

BRAIN SEX, WOMEN
& COMPUTERS
See Page 5

CANADA'S COMPUTER INFORMATION SOURCE

The **COMPUTER PAPER**

NEWS

REVIEWS

FEATURES

METRO TORONTO EDITION

DECEMBER 1992

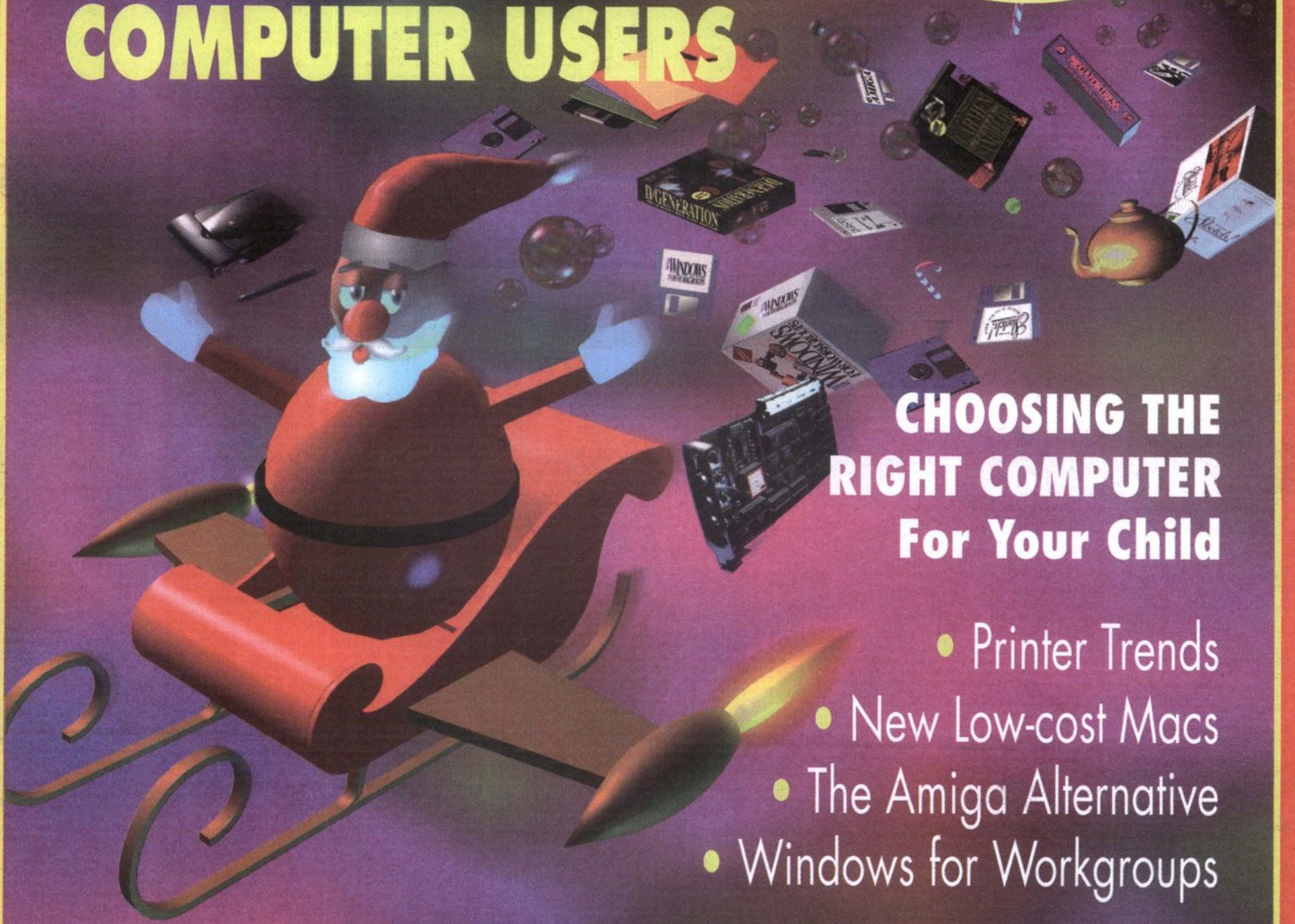
VOLUME 5

NO. 12

Special Christmas Issue

GREAT GIFTS for COMPUTER USERS

FREE



CHOOSING THE RIGHT COMPUTER For Your Child

- Printer Trends
- New Low-cost Macs
- The Amiga Alternative
- Windows for Workgroups

**MACINTOSH
3-D Graphics**

Canadian Payroll Survey

OPEN
9 A.M.-7 P.M.
MON-FRI
9 A.M.-6 P.M.
SATURDAY
12 P.M.-5 P.M.
SUNDAY

Complete Micro Solutions Inc.

30 West Beaver Creek, Unit 5, Richmond Hill, Ontario, L4B 3K1
Telephone: (416) 889-1616 Fax: (416) 889-1199 Toronto Line: (416) 409-6910

1991 TIME MAG. COMPACT ALMANAC
1992 GUINNESS DISC OF RECORDS/M
AIRCRAFT ENCYCLOPEDIA/D
AMANDA STORIES/D
AMERICAN BUSINESS PHONE DISC/D
AMERICAN FAMILY PHYSICIAN
ANIMALS
ANIMATION STUDIO
BATTLE CHESS/D
BBS IN A BOX/M
BEAUTY AND THE BEAST/D
BIBLE LIBRARY
BRITANNICA FAMILY CHOICE BOOK 1990
BUSINESS MASTER/D
CARMEN SANDIEGO: WHERE IN THE WORLD IS?
CD FUN HOUSE 7.0/M
CD GAME PACK DELUXE/D
CD GAME PACK II/D
CD-ROM DIRECTORY 1992/D
CD-ROM SOFTWARE JUKEBOX/D
CHESSMASTER 3000/D
CIA WORLD TOUR
CICA
COMPLETE AUDOBON
COMPTON'S FAMILY ENC./D
COUNTRIES OF THE WORLD
CROSSWORD CRACKER/D
ECSTASY ADULT GIFS
EDUCATIONAL MASTER/D
EDUCORP CD-ROM 6.0/M
ELECTRONIC COOKBOOK NEW BASIC/D
EXOTICA-ROM 2.0
FAMILY DOCTOR
FINDIT WEBSTER/D
FIRST CANADIAN SHAREWARE/D
FLIGHT 642 ON CD ROM/D

49.95 FOOD ANALYST PLUS/D
59.95 FUNNY BUSINESS
60.94 GEM-PUBLIC DOMAIN II/M
68.95 GEM-PUBLIC DOMAIN/M
99.95 GHOST TRACKS/D
92.19 GREAT CITIES VOL I/D
42.00 GREAT CITIES VOL II/D
110.30 GREAT LITERATURE
67.55 GREATEST BOOK COLLECTION/D
123.95 GREATEST BOOKS EVER WRITTEN
55.00 GROLIERS ILLUSTRATED ENCYCLOP.
89.95 GUINNESS BOOK OF WORLD RECORDS
95.00 HALL OF FAME SHAREWARE/D
39.95 HEALTH AND MEDICINE
129.95 INTERACTIVE STORY TIME VOL I
68.99 INTERACTIVE STORY TIME VOL II
112.50 JETS & PROPS
39.95 JONES IN THE FAST LANE/D
156.00 KGB WORLD FACT BOOK
51.99 KGB/CIA WORLD FACT BOOK/D
49.95 KING'S QUEST V/D
45.00 LOOM/D
59.95 MAC SHAREWARE EXPRESS/M
68.89 MACGUIDE/M
239.00 MACMILLAN DICTIONARY FOR CHILDREN
325.00 MACNIFICANT 7.0 EDUCATION GAMES/M
64.15 MAGAZINE RACK/D
99.95 MAVIS BEACON TEACHES TYPING
39.95 NORTH AMERICAN FAX BOOK
149.00 OXFORD TEXTBOOK OF MEDICINE/D
93.00 PC SHAREWARE EXPRESS/D
170.00 PC SIG LIBRARY #10/D
64.00 PC PIX ADULT/D
45.00

212.99 PHOENIX 3.0 SHAREWARE
93.20 PHYSICIAN'S DESK REFERENCE/D
127.40 PHYSICIAN'S MEDLINE/D
127.40 PICTURE IT
81.23 POEM FINDER/D
39.95 PRIVATE PICS ADULT ANIM./D
66.99 REFERENCE LIBRARY/D
69.00 ROGER EBERT'S HOME MOVIE COMP/D
62.00 SHAKESPEARE ON DISC
247.09 SHAREWARE BONANZA
89.95 SHAREWARE GOLD II/D
52.00 SHAREWARE GOLD/D
41.90 SHAREWARE GRAB BAG/D
115.45 SHERLOCK HOLMES CONS. DETECTIVE/D
49.95 SHERLOCK HOLMES ON DISC
79.95 SIMTEL
59.00 SPACE QUEST IV/D
59.00 SPORTS-ROM
84.95 STELLAR 7/D
54.95 STORM 1 ADULTS ONLY/D
39.95 STORM 2 ADULTS ONLY/D
69.95 SUPER BLUE/D
110.30 TIME TABLE: HISTORY
84.65 TIME TABLE: SCIENCE & INNOVATION
67.55 UNITY DISC/D
84.65 US ATLAS WITH AUTOMAP
39.95 WINDOWS PROGRAM LIBRARY 1/D
49.95 WINDOWS SHAREWARE GOLD/D
89.95 WORLD ATLAS/D
89.95

49.95
714.00
166.00
99.00
264.00
99.95
49.95
55.00
42.00
99.95
59.00
67.55
42.00
53.00
45.00
79.95
59.00
64.25
39.95
99.95
99.95
161.60
62.00
62.00
39.95
70.00
84.95
49.95
39.95

SPECIAL

CLIP ART GOLIATH
TOO MANY TYPEFONTS
SHAREWARE OVERLOAD
BIBLE AND RELIGION
COLOSSAL COOKBOOK
OUR SOLAR SYSTEM
ARCADE BATTLES
XXX-ADULT GIF'S
BUY 4 GET 1 FREE

\$39.95

INTERNAL CD-ROM

\$229



NEW FOR
1993
SHAREWARE
\$ 69.95

CD-ROM

/D=DOS /M=MAC

AT CMSI WE CARRY A FULL LINE OF HARDWARE, SOFTWARE AND ACCESSORIES
PLEASE CALL FOR CURRENT PRICING ON ALL OTHER ITEMS... (416) 889-1616

123 2.4
123 HOME
123 PLUS 3.1
123/WIN. 1.1
386 MAX 6.0
ACT (CANADIAN) 2.1
ACT FOR WINDOWS 1.0
ADOBE ILLUSTRATOR/WIN 4.0
ADOBE TYPE MAN./WIN. 2.0
AFTERDARK FOR WIN. 2.0
AGENDA 2.0
AMI PRO/WIN. 3.0
APPLAUSE II 1.5
APPROACH 2.0
CA-COMPETE/WIN.
CA-CRICKET GRAPH 1.3
CA-CRICKET IMAGE/WIN.
CA-CRICKET PRESENTS 1.4
CA-SUPERPROJECT 2.0
CHECK IT PLUS 3.0
CLIPPER 5.01
COREL DRAW/WIN. 3.0
DBASE IV 1.5
DESIGN CAD 2D 5.0
DESIGN CAD 3D 4.0
DESQVIEW 2.4
DIRECT ACCESS 5.1
DOSFAX PRO
EXCEL/WIN. 4.0
FONT MONGER/WIN.
FOXBASE 2.1
FREEDOM OF THE PRESS 2.6
FREEDOM OF THE PRESS/WIN.
FREEHAND FOR WINDOWS
GENERIC CAD 6.0
GRAMMATIK 5/DOS
GRAMMATIK 5/WIN.
HARVARD GRAP/WIN. 1.01
HARVARD GRAPHICS 3.0
HARVARD GRAPHICS UPG 3.0
HOLLYWOOD FOR WINDOWS
INTELLIDRAW/WIN 1.0
LAPLINK PRO 4.0
MACRO ASSEMBLER 6.0
MATHCAD 2.5
MATHCAD/WIN. 3.1
MICROSOFT MONEY/WIN. 1.0
MICROSOFT OFFICE/WIN 2.5
MICROSOFT PUBLISHER
MICROSOFT WINDOWS

438.15 NORTON ANTI-VIRUS/WIN 2.0
120.75 NORTON DESKTOP WIN. 2.0
526.10 NORTON UTILITIES 6.01
403.65 OS/2 2.0
85.68 PAGEMAKER 4.0
299.95 PARADOX 4.0
379.95 PCANYWHERE HOST 4.5
464.95 PCANYWHERE HOST/REM. 4.5
80.96 PCANYWHERE REMOTE 4.5
36.80 PERSUASION/WIN. 2.1
175.95 POWERPOINT/WIN. 3.0
320.80 PRESENT TASK FORCE 4.0
416.30 Q & A 4.0
358.57 QAPLUS/WIN. 5.0
385.20 QEMM 386 6.0
94.30 QUATTRO PRO 4.0
108.10 SIMPLY ACCOUNTING 3.4
108.10 STACKER 3.0
644.00 STACKER AT/16 2.0
109.71 STACKER XT/8 2.0
681.95 STREAMLINE/WIN. 3.0
492.66 SYMPHONY 3.0
660.68 TIMELINE 5.0
226.44 TURBO C++ 3.0
323.61 TURBO C++/WIN. 3.1
106.37 TURBO PASCAL 6.0
80.27 TURBO PASCAL PRO 6.0
58.77 TURBO PASCAL/WIN. 1.5
358.23 TYPE ALIGN FOR WINDOWS
121.44 TYPING TUTOR 5
290.26 TYPING TUTOR 5/WIN.
323.84 VENTURA PUB./WIN. 4.0
323.84 WINDOWS DRAW 3.0
489.21 WINDOWS RES. KIT 3.1
388.70 WINFAX PRO 2.0
78.20 WORD 5.5
78.20 WORD/WIN. 2.0
460.92 WORKS 2.0
514.17 WORKS/WIN. 2.0
145.25 WP WINDOWS 5.1
399.00 XTREE GOLD 2.5
245.18 XTREE/WIN. 1.0

98.90
136.85
136.85
172.50
616.06
668.15
98.90
136.85
75.90
406.53
402.96
163.07
305.90
115.11
81.77
394.45
146.05
126.73
244.37
195.00
175.00
630.20
537.05
83.95
125.35
125.35
251.85
126.50
79.80
38.76
38.76
749.57
123.16
19.95
91.89
268.64
354.55
123.62
154.68
355.70
134.55
51.29

NOW YOU CAN
PLACE AN
ORDER
OR
RECEIVE
A QUOTE
24
HOURS
A DAY

IBM

MAC

ACCESS PC 2.0
ADOBE ILLUSTRATOR 3.2
ADOBE PHOTOSHOP 2.0
ADOBE PREMIER 1.0
ADOBE TYPE ALIGN ATM 1.0
ADOBE TYPE MANAGER 2.0
ADOBE TYPE REUNION 1.0
AFTER DARK 2.0
AFTER DARK/MAD BUNDLE
ALARMING EVENTS 1.1
ALDUS DIGITAL DARKROOM 2.01
ALDUS FREEHAND 3.1
ALDUS GALLERY EFFECTS
ALDUS INTELLIDRAW 1.0
ALDUS PAGEMAKER 4.2
ALDUS PERSONAL PRESS 2.0
ALDUS PERSUASION 2.12
ALDUS PREPRINT 1.5
ALDUS SUPER 3D 2.5
ALDUS SUPER CARD 1.6
ALDUS SUPER PAINT 3.0
ALSOFT POWER UTILITIES
BEAGLE WORKS
CA-CRICKET DRAW III 1.0
CALCULUS
CANVAS 3.0
CLARIS CAD 2.0
CLARIS FILEMAKER PRO 1.02
CLARIS MACDRAW II 1.1
CLARIS MACPROJECT II 2.5
CLARIS MACWRITE II 1.1
CLARIS RESOLVE 1.01
CLARIS WORKS 1.0
DISK DOUBLER 3.75
DISKEXPRESS II 2.11
DVORAK ON TYPING
EFFECTS SPECIALIST 1.04
FASTBACK PLUS 2.6
FONTMONGER 1.5
FONTGRAPHER 3.5
FOXBASE + 2.01
FRACTAL DESIGN PAINT 1.2

78.20
458.00
689.00
611.23
78.81
79.81
52.44
36.80
53.02
81.77
325.00
488.29
163.53
245.18
616.06
125.58
406.53
406.53
406.53
270.14
165.49
113.85
286.35
180.55
49.80
359.03
749.80
307.05
160.00
465.75
96.60
198.95
225.40
64.75
86.25
67.85
128.80
153.18
122.94
364.90
358.00
302.57

FRAME MAKER 3.0
FREEDOM OF THE PRESS 3.0
GENERIC CADD 2.1
GRAMMATIK 2.05
GREATWORKS 2.0
LAPLINK MAC III 3.2
LETRASTUDIO 2.0
LOTUS 1 2 3 1.0
MACPAINT 2.0
MACPRINT 1.3
MACTOOLS DELUXE 2.0
MASTERJUGGLER 1.57
MAVIS BEACON TYPING 1.3
MAXIMA 2.01
MICROPHONE II 4.0
MICROSOFT EXCEL 4.0
MICROSOFT MAIL 3.0
MICROSOFT OFFICE 2.5
MICROSOFT POWERPOINT 2.0
MICROSOFT PROJECT 1.1
MICROSOFT WORD 5.0
MICROSOFT WORKS 2.0
MORE 3.1
MORE AFTER DARK
NORTON UTILITIES 2.0
NOW UTILITIES 4.0
OMNIPAGE 3.0
QUARKEXPRESS 3.1
QUICKEN 3.0
READY SET GO 4.5A
RETROSPECT 1.3
SAM 3.0
SIMPLY ACCOUNTING 1.3B
SNOOPER DIAGNOSTIC BD.
SNOOPER DIAG.TOOLKIT
SNOOPER DIAGNOSTICS
SOFT AT 2.5
STUFFIT DELUXE 3.0
SUITECASE II 2.1
TIMBUKTU 4.0
TIMESLIPS III 2.1
TYPING TUTOR IV
UNIVERSAL SOFTPC 2.5
VENTURA PUBLISHER 3.2
WINGZ 1.1A
WORDPERFECT 2.1
WORDPERFECT OFFICE 3.0
WORDPERFECT UPG. 2.1
WORDSCAN 1.0
WORDSCAN PLUS 1.0

690.92
323.84
388.70
78.20
165.60
122.59
161.00
420.50
101.20
122.02
133.75
56.35
55.20
71.30
159.62
402.96
329.95
558.35
509.81
558.21
398.50
187.22
303.60
29.44
113.85
121.40
613.53
698.50
57.27
250.70
344.88
75.90
146.05
219.08
198.37
163.53
389.85
86.83
64.06
173.65
254.61
49.95
254.15
651.02
339.02
355.70
99.00
86.59
241.39
486.57

THOUSANDS OF ITEMS IN OUR WAREHOUSE
...IF YOU DON'T SEE IT...CALL (416) 409-6910

PRICES AND SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE, SOME QUANTITIES LIMITED
ALL PRICES ARE ALREADY CASH DISCOUNTED-PRICES IN EFFECT AS OF NOVEMBER 1992

COLOUR NOTEBOOKS

ULTINET

Now Available!

ULTINET 486DX-33MHz NOTEBOOK

The First and Fastest 486DX & 386DX Notebook in Canada

- Intel 486-33DX processor /w32K cache, for incredible notebook performance.
- Built-in fast math copro on 486DX chip, for CAD, engineering, spreadsheets, etc
- Landmark ver 2.0, speed=119MHz! Raw speed cuts through big workloads.
- Effective math copro speed=270MHz! Just imagine AutoCAD on the jobsite.
- 4MB 70ns RAM expandable to 16MB, more RAM capability than other units.
- Awesome 120MB HD, 17ms 990kb/s transfer; 220MB also available.

486DX33 120HD, 4MB	\$3550	486DX33 60HD, 4MB	\$3350
486DX33 120HD, 8MB	\$3750	486DX33 120HD, 4MB	\$3550
486DX33 220HD, 16MB	\$4700	486DX33 120HD, 8MB	\$3700
386SLX25, CLR, 80HD, 4MB	\$3600	486DX33, CLR, 80HD, 4MB	\$5100
386SXL33, CLR, 120HD, 4MB	\$3900	486DX33, CLR, 120HD, 8MB	\$5700

Best value power notebook
Intel 386-33DX CPU, 64K cache
Option for 387-33 math copro
Landmark ver 2.0 speed=51MHz
Eff copro speed (opt) = 117 MHz

1.44MB int floppy drive included
Fast 120MB hard disk 17MS
4MB ram (70 ns) exp to 16MB
Full 2 1/2 hours battery life
AC adapter/carrying case inc.

386DX33 60HD, 4MB	\$2450	386DX33 120HD, 16MB	\$3450
386DX33 120, 4MB	\$2550	386DX33 210HD, 8MB	\$3250
386DX33 120HD, 8MB	\$2850	386DX33 210HD, 16MB	\$3700

Ultinet 386SX-20/25MHz notebook

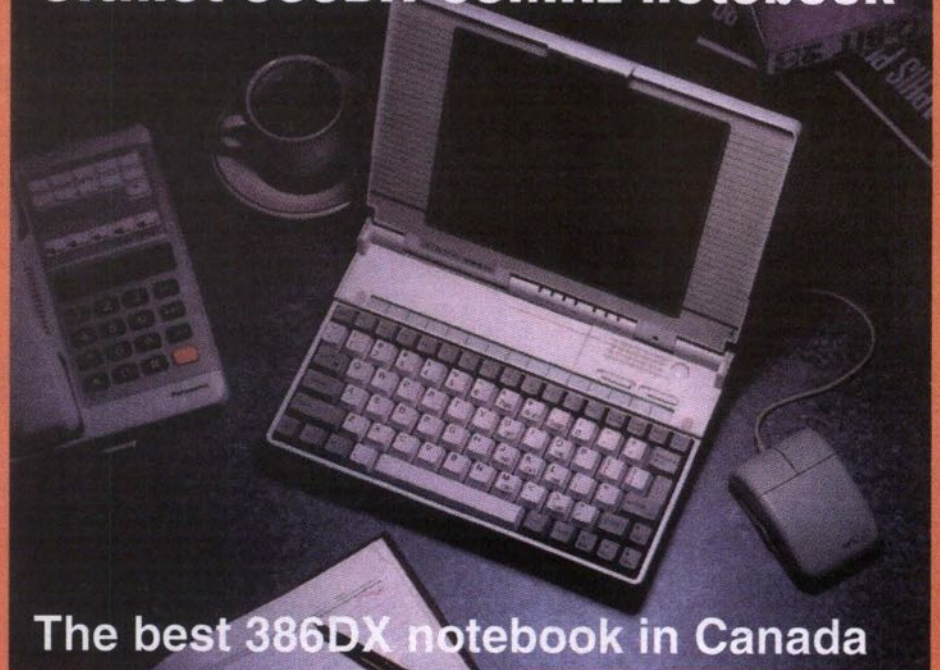
Best value 386SX notebook anywhere

Intel/amd 386-25DSX CPU,
Option for 387-25 SX math copro
Landmark ver 2.0 speed=35MHz
Eff copro speed (opt)=80MHz
1.44MB int floppy drive included

Fast 20 or 60MB hard disk 17ms
1/2 1/4 MB ram (70ns) exp to 16MB
Full 2 1/2 hours battery life
AC adaptor/carrying case incl
Option for int modem or fax/modem

386SX20 20HD, 1MB	\$1450	386SX25 60HD, 2MB	\$1725
386SX25 20HD, 1MB	\$1600	386SX20 80HD, 2MB	\$1595
386SX20 60HD, 2MB	\$1495	386SX25 80HD, 2MB	\$1825

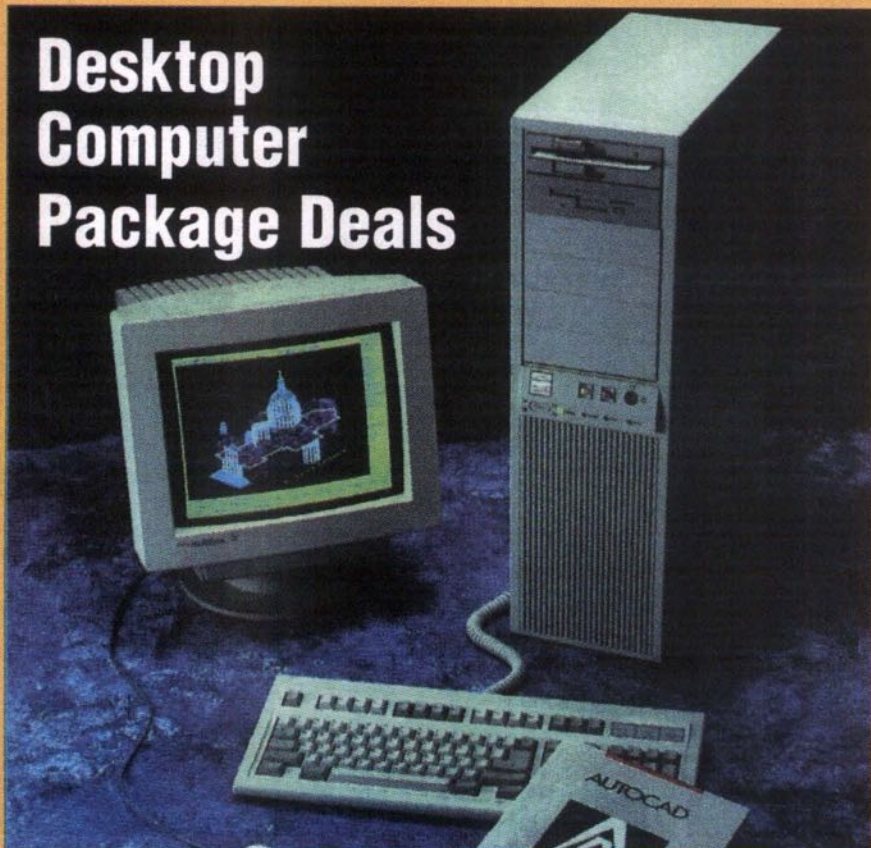
Ultinet 386DX-33MHz notebook



The best 386DX notebook in Canada

Ultinet 386SX-25, SVGA, 1 floppy, 80MB HD,	\$1088
Ultinet 386DX-33, SVGA, 1 floppy, 80MB HD,	\$1198
Ultinet 486DX-33, SVGA, 1 floppy, 80MB HD,	\$1808
Ultinet 486DX-50, SVGA, 1 floppy, 80MB HD,	\$2128
Ultinet 486DX2/66, SVGA, 1 floppy, 80MB HD,	\$2200

Desktop Computer Package Deals



HARD DISK UPGRADES

130MB Maxtor, 17MS 64K cache	\$110
210MB Maxtor, 16MS 64K cache	\$268
320MB Maxtor, 15MS, 64K cache	\$648
330MB 14MS ESDI/SCSI c/w contrl	\$1308
660MB 14MS ESDI/SCSI c/w contrl	\$2000
1.2GB 14MS ESDI/SCSI c/w contrl	\$2900
VIDEO CARD UPGRADES	
1MB trident card 256 colours	\$40
ATI XL 1MB RAM, mouse, 256 colours	\$125
ATI Graphics Ultra 1MB ram, mouse	\$348
Aamazing or equiv non-int monitor	\$70
Viewsonic6FS/NEC 5FG	\$420/600
Local Bus 53 Accelerator	\$285

OPTIONAL HARDWARE UPGRADES

Each additional MB of CPU RAM	\$50
Additional floppy 1.44 or 1.2MB	\$60
Internal modem, or fax/modem	\$60/129
Big Mouth voice mail card	\$259
Low end mouse, c/w drivers	\$25
Logitech or Microsoft mouse	\$75/118
MISC. UPGRADES	
MS-DOS 5.0 full pkg c/w manuals	\$60
MS-Windows 3.1 OEM/Original	\$70/119
IBM OS/2 full pkg complete	\$179
Colorado DJ10 120MB tape drv	\$279
Colorado DJ20 250MB tape drv	\$369
Wangtek 150/250 int tape drv	\$1195

3200 Dufferin Street Unit 1B Toronto

We are located just 4 blocks South of 401 near Yorkdale
at the corner of Dufferin and Samor Road

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

386 SYSTEM



COMPLETE SYSTEM



Three For FREE!

Buy now and get:

- 1) FREE CD-ROM Drive (Japanese, fast access)
- 2) FREE Sound Card (Adlib Compatible)
- 3) FREE Stereo Speakers

**PLUS:
THREE FREE
VGA Games!**

- 2MB RAM (up to 32MB on board)
- 1.44MB 3.5" or 5.25" high density floppy drive
- 40MB Conner hard drive
- VGA colour monitor- 640x480, non-interlaced
- VGA 16-bit card w/ 256K VRAM
- 2-serial, 1-parallel & 1-game port
- 101 key enhanced keyboard
- Mini tower case & 200W power supply
- AMI BIOS and battery backup
- Five Year Warranty
5 year labour, 2 year parts

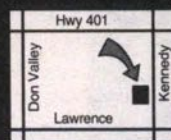


\$999

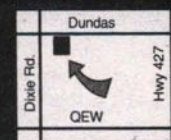
Quantities are limited. Call Today!

CompuTrend

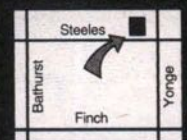
HOURS: Daily - 10AM to 7PM
Saturday - 10AM to 5PM



1350 Kennedy Road
Scarborough
288-0325



1870 Dundas Street East
Mississauga
279-1988



330 Steeles Ave. West
Thornhill
889-0199

From the Editor



Why don't women read computer magazines?

Our reader survey conducted earlier this year told us that the vast majority of our readers are male — only about 11% are female. Most computer publications have something like this male/female imbalance.

In thinking about male and female readers, it occurred to me that we didn't have very many female writers. Then I realized—I had had very few submissions over the years from female writers.

This phenomenon is not unique to reading about computers; it is also evident in other types of learning about computers. According to Southex Exhibitions, promoters of the Pacific Rim Computer Show '93, female attendees usually number about 20% or less. This is apparently common in the trade show industry as well. Computer user groups are another hot-bed of male dominance — female members are often rare. Why aren't women interested in computers in the same way that men are?

Men and women are different — and it isn't just from the waist down

I recently read a book called *Brain Sex*, by Anne Moir and David Jessel (Dell, paperback, 1989), which offers a theory as to why this might be so. The authors argue that males and females have fundamentally different brain structures and that this structural differentiation is caused by hormones. The theory goes that the female brain is the natural state of affairs (the default setting, as it were). In the womb, the genetic male brain is bathed in testosterone, the male hormone. The result, they claim, is a male brain that starts to change rapidly so that it operates differently—it focuses on different things, it processes information differently and ultimately it chooses different professions and modes of behavior.

The authors' theories go radically against the current doctrine. Feminists and advocates of sexual equality have worked long and hard to have us believe that men and women are fundamentally equal and that all that differs is our upbringing. By that theory, little boys and little girls would behave the same except that society pushes macho behavior on boys and feminine stereotypes on girls. What *Brain Sex* is saying is that there is a biological difference which will always result in a different set of behaviors, regardless of upbringing.

What kind of behavior is different?

"One study involves babies of only 2-4 days old. It shows that girls spend almost twice as long as boys maintaining eye contact with a silent adult, and girls also look longer than boys when the adult is talking. The boys' attention span was the same, whether the adult was talking or not—showing a relative bias towards what they could see, rather than what they could hear. From the cradle, baby girls like to gurgle at humans. Most boys are just as talkative, but are equally happy to jabber away at cot toys or looking at abstract geometric designs. Boy are more active and wakeful than girls—the male-wired brain of activity at work."

According to the authors, this marks a life-long difference in emphasis. Girls and women, all through their lives, will be more concerned with people and relationships. They are more tuned to feeling and hearing. Boys and men, all through their lives will be more concerned with objects and actions—they experience the world through seeing.

At puberty, this difference is heightened:

"The boys want to play with things, and the girls want to chat with people. The boys want to achieve, and be dominant.... Leaving school, in spite of all the best intentions of equal opportunity employers, the sexes stubbornly continue to opt for the sort of work that appeals to them. The boys, overwhelmingly, go into jobs with a mechanical or theoretical bias, the girls into jobs which for the most part, involve some sort of human interaction.... Social determinists will argue that a second-class sex is doomed to second-class jobs—but we would turn this assumption round on itself: girls opt for a certain sort of job, and, given male dominance, aggression and sense of hierarchy, those jobs come to be regarded as second-class. Biology steers them towards a particular sort of job. Mere prejudice devalues the nature of that work."

How does this relate to interest in computers?

"...the worlds of mathematics, vision and space are not confined to the academic cloisters. They play a part in everyday life. If men are more interested in the structure of things—which they are—they are not just interested in isosceles triangles; they are interested in new cars....(p. 94)"

When I read this, a light went on in my head. In our office, we had often noted similarities of computer publications in general to car magazines. Various females in our office have complained that what we write about is dull stuff—we write as if the computers are cars—all numbers and statistics about how fast they can go. They wanted more stories about how computers related to and affected people.

Men seem to be more interested in things. Computers currently are considered objects of power. They are the tools to get ahead in the business world. Knowledge is power. Knowing how to use computers can get you ahead of your colleagues and competitors, something that appeals to males who seek to dominate or move up the hierarchy.

Automatic Behavior

According to the authors of *Brain Sex*, men are more prone to "automatisation,"

"...behaviors that don't involve great mental or physical effort, once learnt, but where performance tends to drop off after a certain amount of time as a result of boredom, distraction, and weariness. Other activities in the same category—include walking, talking, keeping one's balance, maintaining observation, and writing...."

Should we add to the list of automatised behaviors, playing video games?—how many little girls do you know who are addicted to Mario and his friends? How many little boys? If *Brain Sex* is right, it is the old wonder drug testosterone that keeps males going.

Is this sexist?

Possibly in the traditional sense of the word it may be sexist to view things this way, but what if it is true? Is it not better to be realistic?

Ultimately it is necessary to treat people as individuals, because as the authors point out, "brain sex" is a continuum, not a dichotomy, and individual behavior will vary widely.

Role Reversal

Of course, I may be missing the whole point here. When Dave Small (of Gadgets by Small, a Littleton, CO company that makes an emulator for Ataris so they can run Macintosh software) asked his wife, "Why are there so few women into computers?" she said, "The real question is: why are men so into computers? I mean, I use a toaster, but I don't go to a toaster user group."

This month is the Canadian Computer Show at the Toronto International Centre (6900 Airport Road) to be held November 23rd through to the 26th. Please drop by our booth (3762) and say hello.

Enjoy the issue.

Kirtan Singh Khalsa
Kirtan Singh Khalsa, Publisher/Editor

Another source on this topic can be found in the Sept. '92 Scientific American (p. 119), in an article called "Sex Difference in the Brain."

IN THIS ISSUE ...

FEATURES

Annual Payroll Survey16

BY JOAN HORNAL

Payroll Survey Table17

Windows for Workgroups21

Microsoft brings connectivity to the masses. BY JAMES MACFARLANE

A Computer for Your Child26

Roedy heads for the Sudan to change the world.

BY ROEDY GREEN

High-speed Telecommunications.....33

Is your PC's serial port up to speed? BY JAMES MACFARLANE

Twelve Wishes for a Computer Christmas.....34

BY PETER TALBOT

Laser Printer Trends.....36

Higher resolutions and better gray scales. By GEOFF WHEELWRIGHT

REVIEWS

The Amiga Alternative14

The Amiga 600 and AmigaDOS 2.1 reviewed. BY GRAEME BENNETT



Video Review: Beyond the Mind's Eye..32

Let me tell you 'bout the birds and the bees.

BY GRAEME BENNETT

Book Review: Windows 3.1 Secrets38

BY GRAEME BENNETT

Sketching in 3-D.....40

Alias Sketch brings a new dimension to Mac graphics. BY GRAEME BENNETT

DEPARTMENTS

Mailbox6

Masthead6

What's New8

Newsbytes42

Apple News42

PC News44

Classifieds51

Calendar50

User Groups53

Index of Advertisers53

EDITORIAL SCHEDULE

METRO TORONTO EDITION

ISSUE Jan '93

TOPICS A Beginner's Guide to Computers • Fax • Notebooks

COPY Wed., Dec. 2

CAMERA READY ADS Thurs., Dec. 3

DISTRIBUTION Fri., Dec. 18

ISSUE Feb '93

TOPICS Spreadsheets • Personal Tax Software • Upgrading Your Computer

COPY Wed., Dec. 30

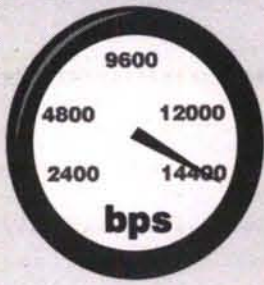
CAMERA READY ADS Thurs., Dec. 31

DISTRIBUTION Fri., Jan. 15

CALL (416) 588-1580

FOR ADVERTISING INFORMATION.

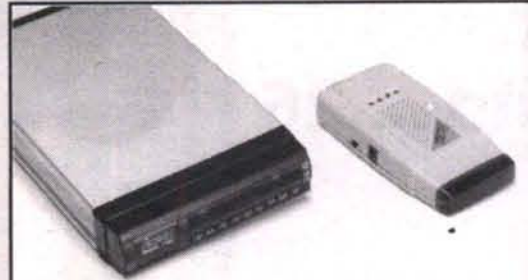
ACEEX MODEMS



DATA

FAX

TURBO



Aceex manufactures internal, external and **Pocket Fax/modems**

- ◆ 5 Year Warranty
- ◆ 57k bps max throughput
- ◆ MNP5, V.42, V.42bis
- ◆ Group III, Class 2 fax
- ◆ 10 Free hours on Virtual Village BBS
- ◆ Learn how to use it at our FREE seminar call 538-0101

ASK ABOUT OUR NEW MAC MODEM
Includes hardware-handshaking cable, communications and fax software for Mac!

Mailbox

Networking Info Wanted

I am a teacher at Pope John Paul II High School in Scarborough (Toronto). I have purchased my own Macintosh LC II computer. My school is also networking an IBM-PC system throughout our school although we have one department on Macs and assorted other computers throughout the school. I saw your name in the Macworld Exposition Program for the "Connecting Mac to MS-DOS: Tips from Veterans" presentation, which I could not attend.

I am quite interested in any information, specifically education related, that you might be able to give me about this area. In fact, as with all computer owners, I am always open to any leads on helpful software applications or contacts. I would like to make the best possible use of my computer. This is for my own personal interest as well as perhaps for my school (Math department and library) and for the teachers' association on which I serve. I would welcome any ideas you might be able to share from your experience.

Rene Jansen in de Wal
Scarborough, Ont.

Although the topic of networking is far too complex to adequately cover in this space, here are a few important points we've learned while connecting Macs to PCs:

- The Mac's built-in networking connector, called LocalTalk, is too slow for serious use, especially if you will be transferring large files over the network. Get an Ethernet card or external adapter unless your network administrator recommends an alternative.

- You do have a full-time network administrator/computer guru, don't you? You'll need one. An administrator we know has a lab of Macs and a lab of PCs to look after. In his words, the Macs pretty much take care of themselves. He spends all his time "putting out fires" in the PC lab.

- Install Insignia Solutions' Access PC software on all your Macs. That way, you can read PC disks directly. In many cases, this is faster and easier than accessing files over a network.

- A few good books on the subject are: Dvorak's Guide to PC Connectivity (Bantam); Que's Introduction to Networking and Understanding Local Area Networks, and the MacUser Guide to Connectivity. We found all these titles at our local bookstore (Siliconconnections, 604-222-2221).

— gb

Slight and Slighted

The review on morphing by Mr. Bennett makes slight and slighted mention of ImageMaster and Morph Plus, calling them "consumer-level" programs for the Amiga. Such a comment forces me to wonder how Mr. Bennett would define "consumer-level." Perhaps he is not aware that Morph Plus for the Amiga (by ASDG Incorporated), is currently in use in Hollywood studios. If price is the determining factor, then Mr. Bennett would be correct in his definition and would join the ranks of those who can't, or won't, accept that such incredible software could be available for this fantastic "game machine" at such prices. If performance is in question, then Mr. Bennett should point out the differences or not mention other programs at all. The truth is that these programs will outperform any comparable programs available for IBM or Macs; it's simply

Letters Continued on page 13



PUBLISHER / EDITOR

Kirtan Singh Khalsa

MANAGING EDITOR

Graeme Bennett

CONTRIBUTING EDITOR

Geof Wheelwright

CONTRIBUTING WRITERS

Graeme Bennett, Roedy Green, Joan Horal, Kirtan Singh Khalsa, James MacFarlane, Peter Talbot, Geof Wheelwright
Newsbytes Canadian Editor: Grant Buckler

ART DIRECTOR

Carolyn Howse

PRODUCTION MANAGER

Kit Griffin

PRODUCTION STAFF

Ernest Stelzer, Ron Braunegal

SALES MANAGER

Hari Singh Khalsa

NATIONAL AD SALES

John Oliver (416) 588-1580 Toronto

ACCOUNTING MANAGER

Dharm Kaur Khalsa

ACCOUNTING ASSISTANT

Rose Agnello

ADMINISTRATION

Suzanne Byars

COVER ART Image rendered by Eri Teichroeb; compositing and retouching by Graeme Bennett

PROOFREADER

ABC Writing Company / Neall Calvert

TORONTO OFFICE

ONTARIO AD SALES

John Oliver (416) 588-1580

CIRCULATION MANAGER

Charles Oliver

OFFICE MANAGER

Yvette Doucette

PRODUCTION

Tom Lewis

PRINTER

Metroland

VANCOUVER OFFICE

B.C. AD SALES

Dyal Singh Khalsa (604) 733-5596

DISTRIBUTION

Ken Kemp & Co.

PRINTER

Transcontinental West Printers

CALGARY OFFICE

ALBERTA AD SALES

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

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 \$40 in US Funds. Overseas please send \$65 Canadian.

THIS IS VOLUME 5, NO. 12, DECEMBER, 1992

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.

HEAD OFFICE - BRITISH COLUMBIA

Canada Computer Paper Inc.
#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")
Circulation: 50,000

ALBERTA OFFICE 1

#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 Circulation: 50,000

MANITOBA OFFICE

130 Scott St., Winnipeg, Manitoba R3L 0K8
Tel. (204) 949-7720, Fax (204) 949-7721
Circulation: 25,000

ONTARIO OFFICE

408-99 Atlantic Ave., Toronto, Ontario M6K 3J8
Tel: (416) 588-1580, Fax (416) 588-8574
Circulation: 75,000

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.

\$599
NCC 386SX/25
1Mb Ram, 1.44Mb Floppy, 42Mb Hard Drive
Mini Tower, 101 Keyboard, TWO YEAR WARRANTY

NCC
AUTHORIZED DEALER

EPSON
Action Laser II
\$865

NCC386DX/33 - 64k Cache
\$799
1Mb Ram, 1.44Mb Floppy, 42Mb Hard Drive, VGA card,
Mini Tower, 101 Keyboard, TWO YEAR WARRANTY

Bring your system in for a free estimate on upgrading and a free system checkup

FAX QUOTE FORM

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

SYSTEM	MEMORY	MONITOR	HARD DISK
NCC386SX/25	1Mb	14" VGA	40Mb
NCC386DX/33 - 64k Cache	2Mb	14" SVGA	52Mb
NCC486DX/33 - 64k Cache	4Mb	14" UVGA	105Mb
NCC486DX/33 - 256k Cache	8Mb	17" SVGA	120Mb
NCC486DX/50 - 256k Cache	16Mb	21" SVGA	240Mb

MODEM	FLOPPY	PRINTER
2400 Baud	5.25" 1.2Mb	9 Pin
9600 Baud	3.5" 1.44Mb	24 Pin
14400 Baud		InkJet
FaxModem		Colour
		Laser

[] Windows 3.1 [] Dos 5.0

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

Name: _____
Address: _____
Phone: _____

COMPUTER VARIABLES

Computer Variables
165 East Beaver Creek
Unit #27
Richmond Hill, Ontario
L4B 2N2

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

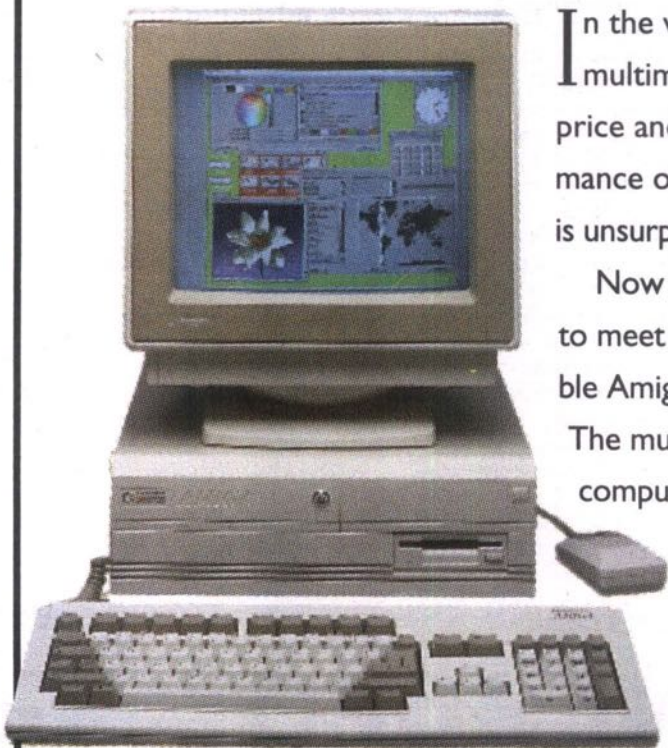
We Ship Accross Canada

Prices Subject To Change Without Notice. Limited Quantities.
Sale Items Are Cash Price. Sale Prices In Effect Till Dec. 31, 1992.

Send your Letters to the Editor to:

THE COMPUTER PAPER
408-99 Atlantic Ave.,
Toronto, ON M6K 3J8

Blazing Speed! Dazzling Color! Amazing Price! The New Amiga 4000.



In the world of multimedia, the price and performance of the Amiga is unsurpassed.

Now get ready to meet the incredible Amiga 4000.

The multimedia computer that gives you more than any platform that's gone before. At

a suggested list price of only \$4,595*!

At the heart of every system lies our unique custom co-processors which generate graphics, sound, video and animation faster than you ever believed possible.

Add to this Motorola's 68040 chip and not only is the A4000 blindingly quick, it literally gives you true workstation power.

And through our Advanced Graphics Architecture Chip Set you can instantly enter a world filled with high resolution graphics simultaneously displayed in up to 256,000 colors, from a palette of over 16.8 million.

With all these features, the Amiga 4000's spectacular multimedia performance is ready to run right out of the box. You don't need to kluge together potentially incompatible components.

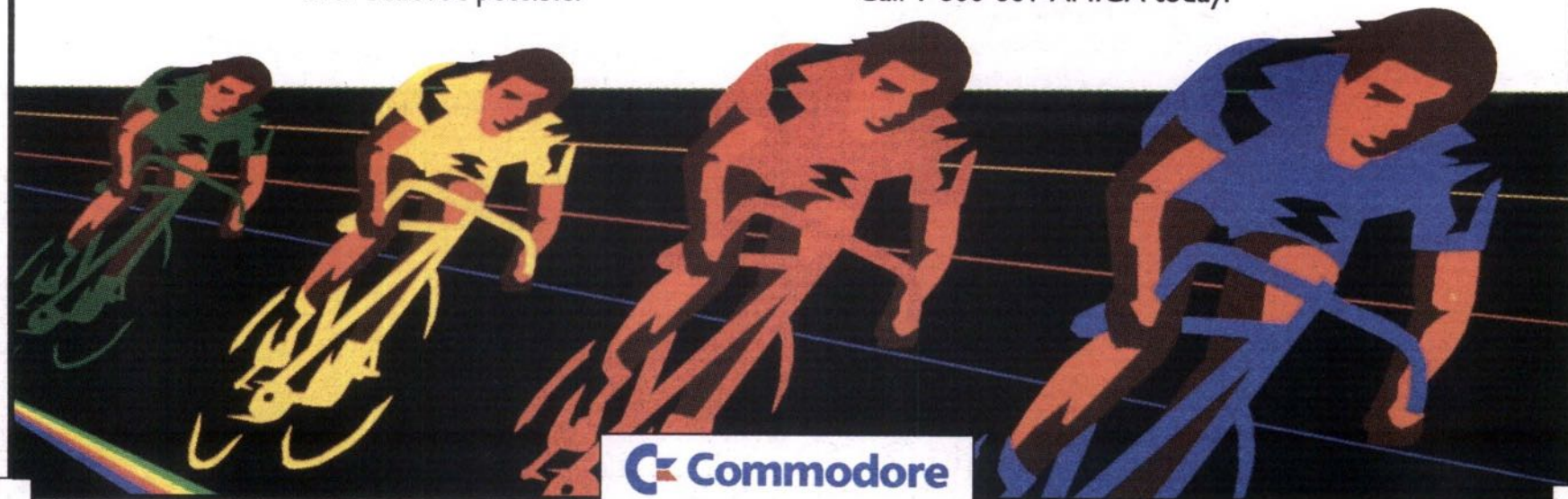


The Amiga 4000 features the powerful new Motorola 68040 microprocessor.

The A4000 also comes complete with 6MB of RAM, a 120 MB hard drive and 1.76 MB dual speed high density floppy drive, combined with Cross-DOS software for reading and writing MS-DOS files. And it communicates with Macintosh and MS-DOS on a Novell network.

Find out more about the exciting things you could be doing with the new Amiga 4000.

Call 1-800-661-AMIGA today.



Commodore
MULTIMEDIA

*Price includes Amiga 4000 with Motorola 68040 processor, 6 MB RAM, internal 3.5" 1.76 MB Floppy Drive, 120 MB IDE Hard Drive, 94-key Keyboard, 2-button Mouse, AmigaDOS Release 3.0 System Software and Utilities. MS-DOS is a trademark of Microsoft Corporation. Novell is a trademark of Novell Inc. Macintosh is a registered trademark of Apple Computer Inc.

See the Amiga 4000 at the World of Commodore, December 4, 5 & 6 at the International Centre in Toronto.

WHAT'S NEW

Delrina makes amazing acquisition from *The Far Side*



Toronto-based PC fax software specialist Delrina Corporation is entering the funny business. Best-known for its sober and serious WinFax and PerForm fax and form management applications, Delrina has acquired a company that develops daily planner software using characters from comic strips such as Cathy, Bloom County, BC and Gary Larsen's *The Far Side*.

