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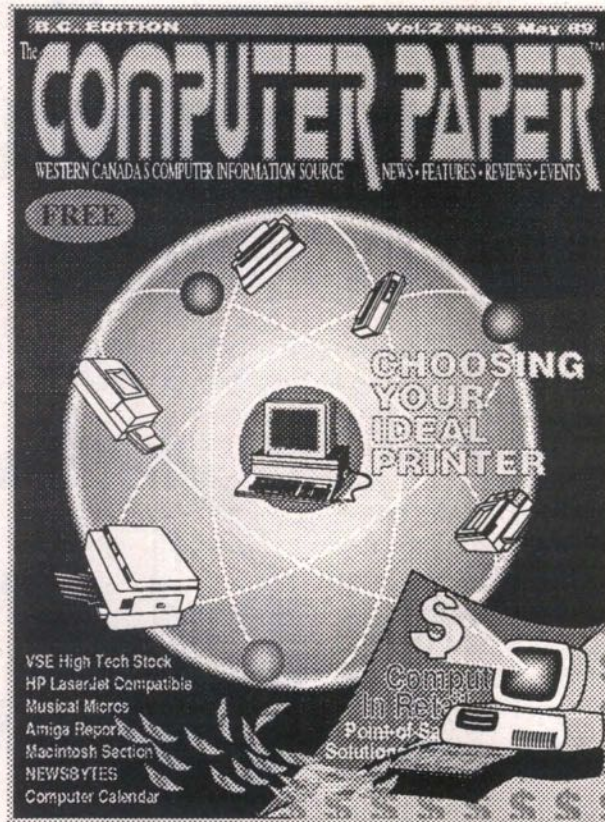
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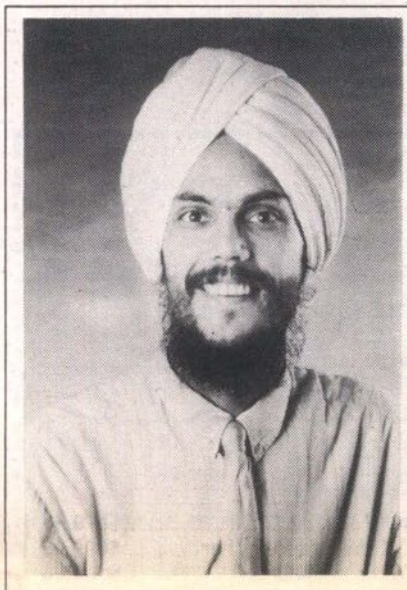
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FROM THE EDITOR



In an attempt to keep up with the rapid changes in technology, we here at The Computer Paper have decided to see how many rapid changes we could do in a month. We moved (see our new address below), we changed our format (longer page, bigger type, new typesets, new headers, more graphics), we increased our circulation to 50,000 (watch for us in many new locations) and we saw the launch of the premier Alberta edition of The

Computer Paper (circulation 50,000 between Calgary and Edmonton). Hope you like the changes. It has been a little wild getting them all done, but we are still having fun.

Our focus this month is on Point of Sale (POS) systems for Retailers. This is an area that I can have enormous empathy for having been in retail for 6 years. I spent a fair bit of time looking at a mind boggling array of POS systems. The truth is that there are no easy answers in the dynamic field of retail, where very few businesses are "just like" another. We trust our overview of the field gives some insights for the interested retailer. We included a directory of POS vendors to help them getting started in their search.

Oh yes one more change... my partner in this venture announced that she is having a baby. It was welcome news, as you see, my partner is also my wife.

Enjoy the issue.

Kirtan Singh Khalsa

Kirtan Singh Khalsa
Editor/Publisher

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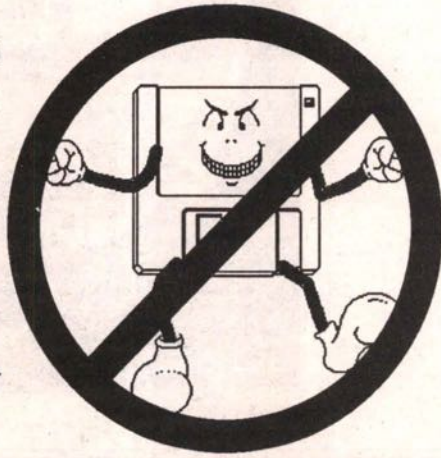
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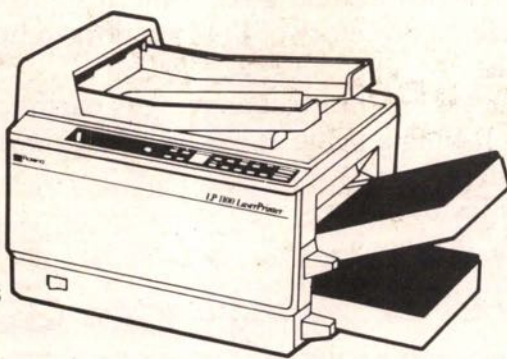
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LETTERS TO THE EDITOR

Good job!

A quick note just to say your publication is "top notch". We found the review of Canadian payroll software very informative. Ditto the comments for the article on choosing an IBM compatible!

