" 1.2Mb
3.5" 1.44Mb

PRINTER

9 Pin
24 Pin
InkJet
Colour
Laser

CASE

Desktop
Mini Tower
Full Size Tower
Server

[] CD-ROM

[] Windows 3.1 [] Dos 5.0 cp.

We can custom design a system to your specifications. Fax or call for complete pricing and details.

Name: _____

Address: _____

Phone: _____

Fax: _____



Computer Variables
155 East Beaver Creek
Unit #27
Richmond Hill, Ontario
L4B 2N1

Telephone: (416) 771-6807
FAX: (416) 771-6810
(416) 481-6807

We Ship Across
Canada E&OE

Prices Subject To Change Without Notice. Limited Quantities.
Sale Items Are Cash Price. Sale Prices In Effect Until May 31, 1993.

what's new

Launch of Lexmark Printers



TORONTO — Lexmark — the former printer-division of IBM — has produced a series of new laser printers aimed at firms needing high-volume

printers for their LAN network.

The 4039 series all print at 600 dots per inch resolution, and depending on the model, can print from 10 to 16 pages per minute. The printers utilize Print Quality Enhancement Technology (PQET) to provide sharp text and graphics, and come with 39 Type 1 scalable fonts. They have built-in PostScript and PCL5 compatibility, and come with SmartSwitch, a function that automatically detects which format is used in a document. The new Lexmark printers also incorporate a patented technology designed to ensure that envelopes are not creased when printed.

Lexmark also provides some useful options for their new printers. These include a duplexing attachment that simply snaps-on to the printer and a card that allows different systems (like Macintoshes and PCs) to share the printer. Lexmark also provides an upgrade path for these printers to expand their capabilities and meet future demands. They are rugged machines rated to print up to 75,000 pages a month.

The suggested retail prices range from C\$2,425 for the 4039-10R to \$4,950 for the 4039-16L.

Contact: Lexmark Canada 1-800-663-7662.

Debut of NoteStation

TORONTO — Long and McQuade, a well-known music shop in Toronto, has unveiled the NoteStation, an interactive kiosk that can print sheet music on demand. Developed by Music Writer, Inc. of Los Gatos, California, it is the first of its type to be released in Canada.

The NoteStation comes with a touch-display color video screen that lets users choose from thousands of available titles. After choosing a selection, customers can listen to the music, see the score and even change the key in which the music is written.

When finished, the NoteStation can either print the sheet music or download the information in a general MIDI format onto a 3.5" computer disc. The cost for a typical print-out is \$4.95, or \$14.95 for the disc option.

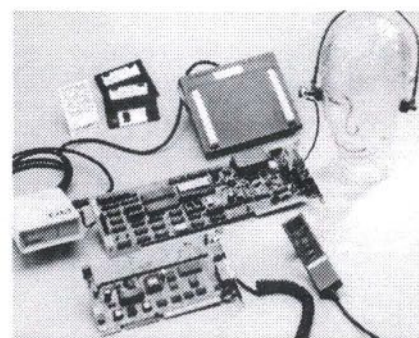
Contact: Long & McQuade: (416) 588-7886.

Turn your PC into a dictation machine?

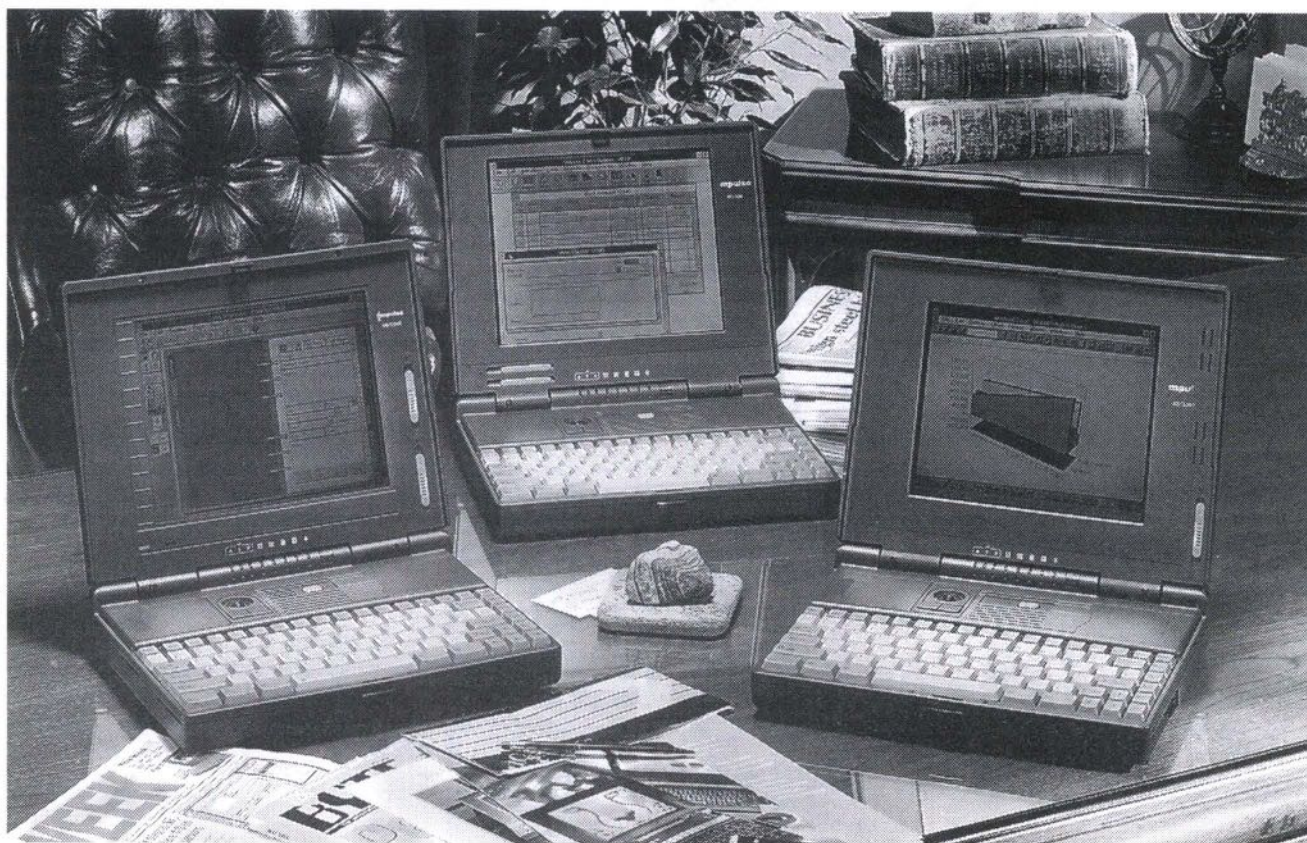
Despite the advent of the PC, many business executives and lawyers still live and die by their Dictaphones. Now BCB Technology has a way to take advantage of the skills of a PC to allow dictation to be done over the phone to a computer. PC-DART, consists of a telephone interface/dictation card, a transcribing control card, a secretarial control unit with foot switch and headset and the

system software. The computer can multi-task—that is your secretary can be typing out a dictation at the same time a new digital recording is being made via telephone. The complete system starts at US \$ 1,995.

Contact: BCB Technology Group (416) 850-8266.



WALK. SHOP. COMPARE.
WALK. SHOP. COMPARE.
WALK. SHOP. COMPARE.
WALK. SHOP. COMPARE.



(And we thought you wanted a notebook so you would avoid wasting time.)



Time is money. So if your time is spent traveling the country between hotels and boardrooms, we have a mobile computer that delivers around-the-clock productivity.



Black and white or brilliant active matrix colour displays. Letter-sized and only 5.5 lbs. Powerful, energy-efficient Intel i486 processors. Microsoft Windows 3.1 and MS DOS pre-loaded to make it easier. Toll-free



Support and your choice of eight unique Impulse portables.

Affordable freedom. At a price that leaves money in your pocket. And time on your hands.

Put Impulse to work for you today. Just call 1-800-668-1111 for the Authorized Reseller nearest you, or for more information about the Impulse Family of Notebook computers.

Exclusively distributed by:

LANANA
TECHNOLOGIES

2700 Argentia Road
Mississauga, Ontario, L5N 5V4
Tel: (416) 858-3000
Fax: (416) 858-9090

impulse

DAI

(416) 891-8184

CALL TOLL FREE AT 1-800-461-3285
American Express • Visa • Mastercard • Cash • C.O.D.
Mississauga • Montreal • Los AngelesCALL
FOR
OUR
PRICE
LIST

FLOPPY DISKS

1.2Mb (5.25") Box of 10 \$4.95
1.44Mb (3.5") Box of 10 \$9.95

1MB SIMM (70NS)

256 SIMM (70ns) \$54
MS-DOS 5.0 (OEM) \$19
MS-Windows 3.1 (OEM) \$39
\$57

386DX-40MHZ ONLY \$1549

Includes everything below ... and 1 year warranty ...

4MB RAM	127MB Hard Drive	Multi I/O Card
1.2 MB Floppy Drive	101 Key Keyboard	FD/HD Controller Card
1.44MB Floppy Drive	Mouse	MS-DOS 5.0
SVGA Card w/MB	Desktop Case	24pin Panasonic Printer
SVGA Monitor (1024 x 768 .41dp)	200watt Power Supply	1 Parallel, 2 Serial, 1 Game Port

Little Big Lan™ only \$99.95 per entire LAN, not per node!

Cabling Requirements will vary.
Ethernet, ARCnet, Parallel, and Serial Port supported.

WORKS WITH WINDOWS! NETWORK UP TO 250 COMPUTERS

HARD TO FIND LOWER PRICES!
SALES ENDS SOON. • PRICES SUBJECT TO CHANGE.LINES OPEN 7 DAYS A WEEK 9:00AM - 9:00PM
FAX ORDER TO: (416) 278-4257DON'T BUY
BEFORE YOU TRY'IBM PC SOFTWARE EVALUATION
(OVER 800 TITLES IN STOCK NOW!)

CASH PAID

FOR YOUR USED SUPER NINTENDO
SEGA GENESIS & PC SOFTWARE

Super Deals On Pre-Owned Software!!

E.G.

LOTUS 123 V3.1	\$49
LOTUS FREELANCE	\$20
HARVARD GRAPHICS WINDOWS	\$45
HARVARD GRAPHICS V3.0	\$49
QUATTRO PRO	\$29
LOTUS WORKS	\$12
OS/2 V2.0	\$27

LOTS TO CHOOSE FROM! COME IN & CHECK IT OUT!

*membership required

We Also Offer:

Computer Sales & Service
PostScript Laser Printing
Black/White, Color Scanning
FAX & O.C.R. Services

We Buy & Sell:

New & Used Software
(incl. games) & Computers
& All Video Games (SNES..)
All Trade-ins WelcomeTHE Soft
Connection

WHERE COMPUTING MINDS CONNECT

6091A YONGE ST.
WILLOWDALE ON.
M2M 3W2TEL: (416) 733-9001
11.00am to 8.00pm - Weekdays
12.00pm to 6.00pm - Saturdays

what's new

Toronto Freenet goes public

BY ALLAN EARLE

The Toronto Freenet Steering Committee held its first public meeting last month with more than 150 people attending. The keynote speaker was David Sutherland, founder of the Capital City FreeNet in Ottawa, which became operational just two months ago and already receives 15,000 weekly calls from 3,500 registered users on 35 incoming phone lines with about 100 new members logging on daily.

Anyone with a computer and modem can access this network to peruse its databases, retrieve and send unlimited amounts of information throughout the region, across the country and around the world—free. "We keep hearing we're in the information age," said Sutherland. "These (networks) are the windows that will allow it to come into people's lives."

The Toronto Freenet will provide similar services and "will likely have the world's largest Freenet because we will be the largest city to have one," according to Jud Newell, (founder of Canada Remote Systems — Canada's largest electronic bulletin board system) one of six Toronto Freenet founding members.

There are currently 13 Freenets world-

wide, including two in Canada. The first one was started in Cleveland Ohio in 1986 by Case Western Reserve University, offering direct citizen access to the governor of Ohio, and providing services like "Doc in the Box," at "St. Silicon's Hospital." It now monitors more than 350 subjects (including arts, education, government, health, law and recreation) for 30,000 registered users, (about 3,000 of them university students). Its 90-plus telephone lines handle 6,500 calls a day.

"The key component to making Freenets work are the volunteers and public involvement," said Laine Ruus, another founding member who is also the University of Toronto Data Librarian and teaches online-research courses. "We're hoping to get Toronto representatives involved from diverse interests groups like the disabled, ethnic minorities, the arts community environmental groups etc."

Those wishing to chip in should attend the next general meeting, May 26, 7-9 p.m., Rodgers Auditorium, at Ryerson University, 80 Gould St.

Contact: Allan Earle (416) 597-6947.

Turn your company logos into a font

MacKenzie Tarris, a BC-based company is launching a new software product called LogoFont. The package includes a range of characters such as recycling logos, wheelchair access symbols and credit card sym-

they require. The company claims that users will see a number of benefits from this approach to clip-art management, including quick access to frequently used graphics, clearer on-screen representation, faster print times and smaller documents. The quality of print output and the appearance of computer-generated faxes is also improved. Logos can be added from supplied PostScript files or generated from artwork. The cost of the font with one logo added starts at C\$88.92 including shipping and taxes. The resulting font can be supplied on either PC or Macintosh in TrueType or PostScript font formats.

Contact: MacKenzie Tarris (604) 945-9090.



bols. In addition, the type font is customized for the purchaser to include their individual company logo, signatures and any other commonly used graphic element

IBM PS/1 486/SX/DX Two Day Sale Event

Largest Ever at Kilobytes Computers Inc.

120 Whitmore Rd. #5, Woodbridge (402-1650)

2nd Lights West of Highway 400, 1st Intersection South of Highway 7

June 4th and 5th

Fri. 9:00 A.M. - 7 P.M. • Sat. 10:00 A.M. - 6 P.M.

Featuring All PS/1 models and the PS/Note
Plus! Prizes and Gifts with Every Purchase!

Retailer



Leasing Available



You can't
afford to look
this dull,
but you can
afford to look
this brilliant.

HP DeskJet printers.
Easy to use. Easy to own. Easy to look your best.
The beginning of the end of dot matrix printers.



500
Superior black and white
documents at a low price.

550C
Advanced black and white
and colour performance.

500C
Just like the 500
with the addition of colour.

DeskJet Printers
Make it happen.



what's new

AST pen/notebook computer

MISSISSAUGA — AST Canada Inc. has entered the pen computing market with the launch of its new PenExec pen/notebook computer, which incorporates hybrid design that gives users the choice of working with a pen or a built-in keyboard. The monochrome VGA screen can be used as a flat writing tablet, or it can be flipped away from the body of the machine to reveal a keyboard.



It weighs only 5 1/2 pounds and comes pre-installed with MS-DOS 6.0, Windows 3.1 and Windows for Pen Computing. It is based on an Intel 386SL 25MHz chip, has a PCMCIA slot, and AST claims a battery life of up to three hours.

Current list price for the machine is C\$3,999.

Contact: AST Canada Inc. (416) 507-3278.

Hewlett-Packard introduces HP LaserJet 4L

MISSISSAUGA — Hewlett-Packard has introduced the HP 4L, a new 300-dot-per-inch, four page-per-minute laserJet printer aimed at single users and home businesses. It occupies a small space on the desktop, and weighs only 7kg.

It comes standard with one megabyte of memory Memory Enhancement technology (MEt), a process that accommodates graphics-intensive printing. Built-in are 26 scalable typefaces, and all software drivers are included in the package.

The HP 4L comes with a unique power-saving function. It has no on/off switch, but remains idle until it is required to print something. Its idle state uses only five watts, as opposed to the 50 watts typical of other machines. The printer's "Economode" format lets users save on toner — HP officials claim it can cut toner usage in half.

Using the Bi-tronic parallel interface permits the PC and the printer to communicate with each other, and allow printer functions to be controlled directly from the computer.

The suggested list price for the HP 4L is C\$1,140.

Contact: Hewlett Packard 1-800-387-3867.

Microsoft launches new multimedia encyclopedia

MISSISSAUGA — Microsoft Canada is now shipping Encarta, a new multimedia encyclopedia on CD-ROM disc. The disc contains articles, illustrations, sounds and pictures in a multimedia format, and it is arranged to provide users with an easy and logical way to look up information.

Encarta offers more than 25,000 articles on such subjects as history, arts, science, technology and geography. It provides more than seven hours of audio, including nature sounds, historical speeches and music. Encarta also contains more than 7,000 photographs, 100 animations clips, and 800 color maps.

In addition to being an extensive reference source, Encarta provides tools to aid its users, such as a built-in word processor with dictionary, and electronic bookmarks to note areas of interest.

The suggested list price for Encarta is C\$529.95. It will be offered at \$224.95 to students and teachers.

Contact: Microsoft Canada 1-800-563-9048.

MIT

COMPUTER SUPPLIES CO. LTD.

40 SHIELDS COURT, UNIT 1-2
MARKHAM, ONTARIO L3R 0M5
TEL: (416) 946-0908
Toronto Line: (416) 431-4373
FAX: (416) 946-8749

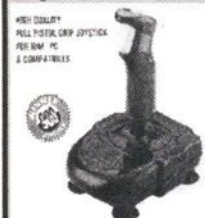
HOURS:

Monday to Friday
9:00 AM - 6:00 PM

Saturday
10:00 AM - 4:00 PM

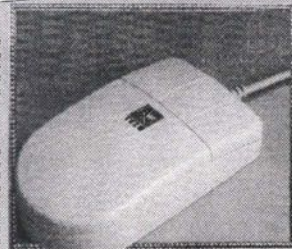
POINTING DEVICES

Sniper

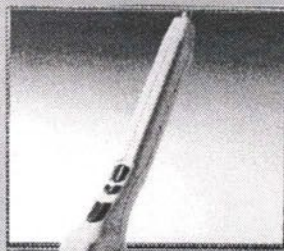


Joystick 22.00

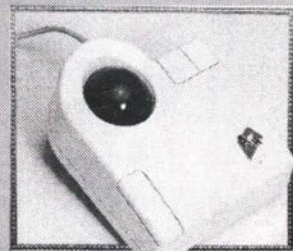
A4 Mouse 19.00



A4 Pen-style mouse 45.00



Pistol Joystick 34.00



A4 Trackball 48.00

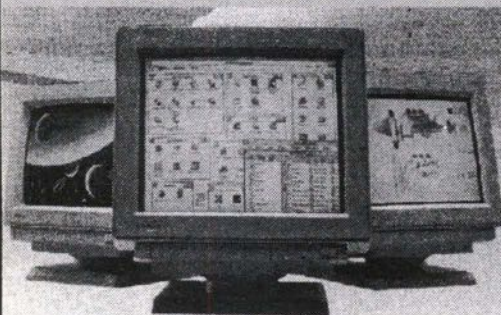
CTX Professional Monitors

Bigger, Brighter and Flicker-Free

14" 1024 x 768.....from \$ 345

15" 1024 x 768 VESA
flat-screen, low radiation.....from \$ 520

17" 1280 x 1024 non-interlaced.....from \$1180



CPS1460/CMS1461 CPS1760/CMS1761 CPS1560/CMS1561

CTX

A4 Digitizer: w/ Stylus pen, puck, adapter,
AutoCAD templates, Windows, Pen extension
18x12 surface 399.00
12x12 surface 299.00

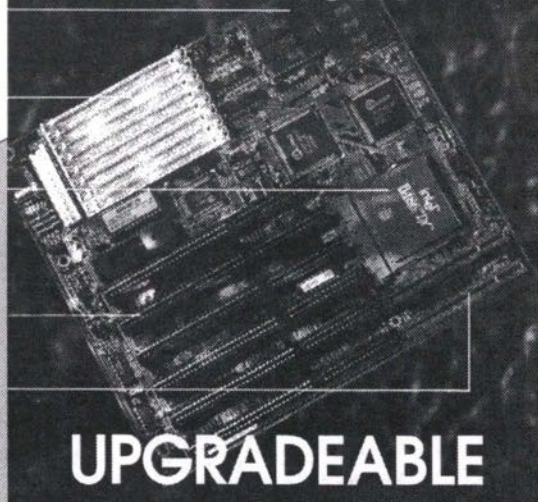
FREE with all SYSTEMS
MS-DOS 6.0
A4 Serial Mouse

NEW SECOND LOCATION!

50 WEYBRIGHT COURT #46 • SCARBOROUGH, ONTARIO M1S 5A8 • TEL: (416) 321-2259
Monday to Friday 9:00 AM - 6:00 PM

All products shown are trademarks or registered trademarks of their respective companies.

PENTIUM



UPGRADEABLE

MOTHERBOARDS

Purchase any ECS Motherboard before
August 15, 1993 and get a \$35 Factory Rebate!

SYSTEMS

3 SX/40 \$1250
16K Cache, 4MB RAM, 120 MB HD

8 DX/40 \$1350
128K Cache, 4MB RAM, 120 MB HD

4 DX/33 \$1780
128K Cache, 4MB RAM, 200 MB HD

8 DX/50 LOCAL BUS \$1980
256K Cache, 4MB RAM, 200 MB HD

6 DX/50 LOCAL BUS \$2150
256K Cache, 4MB RAM, 245 MB HD

- CTX Super VGA monitor 1024x768
- 1 MB 16-bit Super VGA card
- 120/200/245 MB Hard Drive
- High-speed Dual AT FD/HD 1:1 Controller
- 2 serial, 1 parallel, 1 game port
- AMI Diagnostic BIOS
- 1.2 MB Panasonic Floppy
- 1.44 MB Panasonic Floppy
- Built-in clock/calendar
- Co-processor socket (except 486)
- Enhanced 101 Keytronic Keyboard
- Choice of Three Case Styles w/ 200W CSA Power Supply

SOFTWARE RENTALS

Choose From Popular
Professional, Educational, Recreational Titles
FREE Membership for the first 100 Customers

MICRORENTAL

634 Yonge Street (upstairs)
Yonge & Bloor - Tel. 921-3069
Mon. - Fri. 3 to 8 • Sat. 11 to 7
Also sales, upgrade, training

SOFTWARE ONLY \$2.59 PER DISK

BONUS: For every 10 disks you purchase - pick 2 **FREE** disks

TO ORDER, PLEASE CIRCLE YOUR SELECTIONS BELOW

PRICES: 1-9: \$3.49 ea. 10-49: \$2.59 ea. 50-99: \$2.35 ea. 100+: \$2.15 ea.

BUSINESS

Form Letters (BU 103) Business letters, may be modified to suit most common situations. Invaluable collection!!
Business Kit (BU 106) A simple bookkeeper, and billing statement. Very helpful in organizing your business.
PC-Accounting System (BU 107) (2 disks) Complete multi-ledger accounts, accounts receivable, payable, payroll, depreciation and statements etc. Used by thousands.
Canadian Amortization (BU 109) Great for all your needs
Formgen (BU 126) Really nice form generator, easy to use.
Invoicing System (BU 127) Invoicing system with user access to a database of client and product information.

MUSIC

Pianoman 3.2 (MU 101) Turn your computer keyboard into a piano keyboard - Play music through your standard computer.
Music Library System (MU 105) Great music database for cataloging tapes, records, and CD's. Great organization.
Blaster Musician (MU 111) Create sounds for the Sound blaster. Input through Staff, keyboard, or a synthesizer.
Music Transcription (MU 113) A music editor which allows you to input your favorite songs for the computer to play back or print out as SHEET MUSIC. Supports sound blaster.
Space Ace Demo (MU 131) Fantastic Sound and graphic demo that requires a Sound blaster card. VGA or SVGA. You won't believe the effects. Absolutely spectacular!!

GAMES

Ninja Master (GA 199) With your sword, throwing stars and knives, you enter into the fortress of AKUMA to do battle!!
Avoid the Noid (GA 206) Fantastic game!! Jump climb and summersault in order to deliver your pizza on time. Fantastic and hilarious graphics. You'll love this game.
Family Feud (GA 207) The classic game from television!!
Jeopardy (GA 208) Make it to double Jeopardy!! Just like TV.
Star Trek (GA 309) You are the captain of the enterprise Travel through space and protect your crew with phasers, photon torpedoes and shields. Two versions, GREAT game.

VGA GAMES

SUPER VGA GAME- Moraff's Entrap (HG 102) HIGHLY RECOMMENDED- Supports all monitors up to 1024 X 768. Trap the killer robots throughout the various levels. FANTASTIC
Mario Brothers (HG 103) Fantastic version of the popular arcade game. Just like the nintendo game. (VGA Req.)
Prince of Destiny (HG 104) Fantastic arcade action game similar to GOLDEN AXE. EGA/VGA and sound card support.
SUPER VGA GAME- Moraff's Blast (HG 105) One of the only super VGA game available, fantastic resolution and great fun
VGA Wheel of Fortune (HG 115) VGA version of the game with over 200 built in phrases. Add your own phrases.
Hugo's House of Horrors (HG 129) The best 3D animated graphics. Save Penelope from the horrors of the haunted mansion. Incredibly popular and action packed. EGA/VGA.
Kung Fu Louie (HG 140) (3 disks) This time Louie takes on the martial art posse. Kicks, roundhouses, punches and spinning flying kicks are Louie's arsenal. VGA
Bridge (HG 148) Lets you save and replay bridge hands, Bidding and comments can also be replayed VGA
VGA Trek (HG 155) Superb Star Trek game for VGA, fight the Klingons and Romulans- EXCELLENT GRAPHICS!!
CATACOMBS OF THE ABYSS (HG 169) Fantastic 3-D graphics just like WOLFENSTEIN in this D&D adventure!!
LEMMINGS!! (HG 173) A limited version of the best game in the market. This is Fantastical! A MUST!!
WOLFENSTEIN (HG 175) (2 disks) The greatest in PC entertainment. Escape from the dungeons of a WWII prison in this 3-D action adventure. VGA, SB support
Jill of the Jungle (HG 176) Help Jill explore the far reaches of her mysterious jungle domain. Stunning action, great graphics & sound. VGA/EGA/CGA SB support
Orion's Odyssey (HG 177) (2 disks) Use your jet pack to search for the magic ANKH stolen by the evil bytor in this Duke Nukem, Commander Keen type game. VGA req.
3-D Flight Simulator (HG 178) SIMPLY THE BEST!! Stunning graphics, sound card support, & real combat make this one of the best we carry. GET THIS!! VGA
GALACTIX (HG 179) (2 disks) An opening similar to WING COMMANDER. This game had us spellbound!! Destroy the evil Xidus fleet in your advanced battle craft. VGA req.
Prince of Persia (HG 181) Classic adaptation of the best known game. 4 levels, Stunning graphics!! VGA, SB supp. Dragon's Shard (HG 182) The best of AD&D. Sword & magic, Dwarves, Elves, Wizards, Demons, it's all here!! VGA
4-D BOXING (HG 183) (3 disks) VIRTUAL REALITY in the most realistic boxing game ever!! The best in VGA!! Commander Keen 6 (HG 185) ALIENS ATE MY BABY SITTER Help Keen rescue his baby sister. SB support. VGA Cosmo's Cosmic Adventure (HG 186) (2 disks) APOGEE!! Help poor Cosmo find his parents lost on a hostile alien planet. Superb graphics, Sound Blaster, FANTASTIC!! VGA
X-MAS LEMMINGS (HG 189) Another 4 amazing levels. Save Lemmings in their snowy domain. SB support. VGA/EGA/CGA
HUGO III - Jungle of Doom (HG 190) (2 disks) Find the antidote and save penelope in this graphic adventure. VGA

FALCON 3-D (HG 191) (2 disks) The full working demo of the greatest flight simulator ever created. The best with incredible graphics, SB support. Fly an F-18!! VGA
COMMANDER KEEN DREAMS (HG 192) THE LOST EPISODE. Invade Tuberia and destroy king Boobus Toober, a real mean spud!! The best Graphics & Sound Card support. VGA
Secret Agent (HG 193) APOGEE!! Parachute behind enemy lines, avoid detection & retrieve top secret plans!! VGA
SPIDER MAN (HG 194) FANTASTIC!! Use your skills to penetrate the enemy hideout. Sound Blaster. VGA req.
3-D TETRIS (HG 196) Blockout is better than any other Tetris we have seen. Fantastic 3D graphics. VGA/EGA req
KILL THE LAMERS (HG 202) Are you tired of saving those stupid lemmings, now blow them away in this fantastic spoof!! Stunning graphics, mouse & Sound Card support!! VGA req.
Crazy Cars III (HG 204) The ultimate car racing game!! Choose from a variety of sports cars and race Pole Position style illegally avoiding the police!! SUPERB VGA
Paganini (HG 213) APOGEE!! Guide Alabama smith through the dangers of the aztec pyramid. GREAT!! VGA
Carmen Sandiego (HG 217) The shareware version of the popular commercial game, FANTASTIC fun for all, VGA
ELECTRO BODY (HG 122) (2 disks) ROBO COP at its best. Sound blaster, speech, superb graphics!! Clear this multi level complex of all hostile criminals and robots!! VGA MIG 29 Fighter (HG 223) BEST air combat simulator. Fly your MIG & clean up the sky!! Sound card support, VGA!!
ANCIENTS- The Deathwatch (HG 225) A fantastic 3-D D&D adventure WOLFENSTEIN style!! One of the best!! VGA
GOLF- Jack Nicklaus (HG 227) (2 DISKS) The best golf game we have seen yet with full sound card support and the best in graphics, overhead and throwaway views ETC. VGA
MAJOR STRYKER (HG 231) (2 disks) APOGEE again!! Fantastic space action as you defend earth from invasion. Full sound card support with incredible graphics!! VGA
OVERKILL (HG 234) EPIC MEGAGAMES!! Defend your homeland against hordes of evil aliens. Blow them out of the sky with your atomic battlecraft, Sound card!! VGA
SOLAR WINDS (HG 235) (2 DISKS) FANTASTIC!! our personal favorite game from EPIC!! GREAT graphics and sound blaster support. WING COMMANDER. As Jake Stone, fearless bounty hunter, explore the galaxy!! VGA
INDIANA JONES - Fate of Atlantis (HG 238) (2 disks) Help Indy find the lost city of Atlantis in this game similar to KING'S QUEST with sound card support. VGA
CLOUD KINGDOM (HG 241) Guide your blobule and explore the mystical kingdom in the clouds. Great graphics, VGA

ADULT'S ONLY

Slide Show (AD 101) Great slide show presentation of adult scenarios great introduction to our adult wares.
XXX In Motion (AD 103) (2 disks) Animation in bad taste. This one is a shocker with great digi graphics
Adult Games I (AD 104) Adult arcade games volume 1
East Meets West (AD 114) The best of the Orient for your enjoyment. A dazzling display of graphics.
XXX Printmaster Graphics (AD 115) 60 adult images for Print Master. Top off your collection with this one!!
XXX Printshop Graphics (AD 116) 60 adult images for PrintShop. More pictures means lots more fun.
Strip Poker (AD 118) Choose your opponent and have fun. Fantastic game with great graphics and game play.
Watch Ginger (AD 122) Believe it or not, a great nine minute video of Ginger Lyn doing what she does best.
EGA/VGA Pin up Slideshow (AD 123) (12 disks) Large collection of High Res females. Wonderfully filthy!!
Strip Blackjack (AD 127) We undress the lovely ladies in this one to the game of blackjack. VERY enjoyable.
Secrets of the Orient (VGA) (AD 132) Some of the best adult graphics we've seen featuring lovely orientals!!
XXX Adult VGA (AD 135) High-res moving VGA colour graphics that are some of the best and most erotic yet!!
Share Jizz (AD 136) Share and share alike, and boy do these girls like to share, especially this lucky guy
The Whistler (AD 137) HIGH-RES animated VGA. These graphics are without compare and will keep you hopping.
THE PLUNGE (AD 138) Very graphic sex movie. The detail is phenomenal, much better quality than movies!!
OH ANGEL (AD 139) (2 disks) About a 5 minute long video in High-res colour VGA graphics. MOVING ANIMATION
KASCHA (AD 142) The most exotic European porn star!! This slide show tell all and is the hottest ever!! VGA
TWO TIMER (AD 143) XXX animated video see this two timing babe as she helps these two guys out (and in) VGA
POKEY (AD 145) A close up adult video that is sure to raise a colourful eyebrow!! Black certainly is beautiful.
Slip n' Slide (AD 146) Superbly raunchy, sit back and enjoy this fantastic animated video!! Slippery when wet VGA
MEGA PLUNGE (AD 149) XXX motion video!! Like Plunge butt much worse!! You've got to get this. THE BEST VGA
BUTT OUT (AD 150) This is not an add to quit smoking!! In fact after you see this XXX video you may start!! VGA
XXX Album (AD 154) XXX motion!! 3 erotic scenes on the screen at once!! TRIPLE your pleasure VGA
DIRTY ME 1 (AD 156) Animated action of AJ!! Top porn star performing for your pleasure!! VGA
DIRTY ME 2 (AD 157) AJA finishes her business with these two lucky guys!! UNBELIEVABLE XXX VGA
GIFT BUTT (AD 158) Never look one of these in the mouth, XXX

motion at its finest, Superb and enjoyable VGA
AJA (AD 159) Animated, It's nice to know that this superb starlet can take care of herself when alone!!
DRIVIN IT HOME (AD 160) Animated, After getting a lift home, this young vixen shows her appreciation, VGA
Four Way Fun (AD 161) Animated XXX video in which the title says it all, Kick back and enjoy!! VGA
McPOP (AD 201) Fantastic adult graphic, sex video game. Extremely funny with great graphics. Just try and escape Madame Ching's Palace of Pleasure. EGA or VGA.
Stones (AD 202) (2 disks) An absolutely unbelievable HIGH-RES graphic story. Fantastic smuttness. This is definitely one of the best that we carry. ENJOY!!
McDoe (AD 204) The follow up to that great game Mcpop. Madame Ching's Dungeon of Ecstasy. VGA required.
ADULT VIEWER (AD 204) YOU REQUIRE THIS PROGRAM TO VIEW THE FOLLOWING TITLES, AD 208-220
SEX TOYS (AD 209) FUN FUN FUN!! Lots of neat toys and very graphically how to use them. VGA & AD-208 req
LESBIAN (AD 210) Superb graphics feature this great collection of all women action. The best, VGA & AD-208 req.
DOUBLE TROUBLE (AD 211) Double your pleasure, Triple your fun!! Double action at its best!! VGA & AD-208 req.
GROUP SEX (AD 213) Some like to have fun in groups and this is one great XXX group!! GREAT, VGA & AD-208 req.
AMATEUR ACTION 1 (AD 219) The best action is amateur action!! The girl next door!! VGA & AD-208 req.
AMATEUR ACTION 2 (AD 220) Volume II of this amazing and exotic set!! Join the fun, VGA & AD-208 req.

EDUCATIONAL

Amy's first Primer (ED 101) A collection of routines for pre-schoolers with alphabet, counting, shapes and colour.
Speedread (ED 105) Teaches how to speed read. Save time and improve your work ability with this valuable skill.
PC-Touch (ED 107) Super typing Tutor. The best we've seen
Dinosaur Database (ED 116) A fun educational program that teaches all about dinosaurs with world maps, pictures, common and scientific names. Also displays time periods.
Animated Alphabet (ED 120) (4 disks) For Pre-school till the first grade, combines colourful graphics with animation to learn the alphabet. Nearly 300 pictures. FANTASTIC!!
Googol Math Games (ED 121) Makes learning math an exciting adventure. Supports age levels 4 thru 12.
World Atlas (ED 151) (2 disks) Search by continent, country, or city in this fabulous atlas of the world.
Dos Learning System (ED 159) A great first tutor for DOS. Learn more about these fantastic machines. You'll love it.
French I & II (ED 302) Flash card drill familiarizes you with the French language. Review at your own pace.
Languages (ED 306) Teach or advance yourself with these basic tutors in : French, German, Italian, Spanish.
Balloon speller (ED 307) Great introduction to spelling for young children. Learn to spell in a fun environment.
School mom (ED 308) Teaches children ages 2-14 the basics of art, music, spelling, English, and math. FANTASTIC!!
Funny Faces (ED 309) Make different looking funny faces on your screen. Loads of fun for the younger generation.
Yogi Bear Math Adventure (ED 310) In a remote section of Jellystone Park, The child through an animated adventure VGA
Lotus Macros (SP 104) Short cuts for use with 123!!
Lotus Templates (SP 106) Ready made applications. Ready made templates to get you running immediately. LOTS!!
Lotus Learning System (SP 115) (2 disks) Basic tutorial for learning LOTUS 123. Use this to master the program.
WordPerfect 5.1 learning system (WO 201) (3 disks) Learn all the powerful and new features of this new word-pro Simply the best tutorial on the market.
WordPerfect 5.1 Macros (WO 202) (2 disks) Superb collection of over 100 helpful macros for WP 5.1
By Design (DP 110) WordPerfect add on brings desktop publishing to your documents. Creates beautiful graphic polished documents in moments. Sells for \$179.00 in stores

GENERAL

PC Lotto (GE 101) Canadian based lotto systems. Covers 40 different lotto systems including lotario and 649. File of all drawn numbers, best and worst numbers, GOOD LUCK
Personal Budget Tools (GE 116) Plan your household budget. Keep track of finances and save for those luxuries.
Meal Master (GE 117) (2 disks) A complete recipe filer. Keep track of your recipes. Comes with over 450 recipes.
Horse Racing (GE 123) Handicapping for thoroughbreds. Help increase your odds at the track by 1000 percent.
Address O-Matic (GE 124) Keep track of names and addresses with this one. Prints labels and lists.
PC-LOAN (GE 145) Best loan & Mortgage, Canadian support.
Collect (GE 170) Lets you track and manage any type of collection by categories of your choice. Antiques, art, audio, cards, books, coins, stamps, movie, ETC.
Resume Master (GE 191) Resume generator quickly prepares a professional looking resume to give you the winning edge.
Edna's Cookbook (GE 202) (2 disks) An electronic cookbook with fantastic new recipes. Lets you add your own as well.
Brother's Keeper (GE 203) (2 disks) A great genealogy program that allows you to trace your family's history.
Telx (TE 116) State of the art communications package.

Solar System Simulation (AS 105) Gives a full simulation of our solar system in VGA graphics. Moon, planets, & more
Skyglobe (AS 110) Shows 89 constellations as viewed from any location in the world and print them out. CGA/EGA/VGA
Mcfee Antivirus (SH 107) (2 disks) Latest collection of anti-virus programs Detect and eliminate all known viruses.

DESKTOP PUB.

Banner/Sign Maker (DP 103) Print banners and signs on your Epson compatible printer. Fonts and graphics. Great program.
Curve Digitizer (DP 104) (2 disks) True full featured CAD system. Extensive options and very easy to use. THE BEST!!
PC Circuit (DP 108) Design printed circuit board layouts and electronic diagrams like magic. Fantastic!!
Print Partner (DP 109) (2 disks) Printmaster/Printshop clone. Prints banners, signs, calendars, and more. Includes set of 200+ built in graphics.
Dataworks Clipart I (DP 122) (12 disks) The best clipart collection we have seen in a long time, 500+ PCX graphics!!
Dataworks Clipart II (DP 123) (12 disks) More of the greatest assortment of graphics for every need!!
Ventura Publisher Tutor (DP 125) Tutor for the worlds most popular desktop publishing program. A must!!

GRAPHICS

SimCGA (GR 102) Run CGA programs with Hercules type cards an essential program for anyone with a monochrome monitor.
Animator (GR 105) Create animated graphics on your PC
Printshop Graphics (GR 108) 3 additional libraries, over 200 additional pics - needs Printshop. Fantastic collection
Printmaster Graphics (GR 109) 3 more printmaster libraries
Printshop Graphics II (GR 111) 500+ images for Printshop
Printmaster Graphics II (GR 112) (2 disks) 500+ images
VGA Universe (GR 123) Beautiful slideshow of actual digitized pictures from space. The best graphics VGA
Printshop Graphics III (GR 125) (2 disks) More graphics for Printshop. This will complete your graphics library.
Printmaster Graphics III (GR 126) (2 disks) More graphics for Printmaster. This will complete your graphic collection
Kid Paint (GR 131) Children go crazy on this program. A colouring book on computer. Songs and animation as well.
New Printshop Graphics (GR 141) About 700 images of people business, icons, zodiac signs, and more. 24 more fonts!!
Graphic Converter/View (GR 142) Convert between graphic forms.
VGA Space Flight Simulator (GR 306) Amazing demo for VGA. Blast off from planet earth and tour the universe. GREAT!!
GULF!!! (GR 307) A tribute to the troops in the Mideast conflict. Full colour photos and music VGA Req.

WINDOWS 3.1

Utilities (WI 110) (4 disks) 40+ utilities that will help you get the most out of windows & make it easy to use.
Windows Games I (WI 113) Includes Tetris, Centipede, Atmoids, Lunar Lander, Checkers, Backgammon, and more!!
Icons & Icondraw (WI 114) (4 disks) Contains 1100+ icons for windows. Has icons for popular software packages and lets you view, edit, and create your own. FANTASTIC!!
Windows Games II (WI 119) Space walls, Hextris, Mines, Risk, Pente, Mille Bornes, and more. Collect them all!!
Windows Games III (WI 120) Includes tetris, Concentration, Taipei 3.5, Arachnid, Blackout, attaxx, Moku, and Solitaire.
Windows Games IV (WI 121) This one tops off the game sets with Missile command, Cubic, Pacman, Pipe, Wordhai, Tetwin.
Chess for Windows (WI 122) Two great chess programs for windows 3.0, both play excellent games of chess.
Winjack (WI 127) Excellent game of BLACKJACK for Windows.
TRUE TYPE FONTS (WI 134) (12 disks) The ultimate set of fonts for Windows 3.1 Over 120 fantastic fonts worth \$100's
TRUE TYPE FONTS I (WI 135) (12 disks) The second set, with another 120 fonts. Fantastic variety!! GET THIS SET!!
Virus Scan (WI 140) Updated for use with both DOS and Windows
Benchmark (WI 149) Shows you your windows speed and how to increase your performance. Essential for all Windows users.
WIN TREK (WI 102) (2 disks) Windows STAR TREK at its best!!

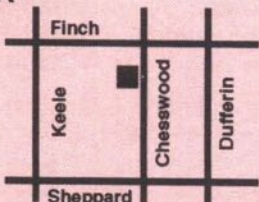
UTILITIES

"C" tutor (PR 101) (2 disks) Complete C tutor, to teach you how to program in this popular language
"C" compiler (PR 108) (2 disks) Complete programming environment - source compiler, samples etc. AMAZING VALUE!!
Pascal Compiler (PR 111) Simple to use compiler is perfect.
Epson Utilities (UT 102) (2 disks) Utilities and fonts to enhance the quality of an Epson or compatible printer.
Newspace (UT 106) Doubles the capacity your hard drive can store, works like absolute magic. An amazing tool!!
Math Chip on a Disk (UT 110) Emulates a math co-processor on 286 & 386 computer systems. Speed up your applications.
Speech (UT 113) Get your PC to talk, actual speaker voice
PC-Benchmark (UT 115) Benchmark test for computer equip.
SCREEN BLANKERS (UT 160) A screen blanker that displays a selection of VGA graphics while blanked. Save your screen

FREE CATALOG WITH EVERY ORDER

FOUR WAYS TO ORDER:

- 1 - MAIL YOUR ORDER
- 2 - FAX YOUR ORDER (638-4477)
- 3 - PHONE YOUR ORDER (638-4411)
- 4 - VISIT OUR OFFICE AT FINCH & DUFFERIN



Name: _____
 Street: _____
 City, Prov: _____
 Postal Code: _____
 Phone# _____

ORDER:

PLEASE CHECK
 ALL THAT APPLY

VISA: ☐

MC: ☐

CHK: ☐

5%* ☐

3%* ☐

Disks: _____

Free Disks: _____

Price per Disk: \$ _____

Post & Hand: \$4.00

**SUB-TOTAL: \$ _____

7% GST on **: \$ _____

8% PST on **: \$ _____

TOTAL: \$ _____

CREDIT CARD # _____

EXPIRY DATE: _____

NAME ON CARD: _____

MARCOM COMPUTERS CANADA

4490 CHESSWOOD Dr. #3, Downsview, Ontario, M3J 2B9

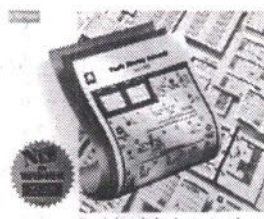
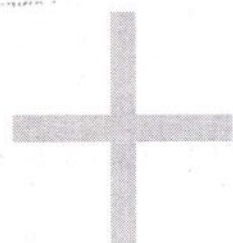
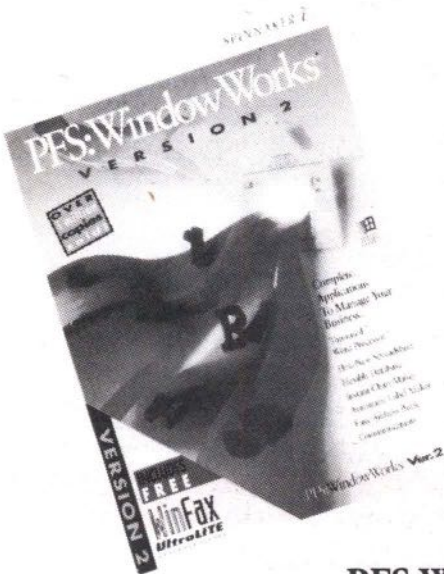
S H O W R E P O R T

IMEC East 1993

The first Interactive Multimedia Conference and Exhibition, recently held in Toronto, was a good place to find out what is locally available for multimedia developers and users. The two-day event (April 28-30) was sponsored by Edmonton's The Canadian Multi Media Magazine. Attendance was sparse — a reflection perhaps, of the still relatively small interest in multimedia — but there were exciting products on display. Below, is a list of some of the participants and their exhibits.

SPECIAL TIME-LIMITED OFFER FOR SMALL BUSINESS USERS!

BUY PFS:WindowWorks now, get the new Windows version of Calendar Creator Plus FREE!



Calendar Creator Plus

FREE!

Calendar Creator Plus™ for Windows

For a limited period only, the brand new Windows version of the best-selling calendar software is available FREE with every copy of PFS:WindowWorks.

Calendar Creator Plus for Windows (SRP: \$99.95) is the quick, simple way to keep track of your entire schedule:

- Unlimited number of daily, monthly, yearly, business and personal activities
- Calendar formats range from pocket book to poster size
- One-time or repeating events
- Network links to colleagues' schedules
- Colour or black-and-white output

Why you should take advantage of this special offer NOW!

- Technical support from Spinnaker is just a phone call away
- Offer only valid while supplies last

\$99.95 SRP **PFS:WindowWorks™**

The integrated Windows™ software package from Spinnaker enables you to manage your entire small business — from initial business planning to tracking cash flow, writing proposals, creating business stationery, and much more. Information can be easily shared across the eight excellent applications and updates automatically in all related files whenever it's changed!

- Flexible, fully-featured word processor has automatic mailmerge with database for high-quality, personalised business letters
- Powerful spreadsheet with charting facility provides quick insight into numerical data
- Easy-to-use database enables you to track and analyse all your business information with clear, concise reports
- Chart maker adds impact to your business documents
- Label maker automatically provides wide range of label and envelope formats with multiple fonts, mail merge and print preview
- Address book keeps your most vital contacts on hand
- Communications software enables you to exchange data over a modem
- FREE new WinFax UltraLITE enables you to send and receive faxes on-screen without leaving your desk! (Fax modem required)
- AND NOW Calendar Creator Plus for Windows...

BUY PFS:WindowWorks NOW!