Known as Amaze Corporation and based in Kirkland, Washington, the

acquired company is best known for its pioneering version of *The Far Side* calendar, available for Apple Macintosh, DOS and Windows-based PCs. Amaze also offers calendars based on the Random House Dictionary, Trivial Pursuit and the Berlitz Language Training organization.

The deal is not all good news for Delrina, however. It also has to refinance Amaze's debt of some \$3 million (US). Amaze directors Rowland Hanson and George Clute have agreed to join the Delrina board.

Contact: Delrina Corporation (416) 441-3676

WordPerfect recognizes a distinct market

At a time when debate over language and cultural rights in Canada was at its peak, WordPerfect Corporation waded in with an announcement that the company has introduced "dual language" licensing in Canada for English-Canadian and French-Canadian versions of the product.

The new licensing arrangement means that WordPerfect users can have support for both languages within a single software license. To add English-Canadian support to a French-Canadian version of the product, users need only pay an additional \$24

to get a complete set of English-Canadian WordPerfect disks — and vice versa.

"Canada is an important market for us and we want to improve easy access to both English and French versions," says WordPerfect Corporation marketing vice-president Dan Lunt. "Now we give Canadian users the freedom to choose the language they prefer."

Contact: WordPerfect Corporation (801) 225-5000

Amiga-generated Virtual Reality at World of Commodore BY MATTHEW LAWRENCE

Fans of the phenomenon that is virtual reality have something special in store for them at this year's World of Commodore/Amiga show, to be held Dec. 4-6 in Toronto. Four "virtual" experiences will be set up at the International Centre by two Toronto companies, and attendees will be able to try them out at no extra charge.

According to Tom Shepherd, Commodore's director of marketing, "This is the first ever multi-vendor display of virtual reality systems for consumers in Canada. All of the units were developed on Amiga platforms, so World of Commodore was the logical place for such an exhibit."

Virtuality Canada will set up two "pods" developed by W. Industries of Leicester, England. The 1000CS Cyberspace system is controlled by an Amiga 3000 with CD-ROM and hard disk storage. Participants wear a helmet called a Visette which includes



stereo LCD color screens, quadraphonic sound, a microphone, and a magnetic tracking system that monitors the position and angle of the head. Movement and actions are controlled by a "spacestick," which is a magnetically tracked joystick.

Experiences such as *Dactyl Nightmare* are controlled by W. Industries' Animette software. Current simulations occupy from 5 to 10MB of storage space and provide computer-generated environments that participants can move around in, and interact with.

Brian Rothenburger, Virtuality's director of operations, says Amiga computers were used because their extensive multimedia capabilities effectively "supported the use of 3-D stereoscopic video graphics combined with CD sound and audio special effects."

Very Vivid Inc. has taken a different approach to virtual reality with their Mandala system. Participants don't wear special equipment, but rather have their image projected into various scenes including the transporter room of the *Starship Enterprise*.

The Mandala system combines an Amiga 2500 with a video camera, a laserdisc player, and several switchers, mixers, and adapters which analyze the user's real-time movements in the 3-D virtual environment they occupy. Watching a mirror image of themselves, they can interact with both stationary and moving items in the chosen environment.

There is no doubt that virtual reality is poised to move into the mainstream. However, you will actually have to be there to experience it.



When you upgrade to Ami Pro 3.0 the mouse is on the house.

Competitive upgrade from any word processing package

Ami Pro 3.0

\$132⁰⁰

with Logitech Dexxa mouse

To place an order or request a free upgrade catalogue call **1-800-465-2266 ext. 808.**

Lotsa Lotus upgrades!	
Ami Pro from 2.0	\$ 89
SmartSuite	425
1-2-3 for Windows	132
1-2-3 for Mac	132
1-2-3 for DOS R.2.4.	132
1-2-3 for DOS R.3.1+	132
1-2-3 for OS/2	132
Freelance Graphics 4.0	132
Freelance Graphics for Windows	132
Symphony 3.0	132
Agenda 2.0	89



Computer Software Upgrades (Canada) Inc.

Prices do not include shipping and handling. Provincial sales tax charged to Quebec residents only. Title page from competing product is required.

RENT SOFTWARE

TRY BEFORE YOU BUY

Business, Games & Educational Software

All Major Titles

Membership Includes Free Access to Our Online Service with 11,000 Shareware Files

Aceex 14,400 Modem/Fax (57,600 throughput) with 16,550 UART
\$319⁹⁹

MISTER SOFTWARE



3747 Bloor Street West
Etobicoke
233-8435

PICKERING
 Location Opening
Dec. 1
 1420 Bayly
 Beside the
GO

(416) 537-2611

SBL COMPUTER PRODUCTS

SALES, SERVICE, RENTALS, LEASING

(416) 537-2611

SOUND/MUSIC, VOICE
BIGMouth...\$199.
ATI Stereo-F/X...\$139.
SOUND BLASTER PRO...\$229.

NETWORKS:
LANTASTIC, 3COM,
NOVELL & MORE

THE PRO'S CHOICE

since 1979

COMPUTER PACKAGE DEALS!

3U486/DX/33...\$639*

386/DX/40.....\$599*

486/SX/25.....\$699*

486/DX/33.....\$1079*

486/DX2/50...\$1259*

486/DX/50.....\$1369*

486/DX2/66...\$1499*

EISA Option...\$499. LOCAL BUS Option...\$69.
Local Bus Video...\$179. (*64/128/256K Cache Models)

ALL SYSTEMS HAVE:

- Parallel, 2 Serial, Game
- One 1.44 MB 3.5" Drive
- 101 Enhanced Keyboard
- 4 MB RAM Memory 60ns
- 200 Watt Power Supply
- IDE Hard Disk Controller
- Diskette Drive Controller
- AMI BIOS, CSA Approved
- Assembled & Tested-48Hr
- Mini Tower Case w LED's
- One Year Warranty

- Color VGA Option...\$299
- Mono VGA Option...\$199

IBM PS/1 with Monitor, Mouse, Modem \$1099.

386/SX/16, 2MB, 40MB HD, DOS 5.0, VGA Color+Windows, Works & More

DISKETTE DRIVES Panasonic~Fujitsu~Toshiba~Canon

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

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

386SXL NOTEBOOK 2MB, 60MB, DOS - \$1699.

HARD DISK DRIVES & SCSI/ESDI CONTROLLERS

Quantum 127MB 9ms 256K IDE.....\$386.	FUJITSU 330MB 12ms 256K IDE.....\$989.
MAXTOR 535MB 13ms IDE.....\$1288.	Quantum 245MB 9ms 256K IDE.....\$679.
MAXTOR 213MB 15ms IDE.....\$499.	SEAGATE 177MB 15ms IDE.....\$449.
SEAGATE 40MB 15ms IDE.....\$225.	FUJITSU 105MB 14ms SCSI.....\$379.
SEAGATE 130MB 15ms IDE.....\$389.	SEAGATE 340MB 13ms IDE.....\$886.
TOSHIBA 877MB 12ms SCSI 256K.\$1489.	MAXTOR 130MB 14ms IDE.....\$379.
WDC 212MB 14ms 64K IDE.....\$499.	FUJITSU 105MB 14ms IDE(3yrW)...\$329.
QUANTUM 105MB 12ms SCSI.....\$429.	QUANTUM 52MB 12ms IDE.....\$239.
ALWAYS IN2000 SCSI H/F.....\$239.	ULTRASTOR 12F ESDI H/F.....\$229.

CASES & POWER SUPPLIES & KEYBOARDS

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

Keytronics 101Enhanced.....\$59. ED120 Ext HD Case HH 45W SCSI...\$129.

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~ALL

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

ALL SX Upgrade 286 to 386SX.....\$279. | Intel 387/DX/33.....\$119.

MULTIMEDIA/CD ROM & REMOVABLE HARD DISKS

PC Powered 90MB 18ms Ext Drive.....\$669. | PC Powered Pro 90MB Ext Drive.....\$789.

SONY CD ROM w Inif/SW Internal...\$399. | Bernoulli 90 MB Cartridge.....\$179.

Syquest 88MB 20ms Int Drive.....\$499. | Syquest 44MB Cartridge.....\$99.

Syquest 44MB 20ms Int Drive.....\$379. | NEC CD EXPRESS w 10 CD's+Spk...\$539.

MODEMS/FAX & VOICE CARDS

Complete Communicator 9600 FAX/2400 Modem V.42 bis MNP5/Voice.....\$399.

US Robotics HST 16.8 External Modem ASL, V.42 bis/MNP5, 57,600bps.....\$639.

BOCA 14.4 Internal v.32bis/v.42bis MNP5, FAX/MODEM, 57,600bps, SW, 5yrW...\$379.

GVC Send/Receive 9600 FAX w WINFAX/ 2400 Modem Internal 5yr Warranty...\$99.

TAPE DRIVES Archive~Tallgrass~Irwin~Colorado

IOMEGA TAPE250 Insider Drive.....\$269. | JUMBO 250MB Int Tape Drive.....\$339.

VIDEO/TV CARDS

DIAMOND STEALTH SVGA, 1280x1024, 16 bit, 72Hz, 1MB, 32K Colors.....\$295.00

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...\$169.00

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

ATI Graphics Vantage SVGA, 1024x768, 1 MB, NI, 72Hz, Mouse, 256K Colors.....\$269.00

ATI Graphics ULTRA Pro 1280x1024, 2MB, NI, 76Hz, Mouse, 16M Colors...\$649.00

WINDOWS ACCELERATOR SVGA 16 bit, 1280x1024, 256 Colors, 1MB, NI, 72Hz...\$129.00

POS SOLUTIONS - BAR CODING, SCANNERS, SOFTWARE

KeyBoard Wedge WAND Scanner.....\$349.00 | POS CASH DRAWER w Dual LOCK...\$189.00

STAR 4.5" SERIAL POS PRINTER...\$475.00 | UTILITY 1 BAR CODE Software.....\$179.00

CCD HAND LASER SCANNER.....\$1095.00 | POS ACCOUNTING Software.....\$495.00

MULTI I/O, RAM, CONTROLLER CARDS

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

RAMpAT! AT PLUS RAM Board OK->16MB, SIMMS, EMS 4.0, 286/386/486.....\$139.00

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

KT-AT10-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

EXP 1101 AT 16 Bit IDE HD/FDD Adapter w Cables.....\$25.00

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

386SX/25 386SX, 25MHz, OK, Exp->32MB, Intel, OPTI, AMI, SIMM, 6Slot.....\$129.00

386SX/33 386SX, 33MHz, OK, Exp->16MB, AMD, OPTI, AMI, SIMM, 6Slot.....\$159.00

386L/25 386DX, 25MHz, OK, Exp->32MB, TOPCAT, AMI, SIMM, 8Slot.....\$189.00

386DX/33 386DX, 33MHz, OK, Exp->32MB, UMC, SIMM, 8Slot.....\$219.00

386DX/33 386 Upgrade 486DX, 33MHz, 64K Cache, OK, Exp->32MB, SIMM.....\$249.00

386DX/40 386DX, 40MHz, OK, Cache, OK, Exp->32MB, AMD, OPTI, AMI, SIMM, 8Slot.....\$217.00

386DX/40 386DX, 40MHz, 128K Cache, OK, Exp->32MB, UMC, SIMM, 8Slot.....\$249.00

486SX/25 486SX, 25MHz, OK, Exp->32MB, Intel, OPTI, AMI, SIMM, 8Slot.....\$299.00

486DX/33 486DX, 33MHz, 64K Cache, OK, Exp->32MB, Intel, UMC, AMI, SIMM, 8Slot.....\$649.00

486DX/33 486DX, 33MHz, 256K Cache, OK, Exp->64MB, Intel, OPTI, AMI, SIMM, 8Slot.....\$729.00

486DX2/50 486DX, 50MHz, OK, 128K Cache, Exp->32MB, UMC, SIMM, 8Slot.....\$925.00

486DX/50 486DX, 50MHz, OK, 256K Cache, Exp->64MB, OPTI, SIMM, 8Slot.....\$1069.00

486DX2/66 486DX, 66MHz, OK, 256K Cache, Exp->32MB, UMC, SIMM, 8Slot.....\$1099.00

486DX/50 486DX, 50MHz, OK, 256K Cache, Exp->32MB, UMC, SIMM (EISA)...\$1459.00

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

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

MM-1488AX 14" VGA Paper White.....\$145.

CVL4955 14" VGA .39 640x480 I.....\$259.

TVM LR3A 14" SVGA .28 1024x768 I.....\$347.

SC428TX 14" SVGA .28 1024x768 72Hz NI.....\$389.

SONY 14" MultiScan .25, 1024x768 87Hz, NI.....\$699.

MITSUBISHI PRO 17" .26, 1280x1024, 130Hz, NI...\$1389.

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

SONY 20" MultiScan .30 1280x1024 120Hz NI.....\$2399.

PRINTERS Star~Epson~Panasonic~IBM~HP

StarScript Laser Printer 4 w Postscript/Risc.....\$1349.

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

CANON B-J20 INK JET Printer, 4lb, w SF & SW...\$489.

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

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

NEC Model 95 2MB PostScript 6ppm Laser.....\$1749.

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

STAR NX2430 MULTI-FONT, 24 Pin, 240 CPS...\$279.

PANASONIC 1180i, 1123, 1124i, 2123, ETC.....\$CALL.

SOFTWARE SALE

LOTUS 123 Win 1.1...\$199.

FOX PRO 2.0.....\$249.

PAGEMAKER 4.0.....\$279.

MS DOS 5.0.....\$49.

MS EXCEL 4.0 Win...\$149.

WordPerfect Win.....\$89.

Windows 3.1/Mouse...\$129.

WordPerfect DOS.....\$99.

WORD 2.0 for Win...\$149.

WINDOWS 3.1.....\$59.

Adobe Illustrator 4.0...\$199.

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

Q & A 4.0.....\$CALL.

OS/2 2.0.....\$79.

COREL DRAW 3.0.....\$179.

Harvard Graphics Win...\$99.

PARADOX 4.0.....\$239.

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 November 10/92

WHAT'S NEW

US game company names Quayle 'potato boy' as spokesman

The U.S. elementary school student who taught out-going vice-president Dan Quayle how to correctly spell the word potato has been named as a spokesman for California-based Spectrum HoloByte. Among many other games, Spectrum HoloByte recently announced its new Wordtris word game for the Apple Macintosh, PC-compatibles, Nintendo Super NES and GameBoy systems.

William Figueroa, the boy in question, will be the spokesman for this particular game. He will also take part in what the company is calling its "Potato Challenge" sweepstakes in the January 1993 issue of *Gamepro* magazine.

Contact: Spectrum HoloByte (510) 522-3584

Portable Computing Forum Launched

IC+E, producer of the successful PC Windows Show last spring, has announced the Portable Computing Forum to be held at the Metro Convention Centre Nov. 20-Dec. 1, 1992.

If you need to know about portable or pen-based computing, this event will offer two information-packed days of the latest developments in the mobile computing area. The Keynote Panel on Portable and Handheld Market Trends will feature Wayne Arcus, VP Marketing of Apple Canada; Bob Grossman, GM of Toshiba; Dave Bell, Marketing Manager for GRiD systems; and James Bartlett, Product Manager for IBM. The breakout sessions have two tracks:

1) Pen Systems and Futures Track**Day 1**

- Hottest New Pen Products
- New Pen Applications
- Pen Operating Systems: Picking the "Write" One
- Pen Software Development Tools
- Developments in Handwriting Recognition
- PDAs: Personal Organizers on Steroids or Much More?

Day 2

- Electronic Documents and Electronic Forms Flow
- Wireless E-Mail
- Wireless Network Alternatives
- A Case Study in Advanced Radio Data Information Services

2) Portable Office Track**Day 1**

- Size vs. Functionality: Are Palmtops a Viable Option?
- Optimizing Investments—Affording the Systems your Organization Needs Today
- Designing the Portable Office
- Portables and Personal Information Management
- Future Trends in Portable Computers
- PCMCIA—Setting the Standard for the Future

Day 2

- Planning for Remote Automation
- Case Study: The Electronic Audit Briefcase
- Cost Justifying a Field Automation System
- Case Study: Field Sales Automation at Canada Post.

1-day conference registration costs \$209, 2 days cost \$299. The Display Area Registration is free.

Contact: Portable Computing Forum c/o IC+E, 144 Front St. West, Suite 285, Toronto, Ontario M5J 2L7, (416) 581-8797 or 1-800-263-7017.

ZipCode Software helps keep the mailroom from getting caught with its pants down

Ontario's ZipCode Software has come up with some new mail-handling applications and has a new man at the helm of its marketing operations. The new marketing boss is Michael Burrows, past president of Ximpro International. He also worked closely in the past with both Ashton-Tate and Fox Software internationally.

Burrows will move quite aggressively to market the company's zipcode application,

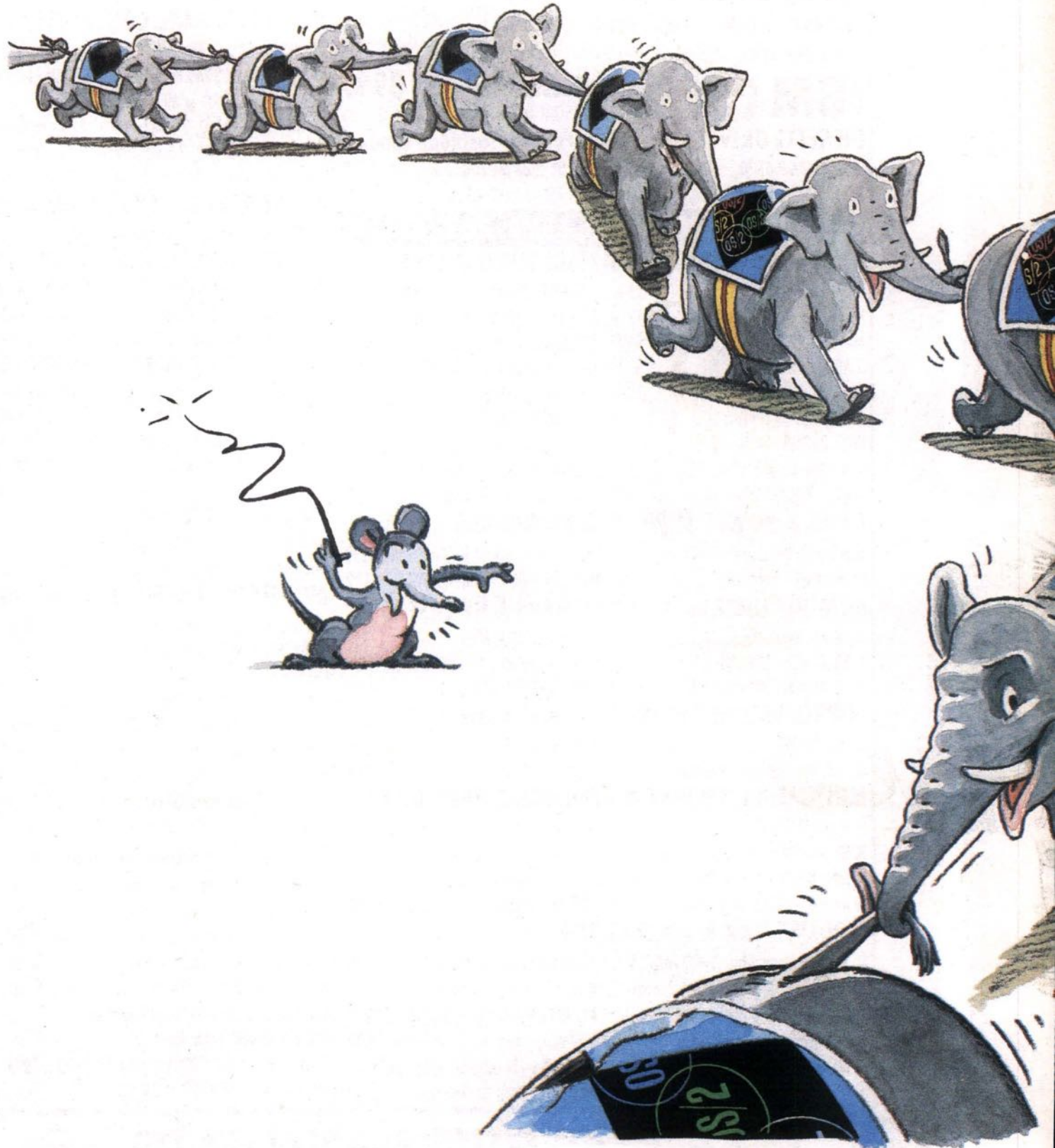
known simply as ZipCode. It is a memory-resident, bilingual application that compresses the Canadian Postal Code Directory from 125 MB down to a mere 9 MB and claims to be able to let you find the postal code for any address in Canada within less than a second.

ZipCode is designed to work with most popular PC applications. There is also a companion version of the software, known

as ZipBase, that verifies and inserts postal codes at a rate of more than 5000 records per hour. A Windows version of the product is also available, while versions for the Apple Macintosh and international markets are still under development.

Contact: ZipCode Software (613) 230-8339

The new OS/2 LAN Server



WHAT'S NEW

Statx High-performance Anti-static Cleaner And Protector

LONDON, ONTARIO — StarTech Computer Accessories has recently launched STATX, a new anti-static cleaner and dust repellent. The company says the STATX formulation provides a safe and effective cleaner, as well as drastically reducing static electricity. This protects your equipment from harmful dust and static shocks.

STATX is designed to protect computer

monitors, keyboards, TVs, fax machines and all other home and office electronics. The non-abrasive foam eliminates streaking and is safe for use on any VDT glass surface.

The company claims that STATX will clean and repel dust for up to eight weeks.

StarTech is offering the product in a 3 oz. and 6 oz. size, with suggested retail of \$5.95 and \$9.95 (Can.) respectively.

StarTech maintains that STATX is environmentally safe as it contains no CFCs.

The Computer Paper tested this product and found it to be everything the company says it is. It is both an excellent cleaner and an effective dust repellent — and it smells pretty good, too. Highly recommended.

Contact: StarTech Computer Accessories Ltd., (519) 438-8529

Betty Crocker's Cookbooks Now On Disk

Set the table, call your friends and get the computer booted up.

Lifestyle Software Group has cooked up a disk-based version of Betty Crocker's cookbooks for home PC users.

First in the series is an unabridged edition of *Betty Crocker's 40th Anniversary Cookbook* for under \$35. This electronic edition contains more than 1,000 recipes and 300 Betty Crocker heritage recipes with complete nutritional data. Also available is the electronic edition of the best-selling microwave cookbook of all time, *Betty Crocker's Microwave Cookbook*, for less than \$30.

This complete version features over 600 quality-tested recipes. *Betty Crocker's Old-Fashioned Cookbook*, *Shortcut Cooking for the Smart Cook* and *Low-Fat, Low-Cholesterol Cookbook* are available for under \$25 each. In all, the series offers the home PC user over 4,000 selections from Betty Crocker's Kitchens. This series couples some of the best-loved cookbooks of all times with the latest technologies to create an indispensable aid to meal planning and recipe management. Searching for recipes, planning menus and organizing shopping lists has never been easier.

Betty Crocker's cookbooks, electronic editions, are completely compatible with LSG's new Micro Kitchen Companion meal planning and nutrition system and are available in both multimedia Windows and DOS versions.

All of the recipes, nutritional information, tips, shortcuts and fascinating food history from the Betty Crocker editors are easily accessed with the PC using Micro Kitchen Light, a simple-to-use, abridged version of LSG's popular Micro Kitchen Companion.

Micro Kitchen Light's attractive pull-down menus allow the user to locate the right recipe in seconds.

Each edition includes what the company calls a "TimeSaver Recipe Selector" to effectively plan time in the kitchen. An instant nutritional and time analysis can be computed for each recipe and meal plan. Automatic resizing of each recipe's ingredients for up to 999 servings is also easily accomplished. The multimedia Windows versions include on-screen color photographs to illustrate creative presentation and preparation ideas. As well, a talking lexicon helps with pronunciation of foreign cooking terms.

Gee, we remember when Mom used to make apple pies. Now she makes backups.

Contact: Lifestyle Software Group at (904) 825-0220

3.0 pulls it all together.

In today's increasingly complex network environment, it's easy to get caught up in the stampede. That's why you need the new OS/2 LAN Server 3.0 from IBM.

The new OS/2 LAN Server 3.0 lets you unleash the full power of OS/2 2.0 with unprecedented control.

Whether you use OS/2 2.0, DOS, or Windows as your client platform, the new OS/2 LAN Server 3.0 can provide seamless integration and a high-performance environment that lets you, and your end-users, make the most of your LAN.

With OS/2's true multitasking, that is, multitasking that's dynamically managed by the operating system rather than being dictated by individual programs, the LAN Server provides advanced fault tolerance (including disk mirroring and duplexing) and security functions that ensure protection for mission-critical applications and data. So even if you go down, you're not out.

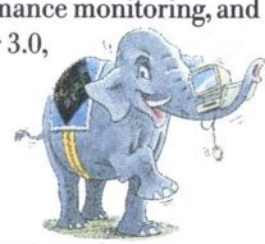
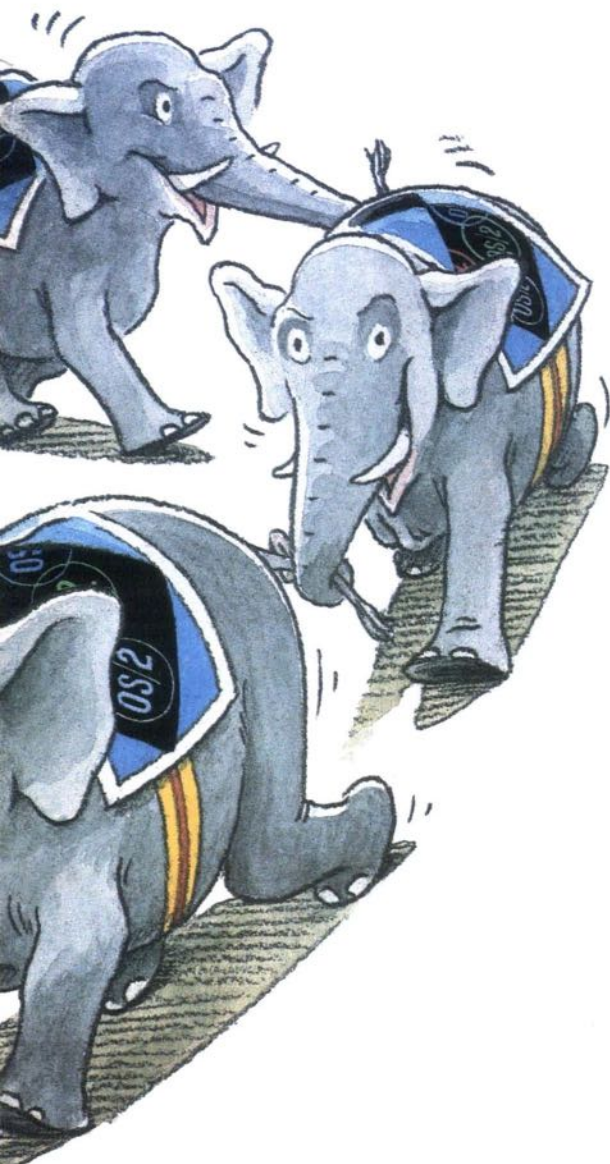
The new OS/2 LAN Server 3.0 supports all industry-standard protocols, including Ethernet and Token-Ring, and allows coexistence with IBM and other LAN systems such as Novell NetWare from IBM, Microsoft LAN Manager, Banyan VINES, and Artisoft Lantastic, as well as UNIX and Macintosh products.

And to make things easier, system management functions enable problem determination, performance monitoring, and remote installation of OS/2 LAN Server 3.0, and other software, over the network.

The new OS/2 LAN Server 3.0 can get all your systems pulling in the same direction.

For more information on the new OS/2 LAN Server 3.0, talk to your IBM Representative. For an information kit or the name of the IBM Authorized Dealer nearest you, call 1-800-465-1234 ext. 1005.

- ★ provides a solid foundation for your network
- ★ allows coexistence with IBM and other LAN systems
- ★ advanced fault tolerance and security functions
- ★ remote installation over network
- ★ available in Entry and Advanced versions



TELL ADVERTISERS YOU
SAW THEIR AD IN

CANADA'S COMPUTER INFORMATION SOURCE
THE COMPUTER PAPER
NEWS REVIEWS FEATURES

NEW ROMS
 MEDIACLIPS \$49 SERIES
 SHAREWARE \$49 BONANZA (3 GIGS)
 FUNNY \$39 (Macintosh)
 MICROSOFT WORD \$39 WITH BOOKSHELF
 ANIMALS (MPC) \$99
 THE FAMILY DOCTOR \$79
 SPORTS ILLUSTRATED \$99
 CALL ALMANAC

THE EXCITING WORLD OF CD-ROM

SELECTION & SERVICE IN HARD DRIVES



PC Bundles



ALL Sun Moon Star Kits feature Multimedia Compatible Drives.

Sun Moon Star™

CD-ROM DRIVES	Drive Kit Only	Internal	External
		\$ 419	\$ Call
	Drive Kit with 5 Disc Bundle:	529	Call

5 Discs: **PC** Grolier's Encyclopedia 1992 * Software Toolworks Reference Library * National Geographic Mammals * World & U.S. Atlas * CD Game Pack II

MULTIMEDIA KIT A complete **PC** Compatible Upgrade Kit
 Includes: CD-ROM Drive, Sound Blaster Pro and 80 watt powered speakers **only: \$699** + 5 Disc Bundle: **\$169**

SOUND SET Sound Blaster Pro, + 2 **PC** CD-ROMs **only: \$299**

GAME SET CD-ROM Game: *The Secret of Monkey Island*
 Includes: Sound Commander EX Sound Card (Sound Blaster/ Ad Lib compatible) + Sound Utilities, Audio Cables & Manual **only: \$169**

With any of the above products you can purchase the following CD-ROMs at a reduced price!

Grolier's MPC	\$99	Microsoft Bookshelf	\$99	Microsoft Works	\$99	Checkmate 3000	\$35	Time Almanac 1991	\$39	MPC World Atlas	\$35	Wing Commander & Ultima VI	\$49
---------------	------	---------------------	------	-----------------	------	----------------	------	-------------------	------	-----------------	------	----------------------------	------

PC & Mac Bundles

NEC Fastest CD-ROM Drives on the market!

300 KB/s Transfer Rate & 280 ms Access Time
 Performance exceeds **PC** Standard!

	Internal	External	Portable
	\$ 779	\$ 899	\$ 549

CD EXPRESS CDR-25 150KB/s Drive
PC Bundle \$ Call
Mac Bundle \$ Call

+10 Discs: **PC** Lucasfilm Games LOOM * Publish III * Great Cities Volume 2 * Interactive Storytime * Total Baseball * Family Doctor * Geoworks CD Manager * Reference Library * Ultima VI/Wing Commander * Best of the Bureau
Mac Lucas Film Games Favourites * Publish III * Great Cities Volume 2 * Interactive Storytime * Total Baseball * Family Doctor * World Atlas * Aesop's Fables * The Manhole * Best of the Bureau

MULTIMEDIA GALLERY CDR-74 300KB/s Multispin Drive
PC Bundle \$ Call
Mac Bundle \$ Call

+6 Discs: **PC** Great Wonders of the World * Mavis Beacon Teaches Typing * Grolier's Multimedia Encyclopedia 1992 * Sherlock Holmes Consulting Detective * Where in the World is Carmen San Diego? * 1992 Guinness Disc of Records
Mac Great Wonders of the World * Color III * Grolier's Multimedia Encyclopedia 1992 * Sherlock Holmes Consulting Detective * Just Grandma and Me * Multimedia US Atlas

MULTIMEDIA UPGRADE KIT for the PC
 Includes: Internal or External Multispin CD-ROM Drive \$1499
 Stereo 16-bit SCSI Audio Board
 Microsoft Windows & Asymetrix Multimedia Toolbook External \$1599

PC Compatible **CREATIVE MULTIMEDIA UPGRADE KIT** Full Package **\$799** Without Sound Blaster Pro Card **\$579**

Quantum

		IDE	SCSI
40MB	19ms	\$ 239	\$ 259
52MB	9ms	299	299
80MB	19ms	349	369
105MB	9ms	399	419
120MB	9ms	449	499
127MB	17ms	419	429
170MB	17ms	519	529
240MB	9ms	729	799

IDE or SCSI
 425MB 10ms \$ 1429

PLUS II XL Hardcards
 50MB 9ms \$ 359
 105MB 9ms 529

2 year warranty on all drives!

MIGHTYdrive™ Value-Priced Power-Packed

		Internal	External
Quantum	40MB 19ms	\$ 299	\$ 389
	85MB 16ms	429	539
	127MB 16ms	479	599
	170MB 16ms	579	649
	240MB 10ms	969	999
	425MB 14ms	1339	1449
Maxtor	330MB 14ms	\$1299	\$1499
	650MB 16ms	2049	2479
	1GIG 14ms		
Seagate	1GIG 15ms	\$2479	
Fujitsu	520MB 12ms	\$1729	\$1789
SyQuest Removable	44MB 20ms	\$ 599	\$ 99
	88MB 20ms	799	149

Portable Hard Drives Quiet Rugged & Flexible

		PC Mac	Mac
Portable Drive	42MB	\$ 545	\$ 495
	85MB	695	645
	127MB	795	745
	170MB	945	845
Pocket Drive (with Battery)	40MB	\$ 595	\$ 495
	80MB	795	695
	120MB	995	895

HARDPAC Options
 Mac Powerbook Cable \$ 59

Maxtor® BIG BYTES

IDE		SCSI	
80MB	19ms	\$ 349	330MB 14ms \$ 1129
120MB	15ms	429	660MB 16ms 1699
210MB	15ms	589	1GIG 13ms 2399
340MB	15ms	999	1.5GIG 13ms 2999

1 and 2 year warranties!

Seagate BIG BYTES

IDE		SCSI Wren	
40MB	16ms	\$ 249	330MB 14ms \$ 1399
90MB	16ms	349	665MB 16ms 1699
130MB	19ms	419	665MB 11.9ms 1999
			1GIG 15ms 2299
			1.4GIG 15ms 2699
			2GIG 16ms 3199

5 year warranty available!

FUJITSU BIG BYTES

IDE		SCSI	
105MB	12ms	\$ 379	330MB 12ms \$ 1399
330MB	12ms	1099	1.06GIG 16ms 2399
425MB	12ms	1499	
520MB	12ms	1599	

3 and 5 year warranties!

Removable Drives THE NEW 90 PRO Never a Head Crash!

OMEGA® BERNOULLI®		
90MB 18ms External Removable Drives		
PC Powered	\$ 729	
PC Powered Pro	849	
90MB Cartridge	189	

SyQuest

44MB 20ms		88MB 20ms	
Drive Only	\$ 429	\$ 529	
Internal 8-bit Kit	599	849	
Internal 16-bit Kit	799	1049	
External 16-bit Kit	899	1149	
External PS/2 Kit	899	1149	
Dual Drive	1499	1829	
Portable	899	1049	
Cartridge	99	149	

Tape Backup Accidents Happen! COLORADO MEMORY SYSTEMS INC.

		Internal	External
120 MB	\$ 269	\$ 419	
250 MB	349	499	

NEW Jumbo Trakker
 Backup data through your parallel port.
 Great for laptops, PS/2s, and slotless backups!

120 MB	\$ 569
250 MB	669

Memory NOTICE

We regret that due to current market volatility we can only quote pricing for memory on a daily basis

No Gimmicks. No Guesswork.
 Worry-Free Warranty
 30 Day Money-Back Guarantee
 FAST Delivery ANYWHERE in Canada
 Corporate and Government POs Accepted



MULTIMEDIA is Here!



for Christmas

December 12th, 1992, drop on by our showroom for a Day of CD-ROM Demos & Deals!

We have the LATEST and BEST ROM Titles!

Toronto Office:
 18 Regan Road, Unit 31
 BRAMPTON, Ontario L7A 1C2
 Phone: (416) 840-6476
 FAX: (416) 840-6560

BRAMPTON	
Regan Road	Unit 31
Boyd Drive (HWY 7 West)	
Queen Street (HWY 7 East)	
HWY 401	

MICRO DRIVES CANADA

Unlimited Low Cost Storage!
NEW 21MB 3.5" also Reads & Writes conventional 720K & 1.44MB Disks
 Internal \$ 499 External \$ 659
 Mac \$ 499 \$ 679
3M 21MB 3.5" Diskette only: \$ 25

Canada-Wide Toll-Free Ordering:
 (800) 268-4389 (East)
 (800) 663-9667 (West)

CANADA'S STORAGE EXPERTS

Letters Continued from page 6

a question of starting off with a better computer.

In closing I should like to point out that I have had an Amiga since the computer was first introduced and in that time I have only played one game on this machine; it has been used for pretty much everything but games. If a bias seems apparent here it is meant to be. The Amiga is a computer worthy of commitment and the bias is honest.

W. B. McCrate
Toronto, ON

Graeme Bennett replies: By "consumer-level," I meant "moderately powerful, but reasonably priced."

By the way, GVP's new CineMorph program (about \$250) for the Amiga looks better than either of the programs you mentioned — despite a bug in the initial release that causes it to set default screen modes incorrectly, at least on the A4000 I tested it on.

CineMorph's spline-base Warp feature allows the manipulation of a grid instead of individual points, as its competitors do. This is similar to the grid method the T-Morph program uses on Silicon Graphics workstations.

Radio Shack Upgrade

I hope you can answer this question. We have recently bought a Tandy 1000 RL/HD system with a 16-color monitor and a dot matrix printer, DMP 135. It has a DeskMate program and MS-DOS 3.30. It has a base memory of 512K, one 3.5" diskette drive 720K; one 20MB hard drive. Our main use for the computer when we bought it was for the girls to use for school and ourselves for the house. The more I use it I realize how limited we are. My question is, how can I go about upgrading the system without going into a brand-new computer? I have been given some programs that require a VGA card. I have asked some salespeople if I can add a VGA card and a VGA monitor to the system but I am always told no, yet I keep seeing ads for a monitor and a VGA card for sale in local papers. I would like to know if I am being lied to or not.

I would also like to take this time to say I like the items in your paper that are in simple terms that are easy for a beginner like myself to understand. I hope you can help me. Can I also upgrade my memory or would it be worth it? I would like to install Lotus 1-2-3 on the hard drive as I have enough room on my hard drive. All the games we have we use on the A drive.

Dwight Cutting,
Portage La Prairie, MB

We called our local Radio Shack store and the salesperson we spoke to told us it was no problem to upgrade your system to VGA standards. At press time, the VGA card was selling for \$69.95; a VGA monitor was \$359.

He told us that the system, which uses a NEC V20 processor (roughly equivalent to the CPU found in an IBM-PC/XT), came standard with 512K of RAM, but could be expanded to a maximum of 640K. For most purposes, though, 512K is probably adequate. You could also opt to swap its 20MB hard drive for a larger one. Radio Shack sells a 40MB IDE model for \$269.

Thanks to Greg Sherart (604-585-3837) for this info. — gb

TELL ADVERTISERS YOU
SAW THEIR AD IN

CANADA'S COMPUTER INFORMATION SOURCE
THE COMPUTER PAPER
NEWS REVIEWS FEATURES

WHAT'S NEW

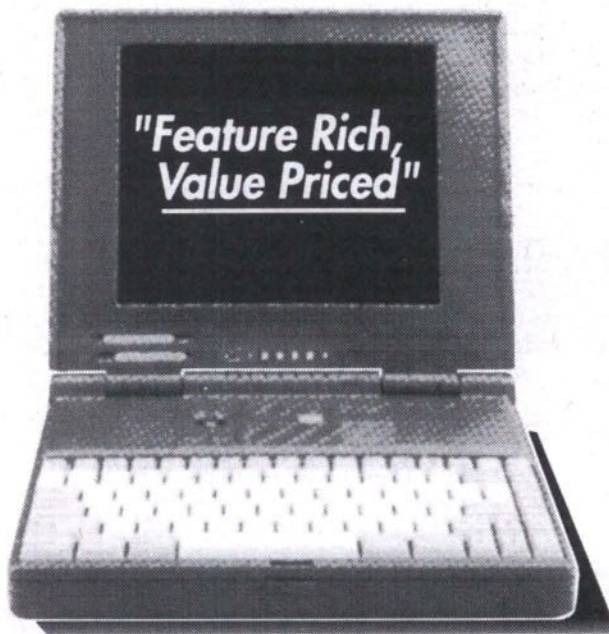
A virtual award for Toronto-based software house at Network

Toronto-based Virtual Corporation was given international recognition last month for its efforts to promote workgroup computing through use of Lotus Development's innovative Notes software. The company's software uses Notes' electronic mail, electronic conferencing, database and document exchange capabilities to provide a wide range of customized services for its corporate clients.

As a result, it earned a Certificate of Recognition at ComputerWorld's 1992 Lotus Notes Application Awards during October's Network exhibition and trade show in Dallas, Texas. "We address a growing problem of the 1990s," says Virtual Corporation president Alan Hutton. "Organizations are now moving to leaner, flatter structures and are divesting non-strategic functions. Outsourcing has

become a common phenomenon as creative new methods are sought for meeting corporate goals without substantially increasing overhead. Concurrent with this growing demand for outside services is an increasing number of self-employed, independent professionals. Virtual Corporation provides value-added services that not only address the business needs of independent professionals but also directly links them with the organizations who wish to use their skills."

Contact: Michael Monahan (416) 480-9593

DISCOVER THE FREEDOM

If your business keeps you tied to your desk, discover the freedom of Impulse Notebook Computers.

No matter where business takes you, you'll be instantly more productive with an Impulse Notebook Computer.

Introducing the New 486 Family of Impulse Notebook Computers				
Model	4D/33NT	4C/33NS	4D/33N	4C/33N
Processor/Speed	i486DX/33	Cx486/33	i486/DX33	Cx486/33
Display	TFT Colour	STN Colour	B&W Mono	B&W Mono
Hard Drive	120MB	80MB/120MB	120MB	80MB/120MB
Memory Min/Max	4M/20M	2M/6M	4M/20M	2M/6M

Other models include Am386/SXL & i386SL processors. Many options available

Ideally suited for today's demanding work life, Impulse Notebook Computers feature the ultimate balance of portability, performance, and power. Our newest 486 models feature 33MHz of processing speed and are available with monochrome and colour displays. And starting at just \$2399 (SRP), these state-of-the-art systems are as light on your pocketbook, as they are to carry.

Introducing Superior Active-Matrix Colour Display with 33MHz-i486DX Power.

If first impressions are important in your business presentations, pick up our top of the line Impulse 4D/33NT colour system. Highlighted by an outstanding TFT (Thin Film Transistor) screen display, your Windows applications will look crisp and clear. You'll also appreciate our SimulSCAN and 100-pin expansion bus port features. Impressive battery life is achieved by utilizing NiMH (Nickel-Metal-Hydride) technology offering 2-3 hours of sustained use. You can even swap batteries on the fly! Letter-size and weighing only 2.8Kgs, the Impulse 4D/33NT is also remarkably affordable.

Impulse. Discover the Freedom.

For a product demonstration or more product information contact Canara. We'll put you in touch with an Authorized Impulse Dealer.

Western Canada
Richmond, B.C.
Tel: 604-270-9655
Fax: 604-270-3795

Ontario & Maritimes
Mississauga, Ontario
Tel: 416-858-3000
Fax: 416-858-9090

Quebec
St. Laurent, Quebec
Tel: 514-332-6550
Fax: 514-332-2107

CANARA
TECHNOLOGIES

The Amiga 600

REVIEWED BY GRAEME BENNETT

The Amiga has come a long way since 1985, when the A1000 was released.

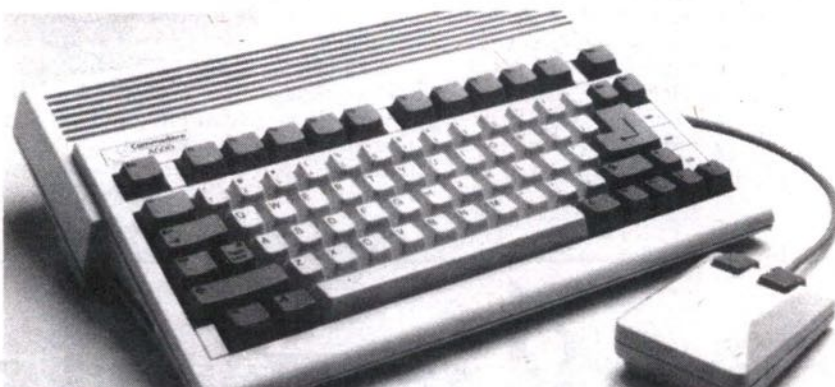
At that time, the Amiga's multitasking operating system (AmigaDOS) was somewhat crash-prone and had a decidedly crude feel. I used to lament the fact that I could seldom use an Amiga for more than an hour or so without experiencing one or more unsavory crashes — or Guru Meditations, as the Amiga's obviously eccentric designers had termed them.

Nevertheless, the Amiga's considerable charms kept me coming back. In areas such as 3-D rendering, animation and video titling, the Amiga was — and remains — the best bang for the buck of any system. Through various revisions, the bugs were worked out and features added until now, with AmigaDOS release 2.1, the Amiga's promise as a powerful, multitasking, graphically rich environment is bearing fruit.

Incidentally, I've been writing this article using the Amiga's standard editor ("Ed"), and have experienced no crashes or other anomalies. The only time I saw a Software Error (as the Guru alerts are now called) was when I tried to run an obsolete piece of software. Users with old copies of Amiga programs — especially games — might want to check that the software runs on the new system.

Why an A600?

The best reason to choose an A600 over the older Amiga 500 is its better graphics capabilities. It has a new custom chip set that offers several display modes not available on a standard 500 (although this model and other Amigas can be upgraded; see "Amiga Video" below for details). The 500, on the other hand, has significantly more



third-party expansion options than the 600, which lacks the standard expansion bus common to all other Amiga models. Instead, the A600 has a PCMCIA (Personal Computer Memory Card International Association) slot. Unfortunately, at this time, you can't do much with it other than add a pseudo-disk drive or RAM.

The trouble is that the system lacks suitable PCMCIA device drivers for the myriad of modems and other cards available to the world of PC laptops. Word has it that a SCSI adapter for the PCMCIA slot will soon be available. Reportedly, some developers are already at work writing drivers for existing PCMCIA cards, including Flash ROM and Ethernet adapters.

The A600 lacks the numeric keypad found on all other Amiga models, but has a color composite video output that the 500, 2000 and 3000-series models lack as standard equipment. The 600 also has an RF output. This makes the A600 a good choice

for a video enthusiasts who might want to experiment with using it as an inexpensive video-titler. The model 600HD comes standard with a hard drive (the 42MB Seagate ST9052A) — a must for any serious use. An Amiga with only one floppy drive can be difficult and confusing to use for anything other than playing games.

Personality Crisis

Part of the Amiga's problem is its identity crisis. Because of its emphasis on animation, sound and graphics, it is a very good games computer. (In fact, it was originally designed as a games machine). The availability of low-cost models like the A500 and the new A600 tend to reinforce this "home computer image."

However, its multitasking prowess and Unix-like operating system have created legions of serious users as well.

One of the greatest strengths of the Amiga is also a liability: because it was designed to

have an NTSC-standard video output, some of its video output modes are only useful when outputting a signal to videotape. Its sophisticated graphics and animation capabilities coupled with its NTSC (North American Television Standards Committee) compatibility have made the Amiga a favorite with both amateur and professional video producers.

When making a computer purchase decision, beware the trap of comparing the Amiga's high-resolution "interlaced" modes with approximately comparable non-interlaced resolutions of other types of computers. Chances are, you'll agree that a PC or Mac's non-interlaced display looks vastly superior to the Amiga's interlaced display even though both might have approximately the same number of picture elements ("pixels") on screen. You may end up buying the Amiga, but probably not for its interlaced screen display. You'll see why shortly.

Amiga Video

The A600 partially addresses one of my longstanding complaints with the Amiga: its display. When used with a standard Amiga monitor, the default display is a rather chunky 640 x 200 "medium resolution." This is less than half the number of pixels of the basic VGA display common to PC-compatible computers. In 32-color mode (used for many games and paint programs), the Amiga's resolution drops further to 320 x 200.

The A600, like the Amiga 3000, supports several additional graphics modes

A PRICE-PERFORMANCE BREAKTHROUGH



Express
Micro®

Cyrix
Advancing the Standards

Cirrus Logic
AVGA3 24-bit 16.8 True-colour Accelerator

Intel i486 SX25 : 86.6 Landmark speed
 Intel i486 DX33 : 111.5 Landmark speed
 Cyrix i486-33 DLC : 107.2 Landmark speed
 486-33DLC SRP : 50% of i486-33

WinMark

Trident 1MB : 1.15
 ATi Wonder/XL : 1.63
 AVGA3 : 5.16
 AVGA3 SRP : \$179

CALL YOUR NEAREST DEALER FOR A DEMONSTRATION

Markham, ON
DATA EXPRESS (416) 946-9638
LEPAL COMPUTERS (416) 946-8088
MITRONICS (416) 477-7243
QUIET TOUCH (416) 475-2181
 Mississauga, ON
ARCHITECH
MICROSYSTEMS (416) 542-0909
 Oakville, ON
SUPPORT MASTER (416) 849-0057

Scarborough, ON
TYFU COMPUTER (416) 299-6119
 Toronto, ON
HONSON COMPUTER (416) 967-9333
TYFU COMPUTER (416) 324-9247
 Woodbridge, ON
TRI-PIC (416) 850-3573

Dartmouth, NS
COMPATIBLE COMPUTERS (902) 462-1212
 Halifax, NS
COMPATIBLE COMPUTERS (902) 420-1212
 New Minas, NS
COMPATIBLE COMPUTERS (902) 681-1212
 Charlottetown, PEI
LEARNING TECHNOLOGIES
CANADA LTD (902) 368-9040

® Express Micro is a registered trademark of Advance-Interface Electronics Inc.

486DLC is a registered trademark of Cyrix Corporation

486 and DX2 are registered trademarks of Intel Corporation

that were not available on the A1000, 500, or 2000-series machines. You can, for example, select a so-called "Super high res" mode that displays 1200x200 pixels, or a Super High Res Interlaced mode that creates a 1200x400-pixel display.

Unfortunately, on the Amiga's lowest-priced color monitor (the model 1084), the interlaced resolutions are all but unusable due to the excessive flicker described earlier. During my tests, one of my co-workers categorized the vibrating display as "scary." Another noted that if he had turned this feature on inadvertently, he would have thought the machine was malfunctioning.

Fortunately, it is possible to eliminate the flicker by substituting a higher-quality "multiscanning" monitor. If you can afford a few hundred dollars extra, I heartily recommend this type of display.

In productivity mode, a multisync will allow a flicker-free 640x480 display. Commodore sells a 23-to-15-pin adapter cable; its model 1960 multiscan monitor comes with this part.

