

LOWER MAINLAND EDITION

MARCH 1991

VOL. 4 No. 4

The COMPUTER PAPER™

WESTERN CANADA'S COMPUTER INFORMATION SOURCE

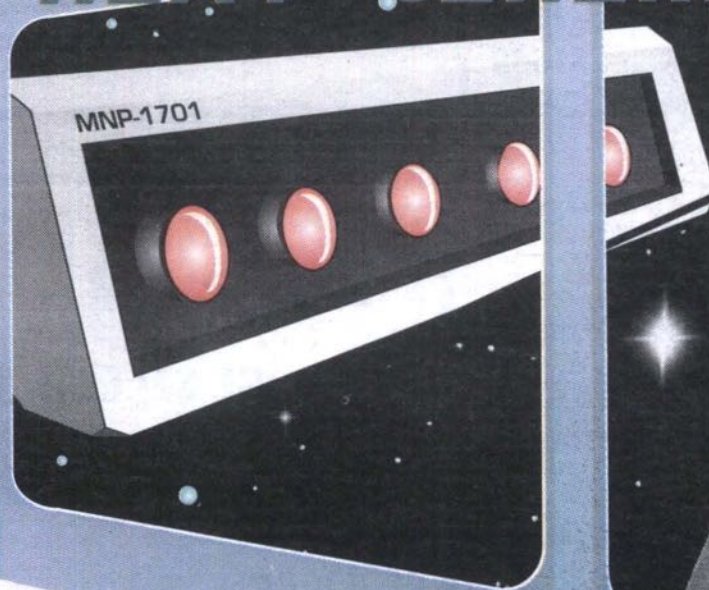
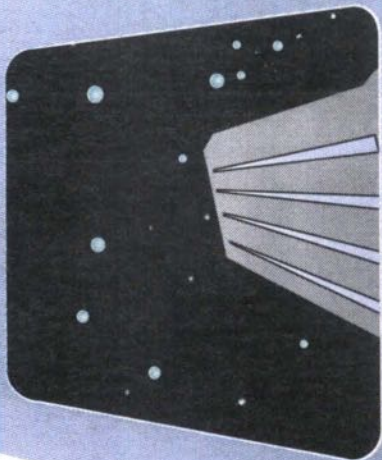
NEWS • FEATURES • REVIEWS • EVENTS

IBM & COMPATIBLES • UNIX • APPLE • COMMODORE • ATARI

FREE

TELECOM

THE NEXT GENERATION



**FAX MODEMS
CELLULAR PHONES**

**BBS
LISTING**



Friendlyware Computers Inc.

Serving B.C. Since '83

NEW LOCATION: KINGSWAY AT RUPERT
#7-3003 KINGSWAY, VANCOUVER V5R 5J6

Are you looking for:

A Travelling Companion?

NOTEBOOKS

Only 5.7 lbs! No bigger than letter-sized paper! The Texas Instruments TravelMate 3000 packs all the power of a 20 MHz 386SX...plus more.

- 20 Mb Hard Disk
- 2 Mb RAM (Exp. to 6 Mb)
- 10" VGA Monitor
- 3.5" Floppy Drive



.....\$4449

"ALR's Venture 16-386SX is the company's first foray into portable computers, and they've done a remarkable job" (INFOWORLD).

- 20 Mb Hard Disk
- Super Crisp Backlit VGA
- 1 Mb RAM (Exp. to 5 Mb)
- Tactile Keyboard

Only 7.5 Lbs\$3499

Bondwell 310 (80286)\$1379

Bondwell 310+ (Backlit)\$1669

OGIVAR and SANYO NotebooksCALL

LAPTOPS

The Intra LT-386SX Laptop is about the same size as a Notebook, but it's much more powerful-- "Power never came so small."

- 41 Mb 3.5" Hard Disk
- 640 x 480 Resolution VGA (with 16 Shades of Gray).
- Weighs only 10.9 Pounds
- 2 Mb RAM (Exp. to 6 Mb)
- Supports External VGA Monitor, 5.25" Floppy Drive, and Keyboard.

.....\$3395

Goldstar boasts thirty years of electronics manufacturing experience: the GS520 386SX/16MHz Laptop is proof of that quality.

- 40 Mb Hard Disk
- Additional battery packs increase running time
- 1 Mb RAM (Exp. to 5 Mb)
- Easy to Read Backlit VGA Monitor

12.8 Pounds\$2795

Quality Computers

COMTEX T386-33P WITH CACHE

- 8 Mhz / 33 Mhz
- 0 Wait States; AMI BIOS
- 4 Megabytes RAM (Exp. to 16 Mb with 8 Mb on Mother Board)
- Cache Controller with 64K Cache Memory (15 ns)
- Much, Much More

Desktop . . . \$1999

Tower . . . \$2099

COMTEX MODELS

- 25 Mhz 486 Tower (128K of Cache Memory; 4 Mb RAM; AMI BIOS) . . . \$2999
- Just like above: Desktop \$2929
- 25 Mhz 386 (1 Mb) . . \$1399
- 20 Mhz 386SX Small Footprint (2 Mb) . . . \$1199
- 16 Mhz 386SX (1 Mb) . . \$979
- 12 Mhz 286 (1 Mb) . . . \$549
- 10 Mhz XT (Mono/CGA) \$369

All Comtex Computers have a Two Year Parts and Labour Warranty

Sales: 437-3113 Office: 433-6446

ALPHA COMPUTER AUTOMATION

555 West Hastings Street, Lower Mall, Harbour Centre
Vancouver, B.C. V6B 4N4 Phone (604) 684-8146 Fax (604) 684-8128

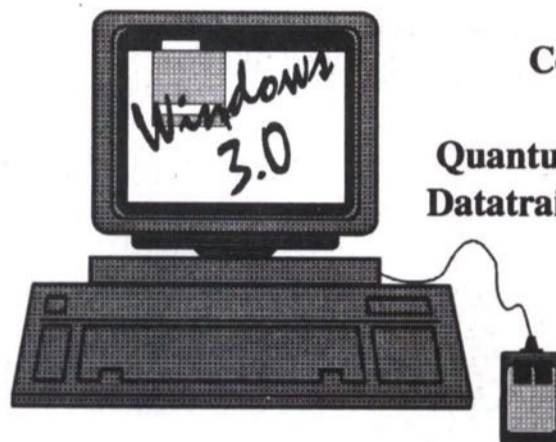
DataTrain DPC-3017 '386SX' Slimline Personal Computer

Get into Microsoft Windows 3.0

The 80386SX for fast processing with 2 MB of RAM

1.2 MB Floppy Drive, Built-in SuperVGA Video, Mouse, Windows 3.0

Two year parts and labour warranty



Configured with :

**Quantum 40 MB Hard Drive
Datatrain SuperVGA Monitor**

**Spring Sale Priced
through the 15th of
April!**

PREPOSTEROUS PRICES

On a HUGE SELECTION

of computer books,

bestsellers, all

sorts of books.

And, of course, the

coffee's always on us!



Book warehouse

BROADWAY
632 W. Broadway
Vancouver

ROBSON
1150 Robson St.
Vancouver

RICHMOND
6340 No. 3 Rd.
Richmond

VICTORIA
1301 Government St.
Victoria

OPEN 10 AM - 10 PM SEVEN DAYS A WEEK
and the coffee's always on us!

WHY BUY AT CARDZ?

- Two Year Labour Warranty
- Repairs in real time
- 8 technicians on staff
- Technical room for walk-in support
- Full satisfaction guarantee
- Premium quality motherboards
- Canada's best pricing
- you get our best price first
- The choice of computing professionals

**CANADIAN MAIL ORDERS
CANADIAN WARRANTIES**

ALL MODELS INCLUDE:

**19" Tower Case with LED display, 6 Bays
PLUS: 1.44MB Floppy • Serial, Game &
Parallel Ports • Speaker • 101 Key Keyboard
• 200W CSA Power Supply • I/O Card
• All RAM 80ns or faster**

BEFORE YOU BUY

CARDZ features advanced American motherboards with techniques like write-back cache. They fully support complex functions like multitasking, GUI's, OS/2, and Unix. Stripped systems may have motherboards made in mainland China, and every component is the very cheapest available.
Are you comfortable giving up so much to save 10%?

LASERS/SCANNERS

EPSON 300C

24 Bit Color 256 Grey Scale Scanner



\$2599 with I/F

POSTSCRIPT LASERS

NEC LC290 8ppm 2MB\$2099
NEC L90 6ppm 2MB\$2099
Texas Instruments 6ppm\$1799

NON POSTSCRIPT LASERS

HP III 8ppm 1MB\$2099
HP IIIID two-sided print\$3289
NEC 280 8ppm 1MB\$1149

SCANJETS

HP ScanJet Plus\$1699
Fujitsu 3063 18ppm\$4299
Mitsubishi Page Scanner (complete)\$899

THE BEAUTY OF OUR WEAPONS

CARDZ Tower SX

- 19" LED Tower with 200W P/S CSA
- American DEICO motherboard onboard IDE 16/20MHz 1MB RAM
- Advanced Quadtel BIOS
- TEAC 43MB 23ms Hard Disk with 32K Cache (Japan)
- 16 bit VGA card 1024 x 768
- Color VGA Monitor 1024 x 768 .28mm
- NTC 101 enhanced keyboard

\$1699

**FULL 2 YEAR
PARTS AND
LABOR
WARRANTY**

CARDZ Tower 386-25

- 19" LED Tower with 200W P/S CSA
- SMT motherboard, newest chipset, AMI BIOS 1MB RAM
- TEAC 43MB 23ms Hard Disk with 32K Cache (Japan)
- 16 bit VGA card 1024 x 768
- Color VGA Monitor 1024 x 768 .28mm
- NTC 101 enhanced keyboard

\$2099

386-33 \$2499*

*with Cache Computers motherboard

**FULL 2 YEAR
PARTS AND
LABOR
WARRANTY**

ADVANCED VIDEO CONTROLLERS

PIXEL ENGINEERING

THE ULTIMATE PLUS 8514/A



- Supports up to 1280 x 1024, 256 colors with 2MB
- Supports both interlaced and non-interlaced modes
- 100% register and software level compatible with the IBM 8514/A
- AutoSense for monitors (including 72Hz monitor)
- Configurable for 8 or 16-bit slots
- Runs Windows and Presentation Manager without special drivers
- Bit block transfer
- Color Mixing
- Polygon fill
- Line drawing
- Scrolling
- Pattern fill

\$999 with 2MB

THE ULTIMATE PLUS 1MB TSUNG LABS



- Supports up to 1280 x 1024, 256 colors
- Compatible w/ VGA, MDA, and HERCULES
- AutoSense for 8 or 16-bit slots
- Supports both inter. and non-interlaced modes
- Compatible with all monitors (56Hz - 85, 72 Hz also)
- FastBIOS for increased performance
- Turbomode for fast bus access (Zero wait state motherboard)
- Panning and Scrolling
- Split-screen feature

**\$219 for TURBO
\$189 Standard**

SILICON GRAPHICS IRIS VISION



- 3D Graphics and CAD
- 8 and 24 bit 1280 x 1024
- Render, Texture, Rotate
- A true workstation on a card for 386/486

Call For Pricing

RISEING STARZ

Notebook Laptops

Ask for pricing on:

- Texas Instruments
Travelmate 2000/3000
\$2699/\$4499
- Bondwell 286 40MB
310 - \$1399
310 Plus - \$1689



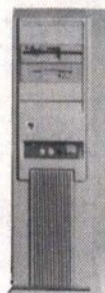
DOCUMENT PROCESSOR Don't Know What It Is?

- It's hardware image compression plus scanner & printer speed-uppers. Card from \$2999
- You can file or print more than 25 pages per minute!
- Compress and file images at 15:1 typical compression-no OCR
- A complete document/image filing and retrieval system.
- View on 20" Dual Page Monitor
- Store on 900MB WORM Drive



**From
\$2999**

YANKEE CLIPPERS



- California Motherboards from Cache Computers
- California advanced video cards from Pixel - 1MB Tsung Labs
- US Northgate Keyboard
- Japanese 70ns RAM
- Japanese Fujitsu 135MB 20ms HD with 2 year warranty & best quality HD controller
- Japanese 1.44 & 1.2 MB Floppy Drive
- Japanese Sony 1304 Monitor non-interlaced multisync 25mm dot pitch

230 Watt Tower Included

386-33 \$3699
486-25 \$4299
486-33 \$4989
EISA Add \$800

Optical Storage

Toshiba CDROM \$799
Chinon CDROM \$699
NEC CDROM (Fastest) \$1199
REWRITEABLE DRIVES

Ricoh \$4999
Sony \$5999
All are complete kits



Panasonic WORM
Drive \$2999

COMING SOON I

PIXEL HiColor VGA Card

Sierra Chip 1024 x 768 VS Edsun 640 x 480
Non-interlaced Interlaced
32,000 - 7,000 Colors 9,000 Colors

**AMAZING RESOLUTION
on display now at CARDZ!**

VGA MONITORS

Mitsubishi 800 x 600 M/S, NTSC\$699
TVM 3A 1024 x 768, Analog\$599
TVM Mono M/sync 256 Grey\$299
ASI 1024 x 768 .28mm\$359
AOC 1024 x 768 .28 mm\$399
NEC 3D 14" 1024 x 768SALE! \$769
NEC 4D 16" 1024 x 768\$1699
NEC 5D 20" 1280 x 1024 non-inter.\$3399
Morse VGA 1024 x 768\$459
Sony 1304 14" Multiscan non-inter.\$949
Mitsubishi 16" 1280 x 1024\$1499
Mitsubishi 6935 non interlaced 20" 1280 x 1024\$2599
Seiko 1440 M/S .25mm\$689
Seiko 1450 M/S .25mm Non Interlaced\$889
Seiko 2050 20" .31mm Non Interlaced\$2599
TVM 5A .28mm Non Interlaced\$699

VIDEO CARDS

Monochrome Graphics Card parallel port\$29
16 bit 1024x768 512k\$119
Paradise OEM VGA 256k Exp. 512k 1024x768\$129
ATI VGA Wonder 1024x768 512k with mouse\$249
Tricom 1024x768 256 colors 1 MB memory incl. ...\$189
Expand memory from 256k to 512k\$39

MODEMS

US Robotics dual standard v32bis\$1099
US Robotics 9600/14.4\$749
Multitech v32 PC Choice!\$699
MultiTech v.32 Modem/9600 Fax\$899
Focom 9600 Fx Board\$249
TBBS BBS S/W 16 Line\$929
ATI 9600 V32/42\$599

HARD DRIVES (BARE)

40 Mb 25 ms IDE Hard Drive\$299
Mitsubishi 42MB (65MB RLL) 28ms Voice coil \$349
TEAC 43MB 23ms 32K Voice Coil\$289
Fujitsu OEM 45MB 25ms 64K 2yr.\$299
Fujitsu OEM 90MB 20ms 64K 2yr.\$499
Fujitsu OEM 135MB 20ms 64K 2yr.\$599
Fujitsu OEM 180MB 20ms 64K 2yr.\$899
Fujitsu OEM 340MB 16ms ESDI 15MHz\$1599
Fujitsu OEM 660MB 16ms SCSI 15MHz\$2499
Fujitsu 660MB 16ms SCSI/ESDI\$2399
Maxtor 80 Mb 17 ms IDE\$499
Maxtor 200MB 15ms 3.5" IDE\$999
Maxtor 339MB 14ms ESDI\$1899
Maxtor 339MB 14ms SCSI\$1899
Maxtor 650MB 16ms ESDI\$2799
* Consult CARDZ BBS for more Hard Drive Listings

HARD DRIVE CONTROLLERS

IDE Host Adapter (controller) 16 bit, HD/FD, Cable. \$29
Future Domain SCSI 16 bit SCSI, Novell Driver \$189
Kimpson 1:1 HD/FD RLL WD Chipset\$99
Ultrastor 20MHz ESDI Cache Floppy support ...\$249

MODEL	CACHE 386-33/40	Mytek MCA386-33	Micronics MCA386-33
Norton SI	40.5/48.7 (1.45)	40.5 (1.45)	30.4 (1.45)
Landmark	55.1/65.7 (1.14)	54.8 (1.14)	53.7 (1.14)
MIPS	83.1/9.95	83.1	Not Published
Baby AT size	YES	NO	YES

Up to 25% of listing that will be cash. Cache memory makes our SAT-3340 the best in the West - almost 100MB.

**MADE IN
THE U.S.A.**

TOP QUALITY from CACHE



CARDZ

386 / 486 COMPUTERS

1920 West Broadway, Vancouver, B.C. V6J 1Z2 Open: 9:30 - 6:00 Mon. - Sat.

INQUIRIES: (604) 732-8400 TECHNICAL SUPPORT: 732-8402
FAX: 732-8412 ORDERS ONLY OUTSIDE VANCOUVER 1-800-676-3111

All items subject to availability. Shipping extra,
VISA add 1.9%. Prices are Cash.

**MINIMUM
WARRANTY:
ONE YEAR
PARTS
TWO YEARS
LABOUR**

CARDZ BBS

1.2Gb 15 lines (604)
• 9 2400/4800 lines 734-5901
• 4 HST 14.4 lines 734-5400
• 2 V.32 9600 lines 734-5800
• Prices On Computer Parts
• Online Hardware Store
• Pay Services (\$30) Include:
• BIX • USA Today • Adult • CD ROM
• BYTE • Boardwatch VISA

VANCOUVER'S #1 Networking Company Provides Best Process, Quality, Support & Performance

servers security Laser Connection hubs
SNA Gateway Coax
Novell
Twinnax router file lock X.25

NETWORK SPECIALISTS

TCP/IP Banyan
record lock
workstations 3Com
Bridge
SCD 10BaseT

Our Network Clients:
BC Hydro
Kwalikum Secondary School
Olympia Tiles & Carpet
Parksville Middle School
Qualicum Middle School
St. George's School

and many more...

DPE COMPUTERS (Since 1983)

775 Homer St., Vancouver, B.C. V6B 2W1

CMS Computers Plus Inc.

#209 6th Ave. S.W., Calgary, Alberta T2P 0R2 Tel: 403-237-0870 Fax: 403-237-0871

SEE OUR HARDWARE AD ON PAGE 31

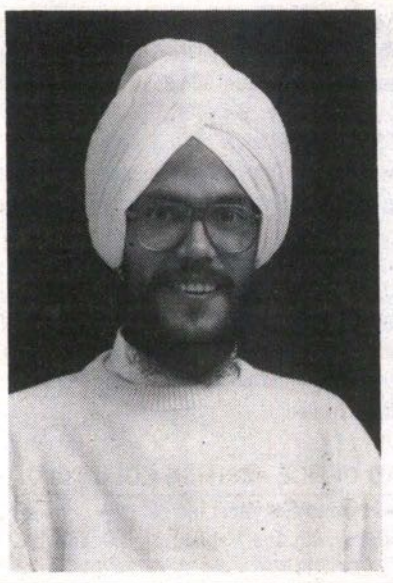
SEE OUR AD ON PAGE 77 FOR MORE NETWORK INFORMATION

For professional consultation, please call

Tel: 604-683-7587 Fax: 604-683-9210

Multiterm is a registered trademark of DPE Electronics Canada Ltd.

From the Editor



When I first tried telecommunicating with *CompuServe*, I had a buzz for days. It felt like the same combination of liberation, eye opening and personal empowerment that came when I first got my drivers license. Telecommunications with a computer opens up a vast world of information that becomes easily accessible to mere mortals. No longer do you have to ask the librarian, the teacher or other guardian of information where things are or how long you can borrow them for—the library is always open. All you need is a modem, a computer, some telecommunications software (I use Red Ryder and Telix) and a charge card and you are on your way.

Logging on to an information service like the American *CompuServe*, all-Canadian *Suzy* or local *Mind Link!*, opens the door to a wealth of databases and information services. They have the latest shareware to

download and areas for dialogue on every topic under the sun. If you log on at the right time, you can sometimes "talk" with presidents of software companies, program developers, science fiction writers, famous personalities and lots of other just plain knowledgeable folk. If you miss the action, you can always view the transcripts of what other people said, after the fact. Any questions you have can usually be answered by some helpful online Samaritan.

Then there are the databases of information to tap into. Many magazines and journals now keep back issue text available to call up and review. (*The Computer Paper* is available on *Suzy*) Many services allow you to do keyword searches of topics. My wife recently went back to working out at the local pool. She used to swim competitively and wanted to know what speed was considered good for masters level swimming. I went online with *CompuServe* and searched a magazine database and came up with a number of articles of interest on swimming, close but no cigar. I then went into another area that contained back issues of American newspapers. Bingo, I started to get scores and speeds that she wanted. While it may seem trivial, if you substitute something that you are really interested in and want to know about at 10 o'clock at night, you start to see the power of the online world.

Thanks to all the contributors this month. If you are new to telecommunications, you may want to check out the course put on by Gord Harris (see the article *Where's The Good Stuff?*) In a stroke of genius, he came up with the idea that rather than just talking about telecommunications, he would do a *show-and-tell* session for new users. In his course, he does live demos of *GEnie*, *Suzy*, and *CompuServe*. A good place to start.

Last but not least are all the free Bulletin Board Systems (BBS's) maintained by those noble souls—volunteer Sysops (System Operators). We have a list of some of the BBS's in the Lower Mainland. We encourage you to sample some of them. They cover almost every interest under the sun and best of all most are free. One caveat, however; always dial the number first yourself *without* your modem, preferably at a reasonable hour—there is nothing worse than getting the high-pitched whine of a modem in your ear at 3 a.m. We make every effort to ensure the accuracy of the list at press time. The reality of many of these boards is that there is a high turnover. The telephone number lapses and is reassigned to a new telephone subscriber who unwittingly inherits a defunct BBS telephone number. Be kind to your neighbors.

As you can probably tell, I am enthusiastic about the possibilities of telecommunications. There is a wealth of information, people to communicate with, programs and games out there for the asking. The costs, if you use a little discretion, can be relatively minor (past your initial investment in a computer) and it is great fun. My advice: get wired.

Enjoy the issue.

Kirtan Singh Khalsa
Kirtan Singh Khalsa — Editor/Publisher

Editorial Schedule

Issue	Topics	Copy	Camera Ready	Distribution
MAY 1991	Notebook Computers, Personal Information Managers	April 15	April 17	May 3
JUNE 1991	486 Computers, CD-ROMS Upgrading Your Computer	May 13	May 15	May 31
JULY 1991	Custom Software Development: Databases & Multimedia, Music	June 10	June 12	June 28
AUG 1991	Networking, Home Office Computers	July 15	July 17	Aug 2

Contents

B.C. Edition • April 1991

Feature

TELECOMMUNICATIONS

- Telecom: The Next Generation** 33
The phone and the computer are tying the knot. *By Graeme Bennett.*
- Computer Communications** 40
Telecom software that goes the distance. *By George Slade.*
- The Virus Threat** 42
Is your computer at risk? *By Robert Michael Slade.*
- Where's "The Good Stuff"?** 43
Looking for a BBS? Start here. *By Gord Harris.*
- LAN FAX Gateways** 46
Network fax solutions. *By Chem Cohen.*
- Gamma FAX & Gamma NET** 50
Fax board and server software. *By George Slade.*
- The Mind Link! BBS List** 52
If it's in service, you'll find it here. *By Mind Link! and The Computer Paper.*
- Zoom Fax/Modem and Winfax** 54
Bargain-priced modem meets print-to-fax software. *By Daniel Werger.*
- How to buy a Cellular Phone** 60
Phone/service considerations and recommendations. *By Graeme Bennett.*
- Mind Link! Guide** 69
A reference book for BBS beginners. *By David Martyn.*

Reviews

- The Macintosh LC** 65
How does Apple's lowest-cost color Mac stack up? *By Graeme Bennett.*
- HP's New Workstation** 55
Once again, HP stands for High Performance. *By William Barr.*
- Amiga Publishing** 67
A look at three powerful DTP programs. *By Nancy Lorieau.*
- The Shareware Shelf** 60
Aporia takes command of Windows. *By Gordon Simmonds.*

Departments

- Computer Calendar 70-74
- Computer Classifieds 76
- Index of Advertisers 78
- Letters to the Editor 6
- Masthead 6
- What's New 9
- Newsbytes 17
- Apple 19
- Atari 19
- Commodore 17
- Canadian News 21
- DTP 21
- General 23
- IBM World 24
- Networks 26
- Portable Computers 28
- Trends 28
- Telecom 30
- Unix 32

SUBSCRIBE to The Computer Paper
For 12 monthly issues, send a cheque or money order for \$24.95 or order by fax (VISA/MC) (604) 732-4280

SUBSCRIBE TODAY

I want to SUBSCRIBE and receive 12 great issues of *The Computer Paper*, I pay just \$24.95 U.S.A. \$45, Overseas \$65

MAIL TO: Canada Computer Paper Inc.,
8-3661 West 4th Ave.,
Vancouver, B.C. V6R 1P2
Tel: (604) 733-5596 Fax: (604) 732-4280

NAME: _____

ADDRESS: _____

CITY, PROV.: _____

POSTAL CODE: _____

PAYMENT (\$24.95):

☐ Payment enclosed (cheque or money order)

☐ VISA/Mastercard

Card Number _____ Expiry _____

Name on Card _____

Signature _____

Which edition would you like to receive?

☐ B.C. ☐ Alberta ☐ Manitoba

We Think Small

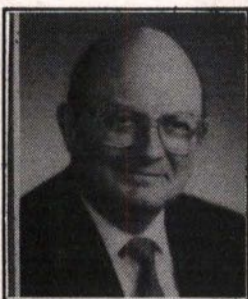


Lynda L. Seigneuret

Owners of today's small businesses face greater challenges than ever before.

Like minimizing taxes, developing financial controls and determining business strategy and direction.

At Healey Seigneuret & Co. we work with you throughout the year providing objective advice and conscientious support to help you manage your growing business more effectively.



Jacques Seigneuret

ACCOUNTING, TAX & ADVISORY SERVICES FOR YOU & YOUR BUSINESS

- Year end financial statements
- Bookkeeping & payroll services
- Corporate & personal taxes
- Business planning
- GST consulting

**HEALEY
SEIGNEURET
& Co.**

CHARTERED ACCOUNTANTS

**Oakridge Centre
500 - 650 W. 41st Ave.
Vancouver, B.C.**

(604) 266-0212

Masthead

Publisher / Editor

Kirtan Singh Khalsa

Assistant Editor

Graeme Bennett

Newsbytes Contributing Editors

Wendy Woods, Wayne Yacco, Dana Blankenhorn, Jon Pepper, Steve Gold, Peter Vekinis, Ken Takahashi, Naoyuki Yazawa, Paul Zucker, and Grant Buckler

Contributing Writers

George Slade, Gordon Harris, Chem Cohen, Daniel Werger, Robert Slade, Nancy Lorieau, David Martyn, Gordon Simmonds, William Barr

Proofreader

Neall Calvert

Cover Art

Graeme Bennett

National Ad Sales

John Oliver (604) 733-5596

B.C. Ad Sales

Hari Singh Khalsa (604) 733-5596

Alberta Ad Sales

Patricia FitzGerald (403) 262-5737

Manitoba Ad Sales

Suzanne FitzGerald (204) 949-7720

Production

Carolyn Howse

Office Manager

Dharm Kaur Khalsa

Receptionist

Suzanne Byars

Distribution

Ken Kemp & Co., Stands Unlimited.

Printer

Transcontinental West Printers

Printed in Canada ISSN 0840-3929

Subscriptions

The Computer Paper is published monthly. If you would like The Computer Paper mailed directly to your home, please send a cheque for \$24.95 to Suite 8, 3661 W. 4th Ave., Vancouver, B.C. V6R 1P2 Telephone (604) 733-5596. This will cover mailing and handling for 12 issues in Canada. American subscriptions please send \$40 in US Funds. Overseas please send \$65 Canadian.

This is Volume 4, No. 4, April, 1991

The Computer Paper, Western Canada's Computer Information Source, is published by Canada Computer Paper Inc. All rights reserved. Reproduction in whole or in part without the permission of the Publisher is strictly prohibited.

HEAD OFFICE - BRITISH COLUMBIA

Canada Computer Paper Inc.

#8, 3661 W. 4th Ave. Vancouver, B.C. V6R 1P2

Phone: (604) 733-5596 FAX (604) 732-4280

BBS Number: Mind Link! (604) 576-1214

Circulation: 50,000

ALBERTA OFFICE

4th floor, 714 1st St. SE, Calgary, Alberta.

Tel. (403) 262-5737 Fax (403) 265-5974.

Edmonton Tel. (403) 459-3554.

Circulation: 50,000

MANITOBA OFFICE

1760 Mathers Ave. Winnipeg, Man R3N 0N6

Tel. (204) 949-7720, Fax (204) 949-7721

Circulation: 25,000

2nd Class Postage Reg. Number 7718



COMPUTER EMPIRE

CSM MANAGEMENT & CONSULTING INC.



SPECIAL CLASS: "HOW TO ASSEMBLE COMPUTERS"

Weekly hands-on class, includes trouble shooting and assembling techniques, certificate will be given upon completion of the course. Advanced registration required.

JOB OPENINGS

Experienced Salespersons required for our expanding Corporate Sales Division. Call 649-7281

WHY SHOULD YOU BUY FROM US?

We screen test all our suppliers' products
One hour walk-in repair turnaround
On-site service available
Five years warranty available
Professional after sale technical service

**TECHNICIAN'S
SPECIAL**
Hard Disk \$80
Floppy Drives \$20
Monitor \$35
AT Mother-board \$60

**POINT OF SALE
SYSTEM**
• Free Estimate
• Free Consultation
We have a specialist available to work with you to obtain the best cost effective solution for your specific needs.

**DEMO
CLEARANCE
SALE**
All Demo Units
Must Go.

**Computer
Rentals**
XT System \$48/week
AT System \$68/week
386 System \$88/week
(Ask for monthly discount rate)

**NOVELL
NOVELL
NETWORKING**
Qualified Installers
Reasonable Prices!

**CUSTOM
PROGRAMMING
APPLICATION
DEVELOPMENT**
C, Lisp, Pascal, Fortran,
Prolog, Foxpro, Assembler
PL/1, Dbase
Training & Software support

386 System 33MHz

- 1MB RAM (Exp. to 16MB)
- 1.2MB Floppy
- 40MB Hard Disk, 28ms
- VGA 1024 x 768 14" Monitor .28mm
- 16 bit VGA 1MB
- Enhanced Keyboard

\$2388

Lease to own \$128/month

\$1988

Mono Monitor

386 System 25MHz

- 1MB RAM (Exp. to 8MB)
- 1.2MB Floppy
- 40MB Hard Disk, 28ms
- VGA 1024 x 768 14" Monitor .28mm
- 16 bit VGA card 512K
- Enhanced Keyboard

\$1988

Lease to own \$107/month

\$1588

Mono Monitor

386 System 16MHz

- 1MB RAM (Exp. to 4MB)
- 1.2MB Floppy
- 40MB Hard Disk, 28ms
- VGA 1024 x 768 14" Monitor .28mm
- 16 bit VGA card 512K
- Enhanced Keyboard

\$1688

Lease to own \$90/month

\$1288

Mono Monitor

AT 286 System - 16MHz

- 1MB RAM (Exp. to 4MB)
- 1.2MB Floppy
- 40MB Hard Disk, 28ms
- VGA 1024 x 768 14" Monitor .28mm
- 16 bit VGA card 512K
- Enhanced Keyboard

\$1288

Lease to own \$70/month

\$888

Mono Monitor

Sales: 872-1668 Service: 879-4162 Fax: 874-1668 3031 Main St. Vancouver, B.C. V5T 3G6 Hours: Mon-Sat 9:30 am - 6 pm

Mailbox

LETTERS
TO THE
EDITOR

Who Was That Masked Man?

I'm sorry...but the "masked man" on the cover of the March issue, doesn't portray a man crying. In fact, some observers, including myself, feel that the facial features of the person suggest that it's a "heroine"...yes, a woman. So much for not trying to convey an image of stereotyping women, because in this case, you failed to convince everyone. Good start though...the victim looked male.

Anthony Pang Group
via Mind Link!

I met him; he sure looked like a guy to me.—Ed.

I would like to see in the future of *The Computer Paper* several things. First of all, comparisons of the local clones made would be very helpful. I would also like to see a review of different types of monitors. And lastly, I would like to see *The Computer Paper* made longer!

Thanks for your time,
M. Feder
via Mind Link!

Check out this month's PC Magazine, it has reviews of VGA monitors. We are working on making it longer. This is the biggest single issue yet.

Canada's Future: On-the-line

Your readers may be interested to know that The Citizens' Forum on Canada's Future (aka The Spicer Commission), is now available for public participation via the MIND LINK! BBS. To the best of my knowledge, this is the first time a Royal Commission has held "hearings" on this medium (although I'd be pleased to hear about other examples).

I'd like to thank Frank Reiter at MIND LINK! for his assistance and *The Computer Paper* for advice. Also, I'd like other BBS Sysops to include the Citizens' Forum on their boards. For info, call 685-7661.

Sincerely, Mark O'Neill Citizens' Forum on Canada's Future. (March 9-91)

Roland Responds

With respect to your March 91 edition article on How to Buy a Laser Printer: Disk Based Clones, our product "Ravenscript" has sold extremely well into the entry level desktop publishing arena where people cannot afford or do not wish to use the much more expensive "true" postscript print-

ing devices. We have received many compliments on how easy Ravenscript is to install and use, and as our version of UltraScript is a very recent one, we have also received many compliments on the output speed. We would much prefer that instead of implying that the product is a "hassle," as so strongly stated by your writer, you properly evaluate our product. We would be very pleased to provide products for a true evaluation.

The Raven LP1110 features the HP LaserJet II, IBM ProPrinter II, Epson FX86e/800, Diablo 630, and Raven 9101/9104 emulations whereas our true Adobe Postscript printer offers Adobe PostScript, HP LaserJet II and Diablo 630 only, not those outlined in your article.

I also noticed that you will be reviewing Notebook and 486 computers in your upcoming issues. I would like to have our products reviewed in these issues if possible. Can you please provide me with a contact that will be performing the evaluation.

Sincerely, Alan Gillies
National Training Coordinator,
Roland DG Canada Inc.

Graeme Bennett Responds: In the March '91 issue, I incorrectly attributed some features of the Raven LP-1110 and Panasonic KX-4450i laser printers to the LP1170-PS and KX-4455 models instead. The LP-1110 and KX-4450i feature HP LaserJet II, IBM ProPrinter II, Epson FX86e/800, Diablo 630 and Raven 9101/9104 emulations. The higher-cost LP1170-PS and KX-4455 PostScript models offer Adobe PostScript, HP LaserJet II and Diablo 630 only, not those mentioned in the article.

Regarding RavenScript/UltraScript: I am very familiar with UltraScript; in fact, I have written a series of tutorial articles called "Using UltraScript" and "Advanced UltraScript," available in the file section of the Gadgets Roundtable on GENIE. Like you, I am impressed by its speed, however the fact that it does not directly support Adobe Type 1 fonts severely limits its viability for many users, especially since Type 1 fonts contain "hints" that enable better rendering at 300 dpi. And while Type 1 fonts can be converted to Type 3 fonts (which it can handle), they lose these hints, and it's a hassle. Until UltraScript accepts Type 1 fonts, I'd recommend Freedom of the Press for budget-conscious PC or Mac users who want a software PostScript interpreter that includes Type 1 font support.

SuperCalc 5 Clone?

In your review of SuperCalc 5, George Slade and Steve McIlwain ask the question: "Why would anyone want to copy

Would you like to recycle your toner cartridges but had a bad experience in the past?

Does your toner cartridge leave black lines or smudges along the side of the page?

Is your toner density too light?



Protect OUR Future
Recycle YOUR Toner Cartridges

Do you wish someone would make a toner cartridge to last longer?

Are you looking for a company that stands behind their products 100%?

One that you can deal with in confidence?

We have the Answers!

SUPERIOR LASER SUPPLY
Your Recharge Specialists

RECHARGED TONER CARTRIDGES

\$59.95 The print is actually **blacker** than the original EP
100% SATISFACTION GUARANTEED
or you don't pay

SUPERCHARGED CARTRIDGES

LONGER LIFE - 40% more prints per cartridge
\$74.95

REMANUFACTURED CARTRIDGE with SUPER DRUM

Better quality graphics than O.E.M. **\$119.00** Guaranteed for at least 6
Drum rated for 40,000 pages. trouble free recharges -
Same price as O.E.M. new cartridge. 40% longer life than O.E.M.

Many More
Products and
Brands Available

942-5512

All Prices Include
FREE Delivery in
Greater Vancouver

Can You See
10 Million Dots?

Pender Office:

- announces fast, high resolution output up to 3386 dots per inch from our new Linotronic L330 Imagesetter - over 10 million dots per square inch!
- L500 provides extra wide, high resolution output up to 18" by 4' to film and paper
- full colour laser printing
- quality typesetting, design and production programming

Hastings Office:

- Mac and PC workstations
 - self-service laserprinting
 - DTP specialists for hardware, software and peripherals - offering sales, advice and support
- Both Offices:**
- Mac and PC environments
 - disk and file conversions
 - scanning for text, line art and photographs
 - service with a smile

- Monday to Friday 9-5 pm and Saturday 10-3 pm
- 830-789 West Pender St. Vancouver V6C 1H2
- Fax (604) 681-2300
- Modem (604) 681-3278
- 716 West Hastings St. Vancouver V6C 1A3
- Telephone (604) 682-5443
- Fax (604) 682-4103

Laser's Edge
(604) 662-3774



MAC



PC



LINOTRONIC



LASER



COLOUR LASER



SCANNER



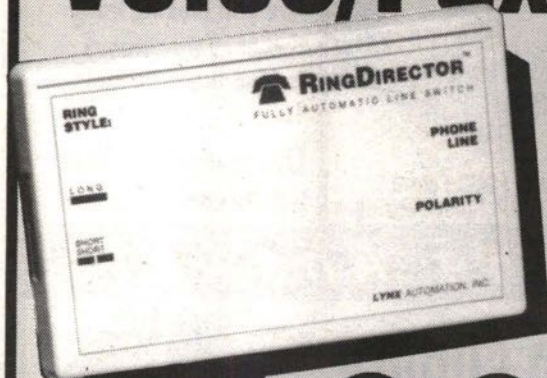
TYPESETTING



SALES

USES
SMARTRing

Voice/Fax Switch



Phone Fax Ans Mach Modem

Share any 2 devices!

Used with BC Tel's SMART Ring, Ring Director connects all calls automatically to the device you have placed on each phone number. Use with any two devices.

Guaranteed 100% Accurate.

Dealer Enquiries Welcome

Impaq Technology Inc.
5986 East Boulevard
Vancouver, BC V6M 3V4



Ph: (604) 261-1800
Fax: (604) 263-9201
Toll-free 1-800-663-9272

Save 100's
of dollars
in phone
line charges

ONLY
\$129.00
SRR

LETTERS

the Lotus user interface?" This is a classic example of being blinded by the so-called "market leader" and therefore ignorant about older and/or better products that are not as well-known.

The fact is, SuperCalc has been on the market FOUR YEARS when Lotus 1-2-3 appeared. SuperCalc 1 was custom-written for \$25,000 to be bundled with the Osborne 1; the design-goal was to be like, but better than, VisiCalc. Later, Lotus also copied VisiCalc's slash-key interface, adding some features SuperCalc already had. So who copied who?

Having bought and fallen in love with GeoWorks, I'm sure I'll switch to a GUI spreadsheet one day. Until then I'll keep using SuperCalc 4 (not even 5!) because it all fits on a 720K floppy and runs fine in my old 8086 laptop. Sometimes, you don't need everything - just enough.

Alan T. Chattaway
Vancouver

DTPs Happy

On behalf of the Desk Top Publishers User Group, I would like to take this opportunity to thank you for the free listing in the User Group Column of your paper. We get a lot of calls from desperate DTPers who have seen the ad.

The March issue featuring Desk Top Publishing was of particular interest to

our members. The unbiased opinions on Hardware and Software always make your magazine a valuable source of information.

Many thanks again!

Karole Doner

Director, The D.T.P. Group, North Vancouver

Educational Facility

I have been a casual reader of your publication for about two years now and have enjoyed many of the articles in *The Computer Paper*. Thank you for the well-written, easy-to-read and informative articles and evaluations which I find whenever I pick up *The Computer Paper*.

I would like to receive *The Computer Paper* on a monthly basis. I am interested in maintaining an extensive "library" of computer journals for my students and as a resource for the community. Please add me to your subscription list and inform me of the amount I owe you for an "educational facility" subscription.

Again, thank you for publishing an informative, readable computer magazine. Keep up the good work.

Norman J. Elgaard
Fort St. John

The Computer Paper welcomes readers' comments. Letters may be edited for clarity and brevity.

Underwood No. 3



Things have changed about the way Vancouver does business!



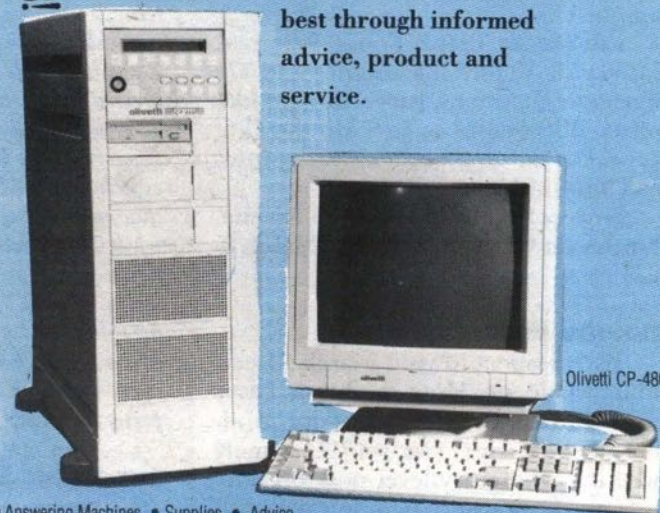
Remember when?

Barr Business Machines began helping Vancouver businesses modernize in 1937, with such early "word processing" units as this sturdy Underwood No. 3. The spirit of service — providing informed sales & timely reliable service — is still a part of the Barr formula.

**BARR
BUSINESS
MACHINES**

1250 West 6th Ave
Vancouver, BC
V6H 1A5

Tel: 736-9111
Fax: 737-0129



Olivetti CP-486

Computers • Laser Printers • Facsimiles • Word Processors • Copiers • Typewriters • Dictation M/C • Telephone Answering Machines • Supplies • Advice

What's ^{A first look} New

CalComp Introduces New Color Printers

RICHMOND, B.C., MARCH 14 (TCP)—CalComp has introduced the ColorMaster Plus thermal transfer printer. With a resolution of 300 dots per inch (dpi), ColorMaster Plus produces laser-quality graphics in full color on letter (A-size) or tabloid (B-size) paper or transparency film.



The printer combines a non-impact imaging head with a thermally sensitive ink ribbon, which is housed in a cartridge for clean and quick installation and removal. Three colors—cyan, magenta, yellow—and black are transferred to the paper or film in separate passes. (A black ribbon is also included for single-pass monochrome printing.)

By using combinations of pixel colors and patterns, thousands of colors can be created. ColorMaster Plus provides a variety of color fill options as well, including solid areas, dot patterns and crosshatching. PANTONE certified



Inexpensive Slim-line PCs Introduced by Commodore

AGINCOURT, ONT., MARCH 14 (TCP)—Commodore Business Machines has announced the introduction of a new series of Slim-line style personal computers.

The three new models share a modern and attractive design and measure less than four inches (10.2cm) in height.

The SL286-16 is an entry-level model based on the 80286 16MHz processor and the SL386SX-16 and SL386-20 are higher-performance models using the 80386SX processor, one with a 16MHz clock speed and the other running at 20MHz.

Common features on the three systems include 1MB of on-board RAM (expandable to 5MB), five expansion slots (three 16 bit and two 8 bit), one parallel and two serial ports, Super VGA video output, a 150-watt power supply, MS-DOS 4.01 and GW BASIC. Microsoft Windows 3.0 is bundled with both of the SX machines (they can also operate with Unix or OS/2). A variety of hard and floppy disk options are available, as are customized math co-processors.

"The Slim-line series is a response to the market demand for smaller, more elegant-looking machines," commented Tom Shepherd, Commodore's Director of Marketing. "We've priced the new models quite aggressively and are anticipating strong sales in the self-employed and small business sectors. We also expect to do well in the educational markets where we've traditionally been quite strong."

In a separate press release, Commodore Business Machines has signed a \$3.4 million agreement with Revenue Canada-Taxation to provide complete 386SX-based systems to be used in installations across Canada. The systems will be custom configured and include tape backups, disk drives, networking cards and software.

Contact: Tom Shepherd, Commodore, 416-499-4292.

Q: Who shrunk their 386³³? Answer: Q.

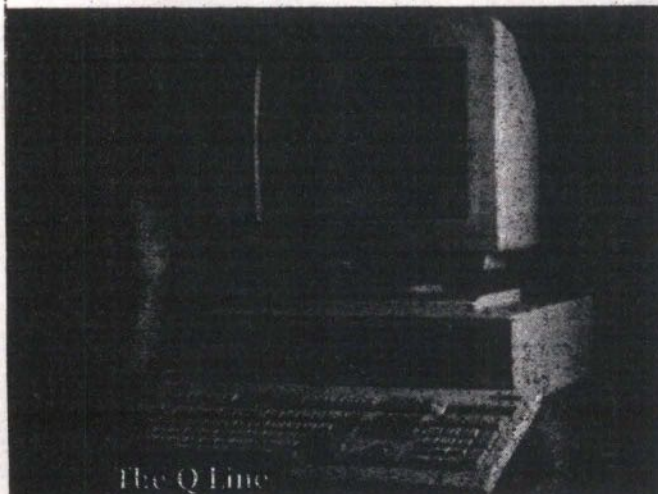
The new Q386³³ Slim is now in Canada!

Experience the full power of a 386³³ Cache machine in a space-saving Slim case! Q by Javell now adds the 386³³ to its Slim series. With up to 8 MB of cached RAM and super fast ATI extended VGA integrated on the motherboard, the Q386³³ Slim offers unparalleled value — a superbly designed machine. All of Q's Slims come with incredibly fast internal super VGA and five open expansion slots, ensuring ample room for future expansion — a feature made possible by the design of its manufacturers, the Motherboard Factory. And as with all of Q's computers, you get a two-year limited warranty and a service centre right here in Vancouver.

If you take your business seriously, go with Q for the answers. Q Personal Business Computers. Quality by design. Award-winning. FCC and UL approved.

See us at Oxford Computers (Caulfeild Village, West Vancouver. Telephone 922-2447) or visit our downtown showcase today (Suite 304 - 700 West Pender Street. Telephone 685-7003).

Dealer inquiries are welcome.



The Q Line

Q486/33 Cache	Q386/25 Cache
Q486/25 Cache	Q386/20 Slim
Q386/33 Cache	Q386/xx Slim
Q386/33 Slim	Q286/12 Slim



The Business Computer that Means Business

Javell Enterprises International, 304 - 700 West Pender Street, Vancouver
British Columbia V6C 1G8 Telephone (604) 685-7003 Fax (604) 685-9611

GREAT OFFICE PACKAGES FOR PROFESSIONALS!

COMPLETE OFFICE SERVICES, FIVE MINUTES FROM DOWNTOWN

- Fully-furnished, executive offices
- Personalized telephone answering
- Executive secretarial and word processing
- Photocopy, facsimile, courier and mail services
- Elegant, fully-equipped boardroom
- Underground parking
- Private courtyard
- Overlooking downtown and mountains
- Business identity plan service
- Daily, weekly, monthly and long-term office rental
- Daily boardroom rental



TAKE IT FROM OUR CLIENTS:

Executive 1 is the essential link between my clientele and myself. Christine and her staff provide a vital service to my business and they realize this. Their professional approach has been the key.

Norman Hovan
Macintosh Consultant
Rockland Coast Projects
(Business ID Client)

I have had the pleasure of being in two other packaged offices. Executive 1 is by far the best I have seen. The staff is very professional and extremely competent. The offices are professionally laid out and the boardroom offers all the amenities of a corporate head office boardroom. The location is also ideal.

Nick Marchi
Decision Data
(Office Tenant)

"Professionally Yours"
**Executive 1
Business Centre**

101-1965 West Fourth Avenue, Vancouver, B.C. V6J 1M8
Telephone: (604) 737-2114

MANY HAPPY RETURNS IT'S TAX TIME

Don't be caught without Toner, OPC Drum Kits, etc.
for your Laser Printers & Copiers.

Call Today for Best Prices & Free Delivery

Maintain Your Laser Printer
in Top Working Order.

Cleaning
Special
from

\$39⁹⁵

Includes
FREE
inspection

Total Recycling Program for Laser Cartridges & Printer Ribbons

VISTA LASER

YOUR SATISFACTION IS OUR REPUTATION

Tel: 273-5446 Fax: 273-5478

11-12171 Bridgeport Road, Richmond B.C.

LaserNetworks
Approved Recycler

TROUBLE WITH DATA ENTRY? LET US HELP YOU

- ▶ Through our SCANNING process we will convert your written text or images into computer files.
- ▶ Everything from memos and letters to books and magazines can be SCANNED in 1,000 typefaces and 16,000 font sizes at speeds up to 100 characters per second.
- ▶ Your text or graphic can be converted directly into 50 different Word Processors, Data Bases, Spreadsheets, ASCII and Image formats.
- ▶ Other services include Electronic Forms, Logos, and programming.

- ▶ **HARDWARE/SOFTWARE SPECIALISTS**
Industrial - Commercial - Personal
- ▶ **486 SYSTEMS 386 SYSTEMS PRINTERS**
- ▶ **COLOUR SCANNER/GRAY SCALE**
- ▶ **OCR SOFTWARE**
- ▶ **NETWORKING**

275-2980



Rates base on \$18 Per Hour
All order C.O.D.

WHAT'S NEW

color allows the user to match the screen for professional results. Both A- and B-size output versions are available in each of four different configurations: ColorMaster Plus PS is 100% Adobe PostScript compatible using PhoenixPage, through an AppleTalk, RS-232, SCSI or Centronics parallel interface. PANTONE certified color makes ColorMaster Plus well suited for graphic design and illustration purposes as well as desktop publishing. ColorMaster Plus VRC models feature vector-to-raster conversion for DOS business presentation and CAD applications, plus Windows.

For creating overhead transparencies and similar tasks, ColorMaster VRC is compatible with Harvard Graphics and other popular software packages through a CalComp-supplied direct driver.

The ColorMaster Plus RGB version offers the capability to capture images from the host video screen, and ColorMaster Plus R raster-controller models lets PC users print from Windows applications such as Corel DRAW.

Contact: Brian McKenna, CalComp, 604-270-6276.



Where do we get one of those great vacuum cleaners?

New Drive Cleaning Tool

VANCOUVER, B.C., MARCH 14 (TCP)—NEO Marketing has introduced HEADMAX, a disk cleaning and diagnostic system for IBM and compatible computers it says is totally user-friendly and intelligent.

The outside of the disk contains the diagnostic program, the middle of the disk is an accurate calibration pattern and the inner surface has been treated with a specially formulated cleaning media that the company claims cannot damage the delicate heads on your drive and doesn't require the use of solvents.

During a cleaning request, the head signal is monitored using the special calibration track. The heads are then automatically placed over the specially formulated cleaning area on the actual HEADMAX disk and a cleaning cycle is initiated. The heads are gently rubbed in and out on the cleaning area using a clean part for every session. This avoids further spread of contamination.

After the cleaning cycle, the head quality is again automatically measured.

HEADMAX will perform repeated cleaning cycles until there is no further improvement in the results. The cleaning cycle then stops automatically.

For the advanced user, HEADMAX incorporates full diagnostics and exercising. The exerciser is a professional tool that can be used to fault-find on intermittent drives. The diagnostic sec-

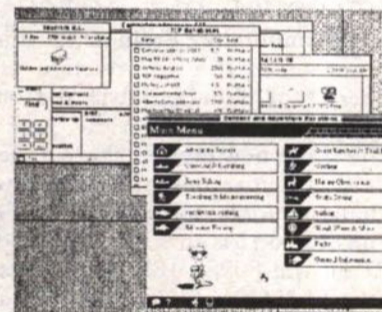
tion is again for the serious user and has been designed to assist the service engineer repair the drive or simply state what is wrong. Contact: NEO Marketing 604-254-9212.

Burnaby Company Named NeXT Computer Dealer

VANCOUVER, B.C., MARCH 14 (TCP)—Advantage Computers of Burnaby has signed an agreement with NeXT Computer, Inc., of Redwood City, Calif. to add the innovative line of NeXT computers to its roster of computer productivity solutions for business, industry and education. The company had previously been an Apple-only dealer.

Barry Cotter, president of Advantage Computers, says the addition of the NeXT product line is indicative of his company's long-term commitment to providing innovative and cost-effective computer products and technical support to British Columbia users.

"The NeXT computer is well past the stage of being a novelty," Cotter said. "We see hardware and software vendors rushing to develop products for this platform. To users this means a computing and development environment which has matured quickly since its introduction in 1989." Contact: Advantage Computers, 604-685-6227.



West Coast Programmers Stack Up The Awards

VANCOUVER, B.C., MARCH 14 (TCP)—Looks like the guys at Motion Works have done it again. They were recently awarded both Best International Entry and Best Interface Design in the MacWorld Super Stacks competition. The awards are for their Outdoor and Vacation Adventure Guide done for the B.C. Ministry of Tourism. According to Motion Works, Tourism BC was very happy with their 15% direct-mail response achieved with this little promo piece. Seems B.C. is the number three destination for American tourists and the 10,000 Mac owners in the U.S. to whom they mailed this stack just loved it. They wondered, as did we, why there was no mention of skiing in the stack. According to Motion Works, it will be in the next version.

Receiving an honorable mention in the Best Multimedia Entry was Vancouver's own Wondertree Education Society. Congratulations to Brent Cameron and the children at Wondertree.

Finally, Octavo Productions got an honorable mention for Best Commercial Entry for its TypeChart 1.0b. This neat little utility is a stand-alone program created with SuperCard that allows you to quickly identify FONTS number conflicts and print a complete type book of your existing fonts—a real must-have for desktop publishers.

DOPPLER COMPUTER CENTER PRESENTS:

POWER PLAYERS

Look who's coming to Doppler!



Mark Your Calendar

Meet the PowerPlayers, the Movers & Shakers, of the Computer Industry for indepth information and demonstrations. All your questions and concerns answered for once and for all. Your personal computer show is coming. **Be There.**

IN PERSON 11:30 am to 6 pm



**EXTRA
SPECIAL
DISCOUNTS
FREE
SOFTWARE
& More**

APRIL

- MON 8** **Microsoft**
Will demonstrate windows, give upgrade information, speak of new releases.
- WED 10** **ACCPAC Plus**
Insights into this top rated accounting package and review of new modules.
- FRI 12** **Ventura**
Xerox will demonstrate this powerful desktop publisher, running under windows.
- WED 17** **Harvard**
Software Publishing will answer all your questions on Harvard and others.
- THU 18** **Wordperfect**
All questions answered, information on upgrading, and windows product.
- SAT 20** **Dac Easy**
After 5 years, 10 awards 500,000 registered users, now with GST. See it!
- MON 22** **Ashton Tate**
Will demonstrate the latest dBase and it's features. Speak to the source.
- TUE 23** **QuarterDeck**
Desqview 386, QEMM, QRAM. All your memory questions answered!
- WED 24** **Nec Laptops**
Will display their full line of laptops, with some fantastic specials!
- FRI 26** **Micrografx**
See Designer V3.0 run under Windows, a graphics program you must see!
- TUE 30** **Okidata**
See why Okidata is one of the top rated printer Mfg. Laser and Dot Matrix.

MAY

- THU 2** **Symantec**
The antivirus leaders, along with utilities, Norton products for Mac and IBM
- TUE 7** **Wyse PC's**
Hot new releases at clone prices. See Why Wyse is a world leader in Terminals.
- THU 9** **PageMaker**
Aldus will do indepth demos on the latest PC V4.0. Mac will also be covered.
- FRI 10** **AST Canada**
Innovative technology used to create some of the fastest 386 & 486 systems.
- TUE 14** **Bedford**
Computer Associates has a top small business acct. package. So easy to use.
- WED 15** **Borland**
Where do you start with Borland, there is so much. New products & upgrades.
- THU 16** **Claris**
The cornerstone of the Mac software market. See the full selection and whats new.
- TUE 21** **Maximizer**
Richmond Software will demonstrate the latest version of this great sales tracker.
- THU 23** **Toshiba**
A selection of new Laptops now including full colour. See what is hot in Laptops.
- TUE 28** **ATI**
A leader in video card and modem technology. Talk to the source direct!
- THU 30** **SUZY**
Learn this information system, Real Estate, Stock Markets and much more.

JUNE

- MON 3** **Citizen**
PC Magazine Editors Choice for economical 9 & 24 Pin printers. Full colour print.
- WED 5** **Mitsubishi**
The most fantastic full color sublimation printer. Monitors and Laptops.
- FRI 7** **Corel Draw**
The worlds leading Design software, if you hav'nt seen the applications- Be here!
- SAT 8** **3M Canada**
Inventor of magnetic media for Data Cards & Disks. Fantastic instore specials!
- MON 10** **FileShuttle**
Get C Software will demonstrate File Shuttle under Windows. Fast & easy.
- WED 12** **Super Calc**
Now at a price under \$150 you've got to check out this Spread Sheets' features.
- MON 17** **WordStar**
See the new Windows product There will be unheard of upgrade deals.
- WED 19** **T Man**
See how to fully automate your store Point of Sale to a computerized cash drawer.
- FRI 21** **Lotus 123**
It's a standard in the market, and we have your answers. Windows & Upgrades.
- TUE 25** **Logitech**
Scanning is so easy and inexpensive, 256K grey scale, new cordless mouse
- THU 27** **Software Publishing**
Professional Write for Windows

JULY

- WED 3** **NEC CD ROM**
State of the art graphics and retrieval that you will not believe. Applications!
- FRI 5** **Broderbund**
A wide selection of Business and Education. New product information. Rare opportunity.
- TUE 9** **Generic CADD**
AutoDesk will demonstrate one of the most powerful low cost CADD programs.
- FRI 12** **Crystal**
Report writers, Purchase Orders, History & more... All for ACCPAC.
- TUE 16** **US Robotics**
Some of the fastest modems on the market. A great way to learn all about modems.
- WED 17** **CentralPoint**
One of the leaders in utility programs -PC Tools & Copy II PC. Get answers
- THU 18** **Power Up**
Check out Calendar Creator, Express Publisher, Labels Unlimited and many more.
- TUE 23** **ALR PC's**
Top selling USA built PC's Winning many awards for design and performance!
- FRI 26** **Fox**
Have questions or need information on FoxBase? Now is the time!
- MON 29** **Kodak**
From full function battery operated printers to a laser photocopier combination.
- WED 31** **Fifth Generation**
Hot new products!

MANY OF THESE VENDORS APPEAR IN NO OTHER VANCOUVER VENUES.



101 West 5th Ave

DOPPLER

COMPUTER CENTER

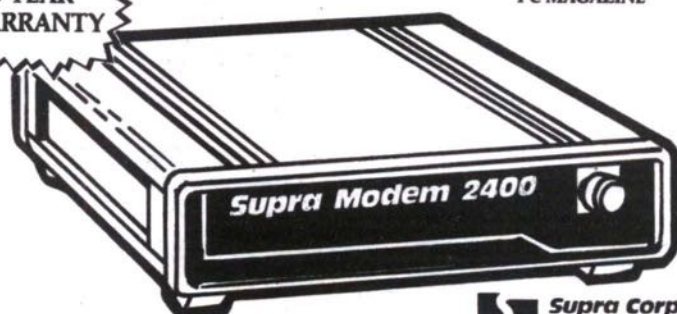
CALL 875-0261 727-3414
Information From Victoria
US ANY DAY 1-800-661-2805 Anywhere in B.C.

**OPEN
EVERY
DAY**

"DYNAMITE LITTLE MODEM"

5 YEAR
WARRANTY

JOHN DVORAK
PC MAGAZINE



Supra Corporation

FINALLY a modem that's COMPATIBLE, AFFORDABLE and EASY TO USE!

Future Shop is offering some of the most EXPLOSIVE bargains you've ever heard of. Features of the exciting new SupraModem 2400 include:

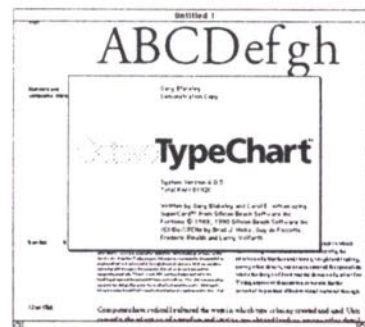
- 100% compatible with industry standard, intelligent "AT" commands and all commonly used protocols.
- Autoanswer and autodial (tone and pulse).
- Programmable-volume speaker for monitoring call progress.
- Simple storage of phone numbers and user configurations.
- Incorporates the advanced Intel 89024MS chip set.
- Lightning protection.

2400 Internal **94"**
2400 External **114"**
2400 External M.N.P. . . **179"**

THE FUTURE SHOP
DISCOUNT SUPERSTORES

REGULAR HOURS: MON-FRI 10-6 SAT 10-6 SUN 11-5
VANCOUVER 1222 West Broadway 728-8000
NORTH VANCOUVER 1070 Marine Drive 880-8388
EAST VANCOUVER 2880 East 1st Ave. 251-6778
BURNABY 4600 Burnaby Highway 430-8111
RICHMOND 4875 15th Street 275-5488
SURREY 10188 King George Hwy 880-8101
COQUITLAM Langford and Barnet Hwy 464-0536
CLEARBROOK 32880 South Fraser Hwy 853-4848

WHAT'S NEW



TypeChart includes an extensive on-line help facility and a comprehensive manual. Contacts: Lloyd Bernhardt, Motion Works, 604-732-0289; Brent Cameron, WonderTree, 604-681-7335; Gary Blakeley, Octavo Productions, 604-987-5270.

Multitech Named as 4-Dimension LAN Distributor

EDMONTON, ALBERTA, FEB 27 (TCP)—Multitech Electronics has been selected as the official Canadian distributor for 4-Dimension LAN and connectivity products, the company announced today.

As distributors for the line, Multitech will stock all items in its Western Canadian warehouse in Edmonton.

The 4-Dimension product line includes Arcnet and Ethernet cards, LAN workstations and a complete range of LAN accessories.

Contact: Ronald Schulz, Multitech Electronics Ltd., 403-451-5390.



An Apple for the Teacher

KELOWNA, B.C.—Apple juice makers Sun-Rype Products has donated six Apple Macintosh Classic computers to schools that specialize in serving the needs of the disabled and those with special educational requirements.

Each of the six systems includes an Apple Macintosh Classic Computer, two educational software programs designed to improve visual and auditory skills, and a MacRecorder Sound System.

The school chosen in Vancouver, the Deaf Children's Society of B.C., helps deaf children and their families by enhancing communication between family members. The interaction allows for ap-



ATLANTIC COMPUTER PRODUCTS CANADA, INC.

• COMPUTER SYSTEMS • MOTHERBOARDS • ADD-ON CARDS • MONITORS • PARTS • PERIPHERALS

YOUR MOST RELIABLE ONE STOP SHOPPING WHOLESALE DISTRIBUTION

• ACT • INTEL • TEAC • WESTERN DIGITAL • SEAGATE • CONNER • NEC • MITSUBISHI • DTC
• K-LOK • LOGITECH • TSENG LAB • GIGABYTE • M-TECH • MULTI-DIMENSION • NOVELL

ACT Systems

Best Quality, Performance
& Superior Compatibility

i486/33MHz - 128K Cache
i486/25MHz - 128K Cache
80386/33MHz/25MHz
80386SX/16MHz/20MHz
80286/12MHz/16MHz

**COMPLETE SYSTEMS &
BARE BONE SYSTEMS
IMMEDIATELY AVAILABLE**

Special Introductory

ALL-IN-ONE

ACT VGA Combo Card

VGA Adapter 800x600
256K RAM/256 Colors
IDE Controller
FDD/HDD 1:1 16bit

I/O Ports
Serial/Parallel Built-in

CALL FOR BEST PRICES

**WE PROVIDE
FAST RELIABLE
PRODUCTS & SERVICES**

**WE CARRY
ALL PC PRODUCTS
FROM USER LEVEL TO
PROFESSIONAL LEVEL**

**WE ARE LOOKING FOR
QUALITY RESELLERS
VARS & DEALERS
PLEASE CALL TODAY**

**150-4471 No. 6 Road, Richmond, B.C. Tel (604) 654-6088
Fax (604) 654-6098**

WHAT'S NEW

appropriate language and socialization experiences and the development of learning and social skills. The Society aims for hearing-impaired children to become fully functioning members of society with the same developmental opportunities as those given to children with normal hearing.

Other schools in Alberta, Saskatchewan and Manitoba include the Association for the Hearing Handicapped in Edmonton; the Auditory Verbal Integrated Program in Calgary; the Saskatoon Children's Centre at

Saskatchewan's University Hospital; the Wascana Rehabilitation Centre School in Regina; and the Society for Manitobans with Disabilities in Winnipeg. Contact: Lawrence Bates, Sun-Rype Products, 604-860-7973.

Excel and Word Trade-Up Offer

MISSISSAUGUA, ONT., FEB 22 (TCP)—Microsoft Canada has announced a special limited-time promotion that allows users of older character-based PC spreadsheet or word processing programs to trade up to Excel 3.0 for

Windows and Word for Windows for \$149 each. Available through participating dealers as well as a direct-mail program, the upgrade offer targets users of competing products, although earlier-generation Microsoft customers may also take advantage of the offer. Contact: Jonathan Sachs or Tim Stewart, Microsoft Canada, 416-568-0434.

Price of PC Publishing Plummets

NORTH YORK, ONT., FEB 25 (TCP)—In a flurry of announcements,

Ventura Software has dramatically decreased the price of all PC versions of its popular publishing program, and announced twelve new international dictionaries and an upgrade of Ventura Publisher, Macintosh Edition.

The company also announced a continuation of its rebate program and a new user-group pricing program.

Effective immediately, the company has dropped the price of all PC-based (Windows 3.0, OS/2 and GEM) versions of Ventura Publisher Gold Series to C\$395 from C\$1,095.

CONTACT YOUR LOCAL DATATRIN DEALER

Burnaby

Beach Group Computer Ltd. 293-2233

Clearbrook

Abbotsford Automated Systems 853-7457

Cranbrook

MLC Computers 489-2147

NCI Northern Computers 426-2775

Dawson Creek

NCI Northern Computers 782-6965

Delta

Delta Computers 943-3331

Kamloops

NCI Northern Computers 374-6887

Kelowna

Insight Computers 861-3244

NCI Northern Computers 762-7753

Nanaimo

Concise Systems 756-1604

Parksville

AGS Business Machines 248-4251

Prince George

NCI Northern Computers 563-2263

Prince Rupert

NCI Northern Computers 624-6560

Richmond

Sovo Computer Centre Inc. 270-4800

TLD Computers Inc. 273-4700

Surrey

Sprite Computers 581-1244

Strider Computers 594-5422

Terrace

NCI Northern Computers 638-0321

Vancouver

Conti Computers 734-0606

Hogan Computers 681-5110

Xerox Service Centre 668-2380

Victoria

Tesseract Software Ltd. 382-3475

White Rock

Kellar Computer Products 538-3207

Computer Dept. of all London Drugs



Get the full force of DataTrain on track for you.

When you get on track with DataTrain, you get more than built-in quality at a very attractive price.

You get the full force of an entire product family that will satisfy the needs of demanding, yet budget-conscious users now, and in the future.

Our fully compatible PC family can be economically upgraded to meet the everchanging demands of a growing business. From the convenient laptop portability of the 12 MHz DPC-2812 with VGA and 1Mb RAM, to the powerful DPC-4425, 486 Tower Computer, to the DNS-200 Netware® certified workstation, there is a DataTrain product to satisfy your business requirements.

You will appreciate the quality and reliability of DataTrain products and the security of knowing each model is backed by DataTrain's no-nonsense two year parts and service warranty.

Choice. Quality. Reliability. Exceptional warranty plus the security of doing business with one of the most respected Canadian names in the micro-computer industry. The powerful forces of the DataTrain family will get your business on track for you...today.

DataTrain

The DataTrain Family of Quality Computers

DPC-2812 Laptop, 12 MHz, 80286, 1Mb RAM, VGA LCD display

DPC-3816 Notebook, 16 MHz, 80386SX, 1Mb RAM, VGA

LCD display

DPC-2012, 12 MHz, 80286, 1Mb RAM, VGA video

DPC-3017, 16 MHz, 80386SX, 2Mb RAM, VGA video*

DPC-3020, 20 MHz, 80386SX, 1Mb RAM, VGA video*

DPC-3325, 25 MHz, 80386, 4Mb RAM, VGA video*

DPC-3333, 33 MHz, 80386, 4Mb RAM, 64K internal cache*

DPC-4425, 25 MHz, 80486, 4Mb RAM, 8K direct map cache, Intel designed*

DNS-200 Diskless Workstation, 12 MHz, 80286, 640K RAM, Mono/CGA video*

DNS-300 Diskless Workstation, 16 MHz, 80386SX, 1 Mb RAM, VGA video*

*These systems are Novell® Network certified.

For more information on DataTrain products and warranty or the DataTrain Authorized Dealer Program, call:

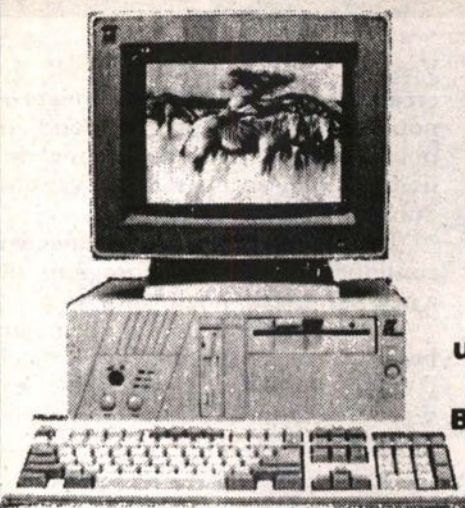
Vancouver
(604) 273-4453

Toronto
(416) 624-5944

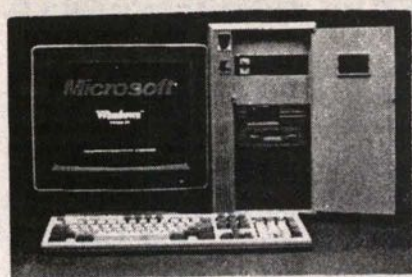
Montreal
(514) 332-6371

Calgary
(403) 277-1811

Brands and product names identified by ® or ™ are trademarks or registered trademarks of their respective companies.



FK6351 KEYBOARD



**Super VGA Monitors
up to 40MHz Video Bandwidth
Fujikama's Special Designed
Bilingual 101 Keyboard for the
Canadian Market**

FUJIKAMA 386-33 Cache

FUJIKAMA 386SX-16/20

FUJIKAMA 386-25

FUJIKAMA 386-25/33

FUJIKAMA 486-25C/33C

Fujikama Barebone, Full Systems,
Motherboards, Controller Cards, VGA Bundles, & More.



O.A. DISTRIBUTION (WESTERN) INC.