Call your local Spinnaker PFS:Partne

Brampton
Etobicoke
Pickering
Markham

Mississauga

Newmarket
Scarborough
Toronto
Vaughan

A Plus Software 450-1234
A Plus Software 236-9337
A Plus Software 420-9830
Wise Guy Computers 513-7002
A Plus Software 474-0076
A Plus Software 507-1866
Wise Guy Computers 803-8090
MicroSave 841-8550
A Plus Software 755-4211
Choice 2000 Systems 368-5909
A Plus Software 669-0557

For more information on this offer and other Spinnaker products, call Spinnaker Software at (416) 891-9500.

Dealer Inquiries Welcome

SPINNAKER

The "Instruct" System

Many universities across Canada have a mainframe computer that gives students access to everything from simple text processors to various information services, but students at the University of Guelph can access a system called Instruct, which combines animation and graphics with text, and allows the student to interact with simulations. Many courses are available, and include subjects as diverse as Geology, Literature and Sociology. Another popular program at the university provides remedial help for students in many subjects through an interactive multimedia platform.

Portable Multimedia

Increasingly, multimedia is being incorporated into corporate presentations. Presenters have two options: one is to lug a full desktop computer system and all the multimedia peripherals around with them to handle multimedia's computing-intensive demands; the other option is to invest in one of Dolch's portable multimedia computer systems. The company was the first to incorporate color flat panel screens on a portable computer, and the dazzling color screen on the MACH machines are some of the best I've seen. Dolch's MACH systems have multiple expansion slots that can incorporate sound cards, control CD-ROM drive and any other peripheral device needed. They are also liquid-cooled, eliminating the need for noisy fans. Dolch also provides its own JPEG video compression board and a full-motion video board.

Suggested prices range from C\$18,520 for a 486SX-25 MHz monochrome PAC system to \$20,975 for a 486DX-50 MHz MACH, though you can expect street prices to be lower.

Multimedia Training

One of the major growth fields for multimedia is in education and training applications. One firm that has made a substantial investment in this area is the National Education Training Group (NETG). Already a leader in creating instructional videotapes, NETG has a list of training applications the size of a small phonebook, which includes a large number of Interactive Video and CD-ROM multimedia packages.

Fractal Pictures

In any multimedia application, pictures and graphics tend to take up the most space on CD-ROMs. Many of these pictures already use some form of compression to remove redundant information in the image, and fit the picture into a smaller space. On display at the show was Sho-Me, which uses a fractal-based compression algorithm. Sho-Me is able to squeeze complex, detailed pictures to a small fraction of their uncompressed size.

Sho-Me is currently available for \$199.95.

While the relatively small attendance at the show may mean no follow-up exhibition from IMEC anytime soon, expect similar and larger events to come as multimedia begins to catch on in the marketplace.

Contact: University of Guelph (519) 824-4120 ext. 3107 or 2427; LapTech Distributors (403) 286-3949; NETG (416) 629-4899; MultiMedia Imaging & Compression Services Inc. (416) 288-8784.

(416) 537-2611

SBL

COMPUTER PRODUCTS

SALES, SERVICE, RENTALS, LEASING

since 1979

(416) 537-2611

SOUND BLASTER 16...\$299.

BIGMOUTH...\$195.

SOUND BLASTER PRO...\$219.

IOMEGA

FLOPTICAL

21 MB....\$399.

THE PRO'S CHOICE

COMPUTER PACKAGE DEALS!

386/SX/25.....\$479

386/DX/40.....\$569*

3U486/DX/40...\$599*

486/DX/33.....\$899*

486/DX2/50...\$1079*

486/DX/50....\$1129*

486/DX2/66...\$1239*

PS Socket + 2 VESA LOCAL BUS Slots Option...\$69.

ATI Local Bus Video...\$499. (*128K/256K Cache Models)

IBM PS/ValuePoint with 80 MB HD \$1099.
386/SX/25, 2MB, 80MB HD, DOS 5.0, VGA Color, 101 Keyboard, ON-SITE

DISKETTE DRIVES Panasonic~Fujitsu~Toshiba~Canon

3.5" 1.44 MB DS HD.....\$69. | 3.5" 2.88 MB Disk Drive/Kit...\$199.

3.5/5.25" (360/720/1.2/1.44)...\$169. | 5.25" 1.2 MB DS HD.....\$79.

386 NOTEBOOK 4MB, VGA, 80 MB - \$1299.

HARD DISK DRIVES & SCSI/ESDI CONTROLLERS

Quantum 127MB 17ms 32K IDE.....\$269.

MAXTOR 245MB 15ms 64K IDE.....\$395.

MAXTOR 213MB 15ms 64K IDE.....\$369.

SEAGATE 40MB 15ms IDE.....\$189.

QUANTUM 85MB 17ms 32K IDE.....\$229.

TOSHIBA 877MB 12ms SCSI 256K...\$1299.

CONNOR 170MB 14ms 64K IDE.....\$339.

QUANTUM 105MB 12ms SCSI.....\$329.

ALWAYS IN2000 SCSI H/F.....\$239.

FUJITSU 330MB 12ms 256K IDE...\$749.

Quantum 245MB 16ms 256K IDE...\$399.

TOSHIBA 1.2GB 12ms SCSI.....\$1499.

FUJITSU 105MB 14ms SCSI.....\$299.

MAXTOR 345MB 15ms IDE.....\$499.

MAXTOR 130MB 14ms IDE.....\$269.

QUANTUM 105MB 15ms IDE.....\$249.

QUANTUM 52MB 12ms IDE.....\$199.

ADAPTEC 1542 SCSI-2 H/F Kit...\$349.

CASES & POWER SUPPLIES & KEYBOARDS

Mini Tower/Desktop w 200W CSA.....\$99. | Full Tower w 300W, 10 Bay, 2 Fan...\$239.

Honeywell 101 Enhanced.....\$59. | ED120 Ext HD Case HH 45W SCSI...\$139.

MEMORY UPGRADES - COMPUTERS & HP LASERS

4 MB x 9 SIMM 60ns.....\$199. | 1 MB x 9 SIMM 60ns.....\$59.

1 MB MEMORY UPGRADE HP.....\$99. | 2 MB MEMORY UPGRADE HP.....\$159.

4 MB MEMORY UPGRADE HP.....\$269. | POSTSCRIPT UPGRADE HP.....\$379.

COPROCESSORS/UPGRADES Intel~Cyrix~ULSI~LAVA

Cyrix 387/DX/40.....\$129. | Cyrix 387/SX/25.....\$99.

16550 UART Dual Serial Board.....\$49. | Intel 387/DX/33.....\$119.

MULTIMEDIA/CD ROM & REMOVABLE MEDIA DRIVES

PC Powered 90MB 18ms Ext Drive.....\$689. | PC Powered Pro 90MB Ext Drive.....\$829.

SONY CD ROM Int Kit (Kodak).....\$329. | NEC MultiSpin 84 CD ROM SCSI...\$699.

Syquest 88MB 20ms Int Drive.....\$499. | Toshiba 3401 CD, 200ms, SCSI...\$689.

Syquest 44MB 20ms Int Drive.....\$389. | NEC CD EXPRESS w 10 CD's+Spk...\$487.

MODEMS/FAX & VOICE MAIL CARDS

TyIn2000 9600 FAX/2400 Modem V.42 bis MNP5/Voice/Business Audio,Int...\$279.

US Robotics 14.4 External Modem/FAX, SW,V.42/32 bis/MNP5, 57,600bps...\$289.

PC Logic 14.4 Int v32/42bis MNP5,16550,FAX/MODEM,57,600bps,SW,3yrW...\$269.

GVC Send/Receive 9600 FAX w WINFAX/2400 Modem Internal 3yr Warranty...\$99.

TAPE DRIVES Archive~Tallgrass~Irwin~Colorado

IOMEGA TAPE250 Insider Drive.....\$279. | JUMBO 250MB Int Tape Drive.....\$279.

VIDEO/TV CARDS

DIAMONDSTEALTH SVGA, 1280x1024, 16 bit, 72Hz, 1MB, 32K Colors.....\$279.00

VIDEO BLASTER FULL-Motion VIDEO & TV, 2M Colors, Animation & More...\$439.00

ATI Wonder XL24 SVGA, 1024x768, 1 MB, NI, 72Hz, Mouse, 16.7M Colors, 8/16bit...\$159.00

ATI VGA Stereo-F/X, 1024x768, 1MB, NI, 72Hz, Mouse, MIDI, w Speakers.....\$269.00

ATI Graphics ULTRA+ SVGA, 1280x1024, 1 MB, NI, 72Hz, Mouse, 16M Colors.....\$329.00

ATI Graphics ULTRA 1280 x 1024, 1MB, NI, 76Hz, Mouse, 256K Colors...\$199.00

ATI Graphics ULTRA Pro 1280x1024, 2MB, NI, 76Hz, Mouse, 16M Colors...\$529.00

POS SOLUTIONS - BAR CODING, SCANNERS, SOFTWARE

KeyBoard Wedge WAND Scanner.....\$349.00

STAR 4.5" SERIAL POS PRINTER.....\$475.00

CREDIT/HEALTH CARD READER.....\$275.00

CCD HAND LASER SCANNER.....\$1095.00

POS CASH DRAWER w Dual LOCK.....\$189.00

UTILITY 1 BAR CODE Software.....\$179.00

POS KEYBOARD, 44 Key Prog.....\$195.00

POS ACCOUNTING Software.....\$475.00

MULTI I/O, RAM, CONTROLLER CARDS, FANS

BOCARAM/2 PLUS PS/2 MC RAM Board, Exp to 8MB, SIMMS, EMS 4.0.....\$149.00

RAMPAT! ATPLUS RAM Board OK>16MB, SIMMS, EMS 4.0, 286/386/486.....\$139.00

ST11M/R XT RLL or MFM Hard Disk Adapter, 8bit.....\$69.00

KT-ATIO-V8 AT I/O, 2 Serial, Parallel, Game w Cables.....\$19.70

ECS CI 91 AT I/O, 2 Serial, Parallel, FDD, Game, HD IDE, w Cables...\$39.99

GCW757VL VESA Local Bus Multi I/O, 2 S,P, FDD, Game, IDE, Cables.....\$129.99

HFA-015 PROCESSOR HEAT SINK & FAN with Connector Cable.....\$39.00

MAINBOARDS SX/DX 386 & 486 (ISA & EISA)

386SX/25 386SX, 25MHz, OK, Exp>16MB, Intel, OPTI, AMI, SIMM, 6Slot.....\$119.00

386SX/33 386SX, 33MHz, OK, Exp>16MB, AMD, OPTI, AMI, SIMM, 6Slot.....\$149.00

386DX/40 386 Upgrade 486DX, 40MHz, 128K Cache, OK, Exp>32MB, SIMM.....\$249.00

386DX/40 386DX, 40MHz, 128K Cache, OK, Exp>32MB, PCC, SIMM, 8Slot.....\$219.00

486SX/25 486SX, 25MHz, OK, 64K Cache, Exp>32MB, Intel, OPTI, AMI, SIMM, 8Slot.....\$349.00

486DX/33 486DX, 33MHz, OK, 256K Cache, Cyrix, OPTI, Math Co, SIMM, 8Slot...\$499.00

PS486DX/33 VESA LB, PS Socket, 256K Cache, OK, Exp>32MB, Intel, UMC, AMI, SIMM, 8Slot...\$669.00

486DX/33 486DX, 33MHz, 256K Cache, OK, Exp>32MB, Intel, OPTI, AMI, SIMM, 8Slot...\$599.00

486DX2/50 486DX, 50MHz, OK, 256K Cache, Exp>32MB, UMC, SIMM, 8Slot...\$725.00

486DX/50 486DX, 50MHz, OK, 256K Cache, Exp>32MB, OPTI, SIMM, 8Slot...\$829.00

486DX2/66 486DX, 66MHz, OK, 256K Cache, Exp>32MB, UMC, SIMM, 8Slot...\$899.00

486DX/33 486DX, 33MHz, OK, 256K Cache, Exp>128MB, UMC, SIMM (EISA)...\$999.00

MONITORS/PANELS SAMSUNG~SONY~NEC~HYUNDAI~SHARP

NEC Monitors 3FGx, 4FG, 5FG, 6FG.....\$CALL.

RADIUS Full Page Pivot w SVGA MultiView 14".....\$899.

HCM-40ST 14" VGA .39 640x480 I.....\$269.

HCM-423E 14" SVGA .28 1024x768 I.....\$347.

CSP4987 14" SVGA .28 1024x768 72Hz NI...\$454.

SONY 14" MultiScan .25, 1024x768 72Hz NI...\$599.

MITSUBISHI PRO 17" .26, 1280x1024, 130Hz, NI...\$1265.

SONY 17" MultiScan .25 1024x768 87Hz NI...\$1249.

SONY 20" MultiScan .30 1280x1024 120Hz NI...\$2499.

PRINTERS Star~Epson~Panasonic~IBM~HP

StarScript Laser Printer 4 w Postscript/Risc.....\$1299.

HP DeskJet 500 / 500C, 550 Color.....\$CALL.

CANON BJ-20 INK JET Printer, 4lb, w SF & SW...\$359.

IBM LaserPrinter 10 ppm, 600 dpi.....\$CALL.

HP LASER PRINTERS - IIP+, IIP, IIPD, IIPsi, 4.....\$CALL.

NEC Model 95 w Fax 2MB PostScript Laser.....\$1749.

OKIDATA OL400 Laser 4ppm.....\$749.

STAR NX2430 MULTI-FONT, 24 Pin, 240 CPS...\$299.

PANASONIC 1180i, 2023, 2123, 2124 ETC.....\$CALL.

SOFTWARE SALE

COREL DRAW 3.0...\$159.

MS DOS 6.0.....\$59.

Quattro ProWinDOS...\$124.

MS DOS 5.0.....\$39.

MS EXCEL 4.0 Win...\$149.

WordPerfect Win 5.2...\$120.

VENTURA 4.1Win...\$249.

WordPerfect DOS...\$99.

WORD 2.0 for Win...\$149.

WINDOWS 3.1.....\$69.

Borland Super Pack...\$239.

Norton Util 6.01.....\$89.

QUICK RETURNS! Tax...\$33.

OS/2 2.0.....\$129.

LOTUS 123 Win 1.1...\$259.

MS FOXPRO Win...\$169.

PARADOX Win...\$179.

128 Atlantic Avenue
Toronto, Ontario M6K 1X9
Tel: (416) 537-2611
Fax: (416) 537-1484



SYSTEM BUILDERS LIMITED

(4 Streets East of King & Dufferin)

OPEN SATURDAYS - WE DELIVER ACROSS CANADA



128 Atlantic Avenue
Toronto, Ontario M6K 1X9
Tel: (416) 537-2611
Fax: (416) 537-1484

(E&O-E) Prices and Specifications Subject to Change without Notice, Some Quantities are Limited* - Effective May 5/93

It's That Simple!

HELP Canadian PAYROLL

HELP payroll is one of Canada's best selling packages. It features a user friendly interface, integrates with most major accounting packages including ACCPAC, New Views, KIS and Client Strategist, and keeps your Revenue Canada account in balance. Flexibility is the name of the game in payroll software, and HELP can handle up to ten different types of earnings as well as allowing ten user definable company deductions. It prints your Records of Employment and T4 slips at year-end and you can even change your own Government tax tables. This means NO yearly update fee. Best of all the number of employees is limited only by disk space so as your company grows, you won't outgrow HELP. If you have multiple companies, HELP can handle them all. HELP Canadian Payroll has been serving businesses like your own for the past five years and has over 1,500 installed users so you can buy with the confidence that HELP will be there if you need it. The price for this package is only \$349.95 with a 30 day money back guarantee. Talk to your friends, they are probably already using HELP Canadian Payroll.

For Immediate Attention - Fax This Order Form

☐ Send More Information

Name _____
 Company _____
 Address _____
 City/Prov _____
 Postal Code _____
 FAX () _____
 Phone () _____

☐ Send a Payroll! (30 Day Money Back Guarantee)

Help Payroll	\$349.94
GST	\$24.50
TOTAL	\$374.44

Sending Cheque # _____ or
 Visa _____
 Expiration _____ / _____

(604) 435-6268 FAX (604) 435-4707
 HELP Software Services Ltd.
 5487 Kingsway, Burnaby, B.C. V5H 2G1

Choosing a Portable Computer

BY GEOFF WHEELWRIGHT

Choosing a portable computer is getting to be a very complicated business. Once upon a time, battery-operated computers were merely pale imitations of their desktop counterparts — and could only be relied on for note-taking, on-the-go spreadsheet work and address book/diary functions.

While all these functions were useful, they never really lived up to the notion that a portable computer could actually replace a desktop system — which would mean providing the same amount of memory, speed, flexibility, expansion options and quality of display; that was not surprising, however, as the desktop computer has always been something of a moving target.

As portable computers moved from the Zilog Z-80 to the IBM-compatible 8088/8086 processor, desktop systems upgraded from the 8088 to the 80286. By the time portables started using the 286, desktop systems were commonly being powered by the 386 and 386SX. And over the past couple of years, as the 486 (in its various incarnations) has become the desktop processor of choice, the 386 and 386SX have become commonplace in notebook systems.

It is fair to say, however, that notebook computers have almost caught up these days. A wide range of processors are commonly used — from 25 MHz 386SX to 50 MHz 486DX — in notebooks, while hard disks, memory capacities and interfaces are pretty much the same as you would find in desktop machines.

The real issue in selecting an appropriate portable, however, does not lie solely in whether or not you could use it as a replacement for a desktop. Instead, there are a whole range of technological and design issues to be considered — each of which could significantly impact on just how well the portable does the job you want it to do.

Display

While the question of display quality is often a matter of personal preference on desktop computers, it is a vital issue where portable computers are concerned. It doesn't matter how fast your system is — or how much capacity it offers — if you can't see what you are doing.

There are four main screen technologies used in portable computers: supertwist LCD, passive matrix color LCD, active matrix color LCD and gas plasma. The most common is the "supertwist" liquid crystal display (LCD) — which uses the same type of display as a handheld calculator or LCD watch. Older portables will tend to have LCD screens that are somewhat muddy and hard-to-read while most modern notebook systems offer crisp, clear displays that are

often easier to read than their desktop counterparts.

One of the things to look for in an LCD screen is whether or not it has a backlight. If you are likely to be using your notebook computer in any situation where there is low-level light (such as taking notes during a business presentation conducted with an overhead projector), then a backlight is a prerequisite for your notebook. Otherwise, you will simply be unable to read what's on the screen.

The case for backlit screens does not, however, extend to all situations. Backlighting does cause a greater drain on battery power and will likely mean that your system can operate less time between recharges. This is partially mitigated by the fact that most backlit portables offer you the option of being able to switch the backlight on and off. Despite this, you will find screens optimized for use with backlights do not tend to be quite so readable when used without the backlight.

Passive matrix color LCD technology is the cheapest LCD color technology available and is thus used on the highest-volume color computers. It offers quite serviceable color — yet without the crisp and bright appearance you are probably used to on desktop systems. It is most appropriate for those who need the extra dimension that color computing brings to their applications, but who don't rely on that ability. It would clearly be inappropriate for those doing high-end desktop publishing, professional illustration or complex presentation graphics — while more than suitable for those who need color for basic spreadsheet charting, project management or games.

Active matrix LCD color is what every portable user is after — but few can afford. In most cases, it produces a display that equals or exceeds the quality of that used on desktop systems. When implemented on a powerful machine, it really does go a very long way to realizing the dream of a desktop system that just happens to be contained within a laptop computer.

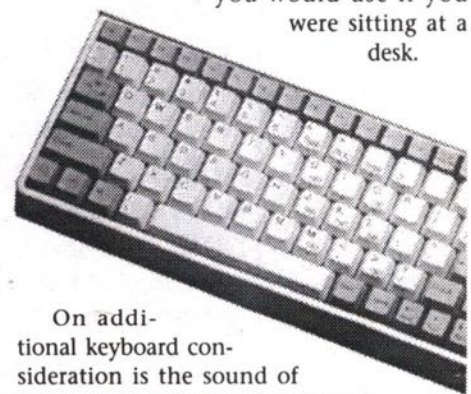
The final category of display — gas plasma — is not used a great deal any more, although you still do see it on some of the lower-cost "lunchbox" computers produced by Far East manufacturers. While it does produce an orange tinge to the screen and generally sucks up lots more power than a similar LCD screen would, gas plasma screens can be quite nice to work on and

tend not to produce the kind of eyestrain you sometimes get on the cheaper and nastier varieties of LCD.

Keyboard

Second to the screen, the keyboard is the most immediate fact of life to consider for any notebook computer user. Use a keyboard that tries to use an innovative keyboard design to minimize space and you may find that you'll be unable to find your keys when you want them. If the keys are bunched too close together, you'll be unable to hit one without mistakenly hitting another at the same time.

Similarly, if the keys on the keyboard are too small — you won't be able to accurately hit them at all. The responsiveness of the keyboard is also important. If you are using your notebook computer while travelling, you may not hit the keys with the same force and intensity that you would use if you were sitting at a desk.

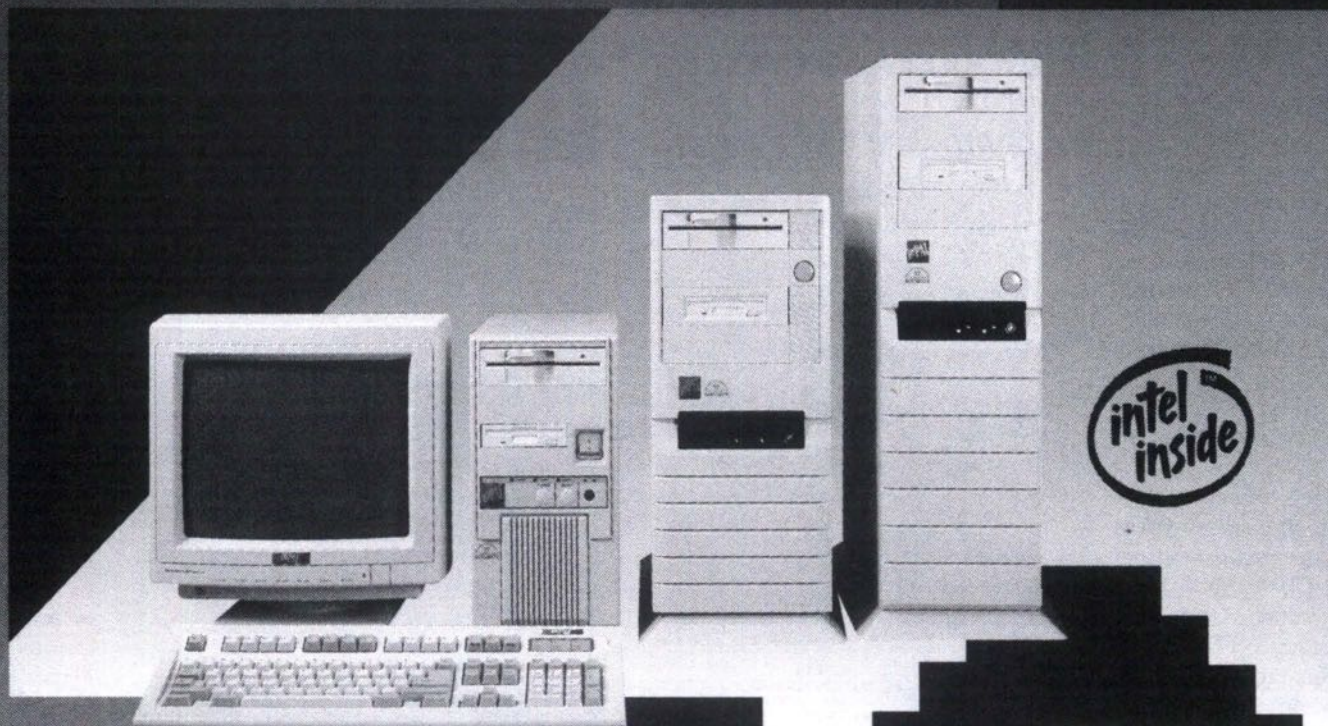


On additional keyboard consideration is the sound of the keys when they are being used. For those who plan to use their notebook computers to actually take notes during meetings and presentations, other attendees may not take kindly to the "clack-clack" noise of your keyboard. Notebook systems with "silent" keyboards would be your best bet here.

Battery life and type

This is probably the biggest complaint of most notebook computer users: my battery never lasts long enough. Just as your plane takes off for a 12-hour trip halfway round the world, you flip open your laptop computer only to learn that the battery has just about run out of juice. With no way to recharge the machine while en route, you thrust it under the seat and madly begin scribbling the notes that you should have been typing.

Continued on page 36



VESA Local Bus Technology

LePAL Premium Series

► 486DX2-66
\$2,550.00

► 486DX-50
\$2,450.00

► 486DX2-50
\$2,400.00

► 486DX-33
\$2,250.00

- ALL SYSTEMS INCLUDE:**
- INTEL CPU
 - Built-in Math Co-Processor
 - 256KB Cache
 - 4MB Fast 70ns Memory
 - 15" ViewSonic 6FS Low Radiation High Definition Flat Screen Monitor
 - VESA Local Bus 6 million True color Video Card w/2MB
 - 245MB IDE Hard Drive
 - 1.2MB & 1.44MB Japanese Floppy Drives
 - Hard & Floppy Drive IDE Controller
 - 2 Serial, 1 Parallel & 1 Game Ports
 - Mini-Tower Case w/200W CSA Power Supply
 - Honeywell or Keytronic 101 Keyboard
 - Microsoft Mouse
 - MS-DOS 5.0 Installed w/Manual and Disks

• 486DX-33
\$1,680.00

• 486D-50
\$1,880.00

• 486DXII-50
\$1,830.00

• 486DXII-66
\$1,980.00

- ALL SYSTEMS INCLUDE:**
- INTEL CPU
 - Built-in Math Co-Processor
 - 256KB Cache
 - 4MB Fast 70ns Memory
 - 14" SVGA Monitor, 0.28dp
 - 32-bit VESA Local Bus SVGA Card w/1MB
 - 170 MB IDE Hard Drive
 - 1.2MB and 1.44MB Japanese Floppy Drives
 - Hard & Floppy Drive IDE Controller
 - 2 Serial, 1 Parallel & 1 Game Ports
 - Mini-Tower Case w/200W CSA Power Supply
 - Enhanced 101 Keyboard
 - MS Compatible 3-button Mouse
 - MS-DOS 5.0 Installed w/Manual and Disks

Competitive Series

LePAL 486DX33 System

486DX-33
\$1,380.00

386DX-40
\$1,080.00

ALL SYSTEMS INCLUDE:

- INTEL CPU
- Built-in Math Co-Processor
- 128KB Cache
- 4MB Fast 70ns Memory
- 14" SVGA Monitor, 0.39dp
- Trident 512K SVGA Card
- 120 MB IDE Hard Drive
- 1.44MB Japanese Floppy Drives
- Hard & Floppy Drive IDE Controller
- 2 Serial, 1 Parallel & 1 Game Ports
- Mini-Tower Case w/200W CSA Power Supply
- Enhanced 101 Keyboard w/templates
- MS Compatible 3-button Mouse
- FREE MS-DOS 5.0 Installed w/Manual and Disks

Full warranty two years parts and labour

All prices are for cash or certified cheque and subject to change without notice.

Three locations to serve you:

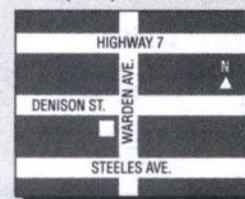
SCARBOROUGH

585 Middlefield Rd., Unit 7 & 8
Scarborough, Ont. M1V 4Y5
Tel: (416) 299-0829
Fax: (416) 299-3785



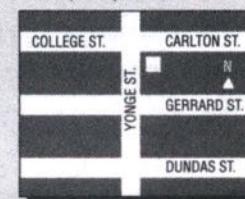
MARKHAM

7170 Warden Ave., Suite 14
Markham, Ont. L3R 8B3
Tel: (416) 477-9454
Fax: (416) 299-3785



DOWNTOWN

439 Yonge St.
Toronto, Ont. M5B 1T3
Tel: (416) 977-0803
Fax: (416) 977-2510



LePAL COMPUTERS INTERNATIONAL INC.

A Tale of two CDs

BY GRAEME BENNETT

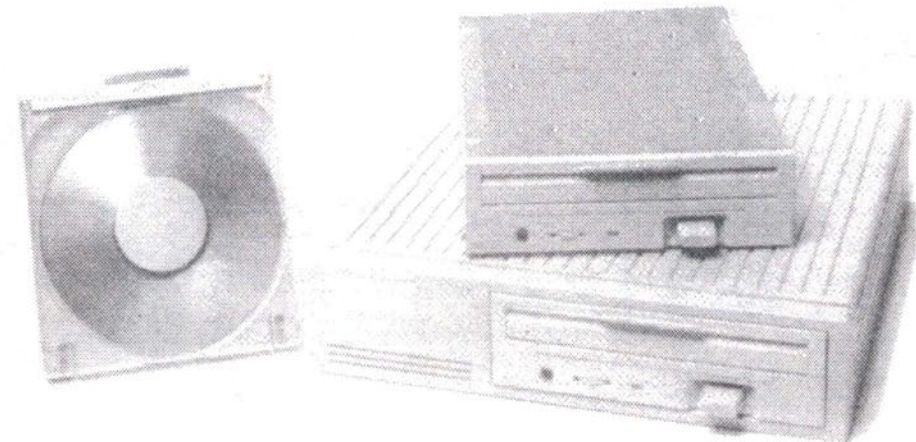
It was the best of drives; it was the worst of drives....

This is a tale of two CD-ROM drives: The UAC DM-5024 (based on a Texel mechanism) and the Apple CD-300 (based on a Sony CDU-8003 mechanism). Both are double-speed units with PhotoCD compatibility — in short, the kind of drives that are a good choice for Macintosh multimedia applications. The real story here is about the software. But first, let's look at the drives.

Both drives performed impressively — for CD-ROMs. Both double-speed drives were able to play average-sized QuickTime movies directly from CD-ROM with no interruptions or visible jerkiness. Older single-speed CD-ROM drives, on the other hand, are terrible in this regard. I do not recommend single-speed drives for this purpose.

The CD-300 is Apple's third-generation CD-ROM drive but the first of its drives to feature multisession Photo CD compatibility. It is known as a "double speed" drive (When reading data, it spins at 300rpm; when playing audio CDs, it slows down to 150 rpm) and is considerably faster than the company's previous models. Like Mac floppy drives, it is capable of auto-ejecting discs.

The UAC DM-5024 drive is an external unit for the PC or Macintosh. (An internal version is also available. It is known as the



DM-3024.) The unit comes with Trantor software for the PC or Macintosh. In either case, the Trantor software is a "universal" driver, compatible with the vast majority of CD-ROM drives on the market. The PC version includes drivers for DOS, Windows, NT and OS/2 2.x. I tested the DOS, Windows and OS/2 drivers, which installed and worked like a charm. The Trantor driver is an excellent choice for OS/2 users, who have a limited selection of compatible drivers.

The Mac version 3.10 of the Trantor software, unfortunately, is not as solid. It

appears to have compatibility problems with System 7.1, although it works fine on earlier system software releases.

Fortunately, the Trantor driver is not the only option. After I experienced these problems with the UAC drive, the distributor's rep told me that he had heard of problems with the Mac software and told me about a new driver that was in beta testing. I obtained and tested the new driver and it is phenomenal. Developed by a company by the name of MacPeak, the driver is known as CD Spot. It almost doubled the speed of the UAC drive. The 1.8MB file that had pre-

viously taken 29 seconds now copied in just over 15. Other operations were similarly accelerated.

The CD Spot driver worked with the Apple drive, too. Incredibly, it almost tripled the Apple unit's speed. The 1.8MB file-copy that had previously taken the CD-300 28 seconds now took only ten. For comparative purposes, it is worth noting that it takes only seven seconds to copy a file of this size from one partition of a fast hard disk to another. Needless to say, I recommend this driver to owners of the Apple and UAC drives.

I spoke to Greg Stanwood, president of GMS Datalink Corporation and the distributor of the UAC line of drives. He told me that while the company felt that Trantor's PC driver was "really nice," its Macintosh driver wasn't up to par. "When you look at the Apple [Trantor] product," he said, "it leaves something to be desired. That's why we developed the driver. Of course, if it is successful, the golden egg is that the manufacturer takes it as the standard product." According to Stanwood, the increase in speed is due to the driver's intelligent caching algorithms. He said the driver also works with removable media, floptical and magneto-optical drives.

The UAC drive does not eject discs automatically, as does the Apple unit. After my initial tests of the UAC drive with the Trantor driver, I had come to the conclusion that this was a real problem. It seemed to hopelessly confuse the Mac (with endlessly looping "Unexpected Error" dialog boxes and the like) if I happened to push the eject button at the wrong time — delib-

Continued on page 23

Computers Computers Computers Computers Computers Computers Computers Computers Computers

Direct From Factory

386^{DX} 40 MHz

\$1049⁰⁰

Cash & Carry, While Quantities Last.

MS DOS is a Trade Mark of Microsoft Corp.

MS DOS 6.0
FREE

COMPLETE SYSTEM

- ★ 4 MB Fast RAM (Exp. to 32 MB)
- ★ 1.44 MB 3½" Floppy Drive
- ★ 85 MB IDE Technology Hard Drive
- ★ 2 Serial, 1 Parallel & 1 Game Ports
- ★ VGA Colour Monitor & VGA Card
- ★ Enhanced 101-Key Keyboard
- ★ 128K Cache RAM, Exp. to 256K

Factory Outlets:

3A COMPUTERS

250 Sheppard Avenue East
(At Willowdale, East of Yonge Street)
North York, Ontario

Tel: (416) 250-5775

SCHOLAR COMPUTERS

1290 Finch Avenue West, Unit 1
(At Keele, Finch & Keele Commercial Centre)
Downsview, Ontario

Tel: (416) 663-5133

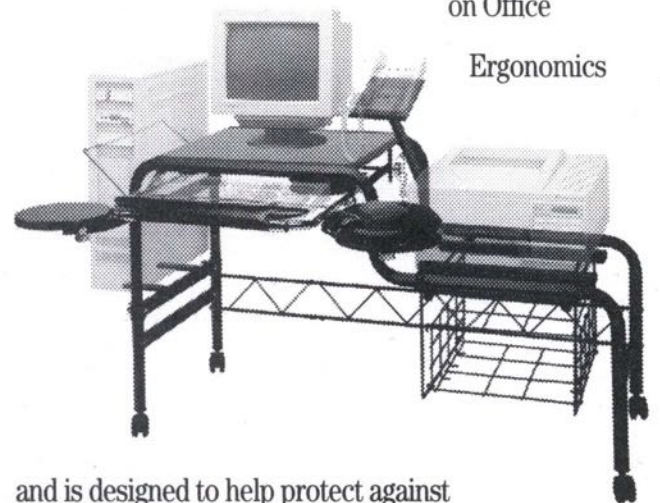
Computers Computers Computers Computers Computers Computers Computers Computers Computers

We'll take care of your body while your mind's away at work.



Repetitive-stress injuries (R.S.I.) have increased by 1,000% in the last six years. To avoid long-term pain, therapy, surgery or even job displacement, you've got to get serious about ergonomics. Every Forminco Work Station meets or exceeds (CAN/CSA-Z412-M89) the

on Office
Ergonomics



and is designed to help protect against

1. Carpal-Tunnel Syndrome 2. Back pain, injury or deformation 3. Eye strain and musculoskeletal injuries to the 4. Neck 5. Shoulder 6. Arm 7. Hand. The cost? No more than a good spreadsheet program.



FORMINCO

1-800-663-6764

Now available at these and other dealers: **Multitech** **COMPUCENTRE**

Audio for Multimedia

BY GRAEME BENNETT



If you have more than a passing interest in multimedia, MIDI, or audio on your computer, you'll probably want to improve upon the audio (in)fidelity produced by the tiny speaker in your computer.

The first item to consider, of course, is the audio hardware itself. Aside from some models preconfigured as "multimedia PCs," most IBM-compatible computers have very poor built-in sound capabilities. PC owners, therefore, have taken to adding SoundBlasters and other audio cards to their computers with great fervor. Now that most games directly support these cards and Windows 3.1 supports sound effects and playback of .WAV and MIDI files through these cards, a sound card can greatly enhance a user's enjoyment of his or her computer.

Although Macs and Amigas have much better built-in audio hardware than most PCs, they, too, can be improved upon with third-party options. We have discussed details of audio cards in recent issues of The Computer Paper (the April '93 issue mentioned several), so I won't repeat that information at length here. Briefly, though, I recommend a board that is capable of 16-bit "CD quality" audio playback if sound fidelity is important to you.

Of course, you can't get CD quality audio from a tinny little speaker. Here, then, are a few powered speakers we've heard about recently that are especially

designed for computers. (Computers need powered speakers or an amplifier and speaker combo.)

One thing all of these speakers claim is "magnetic shielding." This helps prevent distortion of your monitor's video display when a speaker is placed in close proximity. Also, shielded speakers should be less harmful to the data on your floppy disks. Nevertheless, it is prudent to never place disks on or near any source of magnetism, including speakers, motors or monitors.

Century has a series of amplified speakers it calls "Composers." These units range from under C\$60 to about \$200. I tested the \$100 and \$200 models. Audio quality was good in both cases. One speaker is the "master," with a single audio input and volume, treble and bass controls; the other plugs into it. A stereo minijack-to-RCA cable is included (The speakers have stereo-type RCA jacks on the back). The only trouble with these units is that you need an external mixer if you want to use more than one audio source (say, a sound board and a CD-ROM player).

Alternatively, you could choose the new speakers from Altec Lansing or Apple. Both companies have recently released powered speakers with two audio inputs and a mixer — ideal for users with a CD-ROM drive and a sound board, or a computer and a VCR, etc. The Altec Lansing ACS100 system looks like some sort of futuristic biffy with its fold-up tweeter assemblies. These speakers have one extremely nifty feature that may justify their US\$180 price tag for computer audio buffs. These speakers include a digital signal processor that simulates stereo from a monaural signal. A high-end model, the ACS300, comes standard with a type of speaker known as a subwoofer. As the name suggests, it produces a big bottom-end.

(Shades of Spinal Tap.) A subwoofer is optionally available on the ACS100s.

Apple's just-announced AppleDesign Powered Speakers are slated to retail for US\$179. An Apple Canada spokesperson said the products will be available in Canada, but didn't know exactly when.

Of course, there are many other brands of speakers I haven't room to mention. The April '93 issue of New Media magazine, for example, lists 31 different units. Top-ranked products included the Altec Lansing ACS300 system mentioned above, Roland's CS-30 (\$250), MA-7 (\$320 per pair), MA-12C (\$195 each) and MA-20 (\$225 each), Thor Mfg.'s MiniBlaster HQ series (US\$329 and \$429). All of these units have mixers with volume controls for multiple inputs.



Altec Lansing speakers: What does this remind you of?

In a pinch, you could run a cable from your computer to the auxiliary input on your stereo. Most PC sound boards and all Macintoshes have a minijack-type audio output (check whether you require a stereo plug), while most stereo amplifiers have RCA jacks for audio out. You can obtain a stereo minijack-to-RCA cable at most electronics outlets or stereo stores. ■

Contact: Altec Lansing Consumer Products, (800) 546-0620 or (717) 296-4434; Apple Canada, 1-416-513-5787; Bose, (508) 879-7330; Century Electronics Ltd., (604) 273-3419; Roland Canada, (604) 270-6626; Thor Mfg., (702) 324-6600.

Multimedia pack introduces users to Multimedia PCs

REDMOND, WASHINGTON (NB) — Microsoft has announced a set of utilities it claims enhances the Windows 3.1 graphical user environment.

The new product (called the Multimedia Pack for Windows) is designed to introduce users with multimedia personal computers (PCs) to what can be done with their machines. It is available through retail channels and from original equipment manufacturers (OEMs).

The Multimedia Pak comes in CD-ROM format and includes the Hyper Guide 2.0, a Multimedia Tour, Vidtest diagnostic utilities, an enhanced audio facility for Windows, the Video for Windows runtime for playback of video clips and a collection of pre-recorded media clips for playback.

The Hyper Guide 2.0 is described as an interactive on-line user guide with thousands of hyperlinked topics and narrated animations to explain the Windows operating system. Interactive narrated animations and audio are used to explain what the features of a multimedia PC are and to discuss performance issues associated with the components of a multimedia PC — including video, CD-ROM and sound.

VidTest will tell a user how well digital video will play back on the PC on which it runs and can offer assistance in getting the best video performance possible, Microsoft said. The enhanced audio facility compresses the sound or waveform audio files so that users can get more sound files in the same space. Video for Windows Runtime allows users to play back digital video clips.

In addition, over 300 sound, animation and video clips are included, which Microsoft says can be immediately used in business presentations, documents or spreadsheets. ■

Contact: 800-426-9400.

CD-ROM SPECIALS!!!

PHILIPS DRIVE

- ◆ INCLUDES KODAK PHOTO CD SOFTWARE
- ◆ 375MS ACCESS TIME
- ◆ 2 YEAR WARRANTY!
- ◆ SELECTWARE DISC

\$399!

TEXEL/UAC

- ◆ 265MS ACCESS TIME!
- ◆ PHOTO CD COMPATIBLE
- ◆ DOUBLE SPEED DRIVE

\$599!

MEDIA VISION PRO AUDIO SPECTRUM

- ◆ 16-BIT CARD

\$269!

CREATIVE LABS DISCOVERY UPGRADE KIT

- ◆ CD-ROM DRIVE
- ◆ SOUND BLASTER PRO
- ◆ SPEAKERS INCLUDED

\$589!

- ◆ 3 TITLES:
GROLIERS ENCYCLOPEDIA
THE ANIMALS
LEMMINGS

**CD CADDIES
\$7.99 EA.**

**NOW AVAILABLE!
7TH GUEST!**



LASER STORAGE SOLUTIONS INC.
CD-ROM SPECIALISTS

CLUB MEMBERS GET 10% OFF CD SOFTWARE PURCHASES!!
OPEN SATURDAYS FAX: (416) 669-7438 1-800-463-4781
(416) 669-7437 55 ADMINISTRATION ROAD
CONCORD, ONTARIO L4K 1G9

ADMINISTRATION ROAD
LASER STORAGE
UNIT 20
HWY 7



Tale of two CDs

Continued from page 20

erately, of course. Fortunately, the CD Spot driver exhibited none of these problems.

The most interesting thing I discovered about these drives has to do with their Photo CD compatibility. The Apple drive includes special software that makes Photo CD files appear to the Mac as if they were standard Mac PICT files, complete with thumbnail icons of the color images, all in neat little folders. When you install the Apple CD-ROM software and mount a Photo CD disc, you also see an icon labeled "Slide Show" that plays a QuickTime movie of all of the images on the disc. You can configure this slideshow to load the full-size image with your choice of image-editing program, if you wish. It's all very slick — and amazing when you discover that the whole show is sleight-of-hand. The icons, slideshow and PICT files are entirely fabricated by the Apple software.

The problem is, Apple considers this proprietary software. Apple will not supply it to end users for use with non-Apple drives, even though they may support it.

For example, the floppy disk that contained the driver software included a README file containing information on the drive's Photo CD capabilities. It said, "Version 3.05...added support for the Photo Access Init that creates the virtual folders and the Slide Show program [that appear when a Photo CD disc is used]. This Init is not available for us to license from Apple, but should be available from AppleLink or other sources. Contact Apple for information on how to get the Apple Photo Access Init."

According to Apple, the init is only available as a developer tool, which may be licensed from Apple. End users, according to Apple, cannot purchase or acquire the software separate from the hardware.

As it turns out, the actual Photo CD tool is from Kodak. Because Apple licenses it from Kodak, it is not able to distribute it.

It seemed that the INIT was not available to anyone except owners of Macs with Apple-brand CD-ROM players.

Another area of confusion is that of the

CD Sampler pack that may or may not be bundled with the CD 300. Back in December, when the CD 300 drive was first available, I discovered that the drives sold in the U.S. came with a collection of titles (demo discs, samplers, etc.). However, when I called my local Canadian dealer, I was informed that Canadian drives did not include this bundle. Needless to say, I complained that I felt this policy encouraged users to indulge in cross-border shopping.

Now, Apple says that the CD 300 drives in Canada are also supplied with this pack of sample CDs. According to an Apple spokesperson, the change in policy was done quietly (hopefully, as a result of complaints like mine).

It is also, apparently, a temporary change. Apple says it is not sure how long this free bundle deal will be available.

To further cloud the waters, I discovered the following text in a READ ME file on the Photo CD Access disk from Kodak.

"The current version of Apple Computer's Foreign File Access utility does not support viewing, loading or running the software from the CD disc. Apple Computer, Inc. is working to provide a version of Foreign File Access that supports executable elements stored on the same discs as images, and expects to provide this to users later this year."

"Here we go again," I thought. But there's a happy ending to this tale. What do you think is included on the CD Spot driver from GMS Datalink? You guessed it: a licensed version of the Apple Photo Access tool, along with the latest releases of Apple's Foreign File Access, High Sierra Access, Audio Access and ISO 9660 Access drivers. (According to GMS, MacPeak is the only company to have a license for the Apple software.) Best of all, the version of "Foreign File Access" shipped with the CD Spot driver does support viewing, loading and running the software from the Photo CD disc. Kodak's "later this year" reference, as it turns out, was last year. Whew! ■

Contact: GMS Datalink International Corp., (604) 327-4335; Apple Canada, 416-513-5787. If you are not sure if your CD-ROM drive supports Photo CD images, call Kodak at 1-800-242-2424 Ext. 53 and ask about drive compatibility.

Multimedia link to Mac video bundled with Action!

CONCORD, CALIFORNIA (NB) — Display Tech is shipping the Mac DisplayLink a low-cost link to video and an alternative to the high cost of data display.

The Mac DisplayLink allows you to display the output onto video sources from Apple Macintosh computers. Use the Apple 8x24, 8x24GC or compatible card to display the RGB signal onto conventional video monitors or projectors, or record the output onto videotape. The Mac DisplayLink will also work with the on-board video of the Quadra line of Apple computers.

The Mac DisplayLink comes bundled with Action! Mac from Macromedia which, the company claims, allows computer users to easily combine graphics, motion, text, animation, sound and interaction to create "professional-quality, high impact multimedia presentations instantly."

Because the Mac DisplayLink outputs to video, Action! Mac can print presenta-

tions to videotape for distribution and display. The Mac DisplayLink, an external video encoder, produces either a 640 by 480- or 512 by 384-pixel image. Supporting both standard NTSC and high-resolution S-Video signals, it displays computer output on cost-effective presentation video equipment instead of expensive data displays, computer projectors or LCD (liquid crystal display) panels, claims the company.

The Mac DisplayLink supports QuickTime movies and CD-ROM technology, offering flicker-free viewing in gray-scaled black and white, as well as 4, 16, 256 or "millions of colors" modes. For higher resolution you can output S-video, resulting in a 60 percent improvement over conventional video signals, the company claims.