It is worth noting that all of the resolutions mentioned here except productivity mode can be increased slightly by setting an attribute called overscan. This permits the Amiga to display images or animations right to the edge of the monitor's tube. (Virtually all other computers, you may note, have a border around the active display area.) This unique ability is one of the key reasons the Amiga is so popular for video titling and other video-oriented purposes.

Workbench 2.1

Version 2 of the AmigaDOS operating system (sometimes referred to as "Kickstart") is built into ROM chips. The version of the system installed on the hard drive of our test machine was 2.05; however, version 2.1 became available around the beginning of November. New 600s should be shipping with 2.1. We tested this new release and found it to be improved over earlier releases.

The installation process offers novice, intermediate and advanced options that should allow just about anyone to successfully install and configure it. We recommend that all users with at least one megabyte of chip RAM consider upgrading. Consult your dealer to find out if you need to upgrade the ROM chips in your machine.

What's New

Several new features have been added to the Amiga's operating system since version 2.0, and if one looks back at version 1.3 or earlier, it's very different indeed!

The most obvious difference between version 2.x and earlier releases is its look. Since release 2.0, AmigaDOS has sported a 3-D motif that looks much more professional than earlier versions. While interface purists may object to the Amiga's default desktop-colored windows and often clunky-looking icons (most appear to be designed for the 640x200 screen mode), these are customizable, as are your choice of default font and screen resolutions.

Several utilities (Commodore calls them commodities) are included that allow you to enhance the Amiga's functionality. One, for example, brings a window to the front with an Alt-click. Another activates a window automatically as soon as the mouse passes over it. Programs like these have long been available through public-domain or shareware channels, but it is good to see Commodore address shortcomings at a systemic level.

Although a wide variety of printers have been usable with the Amiga, AmigaDOS 2.1 finally adds a long-absent PostScript printer driver to the gamut of monochrome and color dot-matrix, inkjet and LaserJet models supported.

Release 2.x addresses another of my
Continued on page 41

COMPUTER SHOW SPECIAL

Bring in this ad for in-store great savings.

Premium Series

LOCAL BUS TECHNOLOGY WITH TWO BUILT-IN 32-BIT LOCAL BUS SLOTS

<ul style="list-style-type: none"> • Intel CPU • 256 KB Cache • Built-in Math-Coprocessor • 4 MB Fast 70 ns Memory • ATI XL 24 BIT 1 MB TRUE COLOR VIDEO CARD • 14" AAMAZING NON-INTERLACED .28 DP SUPER VGA COLOR MONITOR • Conner or Fujitsu 170 MB IDE Hard Drive 	<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> 486DX2-66 \$2320 </div> <div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> 486DX2-50 \$2080 </div>	<ul style="list-style-type: none"> • Panasonic or Fujitsu 1.2 MB & 1.44 MB Floppy Drives • Hard & Floppy Drive IDE Controller • 2 Serial, 1 Parallel and 1 Game Ports • Mini Tower Case w/ 200W CSA Power Supply • Enhanced 101 Keyboard w/ Templates • Free MS-DOS 5.0 Installed w/ Manual & Disks • Full 2-Year Warranty Parts & Labour
---	---	--

Competitive Series

<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> 486DX-66 \$2130 </div>	<ul style="list-style-type: none"> • ATI XL 24 BIT 1 MB TRUE COLOR VIDEO CARD • 14" AAMAZING NON-INTERLACED .28 DP SUPER VGA COLOR MONITOR 	<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> Intel 486DX-33 \$1850 </div>
<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> 486DX-50 \$2099 </div>	<ul style="list-style-type: none"> • 128 KB Cache • Built-in Math-Coprocessor (except 386 system) • 4 MB Fast 70 ns Memory • 120 MB 64K Cache 17 ms IDE Hard Drive • Panasonic or Fujitsu 1.2 MB & 1.44 MB Floppy Drives • Hard & Floppy Drive IDE Controller • 2 Serial, 1 Parallel and 1 Game Ports • Mini Tower Case w/ 200W CSA Power Supply • Enhanced 101 Keyboard w/ Templates • Free MS-DOS 5.0 Installed w/ Manual & Disks • Free MS Compatible 3-Button Mouse 	<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> Cyrix 486DX-33 \$1640 </div>
<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> 486DX2-50 \$1890 </div>		<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> 386DX-40 \$1420 </div>

PRINTER & MONITOR SPECIAL OFFER

<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 150px; margin: 0 auto;"> Fujitsu DL1100 Color Printer \$320 </div>	<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 150px; margin: 0 auto;"> MAGNAVOX Non-interlaced SVGA (70 Hz) Monitor with Built-in Speakers \$425 </div>
--	---

SOUND BLASTER MULTIMEDIA UPGRADE KIT

<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> INTERNAL \$699 </div>	<ul style="list-style-type: none"> • Sound Blaster Pro Stereo Sound Card • High Performance CD-ROM Drive • MIDI Kit • Microsoft Windows 3.1 Software • Free Software Library of CD-ROM Titles 	<p>including Microsoft Bookshelf, Microsoft Works, MacroMedia Action, Authorware Star, Sherlock Homes Consulting Detective, and much more...</p>	<div style="border: 1px solid black; padding: 5px; background-color: black; color: white; width: 100px; margin: 0 auto;"> EXTERNAL \$829 </div>
--	--	--	--

LEPAL COMPUTERS
7170 WARDEN AVE.
UNIT 14
MARKHAM, ONTARIO



PLEASE CALL
416-946-8088
OR 1-800-GO-LEPAL

Limited Time Offer. All prices are subject to change without notice.

Annual Survey of Canadian

PAYROLL SOFTWARE



BY JOAN V. HORNAL

Sixteen Canadian Payroll programs have been reviewed in this survey. This year we have more products that run under the Microsoft Windows and Macintosh operating systems. All the payroll software continues to improve: user interfaces are becoming more consistent, most of the products have added new features and become more flexible.

Stand-alone Payroll Software

ACCPAC PLUS Canadian Payroll Version 6.0C provides for a combined total of 32 user-defined earnings, taxable benefits accruals and non-statutory deductions per employee. Additional flexibility is obtained by defining groups of earnings on which calculations can be performed. Recurring time sheets containing standard earnings and deductions provide for fast payroll processing. A General Ledger account can be associated with each earnings code and earnings codes can be assigned to specific T4 boxes. Employees can be assigned to general ledger departments for departmental costing or time and payroll burden can be posted to a job for job costing. The program automatically calculates the TD1 cost-of-living adjustment but the user can no longer alter the UIC, CPP and tax tables. A new feature of version 6 is that the payroll register summary

now subtotals employee and employer Unemployment Insurance contributions by UI rate. The program also checks for errors in T4 boxes before printing the T4s and allows the user to make corrections before printing. This flexible program is a good choice for businesses with many and complex earnings and deductions requiring job costing and an interface to Accpac Plus G/L. The 32 earning and deduction limit is insufficient for some payrolls.

ACCPAC BPI Canadian Payroll is a bit confusing for a new user to set up and use. On-line help and the manual do not make the job any easier. It interfaces with both Accpac Easy and the Accpac Plus General Ledger. This product is the most suitable for a commission sales environment. It provides for up to five hourly rates and enables the user to define up to 20 types of commission calculations. With 20 benefits and deductions per company and

up to 6 of each for each employee it has an adequate number of benefit and deduction types for most small businesses. A nice feature is the display of the employee status. Reporting is good, deduction and benefit reports are excellent, however, it does not print a record of employment form.

CheckMark Canadian Payroll for the Macintosh is new to the survey this year. It is very simple to set up and to use. It provides for seven hourly earnings and two other income or benefit categories that apply to any or all employees. In addition it has one selectable earning or benefit per employee. There are six user-definable deductions for any or all employees and one selectable deduction for each employee. The program retains hourly timesheet data from one pay period to the next in order to speed up data entry. It has a department distribution feature that distributes wage amounts to departments or

jobs and calculates and distributes the related employer's portion. There is also a feature to import or export employee information to or from a text file. Reporting is adequate but more user-definable reports would be welcome.

Easypay is a flexible, easy-to-use program in the mid-price range. It handles a good variety of earnings, benefits and deductions so would be good for some union payrolls. Advanced features include on-line cheque reconciliation and recurring timecards, both time-saving features. Reporting is comprehensive and flexible. Simple job costing can be obtained using departments. The program interfaces with a large number of general ledger products. The manual is well laid out and very easy to use and on-line help is good.

Continued on page 19

The accompanying chart represents an attempt to compare costs, services, features and options for the programs. Where information was not available the cell contains a dash.

Some of the features are described here for clarification.

On Line Help means the product provides the user with additional information during data entry if a key or combination of keys are pressed.

Tutorial refers to training material either on disk or in a training section in the manual.

Telephone Support Available means the user can call the software company (usually at the user's expense) and ask for assistance. Many companies now provide a fax number for written requests for help.

Install & Training Available means this service is provided either by the software company or a third party whose name and telephone number are available from the company.

Multiple Companies. If 'Y', the payroll can be processed for more than one company, otherwise the user is restricted to a single company.

Job Costing means that some payrolls will record units of time and amounts to a job and provide job cost reports. The more complex products also calculate and expense benefits and other overhead to the job.

Multi UIC Rates per Company means many companies provide benefits that qualify them

for reduced UIC rates; more than one Revenue Canada number is required.

Exports to General Ledgers. Most payrolls provide a general ledger report or a General Ledger interface text file that contains journal entries summarized by account number, department number and amounts.

Number of Items per Employee. Many of the products have a limited number of earnings, benefits and deductions available per company or employee.

Automatic Calculation Formulae are user-definable formulae for the calculation of earnings such as commissions or piece work and deductions which are calculated on groups of earnings or other amounts.

Manual Cheques. Many payroll programs provide for the entry of manual cheques which have been prepared between payroll runs.

After the Fact Pay. This feature provides for entry of data after a manual cheque has been written.

Tracks Advances and Tracks Accruals. Programs that track advances and accruals maintain a record of an advance paid or an accrual such as holiday pay until it is deduct-

ed or paid out.

Banks Hours. A feature in some programs is the capability of banking hours for sick pay or time off.

Tracks Workers' Compensation. Some payrolls will calculate the amount due to Workers' Compensation.

Automatic Indexing. Automatic indexing of employee's TD1 claim by the annual cost-of-living adjustment is now a feature included in some payrolls.

Direct Deposit Interface. A file can be sent to the bank for direct entry into the bank's direct deposit system.

Printing and Reports. Some payrolls will not print directly on all government forms. As an alternative they print a report that can be transcribed onto the government form.

Detailed Pay History Report. This report lists each earning and deduction for each employee by pay period and provides a year-to-date total.

Access Audit Trail. This report details every change in the employee records.

Year to Date Report. This report shows the year-to-date amount of all earnings, benefits

and deductions for each employee.

Employee Profile is a report showing employee name, address, birth date, start date and other personnel information.

Direct Deposit Report. Some payrolls prepare a report for the bank showing the amount of the deposit and the employee's bank account number.

Auto Install of Software. If 'Y' there is a program on the program disk that creates the sub-directories and copies the program files onto the fixed disk.

Ease of Setup. When a payroll is easy to set up the user can quickly configure the pay frequencies and the earnings and deductions or they are pre-configured.

Ease of Use. In easy-to-use payrolls the process of entering time sheets and calculating the payroll is very simple and straightforward and look-up boxes are available for the selection of data to enter.

Menu Appearance. Pull-down menus are features of the newer products. They are easy to use and easy on the eyes. Color is also considered here.

PAYROLL SURVEY

Canadian Payroll Software — Integrated Programs

BASICS			
Product Name	ACCPAC Simply Accounting Integrated Accounting	ACCPAC Simply Accounting for Windows/Macintosh	NEWVIEWS
Version	DOS Ver 3.4	Win V 1.0/ Mac V 1.3	Ver. 1.40
Company Name	Computer Associates	Computer Associates	Q.W.Page Associates Inc. 351 Steeles Ave. E. W.
Address	1770 Burrard St Vancouver, BC V6J 3G7	1770 Burrard St Vancouver, BC V6J 3G7	Markham, Ont L3R 4H9
Telephone	604-733-2943	604-733-2343	416-946-9400
Fax	604-733-4129	604-733-4129	416-946-1840
Operating System	DOS	Windows 3.0/Macintosh	DOS 3.3 or >
Hardware Requirements	IBM or Compatible	IBM or Compatible	IBM or Compatible
	2 floppy disk drives	Macintosh	640K RAM, Fixed Disk
COST			
Program	225	225	1295
Updates Maintenance & Support	90	90	\$79 per revision
TRAINING AND SUPPORT			
On line Help	Y	Y	Y
Tutorial	Y	Y	Y
Telephone Support Available	Y	Y	Y
Sample Reports in Manual	Y	Y	N
Install & Training Available	Y	Y	Y
FEATURES AND OPTIONS			
Multiple Companies	Y	Y	Y
General Ledger Departments	N	Y	Y
Job Costing	Y	Y	Y
Multi Provincial	Y	Y	Y
Multi User/Network	N	Y	NY
Multi UIC Rates per Company	N	Y	Y
Password Protection	Y	Y	Y
Exports to General Ledgers	Integrated	Integrated	Y
Number of Items per Employee			
Earnings	5	5	Unlimited
Taxable Benefits	1	2	Unlimited
Non Statutory Deductions	3	5	Unlimited
Automatic Calculation Formulae for Statutory Deductions	Y	Y	Y
for Earnings	N	N	Y
for Taxable Benefits	N	N	Y
for Nonstatutory Deductions	N	N	Y
for GST on Taxable Benefits	Y	N	N
Manual Cheques	Y	Y	Y
After the Fact Pay	Y	Y	Y
Tracks Advances	Y	Y	Y
Tracks Accruals	Y	Y	Y
Banks Hours	N	N	Y
Tracks Workers' Compensation	Y	Y	Y
Report Generator Available	N	N	N
Automatic indexing	N	N	N
Retains payroll history for prior years	N	N	N
Allows Extra Tax Deduction	N	Y	Y
Customized Cheques and Advices	N	N	Y
User Update to Tax Tables	N	N	N
Direct Deposit Interface	N	N	N
PRINTING AND REPORTS			
Prints Cheques for:			
Employees	Y	Y	Y
Receiver General for Canada	N	N	Y
Other Deductions	N	N	Y
T4's	Y	Y	Y
T4 Summary Form	N	N	N
Record of Employment Form	N	N	N
Relieve 1	Y	Y	Y
Cheque Register	Y	Y	N
Payroll Journal or Register	Y	Y	Y
Employee's Detail Pay History	N	Y	N
Access Audit Trail	N	N	N
Month End Report for GrL	N	N	N
Employee's Year to Date Report	Y	Y	Y
Employee Profile	Y	Y	Y
T4 Summary Report	N	N	N
Insurable Earnings Report	N	N	N
Statutory Deduction Report	Y	N	Y
Other Deductions Report	N	N	Y
Job Cost Report	Y	Y	N
Direct Deposit Report	N	N	N
PERFORMANCE			
Auto Install of Software	N	Y	Y
Ease of Setup	Very Easy	Very Easy	Difficult
Ease of Use	Very Easy	Very Easy	Difficult
Ease of Adjustment	Easy	Easy	Difficult
Programmed Backup	N	N	Y
Menu Appearance	Full Down Menus	Full Down Menus	Spreadsheet like
Data Entry Screen Appearance	Clear, Easy to Read	Clear and Easy to Read	Spreadsheet like
Graphics Reporting	N/A	N/A	N/A
General Flexibility	Some	Good	Good
Reporting Flexibility	None	Limited	Flex

Your Complete Source for Networking!

NOVELL®	Eagle/Anthem®	Network Items
Netware Lite \$87	NE-1000 \$186	Intel Lansight v.2.1 \$475
2.2 5 user 744	5 pk 814	American Power Smart UPS AP 400i 550
2.2 10 user 1698	NE-2000 221	Intel Satisfaction 100 160
3.11 5 user 884	5 pk 989	Fujitsu 1.2 GIG SCSI 5.25 Hard Drive ... 3200
3.11 10 user 2015	NE/2 MCA 343	Seagate 525MB 3.5 IDE 12ms 2200
3.11 20 user 2908	NE-3200 EISA 960	Fujitsu 325MB Internal 3.5 1400
3.11 50 user 4042	NE-2000T 221	Lantastic Ethernet AE-2C Starter kit v.4.1 700
3.11 100 user 5647	5 pk 983	Micropolis 385 MB SCSI hard drive 1600
	Boot Prom 30	Intel Netport II 10BaseT 800

SOFTWARE

MS Excel 4.0 for Windows \$550
MS Word for Windows 550
XTREE Virusafe/LAN 650
WordPerfect Office LAN 5 User 500
Lotus CC: Mail windows platform pack 550
ACT for Windows (contact management) 495
ACT v2.1 5 user network 1299
Netware WAN Links v.2.0 1200
Netware Bridge Software 399
Netware MHS network Edition v.1.5n unlimited 1100

SPECIAL! QMAIL

100 Users \$1500
50 Users \$800
20 Users \$400
10 Users \$200
5 Users \$100

Qmail is an internationally renowned E-Mail package specifically designed for Novell Networks. For further information call.

Ask us about our custom-built servers & workstations

We also carry:
American Power, Asante, BOCA, BICC, DCA, Dayna, Gateway, IBM, Microsoft, Proteon, Racal Intran, Thomas Conrad, Tiara, & WYSE

Dealers welcome
Place your order today!

Novell Upgrades
Lowest Prices
Fastest Delivery

800-665-5434

Fax 204-546-2203

363 Broadway Suite 410
Winnipeg, Manitoba R3C 3N9

All products and brand names are trademarks of their respective companies. Prices are subject to change.

America-Direct (Canada)

MULTICOM

Business Communications Inc.



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 Send a Payroll!

Name _____ (30 Day Money Back Guarantee)

Company _____ HELP Payroll \$349.95

Address _____ GST \$24.50

City/Prov _____ TOTAL \$374.45

Postal Code _____ Sending Cheque # _____ or

FAX () _____ VISA _____

Phone () _____ Expiration ____/____

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

PAYROLL SURVEY

Canadian Payroll Software — Stand Alone Packages

Product Name	ACCPAC PLUS	ACCPAC BPI	CHECKMARK	EASYPAY	GRAND MASTER	GREAT PLAINS	HELP	KIS	PAY-CALG	PAYCHEO	PAYMATE 20	POWERPAY
Version	V 6.0B	V 3.1A		V 7.00D	Oct92 V4.8	V 6.1	V 5.01	V2.1	Ver V(Single Company)	Ver 3.30	Ver 5.0	V 2.01C 1992
Company Name	Computer Associates	Computer Associates	BusinessCare	Multicompany Vikosic Consulting Services Inc	Canpey Computer Software Ltd.	Great Plains Software	Help Software Services Ltd.	KIS Information Systems Inc.	Maple Software Ltd.	Asian Microsystems	AK Microsystems	PowerSoft Systems Ltd.
Address	1770 Burrard St. Vancouver, BC V6J 3G7	1770 Burrard St. Vancouver, BC V6J 3G7	Box 199 Thornhill, Ontario L3T 9N3	1733 Heritage Way Oakville, Ont L6M 9A2	9-1329 Niakwa Rd. E. Winnipeg, Man R2L 2A5	1701 Southwest 38 St Fargo, North Dakota 58103	5487 Kingsway Burnaby, BC V6H 2G1	302-2671 Oatson Ave Richmond, B.C. V6X 2R4	Suite 519 120 George Henry Blvd North York, Ontario M2J 1G2	402-30970 Wheel Ave Abbotsford BC V2S 5W6	201-80 Fulton Way Richmond Hill, Ont. L4B 1J5	103-14888 104th Ave Surrey, BC V3R 2Y9
Telephone	604-733-2343	604-733-2343	416-731-0744	416-825-8020	204-254-4720	701-281-0550	604-435-6268	604-244-8781	416-491-3922	604-852-7323	416-969-8156	604-582-7488
Fax	604-733-4129	604-733-4129	416-731-5961	416-825-9660	1-800-965-5129	701-282-4826	604-435-4707	604-244-8771		604-852-7376		604-582-7399
Operating System	DOS/2 or DOS 3.1 or >	DOS 3.0+, OS/2	Macintosh	DOS 2.1 or >	DOS 3.0+	DOS, OS/2, MAC, UNIX, Windows 3.0+	DOS 2.0+	Windows 3.0 >	DOS 2.1+	DOS, Xenix, Unix	DOS 3.3+	DOS 2.0+
Hardware Requirements	PC 512K RAM Hard Disk	PC 512K RAM Hard Disk	Macintosh Single Drive or Hard Disk	PC 512K RAM Hard Disk	PC 512K RAM Hard Disk	PC, MAC 512K RAM & 20MB HD	PC 256K RAM Hard Disk	PC Hard Disk	PC 256K RAM High Cap Disk	PC 640K RAM Hard Disk	PC 640K RAM Hard Disk	PC 512K RAM & Fixed Disk
Program	\$1200 List	\$495 List	395	495	995	960	349.95	495	\$150 1-50 employees \$395 51-400 employees \$450 Multi company	\$499 Single User \$1095 Multiuser	\$ 59 < 10 employees \$189 10-20 Employees \$499 > 20 employees	\$89 Single \$250 Multiple Co.
Updates & Maintenance	\$295 per yr	\$225 per yr	First free/\$50 after	\$195 per yr	\$250 per yr	330	\$50 if required	\$99.00 per year	\$100 per year	\$269 Support N/C	\$49 < 10 \$95 10-20 \$50 Single \$150 Multi	
Support	225	120	No charge	No charge	1 Year Free		Free	Support is free	Free		\$195 > 20	No charge
Training and Support												
On Line Help	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tutorial	Y	Y	Y	N	N	Y	Y	Y	Y	Y	N	N
Telephone Support Available	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Free Phone Support
Sample Reports in Manual	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N
Install & Training Available	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Features and Options												
Multiple Companies	Y	Y	Y	Y	Y	Y	Y	Y	Y See above	Y	N/Y/Y	Y
General Ledger Departments	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/Y/Y	Y
Job Costing	Y	N	N (See text)	N (See text)	Additional Module	Y	Y	N	N	Y	N/Y/Y - Extra Module	N
Multi Provincial	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Multiuser/Network	Y	Y	Y	N	Y	Y	N/Y	Y	Y	Y	Y	Single User
Multi LIC Rates per Company	Y	N	Y	Y	Y	Y	N	Y	Y 2	Y 2	N/Y/Y	N
Password Protection	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Exports to General Ledgers	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N
Number of Items per Employee												
Earnings	32 Earnings	9.5Hr, 4Com, Vac, +	7 Hourly	5+	18	Unlimited	10	20	9	Unlimited	3111	9
Taxable Benefits	and	20 Comp./8 Empl.	2 + 1 Selectable	20	18	Unlimited	6	5	9 Benefits & Deductions	Unlimited	0/2/6	4
Nonstatutory Deductions	Deductions	20 Comp./8 Empl.	6 + 1 Selectable	20	15	Unlimited	10	11		Unlimited	5182	9
Automatic Calculation Formulae												
for Statutory Deductions	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
for Earnings	Y	Y	Y	N	Y	Y	Y	Y LIMITED	N	Y	Y	N
for Taxable Benefits	Y	Y	Y	Y	Y	Y	Y	Y LIMITED	Y	Y	N/Y/Y	N
for Nonstatutory Deductions	Y	Y	Y	Y	Y	Y	Y	Y LIMITED	Y	Y	N/Y/Y	N
for GST on Taxable Benefits	N	N	N	I	I	N	N	N	Y	Y	N	Y
Manual Cheques	Y	Y	Y	Y	Y	Y	Y	ADVANCES ONLY	Y	Y	Y	N
After the Fact Pay	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N
Tracks Advances	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y
Tracks Accruals	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bank Hours	N	N	Y	Y	Y	Y	N	N	Y	Y	Y	N
Tracks Workers' Compensation	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y
Report Generator Available	Y	N	N	Y Extra Module	Y	Y	N	N	N	Y - Extra software	Y Extra software	N
Automatic indexing	Y	N	N	N	Y	Y	N	N	N	Y	Y	N
Retains payroll history for prior years	N	N	N	Y	I	N	Y	Y	N	N	N	N
Allows Extra Tax Deduction	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Customized Cheques and Advices	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N/Y/N	N
User Update to Tax Tables	N	N	N	Y	N	Y	Y	N	N	N	N	N
Direct Deposit Interface	N	N	N	Y - Extra software	Y	Additional Module	N	N	N	Y	N/N/Extra module	N
Printing and Reports												
Prints Cheques for:												
Employee	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Receiver General for Canada	N	N	N	N	N	N	Y	N	N	N	N	N
Other Deductions	N	N	N	N	N	N	Y	N	N	N	N	N
T4s	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
T4 Summary Form	N	N	Y	N	N	Y	N	Y	N	N	N	N
Record of Employment Form	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	n/Optional/Y	N
Rate 1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Cheque Register	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Payroll Journal or Register	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Employee's Detail Pay History	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Access Audit Trail	Y	Y	N	Y	Y	Y	N	N	Y	Y	N	N
Month End Report for G/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Employee's Year to Date Report	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Employee Profile	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
T4 Summary Report	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Insurable Earnings Report	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Statutory Deduction Report	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Other Deductions Report	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N
Job Cost/Dept Report	Y	N	Y	Y	Y - Additional Module	Y	Y	N	N	N	N/Y/Y Extra Module	N
Direct Deposit Report	N	N	N	Y	Y	N	N	N	N	Y	N/Y/N	N
Cheque Reconciliation	N	Y	N	Y	Y	N	N	N	Y	Y	N	N
Performance												
Auto Install of Software	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ease of Setup	Moderately Difficult	Easy	Very simple	Easy	Complex	Moderately Easy	Very Easy	Easy	Moderately Easy	Difficult, complex	Easy	Extremely Easy
Ease of Use	Easy	Easy	Very easy	Easy	Complex	Easy	Very Easy	Very Easy to Use	Easy	Moderately easy	Easy	Easy
Ease of Adjustment	Easy	Easy	Very easy	Easy	Easy	Easy	Very Easy	Very Easy	Easy	Moderately easy	Easy	Poor, see text
Programmed Backup	N	Y	Y	N	Y	N	N	Y	Y	N	Y	N
Menu Appearance	Clear	Pull Down Menus	Macintosh	Good	Good	Clear, Easy to Use	Good	Windows	Clear	Outdated-poor prompts	Pull Down/Easy to Use	Good, Clear
Data Entry Screen Appearance	Clear / Good prompts	Confusing	Macintosh	Cluttered	Busy, hard to read	Clear, Easy to Read	Good	Windows	Clear	Outdated-poor prompts	Good	Good, Clear
Graphics Reporting	N/A	N/A	N/A	-	-	Good	N/A	N/A	N/A	N/A	N/A	N/A
General Flexibility	Excellent	Good	Good	Good	Good	Excellent	Good	Very Good	Good	Excellent	Good	Some
Reporting Flexibility	Good	Good	Some	Good	Excellent	Excellent	Good	Good	Good	Excellent	Some	None

Grand Master is a good choice for those organizations requiring an extensive cost breakdown by department and extremely flexible reporting. The product's special features include the ability to associate each employee's earnings and deductions with its own general ledger account and department and further, the ability to prorate an employee's wages between up to four different companies or departments. This product provides tables for wage rates such as would be included in a union agreement. It provides many user-definable earnings and benefits and deductions which are linked in a deduction table. Formulae are available for the calculation of earnings and deductions but are difficult to configure but instructions are clear and thorough with examples. Data entry screens are crowded and hard to use. There is a quick-entry feature for entering timecards with multiple rates of pay. Reporting is flexible and comprehensive. Files are created for direct deposit interface with bank systems and the product interfaces with most general ledger applications. I also examined the new Grand Master II software which has been designed for companies with more than 1,000 employees. It is a multi-user system with the look and feel of Microsoft Windows available for DOS, Unix and OS/2. It will provide 50 earnings and 50 deductions and benefits and provide table-driven earnings and rate tables for union payrolls.

Great Plains Canadian Payroll is a powerful, flexible payroll program. Its most notable feature is the unlimited number of earnings, deductions and taxable benefits which can be calculated and tracked, many of which are pre-configured. It is excellent for job cost purposes as it tracks both the hours and the amount by job, expenses the company portion of the expense to the job and performs automatic overtime calculations. It has built-in pension plan benefits and full union reporting. The program retains and can print an employee's entire pay history for the year. This and other audit trails are excellent. It interfaces with the Great Plains Report Generator for custom reports. Great Plains Payroll can now be run under the Windows operating system and if run in '386 enhanced mode' it can be run in more than one window so that all the multitasking features of Windows can be used.

Help Canadian Payroll is a moderately priced product that provides a lot of features. It is one of two payroll programs in this review that does not require an annual fee for tax table updates and allows the user to access and update the statutory deduction tables. HELP has features such as the capability to import time cards, the easy entry and accumulation of daily timecards, easy modification of statutory deduction calculations, simple customization of the cheque advice and good facilities for locating and correcting errors. It can record costs by department, by code and by job (groups). HELP interfaces to many general accounting programs and provides a concise month-end report for manual general ledger postings. It prints a variety of reports and forms, including T4s and the Record of Employment. The manual is very easy to follow and fun to use as it takes a slightly humorous approach to the set-up of a company's payroll.

Kis Payroll for Windows has taken full advantage of the Windows interface. It uses a Windows control menu for all the payroll operations. Set-up is very easy and fast using dialogue boxes for the entry of employees to the master file. Earnings and deductions are pre-configured so the user need simply click the mouse on the selected

options. Time cards and additional earnings are entered quickly and easily to dialogue boxes, which retain the data from the previous payroll run as a default to speed up data entry. A payroll may be re-calculated and cheques can be printed as many times as necessary for the payroll to be correct. Reports and audit trails are selected for viewing or printing by the click of the mouse. Help is available both by using the "Help" function from the control menu, and also through a feature called the "Advisor" on the control menu. The "Advisor" guides the user through the set-up procedures and the steps necessary for a payroll run. It also advises the user, on start-up of the program of procedures that should be completed before the next payroll run. There is also an excellent manual to guide the user through all the payroll operations.

Pay-Calc is available in three versions: a single-company version for less than 50 employees; a single-company version for more than 50 employees; and a multi-company version. Employee bank account numbers can be entered for automatic deposits. A timesheet calculator is available to enter and total employee timesheets using daily starting and ending times. There is an unposting feature available to correct errors found after posting of the payroll and a mass change feature is also available to change amounts. The program will track apprenticeship hours. Earnings, benefits and deductions are easy to set up. Ten fields of personnel information can be entered to an extra employee screen. Pay history retention is good and the reporting is flexible.

Paycheq Controller IV is a complex flexible payroll product designed to interface with Real World, Accpac Plus and Timberline accounting systems. The screens and keystrokes are similar to those of Real World. This was the only program reviewed in this group that did not have color and user-friendly menus and data entry screens. Screen prompts and on-screen help are poor to non-existent. The new manual is helpful and a good tutorial is provided with the system. Earnings, benefits and deductions are unlimited and totally user definable and as a result the program is very powerful but the set up is hard work because no predefined earnings or deductions have been supplied. PAYCHEQ IV produces all the reports a business would require as well as Records of Employment and T4s and provides for a direct deposit interface. The program has good job cost recording for Timberline and Accpac Plus job cost applications.

Paymate is available in three versions depending on the number of employees. Paymate provides formulas for the calculation of earnings and deductions and accounts for commissions, lump-sum payments, and piecework payments. Paymate is easy to set up and to use. There is good on-line help so the manual was not required for setup. The pay is calculated as the time sheet is entered and can be reviewed on the screen for errors. This product will batch timecards for quick setup and review of payroll entries. Reporting is very comprehensive with good pay history retention. Paymate is a complete personnel system. There is provision for the entry of personnel information such as the benefit plan features selected, due dates for salary reviews and increments, a screen to enter education and skills and a freeform screen which is user definable. The user can prepare user-defined reports from this personnel database. Paymate is compatible with most popular accounting packages.

User interfaces are becoming more consistent...

CHEQUE AND MATE

We have all the moves covered!

The In-house Payroll system
for Microcomputers.

Accurate • Comprehensive

Quick • Cost-effective • Confidential



TORONTO: 415-0255 1 (800) 665-5129



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

Paymate™

SOLVES PAYROLL PROBLEMS!

A CANADIAN PAYROLL & PERSONNEL SYSTEM

Increased Ease of Use

- Context-sensitive Help, automatic pick lists, on-line manual, handy popup calendar, calculator, and notepad.
- New, more informative prompts make even the most complex tasks seem simple.

Improved Functionality and Flexibility

- Multiple pay periods, multiple pay rates, and multiple pay slips and cheques for any period.
- Supports commissions, lump sum payments, and more extensive earnings, benefits, and deductions.

Enhanced Compatibility

- Paymate 5 is compatible with most popular accounting, database, and spreadsheet packages including: ACCPAC, dBASE & Lotus 1-2-3.

More Powerful Reporting

- Paymate features several new reports along with increased flexibility in report selection.
- High quality, informative output can be sent to either the screen or printer.

**FREE
90 DAY TRIAL**

**Order Your Unrestricted
Trial Package Today!**

AK Microsystems
80 Fulton Way, Suite 201
Richmond Hill, Ontario L4B 1J5
Tor: (416) 969-8156 (416) 771-1155
Fax: (416) 771-1344

Powerpay is a very inexpensive, easy-to-use payroll program for a single company. It also comes in a multiple-company version. The names of 4 taxable benefits and 6 deductions can be defined in addition to those assigned by the program. Payroll can be calculated individually by employee or by pay period groups. There is good on-line help. The calculation of the payroll is fully automatic. There is no provision for entering manual cheques or after-the-fact pay. Adjustments to the payroll are limited to adjusting the opening entries at start up. Historical balances cannot be changed except that a pay record can be deleted and reentered at any time.

Powerpay does not prepare a Record of Employment. It does, however, calculate the workers' compensation liability for each employee covered. The program prints T4s but does not produce a T4 summary report.

Payroll In Integrated Accounting Software

ACCPAC Simply Accounting for DOS is included in the survey because it includes an easy-to-use payroll which is integrated to job costing and therefore very suitable for the small contracting firm. This product tracks advances, accrues or pays out holiday pay and provides for a taxable benefit and

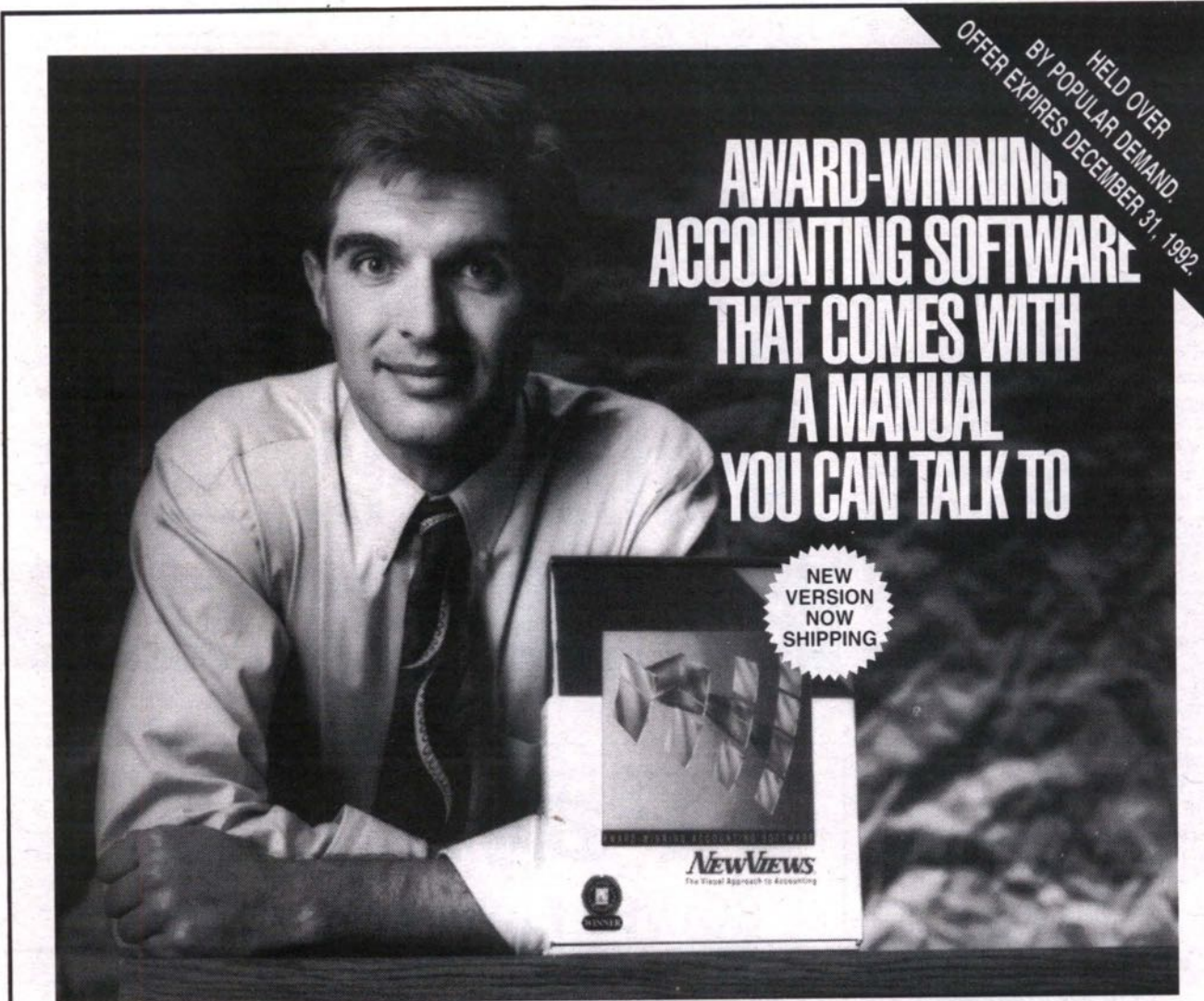
other non-statutory deductions. It prints T4s but does not calculate and report the amounts to be entered to the T4 summary. It does however track employee gross pay for workers' compensation calculations.

ACCPAC Simply Accounting for Microsoft Windows and for the Macintosh is an easy-to-use integrated accounting program with a payroll system and job costing program similar to ACCPAC Simply Accounting for DOS. It takes advantage of the Windows and Macintosh's operating systems' control menus and dialogue boxes. A click of the mouse on the ACCPAC icon starts the program and the mouse can be used throughout to set up

employees, enter year-to-date information and perform data entry or journal entry procedures. The system handles seven income fields and eight deduction fields. Payroll cheques are entered to a screen that resembles a payroll cheque. All standard payroll reports are prepared by the system except the Record of Employment. Custom reports can be obtained by exporting payroll data to a spreadsheet program.

NewViews Version 1.40 is a very flexible and powerful payroll program. An unlimited number of earnings and deductions can be configured for each employee. Setting up the first employee is somewhat tricky but the manual is clear and well written and easy to follow. Once the first employee's payroll has been configured it can be copied to add new employees and modified to include different earning and benefit types. Payroll deduction tracking and reporting is very flexible. Cheques can be issued both to employees and for deduction and benefit payments. Reporting is very flexible and therefore difficult to set up. A procedure for the preparation of T4s has been included but it does not prepare a T4 summary report. The example in the manual does not track insurable earnings or show how to prepare a report from which a Record of Employment could be prepared nor does it give assistance in the preparation of year-to-date reports, payroll registers, etc. although the program has the capability of printing these reports once they are configured. This product would be good for a computer-literate manager seeking to fully customize his payroll entry and reporting procedures.

Joan V. Hornal, BSc., CGA, is principal of Joan V. Hornal and Co. Inc., and managing consultant of PC Professionals, a Vancouver firm specializing in the selection and installation of micro-computer software accounting solutions and related training and support. The telephone number is 604-732-9731.



Get 2 days of FREE training and \$1,000 in savings when you order NewViews!

NewViews, the award-winning accounting software from Q.W. Page, now comes with a special bonus anyone can appreciate. When you order NewViews, you will receive two days of FREE training with a friendly, knowledgeable instructor. Plus, you get NewViews at a very special price! All of which gets you on-line fast . . . and to your bottom line even faster.

With NewViews, you have all the benefits of real-time

processing, incredible flexibility, and complete integration. And there's even more. Once you're up and running, Q.W. Page provides FREE unlimited telephone support!

So order NewViews today. You'll not only get \$1,000 in savings, you'll get something far more valuable. A manual you can talk to.

NEW VIEWS
The Visual Approach to Accounting

With NewViews you get:

- General Ledger
- Accounts Receivable
- Accounts Payable
- Payroll (USA & Canada)
- Financial Planning and Analysis
- Sales Analysis
- Consolidation
- Budgeting
- Comprehensive Printing (invoices, statements, cheques, labels, etc.)
- Import & Export Capabilities
- and much more!

LIMITED TIME SPECIAL OFFER

\$795 Two days FREE training*
Reg. \$1,295 Reg. \$495

In Canada call: 1-800-267-PAGE
In U.S. call: 1-800-456-2353
In Toronto call: (416) 946-9460

SPECIAL DISCOUNT FOR ACCOUNTANTS. CALL FOR DETAILS.

Q.W. Page Associates Inc. 351 Steelcase Road West, Units 1 & 2, Markham, Ontario L3R 4H9

*Training consists of the standard NewViews for Users - Level 1 workshop offered by any participating Authorized Training Centre.

Success Software's

Motivator 1.5

Master the powerful art of goal setting.

A complete system to set-up, maintain, and track an effective, organized goal setting routine.

Transforms your desires into real concrete goals, and helps you to devise an effective plan of action to attain them. Brings you closer to your definition of success.

Enhances your personal performance, keeps you focused on what needs to be accomplished Now.

Informative 3D bar charts display your progress in over 50 areas.

Generates several reports to keep you focused and informed, such as; *Personal Handbook, Daily Information File, Major goal report, and Action goal report.*

Program Features ● Pull-down, Pop-up menus. ● On-line help. ● Built-in word processor. ● On-disk samples. ● Built-in back-up utility. ● Password protected.

Order your package today for \$129.95 plus \$5.00 S&H. Use your Visa or Amex card by calling:

(403)278-1505

Or send cheque or money order to:

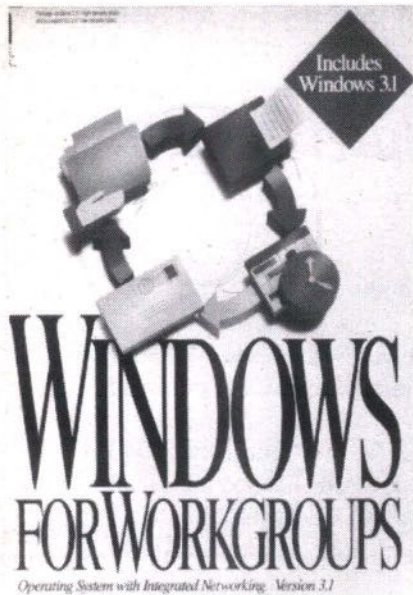
Success Software
Box 43069 - DeerValley Postal Outlet
Calgary, Alberta. T2J 7A7

System Requirements: IBM or 100% compatibles, 3.5" 720k or 5.25" 1.2meg floppy drive plus a hard drive. Min 512k ram, dos 3.0 or higher. Works with most monitors and printers.

30 day money back guarantee

Windows for Workgroups

BY GEOFF WHEELWRIGHT



The computer industry has for years talked about how wonderful life will be when all the personal computers in an organization can be connected up together in what it calls a "local area network." PC users, on the other hand, have long been waiting for the day when they can easily share information and resources between their machines without having to pass floppy disks and printers around the office.

But PC networks have always seemed so complicated — you need to have a local area network adapter card in your PC, you need to decide on which cabling system you are going to use, pick a network operating system (NOS), find software that supports both the NOS and the adapter card — and make sure they will all work together. This has not been an easy job.

Users of the Apple Macintosh may be wondering what all the fuss is about — network capabilities have been built into all Macintoshes from Day One and Apple's network operating system for the Macintosh has long been part of the operating system. Microsoft, in particular, was a pioneer in taking advantage of this design and developing software that could make use of it.

Learning from its positive experience with the Macintosh, Microsoft has now decided that it's high time PC users were given the same chance to connect their machines up painlessly — and really get the benefit from what has come to be called "workgroup computing."

Microsoft has created a new operating environment — Microsoft Windows for Workgroups 3.1 — that is designed for groups of people who want to link their computer systems together. Although it is based on Microsoft's hugely popular Windows 3.1 — and, in fact, will be available as an upgrade to Windows 3.1 — Windows for Workgroups 3.1 gives users all

Continued on page 23

BYTE INFO SYSTEMS
111 REGINA ROAD, #17, WOODBRIDGE ON L4L 8N5

COMPUTER DISCOUNT WAREHOUSE SALE
WHY PAY MORE?

DISCOUNT PRICES ON HARDWARE, SOFTWARE & PERIPHERALS

Special Holiday Season Deals! Limited Quantities Act NOW!

BLAZING SPEED! UNBEATABLE PRICE! 5 YEAR WARRANTY! ACEEX FaxModem

- 14.4k Data & Fax
- 57,600bps throughput
- MNP5, V.42, V.42bis
- Group III, Class 2 fax
- 10 Free hours on Virtual Village BBS
- Works with most popular communications software

\$329⁹⁵

NEW! HP LaserJet 4

- 2 MB RAM memory
- 600 dpi Resolution
- 8 pages per minute
- Resolution Enhancement+
- Fast RISC Processor
- Affordable PostScript-Up

\$1749

CANON BJ-200 (new)	8449
HP DeskJet 550C w/cart (new)	889
NEC CDR-74 Drive	799
SMS CD-ROM Drive	399
MS-Excel 4, Word 2, PowerPoint 3	
Stacker V2.0	119
After Dark for Win V2.0	42
Procomm Plus V2.01	93
MS Flight Simulator V4.0	45

PRINTERS AND PLOTTERS

Panasonic KX-P1123 24-Pin	5239
Panasonic KX-P2123 24-Pin	289
Panasonic KX-P1124 24-Pin	336
Panasonic KX-P1180 9-Pin	187
Panasonic 2180/2123 Color Kit	58
NEC Silentwriter2 Model 95	1813
Okidata OK400 LED Page	783
Okidata ML320 9-Pin	399
Kodak 180SI Portable Parallel	369
Citizen 200GX 9-Pin	call
Epson LQ570 24-Pin	399
Epson LX81DP 9-Pin	210
Epson FX850 9-Pin	389
HP DeskJet 500	464
HP DeskJet 500 Color	610
Canon BJ-10EX	354
Canon BJ-10EX w/feeder	389
Canon BJ-20 w/feeder	469
Canon BJ-300 (2 ink cart, free)	498
Canon BJ-330	619
HP IIP+ w/toner	975
HP III w/toner	1815
HP IIP w/toner	1229
HP III w/toner	2739
HP III w/toner	4223
HP PaintJet Color	859
HP PaintJet XL300	2267

MONITORS AND TERMINALS

NEC 3FGx	799
NEC 4FG	959
NEC Multisync 4DS	744
NEC 5FG	1739
NEC 6FG	3129
ViewSonic 4E	365
ViewSonic 5E	435
ViewSonic 6	415
ViewSonic 6FS	749
ViewSonic 7 17"	1339
ViewSonic 8 20"	1789
Leading Edge SVGA monitor	299
Samsung CVM4963 14"	275
TVM MediaScan 3A	345
Wyse Terminal - 60 Amber	379
Wyse Terminal - 60 Green	475
IBM VGA 14"	398
Mitsubishi Diamond Pro 14	649

VIDEO BOARDS

ATI VGA Basic-16	575
ATI VGA Integra	99
ATI VGA Wonder XL24 1MB	169
ATI Graphics Vantage 1MB	263
ATI Graphics Ultra 1MB	382
ATI Graphics Ultra+ 1MB	337
ATI Graphics Ultra+ 2MB	393
ATI Graphics Ultra Pro 1MB	516
ATI Graphics Ultra Pro 2MB	605
ATI VGA Stereo-F/X	255
Trident SVGA 512k	65
Cirrus Accelerator 16.8mi 1Mb	120

MATH COPROCESSORS/OVERDRIVE

Intel OverDrive 486/SX, 25MHz	5624
Intel OverDrive 486/SX, 20MHz	466
Intel OverDrive 486/DX, 33MHz	822
Intel 387DX, 16/20/25/33	call
Intel 387SX, 16/20/25	call
Intel 487SX/387SL Mobile	call
ULSI Math-Co 387DX25.33	79/81
ULSI Math-Co 387DX40 MHz	98
ULSI Math-Co 387SX16.25	71/75

MODEMS/FAXMODEMS

ATI 2400 etc/e w/send fax	5126
ATI 9600 etc/e V.42bis	326
Hoyes SM2400/SC E2	466
Hoyes Optima 96/SC E2 V.32V.42	403
ACEEX fax/modems	call
PC Logic 2400i int.	49
PC Logic 96/24 fax/modem ir	79
PC Logic 14.4/14.4 fax/modem int.	269
PC Logic 9600 modem int.	225
Supra 9600/2400 fax/modem ir	85
Supra 9600/9600 fax/modem ir	291
Supra 14.4/14.4 fax/modem ext.	349
Zoom 9600/9600 fax/modem ir	278
Zoom 9600/9600 fax/modem ext.	291
Zoom 14.4/14.4 fax/modem ir	297
Zoom 14.4/14.4 fax/modem ext.	330
US.R. 16.8 Courier Dual 5rd ex	911
US.R. HST 16.8 Courier ext.	639
US.R. 14.4 Courier V.32bis ex	650
Intel SatisFAxion 100	call
Intel SatisFAxion 200	call
Intel SatisFAxion 400	call
Intel SatisFAxion 400e	call

HARD DRIVES AND TAPE BACKUP

Quantum 42MB 28ms IDE	5222
Quantum 85MB 17ms IDE	285
Quantum 170MB 16ms IDE	430
Quantum 52MB 9ms IDE	245
Quantum 105MB 9ms IDE	355
Quantum 127MB 17ms IDE	368
Quantum 240MB 16ms IDE	616
Quantum 425MB 10ms IDE	1139
Maxtor 212MB 14ms IDE	475
Maxtor 330MB 14ms SCSI	835
Maxtor 660MB 16ms SCSI	1480
Maxtor 1GIG 13ms SCSI	1970
Maxtor 1.5GIG 13ms SCSI	1999
Seagate 42MB 15ms IDE	222
Seagate 130MB 15ms IDE	365
Colorado Tracker 120/250mb	call
Colorado DJ-20 Jumbo 250MB	335
Colorado DJ-10 Jumbo 120MB	248
Bernoulli Transportable 90MB PRO	875
Accutrak+ 120MB w/tape	325

CONTROLLERS CARDS & MULTI I/O

GoldStar Super I/O IDE/FDD/25/F/G	527
IDE Caching Controller (k>2MB	198
Colorado FC-10 Tape/Cont.	call
ALWAYS IN2000 SCSI H/F	235
Ultrastor-15C1 1MB>8MB IDE	299
Ultrastor 15C0 0MB>8MB IDE	call
Adaptec 1522 SCSI	195
Adaptec 1542 SCSI	295

FLOPPY DRIVES

3 1/2" 1.44MB DSHD	559
3 1/2" 2.88 MB Disk Drive/Kit	call
5 1/4" 1.2MB DSHD	69

MEMORY - COMPUTER & LASER

256K x 9 70ns	13.49
1MB 70ns SIMMS	35.99
1MB X 9 70ns SIMMS	39.95
4MB X 9 70ns SIMMS	141.95
1MB X 9 60ns SIMMS	37.98
4MB X 9 60ns SIMMS	154.99
1MB Memory Upgrade HP	85
2MB Memory Upgrade HP	120
4MB Memory Upgrade HP	196
POSTSCRIPT Upgrade HP	396

MULTIMEDIA AND CD-ROM

ATI Stereo-F/X sound board	5129
Sound Blaster V2.0	129
Sound Blaster Professional	261
Sony 535 Drive/Kit	call
NEC CD ROM Express bundle	492
NEC CDR-37 Drive bundle	call

COMPUTER SYSTEMS*

Samsung DeskMaster 486/50 1MB/SVGA	51226
Compaq ProLinea 486/33	2200
Compaq DeskPro 486/25M Model	2673
IBM PS/1 386SX/80	830

* Call for pricing and information on NOTEBOOKS and other computer systems.