Tel: 604-273-3838

Fax: 604-278-6368

Toll Free: 1-800-663-KAMA (5262)

**#130, 6751 Graybar Rd., (near No. 9)
Richmond, B.C. Canada V6W 1H3**

**• VANCOUVER • TORONTO • MARKHAM
• MONTREAL • CHICAGO**

COMPUMAX

Authorized Downtown Fujikama Service Center
1668 W. BROADWAY TEL: 731-2828

Components	386SX16	386SX20	386DX25	386DX33C	486DX25C	486DX33C
True Intel CPU*	SX16	SX20	DX25*	DX33	DX25	DX33
Landmark	21	26.7	35.6	58.7	117	158
BIOS	AMI	AMI	AMI	AMI	AMI	AMI
Memory MB	1	1	1	1	4	4
Panasonic 1.2FD	Yes	Yes	Yes	Yes	Yes	Yes
IDE/S/P/G Card	Yes	Yes	Yes	Yes	Yes	Yes
Hard Drive	42MB	42MB	42MB	80MB	80MB	80MB
Access Time	28ms	28ms	28ms	18ms	18ms	18ms
VGA Card	256K	256K	512 K	1MB	1MB	1MB
Color VGA Monitor	720x480	720x480	1024x768	1024x768	1024x768	1024x768
Video Bandwidth*	28MHz	28MHz	40MHz	40MHz	40MHz	40MHz
Special Price	\$1599	\$1799	\$1995	\$2548	\$3888	\$4488

FREE Panasonic 1.44MB FD with 386 System purchased between April 8 - 27, 1991

TRUE INTEL

MAXTOR WESTERN DIGITAL

80MB Hard Drive

IBM XGA 8514A Compat.

286-16, 1MB, 42MB
HD, 1FD, Paper
White VGA, Citizen
200h ptr. **\$999**

All systems feature Fujikama's special engineered bilingual keyboard for Canadians. Fujikama Super VGA Monitors are IBM XGA 8514A compatible with Video Bandwidth up to 40MHz showing more finer and vivid color. Limited quantity; prices subject to change.

WHAT'S NEW

Additionally, a \$75 rebate program for purchasers of all Ventura products is in effect until April 15, 1991. Qualified user groups may purchase Ventura products for \$75.

The company is also providing a new printer driver for the HP LaserJet III at no charge to registered users of Ventura Publisher, DOS/GEM Edition.

The free upgrade of Ventura Publisher, Macintosh Edition to Version 3.01 includes enhanced printing speed, improved text and graphics output quality, international dictionary support and WordBridge, a utility that allows the importation and conversion of MS Word 4.0 (Macintosh) style sheets.

The twelve new international dictionaries are packaged as three collections: 1) British English, French, German, Dutch; 2) Spanish, Portuguese [both Brazil and Portugal versions], Italian; and 3) Norwegian, Finnish, Danish, Swedish, at US\$99 each. Contact: Ventura Software, 800-822-8221 or 416-483-5228.

Conference on Technology for Labor

VANCOUVER, B.C., MAR 15 (TCP)—Putting computer technology and video presentations to work for workers and their organizations will be the focus of a conference to be held in Vancouver on April 26-28, 1991.

The Labourtech '91 conference will offer an opportunity to find out how technology is currently being utilized by unions and to explore potential uses. Workshops will provide hands-on experience in making videos, using computers for electronic communications and utilizing information in databases.

Some workshop topics: "Electronic networks and international labour solidarity"; "Electronic networks for internal union communications"; "Using the media to get out the message"; "Video for social change: picturing a better future for workers"; and "The ethics of technology use." The registration fee for the conference is \$75. Contact: Labourtech '91, 604-737-9508.

CA Slashes Price of SuperCalc5 by 70%

VANCOUVER, B.C., FEB 25 (TCP)—Citing client concerns over rising spreadsheet and hardware upgrade costs, Computer Associates (CA) announced today that effective immediately the company has slashed the suggested retail price of SuperCalc5 from \$599 to \$179 — a 70 percent drop. CA also announced plans to release an upgrade to the program "in the spring." Contact: John Schoutsen, Computer Associates Canada, 604-733-2343.

Program calculates GST Credits

VANCOUVER, B.C., FEB 6 (TCP)—Zarcom Software Corporation has developed GST back!, a program that allows a user to keep track of input tax credits without having to fully understand the complicated GST laws.

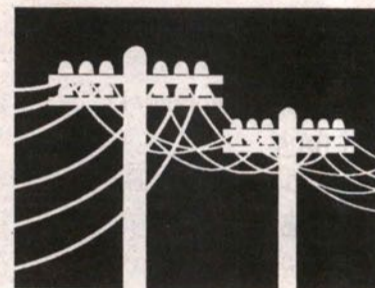
GST back! automatically calculates the amount of GST you have paid on your purchases when you enter them into the computer. GST back! calculates GST line by line so even complicated invoices/receipts can be handled.

In the instances where 100% GST cannot be claimed back, an "applicable

business percentage" is entered into the computer and GST back! calculates the portion of the GST that you can claim as input tax credit.

GST back! is written by a team of professional accountants and programmers who have closely studied the new GST laws. Its user manual outlines all of the information you need to understand how GST back! calculates your input tax credit and how to use GST back! to provide a clear audit trail for auditors.

GST back! runs on IBM and compatible PCs with at least 640K of RAM. Although GST back! can be used as a "stand-alone" system, it can be integrated with Sr. ACCOUNTANT's Business Accounting System and ACCPAC Plus. GST back! is available at an introductory price of \$79.96. Contact: Brian Dodd, Zarcom Software Corporation, 604-420-1502.



UPI Newswire Online With Mind Link!

United Press International (UPI) news stories are now available to anyone with a computer and modem through MIND LINK! BBS. Hundreds of stories are available daily—scan through them all or only those of interest to you.

Here's a sampling of what's offered: NEWSBYTES: the daily computer industry news magazine that provides news far before InfoWorld or PC Week, BIZ: business and financial stories, economic indicators, corporate news, stock market reports, government information, commodities, Canadian news briefs, crimes and court news, political news, and more.

A law section features civil and trial litigations, major crime news, drug-related crime, legal profession, investigation of crimes, while news areas carry a daily almanac plus stories on stage, drama and fine arts, books and publishing, consumer news and reviews, demos worldwide, news about Europe, fashion and leisure, movie reviews, news about religion, trends, surveys and weather.

Sports fans will find the latest on baseball, basketball, football, hockey, motorcar racing and tennis. Technology buffs can read about advances in education, healthcare, electronics, environmental news, NASA, computer technology, or check the high-tech stock prices.

The system includes syndicated columnists Dave Barry (humor), Mike Royko (opinion columnist) and Miss Manners (etiquette), with over 110 topics in all!

This is all in addition to approximately 400 local and international discussions previously available.

There is no additional charge to VIP members for complete access (\$99/year or \$66/6 months) and regular members have access to Newsbytes and the Columnists (\$54/year or \$36/6 months). (GST is extra.)

COMPU MAX

An

Affordable

Solution

102-1668 WEST BROADWAY,
VANCOUVER, B.C. V6J 1X6

731-2828

NOVELL

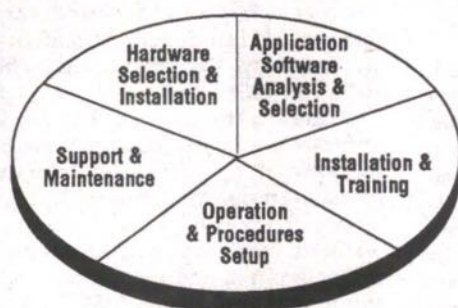
CUSTOMIZED SOFTWARE

MAINTENANCE UPGRADE

MULTI-USER APPLICATION

COMPUTER TRAINING

RENTAL & LEASING



AUTHORIZED
NOVELL®
NETWORKING

ACCPAC® PLUS
EXCELLOR®
BUSINESS
MACHINES

Setup & Support
Package



EXCELLOR® BUSINESS MACHINES

Leading edge in
technology,
powerful 386
and 486 based
computers for
business and
engineering
applications.



MICRO TUNE-UP

- Disaster Prevention
- Optimize Hard Drive Performance
- Extend Computer Life Time
- Regular Clean-up & Maintenance

INCLUDES:

System Vacuum
Clean Keyboard & CPU Casings
Clean Floppy Drive Heads
Perform Diagnostics on:
Memory Chips, Floppy Drives,
Video Interface, Printer Interface, Hard Drive
Optimize Hard Drive Fragmentation
Replace Internal Battery Kit

SPECIAL
OFFER
\$74⁹⁵

with Dot Matrix
Printer Clean-up
Just \$19.95 extra
(regular \$49.95)

Includes:
Printer Diagnostic, Printer Clean-up,
Mechanical Lubrication, Printer Head
Check-up, Printer Head Clean-up,
Pick-up/Onsite Service Available.

**Laser Printer & Service
Centre**

#1 Choice

for retailer & wholesaler

COMPUMAX COMPUTER SYSTEMS
AUTHORIZED DEALER

MULTI EXPRESS

SOFTWARE FOR EFFICIENT OPERATIONS
BY BTI TECHNOLOGIES INC. 732-9499

Point of Sale
Order/Backorder
Invoicing
Inventory Control
Service Management
Rental and Return
Accounts Receivable
G.S.T. Support
Single Entry Operations
Full Integrated System
Real Time Update Accuracy
Multiple Level Password Security
Quick List on Database
Multi-user Expandable



SPECIAL

COME & SEE US

MORE SPECIALS IN RETAIL DEPARTMENT

COMPUTERS

286-12MHz	\$699
386-SX	\$999
Everex Step 386	\$Call
DataTrain 2112	\$899
DataTrain 3016	\$1688
AST Bravo 386	\$Call
AST Premium 286	\$1599
AST 486 EISA CLIPID	\$Call
Atari Portfolio	\$Call
SEE FUJIKAMA COMPUTER SPECIAL	

Best computer hardware
diagnostic program
CHECK IT V.2 \$109⁹⁵

SUPERCALC 5
best graphics \$179⁹⁵

SOFTWARE

Grammatik IV	\$79.95
Maximizer (ver. 2.2)	\$169.95
PCTools Ver. 6	\$99.95
MS Pageview	\$39.00
Deskview	\$129.00
Laplink III	\$89.95
Copy II PC	\$29.95
Formworx	\$196.00
Lotus 123 Ver. 3	\$399.00
Lotus 123 Ver. 2.2	\$398

ACCPAC Plus G/L Ver. 6, etc	\$589
ACCPAC Graphic Report Opt'n	\$109.00
ACCPAC Bedford	\$129.00
Corel Draw V.2 w/Video	\$549

LAPTOPS & NOTEBOOKS

Portable Power (Convert from 12DC - 110DC Volts)	\$195
AST Exec Notebook	Call
Samsung Laptop	\$2499
Samsung Notebook	Call

JOIN THE WINNING TEAM JOB OPENINGS

Experienced salesperson
wanted. Please send resume
with salary expectations to our
Human Resources Dept.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE. LIMITED QUANTITY

WHAT'S NEW

As well, each week MIND LINK! will feature one group for both regular and trial members to read at no additional charge. Anyone who would like access to the feature group can call Heidi Hutchinson at (604) 576-6172 and ask for a complimentary trial membership.

He Shoots — He Scores!

Hello, hockey fans! J.B. Marketing has chosen a hockey theme, Western Breakaway, for their April road show in the West. Over 20 manufacturers will show their newest products to computer resellers. Among the players facing off are A.O.C., Bitstream, BoldPoint, Bondwell, Cardinal, Computer Associates, Intuit, Logitech, Olivetti, Pacific Data, Proxima, Quarterdeck, Reference, Richmond Software, Seiko, SoundBlaster, TVM and WordPerfect.

Home ice for the "game" in Vancouver is the Pan Pacific Hotel, 300—999 Canada Place, on Mon., April 22. In Edmonton, it's at the Edmonton Convention Centre, 9797 Jasper Ave., on Wed., April 24. And in Calgary, at the Westward Inn, 119—12th Ave. S.W., Fri., April 26. All games run from 4 p.m. to 9 p.m.

J.B. promises free refreshments, hourly prize draws, gifts for pre-registration, plus a chance for to see the latest in computer technology at this mini trade show.

This event is for computer resellers only, (including consultants). If you're a reseller and didn't get your ticket, call J.B. Marketing at 1-800-267-0000. And sharpen those skates...

Desktop Publishing Service Bureaus Update

Last month we had a table listing the Lower Mainland Service bureaus for Desktop Publishing. We missed a few.

Design One Graphics Group is a full service design studio offering design layout, illustration, production, typesetting and advertising. In conjunction with these services, they offer a wide variety of Macintosh-based electronic imaging services. They offer high resolution output generated by a Compugraphic 9400. Contact: Design One Graphics Group Inc., Suite 15 -20205 Fraser Highway, Langley, B.C., 530-2518.

Linotext has recently acquired a second Linotronic (L330) and is moving to a new expanded location at 552 Beatty St., as of April 1st. The company offers Monday through Saturday operation, Lino output up to 3386 dpi, disk translations, laserprints, font sales, modem transfer of files and supports both Mac and PC formats. Linotext can be reached at 689-8973.

Power Players Show

If you are feeling a little left out from J.B. Marketing's "dealer only" show, there is hope. Doppler Computer Centre has come up with an innovative twist to the traditional Computer Show. David Chalk, President of Doppler Computer Centres, has announced a year long series of computer shows named "Power Players". The goal of the ongoing "show" will be to bring some of the top players in the computer industry to meet with end-

users in the market place. Manufacturers and developers will spend on day with their products on display at Doppler Computer Centre sharing their wares and supplying information. The first daylong event will feature Microsoft Canada on Monday April 8th.

Doppler Computer Centre is offering this program as a free information service to the public. The shows will run from 11:30 am to 6:00 pm with prizes and software to be awarded to attendees.

For The (Payroll) Record

Last month we surveyed payroll packages for the PC. As might be expected, we discovered we left out a few.

Impact Payroll is an easy-to-use, real-time on-line system which is designed for full departmental accounting and reporting. The payroll was designed to be powerful yet easy to use. Impact Payroll integrates with the Impact General Ledger and Cash Ledger modules. Impact is available from Syspro (Canada) Inc., Suite 202-4190 Lougheed Highway, Burnaby, BC, V5C 3Y5, (604) 298-8200.

Profittek Payroll is a very reasonably priced, basic, easy-to-use product. Wages and benefits can be distributed to general ledger departments. Each employee can have up to 10 earning and benefits and 6 non-statutory deduction types. G/L interface with Profittek-GL or Journal Entry to be transcribed into other accounting systems. This product is good for a small business because of its ease of set up and use and the simplicity of error correction. Infospec Systems Inc., 7569 6th St., Burnaby, BC V3N 3M4, (604) 522-1122. Q.W. Page Associates Inc., is the devel-

oper of the award-winning visual accounting program NewViews.

Microsoft April 8, Computer Associates April 10, Xerox (Ventura) April 12, Software Publishing (Harvard) April 17, WordPerfect April 18, Dac Accounting April 20, Ashton-Tate April 22, Quarter Deck April 23, NEC Laptops April 24, MicroGraphics April 26, Okidata Printers April 30. For more information contact: Doppler Computer Centre, (604) 875-0261.

oper of the award-winning visual accounting program NewViews. NewViews, which was introduced back in 1985 to rave reviews for its innovative visual approach to accounting, offers an integrated Canadian Payroll module. Contact: Q.W. Page Associates Inc., One St. Clair Ave. W., Toronto, ON, M4V 2Z5, (416) 923-4567.

For Windows 3.0 users, there is a new payroll package published by KIS Information Systems called Payroll for Windows. It takes full advantage of the Windows consistent user interface with powerful, easy-to-use features. KIS Information Systems Inc., 3732 W. Broadway, Vancouver, B.C., V6R 2C1, (604) 222-2252.

Unix users will appreciate Image Software's suite of fully integrated, multi-user accounting software modules designed for online transaction processing in medium to large businesses. Image Payroll is a fully featured, user configurable payroll supporting both union and non union employees. Image Software Ltd., 203-123 East 15th Street, North Vancouver, BC, V7L 2P7, (604) 984-4187.

SOVO

COMPUTER CENTER

AST
RESEARCH INC.

DataTrain



EPSON



NEC

GOVERNMENT & CORPORATE PURCHASE ORDERS WELCOME! AUTHORIZED AST SERVICE CENTRE

NETWORK CONSULTING
COMPUTER PRODUCTS SELECTION
SYSTEM INSTALLATION

MAINTENANCE & REPAIR
KEEPING YOU UP TO DATE ON SOFTWARE
DESKTOP PUBLISHING

OPTIMAL USE OF EXISTING COMPUTERS
SOFTWARE SUPPORT & TRAINING
COMPUTER RESOURCE MANAGEMENT

Datatraining DPC 3017

Best Value on the Market

INCLUDES:

- 2MB RAM • 1.44MB 3.5" Floppy Drive
- 80386SX microprocessor, 16 MHz
- Enhanced Keyboard • 2 Serial, 1 Parallel Ports
- Novell Compatible
- VGA Built In • MS Windows/Mouse
- VGA Monitor (1024x768 .28mm Dot Pitch)
- MS DOS 4.01, GW/BASIC Software
- 40MB Conner Hard Drive • Two Year Warranty

\$2,095

AST Systems

BEST PERFORMANCE

AST Products have won numerous awards for their exceptional quality & performance.

AST Cupid-32 architecture protects your investment in computers by allowing you to advance to more powerful computing or EISA capabilities, as your needs grow.

GIVE SOVO A CALL FOR
ALL YOUR AST PRODUCTS.

ASI Systems

AFFORDABLE COMPUTERS

- 2 Year Warranty
- 1MB RAM, 1.2MB Floppy
- Mono 12" Hi res Monitor
- 1 serial, 1 parallel
- Conner 40MB, voice coil
- Enhanced Keyboard

286/12MHz \$825
386SX/16MHz \$1345
386/25MHz \$1595
486/25MHz \$2995

Add \$350 for VGA Card & Monitor

Hardware/Software

BEST PRICES

EPSON LX-810\$235
EPSON LQ-1050\$715
EPSON LQ2550\$1129
EPSON Laser 6ppm\$1275
HP II 1MB upgrade\$220
NEC 2A monitor\$545
CANTAX\$39
Soundblaster\$195
Summa 12 x 12\$480
WordPerfect\$275

• PRICES SUBJECT TO CHANGE WITHOUT NOTICE •

#110 - 2691 Viscount Way, Richmond, B.C. V6V 1M9
Tel. 270-4800 Fax 270-4808

NewsBytes

APPLE

Apple Introduces New Printers

CUPERTINO, CALIFORNIA, MAR 11 (NB)—Apple Computer has introduced two printers, the Apple StyleWriter—an ink-jet printer—and the Apple Personal LaserWriter LS, \$1,299, a low-cost replacement to the LaserWriter SC, a stand-alone laser printer that is not designed to be hooked up to a network.

The StyleWriter, with a suggested retail price of \$599, represents Apple's entry into the thermal ink-jet printer arena; it produces documents of 360 dots-per-inch (dpi) in best quality mode and 180 dpi in draft mode. The StyleWriter is speed rated at 1/2 page per minute (ppm) in best mode and 1 ppm in draft mode. It weighs 5 lbs. and uses a 64-nozzle ink-jet cartridge which, according to Apple, has a life span of approximately 500 pages of text or 200 pages if there is a high concentration of graphics. Replacement cartridges have a suggested retail price of \$29.99. A 50-page cut-sheet feeder is included with the system.

The Apple Personal LaserWriter LS has a suggested list price of \$1,299 and takes the place of the LaserWriter SC in the stable of Apple printer models. It is a 300 dpi printer with a speed of 4 ppm and comes standard with a 50-sheet paper feeder (a 250 sheet tray is optional at \$195 and requires dealer installation.). The LaserWriter LS contains a compression system which, Apple states, allows the 512K RAM of its system to function as though it were a 2MB system.

Both printers require Apple system software 6.07 and utilize TrueType outline font technology. A TrueType compatibility disk is provided with each printer and its use provides both on-screen and printer display of the various size fonts.

In conjunction with the introduction of the new printers, Apple announced the reduction of prices on existing printers. The Personal Laser Writer NT price is reduced from \$3,299 to \$2,599, a 21% reduction; the Laser IINT is decreased from \$4,499 to \$3,999, an 11% reduction; and the high-end IINTX is reduced 16% from \$5,999 to \$4,999.

Apple spokesperson Kate Paisley told Newsbytes, "We think that the new printers provide a wonderful complement to our low-cost computers. We think that they will be an important part of the Macintosh experience and will allow us to make even more inroads into the marketplace."

Contact: Kate Paisley, Apple Computer, 408-974-5453.

Apple Cuts Prices On Older Macs

CUPERTINO, CALIFORNIA, MAR 11 (NB)—In its latest bid for market share, Apple Computer has cut the prices on all its older Macintosh models. Prices on the IIfx, IICI and SE/30 were cut as much as 31 percent.

Untouched were prices for the recently announced Macintosh Classic, the LC and the IISI. However, the base con-

figuration for the IISI was boosted to include 3 megabytes of random access memory (RAM) instead of 2 megabytes.

Also announced was the belated shipment of the Macintosh IICI Cache Card. The card, listing for \$399, includes 32 kilobytes of high-speed static RAM and can significantly speed performance of the IICI. The card had been delayed

repeatedly by technical and compatibility woes.

Randy Battat, Apple vice president of worldwide product marketing, said the cuts were part of the company's new strategy of cutting prices to capture market share. Until late last year's introduction of the low-priced Classic, Apple had been pursuing high-powered and high-margin sales.

The Mac IIfx, the largest and most powerful member of the Macintosh family, had its price cut by about 20 percent depending on configuration. The top

price, formerly \$10,969, is now \$8,669. The Macintosh IICI received a cut of about 10 percent but had its base configuration boosted from 4 megabytes of RAM to 5 megabytes. The price of the modular SE/30 with 4 megabytes of memory and an 80-megabyte hard disk was reduced 31 percent to \$3,869—only \$500 more than the same model with 1 megabyte of memory and a 40-megabyte disk.

Contact: John Cook, Apple, 408-974-3145.



InfoSpec Systems Inc.

#101 - 2806 Kingsway, Vancouver, B.C. V5R 5T5

Tel: (604) 430-1223 Fax: (604) 430-5748

Business Hr.: Monday - Friday 9:30 - 6:00 Saturday 1:00 - 6:00

Your One Stop Business Solution Profitek Systems

Point-of-Sale

Inventory
Control

Order Entry

Accounting

Payroll

Custom
Software

Hardware Selection

Installation

Training

Maintenance

80286-12MHz VGA System

- 1MB RAM, 1.2MB 5 1/4" Floppy Drive
- 43MB 23ms IDE Hard Disk
- VGA Color Monitor 640x480 .41mm
- 256K VGA Graphics Card
- 101 Key Enhanced Keyboard
- Two Years Warranty on Computer & HD, One Year Warranty on Monitor

\$1,029

80286-12MHz Super VGA System

- 1MB RAM, 1.2MB 5 1/4" Floppy Drive
- 43MB 23ms IDE Hard Disk
- VGA Color Monitor 1024x768 .28mm
- 512K VGA Graphics Card
- 101 Key Enhanced Keyboard
- Two Years Parts/Labor Warranty

\$1,159

80386SX-16MHz Super VGA System

- 1MB RAM, 1.2MB 5 1/4" Floppy Drive
- 43MB 23ms IDE Hard Disk
- VGA Color Monitor 1024x768 .28mm
- 512K VGA Graphics Card
- 101 Key Enhanced Keyboard
- Two Years Parts/Labor Warranty

\$1,549

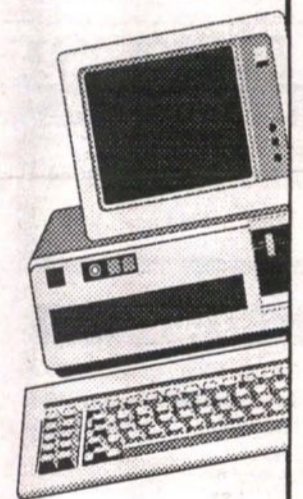
80386DX-25MHz Super VGA System

- 1MB RAM, 1.2MB 5 1/4" Floppy Drive
- 43MB 23ms IDE Hard Disk
- VGA Color Monitor 1024x768 .28mm
- 512K VGA Graphics Card
- 101 Key Enhanced Keyboard
- Two Years Parts/Labor Warranty

\$1,959

Carbon Copy Plus V5.22	\$147	Microsoft Word for Windows	\$299
dBASE IV 1.0 (Free Upgrade to V1.1)	\$399	PC Tools Deluxe V6	\$ 97
Logitech 3-Button Mouse + Windows	\$159	Quicken 4.0	\$ 44
Lotus 1-2-3 V2.2	\$389	Sidekick Plus	\$159
Microsoft Mouse + Windows	\$179	Suzi	\$ 19
Microsoft Word	\$189	WordPerfect 5.1	\$279

* Prices & specifications subject to change & while quantities last



Authorized
Dealer of:

Lotus

Panasonic

Apple Wins Round in Look-and-Feel Suit

SAN FRANCISCO, CALIFORNIA, MAR 7 (NB)—A federal judge has cleared the way for a trial on Apple's copyright infringement case against Microsoft and Hewlett-Packard, ruling that the Macintosh interface is an original piece of work.

U.S. District Judge Vaughn Walker denied motions from Microsoft and Hewlett-Packard that said Apple's case against them should be dismissed because the Macintosh interface wasn't really Apple's to protect. Walker also ruled that parts of the interface—overlapping windows and icon—were not licensed to Microsoft or Hewlett-Packard.

At issue in the three-year-old case is whether Microsoft's Windows 2.03 and Hewlett-Packard's New Wave implementation of it infringed on Apple's copyright of its Macintosh interface. Microsoft had secretly licensed the Mac interface from Apple for Windows 1.0, but Apple claims that Windows 2.03 is a different product that required a separate license. No suit has been filed over Windows 3.0.

Microsoft and H-P, in turn, had claimed that the Macintosh interface wasn't really Apple's because it was derived from the products the Xerox Star and Smalltalk, both of which were developed at Xerox's Palo Alto Research Center. That claim was rejected by Walker, who found that the Macintosh

interface was original work which could be protected by copyright.

A spokeswoman for H-P said the company was "pleased" by Walker's ruling, "which has further narrowed the issues which already were quite narrow after the last round of motions" last summer. "We will go forward to show the limited scope of Apple's copyrights and that HP does not infringe on them."

Ironically, Xerox last year tried in vain to protect the Star's interface in much the same way Apple is trying to protect the Mac interface. One of the reasons Xerox was turned away was because it had waited too long to file its suit.

Judge Walker did not resolve the question of whether Microsoft and HP infringed on Apple's copyright. His ruling only answered whether Apple owned something which could be infringed upon.

The parties will meet soon to set a schedule for trial.

Contacts: Christopher Escher, Apple 408-974-2202; Marlene Somsak, HP, 415-857-7299.

Startup Claims Mac Software Compatibility

SAN DIEGO, CALIFORNIA, MAR 14 (NB)—A California startup says it is shipping software that will let users run Macintosh software on any computer running the SPARC microprocessor.

RDI Computer Corp., a privately held company in San Diego, is shipping Com-

panion, which Marketing Manager Steve McAllister told Newsbytes "bridges the gap between the Mac OS and the Sun OS." McAllister said Companion will allow its users to insert Macintosh disks into their computers and run the applications unchanged at about twice the speed of a Mac SE. Companion, he said, will run on any SPARC-based computer.

Such a capability has been a Holy Grail almost from the day the Macintosh was announced. Several vendors have created Macintosh clones—and more are trying—but have come up against the necessity to clone the jealously guarded Macintosh ROM (read-only memory) chip. RDI claims to emulate the ROM in software.

Companion can also run DOS-based software at about the speed of an 80286-based machine.

McAllister says RDI has heard from several people in Apple, but not from its legal department. He said he didn't expect to. "They can just point, aim and shoot at anyone who's trying to get on their turf," McAllister said. But he pointed out that Apple also owns the software house Claris, and "this opens up a whole new market for their software."

RDI also announced shipment of its SPARC-based laptop computer. Weighing in at about 13 pounds including batteries, the BriteLite is "the world's only battery-powered workstation," McAllister said. About 18 inches wide and 10 inches deep, the machine is

based on Sun Microsystem's IPC board, which is about the size of a pizza box. "You couldn't really put it in a briefcase," McAllister said.

Batteries for the BriteLite can last from two hours under full load to six or seven under a light load, McAllister said.

Contact: Steve McAllister, RDI, 619-558-6985.

Aldus FreeHand 3.0 Ships

SEATTLE, WASHINGTON, MAR 7 (NB)—Aldus is now shipping FreeHand 3.0, the latest version of its design and illustration program for the Macintosh. The program costs \$595.

New features include movable on-screen palettes that list the line and fill colors, graphic styles, and layers that artists and designers use when creating an illustration. Performance is also said to have been improved. The program now has "flicker-free" drawing, and it moves up to five times faster and offers more precision than before.

FreeHand also offers a built-in color separator to produce output for full process-color separations for all parts of an illustration, including imported 32-bit color TIFF images. Users can choose industry-standard Pantone Colors for process and spot colors and tinting. They can also create a library of custom colors so they don't have to re-create existing color schemes.

Contact: Jill Miller, Aldus, 206-628-2352.



PHASE 1 SYSTEMS CORPORATION

HOT SPECIALS

LASER PRINTERS

EPSON 7500
w/2MB & Adobe ...\$2799
Okidata 400 Laser \$849

MONITORS

Viewsonic 6 noninterlaced ...\$599
Legend II Trisync
w/512K Card ...\$499
Seiko 2050 20" noninterlaced \$2499
w/FREE Orchid Card w/512K

CELLULAR/FAX

Nokia P4000\$599
Motorola 8000SE\$549
IF1000 Fax\$899
Cofax\$599

HARD DRIVES

Fujitsu 135MB OEM IDE ..\$559
Maxtor 660MB ESDI ..\$1999
Maxtor 200MB IDE ..\$899
Seagate 90MB 19ms IDE \$420

MODEM MANIA !!

USR 14.4 v42 HST\$685
USR 14.4 Dual Standard v.32BIS\$975
ATI 9600 ETC/e v.32 v.42\$580
Cardinal 2400 External\$125
16550 Serial Chip\$20

Hard Drives

All Drives have cache! All Drives are Voice Coil!

Fujitsu 135Meg OEM IDE 559 Seagate 90 Meg 19ms IDE \$420
Maxtor 660 Meg ESDI \$1999 Kaylok 40 Meg\$249
Maxtor 200 Meg IDE\$899 IDE Controller Cards\$25

Systems

DATAPERFECT

One of the fastest systems on the market!

486-33MHz/4MB/19" Tower ...\$2999
386DX-33MHz 64k Cache \$1699
386DX-25MHz\$1399
386SX-20MHz\$999

PHASE 1 SYSTEMS

386DX-33MHz 64k Cache ..\$1449
386DX-25MHz\$1179
386SX-16MHz\$949
286-12MHz\$495

FAX/Modems

Zoltrix 9600/2400 FAX & Modem\$170
Smart One 9600/2400 FAX & Modem\$235
2400/4800 Send Fax & Modem\$85

Monitors & Cards

ALL 1024x768 Monitors .28 Pitch Include Tricom Excel w/512K!!
NEW Viewsonic 6 Non Interlaced No Card\$599 (Taking Orders)
Legend II & Tricom Excel w/512K\$499
Everdata AutoSizing w/512K Card\$499
Qume 835 1024x768 w/512K VGA\$568
NEC 3D Monitor No Card\$780
Seiko 2050 20" Non Interlaced\$2499
with FREE Orchid ProDesigner II Card w/512K

VGA CARDS Tricom Excel Plus w/512K! .NEW\$125
ATI Wonder & Mouse w/512K \$229 Trident 1 Meg VGA Cards\$165
Genoa No Flicker! w/256K\$179 512K Expansion Chips\$25

Printers

Okidata 400 Laser\$ 849 Star NX2410\$ 339
Epson T1000\$199 Citizen GSX 140\$ 395
Epson 7500 w/2mb/PS ..\$2799 Citizen GSX 145 Wide\$ 495

Accessories

720K to 1.44K Notcher\$29 New! Mouseman & WIN 3.0 \$149
Microsoft Comp Mouse\$30 KAO 1.44 HD Disks\$20

FREE DELIVERY
FREE INSTALLATION

FREE TUTORIAL (with system purchase)
MAIL ORDERS WELCOME

VISA Please Call for Price Updates & Surprise Specials! **CANCEL**

Tel: 291-1558 Fax: 298-5126 Cell: 644-2152

NEWSBYTES

Fax Modem Adds Answering Machine

WILMINGTON, NORTH CAROLINA, MAR 12 (NB)—When the DoveFax+ ships later this month, it will include more than the conventional fax and modem capability. It will have an integrated answering machine, too.

The existing DoveFax, shipping since June 1990, is a 9600-baud send/receive fax modem included with a 2400-baud Hayes-compatible data modem. The new model, company officials say, will also include the ability to send and receive voice messages.

Suggested retail price on the unit is \$549. DoveFax owners will be able to upgrade for a retail price of \$249, or \$149 direct from Dove.

Contact: Rick Greene or Brigitte Wilds, Dove, 919-763-7918.

Canadian Income Tax Package

MARKHAM, ONTARIO, MAR 11 (NB)—LDL, a Macintosh-oriented startup, has introduced MacTax, a new personal income tax package designed to run on the Macintosh. LDL will market MacTax across Canada through Apple dealers, user groups, and direct mail for its developer, RSI, of Mississauga, Ontario.

According to LDL, MacTax uses the full Macintosh interface and is approved by Revenue Canada, which will accept its printouts for tax filing. Lois Densmore, president of LDL, told Newsbytes the software is aimed primarily at the home market but also has the features small-business users need, such as the ability to produce income statements.

MacTax is a stand-alone product, requiring no other system application to perform. LDL said it will compete with models for the Microsoft Excel spreadsheet software, which cost from C\$100 to C\$800, and some public-domain software that is not approved by Revenue Canada.

MacTax will retail for C\$49.95 and has just begun shipping. RSI offers full telephone technical support.

Contact: Lois Densmore, LDL, 416-499-7500.

ATARI

Cebit: Atari Unveils The ST Pad Notebook System

HANNOVER, GERMANY, MAR 15 (NB)—In what has become an annual tradition of Cebit pronouncements, Atari has unveiled a glut of new and innovative

ST products and relaunched a couple more. Up for relaunch was the ST successor, the Atari TT, while a new ST-compatible notebook system and a prototype 'ST Pad' screen-based portable were shown off for the first time.

The new notebook is a fully ST-compatible laptop which comes with 4MB of RAM, uses a standard Motorola 68000 processor running at 8 MHz and includes a built-in 20MB hard disk. It does not, however, include an internal floppy disk, and software must be transferred onto it by cable or through the use of an external 3.5-inch floppy disk drive. A mouse, however, is not needed as the ST Notebook comes complete with a 'joypad' pointing device.

The ST Pad is based on the same technology, but is not yet a commercial product. The idea is that you take the basic guts of the notebook system, throw away the keyboard and add a touch-sensitive screen and a 'pen' touch-screen controller. You control the system entirely with the pen and can use it to draw directly on the screen in a 'paint' application or (eventually) print or handwrite text for direct handwriting recognition.

Finally, Atari once again said that it would start shipping a Unix system this year. It is the third year in a row that we have heard this promise at Cebit. The company said this time that it will offer Unix System V Release 4.0 on a variant of the Atari TT series.

Contact: The Atari Press Office, 071-388-9871.

COMMODORE

Commodore Launches Unix Machine

WEST CHESTER, PENNSYLVANIA, MAR 7 (NB)—Commodore International recently launched the Amiga 3000UX, which runs Unix as well as the company's own AmigaDOS operating system. Commodore said the 3000UX is suited to individual and work-group applications, and is compliant with such networking standards as Ethernet, NFS, and TCP/IP.

Commodore's Amiga 3000UX comes with AT&T Unix System V Release 4 installed on the hard drive, said Jesse Bornfreund, Commodore's product marketing manager for Unix in West Chester, Pennsylvania. It is also equipped with the X Window System and the Open Look graphical user interface. The system can also run Commodore's own AmigaDOS operating system,

LASER PRINTER SUPPLIES

- New and Recycled Toner/Drum Cartridges for Laser Printers, Canon/Panasonic PC Copiers
- OPC Drums, Developers, Toner Kits; Copier Toner
- Full Service to Laser Printers
- Ask about ink refills for Deskjet cartridges

VISTA LASER

Tel: 273-5446

Fax: 273-5478

11-12171 Bridgeport Road, Richmond B.C.

OUT-OF-TOWN CALL COLLECT

Coupon Worth \$10.00 Off

Ask about our complete recycling program

The Best in Quality and Service. Your Satisfaction is Our Reputation

your first recycled cartridge

PowerPay®

The Ultimate Payroll Program

BUSINESS OWNERS! Take advantage of this powerful Canadian payroll program to handle your payroll.

\$89

Learn to Operate in 30 minutes or less!

- Simple Key Strokes
- Menu-driven Selections
- Form Data Entries
- Help Is Just One Key Stroke Away

Flexible

- Chooses pay period and pay method individually for each employee.

Powerful

- Captures pertinent information for summary reports.

System Requirements:

512K memory, DOS 2.0 or higher, hard disk, 5.25" or 3.5" floppy drive, color or monochrome monitor. Runs on IBM and 100% compatibles. Supports all popular printers.

KEY FEATURES:

Pay Periods

- Weekly, Monthly, etc.

Pay Methods

- Monthly Salary, Hourly Pay, Commission Reports

- Revenue Canada Remittance

- Monthly Employee Summary, etc.

Benefits and Deductions

- Six Benefits (Four Customized)
- Nine Deductions (Six Customized)
- GST Support, etc.

Other

- Advance Cheque Handling
- Posts Data On-line
- T4 Production

* Free customer telephone support

Free! Fully Working Copy of PowerPay® (Limited Employees)
(Send \$3.00 for postage and handling. While Quantities Last.)

PowerSoft Systems

3571 Kingsway, Vancouver, B.C. V5R 5L9

Tel: (604) 432-7077 Fax: (604) 432-1655

HARDWARE

ALR 386sx*1,725	Toshiba T1600LE3,450
ALR 386/33MHz* ...2,475	Intra Laptop 386sx ...3,395
ALR 486/25MHz* ...4,450	386sx/16MHz1,125
DataTrain 386sx/25MHz 1,875	386/25MHz1,600
DataTrain 386/25MHz* 3,499	DTK 386sx1,595
DataTrain Fax775	DTK 386/33MHz1,995
Mitsubishi Laptop2,195	Plus 80MB 12ms550
Toshiba T1000LE2,125	*NOTE: Novell Tested & Approved

ABOVE SYSTEMS INCLUDE: CPU, 40MB HD & Tatung Mono Monitor, keyboard.

DRIVES

TEAC 1.2/1.44MB ...79/77	Kalok 42MB255
Mitsubishi 42/65MB ...299	Itama 42Mb265
Conner 100MB549	Itama 90MB w/cache ...450
Maxtor 80MB 17ms450	Itama 180Mb w/cache ...850
Maxtor 200MB980	Itama 340MB ESDI ...1,575
Maxtor 360MB1,695	Seagate 44MB239
Maxtor 690MB2,345	Seagate 1.05 Gig Novell 2,975

ALR

Toshiba T1600LE3,450
Intra Laptop 386sx ...3,395
386sx/16MHz1,125
386/25MHz1,600
DTK 386sx1,595
DTK 386/33MHz1,995
Plus 80MB 12ms550
*NOTE: Novell Tested & Approved

MITSUBISHI ELECTRONICS

MONITORS

Mitsubishi VGA msync ...648	Sony 1302/1606 995/2295
Mitsubishi1,475	Tatung 1024 VGA560
Mitsubishi2,250	Tatung 19" MSCN2,450
Seiko 1440/1450 695/850	NEC 3D MSYNC799

PRINTERS

HP Laserjet IIP1,200	Canon 10e479
HP Laserjet III2,100	Canon BJ 300/330 710/820
HP Laserjet IIIsi4,995	Canon LBP4 Laser1,150
HP Deskjet 500 Plus699	Fujitsu D1100/3450 395/525
HP Toner Cartridge119	Raven 2416 24 pin339
	Raven LP1110 Laser ...1,750

ACCESSORIES

Logitech MouseMan89	Canon DCA Irma 3 Card475
Logitech PS/2 MouseMan ...88	3 Com Etherlink II 5 pk ...190
Logitech ScanMan 256 ...399	Intel 387sx Math Co-roc. 369
Windows 3.0 & Mouse ...149	Motherboard 386sx425
ATI VGA Wonder+ w/Mouse 209	Practical Modem 2400 ...175

NEC

Sony 1302/1606 995/2295
Tatung 1024 VGA560
Tatung 19" MSCN2,450
NEC 3D MSYNC799
Canon 10e479
Canon BJ 300/330 710/820
Canon LBP4 Laser1,150
Fujitsu D1100/3450 395/525
Raven 2416 24 pin339
Raven LP1110 Laser ...1,750

Canon

DCA Irma 3 Card475
3 Com Etherlink II 5 pk ...190
Intel 387sx Math Co-roc. 369
Motherboard 386sx425
Practical Modem 2400 ...175

CLEARANCE! CLEARANCE! CLEARANCE!

Microsoft Word 5.0149	AT RLL Controller59
Lotus 1-2-3 3.0199	HP Laser II Legal Tray39
Sideways for Lotus29	Keyboard ALPS Switch59
Microsoft Windows89	VGA Monitor .31dpi339
PC Tools De Luxe 5.579	
Sony DSD 3.5 Disks 10pk 15	

LIMITED QUANTITIES

TELEPHONE: FAX:

683-6696 684-3255

NIS NORTHWEST INFORMATION SYSTEMS

FOR CORPORATE & GOVERNMENT DECISION MAKERS

J.B. MARKETING'S "Western Breakaway" Seminar Series

DO YOU LIKE HOCKEY???

*Come and see
J.B. Marketing
at its finest.*

Twenty-four of J.B. Marketing's top vendors will show off the newest of their computer products.

**Here are but a
few of the players:**

WordPerfect
CORPORATION

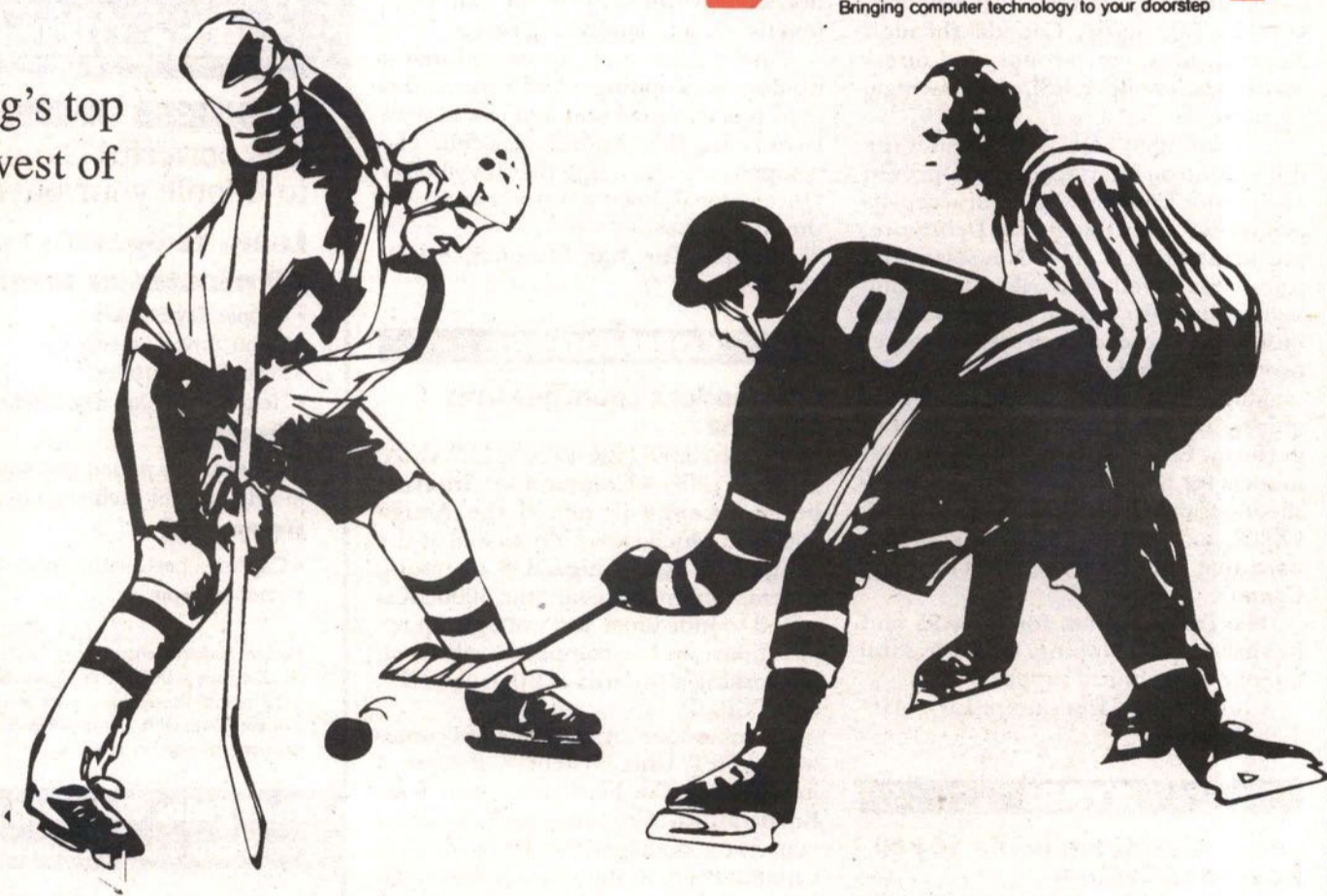
Cardinal

Seiko Instruments Inc

olivetti



and more...



*Computer Resellers
Only Please!!!*

J.B. Marketing
Bringing computer technology to your doorstep

The game will take place on the following "Home Ice" .

Vancouver

Monday, April 22, 1991
Pan Pacific Hotel
300-999 Canada Place
Vancouver, BC
V6C 3B5
4:00 P.M. until 9:00 P.M.

Edmonton

Wednesday, April 24, 1991
Edmonton Convention Centre
9797 Jasper Ave.
Edmonton, AB
T5J 1N9
4:00 P.M. until 9:00 P.M.

Calgary

Friday, April 26, 1991
Calgary Centre for
Performing Arts
225 8th Ave. South East
Calgary, AB T2G 0K9
4:00 P.M. until 9:00 P.M.

Free refreshments, prizes and a chance to see the latest in computer technology. Come and meet the J.B. Marketing players.
For more information and your personal invitation call your J.B. Marketing sales representative at **1-800-267-0000**.

NEWSBYTES

Bornfreund told Newsbytes.

Bornfreund said Commodore is aiming the machine at the low end of the Unix workstation market, competing to some extent with NeXT and with Apple's Unix entry, A/UX. "We really don't see ourselves as being competitive with Sun," he added.

Suggested retail prices for the Amiga 3000UX are US\$5,499 with a 100-megabyte hard disk drive installed and US\$6,999 with a 200-megabyte drive.

Contact: Jesse Bornfreund, Commodore, 215-431-9100.

CANADIAN NEWS

Logitech Expands Stake In Gravis

VANCOUVER, BRITISH COLUMBIA, MAR 12 (NB)—Advanced Gravis Computer Technology has announced it will sell four million of its common shares to Logitech International S.A., of Switzerland, for C\$1 million. The deal will make Logitech the company's largest shareholder, with 44 percent of Gravis stock.

Advanced Gravis said proceeds from the private placement will be used to supplement working capital, boost marketing efforts, and launch new products.

Under a financing deal the two companies signed last November, Logitech also has the option to convert a debenture and exercise warrants that would give it about 64 percent of Gravis shares. As part of the current deal, Logitech has asked for the right to appoint one third of available positions on the Gravis board of directors for as long as it continues to hold at least 30 percent of Gravis stock.

Logitech is a major manufacturer of mice, graphics scanners, and associated software. Gravis manufactures joysticks and other input devices, and the Hardpac line of portable hard disk drives.

The transaction is subject to approval by Gravis shareholders and the Toronto and Vancouver stock exchanges.

Contact: Grant Russell, Advanced Gravis, 604-434-7274.

DTP

Adobe Intros New Font Scaling Technology

MOUNTAIN VIEW, CALIFORNIA, MAR 6 (NB)—A new type-scaling technology designed to give users greater control over the appearance of text has been announced by Adobe Systems, originators of the PostScript page description language. 'Multiple master' typefaces will allow users to infinitely vary a typeface's appearance. Currently, computer typefaces are sold and used in a pre-set collection of fonts.

Multiple master typefaces will let users adjust four characteristics of a typeface the way they can now scale just its size: weight (boldness or lightness), width (condensation or expansion), scale (size), and style (including elements such as serifying or italicizing).

The multiple master extensions to Adobe's Type 1 format would effectively make those fonts as malleable on the fly as they are by using third-party font-editing programs. The first multiple master faces will be available later this year for both Macintoshes and Windows-based systems. The first typefaces will be original designs from Adobe. Prices were not announced.

Contact: David Downing, Adobe, 415-962-6055.

Bitstream To Extend Typeface Library

CAMBRIDGE, MASSACHUSETTS, MAR 13 (NB)—Bitstream plans to make all of its more than 1,000 typefaces available in its Type One PostScript and TrueType formats on IBM-compatible and Apple Macintosh computers. The move signals a belief that TrueType, a PostScript competitor backed by Apple and Microsoft, will play a significant role.

Today, Bitstream offers more than 1,000 typefaces in Type One PostScript format on the Macintosh, and just over 200 in assorted formats on IBM-compatible PCs. The company plans to gradually make all 1,000 faces available on the PC, spokeswoman Louise Domenitz told

MOUTH-WATERING!

Computer Graphics Systems

Multimedia Malaise?
Animation Angst?

Instant gratification on screen with 16 Million delicious colors, video capture, Windows driver, special effects and palatable prices

For the right answers the first time
The right place is *First Image*

Sales

Support

Training

First Image Group

112-1020 Mainland St. Vancouver, B.C.

V6B 2T4

684-9586

Quality - On Time, Every Time!

alphagraphics®
Printshops Of The Future

DESIGN ■ COPY ■ PRINT

- Desktop Publishing • Graphic Design • Lino Output
- Business Packages • Business Cards • Envelopes
- Business Packagers • Continuous Forms • Resumes
- Letterheads • Presentation Folders • Invitations
- High Speed Duplicating
- Colour Copies • Presentation Slides
- Brochures • Flyers • Labels • Spiral & Velo Binding
- Self Serve Mac & IBM Terminals • 11x17 Laser Output

270-9001

#120 8211 Ackroyd Road
Richmond, B.C. V6X 3K8

NEW HOURS!
9 - 9 Mon. - Fri.
10 - 5 Sat. & Sun.

FAX SERVICE
Fax: (604) 270-1594



Logicom® 80386 DX

- 25 MHz
- 1MB Memory, 40MB Hard Drive IDE
- 1.2 MB Floppy
- S/P/G Ports
- Hercules Compatible
- 101 Enhanced Keyboard
- Hi-Res Monitor

Sale \$1,598 \$1,468

Logicom® 80386 SX

- 16MHz
- 1MB Memory, 40MB Hard Drive IDE
- 1.2MB Floppy
- S/P/G Ports
- Hercules Compatible
- 101 Enhanced Keyboard
- Hi-Res Monitor

Sale \$1,278 \$1,218

Logicom® 80286 AT

- 12MHz
- 1MB Memory, 40MB Hard Drive IDE
- 1.2 MB Floppy
- S/P/G Ports
- Hercules Compatible
- 101 Enhanced Keyboard
- Hi-Res Monitor

Sale \$948 \$888

LOWEST RATES IN RENTAL

386-SX	AT	complete with hard drive, monitor and keyboard
\$188/month	\$148/month	
HP LaserJet IIP		
\$178/month		Corporate Leases: Please call for FREE estimates

Prices subject to change without notice

NETWORKING
Authorized Reseller

4 STATIONS	\$5,748
8 STATIONS	\$11,538
12 STATIONS	\$18,308
28 STATIONS	\$36,248

Medium Tower	\$168	Pocket 2400	\$138
Full Tower	\$198	Hedaka 2400 Internal	\$88
(All Cases w/ 200 W P/S)		Microsoft Mouse	\$28
200 W CSA P/S	\$78	Logitech Dexta	\$28.98
220 W CSA P/S	\$88	Logitech S9 Serial	\$78
200 WPS 2	\$88	Logitech S9 Bus	\$88
200 W Square	\$98	Logitech Trackman Bus	\$118
		Logitech Trackman Serial	\$108
KEYBOARDS			
NTC	\$58	SOFTWARE	
Focus 2001 Plus	\$88	DOS 4.01	\$78
Focus 3001 W/Cal	\$88	WordPerfect 5.01	\$288
Focus 5001	\$118	Lotus 123	\$498
BTC K/B	\$48	ACCAP BPI	\$128
		ACCAP Bedford	\$128
MODEMS, MOUSE		PC Tools Deluxe	\$128
Cardinal 9600 B	\$688	Norton Utilities	\$158
Cardinal 2400B Internal	\$98	MS Excel for Win	\$288
Cardinal 2400B External	\$128		

2211 Commercial Dr. at 6th Ave. (Close to Skytrain & Vehicle Branch), Vancouver, B.C. Ph.: (604) 255-9898 Fax: (604) 255-9838 Business Hours: Mon. - Sat. 9AM-6PM

NEWSBYTES

set computer (RISC) chip has been introduced by Hewlett-Packard. The LaserJet III Si lists for \$5,495 and is available immediately.

The printer includes four scalable fonts and features a resolution of 300 dots per inch. It uses the same Resolution Enhancement technology used in the rest of the LaserJet III product line.

At the heart of the printer is the Advanced Micro Devices Am29000 RISC processor, which HP says allows the printer to format type and include graphics without degrading the printer's speed. Existing laser printers slow down when confronted with graphics.

Included with the printer are dual 500-sheet input trays. Toner cartridges are good for 8000 pages and list for \$169.

Options include a two-sided printing mechanism (\$695), a 100-envelope feeder (\$495), dealer-installed PostScript (\$895 plus required memory expansion), and interfaces for Token Ring and Ethernet networks. The printer comes with 1 megabyte of memory, and can be expanded to up to 5 megabytes.

A factory-installed PostScript version of the printer will be available this summer for \$6595. The envelope feeder will also be available this summer, HP said.

Contact: Bill Hornung, HP, 619-592-4676; Dean Whitehair, AMD, 512-462-4840.

GENERAL

Roundup: Stories Carried By Other Media This Month

WASHINGTON, D.C., MAR 1 (NB)—Roundup is a brief look at some computer stories carried in other publications received here this past month.

The March 12 PC Magazine carries a look at 42 leading portable computers.

Data Based Advisor for March carries inventor Wayne Ratliff's own story of how dBASE was born and what its relationship was to the primitive JPLDIS data base system. It turns out that Mr. Ratliff had never run JPLDIS until after writing most of the original dBASE (then called Vulcan); all he did was read the documentation and use some of the same command names to make transi-

tion easier for users at the Jet Propulsion Laboratory.

The Wall Street Journal ran the following item on Tuesday, Feb. 26:

Bellcore has found a way to speed up a computer's internal clocks by using a mode-locked semiconductor laser as the clock; this may allow a 10-fold increase in computer speed in about five years.

On Wednesday, Feb. 27, the Journal carried these articles:

Houston, Texas-based Compaq Computer is trying to organize an industry coalition to establish a workstation standard, perhaps using Mips Computer Systems' R4000 chip.

Sony has created Sony Electronic Publishing to link its electronic hardware and software operations.

Microsoft announced that 21 computer makers, among them Japan's Fujitsu, Hitachi, NEC, and Toshiba, may build pen-based computers using an adaptation of Windows, in direct competition with Foster City, Calif.-based Go's Penpoint operating system.

The Journal for Thursday, Feb. 28, reported that this summer Beyond, of Cambridge, Mass., will market BeyondMail, a \$250 program that sorts e-mail on arrival.

Also on Thursday, the Journal carried an item about the growing use of personal computer-based neural network software, such as that from Pittsburgh, PA.-based NeuralWare and Promised Land Technologies of New Haven, Conn., to solve problems formerly the province of expert systems and/or statistical analysis.

March's Personal Workstation explores Dynamic Data Exchange for Windows and OS/2 multitasking.

The first edition of ComputerCraft, April 1991, contains a look at hardware hacking for PC users, and includes ROM BIOS upgrades and a tutorial on how to build a parallel port I/O interface. This magazine, formerly named Modern Electronics, will focus on PC experimentation, upgrades, and embedded microprocessor systems.

The current Seybold Report on Desktop Publishing newsletter carries an extensive look at Microsoft's plans for Windows, OS/2, and New Technol-

WE-747

Full Size Tower Case
6 Drive Bays, 250 watt Power Supply
Ideal for Network Server



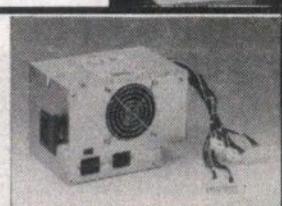
WE-767

6 Drive Bays, suitable for
full-size AT or Baby AT board



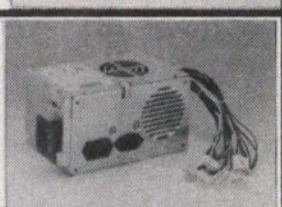
STM 4250

High Power
250W Output
for Tower Case



SXH-4203

200W CSA approved Power Supply
Outlets for 6 drives,
Power-Good Signal



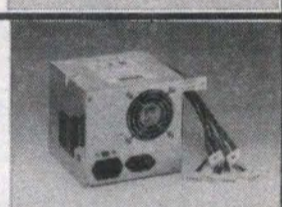
SQH-4203

200W CSA approved Power Supply
Outlets for 6 drives,
Power-Good Signal



SEH-4203

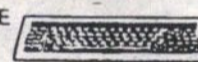
200W CSA approved Power Supply
Outlets for 6 drives,
Power-Good Signal



The Professional Manufacturer of Keyboards and Track Balls

FOCUS TRONICS & Co.

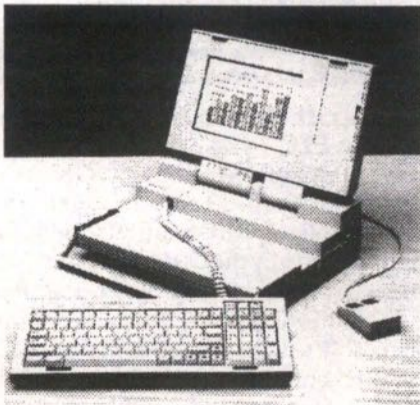
THE



PLACE A DIVISION OF FOCUS ELECTRONIC (CANADA) INC.

#103 - 11511 Bridgeport Road, Richmond (Vancouver), B.C., Canada V6X 1T4
Fax: (604) 271-8435 Phone: (604) 273-8086 Hours: Mon - Fri 10 AM - 6 PM

Altima Portables: The World's Best

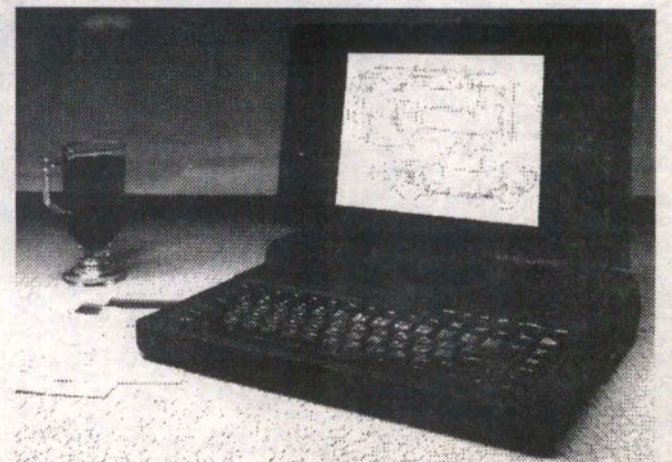


When you want the uncompromising power and flexibility of a desktop, but need the convenience of a portable, there is only one choice. Altima.

Altima portables are the **only** portables with a **detachable**, 101-key keyboard (including a numeric keypad). And standard features that are expensive options on other portables. Like a built-in, **2400 baud modem**. A **PC expansion slot**. A **40 MB hard disk**. Industry standard memory expansion slots. And a mouse too. Add to this a stunning **paper white LCD display** (you've got to see it to believe it) and a price tag hundreds (even thousands) of dollars less than the competition and you'll see why Altima portables are simply, the best you can buy. Period.

Now there's a notebook computer that makes all others seem like scratch pads.

Introducing Altima NSX, the notebook that combines 80386SX technology, VGA display, built-in 2400 baud modem with FAX capability, 2MB RAM expandable to 8MB, 20MB hard drive/1.44MB floppy and a hard disk drive... all neatly wrapped in an extremely lightweight package.



Westcoast Computers - "The Specialists"

1637 Lonsdale, North Vancouver, B.C. V7M 2J5 986-7680

Altima NSX

ogy operating systems.

On Monday, March 4, the Journal covered the RISC chip production problems of Motorola, headquartered in Schaumburg, Illinois.

Also reported was Westborough, Mass.-based Data General's expected March 13 showing of a Unix computer to serve a 500-user network.

The WSJ carried the following four items on Tuesday, March 5:

Toshiba may be the first computer manufacturer to bring out portable computers with built-in cellular modems,

but others are expected to follow suit by fall.

Palo Alto, Calif.-based Hewlett-Packard expects to accelerate its workstation business later this month when it introduces three computers, priced between \$12,000 and \$45,000, which reportedly are almost twice as fast as comparably-priced workstations from Sun Microsystems and International Business Machines.

Adobe Systems, Mountain View, Calif., planned a same-day unveiling of its software technology, "Multiple Master,"

which may boost the appeal of electronic publishing when it becomes commercially available this autumn.

March 8's WSJ takes a look at Windows versus OS/2.

Seybold's Report on Publishing Systems for March 11 carries an extensive evaluation on the P.Ink newspaper publishing system from Time Inc. and takes a look at Howtek's Colorscan graphics scanner.

The March 1991 Communications of the ACM contains several discussions relating to the ownership of information

and legal cases against hackers, especially The United States vs. Craig Neidorf.

Computerworld dated March 11 says that the recent San Jose, California Windows and OS/2 show was very much a virtual no-show for OS/2 applications and OS/2 developers.

March 11's Federal Computer Week carries a story about the Environmental Protection Agency awarding more than \$1 billion in computer procurement contracts for the next 12-month period, not even counting \$90 million for the agency's first two supercomputers.

The Wall Street Journal reported on Tuesday that Vittorio Cassoni, managing director of Ivrea, Italy-based Ing. C. Olivetti, still asserts the company is close to recovery, citing this week's introduction of a minicomputer line, last year's revenue growth, overall cost control, and the end of job cuts which eliminated 18 percent of the workforce since 1988.

The Journal also ran these articles on March 12:

International Business Machines (IBM), Armonk, New York, was expected to announce faster workstation models and cut prices.

Wal-Mart Stores has awarded NCR a large contract, perhaps worth more than \$20 million, to install NCR's new Model 3445 computer in some 800 Wal-Mart stores.

IBM-Japan, hoping to make its personal computer operating system a major standard in Japan, reportedly will share key system details with Japanese firms; the move could raise its share of Japan's PC market, so far dominated by NEC, to 50 percent by 1993, and some 100 U.S. software firms are now writing IBM-compatible programs for the expected market.

According to the Wall Street Journal for Wednesday, February 27, Bill Gates, Microsoft's CEO and chairman, stated on Tuesday that a Federal Trade Commission's investigation doesn't involve systems and applications; Microsoft insists the FTC is focusing its attention only on Windows.

March 13's WSJ also reported that, as a result of American Telephone & Telegraph's bid for NCR, AT&T has told several hundred of its Computer Systems personnel that they must relocate in-company within two months or be terminated; some will get two months' severance pay on departure, and AT&T offers others cash bonuses, either for staying until the merger with NCR is complete or for agreeing in writing not to sue after being terminated.

IBM WORLD

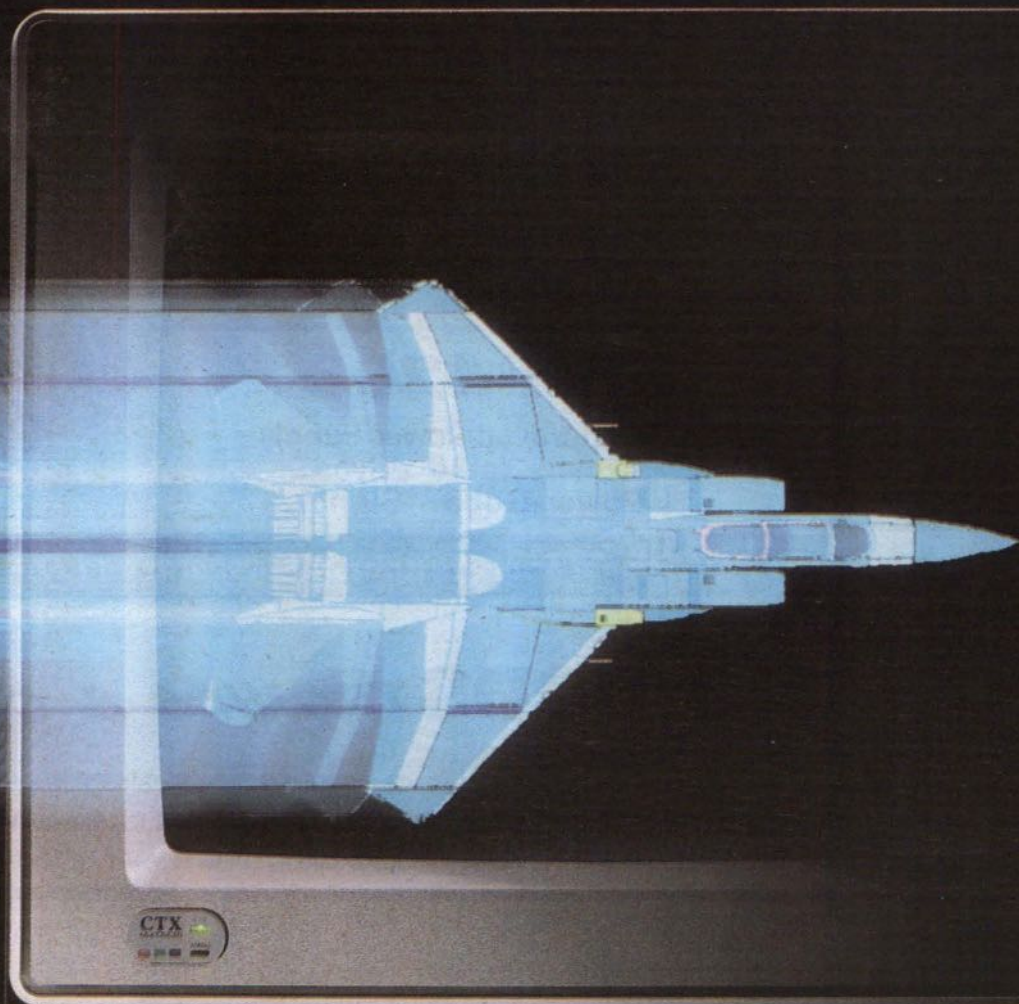
Microsoft Under Investigation By The FTC

REDMOND, WASHINGTON, MAR 13 (NB)—Microsoft has announced that it is complying with requests for information made by the Federal Trade Commission (FTC) as part of a non-public investigation, apparently concerning Microsoft's plans for MS-Windows.

Microsoft has released a statement saying it first received notification of the investigation in June of 1990. The investigation apparently arises from the press release and statements issued by Microsoft during the 1989 Fall Comdex concerning its future plans for Windows.

CTX

DISPLAY MONITORS



P I C T U R E
P E R F E C T

CTX

Available exclusively from

COMTEX

COMTEX
MICRO SYSTEMS INC.

Unit #100-13751 Mayfield place
Richmond, BC, Canada V6V 2G9

Telephone: (604) 273-8088 Fax: (604) 278-2818

Toll-free Fax: 1-800-663-0291

Calgary Warehouse:

Bay #7 3610 - 29th St. N.E. Calgary, Alberta
Telephone: (403) 250-3386 Fax: (403) 250-8092

The FTC, which investigates anti-trust and restraint of trade cases, is apparently interested in whether Microsoft was intentionally restricting the functionality and features of future versions of Windows.

At the time, Microsoft had been going to considerable lengths to reassure software developers who had gotten wind of the upcoming release of Windows 3 that there was still a future for OS/2, and had stated that OS/2 would remain aimed at the network server and upscale workstation market. Presumably, the FTC read that as a conspiracy to restrict the powers of Windows. At the time, however, the announcement was not greeted with any surprise, since Windows is still based on DOS, and DOS cannot offer the same kind of multi-user throughput as OS/2.

The announcement follows almost immediately the launching of a \$4 million national advertising campaign by Microsoft to extol the features and benefits of Windows 3, using as examples its own Windows applications: the Excel spreadsheet, the Word word processor, the PowerPoint presentation graphics package, and Microsoft Project Manager.

Microsoft has sold about 2.5 million copies of Windows 3 since it was released last May, and reportedly hopes to 'penetrate' about 30 percent of the new machines sold this year.

Contact: Marty Taucher, Microsoft, 206-882-8080.

21 Companies to put Pen to Windows

SEATTLE, WASHINGTON, MAR 6 (NB)—Microsoft has announced that 21 computer vendors have stated their intentions to build pen-based computers that will support the Microsoft Pen Windows operating system, which will operate on the basis of stylus input and handwriting recognition.

Pen Windows so far exists only in a limited beta test version. The software developer's kit is expected to be available by the third quarter of the year.

The apparent widespread acceptance of Pen Windows comes despite the fact that analysts say it is not the optimal way to achieve pen input, since Windows is so CPU intensive that it is practical only on the fastest PCs.

The manufacturers that have endorsed Pen Windows—and presumably plan to bring out pen-based notebook computers in the future—include CalComp, Canon, GRiD, Fujitsu, Hitachi, Kyocera, Mitsubishi, Momena, NEC, NCR, Oki, Samsung, Sanyo, Scenario, Seiko, Sharp, Summagraphics, Telegroup, The Eden Group, Toshiba, and Wang Labs.

Contact: Marty Taucher, 206-882-8080.

Microsoft Ships Six Millionth Mouse

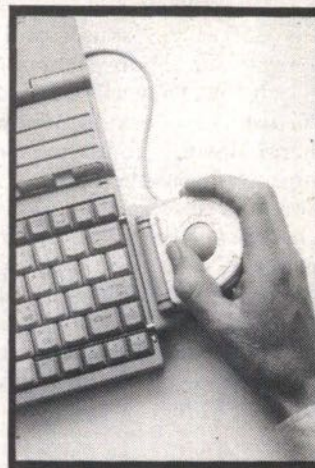
REDMOND, WASHINGTON, MARCH 6 (NB)—Microsoft has announced the sale of its six millionth mouse—with two million having been shipped since the introduction of Windows 3 last May. Sales during the eight months following the introduction of Windows 3 were double the sales of the previous eight months, noted Steve

Ballmer, senior vice president.