Two models are available: Model CF-530 (NTSC) with Action! Mac, for a suggested retail price of US\$489; and Model MF-530, for \$649 (PAL). ■

Power Plus System

486DX2/66 \$2249

486DX50 \$2135

486DX33 \$1885

INTEL 486 CPU
4MB Memory, 256K Cache
Quantum 170MB Hard Drive
1.44M & 1.2M Floppy Drives
Darius SVGA .28dp 1024X768
72Hz Non-Interlaced Monitor
ATI XL 24 Video Card 1M
2 S, 1 P, 1G Port
Mini Tower Case 230W
Keytronic US Made Keyboard
ATI Bus Mouse & MS-DOS 5.0

Power System

486DX33 \$1535

386DX40 \$1189

INTEL 486 / AMD 386 CPU
4MB Memory, 128K Cache
Samsung 120MB Hard Drive
1.44M & 1.2M Floppy Drives
Darius SVGA Monitor .28dp
Trident Video Card 512K
2 S, 1 P, 1G Port
Mini Tower Case 200W
101 Key Keyboard
MS Compatible Mouse

Upgrade Your 286 or 386SX to 386DX40 for Just \$183

(Call for Details)

MS DOS 6.0 Upgrade	\$59.99	Norton Desktop 2.2 (for Dos 6)	\$109
MS Windows 3.1	\$109	Norton Utilities 7 (for Dos 6)	\$109
MS Windows 3.1 Upgrade	\$79	Norton Antivirus 2.1 (for Dos 6)	\$79
MS Windows Workgroup Addon	\$89	Norton Back Up	\$79
MS Windows Printing System	\$179	Lansastic AE2 Starter Kit	\$699
MS Video for Windows	\$179	Lotus Improv Intro. Price	\$129
MS HP fonts set for Windows	\$69	Colorado Tape back up 250M	\$299
MS Word Comp. Upgrade	\$149	Sound Blaster Pro Deluxe	\$185
MS Access 1.0 Intro. Price	\$129	Sound Blaster Compatible	\$79

Connell
COMPUTER INC.

CONNELL COMPUTER INC.

111A Queen Street E.
Toronto, Ont.
Tel: 360-6368
Fax: 360-0487



Open:
Mon-Fri :
10am - 7pm
Sat :
10am - 5pm

All systems are 2 years labor and 1 years Parts Warranty. All prices are cash and carry. Price and availability subject to change without notice



CD SHAREWARE WITH OVER 1 GIG OF SOFTWARE! WITH EVERY COMPUTER PURCHASE.

MULTIMEDIA MADNESS!

COMPRO BASIC: \$599

Panasonic AT Internal CD-ROM
Laserwave Sound Blaster Compatible
-Surround Sound and Echo
Bundled Software:
-Groliers MM Encyclopedia,
XF5700 Mantis, Loom, Reference Library,
PC Karaoke Complete with Microphone.

COMPRO BUSINESS: \$799

Panasonic SCSI Internal CD-ROM Drive
Laserwave Pro Audio Spectrum 16 Sound Card
with SCSI Interface
Bundled Software:
-Comptons MM Encyclopedia, MS Works,
Publish It 2.0, Carmen San Diego,
Kodak Photo CD Access Software, PC
Karaoke Complete with Microphone,
Pair of Amplified Speakers.

COMPRO PROFESSIONAL: \$999

Tezel DM3024 Internal CD-ROM
Media Vision Pro Audio Spectrum 16 Sound Card
Bundled Software:
-Comptons MM Encyclopedia, Lotus 123
with Smart Help or MS Works, Carmen
San Diego, Animals, Kodak Photo CD
Access Software and Photo Sampler,
Pair of Amplified Speakers.

MULTIMEDIA UPGRADES:

Altec Lansing ACS-100 Speakers \$189
Altec Lansing ACS-200 Speakers \$305
Altec Lansing ACS-200 Speakers \$415
Microphone \$15
Stereo Head Phones \$7
Pro Audio Spectrum 16 -Sound Card \$249
Video Wizard VGA to NTSC Internal \$99
Video Wizard VGA to NTSC External \$149

MODEMS & FAX/MODEMS:

Accex 1496 Int. Fax/Modem \$235
Accex 1496 Ext. Fax/Modem \$269
ZyXel U1496B Int. Fax/Modem \$445
ZyXel U1496E Ext. Fax/Modem \$449
Winfax Lite for Windows \$25
SuperFax for Windows \$39

SCI386SX-33

\$1,299.00

4M RAM/128M Hard Drive/1.2M + 1.44M Floppy Drives
1M SVGA Video Board/14" SVGA Colour Monitor
1-LPT 2-COM 1-GAME I/O /101 Keyboard/Mouse
Microsoft DOS 6.0

*Purchase any system and install a CD-ROM for as little as \$240.00

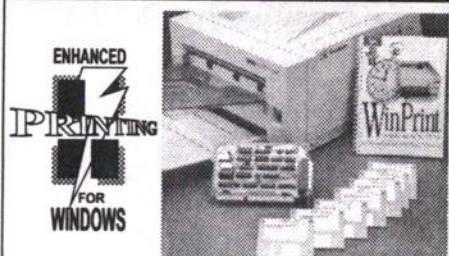


PHONE:(416)206-9017
FAX:(416)206-9019

*10% OFF All CD Titles with any COMPRO Purchase

1150 Eglinton Ave. E., Mississauga, Ontario, L4W 2M6

Fast 800 DPI PostScript Printing for Less than an HP IV



The Winprinter 800

Feature for feature, the LaserMaster Winprinter 800 is clearly the price performance winner! With its unique host based design and high resolution output, you get crisp clear output at blazing Winprinter speeds **anywhere from 3 to 100 times faster than the HP IV.**

The Winprinter 800 vs. The HP IV

Feature	HP IV	Winprinter 800
Resolution	600DPI	800DPI
Fonts	45	50
PostScript	Optional	Included
Fast Windows Direct Printing?	No	Yes
Duplex Printing	No	Yes
Saddle Stitch Printing	No	Yes
Software Upgradable	No	Yes
Comes ready to print full page graphics	Some images may require more memory	Yes
Price	\$1895.00	\$1795.00

1200 DPI Winprinter Now Available!



**The HP 4
Winjet 1200
Combo
\$3199.99**

All of the functionality of the HP IV laser printer with the increased speed and resolution of a Winprinter is available to you in the Winjet 1200 Combo. This combo is truly the first affordable 1200DPI PostScript laser printer on the market today. **Also Available!**

**Upgrade your HP II & III to
800DPI PostScript \$849.00**

**Upgrade your HP IV to
1200DPI PostScript \$1295.00**

Please Call for details



1 - 800 - 268 - 3676

In Toronto Call (416) 475-3766

25 Royal Crest Ct # 10, Markham, Ontario L3R 9X4

Newtek's Video Toaster 4000 debuts at NABs show

BY GENE ENDRODY

Product: Toaster 4000
From: NewTek, 1-800-368-5441
Software only: US\$800
**Software and hardware
(ROM & RAM upgrade):** US\$1300
List: US\$2395

No other show has the ability to fill every hotel room in town like the National Association of Broadcasters' yearly trade show in Las Vegas. VFX Video had the pleasure of being invited to attend NewTek's introduction of its new Toaster 4000 at NAB '93. NewTek spared no expense, renting all three of the coliseum conference rooms at Caesar's Palace. After a brief introduction by Jim Dionne (president of Commodore USA and former president of Commodore Canada), Paul Montgomery and Tim Jensen (NewTek's founding fathers) came to introduce the new Video Toaster 4000. Paul Montgomery said, "If we told you we had invented Anti-Gravity boots, would you be excited? Well we have...for video."

After watching a brand new video called "Beyond Revolution," it became clear that New Tek has decided to become a rebel in the video world. With the Toaster 4000, NewTek has launched an aggressive marketing program called PVP (short for Personal Video Production.) If you were wondering what I mean by rebel, how does this sales pitch sound?

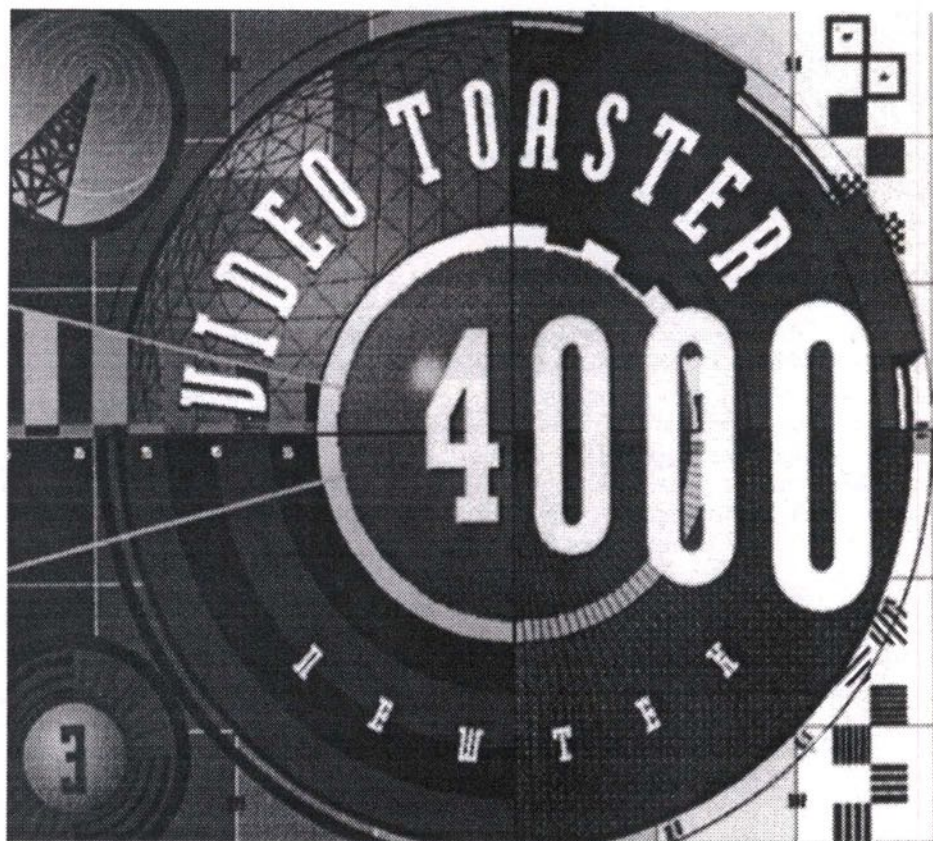
"In an average week the networks bring you 4.2 days worth of commercials, 2 days of soap operas, and 16 hours of bad sitcoms..."

IT'S PAYBACK TIME.
ROLL YOUR OWN TV!
MAKE TELEVISION.
CONQUER YOUR PASSION.
COMMAND YOUR DESTINY.
INFILTRATE THE NETWORKS.
QUIT YOUR DAYJOB!"

Rather zealous, don't you think? Clearly, NewTek has decided to forego the quiet restraint of the "industry standard" approach.

In the past, the somewhat bumpy relationship between NewTek and Commodore left desktop video dealers a little confused. Jim Dionne, the president of Commodore Engineers are now working together to insure the compatibility of future products and to make sure that the Toaster can take advantage of new Amiga features as they come out.

This new relationship is very apparent with the release of Toaster 4000. The new board and software make good use of Commodore's new AGA chip set. Although the Toaster 4000 will plug into the Amiga 2000, 3000 and 3000T, in order to take advantage of all of its new features an Amiga 4000 with its AGA chip set is recommended.



So what's the big deal about the Toaster 4000? I will try my best to describe the new video toaster but you will have to see it to believe it.

Switcher

The Switcher interface has a new look with rounder, more professional-looking buttons. The layout of the Switcher screen has been rearranged for ease of use.

The first thing users will notice is that NewTek has added a third Digital Video source (DV3) to the bus. In addition to video frames and graphics, animations can now be loaded and played back from the switcher. With this, users will be able to play 256,000-color full-screen animations. These animations play very quickly and smoothly and can be integrated into transitional effects. A 16MB Amiga 4000 can play about six seconds of animation. (In the future it will not be unusual to see Toaster systems with upwards of 32MB of RAM.) The new switcher will also allow users to use the mouse to shuttle back and forth through animations.

NewTek has added three new banks of transitional effects to the Toaster 4000, bringing the total number of effects from 192 to 288. The new transitional effects are nothing short of amazing. Under Version 2.0, the Video Toaster only had one-color overlays (black silhouettes, etc.). With Toaster 4000, these can now be fully animated 256,000-color overlays. By combining these animated color overlays with warps, drop shadows and transparencies, these transitional effects are like nothing I have ever seen on any switcher at any price. Do you remember the page-tear transition

in Version 2.0? With Toaster 4000 the page tear can now have a logo etched on the back of the page (looking like it has been rendered in a 3D program) and drops a shadow on the live video background.

Transitional effects now have a user-definable duration. This is a big improvement over the "slow," "medium" and "fast" choices that users had under Version 2.0.

You say your professional editing system doesn't support the Video Toaster? Well, odds are it does now. NewTek added Grass Valley Group Emulation protocol to the Toaster 4000. This is the most common switcher protocol and means any editor that supports a Grass Valley Switcher now supports the Toaster. Almost every professional editing system on the market supports this protocol.

Toaster CG

With over 60,000 Video Toasters in video production houses, cable stations, schools and peoples homes, Toaster CG has become the top selling character generator in the world. With the release of the Toaster 4000 and the System 3 software, Toaster CG has been completely rewritten.

Under the old version of Toaster CG, you could put your mouse away because all of the commands were accessed from the function keys. Under Version 3 the Toaster CG has gone to a mouse-driven interface. Users who are used to version 2 need not worry though, the developers at New Tek have managed to add many new features and mouse control without completely destroying version 2's look and feel. Text and graphic elements such as graphic sepa-

Continued on page 26



Toronto (416) 960-2010
 Calgary (403) 261-4701
 Vancouver (604) 682-8890



Smart 386*DX33 System \$1125

INTEL 386DX 33MHz CPU
 128KB 20ns Cache Memory (0-wait-state)
 14" **Super VGA Color** .39dp Monitor
120MB Fixed Disk Drive with 32KB Cache
2MB Fast 70ns System Memory
 Trident Super VGA Video Controller 512KB
 (PLUS: all standard features listed.)

Pro 486*DX33 System \$1695

INTEL 486DX 33MHz CPU
 128KB 20ns Cache Memory (0-wait-state)
 14" **Non-Interlaced SVGA** Colour .28dp Monitor
130MB MAXTOR Fixed Drive 64KB Cache
4MB Fast 70ns System Memory
ATI Wonder XL24 Video Controller 1MB
 (16.7 Million Colours)
 (PLUS: all standard features listed.)

Pro 486*DX2/50 System \$1950

INTEL 486DX2 50MHz CPU
 128KB 20ns Cache Memory
 14" **Non-Interlaced Super VGA Colour**
 .28dp Monitor
170MB QUANTUM Fixed Drive
4MB Fast 70ns System Memory
ATI GRAPHICS ULTRA Video Processor
1MB VRAM
 (PLUS: all standard features listed.)

Pro 486*DX2/50 System \$2450

INTEL 486DX2 50MHz CPU
 128KB 20ns Cache Memory (0-wait-state)
NEC 3FGX 15" High Definition Flat Screen High Contrast
 Low Radiation Monitor
200MB WD Fixed Drive with 64KB Cache
4MB Fast 70ns System Memory
ATI GRAPHICS ULTRA Video Processor 1MB VRAM
 (PLUS: all standard features listed.)

CAD 486*DX50 System \$2550

INTEL 486DX 50MHz CPU
256KB 20ns Cache Memory (0-wait-state)
NEC 3FGX 15" High Definition Flat Screen High Contrast
 Low Radiation Monitor
245MB MAXTOR Fixed Drive with 64KB Cache
4MB Fast 70ns System Memory
VESA Local Bus CIRRUS 32-bit Video Controller
 (PLUS: all standard features listed.)



\$3100

The ULTIMATE 486*DX2/66 32-bit VESA Local Bus System

INTEL 486DX2 66MHz CPU
256KB 20ns Cache Memory (0-wait-state)
15" Ultra VGA 1280x1024 Monitor
8MB Fast 70ns System Memory

245MB QUANTUM Fixed Drive 256KB Cache

ATI VESA Local Bus 32-bit ULTRA PRO Processor 2MB VRAM

32-bit VESA Local Bus High Performance Disk Controller

(PLUS: all standard features listed.)

Pentium Upgradeable



STANDARD FEATURES:

AmPAQ PRO-Series Enhanced 101-key Keyboard
 MITSUBISHI 1.44MB High Density Floppy Disk Drive
 MITSUBISHI 1.2MB High Density Floppy Disk Drive
 PRO-Series Mini-tower / Classic Desktop Chassis[†]
 200 Watt CSA Approved Power Supply System

2 Serial, 1 Parallel and 1 Game Port
 MICROSOFT DOS 6.0 (Installed with Software & Manual)
 3-Button Mouse & Mouse Pad
TWO-YEAR PARTS & LABOUR WARRANTY

*Intel 386, Intel 486, Intel Inside and the Intel Inside Logo are trademarks of Intel Corporation. All other trademarks are trademarks of their respective companies.
 **Price for purchase with any system listed with this ad only. [†]AmPAQ PRO-Series chassis under this special promotion is different from the models shown in the photograph above.

Video Toaster 4000*Continued from page 24*

rators and Toaster Paint Brushes can be moved anywhere with the mouse, including on top of each other.

Did we say Toaster Paint Brushes? Toaster CG's ability to import and control graphic elements has been greatly improved. Images and brushes from ToasterPaint and LightWave can be imported. Users have complete control over graphic separators, including their size, drop-shadow, color, outline and transparency set-

tings. With version 3's new features, users can easily create the beveled, semi-transparent titles that have become popular on broadcast TV.

Some of the biggest complaints about the 2.0 version of Toaster CG included the number and size of fonts that came with it. Toaster CG Version 3 now includes scalable Compugraphic and PostScript Type 1 and Type 3 font support. These fonts can be resized up to 400 lines tall. This means that users can scale fonts so big that one letter will fill the whole screen.

NewTek is including over 300 scalable PostScript fonts with the Toaster 4000. No, that's not a misprint. Users can adjust the color, size, drop shadow, outline, font and kerning of text on a character-by-character basis.

Toaster Paint

Toaster Paint has been the weakest module of the System 2.0 software. With the Toaster 4000, Toaster Paint now takes advantage of Commodore's AGA chip set in the Amiga 4000. Rather than working in a zoomed-in,

low-resolution, 4096-color display, the new Toaster Paint gives you a high-resolution, 256,000-color representation of your framestore. With his one major enhancement, Toaster Paint has become a much more viable tool for professional users.

Toaster 3D

Lightwave has become the Video Toaster's ticket to Hollywood. Joe Conti, the Toaster 3D animator whose credits include Freejack and Unsolved Mysteries (currently working with Steven Spielberg on something big), called Lightwave 2.0 "a stealth bomber." Well, if the old version was a stealth bomber, who knows what he'll call the new version? Many of us got a preview of the capabilities of this new Lightwave by watching Ron Barren's work on Babylon 5.

Lightwave Pro and Modeler 3D are the brainchild of developers Allen Hastings and Stuart Ferguson. Together they have put literally hundreds of new features into version 3.

One of the most exciting new features that has been added to Lightwave is skeletal deformations.

Lightwave Pro

One of the most important things they did was make Lightwave faster. The rendering routines have been optimized for the Motorola 68040 processor resulting in a two- to five-times speed increase when used with that processor. Because the 68040 processor lacks some of the floating point routines in the 68882 (math chip for the 68030) some operations like bump mapping and fractal noise slowed the old version of Lightwave down to a crawl. Well, that's all in the past. Lightwave Pro renders like a rocket. Performance is also up for those users with 68030/68881 Toaster systems.

One of the most exciting new features that has been added to Lightwave is skeletal deformations. With Lightwave 2.0, the only way to create realistic-looking flapping wings or walking animations was to either setup a complex series of parent/daughter objects with keyframes or create a series of morph target objects. This is far too much work. With Lightwave Pro, you just put "bones" in your objects and keyframe the bones. Let's say we wanted to create an animation of a cow turning its head. Lightwave comes with a cow "object" so we would just load that up and stick a bone in its head and another in its neck. By twisting the bone in its head and setting up a keyframe, the cow would appear to twist its head very realistically. The points and polygons stretch and move naturally without making it look like the head was "hinged" to the neck.

These "bones" are also good for changing facial expressions on 3-D human models. I took a framestore of my own face and texture mapped it on the "Beethoven's Bust" object that comes with Lightwave. What if I wanted to make Beethoven wiggle his nose? Under Lightwave 2.0 I would have to take the head into Modeler, change the object and setup a morph. With Lightwave Pro, all I do is stick a bone in Beethoven's nose and another one in his

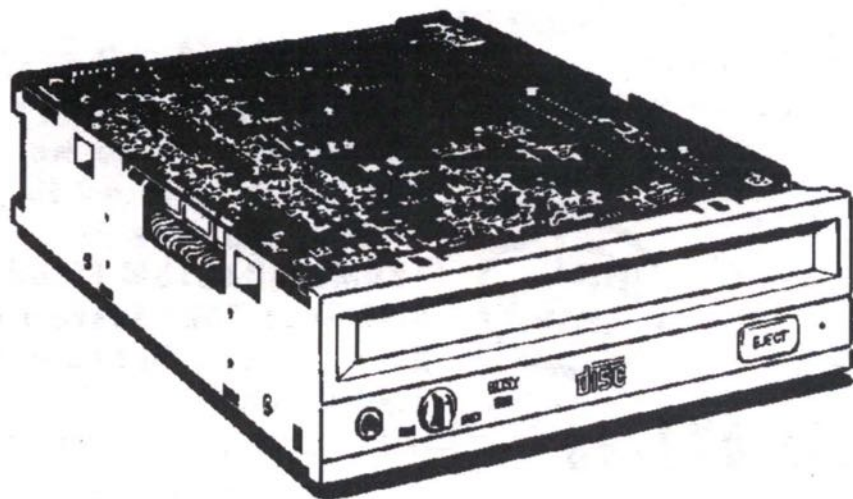
CD-ROM!

The way some competitors talk, you'd think *they* invented it!

Introducing the

PHILIPS

CM205 internal CD-ROM drive,
from ***THE INVENTOR*** of CD-ROM!



◆ MADE IN USA!

◆ MPC & PHOTO CD COMPATIBLE!

◆ NO CADDY REQUIRED!

◆ 2 YEAR WARRANTY!

AVAILABLE AT:

THRONE COMPUTERS

4810 SHEPPARD AVE. E.
UNIT 24
SCARB., ONT. M1S 4N6
(416) 609-1668

STEALS DIRECT

1825 DUNDAS ST. E.
MISS., ONT. L4X 2X1
(416) 602-8333

**LOGIC COMPUTER
HOUSE**

7310 WOODBINE AVE.,
MARKHAM, ONT. L3R 1A4
(416) 415-0909

HITS

3802 VICTORIA PK. AVE.
WILLOWDALE, ONT. M2H 3H7
(416) 499-2889
CALL FOR THE LOCATION
NEAREST YOU

CONNELL COMPUTERS

111A QUEEN ST. E.
TORONTO, ONT. M5C 1S2
(416) 360-6368



NOW BROUGHT TO YOU BY

CD SOURCE INC.

140 Milner Avenue, Unit 46, Scarborough, Ontario M1S 3R3 (416) 609-3155 FAX: (416) 609-3235 1-800-667-DISC (3472)

head, move the bone in his nose, set a keyframe and voilà.

Lightwave comes with a host of new lighting features. "Light" has been added to the view mode so you can look through your lights to see what they are illuminating. If you are using a spotlight, a target circle now appears in the view so that you can see where your spotlight is hitting. From the Camera or Perspective view, lines appear in front of spotlight representing the cone angle of the lights.

Lens flare has been added to Lightwave Pro. This creates very realistic-looking suns and headlights when rendered. To set up a lens flare, just click on the lens flare button in the Lights menu for the light you want to glare and point your camera at the light.

Surface Morphing is now included with Lightwave Pro. If you want a gray cratered moon to morph into a bright burning sun, it's no problem. And to help you with that burning sun, Lightwave includes a new texture map called "Luminosity Mapping" to give you more realistic glowing surfaces.

Two new features have been added to improve the smoothness of animations: "field rendering" and "motion blur." Video commonly runs at thirty frames per second. Each frame consists of two fields (sixty fields per second). Field rendering makes your animations look smoother by making them look like they're playing at sixty frames per second rather than thirty.

Surface Morphing is now included with Lightwave Pro. If you want a gray cratered moon to morph into a bright burning sun, it's no problem.

In video, fast-moving objects blur naturally due to the shutter speeds of video cameras. The motion-blur feature causes objects to blur when they are rushing past the camera. Under Lightwave 2.0, motion blur was only partially implemented. It was basically only useful for speeding through star fields. With Lightwave Pro, motion blur can be added to any object to simulate this effect.

A new camera feature has been added to give your renderings a more "photographic" look. Depth-of-field allows you to put a focal length on the camera, so that only those objects at the right distance from the camera are "in focus." Objects too close or too far from the camera appear blurred.

Shadow mapping is a new feature that has been added to Lightwave Pro to improve its speed. Although not as accurate as using ray-traced shadows, this new method for generating shadows renders much faster. Shadow Mapping only works with spotlights and has an adjustable edge fuzziness. The only weakness with Shadow Mapping is that semi-transparent objects appear to leave the same shadow as solid objects.

Two new image texture maps have been added. Cubic Image Mapping places the same image on six sides of the same cube or object. This is much faster than in Lightwave 2.0 where you had to setup six separate Planar Texture Maps to achieve the same effect.

Did you see the effects in the movie Predator? A new texture map called front

projection mapping would allow you to achieve a very similar effect within Lightwave. With this, the texture image is locked to the size and boundaries of your camera view and projected forward onto your object. If you were to use the same texture image as the background image, your object would appear as a distortion as it moved past the background image. This would create an effect like a chameleon trying to stay camouflaged by changing its color to match the background.

Bump mapping has been supplemented

in Lightwave Pro with a new feature called Displacement Mapping. Where Bump mapping was just a shading effect to make an object look like it had bumps or craters on it based on an image, Displacement Mapping changes the shape of the object itself based on the image.

Transparency mapping has been supplemented by a new feature called Clip Mapping. With Transparency Mapping, you specified a color in your texture image to be transparent. When the object was rendered, the transparent parts of the texture would

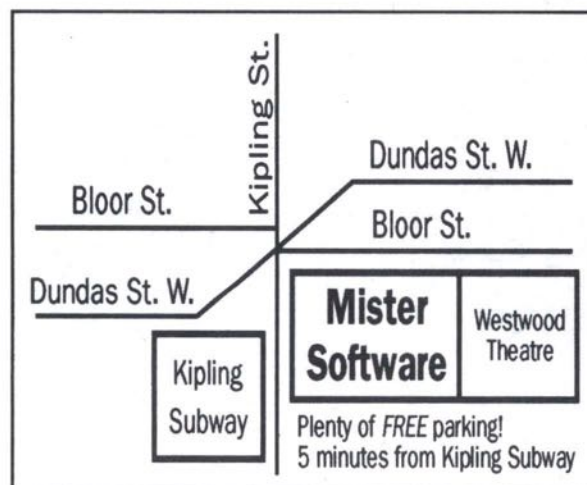
still have specular reflections. With Clip mapping, the transparent portions are carved away completely. One of the most useful ways to use this feature would be in compositing two-dimensional animations into a three-dimensional scene. After generating a two-dimensional animation in something like Disney Animation Studio, load the frames of the animation as a texture sequence. Using clip mapping, set the transparent color to the background color of the 2-D animation and clip map this on

RENT SOFTWARE

* TRY BEFORE YOU BUY Over 900 Titles

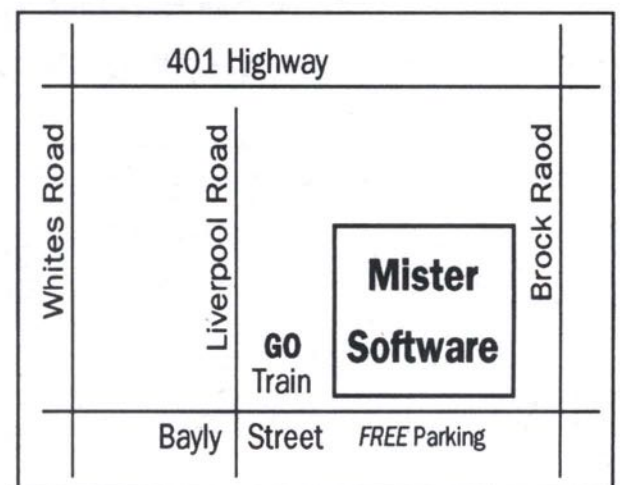
MISTER SOFTWARE

Division of Megachoice Software Inc.



**3747 Bloor Street West
Etobicoke**

233-8435



**1420 Bayly Street
Pickering**

837-0587

* 100% of evaluation fee deducted against purchase price.

CALL FOR DETAILS

to a flat plane in your 3-D scene. When rendered, not only will your 2-D animation be cleanly keyed into your 3-D scene, but your 2-D characters will also drop a realistic shadow into your 3-D scene.

Color cycling has been added with the texture mapping to give you an easy way to create burning suns, flowing lava, running water or cool psychedelic effects.

And last but not least, adjustable anti-aliasing routines have been added to increase the apparent resolution of your final images.

Modeler 3D

Lightwave was not the only thing to see major improvements. Modeler 3D received major enhancements to make it one of the most powerful object creation programs on any platform.

The most noticeable change is that now, in addition to working with faceted polygons, you have the option to work with spline curves. Rather than designing your

objects with a series of straight lines, splines can create round surfaces with much fewer points. The curve tool uses splines to create smooth curves out of a series of points. These curves can then be lathed or extruded just like polygons. This allows you to avoid the sharp-edged, faceted look of objects made out of regular polygons.

Modeler 3D also allows you to take a series of spline curves and create a "spline patch." Because spline patches do an excellent job of creating compound curves, they are an excellent tool for creating objects like human faces and car fenders.

ARexx support is now included as well. Macros can be activated from within the program to access commonly used routines or linking Modeler to other software pack-

Modeler 3D received major enhancements to make it one of the most powerful object creation programs on any platform.

ages that support ARexx.

There is direct support within Modeler 3D of Adobe Type 1 PostScript fonts. This makes the creation of extruded logos

and 3-D text a breeze.

There are a few new tools in the modify menu. Quantize turns your object into square blocks like a lego set. The smooth tool smooths out the edges on a faceted object. Jitter does the opposite by making the edges rougher or sharper.

A brand new combine menu has been added and it comes with a series of boolean functions (and, or, not, etc.). These new tools let you take a 2-D polygon, or 3-D object and use it as a cookie cutter to make a hole in another object. These boolean functions should win over some die-hard

Impulse Imagine users who have become accustomed to using these types of functions. The options in the combine menu include add, subtract, drill and core. This gives you a lot of options for using one object to drill or gouge a hole in another.

Conclusion

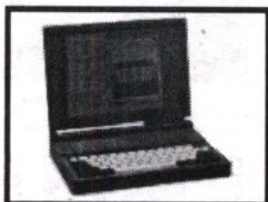
Even if you don't own an Amiga 4000, the board and new software is definitely worth getting. If you already own a Video Toaster, NewTek and Commodore will be announcing a variety of different hardware upgrade plans. There is also a System 3.0 software upgrade available for users of the current Video Toaster board. The release date for the Video Toaster 4000 and the System 3.0 Software is May 15 but it probably will not be available in quantity until June '93. ■

Gene Endrody is with VFX Video Inc. as a desktop video specialist. He can be reached at (604) 451-0137.

PORTABLE OFFICE SOLUTIONS

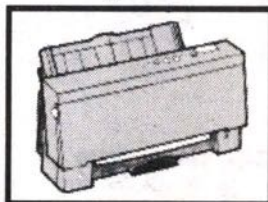
From **AST** and **Canon**

Quality for Le\$\$ ONLY **\$1849** / \$49 MTH. **SUPER VALUE!**



AST 386SX/25
PREMIUM EXEC NOTEBOOK
\$1499 / \$39 MTH

- 386SX, 25 MHz
- 4MB RAM, Expandable
- 3.5", 1.44 MB Diskette Drive
- 60 MB Hard Drive Removable
- VGA, LCD Display
- AC Adaptor/Charger & Battery



Canon BJ 20 NEW!
BUBBLE JET PRINTER
\$349

- 83 Cps Printing
- 60 dpi Resolution
- Epson & IBM Emulation
- Automatic Paper Feeder
- Optional Battery Pack
- Light Weight 4.4 lbs

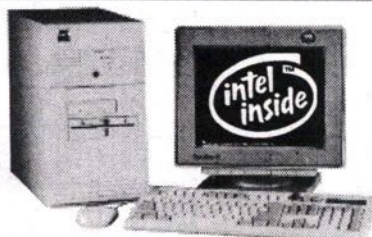
BONUS!
Free sheet feeder
Limited quantity

ADD A QUALITY TARGUS CASE FOR ONLY \$99.00, TO COMPLETE YOUR PORTABLE SOLUTION

MORE BYTE FOR YOUR BUCK 2 YR. PARTS & LABOUR WARRANTY

386DX-40
\$27/MTH.

\$999



- System board with CPU
- 4MB RAM
- 3.5"/1.44 Floppy Drive
- VGA Monitor
- 101 Enhanced Keyboard
- Turbo & Reset Features
- 1 Parallel Port

**ALL SYSTEMS
INCLUDE:**

486DX-33
\$40/MTH.

\$1399

- Mini Tower Case
- 200W CSA Power Supply
- 120MB Hard Disk
- VGA Video Adaptor
- Keylock with Keys
- 2 Serial Ports
- 1 Games Port

PROVIDING QUALITY SERVICE AND COMPETITIVE PRICING SINCE 1982
AUTHORIZED SERVICE CENTRE AND RESELLERS OF

AST **COMPAQ** **IBM**

5637 FINCH AVE. EAST, UNIT 1, SCARBOROUGH

MICROCELL 754-3343

Introducing
the First
Comprehensive
Islamic Study Software

Alim
THE WORLD'S MOST POWERFUL
ISLAMIC SOFTWARE

The Alim Package Includes:

- Qur'an in Arabic
- Roman Transliteration of the Qur'an
- A. Yusuf Ali Translation and Commentary
- M. Pickthall Translation
- Sahih Bukhari Hadith
- Comprehensive Subjects databases
- Chronological history of Islam
- Islamic terms dictionary
- Concordance of the Qur'an
- Extensive History of all 114 Suras

...and much much more! Please call for more info!

IS
SOFTWARE

In Toronto Call (416) 761-7861 24 Hours / 7 days
Outside Toronto call (800) 443-3636

Please call for Volume Pricing
Dealer Inquiries Welcome

The Mac Software Family Tree

An overview of
Mac graphics programs

BY GRAEME BENNETT

If you were to look at the world of Macintosh graphics applications as a tree, it might look something like this: at the roots, you would not find the original MacPaint as you might expect; instead, you'd see the original LisaDraw just below ground level (Lisa, of course, grew from a seed originally planted in Apple co-founder Steve Jobs' imagination when he saw the Xerox Star project at the famed Palo Alto Research Center [PARC] in 1979), with three branches just above ground level. One would be MacDraw, the others, MacPaint and MacWrite. The latter two were bundled with the original Macintosh when it first went on sale in 1984.

By 1985, the first knockoffs of the Mac's graphical user interface (GUI) were well underway. Versions of Digital Research's GEM were developed for the PC and, soon after, the Atari ST ("dubbed the Jackintosh" after Atari boss Jack Tramiel). Atari officials at the time said that Microsoft Windows "wasn't close enough to being ready" to be a contender. The first Amiga was released.

By 1986, Apple and Adobe had co-developed the first PostScript printer — the LaserWriter. On the strength of this technology, the Write category grew beyond

Mac's GUI to include FullPaint, GraphicWorks (also reworked and later released as ComicWorks), HyperCard, Studio 1, CricketPaint and MacPaint 2.0. Some "second generation" applications, like Silicon Beach's SuperPaint and SuperCard, incorporated both Draw and Paint features.

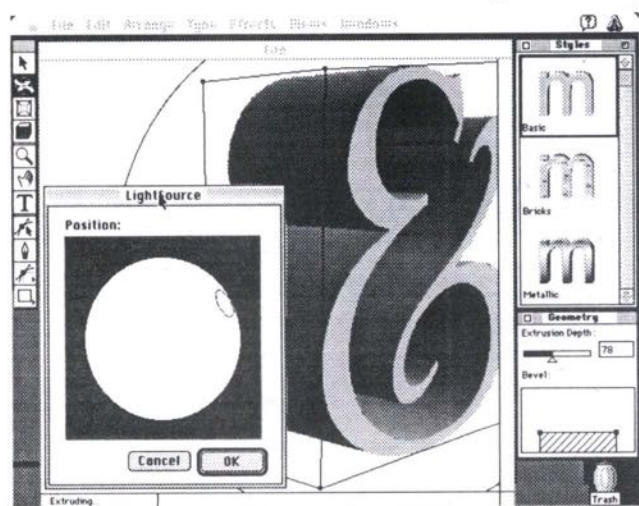
Meanwhile, the Write category grew up to incorporate Write Now, Microsoft Word, Microsoft Write, FullWrite, WordPerfect and others. (Cross-pollination with other families of software led to the category of "integrated applications" that include word processing, spreadsheet, database and other capabilities.)

After the advent of the color-capable Mac II in 1987, the Paint category further diversified to include a range of color paint programs too numerous to mention. Notable titles included Studio 8, PixelPaint, Studio 32, Photon Paint (ported from the Amiga) and, much later, the most realistic painting program of them all, Fractal Painter. The paint category also grew to include image-editing applications like Image Studio and Digital Darkroom. This image editing and photo-retouching category eventually reached full bloom with ColorStudio and Photoshop.

Draw programs continued to grow in power and sophistication. Deneba released Canvas, Apple spun off Claris, which released MacDraw II and later MacDraw Pro; and Adobe and Aldus released updated versions of the two programs that would become professional standards: Illustrator 88 and FreeHand 2.0.

By the late 1980s, the category of Draw-oriented graphics programs had also grown to include the third dimension. 3-D graphics programs quickly grew beyond the early limitations of titles like Mac3D and Super3D to reach dizzying heights, with equally dizzying price tags. Programs like Stratavision, Alias Sketch and Swivel 3D were considered inexpensive at the thousand-dollar range; the big guns (Sculpt 4D, Electric Image, Macromind Three-D, etc.) went for five times that and more.

With the advent of Apple's low-cost Macs, though, came a change in attitude for many Mac software developers. They noticed that a large segment of the buying public just wanted good, basic applications, without all the bells and whistles. Now, in addition to ever-bulkier and more feature-



Ray Dream's AddDepth is a low-cost, simple-to-use 3-D program.

mere word processing into "document processing," with desktop publishing applications such as Ready, Set, Go, PageMaker, Quark XPress and many others.

Crossovers happened in other areas, too. Altsys, for example, developed FreeHand from its earlier work on Fontographer, an outline font-editing program. Adobe undoubtedly created Illustrator from its developmental work in font creation and the PostScript language.

The Draw branch diversified early on to include early CAD programs — CricketDraw and Adobe Illustrator; the Paint branch grew strong and tall on the strengths of the

Your Multimedia Specialists

Multimedia Specials

Sound Boards

Sound Blaster Deluxe ... 119
ATI Stereo-F/X-CD ... 168
SB Pro Deluxe w/midi .. 179
Pro AudioSpectrum 16 .. 255
Sound Blaster ASP 16 ... 288
TB MultiSound ... 715

CD-ROM Drives

Philips CM205 Kit 315
Sony 31A kit 345
Texel 3024 300k Int 548
Toshiba 3401 330k Int 599
NEC CDR 84 300k Int 688
NEC CDR 74 300k Ext 768
Pioneer 604X 600k Ext . 1880

MM Speakers

CL Port Blaster 182
AR Powered Part 42 259
ACS 300 Super Pair 399

MM Bundles

Philips 205 Bundle 399
NEC CD Express 448
Sony Upgrade Kit 545
CL Discovery CD 8 509
CL Discovery CD 16 598
CL Edutainment CD 8 598
CL Edutainment CD 16 .. 692
Texel Limited Edition .. 1689
MultiSound Upg. Kit ... 1845

Video Grabbers

MV Pro MovieSpectrum . 399
NMG Watch It! TV 409
CL Video Blaster 429
CL VideoSpigot 559
Cardinal SNAPplus 1049

Discount Hardware and Software

Modems

CPI Pocket 24/96 127
CPI 14.4 Data/fax Int 249
CPI 14.4 Data/fax Ext ... 279
PP 14.4 Data/fax Ext 279
Intel SatisFAXtion400 ... 525

Miscellaneous ...

Always IN-2000 16bit ... 299
Canon BJ-20 w/feeder .. 369
ATI Ultra Pro 2MB 589
Logitech Fotoman 256 .. 673
NEC SilentWriter 95F .. 1519

Software

Windows 3.1 Upg 65
Procomm Plus 2.01 97
Lotus 123 Win Upg 124
MS Office 3.0 509
PageMaker 4.0 569

FAST SHIPPING LOW PRICES SUPERIOR SERVICE



MULTIMEDIA
EFFECTS

We are an
Authorized Dealer
Call for Product Quotes

Prices and Specifications Subject to change
without Notice. All products are cash discounted

Preview

IBM-PC SOFTWARE

with an option to purchase

Become a member and evaluate software

MEMBERSHIP PRIVILEGES

- Software Exchange Guide with software descriptions
- Discounts on software sales
- Software guaranteed - original manufacturers' condition
- An extensive library of business, educational & recreational software

Computer Sales & Service

- IBM PS/1 and PS/2
- Ambra computers
- Custom IBM-PC compatibles
- Networks & Installations
- Repairs & Maintenance

Come to us
for all your
computer needs!

(416) 481-7368

SOFTWARE
EXCHANGE

2281 Yonge St. #203
(at Eglinton)
Toronto, Ontario M4P 2C6

packed programs, vendors started producing a new generation of products for this blossoming price-sensitive market. Integrated products like Microsoft Works and Clarisworks were popular in the integrated category, while the Paint, Draw and DTP categories bloomed with a myriad of titles. Timeworks was one company that focused almost exclusively on this market segment, releasing low-cost products for the PC, Atari and, later, the Mac (Color-It, Publish-It, Paint-It, etc.). Aldus saw this market, too, and bought Silicon Beach Software, with its consumer-oriented titles — Digital Darkroom, Personal Press, SuperPaint, SuperCard, Gallery Effects and IntelliDraw.

The 3-D domain finally saw some low-cost action, too, with the recent release of Ray Dream's AddDepth and Adobe's Dimensions. The former is simpler to use (with an interface rather like FreeHand's), while Adobe's offering is far more capable, with an Illustrator-like look and feel. Both of these products are designed to be used in conjunction with other illustration software, such as Illustrator, FreeHand or Canvas.

Another category that has grown phenomenally in the last few years is that of animation. Macromind's VideoWorks was one of the first notable titles on the Mac. It grew up, in time, to become Macromind Director. Many of these titles fed off the success of HyperCard. Programs like VideoWorks, Director, Studio 1, AddMotion, SuperCard and others added animation capabilities to the hypertext authoring program/paint program that Apple bundled with every Macintosh from 1987 to 1992.

With the release of Apple's QuickTime came a new round of animation programs, as multimedia became the buzzword du jour. Word processors, presentation programs and graphics programs were updated to include the ability to play back QuickTime movies.

With the development of video-grabbing boards like VideoSpigot and RadiusTV came full-blown digital movie-making utilities like Videoshop and Adobe Premiere.

MotionWorks' HyperCard-based AddMotion grew to become ProMotion. MotionWorks' technology is also behind Corel's forthcoming CorelMove — part of the long-awaited CorelDRAW for the Macintosh.

As Macintosh hardware has grown, so, too, have the capabilities (and requirements!) of its software titles.

Today's word processors have bloated to occupy several megabytes of disk space. Typically, the word processor of today includes a spelling checker thesaurus, grammar checker, and a full-blown tutorial. It's amazing to think that the original MacWrite fit on a single 400K disk, along with the system files, fonts, clip art, printer driver and several desk accessories!

To solve the problem of this "software bloat," several products that promise to "double your disk" by compressing your data have been released. They fall into three categories: utilities that compress your files automatically, ones that compress an entire disk automatically, and those that you operate manually, compressing and decompressing at will.

In the first category are products like Salient's AutoDoubler (now marketed by Fifth Generation Systems), Aladdin's



The long-awaited CorelDRAW! for the Macintosh.

SpaceSaver and Alysis' MoreDiskSpace. I've tested the first two and have been pleased. The advantages of increased free disk space far outweigh the few hassles these products create. I did however discover a bug in SpaceSaver that no other magazine has reported. It will lock up if you attempt to use its "Compress" or "Expand" menu options after an out-of-memory problem occurs. An Aladdin technician verified this problem.

AutoDoubler is generally regarded as the fastest of the automatic file-compression

utilities. I prefer SpaceSaver's user interface, though.

In the second category are compression utilities that compress an entire disk. These are common on the PC (MS-DOS 6.0's disk compression, Stacker and SuperStor all operate this way), but less so on the Mac. Golden Triangle's TimesTwo is a Mac product of this type.

The third compression category includes the shareware classics Stuffit and Compactor Pro.

The World's #1 Computer

COMDEX[®]

JULY 13-15, 1993

METRO TORONTO CONVENTION CENTRE • TORONTO, ONTARIO

COMDEX/Canada '93

See a world of software, hardware, peripherals and accessories—including the latest in multimedia, mobile computing, imaging, office systems and more!

WINDOWS.WORLD'93

Produced in cooperation with Microsoft Canada. Open new windows of business opportunity with hundreds of practical Windows applications from 3.1 to workgroup computing to Windows NT. Plus free technical workshops!

LANEXPO'93

Produced in cooperation with LANDA Toronto. Get the latest connectivity solutions at Canada's leading network computing trade show and conference, including a live interoperability demonstration at LAN LAB!

Access the latest information at 3 separate conferences with more than 70 topics—plus a Channel Program and 6 half-day Quick Start Tutorials.

3
Shows
in
One!

Over 250 exhibitors!

LANDA TORONTO
SYMANTEC CORP.
BSD, INTERNATIONAL
RISER CANADA
ACER CANADA LTD.
FOLIO CORPORATION
MICROGRAFX
U.S. ROBOTICS
COMPUTER TRADING INTERNATIONAL, INC.
AMP OF CANADA LTD.
IBM CANADA, LTD.
MERISEL CANADA INC.
NORTHERN TELECOM
EUROPAK INTERNATIONAL
DELL COMPUTER CORPORATION
INTEL CORP.
AMERICAN POWER CONVERSION
MICROSOFT CANADA
WORDPERFECT CORPORATION
MANNESMAN TALLY
SOFTWARE DEVELOPERS ASSOC. OF SASKATCHEWAN (SDAS)

SOFTSOLUTIONS TECHNOLOGY CORPORATION

ZENITH DATA SYSTEMS, CANADA

LIUSKI INTERNATIONAL INC.

CANON CANADA, INC.

DATAEASE INTERNATIONAL, INC.

QUARTERDECK CANADA

ADOBE SYSTEMS, INC.

If you use a modem, you'll undoubtedly notice that nearly all files on any BBS are compressed. PC and/or Amiga archives ending in ".ZIP," ".ARC," ".LHA," ".ZOO" and others are common non-Mac standards. Such files can be opened on the Macintosh using Mac-specific versions of corresponding compression utilities (Stuffit Deluxe can handle most of these, too), but you generally shouldn't use such foreign standards for compression of Mac data.

If you're not sure if your files will benefit from compression (trust me, they will),

obtain one of these from your dealer or user group. Try it, and as with all shareware, pay for it if you like it. There are commercial titles, too. DiskDoubler and Stuffit Deluxe are the best-known. I use Stuffit Deluxe (which includes SpaceSaver, incidentally) and am very pleased with it.