FREE! Get FREE 21" Monitor Lens with purchase of a 16" NEC monitor. Call for details.

Experience the BYTE difference!

BYTE INFO SYSTEMS COMPUTING SOLUTIONS

The following are ready-to-work computer solutions optimized by BYTE and leading software makers:

Solution 1: Desktop Publishing

- Features:**
- Express 486/50 MHz, 256k Cache
 - 8 MB 60ns Fast Ram
 - ATI Graphics Ultra Pro 2MB
 - Maxtor 212MB 14ms IDE hard drive
 - ViewSonic 7, 1280x1024, Ni, 17" monitor
 - MS-DOS 5.0 and Microsoft Windows 3.1
 - Aldus FreeHand 3.1, PageMaker 4.0, PhotoStyler 1.1a
 - Microsoft Office for Windows (Excel 4.0, Word 2.0, PowerPoint 3.0)

Benefit: High-performance integration of text and graphics. Right out of the box.

Price: DTP Solution from \$2,995. System described: \$6,995.

Solution 2: Business Computing

- Features:**
- Express 486/33 MHz
 - 4 MB 60ns Fast Ram
 - ATI Graphics Ultra+ 1MB
 - Quantum 120MB IDE 9ms hard disk
 - ViewSonic 4E, 1024x768, 14" monitor
 - MS-DOS 5.0 and Microsoft Windows 3.1
 - Microsoft Office for Windows (Excel 4.0, Word 2.0, PowerPoint 3.0)

Benefit: Increased productivity in the Windows operating environment. In a turnkey, ready-to-work system.

Price: Business Solution from \$1,995. Solution described: \$2,895.

First identify your computing needs. Then call BYTE and let us satisfy them for you. We've got solutions you won't find anywhere else. Call us for your turnkey system that runs right out of the box.

MOST ORDERS RECEIVED BY 2:00 P.M. EST SHIP SAME DAY

BYTE Carries Over 8,000 Computer Products At Discount Prices. If You Don't See It, Call!

IF YOU FIND A BETTER PRICE CALL US BEFORE YOU BUY

AT BYTE YOU GET MORE COMPUTING FOR YOUR BUCK. WHY WAIT? CALL NOW!

GOVERNMENT AND CORPORATE POS WELCOME. Prices and availability subject to change without notice. Visa, MasterCard and prepaid checks are accepted.

BYTE means Service Savings Business Experience Technology Networking Computing

FAX: (416) 856-4820

1-416-856-5651

FAX: (416) 856-4820

Place Orders: Monday-Saturday 8:00am-8:00pm

WE SELL NAME BRANDS FOR LESS!

All trademarks and registered trademarks are of their respective companies. All prices cash discounted.

AmigaTalk

ADVERTISING FEATURE

Sponsored by *Amsoft Computer Systems*

THE WORLD OF COMMODORE AMIGA SHOW

December is always a particularly exciting month for local Amiga owners and users. The World of Commodore Amiga Show comes to the International Centre on Airport Road in Mississauga, from December 4th to the 6th - just in time for Christmas!

For non-Amiga users who have heard a lot about this unique and powerful computer platform, and are curious to know more about the Amiga, this is a golden opportunity to do so. The World of Commodore Amiga is a large, well-organized event with the Amiga on centre stage. However, Commodore's full line of MS-DOS computers will also be featured.

The star of the show is, of course, Commodore. They always showcase their product line in an exciting hands-on, application-oriented manner. This year, however, they are going to have their hands especially full. Never in the history of The World of Commodore Amiga, which this year "Celebrates 10 Fantastic Years in Toronto", has there been so much new computer product to feature.

Announced during the last quarter: the Amiga 600 and the Amiga 4000, the Amiga 3000T/40, two new operating systems, Workbench 2.1 and 3.0, a major upgrade to Commodore's multimedia programming package, AmigaVision and a CD-ROM player that fits the Amiga 500. There are also rumours afloat that yet another new Amiga model may be introduced at this show.

For those showgoers for whom the Amiga is simply not their cup of tea, Commodore will also be displaying their impressive new line of slim-line MS-DOS machines.

The World of Commodore Amiga isn't just another computer show. In addition to the Toronto event, it also makes two annual appearances in the United States and one in Australia. The show organizers always assemble a class act with a good balance of demonstrations, hands-on opportunities, hardware and software developers with product displays, user groups, retailers and an excellent selection of forums and seminars. In addition, each show features unique themes and events.

For example, at this year's show there will be several different virtual reality experiences for show attendees. Also, would-be Picassos of all ages will have the opportunity to try their hand at computer graphics in an art contest.

It's a great place to not only see the latest ideas and products, but also to meet the people who are behind those products. Developers from all around the world will be featuring their latest and greatest. If you have any questions about their products, you can get the answers "straight from the horse's mouth".

The seminar schedule is always impressive. Experts from Commodore, respected Amiga users and writers, as well as Amiga developers with new products, cover every manner of topical interest.

And as always, there will be ample opportunity to buy computerware of every description, from magazines to public domain and shareware programs; from commercial software and hardware peripherals to entire computer systems. Show prices are traditionally discounted.

Amsoft will be at the show retailing a wide selection of Amiga hardware and software. We will also be demonstrating Amiga Interactive Multimedia using touchscreen technology, courtesy of St. Clair Videotex Design Ltd.

SOME IMPRESSIONS OF THE AMIGA 4000

Even after almost a month to acquaint ourselves, visitors and customers with the new Amiga 4000, we continue to be amazed daily by this powerful new addition to the Amiga line of computers.

One of our staff members' observations: "A fast Motorola 68040 microprocessor, combined with a very fast 32 bit expansion bus and integrated graphics and sound chips make the A4000 one of the fastest personal computers around. One of the first things that you notice about the Amiga 4000 is that you don't wait for things to happen!"

Whether you are excited by the prospect of being in command of a screen display (in any resolution) of 256,000 colours out of a palette of 16.8 million, or of creating real-time 24 bit animations, or of importing 256 colour pictures into your word-processing documents, the Amiga 4000 has to be experienced to be believed.

BEYOND THE FAX MODEM

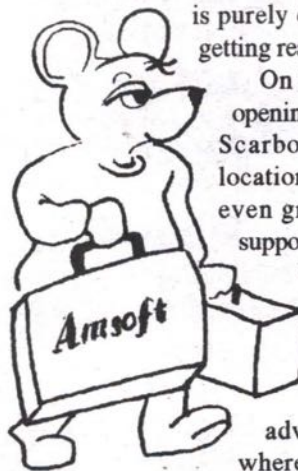
Fax modems have become a very popular computer peripheral. For little more than the price of a regular modem, it is possible to add facsimile capabilities to your computer.

Now, a well-known Amiga developer, GVP, have gone beyond the fax modem with their "PhonePak". It is an incredible new voicemail system with integrated facsimile capabilities. Installed in the Amiga, it allows you to send and receive faxes, print faxes on plain paper, schedule faxes to one or a number of phone numbers, and to record and playback voice messages.

The Amiga being a multi-tasking computer, all of this goes on in the background while your computer is free for other applications.

THE AMSOFT MOUSE

This little character is our newly adopted Amsoft Mouse. (Any resemblance between his slightly pudgy appearance and the owners of Amsoft is purely coincidental!) As you can see, he is packed and getting ready to move.



On Saturday, December 12th, at 10:00AM, we will be opening our new main store at 371 Old Kingston Road, in Scarborough. Just minutes from Highway 401, this location will allow us to provide our customers with an even greater level of product selection and customer support.

We're all quite excited by the new facilities which include a full service department with quick turn-around time, a fully equipped computer classroom for hands-on courses in everything ranging from basic Amiga fundamentals to advanced video techniques, and a larger showroom where you should be able to locate all of your Amiga needs. Everyone is invited to drop by for our opening day celebrations.

Amsoft Computer Systems

New Main Store (Opening Dec 12, 1992)
371 Old Kingston Road
Scarborough, Ontario M1C 1B7
(416) 282-7987

557 Markham Road
Scarborough, Ontario M1H 2A3
(416) 431-9452

Authorized Commodore Dealer Since 1984

the software they need to start networking their PCs together. And given that increasing numbers of PCs are being shipped with network adapter cards built-in, this means that any such PC loaded with Windows for Workgroups 3.1 can be easily "plugged-in" to the network.

During a recent briefing for computer-industry editors and analysts at the company's worldwide headquarters in the United States, Microsoft described Windows for Workgroups 3.1 as its plan "for making it easier for people in both large and small companies to build workgroup and enterprise solutions." The company also promised that most users should be able to set up Windows for Workgroups on their PCs within an hour.

Microsoft's strategy for workgroup computing is based on an open, evolutionary, scalable solutions-based approach. Microsoft is adding basic workgroup functionality to the operating system, extending and adding to its line of applications, and supporting custom solutions to satisfy the needs of workgroups.

"Microsoft is providing the infrastructure in the operating system for the development of the next generation of applications — those that empower these groups of people and bring our vision of 'Information at Your Fingertips' to the desktop."

According to Bill Gates, chairman and CEO of Microsoft, these plans are all about meeting the needs of the networked 1990s. "We are seeing the world evolve from islands of information on individual workstations to groups of people collaborating on shared information," he said. "Microsoft is providing the infrastructure in the operating system for the development of the next generation of applications — those that empower these groups of people and bring our vision of 'Information at Your Fingertips' to the desktop."

Windows for Workgroups 3.1 is thus the first version of Microsoft Windows to incorporate workgroup functionality into the operating environment. It comes complete with electronic mail, group scheduling and network-enabled dynamic data exchange (DDE) that allows users to link objects across the network.

An open approach

One of the major components of Microsoft's workgroup strategy is the aforementioned openness of the computing environment to both users and developers. To provide this open architecture, Microsoft has re-emphasized its intention to put basic workgroup functionality directly into the operating system.

The company says a logical access point for these functions is the Windows Open

Services Architecture (WOSA). "WOSA opens up the front end for users so that they can take advantage of a variety of services through a familiar interface without having to worry about the underlying complexities of the architecture," says Mike Maples, executive vice president for systems and applications at Microsoft. "In addition, WOSA provides the same flexibility to programmers by allowing them to concentrate on developing innovative solutions rather than programming commodity-system-level functions. What this openness provides to both users and developers is the ability to mix and match products and services to

create the solutions they need."

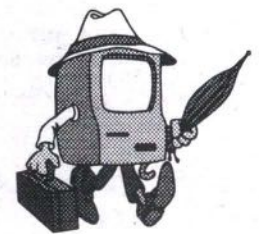
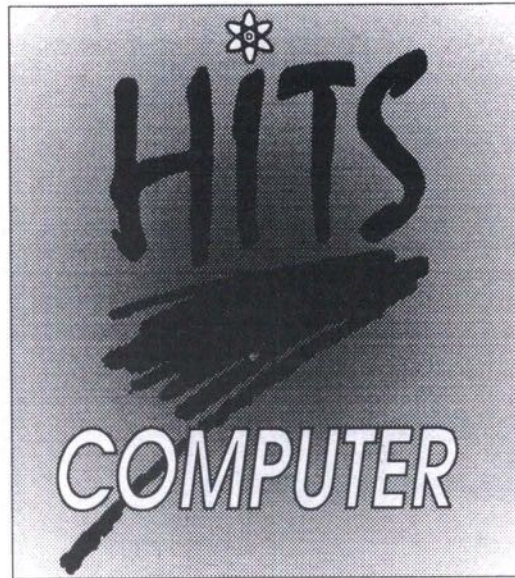
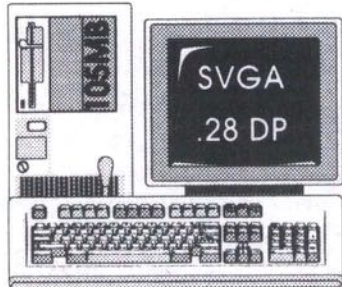
Another key component of Microsoft's workgroup strategy is to make existing applications, such as Microsoft Excel and Microsoft Word, "workgroup-enabled" through standard APIs such as MAPI (Microsoft's electronic mail interface). The company says this would create new applications and technologies critical to both individuals and groups, as well as "leverage" applications as building blocks for customized solutions.

In addition, Microsoft says it recognizes the importance of treating data as a reusable asset with general-purpose data-

bases. "We view workgroup computing as an evolutionary process," said Steve Ballmer, executive vice president, worldwide sales and support at Microsoft "Users should be able to use the applications and operating systems they are already familiar with, and be able to pick and choose the elements they need for their particular workgroup, without the inflexibility of one-size-fits-all products."

Using Windows for Workgroups

To get an idea of how you might use Windows for Workgroups — with its built-



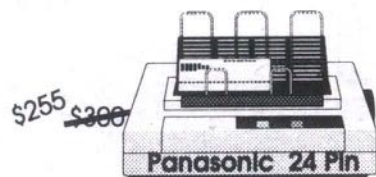
- 386SX-33MHz \$898**
- 386DX-40MHz \$1,198**
- 486DX-33MHz \$1,688**
- 486DXII-50MHz \$1,748**

System Features:

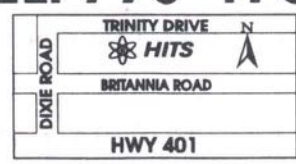
- 64KB CACHE (Exp. to 256K)
- 1MB RAM (Exp. 32MB)
- FD/HD Controller 1:1 Interleave
- 14" SVGA (1024x768 - 512K) .28DP
- Mini-Tower/Desk Top Case
- 200W CSA Power Supply
- 1.2MB Panasonic FDD
- 1.44MB Panasonic FDD
- 105MB Kalok/Xebec Hard Disk (17ms)
- AT I/O Card (2S, 1P, 1G)
- 101 Enhanced Keyboard

** For 386SX33 System:
1 x 1.44MB Panasonic FDD
42MB Hard Disk
Color VGA (640x480 - 256K)

3 Yr. Labour & 1Yr. Parts Warranty

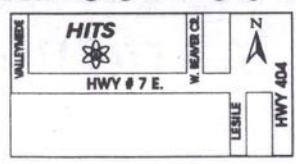


MISSISSAUGA
TEL: 795-1730



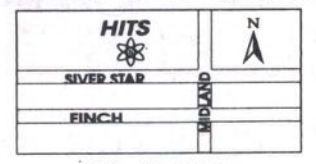
Unit 5
1520 Trinity Drive
Mississauga

RICHMOND HILL
TEL: 889-6513



Unit 14
420 Highway 7 E.
Richmond Hill

SCARBOROUGH
TEL: 754-8887



Unit A16
63 SilverStar Blvd.
Scarborough

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

in Microsoft Mail and Scheduler+ applications — consider how it might fit alongside other Windows applications such as the new Microsoft Sound System (see page 24 for details), Word for Windows and Excel when connected using something like a standard Novell NetWare 2.2 file server.

To start with, all network file access and sharing is done in the familiar Windows 3.1 file manager. It is when you look at the new Windows for Workgroups toolbar in the file manager that you start seeing some differences between it and Windows 3.1.

New buttons have been added to handle the most commonly used functions. So with the click of a button, files can now be sorted by name, size, or date. You can also customize this toolbar and add your own functions to it.

Sharing files is as easy as clicking a button. By selecting a directory and selecting the Share button on the toolbar, another user can access this directory and all files in it. When sharing a directory, you can specify security access privileges.

The Connect button on the toolbar allows specified users to access machines within the workgroup. Windows for Workgroups displays the workgroup name, and the members (machines) of this workgroup. By selecting another machine on the workgroup, a new window appears showing that machine's file manager. The user now has full file-sharing access to this machine.

Windows for Workgroups allows you to easily share printing resources. The Print Manager has a toolbar just as the File Manager does, displaying available printers in the workgroup. To print a file, just drag and drop it.

Windows Sound System

Windows for Workgroups contains Microsoft Mail, comes with a complete messaging system, and can connect to existing mail systems. Microsoft Mail supports Object Linking and Embedding, so voice annotations, files, and other objects can be embedded in any mail message. This voice annotation is recorded using Windows Sound System (or any other MPC-compliant sound system), which also supports voice recognition and other features.

Windows for Workgroups includes a scheduling program called Schedule+. Schedule+ allows workgroup members to manage and share their calendars, and schedule group meetings in an efficient way. Because Schedule+ and Microsoft Mail are integrated in Windows for Workgroups, meetings can be set with a number of people at a specified time and message requests show up in their mail inboxes. By selecting the Change button, the attendees can be selected from the same address list that exists in Microsoft Mail.

Schedule+ quickly scans the schedules of the selected attendees and overlays their schedules on top of the user's. By highlighting any of the columns, symbols will appear if there are conflicts in schedules. Planner view shows blank spaces when all selected attendees are available; or, by selecting Auto Pick, Schedule+ will find the next available meeting time. Each attendee will receive a custom e-mail form containing buttons to accept, decline, or tentatively accept the meeting. This can be

done from Microsoft Mail without ever opening Schedule+.

For instant communication with Windows for Workgroups, you can use the "chat" function. Chat allows workgroups members to communicate real-time in a one-on-one session.

Network DDE

With Network Dynamic Data Exchange (DDE) in Windows for Workgroups, users can share information from any application. Links can be created between workgroup members such that any changes to a file are reflected on all linked machines. Network DDE links can be set up across any

application that supports DDE without any modifications to the applications. The user interface for sharing network DDE items and creating links is what Microsoft calls "the ClipBook Viewer" — an extension to the Windows 3.1 ClipBook.

Windows for Workgroups also allows connections to other networks, such as Novell NetWare. By simply dragging and dropping a user can install NetWare support. All required files for client connections to NetWare are included in the Windows for Workgroups box. Once installed, a

Windows for Workgroups user connects to NetWare servers using the File Manager Toolbar, and has full accessing capabilities as if they were running NetWare under Windows 3.1.

New applications for a new environment

Unlike many other networking environments, Windows for Workgroups already has a huge base of support among third-party software developers — with a wide range of innovative, new applications being created to exploit its power. These include:

JetForm Design

JetForm Design allows for the creation of all kinds of forms that can be sent around the network. For example, you might want to create a "sign-off" form with a list of specific people who must sign off a given plan or document. Jetform's electronic signatures can lock a specified set of data, so that it cannot be changed unless it is unlocked by the original signer. JetForm for E-Mail/G works in conjunction with Windows for Workgroups to allow a form with a logo attached to it to be completed and e-mailed along the route. The entire process is handled electronically.

Maynard Maynstream For Windows

This Windows for Workgroups application provides the ability to back up selected files located not only on the local machine but also on shared directories on other Windows for Workgroups machines. The user interface is seamlessly integrated into the toolbar button extension capability of File Manager.

Maynard's existing MaynStream For Windows has thus been enhanced to provide the capability to identify the files to back up from the familiar and easy-to-use Windows 3.1 File Manager. The user can select files on both the local hard drive as well as on any shared drive on a Windows For Workgroups PC. One person in the workgroup can have share access (via a

- 386DX-40MHz w/128K Cache \$ 1399
- 486DX-33MHz w/256K Cache \$ 1899
- 486DX-50MHz w/256K Cache \$ 2099
- 486DX-33/50MHz EISA CALL
- Local Bus 486-33/50MHz CALL

FREE

MS-DOS 5.0
WINDOWS 3.1
MOUSE & PAD

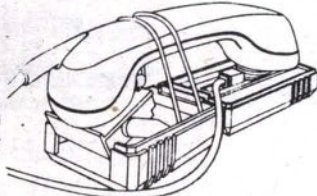
UNBEATABLE PRICE !! QUALITY !!

HWY. 401	
HWY. 10	Dixie Road
Constitution Blvd.	1125
Dundas St. E	

Systems Include:
4MB Ram (70ns)
120MB IDE Hard Drive
1024K SVGA Video Card
101 Enhanced keyboard
1.2MB & 1.44MB Floppy Drive
14" SVGA Color Monitor .28dpi
IDE FD/HD Controller w/2S/P/G
Mini Tower Case w/200W CSA PS
1 Year Parts and 2 Years Labour Warranty

**EPSON
LASER PRINTER
\$865**

Allows you to use any modem to communicate with pay phone, cellular phone, PBX Systems and international telephones.



NEW !!
**WIRELESS FAX MODEM
ACOUSTIC
COUPLER**



4 MB RAM, 1.44 FD, 60 MB HD
VGA B/W CCFT LCD (640X480)
EXTERNAL VIDEO/KEYBOARD PORT
BATTERY, DOS 5.0, WINDOWS 3.1
CARRYING CASE & MORE
6.5 LBS WITH BATTERY PACK

**NOTEBOOK
SPECIAL
\$1490**

Quality SERVICE

BiCMOS Trading International

Toronto Office:
1125 Dundas St. East,
Unit #28, Second Floor
Mississauga, Ontario
L4Y 2C4
Tel: (416)-279-5038 Fax: (416)-279-9241

Head Office:
1117 St. Catherine West, Suite 407
Montreal, Quebec
H3B 1H9
Tel: (514)-286-1516
Fax: (514)-286-4482

**DEALERS
WELCOME**

* Prices are subject to change without notice.

password) to all network servers that have files which need to be backed up on a regular basis and do it conveniently from his or her own machine.

Taking advantage of the extensibility of Windows for Workgroups, three new buttons are added to the File Manager by Maynstream: an Add File Button that adds selected files to the list of files to back up, a Remove File button that removes selected files from the list of files to back up and a Back Up button that launches the MaynStream For Windows program to back up the specified files.

Microsoft isn't, however, just talking about how other companies can exploit the power of Windows for Workgroups 3.1. The company plans to lead this effort from the front.

Ventana Graphics

Ventana Graphics is a graphics program that supports the simultaneous creation and editing of diagrams and charts by multiple members of a team. Ventana Graphics supports both individual and group work processes, including data flow diagrams, process and organizational diagrams, flow charts, fish-bone diagrams, and freestyle object-type graphics. Its workgroup features include window synchronization and real-time gesturing, which lets all participants point and gesture at parts of a diagram, much like a person would do while standing at a drawing board.

Shiva NetModem/E for Windows

Suppose you have a portable computer and a modem and wish to remotely access the information held on your Windows-based desktop system at the office. Using Shiva's NetModem/E for Windows, you can connect to a Windows for Workgroups network just as easily as if you were connected to the network over Ethernet cabling.

The portable computer is equipped with Windows for Workgroups, Shiva's SerialLink dial-in software, and a high-speed modem. A Shiva NetModem/E for Windows for Workgroups is installed on a remote Ethernet network. Using the SerialLink software, a modem connection is created between the portable computer's modem and the Netmodem/E.

Once the modems are connected, the portable computer can access the Windows for Workgroups machines on the remote network as if directly connected to that network. It can attach to drives using the File Manager and, run Microsoft Mail to retrieve messages. The dial-in connection behaves the same way a local connection does, so the user does not have to learn any new user interfaces. The NetModem/E provides an additional user-level security above what is provided in Windows for Workgroups.

The Microsoft Contribution

Microsoft isn't, however, just talking about how other companies can exploit the power of Windows for Workgroups 3.1. The company plans to lead this effort from

the front.

One strong example of this leadership is Microsoft Office — a product that includes Microsoft's PowerPoint, Excel, Word for Windows and Microsoft Mail applications at a fraction of the cost of what it would take to buy these individually. These applications — alongside Microsoft's new Access database — were designed to work together from the outset, so you won't have to spend a lot of time trying to figure out how they fit.

Microsoft Word for Windows and Excel, for example, were created from the outset with co-operation in mind. With a simple "linked" copy and paste, you can create a

link between an Excel spreadsheet and a Word document — reformatting, sizing and moving the Excel data anywhere in your Word document. And all the while, you can be sure that when changes are made to the original Excel spreadsheet, they will be reflected in the linked Microsoft Word document.

Similarly, Microsoft Mail is designed to allow you to "embed" graphics from Excel, database files from Access or complex formatted documents created in Word for Windows or PowerPoint. Microsoft Office, Access and Windows for Workgroups represent a coherent set of "teamwork" products for the forward-looking workgroup. ■



"Stop bringing me clothes, and I'll start believing in you again."

MIT

COMPUTER SUPPLIES CO. LTD.

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

HOURS:
Monday to Friday
9:00 AM - 6:00 PM
Saturday
10:00 - 6:00 PM

We Carry a wide selection of Genius products including:

- Cordless and 3D Mice
- Notebook Add-on Mice
- Pen-based Systems
- Graphics Tablets

Ask us about our
MICROJACK®
Products
PERIPHERALS FOR THE COMPUTER

MIT SYSTEMS INCLUDE:

- Super VGA 14" monitor (1024x768)
- 1 MB 16-bit Super VGA video card
- 80MB / 120 MB Hard Drive
- High-speed Dual AT FD/HD 1:1 Controller
- 2 serial, 1 parallel, 1 game port
- AMI Diagnostic BIOS
- 1.2MB Panasonic Floppy
- 1.44MB Panasonic Floppy
- Built-in clock/calendar
- Coprocessor socket (except 486)
- Enhanced 101 Keyboard
- Choice of Three Case Styles w/ 200W CSA Power Supply

And also includes FREE:

- MS-DOS 5.0
- A4 Serial Mouse

ALPHA PLUS COMPUTERS

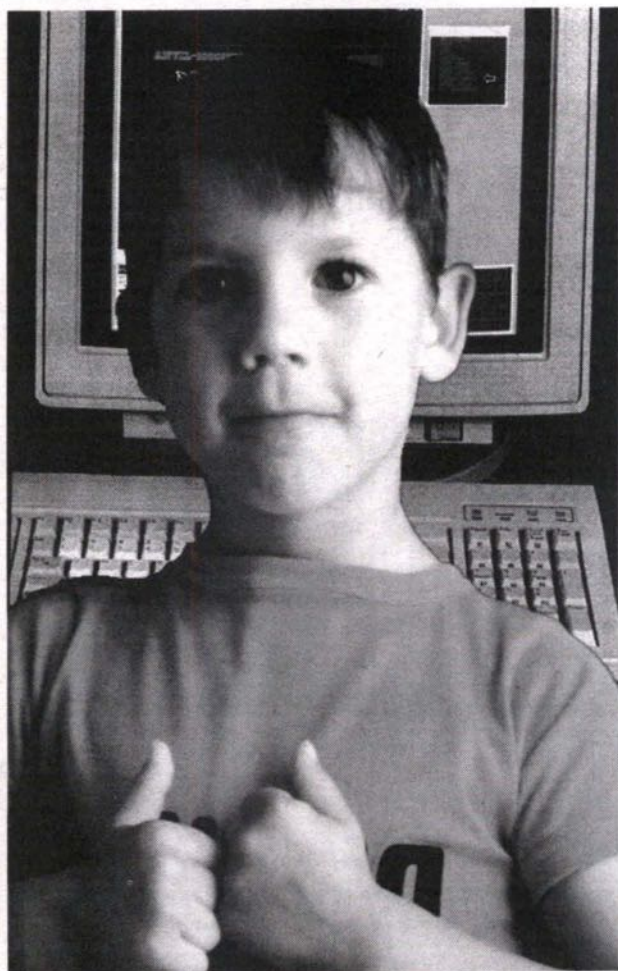
Prices Also Effective At Our Second Location:

40 DUNDAS STREET EAST
MISSISSAUGA, ONTARIO L5A 1S2
TEL: (416) 279-5411 • FAX: (416) 949-8973
Monday to Friday 10:00 AM - 8:00 PM
Saturday 10:00 AM - 6:00 PM

486 DX/50 & DX2/50 also available

Choosing the Right Computer For Your Child

BY ROEDY GREEN



Computers have invaded almost every profession. It is important that our children learn to use them. I will tackle this issue from three angles:

1. How to select computer hardware for a child;
2. Techniques of motivating and teaching children about computers;
3. Plans for my own computer school in the Sudan in Africa.

Christopher Campbell/Focus Stock Photo Inc.

What Kind Of Computer?

Very young children can learn the basics of computers by playing with the remote control on a TV, a video game, or even the microwave oven.

Older children are fascinated with video games. At first they want to play them, then later want to learn how to create their own. In learning how to create games, they automatically learn computer

programming, mathematics, physics and music theory.

Video games need sound, color and rapid animation. The PC computers I usually write about are not particularly well designed for games. Sound add-on cards and video accelerator cards can improve the PC somewhat, but even the lowly Commodore 64 can run circles around a PC when it comes to animation. The rea-

sons you might still choose a PC are:

1. Your child's school uses PCs. This will potentially allow you to run the school's software at home.
 2. Adults in the family want to use the computer for serious work as well.
 3. You hope your child will later develop an interest in word processing and spreadsheets used in business.
- Mac, Commodore, Amiga, Atari and Nintendo all offer more whiz-bang per buck for kids. However, I am going to presume you will elect to go with a PC.

Budgeting

There are three things you need to budget for when buying your child a computer:

1. Software — programs and games. Without software, the computer cannot even add 2 plus 2. Choose your software first. Then, ensure the software supports any hardware you choose.
 2. Hardware — the machinery you can touch.
 3. Training — books and courses.
- Most people blow all their money on #2 — the hardware — then are dismayed to find the expensive box can't do anything on its own without software.

CPU

The CPU/motherboard is the part of the computer that does the calculations. The RAM is the scratchpad where the computer stores the results of calculations. If you avoid Windows, an 80386-SX CPU with 1 MB of RAM will be quite sufficient. If you want to dabble with Windows, then you need much more expensive equipment: at least an 80386-DX with 4 MB of RAM, preferably 8 MB.

Stall Buying an 80486

You might want to avoid buying an 80486-DX CPU just now. Prices of 80486 motherboards shot up in late October because of a global shortage of 80486 chips. Intel is the sole supplier of these chips. Intel sued all

their competitors.

In January, Intel will release the 80586 chip, called the Pentium. At that point the 80486 will be considered old hat (even though it is almost as fast as the Pentium at running today's software). The 80486 prices should then come tumbling down.

So what has all this to do with you? I suggest you buy a motherboard, such as the Fujikama, with an 80386 chip, designed to be upgraded later to an 80486 when the chip prices drop.

RAM Runners

You also might want to postpone buying large quantities of RAM. Why? RAM prices doubled, overnight, in late October. This happened because of a court decision in the USA barring cheap Korean imports. I talked with David Wedge, a computer lawyer. He explained that the law does not apply to Canada. This means that once Canadian wholesalers start importing RAM direct from Japan and Korea, the price should drop back down to about \$40 per megabyte retail.

At that point we may see RAM-runners, like the RUM-runners of old, smuggling RAM into the USA. Also, by the time you read this, some Canadians may, quite legally, be getting rich by selling boards containing RAM to the Americans. It is illegal to sell raw RAM, but not products containing cheap RAM.

American politicians should soon see their folly and rescind the law.

Hard Disk

The hard disk stores the programs you buy. It also stores your life's work of word processing documents and electronic drawings.

No matter how big a hard disk you buy, your pack rat children will manage to fill it up. Some games run 10 megabytes or more. The smallest hard disk you can buy is 80 MB. Even that should give adequate breath-

MULTIMEDIA SUPER DEALS!!

**CREATIVE LABS
SOUNDBLASTER PRO
\$189!**

**MULTIMEDIA KIT
CD-ROM & SOUNDBLASTER PRO
WITH DISC BUNDLE
\$799!**

**CD-ROM DRIVES
FROM SUN-MOON-STAR
MPC-34OMS-CADDY
INTERNAL \$599
EXTERNAL \$659**

Bundle includes Grolier MPC Mammals, Reference Library Game Pack II, Atlas Pack

INCLUDES FREE SPEAKERS!

CD TITLES

FAMILY DOCTOR \$69
SECRET WEAPONS OF THE LUFTWAFFE \$64
UNITY CALL \$99
GROLIER MPC \$99

CALL FOR COMPLETE CATALOG

**SPEAKERS
80 WATT
\$109!
CD CADDY
\$8.99!**



**LASER STORAGE SOLUTIONS INC.
CD ROM SPECIALISTS**

(416) 669-7437 FAX: (416) 669-7438
1-800-463-4781

**55 ADMINISTRATION ROAD
CONCORD, ONTARIO L4K 4G9**

ing room. IDE is the cheapest type and will suffice.

Video Card

The video card is a piece of electronics that fits inside the computer. Its job is to generate the electronic picture signal for the monitor screen.

Kids like animation. Unfortunately, the PC is hopeless at it. Even the old Commodore 64 ran faster than a PC. The C64 had hardware assists for animation called sprites. In theory, sprites and other animation goodies could be added to the PC, but so far nothing has caught on.

The closest thing we have on the PC are the graphics accelerator boards such as the ATI Vantage and Ultra. However, only Windows supports these cards. Further, Windows only exploits a small part of the cards' animation capabilities.

Meanwhile, what can you do? I would suggest a simple Super VGA card such as the ATI Integra. This is a quick, inexpensive card, that also lets you run Windows. If you want to leap into Windows right away, I would suggest the ATI Graphics Vantage accelerator.

I would not spend money on a high-resolution, many-colors card. These are not suitable for animation. In a year or so, the kids will be hammering you to buy them the latest animation video card.

Monitor Screen

The monitor is the TV-like screen upon which the computer displays pictures and text.

Kids love color and animation. They don't need high quality, fine resolution. For animation to be quick, it must be coarse. Kids can be rough on monitors, slapping them in excitement, so you want them rugged.

Many monitors would suffice. In cost-sensitive situations I like the \$345 Samsung Syncmaster 3 CVM4967 interlaced, 14" color monitor because it gives good value for the money and it is tough. It has a rock-steady image, comparable with monitors costing \$200 more. The Korean Samsung company is the world's largest manufacturer of monitors.

For \$447 you can get the Samtron SC428TXL non-interlaced, low-radiation monitor that meets the Swedish emission standards. Just how dangerous monitor emissions are is controversial. Pregnant women and children have higher risk.

If money is no object, the 15-inch NEC 3FGx monitor at \$850 is the way to go. It has candy-gloss colors and a razor-sharp image. It also meets the Swedish emission standards.

Keyboard

The computer keyboard looks like a typewriter keyboard. You use it to enter letters and numbers into the computer. It has extra arrow keys that you won't see on a typewriter, used to move the cursor (a blob) around on the screen. Subsequent typing appears at the cursor position.

Don't skimp on the keyboard! \$10 extra can mean the difference between an unusable keyboard and an excellent one. Make sure the keyboard has tactile feedback — that sudden give when you press a key far enough. Also, it should make a click to let you know you have pressed the key hard

enough. Without this feature, you cannot touch-type quickly.

Sholes designed the common QWERTY layout in the days of the mechanical typewriter, deliberately, to slow you down, so you would not jam the type bars. Unfortunately, it can cause wrist aches or even carpal tunnel syndrome if you use it over extended periods.

August Dvorak designed his layout emphasizing speed and comfort. It puts all the common vowels under your left-hand home row fingers and the common consonants under your right-hand home row. Dvorak is easier to learn. Touch-typing comes naturally. You can type all day without tiring.

Which should you encourage your child to use? The advantage of QWERTY is universality. Nearly all keyboards used in business and schools are QWERTY.

To use Dvorak on a QWERTY computer, you must either bring your Dvorak keyboard with you, or take along some software to convert the QWERTY machine to Dvorak layout. I wrote a program called DVORAK.COM to do just that. I will mail you a copy, including the source code, anywhere in the world for \$6. The KEYBOARD/SCREEN diskette also contains many other free keyboard and screen utilities.

Unfortunately, not all programs use the standard BIOS hooks

to access the keyboard. This technobabble means some programs bypass software Dvorak solutions. E.g. Windows, Microsoft Word, and WordPerfect fail to switch over when you use DVORAK.COM. To make those programs behave, you must use special keyboard drivers to provide the Dvorak layout.

The best solution is to buy a keyboard that handles the Dvorak layout in hardware. This will then work with any program. The Northgate Omnikey series of keyboards let you switch back and forth between QWERTY and Dvorak in the keyboard hardware.

My favorite brands of keyboard are the Nan Tan, Fujitsu, Honeywell, Northgate and IBM/Lexmark. Watch out, many low-cost clones come with atrocious keyboards. Insist on an upgrade.

Mouse

A mouse looks like a plastic rodent with a cord for a tail. You run the mouse back and forth over your desktop, which causes an arrow, called the cursor, to move correspondingly over the video screen. You move the cursor to point at a menu item on the screen, then press the left button on the mouse to select it.

Sometimes you click the button once. Other times you must double-click, i.e., press it quickly twice in succession. The problem is you must press neither too quickly nor too slowly, and you must hold the mouse perfectly still between the two clicks. Otherwise, it does not take. Double-clicking is a mechanical skill something like using a clutch on a car.

I learned to use a clutch, but I am still too uncoordinated to double-click reliably. I felt like hurling my mouse across the room in frustration. Then I talked a guy into writing a free Windows program called DCLICK that lets you press the middle mouse button and have it treated as a per-

fect double click every time. I will mail you a copy of DCLICK and a selection of other Windows utilities for \$6.

You need a three-button mouse for this gambit. I recommend the Logitech bus mouse.

Sound Card

The built-in sound ability of the PC is primitive. To get decent sound you need to add a sound card. Even low-end sound cards contain a synthesizer to let you play many voices at once. The Roland MIDI synthesizers also have built-in sound effects such as footsteps and various violent noises.

To save parents' eardrums, you should buy headphones, though you can attach speakers or a stereo amplifier to the sound-card outputs.

Before you select a sound card, have a look at which sound cards your software and games support. Sound cards do not yet follow a common standard.

CD-ROM

A computer CD-ROM looks much like an audio CD-ROM. Besides music, computer CD-ROMs can store programs, pictures and textual information.

Some games are so huge they now come on CD-ROM instead of floppy disk. The CD-ROM versions have room for more music, and for detailed graphics. Reference works such as the *Complete Oxford English Dictionary*, *Rogel's Thesaurus*, and various encyclopedias now come on CD-ROM. You probably will not buy a CD-ROM right off, but you should make sure your case has room to fit one and your motherboard has room for a CD-ROM controller card.

Printer

Even very young kids love to make cards and signs on the printer. Print quality is less important than ease of use and ruggedness. You want a printer that is easy to thread with a bare minimum of control buttons.

I like designs where the paper spends very little time inside the printer. The less time inside, the less chance of a jam. I also like designs where the paper goes straight through. The worst printers have S-shaped paper paths.

24-pin looks much better than 9-pin. Inkjet looks better still, but bleeds like a fountain pen writing on toilet paper if you use the wrong kind of paper. Laser looks best. Resolution Enhanced laser looks bet-

Kids love color and animation. They don't need high quality, fine resolution. For animation to be quick, it must be coarse. Kids can be rough on monitors, slapping them in excitement, so you want them rugged.

Season's Greeting



Thank you, Toronto!
For your support in 1992. See you in 1993!

386SX-25

- Intel 25mhz 80386SX coprocessor ● 2MB RAM expandable to 32MB ● 65MB hard drive ● 3.5"1.44MB floppy drive ● 256k VGA card ● VGA 640x480 monitor ● 2 serial, 1 parallel & 1 game port ● 5 bay minitower case ● 200W CSA power supply
- 101 enhanced keyboard ● MS compatible hi-res. mouse
- MS DOS 5 & Windows 3.1 with complete manuals

\$955

386DX-40 64k cache

- AMD 40mhz 80386DX coprocessor ● 4MB RAM expandable to 32MB ● 105MB hard drive ● 3.5"1.44MB floppy drive ● 512k VGA card ● SVGA 1024x768 monitor ● 2 serial, 1 parallel & 1 game port ● 5 bay minitower case ● 200W CSA power supply
- 101 enhanced keyboard ● MS compatible hi-res. mouse
- MS DOS 5 & Windows 3.1 with complete manuals

\$1295

486SX-25

- Intel 25mhz 80486SX coprocessor ● 4MB RAM expandable to 32MB ● 105MB hard drive ● 5.25"1.2MB & 3.5"1.44MB floppy drives ● 512k VGA card ● SVGA 1024x768 monitor ● 2 serial 1 parallel & 1 game port ● 5 bay minitower case
- 200W CSA power supply ● 101 enhanced keyboard
- MS compatible hi-res. mouse
- MS DOS 5 & Windows 3.1 with complete manuals

\$1409

486DX-33 64k cache

- Intel 33mhz 80486DX coprocessor ● 4MB RAM expandable to 32MB ● 120MB hard drive ● 5.25"1.2MB & 3.5"1.44MB floppy drive ● 1024k SVGA card ● SVGA NI 1024x768 monitor ● 2 serial 1 parallel & 1 game port ● 5 bay minitower case
- 200W CSA power supply ● 101 enhanced keyboard
- MS compatible hi-res. mouse
- MS DOS 5 & Windows 3.1 with complete manuals

\$1955

With system purchased:

- Canon BJ-10ex with auto-sheet feeder & Laser Twin 5.0 software + cable \$ 375
- Panasonic KX-P1123 24 pin dot-matrix printer + cable \$ 239
- Panasonic KX-P1624 24 pin wide carriage dot-matrix printer + cable \$ 447
- 9600/2400 (send & receive) internal Fax/modem \$ 69

* All printers are brand new, Canadian warranty and are not "second inventories"!

HP Remanufactured Toner Cartridges with guarantee \$59.95

2 year parts & 5 year labour warranty
48-hour uninterrupted Burn-ins



Please enquire for 486DX50, printers & other peripherals!

Tel. (416) 288-1680 Fax. (416) 288-0766
2085 Lawrence Ave. E. Scarborough, Ont.

Purchase orders from corporations, governments and institutions are welcome. Leasing programs are available. All prices and specifications are subject to change without notice. Please call to confirm pricing, specifications & warranty details.

PCMaster's Price Smashers !!

386DX-40C 64K Cache (AMD) 85 MB Hard Dr. 512 K SVGA \$1298	486SX-25C 64K Cache (Intel) 105 MB Hard Dr. 512 K SVGA \$1448	486DX-33C 256K Cache (Intel) 125 MB Hard Dr. 1 MB SVGA \$1898
--	---	---

All systems come standard with 4 MB RAM, hard drive, 2 floppy drives, parallel, 2 serial & game ports, mini-tower case with 200 watt power supply, enhanced keyboard, SVGA card & color monitor, and 48-hr. burn-in QC.

AccuLite Notebook USA designed & assembled	386SXL 25MHz, 3 MB RAM, 60 MB HD, 8.5" ultra sharp 32 grey scale VGA, only 6 lbs.	\$1495 (Available from PCMaster only)
--	---	--

Operating speeds based on conservative Landmark v. 2.0. Prices are cash-discounted & subject to change anytime. Credit card surcharges apply.

PCMaster 416-291-8617 2250 Midland Avenue, Unit 18
 Mon-Sat. Scarborough, Ont. M1P 4R9

ter still. PostScript allows fancy fading and graphic effects.

Here are few printers that roughly meet my requirements:

Cost	Resolution	Speed	Brand/Model
\$210	9-pin	192/38 cps	Alps ASP1600
\$380	24-pin	180/60 cps	Alps Allegro 500
\$450	24-pin	200/180 cps	IBM/Lexmark 2390
\$480	360 dpi	83 cps	Canon BJ-10ex inkjet including sheet feeder
\$560	300 dpi	240/120 cps	Hewlett Packard Deskjet 500 inkjet
\$1220	300 dpi	4 ppm	Okidata 400 laser including 2.5 MB RAM
\$1530	300+ dpi	4 ppm	Hewlett-Packard III Plus enhanced including 2.5 MB RAM
\$1920	300+ dpi	4 ppm	NEC LC95 Silentwriter PostScript including 2 MB RAM

Laser printers usually come standard with 512K. To print full-page graphics you need at least 2 MB of RAM.

Color Printers

I have not seen any color printers, except some very expensive PostScript printers, that produce excellent quality. However, the kids won't mind if the colors are a little muddy or streaked, or if it takes forever to print a color image.

Here are some possible choices for color printing:

Cost	Resolution	Speed	Brand/Model
\$410	24-pin	240/50 cps	Fujitsu DL1100C
\$930	180 dpi	167 cps	Hewlett-Packard Paintjet
\$1000	300 dpi	240/120 cps	Hewlett-Packard Deskjet 500C

There are some inexpensive, light-duty color printers, but I don't think they would withstand the pounding of the average ten-year-old. You would be better off to get a more robust monochrome printer.

Hardware Summary

Computer hardware is always improving and coming down in price. Don't try to buy a computer that will last your child the next ten years. Aim only to handle the next couple of years. In two years, you will likely upgrade or add new components, or even sell and start afresh.

The parts that you may keep for many years are the case, the power supply, the keyboard and the screen. Make sure those components are good quality.

Teaching

I wrote this next section primarily for people who want to teach children how to program computers. I was the head instructor at First Computer Camps of Canada at Shawnigan Lake. My seven-to-15-year-old students blew me away with how fast they could learn. They learned more in five days than my university-level students learned in a whole semester.

Learning To Type

On the first day, I interviewed each child and asked them to show me how well they could type. Some seven-year-olds amazed me with their skill. Even with their stubby fingers, they were blazing away about 75 words per minute, with perfect accuracy. They could type anything that fast — words, numbers, even meaningless gibberish.

I asked them "How did you learn to type so well?" "Typing Tutor," each replied. Inside the Typing Tutor program is a game called Letter Invaders. Letters, like bombs, fall onto your city, destroying it. You have to knock the letters out of the sky by typing them. The game is very addictive. I got

hooked on it myself, then I took a typing test and hit 100 words per minute, using the Dvorak layout.

Before you can enjoy using a computer, you must know how to touch-type. Mavis Beacon Teaches Typing is a program that patiently explains fingering and typing theory. Typing Tutor hones your reflexes. I recommend them both.

Fanning Curiosity

I hate teaching adults to use computers. They have seen so many Star Trek episodes, they imagine that one false keystroke and the computer will self-destruct. They are too terrified to experiment. They insist on being told what to do before every

I hate teaching adults to use computers. They have seen so many Star Trek episodes, they imagine that one false keystroke and the computer will self-destruct.

move. If ever I ask them to try an experiment that fails, they are angry that I "humiliated" them.

In contrast, kids don't want to be told. They want to figure it out for themselves. It is best to tell the kids as little as possible, just give hints, and get them used to the idea that you must experiment.

For example, turn the kids loose in a word processor and say:

"See if you can figure out what BACKSPACE, DEL and INS keys do."

Then let them pound away and experiment. One kid will yell out "I think I have got it." This builds excitement. The other kids now really want to figure it out. Encourage pandemonium!

Each kid will devise his own private way of explaining it to himself. All the ways are legitimate and correct. Further, because they are idiomatic to each student, they are easier for him/her to remember.

The advantage of this approach is the student can't make a mistake. He isn't supposed to know how to make it work first time. This approach also builds the habit of experimentation to find out how the computer really works.

Motivation

During the interviews I discovered the kids, more than anything else, wanted to learn to write their own video games. I announced that I was not going to teach anything unless it was useful in writing video games. I was going to do everything I could to teach them quickly enough so that they could complete a video game program in five days.

Getting Their Attention

If you really want to kill the fun for the kids, lead them lock-step through some set of keystrokes, and explain at great length what the keystrokes are for. Make them be quiet and sit still.

I discovered, you can only hold a child's attention for about 40 seconds. However, I found I never had to repeat myself if I spoke for no more than 40 seconds at a stretch before letting the kids experiment again.



FREE

PASSPORT

TRAX™

PURCHASE

ENCORE OR

MusicTime™

MUSIC COMPOSING,
NOTATION & publishing
SOFTWARE FOR WINDOWS
OR MACINTOSH
AND RECEIVE:
A FREE PACKAGE OF TRAX
Desktop MIDI
Recording Studio,
A \$129 VALUE!

PASSPORT®

Encore & MusicTime are available at these fine music & computer stores. Offer good at participating dealers only while supplies last.

Keenan's Piano & Organ Centre Keyboard Kaos Bramford Music Centre McEachern's Lakeshore Music Long & McQuade Ltd. Keyboard Kaos Reggie's Music Renaissance Music Renaissance Music Sherwood Music Tele-Tech London Digital Centre Grandmont Productions Music Mart A-Plus Software A-Plus Software Computer Aided Design Systems Computers-R-Us	Barrie 705-737-3572 Brampton 416-456-0034 Bramford 519-752-3797 Bridge North 705-292-7020 Burlington 416-681-2552 Downsview 416-663-8612 Etobicoke 416-233-2232 Hamilton 416-528-6739 Kingston 613-542-4919 Kingston 613-384-9225 Kitchener 519-745-0021 London 519-685-6561 London 519-681-2728 London 519-657-2173 London 519-663-8070 Markham 416-474-0076 Mississauga 416-507-1866 Nepean 613-225-0411 Oakville 416-849-1919	Long & McQuade Ltd. Akran Systems Final Score Productions Steve's Music Campbell Douglas Keyboards Morelli's Music Encore Music Cosmo Music JB's Computers Long & McQuade A-Plus Microage Coran's Music Centre Steve's Music Long & McQuade Ltd. Saved By Technology First Avenue Information Systems Central Music Quellerie's	Oshawa 416-686-0663 Ottawa 613-739-4000 Ottawa 613-567-3171 Ottawa 613-232-1131 Ottawa 613-225-0666 Owen Sound 519-376-5533 Pickering 416-683-6267 Richmond Hill 416-889-6382 South Ste. Marie 705-949-9966 Scarborough 416-492-2525 Scarborough 416-755-4211 Thunder Bay 807-623-3466 Thunder Bay 807-623-9103 Toronto 416-593-8888 Toronto 416-588-7886 Toronto 416-928-5995 Waterloo 519-746-5630 Welland 416-732-4885 Windsor 519-254-1192
---	--	---	--

For dealer inquiries please call:
MUSICWARE DISTRIBUTORS INC.
 641 CALEDONIA RD, TORONTO, ON M6E 4V8 TEL: (416) 785-3311 FAX: (416) 785-6416

To get their attention I made up a game. I blew a whistle. At that signal, every kid had to punch a button on his monitor to extinguish the screen. I "punished" the last student by sending him out of the classroom, down to a bell which he had to ring. Without the screens extinguished, I had no hope of competing for attention.