Windows itself will work without a mouse, but most Windows-based applications effectively require one.

The sales figures indicate that about half the buyers of Windows 3 elected to get a Microsoft mouse to go with it. Windows will work with other brands of mice and pointing devices, although not always as smoothly. The two-button Microsoft mouse is currently the only hardware that Microsoft sells.

Contact: Marty Taucher, Microsoft, 206-882-8080.

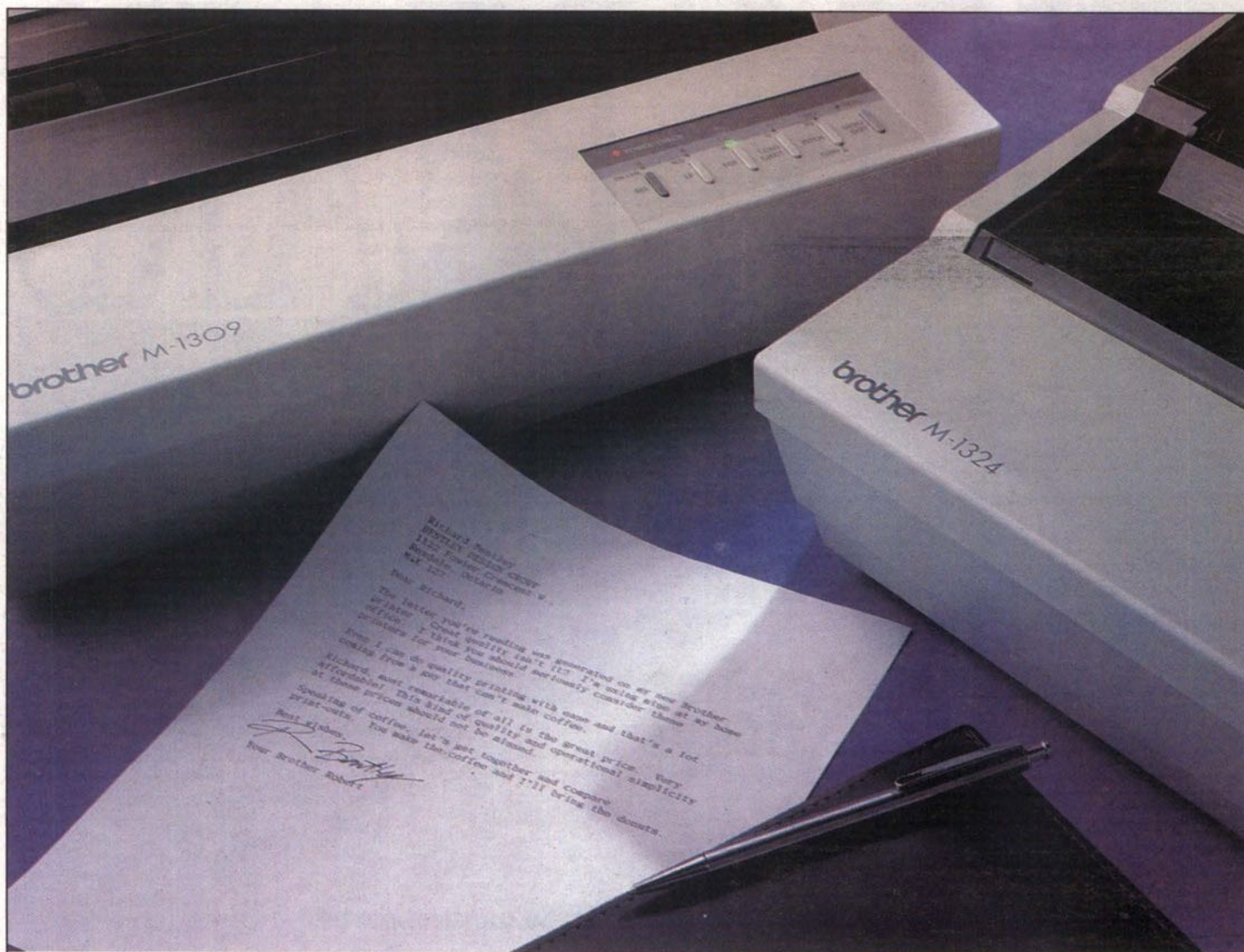


Microsoft Ballpoint Mouse is Official

SYDNEY, AUSTRALIA, MAR 11 (NB)—The BallPoint portable mouse is official, says Microsoft. While it will initially be bundled with Compaq (and in some markets, Toshiba) laptops, from May 1 it will be available over the counter.

The Microsoft BallPoint Mouse is a mouse replacement for portable computers. It is essentially a trackball which clips onto the side of the laptop PC to

◀ Microsoft's new laptop accessory



Read the fine print.

There's nothing complicated about the new 1309 and 1324 printers from Brother. Small businesses, retailers and home users will be astounded by this combination of operational simplicity, extraordinary quality and affordability.

Just because you're paying so little you can still expect a lot. You have a choice of 24 or 9 pins, 216 cps draft, 60 cps LQ, 6 standard fonts, push/pull tractor with bottom feed, easy switching continuous form to cut sheet, and a 3.5 million character ribbon.

Feature for feature. Dollar for dollar. These two new Brother printers can't be outdone. And you can't do better than our solid two-year warranty. Nothing complicated. Read the fine print.



brother

Brother Industries Ltd., Nagoya, Japan

For more information, contact
Brother International Corporation Canada:
Montréal: (514) 685-0600 Fax: (514) 685-0700
Toronto: (416) 479-6700 Fax: (416) 479-6330
Vancouver: (604) 273-8466 Fax: (604) 273-5680

perform all mouse functions. It has user-configurable buttons so users can use it in the most comfortable manner — either left- or right-handed.

The 400 dpi (dots per inch) pointer is designed to be fully compatible with the current desk mouse. It comes in a small case, has a tangle-free cord and can even be operated in the hand. The BallPoint consists of a carrier which clamps to the keyboard, and a removable trackball system. It's removable so that users can walk around with the unit as in presenting a PC slide show. Despite

this, Microsoft says most users will angle the carrier to suit, choose which two of the four buttons they will use, and use their PC just like a desktop. When used in the hand, the unit sits in the palm and the thumb positions the ball.

A new driver, version 8, has been written for this and the traditional mouse.

Microsoft won't be selling the BallPoint separately until later this year, and in most world markets Compaq will have exclusive bundling rights for the first month or so. The BallPoint Mouse will list for US\$175.

Borland Intros Windows Products

SAN JOSE, CALIFORNIA, MAR 11 (NB) — Borland International has introduced three Windows-based software products at the Windows & OS/2 Conference in San Jose last week.

ObjectVision is a program development tool for the development of Windows applications. Borland C++ for Windows allows developers to write Windows applications in C and C++. The Paradox Database Engine 2.0 allows programmers to build multiuser access to Para-

dox tables into Windows products.

ObjectVision enables non-technical staff to create customized Windows 3.0 applications without programming, by allowing users to visually manipulate forms and graphical decision trees, linking them to corporate data with a 'drawing' process.

Borland C++ for Windows is a complete C and C++ programming environment for developing DOS and Windows applications.

The Paradox Database Engine 2.0 enables system developers to integrate sophisticated database sub-systems into C, C++, Pascal and Windows 3.0 applications. The package allows programmers to develop applications that create, read and write Paradox database tables in both single- and multi-user environments. Version 2.0 is scheduled to ship later this month.

Additionally, Borland will have special showings of Turbo Pascal for Windows. The package includes all the tools necessary to build Windows programs, without the need for the Microsoft Windows Software Development Kit.

Contact: Sandra Hawker, Borland International, 408-439-1659.

New Multiuser Operating System From DRI

MONTEREY, CALIFORNIA, FEB 28 (NB) — Digital Research, the company that created CP/M and created the MS-DOS compatible DR DOS operating system, has introduced its latest multiuser operating system.

DR Multiuser DOS is a replacement for the company's Concurrent DOS 386, and adds technology introduced in DR DOS 5.0. The multitasking operating system runs on 80386- and 80486-based computers, and can support up to 64 users. The company is positioning its operating system as a low-cost alternative to Unix which allows users to retain their DOS applications.

The new operating system will be available in March at a retail price of \$695.

Contacts: Roberta Atkinson, DRI, 408-646-6016; Jamie O'Donnell, Hi-tech Public Relations, 415-864-5600.

NETWORKS

Microsoft Buys Into LAN E-Mail Market

REDMOND, WASHINGTON, MAR 7 (NB) — Microsoft is planning to come out with an electronic mail package — apparently Windows-based — for DOS local area networks based on The Network Courier, following Microsoft's recent acquisition of that package's producer, Consumers Software Inc. of Vancouver, B.C.

Terms of the acquisition, announced 3/6, were not disclosed, but the deal is expected to be completed by the end of March.

Microsoft is expected to soon announce Microsoft Mail for PC Networks based on Network Courier. Microsoft and CSI had been working for nearly a year on networking electronic mail software.

Microsoft plans to open a new product center in Vancouver and has offered all 70 CSI employees positions there.

Contact: Marty Taucher, Microsoft, 206/882-8080.



Proudly presenting the PAL 486 motherboards.

The ultimate boards that will provide you with peak performance and power beyond your wildest dreams.

PAL GA486L-25

- Intel 80486-25 CPU
- Licenced AMI BIOS
- Burst Mode and 128K secondary cache system
- Socket for Weitek 4167 coprocessor
- Support 1 to 16MB on board
(1/2/3/4/5/6/7/8/9/10/12/13/16)
- Support 2/4 way page interleave mode
- Support BIOS & Video ROM shadow
- Full AT size, 6 layer PCB
- 6 16-bit and 2 8-bit ISA slots
- Landmark 117
- Norton SI 40.7

PAL GA486QS-33

- Intel 80486-33 CPU
- Licenced MR BIOS
- Burst Mode and 256K secondary cache system
- Socket for Weitek 4167 coprocessor
- Support 1 to 32MB on board
(1/2/4/5/8/16/17/20/32)
- Support 2/4 way page interleave mode
- Support BIOS & Video ROM shadow
- Baby AT size, 6 layer PCB
- 1 32-bit, 5 16-bit and 2 8-bit ISA slots
- Landmark 167
- Norton SI 51.5

Dealer enquiries only.



Pal Systems (Canada) Ltd.

Vancouver Office : 113-118, 13982 Cambie Road, Richmond, B.C. V6V 2K2 Tel: (604)270-1883 Fax : (604)270-8389

Edmonton Office : 5312-89th Street, Edmonton, Alberta T6E 5P9 Tel: (403)465-1972 Fax : (403)462-9689

Toronto Office : Unit 9-570 Alden Rd. Markham, Ontario L3R 8N5 Tel: (416)513-9333 Fax : (416)513-9539

Calgary Service Center : Computer Market, Bay 106, 5621-111th St. N.E. Calgary, Alberta T2E 6Z7 Tel:(403)295-9629



SMARTER BUYERS ALWAYS ASK ABOUT...

- How long have you been in business?
- Floppy Disk Drive - What Brand?
- Hard Disk - Voice Coil?
- Monitor - Dot Pitch?
- Ram Chips - ?n-Second

CCS 386DX/486EISA Computers with Canadian Designed 8-Layer Top-quality Motherboard

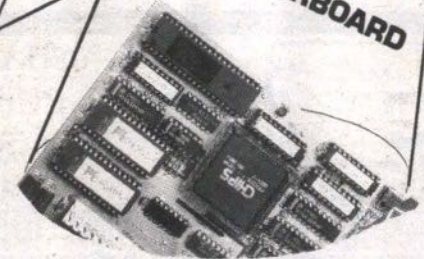
Will Clear Out All the Headaches from:

- SYSTEM HANG-UP due to bad connection with low quality socket/slot, etc.
- REGISTER LEVEL INCOMPATIBILITY due to lack of direct tech. support from motherboard manufacturer
- SYSTEM FREEZE due to overheating after long running time
- ELECTROMAGNETIC INTERFACE due to too dense electronic traces on-board surface
- DIFFICULTIES ON EXECUTING NEW SOFTWARE PROGRAMS due to no availability of updated technical support from motherboard manufacturer.

GO FOR
THE SMARTEST

ATTENTION
Before you buy, don't
forget to take a close
look at...

The Heart
of a Computer
SYSTEM
MOTHERBOARD



EISA-i486 Micro System

Licensed Phoenix BIOS, 33MHz i486 Microprocessor with integrated coprocessor and cache controller with 8KB internal cache RAM

Optional second-level cache memory with 128KB RAM configurations: 2,4,8,10,16,32 or 64MByte, Eight expansion slots: Six full-sized 8/16/32-Bit EISA Slots Two 8-Bit ISA slots
Coprocessor socket for Weitek 4167



\$4,999.00 (if 25MHz: \$3,799.00)

CCS 386/33MHz Cache System

Canadian Designed 8-layer most reliable motherboard
Licensed Phoenix BIOS, Intel 80386-33MHz CPU
Intel 82385 Cache Controller with 32K/25nS Caching

\$1,999.00

CCS 386/25MHz System

Canadian Designed 8-layer most reliable motherboard
Licensed Phoenix BIOS, Intel 80386-25MHz CPU
Supporting 80387-25 or 80287 Math Co-processor

\$1,549.00

CCS 386SX/20MHz System

Intel 80386SX True 20MHz CPU, Licensed Phoenix BIOS
Canadian Designed 6-Layer most reliable motherboard
RAM expandable to 8MB on-board

\$1,349.00

CCS 386SX/16MHz System

Intel 80386SX CPU, Licensed Phoenix BIOS

\$1,249.00

CCS 286/12MHz System

80286 CPU, Licensed AWARD BIOS,
Up to 4MB RAM On-brd

\$799.00

All Above Systems include:

- 1MByte RAM installed
- 1.2MB Floppy Disk Drive
- 40MB/28mS Harddisk
- 16Bit 1:1 Controller
- I/O Ports
- 12" TTL Amber Monitor
- Enhanced 101-Key Keyboard
- Small Footprint Case

Detailed Technical Spec Brochures

Performance Index Compared to Named Brands
& End-users' Reference Available

Prices Subject to Change without Notice

WHY SHOULD YOU BUY FROM CCS?

The Best "Price-to-Performance" Ratio and

Professional After-Sale Technical Service

Computer and Communication Systems Ltd.

1235-1237 Nanaimo St. Vancouver V5L 4T5

Ph: 251-3588 FAX: 251-5125

Professional Video, Animation & Imaging Systems

Plug-in TBC

for Amiga & PC's

\$1195⁰⁰

Composite or Y/C

A full range of JVC Imaging Cameras

NEW!

TK-1070U-RGB

768x493 (480 lines)

Ideal for Toaster, Targa



CONTACT SCOTTY HENDERSON FAX: 669-6347

Commercial Electronics Ltd

1335 Burrard St., Vancouver, B.C. V6Z 1Z7 Tel: (604) 669-5525



SHAREWARE AND PUBLIC DOMAIN SOFTWARE (604) 854-DISK

IBM PC COMPATIBLE PROGRAMS

NEW ADDITIONS

SCS #189A - UTILITY AIDS #2
FILEPAK - V4.5 File handling program to aid in hard disk file management. Move, copy, delete files with ease. *CDN*
PRTS - Replaces GRAPHICS.COM but supports LaserJet and Epson compatible.
VIDSAVE - V2.0 Memory resident screen blanker for Mono, CGA or EGA.
PRINTPLUS - V3.6 Prints files to your printer with perforation skip, will print filename, current date and file date. View before printing. -ASP.

SCS #559A - ZZT
Battle your way through 43 rooms filled with exotic creatures and puzzles testing your arcade skills and problem solving ability. Includes a game editor so you can create your own complete games.

SCS #608C - ORACOMM
V 5.M.6 - Personal single user BBS includes 9000 character messages, up/download database, xmodem protocol, public & private chat, ANSI capability, full remote SYSOP operation, performance monitor. Requires DOS 3.x, hard disk.

SCS #634-635 - FAMILY TREE JOURNAL
V8.0 Create family history books that will document over 32,000 family members. For each individual you may include 9 pages of biographical data, 5 general info fields, and print in a book form. Req. min. 2 floppy drives. -ASP.

SCS #638 - BASEBALL STATPAK
V4.0 Keep statistics on up to 250 players on 12 teams. Track At Bats, Hits, Runs scored, RBIs, Batting averages, Slugging Pct., On-base Pct., Doubles, Triples, Home Runs, Total Bases, Walks, Stolen Bases, Strikeouts, errors. Print out full league reports, team reports, team summaries, coaching rosters.

SCS #639 - DIRECTMAINT
V2.0 Directory & file manager with point & shoot for copy, move, compare, delete. Change filenames, dates, time, attributes. View two disks or directories simultaneously. -ASP.

SCS #640 - PERUSE
ASCII and Binary File reader with search, block, and printing capabilities. Full mouse support and can be loaded memory resident. -ASP.

SCS #641 - COMMANDER KEEN
V1.1 Excellent arcade with high quality EGA/VGA scrolling graphics. One of the best games available in shareware. Req. EGA/VGA, 520K RAM. Joystick optional.

SCS #642 - INTRA-GALACTIC BATTLES

V1.1 Star Trek type game. Play against human ship(s) or computer run ship(s). Req. EGA/VGA. Great sound & Graphics.

SCS #643 - TANK WARS
V1.5 Play up to six opponents, including the computer, and choose from a large selection of armaments. Req. VGA, mouse optional.

SCS #644 - PLAY
V3.0 MIDI file player supports MPU-401 cards and IBM Music Feature. Includes memory resident MIDI file player, simple MIDI file recorder, support for MIDIator, Sound Blaster, etc.

SCS #645 - SARAH'S DIARY
V1.0 Computerized diary limited only by disk space. Each entry can be up to 10 pages long. Recall/review entries by date selection. Can be printed.

UPDATES

SCS #16B, 17B, 18B, 636B [HD4] - PC-TYPE 4

V4.0 A complete wordprocessing package with 100,000 word dictionary, graphs, columns, up to 10 multiple windows, boxes, lines, macros, bookmarkers, and mail merge. On-line help windows can be moved around the screen. Four disk set requires hard disk or two 720K Drives. -ASP.

SCS #252D - ANTI-VIRUS
Viruscan - V6.0 scans for 16 new computer viruses. Some extinct viruses have been removed.

NetScan - scans networks for same known viruses. VShield - protects against viruses.

CleanUp - destroys known viruses. VCopy - replaces DOS COPY command & checks for viruses as it copies.

File Shield - shields executable files for virus detection (for software developers).

Sentry - Monitors system areas susceptible to viral attacks.

Virus Central - Simplifies VirusScan and CleanUp by providing a menu system.

SCS #275A, 637A - CHECKMATE PLUS
V1.01A True "double-entry" accounting checkbook reconciliation program for home or business. Prints checks and balances up to 200 checking and/or savings accounts. Pop-up menus, context-sensitive help, budgeting capabilities, pop-up calculator and user defined reports. -ASP.

SCS #339B - NOVA
V1.0 Formerly 'Galaxy'. Full featured easy to use wordprocessor, micro justification, style sheets, multiple fonts, laser printer support, mouse support, pull down menus, dialog boxes, context sensitive help system, and much more.

SCS #345A, 346A - TCXL

V5.51 170 Functions for C Compilers. Translucent window shadows, menu mouse support, multi-field input functions, scrolling bar picker, point & shoot mouse cursor with arrow key emulation, and more. -ASP.

SCS #367A - GEOMANCY
V3.0 Ancient system of divination, sometimes associated with black magic. Displays a complete chart of Geomantic figures. Readings may be printed or saved for later study. -ASP.

SCS #499A - CURSES!
V1.5 Humorous, creative insult/compliment generator. You control the input of phrases, so you can adapt or modify to suit your needs. -ASP.

SCS #557A, 558A - FLODRAW
V2.2 Diagram drawing program that prints full page black & white diagrams such as flowcharts, system diagrams, electrical diagrams, and organization charts. Complete with symbol libraries for flowcharts, electrical, organization charts, and dataflow diagrams. You can create your own symbol libraries. Supports Epson, Proprietary, Toshiba, DeskJet & LaserJet. 2 disk set including documentation. Req. CGA. -ASP.

PRICE PER DISK*

Members \$4.95, NON-Members \$6.95
+ \$0.50 per disk S & H - MIN \$1.00 -
- Add \$1.00 for 3.5" format.
- Add 6% PST and 7% GST

HD Disks - \$10.95 for Members,
\$12.95 for Non-Members.

Introductory special

Any 5 SIM-COM disks and membership
for \$34.95 (+ \$3.00 S & H and 6% PST
and 7% GST - TOTAL \$42.71)
Each HD Disk counts as 2 Disks!

*These are SHAREWARE Disks. Use of Shareware disks beyond a reasonable evaluation period, may require separate payment to authors. Please respect author's rights as outlined on each disk.

-ASP- Denotes Association of Shareware Professionals author
CDN Denotes Canadian Author

SIM-COM Services

35158 High Drive
Abbotsford, BC V2S 4P6
(604) 854-DISK

Association of Shareware Professionals - Vendor Member

Authorized SIM-COM Services' Dealers

Super-Byte Computers
Maple Ridge 463-8733

Vancouver Shareware
Van/S.Delta 688-1127

DEALER INQUIRIES WELCOME

NEWSBYTES

PORTABLE COMPUTERS

HP, Lotus Team Up

PALO ALTO, CALIFORNIA, MAR 14 (NB)—According to published reports, HP and Lotus Development are teaming up to produce a palm-top computer that will have the Lotus 1-2-3 spreadsheet software built-in. The computer, called the HP 95LX, will be able to fit into a coat pocket and will cost \$695.

Both the Lotus spreadsheet and electronic mail software will be built-in to a read-only memory (ROM) chip. Additionally, the HP 95LX will also include an appointment calendar, a calculator, and software to store a directory of phone numbers, according to a report in the San Francisco Chronicle (3/14).

A Hewlett-Packard spokeswoman said the company would have no comment on the report, nor would she confirm that April 23 has been reserved as the date for the unit's introduction.

The palm-top will reportedly also include a side slot for credit-card sized magnetic cards that will provide storage and added software. A company is also thought to be currently developing a fax modem card that will utilize the slot.

Additionally, the Mobile Data Report newsletter reports that Motorola has been working closely with HP to develop a wireless communication component or messaging pager for use with the palm-top. The company has been discussing the possibility of using Motorola's upcoming one-way Electronic Mail Broadcast to a Roaming Computer (EMBARC) data network, as well as traditional paging networks.

Contact: Hewlett-Packard, 415-857-7625.

Nickel Hydride-Powered Toshiba Notebook Released

IRVINE, CALIFORNIA, MAR 8 (NB)—Toshiba America has announced the release of its new 386SX based, nickel hydride battery powered T2000SX notebook computer.

Available with either a 20 megabyte (MB) or 40 MB hard disc, the two versions are priced US\$4,999 and US\$5,499 respectively. The 16 MHz T2000SX weighs in at 3.1 kilograms and is the first 386 notebook machine in Toshiba's extensive range of portable computers.

The new nickel hydride battery is said to provide three hours of operation, and to need only half that time to recharge, giving it a considerable theoretical advantage over conventional nickel cadmium types. These need to be charged for at least as long as the time taken to discharge them in normal use, and much longer in life-prolonging standard charge mode.

Power and frustration are saved by the T2000SX's ability to remember where it left off and resume work at exactly the same place when the user switches on again.

The 86 standard-size keys include 12 dedicated function keys and a special extra key for extended functions.

A maximum of 9 MB RAM may be fitted, though the machine is supplied with 1 MB as standard. Also standard are a 1.44 MB 3.5-inch floppy disc drive and a sidelit black and white LCD screen.

Contact: Megan Manning, Toshiba American Information Systems, +1-714-5883-3936.

NCR Announces Intent To Support Go PenPoint

LONDON, ENGLAND, FEB 28 (NB)—NCR has announced plans to support Go Corporation's PenPoint operating system in its future products. The company said it wants to be early to market with pen-based computer systems.

"We view pen-based computing as a technology reset point which will result in a new paradigm in how and where computers will be used," said Alok Mohan, vice president of NCR's workstation products division.

"Specifically, Go Corporation's PenPoint will enable us to penetrate vertical markets and establish new market opportunities for mobile computers. Our future pen-based products will represent another step in NCR's strategy to provide total enterprise-wide solutions that support the broadest range of industry standard operating systems and application software," he added.

Mohan went on to say that NCR believes that mobile, pen-based computers will provide the ability to collect and process information faster, more accurately, and in a way that is unobtrusive to the user. "For businesses, this translates into an immediate high-volume payback potential and significant competitive advantage," he added.

Go Corporation's PenPoint operating system is designed for the next generation of mobile computers that the company claims will span a wide range of features, functions and sizes from mobile, hand-held devices to desktop tablet systems. Go is licensing its operating system to hardware companies to foster the development of PenPoint computers to new market applications.

Contact: Anne Keogh, NCR - Tel: 071725-8248.

TRENDS

Sony's Hot "Data Discman" to Debut in U.S. This Summer

TOKYO, JAPAN, MAR 7 (NB)—The English version of Sony's "electronic book" computer which runs CD-ROM disks, the Data Discman, will be released in the U.S. this summer. It is a runaway best seller in Japan right now and is also expected to be a hit in the U.S.

The Data Discman measures 105 x 41 x 133mm and weighs only 550g. The device shows text information on a 15-letter by 10-line monochrome LCD monitor, which can be folded down to the keyboard. The software comes in a 3-inch, 200-megabyte compact disc, which is exactly the same size as that of a regular music compact disc single or CD-single. In fact, the device can also accept the music CD-single disc and play music with the external loudspeaker.

Current English software available on CD-ROM consists mainly of dictionaries and encyclopedias. Many major Japanese book publishers have joined the electronic book committee under Sony's leadership and have released 31 kinds of software for the original Japanese version of the Data Discman. Sony expects another 70 titles of software to be released by the end of this year.

John Stern, the Tokyo office chief of the American Electronics Association, told the Herald Tribune that the Data Discman will be a big success in the U.S.



VERSATILE Computer Products Ltd.

VANCOUVER • TORONTO • NEW YORK

SINCE 1984

FULL TWO-YEAR WARRANTY ON ALL SYSTEMS

COMTECH

286/12
\$930

Upgrades

- To mini-tower case:\$55
- To Mitsubishi 64-MB HDD (25 ms)\$130
- To Maxtor 80-MB VC HDD (19 ms)\$185
- To Quantum 105-MB w/64K cache (19 ms):\$340
- To 14-inch monochrome (amber or PW)\$30
- To 14-inch TVM paper-white VGA\$185

COMTECH

386SX/16
\$1385

ALL SYSTEMS INCLUDE

- 1 MB RAM (Minimum)
- 1 - 1.2-MB FDD
- 50MB HDD (17ms, 2-yr warranty)
- 1:1 IDE HDD/FDD controller
- 2 serial/1 parallel/1 game port
- Monochrome monitor
- Monographics card
- Small footprint case
- Enhanced AT-style keyboard
- 200-watt power supply

Our Guarantee

If you are unhappy with your system purchase for any reason, return it within 7 days for a full refund or exchange.

Upgrades or exchanges can be made without penalty during the first 30 days.

ALL VCS SYSTEMS COME IN MINI TOWER.

COMTECH

386SX/20
\$1480

Upgrades

- To CTX5432 color VGA (640 x 480)\$320
- To CTX5468 color VGA (1024 x 768)\$370
- Additional 1.44-MB FDD\$88
- Each additional MB of RAM\$80
- DOS 3.3 or 4.01 with system\$75

COMTECH

386/33
\$2295

w/4MB RAM & 64K Cache

VCS
386SX/16
\$1225

VCS
386SX/20
\$1340

FREE GAME
with any
system
purchase
during April

VCS
386/25
\$1545

VCS
386/33
\$1900
w/64K Cache

HARD DRIVES

- 2 Maxtor 40-MB voice-coil HDD (28 ms)\$280.00
- 2 Quantum 40-MB voice-coil HDD (19 ms):\$285.00
- 1 Mitsubishi 40/64-MB voice-coil HDD (25 ms)\$329.00
- 2 Quantum SCSI 84-MB voice-coil HDD (19 ms):\$625.00
- 2 Quantum IDE 105-MB w/64K cache (17 ms)\$615.00
- 2 Quantum SCSI 105-MB w/64K cache (19 ms):\$630.00
- 1 Maxtor SCSI 200-MB HDD (15 ms)\$975.00
- 1 Maxtor 80-MB voice-coil HDD (19ms)\$455.00
- 1 Maxtor 200-MB voice-coil HDD (19 ms)\$925.00

MONITORS

- Amber 12-inch monochrome\$110.00
- Amber or PW 14-inch monochrome:\$145.00
- CTX5432 color VGA (640 x 480)\$385.00
- CTX5468 color VGA (1024 x 768)\$420.00
- Datatrail V505 paper-white VGA\$155.00
- TVM paper-white VGA (MG14):\$215.00
- TVM Supersync 2A (800 x 600)\$445.00
- TVM Supersync 3A (1024 x 768)\$515.00
- TVM Super VGA 4A (1024 x 768)\$545.00
- TVM 5A 15-inch MS (1024 x 768)\$725.00
- Loop color VGA (1024 x 768)\$398.00
- Mitsubishi 4525 MS (1024 x 768)\$925.00
- NEC 2A:\$635.00
- NEC GS2A (paper white)\$250.00
- NEC 3D:\$825.00
- NEC 5D:\$3110.00
- Seiko 1450 (1024 x 768) non-interlaced\$860
- Seiko 1440 (1024 x 768)\$698

(CTX & TVM monitors come with 2-year warranty)

VIDEO CARDS

- Monochrome video card\$30.00
- Oak 16-bit VGA card w/256K\$80.00
- Oak w/512K\$115.00
- ATI Graphic Solution\$55.00
- ATI Graphic Solution w/game port\$65.00
- ATI OEM VGA Wonder Plus w/256K\$190.00
- ATI VGA Wonder Plus w/256K & mouse\$255.00
- Upgrade graphics card to 512K\$35.00

PRINTERS

- DOT MATRIX
- Roland 9101 (9-pin, narrow-carriage)\$215.00
- Roland 2418 (24-pin, narrow carriage)NEW\$440
- Roland 2465 (24-pin, wide-carriage):\$555.00
- Citizen GSX140 (24-pin, narrow carriage)\$399.00
- Citizen GSX145 (24-pin, wide-carriage):\$530.00
- Fujitsu DL1100 (24-pin, narrow-carriage)\$395.00
- Fujitsu DL3450 (24-pin, wide-carriage)\$525.00
- Epson LQ1050 (24-pin, wide-carriage):\$795.00

PORTABLE

- Kodak 150 Plus serial\$470.00
- Kodak 150 Plus parallel\$455.00
- LASER
- Roland LP800\$1275.00
- Roland LP1100\$1725.00
- HP III:\$1280.00
- HP III:\$2295.00
- NEC LC90\$1995.00
- NEC LC290\$1995.00

LED

- Okidata 400\$925.00
- Okidata 800\$1225.00

LAPTOPS

- Goldstar 386SX Laptop w/VGA CD/40MB/1MB/Batt\$2520.00
- Mitsubishi 286/12 Laptop w/20MB/640K\$2275.00
- Mitsubishi 286/12 Laptop w/40MB/640K/EGA\$2885.00
- Datatrail 286/12 w/40MB/1MB/VGA\$2450.00

Express 386SX

- w/40MB/1MB/VGA\$3065.00
- Comtex 386SX w/40MB/1MB/VGA\$3200.00

MATH CO-PROS

- CYRIX
- 80287-10\$180.00
- 80387SX-16\$355.00
- 80387SX-20\$425.00
- 80386-25\$530.00
- 80386-33\$599.00

TAPE BACKUP

- Colorado DJ10 (40-120)\$335.00
- Colorado DJ20 (250)\$420.00

CD ROM

- NEC CD ROM Player (Int)\$775.00
- NEC CD ROM Player (Ext)\$835.00
- NEC CD ROM Interface AT/XT kit\$190.00

MOTHERBOARDS

- 286/12 OK\$150
- 286/16 OK\$175
- 86SX/16 OK\$470
- 386SX/20 OK\$550
- 386/25 w/64K cache OK\$1025
- 386/33 w/64K cache OK\$1160
- Each MBRAM with motherboards\$75.00

ACCESSORIES

- KEYBOARDS
- Focus 2001 (Tactile)\$70.00
- Focus 3001\$90.00
- Focus 5001\$110.00
- Maxswitch\$90.00
- Northgate Omnkey 101\$120.00
- Northgate Omnkey 102\$120.00
- Northgate Omnkey Plus\$135.00
- MICE
- Logitech BUS mouse\$100.00
- Logitech Serial mouse\$80.50
- Logitech Mouse w/Windows\$169.00
- MS Mouse w/paintbrush\$119.00
- MS Mouse w/Windows\$175.00
- MODEMS
- Cardinal 2400-baud int.\$99.00
- Cardinal 2400-baud ext.\$130.00
- Cardinal 4800 SendFax\$150.00
- US Robotics 2400-baud internal\$155.00
- US Robotics 2400-baud external\$175.00

Complete Fax 9600

-\$425.00
- CABLES
- Power cord ext. cable\$8.00
- Power cord\$8.00
- Modem cable\$11.00
- Keyboard Extension Cable\$8.95
- Modem Extension Cable\$9.95
- Printer cable (six foot)\$10.00
- Printer cable (8 foot)\$15.00
- Printer cable (15 foot)\$20.00
- Printer cable (25 foot)\$30.00
- ODDS & ENDS
- Sound Blaster\$185.00
- Gravis Joystick\$44.00

6x-outlet power bar

- w/surge\$15.00
- Ruby Plus Surge Protector\$85.00
- Mouse Pads\$5.75
- Narrow-carriage printer stand\$12.00
- Wide-carriage printer stand\$15.00
- SCANNERS
- Logitech ScanMan Plus\$245.00
- Logitech grey-scale sanner\$390.00
- Chinon full-page scanner w/software\$745.00

SOFTWARE

- Accpac Bedford\$90
- Accpac Easy\$64
- Address Book Plus V3.0\$69
- Adobe Type Manager\$85
- Aml Professional\$395
- Autosketch\$185
- Bannermania\$30
- Bedford\$90
- Brooklyn Bridge\$118
- Calendar Creator Plus\$59
- Carbon Copy Plus\$145
- Chain of Command\$125
- Clipper V5\$568
- Close-Up\$160
- Crosstalk IV/XVI\$169/\$140
- dBase IV V1.1\$534
- dBase III Plus V1.1\$490
- Desqview 2.2/386 V3\$108/\$178
- Direct Access 5\$75
- Eight In One\$45
- Fast Back Plus\$138
- File Shuttle\$90
- First Publisher V3.0\$128
- Form Tool Gold\$75
- Form Filler V3\$109
- Foxbase Plus\$255
- Gofer\$63
- Grammatik IV\$69
- Harvard Graphics 2.3\$338
- Laplink III\$118
- Learning DOS (MS)\$43
- Lotus 123 V2.2/3.1\$395/\$485
- Mace Utilities Gold\$89
- Managing Your Money\$160
- Mavis Beacon Teaches Typing\$45
- Maximizer (new)\$210
- Microsoft Basic\$370
- Microsoft Quick C Compiler V2.4\$78

- Microsoft Excel V3\$350
- Microsoft Works 2.0\$120
- Microsoft Windows 3.0\$98
- Microsoft Project 4.0\$364
- Microsoft Quick Basic 4.5\$76
- Microsoft Word 5.5\$265
- Microsoft Word for Windows\$330
- Norton Antivirus\$115
- Norton Commander 3.0\$117
- Norton Backup V1.1\$115
- Norton Utilities Standard 4.5/5.0\$74/\$134
- Org Plus\$105
- One-Person Office\$60
- PageMaker V.4 (NEW)\$575
- Paradox 3.5\$575
- PC Tools Deluxe V6\$95
- PopDrop Plus\$85
- PowerPoint for Windows\$395
- Printmaster Plus\$45
- Print Shop\$48
- Procomm Plus 1.18\$85
- Productivity Pack (MS)\$52
- Professional Write 2.2\$210
- Professional Plan V1.0\$78
- Publish It\$175
- Q&A Write V3.0\$168
- Q&A V3\$268
- Quarterdeck QEMM V5.1\$80
- Quattro Pro V2.0\$370
- Quicken\$44
- R&R Report Writer\$190
- Rapidfile\$179
- Raven Script\$135
- RightWriter\$76
- Sidkick\$80
- Sidkick Plus\$156
- Sideways 3.2\$55
- Spinwrite II V1.1\$97
- Splash\$75
- Suzy\$19
- ThinkQuick\$29
- ToolBook\$415
- Turbo C V2.0\$124
- Typing Tutor IV Plus\$39
- Ventura 3.0 Windows\$595
- WordPerfect 3.0 Office V3.05\$118
- WordPerfect V5.1\$278
- Xtree/Xtree Pro\$35/\$80
- Xtree Gold\$108

KIDS' EDUCATIONAL

- Challenge of the Ancient Empires\$42
- Grammar Gremlins\$38
- Math Blaster Plus\$38
- Math Blaster Mystery\$39

- Math Rabbit\$29
- Midnight Rescue\$42
- Outnumbered\$42
- Read 'n Roll\$39
- Reader Rabbit\$29
- Spell It Plus\$44
- Treasure Mountain\$42
- GAMES CORNER
- 688 Attack Sub\$40
- Air Strike USA\$41
- Blue Max\$49
- Cardinal of the Kremlin\$37
- Chessmaster 2100\$40
- Code Name Icarus\$47
- Command HQ\$57
- Countdown\$47
- Crescent Hawks Revenge\$47
- Darkside\$31
- Das Boot\$49
- Heroes Quest\$55
- F/A 18 Interceptor\$44
- F19 Stealth Fighter\$57
- Hard Nova\$49
- Hockey League Simulator\$34
- Interceptor\$55
- Kings Quest IV\$45
- Life and Death II\$48
- Links\$49
- MS Flight Simulator\$45
- Midwinter\$47
- PC Globe\$59
- Police Quest II\$42
- Populous\$40
- Quest for Glory II\$55
- Railroad Tycoon\$45
- Rise of the Dragon\$52
- Shanghai II\$43
- Sim City\$36
- Space 1889\$45
- Spellcasting 101\$49
- Stunt Driver\$49
- Stunts\$48
- Test Drive III\$52
- Tetris\$22
- The Games People Play\$47
- The Kristal\$47
- Their Finest Hour\$49
- TV Sports Football\$44.50
- TV Sports Basketball\$49
- Tyres of Lore\$34
- Wayne Gretzky Hockey\$47
- Where/World Carmen Sandiego\$43
- Grammar Gremlins\$38
- Math Blaster Plus\$38
- Math Blaster Mystery\$39
- Wolfpack\$45

APRIL SPECIALS

LEADING EDGE

- 386SX-16
- 16MBZ, ZERO WAIT STATE
- 1MB RAM
- ONE 1.2MB FLOPPY DRIVE
- 50MB 17MS HARD DRIVE
- VGA COLOR (.31 DOT PITCH)
- DOS 3.3
- WINDOWS
- 2 YEAR WARRANTY

\$1800

INVENTORY CLEARANCE

- Olivetti Laptop w/20MB HDD\$999
- Toshiba T1100 Plus\$1099
- Toshiba T1200F\$925
- Roland DXY-1100 Plotter\$675
- Roland 1250\$275
- HP Thinkjet\$350
- HP Deskjet\$650

SOFTWARE

- PAGEMAKER V.4 (NEW)\$575
- ACCAPAC BEDFORD ACCOUNTING\$90

The future's waiting at

VERSATILE
MON-FRI. 8:30 A.M. - 6 P.M.
THURS. TILL 8 P.M.
SAT. 11 A.M. - 5 P.M.

1930 West Broadway, Vancouver V6J 1Z2
Phone 731-1930 • Fax 731-1960
Within B.C. 1-800-663-7463

Networking • Expert Servicing • Upgrades
• Rentals • Trade-ins

We carry ONLY Authorized products:
IBM, NEC, AST, ALR, Epson, Roland, Datatrail,
Comtex, Fujitsu, Express, Goldstar, Hewlett Rand and more.

ESDI Drives

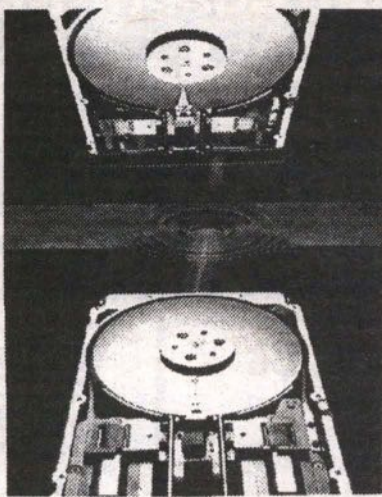
- High Performance Hard Disk Drives
- Ideal for server applications of Novell, Xenix, Unix, 3Com

Match with the perfect controller



ULTRASTOR CONTROLLERS

Dealer Inquiries Welcome



Dealer inquiries welcome
ComStar Distributors

Unit 368-13988 Cambie Rd., Richmond, B.C. Canada V6V 2K4 •
Phone (604) 279-0188 • Fax (604) 279-0288

When there's only time to do it right...

Computer Generated:

- Slides
- Overheads
- Print Illustration
- Design

Full Production Facilities, Complete Imaging Services, 24hr Modem & Fax In House E-6 Slide Processing Full Optical Effects Department

Imaging for Software Files From:

- Harvard Graphics
- Freelance Plus
- PC-Slide
- Draw Applause
- Corel Draw
- Mirage
- Pixie
- Super Image
- 35mm Express
- Pansophic Studioworks
- Lotus
- Autocad
- Excel

...and much more including a wide variety of Macintosh software

Targa and VGA Screen Imaging

4K Rez

24hr Turnaround Prices From \$6.00 - 2K \$8.00 - 4K No Minimums

The Applause II Specialists

Soon to Offer Postscript Imaging and 8K Resolution

The Graphic Resource Group Limited
1227 Richards Street, Vancouver, V6B 3G3
Tel: (604) 669-2287 Fax: (604) 669-9137

MEMORY UPGRADES & MORE

LOWEST PRICES! - 5 YEAR WARRANTY!

HP LASER JET MEMORY

BOARD + 1MB/2MB RAM \$149/\$199
BOARD + 3MB/4MB RAM \$249/\$299

TOSHIBA LAPTOPS

1000SE/XE, 1200XE, 5200,
3100SX, 3200SX From \$195

LASER RAM for IBM, PANASONIC, CANON, TOSHIBA

D-RAM

44256-80.....\$7.55

1MB-80.....\$7.45

SIMM/SIPP MODULES

1*9-80.....\$69

1*8-80.....\$66

1MB & 4MB SIMM'S for MACINTOSH & IBM PS/2 COMPUTERS

LAPTOP SUPER SALE

ALTIMA NSX NOTEBOOK 2MB RAM, VGA, 20MB HD.....\$3495
GOLD STAR 80386SX VGA, 80MB HD, DOS 4.01.....\$2795
CHAPLET 80286-12MHZ 1MB RAM, 40MB HD, 16/8 SLOTS.....\$1695

COMTECH DISTRIBUTORS INC.

#5-1610 Langan Ave., Port Coquitlam, BC V3C 1K6

Tel: (604) 942-5549 or (604) 657-2445 Fax: (604) 942-1780

NEWSBYTES

if Sony puts Fortune 500 companies or entire city phone books on a disc.

The Japanese Data Discman costs 58,000 yen (\$445) and the software costs between \$25 and \$150. Over 100,000 units of Data Discman have already been sold in Japan.

Contact: Sony, +81-3-3448-2200.

AMD Wins Right to Use 386 on Chips

SUNNYVALE, CALIFORNIA, MAR 7 (NB)—Advanced Micro Devices has won the right to use the number 386 on microprocessors, and Intel cannot trademark the number. AMD has had a line of new 32-bit processors waiting in the wings for the decision, which was made by U.S. District Court Judge William Ingram on March 1. Intel, which had claimed that the number was its own trademark on chips, expressed disappointment but reportedly may differentiate its chips by calling them i386's, short for Intel 386.

"Justice has been served," proclaimed W.J. Sanders, chairman and CEO of AMD. He said the ruling "has removed another obstacle to Advanced Micro Devices' breaking Intel's monopoly in the IBM-compatible 32-bit microprocessor arena."

Judge Ingram ruled that the 386 is not entitled to trademark protection "and in consequence there can be no infringement thereof." He also pointed out that Intel "never treated any number combination designating a microprocessor as a trademark except for the 386, thus the microprocessors numbered 8086, 8088, 80186, and 80286 have not been treated as trademarks by plaintiff and have been widely used by third parties."

Same CD-ROMs Are Best Sellers

PARSIPPANY, NEW JERSEY, MAR 4 (NB)—The Bureau of Electronic Publishing's list of the top-selling CD-ROM databases of 1990 looks a lot like the 1989 list. Only two new titles made the list, president Barry Cinnamon told Newsbytes, "Compton's Multimedia Encyclopedia" and "U.S. History on CD-ROM."

Other products on the list were all updates from the previous year's offerings, including the top-selling "Microsoft Bookshelf" and "Grolier Encyclopedia." The other top-sellers, in order, were the "Microsoft Programmer's Library," "PC-SIG Library," a collection of shareware software programs, the Ziff-Davis "Computer Library," the McGraw-Hill "Science and Technical Reference," the Compton encyclopedia from Encyclopedia Britannica, U.S. History on CD-ROM from Bureau Development, the "CIA World Fact Book" from Quanta Press, and the "World Atlas" from Software Toolworks.

"The biggest factor is there aren't a lot of good new titles," Cinnamon told Newsbytes. "Only 4-5 good things came on. It's like the software business. Top sellers always sell well and are upgraded. I would guess that 2-3 new titles will turn over in 1991."

Cinnamon added he's not surprised by the lack of turnover in titles. "I'm just surprised that the overall volumes aren't higher. The publishers have decided not to publish titles until the market settles. Egghead used to have CD-ROM drives, and they're not carrying them anymore."

The market would be helped if mass-market channels like the Soft Warehouse and Egghead sold CD-ROM drives on a regular basis, he said.

Contact: Barry Cinnamon, Bureau of Electronic Publishing, 201-808-2700.

TELECOM

Hilgreave Ships HyperAccess/5 Version 2.0

MONROE, MICHIGAN, MAR 12 (NB)—Hilgreave has begun shipping version 2.0 of its HyperAccess/5 PC communications package for the IBM PC and compatibles.

The software, which originally shipped with both MS-DOS and OS/2 versions in the same box, now costs \$99.95 for MS-DOS, \$199.95 for both it and OS/2. Gray told Newsbytes he was surprised at how slow OS/2 has been accepted. "One major exception has been communications, where multitasking is important. So it's been very important for us."

The major new feature of the upgrade is remote control, where it will compete with specialized programs like Carbon Copy and PC Anywhere. This feature lets a PC user remotely run programs on other machines. Hilgreave's version of this technology also learns what a user is doing, so it can automate common functions. "That's not found in the other programs," president Matt Gray told Newsbytes. "And there are no remote control programs under OS/2."

Other new features include built-in V.42 modem support, enhancements to the learning and script language features, new memory management features, and added protection against computer viruses. The program can now identify 130 virus signatures using compilations from IBM's Virus Scanning program.

The new version of the package is aimed squarely at the market now held by Procomm Plus, and includes a conversion utility that lets such users move their existing dialing directories into the new product. The new version also includes an optional set of 20 Alt-key commands, the same commands used by Procomm and other programs, as well as documentation to help Procomm users apply those skills to the new program.

HyperAccess/5 also contains full support for the 16550 serial communications chip now standard on IBM PS/2s and some fast IBM PCs, or as plug-in replacements for older PCs. The package also supports the Hayes ESP serial card, which has a 16550 mode. The feature is especially attractive when using a multitasking environment like Microsoft Windows or Desqview, or when using very fast modems.

Contact: Matt Gray, Hilgreave, 313-243-0576.

Dow Jones Intros Flat-Fee Pricing

PRINCETON, NEW JERSEY, MAR 14 (NB)—Following the trend that many online services have instituted, Dow Jones News/Retrieval has announced a flat-fee plan for personal investors during off-peak hours. For a fee of \$25 per month, subscribers may gather unlimited financial information from a num-

ber of online news and quotes services.

Prodigy is generally acknowledged to have blazed a trail toward flat-fee pricing, and it has most recently been followed by GENie. However, Dow Jones does not consider its decision to go to flat-fee pricing directly related. "We don't see ourselves competing with GENie and Prodigy, because they are serving different marketplaces, generally. Our primary market is the corporate marketplace—Fortune 1000-type accounts and the financial community—and private investors," Eric Bradshaw, director of sales, news retrieval, tells Newsbytes. He says that Dow Jones' current competition includes investor services on CompuServe, and the target market is small, private investors. "Private investors like to know roughly what they are going to spend each month. That's the same way the consumer looks at their online expenses. There is little room for variation from month to month."

Prime time access to the Dow Jones services runs \$30 to \$40/hour, depending upon the system on which the information is accessed. The systems include Dow Jones News, Barron's and Dow Jones News Service, Dow Jones Current Quotes, Dow Jones Enhanced Current Quotes, Dow Jones Historical Quotes, Historical Dow Jones Averages, and the Dow Jones News/Retrieval Symbols Directory.

The plan is offered to personal accounts with only one active password. The pricing option is effective from 9:01 p.m., the subscriber's local time, to 6

a.m. Eastern time, Monday through Friday. Additionally, it is available around the clock Saturdays and Sundays, and on the seven holidays observed by Dow Jones.

Contact: Alyce Perkins, Dow Jones & Company Inc, 609-520-4638.

Competition Won't Raise Rates, Canadians Told

TORONTO, ONTARIO, MAR 13 (NB)—Competitive long distance telephone service was not the cause of local telephone rate increases in the United States, according to a study sponsored by one of the companies applying to offer competitive long-distance service in Canada.

In a study commissioned by Unitel Communications—the larger of two applicants to offer long-distance service in competition with the Telecom Canada consortium—consulting firm Price Waterhouse blames inflation and the breakup of AT&T in the mid-1980s for local phone rate increases in the United States.

The report blames high inflation for significant local phone rate increases between 1980 and 1982, and notes that Canadian rates also rose at that time. A second wave of American increases, starting in 1984, arose from the breakup of AT&T and from introduction of the subscriber line charge, Price Waterhouse says. The latter, according to the study, was a regulatory decision designed to shift recovery of some fixed costs from long-distance users to local service rates.

"Based on our examination," the study says, "there is no evidence that competition caused local rates to rise sharply."

The study says nothing comparable to the AT&T breakup is contemplated in Canada. Unitel adds that its application, and that of B.C. Rail Telecommunications and Toronto-based Lightel, which also want to offer competitive long-distance service, would not involve the kind of deregulation seen in the U.S. market.

Contact: Mary Anne Pocrnic, Unitel Communications, 416-232-6050.

Comtec Says Half Don't Use PC, Fax or Cellular Phones

STAMFORD, CONNECTICUT, MAR 1 (NB)—Most Americans have not used a PC, fax machine nor cellular phone either at home or at work. That's one of the surprising conclusions from a survey of 45,000 U.S. households by the Comtec Market Analysis Services of the Gartner Group. A total of 52 percent haven't used the technologies. John Kupik of Comtec told Newsbytes it's the largest such survey he's ever heard of.

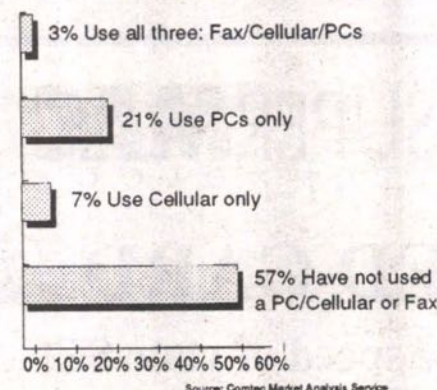
In other findings, 3 percent of households use all three technologies, while 21 percent use only PCs, no fax machines or cellular phones. Overall, cellular telephones are present in only 7 percent of households while PCs are used in 42 percent.

The survey also analyzed the uses for home PCs and found surprising differences in the use of machines owned by homeowners against those owned by employers. About 14 percent of those with their own PCs do work at home for their employers while 60 percent use them only for personal business.

John Kupik of Comtec told Newsbytes follow-on studies are being conducted and conclusions will follow. "The results are much like those on our business studies. Only 39 percent of businesses had PCs based on our latest study." Kupik also questioned whether high-tech manufacturers are marketing properly. "It's different marketing to a large business than a homeowner."

Contact: COMTEC, John M. Kupik, 203-967-6852.

How High-Tech Are You?



Reliable 486 33MHz is here! ISA & EISA

Being used by BC Hydro, TRIUMF, Westcoast Energy, etc.

BYTEWELL 286 AT

- 80286 8/12MHz O.W.S. - 1MB, max. 4MB on board - 1.2MB floppy drive - 40MB 28ms hard disk - 101-key click keyboard - 12" monochrome monitor

System Price:

\$899

800x600 .31 VGA 14" Colour add \$320

BYTEWELL 386SX

- 80386SX 8/16MHz O.W.S. - 1MB, max. 8MB on board - 1.2MB floppy drive - 40 MB 28ms hard disk - 101 key click keyboard - 12" monochrome monitor

System Price:

\$1299

800x600 .31 VGA 14" Colour add \$320

BYTEWELL 386/25

- 80386 8/25MHz O.W.S. - 1MB, max. 8MB on board - 1.2MB floppy drive - 40MB 28ms hard disk - 101 key click keyboard - 12" monochrome monitor

System Price:

\$1668

64K cache extra: \$200
33MHz w/64K cache: \$355
800x600 .31 VGA 14" Colour add \$320

BYTEWELL 486/25

- 80486 8/25MHz O.W.S. - 4MB, max. 16MB on board - 1.2MB floppy drive - 40MB 28ms hard disk - 101 key click keyboard - 12" monochrome monitor

System Price:

\$3199

800x600 .31 VGA 14" Colour add \$320

MULTITERM MT-286 AT

• 80286, 8/16MHz, O.W.S.
• 1MB RAM, MAX. 4MB on Board
• 1.2 MB Floppy Drive
• 40MB 28 ms Voice Coil Hard Disk
• 101 Click Keyboard
• 14" Monochrome Monitor
• MS-DOS 4.01 & GW-Basic

System Price: **\$1199**

1024 x 768 .28 VGA Colour add \$480

MULTITERM MT-386SX

• 80386SX, 8/16MHz, O.W.S.
• 1MB RAM, MAX. 8MB on Board
• 1.2 MB Floppy Drive
• 40MB 28 ms Voice Coil Hard Disk
• 101 Click Keyboard
• 14" Monochrome Monitor
• MS-DOS 4.01 & GW-Basic

System Price: **\$1599**

1024 x 768 .28 VGA Colour add \$480

MULTITERM MT-386/25

• 80386, 8/25MHz, O.W.S.
• 1MB RAM, MAX. 8MB on Board
• 1.2 MB Floppy Drive
• 40MB 28 ms Voice Coil Hard Disk
• 101 Click Keyboard
• 14" Monochrome Monitor
• MS-DOS 4.01 & GW-Basic

System Price: **\$2099**

64K Cache Extra: \$250
33MHz w/64K Cache: \$755
1024 x 768 .28 VGA Colour add \$480

MULTITERM MT-486/25 ISA

• 80486DX, 8/25MHz, O.W.S.
• 128K External Cache
• 4MB RAM, Max. 16MB on Board
• 1.2 MB Floppy Drive
• 40MB 28 ms Voice Coil Hard Disk
• 14" Monochrome Monitor
• MS-DOS 4.01 & GW-Basic

System Price: **\$3999**

33MHz Extra: \$800 33MHz
1024 x 768 .28 VGA Colour add \$480

ONE YEAR PARTS, TWO YEARS LABOUR ON BYTEWELL SYSTEMS

FIVE YEARS LABOUR, TWO YEARS PARTS ON MULTITERM SYSTEMS. ONE YEAR ON MONITOR

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE

DPE COMPUTERS (Since 1983)

CMS Computers Plus Inc.
#211 8th Ave. S.W.
Calgary, Alberta T2P 0R2
Tel: 403-237-0870 Fax: 403-237-0871

775 Homer St., Vancouver, B.C. V6B 2W1

Tel: 604-683-7587 Fax: 604-683-9210

Multiterm is a registered trademark of DPE Electronics Canada Ltd.

UNIX

Compaq Teams with Silicon Graphics?

HOUSTON, TEXAS, MAR 7 (NB)—A Compaq spokesman has refused to comment on a recent press report that Compaq will buy into Silicon Graphics and coproduce a new workstation.

"We don't comment on things of a speculative nature," said Mike Berman at Compaq.

A recent New York Times report

stated that Compaq has agreed to buy something less than 20 percent of the shares of Silicon Graphics, a workstation manufacturer based in Mountain View, CA, for a combination of cash and Compaq stock. The two firms would then jointly develop a new line of workstations that would be sold through the sales channels of both firms.

The deal supposedly follows an unsuccessful take-over attempt by Compaq against the smaller Silicon Graphics in January.

Contact: Mike Berman, Compaq, 713-374-4616.

Sun Microsystems to Work on Next-Generation Workstation

TOKYO, JAPAN, MAR 13 (NB)—Sun Microsystems, the California-based workstation manufacturer, has agreed with several major Japanese computer makers to jointly develop a next-generation workstation called the multi-media workstation.

According to the Nikkei Sangyo

newspaper, the agreement, which is with Fujitsu, Toshiba and Matsushita, calls for the development of technologies concerned with the compression and decompression of digital motion pictures, a pictorial data processing IC, a window processor for motion pictures and high-speed data transmission.

The multimedia workstation is being developed with the Integrated Services Digital Network (ISDN) market in mind, a technology which is expected to gain wide acceptance within the next five years. Sun Microsystems aims to sell the workstation to the education, seminar and business presentation markets.



SPEED CARD

Double the speed of your SE!

- 16MHz 68000 Accelerator Card
- Compatible with existing Mac Upgrades
- Full One Year Warranty

Only... **\$249.99**
INSTALLED

Data Shield SURGE PROTECTOR

- 6 super filtered outlets
- 10 Amp circuit breaker
- Power loss re-set button
- Low voltage alarm/brown outs
- \$5,000 surge insurance protection policy

\$99.99

Reg. \$179.99



Canon
BUBBLE JET PRINTER
BJ-10e

Macintosh
Authorized Canon
Dealer

Working to Improve Your Image!

- Use as a desktop or portable
- Letter and graphic quality 360 x 360 DPI
- So quiet, you'll hardly know its there
- One Year Warranty

Make an Offer

Includes FREE Carry Case

*Plus Jetlink Express

* No reasonable offer will be refused!

* Hurry! While Quantities Last!!

Authorized:

Adobe • Aldus • Claris • G.D.T. Softworks • Great Plains • LetraSet
Abaton • Canon • Kodak • Radius • Sharp • SuperMac



Your Macintosh Solutions Centre

Software, Hardware, & Accessories

APRIL - UTILITIES & ACCESSORIES MONTH

❁ ❁ SPRING CLEANING FOR YOUR COMPUTER ❁ ❁

Disk Express II	\$ 79.99
Disk Doubler	79.99
Sum II	89.99
Sam Virus	89.99
Norton Utilities Mac	119.99
Virex	84.99
Fast Back II	179.99
Disk Top	99.99
SuperMac Disk Fit	79.99
SuperMac Sentinel File Security	119.99

50 Bulk Disks (\$6.99 per 10)	\$ 34.95
10 Bulk Disks	7.99
1 MB Simms	64.99
Classic Upgrade Simms (>2MB)	99.99
40 MB Hard Drive	Call
Mac Bag (Extended)	Call
After Dark Screen Saver	34.99
Typing Tutor	39.99
Quicken	59.99
Books & Games!	20% OFF



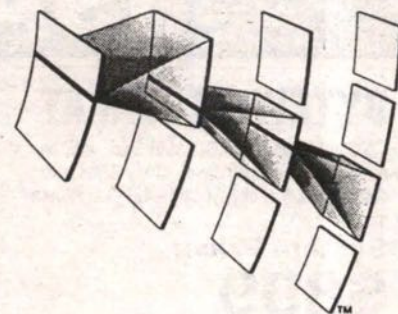
TOMORROW'S GRAPHICS

YOUR COMPLETE MAC & PC SERVICE BUREAU

3615 Kingsway, Vancouver, BC V5R 5M1 • Ph: 433-8433 • Fax: 433-9887

NEWSBYTES News Network is the largest independent computer industry news service in the world, published continuously since May, 1983, with 4 U.S. and 7 international bureaus in London, Brussels, Toronto, Tokyo, Hong Kong, and Sydney, Australia, devoted to gathering the week's most significant microcomputer and consumer technology news. NEWSBYTES was honored to receive the "Best Online Publication" award from the Computer Press Association. Editor In Chief: Wendy Woods. Janet Endrijonas, Dana Blankenhorn, John McCormick, John and Barbara McMullen, Steve Gold, Peter Vekinis, Ken Takahashi, Naoyuki Yazawa, Paul Zucker and Sean McNamara, Keith Cameron, Norman Wingrove, Kirill Tchashchin.

CANADIAN EDITOR: Grant Buckler, 52 Yonge Street, Kingston, Ontario, Canada, K7M 1E5, (613) 548-4213, (613) 548-3315.

NewViews
ACCOUNTING

The Visual Approach to Accounting

SALES

SUPPORT

TRAINING

Certified Consultants

CompuWork Pacific Inc.
Vancouver, B.C.
684-8211

Telecom: The Next Generation

By Graeme Bennett

Modems have progressed in capability and sophistication with remarkable alacrity. Ten years ago, 300-baud units were the norm; thankfully, they are now all but forgotten. Even 1200-baud modems are considered by many to be obsolete, and can be picked up at computer swap markets for around \$25. (For the remainder of this article, we'll refer to the speed of modems in bits per second or bps, a more meaningful and accurate expression of modem speed than baud rate, an obsolete term which technically refers to the number of signal or state changes in a carrier per second. It is preferable to think of *symbols per second*, because certain protocols can represent multiple values with each symbol sent. For example: V.32, a popular standard for 9600 bps connections actually transfers only 2,400 symbols per second, but each symbol represents four values, yielding 9,600 bps. Baud, in case you wanted to know, was named to honor the 19th-century French inventor of telegraph code, J. M. E. Baudot.)

Because the current generation of modems represent a progression in speed over the older models, can we therefore expect the next generation to continue this trend? Already, premium-priced modems transmit data at speeds of 9600, 14,400, or even 38,400 bps—pushing the theoretical limit for transmission through standard phone lines.

At this speed, the main limitation becomes the the phone line itself. Never intended for high-speed data communications, standard analog phone lines are often prone to line noise that leaves them barely able to keep up with the streams of data. (Local connections are better than satellite links, while land-based cross-country lines are worse still.)

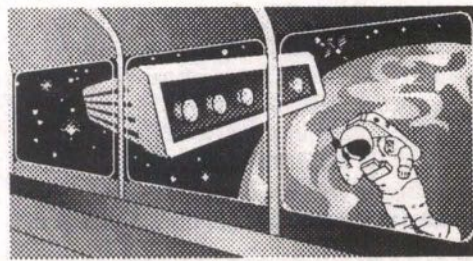
Even special data-grade lines are hampered by the phone line's limited "bandwidth." Until higher-grade phone lines become widely available (see ISDN, below), modem manufacturers must find other ways of increasing throughput.

Data Cmpsrn

To propel data faster, some modems compress the data on-the-fly, thereby increasing the amount of information that can be sent per second. The two main data-compression schemes are:

- MNP Class 5—a network protocol established by Microcom (MNP Classes 1 through 4 define /provide error detection and correction protocols).

- V.42bis—a standard defined by the CCITT (the Geneva-based International Consultative Committee for Telephone and Telegraph). *Bis*, by the way, is Latin for *twice*.



Standards Galore

The CCITT also established an industry-wide modulation standard to en-

sure compatibility among 9,600-bps modems. Dubbed V.32, it ensures that any manufacturer's V.32 modem can talk to any other make or model of V.32 modem (in theory, anyway).

Don't assume that every 9,600-bps modem obeys V.32's rules. In light of Hayes' dominant position in the modem market (the company defined the AT command standard used in virtually every modem on the market), it is interesting that a Hayes modem called the V-series Smartmodem 9600 is one of the

Desktop Publishing Special

with VGA colour, laser printer and software



NORTH SHORE NEWS PHOTO

ONLY \$2699 plus taxes

or \$155 per month

TWO-year warranty
on computer system

Why take a chance
with the cheapest
when a quality product
costs only a few
dollars more?

ASI 80286 computer

- 1 Mb RAM
- 51/4" or 31/2" floppy
- 42 Mb hard drive
- mouse
- VGA colour monitor
- DOS
- two-year warranty

Raven LP800 laser printer

- 8 pages/minute
- 11 resident fonts
- economical operation
- one-year warranty

GeoWorks™ software

- best of Comdex '90
- easy to use and FUN

The same system with Raven PR9101 only \$1569

Optional 1Mb RAM upgrade in LP800 only \$399

■ LEASING ■ PERSONAL FINANCING ■ CUSTOMER SUPPORT



STRACHAN



COMPUTERS LIMITED



NORTH VANCOUVER
HEAD OFFICE
1336 MAIN STREET, V7J 1C3
MON-SAT 10 a.m.-6 p.m.
TELEPHONE: 984-8500
FAX: 984-6486

WEST VANCOUVER
202-1760 MARINE DRIVE, V7V 1J4
MON-FRI noon-5 p.m.
(other times by appointment)
TELEPHONE: 926-6424

COQUITLAM
LINCOLN CENTRE-SUITE 106
3020 LINCOLN AVENUE, V3B 6B4
MON-FRI noon-5 p.m.
(other times by appointment)
TELEPHONE: 942-0370

many older 9600-baud units that does not properly comply with the V.32 standard.

Buyers wanting full V.32 compatibility should look for the newer Hayes V-series ULTRA Smartmodem 9600 instead, or a V.32-compliant unit from another manufacturer.

Similarly, the U.S. Robotics' HST modem is not V.32-compliant. Its high-speed technology is proprietary to USR, therefore it only performs at optimum speeds when connected to other HST

modems. Because of U.S. Robotics' generous discounts to operators of bulletin board systems, a large number of sysops own USR HST modems. you might find that compatibility with your favorite BBS's might be an influencing factor in your buying plans. USR also makes a dual-standard modem offering V.32 and HST compatibility.

While not part of the V.32 specification, the better V.32 units include an error-reduction system called Trellis-code modulation (TCM) and either

MNP-4 for error detection and MNP-5 for data compression, or V.42bis, which incorporates MNP-4 and an improved data-compression method.

Because Microcom's network protocols were a *de facto* standard by the time the CCITT decided to establish its own 9,600-bps standards, it made V.42bis compatible with MNP-4 (error correction), enhancing it by adding a data-compression routine that uses the Lempel-Ziv protocol.

V.42bis allows a pair of protocol-com-

pliant modems to theoretically quadruple their throughput while ensuring data integrity. The first modem squeezes the data and sends it. At the other end, the second modem receives the file and unsqueezes it. By combining the error-correction and data-compression strategies, a 9600- or 14,400-bps V.42bis modem can provide throughput of up to 38.4 Kbps (kilobits, or thousands of bits-per-second) by compressing data as much as 4:1. The newer CCITT V.42 and V.42bis standards comply with the V.32 specification, as does the still-newer 14.4-Kbps standard V.32bis. V.42 is an error correction method similar to, but said to be more efficient than, that offered by MNP-4. V.32bis is a new protocol especially designed for high-speed full duplex 14.4 Kbps communications. (Full duplex means data flows in both directions simultaneously.) Confusing, isn't it?

Top Speeds

Note that even the higher-speed 14.4 Kbps modems cannot exceed this 38.4 Kbps ceiling, due to the limited bandwidth of the current generation of phone lines. Their speed advantage become apparent when transmitting data that is unable to take advantage of V.42bis' built-in compression routines; for example, pre-compressed ARC files won't benefit much from the modems' on-board compression routines because, of course, they are already compressed.

MNP-5 modems fare worse with pre-compressed files, which confuse the protocol. MNP-5 then expands the file instead of compressing it. MNP-5 users should turn off MNP-5 before downloading compressed files from BBSs.

In speed tests between MNP-5 and V.42bis modems, those which use V.42bis are consistently twice as fast, and use a more efficient compression algorithm. Note that V.42bis modems lose their speed advantage when talking to MNP-5 units, because they automatically shift down to MNP-5 speed.

The best way to think of modem-to-modem compatibility is in terms of their common denominator. For example, if a (U.S. Robotics' proprietary) HST 9600-bps modem was talking to a 9600-bps V.32 modem, they could not communicate at 9600-bps, because the two protocols are not compatible. They would automatically drop to 2400-bps, where communications would then proceed smoothly.

If a V.42bis unit connected to a V.42, they would communicate at 9600-bps, but without the data compression found only on the V.42bis.

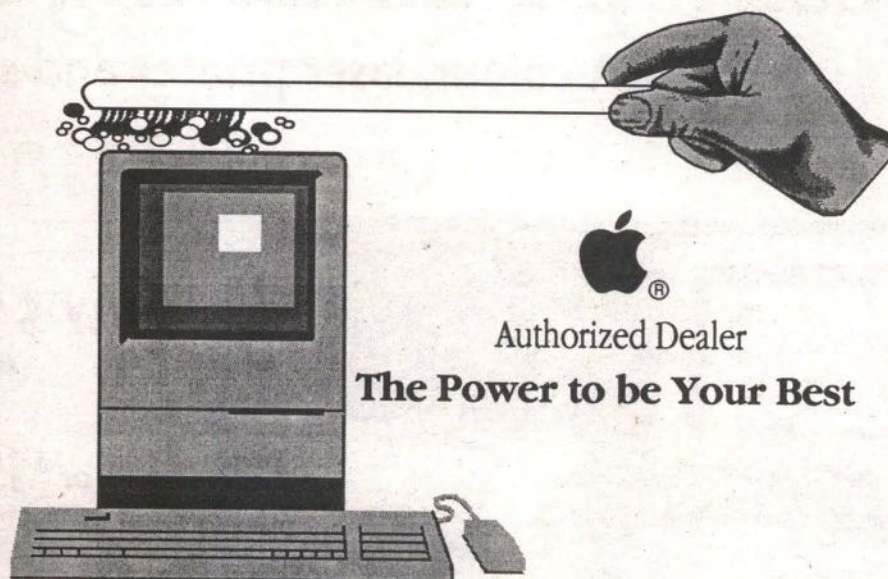
Similarly, if a top-of-the-line 14.4 Kbps V.32bis modem calls a BBS that only supports 300/1200-bps (i.e., it has a plain-Jane 1200-bps modem attached), the two computers will connect at the maximum speed common to both: 1200-bps. As you can see, users with faster modems can still call, they just won't take full advantage of their investments.

Cable Details

There are some details to consider when purchasing a high-performance modem, such as getting a serial cable that supports "hardware handshaking." Unfortunately, there isn't room here to go into the details; suffice it to say that a process known as flow control (where the modem is able to tell the computer

BYTE COMPUTERS

Free Spring Cleaning



The Power to be Your Best

Free "Spring Cleaning" of your Apple® Macintosh™ by our service department.
Regular Value (\$55.00)

Bring in this coupon into one of our stores and get a **free tune-up** and a **free Byte Computers Baseball Cap**.