A related topic is that of graphics file compression. With the advent of color scanners and programs like Adobe Photoshop, bitmapped graphics files can become huge. Because utilities like those mentioned above average only a 50 percent

compression ratio, developers have come up with other methods. Compressing a 10 megabyte file with the graphics-compression standard known as JPEG (named for the Joint Photographic Experts Group that developed it) yields the best compression ratios — typically, 10-to-one, with no noticeable loss, or up to 50-to-one, with increasing degrees of image degradation. This degradation occurs because JPEG is a so-called "lossy" form of compression; that is, it throws away data it deems unimportant. The portions of the spectrum the

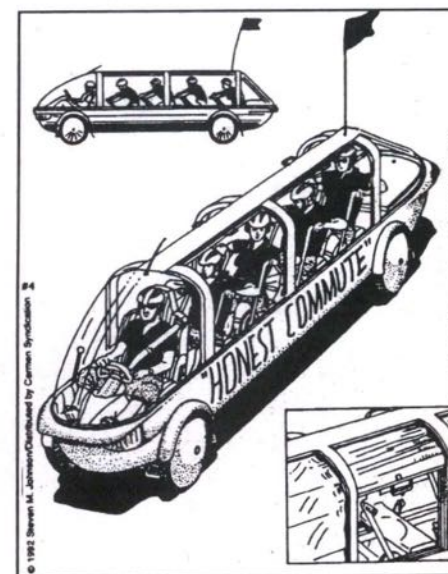
human eye can't see — subtle color variations, etc. — are the first things to go. Obviously, you wouldn't want to use lossy compression on all types of data files. It's also worth noting that repeatedly saving a file in JPEG format will degrade the image each time it is saved, as the JPEG algorithms throw away more and more data.

If you do not want to lose any data, you can save bitmaps as compressed TIFF (tagged image file format) files. (Technically, this compression method uses an algorithm called LZH, after the developers Lempel, Ziff and Huffman.) These files are recognized by most applications that accept TIFF images. TIFF, like JPEG is an industry-wide standard. This means that a file saved in either of these formats is easily transportable to a PC, Amiga or other computer.

Perhaps the ultimate answer to the problem of software bloat is the ubiquitous CD. CD-ROM drives are coming down in price and the latest round of "double speed" drives are fast enough to play QuickTime movies directly from the CD-ROM discs. Best of all, applications on CD-ROM usually give you a ton of extra goodies. The finest example is the Photoshop 2.5 Deluxe Edition CD-ROM. This disc includes dozens of QuickTime movies of Photoshop experts demonstrating various tricks and techniques. There are text files of tips, every Adobe Tech note and dozens of extra "Plug-in Filters" — including a subset of "Kai's Power Tools" by renowned Photoshop whiz Kai Krause. You'll also find 50 high-quality stock photos for your (royalty-free) use, sample Photo CD images and an art show of some superb Photoshop work. The disc also includes try-out versions of other Adobe products, including Illustrator 3, Dimensions and Premiere. I highly recommend this product. Believe me, those animated tutorials beat the heck out of Balloon Help.

It would be interesting to further explore this family tree, to see how GEM Paint, GEM Draw and the myriad of Windows graphics applications on the PC grew out of these developments in the world of the Mac. But that's another story.

Sightings by Steven M. Johnson



First made popular in a suburb of Flagstaff, Arizona, "roadway rower" clubs are being formed nationwide by commuters who wish to exercise their way to work.

Event Comes to Canada! Canada '93

Resellers and Corporate Decision Makers:

REGISTER TODAY!
IN CANADA:
Fax 416-283-3003
IN THE US:
Fax 617-449-2674
OR MAIL THIS COUPON TODAY!

COMDEX/Canada '93

Canada's #1 Computer and Communications Marketplace for Resellers and Corporate Decision Makers

July 13-15, 1993 • Metro Toronto Convention Centre • Toronto

- ☐ Please send more information and a registration form.
☐ Please send the latest exhibitor list.

Name _____ 8LUFA
Title _____
Company _____
Address _____
City _____ Province/State _____
Postal/Zip Code _____ Country _____
Telephone (____) _____ Fax (____) _____

Mail to: COMDEX/Canada Registration Department
300 First Avenue • Needham, MA 02194-2722 USA

©1993 The Interface Group • 300 First Avenue, Needham, MA 02194-2722 USA
Windows is a trademark of Microsoft Corporation.

Canada's biggest computer show!

BORLAND CANADA SOFTWARE INC.
ALPHA WIRE CORPORATION
DYNATEK AUTOMATION SYSTEMS INC.
SUN MICROSYSTEMS OF CANADA INC.
SOFTKEY SOFTWARE PRODUCTS INC.
GOVERNMENT OF QUEBEC
SAS INSTITUTE (CANADA) INC.
SOFTCHOICE CORPORATION
AST CANADA, INC. AZTECH TECHNOLOGIES INTERNATIONAL
INGRAM MICRO INC. CANADA
COMPUTER ASSOCIATES CANADA LTD.
COMPUTER BROKERS INC.
HAYES MICROCOMPUTER PRODUCTS INC.
AT&T EASYLINK SERVICES—CANADA
HEWLETT-PACKARD
IOMEGA CORPORATION
DIGITAL EQUIPMENT OF CANADA

HONEYWELL, LTD.
BITWISE DESIGNS, INC.
ANTARES, INC.
TOSHIBA OF CANADA LTD.
RACAL-DATACOM CANADA
TECH DATA CANADA
ARTISOFT INC.
POLAROID CANADA INC.
SEAGATE TECHNOLOGY
IOMEGA CORPORATION
HEWLETT-PACKARD
AT&T EASYLINK SERVICES—CANADA
HAYES MICROCOMPUTER PRODUCTS INC.
COMPUTER ASSOCIATES CANADA LTD.
COMPUTER BROKERS INC.
INGRAM MICRO INC. CANADA

Canada's Specialists in Replacement Cartridges, Toners, Inkjet Refills, and Printer Memory.

JUNE SALE

while they last!

**Brand New HP11/III
Toner cartridges****\$86** Limit 5

ISLINGTON	ROYAL YORK RD.	PARK LAWN
QEW	MIMICO AVE.	
LAKESHORE RD.		

INKJET REFILLS

Deskjet+ BLACK
500 DeskWriter
ThinkJet, QuietJet
JetFax COLOUR
BubbleJet BJ10E
300/330/130/130E
Deskjet 500C

2 for \$25
2 for \$29
4 for \$129



Takes 20 Seconds!
Texas Instruments/Sharp 9500
Toner \$59 OPC \$99

**DEALER PRICING
AVAILABLE****REMANUFACTURED
LASER CARTRIDGES****\$65** We Buy Extra Empties

HP, IBM, HP, Canon, Apple, & PC

2-4 \$59 5-10 \$57 11-24 \$53 24-49 \$49

YES, DEALERS WELCOME

GCC PLP, Epson GQ3500, Ricoh 6000 Toner	\$22
Fujitsu RX7100 Cartridge Remanufactured	99
IBM 4019 Cartridge New	199
IBM 4019 Cartridge Remanufactured	109
Kyocera 1010/Mannesman 910 Toner	32
NEC LC800 Toner/Wand	24
NEC OPC Drum Remanufactured	89
OKIDATA 400/800 Toner/Refill-Send Connister	22
OKIDATA OPC Recycled-Send OPC	129
Panasonic 4450 Toner/Refill	36
4450 Drum/Developer Remanufactured	89
Ricoh 4080, DEC LN3, TI OmniToner-Send Cart.	79
Sharp Z50/55/70/75 SF6000 Copier Toner	
Remanufactured-also Xerox 5008	65
Xerox 4045 & 2700/3700 Imager (Boz)	15
Plus 5800 More!	Call

IMAGE CONTROL®

We accept Cash, Mastercard, plus Corporate & Government POs, and Accounts on Approved Credit.

(416) 251-4950 (Fax) 251-2361 62 Mimico Avenue, Etobicoke, Ontario M8V 1R3

Presentation graphics

BY GEOFF WHEELWRIGHT

Producers of personal computer presentation software have a lot to answer for. During the past six years, increasing numbers of salespeople and executives have been forced to sit through computer-generated business presentations that use odd combinations of garish colors, strange mixtures of type and eye-blastingly loud backgrounds to unintentionally insult the sensibilities of their viewers.

also benefit from this technology — giving users the tools to create timely presentations that are well-tailored to the audience at which they are directed.

When putting this theory into action, however, far too many corporations eliminate an important step — they fail to offer users any kind of training and guidance in the graphic arts. Managers assume that if they give their marketing staff the right software, they will automatically be able to produce professional presentations to do their work.

This assumption is simplistic and wrong-headed. Sales and marketing executives are no more qualified to be designers and typographers than journalists are to make printing plates and put paper on presses. Specific skills are required to produce professional-looking presentations and they cannot be acquired overnight.

The software companies that produce these presentation applications — such as Aldus Corporation, Microsoft and Lotus Development — must share some of the blame for propagating the notion that anyone can be a designer.

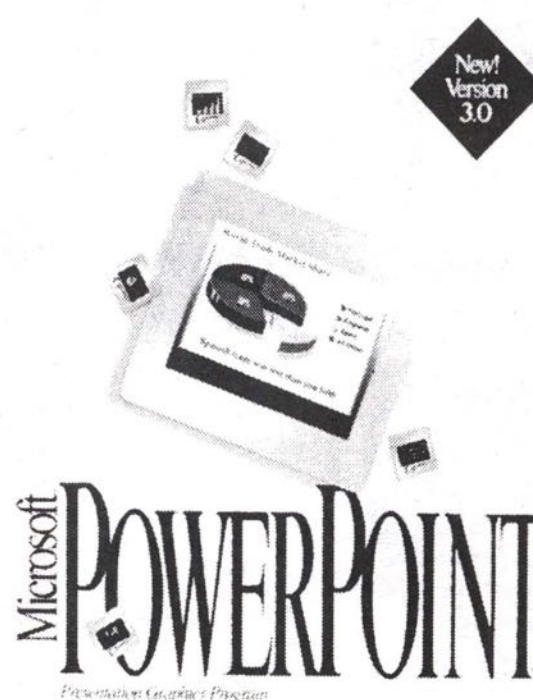
The companies have anticipated the problem and responded by including dozens of presentation "templates" that come prepackaged with the software. These templates use professionally-matched colors, backgrounds, typefaces and graphics — and look eminently respectable. But the enterprising young executive from Fuzzy-Tech isn't going to be caught dead using the same template as someone else — and therefore goes off to create something for himself.

Future directions

One solution is to only widely distribute a customized version of the presentation software that limits the elements a user can change. If users were only allowed to select from a limited number of corporate-approved combinations of images, colors, typefaces, backgrounds and "transition effects," then the only issue they would have to worry about would be the content of the text.

Most popular presentation applications already allow corporate software or MIS managers to set up such a system by "locking out" certain functions and customizing the presentation application to meet this need. It is now up to corporations to take this message on board when choosing their presentation graphics software — and get something that offers full functionality and customization.

In addition, they need to consider the question of file format support for output devices (such as those required to send slides to the growing number of overnight slide processing services), font-handling (so



You know the sort of thing. A sales rep from some place with a name like Fuzzy-Tech Office Equipment comes by your office to give a sales presentation on his company's latest goodies. He fires up an overhead projector (or an LCD overhead projection screen) and proceeds to overwhelm you with slides that feature red text on a purple background and bad "clip-art" graphics inserted in inappropriate places. You quietly cringe at the unreadable mess, serve him a cup of undrinkable coffee and send him on his way.

Once upon a time, such a salesperson would carry with him only sales brochures and corporate-wide slides created by professional graphic designers and artists; you could at least be assured that, however boring the content of the slides, at least the look of them would not be reminiscent of a trip through San Francisco's Haight Ashbury district in the '60s.

The problem lies with PC-based business presentation software. It is now cheap enough and easy enough to use that anyone with a keyboard, mouse and a good printer can try their hand at creating their own business presentations.

In theory, this is very good news. It allows presentations to more accurately reflect the sales message that marketing people are trying to get across. Corporate training and educational presentations can

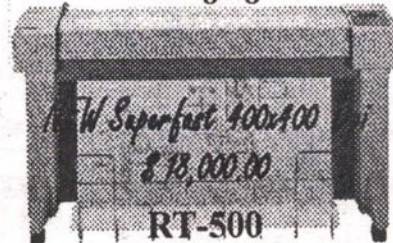
CAD CAM GIS PERFORMANCE PRODUCTS**GTCO**

Ultima
Special
12x12.. \$ 390.00
12x18.. \$ 475.00

**Super LII**

GTCO Digitizers are available in all sizes with stylus, 4 or 16 button cursors. These are the standard in the CAD or GIS industry.

"Highly recommended"
..... CADalyst

Mutoh Plotters**Direct Imaging Plotter**

From \$ 2,350.00

(2mb, HPGL, ADI, Epson LQ, 360 Dpi, 8 1/2" size)

XP-511 & XP-510 Pencil/Pen Plotters
With fuzzy logic on board, this is the best performing vector plotter in the world; and the toughest!

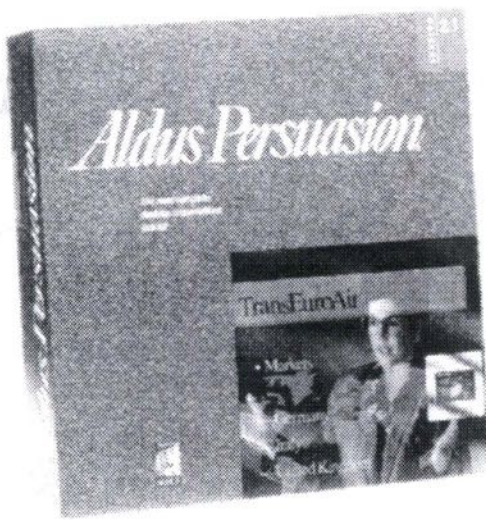
Interworld Electronics & Computer Industries Ltd.



1-800-663-6001 West
1-800-465-0164 East
for a Dealer near you

1415 Welch Street,
North Vancouver, B.C. V7P 1B5
Local Phone: (604) 984-4171

3575 - 14 Ave., Unit 14
Markham, Ont. L3R 0H6
Local Phone: (416) 513-7027



Aldus Persuasion for Windows is supposed to include everything you need to create a persuasive presentation at short notice.

sensation graphics product easier to use and more powerful — while providing greater consistency with other applications and making full use of the Windows 3.1 interface.

PowerPoint has never been particularly difficult to use. But as it has grown more powerful in the past few years, the question of how to get at some functions — and make the most of others — has sometimes been a little confusing. It is clear that Microsoft has put a great deal of thought into correcting this problem in PowerPoint 3.0.

Probably the best example of this lies in the development of the new context-sensitive toolbar. It not only provides users with a whole range of new graphical tools that can be used instead of keyboard commands, but the tools that are offered change — depending on the job that you are trying to do.

When you are working, for example, in either the "slide view" or "notes view", the tools offered include those needed to draw lines, create fill patterns and add a "shadow" behind any on-screen object. But if you switch to working in "outline view" — to get a better overall picture of your presentation — the tools needed for drawing lines, creating fills and shadows are replaced in the toolbar by ones used to handle draft text or change titles. And in "slide sorter" view, a number of the tools available in the other two views are eliminated and replaced with tools to handle things — such as transition effects between slides, color schemes and dialogues.

Universal tools — such as those used to move around slide outlines, change font sizes, change font styles, zoom in and out of documents and preview your slide show — are common between most toolbar views. The beauty of this approach is that your work screen is never cluttered up with tools or command options that are irrelevant to the work that you are doing at that time. PowerPoint 3.0 is thus not only WYSIWYG (What You See Is What You Get), but also WYSIWYN (What You See Is What You Need).

PowerPoint 3.0 shows just what second-generation Windows presentation applica-

that screen output matches slide, overhead or paper output), annotations (so that notes about the presentation can be made and printed out along with paper copies of the slides) and support for animation files (such as Autodesk's .FLI format for animator files) as well as a wide range of transition effects.

Platforms

There are only three platforms worth worrying about where presentation graphics are concerned: MS-DOS, Apple Macintosh and Windows. There is also a growing body of applications being designed to run with IBM OS/2 2.1 — but it has not yet reached the critical mass to be statistically significant.

The area of biggest growth lies, not surprisingly, in the Windows market. Although new DOS presentation graphics packages are still hitting the market (such as WordPerfect Presentations) they are generally coupled with an often simultaneous release of a Windows version — and sometimes sold in the same box.

For this reason, we concentrate below on the Windows versions of all the major presentations graphics packages. You will note as well that these packages are not always what they seem. Corel Draw, for example, is included in this round-up — although you would not strictly call it a presentation graphics package. But the presentation graphics elements in Corel are so strong that not to include it in this list would be to do a great disservice to readers.

Product: Microsoft Powerpoint 3.0
Publisher: Microsoft

PowerPoint Version 3.0 for Windows is Microsoft's attempt to make its flagship pre-

HIGH QUALITY SYSTEMS

486DX-33 256K Cache **\$1,599**
486DX-50 256K Cache **\$1,799**
486DX-66 256K Cache **\$1,899**

INTEL CPU, Built-in Math-Coprocessor
4M RAM 70ns, 170Mb Quantum HD,
1Mb Windows & Graphic Accelerator
Video Card, 1.2 & 1.44 Floppy Drives,
2S/1P/1G Ports, Minitower 200W PS,
Non-Interlaced .28 SVGA Monitor,
101 Keyboard, MS Comp. mouse & pad

Upgrade options:
1Mb SIMM (RAM) \$40
240Mb HD + \$120
15" SAMSUNG SVGA, 1280X1024, Non-Interlaced, Flat Screen, 0.28, CPU, Low Rad. + \$250
2 Years Parts & 3 Years Labour Warranty

Prices may be lower than advertised - CALL!
Tel: (416) 920-3252 Fax: (416) 921-8940 Open Mon-Sat 10-7
1255 Yonge St. suite 102 Toronto Ontario M4T 1W6

HIGH QUALITY VESA PRO LOCAL BUS

486DX-33 256K Cache
INTEL CPU INSIDE
2 VL-BUS Slots **2,099**
8Mb RAM
240Mb HD 9-10ms
1Mb VL-BUS SVGA CARD
VL-BUS IDE & I/O CONTROLLER
Non-Interlaced 0.28 SVGA MONITOR
1.2 & 1.44 Floppy Drives
MINITOWER CASE 200W PS (6 bays)
101 KEYTRONICS Keyboard
MICROSOFT MOUSE & Pad

15" SAMSUNG SVGA, 1280X1024, Non-Interlaced, Flat Screen, 0.28, CPU, Low Rad. + \$250
2 Years Parts & 3 Years Labour Warranty
Prices may be lower than advertised - CALL!
Tel: (416) 920-3252 Fax: (416) 921-8940 Open Mon-Sat 10-7
1255 Yonge St. suite 102 Toronto Ontario M4T 1W6

THE DESKTOP LAWYER

Canada's #1 Legal Software Package for Home & Business

\$199
COMPLETE
(Taxes & Shipping Extra)

Based on Canadian Law

Coming Soon...

Consulting & Franchising
Software Packages

Available for WordPerfect
Wordstar - AMI Pro
Microsoft Word (IBM-Mac)
Word for Windows & Write-
Windows & any software that
supports ASCII Files
5 1/4" or 3 1/2"

- ★ Save Expensive Legal Fees & Time
- ★ An Essential Addition to Your Software Library
- ★ Over 150 Business Contracts, Agreements, Forms & Letters
- ★ Prepared By Lawyers, Accountants & Business People for Business & Personal Use

...Most businesses will require, at some time, an agreement, contract, form or letter available in this software package and possibly save thousands of dollars in legal fees and other costs.

Corcoran & Associates
200-6 Gurdwara Road
Ottawa, Ont. K2E 8A3
Tel: (613) 225-5922
Fax: (613) 724-6614

ACC TECHNOLOGY INC.

386DX-33MHz **\$1040**
w/ 64K Cache
386DX-40MHz **\$1190**
w/ 128K Cache
486DX-33MHz **\$1529**
w/ 128K Cache
486DX-50MHz **\$1679**
w/ 128K Cache
486DX2-66MHz **\$1810**
w/ 128K Cache



Two Years Labour &
One Year Warranty
Computer Upgrades,
Repairs & Networking

Basic Configuration:

4 MB RAM (70ns)
1.2 & 1.44 MB Floppy Drive (Panasonic)
170 MB IDE Hard Disk (Quantum)*
Mini Tower Case 200 Watt Power Supply
Hard Disk & Floppy Disk Controller
1 Parallel, 2 Serial, 1 Game Port
SVGA Card (Trident) w/512K
14" .28dp SVGA Color Monitor 1024x768*
101 Enhanced Keyboard

*to upgrade to 240MB Hard Disk add \$100
*to Non-Interlaced Monitor add \$65 (1280x1024)

Vesa
Local Bus 32 Bit 486DX-33 w/128K System
Vesa Local Bus SVGA Card w/ 1MB **\$1,599**

Tel: (416) 946-9440 Fax: (416) 946-1098
825 Denison Street, Unit 4
Markham, Ontario, L3R 5E4 (Jct. Esna Park Dr.)

Mon. - Fri. 9:30 a.m. - 6 p.m.
Sat. 11 a.m. - 4 p.m.

NOTEBOOK BLOWOUT NOTEBOOK SPECIALS

PIONEER
386 SX 25
\$1199



2 Megs Ram, 80 MB Hdd
VGA Screen, SIMMS

IMPULSE
2 Meg Ram
60 Hdd / Trackball
\$1499

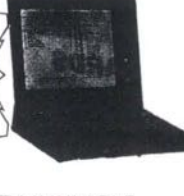
FREE
dos
Windows



2 Megs Ram, 60 MB Hdd
*special incentives in effect

Everex
386 SX 20
\$1499.00

FREE
s/r fax
modem



LTD. QTY AVAILABLE
sFax Modem, 2 Megs Ram
4.7 lbs, 80 Meg Hdd

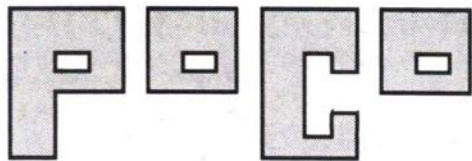
AST Power Exec 4/60 **\$1849.00**
Zenith Z Lite Sub Note **\$2249.00**
Panasonic SL v **\$2249.00**
NEC Ultralite Vesa **\$call**
Toshiba T1850 **\$2237.00**
486 SLC Active Matrix **\$4100.00**
Texas Instruments 486 **\$2350.00**

MEMORY, HARD DRIVES, FLOPPY
MODEMS, PCMCIA, SOFTWARE

Pioneer Notebooks
386 - sx 33 80 Meg **\$1399**
486 -slc 25 80 Meg **\$1899**
486 -dx 33 120 Meg **\$2699**
486 -dx 50 120 Meg **\$2899**
486 -slc 80 hd (Colour) **\$2699**
486 -dx 120 hd (Colour) **\$3399**

SHORT TERM RENTALS

THE NOTEBOOK STORE
4495 Chesswood Drive
North York, Ontario.
(416) 630-5681
FAX ORDER (416) 630-2594



The Postal Code Lookup Program

Fast, easy, Canadian postal code lookup for just \$39.*

- Simple to install. Uses 3Mb on disk, 7K RAM.
- Pop-up windows with complete on-line help.
- Includes every postal code in Canada.
- Look-up any code in seconds, even on an XT.
- Copies the code back to the application.
- Network version \$159 per 20 users.
- Monthly updates available.

30 Day Money-back Guarantee:

If you are not satisfied with PoCo for any reason, return the disks for a full refund.

(416) 531-4227

Out of town: 800-567-9074

Sector Publications Inc., Box 738, Stn "C", Toronto, ON, M6J 3S1

* plus tax, and \$6 S&H. Introductory price available until June 30, 1993. MSL: \$59.

tions are capable of. It is easy to use — but at the same time a great deal more powerful, comprehensive and well-integrated with both Windows 3.1 and all other Windows applications than any previous version. If you do professional presentations on your PC, you should look at PowerPoint 3.0 — and if you don't, this product will make you start asking why.

Product: Aldus Persuasion

Publisher: Aldus

Aldus Persuasion for Windows is supposed to include everything you need to create a persuasive presentation at short notice. As Aldus says in its promotional literature for the product, it should do the job "whether you're preparing for your weekly staff meeting, the quarterly sales report, or a major presentation to the board of directors." Persuasion isn't designed to merely produce a few good-looking slides.

You can take your work from presentation outlines right through to finished overhead transparencies or 35mm slides. In addition, you can use Persuasion to produce speaker notes and audience handouts at the same time as you are creating your presentation.

The key to understanding what Persuasion is all about lies in its approach. The Persuasion approach is to let you first enter the information that makes up your presentation — and then let Persuasion assist you in providing the best possible format for that information. Persuasion automatically formats your text or data into professional-looking visuals for use in a presentation or document.

You can also enhance your presentation using Persuasion's word-processing, drawing and charting tools. In addition, Persuasion offers the facility to customize an "autotemplate" design to match your corporate format.

It further offers facilities for creating or importing logos, technical diagrams and illustrations. You can also produce charts and tables from a spreadsheet, or enter data directly into Persuasion's datasheet. You can even create and edit organization charts, right from the presentation's outline.

Organizing your thoughts for a presentation is a tough enough business without your presentation software working against you. To assist in this process, Persuasion — like most of the competition — includes its own multi-level outline processor.

In addition, there are facilities for automatic slide layout — so that slides can be ordered in the right way — and ensuring that elements within a given presentation are used sensibly and consistently.

You'll also find that Persuasion includes its own charting and graphing tools — so that you can create charts and graphs directly in Persuasion, without having to switch to another application in order to do so.

Freehand drawing is also catered to. Although anyone who needs an illustration package can more usefully be directed to Aldus Freehand or Corel Draw, the basic drawing tools within Persuasion will do most of what you'll need to accomplish.

Finally, if you do want to prepare work

Laser Printers

HP LaserJet 4L	\$900.00
HP LaserJet IIIP	\$1085.00
HP LaserJet 4	\$1800.00
HP LaserJet 4M	\$2550.00
HP LaserJet 4SI	\$3950.00

Hewlett Packard Registered Reseller

Canon	Okidata	Texas Instruments
IBM	Fujitsu	Panasonic

Toner	Ribbons	Accessories
-------	---------	-------------

Free Delivery*



Automation Management Group
Consulting • Hardware • Custom and Off-The-Shelf Software
Phone: (416)595-5598

*Toronto and surrounding area.
Prices subject to change without notice.

VESA SYSTEMS

- 4MB Ram(70ns)
- 1.2M & 1.44M Floppy Drive
- 170MB IDE Hard Drive
- 2M Cirrus Logic VESA Video Card
- VESA IDE Controller
- 14" SVGA Non-Interlace Monitor
- 101 Enhanced Keyboard
- Mini Tower Case w/230W PS
- DOS 5.0
- Mouse & PAD

386DX-40MHz w/256K Cache	\$1495
486DLC-33MHz w/256K Cache	\$1619
486DX-33MHz w/256K Cache	\$1779
486DX-50MHz w/256K Cache	\$1949
486DX2-50MHz w/256K Cache	\$1909
486DX2-66MHz w/256K Cache	\$2045

2 years parts & labour warranty

STANDARD SYSTEMS

- 4MB Ram(70ns)
- 1.2M & 1.44M Floppy Drive
- 120MB IDE Hard Drive
- 1M SVGA Video Card
- IDE Controller 2S/P/G
- 14" SVGA Interlace Monitor .28dpi
- 101 Enhanced Keyboard
- Mini Tower Case w/230W PS
- DOS 5.0
- Mouse & PAD

386DX-40MHz w/128K Cache	\$1220
486DLC-33MHz w/128K Cache	\$1359
486DX-33MHz w/128K Cache	\$1529
486DX-50MHz w/128K Cache	\$1700
486DX2-50MHz w/128K Cache	\$1659
486DX2-66MHz w/128K Cache	\$1799

1 years parts & labour warranty

* Prices are subject to change without notice. FINANCING AVAILABLE NOW !!

ULTRA SYSTEMS

- 4MB Ram(70ns)
- 1.2M & 1.44M Floppy Drive
- 170MB IDE Hard Drive
- 1M ATI XL24 Video Card
- IDE Controller 2S/P/G
- 14" SVGA Non-Interlace Monitor
- 101 Enhanced Keyboard
- Mini Tower Case w/230W PS
- DOS 5.0
- Mouse & PAD

386DX-40MHz w/128K Cache	\$1369
486DLC-33MHz w/128K Cache	\$1509
486DX-33MHz w/256K Cache	\$1690
486DX-50MHz w/256K Cache	\$1862
486DX2-50MHz w/256K Cache	\$1820
486DX2-66MHz w/256K Cache	\$1959

2 years parts & labour warranty



BiCMOS
Trading International • Computer Wholesaler

DEALER NEWS

IBM 486SLC-66MHz
- 16K Internal Cache
- Faster than INTEL DX-33MHz
- Landmark Test 153
- Motherboard & CPU
* made in U.S.A.

CALL FOR
MORE INFORMATION
279-5038

Toronto Branch:
1125 Dundas St. East,
Suite 28, (2nd Floor)
Mississauga, Ont.,
L4Y 2C4
Tel: (416)-279-5038
Fax: (416)-279-9241

Head Office:
1117 St. Catherine W.
Suite 407
Montreal, Quebec
H3B 1H9
Tel: (514)-286-1516

within another application for use in Persuasion, you can import text from word processors, spreadsheets and graphics programs.

When it was first released for Windows two years ago, Persuasion did have something of a jump on the competition. Today, while it is still powerful and well-designed, there is little to choose between it and a competitive offering such as PowerPoint. But if you like the overall Aldus approach to software design, that may tip the balance in favour of Persuasion.

Product: Coreldraw 3.0

Publisher: Corel Corporation

It's always been hard not to like CorelDraw. From the start, it has been innovative, packed with features and one of the best users of the Windows interface of any graphically-oriented package.

This is largely due to the fact that it was designed from the outset as a Windows application — unlike Adobe Illustrator or Aldus FreeHand, which both started life on the Apple Macintosh.

When you install CorelDraw 3.0, you notice immediately that there are six program icons in the Corel folder. In addition to CorelDraw, you'll see the CorelChart, CorelShow, Corel PhotoPaint, CorelTrace and CorelMosaic icons shown.

These add a whole raft of new functions to CorelDraw — but by being added as modules, they do not clutter up the main application too much. Each of these applications (perhaps with the exception of CorelMosaic) is almost worth a review in itself, but the ones that will most interest

presentation graphic designers have to be CorelChart and CorelShow.

CorelChart, as the name suggests, is a new data-driven charting application. When you load it up, you select a chart type and are presented with a spreadsheet-style grid into which you can either enter or import data. If you choose, you can also use the OLE and DDE (Dynamic Data Exchange) capabilities of Windows 3.1 to create a permanent link to any OLE-supporting Windows spreadsheet (such as Excel or Lotus 1-2-3 for Windows).

CorelChart offers more than 100 different chart types — including bar, pie, histogram and three-dimensional charts. You can also use "pictographs" (ie. showing new car sales in a bar chart with bars made up of cars stacked on top of each other) to make your charts easier to understand.

Meanwhile, in an attempt to more directly grab some business from presentation packages such as Aldus Persuasion, Microsoft PowerPoint and Lotus Freelance Graphics, Corel has made its presentation module — CorelShow — highly flexible. It can pull in elements from CorelDraw, CorelChart, Corel PhotoPaint — as well as read Animator .FLI animation files — to create multipage presentations and slide shows. Like most of the competition, CorelShow includes a library of professionally-created backgrounds and animation "flics." And like all parts of CorelDraw 3.0, it supports both OLE and DDE links to other Windows 3.1-aware applications.

Corel is selling this package heavily on "added value." In addition to all the extra features in the package itself — and the new

modules — Corel has added 153 hinted TrueType fonts and some 4600 professionally-drawn symbol and clipart images. Further to this, the package includes complimentary TRUMATCH and Pantone system licenses that give users access to industry standard color printing systems.

Anybody who buys CorelDraw 3.0 will also get a CD-ROM version of the software — which also includes Corel's entire library of 14,000 images, a range of on-line tutorials, more than 100 animation files in .FLI format, another 100 TrueType fonts and Corel's complete type library in Adobe PostScript Type 1 format.

With its recently reduced price tag (Corel just dropped the price from US\$600 to \$199), CorelDraw 3.0 is one of the best values on the market — and by far the most fully-featured and comprehensive. It's like buying a presentation package with one of the world's best Windows drawing packages thrown in for free.

New on the menu

There are lots of Windows presentation packages in their second and third generations now. Lotus Development, for example, is taking another stab at grabbing a larger share of the presentation graphics software market with the release of Lotus Freelance Graphics for Windows 2.0. The first release of this product was the best of a relatively mediocre bunch of Windows applications released alongside the disappointing Lotus 1-2-3 for Windows. Lotus says the most important new additions relate to the usability of Freelance Graphics — which now includes an updated

"QuickStart" tutorial, an animated product introduction with five "hands-on" exercises and 12 new SmartMaster presentation styles. It also includes greater multimedia capabilities with Lotus Media Manager and Lotus Sound Recorder built-in along with support for Apple's QuickTime for Windows and Microsoft's new Video for Windows.


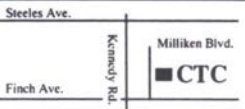
WordPerfect, meanwhile, is bringing its presentation graphics product to Windows from DOS for the first time. WP Presentations for Windows (an evolution of what was the DOS-based WordPerfect Draw) includes support for Windows standards such as DDE, OLE, the TWAIN scanning standard as well as sound and video.

And who could forget Software Publishing Corporation's venerable Harvard Graphics for Windows? Harvard was a long-time leader in the DOS market, but arrived late to Windows and is still working hard to catch up. With the latest version, SPC is working hard to build more advice into this presentation graphics suite on how to design good-looking presentations. ■

TELL ADVERTISERS YOU

SAW THEIR AD IN



 Tel: (416) 297-7795 Fax: (416) 412-2096 23 Milliken Blvd. #B9 Scarb. Mon-Fri/Sat 10:30-8/5:00		
386DX-40MHz \$1,299	<ul style="list-style-type: none"> 170 MB Hard Disk Drive 4 MB RAM 128K Cache 	Upgrade <ul style="list-style-type: none"> XT to 286 w/1MB RAM from \$ 99 286 to 386DX from \$199 40 to 120 MB Hard Disk Drive from \$239 Mono to SVGA from \$299
486DLC-33MHz \$1,369	<ul style="list-style-type: none"> 3 1/2" 1.44mb FDD 5 1/4" 1.2mb FDD Non-interlaced SVGA 1024 x 768 0.28mm 	Service, Support, Consulting <ul style="list-style-type: none"> UNIX or OS/2, WAN/LAN Networking Data Recovery, Hard Disk Drive Repairs
486DX-33MHz \$1,599	<ul style="list-style-type: none"> 1M Video Card Mini Tower Acer 101 Keyboard 	<ul style="list-style-type: none"> 1 MB Windows Accelerator \$85 Fax/Modem 96/24 \$65 Sound card/Pro \$88/188 14", 15", 17", 20" Monitors \$345/Call Panasonic 410 Laser Printer \$785
486DX2-66MHz \$1,899	<ul style="list-style-type: none"> 2S, 1P, 1G Ports Mouse Getting a Chance 	

Win a SONY walkman value \$169 1/50

1 in 5 CANADIANS CAN'T BREATHE PROPERLY

But you can beat the odds on lung disease.

- **Arm yourself with the latest** lung facts from the B.C. Lung Association.
- **Reduce air pollution** from residential wood smoke and auto emissions with tips from the Association.
- **Support advanced research** and province-wide community education programs sponsored by your Lung Association.

 **B.C. Lung Association** Box 34009, Station D, Vancouver, B.C. V6J 4M2

(Advertising space donated by this publication)

COMPU COP

THE ULTIMATE PC ALARM SYSTEM



Introducing CompuCop, the affordable and intelligent micro-computer based alarm system. CompuCop is a combination PC add-in board and monitoring software that turns your PC into a sophisticated intruder detection system. Just attach door magnets, window foils, or infrared motion detectors to create the Ultimate PC Alarm System.

- 4 or 8 Zone Alarm Coverage
- Complete Password Security
- Alarm Activity Log
- External 12 Volt Output
- Supports a wide range of sensors, switches and detectors
- Customizable Alarm Setup
- Modem Dial Out Support
- Compatible with Commercial Alarm Monitoring Services

Basic Package Includes:

- Four Zone Add-in Card (8 bit)
- CompuCop Software (Dual Media)
- CompuCop User's Manual
- CompuCop Alarm Basics Guide

\$199⁰⁰

Dealers Inquiries are Welcomed.

Information & Order Hotline:
1-800-461-9919



Call Monday -Friday
 9:00am - 5:00pm (CST)



Optional Horn accessory shown in illustration.

MANLAB
 RESOURCES INC.

1575 Inkster Blvd. Winnipeg, MB R2X 1R2
 phone: (204) 633-1148 fax: (204) 694-5245

Grand Opening May 22

Discount Software & Computer

NEW AT WESTON & FINCH

10 disks free to First 100 customers
Epson's 10 disks+case only 99¢
BASF HD 5.25 Box of 10 only \$4.99

Try then Buy

Graphic Arts
Desktop Publishing Specialists

OPEN 7 DAYS

**Adesso
Computer**

Shoppers World Brampton
Hwy # 10 at Steeles
451-6946

**MAC & PC
SOFTWARE
RENTALS
SALES/SERVICE**

**Discount Software
& Computer**

9 Milvan Drive # 10
Finch & Weston Rd.
746-0179

AMBRA System



386SX25	2M Ram, 80M H.D	\$1149
386SX33	2M Ram, 100M H.D	\$1229
486SX25	4M Ram, 100M H.D	\$1589
386SX25	4M Ram, 80M H.D	\$1319
486SX25	4M Ram, 200M H.D	\$2099

Free Wordperfect 5.2 for
windows unit May 31, 93

All AMBRA systems included: Super VGA Monitor 0.28dpi, 1.44M Floppy drive, 101 keyboard, Mouse, DOS, Windows & Tutorials.

AMBRA Warranty: one year parts & labour (on-site service)

OCEAN system

386DX40 128K Cache	\$1190	486DX50 128K Cache	\$1695
486SX25	\$1280	486DX150 128K Cache	\$1639
486DX33 128K Cache	\$1520	486DX166 128K Cache	\$1839

4M Ram, 170M Hard Drive, 1.2M & 1.44M Floppy Drive, 101 Keyboard, SVGA card 512K, Super VGA Monitor, 2serial, 1parallel 1game port, Mini tower case, 3button mouse.

HARD DRIVE

52 MB IDE	\$ 190
80 MB IDE	\$ 220
105 MB IDE	\$ 245
120 MB IDE	\$ 260
170 MB IDE	\$ 310
200 MB IDE	\$ 350
245 MB IDE	\$ 390

MODEM

96/24 Internal Fax Modem	\$ 80
2400 Internal data Modem	\$ 50
9600 Internal data Modem	\$ 250
9600 External data Modem	\$ 280
14/96 Internal Fax Modem	\$ 240
14/96 External Fax Modem	\$ 280

Prices are subject to change without notice.

MONITOR

14" VGA 0.41dpi	\$ 260
14" SVGA 0.39dpi	\$ 280
14" SVGA 0.28dpi	\$ 330
14" SVGA 0.28dpi (NI)	\$ 360
15" SVGA 0.28dpi (NI)	\$ 550
12" Monochrome TTL	\$ 110

PRINTER

Panasonic KX-P1180i	\$ 190
Panasonic KX-P1123	\$ 260
Canon BJ-200	\$ 450
Canon BJ-300	\$ 490
Raven RP-2405	\$ 270
Raven RP-2406 color	\$ 350
Raven LP-510 Laser 512K	\$ 830
Raven LP-530 Laser 1M	\$ 1110



OCEAN ELECTRONICS

825 Denison St, Unit 3, Markham, Ontario L3R 5E4
Tel: (416) 946-8986 Fax: (416) 946-8990

Mon. To Fri. 10:30 - 6:30 Sat. 10:30 - 5:00

Portables

Continued from page 18

If this sounds familiar, you are one of the thousands of portable computer users glad to see the current trend toward removable, rechargeable battery designs that allow you to easily carry charged-up spare batteries — as well as the growing number of palmtop systems that run on standard AA batteries. The latter is a particularly useful circumstance as any major hotel, airport or business facility almost anywhere in the world stocks batteries — so you never really need to worry about being short of power.

Pen support — the next big issue

Pen technology is a fairly simple and obvious idea — but more powerful than it might appear on first inspection. Systems using this technology allow you to control them by hand-writing with an electronic pen on a specially-developed LCD flat screen attached to a completely flat portable computer, which lies underneath the screen. The computer recognizes your handwriting and then turns it into standard computer text, which can then be read, edited or revised by someone else on a standard personal computer.

In addition, the pen entirely replaces any other "input device" — allowing you to issue commands, as well as move both text and pictures around the screen — without the benefit of a mouse or keyboard. The pen becomes your sole method of controlling the computer.

In addition to these two obvious ways of using pen technology to make computers easier to use, software designers have recently been toying with other ideas to help make the pen mightier than the keyboard. One of these ideas is the use of "gestures" — which would allow you to "edit" material that had already been typed into a computer just by making proofreader-style marks on the computer screen.

The second innovation is the development of "ink" as a computer data type. Simply put, this means that you can use the pen to draw pictures — and even write your signature on business letters — and have both pictures and signatures combined with text in a document.

Pen-based computers are intended to provide computational power to users who presently cannot, because of their job functions, use standard computers with keyboards. This market includes delivery truck drivers, utility meter readers, police officers, poll takers and others who presently use a clipboard in their normal business functions.

Software designed with portables in mind

If there is any category of software that is capturing the hearts and minds of portable computer users right now, it is the Personal Information Manager (or PIM). PIMs now often come bundled with many new notebook systems and are an integral part of many more palmtops.

PIM software generally comprises applications that help you plan your agendas, make entries into an onscreen diary, make telephone calls with your computer's modem and do some basic project management.

PIMs include Windows-based applications such as the popular Lotus Organizer (which includes diary, to-do, planning, address book, notepad, auto-dialling, work-group and "anniversary" functions) and Polaris' Packrat.

Packrat, for example, includes not only the standard phone book, agenda and time management facilities — but also a financial accounting, resource management and extensive text searching facilities.

Also under the PIM banner are what you might call "desktop marketing" tools such as Contact Software International's 1st ACT! and ACT applications (the former being a cut-down version for small businesses and the latter being an implementation for corporate environment).

A product like 1st ACT! might be particularly useful for those doing telephone sales, direct marketing — or just anyone who needs to make regular telephone contact with their customers and must have quick access to their addresses, phone numbers, notes you might have written about them as well as completed and planned future activities with those customers.

The desktop marketing branch of PIM applications such as 1st ACT! are supposed to use personal computer technology to automate many of the jobs carried out by the average telephone salesperson.

The idea is that marketing people will be able to use such systems to tell at the touch of a button which clients they have contacted recently, what the reaction was when they were last contacted, the kind of orders that have been placed in the past — as well as other critical sales material.

Desktop marketing products are designed to represent the mechanization of how marketing people conduct business relationships. Given the increased emphasis on customer care many sales sectors now face, desktop marketing products can provide that customer care element — with automatic mail-generating functions, records of whether or not the people you call are busy, stop lists, orders, quotes and other things on-screen.

The future

While we will no doubt see more portables bundled with PIMs, greater use of pen-based pointing technology, notebook systems with longer battery life (and more flexible ways to replace batteries) and improvements in screen and keyboard technology, all these trends (plus those mentioned in the boxes elsewhere in this feature) are more than the sum of their parts. They pave the way to a future where anyone can do any kind of computing anywhere at any time and still be as useful (and often more useful) than someone sitting at a desk in an office. It is likely to have a highly liberating effect. ■

Tell Advertisers you saw their ad in



DKComputed

" Business based on long-term relationships "

29 Old Oak Lane
Orangeville, ON
L9W 4A4 Canada
Phone: (519) 942-3064
Fax: (519) 942-3498

- NOVELL SELF-STUDY KITS -

Core Requirements:

1100 Ms-Dos 4 NetWare	\$38
1101 Micro Comp Concepts	\$38
501 Nw 2.2 Sys Mgr	\$424
502 Nw 2.2 Adv Sys Mgr	\$329
505 Nw 3.11 Sys Mgr	\$424
515 Nw 3.11 Adv Sys Mgr	\$479
701 Nw Service & Support	\$878
200 Netwk Technologies	\$426

Electives:

605 Nw Tcp/Ip Transport	\$379
610 Nw Nfs V1.2	\$388
304 Prod Info Course Auth	\$224
601 Lan Wkp Dos Admin	\$574
615 Nw for Mac	\$372
506 Nw 3.11 Os Review	\$375
715 Dial-In/Out Conn	\$375
720 Nw 4 Saa Inst /Trblsh	\$369

* Next Day Delivery & CBT Kits Are Available *

Call Darren 4 Competitive Quotation
(519) 942-3064

Prices
subject to
change.

* Corporate & Government P.O. welcome *

Cash
discounted
pricing

**FREE
MOUSE**

**LEAS
UPGRADE**

Cts COMPUTERS

Super Specials!

DOS 6.0

Preloaded

TRADE-IN

RENT

386-DX-40 128K **\$999.00**

- 2 MB RAM
- 1.44 Floppy Disk Drive, 240 MB Hard Disk Drive
- VGA Color Monitor, 2 Serial, 1 Parallel, 1 Game

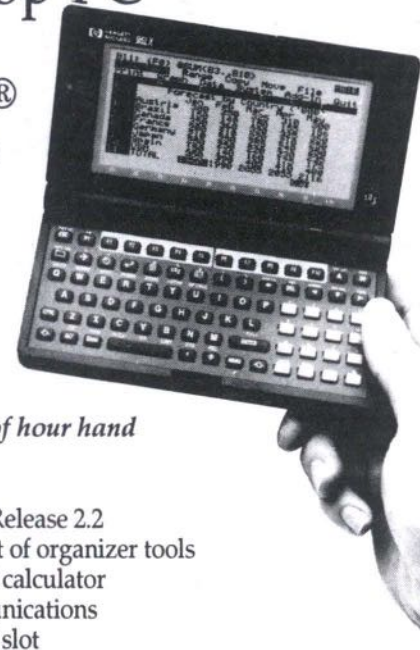
486-DX-33 128K Complete System **\$1,320.00**

244 Gerrard Street East Tel: 960-0164 Fax: 962-9664

386-DX-40 128K **\$999.00**

486-DX-33 128K Complete System **\$1,320.00**

HP 95LX Palmtop PC with Lotus® 1-2-3®



PC power
in the palm of your hand

Built-in:

- Lotus 1-2-3 Release 2.2
- Complete set of organizer tools
- HP financial calculator
- Data communications
- Plug-in card slot
- 512K or 1MB RAM

Link to your PC with the optional Connectivity Pack

Allways™, PrintGraph, and Translate are not included in the HP 95LX. Lotus and 1-2-3 are U.S. registered trademarks and Allways is a U.S. trademark of Lotus Development Corporation.



Great Prices! Call Today

Cansel
Survey Equipment
"The Professionals"

462 McNicoll Avenue
Willowdale, Ont.
Phone: 492-0646
or (800) 661-8342



Dynalink Faxmodems

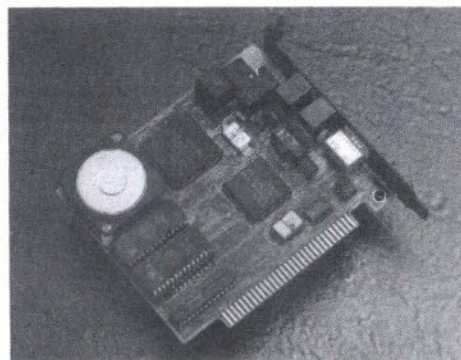
14,400 bps DATA
14,400 bps FAX



1414VE External
Portable, low heat housing
Power Saving Circuit

\$268

**5 Year
Warranty**



1414VH Internal
External COM port selector
True half length 8 bit card

\$244

100% Hayes Compatible
V.32 bis, V.42bis, V.32
MNP 2-5 Error Control

Up to 57,600 bps
Rockwell Chipset
Compact Design



**1 Megabyte
bps Time**

bps	Time
14,400	12 min
9,600	18 min
2,400	68 min
300	9 hours+

Macintosh Kit \$288
Mac software, high speed modem cable

Blazing Speed. Unbeatable Service.