Being Cruel To Be Kind

One early exercise I gave the students was to draw a simple figure on the computer, such as a Pacman. To do this, each student had to compose his image on graph paper then label all the vertices with the Cartesian coordinates.

This was a grim undertaking for the younger students. I took all the students into a separate room from where the computers were. Each student would show me his or her drawing. If it were all correct, I would send him to the room with the computers where an assistant helped him enter the coordinates into the computer. If not, I gave him some hints and sent him back to his desk.

This was very frustrating for the students who had created overly elaborate drawings. However, eventually they all succeeded in getting the coordinates correct.

Then they went to "heaven" and entered the drawings on the computer.

That process was simple and mechanical. Most students' drawings worked first or second try. The computer part was effortless and painless. They learned that the computer was easy and simple once you had done your manual planning.

Had I allowed them to compose directly on the computer, they would have erroneously concluded the computer itself was too difficult.

Lack of Censorship

I told the kids they could build any sort of video game they wanted. I would not censor. However, they should keep in mind that Mom and Dad would want to see some-

thing, so they had better also prepare something to show them. Only a few kids took me up on that, but the announcement generated a feeling of freedom and joy that spurred the kids' imaginations to shoot off in wildly different directions.

I told the kids, "This is not school. This is for fun. Please don't call me Mr. Green; my name is Roedy. It is OK to interrupt me. Don't worry, I have a loud voice. Go ahead and talk whenever you want. You can get up and move around all you like. Ask your fellow students about stuff you don't understand. This is fun."



Throne Computer Systems

Present: Christmas Special !!

4800 Sheppard Ave. E.,
Unit 102, Scarborough
Ont. M1S 4N5

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, 105M Hard Drive, 256K VGA Card, Par/2 Ser/Game ports, 2 years labour & 1 year parts depot warranty
- 386 SX-33
- Mini-Tower & 200W CSA Power Japan 1.2M & 1.44M Floppy Drive, Amazing 14" standard VGA color monitor

\$1020.-

**** Free MS DOS 5.0 & 45 Meg of Programs**

Multimedia CD-ROM

- Sony internal 340ms with Discs Bundle \$ 559
- Sony external 370ms with Discs Bundle \$ 609

Sony 5 CD Discs & 2 Floppy Discs Bundle includes:
Encyclopedia, Reference Library, Book of Mammals, US Atlas, Game Pack, Disc, Installation Disk, CD-Set-Go Disk, Interface card, cable & caddy.

- Sony internal 340ms Multimedia Kit \$ 655
- Sound Blaster Pro, 2 CD Discs, Installation Disk, Interface card, cable & caddy

- Chinon SCSI int. 350ms & 6 Discs Bundle \$ 619
- 6 CD Discs, Installation Disk, SCSI Interface card, cable & caddy

Adult XXX: Vol 1 or 2	\$ 76	Great Cities vol. 2	\$ 39	Secret Weapons	\$ 59
Amanda Stories	\$ 76	Guinness Records MPC	\$ 85	Stellar 7	\$ 69
Beauty & the Beast	\$ 55	Hall of Fame	\$ 44	Time Compact Alarnance	\$ 49
Carmen Sandiego	\$ 94	Interactive Storytime	\$ 56	Time Table of Science	\$ 75
Chess Master 3000	\$ 56	King Quest V	\$ 56	Total Baseball	\$ 71
CIA World Fact	\$ 56	Magazine Rack	\$ 36	U.S. Atlas	\$ 39
Education Master	\$ 46	MS Bookshelf MPC	\$ 165	U.S. History	\$ 60
Electronic Home Library	\$ 104	MixedUp Mother Goose	\$ 56	World View	\$ 55
Electronic Library of Art	\$ 104	Monarch Notes	\$ 94	Wing Commander	\$ 65
Family Doctor	\$ 75	Sherlock Holmes Detect.	\$ 65	** CD Caddy	\$ 9

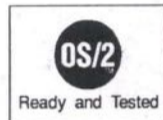
Super Special Package !!

FREE

MS DOS 5.0 & Windows 3.1

Included Manuals, Disks & Installation

- 386-40DX, 128K Cache ... \$1449.-
- 486-33DLC, 128K Cache .. \$1660.-
- 486-33DX, 128K Cache ... \$1875.-
- 486-50DX2, 128K Cache . \$2020.-
- 486-50DX, 128K Cache ... \$2200.-



Special Package include:

- 4 Meg memory 70ns
- 120M IDE Hard Drive 64K cache
- Japan 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
- MS compatible 3 button mouse
- Amazing 14" .28 Non-Interlaced Super VGA color monitor
- 2 years labour & 1 year parts depot warranty

Upgrade Options:

- Trident 1 Meg VGA + \$37
- ATI XL 1 Meg VGA + \$85
- ALVGA 1 Meg VGA + \$100
- 32 bits Local Bus VGA + \$163
- GoldStar Int. Monitor - \$35
- Mag Data Non-Int. Monitor + \$58

**** Free MS DOS 5.0, Windows & 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 discounted prices are for cash or certified cheque; VISA, Master Cards or Government Purchase Order are on regular prices (Regular price = Cash discounted price+3%). Government, educational institutions & corporate purchase order are welcome. Prices are subject to change without notice, welcome to call for the most updated one.

MOTHERBOARDS	
* Please call to confirm prices	
386SX-33 with 2 Meg	\$ 235
386DX-40, 128K, No RAM	\$ 245
386DX-40, 128K w/ 4 Meg	\$ 399
486DX-33, 128K, No RAM	\$ 660
486DX-33, 128K w/ 4 Meg	\$ 835
486DX2-50, 128K, No RAM	\$ 790
486DX2-50, 128K w/ 4 Meg	\$ 955
486DX-50, 128K w/ 4 Meg	\$ 1250
CASES with Power Supply	
Desktop case	\$ 89
Mini-Tower case	\$ 82
Mini-Tower case with digital	\$ 92
Medium Tower with digital	\$ 125
Tall Tower case with digital	\$ 155
200W power supply	\$ 55
FLOPPY & HARD DRIVES	
Floptical 21M Drive & Interfaces	\$ 479
Floptical 21M Diskette	\$ 35
IDE Seagate 42M, 28ms	\$ 235
IDE Kalok 105M,19ms	\$ 295
IDE Kalok 120M,19ms	\$ 328
IDE Quantum 127M, 17ms	\$ 400
IDE Maxtor 130M, 15ms	\$ 400
IDE WD 213M, 15ms	\$ 530
IDE Maxtor 340M, 15ms	\$ 999
Colorado Int 250M Tape Drive	\$ 325
Panasonic 5 1/4" 1.2M	\$ 68
Fujitsu 3 1/2" 1.44M	\$ 60
IDE FD&HD controller	\$ 25
IDE FD&HD 2Ser/1P/1G cnt	\$ 38
AT I/O card 2Ser/1P/1G ports	\$ 25
AT MFM HD&FD controller	\$ 85

DOT PRINTERS	
** 2 years Canadian Warranty **	
Panasonic 2180, 9 pins	\$ 210
Panasonic 1123, 24 pins	\$ 249
Panasonic 2123, color 24 p	\$ 295
Panasonic 2124, color 24 p	\$ 419
Raven 9105(2180), color 9 p	\$ 195
Raven 2406(2123), color 24 p	\$ 295
Raven 2420(2124), color 24 p	\$ 389
Raven 2465(1624), 24 p wide	\$ 445
Color Kit (motor, cable & ribbon)	\$ 59
LASER PRINTERS	
** 1 year Warranty. All prices with Toner	
HP 2P Plus 4ppm 512K	\$ 969
HP 3P 4pp, 1M, 300dpi	\$ 1244
HP 4 8ppm 2M 600dpi	\$ 1839
HP 3D 8ppm 1M, 300dpi	\$ 2848
HP 3SI 17ppm 1M, 300dpi	\$ 4290
Okidata 400 4ppm, 512K	\$ 785
Okidata 810 8ppm, 1M (HP3)	\$ 1320
Okidata 830 8ppm, 2M	\$ 1620
Okidata 840 8ppm, 2M	\$ 2010
Panasonic 4410 5ppm(HPIII)	\$ 795
Panasonic 4430 5ppm(HPIII)	\$ 1095
Raven LP-510 5ppm (HPIII)	\$ 845
Raven LP-530 5ppm (HPIII)	\$ 1095
Raven LP-1130 11ppm(HPIII)	\$ 1710
INKJET PRINTERS	
** Manufacturer's Warranty **	
Canon BJ-10ex w/sheet feeder	\$ 415
Canon BJ-300	\$ 550
Canon BJ-330	\$ 660
HP DeskJet 500	\$ 478
HP DeskJet 500C color	\$ 695

Canon, Hewlett Packard, Okidata, Panasonic, Raven Authorized	
LASER ACCESSORIES	
HP 1M/2M memory board	\$ 99/149
HP 4M memory board	\$ 255
HP Pacific Page Postscript	\$ 365
HP Toner for IIP/IIIP/IIIP	\$ 89
HP Toner for III/IIID/IIID	\$ 99
HP Legal size paper tray	\$ 95
HP DeskJet 500 Ink Cart	\$ 30
HP DeskJet 500C Color Cart	\$ 49
Okidata 400 1M/2M memory	\$ 139/207
Okidata 800/820 1M memory	\$ 195
Okidata Toner for Laser	\$ 38
Okidata Legal size paper tray	\$ 105
Raven 510/530 1M memory	\$ 150
Raven 510/530 2M memory	\$ 207
Raven 510/530 Toner Refill	\$ 50
MEMORY	
* Please call to confirm prices	
DRAM 41256-80	\$ 2.00
DRAM 44256-70	\$ 7.00
DRAM 411000-70/80	\$ 6.50
SIMM 256-70/80	\$ 14.00
SIMM 1M-60	\$ 52.00
SIMM 1M-70	\$ 45.00
SIMM 4M-70	\$ 220.00
SIPP 256-100 * Special *	\$ 10.00
SIPP 1M-70	\$ 52.00
KEYBOARDS	
BTC 101 Enchained Keyboard	\$ 29
Keyboard w/Template, hard cover	\$ 49
Unisys keyboard	\$ 54
Keytronic keyboard ** USA **	\$ 64

VIDEO CARDS	
Monographics	\$ 28
Amazing VGA 256K 640	\$ 39
Trident SVGA 512K 1024	\$ 52
Trident 1M 1024 256 color	\$ 83
ALVGA Accel.1280 64K color	\$ 165
ATI XL 1M 1024	\$ 137
ATI XL24 1M & Mice,original	\$ 183
ATI Graphic Ultra 1280 1M	\$ 379
ATI Graphic Ultra Plus 1M	\$ 400
ATI Graphic Ultra Pro 1M	\$ 680
Tseng Local Bus VGA 1M	\$ 225
MONITORS	
Datas 14" TTL paper white	\$ 120
Amazing VGA .41	\$ 255
Amazing 14" 1024 .28 N-I	\$ 364
GoldStar SVGA .28	\$ 317
Hyundai VGA .41	\$ 255
MAG 14" 1024 .28 N-I	\$ 409
MAG 14" Low-Rad .28 N-I	\$ 435
MAG MX-14 1280 .26 N-I	\$ 665
MAG MX-15H 1280 .28 N-I	\$ 730
MAG MX-17H 1280 .26 N-I	\$ 1258
OTHERS	
MS compatible mouse	\$ 19
Logitech Mouseman	\$ 80
Logitech Trackman Serial	\$ 99
Logitech Scanman 256	\$ 310
Video Blaster ** NEW **	\$ 450
Sound Blaster V2.0	\$ 130
Sound Blaster Pro with MIDI	\$ 230
Sound Blaster Pro with 2CD	\$ 230
ATI Stereo F/X with speaker	\$ 145
Stereo Speaker with Amplifier	\$ 35
Power Adaptor for Speaker	\$ 8

MODEM & FAX	
** 5 years Warranty for GVC **	
2400 Internal Modem	\$ 55
9600 Send/Rec fax int Modem	\$ 80
GVC 9600 Int S/R fax Modem	\$ 99
GVC 9600 Ext S/R fax Modem	\$ 125
GVC 9600 Ext v42 v32 mnp5	\$ 300
GVC 14.4 Ext v42 v32 mnp5	\$ 340
GVC 14.4 Ext s/r fax v42 v32	\$ 380
WinFax 2.0 for GVC only	\$ 30
MATH CO-PROCESSOR	
Cyrix 287XL, 20 Mhz	\$ 99
Cyrix 387SX, 16/20/25 Mhz	\$ 93
Cyrix 387SX 33 Mhz	\$ 107
Cyrix 387DX, 25/33/40 Mhz	\$ 117
ACCPAC BPI Authorized Dealer	
SOFTWARE	
BusinessVision II	\$ 150
CA dBase Fast for Windows	\$ 370
CA Image for Windows	\$ 220
CA Present for Windows	\$ 150
CA SuperCalc for Dos	\$ 125
CA SuperProject for Windows	\$ 590
CA Textor for Windows *New*	\$ 99
CP Anti-Virus V1.2 ** Special **	\$ 55
CP Commute	\$ 35
CP PCTool V7.1	\$ 110
CP PCTool Anti-Virus bundle	\$ 165
Dac Easy Lucid 3D	\$ 9
MS DOS 5.0 Full Version	\$ 65
MS Windows 3.1 Full version	\$ 88
OS/2 2.0 Windows upgrade	\$ 80

Leaking

My main technique for motivating students was leaking some piece of information to one of the quicker students. He/she would incorporate it into his game. The other kids would see the magic and would want to know how he did it. The kid with the knowledge would gloat over it, and might pass it out to a few of his best buddies.

The other kids would follow me around begging me to let them in on the secret. By the time I presented the material formally in class, they were screaming for it.

Once I showed a kid enough trigonometry to create waves under his boat. He could vary the frequency, phase and ampli-

tude.

I was having lunch in the cafeteria with a professional mathematics teacher. A group of the little kids came in and started tugging on my arm. "Puleez teach us cosines. You taught Rockfish. Please, please." The math teacher's mouth dropped open. He said, "I can't believe it. It is almost impossible to get my mathematics students to learn this, and here they are begging you to teach them!"

Delayed Gratification

I designed my course so that at the beginning, with very little effort, the student got

big flashy rewards. For example, on the first day, I just let the kids go wild pressing buttons. We set up the function keys so that F1 drew an entire helicopter at a random place on the screen, F2 drew a Pacman etc.

In the early student programs we made great use of the RANDOM function so that the screen would explode with duplicate copies in random colors of the basic image the student had composed.

Then we gradually weaned the students to do more and more work for ever more subtle rewards. We taught them how to get finer and finer control, cleaner and faster animations.

The students amazed me. In only five

days they were experimenting with such subtle animation techniques as palette maps and character cells.

Ordering

Computer science professors wring their hands at the "brain damage" caused by early exposure to the Microsoft BASIC computer language. Students who receive no instruction fall into the sin of rats' nest spaghetti coding. These bad habits are almost impossible to break.

Whatever a student learns first, he considers easy and natural. We wanted students to learn structured coding. So I reasoned subroutine call structure is what they should see first, before everything else — even arithmetic.

Video images are made of objects. You can write a routine to draw each object. If you need four trees, you can write one tree routine and invoke it four times. If you want to draw a person, the person routine naturally decomposes into subroutines for the body, arms, head and legs.

The process of decomposition into modules is so natural, the kids take to it without a fight. Using this structured technique, seven-year-olds were writing 10- to 20-page, textbook-perfect, documented, bug-free programs. They incidentally learned another advantage of modular programming. They could swap modules with their friends — "I'll trade you a cactus for a spaceship."

Worked Examples

People learn far more easily from examples than general rules. For each class I would hand out a complete sample program to type in. I heavily commented each program with hints on how you could use it as a skeleton to build your own theme and variations. As the slower students mechanically typed it in, they absorbed the details of how it worked by osmosis.

Choice of Language

I did my work at First Computer Camps using BBC Micro structured BASIC. I never even let the kids see the unstructured GoTo. I told them that "GoTo" was a computerist's way of swearing. The kids started using "GoTo" as an insult and expletive. I would break into mock anger whenever I heard the word.

Ideally I would have chosen Logo or Forth with graphics and animation extensions as the teaching language, but they were not available for the computers we had.

Teaching Summary

When you motivate kids by teaching them how to create their own individual computer games they learn faster than you would have ever dreamed possible. You don't have to teach so much as get out of the way and stop squashing their curiosity.

The Sudan School

My own computer school will be in the town of Kassala in the Sudan, Africa, for ten children aged ten. We will ask the local teachers to send us the ten brightest students. There will be ten of the latest computers in an air-conditioned room tied together in a LAN. The students will go to regular school during the day, and mine after school. We will give them a nutritious meal each day.

I will use some of my own money to remodel each student's house to ensure he/she has a clean place to sleep and study.

I will first teach them to type using the new Dvorak layout. They will never see the antiquated QWERTY layout used in Canada. They will soon be able to generate income for their families typing for African, Middle Eastern, North American and European businesses. Later, I will teach them data entry.

WORLD OF COMMODORE AMIGA CELEBRATES 10 FANTASTIC YEARS IN TORONTO

1983 - VIC 20/COMMODORE 64

1984 - C64 MUSIC PERIPHERALS

1985 - AMIGA 1000/PC 10/PC 20
COMMODORE 128

1986 - PC10 III/PC 20 III/PC 40

1987 - AMIGA 500/AMIGA 2000

1988 - AMIGA 2500/PC 40 III/PC 60

1989 - AMIGA COLOUR PROCESSING,
ANIMATION, SOUND & VIDEO

1990 - CDTV/AMIGA VISION/
AMIGA UNIX/AMIGA 3000

1991 - AMIGA MULTIMEDIA

1992 - 10 YEAR CELEBRATION
BE THERE!

JOIN THE FUN
DECEMBER 4-6, 1992
 The Toronto International Centre
 6900 Airport Road, Hall One
 Mississauga, Ontario

SHOW HOURS
 10 a.m. - 6 p.m.

ADMISSION
 \$8.00 ADULTS ♦ \$6.00 STUDENTS & SENIORS

Show Hotel: Radisson Suite Hotel
 Toronto Airport, 640 Dixon Rd.
 Etobicoke, Ontario

Show Rate: \$89 Single or Double
 Deadline: November 3, 1992

Reservations: Toll Free 1-800-333-3333

NEW HARDWARE

LATEST
SOFTWARE
& PERIPHERALS

MEET THE
EXPERTS

FREE SEMINARS

For information, call Rampe Management Group: (416) 285-5950, fax (416) 285-6630. © 1992 World of Commodore. Amiga is a registered trademark of Commodore Electronics Ltd.

Then, I will teach them how to write custom computer programs using a FORTH-based computer language called Abundance. The children will never see the clumsy languages taught in North American schools. Then, I will teach them to manufacture their own computers and convert them to Arabic.

By Sudan standards, the school will generate "faint dead" high hourly wages, \$10 per hour. Part of these funds will be used to clone the school. The idea is to create a Harambee (self-help) program that can grow explosively.

Getting on With It

Two refugees from Tigre in Ethiopia made their way to the Sudan, then to Egypt, then to Italy, then to Canada, then to my class on how to build your own computer. One of them will be going with me to the Sudan in February 1993 to help scout out the project and will later to help me work with the local officials.

I have \$45,000 of my own savings to fund the project. H.A.R.A., the Horn of Africa Relief Agency, is also helping out. They want us to expand the project to include a clinic.

I wrote letters to equipment and software manufacturers asking for discounts or donations. I wanted only reliable, heavy-duty equipment since it will be very difficult to get replacement parts. So far I have received only one reply. I wrote PC Power and Cooling/TurboCool because they make the best power supplies. I wrote Northgate/Omnikey because they make the best QWERTY/DVORAK switchable keyboards. I wrote Mavis Beacon and Typing Tutor because they make the best software to teach typing. I wrote Everex because they make the best multi-I/O cards. I wrote ATI because they make the most reliable video cards. I will be writing to NEC, who make the best monitors, and LANtastic because of their compact LAN network. I will write the Telebit and US Robotics companies because they make the best modems.

I will be looking for diesel generators, air conditioners, solar electric power equipment, packet radio transmitters and water purifiers. If you have ideas on good brands to use, please let me know.

Because the Sudanese government is deeply suspicious of outsiders leading the children away from Islam, I have begun the process of conversion to Islam. That has been an internal earthquake.

Why I Think This Will Work

If Sudan project succeeds, it can be cloned inexpensively in any Third World country. I think it will succeed for the following reasons:

1. There is an unlimited market for custom software. Right now, people put up with ill-fitting generic packages because they cannot afford custom. I think we can create high-quality custom software for 1/10 the current custom costs.
2. Piracy is not a problem with custom software.
3. I get the brightest students to work with. The job I offer is by far the best in town. I don't need to worry about my students leaving once they are trained.
4. A teenage graduate of my school will make astronomical wages by Sudanese standards. Each student will be able to support a large extended family. The families will put tremendous pressure on the student to behave responsibly.
5. This relief project should make money. That way it can clone itself. Costs in Sudan are very low. For example, you can buy land and have a house built on it for under \$200.
6. With proper electronic mail connections, the school can do business with anyone on the planet. I hope to generate enough publicity to keep us awash in work.

I further hope that corporate sponsors will generate publicity, partly to advertise their own generosity and that their equipment is rugged enough for the relief camps of Africa.

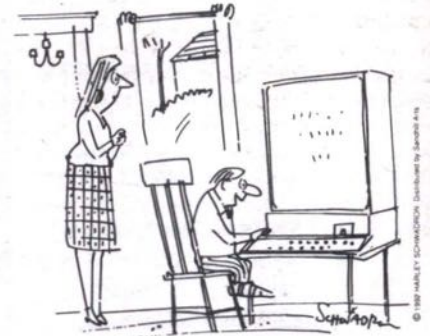
Sudan School Summary

Writing custom software is extremely labor intensive. Electronic mail is now making it possible for programmers to live and work anywhere on the planet. This means Third World citizens will soon be writing most of the world's computer software. India has already produced some exceptional works. Jamaica is already handling huge volumes

of data entry. My dream is that money generated by writing computer software will prime the pumps of the Third World economies and end world hunger. ■

About the Author

Roedy Green, president of Canadian Mind Products in Vancouver, (604) 684-6529, builds custom computers. He also writes custom computer software, primarily for non-profit organizations and charities, and offers training and consulting. In 1985 he sold his house to raise money for the Ethiopian famine victims.



"Write a letter to Santa? It's easier just to break into his computer distribution system."

386

COMPLETE SYSTEMS

SPECTACULAR

WE DELIVER

386^{SX}

INTEL INSIDE

COMPLETE SYSTEM

COMPUTER HARD DRIVE MONITOR

ALL INCLUDED

\$499

SPEED LIMIT 1 PER CUSTOMER WHILE SUPPLIES LAST

FREE

WORD PROCESSOR

DATA BASE

SPREAD SHEET

WITH EVERY SYSTEM PURCHASE

386 PRO

DX/40

FEATURING:

- 386 DX40 SUPER FAST
- 4 MB FAST RAM
- 128K SUPER CACHE
- 120 MEG SUPER FAST H.D.
- 1.2 MG AND 1.44 MG DRIVE
- 1 PAR \ 2 SER \ GAME PORT
- .28 D.P COLOUR VGA MONITOR
- ENHANCED 101 KEYBOARD

\$1,279

POWER PRICING

INCREDIBLE SAVINGS

486SX25DX33DX1150DX50DX66 MHZ

HARD DRIVES / MONITORS
 PRINTER / MODEMS /
 CD ROMS / AND MUCH MORE

NATIONAL DISCOUNT COMPUTER LTD

264-5260

PRICES SUBJECT TO CHANGE WITHOUT NOTICE / PRICES ARE CASH DISCOUNTED
 ALL TRADE MARKS ARE THE PROPERTIES OF THEIR OWNER

EUROSOFT EXCELLENT CHRISTMAS GIFTS

Exceptional PC software for & Windows. Available in four attractive EUROSOFT packages. Various programs from Financial, Business, Utilities, Menu, Games, Database, Spreadsheet & Word Processor to name a few, for both DOS & Windows. Documentation included in each package.

- **EUROSOFT SHAREWARE SHOWCASE #1,**
50 superb programs for Windows **\$49.95***
- **EUROSOFT SHAREWARE SHOWCASE #2,**
50 great programs for Windows **\$49.95***
- **EUROSOFT SHAREWARE SHOWCASE #3,**
50 excellent programs for DOS **\$49.95***
- **EUROSOFT SHAREWARE SHOWCASE #4,**
18 Exclusive Games **\$49.95***

* Please add PST, GST + \$7 shipping & handling per package.

ORDER NOW, send your money order or certified cheque to BRIDGELAND Computer Services Inc., 915 Westney Road South, P.O. Box 87017, Ajax, Ont., L1S 3K0. (416) 619-8090

COMPUTER ANIMATION VIDEOS

The very best in the world of computer animation and special effects

	VHS	Laserdisc
The Art of Computer Animation: Classic Hit (60')	\$19.95	N/A
Beyond the Mind's Eye (45') NEW!	\$29.95	\$59.95
Chronos: Incredible Visual Music Journey (40')	\$29.95	\$59.95
Computer Visions: Virtual Realities (60')	\$29.95	N/A
Fractal Fantasy: The Art of Mathematics (35')	\$24.95	N/A
Fractal Lumination/Moody Blues Rock Art (30')	\$24.95	N/A
Groggazer: Mac-Driven Visual Extravaganza (40')	\$24.95	N/A
Illumination: Awesome Visuals from H.P. (30')	\$34.95	\$49.95
The Mind's Eye: Computer Animation Odyssey (40')	\$29.95	\$59.95
The Planets: Space Odyssey W/Symphony (55')	\$34.95	\$59.95

Shipping is free with orders of 3+ Videos. Otherwise add \$5.00 for shipping and handling, plus 7% GST. Ont. Res add 8% PST.

ORDER BY:
PHONE: 1 (800) 567-1549 **FAX:** 1 (416) 537-0397
MAIL: Sounds of NOOR, 99 Atlantic #419, Toronto, ON, M6K 3J8
PAY BY Cheque, Money Order or VISA
DEALER ENQUIRIES WELCOME

Beyond The Mind's Eye

Computer Animation on Videotape

REVIEWED BY GRAEME BENNETT

Product: Beyond The Mind's Eye
From: Miramar Images Inc.,
 200 Second Avenue West,
 Seattle, WA 98119.
 Tel. 800-245-6472

Distributed by: Vital Visions Co.,
 738 West 54th Ave.,
 Vancouver, BC V6P 1M4.
 Tel. 604-327-1677;
 fax 604-327-6707;
 Noor Imports 1-800-567-1549

Price: \$29.95
Summary: 45 minutes of high-quality computer animation with music by Jan Hammer.



It is said that if you have the patience to cut an acre of grass using a pair of garden shears, then you have the disposition to be an animator. The same might be said for computer animation. It is clear that a huge amount of time and effort went into creating the animation sequences on this videotape; some are simply breathtaking.

If there is a problem with this video, it is that many of the sequences are not unlike a beautifully costumed, but badly choreographed dance. Many of the people at the controls of the 3-D programs used to create these sequences are obviously competent technicians, but are probably pretty poor dancers. Fortunately, there are several moments of breathtaking beauty in this 45-minute tape.

At its best, the images and animations are so good that I found myself wondering if I was watching a computer simulation or the real thing. Now *that's* virtual reality.

For some reason, it is human movement that most consistently lacks realism. The humanoid in most of these sequences walk and move like robots, not people. Considering that Disney and others have had this problem pretty much licked for well over a half-century, it is clearly the We Can't Dance syndrome at work. Considering that animation is all about movement, it seems that choreography and fluid "camerawork" are of prime importance.

The music, by Jan (Theme from "Miami Vice") Hammer, is generally unobtrusive, if not inspiring. It ranges from techno-pop to suitably grandiose



There are many highlights: the "cybersex" scene from the movie *Lawnmower Man* (numerous clips from the film appear throughout this video); an astonishing simulation of two bees careening *Return Of The Jedi*-style through a forest, and a nature scene that pans way out to reveal an unexpected surprise are just three of the most memorable. Other great moments include a beautiful simulation of hummingbirds feeding from a flower, a great twist on modern art (imagine Picasso, Mondrian and others in 3-D), and a sequence apparently designed for Apple Computer that features a latter-day Prometheus constructing a multi-dimensional world of circuits and chips.

stuff for the numerous "Journey To The Center Of The Universe"-type segments that computer animators seem to be so fond of. Jan's best moment comes during a sequence that must be part of a rock video where three synthetic Supremes croon in synthesized voices as chrome-plated automatons slug back "Too Far" juice and do the robo-boogie.

For me, one of the most amazing things about this video is the realization that the capability to create images like these is no longer solely in the domain of mainframes and ultra-high-powered workstations. Today, anyone with a reasonably powerful PC (etc.) and a few pieces of rendering, modeling and animation software such as RenderMan and 3-D Studio (see *The Computer Paper*, Oct. 92, or the review of *Alias Sketch*, this issue) has the tools to do the same. If they can dance and they have a freshly sheared acre of grass, all the better.

COMPUTER ANIMATION

New **BEYOND THE MIND'S EYE**
 Video with original music by Jan Hammer combines technology and artistry
 "a surreal odyssey"
 "multi-D worlds"

\$29.95 each tax included
 + \$3.75 shipping + 40 each additional tape

A SPECIAL GIFT—ORDER NOW FOR CHRISTMAS



Money Order or Cheque to: Vital Visions Co.
 738 West 54 Ave.,
 Vancouver, B.C. V6P 1M4

Tel (604) 327-1677 • Fax (604) 327-6707

WITH 40 MB HARD DRIVE

ABC COMPUTERS®

BICOM B240i

SIZE LESS THAN NOTEBOOK
 WEIGHS LESS THAN 1 KG

Dealer Inquiries Welcome

The World's Smallest Palmtop with 40MB HD.
 80286-16W/2MB
 Suggested Retail Price **\$1995.00**

DISTRIBUTOR FOR ABC COMPUTER MOTHERBOARD & ADD ON CARDS.
 DEALER FOR ODI MOTHERBOARD, VGA CARD, ERGO 1.44 MB DRIVE.

POWER INDUSTRY
 4132 - 97 Street
 Edmonton, Alberta, Canada T6E 5Y6
 Tel: (403) 463-3838 Fax: (403) 450-2604
 In U.S.A. call (310) 325-4005

commtalk BY JAMES MACFARLANE



High Speed Telecommunications

Windows is a great tool. I use it daily for word processing and graphic design. Being in a graphical environment makes sense while using these types of applications but for communications Windows is a dog.

You can't improve something that's essentially non-graphical by dropping a graphical interface on top of it. Like it or not, the BBS world operates on an MS-DOS-based 80 by 25 screen using ASCII or ANSI terminal emulation.

Graphics that can't graph

BBSes (well, the vast majority of them) do not support mouse control, nor do they support multiple fonts. Each character is exactly the same size and falls somewhere in an 80 by 25 grid.

In Windows, proportional spacing is used, meaning the letter "I" is narrower than the letter "O". Characters that line up nicely on a standard DOS text screen look like the dog's breakfast when using a Windows communications program.

The IBM character set includes all kinds of simple graphic characters, like lines and corners to make boxes, different size blocks to build shapes, arrows and other symbols. These are frequently combined with ANSI codes to display things in different colors, make them flash, etc. (called ANSI graphics).

ANSI graphics are very useful in making menus look nice. They're also used in on-line games, for building graphs and other pictorial information. If you find a Windows communications program that supports ANSI graphics you're pretty lucky; if you find one that works properly you're even luckier.

Mouse in modemland

It's kinda funny to watch hardcore Windows, and even Mac, users using their first piece of communications software. They get to the main menu on the BBS and they reach for their mouse to point to the command they want. Nothing happens.

What's so graphical about Windows communications programs? You can't use the Windows character sets, you can't use ANSI graphics and you can't even use your mouse. OK, it may be a slight bit easier to set up and operate the communications software itself, but once you're on-line you might as well be in DOS.

As a matter of fact, you'd be far better off in DOS.

Ports of call

Windows, because of its multitasking, is simply too slow to work properly with high-speed modems. It can't always respond to the incoming data on the serial port fast enough, thus there is always a chance that data will be lost.

In order for your modem to talk to your

computer it must be hooked up to a serial communications port (COM1, COM2, etc.). When each bit (8 bits = 1 byte) is received, the serial port puts up its "hand" to inform the microprocessor that there's some data waiting. The microprocessor must access the port and grab the data before the next bit comes in.

With modems working at speeds in excess of 14,400 bits per second, you can easily see there's not much room for error. If Windows is busy working on another task

and detects the incoming data on the serial port, it must first stash away the data it's working with before it can service the serial port. It's not always fast enough to be able to do this.

16550 to the rescue

The solution to this problem isn't always easy. It involves a hardware modification to your serial I/O card if you're using an external modem or to your modem itself if you're using an internal one.

In order to perform serial communications your computer uses a serial I/O chip. The chip most frequently used in called either a 16450 or an 8250. It's black, rectangular and measures approximately 2 inches by 1/2 inch and has the model designation "8250" or "16450" printed on the top.

This chip needs to be replaced with a 16550 chip. This chip has a small internal buffer that can keep data in its memory even if the computer is too busy to pick it up right away. This means no lost data, even when using Windows.

This chip needs to be replaced with a 16550 chip. This chip has a small internal buffer that can keep data in its memory even if the computer is too busy to pick it up right away. This means no lost data, even when using Windows.

How to swap your chip

The chip resides either on your I/O card or on an internal modem. If you can locate your 8250 or 16450 you need to drop by the service department of your local computer store and buy the chip. It costs less than \$20 and if you're comfortable enough with groping around on a circuit board you can probably install the chip yourself; if not your service department can probably do it while you wait.

If you're using a combination IDE controller card with built-in I/O you may not have one of these chips. Instead you might have a custom chip that cannot be removed. You may need to buy a separate I/O card and disable the serial ports on your IDE card. See your IDE card manual on how to do this.

You should buy a dual-port serial I/O card with at least one 16550 on it. You can expect to pay around \$40 on the street for one of these. ■

Are You Health Conscious?

Finally there is a software package that is comprehensive and affordable...

NutriSoft Nutritional Meal Planning Software

\$49⁹⁹

- Nutritional information based on the most up-to-date Canadian Food Guide
- Automatically does metric conversion
- Comprehensive nutrient listings for each recipe ingredient
- Menu data base - New menus available every month or create your own
- Daily, Weekly or Period Meal planner
- Use for: Shopping List/Ingredient List/Nutrient Analysis/Recipe Book

+ 3.50 GST
+ 3.50 PST
(Manitoba Residents)
+ 3.00 (Shipping and Handling)
+10.00 (for Rush Orders)

Order Now and receive bonus recipes with program:

Name: _____ Address: _____

City: _____ Province: _____

Payment by (circle): Cheque / Money Order / C.O.D. / American Express / Optima

Signature: _____ Card #: _____ Expiry: _____

Send payment to: Nutri-Guide Canada, Inc

P.O. Box 21105 Charleswood, Winnipeg, Manitoba. R3R 3R2. Ph. (204) 885-2613

WHOLESALE PRICE !!!

Save Hundreds and Thousands of Dollars on Computer Products

PURCHASE COMPUTER HARDWARE AND SOFTWARE AT WHOLESALE PRICE !!!

1 MB SIMM 70ns	31.80	1.44/1.2 MB Floppy Drive	53.50/64.50
SVGA Card Trident w/1M	76.90	Seagate 105/130/213MB Hard Drive	279/337/469
14" SVGA Monitor (1024x768 .28dp)	310.00	and more ... at Wholesale Price, PLEASE CALL	

Christmas Specials of our Complete Systems :

486 DX 50Mhz Systems	1879.00	- 4 MB SIMM RAM 70ns	- 1.44 or 1.2 Floppy
486 DX 33Mhz Systems	1659.00	- Seagate 105MB Hard Dr.	- IDE & 2S1P1G
386 DX 40Mhz Systems	1269.00	- Trident SVGA card w/1MB	- 101 Keyboard
		- 14" SVGA Monitor (1024x768) .28dp	
		- Mini Tower case w/200W	- FREE MOUSE

Please call us for a free quote on other systems configuration, software and hardware.

So CALL NOW for a price list. Do your comparison and cash in on our savings.

JRS WHOLESALE DIRECT, 5900 NO.3 RD., STE.300, RICHMOND, B.C.V6X 3P7

Tel: 604-273-8852 Fax: 604-273-8867

386SX-33	\$ 980
386DX-40	\$ 1,080
486SX-25	\$ 1,150
486DX-33 Cyrix	\$ 1,280
486DX-33 Intel	\$ 1,550
486DXII-50	\$ 1,650



2 MB RAM.
80 MB Hard Drive.
1.44 MB 3.5" Floppy Drive.
2 Serial, 1 Parallel, 1 Game Port.

14" Color VGA Monitor.
VGA Card 256 K Ram.
101 Enhanced Keyboard.
Mini Tower or Desktop Case.

HARD DRIVE

42 MB IDE	\$ 220
52 MB IDE	\$ 235
80 MB IDE	\$ 280
105 MB IDE	\$ 335
120 MB IDE	\$ 390
200 MB IDE	\$ 530

MODEM

Zoltrix 2400 Int	\$ 50
Zoltrix 96/24 Int F/M	\$ 80
Aceex 2400 Int	\$ 60
Aceex 9600 Int	\$ 310
Aceex 9600 Ext	\$ 350
Aceex 14/96 Int F/M	\$ 330
Aceex 14/96 Ext F/M	\$ 370

MONITOR

12" Mono	\$ 90
VGA 0.41dpi	\$ 260
SVGA 0.39dpi	\$ 290
SVGA 0.28dpi	\$ 335
SVGA 0.28dpi (NI)	\$ 390

PRINTER

Panasonic KX-P1180i	\$ 190
Panasonic KX-P1123	\$ 260
Panasonic KX-P1624 wide	\$ 445
Fujitsu DL-900	\$ 280
Fujitsu DL-1100 color	\$ 370
Fujitsu DL-1200 color wide	\$ 480
Canon Bubble Jet 10EX	\$ 420
Raven LP-510 Laser 512K	\$ 860
Raven LP-530 Laser 1M	\$ 1150

Prices are subject to change without notice.



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

ty, registration and customer survey card for each one of your company's departments? Don't you people communicate? How credible is a company that manufactures hypertext database software, yet asks for our name and address three times?

The Fourth Day: Integrated circuit hard "drives" for the price of conventional drives.

Conventional (motor-driven) drives are power hungry. In fact, batteries attached to any kind of motor wear down quickly. And like most non-solid-state devices, the drive will eventually fail—possibly without warning and probably before we've had a chance to back up our data.

Solid-state, high-capacity memory at a reasonable price would solve many of our headaches. It would be more dependable, consume a fraction of the power and be many times faster than its mechanical counterpart. It's likely the use of solid state memory will elongate the duty cycle of laptops long before rechargeable battery technology catches up. Of course, a high-capacity memory card that could be transported from PC to PC would be the logical descendent of solid-state drives. The technology necessary is here already, but it needs some refinement; right now it would take a lucky 6/49 ticket to make it affordable.

The Fifth Day: Quieter hard drives, removables and computer fans.

If you can't give us inexpensive, solid-state hard drives and removables for Christmas, how about doing something to quiet them down a bit? Cooling fans for your power supplies can get fairly annoying too. Since third-party manufacturers already make "whisper quiet" replacement fans for Macs and IBMs, you know there's a consumer demand here. Ergonomic design means more than just adjustable keyboards and fancy mouse pads.

The Sixth Day: A full-page scanner with reliable OCR (Optical Character Recognition) software for under \$500.

We know this is asking a lot. But the information junkies among us would much rather receive this than a color monitor. Optical character recognition is popular, but still cost-prohibitive unless we settle for minimal speed and questionable results. If the vision of a paperless society ever does materialize, OCR will die; but in the meantime, give us the scanner and software at a price we can afford.

The Seventh Day: A BBS of BBSes.

This isn't as strange as it sounds. We've all heard someone say, "Did you hear about that new BBS for...?" Of course, no one ever writes down the number. Maybe all you modem manufacturers could team up and pilot a BBS that lists the telephone numbers for all the other bulletin boards. This would enable us to peruse what's available, know whether the board is still operating, and possibly even dial out at the same time. Telephone companies should consider the revenue possibilities here: after all, each call would be, in essence, a directory assistance inquiry.

The Eighth Day: Full-color PostScript laser printers for under \$1000.

Okay, we're pushing our luck here, but it's worth a try. Adobe should have been more careful to hide the fact that it's their licensing fees for PostScript that drive the cost of top-end laser printers up so high. This made many of us angry when we learned about it. Innovations such as TrueType are a big help, but you've still got a long way to go—especially in the field of color.

The Ninth Day: A memorable lock/unlock diagram on floppy disks.

Actually, this is more of a stocking stuffer than an under-the-tree present, but since

it's so simple to fix...why not fix it?

For years you disk manufacturers have confused us with a read/write tab that has no analogy in the real world. Macintosh needs a whole page in their system manual to explain it; Que Corporation's book Using DOS needs even more. Pick a standard and stick with it. How about a simple picture of an opened and closed padlock, or a book for Read and a pencil for Write? If you insist on being overly scientific about this, hire the guy who designed the little diagram that shows us which way to install batteries in a Sony Walkman. Just agree on something simple and put us out of our misery...please!

The Tenth Day: Laser printer labels/paper that cost less than the printer.

We're not sure what's going on behind the scenes here, but cut it out. There's no reason why special laser printer labels and paper should cost as much as they do. Ten years ago you may have had to develop a special adhesive that wouldn't melt, or additives that enhanced a paper's ability to retain toner, but the prices never came down sufficiently. When we see little difference in quality between laser and non-laser paper, something is wrong.

The Eleventh Day: Real, knowledgeable, people answering your customer service numbers—instead of computer voices and touch-tone menus.

The last thing we need after three hours of fidgeting is to talk to another computer, or to be put on hold while California white noise/new age music is piped into our ears. Most of us have discovered that ten minutes on hold with this stuff is the next best thing to general anaesthetic. No wonder we're so calmed down when the technician finally answers.

While we're on the customer-service topic, how about a little geography lesson for any company marketing its product in The Great White North? If one more customer service representative from south of the border asks us which state Canada is in, or what our ZIP Code is, we'll respond with a baseball reference.

The irony here is that, despite an ignorance of where we live, the American mail order industry can find us faster than we can. Phone representatives from MacWarehouse ship us Canadian-made products from New York City in one day, but it can take three weeks for the same product to arrive from Vancouver. If we don't get our act together on this soon, cigarettes won't be the only thing being smuggled across the border.

The Twelfth Day: User documentation that isn't user-hostile.

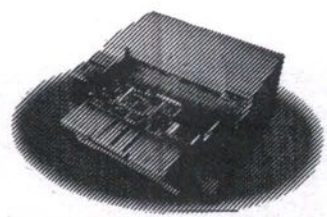
It's only a matter of time before Andy Rooney of 60 Minutes takes a stab at this topic ("Ever wonder why computer manuals are so complicated?") Even the most adamant computer users among us have a tough time defending an industry that markets word processing, spelling and grammar packages...yet can't explain how to install the product in less than three chapters. If the true test of sophistication is simplicity, then most user documentation is pretty uncouth. What's needed here are writers who work as integral parts of the development team—not as afterthoughts in the marketing push.

Perhaps this last item is the most important. After all, if we were to receive the other eleven, experience tells us that it would take a forklift just to transport the documentation around the house.

Here's hoping 1993 will be an interesting and productive year for all computer users. Merry Christmas! ■

IF YOU THINK THAT YOUR COMPUTER COMPANY CAN BRING YOU INNOVATIVE PRODUCTS think again!

600 DPI 11 X 17 UNDER \$5000!

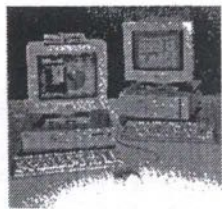


WinPrint Technology Features

- ▼ Host-Based Architecture
- ▼ 50 TrueType Fonts
- ▼ Automatic Font Management
- ▼ PostScript-language Output
- ▼ Advanced Printing Options
- ▼ Software Upgradable
- ▼ Toshiba Engine
 - High quality output
 - 8ppm



WHY BUY A CLONE?

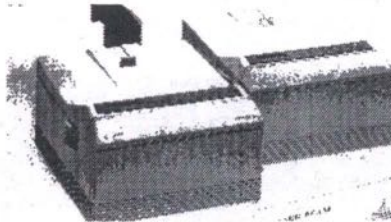


A M B R A PERSONAL COMPUTERS

- ▼ 386SX, 486SX & D2 Models.
- ▼ Windows, Dos & Mouse Included.
- ▼ One year on site warranty.
- ▼ Toll free technical support.
- ▼ Wholly owned subsidiary of IBM Canada Ltd.
- ▼ Attractive, Ergonomic Design.
- ▼ Prices starting from:

1499.99!

THE ULTIMATE PERSONAL LASER!



Cannon LBP4 SX

- ▼ **Completely HP IIIP Compatible!**
- ▼ 300 DPI with High Resolution Control.
- ▼ 1 MB of Memory with data compression.
- ▼ Parallel & Serial Ports with Auto Selection.

1249.99!

For over 10 Years BFA Datasystems has brought you leading edge technology. Well this time, we've outdone ourselves, in this advertisement we introduce you to three exciting new product



"Your Canadian Source For LaserMaster"
25 Royal Crest Ct #10
Markham, Ontario
L3R 9X4

THIS ENTIRE ADVERTISEMENT WAS CREATED ON PAGEMAKER 4.0 & COREL DRAW AND OUTPUT TO A LASERMASTER UNITY 1200XL.

Twinhead SLIMNOTE

FREE TARGUS CARRYING CASE! IDEAL FOR PORTABLE DTP! INTERNAL TRACKBALL AVAILABLE!

ONLY 5.8 LBS 8.5" X 11" X 1.7"
PC WORLD BEST BUY
486 DX-33, 486 SX-20 and 386SXL Models
60, 80, 130 MB Fast Hard Drives Available
2MB or 4MB memory
10 Inch, 64 Shade LCD Display
External Keyboard & Video Ports
100-Pin Accessory / Expansion Slot

FAXMODEMS
Quality Modems at an affordable price!
Please Call For Details

THE ULTIMATE WINDOWS MACHINE!
AMBRA HURDLA 486

486 D2 - 66 MHZ/256k Cache Microsoft Windows & Dos
200 MB Hard Drive Mouse
Windows Accelerator 4 MB RAM
14" SVGA Monitor 1 Year On site warranty

SPECIAL 3799.99

1 - 800 - 268 - 3676
In Toronto Call (416) 475-3766




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

50MHz
128KB cache

Intel 486*DXII
\$1890

Upgrade to MAXTOR 213MB Hard Drive \$180

AAMAZING Non-Interlaced SVGA Monitor • ATI XL24 1MB Video Processor 16.7M colours
120MB KALOK Fixed Disk Drive • 4MB Fast 70ns System Memory

200 watt CSA Approved Power Supply • 101-Key Enhanced Keyboard • 1.2MB + 1.44MB Fujitsu Floppy Drive
2 Serial, 1 Parallel, 1 Game Port, Keylock, Mini-Tower Style/Classic Desktop Chassis

DOS 5.0 + Mouse + Pad

NOTEBOOK
SPECIAL

5.2lb Intel 386*SL/25MHz
\$2250

2.5 to 6 operating hours per charge

10" Backlit VGA TrippleSuper Twist Soft LCD Screen with 64-gray scale

4MB System Memory • 85MB Hard Drive • Battery pack, charger & Carrying case • Microsoft DOS 5.0

FREE internal Send & Receive Fax Modem

33MHz
128KB cache

Intel 386*DX
\$1150

Upgrade to Intel 486*DX33 Processor \$450

AAMAZING Super VGA Colour Monitor • Super VGA 512KB Video Card
105MB KALOK Fixed Disk Drive • 2MB Fast 70ns System Memory

200 watt CSA Approved Power Supply • 101-Key Enhanced Keyboard
2 Serial, 1 Parallel, 1 Game Port, Keylock, Mini-Tower Style/Classic Desktop Chassis

DOS 5.0 + Mouse + Pad

*Intel 386, Intel 486, Intel Inside and the Intel Inside Logo are trademarks of Intel Corporation. All other trademarks are trademarks of their respecting companies.

Trends in Laser Printers

BY GEOFF WHEELWRIGHT

It seems that not a day goes by any more that you don't hear something about how the computer industry is making its systems easier to use. Whether it's pictorial representations of commands on the computer screen, control of the computer via a specialized pen or handwriting recognition, computer hardware and software experts seem to be sparing no effort to make their systems more usable and "friendly" to the average person.

That is, until these average users try to move their work from the computer screen to the computer printer. For years, printers have been the bane of many user's working lives — requiring all manner of specialized settings to work properly and precious little feedback about when things are actually set up and working properly.

For those users who had the misfortune to share a laser printer over a computer network, the proposition was even more horrendous — with the prospect of an unfriendly printer holding up the productivity of whole groups of people, rather than just one lone, frustrated individual.

It appears that the makers of laser printers have finally taken this problem to heart. Laser printer industry leader Hewlett-Packard recently released a range of faster and easier-to-use "network" printers, while computer maker Compaq threw its hat into the ring with a similar range of products in August.

HP announced a new range of high-performance LaserJet 4 printers at the end of October. These printers print at resolutions of up to 600 dots per inch (twice the existing 300 dots per inch standard) and use smaller "toner" particles so that the actual resolution may look more like 900 dots per inch.

While HP's announcement has long

been anticipated, the recent entry of Compaq into the market as a competitor will likely make the whole market for such systems more competitive — and hopefully spin off benefits for the users of these machines.

Compaq's announcement that it is moving into the high-end network laser printer market appears to be a cautious, much-studied choice. In fact, given the weight of evidence about the use of laser printers that Compaq gathered together for the recent launch of its printers, it would seem that Compaq has entered this arena far later than it should have.