BYTE COMPUTERS

2151 Burrard St.
Vancouver, B.C.
(604) 738-2181

2001A Douglas St.
Victoria, B.C.
(604) 383-4485

BYTE COMPUTERS COUPON

ONE FREE MAC TUNE-UP
ONE FREE BYTE BASEBALL CAP

Offer Expires May 31, 1991

Apple and the Apple logo are registered trade marks of Apple Computer, Inc.

TELECOMMUNICATIONS

to wait for it to finish sending data) requires a special cable that your dealer should be able to supply or wire up for you. Many modems supply hardware handshaking cables.

Note that the serial ports in some PC clones don't support hardware flow control. Unfortunately, there's no easy way to tell if your card has this feature or not, but if pins 4 and 5 aren't connected in your serial cable, it definitely doesn't have the necessary RTS [request to send] and CTS [clear to send] wires. Your best bet is to buy a serial port that specifically touts this feature.

Another weak link in older XT's and AT's is the chip (called a UART) that controls the serial port. The 8250 UARTs found in XT's won't be able to keep up with the high-speed data flow of 96- and 14.4-Kbps modems. AT clones usually contain the faster 16450 chip, but a direct replacement for the 8250 and 16450 UARTs is available called the 16550. It costs about \$20 and with appropriate communications software will help fast modems achieve peak performance.

Macintosh serial ports are able to support flow control with the proper cable, and Mac II owners can even order a nifty cable from Farallon (415-849-2331) that not only supports hardware handshaking, but connects to the ADB port where the carrier detect from the modem toggles the power-up line and turns the computer on.

14,400-bps Modems

One of the fastest overall modems is

the U.S. Robotics Courier V.32bis (locally available for about \$800). This 14.4-Kbps unit contains a feature called adaptive speed leveling that can resume higher speeds after slowing down due to line noise or other phone line problems. Other units will typically drop to 2400-bps and stay there, increasing transmission times and long-distance charges.

Units including Microcom's new MNP-10 error-correction method are similarly able to speed up data transfer rates after slowing down to compensate for line noise. MNP-10 is expected to be a popular standard for cellular modems.

Because of the wide variety of different standards, it can be difficult to pick a modem that offers state-of-the-art performance and compatibility with existing units.

To solve this dilemma, U.S. Robotics offers a dual-standard 14.4-Kbps modem that provides compatibility with the large number of USR HST (high-speed technology) modems, and the new CCITT standard known as V.32bis, which includes the capabilities of V.42bis. USR's dual-standard model costs about \$1100.

9600-bps Modems

When looking for a modem, make sure that the unit you get has automatic feature negotiation, meaning that at connect time, the modems automatically agree on the type of signalling, data rate, error correction and data communication.

A top-rated 9600-bps V.32 unit is the Multi-Tech MultiModem V32MT932EAB (US\$1,149).

At Campus Computers We Did Our Homework!!

PANASONIC
1180 Printer
9-Pin

\$188

PANASONIC
1123 Printer
24-Pin

\$298

SAMTRON
SC-441v VGA Monitor

\$298

OAK-8
VGA Card, 256K
800 x 600

\$63

MOUSE
3-Button Serial
with drivers

\$18.⁸⁸

KEYBOARD
101 Key Enhanced

\$38

CAMPUS
COMPUTERS

2162 Western Parkway Vancouver, B.C. V6T 1V6
HOURS: 9:30 am - 5:30 pm Mon. - Fri., 10:00 am - 4:00 pm Sat.

TEL. 228-8080 FAX 228-8338

**SEE OUR OTHER AD
ON PAGE #78**



POLYTECH
COMMUNICATIONS

1082 Kingsway
Vancouver, B.C. V5V 3C6
TEL: 879-8823 FAX: 879-1485

MON. - FRI.
9:30 - 6:00
SAT.:
10:00 - 5:00

GET MORE THAN WHAT YOU PAY FOR ~ QUALITY & SERVICES

Polytech 286/12
\$835

Polytech 386DX/25
\$1515
386/33 - 64K Cache
\$1795

All Systems Come With:

- 1 MB RAM On Board
- One 1.2 MB or 1.44 MB Floppy Drive
- 45 MB Hard Disk VC IDE 25 ms 2-YEAR WARRANTY
- 1:1 Interleave IDE Host Adapter
- Monochrome Card & 12" Amber Monitor
- Desktop Case & 200W CSA Power Supply
- 101-Key Enhanced Keyboard w/Software Templates
- Parallel, Serial & Game Ports

Polytech 386SX/16
\$1195

Polytech 486/25
OPTI Chipset, 4 MB RAM
8K Internal & 128K External Cache
90 MB Hard Disk (IDE 20ms) 2-YEAR WARRANTY
\$2895

System Upgrades (ADD to System Price)

Additional 1.2 MB or 1.44 MB Floppy Drive	\$75
Mitsubishi 62 MB Hard Disk (VC RLL)	\$95
Fujitsu 90 MB Hard Disk (VC IDE 20 ms 64K Cache)	\$185
Fujitsu 135 MB Hard Disk (VC IDE 20 ms 64K Cache)	\$295
Fujitsu 180 MB Hard Disk (VC IDE 20 ms 64K Cache)	\$555
Maxtor 200 MB Hard Disk (VC IDE 15 ms 64K Cache)	\$685
MiniMicro 14" VGA Monitor (640X480) w/Oak 256K Card	\$245
AOC 14" Super VGA Monitor (1024X768) w/Paradise 512K Card	\$375
TVM 3A 14" Super VGA Monitor (1024X768) w/Paradise 512K Card	\$485
Seiko 1440 14" Super VGA Monitor (1024X768 0.26 d.p.) w/Paradise 512K Card	\$675
Seiko 1450 Non-Interl. VGA Monitor (1024X768 0.26 d.p.) w/Paradise 512K Card	\$825
NEC Multisync 3D (1024X768 0.28 d.p.) w/Paradise 512K Card	\$795

Math Co-Processors	Intel	Cyrix
80287-10	255	N7A
80387SX-16	375	325
80387DX-25	585	520
80387DX-33	695	620

Printers (With Cables)

Fujitsu DL1100 (2-Year warranty) (24-pin)	\$395
Fujitsu DL1100 w/Color Kit (2-Year warranty)	\$425
Fujitsu DL3450 24-pin Printer	\$520
DL3450 Color Kit	\$105
Panasonic KXP1180 9-Pin Printer	\$215
Epson EPL7000 Laser printer (6 ppm, 14 Fonts)	\$1195
Epson LQ510 24-Pin (360X360 dpi, 225 cps)	\$395

Modems

CPI 2400B Int. Modem	\$75
VIVA 4800/2400 Send-Fax Modem	\$90
PPI Pocket 2400B Modem	\$135

US Robotics 2400 Int. Modem	\$155
US Robotics 2400 Ext. Modem	\$165
Zoltrix 96/24 Send-Receive Fax Modem	\$170

Mouse and Accessories

Dexxa 2-Button Serial Mouse (By Logitech)	\$29
Logitech Hi-Res Mouseman (Right/Left Hand)	\$75
Logitech Mouseman w/Windows 3.0	\$155
SoundBlaster V1.5	\$185
MS-DOS 4.01 w/GW Basic	\$72

Tape Backup Units

Colorado 40/60/80/120 MB Internal Unit	\$325
Colorado DJ20 250 MB Internal Unit	\$395
Archive 40 MB Internal Unit	\$335
Archive 40 MB External Unit	\$445

Archive 80 MB Internal Unit	\$465
Archive 80 MB External Unit	\$625
3M 40 MB Tape Cartridge	\$28
3M 60/125 MB Tape Cartridge	\$32

Monitors and Video Cards

Oak 16-bit VGA Card (256K 800X600)	\$68
Paradise (OEM) 512K Card (1024X768)	\$125
ATI (OEM) VGA Card (256K)	\$175
ATI VGA Wonder Card (512K 1024X768) w/mouse	\$265
Trident TVGA 1 MB Super VGA Card	\$150
Samtron 14" VGA Color Monitor (640X480)	\$290
Samtron 14" Super VGA Monitor (1024X768 0.31 d.p.)	\$365
AOC 14" Super VGA Monitor (1024X768 0.28 d.p.)	\$365
Seiko 14" Super VGA Monitor (1024X768 0.26 d.p.)	\$665
NEC Multisync 3D Monitor (1024X768 0.28 d.p.)	\$780

NOVELL NETWORKING • LOTUS • WORDPERFECT • MICROSOFT • EPSON • PAGEMAKER
ALL SYSTEMS WITH STANDARD 2 YEARS LABOUR AND ONE YEAR PARTS WARRANTY

A popular V.32 model due to its low cost (locally about \$650) is the Canadian-made ATI 9600etc/e modem.

2400-bps Modems

A 2400-bps unit with V.42bis is your best bet; it provides the same advantages V.42bis brings to 9600-bps modems.

Top-rated models include the Zoom/Modem V.42bis (US\$329) and the Hayes V-series Smartmodem 2400 (US\$699).

2400-bps and Sendfax

For those that don't want to pay the



The Zoom Modem with Sendfax is inexpensive and popular.

premium for the extra performance offered by V.42bis, there are also MNP-5 modems and units with no error-checking or compression at comparatively lower prices. Internal and external models are available for most types of computers. Supra, for example, makes an inexpensive (\$179) 2400-bps modem with MNP-5. Some brands even include the ability to send faxes, usually at little or no extra cost over a unit without this capability.

One such data-and-sendfax modem is the Zoom/Modem from Zoom

Telephonics. This 2400-bps (data) and 4800-bps (sendfax) unit comes in internal and external versions complete with telecom and facsimile software for IBM and Macintosh, and sells for about US\$100. A version with 9600-bps sendfax is available at a slightly higher price (see review this issue). A Mac-only version is sold under the name Magic Modem, and an Atari version goes by the name JoppaFax. I've tested many modems and found the quality of the Zoom modem and its software to be as good as anything else—especially for the price.

And once you've got a modem, what can you do with it? Read on....

Remote Control

While the idea of remotely logging onto a network or accessing data on a mainframe is not unusual to many users, an innovative use of telecommunications is the concept of "accessing and operating somebody else's computer."

Several programs can do this, including Carbon Copy and Timbuktu Remote for the Macintosh, and Carbon Copy, PC Anywhere and PCRemote for the PC (the latter is nongraphical only but freely available from the PC MagNet section of CompuServe). It's especially weird for the user on the "other end" who suddenly sees his or her computer's mouse come to life and start opening windows and dragging files around "by itself."

One practical use of this type of program is for training, to walk a new user through a complicated procedure. Consultants may find they can avoid many house calls by installing a copy of the program on their client's PC. Support often becomes as simple as a phone call and a "watch me" walk-through of the troublesome procedure.

E-mail

Electronic mail with integrated voice transmission is already possible, albeit uncommon, on personal computer networks. For example, CE Software's QuickMail has the ability to play an included voice message using the Macintosh's built-in sound capabilities. Using the microphones included with the new Mac LC or IIsi or inexpensive third-party audio input devices for other models, messages can be recorded and sent to augment or replace typed messages. Documents and other files can also be included in an E-mail transmission. NeXT computers also include integrated voice and E-mail systems, and Artisoft has announced plans to add similar capabilities to its LANtastic product for IBM-compatible systems.

Online Info Services

Virtually all online information networks offer E-mail facilities as part of the services available to users. General Electric's *Genie* online service offers what may be the best deal of them all: *Genie*'s E-mail service is available as part of its Star*Services for a flat US\$4.95/month fee for non-prime-time usage. Other popular Star*Services include access to *Grolier's Encyclopedia*, shopping services, news service, single-player games and closing stock quotes.

Computing services, file transfers and multi-player games are not covered by the Star*Services flat fee. IBM and Atari users can download special software called Alladin (US\$39.95) that simplifies

ATARI®: The CAD Workstation That Outperforms All The Others In Power, Price & Ease Of Use.

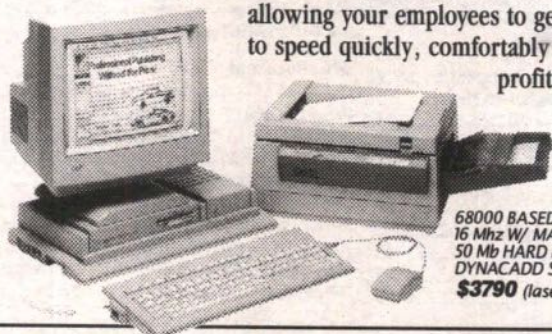
FULLY DXF COMPATIBLE, ATARI OFFERS CAD THAT'S EASIER, LOWER PRICED & FASTER THAN AUTOCAD.

The most powerful 68030 based personal CAD workstation is yours now with Atari's TT series computers. Atari redefines the standard of professional CAD systems at a fraction of the cost of other platforms.

POWER WITHOUT THE PRICE

If you've been thinking of expanding your present CAD capabilities, or are setting up a CAD system for the first time, Atari is definitely your best option. You'll find its power and flexibility will easily match anything you're currently running. And you'll have no trouble passing files between your Atari and existing equipment, thanks to Atari's ability to read and write DOS disks. Best of all, you'll get the entire system for what some CAD platforms would have you spend on software alone.

Your staff will appreciate Atari's straightforward, intuitive user interface. Its mouse-driven, graphic operating system is built directly into ROM, making it one of the simplest computers to learn. That means a low learning curve for both system and software, allowing your employees to get up to speed quickly, comfortably and profitably.



68000 BASED MEGA STE
16 Mhz W/ MATH CHIP 4 Mb RAM
50 Mb HARD DRIVE, HI RES MONITOR
DYNACADD SOFTWARE INCLUDED
\$3790 (laser printer optional)

THANKS FOR THE 26 MEG MEMORY

The TT's power doesn't stop at 4 Meg, either. You can readily expand your TT's memory capacity to an amazing 26 Megabytes, enough to handle the heaviest files. That's an option you won't find on the everyday DOS machine.

YOU CAN'T BEAT OUR SYSTEMS

GXR Systems can put together a CAD package to suit every need and every budget. Choose from a variety of professional programmes like DynaCadd. It has all the muscle of Autocad, but is easier to operate and actually runs much faster.

Your accountant will like its cost efficiency, too. With an Atari running DynaCadd, you'll be able to offer industry standard services, yet have a competitive advantage over companies with CAD systems costing thousands more.

LEASE A SYSTEM FOR AS LOW AS \$123 A MONTH!

We could go on and on about the Atari TT and DynaCadd, but we'd rather have you call and arrange a demonstration. Along with hardware and software, all our packages include training, support services and installation. So, whether you're looking for system expansion or a stand-alone workstation, call us today and see how only Atari can make so much CAD power this affordable.

687-8527

GXR
SYSTEMS

► Watch our upcoming ads for news on Atari Unix, Multi-Media, DTP, Networking and more!

TELECOMMUNICATIONS

fies and automates many *Genie* functions. *Genie* sports an excellent DTP section as well as support areas for all types of computers.

There are dozens of other online information services, each with something unique to offer. Here's a look at some of the biggest names:

America Online is an icon-oriented graphical environment that will appeal to Macintosh owners and other GUI fans. (Egghead Software and others carry Mac Starter kits for signing onto the service.) Geoworks Ensemble for the PC also comes with software for accessing the service.

BIX (Byte Information Exchange). Technical forums and discussions. If you read *Byte*, you'll probably like *BIX*.

CompuServe is the largest and most popular service of them all, with a reported 600,000 users. Strong support for all types of computers, plus an absolutely enormous amount of non-computer-related topics and services. A large number of merchants sell products through an area known as the Mall. Here you can order anything from software to dog-collars. Many software companies—big names like Autodesk, Borland, Brøderbund, DacEasy and Fox Software—maintain their product support areas here or on *Genie*.

PC and Mac users can order special software called CompuServe Information Manager (CIM), a US\$39.95 package that simplifies and automates many aspects of the otherwise bewildering variety of *CompuServe* options. I tested the Mac version and thoroughly enjoyed the friendly graphical user interface that it gives the system. *CompuServe* users who have found the system frustrating or confusing would be well-advised to give CIM a try.

Delphi offers a wide selection of role-playing games and conferences on such diverse topics as Science Fiction, Theology and the New Age. *Delphi* includes lively areas for many "home" computers including TI/994A, CoCo, Amiga and Atari.

Fax, fax and more fax

There is a bewildering variety of permutations of fax technologies today. Fax-to-speech, PostScript fax, plain-paper fax, paperless fax. One of the most useful is the idea of running the facsimile's bitmap through an optical character recognition (OCR) program to turn it back into editable text. Programs for most personal computers are available to do this, but of course your computer must be the fax receiver unless you use a scanner to turn the paper facsimile back into a bitmap.

Because a fax machine essentially consists of a scanner, a thermal printer/copier and a 9600-bps V.29 modem, many people (rightfully) wonder why there aren't devices that will combine the functions of a laser printer/scanner/photocopier/data modem and fax. As an offhand guess, I'd say it's only a matter of time before such a many-headed beast exists.

A few units on the market today offer some of these features, although none have all the attributes of the perfect Hydra. One such machine is the Relisys Tefax (US\$895), which integrates a 200-dpi scanner, thermal printer, copier, computer interface, fax and telephone. The Tefax comes with PC and Mac software.

One advantage of sending a fax from your computer is the *much* higher quality than that sent from a stand-alone fax machine. Even if you keep a stand-alone unit purely for receiving faxes, your outgoing materials will look more professional if you use a PC-based fax.

It looks certain that the stand-alone fax market is now undergoing the same metamorphosis that the dot-matrix printer market did about ten years ago. At that time, thermal printers were popular, practically dominating the low-

end market. Apple had one; IBM had one. By 1985, they were all but extinct. I firmly predict that thermal faxes, with their icky paper, will meet a similar fate.

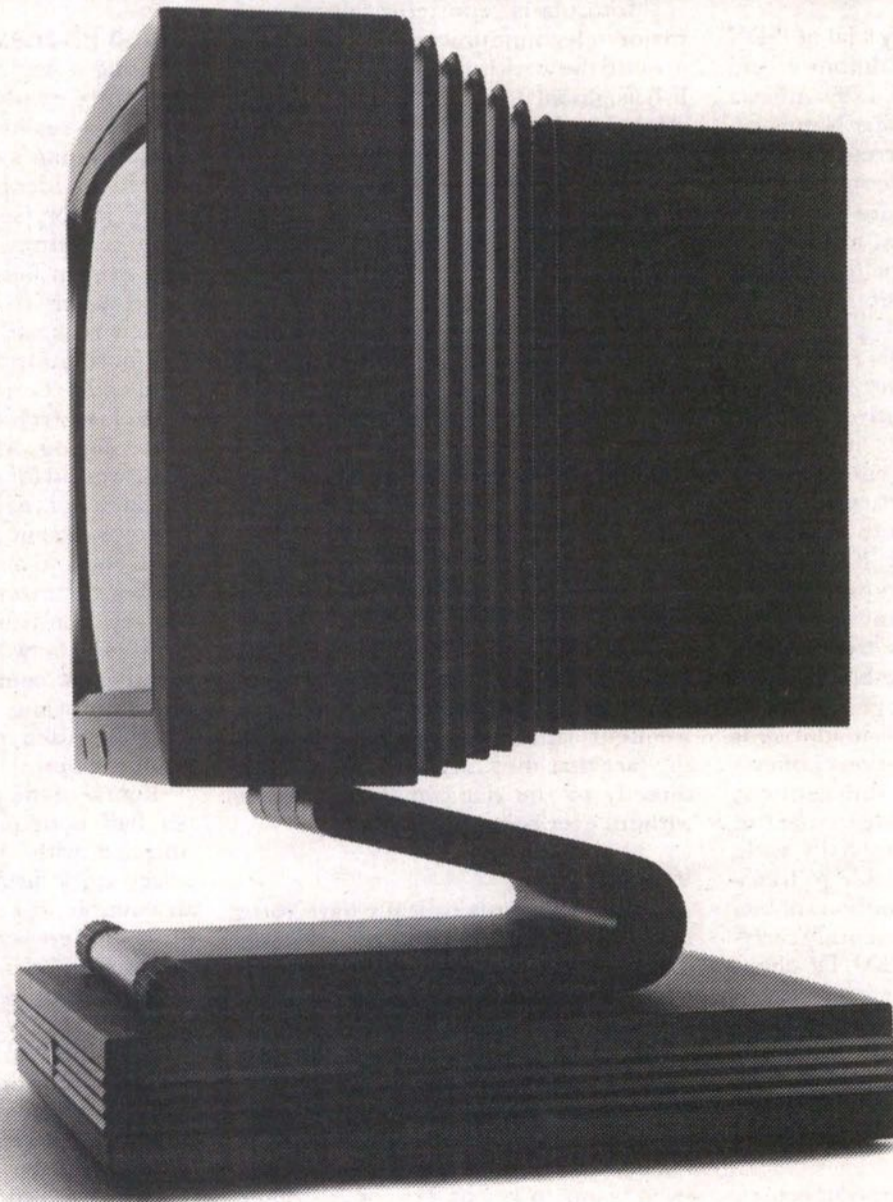
Integrated Services Digital Network (ISDN)

Until recently, if companies wanted telecommunications speeds in excess of 38.4 Kbps (kilobits, or thousands of bits per second), they were forced to resort to special data-grade phone lines, which could provide communication channels

that ranged from 56 Kbps to 45 Mbps (megabits, or millions of bits per second). These lines required costly interfaces at each end and cost thousands of dollars per month in phone company charges.

Soon, an alternative will be available. Taking advantage of the high-capacity fibre-optic cable the phone companies have been busily laying down over the last few years, Integrated Services Digital Network (ISDN) allows transmission of computer and voice signals with a

THE NeXTSTATION HAS LANDED.



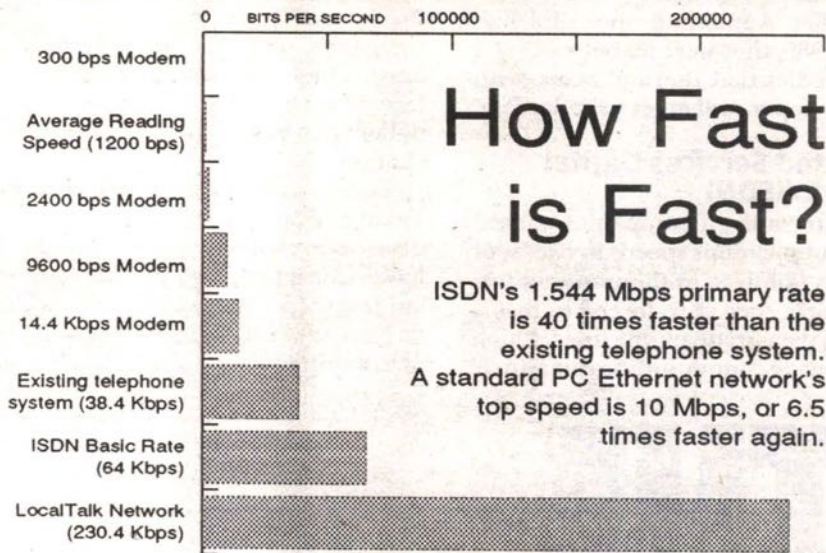
Touchdown. NeXT's newest and most affordable machine is here. Call us for a hands-on demonstration of the revolutionary NeXTstation™ computer. And go where no computer has gone before.



Vancouver
685-6227

ADVANTAGE
Computers Ltd.

Victoria
380-9988



much higher bandwidth or throughput than conventional lines.

Using ISDN and a connection device called a basic rate interface, it is possible to transmit two separate channels of 64-Kbps communications for a monthly charge of about \$50. The telephone company will also offer a higher-priced service called ISDN primary rate, which will have 24 communications channels totalling 1.54Mbps—sufficient for voice, data and compressed-video teleconferencing.

Canada's first inter-city trial of ISDN was conducted between Edmonton and Calgary, on September 26, 1989. Alberta General Telephone's Klaus Naumann told me that AGT is currently testing ISDN technology for videophone use. Naumann runs The Future Centre as part of ExpoTel, designed to illustrate for businesses the potential of leading-edge network administration technologies.

AGT already has ISDN service for trial partners in the Calgary city centre, industrial area and the university area, but because of tariff issues, it is not yet costed or available to the general public. Using ISDN, he said "virtual networking" will allow businesses to effectively link wide-area networks as if they were connected all the time, yet only end up paying for the actual transmission times. Naumann said that AGT's tariff people will be meeting in November 1991 to develop a costing model for general ISDN service, but cautioned that Canada needs a national telecommunications policy.

Around the turn of the century, broadband ISDN will be able to take full advantage of the phenomenally wide bandwidth of fibre-optic cable to transmit 2.4 Gbps (gigabits, or billions of bits per second)—like simultaneously carrying the equivalent of 20,000 TV channels!

According to spokesperson Tom Breneol, Manitoba's MTS will offer both basic rate and primary rate ISDN services in the Winnipeg area in mid-1992, with a policy for tariff rates to be hammered out in November 1991.

B.C. Tel has a demonstration centre at its downtown offices (by appointment only), where interested parties can find out what this technology can offer. In B.C., call 604-663-ISDN for more info.

ARDIS and Iridium

ARDIS (Advanced Radio Data Information Service) is a cellular network currently being installed by Motorola and IBM across the U.S., and by Motorola

in partnership with Bell Canada in you-know-where.

Like CompuServe and other land-line-based networks, ARDIS will let users communicate with other computers and users on the network, but ARDIS users from almost anywhere in the country will use a radio modem to send their calls by radio signal to a base station that then relays the information to the network. Call 800-662-5328 or 708-913-1215 for more ARDIS info.

Motorola is reportedly talking with major telecommunications companies around the world, making plans to establish a global telecommunications network. The Iridium project, to be started sometime in 1996, is going to cost an estimated \$2.4 billion (!) to implement, and will require 77 satellites to provide complete global telecommunications coverage.

The following technologies do not require a computer to access, but serve to show how computers are changing the face of telecommunications.

Call Distribution Systems

Automated attendants answer the phone and give you some options—"Press 1 to place an order, press 2 for customer service"—and then route your call.

Auto attendants lack the personal touch that a live operator can bring to customer services, but are excellent for frequent callers who can benefit from the fact that they can route themselves directly to the department they seek without ever being put on hold.

Voice Mail

Auto attendants typically have voice mail capabilities, where users can leave a message on the digital equivalent of an answering machine. The quality of incoming and outgoing messages varies widely; beware of systems that have short voice record times or compress voice recordings.

In general, a good auto attendant systems should have single-digit menus (who wants to key in 225 for customer service?), expandability, and override (also known as hot keys), where a savvy user can punch in his or her department or extension without having to listen to the entire menu. Obviously, it also needs to be compatible with your company's phone system. Other desirable features include supervised transfer, where the system "watches" to ensure that the extension it has routed you to actually

picks the phone up. If not, it can return you to an operator, another extension or voice mailbox.

Voice Response

If you've ever used the "Talking Yellow Pages," you probably know what voice response capability means. You E-NUN-CI-ATE the numbers into the phone, and the system recognizes them and plays a message. Not exactly HAL from 2001, but at least it works.

The phone companies themselves are starting to exploit voice-response systems as a way of getting around the fact that 40% of the installed phones in North America are rotary-dial units that, lacking keypads, are unable to complete or receive "touch-tone" automated calls. Using speech commands, any type of phone can access automated systems.

One such use of automated voice recognition systems is administering collect calls. The system asks the person receiving the call whether the charges will be accepted. It then recognizes their voice response: Yes, No, Oui or Non. Reportedly, more than 95% of such calls can be completed without operator intervention. The first automated collect call was made from Grand Rapids, Mich., on May 5, 1989.

Video Phones

Long a staple of sci-fi and home-of-the-future exhibits, the video phone is already a reality in some parts of the world. Japan's Telecom giant KDD started a videophone service in 1988 using ISDN (see above) technology. Color real-time videophone installations now exist in Japan, Singapore and Los Angeles. Service is slated to be extended to New York and London in the future. For more information, see the Nov. 90 issue of *The Computer Paper*, page 23.

A closely related technology is video conferencing, which, surprisingly, has been around for several years. I spoke to Sheila Rogers of B.C. Tel's VideoForum video conference centre, established in 1984. She told me that video conference centres are now established in most major centres, consisting of a public studio facility and network linkage for the high-speed data communication channel, which transmits specially compressed real-time video images and audio from point-to-point.

Rental of the public studio costs \$75 per half hour in most areas of North America, with the transmission costs priced on a distance-sensitive basis. As an example, the complete cost of a one-hour video conference between Vancouver and Toronto would be \$800.

Up to eight locations can be linked at once, e.g., Vancouver, Calgary, Edmonton, Winnipeg, Toronto, New York, London and Hong Kong. It doesn't take too much bean counting to see how economical video conferencing is compared to airfares and hotel bills.

Most video conferencing centres can either transmit the compressed full-color signals over a dedicated "half T1" line at 768Kb/sec., or for higher-quality images, over a standard T1 line at 1.544 Mb/sec (at double the transmission cost). One phone call books the studio time in all cities. Contact VideoForum at (604) 663-8353.

It is also possible to develop an in-house PC-based conferencing system. IIS

Technologies sells a system it calls GTSC (group telecommunication software) for IBM-compatible computers that allows people at two or more locations anywhere in the world to share and amend visual documents, photographs and computer-generated graphics over the phone. GTSC can support up to 32 users and 8 simultaneous separate conference sessions. Peripherals such as video cameras, scanners and LaserJet printers are supported. Contact IIS Technologies at (416) 890-2773.

Call Processing

Call Processing refers to those technologies that automate such services as automatic call distribution (ACD), routing and message delivery. Rockwell is a leader in this field with its ACD systems equipped with Call Queuing, which it calls "IQueue."

When customers call these systems, they don't just hear the usual message, "Please wait for the next available representative." Now, the system can analyze traffic and call statistics and estimate just how long you will be required to hold. Some systems include automatic return messages, where the user can choose between holding for a specified time or receiving a return call in a similar period. The message left by the caller holds his or her place in the queue, so the return call is automatic.

Some systems also have call-screening features, where the system asks a caller to record his name before transferring. It then dials the extension and "tells" the employee the name of the caller, at which point the employee can decide whether he wants the call. If not, the caller is told the extension's not available, and can choose to leave a message or speak with the operator.

Information Retrieval Services

Often tied to voice-response systems or touch-tone phone keypad entries, an Information Retrieval Service allows your customers to dial up and request information or other data to be selected, read and/or transmitted. In cases where the caller is not using a computer, the system can send a fax of the information.

With these automated fax information services, callers use their touch-tone phones to key in a product code and their fax number. The system then sends a fax "brochure" from a library of documents.

As Peter Lincoln said in the November 1989 issue of *The Computer Paper*, the phone and the computer are definitely tying the knot, and we're all going to be in the reception line.

For further reading on telephone systems and telecommunications, refer to the articles in our November 1989 and May 1990 issues, found online in *The Computer Paper* section of the Suzy information network, or virtually any issue of *The Computer Paper*, in the NewsBytes "Telecom" section. Other good sources include *Inbound/Outbound* and *Online Access* magazines.

Thanks to Steve Neophytou of Phase One Systems and Keith Lambert of EMJ Data Systems for their assistance in researching modem standards and protocols, and Klaus Naumann of The Future Centre for ISDN info.



SuperStore

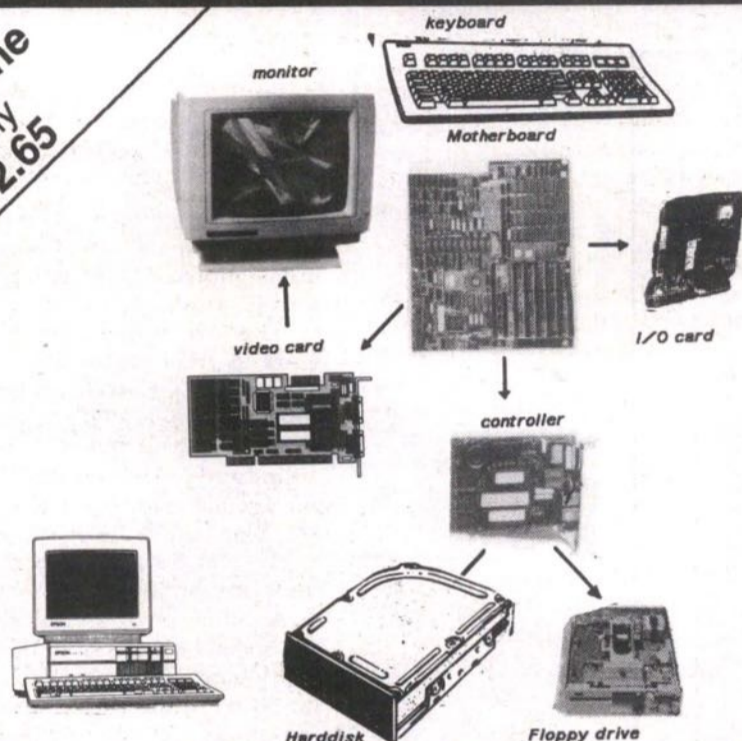
Computers



**Why Pay More
Elsewhere
for 100%
Same
Compu-Ware ?!**

BUYER'S GUIDE

**PC
Magazine
Only
\$2.65**



**A typical micro-computer is
not a "MAGIC BOX", just
configured by some name
brand pre-built devices, as:**

**Check the computer form inside out, part by part,
as long as they're the same model/brand,
WHY SPEND MUCH MORE
for just a fancier name plate on the front panel of the
computer case?!**

**Don't let the fancy name plate fool you,
make your decision and
MINIMIZE YOUR COST FOR COMPUTERIZING!**

286/12 MHz AT
System
\$749

386SX/16MHz
System
\$1149

386SX/20MHz
System
\$1249

386DX/25MHz
System
\$1449

386DX/33MHz
w/64K/25ns Cache
\$1899

* ALL SYSTEMS INCLUDE:

- 1MB RAM (expandable)
- 1.2MB/5.25" TEAC Floppy Disk Drive
- 40 MB/28ms w/16-bit F/H Controller
- I/O Card with 1 Parallel/1 Serial/1 Game Port
- High-Resolution 12" Amber TTL Monitor
- Small Footprint Case/200W power supply
- Enhanced 101-Key Keyboard
- *Customized configuration on request
- *One Year Parts & Labor Warranty

UPGRADE OPTIONS

RAM (Per Mega Byte)	\$89.00
Add Flippy Disk Drive	\$79.00
(1.2M/5.25" or 1.44M/3.5")	
80MB Hard disk	\$285.00
Mono VGA 12" & Card	\$94.00
Color VGA & Card	\$319.00
(640x480 16-bit 256K)	
1024 *768 16-bit 256K Card	\$399.00
9-pin printer	\$189.00

**MS DOS
Ver 4.01
\$65.00**

with System Purchase

LAPTOPS

Mitek 386SX-16MHz

- 40MB
- VGA Backlit
- 2 Hr. Battery

\$3,499⁰⁰

Laprus A-6200H

- 286
- 40MB, EGA

\$2,799⁰⁰

AND MITSUBISHI, TOSHIBA

(PRICES SUBJECT TO CHANGE WITHOUT NOTICE)

MOTHERBOARD

286-12	\$125
386SX-16	\$455
386SX-20	\$575
386-25	\$765

MATH CO-PROCESSORS

80387SX-16	\$409
80387-20	\$519
80387-25	\$569
80387-33	\$659

MODEM/MICE

2400 Int	\$79
MS Mouse	\$129
Mouse Pad	\$5.25

HARD DISKS

30MB/XT ctrl	\$349
40MB/28ms	\$289
MR535	\$329
80MB/19ms	\$579
100MB/19ms	\$649
200MB/19ms	\$1099

FLOPPY DRIVES

1.2/5.25" TEAC	\$85
1.44/3.5" TEAC	\$79
360K/5.15"	\$79
720K/3.5"	\$75

I/O CARDS

AT I/O Card	\$19
Serial Port Chip	\$12

MONITORS

12" TTL Amber	\$89
14" TTL b/w	\$119
12" Mono VGA	\$105
14" Mono VGA	\$135

14" 640 x 480

1024 x 768/28	\$419
---------------	-------

VIDEO CARDS

Mono	\$15
VGA 16 bit 256K	\$89
ATI VGA Wonder	\$189
Tricom 1MB	\$185

DISKETTES

Sony 1.2MB	\$13.99
Sony 1.44MB	\$26.99
KA0 1.2MB	\$11.99
KA0 1.44 MB	\$19.99

PRINTERS

Selkosh 9 pin	\$189
Roland 9101	\$219
Citizen 200 gx	\$249
Fujitsu 3400	\$479

MISCELLANEOUS

Printer Cable	\$7.50
Keyboard ext.	\$5.50
Monitor ext.	\$5.50
VGA ext. cord	\$9.50
Power bar	\$12.50
Printer Stand	\$9.50
Computer Desk	\$99

CHECK OUT OUR UPDATED PRICES!

**#3, 111 West Broadway,
Vancouver, B.C. V5Y 1P4**

TEL. (604) 876-6363 FAX: (604) 876-6361

Super Special!
All Books &
Magazines
15% OFF

By George Slade

Computer Communications

Computers are communicating all around us. In B.C. all doctors bill the Medical Services Plan electronically. Your autoplan is registered in an instant with computer communications. Automated bank machines have access to your account information due to computer communications. Even when you buy products with your credit card, a point-of-sale terminal uses standard computer communications to verify your account information. You can scarcely go through a day without initiating some form of computer communications.

ANOTHER MYTH IS THAT ONLY HACKERS AND SOCIAL DEVIANTS SIT IN THEIR ROOMS ALL NIGHT LONG TALKING TO EACH OTHER AND SWAPPING USELESS FILES THROUGH THEIR COMPUTERS.



Surprisingly enough, most PC users do not make use of computer communications. There are a few good reasons for this lack, and a few myths.

The first myth is that as soon as you hook up a modem to your computer you are inviting a host of hackers to attack your computer. This is just not true. First of all, if you do have your computer online and you use proper security, your average hacker will get tired of trying to break in before he is successful. Secondly, you do not need to have your computer online all the time.

Another myth is that only hackers and social deviants sit in their rooms all night long talking to each other and swapping useless files through their computers. Granted there is a large contingent of hackers who do tarnish the name of computer communications, but there are many viable and worthwhile functions for which computer communications can be used.

Let's look at three areas of standard modem computer communications. The first is remote control. This is the ability to control one PC from another PC via modems and the phone system.

There are many worthwhile and profitable tasks that remote control can accomplish. The most popular and yet the most under-used is computer support. Computer dealers waste countless hours travelling to their clients' sites to perform simple support functions which can easily be done via a remote-control program.

Hardware support is more difficult to do remotely because if there is a problem with the hardware the remote-control is probably out of order as well. Other functions include wide area networking, accessing your office computer from your home computer, sales people on the road having access to the head office computer network. Remote-control products can provide significant improvements in productivity and functionality to a business computer system.

Here are some remote-control programs:

Remote2 V. 2.1c Digital Communications Associates Inc., 1000 Holcomb Woods Parkway / Suite 400, Roswell, GA, 30076 Phone (404)998-7798 Host version C\$159, Remote version C\$109, Bundled C\$259.

Features: Multiple Remote terminal emulation, Xmodem file transfers, Chat

Continued on page 42

NOW!



ATARI DEALERS OFFER AN UNBEATABLE PRICE

Atari® 1040ST^E™
45% OFF 499⁹⁹
SUGGESTED MANUFACTURER'S RETAIL PRICE.
 CAN BE USED WITH YOUR TV!

WHILE
 SUPPLIES LAST!
 MONITOR
 NOT INCLUDED.

• 1 Mb RAM • Internal floppy disk drive • Mouse and QWERTY keyboard • Built-in MIDI ports
 • Serial and parallel ports • Digital stereo sound • Palette of 4096 colours

The biggest selling personal computer in Europe is ready to become number one in Canada, and it's not just because it's got the smallest price - now at 45% off! For starters, you already own half the system! The Atari® 1040ST^E™ easily connects into your TV, in addition to any Atari® monitor. That alone makes the price of this computer unbeatable for home use and small business applications.

The Atari® 1040ST^E™ also has many extraordinary features, like an extended colour palette and digital stereo sound, making it ideal for students, serious artists and musicians. It's no wonder the Atari® 1040ST^E™ is the perfect choice for all your entertainment and home computer purposes. At Atari®, it is intelligence that runs in the family, not money.

ATARI®

Computime Computers & Software
 350 Queensway
 Prince George, B.C.
 (604) 564-3778

Eagle Systems
 1060 Leathead Rd.
 Kelowna, B.C.
 (604) 765-4032

High Road Computers
 1283 Main St.
 Smithers, B.C.
 (604) 847-4140

Hypersound
 3314 Coldstream Ave.
 Vernon, B.C.
 (604) 545-3141

Nicolson Computer
 456 Ward St.
 Nelson, B.C.
 (604) 354-4668

World of Music
 1370 Summit Drive
 Kamloops, B.C.
 (604) 829-2234

VANCOUVER ISLAND

Long & McQuade Music
 2612 Quadra
 Victoria, B.C.
 (604) 384-3622

Micro Vision Computers
 #2C 2220 Bowen Rd.
 Nanaimo, B.C.
 (604) 756-1933

Music Plant
 619 11th Ave.
 Campbell River, B.C.
 (604) 287-7790

Valley Computers
 2440 South Island Highway
 Courtney, B.C.
 (604) 338-0727

Ward Music
 911 Fort St.
 Victoria, B.C.
 (604) 385-3413

VANCOUVER

Annex High Tech Music
 1250 Granville St.
 Vancouver, B.C.
 (604) 682-6639

Long & McQuade Music
 1684 West, 4th Ave.
 Vancouver, B.C.
 (604) 734-4886

Tom Lee Music
 929 Granville St.
 Vancouver, B.C.
 (604) 685-8471

Ward Music
 412 West Hastings St.
 Vancouver, B.C.
 (604) 682-5288

Wizard Computers
 6082 Fraser
 Vancouver, B.C.
 (604) 321-7144

Noteworthy Music
 Oakridge Shopping Centre
 Vancouver, B.C.
 (604) 266-3622

RICHMOND

Infinite Grafik
 34718 #3 Rd.
 Richmond, B.C.
 (604) 278-2099

Noteworthy Music
 #1208 6551 #3 Rd.
 Richmond, B.C.
 (604) 273-6661

Tom Lee Music
 3635 #3 Rd.
 Richmond, B.C.
 (604) 273-6661

COQUITLAM

Tom Lee Music
 103/104 2645 Barnett Hwy.
 Coquitlam, B.C.
 (604) 941-8447

SURREY

Tom Lee Music
 101 8356 Scott Rd.
 Surrey, B.C.
 (604) 599-0844

NORTH VANCOUVER

Strachan Computers
 1445 Main St.
 North Vancouver, B.C.
 (604) 984-8500

Troy Music
 Westview Shopping Centre
 #103 2609 Westview Dr.
 North Vancouver, B.C.
 (604) 985-6612

NEW WESTMINSTER

Quay Computers
 2nd Floor, Westminster Quay Public Market
 New Westminster, B.C.
 (604) 522-2915

Budget Conscious Speed Demons

Introducing the IPC-286/20. 20 Megahertz Speed at an Unbeatable Price.

If you're like most computer users, you simply don't need the awesome processing power of 386 and 486 machines. What you do need is awesome processing speed at a price that fits your budget. Our engineers had that in mind when they designed the new IPC-286/20.

At 20MHz the IPC-286/20 is certainly fast enough for just about any ordinary application. Word processing, desktop databases, normal spreadsheets and simple graphics are all handled promptly and efficiently. And as a network node it neatly outperforms more powerful machines running at slower speeds.

The IPC-286/20 is fully test compatible with MS/DOS, Unix, Novell, OS/2, and all your current ISA based application software. It comes standard with a quality 40MB hard disk drive, a VGA graphics card, and a high resolution VGA compatible monitor.

We've used gate array design and top quality components including a Harris C.P.U. to ensure 100% satisfaction. Naturally, our comprehensive IPC 3&1 Warranty applies and cross Canada on-site service is provided.

So call your nearest 3D Microcomputers stocking location for the name of your local IPC dealer. Now you can have all the speed without blowing all your budget.

3D MICROCOMPUTERS

Vancouver

(604) 873-5595
Fax: 873-4552

Edmonton

(403) 484-0151
Fax: 484-0180

Toronto

(416) 494-5250
Fax: 494-5504

Kingston

(613) 384-8980
Fax: 384-8981

Calgary

(403) 250-2590
Fax: 250-3059

Winnipeg

(204) 772-9028
Fax: 772-9034

Montréal

(514) 659-6522
Fax: 659-8109



IPC-286/20

Microprocessor	80286
Operating Speed	20 MHz
Hard Drive	40 MB
Floppy Drive	1.2 MB
RAM	1 MB
Video Card	VGA
Monochrome Monitor	14" VGA
Expansion Slots	six 16 bit
Drive Bays	3 half height, one 3.5 inch

\$1295.00

Suggested Retail Price

We Make Computers Easy.

BY OFFERING YOU A CHOICE

ALL ARETE MODELS

Come With:

- 1MB RAM
- Fujitsu 45MB OEM 25ms, 64K Cache, Voice Coil Hard Disk
- 1024 x 768 Monitor .28 Pitch
- 101 Enhanced Keyboard
- Tower Case with 200 W P/S CSA
- 1.44 Floppy Drive
- Serial/Parallel/Game Ports

Made In the Taiwan

Arete 386SX-16MHz

\$1499

Arete 386-33 MHz

\$2199

Arete 486-25 MHz

\$2900

ALL ARETE Made in Taiwan come with 1 year parts & labor warranty

Made In the USA

Texas Instruments Chipset

Arete 386SX-16MHz

exp. to 16MB

Arete 386-33 MHz

exp. to 32MB

Arete 486-25 MHz

exp. to 32MB

Arete 486-33 MHz

exp. to 32MB

ALL ARETE Made In USA

5 Year Warranty

Parts & Labour

Nationwide & Worldwide

MITSUBISHI Full Page Scanner On Display

Puzzled by Point-Of-Sale? So were we.

We took a look at many of the POS systems on the market right down to the code and found there is no single standout.

Some would be effective here, but useless there.

We'll help you determine which system provides the right tools for your retail or distribution business.

We'll help you implement and troubleshoot your change to automation.

We understand POS

We Do Custom Programming To Fit Your Budget

HIGH DENSITY 3.5" DISKS

While quantities last. Limit 1 per customer.

\$17⁹⁹ / box

ARETE COMPUTERS

3168 W. BROADWAY

731-0592

TELECOMMUNICATIONS

mode, User ID and Password security, User Rights security.

pcANYWHERE IV Dynamic Microprocessor Associates Inc., 1776 East Jericho Turnpike, Huntington, NY, 11743. Host version C\$165, Remote version C\$129, Bundled C\$259.

Features: Multiple Remote terminal emulation, Xmodem file transfers, Chat mode, User ID and Password security.

Close-Up Norton Lambert Corp., P.O. Box 4085, Santa Barbara, CA, 93140. Phone (805)964-6767. Host version C\$255, Remote version C\$359.

Features: Xmodem file transfers, Chat mode, User ID and Password security.

Carbon Copy Plus Microcom Software Division, 500 River Ridge Drive, Norwood, MA, 02062 Phone (617)551-1000. The same version is used for host and remote but they must be of two different serial numbers, C\$270.

Features: Xmodem file transfers, Chat mode, User ID, and Password security

All the remote-control programs we tested performed their functions well within acceptable standards and there is very little difference between each program. The only difference in functionality between all four programs was the appearance of the user interface when using their own remote terminal program on the host.

The ability to access the host computer with other communications software is important when considering support situations. Both Remote2 and pcANYWHERE have this ability whereas Close-Up and Carbon Copy Plus do not. This is important if you are using remote-control software for computer support.

If Close-Up or Carbon Copy Plus are used by one company for support and another computer company wants to support the same client in another application, the second company either has to obtain the same support program or sell the client another remote control package. If pcANYWHERE or Remote2 are used, the computer company may use any program they wish to support the client.

This weakness in the first two is not made up by price. Both pcANYWHERE and Remote2 are less expensive for a complete setup than Close-Up or Carbon Copy Plus.

All four programs allow file transfers, operation of most graphics programs and much more.

Terminal Emulators

The next area of computer communications is terminal emulators. These are programs which allow your computer to act as a terminal of another system. These are used for such functions as accessing bulletin board systems (BBS's), information networks, and other computer systems.

Crosstalk XVI Digital Communications Associates Inc., 1000 Holcomb Woods Parkway / Suite 400, Roswell, GA, 30076. Phone (404)998-7798

Crosstalk for Windows Digital Communications Associates Inc., 1000 Holcomb Woods Parkway / Suite 400, Roswell, GA, 30076. Phone (404)998-7798

Crosstalk for Windows provides all the functionality of Crosstalk XVI in the Windows 3.0 interface. It also provides

more features for Windows users compared to the terminal that comes with Windows. Crosstalk for Windows provides a six-terminal emulation modes.

Crosstalk Communicator Digital Communications Associates Inc., 1000 Holcomb Woods Parkway / Suite 400, Roswell, GA, 30076. Phone (404)998-7798

Relay Gold Microcom Software Division, 500 River Ridge Drive, Norwood, MA, 02062. Phone (617)551-1000

The main difference between different terminal-emulation programs is the user interface. Crosstalk Communicator has more file transfer protocols than the more expensive Crosstalk XVI product. This is the easiest-to-use terminal emulator program I have seen. If all you want is the ability to access bulletin boards and information services, Crosstalk Communicator is your best bet. If you want more control over your modem, Crosstalk XVI is a better product.

For those who want more out of their modem communications there are scripts which can be written for all the above-mentioned programs. Crosstalk XVI, Crosstalk for Windows and Crosstalk

Communicator all use the same script language and most script commands are interchangeable between them. This allows a more sophisticated user to build the script and test it using Crosstalk XVI and then provide the script to a less-sophisticated user using the communicator.

Relay Gold has the most powerful script language. Relay Gold's file and string or variable management options are quite sophisticated and the syntax is very similar to BASIC programming. Thus if you are familiar with BASIC, writing a script for Relay Gold is quite simple.

Conclusion:

When choosing a terminal-emulation program it is important to match the program with your needs. If you want simple and reliable communications Crosstalk Communicator is my first choice. If you will be troubleshooting, Crosstalk XVI is my first choice. If you want to execute elaborate script commands with extensive file and variable handling function, Relay Gold is my first choice.

The Virus Threat

Viral Programs and BBS's

by Robert Michael Slade

The general public seems to have the impression that electronic bulletin board systems (BBS) are the major source of viral infections. Nothing could be further from the truth.

To start off with, there are two major "classes" of viral programs: those that infect program files, and those that infect the boot sectors of disks. The most "successful" viral programs, in terms of number of infections, have always been boot sector viri.

The boot sector of a disk, however, is not a file that can be transmitted by a bulletin board. BBS's are set up to handle text messages, and text or program files, but cannot transmit (at least not without both sender and receiver being technical wizards) the "system" areas of the disk, such as the boot sector, directory or the file allocation table. Therefore, while it is possible to get a virus infected file from a BBS, the major source of viral infections cannot be a BBS, it must be through "sharing" of infected disks.

Why have BBS's been seen as the "villains" in the virus situation? The first "damaging" programs did appear on BBS's. These were "trojan horse programs" which "advertised" themselves as games or utilities, and then performed some kind of damage, such as erasing files or reformatting the disk. These files were not viral programs, because they did not reproduce, but they did create much pain and annoyance, and tarnished the reputation of electronic bulletin board systems in general. When viral programs did start to appear, many

people automatically assumed the programs were the same.

(Indeed, the status of BBS sank so low, that at one point, in late 1988, a rumor was started that the use of a modem itself was a means of virus transmission. This is technically impossible, but was very widely believed for a while.)

Most BBS system managers are relatively well informed about viral programs, and most "sysops" check all software before they post it. In addition, bulletin boards are one of the best sources for "anti-viral" software and updates are more readily available. Therefore, far from being a source of infection, most BBS are your best source of protection.

It is possible to get infected software from bulletin boards, but it's also possible to get it from the store. However, in order to be doubly safe, here are some guidelines to use:

1) Use scanning software on all programs you "download". The two major "shareware" programs are FPROT (free for individual users) and SCAN (\$25 US). Commercial products are Virex-PC (\$99), Virucide (\$49) the Norton Antivirus (\$130) and IBM's VIRSCAN (\$35).

2) Don't use any software that doesn't have good documentation. While not an absolute indicator either way, the lack of documentation indicates some kind of problem.

3) Try the new program out on an "isolated" system first, preferably one without a hard disk. (Older portables are good for this.) Be sure to include "bait" programs on the disk you run the new program from, and check the size of all files both before and after you run the new one.

© copyright Robert M. Slade 1991

Where's the "Good Stuff"?

A User's Guide to the Online Scene

By Gord Harris

In Vancouver alone there are over 150 Bulletin Board Systems (BBS's) waiting for your PC to call. Add to that the commercial services like B.C. Business Network, Suzy, Prodigy, GEnie, CompuServe and others and you have an incredible variety of services at your fingertips.

For many, the choices are so vast that it somewhat dissuades PC users from exploring the contents of even a few of these. I have spent many hours perusing hundreds of BBS's and online services in the past few months and there are a number of these that are very valuable from both a business and personal point of view. Assuming you have neither the time nor the inclination to go through this same discovery process, I have prepared a summary of the better BBS's and online services available today.

If you would like to attend an "Introduction to Online Computing" seminar, and learn more about these and other

interesting online "jewels", contact Gordon Harris at the number listed at the end of this article.

For those of you who are new to online computing, practise with one of the many free local BBS's. You will find that most of the BBS's look and operate very much alike. With this knowledge you will become much more efficient at navigating and learn to save valuable time. Only after you feel comfortable with these local BBS's should you venture into the much larger and more expensive arena of commercial online services.

A database is only as good as the quantity and quality of the information it contains.

Favorite Bulletin Board Systems

Which BBS's would I suggest? Select a BBS that has several telephone lines, a large message base and a large number of downloadable files (programs). Here are my personal favorites;

Name	Number	Cost
MIND LINK!	576-1214	\$54/year or \$99/year (VIP)
Basic'ly Computers	264-0099	Free
Dial-A-File	736-3453	Free
Doppler/Deep Cove	277-9920	Free
Brad & Mike's	420-9485	Free

How large are these systems?

Let's look at the general features of MIND LINK! as an example. The system contains:

- 33MHz 386 Computer with 12MB of RAM
- 25 Serial Ports
- 1,000MB (1 gigabyte) of hard drive space loaded with downloadable software
- 15 publicly accessible telephone lines

What does it offer?

Local Electronic Mail
International Messages
International Electronic Mail
File Transfers
Online Games
Facsimile Service
Local Directory Space

What is Your Favorite New Online Service (Local)?

Recently the Vancouver Public Library came out with one of the best online services I have looked at in recent

months. Locate any book in the entire library system by author, title, subject or key word. See complete descriptions including number of copies, book status by branch, and "hold status". It will even allow the operator to place a book "on hold" for later pickup!

Whether you use it for your children's homework, school, or as a research tool, this service will save you a lot of gas (and bus fares) in a very short period of time. You will never again drive across town only to hear that frustrating statement, "I'm sorry, that book is out at the moment." The telephone number for the Vancouver Public Library is 665-5010 (2400 bps).

What is your Favorite Government Online Service?

Without exception, the "best" of this class is the B.C. Business Network. Operated by the B.C. Trade and Development Corporation, it consists of over 120 services in 6 major categories including Business Opportunities, Information

MIND LINK!

BC's window on the world

Data: 576-1214, 685-1214, 856-3231

Voice: 576-6172 Fax: 574-3492

think global
but work
with local
people for
the best
service

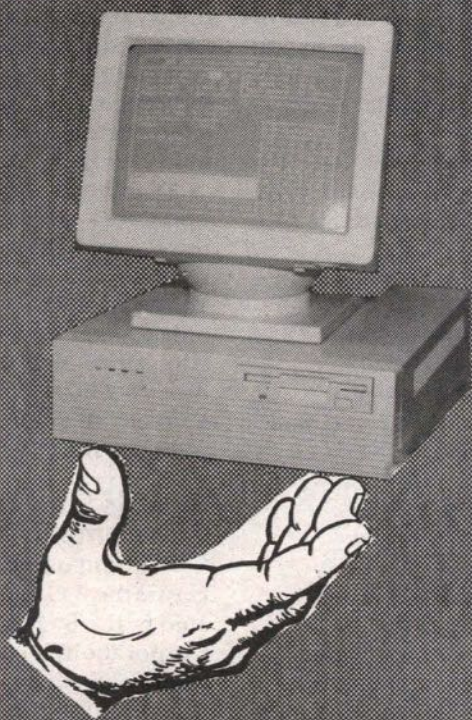


- ... Save time and money with electronic mail and file transfer.
- ... Keep up with the latest in computer technology, science, sports and much more! ...
-Choose from thousands and thousands of free programs for all types of computers.
-All this and much more for as little as \$4.50 each month!

MENTEK

MENTEK COMPUTER SYSTEMS

HIGH QUALITY • AFFORDABLE • EXCELLENT SUPPORT
"A Commitment To Success"



A full line of 286 to 486 EISA Computers Baby AT/SX

The full power of a 286/386SX in a small
10.5" x 12.5" x 3.25" case.

Approx. weight: 15 pounds (including monitor)

9" Monochrome or Monochrome VGA display offered.

Ideal for LAN, Executive Office, P.O.S. Schools, or anywhere
you will have limited space.

New line of peripherals

Four floppy disk controllers
pocket modem

ethernet / arcnet cards

New cases and power supplies

NEW DEALERS WELCOME.



Thank-you.

MENTEK SYSTEMS CORPORATION

373-13988 Cambie Road, Richmond, B.C. V6V 2K4

Tel: (604) 276-8533 FAX: (604) 276-2992

Alberta: (403) 438-4229

Office Hours: Mon - Fri: 8:30 - 5:30 Saturday: 9:30 - 12:30 (Oct. - Dec.)

TELECOMMUNICATIONS

Resources, Facts & Figures, Companies Data Base/Product Notices, News and Customer Comments. From Agriculture Statistics to World Bank Projects, Companies Information to Provincial and Federal Tender Opportunities, you will find it all here. The cost? \$30/hour or \$0.50 per minute. Contact B.C. Business Network during business hours at 1-800-667-4221 for further information and a free subscriber kit.

Not to be forgotten is the Government of Canada Supply and Services Notices of Procurement Board. How confusing is that title? It should have been called "The Complete Listing of Government Tender Opportunities." It is where the Feds list everything that they want to purchase.

After the description of each "tender" you are asked one question: "Would you like a Bid Package (Y/N)?" If you choose "Yes", the computer will respond "Your Bid Package has been sent." Within a few days you will receive the complete bid package on your desk! For additional information call (819) 956-3440.

What is your Favorite Commercial Online Service?

The granddaddy of online computing, CompuServe, is the clear winner. It contains more information, databases and software than any other. Again, it will cost you about \$0.25 per minute which is similar to most other commercial services, but you can't match its variety and size anywhere in North America. It is so large and offers so many exciting

services that I strongly recommend you purchase a CompuServe Almanac (\$15) from your local computer book store.

Some CompuServe favorites are the software support forums, such as Lotus, WordPerfect and Microsoft. If you are a Windows 3.0 user you will be very interested in the Microsoft Windows Forum (type GO MSOFT). It contains hundreds of Windows 3.0 compatible programs including games, utilities and a wealth of simple yet powerful Windows enhancements.

Another popular area of CompuServe is the CB Forum. With over 40 channels, it is possible to converse with other PC users from all over the world by dialing a local number! It is no different than talking to someone over the phone except that you listen with your eyes and speak with your fingers (typing). Recently, I asked five (5) persons in a CB Forum where they were calling from. Two were calling from New York City, one from Florida, one from Ohio, and one from Santiago, Chile!

Finally, the Reference Library is excellent. Whether you peruse the *American Encyclopedia*, compare products using *Consumer Reports* or locate a book using *Books in Print*, it is all here and much much more.

Just How Valuable is Information?

Information is the single most powerful ingredient in a successful career or business. The person or business who is armed with better information has an incredible advantage over the competition. Remember, it is not important that you remember every piece of information you read, as long as you know where it can be found if you ever need it. Online reference databases like CompuServe and the B.C. Business Network are the key to winning by being better informed.

When I speak about online services and the incredible variety and quantity of information they offer, I often hear this same question: "Yes, but what would you use it for?" Let me provide you with two actual cases where online services made the difference between success and failure.

Example #1

The Job Interview (A true story)

Steve (not his real name) and nine other candidates reached the "short list" for an excellent position with the most prestigious firm in the industry. Steve quietly observed the other nine candidates while they practised their "five-year plan" and "what I can do for your company" speeches while combing their hair and generally looking frazzled. However, Steve waited for his interview with a complete sense of self confidence. Why? Because he used an online service to do a little background homework on this company. His competition did not. He was aware of the turbulent history of the company, the financial picture, primary products, new markets, and the backgrounds of key company officials, including the person conducting the interviews. With this information, Steve was in a position to ask insightful, intelligent and relevant questions. Combined with his new-found self-confidence, he

LEARN
THE ART OF...
XPress'ion
QuarkEd

Entry to
XPert level training
in Quark XPress for
graphic designers &
electronic publishers.
Individual & group
instruction tailored to
suit your needs.
For information, call...

946-6445

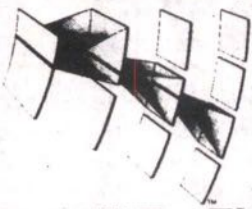
Phoenix
Studios Inc.

XPRESS • Setting new standards in page layout & design for TODAY'S electronic publisher!

B.C.'s FIRST Authorized Quark Training Center
205 - 4882 Delta Street • Delta, B.C. V4K 2T8

ACCOUNTING SOFTWARE

NEW VIEWS
The Visual Approach to Accounting



**AUTHORIZED
Master Dealer
Certified Consultant
Training Centre**

Serving B.C. since 87

Call: 322-6198

**SALES • SUPPORT
TRAINING**

FREE SEMINAR

APRIL 25

MAY 23

JUNE 20

**Local Area Network
Custom Programming
Data Recovery**

TXL Management Systems, Inc.

6528A Victoria Drive
Vancouver, B.C. V5P 3X9

left the interviewer with a very positive impression, and left his competition in the dust!

Why did Steve get the job? Simple. He was better informed than his competition!

Example #2

The "Computer System Quotation" (Another true story)

Hugh (not his real name) was approached by a large company and asked to submit a system quotation for the supply of several computer systems. There was no mention of the brand names required (IBM, HP, Compaq, etc.), only general specifications such as "a 25MHz 386 with a 40MB Hard Drive." Furthermore, he was told that he would be bidding against eight (8) other suppliers (sound familiar?). Based on this, it appeared that the buyer was interested in only one thing, **LOWEST PRICE.**

Knowing that at least one of his competitors would be bidding a "Rock Bottom Brand" clone for a price below that of a box of Oreos, Hugh reached for his secret weapon. Better Information! He made a call to the potential buyer with two simple requests. First, Hugh made a request to submit his bid last. Second, he asked for the brand names (but no prices) used in the competing systems so that he could provide, as a service, a "Detailed System Specification Comparison (DSSC)".

This DSSC included a comparison of features, specifications, performance standards and other pertinent details. Furthermore, it included magazine articles, reviews and recommendations for each system. How did Hugh manage to find all that information? It was available to anyone who knew where to look, **ONLINE!**

Hugh didn't have the lowest bid, nor was his equipment the clear winner of the comparison charts, but he still won the contract! Why? He was better informed than his competition and he proved it!

Just Remember...

Henry Ford was considered to be one of the most brilliant businessmen in the world during his reign at the head of the Ford Motor Company. Yet he openly admitted that the main reason for his success was the quality of people he had in his "inner circle."

He surrounded himself with the most brilliant minds in America. If he needed an answer to a question or needed some obscure piece of information, he knew exactly where to go without wasting valuable time.

You too can create your own "inner circle" by understanding the basics of "tele-computing" and applying that information to your career or your business. It is so simple, and it works. Get going!

Gordon Harris is the president of Minaker Financial Systems Ltd., a company specializing in the design and installation of computerized financial and business systems. Mr. Harris will be sharing his insights at a seminar titled "An Introduction to Tele-Computing" at the Four Seasons Hotel in May. For further information, phone (604) 732-7047.

IN COQUITLAM PORT COQUITLAM PORT MOODY



For all your computer needs

- Introduction to the IBM PC
- Lotus
- dBase
- Bedford
- Accpac
- Desktop Publishing -
Ventura or Pagemaker
- Introduction to the Mac
- Autocad
- Wordperfect
- Microsoft Word
- Microsoft Works
- MS DOS
- MS Windows

*Evening and day courses
starting week of April 8*

We use IBM PS/2,
Data Train, & Mac's

Call 936-4261

for more information.



O.T.W.



Prices

TECHNOLOGY CORPORATION
AMI

**Outa
This
World
Prices**

If you're concerned about the price of computer equipment, AMI Technology Corp. is the place for you. Our everyday low prices are so low, their down right ridiculous. Sometimes we think The Boss is bowling a few pins short when he comes out with his new pricing every month.

So if you're looking for a new PC, software, printer, or peripheral, give us a call - we'll give you some of the best pricing in B.C.

AMI Technology Corp.

1459 W. Braodway
(Granville & W. Broadway)

Vancouver, B.C.

V1H 1H6

Tel: (604) 731-7880

Fax: (604) 731-7844

NEWTECH
COMPUTER LTD.

428 Dunlevy St., Vancouver

Tel. 251-3309

SHOPPING HOURS: Mon. - Thurs. 9:30am - 8:00pm Fri. 9:30am - 6pm Sat. - Sun. 1:00pm - 6:00pm

EXCELLENT PRICE, QUALITY, SERVICE (WELCOME TO COMPARE)

System Sales: Special Price & Special Service

(Included FREE: Training + Installation + Delivery)

Systems

80286 8/12 MHz (Exp. 4 MB)	\$756
80286 8/16 MHz (Exp. 4 MB)	\$816
80386 16 MHz (Exp. 8 MB)	\$1114
80386 20 MHz (Exp. 8 MB)	\$1167
80386 25 MHz (Exp. 8 MB)	\$1380
80386 33 MHz (Exp. 8 MB)	\$1563
80486 25 MHz (Exp. 8 MB)	\$2539

All Models Feature:

- Hi-resolution 12" monochrome monitor
- Mono/graphics card
- Licensed AMI/AWARD BIOS
- 101-key enhanced keyboard
- 1.2MB floppy disk drive
- 40MB IDE hard drive (28ms, 1:1)
- Combined floppy/hard controller
- Serial/parallel/game ports
- Users' technical manuals
- 1 year warranty parts & labour

To UPGRADE to SUPER VGA add \$344

PAL OAK 16 Bit VGA Card w/512K (1024x768)

Super Color 14" VGA Monitor (.28 dot pitch, 1024x768)

We have quality brands and special prices on systems, monitors, hard drives, floppy drives, printers, cases, co-processors, faxes, video cards, keyboards, motherboards, memory, modems, mice, power supplies, controller cards, cables, tape backups, accessories, and software.

We are computer brokers and offer many items at special prices. Call to check prices after you decide to buy an item. We also have quantity discounts.

Support Services:

Training, Installation and Custom Programming (Novell, C, dBASE, Clipper, Lotus 1-2-3) for small/medium business.

Prices subject to change without notice

Hard Drives

WD 40MB, 28ms	\$242
Maxtor 40MB, 17ms	\$269
Seagate 44MB, 28ms	\$221
Mitsu. 40/60MB, 20ms (MFM/RLI)	\$265
Maxtor 80MB, 17ms	\$414
Rodime 84MB, 19ms	\$515
Rodime 105MB, 19ms	\$499

Floppy Drives

Panasonic 1.2MB	\$72
Panasonic 1.44MB	\$66
TEAC 1.2MB	\$77
TEAC/Mitsubishi 1.44MB	\$71

Monitors

Legend (14" .28dp, 1024 x 768)	\$365
Morse (14" .28dp, 1024 x 768)	\$451
CTX 5468 (14" .28dp, 1024 x 768)	\$382
CTX 3436 Multisync (14" .28dp, 1024 x 768)	\$479
TVM MD-14 3A (14" .28dp, 1024 x 768)	\$457
TVM MD-14 3+ Multisync (14" .28dp, 1024 x 768)	\$559
TVM MD-14 5A (14" .28dp, 1024 x 768)	\$687

Printers

Panasonic 1180 9 pin.	\$186
Panasonic 1124 24 pin.	\$336
Futtsishi 1100 24 pin.	\$371
Futtsishi 3400 24 pin.	\$457

Mouses

A-Tech 3 buttons	\$26
BMC Infrared Cordless	\$69
Logitech C9 Ser.	\$77
Logitech C9 Bus.	\$86

Modems

Cardinal 2400 int.	\$94
Cardinal 2400 ext.	\$120

Software

MS-DOS 4.01	\$75
Bedford 1991 V. 3.4	\$120
Canfax 1990 (new)	\$30

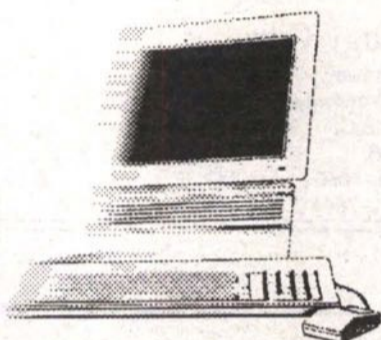
We'll Get You Up To Speed

Infomax is pleased to announce the beginning of regularly scheduled computer training courses. We will be offering full and half day courses in all major Macintosh™ business applications as well as training in Mirostation™ CADD.

All Macintosh™ classes are limited to a maximum of six students. Each student uses a personal workstation and all workstations are connected to an Apple® Laserwriter® printer and an AppleShare file server. All classes include a permanent reference guide kept by the student.

Please call for more information on these or other classes that you may wish to attend.

Infomax
1280 Hornby St.
Vancouver, BC
V6Z 1W2
688-0696
688-6309 FAX



INFOMAX COMPUTERS TRAINING CENTRE

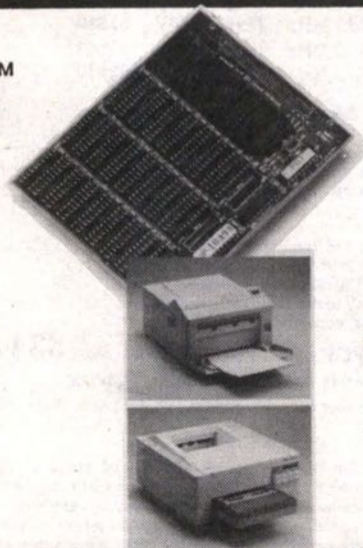
Apple and LaserWriter are registered trademarks of Apple Computer Inc.

JetRam™

JetRam allows more fonts to be downloaded and higher resolution graphics to be processed.