We realize not everyone is a "PC guru" so we throw in 1 week of free installation support. If you're having trouble our experts will get you up and downloading in no time.



Every Dynalink faxmodem comes with a full 15 day money back guarantee. If you are not completely satisfied with your Dynalink we'll take it back. It's as simple as that.



Dynalink faxmodems come ready to run, with your choice of DOS, Windows or Macintosh fax and communications software, as well as a serial cable, power supply, and manuals.

At Dynalink we take faxmodems very seriously. We believe the 1990's will be the "information decade" with on-line information services and fax communications exploding in popularity.

That's why every Dynalink faxmodem is capable of 14,400 bps DATA and 14,400 bps FAX. We know buying a slower faxmodem in 1993 is the wrong move and we are sure you will agree.

All our faxmodems are made from the highest quality components available. We only use genuine Rockwell chipsets so you can be sure your Dynalink is compatible with all your favourite communications and fax software.

Call our automated 24 hour order line and get the straight facts on high speed faxmodems. Plus you can order more detailed information through our automated fax back system!

DYNALINK COMMUNICATIONS

416-924-1087

Canadian 24 Hour Order Line

Fax Line: 416-925-3757

Purchase Orders Accepted
Immediate COD Delivery
Canada Wide Dealer Enquiries Welcome



ACCESS Business Centre

...your access to office technology

(416) 630-3497

IBM PS/1

12 MONTH IBM
HELP CLUB &
ON-SITE SERVICE

85 MHD
2 M RAM
FLOPPY DRIVES
101 KEYBOARD
14" SVGA MONITOR

486SX25 \$1799.

Canon
BUBBLEJET
PRINTER

ONLY \$429

BJ-200

Canon
PORTABLE
BUBBLEJET
PRINTER

ONLY \$379

BJ-20

Reconditioned
HEWLETT PACKARD

Laserjet II

\$875

955 Wilson Ave. Unit 3
Downsview, Ontario

Canon B70
PLAIN PAPER
FAX-PHONE
\$1099



Canon
Authorized dealer
WHILE SUPPLIES LAST

HP-4

LASERJET
True 600dpi resolution
45 Internal scalable typefaces
2mb RAM (exp. to 34mb)

CALL TODAY!

COLOUR PRINTER/SCANNER BUNDLES

Microtek Scanmaker II with HP Deskjet 550C
600dpi flatbed scanner \$2399
Twain compliant with \$3395
Imagistar II software or Canon BJC-800

FTC

Fantastic Technology

2085 Lawrence Ave. East, Scarborough, Ontario, M1R 2Z4

Telephone: (416) 288-1680 • Fax: (416) 288-0766

Computer Sales ♦ Services ♦ Networking

SYSTEMS

386DX-40	\$1,150.00	486DX-50	\$1,725.00
486SX-25	\$1,259.00	486DX2-50	\$1,675.00
486DX-33	\$1,480.00	486DX2-66	\$1,815.00
486DLX-33	\$1,210.00		

Above Systems c/w 4MB RAM, MiniTower, 200W CSA Power Supply, 1-1.44, 1-1.2 FDD, IDE I/O, 2s/1p/1game ports, 101 BTC KB, Mouse, 105 MB HDD, SVGA monitor, SVGA Card.

VESA LOCAL BUS (Faster than the TTC):

486DX-33	\$1,500.00	486DX-50	\$1,745.00
486DX2-50	\$1,695.00	486DX2-66	\$1,835.00

SOFTWARE

MS DOS 6 Upgrade	\$59.95
MS DOS 4.01 / V.5	\$10.00 / \$45.00
Lotus 123 2.4 for DOS Upgrade	\$165.00
WordPerfect 5.2 for Windows Upgrade	\$130.00
Corel Draw	\$195.00

CD-ROM DRIVES / SOUND BOARDS

Mitsumi CD-ROM + Sound Blaster Pro + 2CD Kit	\$545.00
Beethoven CD-ROM Multimedia + Sound Blaster Upgrade Kit	\$650.95
Creative Lab Sound Blaster Multimedia Starter Kit	\$595.00
Creative Lab Sound Blaster Multimedia Upgrade Kit	\$750.00
Textel Multimedia Upgrade Kit	\$695.00

MONITORS

Darius 14" VGA 640 x 480 .41	\$242.00
Darius 14" SVGA 1024 x 768 .28	\$320.00
Darius 14" SVGA 1024 x 768 .28 NI 60Hz	\$348.00
Darius 17" XGA 1280 x 1024 .26 NI 70Hz	\$1,100.00
Darius 21" XGA 1280 x 1024 .28 NI 60Hz	\$1,950.00
Mitsubishi 17" XGA Diamond Pro .26 NI	\$1,250.00
Mitsubishi 20" XGA Diamond Scan .28 NI	\$1,950.00

SCANNERS

Panasonic Fx - RS 505 Flat-Bed Image Scanner	\$950.00
Panasonic Fx - RS 307U Flat-Bed Image Scanner	\$1,095.00
Logitech Scanman 256 w/Catchword Pro	\$395.00
Logitech Scanman 32, 100-400 DPI, 32 GS	\$195.00
Logitech Scanman 32, w/Catchword PRO 2.1 W/GT	\$265.00
Logitech Scanman 256, 100-400 DPI, Auto SW	\$355.00

PRINTERS

Canon BJ 20 / BJ200 both w. ASF	\$385.00 / \$450.00
Okidata OL 400 Laser Printer	\$755.00
HP Deskjet 500 / 500c / 550c Laser	\$485.00 / \$640.00 / \$930.00
HP Laserjet IIIp / IIP / IV Laser	\$1,095.00 / \$945.00 / \$1,780.00
Panasonic 2180 / 2123 / 2124 dot matrix	\$199.00 / \$295.00 / \$395.00

DARIUS 386SX-25

4MB RAM	
60MB Hard Drive	
3.5" Floppy Drive	
Battery & Carrying Case	\$1,525.00
DOS 5.0	
Option: 60MB \$50 • 120MB \$155 • Win 3.1 \$65 • Battery \$65	

SPECIAL PRICES FOR

HP II, IID & III Remanufactured Toner \$49.95

MODEM OR FAX

Zoltrix 9624 Send/Receive fax modem int.	\$75.00	Aceex 2400 Bps ext modem	\$80.00
Aceex 9624 S/R fax modem int	\$85.00	Aceex 9600 Bps int modem (MNP5, V.42)	\$265.00
Aceex 9624 S/R fax modem ext.	\$115.00	Aceex 9600 Bps ext modem (MNP5, V.42)	\$295.00
Aceex 9624 S/R with MNP5, V.42 int	\$110.00	Aceex 14.4 KBps mod/fax (MNP5, V.42) int	\$265.00
Aceex 9624 S/R with MNP5, V.42 ext	\$145.00	Aceex 14.4 KBps mod/fax (MNP5, V.42) ext	\$295.00
Aceex 2400 Bps int modem	\$50.00	US Robotics 14.4 modem int.	\$245.00

Summer Special 386SX-25 Now Only \$785!

c/w 2MB RAM, MiniTower, 1-1.44 FDD, IDE I/O (2S/P/Game) Ports,
101 BTC KB, Mouse, 65 MB HDD, Darius VGA Monitor

Please Call for pricing on items not listed here. Video card, Local bus VL card, ATI, Darius monitors.
Mitsubishi monitors (17", 20"), Mouse, Keyboards, and other software are available. Call for Quantity Pricing!

System warranty 1 year parts, 3 years labor. Printers, Scanners, CD-ROM, hard drives,
Modems are under respective manufacturer's warranty.

"Price is subject to change without notice"

gamereview

X-Wing

REVIEWED BY KEITH SCHENGILI-ROBERTS

According to the product literature, this is the game LucasArts has always intended to make, but until recently the game designers felt that the technology was not good enough to support the ambitions of its creators. It has been well worth the wait for game players, as X-Wing is a great fly-by-the-seat-of-your-pants sort of game, filled with action and requiring as much strategy as skill.

Name: X-Wing
Minimum System Requirements: 386 or better PC/100% compatible machine, 1MB RAM, hard disk drive with up to 14MB of free space, VGA screen, Mouse or Joystick recommended

Protection: Documentation check

Manufacturer: LucasArts Games

Summary: Fly rebel spacecraft against Imperial spacecraft in a Star Wars scenario.

Graphics: ★★★ (Out of four)

Sound: ★★★★★

Game Play: ★★★

Installation is easy, but requires 14MB of hard disc space — though without the speech function it will only need 4MB to run. The first thing any player will notice is the stunning VGA animation scenes you go through. You are given the complete rebel scenario from the outset, and the role you are to play in it.

The sound effects are great, and they compliment game play very nicely. If you have an AdLib, Roland, Pro Audio Spectrum or Soundblaster card, you are in for a treat. Most of the sounds are digitized from the Star Wars movie soundtracks, so when you hear a Tie-fighter fly by you, it sounds exactly like you would have heard it on the big screen. If you have a Soundblaster sound card, you can also experience digitized speech, again taken straight from the movies. The soundtrack also complements the cinematic sequences.

It is password copy-protected, and once you have entered the required password from your manual, you are allowed to roam about — initially as a cadet in a large rebel spaceship. The doors slide open to let you enter, and you can go to many areas on the ship. Be sure to sign in first, or you will get a gun lowered at you on the chance that you are a possible Imperial Spy!

Before you fly any actual missions, it is highly recommended that you try out the pilot's proving ground first. This takes you through a series of "hoops" you have to fly through in 3D space, all the time trying to destroy the batteries shooting at you. Once you feel comfortable with the controls, try out the "historical" missions, which give you a few milk-run assignments in your choice of craft.

In this game you get a choice of three different craft to fly, the familiar X-Wing

fighter and Y-Wing fighter/bomber, plus an experimental A-Wing fighter/interceptor. Each craft has its own idiosyncracies, and as a player you soon get to appreciate their differences in combat.

You can also record your missions and play them back in the Film Room, or check out the specifications of enemy and friendly spacecraft in the Techroom.

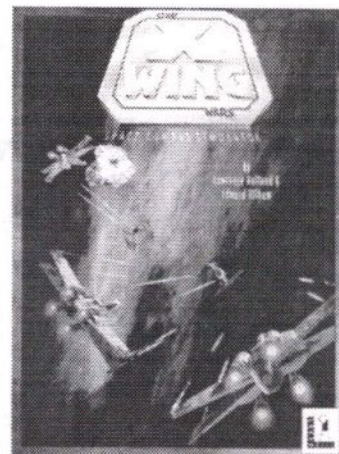
Once you understand how to operate the three different ships you are able to fly, you can try one of the three Tours of Duty the game offers. The missions range from guarding rebel supply convoys to destroy the Death Star.

Game play is not easy. This is a game that cries out for either a mouse, or preferably a joystick. Anybody using the cursor keys alone will find that game play ranges somewhere between frustrating and impossible because of the sluggish response you'll get from your craft. Comparisons to other space-warfare games like Wing Commander I & II are inevitable, and X-Wing more than holds its own. In many ways, the two types of games are not easily comparable, as X-Wing concentrates more on the strategy than

either Wing Commander games. X-Wing is also more "realistic" in its feel (not that anybody can say how "real" this is) than either Wing Commanders. What this means in practice is that you come to count on your sensors rather than what you can actually see outside your cockpit. You can decrease your speed in order to better see what is happening, but you become a sitting-duck in the process. However, the game also gives you the handy option of unlimited firepower and invulnerability, but this is recommended only for practice (it isn't very sporting!). If you are unlucky enough to have your craft shot out from under you, you automatically eject. You are picked up by the Empire and you then meet Darth Vader — let's just say you don't last long after that.

Many video and arcade knock-off games have been made since the original Star Wars movie was released back in the 1970s. This is the definitive Star Wars game, that makes you feel like you are really in the cockpit of an X-Wing fighter. It has been worth the wait.

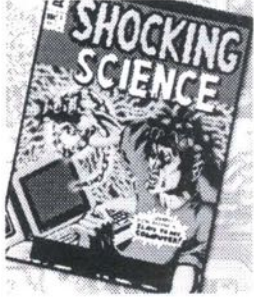
Contact: LucasArts Games (415) 721-3300.



ABOUT THE COVER

Techniques

BY GRAEME BENNETT



The cover image is based on the "Shocking Science" T-shirt created by Robert Teranishi exclusively for Flatlanders Ink. The company sent a PMT (photo-mechanical transfer) of the "Shocking Science" T-shirt design. This black-and-white image was scanned on a Microtek ScanMaker II scanner and saved as a TIFF file. This monochrome image file was fairly small — just 183K in size.

I then loaded the file into Adobe Photoshop 2.5.1b5 and converted the file from "Bitmap" to "Grayscale..." and then to "RGB color." It is interesting to see how file sizes swell during each mode change. When the image was converted to grayscale, it grew to 1.42 megabytes in size (an eight-fold increase as the one-bit image was converted to an eight-bit one). When converted to 24-bit color, the image ballooned to 4.25 megabytes (tripling 8 bits worth of grayscale information to 24 bits of color data). The image, of course, was still completely black and white — I had to change to color mode before starting to colorize the image.

I experimented a little before finding the best method of colorizing the image. First, I tried selecting various areas with the "magic wand" tool and simply filling them with the desired color. This proved to be very slow. I then discovered that by setting the background color to the hue I wanted to fill with, I could perform the operation much more quickly by simply selecting the area and pressing the "Delete" key.

Once the main areas were colored, I decided to enhance the "bolts of electricity" to look as though they were glowing. I used the lasso tool to select the areas I wanted to enhance (this created a mask so that only these areas would be affected) used the Airbrush tool, with a 15% "pressure" setting and a green color, and followed the lines to make them "glow."

I also used the Airbrush tool to add shading to the face, hands, t-shirt and hair. As before, I selected each area with the Magic Wand or Lasso tool before "spraying."

After the image was more-or-less complete, I used the Rotate tool to tilt the image, and the "Canvas Size..." command to put it on a larger background. This, of course, increased the file size again. It was now up to 17MB.

I selected an image of a circuit board from Letraset's Phototone book of images and scanned it in color (although, in retrospect, I suppose I could have done it in grayscale mode). I saved and worked with this image as a separate file.

I then played with the hue, saturation and (especially) lightness settings to produce the result you see in the background. To place the image, I first sized it appropriately using the Image Size... command and copied it to the Clipboard.

After clicking on the "Shocking Science" window, I selected the white area behind the image with the Magic Wand and then selected "Paste Into." After a considerable delay,

the circuit board image appeared like magic "behind" the comic book. I was somewhat alarmed to note that the two images and the temporary "Clipboard" file occupied 66MB of disk space in total. Needless to say, I had been performing numerous "Save" operations as I worked, too. At 17 MB per file, my disk was filling up fast. Luckily, I was almost done.

I opened The Computer Paper's logo as a separate file. This image had previously been created in Adobe Illustrator and saved as an EPS (Encapsulated PostScript) file, I imported it using Photoshop's ability to rasterize (turn

into a bitmap) such files.

I placed the TIFF file in Aldus FreeHand 3.11 and replaced some of the text I had previously removed from the scanned image, sizing and rotating the PostScript fonts as required. The file took about half an hour to print on a Linotronic L330 at 1270 dots per inch.

About Flatlanders

A Winnipeg-based company, Flatlanders Ink specializes in creating and producing original 100% cotton T-shirts. Flatlanders Ink's motto is: "We want to get on your back."

"Shocking Science" is printed on the back of a white shirt in shocking green and black. The front features the Flatlanders Ink logo as a left crest. Medium, large and extra-large shirts are \$18.00 (XXL, \$19.00), please add \$3.50 for S & H & G.S.T. (Manitoba residents add 7% P.S.T.)

To order a shirt, send a cheque or money order to:

Flatlanders Ink
#651-740 Corydon Avenue
Winnipeg, Manitoba
R3M 0Y1

BYTE INFO SYSTEMS

111 Regina Rd. Unit #17 Woodbridge, Ont. L4L 8N5

- AUTHORIZED DEALER -

BYTE Series (386/SILVER - 486/GOLD - VLB/PLATINUM)

(OPTi - chip ISA/EISA Motherboards)

386dx/40MHz/128k-cache	\$1639
486sx/25MHz/64k-cache	1799
486dx/33MHz/256k-cache	1999
486dx/50MHz/256k-cache	2189
486dx-2/66MHz/256k-cache	2299
486dx/50MHz/Eisa/256k-cache	Call
486dx-2/66MHz/Eisa/256k-cache	Call
486dx-2/66MHz/256k-cache/ VLB	Call

(SIS - chip VLB Motherboards)

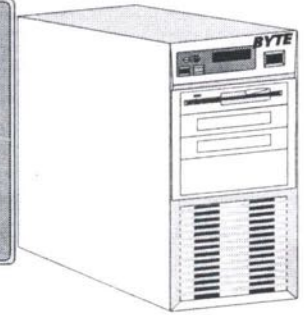
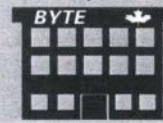
All ISA Systems Include:

Mini-Tower w/Led
4mb-Ram simms
Super I/O 2-ser/1-par/1-game
Cirrus-Logic 1mb Windows Accel.
Quantum 245mb IDE
101 keyboard/ Dos-6.0
1.2mb-1.44mb floppies
BYTE Mouse & Mouse-Pad

Plus (TVM) Mediascan 4A-Plus Non-Interface .28mm
Plus (PC-Logic) 24/96 Fax/Modem Internal w/Software

Vesa Local-Bus Options:

Cirrus-Logic 5426 Vesa/GUI VGA 1mb	189
ATI VL-Mach32 Ultrapro VGA 2mb	559
VL-IDE & I/O card 2-ser/1-par/1game	125
Ultrastor VL34F SCSI + ISA I/O card	389
VL-IDE-SCSI I/O Caching Controllers	Call



FREE Microsoft Software

UP TO \$89.95 srp VALUE

Spend \$250 on any Microsoft product from April 1 through May 31, 1993 and choose one FREE Microsoft software product.

Call for more details!
Microsoft 1-800-563-9048

Monitors

Nec 4-FGE 'New'	969
Nec 5-FG	1649
Nec 6-FG	2989
TVM LR-3A 14"	344
TVM 4A +	419
TVM LR-5A +	599
MAG MX15-F - 1st Choice	719
Mitsubishi Pro 17	1299
Viewsonic 15 'New'	879
Viewsonic 17 'New'	1719
Magic-View 14"	344
Magic-View 6 1/4" N.I.	469
Samsung 14" N.I. 'New'	469
Sony Multiscan	Call

Printers

Canon BJ-10ex S/F	389
Canon BJ-200 S/F	435
Canon BJ-330	619
Fujitsu DL-1250	515
Fujitsu DL-5800	1699
Genicom 3840E	2139
Genicom 1040	1290
HP-Laser 4-Mac	2680
HP-Laser 4	1825
HP-Deskjet 500	489
HP-Deskjet 500C	639
HP-Deskjet 550C	939
IBM Colorjet 4079	3679
IBM Colorjet 4029-SE	1379

Network

NetWorth UTP-16A	198
NetWorth UTP-16A-GB5	789
UTPM12-A	1549
UTPM12-S	2290
CHAS03	798
CHAS10	2369
3-Com Network Products	Call
D-Link Network Products	Call
Thomas-Conrad Products	Call
CeNet Network Products	Call
Pure-Data Network Products	Call

Other Products "Call"

Software

Word-Perfect 5.2 Win	359
Corel-Draw 3.0	Call
Microsoft Office	539
Aldus Pagemaker	Call
Microsoft Dos 6.0	54.99
Microsoft Windows 3.1	89
Microsoft Excel 4.0	339
Microsoft Access	129
Perform Pro + w/desig. & fill	Call
Turbo C++ win	149
Turbo C++ dos	119
LapLink Pro	149
Borland Paradox	179
Microsoft WorkGroups 2-user	525

Hard/Drives

Quantum 170mb IDE	339
Quantum 245mb IDE	389
Maxtor 130mb IDE	279
Maxtor 213mb IDE	379
Maxtor 245mb IDE	389
Maxtor 213mb SCSI	419
Maxtor 1-GB SCSI	1645
Maxtor 1.5-GB SCSI	1859
Seagate 130mb IDE	290
Seagate 245mb IDE	429
Fujitsu 210mb IDE	429
Fujitsu 320mb IDE	755

Fax / Modems

Supra FM 14.4ext.	319
PC-Logic F/M 14.4ext.	319
PC-Logic F/M 14.4int.	279
ACEEX 14.4 F/M int.	269
ACEEX 14.4 F/M ext.	299
US-Rob. D/S Fax/M ext.	989
US-Rob. V.32 Fax/M ext.	699
Intel-Satist 400	559
Intel-Satist 400E	649
GVC 14.4 F/M int.	269
GVC 14.4 F/M ext.	299
ZyXel Fax/Modems	Call

Multi-Media

NEC Cd-Rom 84 int.	729
NEC Cd-Rom 74 ext.Bndl.	969
Sony CD-Rom-7211 ext.Kit	899
Sony CD-Rom CDU-561 int.	599
Sony 535 int. Bndl.	499
Toshiba XM-3401 int.	619
Multi-Media upgrade kit	729
Mitsumi CD-Rom's	Call
Hitachi CD-Rom's	Call
Sound Blaster 16-bit	309
Wave Blaster	239

Video/Cards

Cirrus-Logic 1mb	99
ATI Graphics Ultra+ 1mb	339
ATI Graphics Ultra+ 2mb	389
ATI Graphics Ultra Pro 1mb	509
ATI Graphics Ultra Pro 2mb	595
Diamond Sp/Star 24x 1mb	259
Cirrus-Logic 5426 VLB 1mb	169
IIT X-Graphics 1mb-Vram	339
Hegraphite-HG210 1mb	379

Other Products "Call"

Fast Delivery Across Canada * If You Find A Better Price Call Us Before You Buy * Over 8,000 Products

EXPRESS DELIVERY SAME-DAY

Toronto-(416)324-BYTE
Woodbridge-(416)856-5651

Fax:(416)856-4820

Fax:(416)856-4820

UPS PUROLATOR EXPRESS

Government PO's
And Corporate PO's
are Welcomed.

Prices, Are Subject to Change Without Notice.
All Prices are discounted for CASH.

All Trademarks & Registered Trademarks are
of their respective Companies.

Place Orders
Monday - Friday
9:00am - 6:00pm

50% or more off all Computer Books

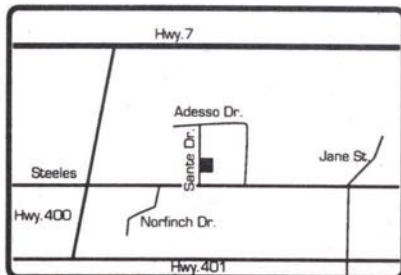
- ☞ Large selection of current titles
- ☞ For best selection come early
- ☞ An assortment of Electronic and Technical books also available at 50% off

C.E. Books

3300 Steeles Ave., W. #21
(Hwy. 400 & Steeles)

• Store Hours •

Wed., Thurs. & Fri. 12 A.M. - 7 P.M.
Sat 10 A.M. - 4 P.M.
Sun., Mon., Tue., - Closed



SPECIAL

LIMITED TIME OFFER WHILE QUANTITIES LAST!
DEALERS ONLY

151 BRANEL RD.
UNIT 13
MISSISSAUGA
ONTARIO
CANADA
L4Z 2H6

Main Board W/CPU	Others
386 SX-33.....\$103.00	9600/2400 Int. Fax Modem.....\$62.50
386 DX-40W/128 Cache.....\$169.00	2400 Int. Fax Modem.....\$31.00
486 DX-33W/128 Cache	Cirrus Logic L-Bus
VESA Local Bus.....\$495.00	1M VGA Card.....\$112.00
	3 buttons Mouse.....\$9.50
	286-486 Complete Systems.....ASK

VOLUME DISCOUNTS & FREE DELIVERY ALSO AVAILABLE • PLEASE CONTACT OUR SALES OFFICE FOR DETAILS



G.C. SYSTEMS TEL (416) 890-0253 TOR. (416) 219-3683
FAX (416) 890-1076

We're big on Computers

World's
Biggest
Bookstore

20 Edward St. One Block North of the Eaton Centre, Toronto
Telephone: 416-977-7009 Fax: 416-977-3728

bookreview

The Virtual Corporation

BY KEITH SCHENGILI-ROBERTS

Title: The Virtual Corporation: Structuring and Revitalizing the Corporation for the 21st Century.

Authors: William H. Davidow and Michael S. Malone

Publisher: Harper Collins 294 pages
Price:

Ever since *The Virtual Corporation* came out late last year, the book's title has become another catchword in the business world for the computerization of work. But the last thing the authors of this book would have you believe is that all your problems will be solved when you buy a computer for your business. The virtual corporation is any business that uses computers to work in new ways, instead of using them to enhance the old ways of work.

One interesting point that came up early in *The Virtual Corporation* is that despite the huge increase in the number of computers in the North American workforce, total productivity of the workforce has not increased. The authors believe that the reason for this is not that computers make workers less productive, but that a lot of what people are producing is unnecessary, and takes away from the original gains that were had by putting the computers in the workplace. The authors estimate that for every firm that uses computers wisely and efficiently, there's another firm that uses them inefficiently and wastefully. This is because the corporations the computer users work for do not take into account the full benefits that can be had with computing.

There are a lot of references to American car manufacturers in this book, usually as the example of how not to use computers in the workplace. Probably one of the best-known examples is General Motors' huge investment in new industrial robotic equipment and new production plants in the 1980s. It did this even though at that time it was not producing cars, and it took GM twice as long to produce a car as it took Ford. The plans that were made did not make the building of quality cars more flexible or even more efficient — instead they simply entrenched the old ways of doing things. In the end GM announced

record losses in 1991, and laid off thousands of workers.

Essentially, the virtual corporation is any firm that uses information technology in a way that adds value to whatever is being produced. A good example of this is found at Benetton, a clothing retailer not normally associated in the public's mind with computer technology. Benetton put into place a computerized retailer reporting system that automatically kept their main offices supplied with information on the

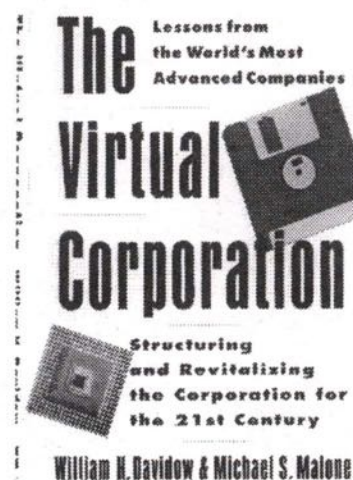
types of clothing people were buying every day. That way, if fashions changed overnight, Benetton would know about it and could immediately switch to new production and minimize unwanted inventory. This simple strategy has made Benetton one of the world's most profitable clothing retailers.

The book emphasizes that computerization of work won't matter if people are doing the same type

of work as before. The popular idea of the "paperless office" doesn't really come to much if the end-result of computerizing is to produce more messages that nobody has the time to read. Instead, it calls for different methods of doing business, in ways best suited to computing technologies. This includes flexible methods of manufacturing, that which tailor the product to the specific needs of the buyer, or new ways people can work within corporations to add value to the products and services they deliver.

Two of this book's main shortcomings are that it is very academic in tone, and often very repetitive. Once the reader gets the general idea of any argument, he is given several more examples to drive the point home. While useful, it tends to make the book drag a bit. Also, none of the ideas in this book are particularly new, but the authors have been able to bring together a lot of ideas from different fields. As a result, *The Virtual Corporation* is probably one of the best books dealing with the likely direction corporations will be taking in the future.

Contact: Harper Collins Books of Canada Ltd.
(416) 321-2241.



TECHNICAL BOOKSTORE

Engineering, Environmental, Construction, Electronics, Telecommunications, C/C++, and Manufacturing Books, plus Engineering Training Videos and Software. ISO 9000 Video Available! Books for Students & Professionals. Lowest Prices in Canada! Call 624-1058 for a Free Catalogue or Visit Canadian Professional Information Centre 4580 Fieldgate Drive #11, Mississauga (Eglinton & Dixie)

British Computer Magazines

Includes Software!
Amiga, Atari, PC Format & others, only \$15.00 each
Current & Back issues available
For information, Catalogue & Sample Software send \$1.00
Delivery and Taxes Included
Mail Your Order or Inquiry To:
Canada Computerware
100 City Center Drive
P.O. Box 2201, Mississauga, Ont. L5B 3C7
"The New & Used Computerware Specialists"

bookreview

Technology Edge: Guide to CD-ROM

BY KEITH SCHENGILI-ROBERTS

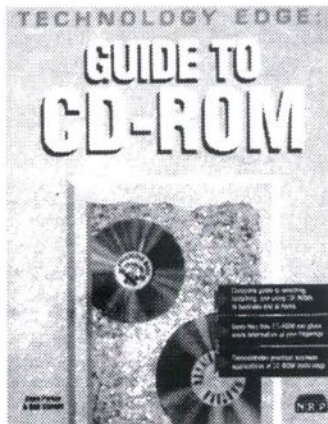
Title: Technology Edge: Guide to CD-ROM
Authors: Dana Parker and Bob Starrett
Publisher: New Rider Publishing
 426 pages softcover
Price: \$37.95

This book is a good beginner's guide to the world of CD-ROM, and has enough useful information to help you choose the CD-ROM player that's right for you. It will also help as a good reference when you install your CD-ROM drive, and give you an idea of what CD-ROM titles you should consider getting.

Technology Edge covers all of the basics of CD-ROM, from how they are manufactured to how they work and what you can accomplish with them. There are good chapters devoted to multimedia applications, networking, disc formats and even what the authors see as the

future of CD-ROM. It's also a good resource guide to the various CD-ROM-related software and hardware manufacturers out there. If you want to make your own CD-ROM this book will tell you how to go about it and who to contact.

While the book covers a lot of ground, its major fault is that it does not go into any one subject in depth. In other words, the Guide provides a good overview of the subject, but rarely goes into nitty-gritty technical detail. This is suitable for its beginner's level audience, but will be unsatisfying for somebody who wants more in-depth coverage on a given subject. In short this is a perfect book to buy before you buy your CD-ROM drive, and will be the only book most people will ever need on the subject.



Contact: Prentice Hall Canada (416) 293-3621.

The Desktop Multimedia Bible

BY KEITH SCHENGILI-ROBERTS

Title: The Desktop Multimedia Bible
Author: Jeff Burger
Publisher: Addison-Wesley Publishers Ltd.
 Paperback 635 pages
Price: \$42.95

There are a growing numbers of books available on the subject of multimedia, but few are ever likely to be as comprehensive and useful as *The Desktop Multimedia Bible*. It is a must for people interested in developing multimedia applications or presentations. Unlike many other books on the subject, it treads a fine line between the technical information and the practical knowledge you need.

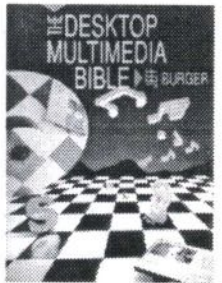
The book is impressive in its breadth and depth, covering everything from the physics of sound and light, to audio recording techniques and how to properly light a subject for a video shoot. All of the information is provided in a very approachable manner, and from the advice the author gives, you know that he is talking from experience.

The author tries very hard not to give bias to any one system, though there's a good section that looks at the strengths and

weaknesses of various multimedia platforms. He looks at and compares everything: Amigas, Macintoshes, PCs, and high-end machines like Silicon Graphic's workstations.

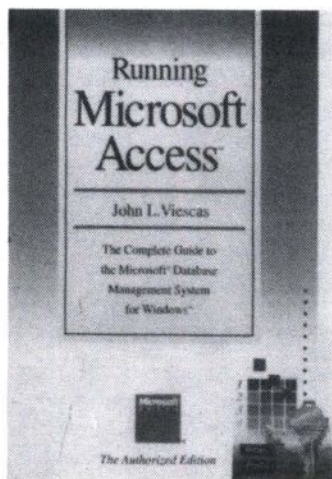
It is a handy reference guide that will also reward the casual reader, providing a solid ground in all of the subjects surrounding multimedia. The author is not afraid to get down to specifics, and he provides a good trouble-shooting guide to anybody in the multimedia field. You also get ideas on how to work effectively with the tools you are given, by a complete run-down of all of the current tools and techniques used in multimedia.

If you are seriously interested in how multimedia works or are thinking about putting together multimedia presentations, consider this book a must-have.



Contact: Addison-Wesley Publishers Ltd. (416) 447-5101.

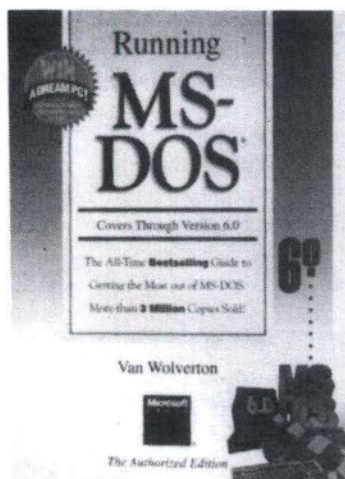
TORONTO'S BEST SELECTION



RUNNING MICROSOFT ACCESS
 John L. Viescas

This newest addition to the RUNNING series is a practical, hands-on guide to Microsoft's new relational database, packed with inside tips and strategies not covered in the product documentation. Covers all the features of Microsoft Access, and includes general information on managing data and how a relational database works.

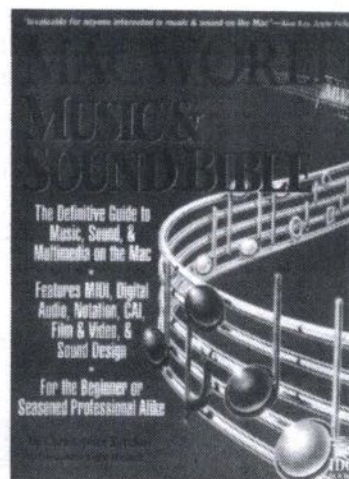
ISBN 1-55615-507-7 \$39.95



RUNNING MS-DOS
 Van Wolverton

A new expanded edition of RUNNING MS-DOS is sure to cause excitement in the computer section. The book has been completely redesigned for the computers and computer users of the 90's and the text has been expanded and updated to cover many of the popular utilities that people use to enhance their computers' performance.

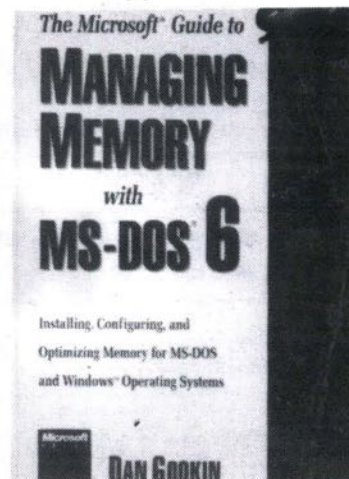
ISBN 1-55615-542-5 \$32.95



MACWORLD MUSIC & SOUND BIBLE
 by Christopher Yavelow

Choosing and setting up your Mac and studio Sound organization and editing Composition MIDI Notation Performance Post-production Film, video, and synchronization Multimedia

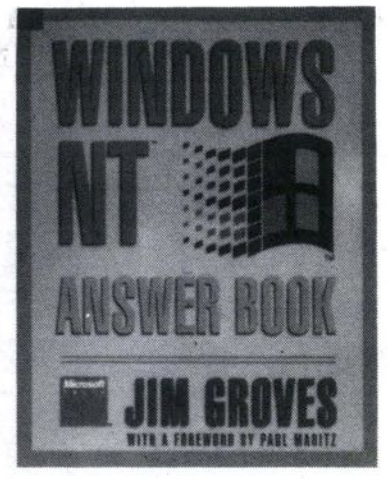
ISBN 1-878058-18-5 \$47.95



THE MICROSOFT GUIDE TO MANAGING MEMORY WITH MS-DOS 6
 Microsoft PRESS Dan Gookin

If memory is the question, this book is the answer. Memory-you've got it, but how do you use all the extra memory in your computer? Now that MS-DOS 6 includes a powerhouse of memory tools, you have some real opportunities and options in memory management. This little book shows you exactly how MemMaker, Microsoft Diagnostics, and all the other memory tools work to help you capitalize on the memory now available in your PC-which means you'll have a faster, slicker, more efficient computer. Here's what's covered:

ISBN 1-55615-545-X \$19.95



WINDOWS NT ANSWER BOOK
 Jim Groves

Here is an authoritative, fact-filled guide with honest, straight-forward answers to your questions about the Microsoft Windows NT operating system. The question-and-answer format provides accessible coverage of all relevant topics to help you decide whether the Windows NT system is right for your computing environment.

ISBN 1-55615-562-X \$21.95

Toronto Computer Books

521 Yonge Street
 Toronto, Ontario
 M4Y 1Y4

Tel: (416) 925-2088
 Fax: (416) 925-3471

Open
 Monday to Saturday
 10 am to 8 pm
 Sunday 12 to 5 pm

Waterloo Computer Books

1 King Street North
 Waterloo, Ontario
 N2J 2W6

Tel: (519) 746-6042
 Fax: (519) 746-6863

Open
 Monday to Saturday
 10 am to 6 pm
 Friday to 5 pm

PACKARD BELL MULTI-MEDIA PC



Intro Price
\$1,995

YOUR MULTI-MEDIA PACKARD BELL COMPUTER INCLUDES:

Hardware Features:

- 80486SX microprocessor operating at 25 MHz with 8 KB Cache memory built-in
- ZIF (Zero Insertion Force) Socket supports Intel's upgrade processor technology
- Internal 630 MB, 390ms CD-ROM drive
- Sound Card and Satellite Speakers included
- 4 MB of RAM standard, upgradeable to 36MB
* monitor not included
- 170MB, 17ms hard disk drive with IDE interface
- Internal modem installed and high-resolution mouse included
- Built-in Local-Bus Video Controller accelerates graphics performance under Windows
- Standard 512KB video memory, upgradeable to 1MB
- Four 16-bit expansion bus slots and four drive cavities

PACKARD BELL NAVIGATOR

- On-screen tutorial and support sections help you learn all you need to know about your hardware and software.

Software Features:

FULL FEATURED SOFTWARE PACKAGE WITH A FULL ARRAY OF MICROSOFT® PRODUCTS

- Microsoft Windows™
- MS-DOS Operating System
- Microsoft Money
- Microsoft Productivity Pack
- Microsoft Entertainment Pack for Packard Bell
- PRODIGY® Service Start-Up Kit, featuring BillPay USA*
- Microsoft Works with Word Art (exclusively for Packard Bell)
- Toolworks Pack including The Animals, Chessmaster 3000, Mavis Beacon Teaches Typing, World Atlas and U.S. Atlas
- Authorware Action presentation software



ADVANCED TECHNOLOGY POWERPACK™ WITH EASILY UPGRADEABLE FEATURES

- Toolworks (Grolier's) Encyclopedia
- Local Bus Video with Windows Accelerator
- Video Memory and Resolution
- Upgradeable Processor
- 32-Bit SIMM Socket
- Cache Memory



1 year on-site warranty and 24hr, 7 day/wk technical support

5637 FINCH AVE. EAST, UNIT 1, SCARBOROUGH

MICROCELL 754-3343

commtalk BY JAMES MACFARLANE



Puzzling over GUI standards

BBSing is about to take the next leap forward. We're on our way to multimedia, graphical BBSing. The pieces to the puzzle are there, we just need to put them all together.

Before we can put pieces together, we have to establish some new standards. Take a look at what we have so far:

Standards take over

ASCII. In order for two machines to exchange data, they need to agree on how data is represented. If I send the binary digits "01000001" to your computer it knows it has to display the letter "A." ASCII (American Standard Code for Information Interchange) is a simplistic seven-bit system for displaying alphanumeric data.

ANSI. When the IBM PC became on the market it had "extended" characters — characters that used eight bits and were able to be displayed in 16 different colors. This allowed simplistic text-based graphics to be used. Applications could draw boxes, simple graphs, use color and flash. A standard defined by the American National Standards Institute, ANSI had some other features like cursor positioning commands as well.

ANSI is a good example of how a new technology becomes available, followed by a new standard to support its use. A standard allows different software developers, on different hardware platforms, to support the same communications scheme.

In order to use ANSI over a modem, you have to have the right software at the user's end to decode all of the cursor and color commands and display the text image on the screen as it was intended to be seen.

ANSI was even modified to include simple music. Commands could be sent to play tones on another machine's speaker. It never really caught on.

NAPLPS. Sometimes you want to send a picture instead of words. NAPLPS (North American Presentation-level Protocol Syntax) is a graphical language that would tell their computer at the other end what to "draw" on its

screen. It contained commands to draw lines, boxes, circles, text etc. You could make some very elaborate pictures with NAPLPS.

NAPLPS never became very popular in the BBS world. It was slow, clumsy and expensive. It did become popular in the videotex industry. It is still used on some cable TV shopping and information channels and in-store information booths.

GIF. Compuserve wanted a way for computer users with different machines to be able to view and exchange pictures. GIF (graphical interchange format) has been a great success. It has become the standard for cross-platform exchange of images. Almost any computer can use it.

One problem with using GIFs as a communications standard is that the files get quite large. A typical high-resolution image would take up about 200K. It may be great for exchanging images, but it is not suited for online real-time applications.

What's next?

Take a look at the average computer these days. It's capable of displaying high-resolution color images; it uses mouse control; it has the ability to play music or digitized audio, and it has the ability to integrate graphics into an application interface (GUI).

It's all very nice to have these features, but they'll never be incorporated into BBSing until some standards are established. There's a lot of work to be done. Consider the following:

How are images sent and displayed? How big are they on your screen? Where are they on your screen?

How are menus going to be constructed for mouse control? Can a BBS construct a button on your screen? A menu-bar? An icon? How are new icons sent to your machine?

Let's have some games that use sound effects. How do we transmit these sounds? What format will they be in? Will the same file work on a Sound Blaster or a Mac?

Long & McQuade is #1 in Canada with the amazing NoteStation™

Now you can electronically browse through thousands of songs, see them on-screen, hear your selections and even *change keys* before having them laser printed, right on the spot.

Not cool enough? NoteStation is also your personal MIDI sequence library. For the first time, you'll be able to easily preview your GM/GS sequences before buying. What you hear is what you get, with plug-and-play compatibility for all General MIDI systems.

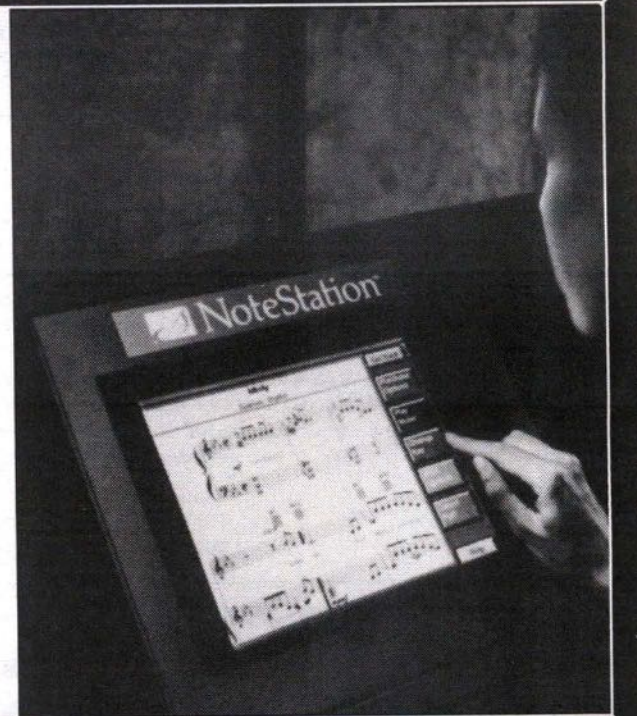
The greatest hits in any key, *all at the push of a button*. Call Long & McQuade today!



Long & McQuade Ltd. 925 Bloor St. W. Toronto • 588-7886

NoteStation™

Distributed in Canada by Rumark Video Inc. (416) 660-7499



Moving to multimedia

There are a lot of questions to be answered and a lot of planning to be done before we can move forward on implementing multimedia on BBSes. There is work being done and the solution may be just around the corner.

Fracterm

One of the main problems with BBSing is the size of image files. Viewing pictures in real-time is impossible due to the size of the files. A group of people in Vancouver have a solution to this problem: fractal technology.

Using fractal algorithms images can be compressed by up to 1/500th of their regular size. This means that a 1 megabyte image could be compressed into a few kilobytes and transmitted using a high-speed modem in a few seconds.

One problem with this is that it takes a lot of CPU power to compress the image. On a RISC-based i860 CPU, it takes about 3.5 seconds to compress a single image. 3.5 seconds is not a lot of time, but the board costs thousands of dollars.

The nice thing about fractals is that they require no special hardware to decompress. It can be done in less than a second on almost any machine.

Ripterm

NAPLPS was a good idea, but it wasn't perfect. What an online graphics system really needed was something that was fast, adaptable and provided enhanced capabilities for designing user interfaces.

Ripterm is a graphical utility not unlike Corel Draw or Adobe Illustrator. It provides a system to make some complex drawings, the difference here is that these drawings are transmitted by modem very quickly.

With Ripterm the image itself isn't sent — only the commands to draw the image. The actual generation of the screen image is done by the terminal program at the user's end. Detailed drawings can be generated in less than a second, but that's not all there is to Ripterm.

Ripterm also has the ability to define buttons on the user's screen. If the user presses this button with a mouse a command is sent back to the BBS, telling it what to do next. You can define what text is to appear on the button as well.

You can also define icons. Icons are actually small bitmapped images. As mentioned before, sending bitmapped images is slow. To speed things up, the terminal program actually builds a library of icons. To use a particular BBS you download a set of icons and the BBS simply tells the terminal where and when to display each icon.

Icons can be used as buttons, or they can be used to convey other information. One BBS used a series of icons as an animation sequence, it moved a series of icons around on the screen, just as a video game would.

Because Ripterm is well-designed it has a lot of potential, but like many other good ideas, it won't take off unless its use becomes almost universal. This means that the terminal, which is currently a DOS application, has to be ported over to every popular machine on the market.

One nice thing about Ripterm is that it can be implemented within almost any BBS program. Once screen scripts are assembled, they are transmitted like normal menu text files. Buttons can be defined to send back the proper command to activate the right function without much hassle at all.

First Class BBS

First Class BBS for the Macintosh has already broken many of the barriers I have discussed. It

provides an integrated graphical terminal program that allows you to click on icons to access services, scroll through windows and open up simultaneous tasks in other windows such as file transfers.

It has the capability to send bitmaps and sound samples. It's a very good and well-planned application but it too is not a universal solution, nor it as adaptable as Ripterm. First class is definitely worth keeping an eye on. Plans to ship a Windows client has just been announced.

Virtual Reality online?

There are definite advantages to building libraries of images and sounds that reside at the

user's end. I've always been a champion of this idea.

Instead of sending the same images, sounds, icons, menus etc. to users every time they log on, why not just have the BBS call them up from a library, that allows the user to do things instead of waiting around for data to be downloaded.