The company cites reams of market statistics to support its decision to move into the printer market. It says, for example, that studies by the Romtec market research organization show that for every three PCs sold, two printers are sold to go along with them.

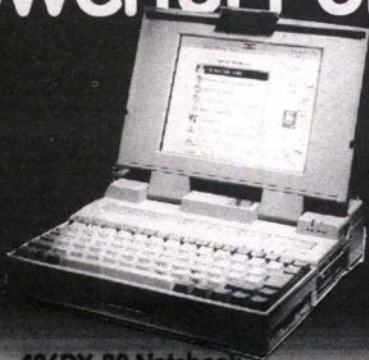
Mind you, the company does admit that the sales of non-impact printers — such as laser printers and inkjet systems — make up only 30 per cent of units sold — although Romtec predicts that by 1996 laser and inkjet printers will capture some 54 per cent of the units sold. Of course, if you start chopping the market up by value — rather than number of units sold — things really begin to look good for anyone

Truly Powerful Portables

Sayson Technologies Ltd.
Unit 103-3011 Viking Way
Richmond, BC V6V 1W1
PH: 604-273-7305 Fax: 273-7319



Shoebbox Computer
* Up to 250 MB HDD
* 4" x 6" x 12"
* Built in NTSC Video Output
* 1 ISA Expansion Slot
* 1 Mini Slot
* Extremely Quiet
* External AutoSwitch PS
* 2 Serial, 1 Par, 1 Game
* Trident SVGA Chipset



486DX-33 Notebook
* Up to 16 MB RAM
* Up to 240 MB Hard
* External Keyboard Port
* 2 Serial 1 Parallel
* Docking Station available
* Number Pad Included
* Supertwist LCD CCFT 32 Shades
* Autoswitching Power Supply
* 7 lb w/out Battery, 9 lb with
* Dimensions: 11" x 8.6" x 2"



386DX-33 Laptop
* Standard 16 bit Slot
* MIDI Options Available
* Up to 32 MB RAM
* Up to 250 MB HDD
* 86 key full size keyboard
* External SVGA Port
* 2 Serial 1 Parallel Port
* Rechargeable Battery
* 11 lbs with battery
* Cigarette adapter included



Lunchbox Portables
* 150:1 Gas Plasma Screen
* or Double Lit LCD CCFT Screen
* Expandable to 486-66MHz!
* Up to 500MB Hard drive
* 64 MB RAM
* 3 Drive Bays
* 4 ISA or EISA Expansion Slots
* External Super VGA Port
* 101 Enhanced Keyboards
* Dual Serial, 1 Parallel Port



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
* 4 ISA or EISA Expansion Slots
* 2 Serial, 1 Parallel, 1 Game
* External SVGA Port

selling laser printers.

According to Compaq marketing director David Clarke, printers are the second-largest revenue stream for PC dealers after PCs themselves — and that dealers retain higher margins on printers than PCs. He further argues that network laser printers — designed to be used by a group of users — have the highest possible margin and offer the ability to sell all kinds of value-added services that just wouldn't exist in the sale of a low-end system to a single user.

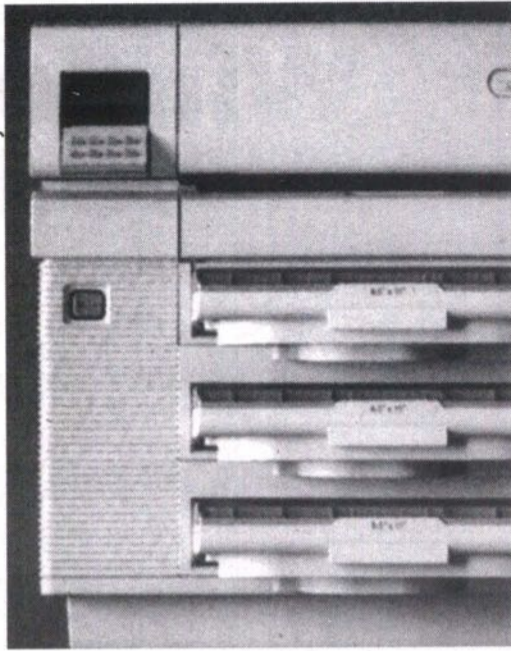
"There is less competition in terms of price and these systems can be a good revenue earner in maintenance contracts," says Clarke. "There is also considerable opportunity for revenue and profit in the sales of toner cartridges."

But Clarke has a big challenge ahead of him. Compaq is not the only PC manufacturer in the laser printer market. There's also Apple, IBM, Olivetti, Canon, Hewlett-Packard, Brother, Epson and Panasonic. Of course, only Apple, IBM and Olivetti have any major presence in the mainstream PC market as well — but they certainly point up the difficulties facing PC manufacturers in the laser printer business.

HP has a strong hold on the market — Romtec credits the company with a 41 per cent market share in the first quarter of 1992. The next two competitors — Lexmark (IBM's printer division) and Apple — both only have around 8.5 per cent each.

No-one else holds more than six per cent of the market — and most hold far less. So Compaq's chances of making any significant impact on the overall laser printer market has to be viewed with an eye to this heavy competition.

The fact that Compaq is starting at the high end of the market is probably a good thing. It will offer dealers a chance to actually make some decent margin on the product — yet there is enough power and innovation in the system itself for users to justify



The fact that Compaq is starting at the high end of the market is probably a good thing. Instead of aiming at the cut-throat "personal page printer" business, Compaq has decided to compete with the likes of HP and QMS at the high end, where it can afford to build enough extras into the machine to leverage its reputation as a premium price supplier.

spending a little extra money on it. Instead of aiming at the cut-throat "personal page printer" business, Compaq has instead decided to compete with the likes of HP and QMS at the high end, where it can afford to build enough extras into the machine to leverage its reputation as a premium price supplier.

It is a dangerous game, however. At the same time as Compaq is selling these "premium" network printer products, it is trying to establish itself as a credible low-cost alternative to PC clone suppliers in the general PC market. And that may leave users and resellers confused.

If Compaq is to have any chance at success in the printer market, it is going to have an awful lot of explaining and positioning to do. Otherwise these printers will become a marginal and specialized part of

the company's business — and Compaq can ill afford that right now.

HP Strikes Back with the LaserJet 4

Just weeks after Compaq entered the high-end laser printer market with its new PageMarq systems, Hewlett Packard has hit back with the HP LaserJet 4 range. These systems are not as fast — or as expensive — as Compaq's, but they are aimed quite directly at the network printer market.

The systems all use a RISC processor, provide 600-dot-per-inch printing resolution, 45 scalable typefaces, use Version 5.0 of HP's PCL Page Control Language and print at eight pages per minute. HP is providing parallel, serial, AppleTalk and network Ethernet options for the printers — so that virtually any PC can connect directly to the LaserJet 4.

The LaserJet 4M, meanwhile, includes PostScript Level 2, 6 MB of built-in memory — as well as automatic language and interface switching for the Apple Macintosh and mixed computing environments.

This means that in an office that uses Macintosh and PC systems, for example, a user can print to the LaserJet 4M from a Macintosh at the same time that someone else in the office prints to it from a PC. The printer will sort out the queuing of the documents, switching between page control languages and interfaces. And anyone sending documents to the printer from a parallel port will get performance improvements from the "bi-tronics" two-way parallel ports.

For users with networks, there will be cost and performance benefits. The existence of what HP calls its "JetDirect" interface — already in use on HP's LaserJet IISi — means that LaserJet 4 systems can be installed directly as devices on the network — and therefore will not require a PC to act as a "print server" to the network printer. It also means that data will be transferred at network connection speeds — much higher than those that can be achieved over a parallel or serial port.

HP says the HP JetDirect interface will provide for easy connection to NetWare, LAN Manager and LAN Server running on Ethernet or Token Ring — as well as HP-UX, Sun OS and SCO Unix running on Ethernet.

HP Moves on Portable DeskJet

Laser printer market leader Hewlett-Packard has also finally entered the portable computer market. From the beginning of November, Canadian PC users will be able to buy a portable version of HP's popular DeskJet 500 inkjet computer that runs on batteries, prints at three pages per minute, uses standard DeskJet ink cartridges and includes four scalable internal fonts along with support for PCL and

Continued on page 47

MEMORY

The Laser Printer Pro's

ACCESS

10,000 Sq. Ft. Showroom and Warehouse

Now Open

Mississauga Superstore

Now in our 7th Year

The largest selection of laser and non-impact printers in Canada
No where else can you COMPARE....EVALUATE....DEMO more printers

If you are thinking of buying a printer you owe it to yourself to visit our store. We promise you will be rewarded with a more informed purchasing decision.

TONER

Holiday Gift Ideas

SERVICE

<p>LASER PRINTERS</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>CANON LBP-4 PLUS</td><td>\$1195</td></tr> <tr><td>CANON LBP-4 LITE</td><td>\$925</td></tr> <tr><td>CANON 8 MARK III</td><td>\$1795</td></tr> <tr><td>HP IIP PLUS</td><td>\$995</td></tr> <tr><td>HP IIIIP</td><td>\$1249</td></tr> <tr><td>HP 4</td><td>\$1849</td></tr> <tr><td>HP IIID</td><td>\$2945</td></tr> <tr><td>HP IIISI</td><td>\$4495</td></tr> <tr><td>OKIDATA 400</td><td>\$749*</td></tr> <tr><td>OKIDATA 830</td><td>\$1699</td></tr> <tr><td>IBM 4029 MODEL 5E</td><td>\$1398</td></tr> <tr><td>STAR STARSRIPT</td><td>\$1499</td></tr> </table> <p>* After Manufacturers Rebate</p> <p>COLOUR</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>CANON BJC 800</td><td>\$2450</td></tr> <tr><td>CANON BJC 820</td><td>\$2650</td></tr> <tr><td>HP DESKJET 500 C</td><td>\$699</td></tr> <tr><td>HP DESKJET 550 C</td><td>\$949</td></tr> <tr><td>HP PAINTJET XL 300</td><td>\$2999</td></tr> </table>	CANON LBP-4 PLUS	\$1195	CANON LBP-4 LITE	\$925	CANON 8 MARK III	\$1795	HP IIP PLUS	\$995	HP IIIIP	\$1249	HP 4	\$1849	HP IIID	\$2945	HP IIISI	\$4495	OKIDATA 400	\$749*	OKIDATA 830	\$1699	IBM 4029 MODEL 5E	\$1398	STAR STARSRIPT	\$1499	CANON BJC 800	\$2450	CANON BJC 820	\$2650	HP DESKJET 500 C	\$699	HP DESKJET 550 C	\$949	HP PAINTJET XL 300	\$2999	<div style="margin-bottom: 20px;"> <p>HP Laserjet 4</p> <p>The Next Generation Laserjet</p> <div style="display: flex; justify-content: space-between;"> <div style="font-size: 0.8em;"> <p>600 DPI Resolution Resolution Enhancement 8 PPM, 2 MB Std. 45 Scalable Typefaces Excellent Paper Handling</p> </div> <div style="font-size: 0.8em;"> <p>Automatic Interface Switching Superfast RISC Processor HP PCL5 Enhanced Postscript Level 2 Option Data Compression</p> </div> </div> <p style="font-size: 2em; font-weight: bold;">\$1849</p> </div> <div> <p>Canon BJ200</p> <p><i>Laser quality?</i> <i>Come see the future standard of printing.... BubbleJet quality</i></p> <p>See for yourself the printer which will revolutionize the printer industry with a new standard of speed, quality and value. Come see the new Canon BJ200.</p> <p style="font-size: 3em; font-weight: bold;">\$495</p> </div>	<p>MEMORY</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>HP II/IIID/IIP/III/IIP/IIID 1 MB</td><td>\$119</td></tr> <tr><td>HP II/IIID/IIP/III/IIP/IIID 2 MB</td><td>\$169</td></tr> <tr><td>OKI 400 1MB</td><td>\$180</td></tr> <tr><td>OKI 400 2 MB</td><td>\$250</td></tr> </table> <p>HIGH RES.</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>LASERMASTER 600XL</td><td>\$4795</td></tr> <tr><td>QMS PS860</td><td>\$5999</td></tr> <tr><td>XANTE A/W 8100 (upgradeable to 1200dpi)</td><td>\$4995</td></tr> <tr><td>LM WINJET 800</td><td>\$895</td></tr> <tr><td>LASERMASTER 1200XL</td><td>\$9900</td></tr> </table> <p>BUBBLEJET / INKJET</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>CANON BJ 10EX</td><td>\$359</td></tr> <tr><td>CANON BJ10EX W/ ASF</td><td>\$399</td></tr> <tr><td>CANON BJ20</td><td>\$449</td></tr> <tr><td>CANON BJ 300</td><td>\$499</td></tr> <tr><td>CANON BJ 330</td><td>\$649</td></tr> <tr><td>HP DESKJET PORTABLE</td><td>\$549</td></tr> </table>	HP II/IIID/IIP/III/IIP/IIID 1 MB	\$119	HP II/IIID/IIP/III/IIP/IIID 2 MB	\$169	OKI 400 1MB	\$180	OKI 400 2 MB	\$250	LASERMASTER 600XL	\$4795	QMS PS860	\$5999	XANTE A/W 8100 (upgradeable to 1200dpi)	\$4995	LM WINJET 800	\$895	LASERMASTER 1200XL	\$9900	CANON BJ 10EX	\$359	CANON BJ10EX W/ ASF	\$399	CANON BJ20	\$449	CANON BJ 300	\$499	CANON BJ 330	\$649	HP DESKJET PORTABLE	\$549
CANON LBP-4 PLUS	\$1195																																																																	
CANON LBP-4 LITE	\$925																																																																	
CANON 8 MARK III	\$1795																																																																	
HP IIP PLUS	\$995																																																																	
HP IIIIP	\$1249																																																																	
HP 4	\$1849																																																																	
HP IIID	\$2945																																																																	
HP IIISI	\$4495																																																																	
OKIDATA 400	\$749*																																																																	
OKIDATA 830	\$1699																																																																	
IBM 4029 MODEL 5E	\$1398																																																																	
STAR STARSRIPT	\$1499																																																																	
CANON BJC 800	\$2450																																																																	
CANON BJC 820	\$2650																																																																	
HP DESKJET 500 C	\$699																																																																	
HP DESKJET 550 C	\$949																																																																	
HP PAINTJET XL 300	\$2999																																																																	
HP II/IIID/IIP/III/IIP/IIID 1 MB	\$119																																																																	
HP II/IIID/IIP/III/IIP/IIID 2 MB	\$169																																																																	
OKI 400 1MB	\$180																																																																	
OKI 400 2 MB	\$250																																																																	
LASERMASTER 600XL	\$4795																																																																	
QMS PS860	\$5999																																																																	
XANTE A/W 8100 (upgradeable to 1200dpi)	\$4995																																																																	
LM WINJET 800	\$895																																																																	
LASERMASTER 1200XL	\$9900																																																																	
CANON BJ 10EX	\$359																																																																	
CANON BJ10EX W/ ASF	\$399																																																																	
CANON BJ20	\$449																																																																	
CANON BJ 300	\$499																																																																	
CANON BJ 330	\$649																																																																	
HP DESKJET PORTABLE	\$549																																																																	

FONTS

CANADIAN LASER PRODUCTS INC.

216 BRITANNIA RD EAST MISSISSAUGA, ONTARIO L4Z 1S6

(416) 890-3600 1-800-668-1100 FAX (416) 890-8269

HIGH RES.

VOICE MAIL SYSTEMS

<h3>FAXMOUTH</h3> <ul style="list-style-type: none"> - 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 - 2400bps Data/9600bps Fax send/rec - Free Telemarketing Software <p style="text-align: center;">\$ 439.95</p>	<h3>FAXMOUTH PLUS</h3> <p style="text-align: right; font-weight: bold;">NEW!</p> <ul style="list-style-type: none"> - Stores up to 99 million documents - Caller may select any 5 fax documents - Sends caller optional cover page - Advanced number blocking features - Provides password protection for sensitive documents - Supports: ASCII, PCX, TIFF, BFX, DCX, IMG graphic formats - Tracks number of times each document has been sent - Allows caller to browse through a verbal list of documents and make a selection. - Fully menu driven / User friendly - Logs system usage - INCLUDES 2400 BPS MODEM - 9600BPS Send/Rec Fax <p style="text-align: center;">\$ 549.95</p>
--	--

FaxMouth Plus a complete Voice/Fax Retrieval System

SUPER SPECIAL 2 LINE VOICE MAIL SYSTEM

FEATURES:

- Auto Attendant	- Variable Length Messages
- Call Transfer	- Remote Access
- Call Screening	- Message Forwarding
- Unl. Voice Mail Boxes	- Digital Recorded Voice
- Message Notification	- Variable Compression
- Pager Notification	- FAX-ON-DEMAND

RUNS IN THE BACKGROUND

\$649.95

LARGER CONFIGURATIONS AVAILABLE!

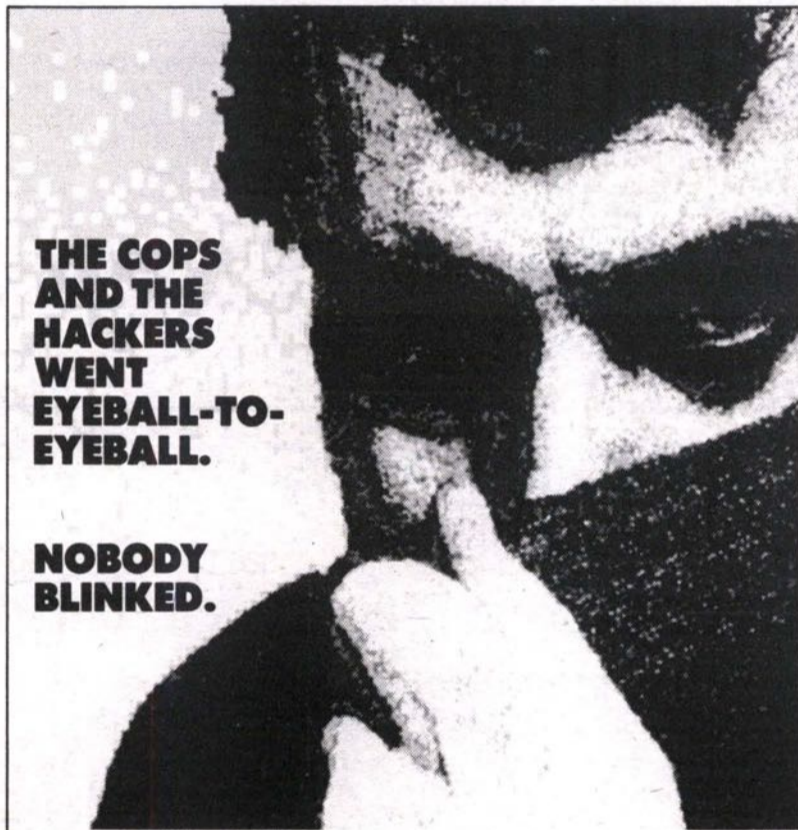
BigMouth Available \$ CALL

GT COMPU-TEL

TEL: [416] 406-0522 FAX: [416] 406-0253

Prices and availability subject to change without notice. Quantities Limited! EXP:12/31/92

C.O.D. ORDERS ACCEPTED



THE COPS AND THE HACKERS WENT EYEBALL-TO-EYEBALL.

NOBODY BLINKED.

THE HACKER CRACKDOWN

LAW AND DISORDER ON THE ELECTRONIC FRONTIER

BRUCE STERLING

CO-AUTHOR OF THE DIFFERENCE ENGINE

Praise from...

COMPUTER COPS:
"Fascinating."
—Steven R. Purdy,
U.S. Secret Service

HACKERS:
"I learned a lot of things I didn't know from this book."
—"Lex Luthor,"
Legion of Doom

THE INDUSTRY:
"You must read this book for the real story."
—Mitchell Kapur,
Lotus Development Corp.

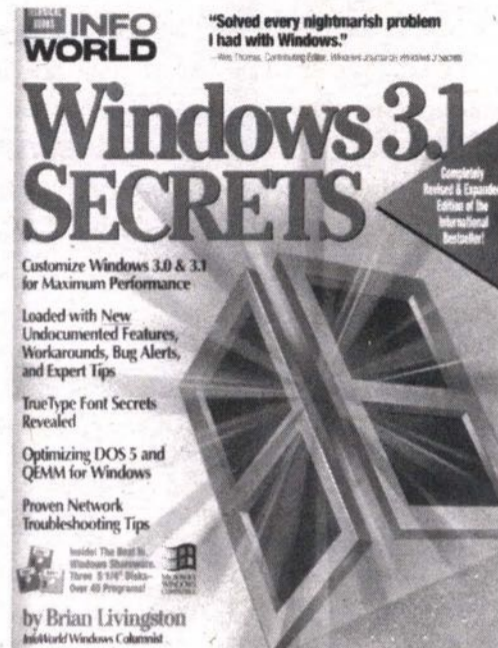
A BANTAM HARDCOVER

BOOK REVIEW

Windows 3.1 Secrets

BY BRIAN LIVINGSTON

REVIEWED BY GRAEME BENNETT



Product: Windows 3.1 Secrets book and three 5 1/4" disks.
From: IDG Books, 800-762-2974 or 415-312-0626
Price: US\$39.95
ISBN: 1-878058-43-6
Summary: This book/disk package is the definitive guide to customizing and optimizing Windows 3.0 and 3.1 for maximum performance.

ure memory managers (both Microsoft's own and third-party products like QEMM), a chapter on secrets of TrueType (including the whole story on why most third-party TrueType fonts cannot be embedded into documents the way Microsoft's can be), as well as such niceties as a chart of dingbats and tips on using TrueType and/or PostScript fonts on a variety of output devices.

By now, just about everyone has heard that Windows 3.1 is a big improvement over version 3.0. Believe it, it's true. Nevertheless, there are plenty of tweaks and enhancements you can perform to improve 3.1 even further. More than anything, that's the essence of what Windows 3.1 Secrets is all about.

Beginners and intermediate users will appreciate the sections on configuring your system, optimizing your Windows startup and exploiting your hardware. There are entire chapters of this 980-page tome devoted to topics like installing printers, alternate pointing devices, modems, video boards and monitors, et al.

Network administrators will appreciate the more than 40 pages detailing the secrets of configuring applications to run under Windows on a network — steps that are not required to run those same applications on stand-alone PCs. The book contains detailed information on everything from solving compatibility problems to converting a whole company to Windows.

Experts will love the wealth of undocumented features and expert tips, including hundreds of workarounds to annoyances in Windows itself and other applications. The book has a particularly detailed list of ways to optimize Word for Windows and Excel.

There are details on how to best config-

Just about everyone is sure to have lots of fun exploring the more than 40 shareware programs included on the three disks bundled with the book. Called "The Best In Windows Software," the six megabytes of software includes a selection of games, file and program management utilities (we were surprised to see the inclusion of several Metz Software applica-

Just about everyone is sure to have lots of fun exploring the more than 40 shareware programs included on the three disks bundled with the book.

tions that are also available as commercial packages), several virus checkers, plus text editing and searching, communications, graphics and Visual Basic programs. The book has printed instructions for each program; it also includes information on how to register each shareware title.

Useful Appendices

As a resource and reference volume, Windows

3.1 Secrets is practically indispensable. There are several appendices listing technical support phone numbers of interest, CompuServe forum names and section numbers, contact numbers and addresses for a wide variety of Windows information resources, magazines and seminars, explanations of error messages and much more. Best of all, the index at the back is vast — a full 42 pages of six-point type!

If this book doesn't turn you into a Windows expert, at least you can be confident that the answers to virtually any Windows question is as near as your bookshelf. If you use Windows, this book is a must-have. ■

The Compromises of Portable Computing

BY GEOFF WHEELWRIGHT

Dozens of high technology companies in the UK, Japan and the United States are scrambling to produce innovative, handheld computers — all with a burning desire to put a computer in every palm. Few of them, however, seem to have grasped the basic difference between designing a computer that will sit on your desk and one that will fit in the pocket of your coat.



Most are desperately climbing over one another to make handheld computers as fast, powerful and easy to use as today's desktop systems. In order to meet the size requirements of a handheld computer, all these manufacturers are forced to use miniaturized versions of yesterday's technology to accomplish this task. The only problem is that yesterday's hardware — even when it is updated and shrunk into something that fits in the palm of your hand — will not run the latest PC software.

Rather than recognizing this limitation — and rethinking their design strategy — many pint-sized PCs makers try to get users

to accept cut-down and "knee-capped" versions of their desktop PC software. Even large firms such as Atari, Memorex and Fujitsu have gone this route — asking IBM-compatible desktop PC users to use vastly underpowered handheld imitations of their desktop systems as acceptable substitutes.

These systems generally use screens that conform to the 10-year-old IBM CGA display standard, include only 640K RAM, some form of solid-state storage, a serial port for communications with larger systems and a parallel port that allows the printing of documents directly from the handheld system.

There are five major limitations that have prevented handheld systems — however expensive they may be — from achieving the same power as their desktop brethren. These limitations are memory, storage

space, processor speed, display quality and keyboard size. On most systems, both memory and storage space are provided by solid-state, battery-backed memory chips — and the limitation lies in the number and cost of chips you can physically squeeze into one tiny machine.

This part of the equation may improve slightly with the advent of ultra-small, magnetic disk drives — but these also carry a price in terms of the power consumption and ruggedness. Hewlett-Packard's recently developed HP KittyHawk Personal Storage Module (PSM) is a good example — it will store 21.4 Megabytes of data and yet is only 2 inches long, 1.44 inches across and .4 inches high.

It is expected to be used first in HP's handheld HP95LX palmtop computer. As the drive can connect to PC systems via either a standard interface card or a Personal Computer Memory Card International Association (PCMCIA) standard interface (such as the one offered in HP's own 95LX handheld computer), HP predicts the system has a wide range of potential users.

Meanwhile, the speed and performance of the computer processors used in handheld computers is growing much more quickly than those used on desktop systems — but it will still take at least a couple of years before they can reach the power of today's desktops. And they will always lag behind — the physical dimensions of the handheld computer dictate this particular fact of life.


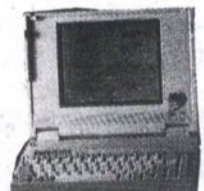

Display quality and keyboard size are also limited by the amount of real estate inside your pocket — and the size of your fingers. While there are some creative alternatives to the keyboard — such as voice input or the "pen" input Apple is pioneering with its Newton Personal Digital Assistant — these fall outside the mainstream PC world.

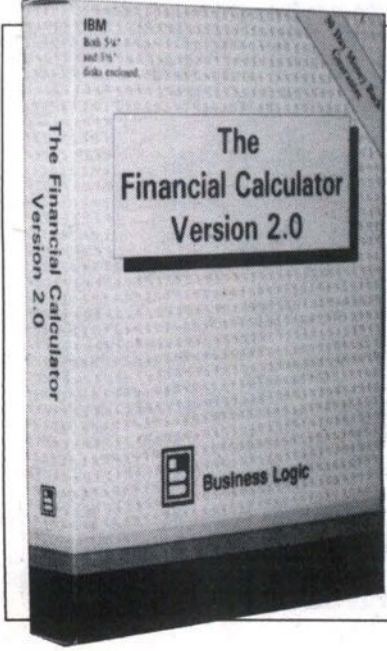
And therein lies the problem. You cannot put a full-blown desktop PC in a computer small enough to fit in your pocket. Although it may be technologically possible one day, there is a very limited market for it. Users do not want the same things from their handheld system that they want in a desktop. They may want it to make a few notes, carry out a few specific calculations or check some addresses and phone numbers. More ambitious users might even want to upload and download information over the phone line to their head office — or customer sites — but that is likely to be the extent of their ambition.

For this reason, the companies most likely to succeed in the handheld computing arena are those who recognize that users don't want to carry a complete replica of their office in their pocket — any more than they wanted to do so before computers came along. What they want is a tool that will help them get and take with them the vital information that is needed when they are out of the office — and which carries with it the capability to send and retrieve information from that office or others.

Some products — such as HP's 95LX, Japanese electronics giant Sharp's popular "IQ" or Wizard range and British computer maker Psion's 18-month-old Series 3 handheld computer — reflect this trend and their makers are reaping the benefits.

As for the other manufacturers of handheld systems in the PC world, they will continue to produce intriguing failures. These machines will strive for desktop computer compatibility and power — yet will never quite hit the mark. And if they ever do, the manufacturers in question will quickly realize that the use most people have for a handheld computer is something other than a owning a pint-sized "clone" of their desktop system. ■

NOTEBOOK BLOWOUT		NOTEBOOK BLOWOUT															
<p>NEC ULTRALITE 286 V \$ 969.00</p>  <p>(6.5 lbs, 1 Meg Ram 20 Hdd, VGA)</p>	<p>Primax 386 SXL 25 \$1575.00</p>  <p>4 Megs Ram, 60 MB Hdd Vga, 10" Screen</p>	<p>Bondwell 386 33 Mhz \$2049.00</p>  <p>Fax Modem, 4 Megs Ram 4.7 lbs, 85 Meg Hdd</p>	<table border="0"> <tr><td>Bondwell sl 25 2/85</td><td>\$1600.00</td></tr> <tr><td>Zenith Data Systems</td><td>\$1899.00</td></tr> <tr><td>AST Power Exec</td><td>\$2899.00</td></tr> <tr><td>NEC Ultralite III</td><td>\$2399.00</td></tr> <tr><td>Toshiba T1800</td><td>\$2137.00</td></tr> <tr><td>NEC Colour (A Mtrx)</td><td>\$4099.00</td></tr> <tr><td>Texas Instruments 486</td><td>\$2382.00</td></tr> </table> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center;"> <p>QUAD 386 DX 33 - 4 / 120 \$2279.00 Case / Keypad</p> </div> <p>THE NOTEBOOK STORE 30 WEST BEAVER CREEK UNIT 5, RICHMOND HILL FAX ORDER (416)889-1199</p> <p>(416)764-3311</p>	Bondwell sl 25 2/85	\$1600.00	Zenith Data Systems	\$1899.00	AST Power Exec	\$2899.00	NEC Ultralite III	\$2399.00	Toshiba T1800	\$2137.00	NEC Colour (A Mtrx)	\$4099.00	Texas Instruments 486	\$2382.00
Bondwell sl 25 2/85	\$1600.00																
Zenith Data Systems	\$1899.00																
AST Power Exec	\$2899.00																
NEC Ultralite III	\$2399.00																
Toshiba T1800	\$2137.00																
NEC Colour (A Mtrx)	\$4099.00																
Texas Instruments 486	\$2382.00																



Do You Have Financial Questions?

Uncertain financial times create many questions. Should you break your existing mortgage term and take advantage of the new lower rates? Is it worth the hassle and penalty charges to break the term? How much will you save exactly? Are there other alternatives? What is your current mortgage principal? What will be the outcome of making some extra payments? How much remains on that car loan? Should you buy or lease that new car? How about your retirement savings? How much should you set aside per week, per month, per year; to retire comfortably, to buy that new car, take that vacation or send the kids to college? ... How can you answer these questions?...

The Financial Calculator - Version 2.0 A comprehensive Financial Calculator that can answer all of your financial questions quickly and easily. Only \$129.00. Call EMJ Data Systems for a dealer near you.



HEAD OFFICE:	BRANCHES:	Calgary	Winnipeg	Toronto	St. Laurent	Bedford
GUELPH	Richmond	(403) 250-5343	(204) 949-0055	(416) 454-2940	(514) 745-4500	(902) 835-1621
(519) 837-2444	(604) 270-9324	FAX (403) 250-5373	FAX (204) 949-0063		FAX (514) 745-2886	FAX (902) 835-9127
FAX (519) 836-1914	FAX (604) 270-7834					

R E V I E W

Sketching in 3-D

BY GRAEME BENNETT

Product: Alias Sketch version 1.5
From: Alias Research,
 110 Richmond Street East,
 Toronto, ON M5C 1P1.
 Tel. 416-362-9181
Price: US\$995
Requires: Macintosh with math co-processor;
 6,144K RAM; 8MB disk space

If you've ever seen the short films *Tin Toy*, *Luxo Jr.* or *Knick Knack* (at this writing, all are circulating the local movie theaters as Asuna-sponsored movie "cartoons"), you'll know what it is that I love about 3-D programs. Indeed, I've owned and used several — including titles that ran on Atari ST (Cyber Sculpt, Cyber Studio, CAD-3D), Amiga (Sculpt-3D, Videoscape 3D), and the Mac (Super 3D, Stratavision 3D).

Unfortunately, all too often — would you believe every time? — I've ended up unhappy in one way or another over each program's features or user interface. Someone at Alias must have noticed this, too, because Sketch is different. It's got a very natural user interface that will feel comfortable to anyone who's used a drawing program like Adobe Illustrator or Aldus FreeHand. It's definitely not a CAD program in the traditional sense, although it can export CAD file formats. Rather, as the name implies, it's more like sketching in three dimensions.

The package comes with a tutorial video which, after a distressingly long sales pitch for the product, settles into a very

good tutorial. The woman in the video appears to be a complete whiz at using Sketch; she demonstrates step-by-step how to construct and render a pretty impressive-looking sailboat in a bottle. The video made it look so easy that I felt like a klutz attempting to duplicate her results as I followed along.

Humbled, I retreated to read the *Getting Started* manual.

The manuals are, in a word, lavish. From embossed covers to color illustrations on nearly every page, there is no doubt that the company has spent a lot of effort and money on its documentation and packaging. There are two manuals: *Getting Started*, a guide to the new features of version 1.5; and the Sketch version 1.0 reference manual. The *Getting Started* manual contains a couple of tutorials that seem to be a little easier than the boat-in-a-bottle. The first promised to "create a chair with 30 clicks." That sounded more my speed.

The first step is to define surfaces on which to draw. On the ground plane on



which my chair would sit, I drew a rectangular surface on which I would draw the side of the chair and one for the front. After making the front plane active, I used a pen tool (similar to that which draws Bezier curves in Illustrator) to create a curve for the chair's front. The tutorial then shows how Sketch's so-called Extrude-o-matic tool can automatically pull this 2-

D curve into a 3-D surface.

In seconds, the surface of a slightly weird-looking chair was draped across my 3-D sketchpad. In retrospect, the process seems incredibly natural.

Despite considerable difficulty getting the arms of the chair to stand up straight (mine demonstrated a definite propensity to lean over at ridiculously unergonomic angles until I got the hang of drawing perpendicular lines in 3-D space), I eventually got it right. You can see the results in Figure 1. IKEA, eat your hearts out!

I took the manual's suggestion and installed a shareware program called Helium on my system. This allows System 7's Balloon Help feature to be easily accessed by pressing a user-definable key-

combination. This, I found, was the fastest way to learn to use the program's many features. Within minutes, I was constructing wild-looking extruded objects and shapes that looked like they were created on a lathe.

The best part is when you apply textures to your objects and render the scene as a photo-realistic ray tracing. Très cool. The program imports several popular file formats, including Adobe Illustrator documents and Aldus FreeHand encapsulated PostScript (EPS) files. This makes it easy, for example, to create a logo in one of these programs and bring it into Sketch to or extrude and apply perspectives, shadows and/or complex textures.

The next tutorial demonstrated a few more of the program's fundamentals, such as rotating and extruding objects. This time, the tutorial showed how to create a center-line to avoid the non-symmetrical shapes that had plagued my first attempts. It also demonstrated one of the program's most incredible features: after you've extruded or rotated a 2-D object into 3-D, you can select any one of the pieces of that 3-D shape and use something called a Putty tool to reshape it.

Lo and behold, the entire object redraws to smoothly incorporate this new surface. In use, it's similar to Aldus FreeHand's Blend function, and very intuitive. It's a wonder that more 3-D programs don't incorporate this feature.

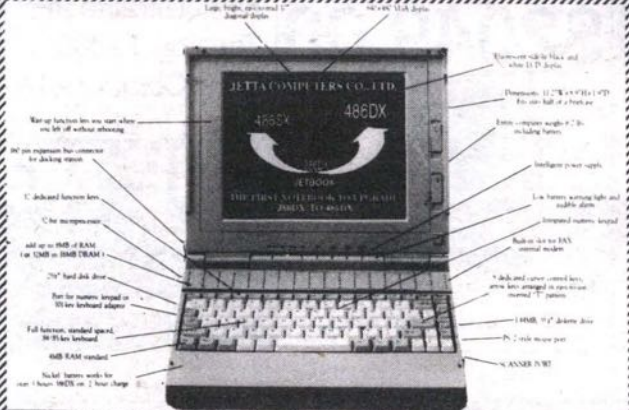
"JETBOOK" -The Light Way to Own NOW!

TODAY'S CHOICE IN UPGRADABLE NOTEBOOK COMPUTERS

386 DX \$90.65

USER EXCHANGEABLE CPU BOARD FOR
 386DX-33, 486SX-25 AND 486DX-33!

- 4MB on board expandable to 8MB
- 80 HDD • 80387 Socket
- 32K Cache memory • C&T Chipset
- Backlit Supertwist CCFT VGA • 64 Gray Scales
- 84/85-Keyboard • 3-Hour Battery
- 6.7 lbs (with Battery) • 10" LCD



386 SX-25 \$66.78
36 Months OAC

- 386SX 25MHz • 2MB on board expandable to 4MB
- 60HDD • Backlit supertwist CCFT VGA • 80/81-Keyboard
- 3-Hour Battery • 6.4 lbs (with Battery)

386 SL-25 \$80.30
36 Months OAC

- 386SL 25MHz • 2MB on board expandable to 8MB
- 60/85 HDD • 64K Cache memory option
- Intel 386 SL chipset • Backlit supertwist CCFT VGA
- 84/85-Keyboard • 6.5 lbs (with Battery) 4-Hour Battery

SMARTBOOK COMPUTERS

386SX-25 \$78.44
36 Months OAC

- CPU 80386 SLX 25 MHz • 80MB HDD expandable to 120 MB
- 4MB RAM expandable to 6MB
- TSTN 64 gray scale, 10" LCD with CCFT-backlit 640x480
- Rechargeable Ni-Cad battery
- I/O Port (serial, parallel, VGA, exp. base, ext. keyboard, ext. keypad, mouse fax-modem)
- 95V to 264V, 50/60 Hz, auto-switchable AC to DC adaptor

486 SX-25 \$102.67
36 Months OAC

- 486SX 25MHz
- 4MB on board expandable to 8/20MB
- With 8KB CACHE memory
- Support 1024x768 external CRT
- Ni-MH Battery



Pacific Royal Enterprises Ltd. #383-13988 Cambie Rd., Richmond, BC V6V 2K4 Tel (604) 279-8731, Fax (604) 279-8739

I managed to produce a pretty credible brass teapot after only a few hours. By the end of my second day with the program, I had a good grasp of its major functions.

The program outputs numerous file formats, too. EPSF, TIFF, PICT are available from the Save dialog, and several common CAD file formats are able to be



exported. One notable addition to version 1.5 is support for Pixar's RenderMan format, although Sketch's built-in rendering functions (photo-realistic raytracing with multiple lights and shadows, transparencies, texture maps, bump maps and custom surfaces) are sophisticated enough for nearly all purposes. The program comes with a sizable selection of pre-defined surface attributes, including brass, brick, chrome, fabric, glass, water, wood, and many others.

Error Handling and Limitations

I experienced no bugs or crashes during my tests — which proved rather extensive as I discovered how much I enjoyed using

the program.

The only difficulty I had with Sketch was running out of memory while attempting to render ray-traced scenes on my 8-megabyte test machine. (I seem to recall a time when 8 MB was plenty of memory!) I solved the problem by disabling all system extensions (INITs) and restarting the machine.

I had no problems and enjoyed better performance when I ran the program with 20MB of RAM.

Sketch lacks some features available in other 3-D programs. For instance, there is no option to create animations, and the program lacks alpha channels, which some other programs employ to facilitate faster renderings of objects on complex backgrounds. By rendering on a plain black background, rendering times can be greatly speeded up. Later, the background can be composited behind it. Fortunately, this can be easily accomplished with a program like Adobe PhotoShop.

To its credit, Alias is charging only US\$25 for owners of version 1.02 to upgrade to this version. The new release adds many features and addresses most of the complaints noted in early reviews of the program.

The company also maintains a toll-free telephone support line, and offers a 30-day money-back guarantee to boot.

Conclusion

Sketch is a breakthrough application, and worthy of the overused term "revolutionary." It amply demonstrates why the Macintosh remains the machine of choice for designers; it remains the development platform of choice for leading-edge graphical interface applications. Sketch is "3-D drawing and rendering for the rest of us."

Amiga 600 *Continued from page 15*

longstanding peeves: AmigaDOS finally lets users view all files from its iconic Workbench mode, and not just those with special icon information. Earlier versions forced you to issue often-terse commands from a text-only command-line interpreter (something of a cross between MS-DOS' C> prompt and a Unix shell). While power users inevitably grow to love this "CLI," it's a little like cruel and unusual punishment for the point-and-click crowd. The CLI is still available; you just need to use it less often.

Its a DOS, DOS World

A notable addition to Workbench 2.1 is the inclusion of CrossDOS, a PC disk-mounting utility that was formerly available separately. While not exactly intuitive (you must type "MOUNT PC0:" from a command-line prompt), it works flawlessly once installed. Users with a PC at work (or a Mac, using its similar utility to read PC disks) will likely find CrossDOS a welcome addition to the Amiga's bag of tricks.

Also new since WB 2.0 has been support for outline fonts, finally bringing the Amiga up to par with virtually every other computing platform.

One of the best things about the Amiga is its true multitasking operating system. Whether you choose to use the mouse to launch programs with a double click, or invoke the system's Unix-like command line "shell," the system is capable of running numerous programs simultaneously. And, because multitasking is inherent, a number of programs can communicate with each other via a feature called AREXX

which allows interprocess communication much like the Macintosh's Apple Events or Microsoft's Dynamic Data Exchange.

Amiga Options

The 600 takes its place at the low end of the Amiga spectrum. Despite persistent rumors that Commodore will soon introduce a mid-range A1200 model in North America similar to the A1500 released earlier this year in Europe, the current lineup consists of the A500 (reportedly to be discontinued as soon as stock runs out), A600, A2000, 2500, 3000, 3000T and soon, the A4000. (Late-breaking news: the A1200 is expected to be announced in mid-December. It reportedly has the same graphics capabilities as the A600, a more powerful 68020 microprocessor and an expansion slot for about C\$1,500.—Ed.)

While I personally favor the more expandable models (see the article this issue about accelerators for the A2000), the A600 is a good choice for home users with an interest in games and/or animated graphics. An Amiga is a good choice for a first computer, and is nowhere near as complex to get started with as an IBM-compatible PC can be. Moreover, AmigaDOS' multitasking environment and more flexible memory management makes it an inherently more powerful and flexible operating system than DOS. ■

For more information, call Commodore at 1-800-661-AMIGA. Thanks to Coniah Chuang of Powercom Computers (604-687-0339) and Anthony Bugera of Conti Computers (604-734-0606).

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

The MULTI MEDIA PLACE
MAIL ORDER CD'S AT ROCK BOTTOM PRICES
TAKE ADVANTAGE OF THESE XMAS SPECIALS AND SAVE A BUNDLE

*NEW BASICS ELECTRONIC COOK BOOK
 Reg. \$102.99 Xmas \$76.99 Save \$26.00

*THE BIBLE LIBRARY
 Reg \$189.99 Xmas \$94.99 Save \$95.00

*MIXED UP MOTHER GOOSE
 Reg \$66.99 Xmas \$49.99 Save \$17.00

*BASEBALL MULTIMEDIA
 Reg \$84.99 Xmas \$74.99 Save \$10.00

*NATIONAL GEOGRAPHIC MAMMALS
 Reg \$64.99 Xmas \$49.99 Save \$15.00

*GROLIERS ILLUS. ENCYCLOPEDIA
 Reg \$169.99 Xmas \$75.99 Save \$94.00

*JONES IN THE FAST LANE
 Reg \$65.99 Xmas \$45.99 Save \$20.00

*COMPLETE AUDUBON
 Reg \$69.99 Xmas \$51.99 Save \$18.00

*STORM ONE ADULTS ONLY
 Reg \$95.99 Xmas \$79.99 Save \$16.00

MONEY ORDER, CHEQUE, AMEX ACCEPTED

MAIL ORDER ONLY
 ALL PRICES SUBJECT TO PST,GST AND S&H CHARGES

CALL (416) 402-0892
 Mon - Fri 10am - 6pm
 Sat 11am - 4pm

STOCKING STUFFERS

computer accessories
 computer furniture
 keyboard drawer
 disk storage case
 printer stand
 Auxilia desk
 power bar
 mouse pad
 wrist rest
 copy holder
 foot rest
 dust cover
 disk caddy
 mouse pocket
 cable duct
 anti-glare filter
 recycling paper pitch
 Corruboard storage units
 personal paper shredder
 Paige FlatPlug
 filing cabinet
 disk mailer
 chair
 lamp

211 QUEEN ST. E., TORONTO
 M5A 1S2 TEL: 604-1639

AUXILIA

newsbytes EXCLUSIVE NEWS

Apple's New Docking, Multimedia, and PowerBook Macs

CUPERTINO, CALIFORNIA (NB) — Apple Computer has announced several new Macintosh products that "dock," and which are aimed primarily at mobile users. The firm also unveiled new hardware optimized for multimedia, as well as version 7.1 of its operating system and a new version of the multimedia extensions QuickTime 1.5. All of the new computers introduced are based on the Motorola 32-bit 68030 microprocessor.

The most significant introduction was Apple's "Duo" systems. The Macintosh Duo System consists of a desktop station called the Macintosh Duo Dock, with a notebook computer called PowerBook Duo notebook, which contains the hard disk storage and the microprocessor for removable, mobile use.

Apple representatives told Newsbytes the desktop unit looks like a slimline computer and has a motorized insertion point, the Powerlatch docking technology, that accepts the notebook computer in a closed position like a video cassette recorder (VCR) accepts a video tape.

The desktop Duo Dock unit is simply a shell, however, to which a monitor and keyboard must be added at additional charge to the \$2,249 to \$2,969 suggested retail price range for the notebooks and the \$1,079 for the desktop Duo unit. The PowerBook Duo comes in a model 210 running with 4 megabytes (MB) of memory and an 80 MB hard disk model (4/80), or in the 230 that offers a 4/80 or 4/120 configuration. The desktop Duo Dock can be expanded to offer another hard disk drive, a math coprocessor, video random access memory (VRAM), network connection, a color monitor, and expansion cards. However, the desktop unit requires the notebook to function, Apple representatives said.

A Mini Duo unit is also being offered

that connects to a larger monitor and keyboard and will dock with a Duo System notebook. The Mini Duo unit is only a docking device and doesn't allow for network connection or expansion as the desktop unit in the Duo system does, Apple representatives added.

Two new PowerBooks, the PowerBook 160 and 180, in five configurations starting at US\$2,429 to \$4,469, were introduced. The new PowerBooks offer a built-in video-out feature for connection to video graphics array (VGA) and super VGA (SVGA). The displays on the new notebooks offer gray scale, as opposed to the black-and-white offered previously, and the displays can

be run simultaneously with an external display either together or with different displays on each screen, Apple representatives maintain.

Apple representatives also pointed out the pricing on the new PowerBooks is much lower than it was compared to the introductory prices of a year earlier. No color notebooks are yet available, however, Apple has said it has color notebooks planned.

New desktop models, the Macintosh IIx and IIvi, were introduced and are optimized for multimedia, Apple representatives said. The three new desktop models offer a graphics subsystem (VRAM) that supports up to 32,000 colors and offer three NuBus slots, run at clock speeds of either 16 or 32 MHz, and one model offers a compact disc read only memory (CD-ROM) drive. Expansion bays for adding tape back up drives, CD-ROM drives, or high-capacity disk drives are included, Apple maintains.

Apple is offering a 14-inch color display monitor with tilt-and-swivel capability for \$589 retail, the company announced.



ZEGNA ELECTRONIC INC.

Merry Christmas

EISA 486DX-33 SPECIAL \$1499.00
 486DX-33 EISA (256K Cache):
 4MB Ram, 1.2 & 1.44MB Floppy Drive,
 101 Keyboard, Desktop Case

Optional EISA Board:
 BUSMASTER SCSI Host Adapter \$650.00
 Orchid ProDesigner Graphic Accelerator \$400.00

MULTIMEDIA SPECIAL \$680.00
 SONY 535 CD-ROM
 Sound Blaster Pro
 Wing Commander
 Chessmaster 3000

NOVELL

COMPLETE NETWORK SYSTEM
 Package Includes:
 386-33MHz SERVER (4MB Ram, 120MB HD)
 3 x 386SX-25MHz WORKSTATIONS (1MB Ram, 1 Floppy)
 Network Cards and Cables
 Novell Netware 2.2 (5 Users)

Starting at **\$3,900.00**

160 Konrad Crescent, Unit 1, Markham, Ontario, L3R 9T9
 Phone: (416) 479-8892 Facsimile: (416) 479-1045

TORONTO ❖ MARKHAM ❖ OTTAWA ❖ VANCOUVER ❖ HONG KONG
 VANCOUVER: (604) 278-5151 FACSIMILE: (604) 278-5122
 OTTAWA: (618) 592-9092 (613) 591-1717

"FOR A SWEET DEAL CALL"

M & M GLOBAL (416) 745-8496

M&M 486-33Mhz Desktop, 128KB Cache Price \$2,349
 4MB RAM, Dual Floppy, 120MB, 16ms, 1P, 2S & 1G Port, SVGA Card, AAmazing 14" SVGA Monitor .28dp, Keyboard, MS DOS 5.0 and Windows 3.1, Mouse & Pad, 1124i 24-pin printer w/6 cable. 2 Year SystemWarranty

M&M 386-33Mhz Desktop, 64KB Cache Price \$1,949
 4MB RAM, Dual Floppy, 84MB, 17ms, 1P, 2S & 1G Port, SVGA Card, AAmazing 14" SVGA Monitor .28dp, Keyboard, MS DOS 5.0 and Windows 3.1, Mouse & Pad, 1124i 24-pin printer w/6 cable. 2 Year SystemWarranty

Monitors	Software
Tatung MM1295 white monochrome multiscan.....only \$250	Windows v3.1.....\$109
Tatung CM14 SBS 14" SVGA .28dp Interlaced Tri-Sync.....only \$375	Word Perfect v5.1.....\$299
Tatung CM1400 Trinitron 14" Interlaced SVGA .26dpi.....only \$429	WP v5.1 Ref-Manual....\$30
NEC 3FGX 15" Flat, 1224 x 768 Monito.....only \$829	Lotus 123/R v2.3.....\$379
NEC SPG 17" Flat, 1280 x 1024 Monitor.....only \$1,764	CALL FOR OTHER SOFTWARE!
Hard Drives	Notebook Computers
Conner 42MB, 28ms, 8K \$230	AST Premium Exec 386SX-25MHz, 4MB RAM, 60MB \$1,759
Conner 84MB, 19ms, 32K \$290	AST Premium Exec 386SX-25MHz, 4MB RAM, 80MB \$2,095
Conner 121MB, 16ms, 64K \$370	AST Premium Exec 386SX-25MHz Colour, 4MB, 60MB \$3,150
Conner 212MB, 16ms, 256K \$540	AST Premium Exec 386SX-25MHz Colour, 4MB, 80MB \$3,360
Quantum 84MB, 17ms, 64K \$300	NEC Ultralite 386SX-20MHz, 2MB RAM, 1.44FD, 80MB \$2,449
Quantum 105MB, 17ms, 64K \$360	NEC Ultralite SL/20p 2MB RAM, 1.44 FD, 80MB w/pen \$3,799
Quantum 122MB, 16ms, 256K \$390	Toshiba T2200SX 386SX-20MHz, 2MB, 1.44FD, 80MB \$3,589
Maxtor IDE 130MB, 15ms, 32K \$390	Toshiba T3300SL 386SL-25MHz, 2MB, 1.44FD, 120MB \$4,528
Maxtor IDE 213MB, 15ms, 64K \$520	Toshiba T4400SXC 486SX-25MHz, 4MB, 1.44FD, 120MB\$6,549
Printers	Motherboards
Deskjet 500 Sale \$475	386SX-33Mhz, 16M Exp \$150
Laserjet IIP Plus Sale \$969	386-33Mhz 64K, 32M Exp \$219
Laserjet IIIP Sale \$1,243	486SX-25Mhz 64K, 32M Exp \$299
Laserjet IV Sale \$1,825	486-33Mhz 128K, 32M Exp \$725
Laserjet IIID Sale \$2,845	486DX2-50Mhz 128K, 32M Exp \$899
	ATI Video Cards
	Wonder XL, 1MB \$135
	Graphic Vant./Mouse, 1MB \$268
	Graphic Ultra/Mouse, 1MB \$379
	Stereo F/X w/2 speakers \$199
	VGA SFX w/Mouse/2 spk \$279

Are you serious about sound on your PC?

turtle
beach
systems presents

MULTISOUND

High Resolution
16 Bit MultiMedia
Sound Card!