Compatible with:
HP LaserJet IIP and
HP LaserJet III

UPGRADABLE!
Expands to 1/2/3/4 MB



Dealer inquiries welcome
ComStar Distributors

Unit 368-13988 Cambie Rd., Richmond, B.C. Canada V6V 2K4
Phone (604) 279-0188 • Fax (604) 279-0288

FAX/MODEMS

LAN FAX GATEWAYS

by Chem Cohen

Monday morning 7:30 am and you are in your office early because you have to get your 40-page document to Toronto to save telephone charges, preferably before 8:00 am. You slip the diskette that you brought from home into your office PC and quickly print your document on the office laser printer. While the document is printing you grab a cup of coffee and head over to the fax machine.

Then you see the fax line-up—four people running frantically around while your office's only fax machine slowly cranks out fax after incoming fax. You know that they need your report in Toronto for a scheduled lunch meeting!!!

Now if you had a fax gateway installed on your Local Area Network (LAN) you could have sent the document from your home PC to the LAN the night before and the fax gateway would have taken care of the rest. In the case where you don't have a modem at home, the fax gateway eliminates your need to first print the document, then stand in the fax line and feed your document to the fax machine "message conversion in progress" or "transmission in progress." Instead you can send it directly from your PC to the fax gateway and then forget it. Text and images are converted to faxable format at the fax gateway and then transmitted, freeing you to do other work.

Now, you may ask, what is a gateway? A gateway is simply a computer system and its software that permits two computers using different protocols to communicate with each other. In our case we have a LAN on one side and a fax machine on the other side.

Alternative Routes

There are four basic approaches to the fax gateway solution:

1. Most of the fax solutions are board-and-software packages that are installed on a separate PC on the LAN. Most will be a proprietary design of hardware and software as a combined package from the same manufacturer.
2. In some cases the fax software will be essentially hardware-and-network-independent. It will use software written by a software company to perform on multiple LAN platforms and the most popular fax boards on the market such as Intel's satisFAXtion, The Complete Fax/9600, GammaLink; and any other boards, especially those that support Intel's/DCA Communicating Applications Specification (CAS) protocol.
3. E-mail packages with fax capability. Some E-mail packages have a fax gateway

way that enables you to mix fax and E-mail addressees on the same mailing list and let the software route the copies. So if you already use an E-mail package you should find out if it has a fax gateway capability. Most E-mail packages are only supported on Novell and interface with the fax gateway through Message-Handling Service (MHS). MHS is a software program that permits reliable movement of electronic messages from place to place. As a message-handling service, MHS operates in many ways like parcel delivery services that you are familiar with. In our case the E-mail delivers a package; if this package is an E-mail message it will be sent untouched to its destination, but if it is a fax message it is then unwrapped by the fax gateway and sent as a fax to a fax machine.

4. Stand-alone fax gateways. This is usually a small "LAN ready" box. No need to fiddle with dip switches or jumpers—just attach the box to the LAN and phone lines.

It is Better to Give Than To Receive

The fax gateway, or fax server as it is sometimes called, is a PC on the network

containing one or more fax boards and transmission software. None of these fax boards can be added to your file server.

Depending on fax traffic this PC can be a PC/XT, 286 or a 386 machine. Some require a hard disk; others use storage on your file server as each faxed text file takes 50K to 100K of mass storage—and faxes with graphs or pictures in them can be much larger.

If you want to print images that you receive, you will need at least 1.5 MB of memory in your laser printer.

Some fax boards allow for an optional scanner to be attached to the fax board itself; this works well in a stand-alone environment. For best results on a LAN install the scanner on a workstation other than the fax gateway. Make sure that the file produced by the scanner is in a format accepted by your fax board and gateway software. If you have to scan in a lot of documents specifically for the purpose of faxing, you are probably better off sending those with a regular fax machine.

Fax gateways are especially good for sending faxes. Receiving faxes is more complicated. Most gateways require a human administrator to route incoming faxes, which can cause delays. Several vendors offer Direct-Inward Dialing (DID); this phone company service lets your gateway imitate a PBX switchboard, routing incoming faxes directly to each user. This service requires a dedicated trunk line for each user and those lines are more expensive than regular telephone lines. There is yet another solution which is cheaper but more complicated; fax senders punch in a special



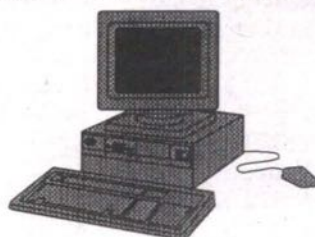
COMPU AGE[®] TM

1927 Burrard
Vancouver, B.C.
Tel.: 736-8408

3373A Kingsway
Vancouver, B.C.
Tel.: 435-7067

1857 Lonsdale
N. Van., B.C.
Tel.: 988-9823

INTRODUCING THE IQ SERIES PERSONAL LINE
OF COMPUTERS WITH THREE YEAR WARRANTY!!



** AVAILABLE IN **

286 486
386-SX 386-DX



BACKED BY OVER EIGHT YEARS OF EXPERIENCE

SPECIAL SAVINGS FOR THE MONTH

RAVEN LASER PTR.....\$1250	RAVEN FAX.....\$ 899
POSTSCRIPT LASER.....\$2250	RAVEN SVGA MONITOR...\$ 525
CANON PC3.....\$ 350	CYRIX 387-33MHZ.....\$ 595
CANON PC5.....\$ 425	MULTYSINC MONITOR....\$ 575
TOSHIBA LAPTOP.....\$1599	MONO MONITOR.....\$ 50
MITSUBISHI LAPTOP.....\$2250	SEAGATE 65MB SCSI HD.\$ 425
ATI GRAPHIC SOLUTION...\$65	BOOKS.....20% OFF

LIMITED STOCK & MAY NOT BE AVAILABLE AT ALL BRANCHES. SOME PRODUCTS MAY BE DISPLAY UNITS.

WE ALSO PROVIDE
NETWORK
SOLUTION
CONSULTING
SERVICE

AUTHORIZED
NOVELL DEALER

Abaton

CITIZEN

Raven
Roland DIGITAL GROUP

NOVELL

COMPUAGE CELLULAR CENTER

OKI
PHONES

MOTOROLA
CELLULAR

NEC

MITSUBISHI
INTERNATIONAL CORPORATION

MOTOROLA

DPC 500

- 26 OUNCES
- 90 MIN. TALKTIME
- 16 HR. STANDBY
- 27 MEMORY STORAGE
- 3 CALL TIMER
- USER LOCK CODE

NOW AVAILABLE
DPC 880

MOTOROLA

TALKMAN

- 16.5 OUNCES
- WITH STANDARD BATTERY
- 2.2 HR. TALKTIME
- 30 HR. STANDBY
- WITH SLIM BATTERY
- 1.1 HR. TALKTIME
- 16 HR. STANDBY
- 101 MEMORY STORAGE
- ALPHANUMERIC DISPLAY
- AUTO ANSWER

MOTOROLA

8000 ML

- 26 OUNCES
- 90 MIN. TALKTIME
- 16 HR. STANDBY
- 27 MEMORY STORAGE
- 3 CALL TIMER
- USER LOCK CODE

OKI
PHONES

OKI 900 WITH

BUILT IN PAGER

- 13 OUNCES
- 70 MIN. TALKTIME
- 12 HR. STANDBY
- 200 MEMORY STORAGE
- USER LOCK CODE

CELLULAR ACCESSORIES

- 8000 STANDARD BATTERY .. \$ 59

- TALKMAN ULTRA HIGH CAPACITY BATTERY WHICH ALLOWS 4.4 HRS. OF TALK TIME. WAS.....\$159
NOW ONLY \$99

BEST LEATHER CASE
DEAL EVER\$29.95
AVAILABLE FOR MOTOROLA CELLULAR

PAGERS

MOTOROLA "BRAVO" PAGERS
NUMERIC & VOICE MESSAGE
RETRIEVAL, BEEP TONE &
VIBRATING MODES.

FOR ONLY \$21.95 /MONTH
PLUS GST

CANTEL APPROVED
AGENT

Why don't you call
Compatible Computers, John?

Computer Problems?



For \$75, we will:

- Clean computer and keyboard
- Clean all contacts and treat for corrosion
- Clean floppy and micro-floppy drives
- Check and/or replace batteries
- Check RAM with diagnostic program
- Scan hard disk for virus programs
- Backup hard disk drive and re-low level format
- Check for device conflicts
- Loop back check of all serial and parallel ports
- Optimize all components for full performance
- Label all connectors (printer, mouse, video, etc.)
- Make recommendations for future upgrades
- Complete report on system

We also service "dead" computers

- Free estimates!!
- Repairs to all IBM and compatible makes & models
- 90-day repair guarantee

COMPATIBLE
COMPUTERS INC.
5487 KINGSWAY, BURNABY, B.C. V5H 2G1
(604) 435-5400

FAX/MODEMS

four-digit code for each recipient, and the gateway routes the incoming fax to the proper individuals. This solution is called Dual Tone Multi Frequency or DTMF.

Four Products

In this section I will describe some of the existing fax gateways on the market. I chose one product from each of the four categories described above. I also chose to cover two Canadian companies which have a product in this market niche. It is important to note that there are many other good products out there and the products described here are not endorsed by me. In a recent article in *PC World* (March '91, p.184) there is a summary table describing 22 LAN Fax Gateways. Every business needs to carefully assess their needs and choose the best fit for that need.

SCI-NET 2000

- Manufacturer: TGI Technologies Ltd., 107 East 3rd Avenue, Vancouver, B.C. Canada V5T 1C7. (604) 872-6676 FAX (604) 872-6604.
- Fax Machine Compatibility: CCIT Group III Dialing Method: Tone Microprocessor: Zilog Super 8 Memory On-board: 64K Bus: IBM PC 8 bit bus compatible (AT/386) Address Selection: Dip Switches (32 Distinct Addresses) Multi Board Capability: Up to eight
- Price: \$2,294 includes software to handle up to 4 lines, 1 SCI-NET board. Each additional board: \$1,006. Other options available.
- Warranty: 1 Year
- Key Features: Fully Novell Netware compatible, installs inside a network node, fax text, fonts and graphics, accounting/logging features, user-friendly fax menu, personal or corporate phone books, automatic re-dial, delayed sending, built-in memo editor, internal memos.

TGI Technologies is a local company entering the fax gateway market. The SCI-NET 2000 is their PC LAN Gateway product which started shipping in December 1990. SCI-NET 2000 is currently in version 1.2.

The SCI-NET 2000 does not work with an E-mail package but works strictly as a FAX gateway. For internal use on the LAN you can use it somewhat similar to an E-mail package and send messages to other LAN users. For outside use you can only send faxes.

Let's assume that you need to fax a sales brochure to a prospective customer, along with a covering letter. You'll use SCI-NET 2000's Edit-Memo function to write the covering letter, then scan in your sales brochure, and send all the pages off to your customer.

Here is how you would do it: First you start SCI-NET 2000. You see a list of all the mailboxes in the system, and you choose your own to work in. Once in your mail-box, you choose to work with folders. Each folder in your mailbox contains one fax, which can contain as many pages as you wish. You insert a new folder to hold your fax, and give it the name Brochure. Then you enter the folder, which of course is empty right now.

Once inside the folder you insert a Memo, and find yourself in the Edit-Memo screen. This is a simple text editor which allows you to write messages, or import text from an ASCII file (which means that, if you wanted to, you could have written the memo in your own word-processor and imported it into SCI-NET 2000 without having to print it and scan it in). This is a short simple covering letter so you write it directly in the memo editor. Once you have finished, you exit the editor and wait for a few moments while SCI-NET 2000 converts your text into a faxable graphic image. Then you choose the scan command and place the first page of your brochure in the scanner. You scan in all the pages you need, and each one becomes a page in the folder.

Once you've scanned all the pages, your fax is complete, so you move up the folder level and choose the Send command. You enter your customer name and fax number, tell SCI-NET 2000 when to send the fax and how many times to try if it can't get through on the first try, and that's it.

NEW TECHNOLOGY

뉴 텍 컴퓨터

현대 첨단과학의 요술상자- 컴퓨터는

일단 사귀기만 하시면 평생 편치않는 좋은 친구입니다.

1. 컴퓨터는 여러분 가정의 좋은 동반자입니다.
① 각종 자료 기록 ② 생일 카드 작성
2. 컴퓨터는 여러분 자녀들의 훌륭한 가정교사입니다.
① 영어 단어, 숙어, 문법 프로그램 ② 수학 프로그램 ③ 과학 프로그램
④ 사회 프로그램 ⑤ 지리 프로그램 ⑥ 영어 프로그램 ⑦ 성경 프로그램
3. 컴퓨터는 여러분 교회와 사무실의 숙련된 비서입니다.
① 교적관리 ② 주보, 교회 신문작성 ③ 재정관리 ④ 서류일체
4. 컴퓨터는 여러분 사업의 충성된 매니저입니다.
① 고객관리 프로그램 ② 금전출납 프로그램 ③ 광고관리 프로그램

★가성품질 보장: 저희 컴퓨터 가격이 다른 회사의 가격보다 높을 경우 가격의 차액을 돌려 드립니다.

PH: (604) 876-0908
FAX: (604) 876-0668

1151 KINGSWAY,
VANCOUVER, B.C. V5V 3C9

COMPUTER



80286AT
Sale \$895
\$849



80386DX
Sale \$1700
\$1539



80386SX
Sale \$1370
\$1249

System Configuration:

- 1MB RAM (except 486 systems)
- 1 Parallel / 1 Serial / 1 Game Port
- IDE hard/floppy drive controller
- Maxtor 40MB IDE hard drive
- 1.2MB 5.25" floppy drive
- Mono graphics/printer card
- Hercules Hi-Res 12" monitor
- AT 101-key Tactile keyboard

Training

- DOS • WordPerfect 5.1 • Windows
- Excel • Microsoft Word for Windows • AutoCad
- Bedford • Corel Draw • dBase IV

BC Cellular B.C. CELLULAR AUTHORIZED DEALER
CASIO AUTHORIZED DEALER

FAX/MODEMS**LanFax Gateway, LanFax Redirector, LanFax Redirector for Windows**

- **Manufacturer:** Alcom Corporation, 2464 Embarcadero Way, Palo Alto, CA 94303 USA (415) 493-3800, Fax (415) 493-6185
- **Compatibility:** The Intel SatisfAXtion or The Intel Connection Coprocessor, Gammalink's XP and CP, Brooktrout's Technology TR-112, and the Complete PC's 9600 Fax card. Any CAS compatible board.
- **Price:** The LanFax Gateway products are available in an entry-level system for 8 users \$957, for 15 users \$1,799, for 30 users \$2,762, unlimited \$4,327. The other products have similar pricing structure. In addition you will have to purchase one of the above-mentioned boards.

Alcom is a document communication software company. Alcom develops the LanFax family of document communications servers for LANs. The Alcom products are compatible with 3COM, Novell Netware, Banyan VINES and any NETBIOS compatible LAN. Alcom currently offers two basic products. The LanFax Gateway for E-mail users, and for non E-mail users the LanFax Redirector product.

LanFax Gateway works with the electronic mail application set on the network. LanFax gateway is compatible with the most widely used Message Transport Agents (MTA) and runs with popular E-mail systems such as Da Vinci, Banyan Vines, 3Com 3+ mail and it also supports MHS.

LanFax Redirector allows the user to fax from any CAS-compatible application, such as WordPerfect Send-Off and Lotus 1-2-3 Send-Off without having to exit the application. The LanFax redirector has a DOS version and a new version just released February 1st for Windows.

Alcom also supports 2 programmers' toolkits that allow a developer to develop fax capability into any custom application. This allows the incorporation of fax messages into an existing or new application. The tool-kit is especially handy when you already have an existing database of customers and you want to tap into it from within the application for fax sending. Without the toolkit you need to maintain two lists, which is overhead for the network administrator.

The Network Courier Gateway to FAX

- **Manufacturer:** Consumers Software Inc., 7th floor - 73 Water Street, Vancouver, B.C. V6B 1A1 (604) 688-4548
- **Requirement:** The Network Courier inter-Network Version 2.1 Compatibility: The Intel Connection Coprocessor and software (CCAM 1.12 or other CAS compatible board).
- **Price:** Not available at this time. In addition you will have to purchase one of the above-mentioned boards.

Consumers Software is a Vancouver company, known for its Network Courier E-mail system and its associated gateways. Consumers was recently purchased

TECHNOLOGY CORPORATION
AMI**Big Deals !!!**

All systems come standard with 1MB RAM, 1.2MB 5.25" Floppy Drive, 40MB IDE Hard Drive, Herc compatible graphics adapter, hires Mono Monitor, Parallel Port, Serial Port, Games Port, CSA Approved Power Supply, and an Enhanced 101-key Keyboard.

★ 12MHz 286	750
★ 16MHz 386sx	1,079
★ 20MHz 386sx	1,179
★ 25MHz 386DX	1,475
★ 25MHz 386DX w/ Cache	1,580
★ 33MHz 386DX w/ Cache	1,725
★ 25MHz i486	2,525

BONUS
3 Button Mouse
Only \$10
w/ System Purchase

AMI Technology Corp.

1459 W. Braodway
(Granville & W. Braodway)
Vancouver, B.C.
V1H 1H6
Tel: (604) 731-7880
Fax: (604) 731-7844

ATIC. Computers**SYSTEM PACKAGES**

- AMI BIOS • 1MB RAM
- 1.2MB 5.12" Floppy Drive
- 40MB/45MB (32K/64K) HD
- 1:1 Interleave Controller
- Mono Card w/Printer Port
- Parallel, Serial & Games Port
- 12" TTL Monitor
- 200W CSA Power Supply
- Enhanced Keyboard
- 1 Year Parts and 1 Year Labour Warranty

AT 286 - 12MHz
\$960

with 14" VGA mono 9 pin printer

386SX - 16MHz
\$1080

386SX - 20MHz
\$1180

386DX - 25MHz, 0K
\$1380

386DX - 25MHz, 64K
\$1500

386DX-25MHz, 128K
\$1600

386DX - 33MHz, 64K
\$1680

386DX - 33MHz, 128K
\$1700

486 - 25MHz
\$2200

MODEM SPECIAL

2400b Int. Zoom/Precision	\$80
2400b Ext. Zoom/Precision	\$100
2400 w/Send Fax Int.	\$90
9600 w/Fax (Zoltrix, No S-BG)	\$170
9600 w/Fax (Max, w/S-BG)	\$280
CPI, Cardinal, Viva....	

486 - 25 SPECIAL
\$1930

with: 1MB, 1.2MB FD, keyboard, I/O Card, Tower

UPGRADE OPTIONS

RAM (Per Mega Byte)	\$80
Floppy Drive (HD)	\$80
60MB Hard Drive (RLL)	\$100
80MB Hard Drive (19ms)	\$190
90MB (20ms, 64K)	\$230
640 x 480, 256K, .41dp	\$200
640 x 480, 16 bit 256K, .28 DP	\$280
1024 x 768 16-bit 256K, .28 DP	\$310
9 Pin Printer w/cable	\$170
24 Pin Printer w/cable	\$340

TRAINING

- DOS
- WordPerfect 5.1
- Windows
- Excel
- Geoworks
- AutoCad
- Bedford
- Corel Draw
- dBase IV
- Paradox

286-12 Motherboard	\$100	60MB, VC, 28ms HD	\$320	ATI Wonder	\$195
386SX-16 Motherboard	\$420	80MB/90MB, 64K, 19ms HD	\$420	OKI 400 Laser	\$930
386-25 Motherboard	\$680	1.2/1.44 MG TEAC/Pana.	\$80	Epson 7000 Laser	\$1140
386-33, 64K Cache	\$1050	14" Color 640 x 480 .28	\$330	HP IIP	\$1150
80287-10	\$190	14" Color 1024 x 768 .28	\$370	HP IIIP	\$2180
80387 SX16	\$390	NEC 3D Monitor	\$830	1MB VGA Card w/1MB RAM	\$169
80387 DX20	\$490	NEC 4D 16"	\$1780	Mouse / Mouseman	\$\$\$
80387 DX25	\$540	Seiko 1440 .25	\$740		
80387 DX33	\$620	Seiko 1450 .25	\$850		
135MB, 64K, 20ms HD	\$550	VGA 16-bit 256K	\$89		

All books 20% Off
SOFTWARE, ACCESSORIES

We SERVICE what we sell!

ATIC. Advance Technology International (Canada), Inc.

45 East Broadway (at Quebec St.) Vancouver, B.C. V5T 1V4
Tel: (604) 875-8859 Fax: (604) 875-8611

FAX/MODEMS

by Microsoft, which will probably make some changes in its product line and its pricing structure in the near future.

The Network Courier Gateway to Fax allows any user of the Network Courier to send mail messages, text documents and bit-mapped graphics directly through the fax system, and to receive mail from fax users worldwide.

If your company is already using the network courier or if you are considering purchasing an E-mail package the advantage of this system is that it allows the users to send and receive faxes the same way that they send and receive ordinary mail. One interesting feature of this package is that all inbound and outbound faxes are encrypted during transmission within the system. This will prevent others in your organization from viewing your faxes.

FaxPress

- Manufacturer: Castelle, 3255-3 Scot Blvd., Santa Clara, CA 95054; (408) 496-0474 Fax (408) 496-0502
- Fax Machine Compatibility: CCIT Group III
- Dialing Method: Tone or pulse; Microprocessors: Dual Motorola 68000; Printer Interfaces: RS-232 serial, Centronics parallel
- Network Connections: Ethernet (DIX and BNC), Token Ring, Arcnet
- Price: \$5,713. Warranty: 1 year
- Key Features: Fully Novell Network compatible, install as another network node, fax text, fonts and graphics, pop-up faxing, printer server capability, accounting/logging features, user-

friendly fax menu, command line faxing, e-mail faxing, personal or Corporate phone books, automatic re-dial, delayed sending.

Unlike other LAN fax solutions, Castelle's FaxPress is a compact, text book-sized stand-alone unit for Novell Network LANs. FaxPress is a complete solution with direct cable connection onto your Novell network via Ethernet, Token Ring or Arcnet. Hardware installation is as easy as plugging the unit into the wall, attaching the network cable, plugging in the standard RJ-11 telephone-wire connection, and connecting an optional HP LaserJet or compatible printer. Automated installation of the FaxMenu software is also easy. I recommend you to connect a laser printer since you can use it to print anything, not just faxes! Because FaxPress is also a print server, anyone on your network can direct either faxes or print jobs to the printer. FaxPress supports standard Novell print utilities such as Nprint, Capture, and Printcon. While Pconsole does not display queued print jobs submitted by FaxMenu, the FaxMenu utility does provide total queue control for users and supervisors.

The FaxPress files must be in standard ASCII format or PCL (Hewlett-Packard's Printer Control Language) to use the faxmenu program, this presents few problems as most current applications support the LaserJet printer. Documents are converted automatically to fax format for transmission. FaxPress supports special fonts and font sizes, italics,

bold, strike through and even intricate graphics are supported.

The optional FaxPOP pop-up utility allows you to fill out a cover page, enter a fax phone number and immediately fax the document without even leaving the application. FaxPOP is a TSR program requiring 50K of RAM, it has user-assignable hot-keys to allow compatibility with most applications.

FaxPress is now also integrated with E-Mail capability which ties in to Novell MHS.

What's Coming

In the recent Networkworld Boston show several new products were shown. According to several exhibitors the network fax market is booming as LAN-Fax technology comes of age. Among these vendors were Xerox Corp. of Rochester, NY, and Cracchiolo & Feder Inc. of Tucson, AZ. Xerox announced the LAN/Fax Express 21, a fax server system for Novell Networks, it consists of a Xerox Telecopier 7021 plain paper fax terminal and the LAN/Fax Express hardware accessory and software.

In the coming months we will probably see a lot more announcement in this exciting area.

Thanks to Gunther Jehnichen of Capilano Technologies and Walter Rawlinson of ByteWide for their help in writing this article.

Chem Cohen is the president of RainBow Software Inc. The firm is a Vancouver micro-computer consulting firm specializing in solutions for Business based on LAN and Gateway technology. (604) 732-802. Fax (604) 732-8043.

Gamma Fax & Gamma Net

by George Slade

- **Product:** Fax board and fax server software for the PC.
- **Publisher:** GAMMALINK, 133 Caspian Ct., Sunnyvale, CA 94089. Phone: 408-744-1430; Fax: 408-744-1549

Fax boards have been around for four or five years now and I have been keeping a watchful eye on them since they were first introduced. In the beginning fax boards were flaky and not very useful. The technology was just too much in its infancy. Now, in certain conditions, a fax board is a must.

First let's look at the concept of the fax board and what it does well and what it does not do well. Fax boards will take any computer data file and transmit it to any fax machine. The fax board will also receive a fax transmission from any fax machine and store it on the computer hard disk.

That is the simple part. The problem comes with file maintenance. How do you generate the file and how do you print files you receive?

If you send many faxes that are handwritten or not generated by your computer system, a fax board is a waste of time because you cannot scan your document to fax it. A standard fax machine serves this purpose much better.

Novell Networking Support & Upgrades

We can handle any size of network

No job is too big

AE ELECTRONICS CORPORATION

#4-11460 Voyageur Way
Richmond, B.C. V6X 3E1
Tel. 279-8867 Fax. 279-8821

Lantastic Networking and Support

We can link 2 to 300 computers together at a reasonable price.

No job is too small

SPECIAL OF THE MONTH HP Laser III \$2095

HP Memory Card & 1MB	\$129
NEC 3D 1024 x 768	\$825
Mitsubishi 65MB HD	\$295
Maxtor 80MB 17ms IDE	\$450
Conner 104MB 25ms IDE	\$545
Quantum 120MB 15ms IDE	\$705
Maxtor 200MB 15ms IDE	\$950
Fujitsu OEM 340MB 16ms	\$1425
Fujitsu OEM 660MB 16ms	\$2295
Everdata monit. 640 x 480	\$365
Everdata monit. 1024 x 768	\$395
Legend monitor 1024 x 768	\$395
Morse monitor 1024 x 768	\$459
Paradise OEM VGA 256K	\$115
Summagraphics 12"x12"	\$475

ALL SYSTEMS INCLUDE:

41MB, Voice coil, Mitsubishi HD
1:1 MFM hard/floppy Controller
1.2 or 1.44MB Teac Floppy Drive
200W PS, 1MB RAM, AMI BIOS
12" Mono Monitor & Graphics Card
Serial, Parallel & Game Port
Fujitsu 101 key enhanced keyboard

**Warranty is 1 year parts &
two years labour**

UPGRADE OPTIONS

65MB Voice coil HD	\$50
Tower Case	\$50
DOS 4.01	\$65
1.44Mb or 1.2 MB FD	\$75
SmartOne 2400 int modem	\$88
SmartOne 2400 ext modem	\$110
80MB Maxtor Vcoil HD	\$149
100 MB voice coil HD	\$249
VGA Standard 640x480	\$315
VGA Color 1024x768	\$405
Microsoft Mouse	\$100

Special 286-12MHz

Expandable to 4 MB
(Exp. RAM \$65/Mb)

\$875.00

Starter Special 386SX-16MHz

Runs all latest Software
Expandable to 4 MB
(Exp. RAM \$65/Mb)

\$1195.00

Business Class 386DX-25MHz

25MHz Chip set
Expandable to 8 MB
(Exp RAM \$69/Mb)

\$1515.00

Professional System 386-33MHz

64K Cache
Baby size board
Expandable to 8 MB

\$1750.00

FAX/MODEMS

If you have only an inexpensive dot matrix printer, you will not be able to obtain clear enough printouts of the faxes you receive on a fax board. Also, if you only have one computer and you use it for many functions, you may find a fax board frustrating.

Those are all the situations where a fax board is not adequate. So, where is it useful? If you have a local area network, and you already have a standard fax machine for handwritten material, you will find a fax server (fax board in a LAN workstation) a very valuable tool.

A fax board gives you direct access to your graphics or desktop publishing files. Thus you can generate high-quality faxes for marketing purposes. In addition, you can control your fax board while in other applications, which allows you to fax files straight from your word processor, graphics or desktop publishing software to any fax machine.

Plain paper fax machines are all the rage right now. If you already have a laser printer spooled on your network, you can have plain paper fax capability just by adding a fax server to your network.

In particular, I looked at the Gamma Fax board with Gamma Fax, Gamma Net, Gamma Script and Gamma Page. Before you buy a fax board be sure you have all the options you need.

Initially we received Gamma Fax, Gamma Net and Gamma Script. We use a HP LaserJet for our printing and all our software is set up for this. Without Gamma Page you cannot capture

LaserJet print jobs to send as a fax. This crippled a major function of the system for us. Make sure you have all the components to complete the system you want. Do not buy the bare minimum because you will only have a minimum system.

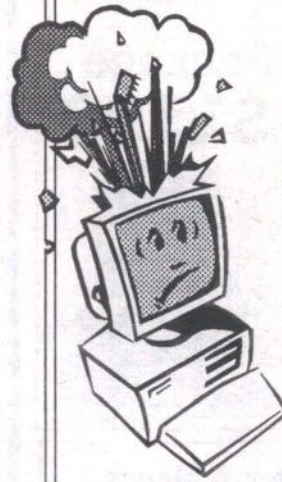
Installation of the Gamma Fax system is not simple. The problem lies in the lack of knowledge on the part of the user. Now that I have installed the system once, it would be a snap to install it again. However, I would not recommend purchasing this product from your local discount computer store.

Get it from a consultant or VAR who has experience with the product. It might cost you more but the savings in wasted time will be great.

Once Gamma Fax was correctly installed, I was impressed. I could fax a letter to anyone in just a few keystrokes. I could send a simple message even faster. Now I can communicate with my clients with ease and I also have plain paper faxes (no more photocopying the thermal fax so I won't lose it).

After trying out the Gamma Fax as a fax server on my network, it is going to be like pulling teeth from a rhino to get me to give it back. I must be cautious, though, as I do not believe this is a product for everyone.

I believe this should be your second fax machine and it will not replace the standard fax machine. I also am not convinced of the usefulness of fax boards in a non-networked setting. However, for the office with a network of any size and any amount of business conducted by fax, Gamma Fax is a good investment.



TECHNOLOGY CORPORATION
AMI

Grand Opening Blow Out Special !

- ★ 12MHz 286 Personal Computer
- ★ 1MB RAM
- ★ 1.2MB 5.25" Floppy Drive
- ★ 40MB Fast Access Hard Drive
- ★ Parallel / Serial / Game Ports
- ★ VGA Colour Monitor
- ★ Epson T-1000 Printer

\$ 1095⁰⁰

AMI Technology Corp.

1459 W. Broadway
(Granville & W. Broadway)
Vancouver, B.C.
V1H 1H6
Tel: (604) 731-7880
Fax: (604) 731-7844



SAVE THOUSANDS OF DOLLARS!



Introducing the Intra LT-386SX Laptop

An extra compact design 386SX laptop (weight only 4.9 kg and 6 cm high), similar in dimension and weight to a letter size notebook pc, but much more powerful than a notebook.

Compatible with 80x86 software, OS/2®, MS-DOS®, Unix®, Xenix®, Windows 2.x/3.0®, AutoCad®, Novell®, Laplink®, Ventura®, DESQview®, DBase III/IV®, Lotus 123®, Carbon Copy®, and many more.

High resolution 640 x 480 VGA display. Features a dot pitch of only 0.27mm. 16 grayscale, background reversible, supports external VGA monitor.

Long battery life, keeps about 3 hours of continuous operation and with a fast charge function of within 3 hours.

Display panel can be folded down to a flat position enabling you to directly see the external monitor's screen in front of you.

Uses double sided SMD subassembly technology to guarantee a high quality and reliability. All internal parts manufactured in Japan. Two full year warranty on labour. One year on parts.

INTRA LT-386SX

CPU	80386SX
CO-PROCESSOR	Socket for 80387SX
MEMORY	2MB RAM Standard Expandable to 6MB, supports SHADOW RAM
HARD DRIVE	41MB (18ms)
FLOPPY DRIVE	1.44MB 3 1/2"
INTERFACES	1P, 1S, VGA Monitor Port, Ext. D. Port, Ext. Keyboard Port
EXPANSION SLOT	1 Proprietary
KEYBOARD	85 Keys
DISPLAY	640 x 480 LCD 0.27 Dot Pitch, 16 Grayscale, Background Reversible
OPTIONS	Ram Upgrade 2MB SRP \$400 4MB SRP \$800
POWER SUPPLY	NiCad Battery & AC Adptr./Recharger
DIMENSIONS (WxDxH)	12.8" x 12.4" x 2.36"
WEIGHT	10.9 lbs.

OMNINET COMPUTER LTD.
(604) 872-1136 FAX: 872-1136
3728 MAIN ST., VANCOUVER V5V 3N7
DEALER ENQUIRIES WELCOME

NOW SHIPPING 80MB HD VERSION

CONTACT DEALER FOR INFO

Strachan Computers
1336 Main St.
North Vancouver 984-8500

Compukits
4320 Fraser St.
Vancouver 879-9288

Morse-Tech Communications
1237 West Broadway
Vancouver 738-3288

Werner Computers
148 Lakeshore Dr. N.E.
Salmon Arm 832-3288

IQ Square
#104 950 W. Broadway
Vancouver 732-9288

Infospec Systems
#101 2806 Kingsway
Vancouver 430-1223

Business Automation
Systems
#515 4710 Kingsway
Burnaby 431-0881

POWER TO THE PEOPLE!!!

286-20MHZ with Super VGA Package \$1199

FEATURES

- 20MHz Harris CPU, fast & cool running, Landmark 26MHz!!
- 50 Meg Hard Drive, 17ms, 2 Yr. Warranty
- 1024K Memory expandable to 5MB
- Paradise (OEM) VGA, 512K, 16 bit
- Color Monitor 1024 x 768, 0.28mm dot pitch, 14" color
- Tactile keyboard, 101 key with template
- 1 HD Floppy Drive
- EMS Drivers for expanded memory management



AT 286/12MHZ With Color VGA, Printer & Mouse \$1199

- 14" VGA Colour Monitor
- 40MB Hard Disk
- 3 Button Mouse
- 16 bit VGA Card
- 1 HD Floppy
- Keyboard
- Epson 9 pin Printer

Similar Savings in these Models:

CELLULAR PHONES

CANTEL

APPROVED AGENT

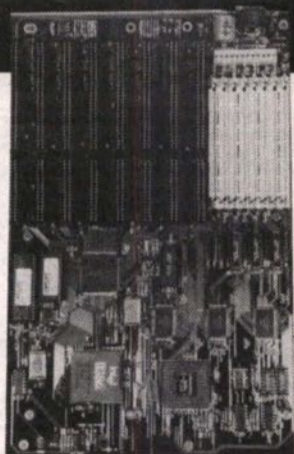
286-16MHZ \$899	386-25MHZ \$1559	486-25MHZ \$2699
386SX-16MHZ \$1149	386-33MHZ \$1799	486-33MHZ Call

PEEP
COMPUTER
SYSTEMS LTD.

4319 FRASER ST.
VANCOUVER
872-7337

STORE HOURS: MON 12 PM - 6 PM TUE - SAT 10 AM - 6 PM

HIGH PERFORMANCE UNBEATABLE LOW COST



PSI386N System Board

- 80386 33MHz CPU
- Non-cache Design
- Up to 32MB Memory
- Shadow RAM & EMS 4.0
- Landmark speed: 48.9MHz
- Powermeter: 6.71 MIPS

OTHER PRODUCTS AVAILABLE:

PSI386C 80386 33MHz

- Intel 80386-33 CPU
- 64K Cache Memory
- Expandable to 16MB
- Landmark 58MHz, 8 MIPS

PSI286 80286 16/20MHz

- 80286-16/20 CPU
- Shadow RAM
- LIM EMS 4.0
- Expandable to 5MB

PSI386X 80386SX 16/20MHz

- Intel 80386SX CPU
- Shadow RAM
- Hardware EMS 4.0
- Expandable to 8MB

Peripherals

- IDE Controller Card
- OAK/ATI 16-bit VGA Card
- VGA Monitor 640 x 480 0.39mm
- VGA Monitor 1024 x 768 0.28mm

PROGRESS
SYSTEMS INC.

2438 Graveley Street
Vancouver, B.C. V5K 3J3
Phone: 251-2438 Fax: 251-1873

DEALER INQUIRIES ONLY

The MIND LINK! BBS List

Provided as a public service by the MIND LINK! BBS. Call (604) 576-1214 and log in as "Guest" to download the most recent version or to tell us about new / down systems. Call-forwarding numbers: 685-1214, 856-3231. Copyright 1989, 1990 MIND LINK!, a division of Reiter Software Inc. Permission is granted to redistribute and or publish this list if and only if it is redistributed or published complete and unaltered. All other rights reserved.

Feature codes:

The following feature codes have been selected to give you an indication not only of WHAT a system offers, but HOW MUCH of that feature it offers.

- C System has chat or teleconferencing
- E System has private E-mail. E! Connected to international mail system
- F System has files to download. F! System has at least 100 megs of files to download (not just 100 megs of space)
- G System has online games
- L Systems has multiple lines
- L! System has at least 6 lines
- M System has an active message base
- M! System has at least 60 message groups and 300 messages daily
- P System allows pseudonyms
- P! System uses only pseudonyms
- 5 System supports MNP 5 (or higher)
- \$ System is commercial
- *1 - MIR More information requested - can you supply it?

Name	Baud	Computer	Features	Number	Comments
1st Steps	2400	AtariST	M,E,F	522-7105	
Abacus	2400	MSDOS	M,E,I,F!	272-4311	
ABC Connection	9600	MSDOS	M,E,I,F!	272-4644	
Agape BBS	2400	MSDOS	M,E,I,F,G	931-1461	
Agora	2400	MSDOS	M,E,F	264-0533	
Christianity Airspace	2400	?	?	270-6475	Smoking/health
Altar Ego ST BBS	2400	AtariST	M,E,F	531-1245	
Apple Fever	9600	Apple	M,E,F,P	888-1829	
Artificial Intel.	2400	Amiga	M,E	588-8882	
T.R.A.C.E.	2400	AtariST	M,E,F	272-5888	
Club BBS Badlands	?	?	?	433-5072	MIR *1
Band Master	2400	MSDOS	M,E	266-7754	
The Basement	?	C64	E,M,P	574-9740	MIR *1
Basic'ly Computers	9600	MSDOS	M,I,E,F,I,L!,5	584-9811	589-6852
Basic'ly Computers	2400	MSDOS	M,I,E,F,I,L!,5	589-8562	264-0099
BC Macintosh	2400	Mac	M,E,F!	465-0017	
Bev's Serenity Shack	?	?	?	325-1074	N.A./A.A./O.A.
B.J.'s Place	2400	MSDOS	M,E,F,G	467-3878	
Kids' area Bloom County	300	C64		263-3843	
Blue Board BlueStar	2400	AtariST	M,E,F	980-0411	
Booger Board	1200	MSDOS	M,E	591-6573	
Brad and Mike's #1	2400	MSDOS	M,E,F!	420-9485	
Brad and Mike's #2	9600	MSDOS	M,E	420-2641	
Canadian Tire	1200	MSDOS	Product Avail.	420-2549	
Canyon Heights	2400	?	?	980-9042	MIR *1
Caramilk Secret	9600	MSDOS	M,G	596-9205	
Cardz	9600	MSDOS	M,E,F,G,C,L	734-5800	
The Castle ST	2400	AtariST	M,E,F	434-2263	
CEED	2400	Mac	M,E,F	463-3446	Environmental
Chez Cthulhu	2400	MSDOS	M,E,I,F,5	983-3546	Virus/Fractals
Cirrus	2400	Amiga	M,E,F	535-1382	
Kzin	2400	CoCo	M,E,G	535-0411	
Compu-Coach	2400	MSDOS	M,E	941-6027	Business only
CompuCollege	1200	MSDOS	M,E,F	435-8726	
Computer Clinic	14.4	MSDOS	M,E,F,5	732-3320	
Computer Smiths	2400	MSDOS	F,E,M	224-5247	Windows 3.0 Opus
Computing Student	2400	?	M,E,F,G,P,\$	888-1913	
CrashST	14400	Atari ST	M,E,I,F,G	299-5111	
DarkStorm	14.4	MSDOS	F,M,G	420-0609	
Data Acquisition	2400	MSDOS	M,E	986-5428	DA and CAD
Deb's BBS	1200	MSDOS	M,E,F	738-2773	
Deepspace	2400	MSDOS	M,E,I,F,G	463-4786	
Deepspace #2	1200	MSDOS	M,E,I,F,G	522-0069	
DeForrest Enterprises	2400	?	\$	274-0108	Frecom Fax
Delta 80	2400	MSDOS	M,E,F	585-0680	
Dial-A-File	2400	MSDOS	M,E,F!,G,L	736-3453	
Discovery	1200	MSDOS	M,E	588-6758	
Doors of Perception	2400	MSDOS	M,E,F!	943-3503	
Down-Link Commun.	2400	MSDOS	M,E,F	467-8652	
DragNet #0	1200	MSDOS	M,E,I,F,G	525-7634	
DragNet #1	2400	MSDOS	M!,E!,F!,G,5	943-2894	
Doppler/Deep Cove	9600	MSDOS	M!,E!,F!,C!,L!,G,5	277-9920	9600 avail.
Dynamic Duo #1	2400	MSDOS	M,E	590-6931	

BBS

Ebenezer	2400	MSDOS	M.E	462-7622	826-6607
Fantasia	2400	MSDOS	M.E,G	274-4657	
Frog Hollow	2400	CP/M	M.E,F	469-0264	CP/M users
Gallifrey	2400	Amiga	M.E,F	261-8546	
Gay Exchange	2400	MSDOS	M.E,F,C	731-0538	Gay/Lesbian
Guys & Gals 1	?	?	?	737-7973	
Guys & Gals 2	2400	MSDOS	M.E,I,P,\$	299-4318	Teen area
Guys & Gals Gaming	2400	MSDOS	M.E,G	524-4487	
Hacker's Hideout	2400	?	M.E,F,G	986-9711	
Harbinger	2400	MSDOS	M.E,F,\$	874-0265	Books
Hard Rock Cafe'	1200	C64	E,M,P	576-9833	Blue Board
Heavy Artillery	9600	?	?	272-0968	272-1568
Hem Board	1200	MSDOS	?	929-3776	MIR *1
The Highland Line	2400	?	?	929-4865	MIR *1
Hog's Hollow	2400	Apple	M,E,F,G,P	437-9222	
Hortus Botanicus	2400	MSDOS	M.E	228-3695	Gardening
IBM Connection	2400	MSDOS	M.E	943-2077	GIFs
Infobase 9600	9600	MSDOS	M.E	931-9050	
Ink Well	2400	MSDOS	M.E,F,G	270-7207	Comics 1
Inner Sanctum	2400	C64	M,E,F,G,P	273-6019	
Kitsilano BBS	2400	MSDOS	M,E,F,P	736-0303	Gay orientation
Lambda Speaks	2400	MSDOS	M,E,F,C	681-3667	Gay orientation
The Lord's Keep	2400	?	M,E,F,G	731-7193	
LVTB	?	?	F	737-5065	n/a M-F 8-4pm
Magnetic Visions	300	AppleII	P,C,L,I,\$	325-5693	Chat only system
Magical Maze	2400	MSDOS	M.E,F	873-2296	RPGs
Marble Land	2400	MSDOS	M,E,F,G	299-4213	RPGs
Mars Subway	1200	MSDOS	M,E,G	255-5059	
Mellow Muffin	1200	C64	E,M,P	538-6147	Blue Board
Mind Meld	1200	MSDOS/AMI	M.E	438-7885	
MIND LINK!	9600	Xenix	M,E,I,F,I,L,I,C,G,5,\$	576-1214	Free trial
New Age BBS	?	MSDOS	M,E,F,G	876-0377	
Nexus VI	2400	MSDOS	M.E	432-1398	
O Canada	2400	MSDOS	M.F	876-5260	
Out Bin	2400	MSDOS	M.E	536-6548	
Outlaw BBS	2400	MSDOS	M,E,F	591-3472	
Pacific Com. Sys.	2400	MSDOS	M.E	980-3946	Amateur Radio
Pacific Division	2400	MSDOS	M.E	463-3906	
Pam's Place	2400	MSDOS	M.E	983-2632	525-3496
Paradise Cove Adult BBS	?	?	G,M	583-0254	Online games
PG Workshop	2400	MSDOS	M.E	682-0914	
PCCC	2400	MSDOS	M.E	942-0947	
Phantom	2400	Amiga	M,E,F	939-4857	
PM Comp. Services	2400	MSDOS	M,E,F,5	980-6123	
PSG Vancouver	2400	MSDOS	M.E	738-8722	
Questor Project	2400	MSDOS	M.EI	681-0670	Aids info
Quicksilver	2400	MSDOS	M.E	253-8421	
Rave	2400	MSDOS	M,E,F	525-7715	Anti-Virus
Raven Way	2400	MSDOS	M.E	251-1733	Native Issues
Resonance	2400	MSDOS		322-5100	Atari, MSDOS, Mac,
RoboTech BBS	2400	MSDOS	M,E,F,G,5	254-6527	Japanimation
Saintly Sanctuary	2400	MSDOS	M,E,F,G	581-1417	
The Saint's Domain	2400	MSDOS	M,E,F	574-3975	
Saturn Station II	2400	MSDOS	M.E	526-9779	RPGs
Scorpion's Den	2400	?	M,E,F,G,P	589-7698	MIR *1
SCUM	1200	Coco III	M,E,F,\$	584-2498	
Sexcon DDial	300	Apple	P,C,L,I,\$	255-1149	
ShareWare Review	2400	MSDOS	M,F,G	438-9100	B.C.S.A.
Shadow	2400	AtariST	M,E,F	596-1965	
Shoreline	2400	MSDOS	P,M,E,F,I,C,G,L,I,\$	736-2197	Some 1200 lines
Sin City	2400	MSDOS	C,E,I,F,G,L,M,5,P	321-9925	
Silver Bullet	2400	MSDOS	M,E,F,G	525-7290	
Split Infinity	9600	MSDOS	M.E	588-4888	
Spyder's Web	14K	Amiga	M,E,F,I	734-7932	
StarTrek Club	2400	MSDOS	M,E,G	298-8020	
Starfleet BBS	2400	MSDOS	M,E,I,G	322-9632	RPG
STorm	2400	AtariST	M,E,F,G	222-4956	
Stormy's Place	2400	Amiga	M,E,F,G,P	530-2357	
Striker Force	2400	MSDOS	M.E	271-6002	
Talk Wire	2400	Amiga	M,E,I,P	266-6209	
Tangent	2400	MSDOS	M.E	597-6194	
theNODE	2400	MSDOS	M,E,F,G	263-9231	
Thunder Bolt	2400	MSDOS	M,E,I,F,I,G	431-7362	Windows 3
Time Machine	2400	MSDOS	M,E,G,P	599-5815	
Treasure Island	2400	MSDOS	M.E	946-7445	
Tunnel Vision	9600	Amiga	M,E,F,I	582-1915	(Down 1/91)
The Underground	2400	MSDOS	M,E,F,I,G	273-1057	
User's Choice	1200	C64	M,E,F,G,P	530-4722	(Down 12/90)
VKUG	2400	MSDOS	M,E,F	271-5934	Kaypro Users
VS Trilogy	2400	MSDOS	M,E,F	925-4238	VS Trilogy Sup.
VIPER	?	?	?	322-5401	
Ware zone	2400	Apple	M,E,F,P	222-1071	
West Coast	2400	MSDOS	M.F	733-1890	
Western Connection	2400	MSDOS	M.E	588-4633	Hearing Imprd.
Wildthing	2400	MSDOS	M,E,F,G	986-8791	
Williams BBS	9600	MSDOS	M.E	525-3385	
Woodstock BBS	14.4	MSDOS	M,E,G,P	327-7869	
WOPR Factor 9	2400	MSDOS	?	322-9677	MIR *1
WYSIWYG BBS	9600	MSDOS/Mac		684-8280	Lino downloads.

Please, please please...

Always dial the number first yourself *without* your modem, preferably at a reasonable hour—there is nothing worse than getting the high-pitched whine of a modem in your ear at 3 a.m. We make every effort to ensure the accuracy of the list at press time. The reality of many of these boards is that there is a high turnover. The telephone number lapses and is reassigned to a new telephone subscriber who unwittingly inherits a defunct BBS telephone number. Be kind to your neighbors.

That's it for the current version of the MIND LINK! BBS list. If a system on this list has gone down, or you know of a 24-hour B.C. system that is not on this list, please call and let us know! MIND LINK!: (604) 576-1214, 685-1214, 856-3231.



TECHNOLOGY CORPORATION
AMI

Its not a deal,
its a
Steal.

- ★ 16MHz 386sx Personal Computer
- ★ 1MB RAM
- ★ 1.2MB 5.25" Floppy Drive
- ★ 40MB Fast Access Hard Drive
- ★ Parallel / Serial / Game Ports
- ★ VGA Colour Monitor

\$ 1095⁰⁰



AMI Technology Corp.

1459 W. Braodway
(Granville & W. Braodway)

Vancouver, B.C.
V1H 1H6
Tel: (604) 731-7880



MUSIC and COMPUTERS

We sell and service the
best music software &
music hardware!

Specializing in MS-DOS and Compatibles

- Cakewalk
- Final Cut
- MusicPrinter Plus
- Roland M.I.D.I.
- Band In A Box
- Interfaces & Sound Cards
- Personal Composer

Carillon Music Ltd.

160 - 8171 Ackroyd Road, Richmond
276-2383

MEGATRONICS

COMPUTER & CELLULAR SALES

We offer:

1. Volume & Corporate Discounts
2. Same-day Activation (weekdays)
3. Trade-ins for new cellars!

We do mail orders!

**FREE
Activation**

MEGA CELLULAR\$

Nokia P4000

75 min talk time / 14 hr. standby
Rapid Charger / Leather Case
Power Adapter / Dual Nam
Call Timer / 5 Volume Control
LCD Backlit Display
Best Quality & Reception!

\$599

Mitsubishi 99X

Smallest Cellular (6.3" x 2.2" x .9")
45 min talk time / 10 hr standby
Travel Charger incl.
101# alpha numeric memory
Dual Nam
Battery Strength Indicator

\$1288

CALL FOR OTHER MODELS' SPECIAL PRICING!



MEGATRONICS

3243 Main St. at 16th, Vancouver, B.C. V5V 3M6
Tel: (604) 876-8855 Fax: (604) 876-8779

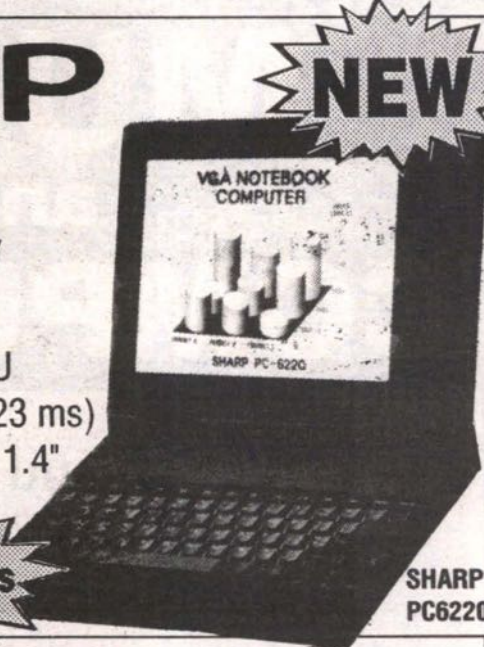
CANTEL APPROVED AGENT

SHARP

Introducing True Portability

- * Paper White VGA Screen
- * Fast 80286 - 12 MHz CPU
- * 20 MB Hard Disk Drive (23 ms)
- * Dimensions: 8.5" X 11" x 1.4"
- * Weight: 4.4 lbs

**LIMITED
TIME BONUS
OFFER**



SHARP
PC6220



SHARP JX730

NATURAL COLOUR PRINTING AT LOW COST

- * Dramatic printing with 48 ink nozzles
- * Prints in seven vivid colours
- * 13.6" Printing width
- * Standard parallel interface

SEE OUR COMPLETE LINE OF SHARP LAPTOP COMPUTERS,
LASER PRINTERS, COLOR SCANNERS AND PROJECTION PANELS

Available only at

872-3225 **MINITRONICS** 872-3226

1986 Kingsway at Victoria Drive, Vancouver

FAX/MODEMS

Zoom Fax/Modem and Winfax

by Daniel Werger

- **Product:** ZOOM/MODEM MX 2400S 2400 Baud External Modem, with "Sendfax" 9600 Baud Group III Broadcast Fax capability
- **Manufacturer:** Zoom Telephonics, Inc.
- **Price:** C\$194.

- **Product:** WINFAX for Windows 3 Fax Transmission Software
- **Publisher:** Delrina Technology, Inc.
- **Price:** C\$79.

Zoom Fax/Modem

Sometimes it seems like there are no humans left out there—just answering machines and fax machines.

As the business environment moves from large corporations to smaller organizations, the need for companies, consultants, etc. to have access to fax transmission capability is growing. Even in a departmental situation, queuing for one or two fax machines can be frustrating. For many of us, sending, not receiving faxes is the bottleneck. With this in mind, the two products here are an excellent solution for a modest sum.

ZOOM MX 2400S

The Zoom is a 300/1200/2400 baud Hayes-compatible, auto-dial/auto-answer modem, which, aside from the standard features, has MOV Varistor lightning protection, phone-line impedance matching, quality speaker (still sounds tinny to me) with software volume control and a stunning 7-year warranty. It is a rectangular box 5 x 6 x 1.6 inches, with 8 status lights on the front, one RS-232C serial connector, two RJ11 (phone jack) connectors, and a power switch on the back.

Included in the package is enough software, manuals and free introductory material to keep you busy reading and installing (I like to do the reverse) for some time. These extras include ProComm version 2.4, a well-known communication program; Zports for checking free com ports; PKPAK/PKUNPAK for compressing/

uncompressing files; Zoomsend/Zoomget for command line macro send and receive; and BitFax, a communications program for SendFax modems.

Also included are "\$275.00 US" in discounts for popular databases. There is a CompuServe introductory membership; a money-back guarantee for GENIE (General Electric) information service; a free sign-up to the DELPHI information service; a free service start-up kit for PRODIGY (IBM/Sears) information service; a free hour and start-up on Dow Jones News/retrieval; and an introduction to CheckFree, an "Electronic Bill Payment System" (U.S. only).

Overall, the Zoom Modem package is attractive, and in a market where 2400 baud modems are a dime a dozen, the SendFax/software/discounts add an extra level of attractiveness to a basic product. My only complaint is not with this modem in particular, but with many external modems in general. Why is it that they can't put the power switch on the front of the box where I can reach it, instead of having to fumble around the back of the silly thing?

WINFAX for Windows 3

Winfax is a real surprise. It installs from inside Windows 3 and sits by default in its own folder. The beauty of this product is that anything you can print from Windows, you can fax! This really gives the user one more reason *not* to have to exit Windows just to do one little task, and then go back into Windows to resume whatever.

Winfax installs itself as a printer, and to fax a document, you just go to the printer setup in your application, switch to Winfax on com(whatever), and "print" your document to the modem. It takes a few minutes to adjust to the concept, but after realizing what the program is doing, it makes perfect sense.

Since Winfax appears to your Windows programs as a printer, each document is formatted (scaled) to match the group III fax resolution (200x200 dpi). Because this high resolution is transmitted directly to the receiving fax machine, the loss of quality from the scanning done at the sending end of a regular fax machine is eliminated, thus improving overall quality.

Some features of Winfax include two send resolutions (200x200 and 100x200)—the lower res means faster transmission; portrait and landscape orientation; modem speaker control; fax header op-

RainBow Software Inc.

- We specialize in LAN Gateway Technology.
- How can you benefit from the fact that FAX machines are now in 98% of offices?
- We will help you find a way to integrate the FAX with your computer.

Call Chem Cohen at:
732-8027 Fax: 732-8043

TELECOMMUNICATIONS

tions (time, data, page #, sender name, etc.); save and attach output from various applications together for transmission. Other features include background operation; scheduling fax transmission by time and date; a fax activity log showing past and current status and a phone-book function for frequently called numbers.

Installation of both the Zoom modem and Winfax took about fifteen minutes. Luckily, there were no conflicts although one problem could occur with Winfax if you have used com1 and com2 for other devices. Windows 3 does not

currently support shared hardware interrupts (com2/com4 - com1/com3). Blame Microsoft! Also, in case it wasn't clear, Winfax will work with any modem that uses the SendFax chipset.

Finally, both products ran as directed, both have understandable documentation, and both seem polished and complete—not beta versions waiting for you to discover the bugs and report to "customer support" so the developer can sell you version XXX at a "substantial savings."

UNIX

Once Again HP Stands for High Performance

by William P. Barr

In March, Hewlett-Packard announced a line of RISC-based, Unix workstations. The new products will undoubtedly put immense pressure on competitors to either lower prices or increase development efforts.

The new line of workstations is based on the HP-PA (Precision Architecture) RISC chip. It is similar to the PA line of chips HP has employed in their line of servers and workgroup computers. This similarity offers customers object code compatibility between the new HP/Apollo 9000 Series 700 workstations and the rest of the PA line. As a result, over 2000 software applications are available for the new products.

The new Series 700 workstations also set a new level of price performance that will have profound effects on the workstation and high-end personal computer marketplaces. I would think that Intel 80486s and Motorola 68040s will drop by at least 40% this year and other workstation manufacturers will have to boost clock rates by 30% to at least look competitive.



More Hot Hardware

There are three models of the new workstations. Two are desktop configurations and one is a desktower.

The Model 720 is an entry-level unit. For C\$15,260 (suggested list), you get a diskless workstation, 16 MB RAM, mono graphics and a 19" monitor. Standard equipment includes: Ethernet card, an RS232 port, a Centronics port, SCSI 2 adapter and an optional EISA slot. Performance specs are: 55 SPECMarks, 57 MIPS and 17 MFLOPS. A hard disk and colour graphics can be added to this system.

The Model 730 is also a desktop unit. For C\$24,400 (suggested list) you are provided with 16 MB RAM, 210 MB hard disk, mono graphics and a 19" monitor. An Ethernet card, SCSI 2 port, an RS232 port, a Centronics port and an EISA slot are standard. Performance specs are:

72.2 SPECMarks, 76 MIPS and 22 MFLOPS.

The desktower Model 750 is ideal as a workstation/server. For C\$54,900 you are provided with 16 MB RAM, a 660 MB hard disk, colour graphics and a 19" monitor. Standard equipment includes: 4 EISA slots, an RS232 port, a Centronics port, an Ethernet connector and a SCSI 2 port. Performance specs are: 72.2 SPECMarks, 76 MIPS and 22 MFLOPS. That kind of horsepower lets the Model 730/750, using SoftPC (an MS-DOS software emulator), provide a DOS window performing at the speed of a 25 MHz 80386! In fact, the workstation runs MS-Windows 3.0 faster and more reliably than a DOS box can. Rumor has it that there will be significant speed increases either late next year or when high-speed RAM prices drop, whichever comes first.

SLIDES

FROM YOUR IBM PC OR MACINTOSH®

682-4686

FINALLY a super high resolution GENIGRAPHICS service bureau specializing in POWERPOINT® and many other popular software programs.

IBM COMPATIBLE

- HARVARD GRAPHICS
- LOTUS FREELANCE
- ZENOGRAPHICS

WINDOWS

- POWERPOINT
- CORELDRAW
- WINDOWS
- METAFILES

MACINTOSH

- POWERPOINT
- PERSUASION
- CRICKET PRESENTS

— AND MANY MORE! —

Full colour slides, overheads, and hardcopy. 24 hr turnaround, plus custom design and production. 8000 line resolution.

VISION:

Presentations Inc.

Vision Presentations Inc. 200-1380 Burrard Street, Vancouver V6Z 2H9
(604) 682-4686 FAX (604) 682-0792



AMI



The Boss Must Be Nuts!

- ★ 20MHz 386sx Personal Computer
- ★ 1MB RAM
- ★ 1.2MB 5.25" Floppy Drive
- ★ 40MB Fast Access Hard Drive
- ★ Parallel / Serial / Games Ports
- ★ VGA Colour Monitor

\$ 1195⁰⁰

BONUS

AMI Technology Corp.

1459 W. Braodway
(Granville & W. Broadway)
Vancouver, B.C.
V1H 1H6
Tel: (604) 731-7880
Fax: (604) 731-7844



MORSE-TECH CO

MONTHLY FEATURE SYSTEMS

Morse-Tech Tower

386SX-16 System

- Runs all 386 software
- 19" Tower case w/ 200W CSA P/S
- 45MB Fujitsu 25ms 64K Cache
- voice coil hard drive 2yr warranty
- ASI super VGA monitor 1024x768, .28mm dp.
- Tricom Excel Plus 16-bit VGA card w/512K
- Enhanced tactile keyboard

\$ 1539.00

Morse-Tech Tower

386DX-25 System

- TRUE 386DX 25MHz chipset & CPU
- 19" Tower case w/ 200W CSA P/S
- Intel 387 & Weitek 3167 Co-processor socket
- 45MB Fujitsu 25ms 64K Cache
- voice coil hard drive 2yr warranty
- Legend Super VGA monitor 1024x768, .28mm dp.
- Tricom Excel Plus 16-bit VGA card w/512K
- Enhanced tactile keyboard

\$ 1929.00

Morse-Tech Tower

386DX-33 Cache System

- True Intel 386DX-33 MHz CPU; AMI Bios
- 64 KB Cache memory; 128 KB optional
- expandable to 32MB on system board
- 19" Tower case w/ 200W CSA P/S
- 45MB Fujitsu 25ms 64K Cache, 2yr warranty
- Legend super VGA monitor 1024x768, .28mm dp.
- Tricom Excel Plus 16-bit VGA card w/512K
- Enhanced tactile keyboard

\$ 2239.00

Morse-Tech Tower

i486DX-25 Cache System

- Intel i486DX-25 MHz CPU w/ 8 Kb internal cache
- 128 KB external cache memory
- 4MB exp. to 16MB on system board
- 19" Tower case w/ 200W CSA P/S
- 89MB Fujitsu 20ms 64K Cache, 2yr warranty
- Seiko 1450 non-interlaced 1024x768, .25mm dp.
- Tricom MEGA/1024 1MB VGA card
- Enhanced tactile keyboard

\$ 3869.00

NOTE: 6 computers & 7 monitors plus much more on display
Feel free to come in and try out our superb quality lines of
computer systems, monitor, & printers.

INTRA LT-386SX LAPTOP

- Intel 80386SX-16 MHz CPU
- 2MB RAM exp. to 6MB using standard SIMM
- 3.5" 1.44MB floppy drive
- 3.5" 40MB voice coil hard drive
- parallel, serial, ext VGA, ext FD, keyboard ports
- Internal slot for Fax/modem board
- 85/86 keys w/12F keys & embedded numeric key pad - LCD display w/16 gray scales, 640x480, .27mm dp.
- detachable NICAD battery provides up to 3 hrs uninterrupted use and low battery warning
- AC/DC converter, operates from 100-240 volts
- weights 10.9 lbs including battery
- carrying case, MS DOS 4.01 & GW Basic
- one year parts & labour depot warranty

\$ 3499.00

80286-12/16 SYSTEMS

- 80286-12/16 MHz CPU; AMI Bios 12MHz
- expandable to 4MB on system board
- Headland or C&T chipset; 6 expansion slots 16MHz
- Intel 80287-10 math co-processor socket
- Hardware EMS 4.0 compatible

\$419.00 / \$449.00

80386SX-16/20 SYSTEMS

- Intel 386SX-16/20 MHz CPU; AMI Bios 16MHz
- expandable to 8MB on system board
- Intel 80387SX-16/20 math co-processor socket 20MHz
- 8 expansion slots

\$779.00 / \$899.00

80386DX-25 SYSTEMS

- True Intel 386DX-25 MHz CPU; AMI Bios
- expandable to 8MB on system board
- Math-co socket for Intel 80387DX-25/Weitek 3167
- 386-25 Opti Chipset; 8 expansion slots

\$ 1149.00

80386DX-33 Cache SYSTEMS

- True Intel 386DX-33 MHz CPU and chipset; AMI Bios
- 64 KB Cache memory; 128 KB optional
- expandable to 32MB on system board
- Math-co socket for Intel 80387DX-33/Weitek 3167
- 8 expansion slots

\$ 1439.00

i486DX-25 Cache SYSTEMS

- Intel i486DX-25 MHz CPU w/ 8 Kb internal cache
- 256 KB external cache memory
- expandable to 16MB on system board
- Math-co socket for Weitek 4167
- 486-25 Opti Chipset; 8 expansion slots

\$ 2139.00

i486DX-33 Cache SYSTEMS

- Intel i486DX-33 MHz CPU and chipset w/ 8 Kb internal cache
- 64 KB external cache memory
- expandable to 32MB on system board
- Math-co socket for Weitek 4167
- 8 expansion slots

\$ 2869.00

Standard Features for 286/386SX/386/i486 Systems:

- 1MB memory 80ns or faster
- 5.25" 1.2MB or 3.5" 1.44MB floppy drive
- AT I/O w/ 1 serial, 1 parallel, 1 game ports
- desktop case w/ 200W CSA power supply (220W power supply for i486 system)
- 101-keys enhanced tactile click keyboard

386DX & i486 desktop computer systems come with

2 years parts and labour depot warranty;

286 & 386SX desktop computer systems come with 2 years labour and 1 year parts depot warranty.
 Prices may change without notice.
 Please call us for the latest pricing.

MORSE-TECH

COMMUNICATIONS

Come see our
demo computer
systems ranging
from 286 to i486's
system w/ VGA
displays.

COMMUNICATIONS

Video Adaptors & Monitors:

Monochrome graphics card	\$25.00
Tricom Excel 16-bit VGA card 256K (800x600)	\$75.00
Tricom Excel 16-bit VGA card 512K (1024x768)	\$109.00
Tricom 1024x768 256 colors VGA card 1MB	\$179.00
Paradise OEM VGA card 256K exp 512K (1024x768)	\$119.00
ATI OEM VGA Charger VGA card 256K exp 512K	\$119.00
ATI VGA Wonder Plus 256K w/ Bus Mouse	\$229.00
ATI VGA Wonder 256K (OEM Version)	\$189.00
12" TTL Amber Monitor	\$105.00
14" TTL White Monitor	\$139.00
AOC 12" VGA Paper White Monitor	\$119.00
Samsung 14" Paper White VGA Monitor	\$159.00
Gold Star 1405 paper white VGA Monitor 800x600	\$185.00
Gold Star 1430 Color VGA Monitor 640x480, .31 dp	\$359.00
ASI super VGA monitor 1024x768, .39mm dp	\$295.00
ASI super VGA monitor 1024x768, .28mm dp.	\$345.00
Legend-2 14" Tri-sync VGA Monitor 1024x768, .28 dp	\$385.00
Morse 14" VGA Monitor 1024x768, .28 dp	\$455.00
Seiko 1440 Multi-sync Monitor 1024x768, .25mm dp	\$695.00
Seiko 1450 non-interlaced Monitor 1024x768, .25mm dp	\$885.00
TVM 5-A VGA non-interlaced monitor 1024x768, .28mm dp	\$695.00
Sony 1304 Multiscan Monitor w/ cable	\$945.00

Mice:

Dexxa 2-button serial mouse w/ mouse pad (by Logitech)	\$29.00
Dexxa 2-Button serial mouse w/ pad & paint (by Logitech)	\$35.00
Microsoft hi-res bus or serial mouse	\$115.00
Microsoft hi-res bus or serial mouse w/ MS Paint	\$129.00
Microsoft hi-res bus or serial mouse w/ Windows 3	\$189.00
Logitech serial mouse	\$75.00
Logitech serial mouse w/ Windows 3	\$155.00
Logitech serial Mouse Man	\$85.00
Logitech bus mouse	\$85.00
Everdata Mouse w/ paint (400 dpi)	\$35.00
Genius Mouse 302 w/ pad & pocket, Menu Maker, and Dr. Genius	\$65.00

Floppy & Hard Drives

(with 1:1 HD/FD adaptor)

5.25" 1.2MB or 3.5" 1.44MB floppy drive	\$79.00
Maxtor 42MB(28ms) V.C. IDE w/ 32K cache, 2yr warr.	\$285.00
Fujitsu 45MB(25ms) V.C. IDE w/ 64K cache, 2yr warr.	\$285.00
Mitsubishi 64MB(28ms) V.C. RLL 1:1 interleave	\$385.00
Maxotr 82MB (17ms) V.C. IDE w/ 32K cache	\$475.00
Fujitsu 89MB(20ms) V.C. IDE w/ 64K cache, 2yr warr.	\$475.00
Rodime 105MB(19ms) V.C. IDE w/ 64K cache	\$565.00
Fujitsu 135MB(20ms) V.C. IDE w/ 64K cache, 2yr warr.	\$595.00
Fujitsu 180MB(20ms) V.C. IDE w/ 64K cache, 2yr warr.	\$885.00
Maxtor 200MB(15ms) V.C. IDE w/ 32K cache	\$995.00
Rodime 210MB(18ms) V.C. IDE w/ 64K cache	\$950.00

Hard Disk Controllers

16-bit IDE HD/FD Host Adaptor w/ cables	\$25.00
NCL 1:1 MFM HD/FD Controller w/ cables	\$59.00
WD1006-8R2 1:1 RLL HD/FD Controller w/ cables	\$99.00

Tape Drives

Colorado Jumbo 120, 40-120MB capacity w/ DC2000 tape	\$365.00
Colorado Jumbo 250, 120-250MB capacity w/ DC2120 tape	\$435.00
Colorado AB-10 tape adaptor (2.2MB/min) for Jumbo 120 & 250	\$75.00
Colorado External Kit for Jumbo 120 & 250	\$140.00
3M DC2000 Tape Cartridge	\$29.00
3M DC2120 Tape Cartridge	\$36.00

Miscellaneous

AT Multi I/O & IDE host adaptor (2S, 1P, 1G)	\$40.00
AJ Multi I/O card (1S, 1P, 1G)	\$15.00
AT Multi I/O card (2S, 1P, 1G)	\$24.00
Second serial chip set	\$9.00
Sound Blaster	\$209.00
Mini Speakers (pair)	\$15.00
Gravis Joystick	\$45.00
Y-cable for game port	\$12.00

Memory Chips & Modules

Video memory upgrade from 256K to 512K using 4464-80ns	\$20.00
Video memory upgrade from 256K to 512K using 44256-80ns	\$16.00
Each 1MB upgrade using 1MB 80ns DRAM or SIMM	\$65.00
Each 1MB upgrade using 256K 80ns DRAM or SIMM	\$85.00

Modems

Cardinal 2400 baud internal modem w/ Flashlink	\$95.00
Cardinal 2400 baud external modem w/ Flashlink	\$155.00
Cardinal 2400 baud internal modem w/ H.W. MNP 5	\$165.00
Cardinal 2400 baud external modem w/ H.W. MNP 5	\$235.00
Cardinal 2400 baud int. Sendfax modem w/ F.L.	\$129.00
Viva 2400 baud internal Sendfax modem	\$109.00
Intel Satisfaxtion	\$495.00

Math Co-processors

Intel 80287-10	\$265.00
Intel 80387SX-16	\$385.00
Intel 80387-25	\$595.00
Intel 80387-33	\$710.00
Cyrix 80387SX-16	\$345.00
Cyrix 80387SX-20	\$405.00
Cyrix 80387-25	\$510.00
Cyrix 80387-33	\$610.00

Keyboard

Datcom DFK-191 Enhanced Keyboard	\$55.00
Focus 2001 Enhanced Keyboard	\$60.00

Focus 3001 Enhanced Keyboard	\$85.00
Focus 5001 Enhanced Keyboard	\$119.00
Fujitsu Enhanced Keyboard	\$60.00
Northgate Omnikey Plus	\$139.00
Northgate Omnikey 102	\$129.00
Northgate Omnikey Ultra	\$195.00

Printers (6' printer cable included)

Citizen GSX 140 24-pin	\$395.00
Citizen GSX 145 24-pin wide carriage	\$525.00
Citizen 200GX 9-pin	\$220.00
Citizen GSX color kit	\$69.00
Fujitsu DL1100 24-pin printer 240cps draft 60cps LQ	\$395.00
Fujitsu DL1100 color kit	\$69.00
Fujitsu DL3400 24-pin printer 240cps draft 60cps LQ	\$465.00
Fujitsu DL3450 24-pin printer 240cps draft 60cps LQ	\$549.00
Fujitsu DL3400/3450 color kit	\$100.00
Hewlett Packard Desjet 500, 3 ppm 300 dpi	\$985.00
Hewlett Packard Laser Jet II P, 4 ppm 300 dpi 512K	\$1,150.00
Hewlett Packard Laser Jet III, 8 ppm 300 dpi 1MB	\$2,150.00
Okidata Laser 400, 4 ppm, 300 dpi	\$949.00
Okidata Laser 800, 8 ppm, 300 dpi	\$1,295.00
Roland Raven 9101 9-pin 192cps draft 38cps NLQ	\$219.00
Roland Raven 2416	\$339.00
Roland Raven 2418	\$429.00
Pacific 4 Memory 2MB for IIP, III	\$220
Pacific PS emulation cartridge for IIP/III	\$525

Software:

DR DOS 5.0	\$125
Harvard Graphics V2.3	\$395
WordPerfect 5.1	\$299
LetterPerfect	\$165
Lotus 123 V2.2	\$399
Lotus 123 V3.1	\$499
Lotus Works	\$69
Microsoft DOS 4.01 w/ GW Basic	\$77
Microsoft Works V2.0	\$129
Microsoft Windows 3.0	\$109
Microsoft Productivity Pack for Windows	\$59
Microsoft Entertainment Pack for Windows	\$36
Microsoft Word 5.5	\$269
Microsoft Word for Windows	\$339
Microsoft Excel v3.0	\$345
Norton Anti virus	\$99
Norton Utilities V5.0	\$135
Norton Backup	\$120
PCTools Deluxe V6.0	\$99
Quarterdeck 386 Expanded Memory Manager	\$85
Quarterdeck Desqview 386	\$169
Aldus Pagemaker v4.0	\$635
ACCPAC Bedford Integrated Accounting (G&T)	\$145
CorelDraw V2.0	\$495
Perform Professional & Filler for MS Windows 3.0	\$350
Generic CADD 5	\$399
Adobe Type Manager	\$85
Dbase IV V1.1	\$539

1237 WEST BROADWAY
VANCOUVER, BC V6H 1G7

Tel: 738-3886

Fax: 738-2881

Mon-Fri: 9:30am-6:00pm Sat: 10:00am-5:00pm Sunday CLOSED

- Group Purchase Pricing is available.
- Talk to our representative about Leasing options.