Imagine this: you have a CD-ROM with a huge library of data; you write online applications to call-up and manipulate this data, be it images or sounds. You could have 3D images of different characters, ships, buildings, scenery and equipment.

The only data that needs to be sent over the modem is the positions, orientation and size of

the images. Sounds and other effects can be manipulated in the same way. Why not build online virtual reality systems? All the pieces are there.

There is a system in development to do exactly this; it's called VOIDS (Virtual Object Interactive Dictionaries). It comes on a CD-ROM and is expected to hit the streets this summer. ■

Sources:

First Class BBS (416)299-4723.

Fracterm - Fracterm Inc (604)687-7511.

Ripterm - Telegrafix Communications (714)846-4179.

VOIDs - Dispair VR BBS (714)831-1776.

Be a computer programmer!

Only NRI gives you hands-on training with the latest programming tools:

- A 486sx computer with 80 meg hard drive ■ Windows
- Visual Basic ■ Power C ■ QBasic ■ MS-DOS
- And much more!

Only NRI at-home training gives you real-world programming skills in three in-demand languages: QBasic, C, and Visual Basic, today's hot new language designed for writing popular Windows applications. Best of all, you get hands-on training with a powerful new 486sx-based computer system, complete with 80 meg hard drive, Windows, and professional programming software you keep!

NRI, the leader in at-home computer training, shows you how to take advantage of today's newest programming opportunities

Get in on the ground floor of one of today's fastest-growing career fields: computer programming. The Bureau of Labor Statistics forecasts that job opportunities for programmers will increase much faster than average over the next 10 years, with as many as 400,000 new jobs opening up by 2005.

And the fastest-growing segment of programming jobs will be PC programming, fueled by the phenomenal popularity of Windows, the efficient power of C, and the ascent of exciting new languages like QBasic and Visual Basic.

Now, with NRI at-home training, you can get the new skills you need to build a top-paying career — even a full- or part-time business of your own — in this high-growth, high-opportunity field.

NEW! The only programming course that includes a powerful 486sx-based computer, 80 meg hard drive, Windows, Visual Basic, and more — all yours to keep!

Right from the start, NRI gets you actively involved in the challenge of real-world programming. Step by step, you learn to create the kinds of full-featured, powerful programs today's employers and clients

demand...including programs designed for use in a Windows environment!

Only NRI gives you first-hand programming experience with a state-of-the-art 486sx mini-tower computer system, complete with hard disk drive, a full megabyte of RAM, high-density floppy drive, mouse, monitor, and more — all yours to train with and keep!

Plus you explore the extraordinary capabilities of three in-demand programming languages. You learn to design, code, run, debug, and document programs in QBasic, C, and Visual Basic. Best of all, since Visual Basic is specifically designed for creating Windows applications, you learn to generate fully functioning Windows programs, complete with text boxes, command buttons, and other sophisticated graphical interface elements.

No previous experience necessary

Train with NRI, and immediately start getting the money-making job skills you need to be a computer programmer — no matter what your previous background.

NRI's step-by-step lessons and hands-on programming projects help you first master the design concepts used every day by successful PC programmers. Then, with the support of your experienced NRI instructor, you quickly move on to learn programming in three of today's hottest languages.

By the time you complete your course, you have a clear understanding of programming methods, languages, and techniques... and you're ready to handle any programming task with confidence.

Send today for your FREE catalog

See how NRI at-home training gives you the programming know-how, the computer, and the software you need to get started in this top-paying field. Send today for your FREE catalog!

If the coupon is missing, write to us at the NRI School of Computer Programming, McGraw-Hill Continuing Education Center, 300 Water Street, Whitby, Ontario L1N 9B6.

IBM PC/AT is a registered trademark of the IBM Corporation. Windows, QBasic, and Visual Basic are trademarks of Microsoft Corporation.

SEND COUPON TODAY FOR FREE NRI CATALOG!

NRI Schools

McGraw-Hill Continuing Education Center
300 Water Street, Whitby, Ontario L1N 9B6.

☒ Check one FREE catalog only

☐ COMPUTER PROGRAMMING

☐ PC Applications Specialist

☐ Programming in C++ with Windows

Other Computer Career Courses

☐ Microcomputer Servicing

☐ Desktop Publishing

☐ Bookkeeping and Accounting

☐ Computer-Aided Drafting

Name (please print)

Age

Address

City/Prov./Code

5520-0693

START USING YOUR MODEM GET ON-LINE TODAY with CRS ONLINE

- ✓ 500,000 Files
- ✓ 5,000 Public Conferences
- ✓ International Electronic Mail
- ✓ Large Local Calling Area
- ✓ Flat Annual or Monthly Fee
- ✓ Free Technical Help
- ✓ News & Information Services
- ✓ Most Computers Supported

Only \$59⁹⁵ for a 3-month trial membership, or just \$129⁹⁵ for your first year, or \$12⁹⁵ per month (for a minimum of 12 months).

CRS has MOVED:

As of May 1, 1993, you can reach CRS at:
Voice: 213-6000 or 1-800-563-2529
Online/BBS (Demo also): 213-6002 or 213-6003

MODEMS

USRobotics Slashes Sportster Prices

USRobotics Sportster 14,400 baud V.32bis (external)

Takes about 10 minutes to transfer 1Mb of data (versus over 1 hour with a 2400 baud modem). Includes CCITT V.32bis (14,400 baud) with data compression (V.42bis & MNP 5) and error control (V.42 & MNP 2-4). Fax versions come with CCITT V.17 (14,400 baud) fax. Internal versions also available.

V.32bis ... only \$279

V.32bis with FAX ... only \$299

V.32bis MAC & FAX ... only \$339

USRobotics Sportster modems come with a full 5 year warranty and WinFax LITE software. MAC & FAX Sportster includes high speed MAC-modem cable & FaxSTF™ software.

CRS ONLINE 12 Steinway Blvd., Unit 24 Phone: (416) 213-6000
Etobicoke, ON M9W 6M5 Toll Free: 1-800-563-2529

newsbytes

EXCLUSIVE NEWS

Network-ready HP lasers offer PC/Mac auto-switch

MOUNTAIN VIEW, CALIFORNIA (NB) — Hewlett-Packard has introduced two new 17-pages-per-minute, 600 dotper-inch network laser printers, which the company says will work simultaneously on a network with IBM and compatible personal computers (PCs), Macintosh computers, Unix workstations and multiple networks. One of the new printers also offers built-in Postscript Level 2 software, according to Adobe Systems, creators of the Postscript page description language.

The two printers are the HP Laserjet 4Si MX, which has the built-in Postscript, and the HP Laserjet 4Si. Postscript capability can be optionally added to the 4Si. Both printers are based on Intel's reduced instruction set computing (RISC) chip for printers, 80960CF 25 megahertz (MHz) processor, which accounts for the page printing speed. Most laser printers, by comparison, print between four- and eight-pages-per-minute. Two 500-sheet input trays and one 500-sheet output tray are standard on each printer to handle the higher volume of paper.

Network connectivity is built-into the HP Laserjet 4Si MX that includes automatic switching among 10 network operating systems and automatic switching between the Ethernet, the Macintosh's LocalTalk and HP Bi-Tronics network interfaces. The MX also includes 10 megabytes (MB) of RAM that can be expanded to 26MB in addition to 35 Adobe Type 1 typefaces.

Automatic switching between the Adobe Postscript and the HP's own page description language (PCL 5) is done by the MX printer. The printer also saves the downloaded typefaces, macros, dictionaries and

other resources in its memory when switching between languages, so that the network user does not have to worry about re-downloading needed information to the printer.

Laserjet printers work by formatting the entire page in memory, then printing that page. The new HP printers speed up printing by formatting one page in a buffer while another page is printing. Built-in multiple frame buffers allow the printer to begin interpreting a Postscript language job while printing a PCL job, or vice versa.

The Laserjet 4Si comes with 2MB of RAM, expandable to 36MB, enhanced PCL 5, a high-speed Bi-Tronics parallel interface and two modular input/output (I/O) expansion slots for optional HP Jetdirect interfaces, which can be added to accommodate a multiple network environment.

Hewlett-Packard says the HP Laserjet 4Si replaces the HP Laserjet IIId and HP Laserjet IIISi printers. However, IIISi owners who have Postscript Level 1 software can upgrade to Postscript Level 2 software for US\$149. IIISi owners who wish to get to Postscript Level 2 for the first time can expect to pay \$799.

The HP Laserjet 4Si MX printer is retail priced at \$5,499 and the HP Laserjet 4Si printer is offered at a retail price of \$3,749. The Postscript software option for the Si is an additional \$799. Hewlett-Packard says both printers are available now from its authorized dealers and distributors worldwide.

Contact: Hewlett-Packard, tel (619) 592-4676, fax (619) 487-1236; Adobe Systems, tel (415) 962-3967.

TELL ADVERTISERS
YOU SAW THEIR
AD IN

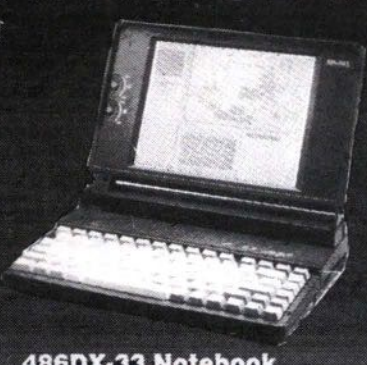


TRULY POWERFUL PORTABLES



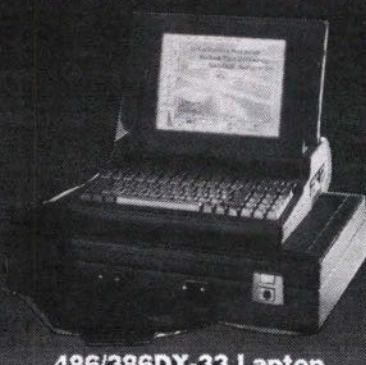
486DX2-50 Notebook

- Up to 16MB RAM
- Up to 240MB Hard Drive
- External Keyboard Port
- 2 Serial, 1 Parallel
- Docking Station available
- Number Pad Included
- Active matrix colour available
- Autoswitching Power Supply
- 7 lb w/out Battery, 9 lb with
- Dimensions: 11" x 8.6" x 2"



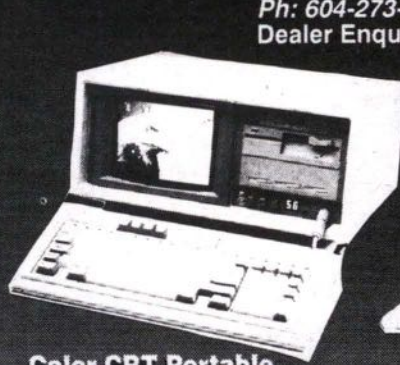
486DX-33 Notebook

- Big 9.5" 64 Grey Scale
- Passive Color Option
- A ton of built-in options:
- Fax/Modem
- Fax/Scanner
- Arcnet or Ethernet
- IBM 3270/5250 Emulation
- RS422/485 Interface
- SCSI Interface
- Voice Recorder and more!



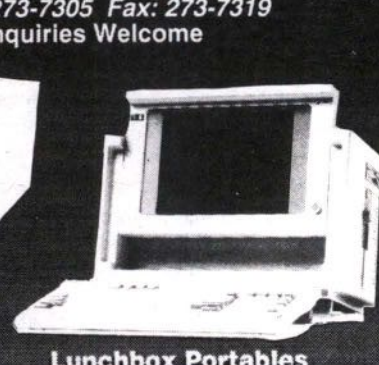
486/386DX-33 Laptop

- Standard 16 bit slot (7.5")
- MIDI Options Available
- Up to 32MB RAM
- Up to 340MB HDD
- 86 key full size keyboard
- External SVGA Port
- 2 Serial, 1 Parallel Port
- Rechargeable Battery
- 11lbs with battery
- Cigarette adapter included



Color CRT Portable

- Beautiful Sony Trinitron Tube
- 8.5" Screen 0.26 Dot Pitch
- 1024 x 768 Resolution
- Infinite Number of Colors
- Local BUS or Video Accelerator
- 101 Key Enhanced Keyboard
- 4ISA/or EISA/VLB Expansion Slots
- 2 Serial, 1 Parallel, 1 Game
- External SVGA Port



Lunchbox Portables

- 150:1 Gas Plasma Screen
- or Double Lit LCD CCFT Screen
- Expandable to 486-66MHz
- Up to 500MB Hard Drive
- Up to 32MB RAM
- 3 Drive Bays
- 4ISA/or EISA/VLB Expansion Slots
- External Super VGA Port
- 101 Enhanced Keyboards
- Dual Serial, 1 Parallel Port

Sayson Technologies Ltd.
103-3011 Viking Way
Richmond, B.C. V6V 1W1
Ph: 604-273-7305 Fax: 273-7319
Dealer Enquiries Welcome

Modem market update

ATLANTA, GEORGIA (NB) — New technology in the PC modem market doesn't stay new for long, and price wars are now being extended to the 14,400 bit/second fax-modem market.

The best demonstration of this truth comes from Hayes Microcomputer Products, one of the market leaders. The company got into trouble in the late 1980s for failing to recognize the reality of price wars, but retooled with an engineering focus and new mass-market divisions like Practical Peripherals.

The company's latest move is a modem line called Accura, designed for computer specialty stores and superstores and aggressively priced. The top of the line 14,400 bit/second data and six-page-per-minute fax

product, dubbed the Accura 144 + Fax144, retails for US\$339. Street prices are expected to be 10 to 20 percent lower. The Accura line comes with Smartcom EZ data software and Smartcom Fax software. It also comes with a two-year limited performance warranty. It offers MNP 5 data compression as well as V.42bis, and follows the V.32bis error-correction protocol, as well as industry standards extending backward to 300 bit/seconds.

The technology frontier in the modem market, for the last year, has been the PCMCIA standard, known as the "PC Card." PC Cards are about the size of a few credit cards stacked one-on-another, and the PCMCIA Type II standard allows such cards to act as modems, LAN adapters or other discrete devices, as well as memory cards. The rush is

on to push this technology toward highend fast modems, even in advance of there being a large installed base of PCMCIA Type II connectors on laptop computers.

Piiceon is just the latest into this market, with its "Dispatcher" series. Like the Hayes Accura, it runs data or fax traffic at 14,400 bits/second, the equivalent of six blank pages per minute. The list price of the top-of-the-line product is \$549. The big difference is at the low-end 2,400 bit/second level, where the Piiceon retails for \$399, against \$79 for an equivalent Hayes Accura box-type modem. One other difference, beyond the form factor, is that the Piiceon product supports MNP 10, which Piiceon says makes it "cellular ready." The MNP 10 technology includes a scheme to continually re-check the quality of a connection and maximize throughput, something not found in earlier

versions of the protocol, according to Microcom. The product is already being shipped for Toshiba's "E-slot" notebook computers, which include support for PCMCIA Type II devices.

The mixture of voice, fax and modem technologies in the same devices represents another new opportunity being pursued by Commetrex Corp., a start-up formed by former executives from DCA, Hayes and Natural Microsystems in Atlanta. Their first product is MultiFax — software that adds fax capabilities to Natural Microsystems' VBX voice boards. The idea is that companies could add fax to voice mail without adding hardware.

Contact: Hayes, (404) 840-9200; Piiceon, (800) 366-2983; Commetrex, (404) 564-5522.



Throne Computer Systems

Present:

Summer Special !!

Super Special Package !!

FREE

MS DOS 6.0 & Windows 3.1

Included Manuals, Disks & Installation

386-40DX, 128K Cache.....	\$1409.-
486-33DX, 128K Cache.....	\$1729.-
486-33DX, 128K Cache.....	\$1769.-
486-50DX, 128K Cache.....	\$1939.-
486-66DX2, 128K Cache.....	\$2009.-
486-66DX2, 128K Cache.....	\$2049.-



Special Package include:

4 Meg memory,
170M (Actual size before double) IDE Hard Drive
Panasonic 1.2M & 1.44M Floppy Drives
Parallel, 2 Serial, Game ports
Keytronic 101 enhanced keyboard
Mini-Tower with 200W CSA Power Supply
512K 16 bits Super VGA Card
14" 28 Non-Interlaced Super VGA color monitor
Built-in math co-processor in all 486 model
Keytronic mouse (MS compatible)
2 years labour & 1 year parts depot warranty

Upgrade Options:

Trident 1 Meg VGA	\$30
ATI XL24 1 Meg VGA	\$80
VESA Cirr Logic Local Bus	\$100
VESA IDE controller	\$85
15" Matsushita (ADO) monitor	\$350
Less: MS DOS 6.0	\$50

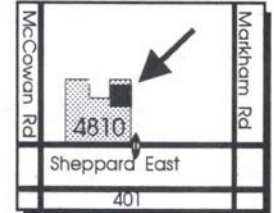
**** Free MS DOS 6.0, Windows & 45 Meg of Programs ****



4810 Sheppard Ave. E.,
Unit 224, Scarborough
Ont. M1S 4N6

Tel: 609-1668

Mon - Sat 10 am - 6 pm
Sunday 12 pm - 4 pm



Complete VGA SYSTEMS

Packages include:

1 Meg fast memory, 101 keys keyboard,
84M (Actual) Hard Drive, Mini-Tower & 200W CSA Power
256K VGA Card, Panasonic 1.2M & 1.44M Floppy Drive,
Par/2 Ser/Game ports, Amazing 14" standard VGA color monitor
2 years labour & 1 year parts depot warranty

386 SX-33

\$878.-

**** Free 45 Meg of Programs**

Super VGA Systems

Package include:

4 Meg memory,
120M (Actual size before double) IDE Hard Drive
Panasonic 1.2M & 1.44M Floppy Drive
Parallel, 2 Serial, Game ports
101 enhanced keyboard
Mini-Tower with 200W CSA Power Supply
512K 16 bits Super VGA Card
14" Super VGA color monitor
MS compatible 3 button mouse
Built-in math co-processor on 486 model
2 years labour & 1 year parts depot warranty

386-40DX, 128K \$1159.-

486-33DLC, 128K . \$1319.-

486-33DX, 128K \$1469.-



**** Free 45 Meg of Programs ****

Free, No Charge

All Throne Computer Packages come with free 45 Meg programs bundle includes:

Games, Spreadsheets, Word Processing, Home Organizer, Store phone#, Appointment programs, Educational & Tutorials, Music, Personal and business finance programs, Database, Image Processing, Virus checking & Cleaning, and Demos, etc.

**** All special prices on the advertisement are cash discounted, must be pay by cash, money order or certified cheque only. VISA, Master Cards or Government P.O. are on regular prices (Regular price = Cash discounted price + 3%). Government, educational institutions & corporate p.o. are welcome. Prices are subject to change without notice.**

MOTHERBOARDS

386SX-33 with 2 Meg	\$ 219
386DX-40, 128K	\$ 189
486DLC-33, 128K	\$ 355
486DX-33, 128K	\$ 499
486DX-33 VESA 128K	\$ 539
486DX-50, 128K	\$ 720
486DX2-66, 128K	\$ 780
** First 4 M memory (call)	\$ 172
Cooling Fan for 486 CPU	\$ 35

CASES with Power Supply

Desktop case	\$ 75
Mini-Tower case	\$ 75
Medium Tower with digital	\$ 115
Tall Tower case, digital 280W	\$ 155
200W power supply	\$ 55

DRIVES & CONTROLLERS

Floptical 21M Drive & 5 Disks	\$535
IDE WD 85M, 17ms	\$ 229
IDE Conner 120M, 18ms	\$ 252
IDE Quantum 127M, 17ms	\$ 270
IDE Maxtor 130M, 15ms	\$ 270
IDE Conner/Quan 170M, 14ms	\$ 289
IDE WD 212M, 14ms	\$ 370
IDE Conner/WD 256M, 15ms	\$ 390
IDE WD 340M, 13ms	\$ 555
IDE Seagate 452M, 12ms	\$ 770
Colorado Int 250M TapeDrive	\$ 275
Tape DC2120 250M	\$ 35
Panasonic 5 1/4" 1.2M	\$ 68
Panasonic 5 1/4" 1.44M	\$ 60
IDE FD&HD controller	\$ 25
VESA IDE FD&HD controller	\$ 99
IDE FD&HD 2Ser/1P/1G cntr	\$ 35
SCSI Adaptec 1522 for Dos	\$ 130
SCSI Allways 2000 controller	\$ 250
AT I/O card 2Ser/1P/1G ports	\$ 25
AT MFM HD&FD controller	\$ 85

DOT PRINTERS

**** 2 years Canadian Warranty ****

Prices are not included color kit
Panasonic 2180, color 9 pins \$ 195
Panasonic 1123, 24 pins \$ 239
HP 4 8ppm 2M, 600dpi \$ 286
Panasonic 2124, color 24 p \$ 419
Raven 9105(2180), color 9 p \$ 195
Raven 2405(2023), 24 pins \$ 255
Raven 2406(2123), color 24 p \$ 286
Raven 2420(2124), color 24 p \$ 384
Raven 2465(1624), 24 p wide \$ 445
Color Kit(motor, cable, ribbon) \$ 53

LASER PRINTERS

**** 1 year Warranty. All with Toner**

HP 2P Plus 4ppm 512K	\$ 939
HP 3P 4ppm, 1M, 300dpi	\$ 1099
HP 4 8ppm 2M, 600dpi	\$ 1799
HP 4M 8ppm 6M, 600dpi	\$ 2560
Okidata 400 4ppm, 512K	\$ 725
Okidata 810 8ppm, 1M (HP3)	\$ 1150
Okidata 830+ 8ppm, 2M	\$ 1380
Ok 850 8ppm, 2M IBM/Mac	\$ 1570
Panasonic 4410 5ppm (HP1)	\$ 810
Panasonic 4430 5ppm (HP1)	\$ 1100
Raven LP-510 5ppm (HP1)	\$ 829
Raven LP-530 5ppm (HP1)	\$ 1060

INKJET PRINTERS

**** 2-3 years Canadian Warranty**

Olivetti JP-150W 160cps	\$ 375
Canon BJ-200 160cps	\$ 425
Canon BJ-300 600cps	\$ 470
Canon BJ-330 600cps wide	\$ 589
Canon BJ-800 Color	\$ 1920
HP DeskJet 500	\$ 499
HP DeskJet 500C color	\$ 639
HP DeskJet 550C color	\$ 955

Canon, Hewlett Packard,
Okidata, Olivetti, Panasonic,
Raven
Authorized

LASER ACCESSORIES

HP memory 1M/2M	\$98/148
HP 2p,3p,3 memory 4M	\$ 248
HP 4 memory 4M	\$ 235
HP Pacific Page Postscript	\$ 375
HP Toner for II/III/IIIP	\$ 93
HP Toner for 4	\$ 103
HP Toner for 4	\$ 145
HP 2P/3P low cassette	\$ 250
& envelop tray bundle	
HP 4 Level 2 Postscript	\$ 475
HP 4 Multi size tray	\$ 110
HP DeskJet 500 Ink Cart	\$ 30
HP DeskJet 500 HC Ink Cart	\$ 45
HP DeskJet 500C Color Cart	\$ 49
Ok 400 1M/2M memory \$100/150	
Ok Image Drum for Laser	\$ 265
Ok Toner for Laser	\$ 38
Pana 4410/Raven 510 1M	\$ 130
Pana 4430/Raven 530 2M	\$ 180
Panasonic/Raven Toner	\$ 42

MEMORY

DRAM 41256-80	\$ 3.00
DRAM 44256-70	\$ 6.50
DRAM 411000-70/80	\$ 6.50
SIMM 256-70/80	\$ 14.50
SIMM 1M-60 (call)	\$ 54.00
SIMM 1M-70 (call)	\$ 46.00
SIMM 4M-70 (call)	\$ 200.00
SIPP 1M-70	\$ 50.00

KEYBOARDS

BTC 101 Keyboard	\$ 27
Keytronic AT/XT keyboard	\$ 48
Keytronic keyboard ** USA **	\$ 62
Keyboard for PS/2	\$ 64
AT keyboard to PS/2 adaptor	\$ 12

VIDEO CARDS

Monographics	\$ 28
Amazing VGA 256K 640	\$ 39
Trident SVGA 512K 1024	\$ 51
Trident/Aamaz. 1M 256 color	\$ 79
Trident 1M 1280 64K color	\$ 84
ATI XL24 1M OEM	\$ 135
ATI XL24 1M & Mice	\$ 165
ATI Graphic Ultra Plus 2M	\$ 378
ATI Graphic Ultra Pro 2M	\$ 485
ATI Gr Ultra Pro 2M Mouse	\$ 610
ATI Gr Ultra Pro 2M VESA	\$ 519
VESA ET4000 VGA 1M	\$ 170
VESA Cirr Logic VGA 1M	\$ 164
VESA Cirr Logic VGA 2M	\$ 215

MONITORS

Datas 14" TTL paper white	\$ 125
AT&T 14" Mono VGA	\$ 140
Amazing VGA .41	\$ 265
Magalmage 14" 1024 .39	\$ 280
Magalmage 14" 1024 .28	\$ 320
Amazing 14" 1024 .28 N-I	\$ 345
Magalmage 14" 1024 .28 NI	\$ 349
Tatung 14" 1024 .28 low-rad	\$ 450
Matsushita(ADO)15" 1280 .28	\$ 710
Mag Data 15" 1280 .28	\$ 748
Mitsubishi 17" 1280 .26	\$ 1300
Mag Data 17" 1280 .26	\$ 1350

MONITORS

Mitsumi Int 350ms 32K Kit	\$ 248
Sony Int 31-A 490ms 64K Kit	\$ 328
Chinon Int 350ms 64K 6 disc	\$ 529

MATH CO-PROCESSOR

Cyrix 287XL, 20 Mhz	\$ 105
Cyrix 387SX, 16/20/25/33 Mhz	\$ 92
Cyrix 387DX, 25/33/40 Mhz	\$ 115

MODEM & FAX

**** 5 years Warranty for GVC ****

2400 Send fax Int Modem	\$ 55
9600 Send/Rec fax Int Modem	\$ 75
GVC 9600 Int S/R fax Modem	\$ 95
GVC 9600 Ext S/R fax Modem	\$ 115
Aceex 14.4 Int s/r fax v42 v32	\$ 259
Zoltrix 14.4 Int s/r fax v42 v32	\$ 269
GVC 14.4 Ext v42 v32 mnp5	\$ 259
GVC 14.4 Ext s/r fax v42 v32	\$ 289
WinFax 2.0 for GVC only	\$ 28
WinFax Pro 3.0	\$ 89
IO card with one 16550 chip	\$ 40

OTHERS

Optical Glass Filter	\$ 45
MS compatible mouse	\$ 19
Keytronic mouse	\$ 39
Logitech Mouseman	\$ 80
Logitech Trackman Serial	\$ 99
Logitech Scanman 256	\$ 300
Adlib compatible music card	\$ 38
Video Blaster	\$ 439
Sound Blaster V2.0	\$ 127
Sound Blaster Pro	\$ 175
Sound Blaster Pro Deluxe	\$ 192
Sound Blaster Pro 16	\$ 315
SB Pro with (MIDI or 2CD)	\$ 229
Speaker SB-668	\$ 30

SOFTWARE

BusinessVision II	\$ 135
CA Textor for Windows	\$ 55
Corel Draw 3.0 CD/FD	\$ 270
MS DOS 5.0	\$ 20
MS DOS 6.0 upgrade	\$ 58
MS Windows 3.1	\$ 59
Norton Utilities v6.0	\$ 98
OS/2 Upgrade for DOS	\$ 137
WP 5.2 Windows upgrade	\$ 120
WP 5.2 Windows full version	\$ 355

Vision7ech

YOUR COMMUNICATIONS RESOURCE

For dealer or product information call 538-1212/946-0768



Aceex 1496V+
14,400 V.32bis modem
with MNP5, V.42 and
V.42bis. Class 2
Group 3 Fax



Aceex 9624PF
Pocket fax/modem
2,400bps modem with
2,400bps fax. MNP5,
V.42, V.42bis



Aceex 9624
2,400bps modem with
9,600bps Class 2
Group 3 Fax



ZyXEL U1496E
16,800bps modem with
14,400bps fax, MNP5, V.42
and V.42bis, Caller-ID
Voicemail, Ident-a-call

*\$30 Virtual Village
Gift certificate
included with
every modem!*



Shareware
Live chat
Games

The Virtual Village BBS 538-9999

How to call and get a free demo account

- 1 Set your terminal program to 8N1, ANSI mode
All lines support 14,400 V.32bis
- 2 Dial 538-9999 or (416)538-9999 if outside the Toronto area.
- 3 Log onto the BBS with the name NEW
- 4 Use the password NEW
- 5 Explore the BBS for up to 20 minutes
- 6 Before leaving, enter "Chuck's Office" and purchase a membership.
You can sign up for a free demo account
- 7 Call back in a day or two to see if your account has been activated



Legends

The world's greatest
multi-player real-time
adventure game!

You explore dungeons full of monsters in your quest to seek new abilities, riches and status. Buy, sell and trade armor, spells and weapons with other players. Form alliances and quest to achieve demi-god powers.

A Perfect Blend of Science, Quality and Art



**Now available
at Super Science
M/B, CPU, VGA card,
Super I/O & monitor.
Call for details**

PATENTS PENDING ON ALL OUR COMPUTER CASES (NO. 80305700 & 8036535)

If you want reasonably priced computer cases with matchless quality, source from Super Science! We have been producing metal cases for almost 20 years, and we have new models in the latest and most sophisticated designs waiting for you. We guarantee prompt delivery, too! Call for ADI Monitors!

SPEC MODEL	DIMENSIONS (MM) H x W x D	MEAS CUBIT	N.W. KGS	G.W. KGS	DISPLAY DIGITAL	NUMBER OF DISK DRIVE				MAIN BOARD SIZE			POWER SUPPLY	STYLE
						5 1/4"		3 1/2"		486	386	286		
						FDD	HDD	FDD	HDD					
SE-888	170x375x415	1.7	7.0	8.0	✓	3		1	1	✓	✓	✓	PS2	DESK TOP
SE-777	145x395x400	1.3	4.5	5.5	✓	2		1	1				PS2	DESK TOP
SE-628	330x180x420	1.7	6.5	7.5	✓	2		2	1				PS2	MINI TOWER
SE-738	490x170x400	2.6	10.0	11	✓	3		2	3	✓	✓	✓	PS2	MIDDLE TOWER
SE-828	620x190x405	3.7	13.8	15.3	✓	5	1	2	3	✓	✓	✓	BIG AT	BIG TOWER
SE-AT-29A	665x265x640	8.2	27.0	33.0		6	6			✓	✓	✓	BIG AT	SUPER TOWER
SE-AT-589-IV	76x300x355	0.72	3.9	4.4				2					60W	WORK STATION
SE-AT-589-III	76x300x355	0.72	3.9	4.4				1	1				60W	WORK STATION

Ontario Distributor: ADVANCE MEDAL COMPUTER — Tel: 416. 946-9660 Fax: 416. 946-9663
Quebec Distributor: COMPU-FIELD TECHNOLOGIES — Tel: 514. 333-3872 Fax: 514. 333-5227



SUPER SCIENCE CANADA CO. LTD.

190-3851 Jacombs Road, Richmond, B.C. V6V 2H7

TEL (604)244-7798 FAX (604)244-7796 Dealers only, Please.

Adobe ships Photoshop for Windows 2.5

MOUNTAIN VIEW, CALIFORNIA (NB) — Adobe Systems has begun shipping its Adobe Photoshop version 2.5 software for the Windows platform.

According to Adobe, the program was developed concurrently with the same version for the Macintosh. The two versions are claimed to be fully file-compatible and offer an identical feature set.

The products are being marketed towards designers, photographers and other graphics professionals who would use Adobe Photoshop software to manipulate any combination of continuous-tone, bitmapped, grayscale or color images, either scanned in or computer-generated.

The company also says that users can edit and reposition any portion of an image and import and export a wide variety of graphics formats including Encapsulated PostScript and Adobe Illustrator. The program also provides a number of special effects filters and 16-million-color paint capability.

The company says that some of the new features common to Adobe Photoshop version 2.5 for the Windows and Macintosh

platforms are: new "dodge" and "burn" tools that allow users to selectively lighten and darken portions of an image; a variations feature that allows users to correct the color by selecting a variety of preview options; and a new "Quick Mask" feature that allows users to view and edit masks using tool box controls.

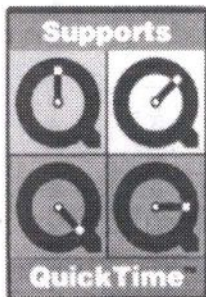
System requirements for running version 2.5 include: an Intel 386- or 486-based personal computer running DOS 5.0 or greater and Windows 3.1; four megabytes of RAM; a color VGA, Super VGA, 16-bit or 24-bit display adapter and compatible Windows environment-supported monitor; and a mouse or compatible pointing device.

Adobe Photoshop 2.5 for Windows is now available and is priced at US\$895.

Adobe recently signed a limited-time bundling deal that offers a free copy of Adobe Photoshop Limited Edition image-editing software with each Macintosh-compatible HP ScanJet IIc scanner shipped through September 30.

Contact: Adobe Systems Inc., 415/962-2730.

New QuickTime Faster, Needs Less Memory



CUPERTINO, CALIFORNIA (NB) — QuickTime 1.6, a new release of the multimedia extensions for System 7 on the Macintosh, will be available in May and will use less memory, offer improved sound

support, better color compatibility and faster playback of video.

Apple Computer says it plans to incorporate the features new to version 1.6 of QuickTime into its Windows and Unix versions of the product.

Apple originally released System 7 and QuickTime in early 1992. In October of last year, Apple announced enhanced versions of both products in System 7.1 and QuickTime 1.5. This time, Apple is only releasing an upgrade of QuickTime in version 1.6, without an accompanying upgrade of System 7.

QuickTime 1.5 improved on QuickTime 1.0 by allowing video to be played back in a larger window on screen; offering support for fullscreen, full-motion digital video cards; integrating support for the Kodak Photo compact disc (CD); improving compact disc read-only memory (CD-ROM) and network data handling. It also has a fast 1-bit dithering for playback on monochrome screens such as those on the Powerbook notebook computer, generic media handlers for creation of new movie-track types and closed captioning.

In version 1.6 of Quicktime, users can expect to retain the ability to cut, copy, and paste video, sound and animation, according to Apple. However, the 1.6 version offers an enhanced version of the system software for sound—Sound Manager 3.0. Also known as compact disc (CD) quality sound, 16-bit sound may be recorded to and played back from QuickTime movies using Sound Manager 3.0, Apple said. In addition, sound may be imported from CD sources using Sound Manager.

Support for 16-bit add-on sound cards for the Macintosh offered by third party

vendors such as Media Vision is built into Sound Manager. Since Sound Manager 3.0 is a modular part of QuickTime 1.6, Apple says it intends to license Sound Manager to add-on sound hardware developers and software developers for distribution with third party products.

The company says movie playback is more than 10 percent faster with QuickTime 1.6 than with previous versions of Quicktime. Apple says users can expect smoother and better movie playback as a result.

QuickTime 1.6 makes colors in a movie played on one color monitor look the same when played on any other color monitor. Apple says the addition of Colorsync, its color-matching technology, makes the color matching possible. Support for 1-bit black and white colors on up to 32-bit color is available so users can play QuickTime movies on a wider range of Apple computers including the 4-bit gray-scale Powerbook and Duo computers.

Apple says QuickTime 1.6 will enhance the text-track feature introduced in QuickTime 1.5 by supporting smoothed, TrueType text. To users, this means that when a QuickTime movie that includes text is re-sized, jagged edges of the text will smooth out.

All of these new capabilities are included in version 1.6 but will require 90 percent less memory when installed, according to Apple. The company says this is intended to accommodate users with entry-level Macintosh computers.

In order to work, QuickTime 1.6 requires a Macintosh with an 68020 processor or higher, four megabytes of memory, and version 6.0.7 or later of the Macintosh operating system.

QuickTime 1.6 will be bundled with System 7.1 and included with all new Macintosh computers beginning in May. Bulletin boards and user groups will also be distributors of the 1.6 version, Apple said, or users may call Apple directly toll-free to order the 1.6 version for a US\$10 handling fee.

Contact: QuickTime 1-800-769-2775 ext 6596.

Wrist, hand site of most work-related injuries

WASHINGTON, DC (NB) — The reported incidence of repetitive stress injuries (RSI), the pain and related weakness caused by constant small movements such as those experienced by computer keyboard operators, have, according to the latest PC World Magazine, tripled in the past 10 years, making RSI the number one cause of worker complaints to the Occupational Safety and Health Administration.

Although more progressive European companies have made an effort to prevent such injuries through special regulations, few local governments in the U.S. — San Francisco and affluent Suffolk County, New York being notable exceptions — have given any serious attention office regulations that might reduce RSI injuries.

Newsbytes recently interviewed a Pennsylvania-based expert in RSI who told this bureau that her practice has also seen a great increase in such injuries. According to Sherry G. Sabine, OTR/L CHT (occupational therapist and certified hand therapist) RSI, or "cumulative trauma disorders" can occur at any time in a worker's career. Occasionally problems show up within days after a particular job is begun. Often symptoms are vague and nonspecific and may not develop until the worker has performed the same job over months or years. "There are no one-time incidents that can be identified as a cause of RSI."

According to Ms. Sabine, because the worker does not have a broken bone or cut, and there is no sign of bruising or visible swelling, the individual who suffers from cumulative trauma will probably not appear injured to a supervisor who therefore might not recommend appropriate rest or changes in working conditions until an injury becomes severe, perhaps causing permanent disability.

"Some days the worker feels fine," she told Newsbytes, "and other days discomfort may be severe. A history of generalized complaints may develop in such a way that the employer and sometimes even the worker become unsure of whether the symptoms are job- or hobby-related, or even if they are real."

Carpal tunnel syndrome is probably one of the most widely recognized diagnoses when considering cumulative trauma or repetitive stress injuries. This is a soft-tissue injury that occurs at the wrist. As soft tissue becomes irritated, internal swelling occurs, she said. The extra fluid coming into the tissue serves two basic functions. The fluid "splints" the irritated tissue to prevent movement that could increase the irritation, and it begins the healing process of the injured tissue.

"Unfortunately, as motion continues with day-to-day activities, the nerves enclosed in the tunnel become pinched as the pressure from the swelling increases."

But CTS is far from the only RSI commonly seen according to Ms. Sabine. The well-known "tennis-elbow" (actually lateral epicondylitis), DeQuervain's Syndrome (a soft tissue injury to the thumb), and thoracic outlet syndrome (which causes pain to the entire arm), are also being seen more often.

Ms. Sabine recommends taking the following steps to avoid such injuries:

Computer operators should be encouraged to stretch frequently, moving head, neck, shoulders and arms briefly to balance

muscle tension. The worker should be seated properly with the chair providing firm support for the back, with either adjustment capability or shape that allows for the addition of a cushion. The seat height should be adjustable so that, with the operator seated, the keyboard can be used with the elbows in about 80- to 90- degrees of flexion. A freely adjustable footrest should be used to prevent fatigue.

The keyboard should be positioned so that the operator's wrists are supported with an appropriate wrist rest, which main-

tains the wrists in a neutral position with the fingers comfortably on the keys.

Work should be placed slightly behind, and to the side of, the keyboard at a comfortable reading distance and at the proper height to prevent a stoop-shouldered position. The computer screen should also be positioned at proper eye level, she says.

And, in some situations, specific keyboards or other adaptive equipment may be suggested for individual workers.

Ms. Sabine is a registered occupational therapist and certified hand therapist who

has been practising in the York, Pennsylvania, area since 1972.

Much of the adaptive equipment needed for the work place is commercially available and can be obtained through industrial suppliers or rehabilitation equipment suppliers, such as Susquehanna Rehab Products, in Wrightsville, Pennsylvania to which Ms. Sabine is a consultant.

The locations of occupational therapists in other regions who are skilled in evaluating upper-extremity problems, can be obtained from The American Society of Hand Therapists, 1002 Vandora Springs Rd., Suite 101, Garner, NC 27529.

Canada's Storage Experts

CD-ROM & Multimedia

WAY TOO COOL

For PC & Mac

Kodak Photo-CD Compatible

FOR WORDS

Sun Moon Star™

World-Class Quality CD-ROM Drives, Drive/Disc Bundles
Multimedia Upgrade Kits and Accessories

CD-ROM Drives

CDU-31A Multimedia Drive	Drive Kit Only	Drive Kit + 5 Title Library	Internal	External
			\$349	\$429
			499	549

5 MICRO DRIVES LIBRARY

Grolier's Encyclopedia 1992 • Toolworks Reference Library
Animals (of the San Diego Zoo) • World & U.S. Atlas • CD Game Pack II

350ms Drive with 32K Cache Drive Kit + 4 Titles: \$349 \$ Call

4 MICRO DRIVES QUAD PAK

Maxis Beacon Teaches Typing • Chessmaster 3000 • World & U.S. Atlas

Multimedia Upgrade Kit

A complete Kodak Photo-CD Compatible Upgrade Kit
Includes CDU-31A Multimedia CD-ROM Drive with Interface
Sound Blaster Pro Stereo Sound Card with 8 Utilities
+ 5 Title Micro Drives Library
+ Kodak Photo-CD Access Software

only: **\$689**

CD-PAKs With Multimedia Speakers

Exciting Disc Bundles From Sun Moon Star™

CD-PAK for DOS	6 Titles	\$179
MPC Grolier's Encyclopedia • The Animals • US & World Atlas • Toolworks Reference Library • The Secret of Monkey Island		
CD-PAK for WINDOWS	6 Titles	\$179
MPC Grolier's Encyclopedia • The Animals • US & World Atlas • Chessmaster 3000 • Maxis Beacon Teaches Typing		
Entertainment CD PAK	6 Titles	\$169
Mario is Missing • D Generation • Chessmaster 3000 • Wing Commander • Ultima VI • Secret of Monkey Island		
Microsoft CD PAK	2 Titles	\$149
Bookshelf & Works		
House CD PAK	6 Titles	\$169
Tempra • Access Photo CD • The Animals • Mayo Clinic • US & World Atlas		

More CD-ROMs

NEC

Now with 256K Cache!

300 KB/s Transfer Rate; 200ms Access Time

Kodak Multi-Session Photo-CD Compatible

Internal External Portable

\$779 \$899 \$549

CD Express External 150KB/s Drive + 6 Discs \$ Call

TEKTEL

Kodak Photo-CD Compatible

Fastest CD-ROM Drives on the Market!

300KB/s Transfer Rate/265ms Access

Performance Exceeds CD-ROM Standard

	Int.	Ext.	+ Disc Bundle	+ Sound Blaster Pro
PC Kit*	\$699	\$829	\$169 (for 5)	\$199
Mac Kit		819	129 (for 3)	

* Includes SCSI Interface

UAC

Kodak Photo-CD Compatible

300KB/s Transfer Rate/265ms Access

Performance Exceeds CD-ROM Standard

	Internal	External	+ Disc Bundle
PC Kit*	\$599	\$729	\$169 (for 5)
Mac Kit		719	129 (for 3)

* Includes Cables & SCSI Interface

** Includes Cables, 16-Bit Pro Audio Spectrum Sound Card with Interface + 5 Title Library

For Your Convenience We Accept:



...plus Corporate and Government Purchase Orders

Toronto Office:

Phone:

FAX:

Toll-Free Ordering:

All prices cash discounted, subject to change without notice.

MICRO DRIVES CANADA

18 Regan Road, Unit 31
BRAMPTON, Ontario L7A 1C2

Phone: (416)840-6476

FAX: (416)840-6560

Toll-Free Ordering: (800)268-4389

Hours: Mon.-Fri. 9am-6pm Sat. 11am-5pm

We're Worth the Trip!

Hard Drives

BIG BYTES

Quantum

	IDE	SCSI
85MB	\$369	
127MB	479	
240MB	789	
425MB		1299

2 Year or 5 Year* Warranty!

IDE & SCSI

	IDE	SCSI
80MB	19ms \$249	
120MB	15ms 299	
213MB	15ms 399	
245MB	15ms 439	
345MB	15ms 629	

IDE & SCSI

	IDE	SCSI
330MB	12ms \$899	
425MB	12ms 1099	
520MB	12ms 1149	

IDE & SCSI

	IDE	SCSI
40MB	16ms \$229	
90MB	16ms 299	
130MB	19ms 339	
330MB	14ms 799	

5 Year Warranty available!

Maxtor

2 year Warranties!

FUJITSU

IDE & SCSI

	IDE	SCSI
330MB	12ms \$899	
425MB	12ms 1099	
520MB	12ms 1149	

IDE & SCSI

	IDE	SCSI
1GIG	15ms \$1599	
1.4GIG	15ms \$1999	
2GIG	16ms \$2399	

Up to 5 Year Warranty

Seagate

5 Year Warranty available!

SyQuest

105MB 3.5" Removable IDE Drive \$699 105MB Cartridge \$119

Works with other IDE Drives! Also available in SCSI, SCSI II

BIG BYTES

FOR THE MAC

MIGHTYdrive™

Value-Priced, Power-Packed

	Internal	External
85MB	16ms \$319	\$429
127MB	16ms 399	539
170MB	16ms 449	559
240MB	10ms 549	659
330MB	14ms 899	999
520MB	12ms 1239	1349

SyQuest

Removable Drives Now Write to 44MB Cartridges \$869

1GIG and up for the Macintosh

FUJITSU

1GIG 14ms \$1899 Up to 5 Year Warranty!

BIG BYTES

TO-GO!

HARDPAC™

Quiet Rugged Flexible and Secure!

	PC Mac	PC Mac
85MB	\$639	\$599
127MB	759	729
170MB	829	809
240MB	1039	999

POCKET

	PC Mac	PC Mac
80MB	\$795	\$695
120MB	995	895
160MB	1229	1149

Battery Pack (Up to 2 hrs) \$99 Powerbook Cable \$59

PC Models

Connect directly to Parallel Port with flow-through for Printer

Mac Models

Include Auto Doubler & Disk Manager Software + ADB Cable

HARDPAC™

Reads/Writes 720KB & 1.44MB Disks! **PC Mac**

21MB 3.5" \$699 \$649

Storage Options

Unlimited, High Capacity, Crash-Free Storage!

MEGA BERNOLLI™

Performance of a Hard Drive; Durability of a Floppy

	90MB	150MB
18ms External Removable Bernolli Drive		
Powered Pro	PC \$729 \$869	PC \$1289
Mac	799	1289

Powered Kit includes:

- External Drive Subsystem
- Adapter Card
- 90MB Shareware Cartridge

Pro Kit also includes:

- Caching
- Backup Software

MEGA BERNOLLI™ Cartridges 90MB \$129 150MB \$189

Available in 35MB, 65MB, 90MB, 105MB & 150MB Capacities For Multi-Disk Bernolli Drives

MEGA tape 250

High Capacity Cartridge Tape Backup

	250MB Tape Insider (3.5" Bay)	250MB Tape Insider (5.25" Bay)	250MB PC Powered External	250MB Parallel
	\$289	299	489	659

MEGA

21MB 3.5" also Reads & Writes 720K & 1.44MB Disks

Insider \$579 **Powered Pro** 639 **3M** 21MB 3.5" 125

MULTIMEDIA Sound Cards

PRO AUDIO SPECTRUM

16-Bit Stereo Sound Card With Fast SCSI Interface

20 Voice Stereo Synthesizer plus MIDI & Utilities

\$289

Sun Moon Star

8-Bit Sound Blaster-Compatible Sound Card with Speakers

+ Hot Super Mario Game (on Floppies)

\$199

MEGA BERNOLLI™

21MB 3.5" 125

Tape Backup

Because Accidents Happen!

COLORADO MEMORY SYSTEMS INC.