In a world of Compact Discs and digital technology, how long can you tolerate a soundtrack with AM radio fidelity?

The card offers:

- True 16 Bit samples of REAL instruments, not approximations via FM synthesis
- 48 MIDI Channel support
- 32 Note Polyphony
- Direct-to-disk digital recording, 16 Bit, 44.1 KHz sampling rate
- Built-in A/D D/A conversion

"MultiSound is a terrific deal. It offers features that would benefit most professionals who work under windows and is a perfect starter system for the budding electronic musician or multimedia maven at a price that's hard to beat."

Dave Huber, Electronic Musician, August 1992

"There is no doubt about it-the MultiSound is the best sounding audio card for the PC we've heard. Its fidelity is head and shoulders above the next best card we've heard, Media Vision's Pro Audio Spectrum 16, and it positively puts Sound Blaster Pro and other 8 bit audio cards to shame. The MultiSound is a uniquely high end alternative to the usual gamut of cheesy sounding PC audio boards-even the ones with "Gold" or "Pro" tacked onto their name to imply their use for professional applications."

Graeme Bennett, Computer Paper, August 1992

DIGITAL SIGNAL PROCESSOR: Features a 20 Mhz Motorola 56001 digital signal processor chip capable of 10.5 million instructions per second (MIPS). This fast processing makes possible realtime equalization, data compression, time compression, vari-speed playback, and much more.

MIDI SYNTHESIZER: Our MIDI section provides 32 polyphonic 16-channel multitimbral voices. The voice data contains 126 16-bit real sampled instruments, stored in 4 megabytes of ROM on the card.

ANALOG INS/OUTS: MultiSound uses 64X oversampling technology on both input and output for analog to digital conversions, so sound quality is clean and accurate.

AUDIO MIXER: MultiSound features a CD-ROM mixer which allows sound from an internal or external CD-ROM player to be easily mixed into MultiSound's main audio output alongside MIDI and digital audio files.

MPC COMPATIBILITY: A Microsoft MultiMedia Extensions driver set is included, allowing MultiSound to work with any software supporting that standard.

AVAILABLE FROM:



LONG & McQUADE LTD.
925 BLOOR STREET WEST, TORONTO, ONTARIO
TEL: (416) 588-7886

DISTRIBUTED BY:

MUSICWARE DISTRIBUTORS INC.
641 CALEDONIA ROAD, TORONTO, ONTARIO M6E 4V8
TEL: (416) 785-3311 FAX: (416) 785-6416

Adesso Computer Access

NOW IN BRAMPTON

SOFTWARE RENTALS BY THE DAY

HARDWARE RENTALS BY THE HOUR

COMPUTER BOOK RENTALS BY THE DAY

COMPUTER TRAINING
\$5 PER HOUR

678-7214

Shoppers World Brampton Hwy #10 at Steeles
Suite #201 on the Mezzanine

GET ON-LINE TODAY

Join North America's Most Popular
Bulletin Board System

- ✓ **500,000 Files** - The latest shareware releases and the largest on-line software collection anywhere are yours for free with your membership.
- ✓ **5,000 Public Conferences** - Get information on thousands of topics from experts and hobbyists from around the world.
- ✓ **International Electronic Mail** - Send messages person to person, around the world, for free as part of your membership.
- ✓ **Large Local Calling Area** - Local calling from Hamilton to Kitchener-Waterloo and from Newmarket to Oshawa, and now Barrie.
- ✓ **Flat Annual or Monthly Fee** - Never again pay by the minute or hour to use an on-line service. Members get 2 hours and 2 Mb every day.
- ✓ **Free Technical Help** - Phone support, seminars and on-line help from CRS and thousands of computer users and software manufacturers.
- ✓ **News & Information Services** - Direct news wire feeds, stock market results from 7 exchanges and on-line CD-ROMs, are low-cost extras.
- ✓ **Most Computers Supported** - IBM, Macintosh, Amiga, Atari, Apple II, C64/128, UNIX, CP/M, and NeXT.

Only \$59.95 for a 3-month trial membership, or just \$129.95 for your first year, or \$12.95 per month (for a minimum of 12 months).

Call for our **FREE Minicatalogue**
... or use your modem to call (416) 798-7730
or 798-7731 for a **FREE on-line demonstration**

FREE UPGRADE TO 28,800 BAUD



Buy a U.S. Robotics Courier V.32bis or Dual Standard modem from CRS before December 31 and U.S. Robotics will upgrade your modem to V.Fast (28,800 baud) for free as soon as it is available. This is a \$299 value (U.S.\$) that you get for free, exclusively from Canada Remote Systems. Call for details.



1331 Crestlawn Drive, Unit 'D' Phone: (416) 620-1439
Mississauga, Ontario, L4W 2P9 Toll Free: 1-800-465-6443

WHO CAN AFFORD TO DRESS IN TODAY'S FASHIONS WITH PRICES LIKE THESE

I CAN'T EVEN AFFORD A BIG ENOUGH AD TOO TELL EVERYONE ABOUT MY GREAT SAVINGS

BRIAN THINKS HE'S GOT IT TOUGH!

FREE FRAMEWORK II with every system order - mention this ad when purchasing

1Mb 60 Mb DOS 5.0

386 & 486 NOTEBOOKS starting from only **\$1250**

286 386 486 starting from **\$249⁰⁰** PST GST SHIPPING EXTRA

CASE, PS, 1.4MB FD, 1MB MOTHERBOARD, KEYBOARD, MONOGRAPHIC MONITOR/CARD, OPTIONAL IDE HARD DRIVE, 3 MONTH WARRANTY

Call Max at **748-7180**

(4767 Steeles West, South Side, 1 block W. of 400)

Here's an idea of some of the real "neat stuff" we've accumulated and is up for grabs!

SMC 8bit ArcNet Cards	39	SCO Xenix - Assorted S/W	450
MS-DOS 5.0	15	Epson LQ 200 printer	150
Framework II	45	Modems for Zenith & NEC L/tops	from 54
Lucid 3D Spreadst (123 compatible)	9	RLL Controllers for XT/AT	45/55
Archive Tape Drives	69	EGA Controllers by BOCA	35
6 ft. Printer Cables	6	MS-Mach20 Exp. Brd.	35
Cordless Mice	50	Racal 8bit 10BaseT Cards	175
Logitech Mouse w/Windows 3.0	39	Hayes 9600 bps Int. v42	300
Hayes 9600E ISA v42	475	WorldPort 2400 bps	175
Monographic Video Card w/ Parallel Port	14	USR Sportster 1200 Int.	49
DS/DD 360k Diskettes (10 per box)	2	Tandy 1000 - Complete Sys.	250
dBase III+ Keyboard Templates	3	Switch Boxes - Assorted	from 19
Fujitsu DL4400 Color Ribbons	19	Intel Above Boards for PS/2	175
286-16 Motherboards	50	HP ScanJet I/O kit PS/2	125
386-16sx Motherboards	75	Weltec Ext. Floppies 5.25"	6 only 99
NEC MultiSpeed Laptop (as is)	100	Compaq Modems - 2400i for SLT286	2 only 175
Olivetti M15 Laptop (as is)	75	Memory Exp. Card for AT - 8Mb max.	4 only 100
Epson Font Cartridges for LQ510	9	CGA Video Cards / Parallel	30 only 15
HP - Asst. Soft Fonts L&DJets	9	Panasonic AutoSht Feeder KXP38	1 only 125
PowerTouch Power Protection	59	Monochrome Monitors (New)	39

Check Out Our NEW B.B.S. - 748-1506

End of Lines ★ Demo's ★ New ★ Discontinued ★ Used ★ Eval's ★ Overstocks

PC NEWS

Andrew Grove Finally Names New Intel Chip

WASHINGTON, DC (NB) — The wait is over. Intel has finally disclosed that the company's new 100 MIPS (million instructions per second) microprocessor will be named the Pentium, a marketing ploy aimed at killing off some chip cloners who have found it easy to penetrate Intel's market by designating their chips using the same numbers as compatible Intel chips.

Although details of the chip have been known for some time, until now the Pentium chip has been known internally as the P5, while reporters and analysts, following the traditional Intel chip-naming scheme, have often referred to the chip as the 80586.

Choosing an unusual morning television forum, Intel's CEO and President Andrew Grove announced the "name" of Intel's long-expected new XXX86-compatible microprocessor on CNN's Business Day.

When asked why the chip needs a name instead of the traditional Intel numbers, Grove told CNN's audience that the company has discovered that names are easier to protect than numbers and that Intel therefore chose to name rather than number the chip.

As to what Pentium means, Grove said, "It does not mean anything," but Intel's CEO says that he hopes the number will suggest fifth generation because the new chip is the fifth generation of PC-compatible Intel chips.

Since there have actually been five chip families already — 8086, 80186, 80286, 80386, and 80486 — it isn't clear exactly which one Intel is leaving out, but it is probably the 80186, which appeared in a single Tandy computer model and a few from other makers but essentially sank without a trace.

When asked just what the new microprocessor can do that current chips can't, Grove had no ready answer but did suggest that computers based on the chip would offer improved video processing performance.

Actually, there is no new software now available nor even announced that targets the new, more powerful chip, but as with the 80486, which also uses no special software, the new chip will provide much more computing power, making some marginal applications run quickly enough to be practical.

Pentium-based computers will run all current PC software under Unix, MS-DOS, DR-DOS, Windows, and OS/2, with few if any compatibility problems and run them about three times faster than many current high-end PCs.

Grove did admit that no current software "will tax this chip," but observers say that, as with all previous power enhancements, more demanding software will soon appear to eat up all the power available.

Microsoft Unveils Multimedia Products

TAIKOO SHING, HONG KONG (NB) — Microsoft has announced a group of Windows multimedia products that add a new sensory dimension to personal computing and set a new level of achievement in multimedia publishing.

The new products include the Microsoft Windows Sound System, a hardware and software combination that exploits the audio capabilities inherent in Windows 3.1, and Microsoft SoundBits, a series of three audio clip collections. The company has also issued two new CD-ROM titles, Microsoft Encarta and Microsoft Musical Instruments.

The hardware element of the Windows Sound System, developed in conjunction with Compaq Computer and Analog Devices, provides PCusers with CD-quality sound input and output facilities, together with built-in sound synthesizing on a single PC add-in card, Microsoft reports. It comes with headphones, a microphone and three Microsoft applications: Quick Recorder, ProofReader, and Voice Pilot.

Quick Recorder makes use of Windows' Object Linking and Embedding capabilities to add voice annotations to documents and files. Users simply record a message with Quick Recorder and then drag and drop the resulting message icon into the document they wish to annotate.

The ProofReader application has been optimized for checking numerical data. It reads numbers and common spreadsheet terms with a high-quality human voice, reducing the time spent on proofing and improving accuracy. It works with Microsoft Excel and Lotus 1-2-3 for Windows.

The Voice Pilot enables users to execute commands, such as "open a new document" or "print document," by speaking into the microphone. This voice-recognition ability can be used to navigate through Windows and, at present, 15 popular Windows-based applications. Voice Pilot can also be set up to respond to customized commands which insert text into a document or execute a macro.

The Windows Sound System comes with an automated set-up program and several

utilities that enable the user to do things like play an audio compact disc and mix sound from different sources, such as the microphone and a cassette tape.

The new Microsoft SoundBits series comprises audio clips from well-known cartoon characters, classic films and musical instruments. Users can inject a little humor and personality into their systems by attaching these high-quality digitized sounds to events such as starting or quitting an application, getting an error message and re-sizing a window.

The two new CD-ROM titles set a new standard for multimedia reference works. Microsoft Encarta, a multimedia encyclopedia, contains an exhaustive collection of articles, animations, sounds, illustrations, graphs, photographs, an atlas and a dictionary on a single CD-ROM. Microsoft Musical Instruments offers a highly interactive environment for users to explore the sights and sounds of more than 200 musical instruments from around the world.

Among other things Encarta contains 21,000 articles in 94 categories; more than seven hours of sound; over 7,000 photographs; 800 color maps; and nearly 100 animations. This huge multimedia information base is presented in a way that makes it easy for people to browse.

Microsoft Musical Instruments is the first multimedia title resulting from an agreement reached last year between Microsoft and Dorling Kindersley, a specialist publisher of highly illustrated reference books for adults and children.

Users can explore the new CD-ROM by choosing one of four categories: Families of Instruments; Musical Ensembles; an A to Z of Instruments; or Instruments of the World.

For each of the instruments featured, Microsoft Musical Instruments contains studio recordings, high-quality photographs (some with the ability to zoom in on specific parts of the instrument) and historical and factual information.

Contact: Microsoft, 1-800-563-9048 or 416-568-0434.

DOS • WINDOWS & MACINTOSH® SOFTWARE

SOFTWARE OUTLET

MACINTOSH SOFTWARE

Adobe Type Manager 2.0	79
After Dark 2.0	39
AutoDoubler 1.0	69
DiskDoubler 3.7	69
EPS Exchange	129
Excel 4.0	409
FileMaker Pro 2.0	249
Freehand 3.1	489
Illustrator 3.2	479
Lotus 1-2-3 for Mac	434
MacLinkPlus PC 6.0	171
Mediamaker	599
Norton Utilities 2.0	119
Now Utilities 3.0	104
Pagemaker 4.2	619
Personal Press 2.0	119
Photoshop 2.0	719
PrePrint 1.5	409
Quark XPress 3.1	749
QuickKeys II 2.1	129
RayDream Designer 2.0	789
SAM 3.0	74
Simply Accounting 1.3	148
Soft PC 2.5	247
Stuffit Deluxe 3.0	79
Suitcase II 2.0	63
Virex 3.5	99
Word 5.0	422

PC SOFTWARE

Corel Draw 3.0 Win.	519
dBase VI 1.1	669
Disk Lock PC	72
Excel 4.0 Windows	349
FoxPro 2.0	599
Lotus 1-2-3 3.1	439
MS Works 2.0 Windows	159
Quicken 6.0	59
Turbo C++ 3.0	89
Wordperfect 5.1	359

DECEMBER SPECIALS

PC SOFTWARE

FileMaker Pro 2.0 Win.	309
MS Access Windows	129
MS Word 2.0 Windows	349
Norton Anti-Virus 2.0	99
Turbo Pascal 6.0	128

LASER PRINTER

GCC BLP Elite (w/4MB) 1878

MEMORY

For Macintosh

1MB SIMM	\$57
2MB SIMM	\$114
4MB SIMM	\$199

For PC

1MB SIMM	\$57
1MB SIPP	\$58

REMOVABLE DRIVES

44MB External Dynatek	\$669
MicroNet	\$749
Peak Performance	\$629
inc. cartridge, cables & sw	
44MB Syquest Cartridge	\$89

We Deliver!

- Free delivery on volume orders within Metro Toronto.
- All prices C.O.D.
- Prices subject to error or to change without notice.
- Call for current prices.
- \$5 charge on non volume Metro area deliveries.

Hours: Monday to Friday 9:00AM to 5:30PM

To Order Please Call: **406-2070**

93 Lewis Street, Toronto, Ontario, M4M 2H2

All registered trademarks are the property of their respective owners. Macintosh is a trademark of Apple Computer Corporation.

Stacker 3.0 For Windows/DOS Offers On-screen Gauges



CARLSBAD, CALIFORNIA (NB) — Stac Electronics has announced that Stacker version 3.0, the latest edition of its transparent data compression/decompression utility for hard disks, installs

from Windows or DOS and offers on-screen gauges to Windows users.

A new fast set-up option which extracts 10 percent more compression, a feature allowing compressed floppy disks to be read and written by computers without Stacker, password protection, and additional visual information in the optimization portion, have been added to the new version.

A new feature — Stacker Anywhere — is also featured in the product, company officials said.

Stac claims that, depending on the type of data a user has on his/her disk, as well as the type of hard disk used, Stacker can increase the amount of available disk space by as much as 50 percent, so doubling disk capacity. This is made possible by transparently compressing data written to or read from the drive — as far as the user and any programs are concerned, the drive is a standard one.

The company also claims that due to the speed of its software algorithms, even the software-only version of Stacker will not degrade system performance significantly. Previously, software-based data compression programs which ran "on the fly" have slowed down hard disk performance perceptibly.

When asked if Stacker would face difficulty with traditional database methods of pre-allocating a large portion of the drive, Joanne Rush of Stac said many of the database products have modernized and are now dynamically allocating disk space and the only exception she is aware of is Oracle. Regardless, Stacker 2.0's better error checking solved a problem Stacker had with database data loss in version 1.0, Rush added.

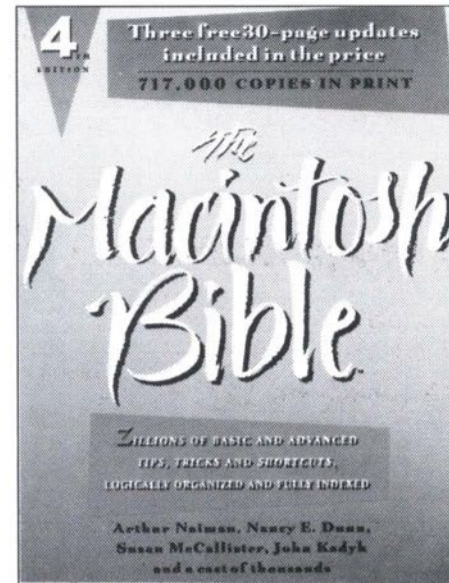
As far as Windows and Stacker is concerned, Rush said Stacker disables and flushes the write-delay cache facilitated by the Windows Smartdrive device driver. This means no data is waiting to be written to the disk during critical times such as during an optimization of the drive or in the creation of another Stacker drive, Rush added. Also, Stacker works without a hitch with Windows' 32-bit disk access, Rush maintains.

The company says the product works with hard disk drives, floppies, Bernoulli disks, Syquest cartridges, flopticals, read/write optical drives, or any removable media on any personal computer (PC).

Stacker 2.0 is retail priced at \$149, but a \$49.95 upgrade will be available. However, the upgrade will only work on drives compressed with a previous version of Stacker, company representatives said. Those with a Stacker coprocessor card will find the new version works with it as well, Stacker representatives said.

Headquartered in Carlsbad, California, Stac Electronics is currently fighting with Santa Clara, California-based IIT in a suit Stac filed claiming the IIT coprocessor card offered as an option for the Xtradrive disk compression product is a copy of its own coprocessor card.

Contact: Stac Electronics, tel 619-431-7474, fax 619-431-8080.



The Macintosh Bible, 4th Edition \$42.00

The Mac User's Book of Revelations

PEACHPIT PRESS

Distributed in Canada by Copp Clark Pitman Ltd.
Tel(416)238-6074 Fax (416)238-6075

THE One-Off CD SHOP INC.

One-Off

Recording Services

A CD-ROM can store any digital information. Now it is possible to record custom CD-ROMs, one at a time, through a One-Off CD Shop service bureau. CD-ROMs produced with the ISO 9660 file format can be read in any CD-ROM drive, attached to any hardware platform. A CD-ROM behaves like a locked hard drive, and preserves the directory structure and Finder layout (Mac) of the source it was made from.

A One-Off CD shop will record a disc in 3 business days for as little as **\$149.00**. Additional copies are as little as \$79.80 each. Alternatively, for those who need wide distribution of data, mass production runs of CD-ROMs cost as little as \$1.95 per disc.

Distributors of

PHILIPS

CD-ROM recorders and readers.

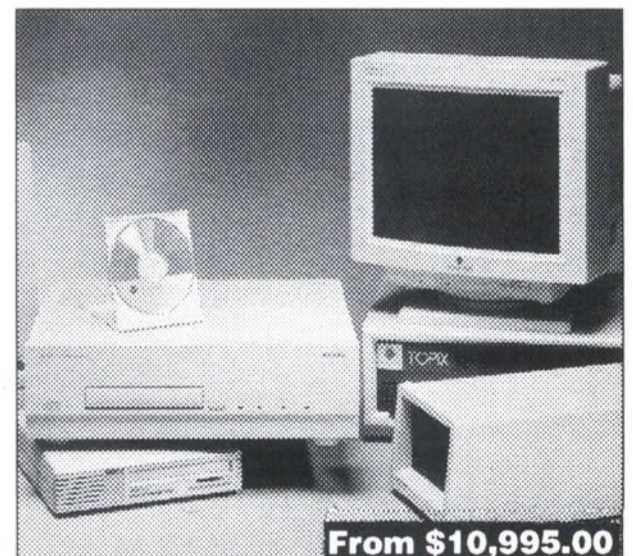
COMPACT disc DATA STORAGE

Call us for all your CD-ROM needs:

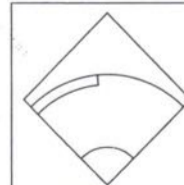
- Reference Materials
- CD-ROM Readers
- Blank CDs
- Full Publishing Services
- Mass Replication Services
- Database/Search & Retrieval Design
- Full Consulting Services

One-Off

Desktop Recording Systems



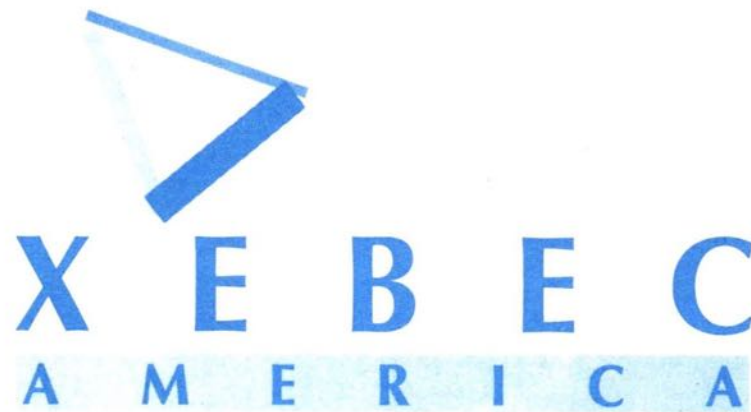
From \$10,995.00



We distribute
**OPTICAL MEDIA
INTERNATIONAL**

Desktop Recording
Software

Call 1-800-387-1633 for local service throughout North America



Manufacturer of Kalok Hard Disk Drive.



New Hard Drive Keeps Your Data Safe

"Kalok isn't the most familiar name to end users. But Kalok is a name you should know about. In one of my prior incarnations as a PC consultant, I computerized a small business with a half-dozen computer systems. In one of them I installed a Kalok drive. Four years later, all the other drives I installed have failed. The Kalok, however, just keep clunking along. The major reason that Kalok drives

are so reliable is that they use 50 percent fewer components than typical drives from major players. ...With a configuration that uses 35 sectors per track, the result is that the throughput is about 1.8 MBps, the type of speed more commonly seen from synchronous SCSI drives. Its rated mean time between failures is an impressive 50,000 hours (over 5 years), about twice the MTBF for competing drives."

Stan Miastkowski
(Byte, April 1992)

Rated by PC Computing, June 1992 as the 2nd and 4th Best Drives

- **Kalok KL3100**

"Dollar for dollar, the KL3100 is an excellent buy. This 105-MB drive comes with a 32-KB proprietary cache, which boosted its read performance—especially in sequential reads of small files—to some of the fastest times we've seen. Add to that a relatively low price and you've got a real bargain."

- **Kalok KL3120**

"Like the Kalok KL3100, the 120-MB Kalok KL3120 offers great performance for the money. Its 64-KB cache boosted transfer rates to as much as 2-MB per second in some tests."

Manufacturer's replacement warranty available from authorized dealers only.

Please call for details.

Canada's only authorized distributor – dealers & resellers please call:

INB Computer Corporation

160 Konrad Crescent, Unit 7,
Markham, Ont. L3R 9T9
Hours: Mon-Fri 9:30-6:00

(416) 470-8800

Fax (416) 470-1485

PREMIER SOFTWARE SPECIAL
IDEAL FOR CHRISTMAS GIFT

User friendly software for the PC, easy use for novice, menu driven installation. Exceptional Business, Home Games & Windows software.

- * Business 37 programs \$59.95
- * Home 50 programs \$59.95
- * Games 56 programs \$59.95
- * Software Collection over 140 programs of Business, Games & Home \$139.95
- * Windows Collection over 300 programs for Windows 3.1 \$174.95

ORDER NOW, send your money order or certified cheque to BRIDGELAND Computer Services Inc., 915 Westney Road South, P.O. Box 87017, Ajax, Ont., L1S 3K0. (416) 619-8090
Dealers Welcome

386-33 900.00
System includes: 2M RAM, 1.2 & 1.44 FD, 42M HD, IDE & I/O (2S/1P/1G), VGA colour Monitor & 256K Card, Minitower, Mouse, Pad, 101 KB with dustcover

386DX-40(128K Cache) 1,335.00

486DX-33(128K Cache) 1,850.00

486DX-50(256K Cache) 1,950.00
System includes: 4M RAM, 1.2 & 1.44FD, 107Mb HD, I/O(2s/1p/1g), 1M SVGA Card & 0.28 SVGA Monitor, Minitower, Mouse & pad, 101Keyboard with dustcover

UPGRADE

4M RAM 386DX-40(128K) 450.00
4M RAM 486DX-33(128K) Call
1M SVGA Card 75.00; 1M RAM 45.00

HARDWARE & ACCESSORIES - CALL! REPAIR & UPGRADE

2 Years Parts & 3 Labour Warranty

SMART MACHINE
1255 Yonge St. suite 102 Toronto (Summerhill subway) Tel. 920-3252 Fax. 921-8940
We are open from 10am till 7pm Mo-Sat

TELL ADVERTISERS YOU SAW THEIR AD IN



Laser Printers Continued from page 37
TrueType.

It's known as the HP DeskJet Portable and will sell in the U.S. for \$599 (not including battery). It is smaller than the Canon's BJ-10ex Bubble Jet printer and similar offerings from Mannesmann-Tally and Kodak-Diconix — and claims that it will offer users everything they can get in the existing DeskJet 500-series systems.

It weighs four pounds and a number of optional extras are available for it — including a 50-sheet capacity cut sheet feeder, a rechargeable battery, a "world-wide rapid recharger" (which you'll need in order to run the system on anything other than 110 volts) and a carrying case. In the U.S., the company is charging \$99 for each of the add-ons — except for the rechargeable battery, which will sell for \$49.

The interesting thing about the battery is that it's actually a standard Panasonic camcorder battery — so that if you can't get hold of one from HP, any large video store or electronics shop should stock them.

The DeskJet Portable includes scalable versions of Times, Univers (a version of Helvetica), Courier and Letter Gothic typefaces — from 6 to 14 point — and will also handle TrueType and Adobe Type Manager fonts in Windows. The printer is also capable of printing in either portrait or landscape mode. ■

New For Windows: Claris Ships FileMaker Pro 2.0



SANTA CLARA, CALIFORNIA (NB) — Claiming a large pre-order total of 10,000, Claris maintains it is now shipping FileMaker Pro 2.0 for Windows.

FileMaker Pro 2.0 has four basic modes: "browse," "find," "layout," and "preview." The company claims that, by switching between these four screens, users can design a database, present and format data, search for records, summarize data, print reports and print mailing labels and

envelopes. The company claims that at no point is it necessary to write a single line of programming language code.

To set up a database, users define fields from a central menu either with a mouse or using the keyboard. Fields can contain text, numbers, dates, times, sound, video, graphics, calculations, or summaries, and can be changed at any time.

Using a mouse, users can drag and place fields and graphics anywhere within a layout for viewing, entering, and printing information. The company also says that data, graphics, and sound may be imported

into FileMaker Pro databases from a variety of DOS, Windows, and Macintosh applications.

The company claims the product is "network ready out-of-the-box," and uses dynamic link libraries to support multi-user file sharing on networks running Novell Netware or AppleTalk protocols.

Files may be password-protected. Additionally, a record-locking capability allows for data integrity and prevents simultaneous multi-user network conflict.

Contact: Kevin Mallon, 408-987-7227, Claris Corp.

On November 30th and December 1st at the Metro Toronto Convention Centre see the office of the future at the Portable Computing Forum, the showcase for portable and pen-based computing solutions. For the first time ever in Canada, the Portable Computing Forum highlights the products that are going to affect your future.

From insurance to real estate, from distribution to utilities, from sales to operations...almost everyone is affected by mobile computing. With 2 days of conference sessions and product displays, the Portable Computing Forum answers the questions that face your mobile business. You will learn to:

- pick the right mobile solution for your business
- use your systems more effectively
- experience revolutionary new applications that will change the way you work
- plan for and cost justify field automation systems

THE CONFERENCE

Featuring Industry Leaders:

November 30th: Portable and Handheld Market Trends

The future of the portable marketplace through the eyes of the leaders from Apple, GRiD Systems, IBM and Toshiba.

December 1st: Mobile Computing Technology Update

Amy Wohl, a leading U.S. consultant for more than 20 years, provides a user's view of the mobile computing world.

Plus detailed conference tracks on:

Pen Systems and Futures

- hottest new products • emerging pen applications • handwriting recognition • PDAs and personal organizers

The Portable Office

- size vs. functionality • optimizing your investments • designing the mobile office • future trends and products

Portable Communications

- electronic document flow • wireless E-mail • cellular and packet-switched networks

Practical Field Automation

- planning for remote automation • cost justifying your investment • real world users tell their tales

Conference registration charge:
One day - Cdn\$209, Two days - Cdn\$299 All prices include GST.

THE DISPLAY AREA

Free See, try and buy the newest products at the Hands-On Display Floor.

Experience products from companies including:

- Apple Canada Inc.; Arkon Electronics
- Bell-Ardis Inc.; Canon Canada Inc.;
- Cantel Mobitex; Computer Paper, The;
- EO, Inc.; Filbitron Marketing Corporation;
- Fujitsu Canada Inc.; GRiD Systems Canada Inc.;
- Hewlett-Packard Canada Ltd.; IBM Canada Ltd.;
- MicroSlate; NCR Canada Ltd.; Network Connection;
- PSION; Sony of Canada Ltd.;
- Toshiba of Canada Limited; TR Controls Inc.;
- Tusk Inc.; Ultinet Computer Systems

To register for the **Portable Computing Forum**, call **(416) 581-8797** or **1-800-263-7017** (within Canada)

and we will fax you a detailed conference agenda. Register early, as seating is limited.

Portable Computing Forum is produced by International Conferences + Expositions Inc. and sponsored by Apple Canada Inc., GRiD Systems Canada Inc., IBM Canada Ltd. and Toshiba of Canada Limited.

Corel, Always In SCSI Bundling Deal

OTTAWA, ONTARIO (NB) — Corel's CorelSCSI software will be bundled with Small Computer Systems Interface (SCSI) host adapters from Always Technology of Westlake Village, California, under a deal just announced by the two companies.

Always will sell the adapters complete with the Corel software, a

Corel spokeswoman said.

Always offers two 16-bit SCSI host adapters and has a 32-bit adapter scheduled for release early in 1993. Used with one of these adapters, Corel said, the CorelSCSI software allows connection of as many as seven SCSI peripherals to one adapter.

Supported periph-

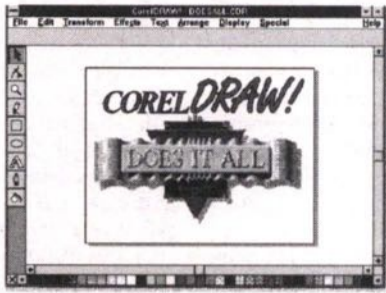
erals include fixed and removable hard disk drives, CD-ROM drives, floptical drives, digital audio tape (DAT) drives, QIC tape drives, write-once read-many (WORM) optical disk drives, rewritable optical drives, multi-function optical drives, and optical disk jukeboxes, Corel said.

Always currently sells the IN-2000Pro, a 16-bit SCSI adapter that fits the AT bus (Industry Standard Architecture or ISA) and offers data transfer rates of five megabytes per second, and the AL-1000Pro, a parallel-port SCSI adapter for laptop and

notebook computers. In early 1993, the company is due to release the AL-6200Pro, a 32-bit adapter for the Extended Industry Standard Architecture (EISA) bus, which will offer as much as 32 megabytes of caching and transfer rates up to 33.3 megabytes per second.

Suggested list prices for the adapters with CorelSCSI, in U.S. dollars are: \$299 for the IN-2000Pro, \$249 for the AL-1000Pro, and \$995 for the AL-6200Pro.

Contact: Corel, 613-728-8200 ext. 1672, fax 613-728-9790.



The Virtual Village

- AND -

FUTURETRON

We're the best
BBSes in the city
and we'll prove it!

Rave reviews!

Ask about our free
understanding
communications
seminars

TO: FUTURETRON SYSOPS
FROM: DAVID IRELAND
SUBJ: COMMENT
DATE: 10/17/92

I just wanted to leave you a message regarding the level of service and value my family has received through your online network over the last three months.

I feel your BBS is a truly unique experience that has a lot to offer people in every age category....Please be assured that I will renew next year.

David Ireland.

10-06-92 21:32:15
From: BOB NANTAIS
To: VIRTUAL VILLAGE SYSOPS
Subj: REPLY TO MSG# 1880 (MEMBERSHIP)

Thanks for activating my trial membership. I've had little time to really explore the board but what I did see I really liked. I am relatively new to BBS's and find some of them COMPLICATED to say the least, but this one is so simple to use.

I'm going to continue to explore a bit more when I get the time (busy with work just now) but I am quite sure I will become a member. I'll also recommend your board to others.

Thanx again, Bob Nantais.

Real-time
multi-player
online games

International
electronic mail

Thousands of
games and
educational
programs
to download

Live chat

A great Christmas gift!

Help your whole family learn more about computers for less than 28 cents a day.

FUTURETRON BBS

868-1888

The Virtual Village BBS

538-9999

FREE ACCOUNT!

Send in this form to get your free account on both Futuretron and the Virtual Village. One Per Customer. No obligation.

Please print clearly. You must be voice validated before your account will be activated.

Name: _____ Phone: _____
Provide daytime number for faster service

Alias: _____ PSWD: _____
For Virtual Village only 8 characters maximum

Fax: 538-1355 Mail: Virtual Village BBS 99 Atlantic Ave, #418 Toronto, ON M6K 3J8

PRINTER NEWS

Lasermaster Intros 1200 dpi For LaserJet 4

MINNEAPOLIS, MINNESOTA (NB) — Lasermaster Technologies has announced Winjet 1200, an upgrade kit for Hewlett-Packard's new HP LaserJet 4 that the company says provides faster printing speeds, PostScript language compatibility, and up to 1200 dots-per-inch (dpi) print resolution.

Lasermaster says Winjet 1200 will be shipped next month and will have a suggested retail price of \$995. Hewlett-Packard markets its own PostScript upgrade, but it does not include the higher resolution.

Resolution of 1200 dpi is considered sufficiently high that it can frequently be used to prepare camera-ready copy, saving the extra costs of typesetting.

Newsbytes reported in June that Lasermaster had introduced LPV, a hardware-software combination that speeds up printing by allowing the printer to communicate with the PC via its parallel port. A board is installed in the input/output slot of the HP printer that eliminates the need for both costly printer memory upgrades and the purchase of a Postscript printer language cartridge for the printer.

Lasermaster CEO Mel Masters says the combination of the Laserjet 4 and Winjet 1200 is ideally suited for Windows. "We expect the new HP Laserjet 4 to be a resounding success, creating an immediate market opportunity for our new enhancement product," says Masters.

In September Lasermaster introduced the second of its plain-paper typesetter products, a 1200 dots-per-inch device which can handle paper sizes of up to 11 by 17 inches. The Unity 1200 xl can be used with Macintosh or IBM-compatible computers.

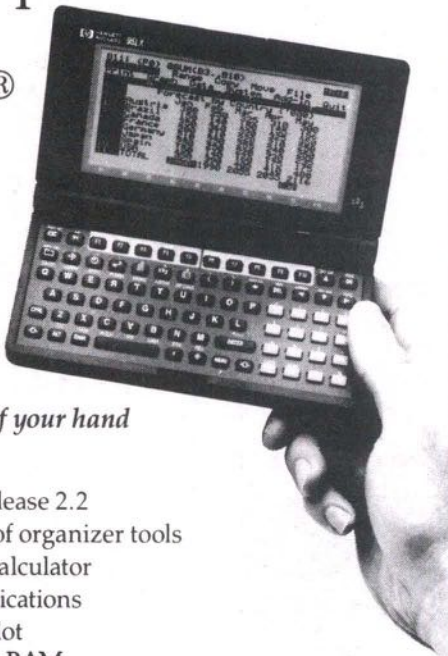
Hewlett-Packard announced the HP4 and the companion HP4M, the Macintosh version, earlier this month. The network-ready HP4 can produce printed pages with resolutions up to 600 dpi, and uses a toner with a smaller particle size than current toners. HP says that allows printing that has the appearance of 800-900 dpi. The HP4 family also has Windows TrueType fonts built in, eliminating the need to download fonts before printing.

Contact: Lasermaster Technologies, 612-941-8687, fax 612-941-8652.



"No kidding? Your ulcer symptoms cleared up after my computerized bill collection service stopped sending you threatening messages?"

**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



ACC TECHNOLOGY INC.

- 386DX-40MHZ **\$1360**
- 486DX-33MHZ **\$1855**
- 486DX2-50MHZ **\$1955**

Basic Configuration:

- 4 MB Ram
- 1.2 & 1.44 MB Floppy Drive
- 105 MB IDE Hard Disk
- 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

NOTEBOOK SALES:

- 386SX-20/4MB/60MB HD ..\$1570
- Removable HD \$1630
- 386SXL-25/2MB/60MB \$1520
- 386DX-33/4MB/120MB \$2290
- 486DX-33/4MB/170MB \$2995



Two Years Labour &
One Year Warranty
Computer Upgrade,
Repair & Networking

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

**Boldly Go Where No Mouse
Has Gone Before**

- Star Trek® Mouse Pads
- Poster Quality Art, Brilliant Colours
- Superior Mouse Traction
- Oversize and Regular
- TOS and ST:TNG Styles

Hailing Frequencies (416) 588-3705

© All Rights Reserved, Paramount Pictures Corp.

**Books about
CD-ROM**

the perfect Christmas gift for
the forward-thinking computer enthusiast

Published by Meckler Corp.:

CD-ROM Market Place 1992, An International Guide

One of the important "market place" directories, published each June to give Librarians and industry professionals a handy guide to the organizations, individuals and products in the CD-ROM industry. This edition has detailed information on over 1,000 organizations worldwide. In addition to the "organization: section, CD-ROM MARKETPLACE offers the following index sections: Geographic Index (By state and country), Subject index (By 60 subjects) and Names & numbers Index (an alphabetical listing of every individual listed in the directory). 225 pages, 1992, \$37.50.

CD-ROMs in Print

EDITED BY NORMAN DESMARAIS

PRINT VERSION: The most comprehensive listing of CD-ROM products, providers and distributors available. Arranged alphabetically by title, each main entry includes hardware requirements, search software, application type, update frequency, price and CD-ROM player necessary. 400 pages, 1992, \$118.75.

CD-ROM VERSION: Each record in this database has up to 26 items of information. Using ROMWARE, the data can be accessed for a single word or combination of words. 512K RAM, DOS 2.0 or greater, \$118.75.

CD-ROM Retrieval Software: An Overview

BLAINE VICTOR MORROW

(SUPPLEMENT TO: COMPUTERS IN LIBRARIES, NUMBER 22)

This book is an in-depth analysis of the standard retrieval software programs used in searching data on CD-ROMs. 175 pages, April 1992, \$52.75.

CD-ROM Local Area Networks: A Users Guide

EDITED BY NORMAN DESMARAIS

(SUPPLEMENT TO: COMPUTERS IN LIBRARIES, NUMBER 24)

The first book to be published on this important topic, this study discusses the set-up, management, hardware/software issues, and licensing implications of installing a CD-ROM local area network in a library or information centre. 175 pages, 1991, \$49.25.

Published by McGraw Hill:

CD-ROM Handbook, Second Edition

EDITED BY CHRIS SHERMAN

The latest information and implementation techniques in CD-ROM related hardware and software, as well as multimedia technologies like DVI. This is the *de facto* work on CD-ROM technology. The contributors, all acknowledged experts in their fields, have helped make CD-ROM's potential a reality. Due to be released November 30, 1992. Call for pricing.

Other Available Titles:

(call us and we'll fax details)

- ⇒ **CD-ROM Applications and Markets:** 160 pages, 1988, \$54.75.
- ⇒ **CD-ROM Reviews, 1987-1990:** Optical Product Reviews from CD-ROM Librarian. 300 pages, 1991 \$50.00.
- ⇒ **CD-ROM Periodical Index:** a guide to Abstracted, Indexed, and Fulltext Periodicals on CD-ROM. 800 pages, May 1992, \$118.75.
- ⇒ **CD-ROM Research Collections:** An Evaluation Guide to Bibliographic and Full-Text CD-ROM Databases. 225 pages, 1991, \$68.75.
- ⇒ **CD-ROM and Optical Publishing Systems:** 150 pages, 1987, \$49.25.
- ⇒ **CD-ROM in Libraries: A Reader:** 1992, \$50.00.
- ⇒ **CD-ROM Librarian Index, 1986-1990:** 48 pages, 1991, \$37.25.
- ⇒ **CD-ROM Licensing and Copyright Issues for Libraries:** 135 pages, 1990, \$43.50.
- ⇒ **The CD-ROM Market in Canadian Libraries:** Report of a Survey for the Canadian Library Association CD-ROM Interest group. 72 pages, 1990, \$24.95.
- ⇒ **CD-ROM 1992:** An Annotated bibliography of Resources. 300 pages, July 1992, \$56.25.
- ⇒ **The Librarians CD-ROM Handbook:** 174 pages, 1989, \$52.50.
- ⇒ **How to Search on CD-ROM: The VHS Tutorial:** (VHS) 20 min., 1991, \$99.95.
- ⇒ **Case Studies of Optical Storage Applications:** 157 pages, 1991, \$56.25.

THE One-Off CD SHOP INC.

To order, call
1-800-387-1633
in North America

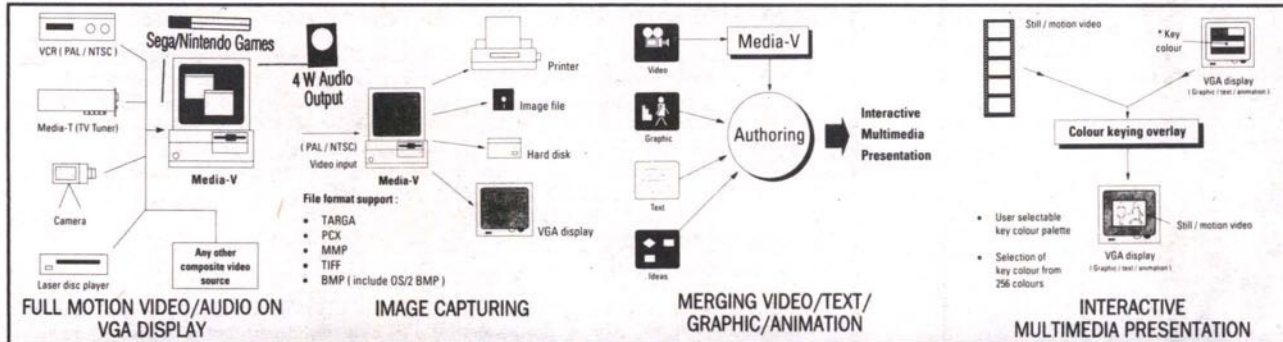
All prices in Canadian dollars. G.S.T. and shipping not included.
See our other ad regarding recordable CD-ROM elsewhere in this issue.



FASTECH COMPUTER LTD

See us at the Pacific Rim Computer Show in Vancouver January 12th to 14th

Media-V A Multimedia Card: Runs under DOS or Windows

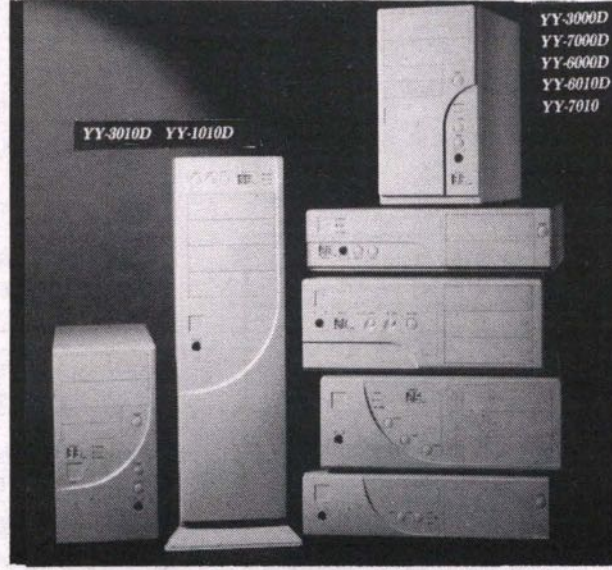


Super-Value Multimedia Software Bundle

- Media-V Panel
- Halo Desktop Imager Lite
- Video Album
- Multimedia Studio
- Muti-Media Authoring Software (Optional)

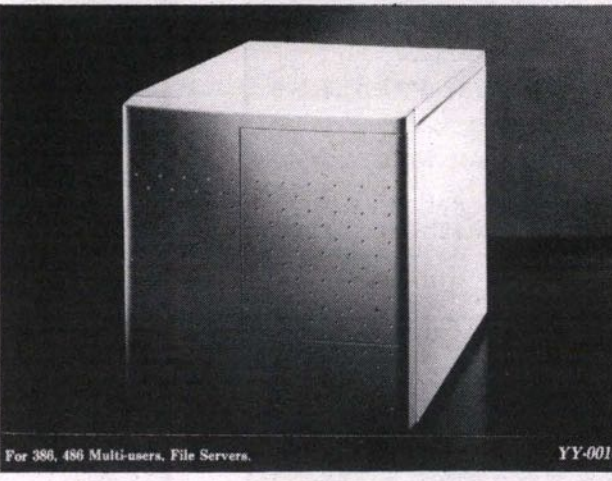
Dealers in Ontario: Compu Library Tel: (416) 298-0719 Fax: (416) 298-1406
Dyna-Link Trading Inc.: Tel (416) 587-9384 Fax: (416) 764-6198

These **HIGH QUALITY** cases are designed with aerodynamic lines and a unique style. These high-end cases, like beautiful furniture, can enhance the office and the home.



SPECIAL YY CASES FOR MANUFACTURING CSA/FCC COMPUTERS ARE NOW AVAILABLE (FOR YY-xx1x AND YY-xx2x SERIES)

Dealer
Compufast Business systems
Tel: (416) 795-1104
Fax: (416) 795-0208



For 386, 486 Multi-users, File Servers. YY-0010

COMPUCON

A brand name with great credibility in Australia and other parts of the world...

- ◆ Personal Computers
- ◆ Monitors(14" & 17")
- ◆ Keyboards and Mouse

DEALERS ENQUIRIES ARE WELCOME

140-3771 Jacombs Rd., Richmond, B.C. V6V 2L9 Tel:(604) 279-9686 Fax:(604) 279-9787

CALENDAR OF EVENTS

IMAGING CANADA '92 - THE 23RD ANNUAL EXHIBITION & CONFERENCE: Nov. 23-25, 1992. Sheraton Centre - Canada's National Trade Show leaders in information management technologies source, compare, evaluate and discuss latest in the imaging micrographics industry. Show hours Nov. 24 (10 A.M.-6pm), Nov. 25 (10 A.M.-5P.M.). For more information call (416) 828-7071.

CANADIAN COMPUTER SHOW & CONFERENCE: November 23-26, Toronto International Centre, Mississauga. Highlights include a range of world-renowned experts on computer technology and solutions. Contact: (416) 252-4887 Fax (416) 252-9848.

PORTABLE COMPUTING FORUM: Nov. 30-Dec. 1, Metro Toronto Convention Centre. An event providing business executives, MIS professionals and corporate decision makers a chance to experience and learn more about this technology through valuable information sessions and product displays. Contact (416) 581-8000.

SUN USER GROUP CONFERENCE/San Jose, CA Dec 8-10, 1993. Show Management: Sun User Group, 201 San Antonio Circle, Suite D-265, Mountain View, CA 94040. (415) 948-0998.

MICRO DRIVES CANADA: Multimedia is Here For Christmas! A day of multimedia demonstrations with special presentations by SunMoonStar, NEC, and Microsoft. December 12, '92 from 10 A.M. to 6 P.M. at Micro Drives Canada, 18 Regan Road, Unit 31, Brampton. Call (416) 840-6476 for more information.