- Free Consultations:

"We tailor-make your system"

- Call for latest pricing

"We are here to Help You!"

SUPERIOR LASER SUPPLY

Your Recharge Specialists



ONE CALL DOES IT ALL

SERVICE

Preventive Maintenance
General Cleaning & Inspection
On-site and Depot Service
Complete Overhauls

REASONABLE RATES

Service Contracts Available

Quality Workmanship

Performed with Pride

and Integrity

by Factory Trained Technicians

SUPPLIES

100's of Laser and Data Supplies by:

Hewlett Packard

Brother, QMS Authorized Dealer

Apple, Avery, Canon, Dysan,
Epson, Fujitsu, Genicom, IBM,
Jetware, NEC, Okidata,
Pacific Data, Panasonic, Ricoh,
U.D.P. ... and many more

Ribbons:

OEM, compatible or reloaded

Toners

OEM, remanufactured or recharged

SELECTION

POSTSCRIPT CARTRIDGES FROM \$379 RECHARGED TONER CARTRIDGES FROM \$59.95
1MB MEMORY BOARDS FROM \$139

HP III Laser ... \$2199 Brother HL8E ... \$1799

Many More
Products and
Brands Available

942-5512

FREE Delivery in
Greater Vancouver
on orders over \$50

It's Time to Visit Friendlyware's New Store.

... for CD ROM COMPUTERS!

The new Magnavox HEADSTART 500 CD 386SX--everything the PS/1 should be and isn't according to the Computer Buyers Guide--loaded with thousands of dollars of commercial software (like Publish It!, MS Bookshelf, Groliers Electronic Encyclopedia, PC Globe, Deluxe Paint II, Quattro 1.0, Q&A 3.0, Mavis Beacon Teaches Typing, MS DOS 4.01, DS Optimize, Word for Word Professional, etc. etc. and 29 Games!!).

- 16 Mhz
- Philips BIOS
- 2 Mb RAM (Exp. to 8 Mb)
- 680 Mb Compact Disc Player (including CD Headphones -- it plays standard music CDs too!)
- 3.5" Floppy Drive
- 2 Open 16-bit Expansion Slots
- 80 Mb Hard Drive
- Super VGA Monitor
- Mouse, 2400 Baud Modem

All for only \$3995!

A 286-based Version, the 300CD, with a 40 Mb HDD & VGA Monitor is \$3295!

... for BIBLE SOFTWARE!

The Megaword Gold edition can be expanded with more translations, original language concordances and reference databases. It includes four translations--KJV and NIV in the box, plus a mail-in coupon for the RSV and ASV. You also get Mega TSR--the RAM Resident utility that allows you to search for and transfer Bible text into your word processor! All this for only \$144.95! But if you only want one translation of the Bible, the Silver Edition (incl. Mega TSR) is only \$59.95. The Student Package contains the GOLD edition plus Strong's Greek and Hebrew Dictionaries. Reduced to \$199!



Northeast Corner of Kingsway at Rupert ... but
our phone number is still 437-3113

SECTOR TECHNOLOGIES LTD.

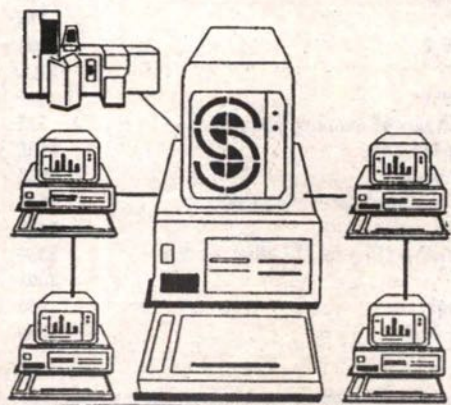
Computer Hardware Specialist

**Competitive Pricing on a Selection
of Laptops & Notebooks**

Tel: 876-9943

Fax: 876-9980

386SX-16MHz \$1299 286-12MHz \$899



386SX-20MHz \$1429

386-25MHz \$1619

386-33MHz \$1949

64K Cache

All systems include:

- 1MB of RAM
- IP, 1S, 1G Port
- Mono Graphics Card
- Keyboard
- 14" Amber Monitor
- HDD/FDD IDE Ctrl.
- 1-1.2MB Floppy Drive
- 40MB 28ms IDE HD

Prices
Subject
to Change

SUPPORT SERVICES:

In-house and on-site service contracts at reasonable rates
are available on variety of systems.

Extended warranty available - Call for details

QUALITY SERVICE IS OUR GOAL

System training, microcomputer upgrades, printers and other accessories are available

TWO YEARS LABOUR AND PARTS WARRANTY

3COM, Novel, Unisys

621 Kingsway, Vancouver

PC'S, NETWORKS AND UNIX SYSTEMS

#1 IN CUSTOMER SERVICE

**COMPLETE SYSTEMS, PARTS & PERIPHERALS
FULL SERVICE DEPT. & SYSTEM UPGRADES/REPAIRS**

ACT-i486/25MHz-128K Cache/100MB System

4MB RAM on board/1.2MB Floppy or 1.44MB Floppy

Serial/Parallel/Game Port - 101 Keyboard

MGP Card/14" Monochrome Monitor \$2,699

ACT-i486/33MHz - 128K Cache System Add \$400

ACT-386/33MHz-64K Cache System \$1,749

ACT-386/25MHz System \$1,599

ACT-386/SX System (20MHz Option) \$1,299

ACT-286/12MHz System (16MHz Option) \$769

ACT-Turbo/XT - 10MHz System (12MHz Option) \$599

- 640K RAM - 360K Floppy - MGP - TTL Monitor

Above 386/286 System Configuration

1991 New Style Cash
200W. Power Supply
1MB RAM on Board,
upgradable to 16MB
1.2MB Floppy or 1.44MB FD
FD/HD - 16-bit/1:1
Controller
40MB/28ms Hard Drive
2 Serial/1 Parallel/Game
I/O Ports included
101 Enhanced Keyboard
MGP Card
14" TTL Monitor
• **VGA UPGRADE** •
16-bit VGA Card
14" VGA Color Monitor
ADD \$249

WE UPGRADE & REPAIR YOUR PC

Call our experienced
technicians for FREE
estimate & consultation.
Hard Drives 20/30/40MB
and up, Memory Expansion,
Math Chips, Power Supplies
and Add-On Boards.
We have a full service dept.
to provide you with quality
service with low shop rates.

**SERVING THE LOWER
MAINLAND FOR 4 YEARS.**

MONTHLY SPECIAL

Modems
1200/2400/int., ext.
Mice - All model
Joysticks
Laptop Computers
Printers
FD/HD Drives
Keyboards
Software/Books
Please call for
BEST price

IQ COMPUTERS SERVICES

985-6735

M-F 10am-6pm • Sat 12noon-5pm

1551 Pemberton Ave.
North Vancouver, B.C.



Fax 985-8726



UNIX

Fast Graphics: Standard Equipment

All the monitors have a resolution of 1280 x 1024 pixels. Combined with the flickerless 72 Hz monitor, that provides a nice workspace. The bottom-end GRX mono graphics system provides 1.15 million 2-D vectors/second performance. This is over twice that of the nearest competitor.

The bottom-end CRX color graphics system provides identical 3-D vector/second performance. Again, this is over twice that of a similarly priced competitor.

The high-end TurboVRX color graphics system offers similar price/performance to a Silicon Graphics 4D/310 VGX box. While the SGI holds a lead over some rendering speeds, the HP box has over twice the raw computing power. This will undoubtedly cause some engineers at SGI to put in a few extra late nights.

Even the low-end 720 had the fastest X-windows performance I have ever seen. HP claims that it has 3 to 7 times the X11 performance of its nearest competitor.

Another interesting feature of the outstanding graphics performance is the greater than 30 screens/second screen refresh rate. This makes realistic computer animation possible. During one demonstration, a real Unigraphics application was run on a Sun SPARC Station 2 and an HP 720 (both were color systems). Even when the SPARC was given a 30-second head start, the HP 720 finished the complete drawing task in less than half the time. For those who are unfamiliar with Unigraphics, it is a CAD program that makes AutoCAD look like "edlin".

Comparing the Competition

Even though the speed of hardware advances is increasing every quarter, HP has made a very significant advance. Even when IBM introduced its RS/6000 line of workstations, the performance increases were not as remarkable.

Comparing SPECmarks (a more fair comparison), the entry-level Model 720 performs twice as fast as: Sun SPARC Station 2, IBM RS/6000 Model 320, DEC Station 5000 and the SGI 4D/25. The competing systems are comparably equipped and all are slightly more expensive. It is interesting to note that the Data General Aviiion offers better price/performance than the HP, but the Motorola 88000 Powered Aviiion just doesn't crank out the SPECs.

Under The Wafer

The PA RISC is a scalable architecture. This makes future 64 bit implementations of the chip possible. Like the IBM RS/6000, the PA has internal integer and floating point processors. This allows compound instructions to be performed (i.e., more than one instruction per clock cycle). In addition, a high degree of multi-processing capability and graphics optimization were built-in. HP decided to use CMOS technology because it was cheap and it was found that an ECL version was too difficult to cool cost-effectively.

To help achieve even higher levels of performance, new compilers were developed. Lab tests showed a marked decrease in software execution time after code had been recompiled with the new

compilers. The most common figure was about a 10 to 20% increase in performance. That's a mighty impressive compiler performance increase.

Cosmetics Count

The desktop cases have a very nice design feature. If you look at the back, it appears as if all the hardware was rack mounted. HP has mounted system components onto 4 trays: one is for disk, another is for graphics, the third is for the motherboard/RAM and the fourth is for an EISA card plus the power supply. Simply undo the screws and pull out the tray. This is a great feature for field service and also data security (it only takes a minute to take out the disks and put them in a safe place). Combine the modular design with the standard one year on-site warranty, and that adds up to a very maintainable system.

The user interface is the award-winning HP-VUE, OSF/Motif-based, graphic user interface. Hewlett-Packard's Unix, HP-UX, is widely recognized as the industry's most stable brand of Unix. HP plans to make OSF/1 available to developers later this year. From what I saw, OSF/1 ran significantly faster than the AT&T-based HP-UX.

For those who need to know, HP's version of OSF/1 will contain: a Mach-based kernel, symmetric multi-processing support, a run-time extensible kernel, NCS, global logins, file security ACL's, an improved HP-VUE and an OSF/Motif tool set that will come close to the development time savings offered by NeXT.

For those who don't care, HP offers the NewWave graphical user interface. This provides you with a consistent GUI across a wide variety of platforms (minis to workstations to PCs). No matter which HP product you buy, or which brand of PC you hook up to your network, the user environment is identical and you don't need to know what's going on in the background to get work done (it's about time!).

Strategic Partnerships Extend PA-RISC

HP has two strategic agreements which will help extend the benefits of PA-RISC. The partnerships will lower the cost of buying into the architecture and increase speed.

The first agreement is with Samsung. The Korean manufacturer will produce a desktop PA-RISC product for about 50% the list price of the HP product. You will not get all the benefits of the HP product (prompt bug fixes, rugged construction, on-site warranty), but it's cheap.

Clearly, HP is adopting a similar strategy to Sun by getting all the PA-RISC out into the marketplace it can. You can expect to see PA-RISC alike early next year.

The second agreement signed was with Hitachi. A joint project is underway to build a symmetric multi-processing deskside supercomputer. No word was given when this would be available. When asked about a PA-RISC laptop, a spokesman replied, "Hitachi is a laptop manufacturer ... it has the production facilities so I would think that's in the realm of possibility." The smile on his face told all to wait and see.

New & Improved Version 5.01

"Thanks —again
HELP Payroll,
for even more
flexibility without
complexity."



HELP Canadian Payroll

has new & improved flexibility without added complexity.

HELP Canadian Payroll

remains one of Canada's best selling payroll packages with:

- an extremely simple & user friendly interface
- integration to most major General Ledger packages
- 10 user defined earnings & 10 user defined deductions
- ability to print not only your employee cheques but your Revenue Canada remittance cheques, T4's and ROE's as well
- no limit to the number of employees or companies you process

HELP Canadian Payroll has been serving small businesses and accounting firms like your own for over 5 years and has over 1,000 installed users. So you can buy with the confidence that HELP will be there if you need it. Still ONLY \$349.95. Talk to your friends, they are probably already using HELP Canadian Payroll.

For more information call HELP Software at (604) 435-6268

5487 Kingsway, Burnaby, B.C. V5H 2G1

Dealer inquiries are welcomed.

NEW FLEXIBILITY — SAME PRICE — ONLY \$349.95

TECHNOLOGY CORPORATION

AMI

**Priced to sweep
you off
your feet.**

- ★ 25MHz 386DX Personal Computer
- ★ 1MB RAM
- ★ 1.2MB 5.25" Floppy Drive
- ★ 40MB Fast Access Hard Drive
- ★ Parallel / Serial / Games Ports
- ★ VGA Colour Monitor

\$ 1680⁰⁰

AMI Technology Corp.
1459 W. Braodway
(Granville & W. Broadway)
Vancouver, B.C.
V1H 1H6
Tel: (604) 731-7880
Fax: (604) 731-7844

BONUS
3 FREE 3.5" DISKETTES
with purchase of this computer

How to Buy a Cellular Phone

By Graeme Bennett

Cellular phones are made possible in most metropolitan areas thanks to networks of low-power radio receiving stations called "cell sites." Today, anyone who is away from the office and speaks with clients or customers should have a cellular phone.

When you make a call on a cellular phone, you send a radio signal to one of dozens of these cell sites that the cellular company sets up as part of its service. The call is then relayed to the carrier's switching office, where the signal is transferred to the regular land-based telephone system of your local phone company.

As you travel, if you pass out of range of the cell site that is carrying your call,

the signal is picked up by another nearby cell, hopefully keeping you in constant contact with the switching office.

Cellular - A Definition

Cellular service is based on technology using dedicated radio frequencies in the 800-900 megahertz frequency band. A series of low-powered transmitters, strategically located, makes those frequencies available to cellular telephones in the coverage area. Computer-based automatic switching accepts calls, connects them to the called number and handles additional functions to make the cellular phone work. The name is derived from the fact the signal of each transmitter creates what is called a geo-

graphic cell, from three to 16 kilometres in radius. The coverage area is comprised of a group of cells and a sophisticated system which hands off calls from cell to cell as the caller moves. There is no interruption in the service as the call is handed from one cell to the next.

What to Look For... and Look Out For

Thanks to plummeting prices, car phones scarcely rate as status symbols anymore. They are at least as common a sight in city traffic as inane slogans on bumpers or bulbous-eyed felines grinning through the window glass. No wonder the department of motor vehicles warns drivers to keep both hands on the wheel. You may need to dodge the guy in the next lane who's preoccupied with dialing his 10 o'clock customer. (To be fair, a study by the American Automobile Association found that cellular users actually had fewer accidents than other drivers. The AAA suggested that cellular users who were running late were more likely to phone their clients and reschedule appointments rather than speed and take unnecessary risks to get there on time.)

In general, cellars fall into three distinct categories: car phones, transportable phones and handheld phones. The best units, as we shall see, are modular in design and may be converted from one type to another. Each design trades off size (and hence mobility) for power or vice versa. Here's what to look for:



Cellular Telephone From Panasonic

Car Phones

Typically providing 3 watts of power (the most allowed by law), car phones provide the greatest reception and transmission range, and the clearest sound. The best of all use a roof-mounted antenna; however most people find a glass-mounted antenna works fine, and is much more practical. Virtually all car phones come with a "hands-free kit," consisting of a microphone on the visor, and a speaker on the handset. Units start at around \$500.

Transportable Phones

Essentially a removable car phone, these bulky 3- to 6-pound units are to the cellular world what "luggables" are to portable computers—you can move them around, but they're big enough that you may not want to.

Usually providing the maximum allowable 3 watts, they often require a carrying case for their antenna and bat-

The Booksellers' BESTSELLERS

TITLE	AUTHOR	PUBLISHER	PRICE
AMIGA			
Amiga World Amiga DOS 2 Companion	Ryan	IDG	\$33.95
Amiga Desktop Video Guide	Wright	Abacus	\$25.95
DATABASE			
Using dBase IV 1.1	Que	Que Corp.	\$36.95
Liskin's dBase IV 1.1 Prog. Book	Liskin	McGraw-Hill	\$39.95
DESKTOP PUBLISHING			
Corel Draw Made Easy	Emil/Ihrig	McGraw-Hill	\$33.95
Inside AutoSketch 2.0	Lenk	NRP	\$31.95
DOS			
Running MS DOS	Wolverton	Microsoft Press	\$31.95
Quick Reference MS DOS	Que	Que	\$10.95
NETWORKING			
Using Novell Network	Lawrence	Que	\$39.95
Network Supervisor's Guide	McCann	M&T	\$40.95
MACINTOSH			
Mac Bible "What do I do now?" Book	Rubin	Goldstein-Blair	\$15.95
Mac Bible 3rd Edition	Naiman	Goldstein-Blair	\$37.95
SPREADSHEETS			
Using 123 Rel. 2.2	Que	Que	\$36.95
Using 123 Rel. 3.1	Que	Que	\$39.95
WORDPROCESSING			
Mastering WordPerfect 5.1	Simpson	Sybox	\$31.95
Using WordPerfect 5.1	Que	Que	\$36.95

This List is sponsored by B.C.'s largest retailers of Computer Books.



Westwood Mall
2-3000 Lougheed Hwy.,
Coquitlam
464-5515

SuperSoftware INC.
103 4500 #3 Road, Richmond, B.C. V6X 2C2 (604) 278-7638

More people make music with Atari than with any other brand of computer



As Vancouver's own MIDI-computer specialty store, no matter what platform you prefer, chances are we've been there. Check out our in-depth software & hardware selection today.

If you are just getting started, drop in and get a demo of this complete MIDI system. At this price, you and your computer will make beautiful music together.

Complete Music System Includes:

- Atari 1040STE 1 Meg computer with mouse, built-in floppy, keyboard and MIDI ports.
- Atari High Resolution monitor.
- C-Lab Notator - The world's most popular

On Sale for Only:
\$1399

ANNEX
HIGH TECH MUSICAL INSTRUMENTS LTD.

Sales • Education • Rentals • Financing

ATARI
MUSIC CENTRE
AUTHORIZED DEALER

682-6639

1250 GRANVILLE ST.
VANCOUVER
HOURS 10-6 MON-SAT

MSL

MicroGram
Systems

MicroGram Systems (Canada) Ltd.

Show Room: #107-119 W. Pender St. Vancouver V6B 1S5

Tel: 683-7916 Fax: 683-7990 Pager: 680-1198 (24 hr)

Business Hour: Mon-Fri 10:30am-4:30pm Sat 10:30am-4:00pm

GRAND OPENING SPECIAL

BONUS: 20% OFF SONY DD-HD Diskettes with the purchase of any system!
10% OFF SONY DD-HD Diskettes with any other purchase.

286AT 12MHz	\$775.00
286AT 16MHz	\$865.00
286AT 20MHz	\$905.00
386SX 16MHz	\$1175.00
386SX 20MHz	\$1325.00
386DX 25MHz	\$1465.00
386DX 33MHz	\$1875.00

Video Cards

ATI VGA Wonder 1024X768 w/256K & Mouse	\$245
ATI VGA Wonder 1024X768 w/256K (OEM)	\$175
ATI VGA Wonder Upgrade to 512K	\$20
Tricom Mega Super VGA 1024X768 w/1MB	\$175
Paradise Super VGA 1024X768 w/512K	\$135
Oak VGA 800X600 w/256K/512K	\$75/\$105
MonoChrome Video Card	\$22

Monitors

Seiko 14" M/S 1024X768 .25 dp	\$685
Morse 14" M/S 1024X768 .28 dp	\$455
Legend-2 14" 1024X768 .28 dp	\$395
Samtron 14" Mono VGA Monitor	\$138

Hard Drives

Rodime 110MB 19ms 64k IDE	\$559
Rodime 80MB 19ms 64k IDE	\$545
Western Digital 85MB 18ms IDE	\$499
Fujitsu 45MB 28ms IDE V.C.	\$285
Teac 43MB 25ms IDE V.C.	\$275
Teac 1.2MB/1.44MB Drive	\$84/\$78

ALL SYSTEMS INCLUDE:

1MB Ram.43MB 25ms IDE V.C. Hard Disk
Teac 1.44MB Floppy Drive.IDE Adapter H/FD
12" TTL Monitor.MonoChrome Card
101-Key Enhanced Keyboard w/Templates
Compact Case w/LED & Digital Display
200 Watts CSA Approved Power Supply
1 Year Parts & Labour Warranty

VGA Upgrade

(A) Legend-2 14" Monitor .28 dp Oak VGA w/256k (800X600)	\$368
(B) Morse 14" Monitor .28 dp ATI VGA Wonder w/256K (OEM)	\$528

Printers

Fujitsu DL1100 24-pin 240cps	\$379
Color kit for Fujitsu DL1100	\$64
Panasonic PL1180 9-pin 192cps	\$225
Seikosha 9 pin 192cps Printer	\$1985

Miscellaneous

Sound Blaster with Synthesizer	\$198
Logitech ScanMan Plus	\$225
Logitech Series 9 Serial Mouse	\$74
With Microsoft Windows 3.0	\$154
Dexxa Serial Mouse w/ Paint	\$35
Sony 1.2MB/1.44MB Diskettes	\$13/\$25

CELLULAR PHONES

tery pack. If you plan on moving the cellular phone from point-to-point infrequently, a transportable is a good bet. Transportables start at around \$600 and currently have the smallest market share, but are more popular in fringe areas (where cellular coverage is poor), due to their higher wattage. Look for a unit with a long battery life and damage resistance if dropped. (On second thought, the latter might be hard—or at least expensive—to test.)

Conversion Kits

Some units have conversion kits that can adapt them for car, transportable and handheld uses. Unfortunately, the conversion kits are often more expensive than a new phone. The most flexible handheld/transportable units have a switch to toggle between 3 watts and 0.6 watts for car/transportable and handheld operations respectively. Look for a unit that enables you to combine it with a car conversion kit (3 watts power, hands-free) and a separate handheld transceiver.

One such unit is the Motorola extended system (about \$2000). Other convertibles include the DiamondTel 99X, OKI models 900 and 750 (OKI's replacement for the popular but now-discontinued Model 700) and virtually all Motorola portables.

Handheld phones

Usually weighing in at a pound or less, these gadgets are to many the most glamorous and useful incarnations of cellular technology and represent the

fastest-growing segment of the market. Virtually all have features like memory for holding names and numbers (great for while-you-drive speed-dialing) and longer talk times between recharges. With handhelds, you are more limited to the immediate vicinities surrounding the cell sites than you are with the more powerful transportable or car phones. In cities, of course, this is not a problem.

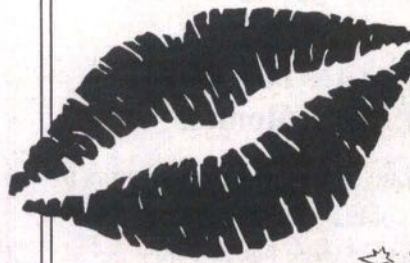


Cellular Telephone From Panasonic

Why only 0.6 watts? It seems that the US' FCC and Canadian DOC decided it didn't want 3 watts of microwave radio-frequency being emitted from a unit pressed up against our heads (there is a growing body of scientific evidence in support of that decision, incidentally). With a separate roof or window-mounted antenna, the FCC and DOC don't care if you go out at the full 3 watts.

Handhelds typically range from \$500 to \$2000. At all the places I called, one name kept coming up when I asked the salespeople to name their most popular model: The Motorola 8000M.

TECHNOLOGY CORPORATION
AMI



Lip smacking performance.

- ★ 25MHz 386DX Personal Computer
- ★ 64K Static RAM Cache
- ★ 1MB RAM
- ★ 1.2MB 5.25" Floppy Drive
- ★ 40MB Fast Access Hard Drive
- ★ Parallel / Serial / Games Ports
- ★ VGA Colour Monitor

\$ 1825⁰⁰



AMI Technology Corp.

1459 W. Braodway
(Granville & W. Braodway)
Vancouver, B.C.
V1H 1H6
Tel: (604) 731-7880
Fax: (604) 731-7844



NETWORK SOLUTION

for Big or Small Business!

4 User System

- ELS 1 Netware
- 4 port HUB, 85 MB HD
- One 386SX Server
- Four 286/16 Workstation

\$5,295

8 User System

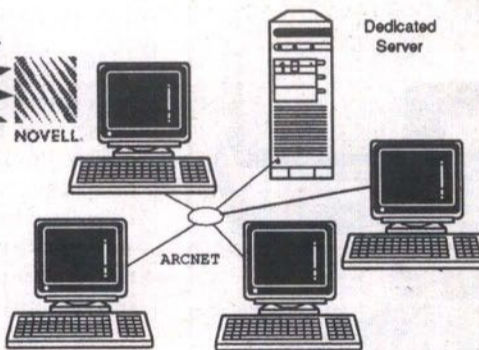
- ELS II Netware
- 8 port HUB, 135 MB HD
- One 386SX Server
- Eight 286/16 Workstation

\$9,795



NOVELL GOLD
AUTHORIZED
DEALER

ACCPAC PLUS
AUTHORIZED
DEALER



- Dedicated Network Server 386 SX**
- 386/16MHz CPU
 - 2MB Memory
 - 1.2MB Floppy
 - Mono Display
 - Arcnet card
 - Serial/printer port
- Workstation 286/16**
- 286/16MHz CPU
 - 1MB RAM
 - 1.2MB Floppy
 - Mono Display
 - Arcnet card
 - Serial/printer port

20 User System

- 386 - 25 MHz Dedicated Server
- 4 MB RAM Memory, 210 MB HD
- Adv. 286 V2.15C Netware
- 20 ports Hub (Active/Passive)
- 20-286/16 Workstations

\$22,000

100 User System

- 486-25 MHz Dedicated Server
- 8 MB RAM Memory, 650 MB HD
- Netware 386 V3.10
- 100 Ports Hub (4 Active/10 Passive)
- 100-286/16 Workstations

\$79,500

COMPUTER

EXCHANGE

HOURS
MON-FRI 10-6
SAT 10-5
SUN CLOSED

DOWNTOWN
650 SEYMOUR
Ph. 683-1788
FAX order line: 683-1333

BROADWAY
1041 W. BROADWAY
Ph. 733-1535
Fax order line: 733-5130

EDMONTON OFFICE

13222 - 118TH AVE., EDMONTON, ALTA. PH: (403) 453-6844 FAX: (403) 454-6137

Now in Stock!



PAGEVIEW GS Low Emission Monitor

Sigma Designs is one of the first manufacturers to tackle the problem of ELF (Extremely Low Frequency Emissions). *Sigma* has designed the *PageView GS* to meet strict Swedish ELF emissions standards at no extra cost!

Altext stocks the *Sigma PageViewGS™* for the Macintosh™ IIfx and IIsx.

In addition to *Sigma*, Altext carries the entire Apple® Macintosh™ product line. Macintosh™ IIsx and Macintosh™ LC systems are now in good supply in most configurations. All Macintosh™ systems carry the famous one-year AppleCare™ global warranty.

Call now to benefit from the expertise of our staff in updating your existing hardware or configuring your new system.

ALTERTEXT

CONVERSIONS INC.

105A - 1675 W 8th Avenue
Vancouver, BC V6J 1V2
Ph. 732-1416 Fax. 734-0840
Voicefax: 222-8444

Apple, the Apple logo, are registered trademarks of Apple Computer Inc. Macintosh is a registered trademark of Apple Computer Inc. Altext is not an authorized Apple dealer.

Introducing

The UltraLite™ Productivity Pack

You get what you don't pay for

UltraLite 286 V

PLUS Home Tax Plus software
Diconix 150 Plus printer

~~\$6100~~
value

\$3495



UltraLite 286 F

PLUS Home Tax Plus software
Diconix 150 Plus printer

~~\$4900~~
value

\$2795

■ Satisfaction Guaranteed

■ Quantities Limited

Canada Portable Computer

Phone: 534-6441 8:30 a.m. to 5:00 p.m. Monday - Friday

NEC

CELLULAR PHONES

Motorola, according to a Cell City salesperson I spoke to, enjoys a 50% share of the overall cellular market, both nationally and in the greater Vancouver area. The budget-priced 8000M sports a 25-number memory and a 3-year warranty, and sells for about \$550. He told me that it usually sells with a \$29.95 "basic service package" that gives you a "free" 30 minutes of airtime per month.

Other places I called offer a variety of service packages. For example, A&B Sound has three: \$14.95 a month, which includes no free time, \$24.95, which includes 30 minutes of call time, and \$89.95 which includes 120 minutes of calls.

Tiny Phones

When asked to name the smallest cellular phone, most people named the \$1400 Motorola PT500, which strongly resembles the flip-top communicators used by the crew of the starship Enterprise on the "old" Star Trek. The 300-gram PT500 is small enough to fold up and fit into a shirt pocket or purse. However, if you don't mind the slightly larger size, you won't notice any difference in quality with the 8000M at almost 1/3 of the price.

Other even smaller phones include the 279-gram Mitsubishi Handheld Cellular Mobile Telephone and the 290-gram (with ultra-light battery) Pocket Commander from Fujitsu.



Pocket Commander From Fujitsu

Typical of the newest generation of these tiny, feature-laden devices is the Fujitsu Pocket Commander (so new that, as of this writing, it had not yet been approved by the DOC). With the help of some "air time" courtesy of Apex Communications, I tested the diminutive phone and was amazed at how many features were programmed into the unit, including volume control, auto off and on, mute switch, silent alert, 140-number memory with 40-name alphabetic directory, last number redial, call restriction and security lock features.

Indicators on the phone show signal strength, battery level (including an alarm), call duration (with both a timer and audible alert), and symbols to show when the phone is in a different "roaming area" or outside of a cellular area. The 48-character display can store and recall both alpha and numeric codes. The phone even supports voice-operated transmission, where the phone is muted during speech pauses to save battery life. The backlight display automatically turns off 30 seconds after the last key-press.

The Fujitsu Pocket Commander comes with an extra-talk-time (80 minutes) battery and a desk charger. Optional accessories for the unit include an

ultra-light (45 minutes talk-time) battery and 3-watt power adapter, vehicle adapter with hands-free, radio mute cable, battery eliminator, leather carrying case and rapid charger. Using the rapid charger, the ultra-light battery charges fully in 1 hour, while a recharge of the extra-talk-time battery takes 2 hours.

The unit has a nearly-smooth black finish that is visually very attractive but tends to show scratches and scuffs. Some other brands have a slightly-textured surface for this reason. Contact: Fujitsu Canada Inc., 800-263-8716

Phone Considerations

One consideration: I have noticed a definite propensity of high-tech gadgetry to have features that look great on paper, but fare poorly in real-world usage. Usually, it's because the features are poorly designed and/or implemented. I suggest that you actually try a feature that is important to you before purchasing.

Your best bet would be to rent, lease or borrow the cellular model you intend to buy for at least a few days to get a feel for its features and for the unit's reception and broadcast range. Many dealers rent or lease phones by the day, week or month, at rates running from \$75 to \$125 per month. Cellular-One Rentals, Inc., for example, rents handheld phones for \$5.95 per day, plus \$1.95 insurance, \$29.95/week (\$9.95 insurance) or \$89.95/month (\$29.95 insurance). Call time is charged at \$0.95 per minute.

Apex Communications has a rent-to-own package that includes a handheld portable and 100 minutes of airtime (including the DOC licensing fee and monthly charges) for \$84.90 (plus taxes and deposit). Apex also has purchase and lease terms.

It is also worth noting that cellular phone prices have dropped to less than half of what they were two years ago, but the service charges have not decreased. Reportedly, some dealers make so much money on the monthly service packages that they sell the phones at a loss.

Service Considerations

In virtually all areas of North America, there are two competing cellular services, sometimes referred to as mobile carriers. In B.C., the names are Cantel and B.C. Cellular. The former is operated by Rogers of Cablevision fame; the latter is part of the B.C. Tel Group.

In other provinces, a similar scenario exists, with Cantel competing against the local phone companies. Interestingly, I found representatives from the phone company-controlled organization to be much more cautious about being quoted by The Press than the Cantel people. (To its credit, B.C. Cellular was much more efficient and thorough at supplying information for this article.)

B.C. Cellular, which bills itself as B.C.'s most extensive network, claims to offer continuous coverage of the Lower Mainland, through Chilliwack past Hope, the Okanagan, Kamloops, Merritt, Vernon and the Coquihalla. The company also has coverage on the east coast of Vancouver Island, up to and including Campbell River, and on the western Mainland serving Squamish, Whistler and Prince George.

Across the nation, cellular service

CELLULAR PHONES

reportedly now extends along 70% of the Trans Canada Highway, with good coverage in 65 major centres, across virtually all of the southern portions of the provinces.

In a recent interview, the president of Cantel claims that the company has spent \$1.2 billion in Canada establishing and building its cellular network (although a fax I received from Cantel pegged the figure at \$600 million). How can it afford such massive expenditures? Easy—as a cellular phone user, you pay, pay, pay.

What You'll Pay

Remember that you pay not only for the phone, but also for the phone service and each and every call—both incoming and outgoing (with one exception: the only circumstance where you don't pay for an incoming call is if both parties subscribe to the same mobile carrier, in which case only the calling party is billed for the call). At up to \$0.60 per minute (short-term rentals are often even higher), most people can expect to ring up a hundred dollars a month in service charges.

Cantel Costs

When you buy or lease a Cantel-serviced phone, you typically get 30 minutes or so of "free time." Each month thereafter, you'll pay a flat \$25 fee (increasing to \$29.95/month as of June 1/91), which gives 30 minutes of airtime and call forwarding, call following, call waiting, three-way calling busy transfer and no answer transfer, plus a bevy of other services like free 411 and 911 ser-

vice and 24-hour customer service.

After this first 30 minutes run out, additional Cantel time starts costing you \$0.50 a minute at peak times, with a one-third reduction for non-peak times (i.e., after 8 pm and all weekend, the price drops to \$0.33 per minute). After this 90-minute rate, further time becomes progressively less expensive. For example, the next 60 minutes cost \$0.45/min., then 60 minutes at \$0.40, 120 minutes at \$0.35, 120 minutes at \$0.30, then all additional time at \$0.25 per minute. As before, night and weekend prices are 1/3 off these figures. A \$49.95 off-peak option allows free unlimited off-peak calling. Cantel subscribers can also avoid the above-mentioned rate increase (for three years, anyway) by signing up on a new price-protection plan.

B.C. Cellular Costs

Buying or leasing a phone from a company that provides service through B.C. Cellular will usually give you three service options, ranging in price from \$19.95/month to \$89.95/month.

For \$14.95 a month, the Basic Service plan includes no free time, and costs \$0.55/minute. No off-peak usage discounts apply, although price-breaks occur at 121+ and 481+ minutes/month to \$0.35 and \$0.25/minute respectively.

The PreferredPak 30 costs \$29.95, includes 30 minutes of call time, with additional time at \$0.55/minute (peak) and \$0.37/minute (off-peak), becoming progressively cheaper (as above) as usage times increase.

The third option is the \$89.95 which

includes 120 minutes of calls, with additional time charged at \$0.25—less than half the cost of the \$0.55/min. "Basic Service" charge.

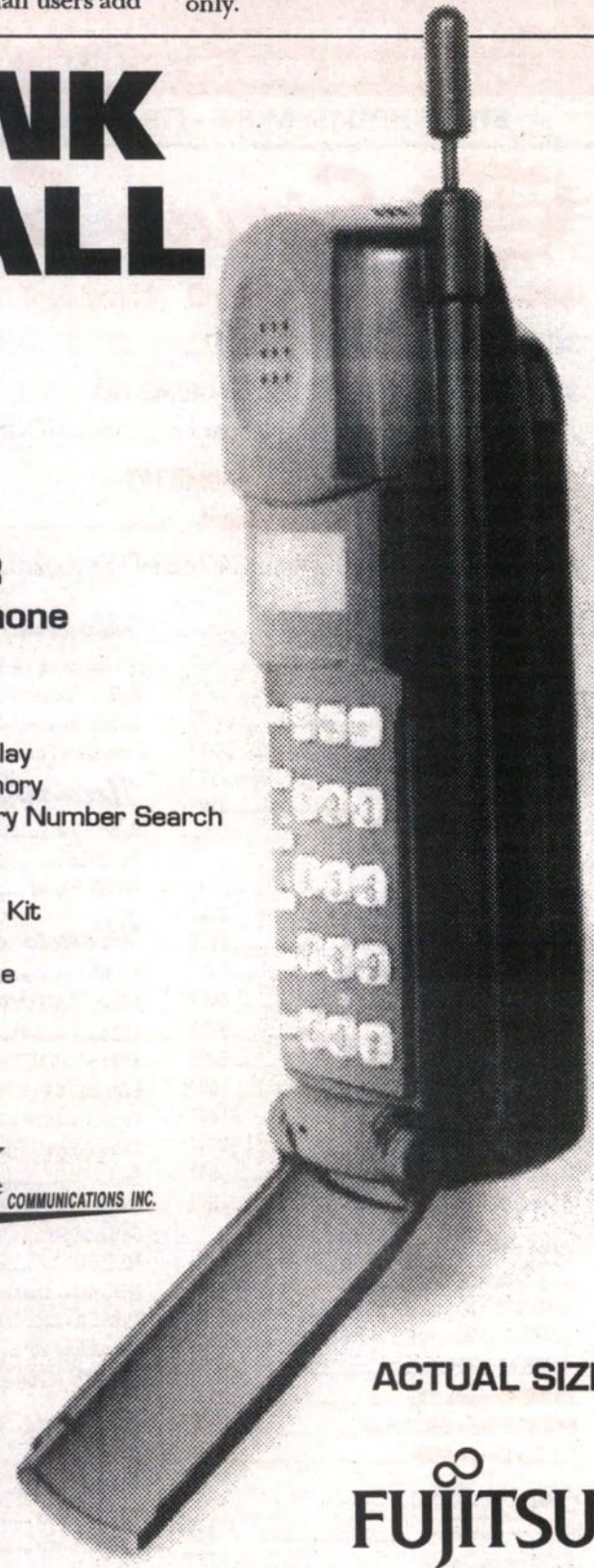
Other services are also available, such as call forwarding (free to PreferredPak customers; Basic Service plan users add

\$5/month), three-way calling and call waiting, much like the comparable services offered by the phone company. For an extra \$3.50 a month, the cellular service can also limit service to local calls only, or outgoing or incoming calls only.

THINK SMALL

The POCKET COMMANDER Cellular Telephone by Fujitsu

- Alphanumeric Display
- 100 Number Memory
- Alphabetic Directory Number Search
- Low Battery Alarm
- 10.2 Ounces
- Hands-free Vehicle Kit
- Rapid Charger
- 1.3 Hours Talk-time



ACTUAL SIZE
FUJITSU

B.C. Cellular

The Preferred Network

- Motorola 8000M
- Motorola Talkman
- Motorola PT 500
- Motorola PT 850

- Single-line fax: Panasonic KX-F90
- Panasonic KX-F50

- Panasonic Electronic TW's, Cordless Phones, Answering Machines
- AIC, TWILL Computer Systems • Fujitsu, Raven Printers • Franklin "Talking Dictionary" (Webster)

ADVANCED
COMMUNICATION SYSTEMS

1445 West Broadway, Vancouver, B.C. V6H 1H6 736-4488



3 Year Canadian
Warranty on
Motorola
Cellulars!

Great Prices!

Excellent Service!

APEX
COMMUNICATIONS INC.

BURNABY LOCATION:
4711 Kingsway,
Burnaby
Tel. (604) 436-3300

SURREY LOCATION:
101, 13853-104th Ave.,
Surrey
Tel. (604) 583-3300

ZEGNA ELECTRONIC INC.



INTRODUCTORY SPECIAL

286-20 MHz

\$499

Suggested Retail

- True 80286-20 MHz CPU
- 1 MB RAM Expandable to 16 MB on board
- 80386SX Upgrade-Ready
- 1.2 MB Floppy Drive
- AT I/O
- Compact Case/200 Watt Power Supply
- Enhanced Keyboard

DEALER ENQUIRIES WELCOME

Unit 110-11180 Voyager Way
Richmond, B.C. V6X 3N8
Tel: (604) 278-5151 Fax: (604) 278-5122



ALLIANCE BUSINESS COMPUTERS

341-G NORTH RD., COQUITLAM, B.C. V3K 3V8
PHONE: 936-8088 OR BY 80486 FAX: 936-7483

STORE HOURS: MON. - FRI. 9-6, SAT. 10-5, SUN 12-5

WIDE RANGE
OF LEASES
AVAILABLE

Spring Sale

486-25 with 1.2 floppy, 40MB HD, 101 keyboard **\$Lowest in B.C.**

386-33 Tower 1.2MB, 40MB HD **\$1599**

386SX-16 2MB RAM 1.2 floppy 40MB HD
1024 x 768 color VGA, Keyboard & Windows/DOS **\$1497**

286-20 1MB RAM 1.2 floppy 40MB HD
640 x 480 color VGA, Keyboard **\$1197**

286-12 1MB RAM, 1.2 floppy 40MB HD Keyboard **\$777**

Specials

Logitech S9 Mouse	\$77
BMC Cordless Mouse	\$77
1.4 Disks	\$1.77
1.2 Disks	\$0.77
1MB VGA Cards	from \$177
Sound Blaster	\$197

Motherboards

Turbo XT 10/12MHz	\$47
286-12	\$107
286-20	\$179
386SX-16	\$467
386SX-20	\$557
386-25	\$777
386-25 Cache	\$887
386-33 Cache Baby Size	\$987
486-25 128 Cache	\$1677
486-33 Cache	\$2347
Cases from	\$47
Towers from	\$77

Hard Drives

Seagate 40 IDE	\$229
85MB WD IDE	\$427
100MB Quantum IDE	\$537
130MB NEC ESDI	\$777
330MB Seagate IDE	\$1497
640MB Fujitsu ESDI/SCSI	\$1997
1.2 Gig Drives SCSI	\$3333

Controllers

IDE Host Adapter	\$37
SCSI Future Domain	\$177
RLL Kimaion	\$117
ESDI NCL	\$227
ESDI Ultrastor	\$237

Keyboards

Axus	\$57
Tangent	\$57
Focus 2001, 3001, 5001	\$77 / 97 / 117
Maxiswitch Memory Pro	\$247
Barcode Reader	\$347
We also have BTC, Nantan, Fujitsu & Northgate	

Modem/Fax

US Robotics 14.4 Int.	\$697
Zoltrix Fax/modem 9600/2400	\$207
Zoltrix modem int. 2400	\$77
Free Com Fax	\$227

Networks

ReadyLink	from \$407
PowerLan	From \$777
10NET 3 user	\$299

Monitors

12" Monochrome Atari TriSync	\$99
1024 x 768 TVM5A non interlaced	\$697
1024 x 768 Seiko 1450 non interlaced	\$937
1024 x 768 NEC3D non interlaced	\$837
Everdata 640 x 480	\$377
Everdata 1024 x 768	\$447
Monochrome TriSync	\$107
Seiko 1440	\$717
Seiko 1450	\$937
Seiko 2050	\$2477
NEC 3D	\$877
NEC 4D	\$1797
TVM 3A	\$597
Mitsubishi 20"	\$2197/2397
ASI 1024 x 768 VGA while they last	\$333

CoPros & RAM

RAM	\$77/MB
287-10	\$167
387-25 Cxrix	\$497
387-33 Cxrix	\$597

Desks

4 piece deluxe	with system \$199
3 piece economy	\$117
2 piece student	\$87

Software

DOS	from \$47
Games	\$19 - \$59
PC-Sell	\$297

Now featuring APYX Brand Computers

Come See Us...

We're friendly & knowledgeable

We do REPAIRS & SERVICE

SEE US FOR
ALL SPECIAL
NEEDS

We can get you
almost anything

OKIDATA
400 LASERS
IN STOCK

with system purchase
\$799

XT'S

Lowest cost systems
from **\$347**
with monitor

Prices subject to change

SPECIALITIES
INCLUDE
Multi-lingual Word
Processors. Duang Jan
60% off all languages
in stock.

CUSTOM BUILT SYSTEMS

CELLULAR PHONES

Other Charges

With both companies, in addition to these call time charges, you also pay a one-time service connection fee (\$50), an annual radio system license fee (\$53 the first year, \$42 thereafter), plus any applicable long distance charges.

Optional Services

You can use your cellular phone in another city, but if B.C. Cellular subscribers go roaming to other cities they'll pay a \$3.00 roaming charge and forgo special features like call forwarding—both included as part of the standard Cantel service.

With a B.C. Cellular feature called Follow-Me-Roaming, your calls can follow you automatically as you travel throughout Canada and the States. Cantel has a comparable feature that goes one better. Unlike Follow-Me-Roaming (which must be activated each morning and in each city you roam to), Cantel's standard service offers Call Following, a feature that's totally automatic and allows continued access to special services. When you're in another city, just prefix local calls with the local area code.

One disadvantage of the Cantel Call Following system is that because the service transparently routes local calls to other cities, you may end up paying long distance charges for "nuisance calls." A phone company representative I spoke with pointed to the ability to turn off Follow-Me-Roaming as a definite plus.

The phone company affiliates offer the province's most extensive network, and as part of CellNet Canada, link to major Canadian centres and U.S. and overseas networks.

Cantel boasts an advantage for portable phone users. With portables, full power is not always required for top performance, so Cantel's system steps down the power when you're near a cell site, giving you longer talk time from your battery. Cantel also claims to provide clearer calls, reportedly verified by independent consultants in January, 1989.

B.C. Cellular, on the other hand (as you might expect from a phone company affiliate), offers the province's most extensive network, and as part of CellNet Canada, links to major Canadian centres and U.S. and overseas networks. Other B.C. Cellular benefits include the previously-mentioned Message Centre and InfoCell, an innovative information service where you can dial up weather information, traffic reports, winning lottery numbers, sports scores and a bevy of other info with your phone.

Preferred Pak customers also get a guarantee of no rate increase for 36 months.

Interestingly, when I first unpacked the Fujitsu phone and powered it up, it called up a message from B.C. Cellular that informed me that the phone wasn't yet activated and prompted me to press "1" on my handset to speak to a sales representative.

Astonished, I did just that. The person I spoke to surmised that the phone must have come from the factory programmed to dial up the local "B" carrier, which is apparently what B.C. Cellular is. One of the bonuses of being the Big Network, I guess.

The Future is Cellular

Today, one person in 25 in Vancouver uses a cellular phone. As more people discover the convenience and power of mobile communications, phone prices will plummet as demand increases.

You can expect the cost of cellular phones to continue to fall as they become commodity items, much as regular phones have. (Brian Josling, the president of Cantel West recently stated that he expects them to eventually bear a \$100 price tag.) But don't expect the cost of cellular service to drop. As you might imagine, the 600,000 units in use in Canada now (bringing in \$100/month or so apiece) represent a cash cow of astounding proportions. By 1993, an estimated one million units will be in use, a figure that is expected to climb to between three and five million by the end of the century.

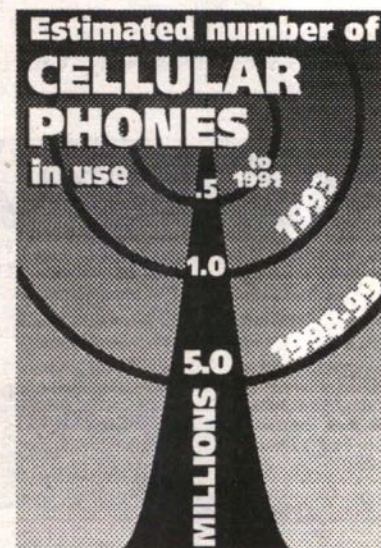
I also expect cellular technology to have a significant impact on computer communications, especially in the next generation of portable notebook computers.

As you may have guessed, it is possible, with a modem, communications software and a decent cellular connection, to conduct cellular data communications. Imagine—the travelling salesman goes out to his car, types in the order on his laptop and transmits it to the office for immediate processing. Now that's service.

Cellular modems are available with special error detection and correction protocols. (Toshiba makes a 2400-bps model which sells for about \$1000.) Wireless cellular networks may also become popular for local- and wide-area networking, usurping the current generation of Ethernet and other wire-based installations.

Beyond this, a global (perhaps even interplanetary!) cellular network such as Iridium (see the article "Telecom: The Next Generation" in this issue) will eventually be in place allowing transmissions of all kinds in virtually any area, changing once again—as the radio and telephone did—the way that people communicate.

Thanks to Gwen Lannaman of Fujitsu Canada, Dan Perrett of Apex, Kim, Nancy and Wendy of Cantel and Cheryl Brucker and Debra Hamilton at B.C. Cellular for help in preparing this article.



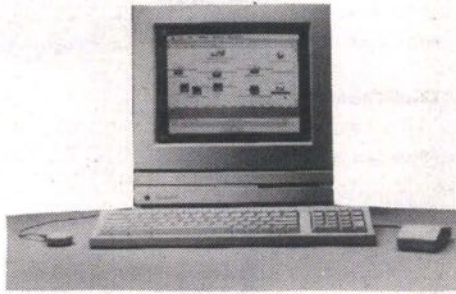
Statistics from Bell Canada show that there are now more than 10 million cellular subscribers worldwide, almost double the total in September 1989. The United States continues to dominate the cellular market, with 5.1 million subscribers. Canada now has some 540,000 subscribers, earning it fourth spot in the top ten cellular markets. The United Kingdom is the second-largest market, with 1.12 million subscribers and Japan is third, with 650,000 subscribers. Cellular service is now available in approximately 60 countries. In Canada, about 85 percent of the population has access to cellular service and Bell Canada projects there will be over three million Canadian subscribers by the year 2000.

REVIEW

Macintosh LC

reviewed by Graeme Bennett

Product: Macintosh LC
and Apple 12-inch RGB monitor
Manufacturer: Apple Computer
Configuration Reviewed: 2MB RAM,
 40MB hard drive, 256-color display.
Price: Computer C\$3499; monitor \$839



As I write this, otherwise diligent workers—supposedly mature adults—are crowded around the newest computer in our office. Seemingly enchanted by it, they smile and laugh. Visitors to the office, too, are magically drawn into the corner where it sits. I hear the digitally recorded sounds of laughter.

"Why didn't they do this years ago?" someone asks. Based on the instant appeal, that's a compelling question; in a matter of minutes, Apple's new Macintosh LC has caught the imagination and in doing so, won the hearts of everyone within earshot.

Most Illogical

What is it that has caught their playful fancy? It is the inclusion of a microphone and digital recording capabilities with the computer. The Macintosh system software has long included digital audio playback capabilities, but with the release of the LC (and its upscale sibling,

the Mac IIsi), Apple has for the first time provided as standard equipment sound input in the form of a small microphone (about the size of a pocket watch) that imbues the machine with the ability to digitally record and play back voices or sound effects.

So, what use is audio input? Well, aside from the obvious entertainment value (I mean, only a serious grouch wouldn't enjoy recording a wisecrack or two for posterity), it is possible to apply these sounds to system alerts, so that instead of simply beeping at you when you click the mouse in the wrong window, the Mac can now advise you of the proper course of action—probably something like, "Don't have a cow, man."

Beyond that, it is now possible with third-party products to send voice mail over a network, or include voice annotation in a spreadsheet or presentation. Using Apple's HyperCard (also included

TECHNOLOGY CORPORATION
AMI

Touchdown !!!

- ★ 33MHz 386DX Personal Computer
- ★ 64K Static RAM Cache
- ★ 1MB RAM
- ★ 1.2MB 5.25" Floppy Drive
- ★ 40MB Fast Access Hard Drive
- ★ Parallel / Serial / Games Ports
- ★ VGA Colour Monitor

\$ 1950⁰⁰BONUS
1.2MB 5.25" Floppy Drive
40MB Fast Access Hard Drive
Parallel / Serial / Games Ports

AMI Technology Corp.

1459 W. Braodway
 (Granville & W. Broadway)
 Vancouver, B.C.
 V1H 1H6
 Tel: (604) 731-7880
 Fax: (604) 731-7844

data

Mountainview

orks

Phone: 273-2930

Fax: 273 2960

Thousands of Shareware Programs

IBM • APPLE • MAC • AMIGA • ATARI

From \$3.75

#210-11180 Bridgeport Road
 Richmond, B.C. V6X 1T3

1/2 Block East of Shell next to ANO Automation

**HI-TEK**

ELECTRONICS & COMPUTERS

We, a group of Ph.D. & Master & Bachelor, serve you in:

COMPUTER CONFIGURATION

We help you choose the suitable system according to your long & short term needs; we help you select the distributors for better quality and lower rate.

286-12 for \$799, 386SX-16 for \$1199,
 386DX-33C for \$1855

COMPUTER UPGRADE

We help you enjoy the Multitasking of Windows 3.0 and upgrade your system to 386SX-16 for \$420, 386DX-25 for \$740, Basic VGA for \$350, and 1.44MB FD for \$71.

DATA ENTRY

We, pattern recognition specialists, take full advantage of the most advanced technology, scanner & OCR, to input your documents, books FAX drafts and more into computer in various file layouts with faster speed and better quality that can remain your original formats and at a cheaper price. \$1/page.

COMPUTER PROGRAMMING

We sell our programs and program your special requirements in Assembly, Pascal, C & C++, Fortran, DBase, BASIC, LISP, Prolog, ...

No Job is too small or too large, each is professionally completed to meet your needs.

Call: (604) 434-0275 or (604) 685-8066 Fax: (604) 684-3255

DATATRONIC
COMPUTER & NETWORKING

286-12MHz System	\$745
286-16MHz System	\$819
386SX-16MHz System	\$1149
386SX-20MHz System	\$1299
386-25MHz System	\$1488
386-25MHz System, 64K Cache	\$1599
386-33MHz System, 64K Cache	\$1749
486-25MHz System, 8K Cache, 4MB	\$2688
486-25MHz System, 128K Cache, 4MB	\$2868

System Configuration:

- 1MB RAM (except 486 systems)
- 1 parallel / 1 serial / 1 game Port
- IDE hard/floppy controller
- 40MB IDE hard drive
- 1.2MB 5.25" floppy drive
- Mono graphics adaptor
- 12" Hi-res TTL monitor
- AT 101-key keyboard

**PRICE
WAR
SALE!**

TWO YEAR WARRANTY

3328 Fraser Street, Vancouver, B.C. V5V 4C1
 Tel: (604) 872-8468 Fax: (604) 872-8469

Office Hours: 10:00 a.m. to 5:00 p.m. (Mon. - Thur.)
 10:00 a.m. to 8:00 p.m. (Fri.)
 10:00 a.m. to 5:00 p.m. (Sat.)
 Closed Sunday





Intelligent
Solutions



80286-12.....\$979
80386-20.....\$1499
80386-25.....\$1699
80386-33.....\$1999

All Systems Include:

-1MB RAM
-1.2MB or 1.44MB Teac Drive
-43MB Hard Drive 28ms
-12" Mono Monitor and Card
-101 Enhanced Keyboard
-AT I/O Card IP, IS, IG
-AT Size Case
-200W Power Supply CSA
Special Upgrade and Package
Prices Available!!

Hewitt **HR** Rand
80386-25 \$1999

Roland DG
ROLAND DG CORPORATION
DPC-2112 \$1319

Legend 1024x768 .28mm
c/w 1024x768 VGA Card.....\$569
Mitsubishi 65MB 28ms.....\$339
Western Digital 28ms.....\$299!
Maxtor 81MB 19ms 64K.....\$569
Infrared Cordless Mouse.....\$79
FUJITSU DL3400.....\$499!
HP IIP/III.....\$1365/\$2299
Roland DP800 Laser.....\$1489
Roland 9101 9 Pin.....\$249
Roland 2417 24 Pin.....\$449

-Desktop Publishing
-NETWORKS
-On Site Consulting and
Training
-Mac/IBM Data Transfer
-Free Delivery
-Custom Configuration
-Free Phone Support
-One Year Manufactures
Warranty on Parts and Labour
-Software, Cases, Boards, RAM,
Controllers, and more!

Call 230-3436 or 230-7535 for additional products (Fax 683-5994)

GEMINI™
Marketing, Incorporated

INSTORE SPECIALS ON LABELS & COMMERCIAL SOFTWARE

Retail Location

555 Clarke Rd.
Coquitlam, BC
V3J 3X4
(604) 936-6400

Shareware For

IBM
Apple II
Atari ST
C64, 128
MAC

OPEN SIX DAYS A WEEK



TECHNOLOGY CORPORATION
AMI

A

**Power
Feast.**

- ☆ 25MHz i486 Personal Computer
- ☆ 128K External RAM Cache
- ☆ 8K Internal RAM Cache
- ☆ 387 Compatible Co-processor
- ☆ 1MB RAM
- ☆ 1.2MB 5.25" Floppy Drive
- ☆ 40MB Fast Access Hard Drive
- ☆ Parallel / Serial / Games Ports
- ☆ VGA Colour Monitor

BONUS

3 Button Mouse
(2 / 3 / 4)
w/ Switch Function

\$ 2899⁰⁰

AMI Technology Corp.

1459 W. Braodway
(Granville & W. Broadway)
Vancouver, B.C.
V1H 1H6
Tel: (604) 731-7880
Fax: (604) 731-7844



MACINTOSH

Mac IIsi

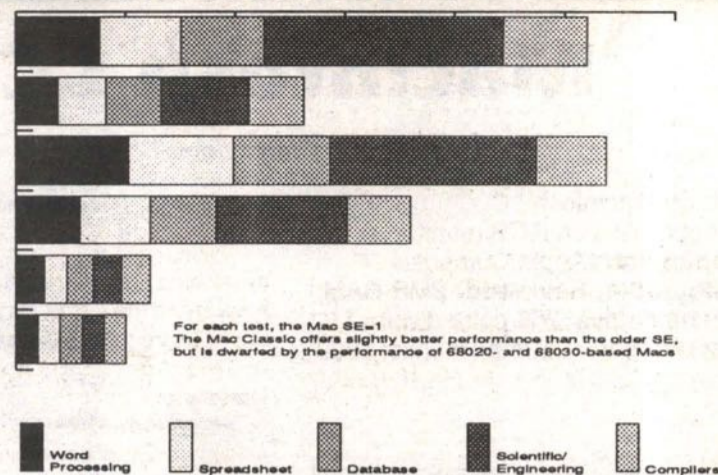
Mac LC

Mac IIfx

Mac IIfx

Mac Classic

Mac SE



The 16 MHz Mac LC puts in a decent, if unspectacular, performance. Overall speed is comparable to the original 68020-based Macintosh II...but at half the price.

with the LC), even a novice can create documents linking digital audio, text, graphics and animation.

It is likely that future versions of Apple system software may use audio input in even more fundamental ways, perhaps as a means of controlling the computer itself.

The Big Setup

In a classic example of no-hassle setup, I opened up the boxes containing the LC and its 12-inch RGB monitor and plugged it in. Ignoring the manuals and setup instructions, I powered it up. Seconds later, a "Welcome to Macintosh" message appeared alongside a colorful little Macintosh icon, followed in the blink of an eye by a vivid blue desktop, with its trash can and hard disk icons, and a multicolored Apple logo in the upper left corner.

For so long, these images have been enjoyed primarily by the business users and wealthy enthusiasts who could afford a \$5,000 to \$10,000 Mac II series computer—hardly the kind of people Apple once courted with its famous ad campaign that touted the Mac as the "computer for the rest of us." At last, these words ring true.

Easy to set up and use, the Macintosh desktop has long been a paradigm of "user friendliness," and now with the magic combination of color, sound and affordability, the promise has been fulfilled.

Nothing's Perfect

Those who read my preview of the new Macs in the Nov. '90 issue of *The Computer Paper* may recall unfavorable comments about the LC's lack of a Paged Memory Management Unit (PMMU), Floating Point Unit (FPU), and limited expansion options. Although still true, since that time, a few things have happened to ease the drawbacks somewhat.

PMMU and processor upgrade options announced at January's MacWorld Expo are (or soon will be) available to upgrade the LC's 68020 processor to a 68030 or even a 68040 screamer that will outperform Apple's flagship Mac IIfx. (Comedian Harry Anderson once joked that the IIfx moniker stood for Too F**kin' Expensive.) This should address any complaints about the LC's processor speed, power and PMMU options.

The system's lack of an FPU requires a much less costly solution. As detailed in the aforementioned Nov. '90 issue, some Mac software (Studio/8, PixelPaint, PrePrint and Excel 2.2 to mention a few) expect all color Macs to have math co-

processors. Because the LC and the IIsi don't, these programs don't function correctly, typically halting with a "floating point co-processor not installed" error.

Luckily, a freely available software patch called PseudoFPU is available that fools either of these systems into thinking an FPU is present. In our tests, all of the above-mentioned programs ran correctly after it was dropped into the System folder. You'll find PseudoFPU in the Mac section of *GENie* (file #18313), *CompuServe* and other online services. For those who want the performance of a real math chip, FPU boards and various other expansion options have also been announced.

The LFF

The bizarre placement of the ESC key to the right of the space bar (huh?) and the all-in-a-row cursor keys are my two Least Favorite Features of the LC. Luckily, both complaints can be rectified by upgrading to Apple's extended keyboard or a third-party equivalent.

Another problem occurs in a few software packages with dialog boxes that don't fit on the LC's slower-res-than-usual monitor. In Studio/8, for example, the Help screen's NEXT and CANCEL buttons are positioned too low to fit on-screen, and cannot be seen or clicked with the mouse. A work-around solution is to use Stepping Out II 2.02 to enlarge the available screen area (versions of Stepping Out older than 2.02 didn't work properly on machines with 32-bit Color Quickdraw installed, which the LC has built into its 512K ROMs).

Who's Complaining?

Another source of concern for some is the LC's limited power supply and single-slot expansion facilities. Not as easy to solve, but with a built-in floppy drive and hard disk, and connectors for 256- or 32,000-color video, network, printer, modem, keyboard, mouse, SCSI and audio in and out, what else could you possibly want to add? And if you *do* add something, at least a card designed to fit into the LC's processor direct slot needn't be restricted to the 10MHz data transfer rate of the Nubus of a Mac II series computer.

Overall, I like the LC a lot more than I thought I would. The screen is clear, the components compact and sleek. The keyboard feels good to the touch, and the Mac system software...well it's so good, that even a second-rate copy could sell a million.

AMIGA PUBLISHING

PROGRAMS OFFER SOME UNIQUE FEATURES

by Nancy Lorieau

Product: PAGESTREAM V.2.1
Publisher: SoftLogik Publishing Corp.,
 11131-F S. Towne Sq., St. Louis, MO
 63123
Price: Available in Canada for under
 \$250

Product: PROFESSIONAL PAGE V.1.3
Publisher: Gold Disk, Inc., P.O. Box
 789, Streetsville, Mississauga, Ontario
 L5M 2C2
Price: Available in Canada for under
 \$300

Product: SAXON V.1.1
Publisher: Saxon Industries, 14
 Rockcross Gardens, Nepean, Ontario
 K2G 5A8
Price: C\$445

There's something about seeing your words in print that's addicting. Because of this, desktop publishing operations have a tendency to grow beyond anyone's wildest dreams. It often seems that, once a newsletter goes into production, everyone wants to get into the act. For this reason, when you're shopping for a desktop publishing program, it's wise not to look for a program that will only meet your present needs, but one which will continue to serve you in the future. Although some cost more than others, no good publishing program is inexpensive and an expenditure in one should be looked upon as an investment.

All three "high-end" desktop publishing programs for the Amiga have recently undergone major revisions, and some of these new editions include features not available for either Macintosh or MS-DOS machines. In this article, we'll take a look at these programs to see what each has to offer. Then, the choice of which to buy is up to you.



PageStream 2.1

When doing reviews, I try to approach each program as a "new user" by working my way through the tutorials, alert to pitfalls that may befall the unwary. This was difficult to do with PageStream, because I've owned and used this program, which was advertised as a rival to the MS-DOS "classics," since a copy could be had for \$50 and an old PageSetter disk.

Early versions of the program were obviously unfinished. The program was unstable and crash-prone, and many of the promised features either didn't materialize or wouldn't work. At first, however, the updates were free

and, as improvements actually were implemented, the program gained a fairly large and almost "die-hard" following, particularly among non-PostScript users who found in its proprietary outline fonts a way of obtaining a crisp and professional output from even inexpensive dot matrix printers.

The big news about version 2.1 is its broadened compatibility. PageStream will now import text and graphics from a variety of sources (including Macintosh and MS-DOS formats). It will utilize both "bullet" and "Intellifont" Compugraphic fonts (for bit map printers), as well as almost all PostScript fonts and companion ".afm" files in the Adobe format. The program can even use most of the outline fonts in the Professional Page accessory packages, and can utilize graphics produced with Gold Disk's Professional Draw. A excellent new manual is included in this version, as well as a handy-reference card.

I especially like the improved graphics handling function and PageStream's ability to import graphics as a "picture screen" from which portions of the graphic can be selected prior to being manipulated within the program.


Only a few bugs and irritants are present. The most serious is PageStream's tendency to "lose track of" portions of typefaces or graphics on medium-size documents, not only on-screen but in the printer output. As well, a bug in the printing function causes the program to periodically print the wrong number of pages. However, a tendency in Version 2.0 (not present in earlier versions) to refresh the screen after every keystroke has been partially corrected in Version 2.1.

On the plus side, PageStream's drawing tools are outstanding and the program has available an extremely wide range of fonts, some in the public domain. Although the program will run on 1-megabyte systems, 2 or more are preferable.



Professional Page 1.3

Professional Page has, from the date of its first release, been regarded as the premier desktop publishing program for the Amiga and, in the face of increasingly stiff competition, has attempted to maintain this position. While the program does not offer as wide a range of features as PageStream, it has unique capabilities and a seamless, bug-free interface that is a pleasure to use. Especially convenient for layout purposes is a separate on-screen work area where por-



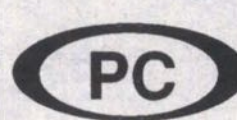
We sharpened our pencil on

Monitors		Math Co-processors	
EverData Basic VGA (640x480)	\$ 285	80387sx-16	\$ 295
Amazing VGA (1024x768)	395	80387SX-20	310
Nanao VGA (1024x768 Non-Int)	830	80387DX-25	480
Nanao VGA 16" (1024x768 Non-Int)	1360	80387DX-25	585

Printers		Mice	
Epson T-1000	\$ 185	Amazing 3-button Serial	\$ 30
Panasonic 1180 (9101)	189	Everdata 2-button Serial	25
Panasonic 1123 (2416)	325	Logitech Hires Serial	67
Panasonic Laser 4420 (800)	1195	Logitech Hires Bus	77

AMI Technology Corp.

1459 W. Braodway
 (Granville & W. Broadway)
 Vancouver, B.C.
 V1H 1H6
 Tel: (604) 731-7880
 Fax: (604) 731-7844



PC COMPUTERS LTD.

#5-4200 NO. 3 ROAD, RICHMOND, B.C. CANADA V6X 2C2
 TEL: (604) 276-8806 FAX (604) 276-0692
 10235 KING GEORGE HWY, SURREY TEL: (604) 671-4628

BRINGING TOMORROW'S TECHNOLOGY TO YOU TODAY.

Now Celebrating our 8th Anniversary
 with all-round specials on 486, 386 and 286
 systems. (Desktops or Laptops)

NOVA: 286-12MHz

1MB RAM, 1.2MB or 1.44MB Floppy Drive,

I/O - with serial, parallel, game port.

Fast 40MB (19ms) Hard Drive,

Enhanced Tactile Data Comp Keyboard,

CTX Super VGA Monitor,

.28mm (1024 x 768)

2 Yrs. Parts & Labour Warranty

\$1299

'We Service What We Sell'

tions of a document can be composed and stored prior to formatting.

The latest version of Professional Page comes with a VCR tape which introduces users to the world of desktop publishing. Veterans won't find anything new here, but the tape could be genuinely helpful to beginners.

Professional Page was the first publishing program for any computer which would perform color separations, and, with the addition, in this version, of the new Pantone Color Imaging System,

could still be considered "Number One" in this area. If you plan to use color separations in your publishing work, Professional Page, and an Amiga, should be your first choice.