	Internal	External
120MB	\$229	\$389
250MB	299	479

OS/2 Software \$149

Jumbo Trakker

Backup data through your parallel port.

	120MB	250MB
	\$539	639

Great for laptops, PS/2s, and slotless backups!

Worry-Free Warranty • 30 Day Money-Back Guarantee • Fast Delivery Anywhere in Canada • Unlimited Full Technical Support

Adobe Intros Acrobat Reader and Acrobat Exchange

BOSTON, MASSACHUSETTS (NB) — At a Seybold Seminars '93 press conference, John Warnock, chairman and CEO of Adobe Systems, made the company's first announcement of Acrobat Reader and Acrobat Exchange, two applications for the emerging Acrobat family of crossplatform distribution products.

Macintosh versions of the new viewing software are scheduled to ship in the June time frame and Windows versions later this summer, said Warnock. The Mac and Windows versions are now in beta testing, he added. Unix versions are in alpha test-

ing, and DOS versions will enter alpha soon. Acrobat Reader and Acrobat Exchange are both designed to let users view, navigate and print electronic documents that are consistent in formatting and layout, regardless of the file formats in which they originated.

Acrobat Reader will be used by publishers to give users access to completed electronic documents in much the same way that publishers now distribute paper-based magazines and newspapers, Warnock explained.

Acrobat Exchange, on the other hand,

is targeted at peer-to-peer use in large corporations. The software will let users create Acrobat documents, and add notes and comments to documents produced by coworkers.

During the fourth quarter, Acrobat Reader and Acrobat Exchange will be enhanced with unstructured full-text search capabilities, Warnock said. In the first quarter of 1994, Adobe will add structured full-text search functions that provide users with hypertext links and more detailed information on documents.

In a demonstration at the press confer-

ence, Adobe's Ken Anderson showed the journalists how the GUI-based software might be used to share maps, phone lists, news releases on Adobe products, Seybold publications and other documents.

Documents viewed and created in Reader and Exchange will use Portable Document Format (PDF) (the PostScript-based document description language that is the cornerstone of Acrobat) Warnock said.

The unstructured full-text search capabilities will be supplied by the TOPIC document retrieval engine recently licensed by Adobe from Verity, Inc.

Structured searches will be made possible by licensing deals with Avalanche Corp. and Mastersoft Inc., also announced at last night's press conference. Adobe will use conversion technology from Avalanche and Mastersoft to merge the structural elements of native file formats into PDF files, Warnock said.

The Avalanche technology will allow PDF files to use tags from documents created with Standard Generalized Markup Language (SGML), an emerging standard for describing structural elements.

The technology from Mastersoft will allow Acrobat applications to support WordPerfect, Microsoft Word, FrameMaker (MIF) and most other applications that rely on stylesheets to format text. The technology translates native application files into a common file format that captures documents' style elements.

During the demonstration, Anderson showed how users of Acrobat Exchange can annotate documents with electronic "stick-on" notes. He also displayed the ability to quickly import files from an outside file format, simply by clicking on an "insert" button.

Zoom, thumbnail preview, bookmarks, "go to next page" and structured and unstructured searches were a few of the other features shown.

By using Adobe's Multiple Masters technology, Acrobat Reader and Acrobat Exchange allow users to view any font style, regardless of whether the appropriate fonts are installed on the user's system, he noted.

The software also uses JPEG compression, he pointed out. A 36-page document containing 78MB of data, including photos and other images, can be downsized to only 976 K, he illustrated.

Contact: Linda Prosser, Adobe, tel 415-962-3840.

BUY PageMaker Now

or You'll Never See

FreeHand & PageMaker 5.0

Free Again!

Don't wait for PageMaker 5.0! When you buy **PageMaker 4.2** for Macintosh or **4.0** for Windows, you will receive a **Free** Copy of **Aldus Freehand** and a **Free** Upgrade to **Aldus PageMaker 5.0!**

BUY Now & SAVE Big!

- Aldus FreeHand has a Value of Over \$500.*
- Upgrade to 5.0 is \$195.*
- When PageMaker 5.0 ships it will cost up to \$120* More!

Call Your Dealer for Details

* This offer is valid while quantities last. Order Now to Avoid Disappointment.
Based on Suggested Retail Price. Please specify PageMaker/Freehand bundle when ordering.






CALENDAR OF EVENTS

MAY

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

MULTIMEDIA '93 EXPOSITION AND FORUM "The Merging of Technologies" May 26-29, 1993, at the Metro Toronto Convention Centre, Toronto. Featuring: Multimedia Communications, Vcom, Electronic Design and Showcase on Production. Conference Trade Show May 27-29, 1993. Contact Susan Blair (416) 660-2491.

JUNE

CONSUMER ELECTRONICS SHOW INT'L-SUMMER June 2-9 1993, Chicago, IL. For more info contact: Sam Lippman at The Electronic Industries Association (202) 457-8700

BUSINESS TRADE & TECHNOLOGY SYMPOSIUM June 9 and 10, 1993 at Bingham's Convention Centre Kitchener, Ontario. This event has been coordinated for the benefit of all businesses in "Canada's Technology Triangle" area. This Symposium is sponsored collectively by Economic Development Departments, of Cambridge, Guelph, Kitchener and Waterloo. There will be 16 Business Problem Solving Seminars over two days.

TORONTO FOXPRO DEVELOPERS CONFERENCE June 11 & 12, 1993, at the Sheraton East Hotel in Toronto. This Conference will bring together some of North America's best known database developers for two days of seminars, workshops and panel discussions. To register call 1-800-268-2841 Ext.35.

JULY

COMDEX/CANADA July 13-15, 1993, at the Metro Toronto Convention Centre. The 1993, show is, in a sense, a continuation of the LAN Expo and Windows World. Contact: Kim Pappas, The Interface Group (617) 449-6600.

WINDOWS WORLD CANADA July 13-15, '93, Toronto, ON. Contact: Interface Group: (617) 449-6600.

SEPTEMBER

THE ATLANTIC CANADA COMPUTER SHOW September 15-16, 1993, at the Halifax Metro Centre, World Trade & Convention Centre. 10th show. Business, government and other organizations can find out how computer technology can help them become more productive and profitable. A showcase of the latest products and services. Contact: Fred West, Show Manager (416) 252-7791.

MACWORLD EXPO September 20-22, 1993, at the Metro Toronto Convention Centre. The newest innovations of interest to all MAC users, even bigger than the '92 show! Contact Brukar International (416) 620-1078.

NETCON '93 September 29-30, 1993, at the Automotive Building Exhibition Place, Toronto. The only show in Canada dedicated exclusively to networking and connectivity! Sponsored by Plesman Publications Ltd. Contact: Chuck Armitage, Show Manager (416) 497-9562.

OTTAWA BUSINESS & GOVERNMENT COMPUTER SHOW September 29 and 30, 1993, at Lansdowne Park., 1015 Bank Street, Ottawa. Information technology exposition in the National Capital Region, featuring a Pen-Based Computer Showcase,

National Master Standing area and a Software Centre. Contact: Industrial Trade & Consumer Shows Inc. (613) 232-0766.

NOVEMBER

CANADIAN COMPUTER SHOW & CONFERENCE November 22-25, 1993 at the Toronto International Centre, 6900 Airport Rd., Mississauga. The 24th Annual Canadian Computer Show & Conference, The Fall Computing Classic. Canada's premiere computer event, featuring all aspects of the desktop and portable technologies, including: the newest in personal computers, notebooks, palmtops, software, networking, open systems, communications, OS/2, windows, pen-based and wireless technology, multimedia, and more. Contact: Deborah Dugan, G.D.E., Show Manager (416) 252-7791 or fax (416) 252-9848.

SEMINARS

DESKTOP PUBLISHING IN COLOUR May 14, 1993, Embassy Suites, Markham, ON. To register call Michael Kieran at Desktop Publishing Associates (416) 480-1376.

HOW TO MANAGE PRIORITIES & MEET DEADLINES A Fred Pryor one-daySeminar. Hamilton-July 20, Kitchener-July 27, London-July 28, Mississauga-July 21, Ottawa-July 8, Toronto-July 22. Call (800) 255-6139.

INTERNATIONAL SEMINARS

NEW ARCHITECTURES FOR ENTERPRISE COMPUTING. A 3-day seminar presented by Microsoft University. Boston-June 7-9, San Francisco-Aug 31-Sept 2, Washington, DC-Oct 18-20, 1993. To Register call: (310) 394-8305.

MANAGING THE MIGRATION TO CLIENT-SERVER ARCHITECTURES. A 3-day seminar presented by Microsoft University. Dallas-June 14-16, Seattle-July 19-21, Washington, DC-Sept 13-15, Minneapolis-Oct 12-14. To Register call: (310) 394-8305.

ANALYSIS AND DESIGN OF CLIENT-SERVER SYSTEMS. A 3-day seminar presented by Microsoft University. Chicago, June 21-23, Boston, July 12-14, San Diego, Aug 16-18, Dallas, Sept 20-22, Washington, DC, Oct 4-6, Toronto, June 8-10, 1993. To Register call: (310) 394-8305.

INTERNATIONAL

COREL DRAW-The Next Generation, International User Conference. May 16-19, 1993. Grand Hyatt Washington, Washington, DC. To Register call (617) 235-5560.

ICA COMNET DALLAS '93 May 16-20 at the Dallas Convention Center. The five-day conference will open two days earlier. Both conference and exposition will concentrate on strategic issues involved in enterprise networking for management. The full range of communications solutions—from office LANs to intercontinental voice/data networks—will be demonstrated among the exhibits and discussed in the extensive conference. Contact: IDG World Expo Corp., 111 Speen St., P.O. Box 9107, Framingham, Mass. 01701. (800) 545-EXPO.

VIRTUAL REALITY '93 MAY 19-21 1993. San Jose, CA. Focusing on VR in design, entertainment, military, medicine, networking and training. For more info contact: Meckler Conference Management (203) 226-6947.

COMDEX-Spring May 24-27, 1993, Atlanta, GA. Contact: The Interface Group: (617) 449-6600.

WINDOWS WORLD May 24-27, 1993, Atlanta, GA. Contact: The Interface Group: (617) 449-6600.

NEXTWORLD EXPO '93 May 25-27 Moscone Center, San Francisco, CA. NEXTWORLD Expo combines three events in one: A worldwide Developer's Conference; an end-user product show, with

over 100 exhibitors. A User Conference program with topics ranging from object-oriented, client/server systems to enterprise-wide deployment. With the theme NEXTSTEP 486-The alternative to the Microsoft Monopoly. Call (800) 767-2336.

THE BUSINESS & TECHNICAL ASPECTS OF OBJECT TECHNOLOGY June 14-17, 1993 at the Moscone Center in San Francisco, California. Object World San Francisco will offer professionals in the IT industry the chance to explore the potential of object technology and to learn how to implement OT today.

SILICON GRAPHICS EXPO. May 25-27, 1993. Show management: Silicon Graphics Expo. (512) 331-7761.

MACSHOW The Computer Solutions Expo. Orlando, May 25-27, Orlando Centroplex. Chicago, July 8-10, Merchandise Mart. Philadelphia, August 19-21, Civic Center. St.Louis, Sept. 9-11, Cervantes Convention Center, Dallas, Nov. 4-6, Infomart. Miami, Dec. 2-4, Radisson Airport Convention Center. Call 1-800-MACSHOW or Fax: (215) 957-9798.

CONSUMER ELECTRONICS SHOW INT'L SUMMER. June 5-9, 1993, Chicago, IL. Show management: Electronic Industries Association. (202) 457-8700.

PAGEMAKER CONFERENCE & EXHIBITION June 7-9, 1993, Seattle, WA. Show management: Pagemaker Conference. (206) 633-3431.

DIGITAL WORLD Conference & DemoCenter. June 23-26, 1993, Beverly Hills, CA. For more info call (800) 433-5200.

DATABASE WORLD CONFERENCE & EXPO. June 29-July 1, 1993, Boston, MA. Show management: Digital Consulting. 508-470-3880.

MACTIVITY. June 29-July 1, 1993, San Jose, CA. Show management: Winehouse Computer Co. 408-354-2800.

PC EXPO. June 29-July 1, 1993, New York, NY. Show management: Nat'l Blenheim Expos Inc. (800) 829-3976.

FUZZY LOGIC '93. July 20-22, 1993, San Francisco, CA. Show management: Pennwell Publishing Company. (508) 392-2124.

SIGGRAPH (ACM). August 3-5, 1993, Anaheim, CA. Contact: ACM/SIGCG: (708) 850-7843.

MACWORLD EXPO-East. August 3-6, 1993, Boston, MA. Contact: Mitch Hall Associates: (617) 361-8000.

SUN OPEN SYSTEMS EXPO-West. August 10-12, 1993, Anaheim, CA. Contact: Publications Comm. Inc. 800-289-3976. Fax: (512) 250-9756.


SCO FORUM '93 University of California, Santa Cruz, August 14-19, 1993. Offering a broad range of courses on the key business, engineering and enterprise-computing topics affecting the international information systems industry. Also keynote addresses and panel discussions and a hands-on product exhibition, featuring the latest open systems offerings from the world's leading OEMs and ISVs. To register call: (800) 553-9939 or (415) 966-8440.

INTEROP-Fall. August 23-27, 1993, San Francisco, CA. Contact: Ziff Davis: (415) 941-3399.

HOME OFFICE TECHNOLOGY HOT CONFERENCE & EXPOSITION. August 24 & 25 1993. San Jose Convention Facility, San Jose, CA. For more info Contact: Future Expositions (408) 369-7744.

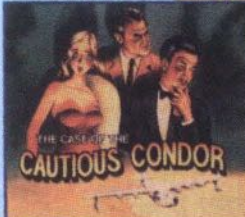
WINDOWS & OS/2-East. August 24-26, 1993, Boston, MA. Contact: Miller Freeman Expos-West: (415) 905-2200.

WINDOWS CONFERENCE & EXPOSITION September 22-24, 1993 at the San Jose, CA Convention Center. Presented by Seybold Seminars. Contact: Beth Sadler or Robbie Lapidis, Seybold Seminars (310) 457-8500.




Canada's Fastest Growing CD-ROM Publisher, Introduces 6 New CD-ROM Titles

The highly successful 1930's Multimedia Adventure Series:



Case of the Cautious Condor
SRLP \$39.95
Dealer \$24.99



Murder Makes Strange Deadfellows
SRLP \$39.95
Dealer \$24.99

The very best of the best in personally selected and tested shareware:

Best VGA/EGA Shareware Games: Over 150 of the finest strategy, board, card, educational, arcade and simulation shareware games from around the world. Menu driven and most run directly from the CD-ROM. SRLP \$24.95 Dealer \$12.99

DOS Masterblend: A mixture of over 180 finance, business, CAD, graphics, education, games and desktop publishing shareware applications. Menu driven and many run directly from the CD-ROM. SRLP \$24.95 Dealer \$12.99

Windows Masterblend: A mixture of over 150 different business, finance, communications, utilities, games, desktop publishing, graphics and sound shareware programs. SRLP \$24.95 Dealer \$12.99

Temptra Access: Permits multi-session CD-ROM drives access to Kodak PhotoCD™ images and to import them into other PC applications. SRLP \$39.95 Dealer \$24.99

Minimum order of 25 pieces, any mix. Fax orders to (416) 738-1961

Dealers: Make your own CD-ROM's. Ask us for Details.

Aztech New Media Corp. Concord, Ontario, Canada V. (416) 738-5638 F. (416) 738-1961



Interactive voicemail

Imagine the complete integration of

Interactive voice
Fax
Data

One card, one application for all of the following

- Multiple mailboxes
- Auto-voice forwarding
- Auto-dial pagers
- Fax on demand
- Audio bulletin board
- File transfers as easy as faxing

Network fax machine

Send faxes from any workstation on a LAN
Receive faxes on paper or workstation

For a demonstration call Quadralink 538-0101

Call our 24hr demo line and try it for yourself 538-8326

NEXT ISSUE...

Mass Storage Options Hard Drives • Databases

AD DEADLINE: **Wed. June 2**

DISTRIBUTION DATE: **Fri. June 18**

Call (416) 588-1580
for advertising information

AmigaTalk

ADVERTISING FEATURE

Sponsored by *Amsoft Computer Systems*

MULTIMEDIA...MULTIMEDIA...MULTIMEDIA

Multimedia has certainly become the buzzword in computing circles over the past few years. This can be perplexing to Amiga owners as the Amiga has been a Multimedia platform since its introduction in 1985 and they are sometimes left wondering what all the hoopla is about.

While definitions of Multimedia abound, in computing terms it really boils down to the ability to use sound, graphics, animation and video simultaneously, and preferably in an interactive situation. Given this definition, the Amiga's native architecture continues to make it the only true Multimedia computer on the market.

Program execution is not left to a single CPU; rather it is shared by the Amiga's custom chipset of coprocessors, each designed to handle specific tasks such as sound, graphics, animation and video display. As a result, a complex Multimedia presentation can be executed effortlessly.

To take advantage of the Amiga's hardware capabilities, there are numerous software packages with powerful, yet easy to master authoring interfaces for producing Multimedia applications. Commodore's own AmigaVision and AmigaVision Professional, Scala, CanDo and Helm are the most powerful. Hyperbook by Gold Disk is also a very useful program although it is more limited in its capabilities.

Amiga Multimedia applications can be found everywhere: information kiosks throughout North America and Europe; interactive learning and tutorial applications in schools, business and industry; in world-famous exhibit buildings; and as product or service demonstrations and sales tools. Indeed, there has been considerable conjecture that one of the deciding factors, which caused the International Olympic Committee to award the next summer Olympics to Atlanta instead of Toronto, was an impressive Amiga driven Multimedia presentation by Atlanta.

Amiga's seamless multitasking abilities not only assist during production of Multimedia presentations, but also enable interactive links to other programs such as databases which gather and process user responses. Here at Amsoft, we specialize in Multimedia and would be only too pleased to demonstrate true Multimedia, Amiga style. Multimedia is NOT a CD-ROM player hooked up to a sound card!



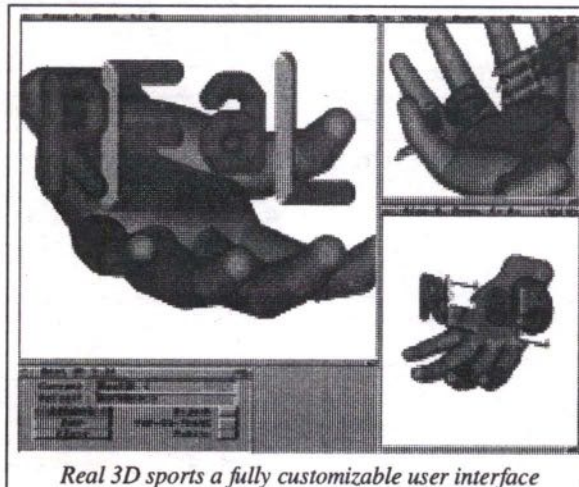
The Amiga's indisputable lead in desktop video is about to take another quantum leap.

TOASTER NEWS

It's official! NewTek is about to release Version 3 of the Video Toaster Software as well as an AGA version for the Amiga 4000. Owners of non-AGA Video Toasters will be able to upgrade to the AGA version. The Amiga's indisputable lead in desktop video is about to take another quantum leap.

With the exception of ToasterPaint, every module has been drastically upgraded and

improved in the new Toaster revisions. The switcher now sports 288 effects! On AGA machines, like the Amiga 4000, these wipes are in full colour (Kiki effects will never be the same!). Revision 3 Toaster software for all Toaster boards has added support for audio with effects. Now you actually hear the glass shatter when you use that effect and if you don't like the effects that NewTek provides you can create your own. The CG (character generator) has been completely rewritten and now supports Postscript and Compugraphic fonts. These fonts can be scaled on the screen and moved around with the mouse. The new CG can directly import graphics and create semi-transparent boxes. For users who never seem to have enough fonts, NewTek provides over 250 Postscript fonts!



Real 3D sports a fully customizable user interface

Perhaps the most impressive revisions of the new Toaster software are to Lightwave and the Lightwave Modeler. Rendering speed of the new Lightwave is nothing short of phenomenal. It now renders almost five times faster, and it was no sloth before! On AGA machines, Lightwave now allows you to play back your animations at 30 frames per second in more than 256000 colours directly from the switcher - no more single frame recording.

OPALVISION

As of this writing, Centaur Development advises that the OpalVision Video Processor and the OpalVision Video Suite are due for release within ninety days and the Scan-Rate Converter should be released by late summer. While there has been some grumbling in the Amiga community about Centaur's "delay" in releasing the add-on boards, one should remember how many years New-Tek's Video Toaster was considered to be "vapourware".

OpalVision's superbly engineered 24-bit graphics board, introduced last summer by Centaur, is generally acknowledged to have the best paint program and smooth, double-buffered 24-bit animation available for the Amiga. Add the soon to be released Video Processor and the Video Suite and you have a serious alternative to the Video Toaster.

REAL 3D

Real 3D is a three-dimensional modeling and animation program for Amiga computers. The latest version is 2.0 and 3-D artists have been eagerly awaiting this program for a long time. Features like a fully customizable user interface, ease of use and a very long list of animation and modeling tools set this program apart from other animation packages available for personal computers. Included with Real 3D 2.0 is a programming language which, when used with features like particle animation (for creating real-world effects like explosions, rain or worm holes), gives the user a level of power limited previously only to high-end workstations.

Installation of Real 3D on the hard drive is simple enough. The program comes compressed on four non-protected floppy diskettes and takes a few minutes to install. A supplied 'dongle' has to be plugged into the joystick port of the computer before the program can be used. The manual is very comprehensive with a lot of tutorials.

Real 3D sports a fully customizable user interface. You can also have any number of windows for viewing the objects using parallel or perspective projections. Real 3D fully multitasks within itself which means that while one or more windows are updating the view, the program doesn't come to a halt. You can be rendering a ray-traced animation in one window while working in another.

Real 3D uses ray-tracing to render pictures. Ray-tracing in Real 3D is very fast! So fast, in fact, that ray-tracing can be used as a primary rendering method for updating the display, instead of the usual wire frame mode.

We can't describe every feature of Real 3D here because it would require a whole edition of AmigaTalk just to list these features, much less to describe them. However, here is a sampling: speed, depth-of-field, motion-blur, solid modeling, b-spline surfaces, free-form construction, fractal landscape and tree generator, particle animation, field rendering and the Real 3D programming language. Please drop by our store for a full demonstration.

Commodore®
AMIGA®

Amsoft Computer Systems

371 Old Kingston Road • Scarborough, Ontario M1C 1B7 • (416) 282-7987

Authorized Commodore Dealer Since 1984

USER GROUPS

ANIMATORS' 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 Francais, which includes a French tutorial. More info? 1-800-638-9636.

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: 491-1670 Tel: 491-2886.

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.

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.

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 Campus of George Brown College - 160 Kendall Ave. For more information contact Club Cubase at 62 Hamworth Drive, Willowdale, ON, M2H 3C2 or call 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, info line 462-1702.

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 memberships available. Location: 121 King St. W., 24th Floor, Toronto, Ontario. For more information please call Veronica of Vision Computer at (416) 323-0406.

CYBERPUNK RESEARCH LABORATORIES — Merry hackers in search of picturesque, mountains, RAM and fairytales. For further data write c/o CyberPunk Research Labs. - Seneca College of Communication Arts, 1124 Finch Ave. West, North York ON M3J 3J3.

ELECTRONIC GAMES PLAYERS' ASSOCIATION (EGPA) — EGPA announces the start of their Canada-wide search for computer and video game players interested in swapping their used games. As a member of the EGPA, individuals will be able to exchange game software. Members will also be able

to buy used games without a trade. Membership available for the first year with an annual renewal. If you are interested in joining or would like more information. Please send \$1 to cover postage and handling to: EGPA, 292 Patricia St., North Bay, Ont., P1B 7Z3. The one dollar is applied to your membership fee.

FOXPRO TORONTO USERS GROUP — Wednesday April 28 '93. Meeting Room #2, North York Public Library, 5150 Yonge St., North York. Meeting starts at 7:30pm. to 9:30pm.

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

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 1975-76 Canadian pennies in order to reassert interest by signing a petition to reinstate the 1975-76 CTV Show "Kidstuff". Computer Kidstuff 1995?? 2005?? Ask for Jeffrey Leitner (415) 461-1343.

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.

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 7:30 pm. Messages (416) 323-0828 BBS (416) 487-9771.

METRO TORONTO ADAM GROUP (MTAG) — Supporting ADAM, CP/M-TDOS Users contact: (416) 424-1352 or write to: P.O. Box 165, 260 Adelaide St. E., Toronto, ON, M5A 1N0. Meetings 2nd Monday of each month, 1485 Albion Rd (Community Centre) and 4th Sat. each month at the Pape Ave. Community Center. Bi Monthly newsletter.

NEXT USERS GROUP — Nextcomputer support, 2nd Thursday, Toronto Western Hospital, corner of Bathurst & Dundas, yellow elevator to 6th floor, 7:00 pm, Daniel O'Connell (416) 365-1899.

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, 7:00 pm, membership includes shareware, BBS, special interest groups (SIG's) & workshops, information (416) 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 250 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 (416) 595-7690, or George Klima at (416) 448-3623.

TAF (TORONTO ATARI FEDERATION) — Atari users, 3rd Thursday, North York City Centre Library, 5110 Yonge St., (at Park Home) 7:00 pm, public domain library, regular demonstrations & guest speakers, info-

line 425-5357, BBS 235-0318. Non-member admission \$2, membership \$30 (incl. newsletters).

THE CANADIAN AUTODESK MULTIMEDIA USER GROUP — Interested Users of Autodesk Multimedia products are invited to call Pia Zimperi at (416) 929-8155.

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.

THE TORONTO COLOUR COMPUTER GROUP — meets on the 2nd and 4th Mondays of each month. For more information, call Larry Osborne at (416) 972-1809.

TIMEX-SINCLAIR USERS CLUB — All Timex and Sinclair Computers. 1st Wednesday of the month, 14 Richome Court, Scarborough, ON, M1K 2Y1, 7:00 pm. Demonstrations, bi-monthly newsletter. Voice Info. (416) 751-7559.

TORCHI (Toronto Region Computer Human Interaction) — Meets every second Wednesday of the month from 7:00 pm-10:00 pm. Members come from business, academic, and government to share interests in human use of computers, reflected in human factors, usability, Ergonomics, the user interface and many other related disciplines. For more information re speakers, topics and membership. We are the local chapter of Sigchi a part of ACM. Call M. Boshes (416) 448-2697.

TORONTO APL SIG — An educational and social organization concerned with the use and promotion of APL computer language. 4th Monday of each month at 6:30 pm (excluding the Summer) at BCE Place, 161 Bay Street, 10th Floor. Or write: Toronto APL SIG, Box 384, Adelaide Street P.O., Toronto, Ont., M5C 2J5. Contact Ben Best (416) 862-3193.

TORONTO PARADOX GROUP — meets 2nd Thursday of every month at 5:00 pm Free BBS 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 496-0061.

TORONTO USERS GROUP — User members support of As/400/38 imaging. Meetings held at the Airport Marriott Hotel every two months. Next meeting May 19/93. Please contact Wende Boddy at suite 2550, P.O. Box 77, Toronto Dominion Centre, Tor., ONT, M5K 1E7 for more information, or call (416) 607-2546.

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, 64), York Public Library, main branch, 1745 Eglinton Ave. W. (near Dufferin), 7:30 pm; 3rd Thursday Alderwood United Church, 44 Delma Drive, Etobicoke, 7:30 pm, software library, newsletter & BBS, information (416) 253-9637.

TRACE — Toronto Regional AutoCAD Exchange: Presentations on the last Tuesday of every second month. Held at the Malton Community Centre, 3540 Morningstar Drive. For details call Tim Lucas at (416) 750-9765.

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

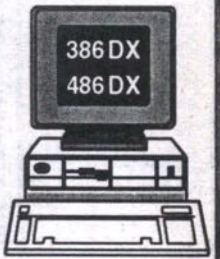


Computer Studies

DFP SYSTEMS 691A St. Clair Avenue West

- ☐ Quick Basic, C, C++
- ☐ AutoCAD 2D, 3D, Solids, Maximizing
- ☐ WordPerfect 5.1
- ☐ Lotus 1-2-3 2.2 (2.3)
- ☐ dBase
- ☐ ACCPAC +
- ☐ DOS 5.0
- ☐ Windows 3.1

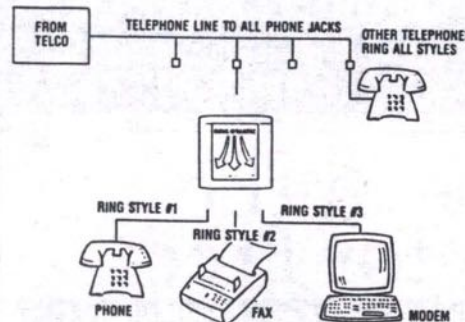
- Long Term Programs Range From 16 to 20 Weeks
- Short Term Courses
- Flexible Class Hours
- Programs Customized to Meet Individual or Company Needs



Intro to Computers, Keyboarding, and Other Courses
Hardware and Accessories Available for Sale and Leasing.
Financial Assistance Available to Those Who Qualify

Call Now: 652-0524

RING READER



Ring Reader is designed to electronically listen for and recognize the ring pattern of an incoming call and direct the call to the corresponding device, such as a telephone, a fax machine, a or computer modem.

An effective telephone line sharing device that works with telephone company's distinctive ring service such as Bell's Ident-a-call service.

Each device will have its own unique telephone number.

Save as much as \$250 per year on a residential line and as much as \$1200 per year on a business line. CSA, UL, FCC, DOC approved.

2 Port Version - \$99

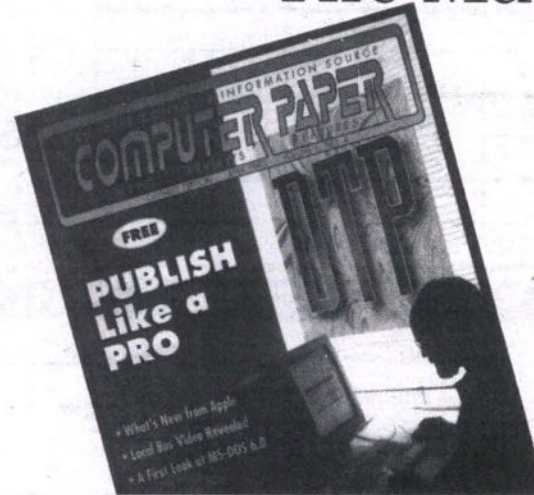
3 Port Version - \$119

+ Applicable taxes and shipping charges. C.O.D. Shipping only!!

CALL OUR COMPUTERIZED PRODUCT INFORMATION HOT-LINE
24 HRS FOR MORE INFO AND TO ORDER (416) 658-5127

OR MAIL-IN CHEQUE OR MONEY ORDER TO
GLOBAL TECHNOLOGIES, PO BOX 31577, BLACK CREEK POSTAL OUTLET
TORONTO, ONTARIO, M6M 5G4

Order Mind-Expanding Material Through The Mail



The Computer Paper keeps you up to date with the latest news in the computer industry and gives you a local perspective.

Only \$24.95 a year.
(GST Included)

Receive 12 Issues for only \$24.95 (USA-\$60, Overseas-\$99)

Send your cheque/money order to:

The Computer Paper 408-99 Atlantic Ave., Toronto, ON M6K 3J8
or fax us your order (VISA/MC) (416) 588-8574.

Name: _____

Address: _____

City, Prov.: _____

Postal Code: _____

Telephone: _____

Which Edition would you like?

☐ Ontario ☐ Manitoba ☐ Alberta ☐ B.C.

Payment (\$24.95)

☐ Payment Enclosed (cheque/M.O.)

☐ VISA/Mastercard

Card #: _____

Expiry Date: _____

Name on Card: _____

Signature: _____

TELL
ADVERTISERS
YOU SAW
THEIR AD IN



Are You A Slave To Your Computer?



White T-Shirt: printed on the back in Shocking Green and Black, with Flatlanders Logo/Front Crest, M,L,XL: \$18, XXL: \$19, please add \$3.50 for S&H, & 7% GST, Manitoba Residents Add 7% PST

As seen on the cover of The Computer Paper June '93

FLATLANDERS INK

We Want To Get On Your Back!

Send Cheque or Money Order to:

FLATLANDERS INK

#651 - 740 Corydon Avenue, Winnipeg, Manitoba R3M 0Y1
Telephone: (204) 783-6937

MEMORY RAM: 8 pieces of 1MB SIMM-

70ns. Asking \$33/each. Call 968-7194.

NEC READY: 433 i486DX 4 MEG 170HD Multisync, 3 FGX SVGA monitor, 101 keyboard mouse \$2,200. Call 743-7108.

NINTENDO: + 9 games call (416) 853-6370.

NOVELL: Computer based self-study kits: 3.11 System manager, 3.11 advanced system manager and networking technologies. Priced to sell. Call Darren at (519) 942-3064.

PRINTER CARTRIDGE: Pacific Data 25-in-1 for most PH Laser Jet printers. Excellent fonts and symbol sets. Software drives for common applications. Over \$330 new. Asking \$150 call (613) 389-5712.

PRINTER IBM: 24 Pin wide carriage, 2391 Personal Printer Series II \$400. Call 743-7108.

PRINTERS: Epson FX-1050 \$149 and Citizen GSX-140 \$129. Call Mark evngs. 587-0070.

SELLING: 286AT IBM compatible with both disk drives 130MB HD, over \$500 worth of software, colour VGA monitor, 101 keyboard with free mouse. Call 492-9420.

SOUND BLASTER: With CMS chips. Works great, still have boxes & manuals \$100. Call Byron at 299-6773.

STAR LASER 4 PRINTER: \$1,000; Trident 1Meg card, MidiKit \$75, ViewSonic 5 monitor SVGA NI .25dp Multisync \$575. Call 534-1288.

TANDY 4000-386: 40 MB HD, 1.44 & 1.2 MB FDD, no CPU and memory on board. As is \$150. Call 946-8398.

TANDY COCO: Computers, Mem upgrades, RGB monitors, disk drives, software, rainbow magazines, etc., separate or as package. Call (416) 885-8784.

TTI VOICE SOLUTION: 2-line system, never used \$1,000. Call 844-2675.

TWO MORROW MD2: (Twin floppy) CP/M computers with software (WP, Spreadsheet, Database, DOS conversion, etc.) \$90 ea. Okidata ML82A Matrix printer (parallel/serial) \$50. Call 942-4480.

VMI COBRA ELITE SPECTRUM: 1024x768 w/RenderReady. AutomatePro Acad driver, Windows accelerator \$600 O.B.O. Call 819-8034.

WYSE 286 COMPUTER: IM RAM, 21 Meg HD 1-2M floppy, 1P, 1S mono monitor. Asking \$425 607-5847.

XT TURBO: \$275 comes with 5 1/4" drive, 21MB HD, monitor and keyboard. Call 526-4808.

ZENITH: SuperSport 286e, 40mg HD \$750. Call evngs. 231-2440.

ZYXEL FAST V32.BIS FAX/MODEM: With voice, 19.2K, identa-ring, caller ID. v42.bis (416) 534-1312 OCOMP Dealers wanted.

SERVICES

BASIC 4 COMPUTER: Monitor Printer Tapebackup Manuals Price \$1.00 Call 276-6210.

CHARTERED ACCOUNTANT: Business startup info, taxation, free consult S. Goel 889-6428.

COMPLETE POINT OF SALE: Accounting from \$99. Custom design & installation 823-9025.

COMPUTER MONEYMAKING OPPORTUNITIES BOOKLET: Send \$6.95 Cheque or Money Order to L.D. Theriault, Box 5393, Merivale Depot, Nepean, ON, K2C 3J1.

COMPUTER TUTORING: in your home! Call Tim to help you do DOS, Lotus & more 750-9765.

COMPUTER/DTP LESSONS: Perfect for the university student/private individual. An introductory lesson(s) to the Mac or DTP, etc. Reasonable. Call Barry 889-5311.

DOCUMENTATION: Do you need help writing user manuals, online help? Technical writer will do your documentation for you. Wordworkers (519) 396-9377.

FUNDS AVAILABLE: For all types of equipment leasing, reasonable rates, prompt service. Call Corinne at Light Financial 820-8887.

LASER PRINTING: Self-Serve, PC & Mac. OCR, Scanner available. Software rental too! MacroMind, 203 College St. #302 (S.E. Corner of St. George & College) (416) 348-0985.

MICROSOFT ACCESS DATABASE: Development & training for \$600/day. MCS Ltd. 491-8512.

NETWORK COMMUNICATIONS: Computer,

Stereo, Karoke repairs. Low rate n/c est. 792-2921.

SUNDANCE PERSONNEL: A personnel agency for ten years is NOW offering training courses on computers, and the latest software packages. Call Mark at 924-3333. We Know What Employers Want!

TRAINING FOR MACINTOSH PROGRAMS: With computer mastery step by step courses. Effective & economical. For info (705) 324-9326, Fax (705) 328-3876.

WORDPROCESSOR: Will do your reports, letters and any other documents on WordPerfect 5.1 or Lotus 1.2.3. Call Denise 321-1297.

SOFTWARE

ADULT XXX SOFTWARE FOR IBM: Must be over 19. Send \$2 for sample disk and catalog. The Byte Factory, Dept F26, P.O. Box 22115, Toronto, Ont. M4H 1N9.

ALMOST NEW SOFTWARE: With manuals, Lotus 1.2.3/w, Quick C, Publish It, games Postscript Emulation, Object Vision etc. Call Mike 298-9007.

BORLAND SIDEKICK: 2.0 PC organizer software brand new official copy; won in contest, value \$80 asking \$40. Call 281-8105.

BRAND NEW: Macintosh software; never opened; Macdraw II, Filemaker II \$35/each or \$60 for both. Call Karl evngs. 748-6319.

CENTRAL POINT: Anti-virus for DOS \$20, Stacker 2.0 \$20, Quicklink 2 fax software \$20 (all come with manuals). Call 621-3290.

DBASE IV: Rel 1.5 unopened \$200 O.B.O., Sidekick 2.0 \$25 O.B.O., both 3.5 inch. Call after 6 pm. 431-3570.

IBM SOFTWARE GAMES: Priced to sell, some hardly used. All original. Ask for Colin at 795-3779 or 235-1374.

MACINTOSH SOFTWARE: Lotus 123 1.1 \$200; WordPerfect 2.1 \$175; Access PC/Soft PC \$150. All still in shrink wrap. Call 694-6672.

MATHCAD: For Windows 3.1 brand new. 1/2 price \$250. Call 495-6916.

MICROSOFT: Excel 4.0A, publisher, access all complete, sealed, latest versions all for \$325. Call Bill 242-8721.

QAPLUS: Diagnostic Software Programs ver. 3.2 to check CPU systems and peripheral devices new \$50. Call anytime (416) 461-2953.

SHAREWARE: Games/Graphics/Programming. Write for our FREE DISK CATALOG. BLUEVIEW SOFTWARE, 2300 Lawrence Ave. East Box #80551 Scarborough, Ontario M1P 2R0.

SOFTWARE RENTAL: 400 + original titles - Mac & IBMPC. Laser Printing too! MacroMind Services, 203 College St. #302 (S.E. Corner of St. George & College) 416-348-0985.

UNIX SYSTEM V RELEASE 4: For sale, all new packages. Many available configurations including development kits, multi-user, etc. call Mike at (416) 233-6038.

USED SOFTWARE: With manuals, Lotus 123/w Quick C, Publish It, Postscript, and Emulation. Call Mike evngs 298-9007.

WORDPERFECT: 5.0, DOS 3.2, typing Tutor!!! Times of Lore, Newsroom. Original packages \$75. Call Sash 266-4212.

WANTED

286AT SYSTEM: 40MHD HD/FD VGA 2MRAM or more consider others. Call Wally 822-9416.

AT SYSTEM: W/40 Meg HD, will pay up to \$350. May consider other systems and configurations. Call Christian 439-5906.

ELECTRONICS: Graduate Correspondence Course seeks work experience work free Saturdays. Call Roy 698-9343.

ENGINEER/PROGRAMMER: To start electronics Co. (Compt or Stereo) Call Brian 635-8075.

SHARP: Handheld computer/organizer with cassette tape interface and recorder model #1261,1262,1350, 1360. Call Stan 7-10 p.m. 259-5282/622-7854.

WANTED: Manual for HP C80-IB Centronics printer. Call 745-9189.

WINDOWS SOFTWARE: WinWord v2; Excel v4; MS Project Mgr; Power Point \$80 ea. Quatro Pro v4 \$50, Trackball mouse (unopened) \$100. Call evngs. 321-2440.



Macintosh
MIDI • AUDIO • GRAPHICS

CANADA'S MAC
MULTIMEDIA EXPERTS!



\$2499!
Mac IIx 4/80
includes 14" Colour Monitor!

Take advantage of our best Mac prices ever!

Classic II 4/40 w/KB	\$1150
LC II 4/40 w/Basic Mon./KB	\$1475
IIx 5/80/CD w/Basic Mon.	\$2375
IIx 5/80/CD w/Basic Mon.	\$2850
C650 4/80 w/14" Monitor	\$3999

Macintosh, Apple and the Apple logo are registered trademarks of Apple Computer Inc.



JD-800 Keyboard \$1999
SC-7 GM Module \$499
JV-880 Module \$999
SPD-11 Perc. Pad \$799

ROLL YOUR OWN MAC CD-ROM!
Put up to 640MB of your Mac data on a CD-ROM! **\$299!**
Visit us @ MULTIMEDIA '93: May 27th - 29th

SAVED BY TECHNOLOGY
928-6434 10 Broadalbane St.
Toronto • ON • M4Y 1C3

Beat the Lottery

Join The 38 Lotto Jackpot Winners Who Have Won \$78.8 Million With Gail Howard's Systems

LOTTO HOW TO WHEEL A FORTUNE This 397 page book contains the world's most successful lottery systems including ALL the systems used by Gail Howard's biggest Lotto jackpot winners. Easy to use as A-B-C.
US \$19.50 + US \$5.00 for shipping.

GAIL HOWARD'S SMART LUCK® SOFTWARE FOR YOUR IBM/COMP. COMPUTER

"Gail Howard's program is the market's most comprehensive and incisive... easy to install... technical support is excellent... Advantage Plus meets its claims. For the serious lottery enthusiast, it's the one to buy!" *Coast Compute magazine.*

ADVANTAGE PLUS™ Use Advantage Plus™ and you'll trash all your other lottery software. It's the most complete, fastest and easiest to use - in a class by itself. Nothing else can begin to compare!

- Over 50 scientific charts and reports for picking winners • Automatic Smart Picks™ • Test past performance of Smart Picks™ with one key stroke • The ONLY lottery software with documented jackpot winners • Includes ALL data for ALL Canadian Lotto games FREE • A \$295.00 value. **Special offer - limited time only US \$79.95 + US \$5.00 S/H**

SMART LUCK® COMPUTER WHEEL™ Easy to use scientific systems that reduce the odds. Has 252 Lotto systems, each with a specific win guarantee. Guaranteed flawless. Find one system that fails its win guarantee and you get DOUBLE your money back!

- These systems cost as little as two dollars to play, or you can wheel up to 40 of the 49 numbers in your game • Shows the minimum and maximum number of multiple prizes that can be won with each system • TIMES IN THE WHEEL handicapping feature tells you how many times each number position is in the wheel so you can place your strongest numbers where they appear most often
- Optimizing feature makes best possible sums of your chosen numbers • Saves up to 500 wheels for win checking

• US \$39.50 + US \$3.00 S/H

BUY BOTH COMPUTER WHEEL™ AND ADVANTAGE PLUS™ FOR ONLY US \$99.95 + US \$5.00 S/H

We ship IBM/Comp. 5.25". Add US \$1 for Each 3.5" disk (one per program)

Name _____

Address _____

City _____ Province _____

Phone () _____ Zip _____

☐ Visa ☐ MC Exp.Date _____

No Canadian dollar checks, please. Our U.S. banks slaughter us with the exchange and fees. U.S. dollar MO's welcome.



CALL 1-800-945-4245
SMART LUCK SOFTWARE
Dept P-7 PO Box 1519
White Plains, N.Y. 10602
For Info call **914-761-2333**

Gail Howard is the undisputed authority on lottery strategies used in the world today. Her remarkable success in helping people win big money in Lotto has led to appearances on hundreds of radio and TV shows, including The Today Show and Good Morning America.



"Last November 8th, I hit the jackpot to the tune of \$1,096 million dollars. I hit one 6 number prize, two 5-number prizes and three 4-number prizes from your system 503. What joy and excitement! I'm working on my second jackpot because with your system it's very seldom that I don't collect some prizes."

Marie Cloarec, Canada Lotto 6/49

"After reading Gail Howard's book, I have won 19 prizes to date. In my first week of play, I won seven prizes. In the 2nd, 3rd, and 4th weeks, I won one prize each draw, in my 6th week of play, I won the first prize jackpot of \$516,234.80 plus eight other prizes."

Max Harrell, Canada 6.39 Lottario

"Wheeling systems like (Gail) Howard's have the most respectability among critics, since they concede that the wheels offer a systematic way of reducing the odds."

New York Daily News

"Gail Howard is the nation's leading lottery 'handicapper.'" *Washington Times*

"Gail Howard's revolutionary system can help you take dead aim on a million-dollar lottery jackpot." *The Globe*

Gail Howard is "the nation's best known lottery-system creator." *Chicago Tribune*

"Lottery guru Gail Howard ... can help people beat the odds." *Family Circle*

DKComputed

" Business based on long-term relationships "

29 Old Oak Lane
Orangeville, ON
L9W 4A4 Canada
Phone: (519) 942-3064
Fax: (519) 942-3498

- HEWLETT PACKARD -
Authorized Re-Seller

INKJETS:

DeskJet 500 \$ 475
DeskJet 500C \$ 619
DeskJet 550C \$ 925

SCANNERS:

ScanJet IIP \$ 968
ScanJet IIC \$ 1699

PLOTTERS:

\$ CALL

LASERS:

LaserJet IIP \$ 1095
LaserJet 4SI \$ 3995

NEW * LaserJet 4 * \$ 1795

* LaserJet 4M * \$ 2549

ACCESSORIES:

H/P Toner for IIP/IIP+/IIP \$ 85
H/P Toner for II/III/III/III \$ 102
H/P Toner for IV \$ 127



Call Darren 4 Competitive Quotation
(519) 942-3064

Prices
subject to
change.

* Corporate & Government P.O. welcome *

Cash
discounted
pricing

Electronic Arts, Children's TV Workshop launch kid venture

SAN MATEO, CALIFORNIA (NB) — Electronic Arts (EA), known for its computer games and the Children's Television Workshop (CTW), famous for the educational kids program Sesame Street, have formed a partnership to develop software titles for children. EA Kids, a division of Electronic Arts will publish the interactive electronic products that result from the relationship.

EA Kids started work last year, according to Senior Vice-President Stewart Bonn and is introducing its first three new titles April 15, 1993. EA Kids is focused on development of software for kids ages three to fourteen that can be used on computers, video game machines, compact disc read-only memory (CD-ROM) and the still-to-be-introduced 3DO Interactive Multiplayer. The titles developed in conjunction with CTW will feature the characters from Sesame Street, the company said.

The three new titles to be introduced this month are for the IBM and compatible

personal computer (PC) platform. They are Scooter's Magic Castle, Ping & Cooky's Coo Coo Zoo and Jake and Jennifer Eagle in the Eagle Eye Mysteries. Bonn told Newsbytes that EA Kids is trying to under-promise and over-deliver so consumers feel they get good value for their money. Each title offers a lot for children to do, and some portions can even be used as "lapware," meaning a child sits on his or her parent's lap and the two can play together. As expected, each title offers 256 colors, animation, sounds and music.