OPEN SYSTEMS SHOW FOR GOVERNMENT: Jan 26 & 27, 1993 - Ottawa Congress Centre. The sixth annual show highlights enterprise-wide computing applications for governments information users, from the desktop to workgroups, departments & entire organizations. Contact: Fawn Annan, communications 2000 (416) 229-2298.

Ce'BIT '93 HANNOVER, GERMANY. 6,000 exhibitors from 45 countries will showcase technology from the entire information & communications sector. Information technology, Network computing, local networks, CIM (Computer Integrated Manufacturing), Software & consulting, Telecommunications, Office, Banking & Security technology, Strategic Research Center, Conferences, Company Presentations and Special displays. Duration: March 24th-31st '93. Hours: 9:00 A.M.-6:00 P.M. every day. Contact Jennifer Cooke, representative for Canada, at Co-Mar Management Services Inc, 366 Adelaide St E, Suite 339, Toronto, Ontario, M5A 3X9. Tel: (416) 364-5352, Fax: (416) 364-6557.

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

SEMINARS

THE VIRTUAL VILLAGE BBS SEMINARS: "Understanding PC Communications" December 1 and 15-9:30 A.M. to 11:30 A.M. Discussion and demonstration on how to use a modem for communications and fax; also discussion on terminology and different software applications. Free of charge but must be booked in advance as space is limited. Location: 99 Atlantic Ave, Suite 418. To register Call 538-0101.

COMPUTER SCIENCE, HETEROGENEOUS DESIGN IDIOMS FOR SOFTWARE ARCHITECTURES: A lecture co-sponsored by the Dept. of Computer Science of U.of T., and the Information Technology Research Centre of the Province of Ontario. Speaker will be Mary Shaw. Dec.8, 1993, 11 A.M. to noon at Sanford Fleming 1105, 10 King's College Rd. Refreshments will be served from 12:00 to 12:30.

DISASTER RECOVERY INFORMATION EXCHANGE: quarterly meeting December 8, '92., 1:30 P.M.-4:00 P.M. Location: Royal Bank of Canada, 315 Front St. W., Main Fl Auditorium. Contact: Graeme Jannaway, D.R.I.E., (416) 960-6701. ext. 7782.

SEMINARS FROM CANADA REMOTE SYSTEMS: Thursday evenings 7 P.M.-9 P.M. Free to members and non-members alike. Dec 10, An Introduction to BBSing. Dec. 3, Special Services Seminar. CRS has short informal new-user seminars every Saturday 11 A.M.-12 P.M. Pre-registration required for Thursday nights. For more information call 620-1439.

SEMINARS ON PEN-BASED COMPUTER SYSTEMS: The series will run monthly. Location: the Honeywell building, 155 Gordon Baker Road. The first four seminars feature horizontal software for pen-based systems. Buyers can talk to vendors and experts, and try out the hardware and software. Contact "Second Office Inc." at 300 Eglinton Ave., Suite 705, Toronto, Ont. M4P 1L5 (416) 932-2379.

WORLD OF SOFTWARE, FREE WEEKLY SEMINAR SERIES: Held every Wednesday from 11:00 A.M.-2:00 P.M. (one hour each), for the general public. Seminars conducted by vendor representatives, covering areas of software including: accounting, data management, desktop publishing, wordprocessing and recent developments/trends in the software industry. For more information contact Don Gorrer (416) 362-8088.

HARVARD GRAPHICS, SOFTWARE PUBLISHING CORPORATION, Showcase of Family Products Seminar: Presentation of Harvard Graphics on the DOS and Windows platforms, and Superbase 4, a Windows RDBMS applications development tool. RSVP 1-800-237-9391.

CLASSIFIEDS

for one-of-a-kind things for sale. Your Free ad may run for one month only, and may not run in multiple editions All other ads classify as business ads and are subject to the \$7 per line charge.)

CLASSIFIED ADVERTISING IS FREE FOR PRIVATE INDIVIDUALS. For businesses, Advertising Rates are \$7 per line (40 characters). Send in your ad along with payment for the January issue by December 2, 1992. (Personal Ads: an individual at a company can run an ad, but it must be for one-of-a-kind things for sale. Your Free ad may run for one month only, and may not run in multiple editions All other ads classify as business ads and are subject to the \$7 per line charge.)

BBS

ACCESS MEDIA BBS: 2.2 Gigs, Internet Netmail, Online Games, Four Nodes. Call 825-8653, 827-7371.

BLOOM BEACON AMIGA BBS: Free for fellow Amiga Enthusiasts. 24hrs. Call 416-283-5924.

BORDERLINE SYSTEMS BBS: Free Access to 200 message bases, 130 MEG of files, adult, teen, and many other areas 2400-14.4, 24 hrs, message network. Tons of everything. Call 469-8478.

CONCRETE STEEL & G.L.S: Local messages, PunterNet, Echomail, covering US & Canada. Mississauga, Ont. 300-2400 N81. Call (416) 278-5908. Conference 64 BBS: For all 8-bit users. Available FREE in many PunterNet boards across N.A. More info via Canada Post (cheaper than modem). Send SASE to TNSS, Box 6238, Toronto M5W 1P6. Please mark your envelope "CONF 64".

DARK KNIGHTS BBS: 24 hrs. 14400 Baud. Over 240 megs of space. Intermediate access +50 free file points. Hot new BBS. Message bases and more. Free access 7 days a week. Amazing file selection! Call at 897-7244.

NIAGARA AREA MAC USER GROUP BBS: 24 hrs. 1200-9600 running first class BBS Software. CD-ROM files. Message 416-937-1631.

SYOPS! Buy a V.32 bis 14.4k/16550 modem for \$290. Certified compatible with PCB, TBBS, Telegard & others. Call James 538-0101.

TEMPORAL TEST SITE BBS: Star Empire Alpha Test Site. Free membership, on-line games, messages and files. Auto call-back validation 416-429-6626.

TGB SYSTEMS BBS: 3 Gigs, 2 Nodes, 2400, NR7. Friendly users! 416-496-8076.

THE BAYMAN BBS: 24 hrs. online games, messages, files. Limited access free. New BBS. Up to 14.4 Baud V.42 MNP5. Call 416-698-0895.

THE JOB SEARCH BOARD BBS: 24 hrs a day job seekers can search listings of job openings, or post resumes for employers to view in list Toronto. Employers and agencies can list vacancies, contract positions and search our database of resumes. Call The Bulletin Board Boutique (416) 588-9690.

EMPLOYMENT

ACCOUNTANT: Exp. with C.As in all phases to statement; audit + taxes. Need head-on experience in computerized environment, preferably mainframe, IBM SYS/3400, AS/400. Please call 510-2563.

COMPUTER ENGINEER: Seeks any evening work. 16 years' exp. C++, DOS, Unix, dBASE, Clipper, LAN. Please call 598-0161.

COMPUTER TECHNICIAN: Seeks PT Work, 2 years' experience IBM-comp. and peripherals. RFG. 40 Fountain Road Suite 1504, North York, ON M3J 2V1.

COMPUTER WORK AT HOME OR YOUR OFFICE: Fast, accurate typist (140 words per minute) will edit and type business correspondence, contracts, resumes, etc. Call 536-2252.

GRAPHIC ARTIST: extensive Mac experience (Quark, Illustrator), 7 years' layout/paste-up, seeks full-time Mac DTP related position. 924-2697.

P/A SEEKS PART-TIME EMPLOYMENT CONTRACT: experience in C (DOS, OS/2, Mac), Clipper (DOS), BASIC (Alphamicro). Call Gabor (416) 466-0522, 265-5281.

PROF. WORD PROCESSOR: 15 years' exp. seeks work at home. Good work & rates. Call now 770-7455.

PROFESSIONALS! quality, experienced programmers available. Many operating systems, languages, applications. Call Carl 824-7947.

PROGRAMMER IN C, Fortran, BASIC, micro and mini assemblers; very receptive, diligent, quality work, bilingual, seeks a steady job. Call Ted (416) 658-3717.

PROGRAMMER/ANALYST: seeks part-time employment, 3 years' experience in Oracle (ver 5.xx-6.0) & Unix. Please call Merv (416) 398-2315.

PROGRAMMER/R&D eng.: 10 years' experience on assembler, C, GUI, Fortran, dBASE, Fuzzy Logic, Image Processing, Robotics, Signal Processing. Call (416) 778-0132.

SEEKING WORD PROCESSING/DATA PROOFREADING publishing: work at home or your place call 924-9732.

WINDOWS 3/C/C++ P/A for hire: Tailor-made apps for your business! Free consultation and sample. Call Dave 282-3712.

WORD PROCESSING/DATA ENTRY WORK: for individual or business home/office. Call Elena 967-9254.

HARDWARE

24-PIN COLOR PRINTER: IBM Compatible Star NX2420 & 2 cartridges, only 6 months old, hardly used, upgrading to laser. Only \$275. Call 221-1963.

\$300 MEG AND 105 MEG HDRIIVE: \$150 and 400 respectively. Call Rosa (H) 890-3548, (B) 819-4295.

286 IBM COMPATIBLE: \$350. Call Blake 855-2399.

286AT + Monitor + Hard Drive + Software for sale \$500. Call Michael 256-3059.

386DX25 IBM COMPAT: 2MB RAM, 80M HD, 2FD, \$680.00. Also Star printer \$160.00. Call 508-1709.

800MB MAXTOR SCSI WORM DRIVE: with interface & cartridge. Call Henry 321-8644.

2400 BD EXT. MODEM 900D: Good cond. w/cables. \$60. Call after 6 pm 756-2521.

A.T.I 8514 ULTRA: with 1 Meg RAM \$300. Turn your PC into a graphics workstation. Call Dennis 849-5922, 849-4134.

ACEEX EXTERNAL 2400 BAUD MODEM: Brand new, manuals, program, etc. included. \$80 or best offer. Call Kevin (416) 293-1675.

AMDEK 12" HERCULES: Mono monitor and swivel stand (working) \$40, Amdek 14" mono VGA and swivel stand (new/hot working) \$35. Call John at 604-8031.

AMIGA 500: w/2 MB RAM 1084S RGB Monitor, 3.5" internal FD, Manuals, Mouse, Software & games. \$750. Leave Message 653-7623.

AMIGA 2000 bridgeboard and accelerator: 68020 with math coprocessor and H/D. Amiga 500 with expansion card and modulator. Make offer. Mike (416) 652-7048.

APPLE IIE ENHANCED VERSION: 2 external disk drives 5 1/4", Applied Engineering clock card, 1MB RAM + 125K, Super Serial card plus monitor, assorted peripheral cards, manuals, etc. Complete with software & printer, will swap for Tektronix portable scope in good condition. Best offer. Call Geoff (416) 267-3876 or 752-6161.

ATARI: 130 XE software wanted or info on how to find. Call 282-8650.

C64 1541DD, 1802: Monitor, printer, software. Excel. cond. \$350. Ask for Paul, 322-9830.

COLOR COMPUTER 3: 512K, Floppy, Printer, Monitor, Joysticks, Modem, Business and Game Software. \$250. Call Pete 261-6610.

COMMODORE: 64C + 2nd 64 (needs services), 1541 drive, 1351 mouse, joystick, seikos HA SPI000VC printer, software, VIC-20, Datasette Drive. No monitor. \$225. Call 745-9189.

COMPUTER SKILL UPGRADE Courses: Weekly + Sat. \$129. DOS, Lotus, WP ACC-PAC, Acc. Call 345-8841.

DAT TAPE DRIVE: 1.3G byte + SCSI controller + media + back up software. Asking \$1700 or best offer. Call 398-6218.

EPSON LX-800 9 pin printer: excellent condition. Best offer. 967-4115.

IBM COMPATIBLES: 386 SX-25Mhz \$999.00; 386 DX-33Mhz \$1369.00; AST Notebook 386 SX-20Mhz \$1650.00; 386 SX-25Mhz (colour) \$3745.00; Cellular phones & Printers. Leasing or purchase. Please call 650-1423.

IBM COMPATIBLE Clone 80286: AT complete system including Hard Drive, Modem, Joystick, Printer & Software. \$495. Call Steve 606-3001.

IBM PS/2 SYSTEM: model 50z, 80286 CPU, 10MHz, 20MB HD, 1.44 FD, Monitor. Excellent condition. Best offer. Call Garfield 946-9649.

INK SHEET ROLLS: for thermal color printer TL3-10C4, 4 colors + IBM DOS, versions 3.3, 4.0 & 4.1 shrink wrapped, \$25.00 each items. Call Frank 851-7903.

LOOKING: for a 2400 modem for \$40 new or almost new. Must have a manual. Call Vic 291-8428.

MAC SE: 2.5 MEG RAM, 20 MEG internal hard disk, 800 K floppy. Call Daniel 221-4152.

MODEM HAYES 2400 BAUD: \$120, call 760-0268.

NEC 386DX: 8MG memory, 120 MB & 42 MB Hard Drive, 2 Floppy Drives, SVGA Monitor, 1 MB Video Card, 80387 Math proc. software & games. \$1900. Call 491-2874.

OAK TECHNOLOGY: 512K SVGA card \$40, 2 MB SIPP 65 nano sec. fast RAM \$80. After 4 pm, Call Steve 475-7206.

PC LEARNING: s/w Book, Video Tape. Call 720-3221.

smith corona: word processor for sale 64K memory, spell checker, monitor, tape drive and typewriter \$400. Call Mike 424-3062.

TEKTRONIX: 7633/100 MHz Multimode storage oscilloscope with dual time base and dual-trace amplifier plug-in units. Superb condition. \$1200. Call John 233-4464.

ULTIMATE PC GRAPHICS: New Microtek Color Scanner, SyQuest 45meg Removable Hard Drive, Aldus PageMaker, PhotoStyler & Corel Draw. Asking \$1950 complete. Call Frank 851-7076.

VGA LAPTOP-286-16: 1MB, 1.4MB Floppy, 20 MB HDisk, 2 Serial, 1 Parallel. \$650. Call Wayne 698-1638.

VGA COLOUR MON. 14": virtually new. \$180. Call Andy 855-7490.

X, AT: Printers and parts for sale or trade. Call 322-6817.

XT LAPTOP: \$200. Call 771-7033.

ACCOUNTING CONVERSIONS by qualified accountant. Automate G/L. For estimate call 823-9025.

COMPUTER SET-UP: tutoring, CAD Drafting. Call Technisoft 535-0863.

EARN \$\$ TEACHING WP 5.1 Kit contains 10: outlines, templates, manuals & trainer's guide. Send \$99.95 + tax. Trainer's Link, 380 Wellington St., #23037, London, ON, N6A 5N9.

MAC/DTP LESSONS: Perfect for the university student/private individual. An introductory lesson(s) to the Mac or DTP, etc. Reasonable. Call Barry 889-5311.

TEACHING (WITHOUT A DEGREE): book \$4.95, includes how & where, certificate. Send C.M.O. to: TSC, 2400 Midland Ave. 112-127, Toronto, Ont. M1S 1P8.

SERVICES

100+ USED 360K DISKS for sale. Used only once as back up. \$.20 each. Call Oscar at 390-0631.

300 SUPER GAMES: \$50. DOS EGA/VGA. Call 736-0028.

ATARI: 1040 STE SC 1224 Disk monitor, mouse, joystick, extra SF3S4 Disk Drive, Stereo Speakers, original box with manuals. \$500. Call Dennis (leave message) 748-4859.

AUTODESK ANIMATOR original software w/all manuals & video. \$150. Adobe font pack for Windows 3.1. Original software. \$100 TGL. 491-2874.

BORLAND C++ 3.0. \$325. C++ 3.1 also available. Lome 781-9502. 7-9 pm.

CA PROJ.: \$200. Call 222-3088.

DBASE IV REL. 1.1: manuals, disks, easy to upgrade. \$300. Call 534-7601.

FOR SALE: Q&A 4.0 \$90. FOXPRO 2.0 \$250. ACCPAC Simply ACC \$80. DESQVIEW/X \$150. Call 724-0449.

IBM SUPER VGA: xxxx software. Must be 18+. Comes on two disks. Specify disk size. Send \$10 to The Byte Factory Dept. F26. P.O. Box 22115, Toronto, ON M4H 1N9.

MACINTOSH SECURITY SOFTWARE: Folderbolt (\$50); MacSafe (\$40). Current versions. Also dBASE Mac (\$50). All original key disks and manuals included. 690-7739.

MICROSOFT OFFICE: Win 2.5, unopened. \$400. Call (519) 763-5431.

MS-DOS 5/cad: in box, \$60. Call 964-3323.

NINTENDO CONTROL DECK: with gun, 2 joysticks, SuperMario 3, 82 games in 1 cartridge, worth \$300. Selling for \$175. Call David 250-5965.

PAST VERSIONS: 1 of each of dBASE 4 devel. edition, dBASE 3 Plus DacEasy, Quattro Pro, Turbo C w/manuals. Call 277-2376.

PREMIER SOFTWARE: for IBM PCs. Over 140 games, home & business & Windows programs brand new. Call (416) 686-1439.

SALE: Q&A 4.0 \$99. Foxpro 2.0 \$250, ACCPAC Simply ACC \$80. Deskview/X \$150. Call 724-0449.

TRADE CD-ROM DISKS: willing to trade CD-ROM Disks or back issues of subscription CD-ROMS. Call (416) 729-2383.

WANTED

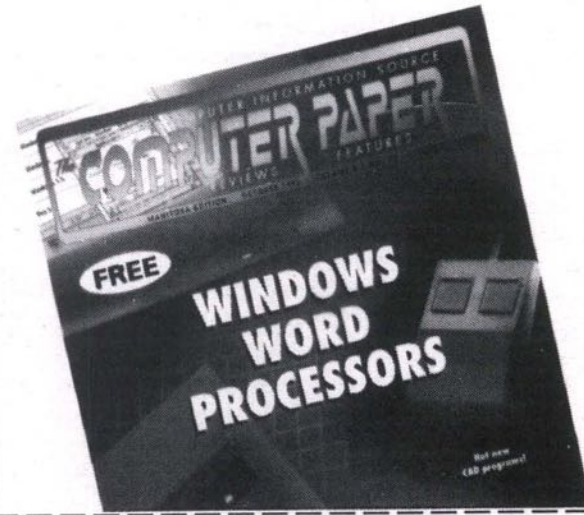
5 YEARS' EXPERIENCE: PC Support, Software/R80, LAN administration, information systems administration, university degree, very professional, references available. Full or Part-Time. 323-0580.

HORRIBLE, LOUSY, CRUMMY, ROTTEN Hackers/Players to join an adult beginners team. This means you! Call Steve 695-4625.

POWER BOOK 100: wanted. Call Eve 769-8251.

WANTED: Reflex Version 1.1 or higher. Require original disks and manual. Call Norma, leave message 972-1851.

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.

Receive 12 Issues for only \$24.95 (USA-\$60, INTERNATIONAL-\$99)

Send your cheque/money order to:

THE COMPUTER PAPER Suite 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: _____

Payment (\$24.95)
 Payment Enclosed (cheque/money order)
 VISA/Mastercard
Card #: _____
Expiry Date: _____
Name on Card: _____
Signature: _____

Which Edition would you like? Toronto B.C. Alberta Manitoba

Advertise in the Classifieds for Free*

Private Individuals: FREE; Businesses: \$7 per 40 characters.

* Private individuals can place their classified ad in *The Computer Paper* for free. (25-word max.) Send your ad by mail at the address below or fax it. We do not accept FREE classifieds by telephone.

Which Editions? Ontario BC Alberta Manitoba
Which Months? eg. Jan 92-Mar 92
Which Section? BBS Hardware Software Wanted Services Employment

\$7
\$14
\$21
\$28

Business Classifieds accepted by telephone, fax or mail.

Method of Payment Money Order Cheque Visa Mastercard
Payment
Card #: _____
Expiry Date: _____
Name on Card: _____
Signature: _____

Ad Charge
Multiply x No. of Months _____
Multiply x No. of Editions _____
Subtotal _____
Add GST (7%) _____
GRAND TOTAL _____

Free Classifieds accepted by mail or fax ONLY.

Send your classified ad to: THE COMPUTER PAPER CLASSIFIEDS
99 Atlantic Avenue, #408, Toronto, ON M6K 3J8 or fax us (416) 588-8574

Name: _____
Address: _____
City, Prov.: _____ Postal Code: _____
Telephone: _____

I N D E X		O F		A		D V E R T I S E R S	
ACCOUNTING		Canara Technologies Inc.	13	National Discount Computer	31	Paymate/AK Microsystems	19
NewViews	20	Cansel Survey Equipment	49	Nutri-Guide	33	SERVICE BUREAUS	
BOOKS		Commodore Business Machines	7	Ocean Electronics	33	Jesco Imaging	53
Bantam Books Canada	38	Complete Micro Solutions	2	Pacific Royal Enterprises	40	Campus Systems	52
Copp Clark Pitman	45	Compu Trend	4	PC Master	28	SERVICES & CONSULTING	
CPIC Canadian Professional Info	52	Compu-Tel	38	Ponlix Multimedia	52	About Computers	53
ODC	52	Computer Software Upgrades	8	Post Software Library	52	Computer Freelancers Unlimited	53
The One—Off CD Shop	49	Computer Variables	6	Power Industry	32	Custom Control and Interface	53
World's Biggest Bookstore	19	CPU Systems	52	Sayson Technologies	36	F1xPress Computer Help	52
CD ROM		Direct Disk Marketing DDM	52	SBL System Builders Limited	9	Microset Systems	53
The One—Off CD Shop	45	Dominion Typewriter/Business	53	Smart Luck Software	41	Norman Labine	53
EVENTS		Envirocheck	52	Smart Machine	47	Overseas Videotape	53
Portable Computing Forum	47	Express Micro	14	Software Exchange	24	Richard W. Vroonan	53
World of Commodore	30	Fantastic Technology	27	Software Outlet	44	Synergy Computer Consulting	53
FURNITURE & ACCESSORIES		Fastech Computer	50	Success Software	20	Young Co.	52
Auxilia	42	Financial Calculator/EMJ	39	The Multi Media Place	42	SHAREWARE	
HARDWARE & SOFTWARE		HITS Computer	23	The Notebook Store	39	Alternative Personal Software	52
3A, Scholar Computers	34	Hyuen	52	Throne Computer Systems	29	Bridgeland Computer	47, 52
3D Microsystems	54, 56	IBM Canada Ltd.	10, 11	Ultinet	3	Eratech Computer	53
ACC Technology	49	INB Computer Corporation	46	Wise Guy Computers	55	New Zone	52
Aceex/VisionTech	6	JRS Wholesale Direct	33	Zegna Electronic	42	Post	52
Adesso Computer	43	Laser Storage Solutions	26	MOUSE PADS		SUBSCRIPTIONS	
America-Direct	17	LePAL Computers	15	Star Trek®	49	TCP subscriptions	51
AmPAQ	36	Long & McQuade	43	ONLINE		TRAINING	
Amsoft Computer	22	M&M Global	42	Canada Remote Systems	43	CMS Training	53
BFA Data Systems	35	Micro Drives Canada	12	The Connection BBS	53	Harvard Computer Colleges	52
BiCMOS Trading Int.	24	Mighty Max	44	Virtual Village/FutureTron	48	VIDEOS	
Byte Info Systems	21	Mister Software	8	PAYROLL		Sounds of NOOR	32
Canadian Laser Products	37	MIT Computer Supplies	25	CanPay Computer Software Ltd.	19	Vital Visions	32
		Musicware Distributors	28	Help Software Services	17		

LOW RADIATION MONITORS FOR IBM-COMPATIBLE PCs

Prices from \$200 for Mono VGA Trade-ins Accepted

Phone Envirocheck at 287-5128 or Fax 272-0269

Computer Training All Courses \$79 incl. course materials

Introduction To Computers, Typing, WP 5.1, Lotus 1-2-3, ACCPAC, DOS, Corel Draw, PageMaker, dBase, etc.

Harvard Computer Colleges 513-0000

Mon-Fri, 9am - 9pm, Sat-Sun 9am - 5pm

THE SOFTWARE LIBRARY QUALITY IBM SHAREWARE

- Well established system for easy start-up
- Premium Packages: Business, Education, Games, Kid-ware, Windows & Word Processing, etc.
- Price: As low as \$2.35* per disk
- Free Catalogue by request.

* Shareware programs require separate payment to authors if found useful.

POST 1600-90 Ave. SW., Box 72068
Calgary, Alberta T2V 5H0
Tel: (403) 281-9248

F1 F1xPress Computer Help

Computer Assistance from Experts!

Computer Repairs & Upgrades, Software Installations, Hardware & Software Sales...

(416) 669-1245

free Modem! and comm software for 386 system limited time offer

80386 dx40 system include:

- 4Mb Ram (exp to 32 Mb)
- 64K Cache Memory
- 105 Mb IDE Hard Disk
- 1.2 Mb Panasonic FD
- 1.44 Mb Panasonic FD
- 101 Enhanced Keyboard
- Mini Tower Case w/keylock & LCD
- 1 Mb SVGA Card w/512K
- SVGA 1024 x 768 Color Monitor
- 2 Serial, 1 Parallel & Game Port
- Realtime Clock and Calendar
- 3 Button Mouse
- Mouse Pad

= \$1320

80386 dx33 with above config \$1280

Hyuen Canadian Enterprise Ltd. CERTIFIED DISK PRICE

LOWEST DISK PRICE IN CANADA

5.25" DS/DD \$2.99	White Boxed 18 Disks	3.5" DS/DD \$4.99
5.25" DS/HD \$4.69		3.5" DS/HD \$7.99

Minimum order 50 boxes, including labels, sleeves, tabs & white box. Dealers call for special volume price • Orders call (804) 279-8818 Fax (804) 278-3889 UNCONDITIONAL GUARANTEE

FIND OUT THE SECRETS

Make a Fortune with your Computer.

Send \$19.95 for a copy, or for free info write or call: ODC, Box 241, 4325 Steeles Ave. W., Downsview, ON, M3N 1V7 Tel: (416) 630-3728

GAMEWARE

THE SOURCE FOR IBM-PC SHAREWARE GAMES

For a FREE catalogue, write to: New Zone Productions, 90 Embassy Drive, Woodbridge, ON L4L 5A7

Over 100 Games

PROFESSIONAL BOOKS

Engineering, Medical, and Advanced Computer Topics

Students - Organize a quantity purchase with your class and save!

Phone 416 624-1058 or Fax 624-3752

Canadian Professional Information Centre
4580 Fieldgate Drive #2, Mississauga (Near Eglinton & Dixie)

DESKTOP VIDEO BY AMIGA

Ponlix Multimedia (416) 609-9647

- AMIGA Products & Peripherals
- 2D / 3D Animation System & Software
- Video Toaster & Complete Computerized Video Suite
- Broadcast Quality Betacam/S-VHS VCR & TBC etc ...

PROFITS FROM YOUR COMPUTER

Learn how to create profits from BBS, consulting, desktop publishing and more. Send cheque or money order (\$19.95) for immediate delivery or write for details to...

YOUNG

1600-90 Ave., SW. Box 72068, Dept. Y8
Calgary, Alberta T2V 5H0 Tel: (403) 281-9248

80486 dx33 with above config \$1780

80486 dx50 with above config \$1950

14.4 External fax/modem \$345

Shipping and all taxes excluded. 2 yr. labour & 1 yr. warranty. Prices quoted are cash discounted & subject to change without notice.

CPU Systems

York Mills Rd. Don Mills Rd. Lawrence Ave.

1300 Don Mills Road, North York Suite 256 Fax: 510-8423
Tel: (416) 510-8918

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

DISKETTES ** DISKETTES ** DISKETTES ** DISKETTES

DIRECT DISK MARKETING QUALITY DISKETTES AT AFFORDABLE PRICES

5.25" DSDD	\$4.35
5.25" HD	\$6.25
3.5" DSDD	\$7.30
3.5" HD	\$10.00

BOXED BY 10

Due to volume purchasing power DDM is now able to offer truly affordable diskettes. All our diskettes are pre-formatted and include sleeves and user labels.

100% SATISFACTION GUARANTEE

PHONE TOLL FREE 1-800-567-5311

PHONE: (604) 942-5718 FAX: (604) 942-9346

DIRECT DISK MARKETING, # 307-2540 SHAUGNESSY ST., PT. COQ. B.C. V3C-3W4

DISKETTES ** DISKETTES ** DISKETTES ** DISKETTES

\$5 LINO CANON COLOR PC & MAC

*1200 dpi * letter size * paper.

CAMPUS SYSTEMS

100 Harbord Street Toronto
416 925-2277

USER GROUPS

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

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

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

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

1408, or Rob Beckman 928-2694.

CLUB CUBASE: Toronto area users of Steinberg Software products, especially their powerhouse sequencer Cubase, now have a forum to share information and develop their skills. Club Cubase meets at 7:30 PM on the last Monday of every month, in Room C426 at the Casa Loma of George Brown College - 160 Kendall Ave. Next meetings Oct. 26 and Nov. 30. For more information contact Club Cubase at 62 Harrowth Drive, Willowdale, ON, M2H 3C2 or call 416-496-9905.

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

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

CANADIAN COMPUTER GRAPHICS ASSOCIATION: CCGA's mission is to provide education and information in computer graphics technology and its applications. At special events (next event Dec. 8, '92) members are informed of developments in

the industry, and provided a networking forum to develop career and business opportunities. Additional benefits include: insurance, newsletters, subscriptions, employment liaison office, and annual art & design competition. CCGA, 2175 Sheppard Ave. E., Suite 110, Willowdale, Ontario, M2J 1W8. Fax: (416) 491-1670 Tel: (416) 491-2886.

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

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

KW-MUG, 376 Peel Street, New Hamburg, ON N0B 2G0, (519) 662-2627. Focus:

Public domain distribution; reviews of current software; meetings variable, no fees.

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

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

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

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

TANG NORTH Monthly meeting, 2nd

Thursday of each month. McLennan Physics Lab (U. of T.) Room 118, 7:00 PM (Corner of Huron & Russell). Everyone Welcome. For info call Daniel (416) 365-1899.

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

TORONTO USERS GROUP: User members support of AS/400/38 imaging. Meetings held at the Airport Marriott Hotel every two months. Next meetings on Nov. 18, 1992, Jan. 20, 1993, Feb. 19, 1993, Mar. 24, 1993, and May 19, 1993. Please contact Wendie Boddy at Suite 2550, P.O. Box 77, Toronto Dominion Centre, Tor., ON, M5K 1E7 for more information, or call (416) 607-2546.

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

K.R.D. 1995 (The Kidstuff Reunion Drive Group For 1995) At 144 Gillard Ave., Riverdale. Tel. 461-1343. Call for meeting dates 11AM Saturdays. Group's focus is to

collect 1975-6 Canadian pennies in order to reassert interest by signing a petition to reinstate the 1975-6 CTV Show "Kidstuff." Computer Kidstuff 1995?? 2005?? Ask for Jeffrey Leitner.

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

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

TPUG (TORONTO PET USERS GROUP, INC.) Commodore users (PET, 64/128, Amiga, CDTV, MS-DOS, etc.), meets Tuesdays (1st, 128; 2nd, Amiga; 3rd,

GEOS; 4th, 64), York Public Library, main branch, 1745 Eglinton Ave. W. (near Dufferin), 7:30 p.m.; 3rd Thursday, Alderwood United Church, 44 Delma Drive, Etobicoke, 7:30 p.m.; software library, newsletter & BBS, Information 416-253-9637.

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

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

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

7600268

WE BUY & SELL USED COMPUTERS

Buy + Sell • Trade In • Trade Up
Used Computers from \$299 – IBM Compatible

Dominion Typewriter Co.
Dominion Business Machines
100 Adelaide Street East

364-2978 Since 1902 **364-0191**

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

with this ad \$2 off
244-1822

1373 Wilson Avenue

About Computers...

Macintosh Expertise

Database Development, Design & Publishing, Graphic Illustration, Manuals & Documentation

Training (one or many), Custom Designed Courses, Hardware Setup & Upgrades, Desktop Publishing

Experience The Adventure The Connection BBS

Canada's Largest Adult BBS

Connecting around the world on your personal computer, meeting people & making friends.

1200/2400/9600 Baud & Alex Compatible

Canada's Largest & Most Popular Adult BBS
(416) 882-8161 • 27 Lines • Surrounding Areas 229-9732

Law Office
RICHARD W. VROOMAN
Barrister & Solicitor

Computer Law, Contracts, Copyright
Business Law, Incorporations, Tax

234 Geoffrey Street, Toronto
(High Park area)
531-7118

CUSTOM CONTROL & INTERFACE
1367 King St. W., Toronto, Ont. M6K 1H4

• Design & Manufacture (Analog & Digital)
• Prototypes (From Concept to Product)
• Embedded Systems-Single Chip Computer Programming
• Industrial Automation & Control
• Computer Setups-Custom Interfaces
• Electronic Advertising Props

Since 1986 **TEL: (416) 236-8079**
FAX: (416) 534-0908
Sales Manager, Jerzy Leptuch

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

QUALIFY AS PROGRAMMER ANALYST 440-9978

No Experience necessary in order to train for a career in computer programming, Internationally recognized Qualification and Diploma. Age no restriction. Low payment \$49 month includes training in BASIC, C, UNIX AND DOS. Home Study Program. Tax Deductible.

CMS TRAINING

City and Guilds of London Institute, City and Guilds of North America, City and Guilds of North America

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

Macros Only!

Microsoft Excel (Apple or PC)
Microsoft Word for Windows
Custom Window Help Files
Visual Basic Programming
Project Planning

Pains Here? Business Engineering Industrial Administration Entertainment

Panes Cleared! Applications Development Training Service Support

NORMAN LABINE CONSULTING
Suite 205
1643 East 3rd Avenue Tel & Fax:
Vancouver, B.C. V5N 5R6 (604) 255-8433

We do Windows!

Time is Money.

SoftSearch™ - With over 50,000 listings, our software information service saves you time - so you can make money.

1-800-667-6503
(604) 681-0516, Vancouver, Canada
Synergy Computer Consulting

ONLY THE BEST EXCEPTIONAL SOFTWARE

Over 100 Selected Shareware Programs for IBM-PC Compatibles

For Your Free Catalogue
CALL (416) 567-0866
As Low As \$2.25 per program disk

EraTech Computer Systems Inc.

Colour Separations • High Res Output • Desktop Publishing

Done Right. On Time.™

High Resolution Film or Paper Output.
Three top-of-the-line Linotronic Imagesetters
Scantext Imagesetter for up to 20x24"

3M Dye Sublimation Colour Printer
QMS Colourscript Colour Printer
Colour keys, Dylux and Pressmatch Proofs

Optronics Drum Scanner, up to 2000 dpi
LaCie Flatbed Scanner, up to 1200 dpi
Colour Correction, Retouching and Cropping

Image Manipulation and Special Effects
Typesetting and Assembly
Film Stripping

20% discount for C.O.D. or for mention of this ad.

Jesco Imaging Inc. 99 Atlantic Ave. Suite 100, Toronto • Tel: (416) 539-8822 • Fax: (416) 539-8533

MAYBE WE DON'T CHARGE ENOUGH FOR OUR COMPUTERS.

Or is it the other way around?

EVERY ONCE IN A WHILE WE TAKE A LOOK AT WHAT everyone else is charging for computers. It usually makes us green with envy. We get all glassy eyed thinking about the big profit margins they must be raking in. Then we come back to earth and remember **the commitment we've made** to our customers.

Ever since we started building IPC computers seven years ago, our goal has been to produce **reliable quality computers** and sell them for the most affordable prices. While the other guys said you had to pay a premium for quality, we were busy proving them wrong.






Judging from their price slashing behavior in recent months, **it looks like we were right all along**. The competition say they've cut their margins to bring you lower prices. That's reassuring! At IPC, We started out with lower margins, then kept finding ways to save you money.

One of our secrets is **vertical integration**. We own a chip design firm and a board manufacturer. That enables us to control costs throughout the engineering process.

By downsizing our **486 class boards** we cut material costs and condensed our chip requirements to a minimum. Our engineers designed the new 486DX boards with **only 15 TTLs** (transistors) and **2 ASICs** (integrated chip sets). That means lower production costs, lower QC costs, increased yield rates, and frankly **less components to worry about**.

And we don't have big fat overheads either. If we thought having a corporate jet would improve the quality of our computers we'd probably buy one tomorrow. But we think you'd prefer that we **beef up support and service**. So we've installed a **toll free line** and have engineers standing by to answer all your questions.

The simple truth is, we build computers as good, if not better than the other guys, and sell them for a **lot less money**. Either they charge too much, or we don't charge enough — you decide.

				
Bravo 486/33	ProLinea 4/33	486P33	Tempo 486/33c	ES4-3300
i486DX	i486DX	i486DX	i486DX	i486DX
33MHz	33MHz	33MHz	33MHz	33MHz
2MB RAM	4MB RAM	4MB RAM	4MB RAM	4MB RAM
SVGA Colour Monitor	SVGA Colour Monitor	SVGA Colour Monitor	SVGA Colour Monitor	SVGA Colour Monitor
80MB HD	120MB HD	120MB HD	105MB	105MB HD
no ext. cache	no ext. cache	no ext. cache	128K cache	128K cache
MS/DOS 5.0	MS/DOS 5.0	MS/DOS 5.0	MS/DOS 5.0	MS/DOS 5.0
Windows 3.1	no windows	Windows 3.1	Windows 3.1	Windows 3.1
MS Mouse	no mouse	MS Mouse	Everex Mouse	MS Mouse
145W	145W	150W	165W	200W
1 Year Warranty	1 Year Warranty	1 Year Warranty	1 Year Warranty	3 Year Warranty
\$2949	\$3148	\$3048	\$4726	\$2199

WHAT DO THESE PRICES MEAN

To be fair, we used "suggested list prices" quoted directly by each manufacturer during the week of August 3, 1992. We made every effort to compare systems that are as similar as possible but each vendor has their own ideas about what is and isn't standard.

Naturally, list prices are not accurate selling prices (except in the case of Dell who sells direct). But whatever price you pay you can be sure of one thing — dollar for dollar IPC offers the best value in the computer industry. We wouldn't have it any other way!



800-846-7655

Tel (416) 479-8822 • Fax (416) 479-7688

CREATIVE LABS MULTIMEDIA KIT

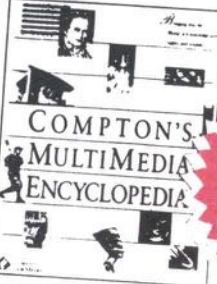


INCLUDES:
 WINDOWS 3.1®
 MICROSOFT WORKS®
 BOOKSHELF®
 MACRO MIND®
 INTERNAL **789.⁹⁵**
 SHERLOCK HOLMES®
 ACTIONWARE®
 AUTHORWARE®
 and MORE
 EXTERNAL **879.⁹⁵**

INCLUDES:
 CD ROM DRIVE
 SOUND BLASTER PRO

Season's Specials

SONY® CDU7201 External CD Drive and COMPTON'S®



FREE HEADPHONES
 INCLUDES ALL CABLES AND INTERFACE

1200.
 RETAIL VALUE

599.⁹⁵

Quality Products at Exceptional Savings

ACCESSORIES

DISKETTES

House Brand 3.5" DSDD	4. ⁵⁰	BOX 10
House Brand 3.5" DSDD	5. ⁷⁵	BOX 10
House Brand 5.25" DSDD	3. ⁷⁵	BOX 10
Verbatim 5.25" DSHD	4. ⁹⁵	BOX 10
Verbatim 5.25" DSHD	11. ⁹⁵	BOX 11
Verbatim 5.25" DSDD	6. ⁹⁵	BOX 11



3.5" DISK BOX
 HOLDS 80
3.⁹⁵



5.25" DISK BOX
 HOLDS 110
3.⁹⁹



11 PIECE HIGH QUALITY
 COMPUTER TOOL KIT
14.⁹⁵



UNIVERSAL RIBBON
 Roland/Raven/
 Panasonic/
 Star NX1001/
 Epson LQ
3.⁴⁵



POWER CONTROL CENTRE
 With modem protection
29.⁹⁵



LOCKABLE
 UNDER COUNTER
 KEYBOARD DRAWER
19.⁹⁵



UNIVERSAL PRINTER STAND
 Metal Wire
2.⁹⁵



EXECUTIVE MONITOR
 MOVER STAND
69.⁹⁵



COPY HOLDER
2.⁹⁹



PLASTIC COMPUTER STAND
4.⁹⁵



UNIVERSAL PLASTIC PRINTER STAND
1.⁹⁹

SUPPLIES COMPUTER PAPER

30M 500 Shts	3. ⁹⁹
40M 500 Shts	4. ⁹⁹
2200 Sheets 40M	17. ⁹⁵
FAX PAPER 96' ROLL	2. ⁴⁹



PC ACCESSORIES
 6 OUTLET POWER BAR
 SURGE PROTECTOR
 EMI/RFI LIGHT
14.⁹⁵
 ALL METAL CONSTRUCTION

100's OF CD TITLES IN STOCK

Secret Weapons with add ons	59.⁹⁵
Time Almanac 1990	34.⁹⁵
Micro Forum CD Series	EA. 54.⁹⁵
Wing Commander	34.⁹⁵
World Atlas	34.⁹⁵
CD Game Pack	34.⁹⁵
National Geographic Mammals	49.⁹⁵
Phoenix 2.0 Shareware	34.⁹⁵

CA - SIMPLY BUSINESS™



For Microsoft Windows
The Business Bundle

- Accounting
- Word Processor
- Spreadsheet
- Graphics
- Scheduler/Personal Information Manager

479.⁹⁵

WINDOWS DRAW

Special Value
 • ClipArt Images - More than 2,600 customizable images
Output
 • Desktop Publishing - Place your Windows Draw files directly into PageMaker 4.0
Compatibility
 • Import/Export - Filters for importing and exporting most popular PC programs, including Ami Pro, Paintbrush, WordPerfect, PowerPoint, Harvard Graphics, Excel, Ventura Publisher and Word for Windows.



99.

SOFTWARE



Installs in minutes
 Automatically configures
 Run Maximize to boost your base memory and increase performance



Control your modem in Windows; do not let it control you!

82.⁹⁵ 119.⁹⁵

Our Hot Selling Game & Business Software

WINFAX PRO	89.⁹⁵	QUICKEN 2.0 FOR WINDOWS	39.⁹⁵
DOSFAX PRO	59.⁹⁵	MICROSOFT MONEY 2.0 WINDOWS	19.⁹⁵
CALENDAR CREATOR PLUS 3.5 DISK	9.⁹⁵	CRUSADERS OF THE DARK SAVANT	53.⁹⁵
DACEASY WORD HOME/OFFICE WORD PROCESSOR	9.⁹⁵	RED BARON MISSION DISKS	24.⁹⁵
BEDFORD SIMPLY ACCOUNTING FOR MAC	59.⁹⁵	FALCON 8.0 MISSION DISKS	29.⁹⁵
DAC EASY LUCID 3D SPREADSHEET	9.⁹⁵	ACES OF THE PACIFIC	44.⁹⁵
DAC EASY INSTANT ACCOUNTING	59.⁹⁵	PC GLOBE 5.0	54.⁹⁵
BUDGET EXPRESS BY SYMANTEC	9.⁹⁹	THE NEW PRINT SHOP	39.⁹⁵
WORDSTAR LEGACY WORD PROCESSOR FOR WINDOWS	69.⁹⁵	ULTIMATE CHALLENGE GOLF	44.⁹⁵
QUICKEN V6.0 DOS QUICKBOOKS	49.⁹⁵	KINGS QUEST VI	59.⁹⁵
	99.⁹⁵	IMSI PRESENTATION GRAPHICS (REG 149.95)	29.⁹⁵
		LOTUS ORGANIZER	127.⁹⁵

Over 1000 Game titles in stock now
 Over 800 Business titles in stock now

PC ACCESSORIES
3 BUTTON MICROSOFT COMPATIBLE MOUSE
19.⁹⁵ WITH FREE MOUSE MAT

MOUSE POCKET
1.⁹⁹ EA.
 MOUSE MATS & COLOURS

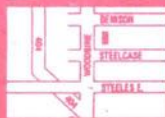
TYPING TUTOR IV +
29.⁹⁵

5.25" DISK BOX HOLDS 5
49.⁹⁵

3.5" DISK BOX HOLDS 40
1.⁹⁹

Wise Guy Computers

Store Hours:
 Mon-Fri: 9-9.
 Sat: 9-6



Markham • 7311 Woodbine Ave.
 TEL (416) 513-7002
 FAX (416) 513-7004



Mississauga • 1456B Dundas St. E.
 TEL (416) 803-8090
 FAX (416) 803-0965

• All prices are cash and limited.
 • 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 appear.

If money is no object, buy one of their 486/66 PC's.

AST	COMPAQ	DELL	IPC
Bravo 486/66d	DeskPro 4/66i	486D66	466MT
i486DX2/66	i486DX2/66	i486DX2/66	i486DX2/66
8MB RAM	8MB RAM	8MB RAM	8MB RAM
14" SVGA Colour Monitor	14" SVGA Colour Monitor	15" SVGA Colour Monitor	14" SVGA Colour Monitor
200MB HD	240MB HD	230MB HD	210MB HD
256K cache	64K cache	no ext. cache	128K cache
MS/DOS 5.0	MS/DOS 5.0	MS/DOS 5.0	MS/DOS 5.0
Windows 3.1	Windows 3.1	Windows 3.1	Windows 3.1
MS Mouse	Compaq mouse	MS Mouse	MS Mouse
145W	145W	220W	200W
1 Year Warranty	1 Year Warranty	1 Year Warranty	3 Year Warranty
\$4599	\$5031	\$4439	\$3549

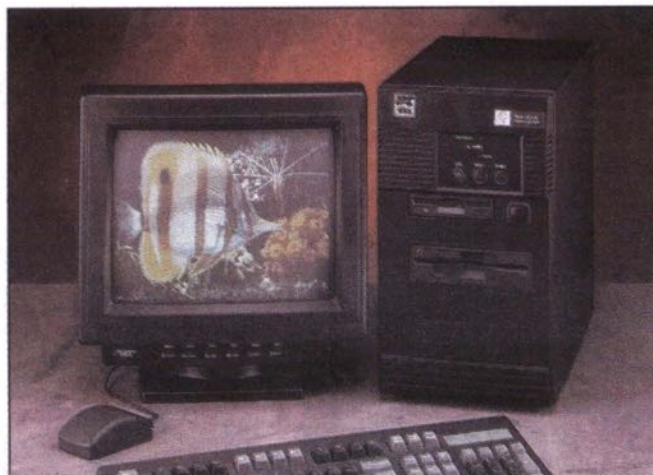
NO DOUBT ABOUT IT. If money is absolutely no object, there isn't much reason to buy an IPC. After all, the only real difference between their computers and our computers is the price.

We started with the same incredibly fast Intel 486DX2/66 microprocessor that they did. Then we designed a chip set that took full advantage of the DX/2's speed and power and surrounded it with perfectly compatible components.

We installed the same high quality RAM and top notch disk drives (plus a fast caching controller). Put in an excellent SVGA video card and topped it off with a high resolution monitor from a well known manufacturer. Then we pre-loaded Microsoft Windows 3.1, MS-DOS 5.0, and included a genuine Microsoft mouse. We even threw in working models of Excel, Word, Power Point, and Project.



We did go a little overboard with a three year limited warranty and cross Canada



The IPC 466MT is also available in a standard beige mid tower case.

toll-free technical support but we figure happy customers are a good investment.

So, all things considered, if a thousand bucks doesn't mean much to you — buy one of their computers. If you're like the rest of us, maybe it's time to find out more about IPC. Call us today for the name of the qualified dealer nearest you. (Toll-free of course!)



WHAT DO THESE PRICES MEAN.

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

Naturally, list prices are not accurate selling prices (except in the case of Dell who sells direct). But whatever price you pay you can be sure of one thing — dollar for dollar IPC offers the best value in the computer industry. We wouldn't have it any other way!

AVAILABLE FROM

- | | |
|---|--|
| Arkon Electronics
Toronto
(416) 593-6502 | Hi-Tech Services
Toronto
(416) 652-5213 |
| Atlas Business Mach.
Etobicoke
(416) 252-9547 | Incorporated Computer
Mississauga
(416) 567-0040 |
| Copen Computer
Scarborough
(416) 754-3055 | Tracedata Services
Scarborough
(416) 291-4097 |



800-846-7655
Tel (416) 479-8822 • Fax (416) 479-7688

The Intel Inside logo is a trademark of Intel Corporation. The AST logo and Bravo are registered trademarks of AST Research. The Compaq logo is a registered trademark and ProLinea is a trademark of Compaq Computer Corporation. The Dell logo is a registered trademark of Dell Computer Corp. The Banyan logo and Vines are registered trademarks of Banyan System. Microsoft is a registered trademark and Windows and the Windows logo are trademarks of Microsoft Corp. IPC is a trademark of 3D Microcomputers. IPC disclaims proprietary interest in the marks and names of others. All prices and configurations subject to change without notice. Monitor not necessarily as shown.

**All 24 pin
dot matrix
printers are
the same.**

Right?

Wrong!

Fujitsu DL1150/DL1250
ULTIMATRIX™ Printers
are your best value.



Here's why.

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

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

In the world of computer peripherals things aren't always what they appear to be.

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

We're happy to oblige.

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

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

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

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

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

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

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

 **FUJITSU** **ULTIMATRIX™**
Meeting your expectations.

* DL1150 only; optional on DL1250.

The Fujitsu DL1150/DL1250 ULTIMATRIX™ Printers.

What's the best printer value in Canada?

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

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

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

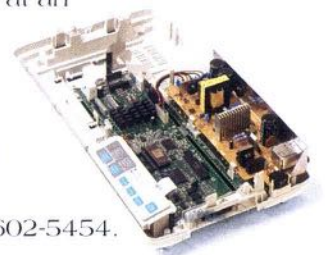
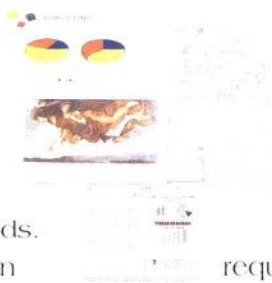


wastage when printing cheques and other forms. "Paper park" allows you to switch from continuous forms to single sheets at the touch of a button.

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

The Ultimatrix Series printers are compatible with virtually all PC hardware and software and if you have special printer driver requirements, we can help.

Legendary quality, solid construction, superior capability, and a full two-year Fujitsu Canada warranty, at an affordable price. If you are looking for that kind of value in a printer, contact an authorized Fujitsu distributor or call us at 1-800-263-8716 or (416) 602-5454.



FUJITSU **ULTIMATRIX™**
Meeting your expectations.

3DMICRO
COMPUTERS

Montréal
(514) 333-3922
Calgary
(403) 250-2590

Toronto
(416) 479-8822
Edmonton
(403) 484-0151

Winnipeg
(204) 772-9028
Vancouver
(604) 273-9328