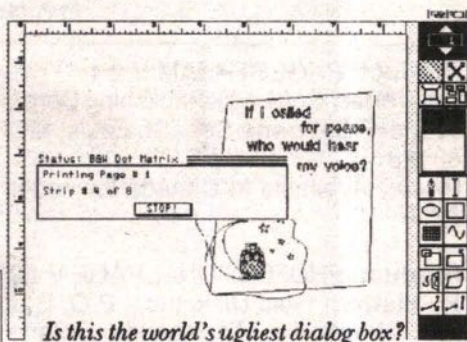
Other new additions include a built-in "Article Editor" (a text editor which replaces the program "Transcript," which had to be purchased separately); a "quick-start" card; the ability to rotate text; a new dithering mode for half-tone graphics; and both document tagging and paragraph tagging functions.

Professional Page is Compugraphic font compatible for excellent dot matrix or LaserJet printouts. A companion object-oriented drawing program, Professional Draw, allows you to create "jaggie-free" clip art and visual effects not available within the program itself. Gold Disk also markets typeface, template and clipart packages, and others are available from third-party developers and in the public domain.

Professional Page is very stable; all features work as promised; and Gold

Disk has a proven history of prompt and courteous customer support.

This program will run, with limitations, on a 1-megabyte system, but more memory is a distinct advantage.



Is this the world's ugliest dialog box?

Saxon 1.1

When, after a good deal of advance publicity, Saxon burst upon the scene, it received a cold reception from reviewers, mostly because of its non-standard interface, its PostScript-only output, and the fact that its paragraph-tagging function severely limits formatting exceptions.

These reviews were not quite fair. While the interface varies drastically from that utilized in other publishing programs, it is very easy to use and the program, overall, is stable. I experienced no system crashes while using this program, an unusual phenomenon with newly released Amiga software.

The program includes several features not found in other publishing programs, including bitmapped fountain fill PostScript textures; drop caps and drop shadows; and skewing of text and graphics. One feature which makes the program stand out among all others is its ability to use non-rectangular boxes for controlling text flow and to enter text both diagonally and vertically. Saxon also has outstanding color separation ability, including full trapping and undercolor removal.

New to Version 1.1 are a multi-page preview capability, automatic hyphenation, a hot-key feature, automatic page numbering, and two manual kerning utilities. Most of these additions bring Saxon up to the level of other Amiga programs, but a proprietary APEX color separation technology could bear watching in the future, and revised printing routines make this program tops when it comes to providing speedy hard-copy output.

Version 1.2, which may be available by the time you read this, will add dot matrix and LaserJet support through Compugraphic font compatibility, the capacity to show Encapsulated PostScript files on-screen, a built-in text editor, a true WYSIWYG PostScript display, and the ability to convert any portion of the screen to an .IFF or EPSF image.

This program has a good deal to recommend it, especially in the design potential of its text-handling capabilities. It deserves serious consideration, but if you regularly use dot matrix output in your operation, even for preview purposes, I'd wait for Version 1.2 before investing. The program is marketed as being compatible with 1-megabyte systems, but 2 megabytes or more should be considered mandatory.

Nancy Lorieau is a communications consultant, writer and editor specializing in technical and business publications. She also has six cats, seven kids and five computers.



EVERdata

Designed with Users in Mind

Computer users want a lot when choosing a system: quality, component integrity and compatibility, service, support and competitive prices. If you want to satisfy all of their needs, you'll select EVERdata for your customers.

EVERdata analyzed user needs when designing its systems. In fact, EVERdata's complete line of 286, 386SX and 386 desktop and server systems combine quality-tested, functional, aesthetically pleasing specifications with high levels of support.

As well, most EVERdata systems include features such as dual floppy drives (1.2Mb 5.25" & 1.44Mb 3.5"), multiple slots and a variety of options for users' own custom configurations.

All EVERdata systems are rigorously tested before shipping and are backed by EVERdata's full two-year, no-nonsense warranty. They are supported and serviced through EVERdata's nationwide network of service centres.

EVERdata Is Your Computing Partner

Model	S286-12	S286-16	D386SX-16	D386-25	T386-33
Processor	80286	80286	80386SX	80386	80386
Clock Speed	12/8MHz	16/8MHz	16/8MHz	25/8MHz	33/8MHz
Memory	1Mb RAM (expandable to 4Mb)	1Mb RAM (expandable to 4Mb)	2Mb RAM (expandable to 4Mb)	2Mb RAM (expandable to 8Mb)	4Mb RAM (expandable to 8Mb)
Diskette Drives	1.2Mb 5.25" high-density	1.2Mb 5.25" high-density 1.44Mb 3.5" high-density	1.2Mb 5.25" high-density 1.44Mb 3.5" high-density	1.2Mb 5.25" high-density 1.44Mb 3.5" high-density	1.2Mb 5.25" high-density 1.44Mb 3.5" high-density



Vancouver
10-11220 Voyageur Way
Richmond, B.C. V6X 3E1
Tel: (604) 278-2893
Fax: (604) 278-2861

Edmonton
5303-91 St.
Edmonton, AB. T6E 5P9
Tel: (403) 466-6800
Fax: (403) 465-5355

Calgary
703-7015 MacLeod Trail S.
Calgary, AB. T2H 2K6
Tel: (403) 259-4017
Fax: (403) 252-0813

Winnipeg
4-1455 Waverley St.
Winnipeg, MB. R3T 0P7
Tel: (204) 488-7936
Fax: (204) 488-7969

Toronto
20 Konrad Cres.
Markham, ON. L3R 8T4
Tel: (416) 477-0388
Fax: (416) 477-0117

Kingston
1020 Gardiners Rd.
Kingston, ON. K7P 1R7
Tel: (613) 634-0350
Fax: (613) 634-0480

Ottawa
106-2575 Blackwell St.
Ottawa, ON. K1B 4E4
Tel: (613) 749-9839
Fax: (613) 749-8923

Montreal/Quebec City
1300 Begin
St. Laurent, PQ. H4R 1X1
Tel: (514) 334-9340
Tel: (418) 622-5701
Fax: (514) 334-9350

Halifax
256 Old Windsor Hwy.
Mt. Uniacke, NS. B0N 1Z0
Tel: (902) 866-2644
Fax: (902) 866-0590

TELECOMMUNICATIONS

Mind Link! Guide

by David Martyn

The first edition of the *Mind Link!* Beginner's Guide is now available for shipping! I wish I had this guide when I began my membership in *Mind Link!* which has now been in operation since December of 1986. Things have changed since then. In fact they change every week as the Sysop, Frank Reiter, changes the software every week.

Mind Link! now has as a main computer a 33 MHz, 0 wait state cached 80386 tower with 12,582,912 bytes of RAM, one gigabyte of hard drive storage, 8 US Robotics Courier 2400s, 4 US Robotics Courier 2400Es, 2 US Robotics HST 9600s, 1 Telebit TrailBlazer Plus (19,200 bps) for a total of 15 publicly accessible lines. The system software was written by Frank Reiter of Reiter Software Inc. It runs under SCO Xenix 386 version V.2.31, a Unix system V compatible operating system for 386 AT compatible computers. As of January 2, 1990, the BBS source code consists of some 102,425 lines of C code compiled into 1,230,202 bytes of executable files. The core BBS program is 685,566 bytes.

As many of the new members are new to modeming in general, *Mind Link!* has written the reference guide for the true beginner. The guide is divided into two sections. The first section explains how to call into *Mind Link!* and set up on the system. The second section describes the options available from the Main Menu—a brief description of the feature and then a more complete description of the commands. For example, the chapter on Mail starts out with a brief explanation of what E-mail is. Following an actual screen clip of the Mail Menu, such topics as Sending, Subject Line, Editing, Sub-commands, Reading, and Sending a Parcel (sending a packed file to another member) are covered.

The guide is 59 pages and comes in a very attractive blue binder. Although the formatting was done with PageMaker on a Macintosh, the layout was not done very well. However, the information is helpful and Frank indicates that supplements will come out in the future to cover: scripts and local directories, Messages, UseNet and U.P.I. groups. They are currently investigating the possibility of having an online encyclopedia and other resources.

For the Apple community, the groups listed in the table give users access to

many messages a day that come from around the world. Downloads are also available. The only downside to the downloads for Macintosh users is that Z-modem is not yet available.

The cost of a Regular membership is \$54/year or \$36/half year (GST must be added). This fee includes the following: 1 hour free connect time per day, local messages, local electronic mail, file transfers, online games. There are additional optional costs that a member might incur with a Regular membership: extra time (\$1.80/hour after your first hour each day), local directory space (\$0.01/week/10k), posting to USENET (international messages) (\$0.15/initial + \$0.05/k), international electronic mail (\$0.15/initial + \$0.05/k), facsimile service (FAX) (\$0.30/page local; outside Lower Mainland—varies); *Mind Link!* Beginner's Guide/Reference card

The cost of a VIP membership is \$99/year or \$66/half year (GST must be added). This fee includes the following: 2 hours free connect time per day, local messages, local electronic mail, free USENET posting (international messages), free international electronic mail, file transfers, online games, free local directory space, free anonymous mail. Additional optional costs that a member might incur with a VIP membership: extra time (\$1.80/hour after your first two hours each day), facsimile service (FAX), *Mind Link!* Beginner's Guide/Reference card.

Mind Link! can be reached at the following phone numbers:

Main number: 576-1214 (Reaches ANY free line)

North Shore numbers: 685-1214, 294-6068, 275-9081 (MNP 5)

Aldergrove number: 856-3231

Should you join *Mind Link!*? Yes, it is the best available local board. I just wish that memberships were available that would offer half hour a day use so that those who would only use it for a mail system would be able to do so at a reduced cost.

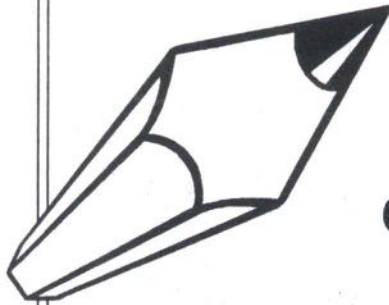
Should you buy the guide? Yes, if you are new to modem use and feel hopelessly lost; otherwise use the online help.

David Martyn, Editor of the Apples B.C. Newsletter, joined *Mind Link!* in January of 1987 and is the oldest Apple member on the system. Reprinted with permission from Apples BC Newsletter Vol. 12. No. 3.



Berniece... Cancel our subscription to the electronic Bulletin board

TECHNOLOGY CORPORATION
AMI



We sharpened
our pencil
even more on

Digitizing Tablets

Summagraphics 12 x 12
Summagraphics 12 x 18

\$ 450
755

Floppy Drives

1.2MB 5.25" Panasonic
1.44MB 3.5" Panasonic

\$ 68
68

Hard Drives

40MB TEAC IDE
40MB Plus Impulse IDE
80MB Plus Impulse IDE
120MB Plus Impulse IDE

\$ 210
245
435
685

Modems

2400 Baud Internal
2400 Baud External

\$ 88
120

AMI Technology Corp.

1459 W. Broadway
(Granville & W. Broadway)
Vancouver, B.C.
V1H 1H6
Tel: (604) 731-7880
Fax: (604) 731-7844



The Everex Family



“Just about anything you can plug
into a PC – and the PCs to boot”
– PC Magazine



WKK SYSTEMS LIMITED

208-5701 Granville Street Vancouver, B.C. V6M 4J7
Phone: (604) 261-7899 Fax: (604) 261-8999



**INNOVATION
QUALITY
SERVICE**

Calendar

AMIGA

BURNABYSCHOOL BOARD:

Intro to Amiga 500:\$65
VAN SCHOOL BOARD: 736-7241
Amiga 2000 Lev. 1 & 2, Deluxe Paint 3,
Computer Video Art, Computer Music\$85

ACCOUNTING

BCIT, 3700 Willingdon, Burnaby, 434-1610
Computerized Accounting\$196
BURNABY SCH. BD, 299-4361
ACCPAC Gen. Ledger, Bedford Acctg.,\$90

COASTWAY 206-2501 Spruce, Van 736-5039
Bedford
COMPUTERLAND 1035 W. Pender 640-6900.
Bedford Accounting
COMPUTER STATION, 2130 Burrard St., 732-8621.
Bedford, ACCPAC G/L, A/R & A/P,\$180
COQ. CONT EDUC. 936-4261.
ACCPAC G/L, A/R, A/P, Bedford\$80
DELTA SCHOOL DISTRICT, Delta 943-0293.
ACCPAC - 24 hours\$160
Bedford - 24 hours \$145, 15 hours\$95
DOPPLER 101 W. 5th 875-0261
Bedford /ACCPAC.....\$149
DOUGLAS COLLEGE, New West 527-5472.
ACCPAC G/L Mar18-Apr8 eve\$142
Bedford Basic Acct. Mar 9\$102
DRAKE 601-889 W Pender 669-8789
ACCPAC Bedford Integrated Acct. Apr 16
ACCPAC Plus G/L Apr 15, A/R Apr 26
GUILDFORD CONT. ED. CTR. 589-2221

Bedford (5 sessions)\$97
KWANTLEN CONT ED/TLD LABS, 599-2501
ACCPAC Intro, Mar 4-8\$75
ACCPAC G/L, Accts Rec & Pay\$125
Bedford Intro, Mar 4-8\$200
LANGLEY COLLEGE OF TRADE & COMMERCE, Baytree
Centre, 204-20621 Logan Ave., Langley 530-8411
ACCPAC Advanced Certificate: Modules G/L May 4-5; A/
R May 11-12; A/P May 25-26; Payroll Jun 1-2; 12 hrs/
module@\$115 or \$395 for all 4 modules
LANGLEY CONT. ED., 533-4227.
ACCPAC Bedford
BEDFORD Accounting on Macintosh\$65
ACCPAC + G/L, A/R, A/P
ACCPAC Bedford Level I & II
McKAY TECH. 2151 Burrard 736-7221
Computerized Bookkeeping 12 wks
NORTH SHORE CONT. ED.: 986-8888
NORMAN, RJ & ASSOC. 980-4137
ACCPAC Authorized Trainer (most modules)

Businessperson's "Power" Pack Accounting.. Word Processing.. Utilities

- Original OEM Manufactured & Packaged
- All products supported by respective manufacturers' warranties
- Super Savings! \$659 Cdn. Retail
- Guarantee, if not fully satisfied return within 10 days of receipt for full refund
- Systems requirements: DOS 2.1 or greater, 512K RAM, 1 Floppy with hard disk.

Accounting with Pictures

If you have always considered accounting a chore, a tedious task, we have the answer for you! Consider Accounting with Pictures (AWP), an easy-to-use, Canadian-made accounting program. AWP comes full integrated with General Ledger, Invoicing, Statements, Accounts Payable, Payroll, Job Costing, Bank Reconciliation, Budgeting and much more. The program runs real-time, giving you immediate information to run your business. Included is an integrated 152 page manual that can be easily printed or viewed on screen at any time.

What People Say About "Accounting With Pictures"

"Accounting With Pictures is used in my own company and I have no hesitation in recommending it to my professional colleagues for use by their clients. The benefits of the software include: ease of use, comprehensiveness, capacity and realtime updating of all files. From the accounting and auditing point of view it is unexcelled in the reliability and completeness of the audit trails. All of this is available at an affordable price.

The software is supported in a dependable manner and is enhanced frequently in response to feedback received."

-J.E., F.C.A., Vancouver, B.C.

"I have been using Accounting With Pictures for three years now, after switching over from a previous accounting package. I find that compared to the previous accounting package I was using, Accounting With Pictures is much easier to use. Its graphics and series of system checks built into the system make it more enjoyable and reliable to use. I highly recommend anyone considering purchasing a software package to look at this one."

R.B., Calgary, Alberta

GST Ready

WordStar

Whether you are producing a simple memo or a professional-looking newsletter, it's easy and fast with WordStar 5.5. The instant you fire up WordStar, you can start typing, adding bold, italics, underlining, and much more. It's easy with the Pull-Down menus. If you currently use any other word processor, don't worry. With WordStar, you get StarExchange, a \$149 value from Systems Capability Corporation. StarExchange lets you convert your word processing files, including embedded formatting commands, to and from all the major word processors.

This incredible offer is yours for only \$289 — 7 powerful software programs with manuals, diskettes, registration cards, and phone numbers for technical support. Act now and take advantage of this incredible offer — for only \$289. (GST not included)

Plus these 5 Outstanding Utility Programs

- "Keymenu" - P.C. menu management system
- "Keymailer" - Prepare a mailing list
- "Keychart" - business presentation graphics
- "Keyform" - create forms using the P.C.
- "Keygrammar" - letter proof reading software

ALL YOURS
FOR
\$289

PLEASE PRINT ALL ORDERING INFORMATION CAREFULLY.		PHONE AND FAX ORDERS BY CREDIT CARD PAYMENT ONLY	
Name:	_____	DISK SIZE: <input type="checkbox"/> 5.25" <input type="checkbox"/> 3.5"	
Address:	_____	(Check one size only)	
City:	_____	QTY UNIT PRICE TOTAL	
Prov:	_____ Postal Code: _____	_____ x \$289	
Phone: () _____	Fax: () _____	Shipping & Handling*	\$10.00
METHOD OF PAYMENT:		Sub Total	
<input type="checkbox"/> Mastercard	<input type="checkbox"/> Money Order <input type="checkbox"/> Cheque enclosed	GST (7%)	
Card Number: _____	Exp. Date: _____	Total Enclosed	
Name on Credit Card: _____		* Add \$5 for each additional order	
Signature: _____			

DRAKE

ACCPAC PLUS TRAINING
(WITH A DIFFERENCE)

- ☒ G/L, A/P, A/R Window Mgr.
- ☒ Instructor Led or Video
- ☒ Instructor-Qualified Installer
- ☒ ACCPAC Bedford tool

601-889 W. Pender St. Vancouver
Call: 669-8789

ACCPAC • BEDFORD
Training and Start-up
From Former Online Support Staff at
BEDFORD SOFTWARE
Call Barb MacLeod at
CPET Publication Ltd.
574-5053
Benefit From
Our Knowledge & Experience

ACCPAC AUTHORIZED TRAINER

Plus Series
BPI Series
Bedford, Easy
Super Calc/Lotus 1-2-3

R.J. Norman & Associates
980-4137

SURREY (Newton Cont. Ed.) 594-2000
Bedford\$85
SYSTEMLINK, 600-890 W. Pender, 685-2528.
ACCPAC Plus & add-ons — custom training.
TXL MANAGEMENT 322-6198
NewViews Intro Seminar Free
VCC, 250 W. Pender St., Van., 682-5844
Bedford, ACCPAC, Acct. with Lotus 1-2-3. \$150
VCC CONT. ED. Certificate Prog. 324-5322
Intro to Bedford, ACCPAC\$160
VAN SCHOOL BOARD: 736-7241
ACCPAC, Bedford, NewViews,\$90

Our guarantee of the Best Computer Training DOUBLE YOUR MONEY BACK!

Bedford

For \$149 we will Train You To Your Satisfaction
or we'll give you a \$300 Refund. It's That Simple!
Lunch is served in our Air Conditioned Training Centre

Doppler
COMPUTER
TRAINING

875-0261
101 West 5th Ave
@ Manitoba St.

CAD/CAM

DELTA SCHOOL DISTRICT, Delta 943-0293.
Autocad, Intro Lev. II - 15 hours.\$170

DATABASE

BCIT, 3700 Willingdon, Burnaby, 434-1610
DATA BASE CONCEPTS
BURNABYSCHOOL BD. 299-4361.
dBase III+ Level I\$80
CALEMA CONSULTING GROUP, 299-7795;
Advanced Revelation: Intro, User,
Programming & Advanced .
CAPILANO COLL. N Van 984-4901
dBase III+
COASTWAY 206-2501 Spruce, Van 736-5039
dBase IV, 12 hours
COMPUTERLAND, 640-6900.
dBase IV Level I, (1 day), Apr 5,25
dBase IV Level II, (1 day), Apr 16,30
COMPUTERLAND, Victoria 1-800-667-1199
PC Literacy (1 day), Mar. 4
dBase IV Level I (1 day), Apr 9
dBase IV Level II (1 day), Apr 24
COMPUTER EMPIRE 879-4162
dBase III+ (call for dates)\$145
COMPUTER STATION 732-8621
dBase III (intro), on request\$180
CORPORATE PUB. GROUP, 687-1140.
dBase III+ dBase IV Level II, call for dates \$195
COQUITLAM CONT. ED. 936-4261
dBase (Intro, Inter.)\$95
DELTA SCHOOL DISTRICT, Delta, 943-0293.
dBase IV+\$88
DOPPLER 101 W 5, 875-0261
dBase Intro, dBase Adv.

VANTAGE

VANTAGE TECHNOLOGIES INC.,

304-1324 11th Avenue S.W.
Calgary, Alberta T3C 0M6
Phone: (403) 244-5627
Fax: (403) 244-9270

COME OUT A WINNER!

**ADVERTISE
YOUR COURSE
OR EVENT!**



The **Computer Calendar** is going commercial! All calendar listings will now cost **\$7.00 per line (plus GST)**. If you have an event or course you would like listed on an ongoing or monthly basis, please contact the offices of **The Computer Paper** at **(604) 733-5596** FAX your ad request to **(604) 732-4280** User group listings and certain special events will remain free.

CALENDAR REQUEST FORM

COMPANY NAME: _____ ISSUE: _____
 STREET: _____
 CITY: _____ PROV.: _____ CODE: _____
 TELEPHONE: _____ FAX: _____ CONTACT PERSON: _____
 METHOD OF PAYMENT: ☐ Invoice ☐ VISA ☐ Mastercard
 Card Number: _____ Expiry Date: _____
 Name on Card: _____
 Edition to run in: ☐ BC ☐ Alberta ☐ Manitoba

EXAMPLE OF A LISTING

COURSE/EVENT NAME	DATE(S)	COST
Intro. to IBM	5 wk, Tuesday, Apr. 23	\$90



Quartech Systems Ltd
 Suite 202
 1909 W Broadway
 Vancouver BC
 V6J 1Z3
 Telephone 604-734 3117
 Facsimile 604-734 8380

Quartech Systems, a computer systems development and management consulting company in Vancouver, is looking for seasoned software development professionals to work with our clients. Both short and long-term contract and employee positions are available.

We require experience in:

PL/1 • COBOL • DB2 • IMS

Openings are also available in our:

Micro Support Division

Qualified individuals should send their resumes to the attention of the Administrator.

EVENTS

CANADIAN COMPUTER SHOW, Toronto, Oct. 21,22,23,24
CANADIAN HIGH-TECHNOLOGY SHOW, Montreal, Apr. 30, May 1; Toronto, Oct. 22,23
CBTA, Edmonton, Sept. 18,19,20
CENTRE FOR ADV. PROF. EDUC. INC., Apr 3-5, Implementing LANS \$795; Apr 15-16, Converting, Expanding & Upgrading IBM & PS2; Apr 17-18, Troubleshooting & Maintaining IBM & PS2. 1-800-345-0240
ELECTRO, New York, Apr. 16,17,18
HOME BASED BUSINESS SEMINARS by H.A. (Buzz) Bezanson. HOME MADE MONEY (How To Successfully Start a Home Based Business). North Vancouver 986-8888.
EDUCATING THE NEXT GENERATION OF PUBLISHERS: AN INTERNATIONAL CONFERENCE, Cdn. Centre for Studies in Publishing, SFU at Harbour Centre, 515 W. Hastings St. May 3-4, 1991. Brings together leaders in publishing industry and professionals engaged in teaching of publishing. 291-5078.
FALL COMDEX, Las Vegas, Oct. 21,22,23,24,25
INFO, New York, Oct. 1,2,3
MONTREAL COMPUTER SHOW (SIIM '91), Montreal, June 5,6,7
NETCON, Sept. 26,27
PC EXPO, June 25,26,27
PUBLIC LEGAL EDUCATION SOCIETY. Free class on computers and the law for sellers, buyers and users. 438-4041.
QUEBEC BUSINESS COMPUTER SHOW, Quebec City, Apr. 3,4,5
SPRING COMDEX, Atlanta, May 20,21,22,23
3X, Toronto, Sept. 5,6
UNIX SHOW, Toronto, May 15,16,17
VARDEX/Montreal, Apr. 17,18
VARDEX/Toronto, June 12,13

NETWORKS

BCIT, 3700 Willingdon, Burnaby, 434-1610
COMP 286, Novell Netware 286,\$100
CENTRE FOR ADVANCED PROFESSIONAL ED.
 (800) 345-0240
Troubleshooting LANS
CIRRUS ENTERPRISES, Victoria, 386-8844.
 Intro. to Local Area Networks
COMPUTER EMPIRE 879-4162.
 Networking Sys. Instal.\$245
COMPUTERLAND, VAN 640-6924
 Novell Syst. Manager (3 days), Apr 17-19
 IBM OS/2 LAN Admin. Workshop, (3 days), Apr 10-12
 (DOS) Pagemaker (2 days), Apr 22-23
 Harvard Graphics (1 day), Apr 8, 24
COMPUTERLAND, Vict. 1-800-667-1199

Novell Systems Mgr. (3 days), Apr 3-5
DRAKE #601-889 West Pender 669-8789
Netware 286/386 Intro Apr 3
Netware 286 System Mgr. I Apr 24-25
Unix Intro Apr 22
Unix System Admin. I Apr 17-19
JUMP SYSTEMS Suite 450-650 W. 41st, 263-5867
3Com Network Admin., Novell Netware
KWANTLEN CONT ED/TLD LABS, 599-2501
Intro Networking, call for dates & \$
MICROAGE, 3601 W. 16th Ave., 222-1010.
Novell Syst. Mgr.\$695
NETWORK SPECIALISTS INC., Burnaby, 294-5855
 Various network & Novell courses
ROSSI, DEGROOT & ASSOC.
 1099-650 W. Georgia, 683-0020.
Novell Network Operations.
VCC CONT. ED. Certificate Prog. 324-5322
LAN Network Management\$190

MACINTOSH

ADVANTAGE 535 Howe St., 685-6227\$180
MS Word, MS-Excel, Pagemaker, MacDraw, Persuasion, Filemaker Pro.
Macintosh Networking.
BCIT, 3700 Willingdon, Burnaby, 434-1610
COMP 190, Meet the Mac, 12 wks\$200
BURNABYSCHOOL BOARD,
DeskTop Publishing,\$85
Microsoft Word on the Mac,\$90
CAPILANO COLL., N. Van 984-4901
Basics of Micro-Computers\$185
ESI, 410-3771 Jacobs Rd., Richmond, BC, 276-2811
Accelerated Learning Courses: Intro to Macintosh; MS Word, PageMaker
FOLKSTONE DESIGN, 886-4502
Microsoft Word, PageMaker, Excel
GUILDFORD CONT. ED. Surrey, 589-2221.
Intro. to Mac., (5 sessions)\$65
MSWorks (5 sessions)\$65
LANGLEY CONT. ED. #88, 533-4227
Macintosh Intro\$65
Macintosh Painting & Drawing\$65
Microsoft Works/Macintosh\$65
Bedford Accounting, PageMaker, Intro. to Macintosh, MS Works
MACSUPPORT 737-6985
 On-site instruction, consultation, development. Mac intro, Word, Excel, Works, MacDraw, SuperPaint, PageMaker, HyperCard, FileMaker, Foxbase, 4th Dimension.
McKAY TECH INSTITUTE: 2151 Burrard St., 736-7221
 Intro Macintosh \$85; MS Works \$150; Word \$85; PageMaker \$200;
 File Mgmt \$85; Freehand 2.0 \$150, Quark XPress 3.0 \$450
SFU DOWNTOWN, 291-5100
Intro. to PageMaker\$175

Rossi, DeGroot & Associates

COMPUTER TRAINING

Vancouver's High Quality Training Centre!

- Quality Instructors • Premium Courseware
- PC, VAX & Network Training • Custom Programming
- UNIX System Administration

COURSE SCHEDULE

	APRIL	MAY
Lotus 123 Level I	Apr. 5, 11, 17	May 6, 13, 22
Lotus 123 Level II	Apr. 2, 19	May 1, 30
Lotus 123 Level III	Apr. 24	May 9
WordPerfect Level I	Apr. 8, 15, 23	May 8, 16, 27
WordPerfect Level II	Apr. 1, 10	May 17, 29
WordPerfect Graphics	Apr. 25	May 15
DOS Level I	Apr. 4, 22	May 7, 23
DOS Advanced	Apr. 26	May 14
Microsoft Word 5 Level I	Apr. 9	May 2
Microsoft Word 5 Level II	Apr. 12	May 28
Excel for Windows	Apr. 12	May 7
Multimate Advantage	Apr. 29	May 28
dBase IV Level I	Apr. 18	May 10
Symphony Level I	Apr. 4	May 15
Supercalc IV Level I	Apr. 30	May 3
Harvard Graphics	Apr. 3	May 31
PC Overview	Apr. 16	May 24
SATURDAY SESSIONS		
Lotus 123 Level I	Apr. 20	May 11
WordPerfect Level I	Apr. 6, 27	May 18
DOS Level I	Apr. 13	May 4, 25



Register Now!
683-0020

Located at 650 W. Georgia (Scotia Tower)

STRACHAN COMPUTERS Van. 926-6424.
Mac Intro, MS Word, MSWorks, 4 hrs.
Register Mon.-Fri. 12-4 p.m.\$60
SURREY (Newton Cont. Ed.) 594-2000
Intro to Mac\$85
UBC CONTINUING. ED., UBC Microcomputer Lab,
222-5251
Using MS-Works in a Mac Environment, 2 Sats &
Suns, \$195
VAN SCHOOL BD 736-7241.
Mac Intro, PageMaker, Excel, Word, MS-
Works, Bedford, WordPerfect, SuperPaint. \$89

MUSIC/MIDI

ANNEX HIGH TECH MUSICAL INSTRUMENTS, 1250
Granville St., Van 682-6639.
MIDI Music Tech, 6 eves.\$150
Peavey DPM 3 Digital Work Station,
Performer MIDI seq., C-Lab Notator\$35
E-MU Proteus Voice Creation,\$35
Yamaha SY77 Digital Workstation\$35
CARILLON MUSIC LTD., #160-8171 Ackroyd Rd., Rich-
mond, B.C. 276-2383 Instruction on many popular Music
programs including Cakewalk, MusicPrinter Plus, Per-
sonal Composer Version, The Final Cut, Band-in-a-Box.
Four (4) hours for\$99

PROGRAMMING

BCIT, 3700 Willingdon, Burnaby, 434-1610
Computers in business, various programming
languages. Call for information.
BURNABYSCHOOL BD, 299-4361.
BASIC I\$48
BASIC II\$65
CARIBOO COLL., Kamloops, 828-1916
Intro Micros\$105
CIRRUS ENTERPRISES, Victoria, 386-8844.
Course Devel. services, Intro to SAS
LANGLEY CONT. ED. #88, 533-4227
How to Get Started with Your Computer
Managing Your Hard Disk\$85
Earn Money with Your Computer\$50
LEARNING TREE INT'L, 1-800-267-1824
Project Management, Halifax, N.S., July 24-27.
VCC CONT. ED. Certificate Prog. 324-5322
Modula 2, Operating Systems
SPREADSHEETS
ACCSYS #203-535 Thurlow St. 685-5342 Lotus \$150
BCIT F/T 432-8419, P/T 434-1610
BCIT, 3700 Willingdon, Burnaby, 434-1610
Framework II, Lotus 1-2-3
Comp 115, Spreadsheet Concepts,\$70
Comp 169, Lotus 1-2-3 Lev. 1,\$196
BCTEL GROUP, Education Development Centre,
293-3636
Lotus I 1 day Apr 13, 27
Lotus II 1 day Apr 20, May 4
Lotus III 1 day May 11
BURNABY COLLEGE, 437-5711 Lotus
BURNABYSCHOOL BOARD, 299-4361.
Lotus 1-2-3\$85
CARIBOO COLL., Kamloops 828-1916.
Spreadsheets\$150
CIRRUS ENTERPRISES, Victoria, 386-8844.
Lotus 1-2-3, QuattroPro Intro., Excel
COASTWAY 2501 Spruce, Van 736-5039
VP Planner Plus 12 hrs, Lotus 1-2-3 12 hrs
COMPUCOLLEGE Van 682-6600 Bby 435-2424, Rich
273-0373.
Micro Business Appl.
COMPUTER EMPIRE 879-4162.
Lotus 1-2-3 (call for dates)\$145
COMPUTERLAND, Van 640-6924
Excel Spreadsheet, Apr 11, 17, May 1
Excel Database & Graphics, Apr 22
Excel Adv., May 3
Lotus 1-2-3 (2.2) Spreadsheet, Apr 3, 10, 19, 25, May 1
Lotus 1-2-3 (2.2) Database & Graphics, Apr. 2
Lotus 1-2-3 (Adv.), Apr. 2, 19, May 2
Lotus 1-2-3 (2.2) Intro to Macros, Apr. 26
Lotus 1-2-3 (3.1) Spreadsheet, Apr 8
Lotus 1-2-3 (3.1) Adv., Apr 24
Lotus 1-2-3 (3.1) Intro to Macros, Apr 29
Symphony Lev. I, Apr 12
Symphony Lev. 2 Apr 26
COMPUTERLAND, Vict. 1-800-667-1199
Lotus 1-2-3 (2.2) Spreadsheet (1 day) Apr 17
COMPUTER STN 2130 Burrard 732-8621
Lotus 1-2-3\$180
CORPORATE PUB. GROUP, 1500-701 W. Georgia, 687-
1140
Lotus 1-2-3\$195
COQUITLAM. CONT. ED. 936-4261
Lotus 1-2-3 Lev. I & II\$95
DELTA SCHOOL DISTRICT, Delta, 943-0293.
Excel, Lotus 1-2-3\$90
DOPPLER 101 W. 5th 875-0261
Lotus 1-2-3 Intro & Adv.\$149
DOUGLAS COLLEGE, New West 527-5472.
DRAKE #601-889 West Pender 669-8789
Lotus 1-2-3 /2.1/2.2/3.0 L.I Apr 5, 17, 27
Lotus 1-2-3/2.2 L.II Apr 11
Lotus 1-2-3/3.0 L.II Apr 18
MS Excel 3.0 L.I Apr 2
IPC SYSTEMS, 228 W. 7th 873-5595
Lotus 1-2-3 Basics Call for dates\$150
JUMP SYSTEMS #450-650 W. 41st, Vancouver 263-5867
Lotus 1-2-3, Excel
KITSILANO NEIGHBOURHOOD HOUSE,
2325 W. 7th, 736-3588
Lotus 1-2-3, Intro\$120
KWANTLEN CONT ED/TLD LABS, 599-2501
Excel, 5 aft.\$200
LANGLEY COLLEGE, Langley 530-8411
Spreadsheets, Lotus 1-2-3
LANGLEY CONT. ED. 533-4227.
Lotus 1-2-3 L.II, Wed., 8 p.m.\$85

McKAY TECHNICAL INSTITUTE, 2151 Burrard, 736-
7221
Lotus 1-2-3, 20 hrs.\$250
MICROAGE, 3601 W 16th 222-1010.\$175
Lotus 1-2-3, Pt. 1
NORMAN, RJ & ASSOC. 980-4137
SuperCalc/Lotus 1-2-3
PBSC 900-885 W. Georgia 682-5615
Lotus 1-2-3, Excel\$200
PCTI 520-6873, Lotus 1-2-3\$100
PITMAN 1490 W. Broadway 738-7848
Lotus 1-2-3 days/eves.\$180/120
PROF. TRAIN., 1185 W Georgia 681-5903.
Lotus 1-2-3 \$175, Excel Basics\$350
ROSSI, DEGROOT & ASSOC.
1099-650 W. Georgia, 683-0020.
Lotus 1-2-3, Macros
STM SYSTEMS CORP 684-7721
Lotus 1-2-3 Intro\$175
STRACHAN COMPUTERS LTD. #202-1760 Marine .
Drive, West Van. 926-6424 private or group lessons
Lotus 1-2-3 & VP Planner, Intro, Adv.

SURREY (Newton Cont. Ed.) 594-2000
Lotus 1-2-3\$85
UBC CENTRE FOR CONT. ED., 222-5251
Lotus 1-2-3 Inter.\$195
Intro Spreadsheets, Quattro,\$195
VANCOUVER SCHOOL BD., 736-7241
Lotus 1-2-3
VAN. COMM. COLL., 250 W. Pender, 682-5844
Lotus 1-2-3, MS Works 2.
VCC CONT. ED. Certificate Prog. 324-5322
Lotus 1-2-3,\$160

USING YOUR PC

ACCSYS #203-535 Thurlow 685-5342
DOS\$150
BCIT Full Time 432-8419, Part Time 434-1610
Understanding MS DOS
BCIT, 3700 Willingdon, Burnaby, 434-1610
Understanding PC/MS-DOS\$100
BCTEL Group - Education Development Center,
293-3636\$200/day

Our guarantee of the
Best Computer Training
DOUBLE YOUR MONEY BACK!

LOTUS 123 Intro or
Advanced

For \$149 we will Train You To Your Satisfaction
or we'll give you a \$300 Refund. It's That Simple!
Lunch is served in our Air Conditioned Training Centre

Doppler
COMPUTER
TRAINING

375-0261
101 West 5th Ave
@ Manitoba St.

MEGATRONICS

We specialize in repairs,
trade-ins & upgrades

- We offer:**
1. Educational & volume discounts
 2. On-site servicing
 3. Pre-screened components
 4. Full service department with low rates
 5. FREE phone support with every purchase

We do mail orders!

MEGA SPECIALS

Feature System

286-20 MHz (True-20) Motherboard
1 MB RAM 80 ns
1.2MB or 1.44MB Floppy Drive
Baby AT Case w/LED & 200 Watt P.S.
Serial / Game / Parallel Ports
Super VGA Color .28mm Monitor
(1024 x 768 x 256 colors)
Trident SVGA Card w/1MB RAM
101 Enhanced Tactile Keyboard

BLOWOUT

\$899

CASH &
CARRY
PRICES

Super VGA Bundle!

SVGA 14" Color Monitor,
1024 x 768 x 256 colors Resolution .28mm Dot Pitch
BUNDLED w/Trident 1MB SVGA Card

\$499

Soundblaster!

Adlib Compatible, Speech / Music / Voice / MIDI / Game Port
Bring your games to LIFE.

\$175

MEGA LIST

ALL ITEMS
SUBJECT TO
AVAILABILITY

Teac Floppy Drives

360K 5.25"\$85
1.2MB 5.25"\$89
720K 3.5"\$85
1.44MB 3.5"\$89

Prices include bracket!

Printers

Fujitsu DL1100 24 pin\$375
240 cps draft, 60 cps LQ
with color\$425
Panasonic 1180 9-pin
192 cps\$195
Fujitsu DL3450\$505
Prices include cable!

Hard Drives (Bare)

Maxtor 40 MB Voice Coil
28 ms IDE\$245
Mitsubishi 40/65MB
28ms MFM/RL\$325
Maxtor 80 MB 17ms IDE\$395
Rodime 112MB 18ms IDE\$555
Maxtor 200MB 15ms\$925
Main Boards (8K)
286 - 12MHz (8 slots)\$125
286 - 20MHz\$165
386SX - 16MHz\$425
386 - 25MHz\$695
386 - 33MHz cache\$965
486 - 25MHz w/128K Cache\$1695

Miscellaneous

720 K to 1.44 MB Disk Notcher\$40
BTC 3-Button Serial Mouse\$30
Logitech 3-Button Serial Mouse\$75
Zoltrix Send/Receive Fax Modem ...\$165
Soundblaster Music Card\$175
MIDI Kit for Soundblaster\$125
16550 UART Serial Chlp\$25
Trident 1 MB SVGA\$160
ATI Ultra 1MB SVGA Card\$525
Jumbo DJ20 250MB Tape Backup ..\$395
101 Enhanced Tactile Keyboard\$45
Omnikey Ultra Keyboard\$185
Gravis Joystick\$45



MEGATRONICS

3243 Main St. at 16th, Vancouver, B.C. V5V 3M6
Tel: (604) 876-8855 Fax: (604) 876-8779

Store Hours

Mon. - Sat. 10:00am - 7:00pm
Sunday 12:00pm - 5:00pm

CANTEL APPROVED
AGENT

PC: Getting Started 1 day Apr 13, 20	
PC: Management & DOS 1 day Apr 20, 27	
PC: Interim. DOS (2 consec. Sats.) May 4, 11	
BURNABYSCHOOL BD, 299-4361.	
MS DOS/IBM Intro,	\$90
CAPILANO COLL. N. Van 984-4901	
Basics of Micros, DOS 1 & 2	\$185
Managing Your Hard Disk	\$105
CENTRE FOR ADVANCED PROFESSIONAL ED.	
(800) 345-0240	
Converting, Expanding IBM PC	
COASTWAY SYSTEM TECHNOLOGY	
206-2501 Spruce St., Vancouver 736-5039	
Hard Disk Management	\$120
COMPUTERLAND 640-6900.	
PC Literacy, Apr 5, 18	
Windows Orientation Lev. I, Apr 4, 26	
DOS & Hard Disk Mgmt. (1 day), Apr 4, 10, 17, 25, May 1	
Adv. DOS with Batch Files (1 day), Apr 23	
OS/2 Workstation Workshop (1 day), Apr 15	
COMPUTERLAND, Vict. 1-800-667-1199	
PC Literacy (1 day) Apr 8	
DOS & Hard Disk Mgmt. (1 day), Apr 15, 29	
COMPUTERPEOPLE 110-1178 W. Pender 682-5421	
Intro Microcomp, MS-DOS	
COMPUTER STN 2130 Burrard 732-8621	
Intro to MS-DOS,	\$180
COMPUTER TRAINING CENTRE, 103-20256 56th Ave.	
Langley, 534-5777.	
Intro to MS-DOS	\$80
COQUITLAM, CONT. ED., 936-4261	
Intro to IBM PC	\$95
DELOITTE & TOUCHE, 1700-666 Burrard 669-3343	
Business use of micros	\$225-250.
DELTA SCHOOL DISTRICT, Delta 943-0293.	
Intro to DOS (5 sess.)	\$85
Keyboarding (10 sess.)	\$99
DOPPLER 101 W. 5th, 875-0261	
Intro: Micros & DOS	\$149
DOUGLAS COLLEGE, N. West, 527-5472.	
Know Yr Computer, \$115	
Hard disk Mgmt.,	\$102
DRAKE #601-889 West Pender 669-8789	
DOS: L.I Apr 8, 20; L.II Apr 26	
Windows 3.0 L.I Apr 1, 15	
MasterStroke Keyboarding Apr 2-4, 30-2	
FRASER VALLEY COLL. Abbotsford 853-7441.	
Intro to IBM PC & MS-DOS	
GUILDFORD CONT. ED. Centre, 14577 - 106A Ave., Surrey, 589-2221.	
Computers made Easy: IBM-PC	
JUMP SYSTEMS #450-650 W. 41st, Vancouver 263-5867	
Computer Systems and DOS, OS/2	
KITSILANO NEIGHBOURHOOD HOUSE, 2325 W. 7th, 736-3588	
Intro to PCs and DOS	\$120
KWANTLEN CONT ED/TLD LABS, 599-2501	
DOS Simplified, Mar 11-15	\$200
LANGLEY COLLEGE, Langley 530-8411 Automated office training for the disabled: visually or hearing impaired, physically disabled. Call for info, fees and dates.	
LANGLEY CONT. ED. 533-4227	
Understanding MS-DOS	\$85
MICROAGE 3609 W 16th 222-1010	
Intro to PCs/DOS,	\$175
NORTH SHORE CONT. ED.: 986-8888	
PRSC 900-885 W. Georgia 682-5615	
Intro to PC; DOS 3.3 & 4.0 L.I, 1.2 & 3	
Windows 3.0	\$200/day
PCTI 520-6873	
Intro to DOS	\$100
PITMAN 1490 W. Broadway 738-7848	
Using MS/DOS days/eves.	\$180/120
PRECEPT 735 Clark Dr 255-3198	
Intro to IBM \$125; Power of MS-DOS	\$125
PROF. TRAIN. 502-1185 W Georgia, 681-5903.	
Intro to DOS \$175, Windows,	\$175
ROSSI, DEGROOT & ASSOC., 1099-650 W. Georgia, 683-0020.	
Intro to PCs, Intro to DOS, DOS Advanced	
SOUTH GRANVILLE 1652 W 7th 732-8850	
DOS I Call for dates	\$187.50
STM SYSTEMS CORP. 684-7721	
Intro to Computers \$140; DOS Intro	\$175
STRACHAN COMPUTERS LTD. #202-1760 Marine Drive, West Vancouver, B.C., 926-6424	
DOS, Maximizer, Windows	
SURREY (Newton Cont. Ed.) 594-2000	
Intro MS-DOS	\$85
TRITECH COMPUTERS Delta 597-4777	
MS-DOS 10 hrs.	\$99
UBC CONTINUING ED.,	
UBC Microcomputer Lab, 222-5251	
MS-DOS Intro,	\$60
Using Windows 3 w/Mouse,	\$65
VAN. COMM. COLL., 250 W. Pender St., 682-5844	
MS/PC-DOS, Intro., interm.	\$150
VAN. SCHOOL BOARD, Van. 736-7241 / 463-7510.	
VCC CONT. ED. Certificate Prog. 324-5322	
Intro to DOS,	\$160

WORD PRO

ACCYS Suite 203, 535 Thurlow 685-5342	
WordPerfect	\$150
BCIT, 3700 Willingdon, Burnaby, 434-1610	
Microsoft Word	\$101
WordPerfect	\$200
BCIT, Burnaby, 434-1610.	
Microsoft Word	
BCIT Group - Education Development Center, 293-3636	
WordPerfect I 1 day Apr 13, 27	
WordPerfect II 1 day Apr 20, May 4	
WordPerfect III 1 day May 11	
BURNABYSCHOOL BD., 299-4361.	
MS Works,	\$90
WordPerfect 5.0, Level II,	\$90

Our guarantee of the Best Computer Training

DOUBLE YOUR MONEY BACK!

WordPerfect Intro or Advanced

For \$149 we will Train You To Your Satisfaction or we'll give you a \$300 Refund. It's That Simple!
Lunch is served in our Air Conditioned Training Centre

Doppler
COMPUTER TRAINING
875-0261
101 West 5th Ave @ Manitoba St.

CAPILANO COLL. N. Van. 986-1911	
MS-Word L. I	\$140
CARIBOO COLL., Kamloops, 828-1916	
WordPerfect 5.0 Graphics	\$50
Word Proc.	\$160
CIRRUS ENTERPRISES, Victoria, 386-8844.	
DisplayWrite 4 Intro, DisplayWrite 4, Adv.	
MS Word Intro, MS Word Adv.	
WordPerfect 5.0, Intro/Adv/Fast Track	
COASTWAY 2501 Spruce St., Van 736-5039	
WordPerfect 12 hrs, Microsoft Word 12 hrs, Advanced WordPerfect & Word, 9 hrs	
COMPUTER EMPIRE, 879-4162	
WordPerfect, WordStar	\$145
Chinese WP	\$185
COMPUTERLAND, Van. 640-6924	
Display Write 5, Lev. I, Apr 5	
DisplayWrite 5, Lev. 2, Apr 23	
MS Word 5.0 Lev. I, Apr 3, 12, 24, May 3	
MS Word 5.0 Lev. 2, Apr 3, 11, 24	
MS Word 5.0 Lev. 3, Apr 15	
MS Word for Windows Lev. I, Apr 2, Apr 17 & 18	
MS Word for Windows Lev. II, May 3	
WordPerfect 5.1, Lev. I, Apr 2, 9, 16, May 2	
WordPerfect 5.1, Lev. I, Apr 8 & 9, 15 & 16, 29 & 30	
WordPerfect 5.1 Lev. II, Apr. 11, 22, May 2	
WordPerfect 5.1 Lev. III, Apr. 26	
COMPUTERLAND, Vict. 1-800-667-1199	
WordPerfect 5.1 Lev. I Apr 2, 18, 10 & 11	
WordPerfect 5.1 Lev. II Apr 12, 22	
WordPerfect 5.1 Lev. III (1 day), Apr 26	
COMPUTER STN 2130 Burrard 732-8621	
Intro to WordPerfect,	\$180
Intermed. WordPerfect,	\$180
CORP. PUB., 1500-701 W. Georgia St., 687-1140.	
Word for Windows, L.I, L.II call for dates. \$195	
COQUITLAM CONT. EDUC., 936-4261	
Word, Multimate, WordPerfect	\$95
DAC COMP. TRAINING, 682-2627	
DisplayWrite 4 & WordPerfect	
DELTA SCHOOL DISTRICT, Delta 943-0293.	
WordPerfect 5.1 - 10 hours	\$85
WordPerfect 5.1/5.1 - 6 hours	\$65
Enable - 10 hours	\$89
MS Works - 10 hours	\$85
Multimate Advantage - 15 hrs.	\$105
MS Works - 10 hours	\$85
dBase IV+ - 10 hours	\$88
DOPPLER 101 W. 5th, Van 875-0261	
WordPerfect 5, Word	\$149
DOUGLAS COLLEGE, N. West, 527-5472	
WP with WordPerfect 5.0, Beg.	
Wed. eve. Mar. 6-Apr. 24.	\$150
DRAKE #601-889 West Pender 669-8789	
MS Word 5.0 L.I Apr 12	
MS Word for Windows L.I Apr 16	
WordPerfect 4.2 UNIX L.I Apr 25	
WordPerfect 5.0/5.1 L.I Apr 11, 13, 22	
WordPerfect 5.0 L.II Apr 9	
WordPerfect 5.1 L.II Apr 5, 19	
WordPerfect 5.1 L.III Apr 8	
FRASER VALLEY COLL., Abbotsford, B.C. 853-7441.	
Intro. WordPerfect	
GUILDFORD CONT. ED., Surrey, 589-2221.	
WordPerfect 5.1 Lev. 1, \$97; Lev. 2, \$97	
JUMP SYSTEMS #450-650 W. 41st, Vancouver 263-5867	
WordPerfect 5.0 and 5.1, Microsoft Word 5	
KITSILANO NEIGHBOURHOOD HOUSE, 2325 W. 7th, 736-3588	
Intro to MS Word 5	\$120
KWANTLEN CONT ED/TLD LABS, 599-2501	
LANGLEY COLLEGE, Langley 530-8411	
Word Proc.-Automated Office 120 hrs	\$330
LANGLEY CONT. ED. 533-4227.	
WordPerfect, Level I, 2,	\$85
Word Proc. Diploma Adaptive Computer Training for Disabled	
Upgrading to WordPerfect 5	\$40
Microsoft Word 5.0	\$105
WordPerfect	\$85
McKAY TECHNICAL INSTITUTE, 2151 Burrard, 736-7221	
Word Perfect 5.1, 20 hrs.	\$250
MICROAGE 3609 W 16th 222-1010	
WordPerfect Lev. 1, 2; Word V. 4.5,	\$175
MS-Word 5 Lev.1	
NORTH SHORE CONT. ED.: 986-8888	
PBSC 900-885 W. Georgia 682-5615	
Word for Windows, Word, WordPerfect	\$200
PITMAN 1490 W. Broadway 738-7848.	
Word Perfect 5.0 and 5.1, Days/eves. \$120.00	
24 hours/30 hours \$275/\$299	
PRECEPT 735 Clark 255-3198	
Word Perfect 5.0 & 5.1 days/eves.	\$180/120
PROF. TRAIN. 502-1185 W Georgia 681-5903	
WordPerfect, MS Word, Multimate	
ROSSI, DEGROOT & ASSOC., 1099-650 W. Georgia, 683-0020.	
WordPerfect Lev. I, II & Graphics, Multimate Lev. I&II	
Microsoft Word 5.0, Displaywrite 4	

Our guarantee of the Best Computer Training

DOUBLE YOUR MONEY BACK!

DOS Complete Introduction to PC Computers

For \$149 we will Train You To Your Satisfaction or we'll give you a \$300 Refund. It's That Simple!
Lunch is served in our Air Conditioned Training Centre

Doppler
COMPUTER TRAINING
875-0261
101 West 5th Ave @ Manitoba St.

STM SYSTEMS CORP. 684-7721	
Microsoft Word, WordPerfect	\$175
SOUTH GRANVILLE, 1652 West 7th 732-8850	
Word Perfect 5.1	\$108
STRACHAN COMPUTERS LTD. #202-1760 Marine Drive, West Van., 926-6424	
WordPerfect 5.0, Intro, Adv.	
UBC CONT. ED., UBC Microcomputer Lab, 222-5251	
MS-Word 5: Intermed. Skills	\$195
WordPerfect 5.1: Lev. 2,	\$195
VAN. SCHOOL BOARD 736-7241	
MS-Word 5.0 (IBM)	\$90
Multimate 4.0 Lev. II	\$90
WordPerfect 5.1 Intro,	\$90
VAN. COMM. COLL., 250 W. Pender St., Van. 682-5844. (Call for dates)	
WordPerfect Intro. & Fast Track, Intermed.	\$150
WORDROBE, THE, 270-1700	
WordPerfect, MS Word, DisplayWrite	
VCC CONT. ED. Certificate Prog. 324-5322	
Intermed. MS Word,	\$160
Adv. MS Word,	\$160
Intro to Word for Windows,	\$160
WordPerfect for Power Users -	

UNIX

DG CONSULTING, Van., 669-2618, fax 321-3411	
Xenix (Intro), Sys Adm	
DRAKE #601-889 West Pender 669-8789	
UNIX: Overview, Intro.; Syst. Admin.	
JUMP SYSTEMS #450-650 W. 41st, 263-5867	
AT&T UNIX, SCO XENIX	
PLATON CONSULT., Burnaby, 420-8831.	
Unix/AIX: Micros to Mainframes, Unix/AIX: Concepts & Fund., Unix/Xenix	
TRAINIX 926-8649 George Pajari	
SCO Xenix Sys Adm.,	\$1295
SCO Unix Sys Adm.,	\$1295
ROSSI, DEGROOT & ASSOC. 1099-650 W. Georgia 683-0021. Systems Management	

USER GROUPS

Amiga User Group (PaNorAmA), BCIT, Rm 129-1A. Gen. Meeting 2nd Wed 7:30; Programmers 4th Wed 7:30. Bill Wagstaff, 597-1746.	
Apple/ABCCS Meetings location: Burnaby Lake Clubhouse, Burnaby Sports Centre, Sprout St. & Sperling Ave.	
Apples B.C. Computer Society. Computer User Group for all Apple users, call 275-4983 information line; for membership info: Kiyo Masuda, 437-9935.	
Architect User Group (Macintosh). Call Glen Schiller or Kai Gill, Byte Computers, 738-2181.	
Astute—Atari ST. Meets 1st Tues., 7:30 Hastings Comm. Ctr. Dennis 420-8710.	
ATARI USERS! Vantari, P.O. Box 3614 Main Post Office, Van., B.C., V6B3Y6. Bill Sutherland 988-1450, Don Hatch 433-8055. Meets 2nd Wed., 7:30, Hastings Comm. Ctr., 3096 E. Hastings.	
Beaver Valley Commodore Club, 1st Tues., Montrose School Library. Call John Vink 367-6426.	
B.C. Regional Users Group Society of Hewlett-Packard Users.	
B.C. Unix Users Group Dinner Meetings. 681-4473.	
Chilliwack Commodore Computer Club (C.C.C.C.) - 976, Supporting Commodore Amiga, P.O. Box 413, Sardis, B.C. V2R 1A7.	
Data Processing Management Association (DPMA). Dinner meetings 4th Tues. every month, Stanley Park Pavilion. Call Frances Dickson 660-8668 to register or Gail Nichols 660-9533 for information.	
DESKTOP PUBLISHING USER GROUP — bi-monthly meetings. For information, call Karole Doner, 929-4916.	
FORTH-BC meets 7:30, 1st Thurs/month, Rm 1A-324, BCIT main bldg.	
Discussions, demonstrations and information for programming/applying FORTH (hardware and software).	
Greater Victoria Personal Computer Users' Assoc., PO Box 5309, Station B, Victoria V8R 6S4. General meeting last Wed. Also, special interest group meetings 382-3934.	
Independent Computer Consultants Association, Box 820, Station A, Van., B.C. 682-2747. Fax 925-1336.	
Kaypro User Group/Vancouver Portable Computer Club, 3rd Mon., at Kwantlen College Richmond (DOS & CP/M) 271-1519.	
Laboratory PC User Group, Rm 2J38, BC Children's Hospital, Vancouver. 7:00 pm, every 2nd Wed. - \$10/year 737-1305.	
Macintosh Owners - ABCCS contact: John Miller 433-1795.	
MacWest Computer Society, 2 monthly meetings for members, plus PD copy session. General Meetings - 2nd Wed., 7:30 pm.	
MacWest New User Meeting - 3rd Wed., 8 pm, Guildford Pub. Lib., Surrey. PD Copy sessions & meet Ridge Computer User Group, 2nd Tues. of every month, M.R. Sr. Secondary 7:30, J. Brohman 463-9318.	

NEC APC Users Group, Call Lee 980-5825.
NewViews User Group, 322-6198, POCO, 1379 Laurier, Hyele Creek Centre.
NeXT Users Group, 275-5902 Lawrence Clark - last Wed. of every month
ORACLE Users Group, 1055 W. Hastings 222-1047
Lawrence Clark - every 3rd Wed. of each alt. month
Pacific Information Exchange, P.O. Box 67366, Station O, Vancouver, V5W 3T1.
Port Coq. Computer Club—Commodore, Amiga & IBM, 1st & 3rd Tues
7:30, Rm. 104, George Peakes Jr. Sec. School, 1390 Laurier Ave., Port Coquitlam, Mike Evans 942-4286.
Smart User Group, Brian Wiebe 588-8065.
Society for Technical Communication. Call 683-2655 for info.
Software B.C., #400-1190 Melville St., Van., B.C. 684-7432.
Meetings at Benedict's Restaurant, 1177 W Pender St., Vancouver, 3rd Thurs, 5:30.
T.I. 99/4A Computer B.C. 99er Users Group, Every Thurs 7-10 pm, Cameron Rec Ctr., Bby. Ron: 522-2598. 1st Thurs. Tutorials, 2nd Thurs. General, 3rd Thurs. Tutorials, 4th Thurs. Copying Prog.
TRACE (Richmond Atari Club), Thompson Comm. Ctr., 272-5789 1st & 3rd Mon. 7:30-9:30.
Vancouver ACM/SIGGRAPH Computer Graphics, 1st Wed. Call Susan Mair, 228-3938.
Vancouver AutoCAD Users Society, BCIT, Bldg. 3A, Room 110, 1st Wed of the month, 7:30 pm. Contact Dave Toews, 530-6426 for info.

NETWARE USERS GROUP

April 1, 1991

May 6, 1991

STANLEY PARK PAVILION

Call 683-VNUG

for Information & Confirmation

GUESTS: Bring this coupon to get Member Discount

Vancouver Clipper Developers Assoc., 1st Tues., 7 pm, 800-1190 Hornby St., Van, 685-6645.
Vancouver Color Computer Club, 3rd Tuesday, Discovery Park, 3700 Gilmore Way, Burnaby, Contacts: Jordan Dobrikin 420-6081; Steven La Favor 467-0923.
Vancouver dBase Users Group, 2nd Wed., 7 pm, 800-1190 Hornby St. Van, 685-6645.
Vancouver Electronic Publ. Assoc., 1115 W. 11th, Vancouver, V6H 1K4 (mail). For info, call 733-9080 (leave msg).
Vancouver Netware Users Group, Les Lebbrant 275-8684. Meets 1st Mon.
Vancouver Portable Computer Club (VPCC), AMO 17, Jay Siegel, 4251 Lancelot Dr, Richmond, B.C., V7C 4S4, 271-1519.
Vancouver PC User Society, Science World Auditorium, 6:30 pm, 2nd Thurs. \$30/yr. 734-0060.
Van. Sinclair Users Group, Timex-Sinclair, 2nd Fri. Killarney Comm. Ctr., Gerd Breunung 931-5509.
Vantari, Box 3614 Main Post Office, Van., BC V6B 3Y6. Judy Harscus 873-1941; Don Hatch 433-8055; 2nd Wed., Hastings Comm. Ctr., 3096 E. Hastings.
VersaCAD User Group, 2nd Tues. Call CADD Solutions Inc., 681-4686 for info.
Wang System Users, 736-8841 ext 227, J.-P. Doirion.

Can't find it here? For information on courses and programs throughout B.C. and elsewhere (both online and off), contact Discovery Training Network, 300-475 West Georgia St., Vancouver V6B 4M9, 604/660-2303, or 1-800/663-1383 (toll-free in B.C.), or plug into their database.

PRIVATE INSTRUCTION

• Intro to DOS	• PageMaker	• Excel
• Intro to Windows 3.0	• 4.0	• Lotus 1 2 3
• Word for Windows	• Corel Draw	• Harvard
• Wordperfect 5.0	• Freehand	• Graphics

Book
Your First Session Now
324-5834

Consultations on: Upgrades, Installations, Modems, HP & Postscript Printers

GENERIC CAD

Authorized Training Centre

for information, call DESY Computer Aided Design, Hank Desautour: 591-8850.
13484 72nd Ave., Surrey, B.C. V3W 2N8

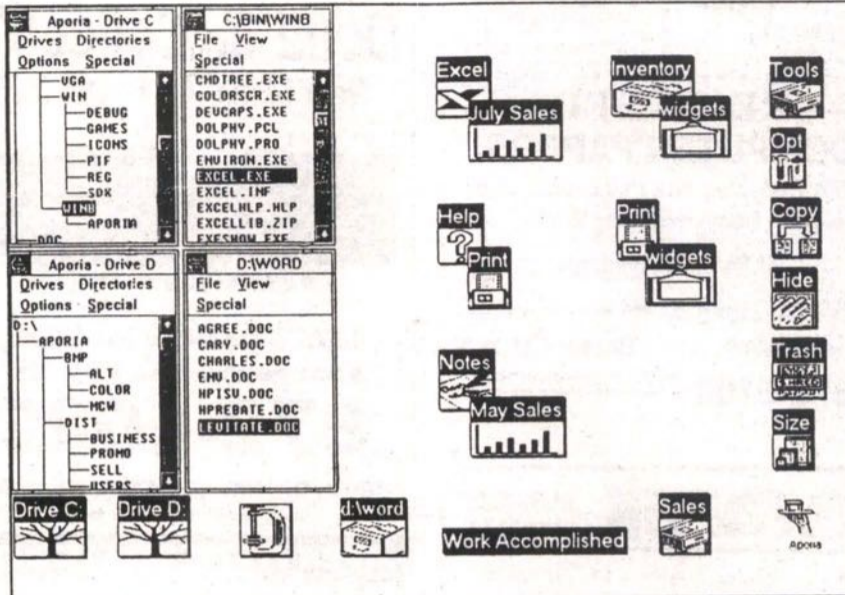
BS & MS IN COMP SCI

The American Institute for Computer Sciences offers an in-depth correspondence program to earn your Bachelor of Science & Master of Science in Computer Sciences at home. BS subjects covered are: MS/DOS, BASIC, PASCAL, C, Data File Proc., Data Struct. & Operating systems. Call Mr. Thomas American Institute for Computer Science 300, 840 6th Ave. S.W. Calgary, AB, T2P3E5 Tel: (403) 264-3217 Fax: (265) 3783.

THE SHAREWARE SHELF

Aporia

takes command of Win 3



Aporia may best be described as "the command centre that Microsoft meant Windows to have," but didn't write.

Aporia's graphical interface provides a flexible environment loaded with powerful tools. Customize the display to suit your personal or business requirements, and the power and simplicity of Aporia become evident.

Aporia will engage whole sets of programs automatically upon start-up, and file management is as simple as pointing with your mouse. Aporia may simply be the best reason for using Windows.

Here's what Aporia can do for you: display multiple directory trees of all your drives at once; copy and move directory trees or files by dragging them with a mouse; compress (archive) files by dragging them onto the compression icon; load a spreadsheet by dropping it onto the Excel icon; get help on printing files by dropping the print icon onto the help icon.

Aporia can also print a file by drop-

ping it onto the print icon; delete, recover, copy, hide tools simply by dragging files or icons; define "file sets" to display all files for a special project with one mouse click, even if they are spread over multiple directories; display, hide or run "groups" of files; create and access online help or notes for any file or program; make Windows "batch" files and even create your own icons or "capture" icons from other applications.

Aporia provides a consistent interface across all versions of Windows and has a built-in screen saver. Aporia can access information on Windows' mode, memory use and free disk space. Aporia's "Trash" tool is reminiscent of the Macintosh, and as with other Aporia tools, the icons can be text-only, image-only or both. All tools icons can be "sized" to suit, and fonts can be changed.

Aporia is a fabulous shareware program written by New Tools, NYC.

Gord Simmonds is the owner of SIM_COM Services (854-DISK), a company specializing in shareware products.

HOW TO START & OPERATE A HOME-BASED WORD PROCESSING OR DESKTOP PUBLISHING BUSINESS

Part-time • Full-time • Minimal Investment

This NEW manual shows you step-by-step how to:

- Advertise
- Obtain clients
- Set up prices
- Keep your books
- Develop a business identity
- Select right software
- Keep your clients, etc.

NEW!



ORDER NOW!

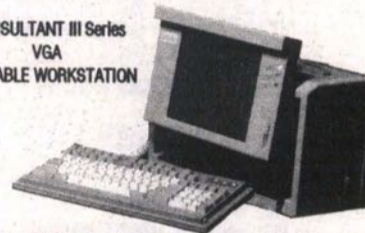
For immediate delivery, send cheque or money order for \$13.50 (includes shipping & handling) or write for more details to:

J&K PUBLISHING CO.

P.O. Box 15390, Dept "CP1" Vancouver, B.C. V6B 5B2

TRANSDATA PORTABLE PC

CONSULTANT III Series
VGA
PORTABLE WORKSTATION



Incredible Power and Value

- 10" VGA gas plasma display
- 5 slots, 3 drive bays, 2 x 5 1/4", 3 1/2"
- 101 keyboard, detachable
- 20 lbs, 16.1"x6.3"x8.5"

ECL MICROSERV (604) 261-1124

***** Special \$7000 *****

80486 33MHz, 64K Cache, 4MB
Dual Floppies, 210MB Hard Disk

LEARN COMPUTER SOFTWARE BY VIDEO PROFESSOR TAPES

You **WATCH & LEARN** at your own speed **STOP & PRACTICE** any time you want to **REVIEW A TOPIC** if you don't understand **1 PICTURE is worth 1000 WORDS.**

- DOS • OS/2 • Windows 3.0 • dBase
- Spreadsheet • Word Processing
- Desktop Publishing • Hardware

IBM • MACINTOSH • APPLE

Attention: Government Agencies

Large & Small Companies and individuals turn to on-site training rather than sending your employees to off-site.

Compare it with other course prices.
100% SATISFACTION GUARANTEED
Your Money Refund in 30 days

Computer Plus
6652 No. 3 Road (Time Square)
Richmond, B.C. V6Y 2C2
Tel: (604) 278-8985 Fax: (604) 278-5099
MASAKO HOLDINGS LTD.
Phone or fax (604) 275-1565

Remember when computers were going to change the world?

Environmental disaster, famine, child abuse, homelessness.

The list of problems facing us is daunting. You can make a difference though. By joining CompuMentor you'll provide volunteer support to exciting, dynamic non-profit groups working to solve human problems. Join us today and help technology keep its promise.

Contact Arne F. Hermann,
682-4149 or mail via MindLink

CompuMentor
of Vancouver 328 W. Hastings St., Vancouver, B.C.

Specialized Computer Bookstore

Free mail order 1991 Computer Book Catalogue is now available.



Unihall Computer Books Co. Ltd.

682 Seymour St., Vancouver, B.C.
(Located downtown across from the Bay)
Tel: (604) 682-7842 1-800-663-0723



TRIAXIS CADD CONSULTANTS
AUTOCAD - MICROSTATION

Drafting & Plotting Services
Custom Menus & Symbol Libraries
Autolisp & UCM Programming
3D Modelling / Shading / Slide Shows
System / Software Setup & Training

6992 Frederick, Burnaby, B.C. (604) 436-2580

WE REPAIR monitors, power supply, main boards for IBM & compatibles.

Dealer discount available.

- SOFTWARE INSTALLATION
- CUSTOMIZED PROGRAMMING

RPC COMPUTER ELECTRONICS

1796 Renfrew St. (2nd Ave.)
Vancouver, B.C. V5M 3H8

Tel: 255-1192 Fax: 255-1192

Software B.C.

LET'S PROFIT TOGETHER

We want you to profit from membership in our organization

BENEFITS

- Keep in touch with Canada's largest software industry
- Learn from professionals in the field at monthly meetings
- Expand your audience and contacts

WHO JOINS

- Software developers
- Large multi-purpose firms
- Service companies
- Any group interested in contributing to the software industry.

How to Join:

Write or Call Software B.C. at:
500 - 1190 Melville Street, Vancouver, B.C. V6E 3W1 (604) 682-2034

UPCOMING MEETINGS

Benedict's Restaurant
1177 W. Pender
Doors open at 5:30 p.m.,
Buffet dinner at 6:30 p.m.
Guest speaker at 7:00 p.m.

\$25 members; \$40 non-members

APRIL 18
Object-Oriented Programming
Ken Urquhart

MAY 16
Two New Software
Development Opportunities
Doug Kind / James Stephenson
682-2034



BUSINESS OPPORTUNITIES

Begin your own business for \$600/mo. Downtown office, desk, 286 computer, HP LaserJet II, programs, etc. Alpha-Merit 688-5582.

HARDWARE

1 GIGABYTE (1,000 MB) Hard drive, brand new, Incl. SCSI controller card, access time 16ms, with boxes \$2400 obo 682-7200.

AMIGA SYSTEM FOR SALE. All in good condition. Includes Amiga 2000, 40 Meg HD, A2630 68030 Card w/ 4 Meg Ram Card, 1011 3.5" drive, AEHD 3.5" drive (1.52 Meg). 100's blank disks available. Total system price \$4200. Some things can be sold separately. Call/Fax Robert at (604) 520-1543

COMPAQ 386 33Mhz 84 Meg Hard drive 2 Meg Ram, brand new with 1 year warranty, inc NEC 3D Monitor \$5500 obo 682-7200.

IMAGEWRITER LQ like new, bargain \$790 OBO. 926-9340

MAI BASIC 4 Mod. 710 (13XX): Lighting CPU, 3x75 Meg, V.D.T's, Memory, Printer controllers, Cartridge Tape Drive. Call Jim 733-1174.

NEC POWERMATE PORTABLE 286-10 Mhz, 20 meg HD, 3.5" disk drive, Compaq portable III style computer with full-size tactile keyboard, 10" EGA screen and carry case incl. This machine is ideal for anyone who lives in a small home/apartment and wants a full featured PC which is also portable. \$1,750 OBO. Satisfaction Guaranteed! Call Andrew 876-0988.

ZENITH SUPERSPORT 286 LAPTOP. 1 Mb Ram 1.44 Mb 3.5" floppy drive 40Mb HD 12"x12" in size, weight 10 lbs, 2400 baud modem, DOS 3.3, manuals & carrying case \$2500 obo. Call 685-5232 or 731-5232.

NOTEWORTHY MUSIC

Richmond Centre Mall (near Sears)

270-3622

**M.I.D.I. Interfaces
& Music Software for PC's**

CMS HD-II INTERFACE
Offers 2 MIDI in's & 2 out's
for up to 32 channel capability!
ONLY \$149.00!

CAREWALK SOFTWARE -
The largest selling sequencer for IBM.
ONLY \$159

INTRODUCTORY SPECIAL PACKAGE
BOTH \$288!