While no details as to the financial arrangements EA made with non-profit CTW have been released, Bonn told Newsbytes titles resulting from the relationship are expected in several months to a year.

Contact: Electronic Arts, tel 415-513-7379, fax 415-570-5137; Children's Television Workshop, 212-875-6434.

Fax Us Today For A Free Trade Show Pass



Working Smarter
With Technology

Business Trade and Technology Symposium 93

June 9th and 10th 1993

Bingeman's Convention & Recreation
Centre

1380 Victoria Street North (Hwy #7)
Kitchener, Ontario N2B-3E2

Who Should Attend: All Businesses
Who Want To Solve Today's Business and
Communication Problems with Technology.

Special Seminar Presentors

Include: IBM Canada -

Microsoft Canada -

Wordperfect - Lotus - VMX -

Northern Telecom (Multimedia Division)

"VISIT" (Visual Integrated Technology)

Fully Automated, Integrated & Ergonomic
Office Seminar Series

Photo copy and **Fax Back** this ad today for
your **Free Trade Show and Special
Discounted Seminar Pass.**

Please complete this form and Fax us Today:

First name: _____

Last _____ Title _____

Company: _____

Address: _____ Suite # _____

City: _____ Prov: _____ P.C. _____

Office # () - () - ()

Fax # () - () - ()

Fax Back 1-519-744-1985 Today

**Exhibitors -
New Products -
Seminars and
Technology**

Abacus Computers
BCB Technology
Basic Office Products
Bert Dietrich's Office
Butler Enterprises
Commercial On Hold
Doczi Advertising
Edcom Multimedia
Fax Cellular Centre
Herman Miller
IBM Canada
J & D Systems Inc.
Lexmark
Lumichrom
M & T Insta-Print
Maclean Hunter Paging
Micromedia Limited
Microsoft Canada
Mutual Group
Northern Telecom Can
Office Productivity
Precisley Systems
STN Smart Talk Network
Signart
Smart Filler Inc.
TeleMagic Technologies
The Computer Paper
The Plant Lady Inc.
Toshiba Canada
Waterloo Management
Waxworks Productions
WordPerfect Corporation
VMX Inc.

By Using
Technology
Effectively
The World
Is Just
Around
The
Corner



By Properly
Integrating
The Telephone



With
The Computer



Then
Adding Technology



Along With
The Proper
Planning



Include
Effective
Training



Plus
A Successful
System
Implementation



Will Insure
A Better
Profit



And That
Translates
Into

**Business
Success**



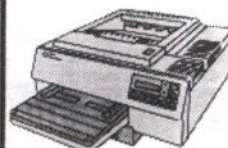
CANADIAN
MEMORY PRODUCTS LTD.
Suite 250, 10991 Shellbridge Way
Richmond, B.C. V6X 2W8



**We're ready for
your call today!**
1-604-279-9585
1-800-668-1880
Reseller Inquiries
Only, Please

Great Selection of Proprietary Memory!

- ☐ Large inventory of memory for Laptops, Laser Printers and PC's
- ☐ Lifetime Warranty on all items
- ☐ Taking orders from 7 A.M. Pacific Time
- ☐ Shipping until 6 P.M.



A Division of the Dominion Group

The industry leader in memory upgrades.

VOICE MAIL SYSTEMS

FAXMOUTH

- Holds up to 300 Password protected voice mail boxes
- Unique forwarding phone number for each mail box
- Digital display page support
- Complete remote access:
- Update greetings, password, forwarding phone number & retrieve messages.
- Outbound Telemarketing
- Message Distribution
- Fax - On - Demand
- Fax Document Password Protected
- Transfers calls / 24 Hour receptionist
- Cas Compatible 9600 Bps Fax/Modem

\$ 499.95

FAXMOUTH PLUS

- Stores up to 99 million documents
- Provides password protection for sensitive documents
- Tracks number of times each documents has been sent
- Caller may select any 5 fax documents
- Sends caller optional cover page
- Advanced number blocking features
- Fully menu driven / User friendly
- Logs system usage

\$ 649.95

BIGMOUTH

- Lowest Price
- Free Technical Support
- 24 Hour Support BBS
- Ask about our 30 day Bigmouth trial period

\$ CALL

**DEALER
INQUIRIES
INVITED**

AManda

FEATURES:

FROM \$ 2495.00

LARGER CONFIGURATIONS AVAILABLE!

- Auto Attendant
- Call Transfer
- Call Screening
- Unl. Voice Mail Boxes
- Pager Notification
- Remote Access
- Digital Recorded Voice
- Variable Compression
- Guest Mailboxes
- System Announcements
- Distribution Lists
- Remote Modem Access
- On-Line Order Taking
- Serial Port Access (IVR)
- Programming Language
- FAX-ON-DEMAND

RHETOREX VOICE BOARD INCLUDED

PROGRAMMER TOOLKITS:

Allows you to create your own Voice Mail applications, Date Lines, Fax Retrieval systems, on single or multi-line platforms.

BIGMOUTH TOOLKIT \$ 139.95
MULTI-LINE TOOLKIT \$ 179.95
MULTI-VOICE TOOLKIT \$ 699.95
MULTI-FAX TOOLKIT \$ 249.95

CALL FOR CUSTOM APPLICATION PROGRAMMING

24 HOUR FAX-ON-DEMAND SYSTEM

Retrieve up-to-date product information using our 24 hour fax back system. Requires a touch tone phone and a fax machine. Please make sure you are calling from your fax machine. **(416) 406-5247**



COMPU-TEL
TEL: [416] 406-0522

C.O.D
ORDERS
ACCEPTED

"Virtual Reality" educational software

SAN JOSE, CALIFORNIA (NB) — When you get closer to the roaring lion, even the roaring gets louder in the new Animal Adventure — called a "virtual reality" educational software product — from Knowledge Adventure. The company says its two new titles are the first of their kind.

The new titles are version 2.0 of Isaac Asimov's Science Adventure and Animal Adventure. Science Adventure has the distinction of being the last project the famous science fiction writer worked on before his death last year.

Bill Gross, Knowledge Adventure company president, said the addition of virtual reality capability to the new titles allows learning to be accomplished by experience. Children can learn about animals by browsing around their habitat with the accompanying sights and sounds, and information about science is imparted via full-motion videos of scientific developments, animations and simulations where the user controls the experience.

Animal Adventure offers more than 100 mammals, reptiles, fish, sea creatures, birds and insects. Sections on ecology and endangered animals are also included. Users can enter and move around in an animal's habitat as well as moving around the animals themselves. The company says information on the species, senses, diet, predators, life span, habitat, rang and social habits for each animal is included.

Science Adventure Version 2.0 is focused on landmark discoveries in mathematics, physics, chemistry, biology, technology ecology and astronomy. Virtual corridors that branch off into various areas of science allow users to wander around and view various subjects at will. Interactive simulations of planetary motion, molecular motion, acoustic music, sound wave simulation, and a simulation contrasting the Kelvin, Fahrenheit, and Celsius temperature scales allow users to interactively experiment with each simulation. A map of the plant allows users to click on any location and see the scientific discoveries that occurred there.

Both products offer full-motion video, support for 256-color display and stereophonic musical instrument digital interface (MIDI) sound. System requirements include a video graphics monitor and a hard disk drive, although a mouse and a sound card are recommended. Knowledge Adventure has prided itself on offering software to users with the advantages of compact disc read-only memory (CD-ROM) via its compression technology, but without requiring a CD-ROM drive. These two titles, however, are being offered both on CD-ROM and on floppy disks. The CDROM version of each product is US\$79.95 and the floppy disk version is \$59.95.

La Cresenta, California-based Knowledge Adventure has recently been honored with the Best Elementary Education Program and Best Secondary Education Program by the Software Publishers Association for its Dinosaur Adventure and Science Adventure titles.

Contact: Knowledge Adventure, tel 818-542-4200 ext 122, fax 818-542-4205.

New Mac Laserwriter drivers offer more control/speed

CUPERTINO, CALIFORNIA (NB) — Apple says it is introducing new printer drivers, version 8.0, for its Laserwriter printer geared toward the support of Adobe's new Postscript Level 2 page description language. The company says the new drivers will offer more control and faster printing to Laserwriter users.

The new software driver includes all features of the previous driver and adds support for features specific to certain printers such as multiple paper trays, optional envelope trays, printer resolution, and Photograde — features called Postscript

Printer Description (PPD) files.

Users will have more control with PPD, according to Apple, which said version 8.0 will offer the ability to do things like print page one of a document on letterhead and the rest of the document on regular bond paper in a printer equipped with two or more paper trays. Up to 30 percent faster background printing performance is also a benefit of the version 8.0 drivers, which offers support for Postscript Level 2 features such as data compression, real-time error reporting, patterns and pattern-caching and color.

The version 8.0 drivers will be bundled with Apple's Postscript Level 2 Laserwriters, the Personal Laserwriter NTR and Laserwriter Pro 600 and 630 later this month. Adobe, which codeveloped the drivers with Apple Computer, will ship the 8.0 drivers separately under the brand name of PSPrinter version 8.0. Once the new drivers are available, current Laserwriter owners will be able to purchase the new printer driver and user's guide directly from Apple by calling the company's toll free software line.

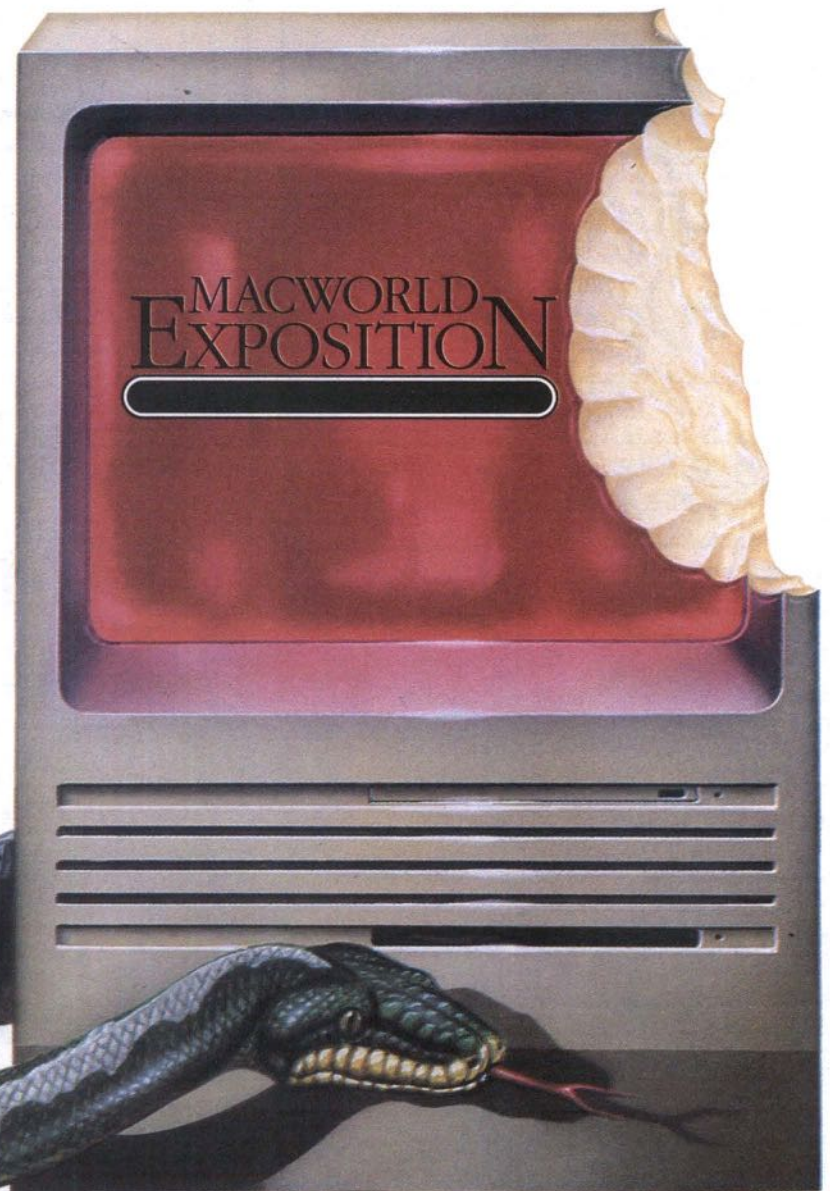
Contact: Apple Computer 1-800-769-2775.

NO ONE CAN RESIST THE TEMPTATION.

Who can resist MACWORLD Expo? It's the original Macintosh-exclusive show — a paradise of new hardware, software and peripherals. Mac enthusiasts go there to feast on the latest Mactos and indulge their lust for power (RAM, ROM and otherwise). They bask in the warm glow of 21" color displays and ask questions like, "Can man's fall from grace be animated on an FX?"

Qualified Macheads are on hand to show users the tricks of the trade, and there are plenty of Macs provided on-site for impromptu practice sessions. Users try out new software for home and office, separating the quick from the dead, and getting expert critiques on a wide range of applications. In fact, there are so many experts at MACWORLD Expo, it's like you're hearing the word of G...(well, uh, you know what we mean).

For individuals with specialised interests, MACWORLD Expo/Canada offers several Pavilions and Conference Programs you can really sink your teeth into. There's the Networking and Connectivity Pavilion that demonstrates the latest in Mac connectivity solutions, an expanded Education Pavilion for K-12 and university educators, and an Electronic Prepress Pavilion showcasing innovations in creative



TEMPT ME...

PLEASE SEND ME MORE INFORMATION
ON MACWORLD EXPO / CANADA

I AM INTERESTED IN: ☐ ATTENDING ☐ EXHIBITING

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY/PROVINCE/POSTAL CODE _____

PHONE _____

FAX _____

MAIL TO: BRUKAR INTL, 385 THE WEST MALL, SUITE 212
ETOBICOKE, ONTARIO M9C 1E7

PHONE HOTLINE: 416-620-5412, FAX: 416-620-1076

and production processes. MACWORLD Expo also features plenty of information on the burning-hot combination of Multimedia and QuickTime technology, as well as a complete Multimedia Conference.

Who can resist the temptation? Take a bite out of MACWORLD Expo/Canada!



CANADA '93 • September 20 - 22
Metro Toronto Convention Centre

COMPUTER DIRECTORY

SAVE ON LINO OUTPUT



Save time, save money! Bring us your PC or Mac PostScript files for quick service at great prices. Ask for your free copy of the latest DTP/Windows Tips!

We are PC/Windows Friendly!

TECHNI

Suite 200, Two Stewart Street
Toronto, Ontario M5V 1H6
Tel: 416-363-2493 Fax: 366-1538
Conveniently located in the heart of downtown near King & Bathurst!

FREE! IBM SHAREWARE* Catalogue on Disk!



CHECK OUT OUR
278 pg. CATALOGUE on DISK listing
over 3100 GREAT PROGRAMS in 83 CATEGORIES!

Mention "The Computer Paper" Magazine & receive
FREE "Virus Checker" Software Program!

SHAREWARE CENTRAL

P.O. Box 897, Wheatley, Ont. N0P 2P0
• Fax (519) 825-3780
• Inquiries (519) 825-7480
ORDERS 1-800-563-6647
* Programs require separate payment to author if found useful.

Training Now - For Tomorrow

MacAcademy™ videos and Personal Training Systems® interactive audio tapes
Individualized Macintosh Tutoring • Customized Macintosh Workshops
ViaGrafix PC Videos, Comsell Interactive Video, and the Miracle Piano Teaching System
AVAILABLE IN OTTAWA

John W. Dodson, M.Ed.

126 Hamilton Avenue North
Ottawa, Ontario K1Y 1C2

Tel: (613) 729-0234
Fax: (613) 729-6615

Experience The Adventure The Connection BBS

Canada's
Largest Adult BBS

Connecting around the
world on your own
personal computer,
meeting people &
making friends.



Features

Chat features / download /
upload / gigabytes of
shareware. Online games /
Echo / private mail / FIDO
Network around the world / Gay
Echos / Oracomm Network to USA,
Europe & Australia

1200/2400/9600 Baud & Alex Compatible

Canada's Largest & Most Popular Adult BBS
(416) 882-8161 • 32 Lines • Surrounding Areas 229-9732

JUST 2 HOURS

MAY BE ALL THE CONSULTING HELP
YOUR BUSINESS NEEDS

Victor 361-0774



2000's Technologies
Computer Products Sales & Services

Computers & Parts
(Dealer Price)

Upgrades/Rentals
Networking/On Site Services

Tel: (416) 502-2055
250 Consumers Rd., #100 Willowdale

ROBERT LIANG

B.A.Sc., M.Eng., P.Eng., LL.B

BARRISTER & SOLICITOR

Computer Law, Business Law, Trademarks

330 Hwy 7 East, Suite 309
Richmond Hill, Ont., L4B 3P8

Phone: (416) 882-0034
Fax: (416) 882-8362

**IN
BALANCE**
Accounting Services

Specializing in New Views
Accounting Software

- Certified New Views consultant
- Software installation
- Set-up & manual systems conversion
- Personalized training

LINDA LOCKE
(416) 690-8573

Law Office

RICHARD W. VROOMAN

B.A. (Econ., Comp. Sci.), LL.B.

Barrister & Solicitor / Notary Public

Computer Law, Contracts, Copyright
Business Law, Incorporations, Tax

234 Geoffrey Street, Toronto
High Park area, easy access from Lakeshore and TTC
531-7118

QUALIFY AS

PROGRAMMER ANALYST 440-9978

No Experience necessary in order to train for a career in computer programming, Internationally recognized Qualifications and Diplomas. Age no restriction. Low monthly payments includes training in BASIC, C, UNIX AND DOS. Home Study Program. Tax Deductible.

CMS TRAINING

City and Guilds
of London Institute

City and Guilds
Authorized Examination Centre

City and Guilds
of North America

Overseas Videotape

TRANSFER overseas video tape in just 3 hrs. for \$25! We digitally transfer from formats used in Europe, Asia, Africa & Australia (Pal/SECAM/NTSC). We will convert 8mm & 16mm film, as well as your slides and photos, to video. We can also service your duplication, editing and colour laser copy needs. One day service.

Why pay more?

Overseas Video Lab

1373 Wilson Avenue

with this ad \$2 off
244-1822

OKIDATA®

Sales & Service Centre

**IN-WARRANTY & POST-WARRANTY
REPAIRS TO LED & DOT MATRIX
Microset Systems Inc.**

PH (416) 283-4949 Fax (416) 283-5650
1335 Morningside Ave., Unit 7, Scarborough, ON, M1B 5M4

CADABRA MEANS COMPUTER MAGIC.

SYSTEM SALES, SUPPORT, NETWORKING
INSTALLATION, TRAINING, CONSULTING
CELLULAR COMMUNICATIONS

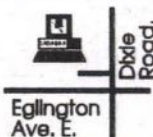
GREAT SYSTEMS - GREAT PRICES



**CADABRA
COMPUTERS INC.**

5130 DIXIE RD. UNIT #8
MISSISSAUGA,

Phone: 629-3383 Toronto: 617-9448 Fax: 629-3329



CREATIVE PUBLISHING

FOR ALL YOUR DESKTOP PUBLISHING NEEDS



PROVIDING:

- Full Laser Printing
- Camera Ready Artwork
- Graphic & Logo Designs
- Image & text scanning
- Word Processing
- Fax Broadcasting

FAX BROADCASTING INTRODUCTORY OFFER
1000 FAXES AS LOW AS \$36.00

10% DISCOUNT COUPON
THIS COUPON ENTITLES YOU TO A 10% DISCOUNT ON THE NEXT SERVICE PROVIDED BY CREATIVE PUBLISHING

FOR MORE INFORMATION CALL

BUS: (416) 741-9941

FAX: (416) 745-7678

Data Recovery

Hard Disk and Data Recovery Specialists

- Non bootable or inaccessible drives
- Corrupted files & directories
- DOS, Novell, Unix & Stacker expertise
- Highest success rate
- Canada wide service
- Charges from \$150
- Diskette special - \$100

1-800-563-1167

(416) 510-6990

Data Recovery Services Inc. - Toronto

Computer Freelancers

UNLIMITED INC.

One Call Does it All!

Just one call connects you
with talented, independent computer experts,
available to work for you on their computer or yours
by the hour, the day, or the project.

In Toronto Call: (416) 944-9498

Outside Toronto: 1-800-268-2710

1491 Yonge Street - #203, Toronto, ON M4T 1Z4

WE BUY & SELL USED COMPUTERS

Buy + Sell • Trade In • Trade Up
Used Computers from \$299 - IBM Compatible
Dominion Business Machines

100 Adelaide Street East

364-2978

Since 1902

364-0191

INDEX OF ADVERTISERS

ACCOUNTING	CAD Connection.....8	Lottobas.....57	ONLINE
Imbalance Accounting.....56	Cadebra.....56	Marcom Computers.....15	Canada Remote Systems.....44
BOOKS	Canadian Memory Products.....54	Meldan Distribution.....10	The Connection BBS.....56
Canada Computerware.....40	Canara Technologies.....11	Micro Drives Canada.....47	
C.E. Books.....40	Cansel Survey Equipment.....37	Microcell Systems.....28, 42	RENTAL
CPIC - Technical Bookstore.....40	CD Source.....26	Mister Software.....27	Adesso Computer Access.....36
MC3.....57	CMSI-Complete Micro Solutions.....2	MIT Computer Supplies.....14	Microrental.....14
Toronto Computer Books.....41	CompuCop.....35	NTC Software.....9	
World's Biggest Bookstore.....40	CompuTrend.....4	Ocean Electronics.....36	SERVICE & CONSULTING
CAD	Compu-Tel.....54	Pixel Point Tech.....8	Computer Freelancers.....56
Interworld Electronics.....32	CompuBridge.....10	PoCo.....34	Consulting.....56
DESKTOP PUBLISHING	Computer Advanced Systems.....58	Quadralink Technologies.....49	Data Recovery.....56
Creative Publishing.....56	Computer Variables.....10	Saved By Technology.....53	FIXPress Computer Help.....57
EVENTS	Connell Computer.....23	Sayson Technologies.....44	Image Control.....32
Business Trade & Technology.....54	CTC.....35	SBL System Builders Limited.....17	Microset.....56
Comdex Canada.....30, 31	CTS Computer Company.....57	Signature Computer Corp.....23	On-Site Services.....57
MacWorld Expo.....55	CTS Computers.....37	Smart Luck Software.....53	Programmers Guild.....57
FURNITURE	DAI.....12	Smart Machine.....33	Richard W. Vrooman.....56
Fornico.....21	De Sanko.....56	Software Exchange.....29	Robert Liang.....57
HARDWARE & SOFTWARE	Dell Computer.....7	Spinnaker.....16	SoftSearch.....56
2000's Technologies.....6, 56	Desktop Lawyer.....33	Starlight Computer Services.....52	Techni Process.....57
3A, Scholar Computer.....20	DFF Systems.....51	Super Science Canada.....46	The Disk Consultant.....57
ACC Technology.....33	DK Computed.....37, 54	The Business Network.....57	SERVICE BUREAU
Access Business Centre.....38	Dynalink.....37	The Notebook Store.....33	Champus Systems.....57
Aldus.....48	Fantastic Technology.....38	The Soft Connection.....12	SHAREWARE
Amnet 2000 Inc.....57	GC Systems.....40	Throne Computer Systems.....45	Alternative Personal Software.....57
AmPAQ.....25	Global Technology.....51	TOMIGI.....56	Post Advertising.....57
Amsoft Computer.....50	Help Software Services.....18	Ultinet Computer.....3	Shareware Central.....56
Automation Management.....34	Hewlett Packard.....13	VisionTech.....46	
Aztech.....49	Islamic Database Software.....28	Wise Guy Computers.....59	T-SHIRTS
BFA Data Systems.....24	Kilobytes Computers.....12	MULTIMEDIA	Flatlanders.....51
BICOMOS Trading.....34	Laser Storage Solutions.....22	Multimedia Effects.....29	
Bondwell.....60	LePal Computers.....19	Overseas Videotape.....56	TRAINING
Byte Info Systems.....39	Lexmark Canada.....6	Ponix Multimedia.....57	CMS Training.....56
	Long & McQuade.....42	PR Video.....57	NRI Schools.....43
			Training Now - For Tomorrow.....56

This index is provided as a reader service. Every effort has been made to make it as complete as possible, however, the publication does not assume liability for errors or omissions.

Go for the best... Go for the **GOLD!**

Novell Experts!
Installation/Setup/Support/Maintenance
Access & Gateway Server Installation
2 Certified Network Engineers on Staff
Call Us with Any Network Problems

NetWare 4.0 Upgrade
From \$698
While Qty Last

Novell Gold Authorized Reseller

AMNET 2000 INC.
1025 McNicoll Avenue, 2nd Floor
Scarborough, Ontario M1W 3W6
Ph: (416) 499-3030 Fax: (416) 499-5128

Lottobas Run on IBM PC or compatible with DOS 5.0
BE THE WINNER!
EASY, USER FRIENDLY LOTTOCOMBINATION PROGRAM
Automatically combine your
7,8,9,10,11,12,13,14,15,16,17,18,19,24,29,34,45 number out of 49
or any pick six lotto with specific minimum winning guarantee.*
Performance test file run on lotto 649 one year winning data.
Run predicted or actual winning number checking.
MONEY BACK GUARANTEE
FOR YOUR CONFIDENCE "Try Before Buy" version \$11.50 + \$3.50 S/H
Chq. or M/O \$34.45 incl. GST-PST + \$5.55 S/H. Send to: E. SZOKE
1024 Davenport #1, Toronto, Ont. Canada M6G 2B9
(C) Lottobas, Copyright 1993

NEW COMPUTER STORE
Tel/Mail/Fax Orders Welcomed
Shipped (usually) Same Day
Computer Magazines
MC³ 2019 Bishop Street
Montréal, Que. H3G 2E8
Tel/Fax 514-287-1863
The Professional's Choice

The Original Video-Based Texture Library
TEX TAPE
Volume Number One
OVER 150 HIGH QUALITY TEXTURES
BRICKS • TEXTILES • MARBLE • METAL • BUMP MAPS
Works on ANY computer with any kind of
slow or fast framegrabber!
All you need is a VCR. Easy to use!
**PERFECT FOR THE HOBBYIST
AND PROFESSIONAL!**
ONLY \$29.95
VHS format - Other formats available!
Send Cheque or Money Order to:
Tex Tape 17 Victor Avenue
Toronto, Ontario M4K 1A7
(416) 466-2345
FAX: (416) 535-4019

\$5 LINO
CANON COLOR
PC & MAC
*1200 dpi * letter size * paper.
CAMPUS SYSTEMS
DESKTOP PUBLISHING SOLUTIONS
100 Harbord Street
Toronto
416 925-2277

Whatever You Want, We Won't Let You Down. Open Everyday 10:30 am to 8:30 pm
Please call for more information.

486 DX-33MHz \$1,399	V. L. BUS SYSTEM	386SX-33MHz \$799
486 DX-50MHz \$1,599	486 DX-33MHz \$1,669	386DX-40MHz \$849
<ul style="list-style-type: none"> 4 MB RAM (70ns) 107 MB Hard Drive 1.2 & 1.44 Floppy Drive SVGA 0.28dp Monitor SVGA Card with 512K Super I/O Controller Card Mini Tower/Desktop 101 Enhanced Keyboard Free Mouse 	<ul style="list-style-type: none"> 4 MB RAM 170 MB Hard Drive SVGA 0.28dp Monitor 32 Bit V. L. Video Card 32 Bit V. L. Controller Card Mini Tower Case 101 Enhanced Keyboard 	<ul style="list-style-type: none"> 2 MB RAM (70ns) 85 MB Hard Drive 1.44 Floppy Drive Super I/O Controller Card SVGA Card with 512K Color VGA Monitor Mini Tower/Desktop 101 Enhanced Keyboard

Hard Drives	Motherboards	Printer
120 MB \$249	386SX-33 \$119	Fax/Modem \$Call
170 MB \$299	386DX-40 \$189	Monitor \$Call
245 MB \$399	486DX-33 \$499	Sound Kit \$Call
340 MB \$499	486DX-50 \$699	CD ROM \$Call
Memory	486DX-66 \$779	
1 MB SIMM 70ns \$40		

CTS Computer Company
1182 Queen Street East, Toronto, Ontario
Tel: (416) 466-7153 Fax: (416) 466-6328

ON-SITE SERVICES
ON-SITE PC, Mac & Printer Repairs
Upgrades to virtually all Brands
Custom Built Workstations and Parts
Technical Software Support
Personalized Service. Rates from \$35⁰⁰
Punjabi Fonts & Punjabi Learning
Games. (PC & Macintosh)
(416) 520-7102

CD-ROM Publishing Service
Ponix Multimedia
(416) 609-9647
Store up to 600 MB of Databases, Images, Softwares, or any files to a CD-ROM. Send us your data with backup tape, hard drive, or even floppies.
*** Let us write programs for you and make CD-ROM in any quantity.

THE INTERNATIONAL PROGRAMMERS
GUILD
Representing Professional Programmers Globally
Looking for
Professional Programmers
We offer
FREE REFERRAL SERVICE
of
Certified Professional Programmers
Call (416) 824-7947
Canadian Chapter 3016 Runcorn Row Mississauga, Ontario L5N 4S5

F1 F1xPress Computer Help
Computer Assistance from Experts!
Computer Repairs & Upgrades, Software Installations, Hardware & Software Sales.
(416) 730-8733

THE DISK CONSULTANT
NEW COMPUTER WORLD ORDER!
Imagine Saving \$3000.00 on Pentium
Do you ever find yourself looking through magazines for computer accessories? Do you want to have the direct addresses and phone numbers of computer dealers, book publishers, and software distributors? If your answer is yes, The Disk Consultant is for you!
The Disk Consultant is a must for every computer user. It will run on any IBM or compatible, with any monitor. It is a quick reference guide to buying computer products such as Motherboards, diskettes, hard disks, CD-Roms, fax machines, or any computer supplies.
In addition, The Disk Consultant includes information on FREE items, how to avoid costly repairs, educational sources, Business opportunities, and more.
Offered for a limited time, The Disk Consultant is only \$9.95 plus \$2.00 S&H. Satisfaction is 100% Guaranteed.
Please send cheque or money order to:
The Disk Consultant
41 Markbrook Lane, Unit 1609, Etobicoke ONTARIO, M9V 5E6

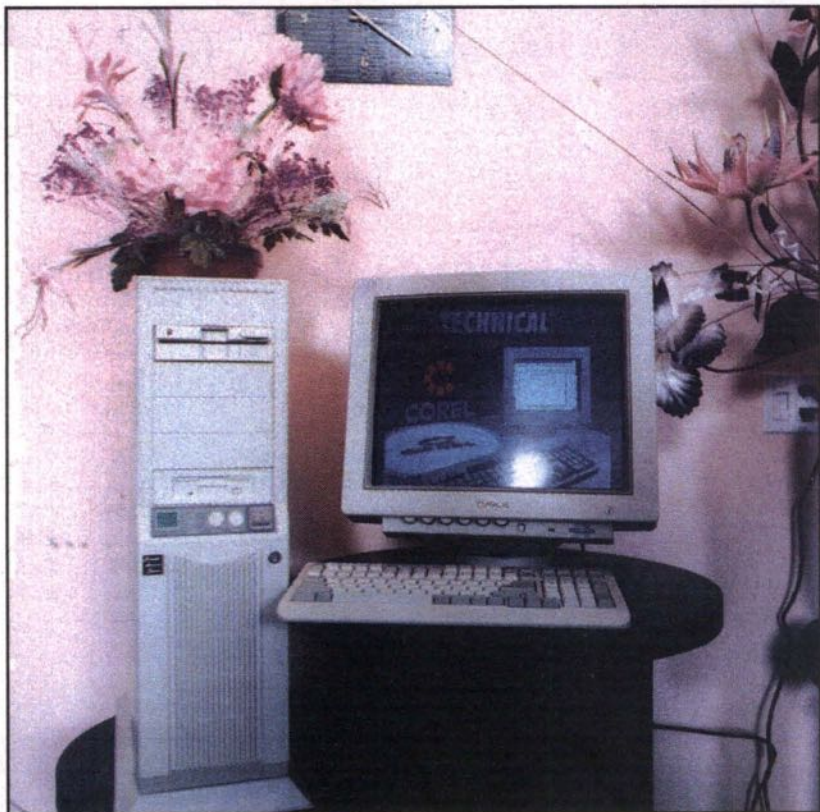
QUALITY SOFTWARE AT AN AFFORDABLE PRICE
Shareware is Try-Before-You-Buy Software. It is fully functional and comes with on-disk documentation that can be printed out.
We have a selection of almost 3000 of the highest quality Shareware programs available for PC Compatibles. Categories include: Astronomy, Business, Database Management, Desktop Publishing, Clip Art, Education, Games, Graphics, Drawing, Health, Nutrition, Home & Family, Math, Science, Music, Programming, Utilities, Word Processing, Windows, OS/2, and more.
We charge a fee per disk (as low as \$2.25 depending on the quantity ordered) so that you can inexpensively try software to see if it meets your needs. If you wish to continue to use the software, you should send the author the registration fee which typically ranges from \$5 to \$35.
For a free 80 page catalogue, call
465-7864, Outside Toronto: 1-800-667-3475.
APS Alternative Personal Software

COMPUTER DIRECTORY

P/R
VIDEOTAPE FORMAT TRANSFERS
(PAL/SECAM/NTSC) 2 hours \$18.40 + tax
FUJI Pro Tape included!! 24 Hour turnaround!
HI-FI STEREO VHS DUPLICATION
• Printed labels on all orders of 10 or more
Video
70 Bathurst St., Toronto, Ont., M5U 2P5
(416) 861-0903
ALSO AVAILABLE: AUDIO CASSETTE DUPLICATION
• High Speed and Real Time packages available

THE BUSINESS NETWORK
One stop Business Services
• Business Plans
• Consulting
• Incorporations
• Info Systems
• Govt. Grants
• Accounting
• Business Valuations
• Marketing Plans
• Business Start-ups
• Business Brokerage
• Investments
• Marketing
PHONE 239-0042 ANYTIME

NEED SPECIALIZED SOFTWARE?
Quickly and economically locate your best options.
1-800-667-6503
(604) 681-0516
Synergy Computer Consulting Ltd.
SoftSearch
Software Information Service



Computers are productivity tools, in which their effectiveness is directly related to quality and configuration design. Like any other precision instrument, it has to be fine tuned to maximize the efficiency of the intended application.

At C.A.S. we don't believe in compromising quality for the sake of saving a few dollars. We believe that with any system all components must be of equal standards & performance for it to be truly effective.

We don't promise you the cheapest computer available. However, we do promise you the most *cost effective* computer available *anywhere*.



At C.A.S. we are also aware that quality & cost are not the end-all. Intelligent knowledgeable service is vital in assisting our customers to select the ultimate computer for their needs & budget.

Our highly trained sales personnel provide the buyer with unbiased information on the latest leading edge technology and make sure that each configuration will supply peak performance.

DEALER ENQUIRIES WELCOME



We supply perfection

Everyone talks BIG on quality – but at what cost?

Make us your winning edge for the 90s

CALL TOLL FREE: 1-800-567-2321

TORONTO: 513-1555

FAX: 513-6865

7676 Woodbine Avenue, Unit #102 Markham, Ontario, L3R 2N2



Maxtor®



Quantum

Panasonic®

NEC

DARIUS

Cyrix



Steal of a Deal

Verbatim
5.25" DSDD
14.95
5.25" DSHD
10.95
5.25" DSHD
6.99
BOX 11

MOUSE ARENA
29.95

MOUSE
14.95

ACCESSORIES

LOCKABLE UNDER COUNTER KEYBOARD DRAWER 18.75
COPY ARM 1.99
METAL PRINTER STANDS 2.95
PLEXIGLASS PRINTER STAND 80 COLUMN 6.95
132 Column 9.95
PC ACCESSORIES 6 OUTLET POWER BAR, SURGE PROTECTOR, EMI/RFI, LIGHT 6.95
3 PIECE PLASTIC PRINTER STAND WITH TRAY for 80 and 132 column 5.95
UNIVERSAL RIBBON 3.95
PLASTIC COMPUTER STAND 4.95

14/4 FAX INTERNAL MODEM
169.95
First 300 pieces Limit 1/customer

COPYHOLDERS
7.95

3 MODELS TO CHOOSE FROM
STANDARD MONITOR ARM 29.95
3.5" DISK BOX Locking (Holds 30) 5.95

JOY STICKS
1.99

STEREO SPEAKERS
FROM 7.95

POWER CONTROL CENTER
WITH FAX AND MODEM PROTECTION 29.95

DISKETTES
3.5" PREFORMATTED 7.95 BOX 10

COMPUTER PAPER
2200 Sheets 40 M 16.95
30 M 500 Sheets 3.99
40 M 500 Sheets 4.95

MONITOR SWIVEL STAND 14.95
13 PIECE TOOL KIT 12.95
6 PRINTER CABLE 4.95
MOUSE MAT 4 Colours 1.99

BASE LINE 486DX-33 SYSTEM

- 4MB of RAM memory
- 1.44MB Floppy Drive
- 130MB Hard Disk
- IDE/FDC/ Dual Serial/ Parallel
- 512K SVGA Video Card
- Mini Tower Case
- SVGA Monitor
- 101 Keys Keyboard



1 Year Labour, 1 Year Parts

1699.
SUGGESTED LIST

BASE LINE 486DX2-66 SYSTEM

- 4MB of RAM memory
- 1.44 + 1.2 MB Floppy Drives
- Maxtor 245MB Hard Disk
- Local Bus Video
- Local Bus IDE/IO
- 6 Bay Midsize Case
- SVGA Monitor N.I.
- 101 Keys Keyboard

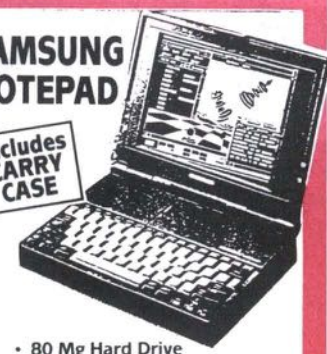
INCLUDES MS/DOS 6.0 + 3 BUTTON MOUSE

1 Year Labour, 1 Year Parts

2399.
SUGGESTED LIST

SAMSUNG NOTEPAD

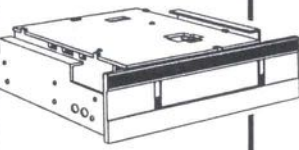
Includes CARRY CASE



- 80 Mg Hard Drive
- 4 Mg RAM
- 2400 Baud Data Modem
- DOS 5.0
- Win 3.1
- Plus Extra Drive Software

1659.

COLORADO TAPE BACKUPS



Jumbo 120 MB INT
214.95
Jumbo 250 MB Internal 299.95
Tracker 250 MB External 599.95



SOUND BLASTER 16 ASP
• 16 bit quality stereo sound sampling and playback
• ASP (advanced signal processing technology)
• Plus many extra added features
294.95 QTY. LTD.

We are Multi Media Compatible

Creative Labs - Edutainment 16

PACKAGE DEAL INCLUDES:

- Sound Blaster 16
- Panasonic CD ROM
- Speakers
- Where in the World is Carmen San Diego
- Multimedia Encyclopedia
- The Animals
- Just Grandma and Me

- The Secret of Monkey Island
- Secret Weapons of the Luftwaffe
- Loom
- Sherlock Holmes

739.95
Other Packages Available

SELECTED HARDWARE SPECIALS

Sound Galaxy NX (SB Pro Compatible)	179.95
Sound Galaxy 16 (SB Pro & 16 bit Compatible)	279.95
Sound Blaster Pro	189.95
Soundman 16	254.95
Okidata OL400 L.E.D. Printer (laser)	Ltd. Qty. 749.95
386-33 Main Board/CPU 30 Day	Ltd. Qty. 199.95
486DLC Main Board/CPU/NPU 30 Day	Ltd. Qty. 379.95
ATI XL24 1 Meg	169.95
Compro CD ROM Bundle SCSI/PAS16 + more	959.95

CLEARANCE

SHARP ORGANIZERS

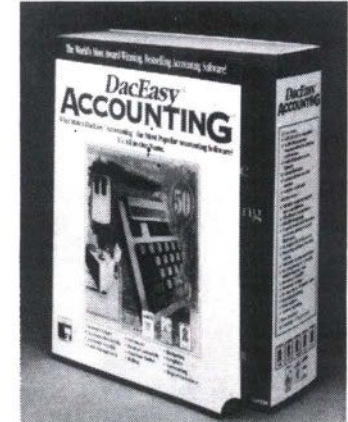
2000 to 7000 Series

15% off

HARDWARE SPECIALS

ATI Ultra 1 Meg	229.95
VDO or Mag 15H .26 DP	719.95
84 Key Keyboard	14.95
Mitsumi CD/350ms/XA	237.95
OLIVETTI INK JET 150W	389.95

New DACEASY COMPETITIVE UPGRADE TO ACCOUNTING 4.3



Upgrade or switch to DacEasy - the world's number one selling accounting package for small to medium sized businesses. The new release, Version 4.3, includes 60 new features. If you own an earlier version of DacEasy or if you own any competitor, such as ACCPAC, QuickBooks, Microsoft Money, MYOB, Pacioli, or any other accounting software package you can purchase the new version of DacEasy for only \$99.95.

DacEasy 4.3 includes eleven integrated modules including G/L, A/R, A/P, Billing, Purchasing, Inventory, Cash Management, a Custom Report Generator, Sales Analysis, Graphic Reporting and more. Canadian Payroll and networking versions are also available.

99.95 **SAVE 200.** REG. 299.95

The 7th Guest

- Interactive 3D drama
- CD ROM only

79.95

Wise Guy Computers



Mississauga • 1456B Dundas St. E.
TEL (416) 803-8090
FAX (416) 803-0965



Markham • 7311 Woodbine Ave.
TEL (416) 513-7002
FAX (416) 513-7004

Store Hours:
Mon-Fri: 9-9,
Sat: 9-6

• All prices are cash discounted
• We reserve the right to limit quantities
• Pictures for illustrative purposes only and may not be exact
• We reserve the right to correct any errors that may occur
• All goods subject to store return policy
• Prices subject to change without notice
*Clearance Specials Sold - AS IS - No Refund No Return

Introducing

So you thought computers had to be boring and expensive. Well that was then - this is now! The all new Bondwell 486MPC is a multimedia-ready machine that will blow your socks off, at a price that's easy to handle.

Educate yourself, entertain yourself, expand your horizons with this exciting new computer. Whether you're researching some far off place or long dead hero (or blowing cyborgs out of the sky) the 486MPC helps you do it with all your senses in overdrive.

Complete with a high speed CD ROM player, stereo speakers, and an upgraded video card, the 486MPC is



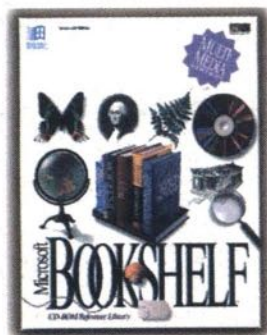
just plain fun to use. And it's preloaded with all the software you need to be up and running as soon as

you plug it in. Plus you get six free CD titles to start your collection

including Microsoft's Multimedia Works, and Bookshelf'93 and

Grolier's Multimedia Encyclopedia.

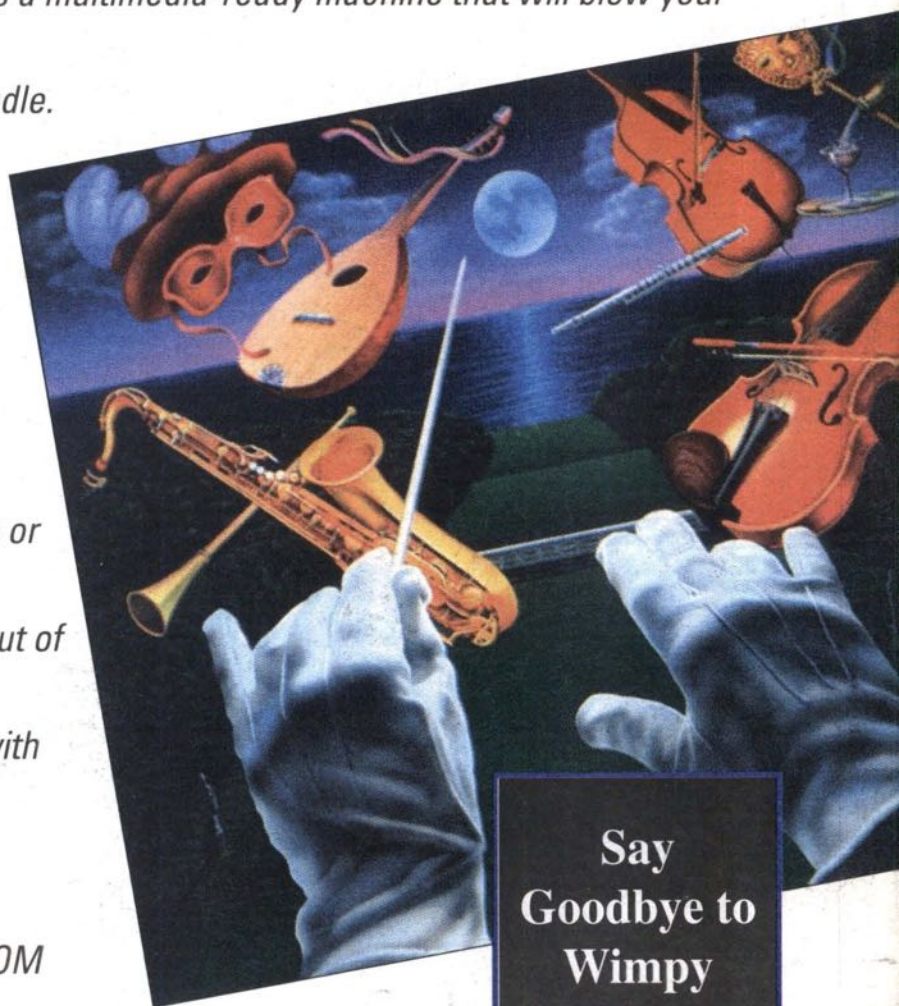
Say hello to the future of computing for only \$1990.00.



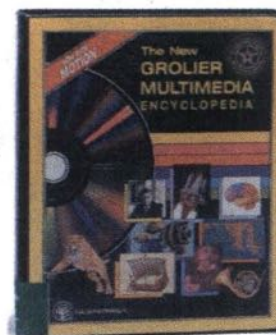
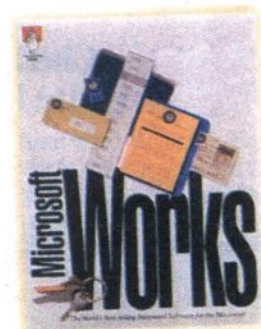
Check out the sensational new

Bondwell 486MPC at one of the

dealers listed below or dial 1-800-846-7655 for more information.



**Say
Goodbye to
Wimpy
Computers**



Wise Guy Computer
Markham
(416) 513-7002

Computer Bargain
Toronto
(416) 924-9623

Grey Tech
Markham
(416) 470-1425

KLM Computer
Downsview
(416) 631-7280

Ashteq Bus. Systems
Mississauga
(416) 795-8333

Orion Electronics
Kitchener
(519) 576-9902

Elektor Computer
Scarborough
(416) 698-5810

Superior Computer
London
(519) 652-6617

Throne Computer
Scarborough
(416) 609-1668

Computer Odyssey
Burlington
(416) 639-1654

CAD Connection
Toronto
(416) 537-0509

Computer Odyssey
Hamilton
(416) 560-1210