COMPUTER & SOFTWARE

LOWEST PRICES ON MACINTOSH, IBM, HP, TOSHIBA, NEC, COMPATIBLES, QMS, HOUSTON INSTRUMENTS, ROLAND, CD-ROMS, HARD DRIVES, SCANNERS, NETWORKING DEVICES.

Call UCC, 13738 Artesia Blvd 150,
Cerritos, CA. 90701, USA.

Tel: 1-213-921-8900 Fax: 213-802-0831.

Worldwide sales. All products carry manufacturer's warranty.

**Image
Scanning**

8bit/24bit Color & Grayscale scanning.
Displayable formats include VGA & Super VGA.
File conversions to TIFF, EPS, GIF, PCX, TGA,
etc. \$12 per image (volume discounts)

736-9624

**COMPUTER MOBILE
REPAIR**

Specializing in IBM Compatibles
7 Days a week including evenings
on-site service for
home & small business



657-0811

SERVICES

COMPUTER CONSULTANTS with expertise in any computer software, work on a freelance basis 324-5834.

EDITING/PROOFREADING, help with your writing, 10 years' experience. "Accuracy, Brevity, Clarity." Neall Calvert, B.A., 222-8276.

FRIENDLY COMPUTER ASSISTANTS. Selection, setup, Instr. Word Perfect, Lotus, Bedford. Custom Programming. Call Mark 420-4610.

HP 150; computer support, swap or buy software also, Chris 604-325-6959.

NEED COMPUTER HELP? Organize your programs & files, make your system easy to use. Instruction. FREE onsite inspection and estimate. Fast professional service, affordable rates, guaranteed. Call Don Oliver at 936-7321.

Do you want to donate your XT IBM compatible computer/printer to seniors' center to enable seniors to learn/practise computer uses? Please contact Bob Cooper 469-1823.

**Details Make
The Difference**

and YOU know what they are

Talk with us about

YOUR

software needs
because we'll build
a system that

YOU WANT

BCD SOFTWARE DEVELOPERS
(604) 872-4980

**COMPUTER
TROUBLES?**

APPLE & IBM COMPATIBLE SPECIALISTS
FACTORY TRAINED TECHNICIANS

WE DO MORE THAN JUST HARDWARE REPAIR.
We are a full service organization involved in
all facets of the computer industry since 1977.

- WE ARE AFFORDABLE
- WE ARE FAST
- WE ARE EXPERTS
- WE DO IT RIGHT

"YOUR PLACE OR OURS"

MINITRONICS

HI-TECH SERVICES

1986 KINGSWAY
AT VICTORIA DR., VANCOUVER

872-5814



- Consulting / Programmer
- Generic CAD Sales
- Training
- Design & Drafting Service
- CAD Equipment Sales
- Product Development

DEST: COMPUTER AIDED DESIGN
13484 72nd Ave., Surrey, B.C. 591-6650

**ANY COMPUTER
REPAIRED**

\$25 PLUS PARTS

Pottery Computer & Electronics

985-1626

**TOP NOTCH
PROGRAMMER**

Technical Excellence, Friendly Service
Small-medium businesses

dBase, Foxpro, C

Training

Call Dave Nelles

688-4142

RECYCLED**COMPUTER PAPERS**

100% Recycled Fiber Unbleached or
50% Recycled Fiber White

All Formats Available.

Wholesale Inquiries

Welcome

PAPER CHOICE

— recycled paper supply —

873-5700



**BUSINESS
WORLD LTD.**

- Computer Systems Maintenance
done by experienced technician
- Laser Printer Service
- Free initial inspection
- Reasonable rates

CALL ANDREW SMITH 520-3770

PC SUPPORT
Pre-purchase & Brokerage
Installation & Consultation
Tutoring & Subcontracting
Hard & Soft Maintenance
ROSSE LAPPER
25 yrs DOS EXPERIENCE
(604) 876-7924
NEGOTIABLE RATES

COMPUTER SUPPORT DIVERSIFIED

Experienced Freelance Team Available

- Bookkeeping • Accounting • Database
- Computer Management • Networking
- Software Installation • Training • Support
- Desktop Publishing • Word Processing

Our Premises or Yours — Reasonable Rates

PHONE / FAX — 271-4276

NEED EXTRA INCOME?

HOW TO EARN MONEY WITH
YOUR HOME COMPUTER.

Learn over 100 ways to financial freedom with
your home computer. Free details. Write:

**HOME BASED BUSINESS
EDUCATION CENTRE**

246-8155 Park Road, Richmond, B.C. V6Y 3C9
or phone 279-9264

**JAPANESE LANGUAGE
WORDPROCESSING**

for IBM and Mac. We sell and service Japanese Language
hardware, software IBM EW Plus Ver. 2, for window JALM
(Bikan) Mac EG word, Byword, Kanji PageMaker V.2
Dedicated Japanese wordprocessor, NEC PC-9801 hardware
& software. We repair Japanese Language wordprocessor,
instruction of Japanese language wordprocessing.

KANJI DATA SYSTEMS

7338 Curtis St., Burnaby, B.C. V5A 1K4
Tel 291-0247, Fax 291-7049
BBS 291-2254 (In Japanese Language)

SOFTWARE

AMIGA SOFTWARE FOR SALE. All have boxes and
manuals. Games: Populous, Power Monger, Breach I &
II, Supremacy, Imperium, The Pawn = \$150, ProDraw =
\$100, XCad = \$150, M2Sprint Modula-2 = \$110, Amiga
Vision = \$60, Cando = \$80, Various books = \$200. Avail-
able together, or buy each separately. Call/Fax Robert at
(604) 520-1543.

QUATTRO PRO VERSION 1.01. Mint condition, all doc
and disks \$180 obo. Call Erik 224-5298 Evenings.

Doug & Colleen's
Neat Ideas Marketing Inc.

MS-DOS
SHAREWARE

1279 Kingsway (at Clark)
Vancouver, B.C. V5V 3E2

872-1022

BRING IN THIS AD AND SAVE \$2.00

On Purchases of \$10.00 or More

OVER FIFTY NEW TITLES!

WINDOWS SHAREWARE

\$6/disk

Games, screen savers, utilities,
icons, bitmaps & more!

ComputerSmiths

3726 W. Broadway,
Vancouver, B.C. V6R 2C1
224-5242

FREE SHAREWARE 5-MEGS

with 25MB purchase IBM & Compatible

	Rentals
200MB (240MB Total)	\$389 \$200
50MB (60MB Total)	\$99 \$50
25MB (30MB Total)	\$59 \$25

Games, Education, Business Packages \$49 ea. \$25

Disk Catalogue w/1MB Utilities \$7

CHK/MO/COD to: Computerized Graphics
19709-41A, Langley, B.C. Canada V3A 2Z5
(604) 530-3910 COD add \$5

BEST IBM SHAREWARE

Low as \$2.50 per Disk
Hundreds of Programs

— FREE CATALOG —

(604) 922-2743

Dover Micro P.O.Box 91789
West Vancouver, BC V7V4S1

**SHAREWARE
SPECIALISTS**

Games, Graphics, Utilities, Windows,
Music & Sound, Business, EGA/VGA,
Adult and more for PC Compatibles.

Only \$3.95 per 5.25" disk. **NO GST**

SPECIAL OFFER!
Send \$2.00 for a coupon, a demo disk and
our complete catalog. Choose from SUPER
GAMES or MEGA UTILITIES.

\$2.00 is enclosed. Send me:

☐ Super Games ☐ Mega Utilities

Name _____

Address _____

City/Prov _____

Postal Code _____

To: Nexiss Distributing, Box 590, #103-6411
Nelson Ave., Burnaby, B.C., V5H 4J9

WANTED

WANTED: Novell network technician P/T 682-1466.

NETWORKING \$\$\$ & SENSE

VANCOUVER'S #1 NETWORKING COMPANY PROVIDES BEST PRICE, QUALITY, SUPPORT & PERFORMANCE

OUR NETWORK CLIENTS INCLUDE GOVERNMENTS, SCHOOLS, CORPORATIONS AND BUSINESSES.

WE HAVE POINT-OF-SALE PACKAGES FOR YOUR GIFT SHOP, VIDEO STORE, RETAIL GROCERY, GARAGE, CLOTHING OR JEWELLERY STORE, ETC.



3Com

NOVELL DISKLESS 3 USER SYSTEM \$4728



286 Novell



286 12MHz



286 12MHz



No. of Workstations	Arcnet Topology Diskless Boot	Ethernet Topology Diskless Boot	No. of Workstations	Arcnet Topology Diskless Boot	Ethernet Topology Diskless Boot
3	\$4728	\$5053	23	\$30164	\$32092
4	5795	6242	24	31227	33281
5	7862	8178	25	32318	34470
6	8919	9367	26	33380	35658
7	9996	10559	27	34497	36848
8	11067	11754	28	35568	38037
9	14539	15421	29	36640	39226
10	15648	16605	30	37702	40415
11	16710	17814	31	38773	41602
12	17828	18993	32	39835	42793
13	18909	20182	33	40953	43982
14	20017	21381	34	42072	45171
15	21079	22570	35	43143	46359
16	22206	23760	36	44205	47548
17	23268	24957	37	45323	48730
18	24395	26155	38	46394	49923
19	25458	27336	39	47466	51115
20	26567	28525	40	48574	52304
21	27654	30037	41	49645	53491
22	29066	30904	42	50716	54682

WE ARE DEDICATED TO NETWORK SOLUTIONS

150MB 17ms ESDI Harddisk upgrade on File Server	\$950
320MB 16ms ESDI Harddisk upgrade on File Server	\$1890
620MB 15ms ESDI Harddisk upgrade on File Server	\$2590
MT-386 25MHz with 4MB RAM upgrade on File Server	\$850
Remote File Server / Workstation Bridging	\$1500 plus modems
IBM Mainframe 3272 5 host session SNA Gateway Connection	\$3950
IBM Mainframe 3270 40 host session SNA Gateway Connection	\$7550

Networking Software:

dBase IV 1st User	\$645	ACCPAC PLUS	
each add. 5 users	\$848	G/L	\$638
WordPerfect 1st User	\$350	A/R	\$638
each add. user	\$220	A/P	\$638
MS Word 1st User	\$275	I/C	\$638
each add. user	\$200	J/C	\$710
Lotus 1-2-3 1st User	\$620	O/E	\$638
each add. user	\$310	Payroll	\$856
		LanPak	\$295

FILE SERVER CONFIGURATION: Multiterm MT286-16MHz O.W.S., 2MB, 1.2MB Floppy, 80MB 19ms Harddisk, Monochrome Display, Enhanced Keyboard, 2 Parallel & 1 Serial Ports, Arcnet Card. Novell Network Operating System, File Servers under 8 users are installed as NON-DEDICATED file servers.

WORK STATION CONFIGURATION: Multiterm MT286-12MHz O.W.S., 1MB (Max 4MB on board), Monochrome Display, Arcnet LAN card, 1 Parallel, Enhanced Keyboard, diskless, 20' cable MS DOS 4.01 and GW BASIC.

MULTITERM UNIX 5 USER SYSTEM

- 80386DX 16/25MHz O.W.S.
- 64K Cache RAM
- 4MB RAM 1.2 MB Floppy Drive
- 101 Click Keyboard
- 14" Monochrome Monitor
- 155MB 17ms Voice Coil Hard Disk
- Viper 150MB Tape Backup
- 4 Serial (tty) Ports
- 4 Wyse 60 Terminals
- SCO UNIX System V 3.2 O.S.

System Price: \$9620

10 User w/ 8MB RAM: \$15220

UNIX MS Word: \$499

UNIX Foxbase Plus: \$999

UNIX Professional: \$799

ONE YEAR PARTS THREE YEARS LABOUR ON UNIX SYSTEMS

We also network your Novell, Xenix, Unix servers through TCP/IP so that the work-stations can access server(s) of their choice, or, transfer files between servers, or access all the servers at the same time to perform multi-tasking and hot-key to different sessions with i80386 power. The user can access Oracle database located in the UNIX server(s) from the Novell Workstation without leaving the DOS applications. The user can also cross access between XENIX and UNIX without logging out.

Prices Subject To Change Without Notice.

COROLLARY

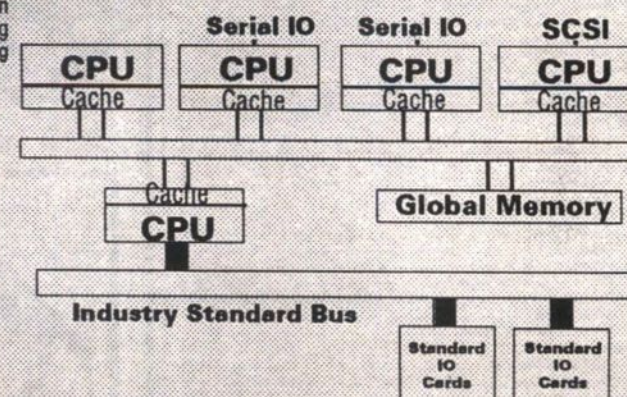
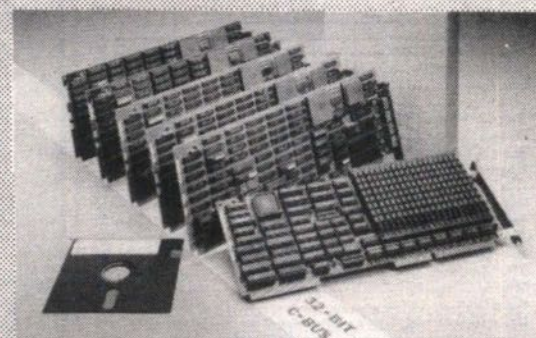
486/smp

Symmetric, Compatible, Multiprocessor System

The world's first i486 symmetric multi-processor designed by Corollary, USA, supports up to 256 users. It grows with your business by just adding more processors. DPE Computers has integrated Corollary technology into the high performance MT-486MP. You can find out more about this exciting powerhouse by visiting us or calling 604-683-7587 (ext. 110).

MULTITERM MT486MP

- 1 to 10 i486
- 64MB ECC memory
- Up to 3.6GB internal hard disk
- Supports up to 256 users
- High performance i486 SCSI
- High performance i486 serial I/O
- 32bit C-Bus
- 256K cache memory for each CPU
- Plug in standard PC I/O cards
- Runs off-the-shelf XENIX/UNIX



CMS Computers Plus Inc.
#209 8th Ave. S.W.
Calgary, Alberta T2P 0R2
Tel: 403-237-0870 Fax: 403-237-0871

DPE COMPUTERS (Since 1983)

775 Homer St., Vancouver, B.C. V6B 2W1
Tel: 604-683-7587 Fax: 604-683-9210
Multiterm is a registered trademark of DPE Electronics Canada Ltd.

ADVERTISERS INDEX

Accounting	
Alsoft Systems	75
Compwork Pacific	32
Healey, Seignour & Co.	6
PowerSoft Systems	19
TKL Management	45
Books	
Book Warehouse	2
Cody Books	60
J & K Publishing Co.	75
Super Software	60
Unihall Computer Books	75
CAD	
Triaxis CADD Consultants	76
DEST Computers	76
Cellular Phones	
ACS Advanced Communication	63
Apex Communications	63
Desktop Publication	
AlphaGraphics Printshops	21
Altartext	62
First Image Group	21
Graphic Resource Group	30
Laser's Edge	7
Lazer Set	22
Phoenix Studios	44
Scan Master	10
Vision Presentations	55
Events	
J. B. Marketing	20
Hardware & Software	
3D Micro Systems	41
Advantage Computers	70
AE Electronics	50
Alliance Business Computer	64
Alpha Computer	2
AMI Technologies	45-71
Areté Computers	42
Atari Computers	40
ATIC Computer	49
Atlantic Computer	12
Barr Business	8
BCD Software Developers	76
Bramall Systems	22
Brother International	25
BYTE Computers	34
Campus Computers	35, 78
Canada Portable Computer	62
Cardz Computers	3
CCS Computer	27
Commercial Electronics	28
Compatible Computers	48
Compugage	47
Compumax	15
Computer Empire	6
Computer Exchange	61, 79
Computer Support Diversified	76
ComStar Distributors	30, 46
Comtech Distributors	30
Comtex Micro	24
Datatronix	65
David Neiss / Den Pac	76
Doppler Computer Centre	11, 22, 72, 80
ECL Industries	75
Focusronics Inc.	23
Friendlyware Computers	2, 58
Fujikama	14
Future Shop	12
GXR Systems	36
Help Software	59
High Tech Electronics	65
Impaq Technology	8
Infomax Computers	78
Infospec Systems	17
Intelligent Solutions	66
IQ Computers	58
John Hall	76
Kanji Data	76
KEI Computers	22
Koyan	75
Megatronix	54, 73
Mentek Systems	44
MicroGren Systems	60
Minitronics	54
Morse-Tech	56, 57
Mountainview Dataworks	65
New Tech	45
New Technology	48
Northwest Information	19
Omni Business World	76
Omninet Computer	51
PAL Systems	26
PC Computer	67
Poop Computer	52
Phase I Systems	18
Polytech Communications	35
Progress Systems	52
Q by Javell	9
Roland DG	13
Sector Technologies	58
Software BC	75
Sovo Computer Centre	16
STD Computer	68
Strachan Computers Pal286	33
Super Store	39
Universal Technology	21
Varsity Computers	71
Versatile Computer Products	29
Westcoast Computers	23
WKK Systems	69
Zegna Electronic	63
Music	
Annex Sound	60
Carillon Music	53
Networks	
DPE Electronics	4, 31, 77
Vancouver Network Users Group	72
Online Systems	
Mind Link!	43
Service & Consulting	
Compomentor	75
Computermaths	76
Digitizing	76
Executive I Business Centre	10
Fleetwood Communications	76
RainBow Software	54
Rosae Lapper	76
RPC Computer Electronics	76
Shareware	
Doug & Colleen's	76
Dover Micro Ltd.	76
Gemini Marketing	66
Nexias Distributing	76
Sim Com Shareware	28
Supplies	
Paper Choice	76
"Stan the Ink" Man	22
Superior Laser Supply	7, 58
Vista Laser	10, 19
Training	
Coquitlam Continuing Education	45
CPET Publications	72
Drake Training Centre	72
Office Automation	71
Quartech Systems	72
R.J. Norman	72
Rosal Degroote & Associates	72

Fill Your Basket!

UPGRADE
TO 4MB
\$268

**286
12MHz/40MB
SYSTEM**
with monitor

- 1MB RAM
- 12MHz clock speed
- Expandable to 4MB
- Small footprint case

286 20MHz/40MB system \$877

\$748

**386SX
16MHz/40MB
SYSTEM**
with monitor

- 1MB RAM
- 16MHz clock speed
- Expandable to 4MB
- Mini-Tower case

\$1148

**386
25MHz/40MB
SYSTEM**
with monitor

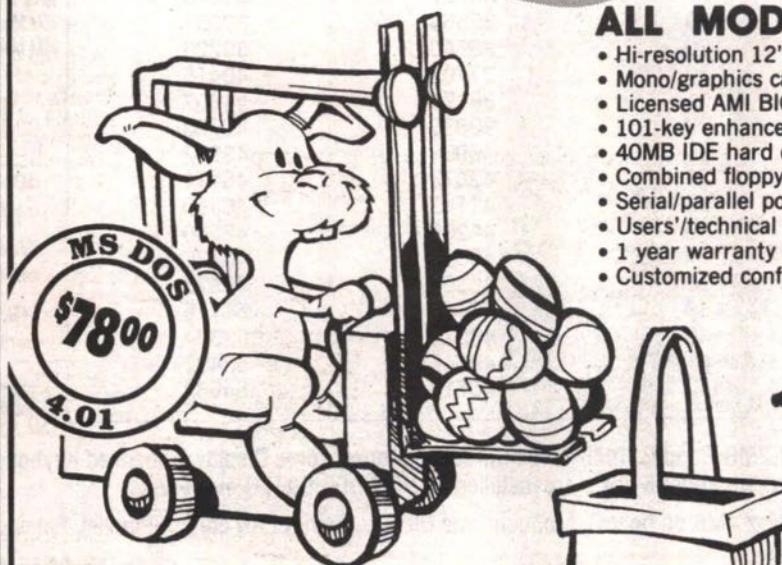
- 1 MB RAM
- 25MHz clock speed
- Expandable to 8MB
- Mini-Tower case

\$1448

**386C
33MHz/40MB
SYSTEM**
with monitor

- 1MB RAM/64K Cache
- 33MHz clock speed
- Expandable to 8MB
- Mini-Tower case

\$1748



Out Looking For
A Good Cellular?

Mitsubishi 99X

\$1188

8000M
\$488

Talkman
\$788

New Fujitsu
Pocket Commander
Just Arrived

CIGARETTE
LIGHTER
ADAPTOR **\$49**

ALL PHONES
3 YR. CANADIAN
WARRANTY

PANASONIC
1123
\$298

UPGRADE
FOR ABOVE
SYSTEMS

VGA Package EL:

- 640*480 resolutions
- OAK VGA (256K, 8-bit)
- Samtron SC-441V VGA colour monitor
- 14" monitor w/tilt & swivel
- 41mm dot pitch

\$240

UPGRADE
FOR ABOVE
SYSTEMS

VGA Package A:

- 1024*768 resolutions
- OAK VGA (512K, 16-bit)
- Samtron SC-431VX VGA colour monitor
- 14" monitor w/tilt & swivel
- 31mm dot pitch

\$368

*All phones must be activated
by Campus & Cantel
*In Fraser Valley some phones
do not activate

PANASONIC 1180
\$188

SERIAL MICE
\$188

COME SEE US AT U.B.C.

**CAMPUS
COMPUTERS**

Out of town call collect

2162 Western Parkway
Vancouver, B.C.

HOURS: Monday to Friday
9:30 a.m. - 5:30 p.m.
Saturday
10:00 a.m. - 4:00 p.m.

FAX 228-8338
228-8080

CANTEL APPROVED
AGENT

7 GREAT REASONS

TO SHOP AT COMPUTER EXCHANGE

- 1 EVERYTHING'S QUALITY** - tested by fanatics. We pre-screen everything we sell for compatibility and reliability. We hate problems even more than you do.
- 2 IN HOUSE & ON-SITE SERVICE** - We have technicians and diagnostic equipment to perform work in-house that other places have to send out. And now, we offer optional on-site service to get you up and running even faster.
- 3 IN BUSINESS SINCE 1985** - We are B.C. owned and operated, and we know how much you hate to see computer companies come and go.

SEE OUR
NETWORK AD
PAGE 29

- 4 FAST DELIVERY** - We can deliver your new system to you in an average of three (3) working days.
- 5 FULL COMPATIBILITY GUARANTEE** - We guarantee that it will be able to run any IBM software without modification or your money back.
- 6 ONE HOUR WALK-IN REPAIR TURNAROUND** - Most repairs take on average one hour. We replace most components so that we can fix them on our time, not yours.
- 7 FREE LOANER SYSTEM** - If we cannot repair your system within two days, we will loan you another system until your system is repaired.

CEX 486 MULTI-USER SYSTEM

- Intel 80486-25 CPU Running @ 25MHz
- Built-in math co-processor
- 8KB internal cache, 128KB external cache memory
- Socket for Weitek 4167 Coprocessor
- 4MB RAM expandable to 16MB
- 135 MB Hard Drive
- 1.2MB TEAC Floppy Drive
- Focus 2001 Enhanced Keyboard
- Full size tower case w/220W p.s.



FOR 80486-33 MHZ SYSTEM ADD 750.00

\$2,999.00

* The computers are not exactly as illustrated

CEX 386 25MHz SYSTEM

- 80386-25 CPU, AMI 386 BIOS
- 1 MByte RAM, 0 Wait States
- 1.2 MByte Floppy Disk Drive
- 85 MB IDE Hard Drive
- Focus 2001 Enhanced keyboard
- 200 Watt Power Supply (CSA Appr.)
- Mini Tower Case



\$1,650.00

SUPER DEALS!

CEX 386 33MHz Cache 64

- 80386-33 CPU, 0 Wait States
- 64 KB Cache RAM
- AMI 386 BIOS
- 1 MByte of RAM
- 135 MB Hard Disk
- 1.2 MByte Floppy Drive
- Enhanced Keyboard
- 1 Serial, 1 Parallel, 1 Game Ports
- 8 Expansion Slots
- Mini Tower Case



\$2,085.00

CEX 386SX-20MHZ

- Intel 80386SX CPU • 20 MHz Clock Speed
- Zero Wait State • AMI BIOS
- 1 MByte RAM
- 1.2 MByte Floppy Disk Drive
- 42 MByte Hard Drive (Fujitsu voice coil, 25ms, 1:1, IDE)
- Enhanced Keyboard
- 1 Serial, 1 Parallel, 1 Game Ports
- 8 Expansion Slots
- 200 Watt Power Supply (CSA Appr.)
- Mini footprint desktop case



\$1,299.00

CEX 386SX-16MHz

- Intel 80386SX CPU • 16 MHz Clock Speed
- 1024K RAM, 42 MB Fujitsu HD, voice coil, 25ms, 1:1, IDE
- 1.2 MB 5.25" or 1.44MB 3.5" Floppy Disk Drive
- 101 key enhanced keyboard
- Mini desktop case, 200 W CSA PS

\$1,149.00

CEX 286 16MHz

- Intel 80286 Microprocessor
- 16 MHz Clock Speed • Zero Wait State
- 1024K 100ns RAM • 42 MByte Hard Drive (Fujitsu, 25ms, 1:1HD)
- 1.2 MByte 5.25 TEAC Floppy Drive
- 101 Key Enhanced Keyboard
- Serial (RS232C), Parallel (Centronics) & Game Port (15 Pin)
- Mini Footprint Case • CSA Approved Power Supply

\$825.00

CELLULAR PHONES

(must be activated by Computer Exchange)

8000M	\$549
Talkman	\$799
NEC P200	\$950

ALL MOTOROLA PHONES CARRY 3 YEAR CANADIAN WARRANTY:
WITH FREE LOANER UNIT WHILE IN REPAIR. INSTALLATION CHARGES
ON SOME AIRTIME PACKAGES.

ALL CEX COMPUTER SYSTEMS ARE COVERED BY A ONE YEAR PARTS AND TWO YEAR LABOUR WARRANTY,
ALL PRICES CASH & CARRY. 2% HANDLING & ADMINISTRATIVE CHARGE FOR VISA & MASTERCARD.

VGA Monitors

14" DataTrain V504 Monochrome VGA .31 mm (640x480)	\$169
14" Goldstar VGA Monitor .31 mm (640 x 480)	\$379
14" Legend Super VGA Monitor .28 mm (1024 x 768)	\$415
14" Morse Super VGA Monitor .28 mm (1024 x 768)	\$489
14" RAVEN 1465 Super VGA .28 mm (1024 x 768)	\$589
14" Seiko 1440 Super VGA .25 mm (1024 x 768)	\$699
14" Seiko 1450 .25 mm (1024 x 768) Non-Interlaced	\$925
17" DataTrain DC617 .31 mm (1024 x 768) Interlaced	\$1245
16" NEC 4D SVGA .31 mm (1024 x 768) Non-Interlaced	\$1699
20" Seiko 2050 SVGA .31 mm (1024 x 768) Non-Interlaced	\$2599

Storage Madness

Additional Floppy Drive	\$95
45 MB 26 ms Voice-coil IDE	\$299
85 MB 18 ms Voice-coil IDE	\$499
135MB 20 ms Voice-coil IDE	\$599
210 MB 18 ms Voice-coil IDE	\$995

Video Cards

Mono Graphics card w/printer port	\$29
Tricom 16 bit VGA card (800 x 600) 256k	\$75
Tricom 16 bit VGA card (1024 x 768) 512k	\$119
Tricom 16 bit VGA card (1024 x 768) 1024k	\$189
ATI VGA Wonder Plus w/mouse (1024 x 768) 512k	\$289

Controller Cards

16 bit IDE Host Adapter HD/FD controller	\$29
Future Domain SCSI 16 bit HD/FD controller	\$189
Ultrastor ESDI 16 bit HD/FD controller	\$249

Modems

Cardinal 2400 w/software MNP 5 Int. Modem	\$115
US Robotics Sportster 2400 W/MNP5 Ext Modem	\$195
Freecom Fax 96 Fax/Modem Card 9600/2400	\$269

ASK ABOUT ACCPAC+ UPGRADE FOR GST
ACCPAC® Plus Authorized Dealer

NEW

\$1,350



LP800

EASY ENVELOPE
PRINTING WITH
MANUAL FEED

The first in the new generation of Raven Laser printers, the LP-800 gives ultimate power in a low-priced desktop laser. Speed of 8 pages per minute, a 250 sheet paper tray, and 11 built-in fonts are just a few of this printer's exceptional features.

COMPUTER

HOURS

MON-FRI 10-6
SAT 10-5
SUN CLOSED

EXCHANGE

**DOWNTOWN
650 SEYMOUR**

Ph. 683-1788

FAX order line: 683-1333

**BROADWAY
1041 W. BROADWAY**

Ph. 733-1535

Fax order line: 733-5130

EDMONTON OFFICE

13222 - 118TH AVE., EDMONTON, ALTA. PH: (403) 453-6844 FAX: (403) 454-6137

OPEN
EVERY DAY

AD. 4 VOL. 3 APRIL 91

DISCOUNT PRODUCTS COMPUTER

BREAKTHROUGH COMPUTER PRICES

THE LARGEST
FULL STOCK
FULL SERVICE
COMPUTER
STORE!
2000 Products in Stock
VISA MasterCard
We Ship Anywhere!

OPEN
EVERY
DAY

OUT OF TOWN?
CALL TOLL-FREE—
WE SHIP
ANYWHERE!



Breakthrough Technology! CD-ROM \$949



FULL COLOUR KODAK PRINTER \$1499



Imagine running your TV or VCR running under
WINDOWS on your monitor—with full capture
ability \$849 TV Tuner \$479



BELIEVE IT! PostScript at an unheard-of price.
The NEC 290 PostScript Laser \$2198
NEC SilentWriter 2 90 \$1998

POINT OF SALE

When DOPPLER does it
we do it RIGHT!
Let us show you the
advantages of a DOPPLER
POINT OF SALE system
for YOUR STORE.

- Complete System
- Cash Drawer
- Receipt Printing
- Under \$2000

See the
HOT
PRICES
MAC
POWER LIST
on page 60

LOOK WHO'S COMING
TO DOPPLER!

Check out the
**POWER
PLAYERS**
section on page 60

IN STOCK SELECTION

- SUPER SPECIAL — LIMITED STOCK!**
NEC Multisync 2A VGA monitor \$549
- 1MB DRAM Chips . 109
CMS Stereo Chip 45
1.44MB Drive 105
8.5 x 11" Scanner . 899
T1000LE Laptop . 2250
286 Math Chip 299
- Sharp Laptop 2995
Track Ball 115
LogiMouse 99
USR 14.4 Modem .. 798
ATI VGA Wonder .. 229
Prices Subject to Change

286
FULL COLOUR VGA GRAPHICS
ASI 286 — 12MHz
1 MB RAM
40 MB w/Cache
VGA COLOUR
Complete with drives & ports
\$999
Full Year Warranty — Parts and Labour

386
ASI 386 SX 16
2 MB RAM
40 MB w/Cache
VGA COLOUR
Complete with drives & ports
\$1489
Full Year Warranty — Parts and Labour



WARNER 386SX
1MB RAM • 32K cache
• 40MB Drive
• Mono Graphics
\$1339

WARNER 386-33
1MB RAM • 128K cache
• 40MB Drive
• Mono Graphics
\$1995

WARNER 486-25
4MB RAM • 128K cache
• 40MB Drive
• Mono Graphics
\$3498

CORPORATE BUYERS

REMEMBER, Doppler is one of the largest resellers of AST, ALR, WYSE, Leading Edge and Toshiba. Contact our CORPORATE DIVISION.

Unbeatable PRICES at
DOPPLER
COMPUTER CENTRE

THIS IS HOT!
Okidata LASER
5 Year Warranty
17 Fonts
HP Quality Print
HP Emulation
PC Mag Editor's Choice
\$999
ORDER NOW!

Ultralite LAPTOP
NEC 8086C
2400 Baud Modem
2MB RAM Disk
3.5-inch Drive
List Price \$5999
\$1249
ON DISPLAY

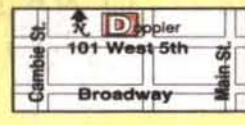
Colorado TAPE DRIVE
Up to 120MB
Safe & Easy
Uses Data Cartridges
External Kit Available
Super Low Price
\$398
LOW PRICE SAFETY

POWER LIST

DISCOUNT
SOFTWARE
IN STOCK
SELECTION

100 pack BLUE PAPER	5	dBrief v3.0	169	Label Maker (My)	36	Quick C with Assembler	169
101 Macro's Lotus/ WPS.1	59/59	Deluxe Paint II Enhanced	119	Labels Unimitted v3.0 great!	69	Quick History v6/Transfers v6	289/289
20/20 v2.3	379	DesignCad v4.0 2d	249	Language Master (Franklin)	119	Quick Invoice v5/Reports v6	259/289
3 for 3 (runs Lotus under Windows)	99	Designer v3.0 (Micrograph NEW)	549	Lap-Link III (laptop files)	119	Quick Pascal	79
386 To The MAX v5.0	129	Desk-Link (mini network)	139	Lattice C Compiler v6.0	239	Quick Schedule Plus (scheduler)	69
Above Disk (Create LIM 4)	98	Desqview v2.3 / 386	115 / 189	Lazy Susan New	68	Quicken (best value acctg)	45
Above LAN/Above MEM	429/69	Direct Access v5 / Network	79/219	Le Menu (easy menu)	79	R Base for Dos	599
ACCPAC BPI (per module)	285	Disk Optimizer v4.0	69	Learning Dos (Microsoft)	44	RAR Code Generator	159
ACCPAC Graphic Reporter for GL	139	Disk Technician Advanced	139	Letter Perfect (WordPerfect)	179	RAR v4.0 New (with Fox & Clipper)	159
ACCPAC- 5.1 KC/AC/DE/RI-es	599	DOS (Dij) v5.0	165	Letters On Line (pre-written)	49	Rapidfile (mail database)	249
ACCPAC- 5.1 PAYROL/Sales	795/539	DOS 4.01	88	Link & Link (for Lotus)	79	ReadWrite v2.0 (OCR)/Windows	399/598
ACCPAC- 8.0 GL/AP/AR-sa	599	DOS Tutor DS (DOS Trainer)	26	Lottery Trend Analysis	19	Reflex 2.0	219
ACCPAC- 8.0 Window / LAN	179/349	Double Disk (doubles H.Disk)	98	Lottery Trend Expert	49	Resume Maker (by Individual)	44
Act V2.0 (Best contact manager)	359	Double Dos v5.0 (run twice)	69	Lotus 123 for OS/2	529/259	Revelation Adv. Bump Disk	539
Action Planner (power up)	89	DrawPerfect (for WPS)	329	Lotus 123 Upgrade any version	169	Revelation Adv. v2.0/RunTime	775/168
Address Book Junior / Senior	79/99	Dream House CADD	25	Lotus 123 v2.2	399	Rightwriter 3.0 (Grammar checker)	89
Adlib Instrument Maker/Composer	45/85	Dream House Professional CADD	69	Lotus v2.2 Node / Network	259/549	Ryan McFar. Cobol v5.0 / Run	1098/149
Adobe Illustrator Win-ns	469	Eight-in-One - New (integrated)	65	Lotus v3.1 Windows	499	SCO Xenix Dev 286 / 386	549/629
Adobe Type Manager	89	Encyclopedia Random House	98	Lucid 3D v2.0 (top rated)	98	SCO Xenix OSYS 286/386	529/579
Adobe Type Plus fonts	175	Ensemble GEO Works NEW (Fantastic)	198	Mace Utilities 1990	119	Show Partner FX v3.5	299
Agenda v2.0	349	Excel Microsoft Windows	279	Macro Assembler v5.1 MS	129	Sideways / Plus (organizer)	85/169
Always for Lotus v1.2 / Symp	159/159	Excel v3.0 New Version	379	Magellan v2.3	129	Sideways v3.2	59
Amarillo Slim Poker	49	Express Publisher (DTP)	129	Managing Your Money v6	179	Stiffback (Automatic backup)	99
Ami Professional Windows	399	Eye Relief for Laptops	125	Manifast (memory mapper)	54	Small Talk / 286	99/189
Amortize (Canadian Loans)	79	Face Lift (Bistream Type Manager)	89	Manuscript	389	Smart Spreadsheet	299
Animation (by Deluxe Paint)	129	Family Fortune (plan & track)	59	Math Cad v2.5	389	Smart System (new Ver.)	599
Animator (by Autodesk)	275	Family Reunion (plan & track)	59	Mavis Beacon Teaches Typing	49	Smartterm 220/240	98/249
AntiVirus Norton (kill Viruses)	119	Fantavision (animation)	69	Maximizer v2.2 / Network	169/459	SoftSafe v2.0 (system security)	124
Applause II (more power than Harvard)	379	Fastback Plus v2.1 New	149	Memory Mole (random manager)	79	SoftType (Z-soft Fonts Windows)	179
Artline for GEM	329	Fastlink (file transfer)	79	Metro v1.1 (like sidkick)	79	Software Bridge (wp Convert)	119
Asksam (smart database)	229	FastMail (mail list)	79	Module II (by Logitech)	114	Software Carousel V4.0 new	89
AutoSketch v3.0	109	File Shuttle v5.0	109	Mouse Programming Reference	39	Spirrite II (mouse HD spd)	98
BackUp (new by Central Point)	79	File Shuttle Windows	119	Move Em (RAM Control)	75	Splash VGA Paint	89
BannerMantis (fantastic banners)	39	Financial Calculator (Tobias)	49	Multimate Adv III v4.0	369	SQZ Plus (compress Lotus)	99
Basic Compiler v7.0 MS	379	Finical Forecast (power up)	139	Name Tag Kit (makes name tags)	88	Stedmans Legal Dictionary	89
Battery Watch (extend battery life)	45	Finesse Desktop Publishing	139	Newsmaster II	89	Stedmans MEDICAL Dictionary	79
Bedford ACCPAC (GST)	149	First Apps (windows)	78	No Squint! (laptop cursor)	39	Straight Line Windows	89
Bedford Report Writer	89	First Choice 3.1 New	149	Norton Backup	129	StreamLine (vectors Scans)	348
Betrieve / Network	199/469	First Publisher v3.0	129	Norton Commander v3 NEW	115	Success (by Phoenix-Business Plan)	59
Bible Hebrew Dictionary	109	First Publisher Clip-Holidays	39	Norton Editor v2.0	89	Success Inc (financial plan)	89
Bible Soft Study for PC	149	First Publisher Clip-Publications	39	Norton Guides C / Pascal / DOS	48/48/48	Super Base 2 / 4 windows	259/498
Bitstream Headlines 1	189	Five weeks to Winning Bridge	39	Norton Guides Lotus / dBase	48/48	Super Video Editor/Developer	359/595
Bitstream WP 5.1 Install Kit	379	Flight Simulator 4.0	45	Norton Utilities v5	135	Supercalc 5.0 (super value)	299
Blacks LAW Dictionary	89	Floor Plan (CADD layout)	68	Novell Networking	call	SuperKey (great macro maker)	98
Bon Appetite (Cooking Book)	49	Flow Charting III Plus	195	OmniPage v2.1 / Pro	798/988	Superproject Expert/Plus	525/259
Bridge Barron II	49	Font-A-Matic for First Publisher	88	One Person Office	89	SLUZY (on-line service)	29
Brief v3.0 I for DOS	209	Font-A-Matic for Windows 3	88	Optima (drive checker)	89	Symphony 2.2 Plus	585
Brooklyn Bridge (file transfer)	119	Font-A-Matic for WordPerfect 5.1	88	Org Plus Advanced	119	T-MAN v2.0 Point of Sale	599
Budget Express (for Lotus)	125	Form Filter (fills forms)	125	PageGarden (page & font control)	158	Teach Yourself Lotus/WordPict	59/59
C Compiler v6 Microsoft	369	Form Finisher (power up)	189	PageMaker 3.01	589	Timeline 4.0 with Graphics	529
Calculus for Windows	119	Form Publisher Windows	189	Paradox 3.5 / Upgrade	679/189	Timeslips III v4.0 New	298
Calendar Creator Plus	49	Formbase (Database forms)	428	Paradox Engine / Network	479/789	Timeslips Remote (TSR version)	79
CANTAX T1	49	FormGen Plus v5.0	179	Pascal v4.0 MS	269	Tool Book (for windows)	419
CANTAX T1 PLUS PRO	169	Formtool Gold	179	PC Anywhere IV New	169	Top Priority (planner)	78
CANTAX Corporate T2	169	Fortran v5 Compiler MS	369	PC Anywhere LAN / Node	439/25	Touch Up (clean up scanned img.)	189
CANTAX Corporate T2 PLUS PRO	395	Fortran v5 Compiler MS	369	PC File v5.0 / LAN	129/359	Trading Places (tar Dbase)	75
Carbon Copy Plus v5.2	149	Fox Graph (for Foxbase)	239	PC Globe USA (version maps)	89	Treasures (My) property tracker	26
Carman Santiago World (VGA)	69	Foxbase v2.1 / LAN	269 / 399	PC Globe v2.1 New	56	Tree Saver (great paper mangr.)	89
Catchword (OCR Reader SW)	198	FoxBase 386 v2.1	379	PC Kwik Power Pak	129	Turbo C++ / C++-Professional	175/269
Certificate Maker	127	FoxBase Run/Pro RunTime	598/679	PC Kwik Super Disk Accelerator	89	Turbo Debugger Tools	148
Chain of Command (planning)	127	FoxPro / FoxPro LAN	598/679	PC Paintbrush IV / PLUS	99/175	Turbo EMS Memory Manager	95
Charisma / Node	429/299	FoxPro RF Runtime	398	PC Tools Deluxe v6	99	Turbo Lightning (spell checker)	99
Check Book (My)	26	Framework v2.1 / Personal XE	499/129	PD Queue	69	Turbo Pascal 6.0 / Pro	129/279
Check It (PC Diagnostics)	124	Freelance v3.1	389	Per-Form v2.1 / Pro Wndos	219/359	Type (Broderbund)	39
Check Writer Plus (Tobias)	49	Friday Night Poker	38	Phone Book (My)	26	Typing Tutor IV Plus (NEW)	49
ChesMaster 2100 / Battle	54/54	Game Shop MS	56	Play Bridge w/Shenwood	34	Ultra Vision (VGA screen enhancer)	126
Clarion Developer / Pro v2.1	165/699	Generic 3D Drafting	269	Playroom (great early education)	39	Vaccine Norton (Virus finder)	79
Clickart Business Images/Holiday	69/89	Generic Cad Level 5 NEW	298	Power Book (My)	26	Ventura Gold v3.0 Windows	599
Clickart EPS Business Images	129	Generic AutoConvert	89	PopDrop Plus (TSR manager)	79	Video Companion (reviews videos)	39
Clickart EPS Illustrations	129	Generic Home Design / Bathroom	59/59	Power Point Windows	479	VP Planner 3D (spreadsheet)	219
Clickart Personal / Publications	89/89	Generic Home Design / Bathrooms	59/59	Present II (power up)	69	Watch Dog (NEW) security	229
Clickart Windows 3 Clipart	89	Generic Home Landscaping	59	Print Master Plus Accelerator	89	Who What When v2.0 (time manager)	248
Clipper v5.0 new	599	Generic Kitchen Design	59	PrintQ v4.0 LAN (buffer plus)	115/399	Windows 3 Developer	498
Close Up Customer/ Support	169/219	Generic Residential Framing	59	Printshop (Top Seller)	49	Windows 3.0 MS (a must have)	89
Close Up Network (8 user)	739	Generic 2.0 (find any file)	65	Printshop Companion	44	Windows Entertainment MS	36
Cobol 3.0 Compiler MS	749	Grammatik IV DOS / Windows	79/79	Printshop Party/Sample/Business	35/35/35	Windows Express v3	65/65
Compuser Subscription Kit	39	Grandview (organize track)	219	Pro C v2.0 with workbench	699	Windows Utilities MS New	59
Control Room (control your PC)	119	Graph in a Box Windows	119	Procom Plus v1.18 / The Works	95/39	Wine Companion (all the info)	49
Cook Book (fantastic food)	39	Harvard Graphics v2.3 LAN	339/775	Productivity Pack MS	59	WinFax (windows fax software)	49
Copy II PC Option Board (n/w Mac)	169	Harvard Node	349	Professional File / Plan	199/79	Word 5.0 (great value)	189
Copy II PC v6.0	39	Harvard Project Mgr 3.02	579	Professional Write v2.2	219	Word 5.5 (new graphical interface)	269
CopyWrite (NEW version)	89	HeadBook v2.0	579	Professor DOS (DOS trainer)	45	Word For Windows	339
Cornel Draw v2.0 / OS/2	529/475	HeadBook v2.0	579	Project Windows Microsoft	569	WordPerfect 5.0 French	299
Corporate Ledger	76	Huack (graphics screen grabber)	195	Print II v1.2 / Lite	189/79	WordPerfect 5.1	199
Crosstalk Communicator	85	Home Finance Manager (planner)	25	Pyrol v1.2 (FTH Gen)	45	WordPerfect 5.1 Node	199
Crosstalk MK IV / XVI	179/144	Home Office Manager (intergrated)	25	Q Dos II / Network (unlimited)	79/268	WordPerfect 5.1 UPGRADE	149
Crosstalk Windows v1.1	169	Home Tax (Cdn. Tax Planner)	59	Q RAM NEW	75	WordPerfect Office New	119
CrossWord Magic (make Xwords)	54	HotWire (file transfer)	119	QA v3.0 / Write	279/169	Wordstar Professional 6.0	248
Current (IBM)	299	HyperPad v2 (ie Hypercard)	139	QA Plus (system analyzer)	169	Working Hours (work hours planning)	79
Dac Easy Accting v4 / Payroll	149/109	InfoSelect (thought manager)	139	QEMM 386 (expanded Mem Man)	89	Works 2.0 (top integrated)	139
Dabasease v4.2 (Great Product)	689	Jet Propulsion (speed up Laser)	96	Quattro Pro / Station	389/259	WorkSheet Utilities	85
dBase III Plus	499	KeyWords / Advanced	86/179	Quattro Version Upgrade NEW	169	World Atlas	56
dBASE IV Dev. Edition	959	Kitchen Companion (cooking)	39	Quick C v2.5	79	Xtree Pro Gold / Network	109/479
dBASE IV v1.1 / LAN	539 / 759					XY Write III+ w/Ala Cart	319

DOPPLER
COMPUTER CENTRE



CALL
US
ANY
DAY

875-0261 Sales & Service
727-3414 From Victoria
1-800-661-2805
Anywhere in B.C.
101 West 5th at Manitoba St., Vancouver

G.S.T. not included - Prices subject to change without notice

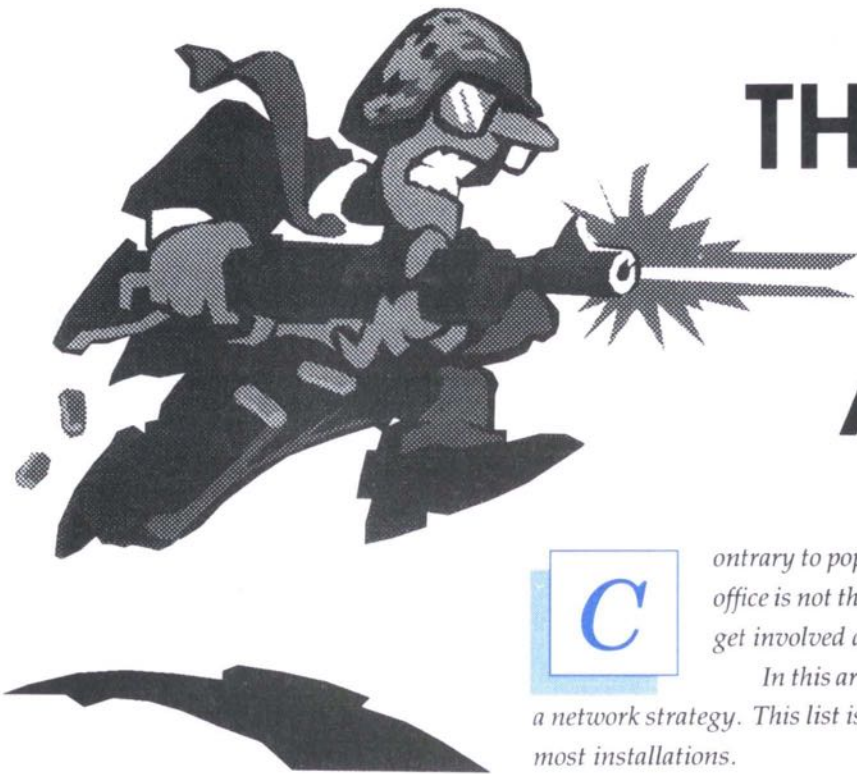
FOLD ALONG THIS LINE FOR YOUR READING CONVENIENCE

ANOVATION

A Monthly Newsletter From



ANO Office Automation



THE PLAN OF ATTACK

C

ontrary to popular belief, networking personal computers in an office is not that difficult. Only when not so qualified personnel get involved do true network screw ups occur.

In this article we will lay out a ten point plan to developing a network strategy. This list is based on experience and was designed so as to fit most installations.

#1. GET HELP

Avoid doing an entire network installation on your own. Bring in an expert who can give you a different angle on the direction you should go. Besides, it never hurts to get a second opinion.

(Continued on page 2 . . .)

INSIDE

Pronounced Na-Now . . .	3	Check Under The Hood . .	6
Training	4	Canon Deals	7
Tech Talk	4	Anotations	8
286 Vs 386sx	5	Reader Response	8

APRIL IS CANON MONTH

(See Page 7 For Specials)



#2. CHECK WITH THE TROOPS

Too often network administrators avoid finding out what the people using the network want. By approaching them you will also douse any flames of insecurity they may have about networking.

As well, you will be instilling a sense of pride by making them feel that they were at least partly involved. Holding a group rap session is usually the best way of doing this.

#3. GO WITH EXPERIENCE

If you decide to let a dealer or VAR (Value Added Reseller) do the installation for you, be sure to make your selection wisely. There is no substitute for experience. Going with an untested vendor could end in disaster. If possible, see if you can visit two of their installations, and talk to as many reference sites as possible.

If you would like more information on this subject, see the article "Office Automation: Doing It Right"

to headaches and lost productivity.

#5. TRAINING

Two rules of thumb on training in a network environment:

1. If you have your own network specialist in the office, individual user training on network functions isn't absolutely necessary. It never hurts, however, for people to have an adequate working knowledge.
2. If you don't have any network specialist in-house, and rely on your vendor heavily for support, be sure to have everyone trained on the basics, and at least one or two trained on more advanced troubleshooting and administration techniques.

One way in which you can streamline the network process and

Some hardware you should seriously consider include a tape backup unit (with tapes of course), uninterruptible power supply (for the file server), and a modem (for support services).

#7. SOFTWARE SELECTION

Even though most of today's networks look and feel like DOS, that doesn't mean that any DOS based application will function properly on a LAN. Be sure that any and all applications you purchase are network aware.

#8. WHAT IF

Waiting for a disaster to strike isn't good in business, and it certainly isn't good for networks. Be sure to cover as many "What Ifs?" as possible, and document your plans of attack.

#9. SUPPORT

Going it alone could end up costing you in lost time and money. Arrange for a service and support agreement with your vendor.

#10. PLAN FOR TOMORROW

As the needs of the users on the network will no doubt change, so should your network be able to adapt. Future factors such as the expected number of users, hard disk space, and cabling should be addressed before installation.

IN SUMMARY

Networking in the 1990's is an integral part of the evolution of computing. Be aware, however, that like with all things in business it must be done right.

If you have any questions please feel free to contact a network specialist at the ANO location nearest you, or call our National Head Office, Network Information Systems Group at (604) 276-8898.

Networking in the 1990's is an integral part of the evolution of computing. Be aware, however, that like with all things in business it must be done right.

in our May 1990 issue of ANOVATION.

#4. CABLING

Although cabling is the umbilical cord of any network, it is, in most cases, also given the least amount of attention.

Avoid falling into this trap! Planning out a cabling scheme which allows for clean expansion is vital. As well, be sure it is done by a qualified organization that deals strictly with data and telecommunications. Even if you are only hooking up two or three machines, it should be done properly and to building standards.

An improper cable job can lead

reduce training time is through a well co-ordinated menuing system such as Direct Access from Fifth Generation.

By relieving the user from learning network jargon and complex commands you are also reducing their stress level. Menu's also act as an excellent form of security and historically lower the number of problems.

#6. HARDWARE SELECTION

Avoid being lured in by price. A killer deal could lead to a not so pleasant experience. Base your buying decision on the merits of the product and how well it fits into your strategy.





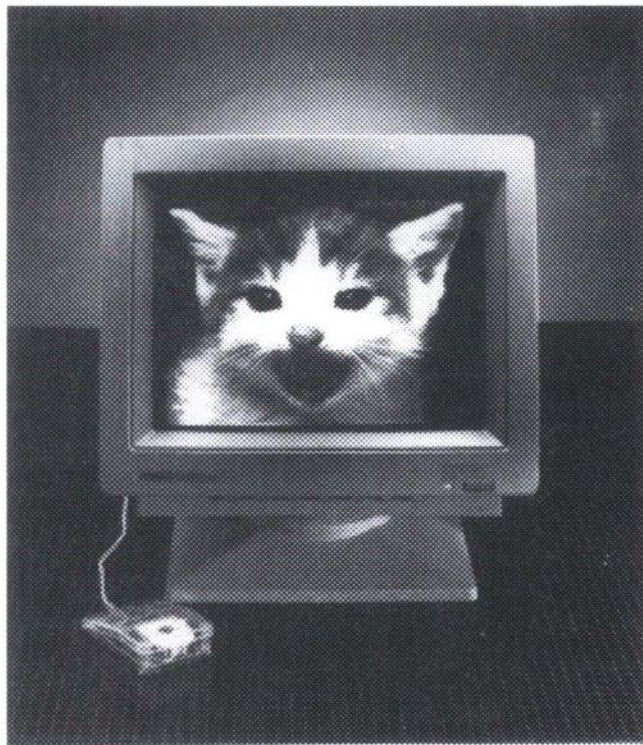
PRONOUNCED NA-NOW



The arrival of the graphics working environment has spawned a desire by computer users to take a closer look at the monitors and graphics boards they are using (or plan on using).

Nanao (pronounced NA-NOW), a not-so-household name in the monitor industry, is a developer and manufacturer of one of the widest selections of display monitors in the industry. Established in 1967 to manufacture TV sets for Mitsubishi, Nanao didn't actually climb into the computer arena until 1985 with the development of graphics adapters and CRT monitors. Other achievements include the manufacturing of video products for NEC, Sony, and Akai.

Nanao's product line begins with a 14" non-interlace 1024 x 768 colour display system, and ends with their top of the line 20" non-interlace 1280 x 1024 CAD monitor. Manufactured and developed under the most stringent guidelines, Nanao's primary focus is on quality control. Each monitor goes through a vigorous set of safety, shipping, reliability, and picture quality tests before



• THE NANA O • FLEXSCAN MONITOR SERIES

they leave the Matto, Japan factory.

Developed with the user's needs in mind, each monitor offers:

- * Superb illumination, focus, and contrast ratio
- * Stunning non-glare screen
- * Easy access to major controls
- * Low radiation emission

"We saw the Nanao product line at the Fall Comdex last year and were very impressed. The clarity of the picture is, in my opinion, unrivaled by anything on the market.", exclaims Tom Chan, General Manager at ANO's National Head Office in Richmond, B.C., "Deciding whether or not to carry the Nanao product line was not a tough decision. Quite

simply they are the best bang for your monitor buck."

More information on the Nanao monitor line is available through your nearest ANO location, or feel free to fill out and mail in the reader response card at the back of the newsletter.





British Columbia Institute of Technology (BCIT)

PROFESSIONAL TRAINING

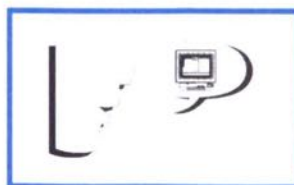
ANO / CCI Professional Training

Date	Course	Course #	Duration	Fee	Date	Course	Location	Fee
April 08	Intro. to DOS	53628	6 wks.	\$ 241.	April 02	Intro. to DOS	R	\$ 165.
April 08	ACCPAC G/L	53533	4 wks.	\$ 161.	April 03	Intro. to Quattro Pro	R	\$ 165.
April 09	dBase IV Level 1	53544	4 wks.	\$ 161.	April 04	Intro. to Windows 3.0	R	\$ 165.
April 10	WordPerfect Level 1	53557	4 wks.	\$ 161.	April 06	Intro. to Microcomputers	R	*FREE*
April 10	Ventura Publisher	56849	4 wks.	\$ 161.	April 09	Intro. to WordPerfect 5.1	R	\$ 165.
April 11	Lotus 1-2-3 Level 1	53566	4 wks.	\$ 161.	April 10	Intro. to PageMaker	R	\$ 165.
May 06	ACCPAC A/R	56074	4 wks.	\$ 161.	April 11	Intro. to Word for Win.	R	\$ 165.
May 07	dBase IV Level II	53582	4 wks.	\$ 161.	April 16	Intro. to Lotus 1-2-3	R	\$ 165.
May 07	Lotus 1-2-3 Level I	53579	4 wks.	\$ 161.	April 17	Intro. to Ventura Pub.	R	\$ 165.
May 08	Ventura Publisher	56855	4 wks.	\$ 161.	April 18	WordPerfect Level II	R	\$ 165.
May 08	WordPerfect Level II	53598	4 wks.	\$ 161.	April 20	Intro. to MS DOS	R/K/E	Call
May 09	Lotus 1-2-3 Level II	53610	4 wks.	\$ 161.	April 23	Intro. to The Maximizer	R	\$ 165.
May 09	WordPerfect Level I	53676	4 wks.	\$ 161.				
					** NOTE **			
					Other courses available in Lotus, Bedford, Excel and Microsoft Word.			
					R = Richmond • K = Kelowna • E = Edmonton			
Call BCIT at 434-1610 to register.					Call your nearest ANO office for further information.			

Q: According to the WordPerfect 5.1 manual, I should be able to use expanded memory. However, when I load my EMS 4.0 driver on my 286, and then run WordPerfect it hangs up. What can I do?

A: One way to avoid this dilemma is by starting up WordPerfect with the command wp /32. This fools WordPerfect into thinking that it is actually using LIM EMS Version 3.2, and not 4.0.

The other way in which you can use EMS on many 286 based computers, is to invest in an EMS specific memory board such as those offered by AST and Intel.



TECH • TALK

WITH
KEN NG

Q: Quite often my computer will either hang or give me memory errors. Is this a hardware problem?

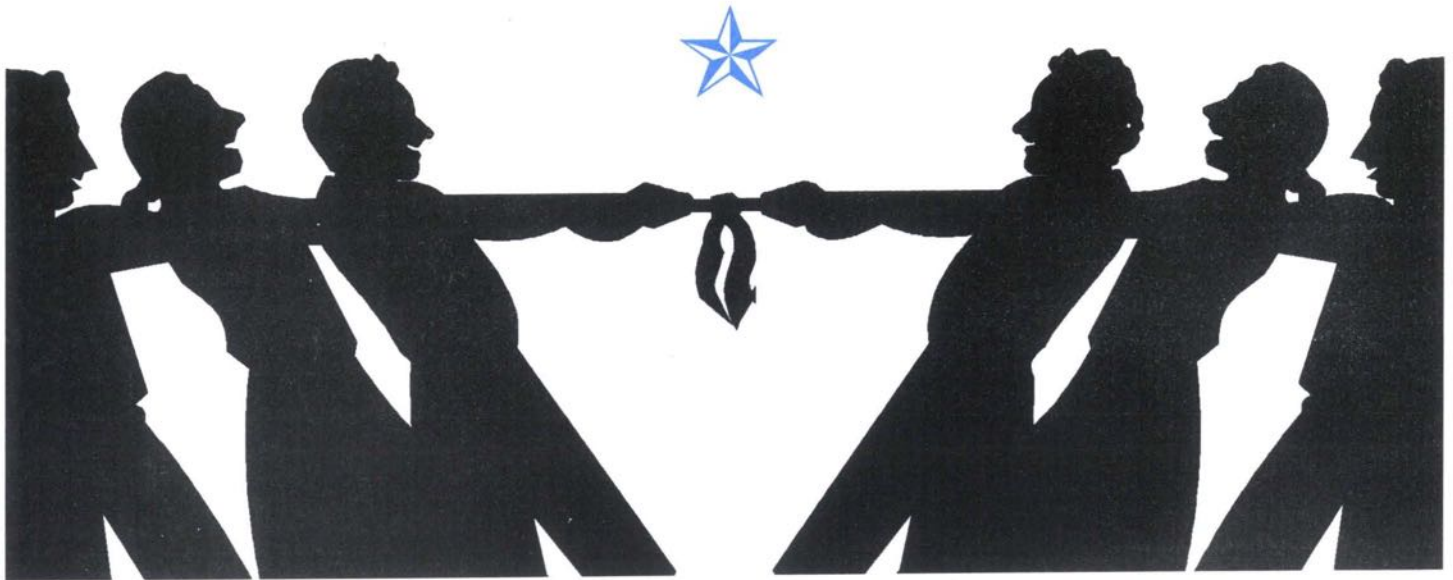
A: In many cases the culprit is dirty power. Power fluctuations are very common, and can raise havoc with even the most expensive of computer equipment, causing errors and even damaging the hardware itself.

We recommend using an ESP power filtration unit which handles one of the widest spectrums of power fluctuations. Unlike power bars which offer minimal protection, the ESP units are designed to protect your investment.





286 vs 386sx



If you are a moderate computer user, or your current applications don't require a huge amount of processing power but you need more than that old XT can muster up, you're probably going to come across a decision of whether to buy a 286 or a 386sx.

The obvious advantage to buying a 286 based system is its price. Generally speaking 286s run about 30% less than a comparably equipped 386sx. So the question still remains:

Why bother ?

#1: Memory Management

One of the biggest issues in the PC industry since its inception, has been memory management. The DOS base memory limitation of 640K is causing more and more headaches as applications mature.

With products such as 386Max and QEMM 386 on the market, RAM Cram is not as much of an issue for 386 class personal computers. The ability to load device drivers, network shells, and TSR applications into memory above 640K is a gift from heaven. Of

course neither 386Max nor QEMM 386 support the 286 family of processors.

#2: Software Compatibility

One of the biggest falsehoods about 386 technology is that it isn't supported very well from the software applications side. The fact of the matter is that developers are producing 386 applications at blinding speeds.

Probably the most famous of these new applications is Microsoft's Windows 3.0. Developed with direct support for the Intel 386 family of processors, Windows allows users to operate the way they were meant to work - doing more than one thing.

Think about it. At any one moment and time, any task requires a group of smaller tasks. If one task has to be stalled for a period of time while another is initiated, it is not only time consuming but also you lose your train of thought.

#3: Productivity

Generally speaking, the faster the computer the more productive the user. By improving processing



performance by an average of 35 to 50% (coupled with the ability to multitask), all jobs can be done quicker and with less effort.

Take the time to fill out the cost analysis in Figure 1. You may find that in fact an SX will pay for itself in time saved.

#4: The Future

Overall, it doesn't make sense investing today's dollars into yesterdays technology and expect to make any substantial gain. It is time for new PC buyers to take a hard look at what tomorrow will bring and take advantage of these wonderful new technological advancements.

Take faxboards as an example. Most fax boards for PCs support the ability to work in the background by off loading some of the processing to a chip on the fax board itself. However, as this process still requires the use of system resources it slows down the applications running in the foreground.

The cure for this is a faster, more powerful PC.

We seriously recommend that you take a close look at the 386sx as the next logical step. They may cost a little more, but they're definitely worth it.



Check Under The Hood

Bringing your car into the shop for a tune up once or twice a year is pretty much a necessity. But have you ever stopped and wondered if your computers and printers deserve the same treatment?

The fact of the matter is that PCs, dot matrix printers, and laser printers, all need to get the old once over at least once a year. Like cars, parts can break down due to dirt build up and neglect.

Aside from offering PC service and support at all ANO locations across Canada, we also offer either a depot or on-site service on PC and peripheral tune ups. This service is available for most makes and models of computer equipment and printers at very competitive rates.

For further information, contact the ANO office nearest you, or call our National Head Office at (604) 276-8898.

Complete Your Own 386TM SX Cost Analysis

System Depreciation Cost Per Day

	Total Cost \$	4 Yrs/Days		Cost Per Day	
386 SX System Cost	<input type="text"/>	÷ 1040	=	<input type="text"/>	(A)
286 System Cost	<input type="text"/>	÷ 1040	=	<input type="text"/>	(B)
Difference in 386 SX Cost/Day versus 286 System Cost/Day				<input type="text"/>	(C) = (A) - (B)

Employee Salary Cost

	Payroll \$		Cost/Day		Cost/Minute
Yearly Salary (No Benefits)	<input type="text"/>	÷ 260 Days =	<input type="text"/>	+ 480 Min. =	<input type="text"/> (D)
OR Hourly Salary		<input type="text"/>		+ 60 Min. =	<input type="text"/> (D)

Minutes of Employee Time Saved Required to Pay for Incremental System Cost

System Cost/Day Difference (C)		Employee Salary Per Minute (D)		Minutes Saved To Pay For 386 SX Incremental Cost
<input type="text"/>	÷	<input type="text"/>	=	<input type="text"/> Per Day

FIGURE 1. A comparative cost/performance analysis between 286 and 386sx based computers.



APRIL IS Canon MONTH



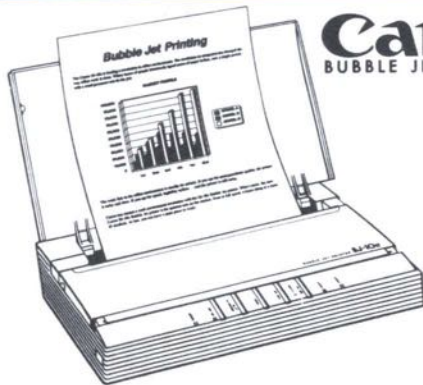
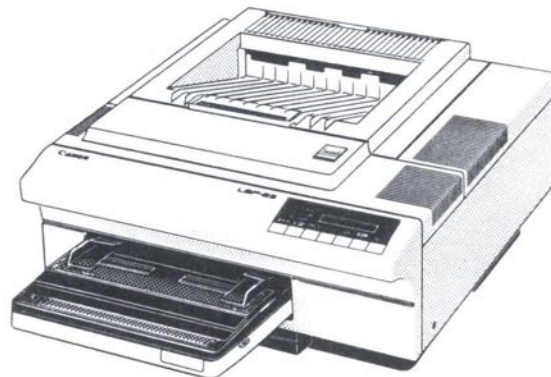
2.5MB RAM (1MB Free)
Free SC-1 Font Cartridge
8 Pages Per Minute

* Prices FOB Vancouver

Canon
LBP-8^{mark III}
LASER BEAM PRINTER

ONLY
\$ 2,195.⁰⁰

Reg. \$ 2,700.⁰⁰



Canon BJ-10e
BUBBLE JET PRINTER



Free Carrying Case
Fabulous Print Quality
Weighs 4 Lbs.
Optional Battery Available

* Prices FOB Vancouver

ONLY
\$ 495.⁰⁰

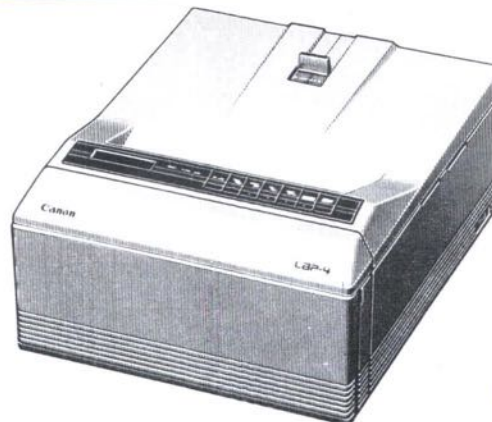
Reg. \$ 570.⁰⁰



1.5MB RAM (1MB Free)
Scalable Fonts
4 Pages Per Minute
Free Sheet Feeder

* Prices FOB Vancouver

Canon
LBP-4
LASER BEAM PRINTER



ONLY
\$ 1,350.⁰⁰

Reg. \$ 1,800.⁰⁰



ANO TATIONS

New Additions

ANO Office Automation is proud to welcome four new additions to our offices in Surrey (Eric Houck - Technician), Vancouver (Cory Cuthbert - Sales) and Richmond, B.C. (Brad Calbrick and Peter Bouchard - Sales). We wish them all the best of luck!

Major Reduction

In a move to improve its share

of the competitive spreadsheet market, Computer Associates announced a 70% list price reduction on its popular SuperCalc 5 product. Effective immediately, the SRP for SuperCalc 5 will be \$ 179.00 Canadian (down from \$ 599).

LANtastic Note

Users looking to run Btrieve based applications on LANtastic,

the number one selling pier-to-pier Local Area Network operating environment in North America, should look to Novell instead. One example is The Maximizer. Although it is capable of running on the workstation stand alone, it crashes when operated in a network environment under LANtastic.



Reader Response Card



Contact: _____
Position: _____
Company: _____
Address: _____
City: _____
Prov: _____ Postal Code: _____
Phone: _____ Local: _____
Fax: _____

Please send me ANOVATION monthly: ☐

Please have an ANO Rep contact me: ☐

Please send me more information on:

- | | |
|---|---|
| <input type="checkbox"/> Novell Networking | <input type="checkbox"/> Canon Laser Printers |
| <input type="checkbox"/> LANtastic | <input type="checkbox"/> Nanao Monitors |
| <input type="checkbox"/> PC Tune Up | <input type="checkbox"/> Computer Training |
| <input type="checkbox"/> Canon BJ-10e Printer | <input type="checkbox"/> SuperCalc 5 |

Suggestions: _____

ANO OFFICE AUTOMATION

Please mail to the ANO office nearest you:

ANO RICHMOND

#110-11100 Voyageur Way, Richmond B.C. V6X 3E1
Ph: (604) 276-8898

ANO VANCOUVER

#190-840 Howe Street, Vancouver B.C. V6Z 2M1
Ph: (604) 681-6165

ANO BURNABY

3571 Kingsway, Vancouver B.C. V5R 5L9
Ph: (604) 432-7077

ANO SURREY

112A-12827-76th Ave., Surrey, B.C. V3W 2V3
Ph: (604) 594-8682

ANO VANCOUVER ISLAND

#2-1026 Johnson Street, Victoria B.C. V8V 3N6
Ph: (604) 386-2204

ANO KELOWNA

#10-2070 Harvey Avenue, Kelowna B.C. V1Y 8R6
Ph: (604) 861-8300

ANO EDMONTON

10301-108th Street, Edmonton AB T5J 1L7
Ph: (403) 429-4990

ANO TORONTO

Unit #1 2nd Floor, 226 Esna Park Drive
Markham, ON L3R 1H3
Ph: (416) 479-1308

ANO OTTAWA

1181 Cecil Avenue, Ottawa ON K1H 7Z6
Ph: (613) 733-7110