- Doug R. Wolgram

Terasoft Wares

Dear Sir:

Thank you! Fantastic response! That's what we've been getting from the minute your March 1989 (Volume 2, No. 3) edition hit the stands! Since running our news release in that edition of the Computer Paper our company has been inundated with calls about the Loan Calculator program. Obviously you've created a "Computer Information Source" that is second to none! The Computer Paper must be the most widely read and well respected computer magazine in British Columbia.

In my travels throughout Canada and the U.S.A. I have made it a point to check similar sources in other major cities and find that none compare with the content and layout of your own Computer Paper.

Please find enclosed by subscription form for a year of the Computer Paper. I sincerely hope that we will do more business with your paper as we continue to expand our efforts. Once again, Thank You for the response your paper has generated for us! Please continue with your excellent efforts!

Michael Pearce
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The Stripper Responds

Dear Mr. Khalsa:

Thank you for printing the "Ripper Stripper" press release in your April edition of "Computer Paper."

Promoting a new product is always a difficult project but the feedback from all the trade and consumer shows indicates that we have a terrific item — a winner all round. Something useful and essential for all computer users!

Each month I enjoy reading your paper as it is very interesting and informative and I especially enjoyed the recent article on how to buy a laptop computer.

I was pleased that such a reputable paper like yours would print an article for us. Thank you once again and best wishes for a continued success with the "Computer Paper."

Donna L. Blackwell
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Buying A Clone: From A Retailer's Perspective

The article by Roedy Green on buying a computer in the March issue of The Computer Paper appears to have been very widely read, judging from the number of purchasers asking to examine computer circuit boards last month. May I provide some feed-back from the computer retailer's viewpoint.

1. Compatibility

To test compatibility using Mr. Green's guidelines would require running five or more test programs plus the intended application software. With the half-hour wait to test the clock battery we are talking about two to three hours to test a single machine. If only 100% compatibility is acceptable I would suggest the buyer forego the technological advances offered by compatibles and seek out an old slow I.B.M.

Purchasers seem to be less concerned with compatibility with I.B.M.'s old XT and AT systems now that I.B.M. is no longer the market leader, having shrunk to about 17% of the North American market? Software and expansion hardware now being marketed is tested to run on a wide range of MS DOS machines and products that are "I.B.M.-XT/AT sensitive" are unlikely to become successful.

2. Hardware Quality

If only it were so simple. But most compatibles fall between the two extremes of "beautifully clean and even" and "fuzzy, wavy and generally sloppy," as Mr. Green describes the solder traces. InfoWorld, March 13 1989, reports of IBM PS/2 Model 70-A21 design flaws with "customers" who experienced high failure rates expressing anger and frustration at not having their problems acknowledged by IBM," which repeatedly denied there was a problem before finally halting shipments for two months. One customer noted "two of the initial shipments of four machines failed" and found "on the motherboards of the machines his company received, there were several "jumpers" or hand-wired patches..."

Why is IBM able time and time again to get away with standards of quality control and marketing practices that would quickly bring any other vendor into disrepute. In an immature industry, where technological changes continue to occur, the perfect circuit board — like perfect compatibility — is almost certain to be a feature of an obsolete machine.

3. Buying Software First

This is less important now than in the days when I.B.M.'s were sold like basic Chevrolets — you had to add on a bunch of extras to make the thing work. If you're buying a minimal system on a low budget then buy carefully, but if the proposed system has enough bells and whistles it will likely run almost any software you care to throw at it. The most difficult choice is usually the video output — the crisp text or CGA games standard di-

MASTHEAD

Publisher/Editor

Kirtan Singh Khalsa

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Circulation: 50,000

2nd class postage Registration Number 7718
Printed in Canada

Canada Computer Paper Inc.

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Vancouver, B.C. V6R 1P2

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LETTERS TO THE EDITOR

lemma.

4. Ignorant Retailers

Unfortunately some of the most ignorant retailers never do go out of business — they are the big discounters that sell computers alongside the microwaves and stereos. The salesman will gladly sell you a parallel toaster to plug into your serial dishwasher interface board.

5. Buying More than you Need

I don't like the sound of the "postpone purchases as long as possible" bit. There is always something better and cheaper coming soon so nothing will ever be purchased. The local market is already running about two years behind Toronto and three to four years behind the States in computer acceptance, due to this kind of conservative thinking. Also note that it is a relatively small price jump from EGA to VGA or from a 20mB drive to a 40mB but may be expensive to trade old equipment later.

6. Optional Extras and 7. Setup

It is recommended that the purchaser obtain a price for a complete working system including hardware and software, with all software to be installed and tested with any input/output devices (mouse, printer, etc.). Never buy a computer in an unopened carton.

Roedy's attempts to enlighten the public are very welcome. Yes, it is a jungle out there with many traps for the unwary. A computer is a major investment for most individuals, and, like any other large expenditure, should not be undertaken in a state of total ignorance. The prospective purchaser must keep asking questions until the answers start to make sense and seek out a dealer with whom they feel comfortable.

Keep up the good work.
Mervyn Colton
General Manager
MC Micro Centre Ltd.

An Amiga User Responds

Dear Editor:

While I agree with John Chapman's complaint that you virtually ignore computer systems other than MS-DOS and Macs, I can sympathize with your position. But I must strongly protest the distorted view of the Amiga presented in your article on Amiga Desktop Video. The article was in error on almost every important point it discussed.

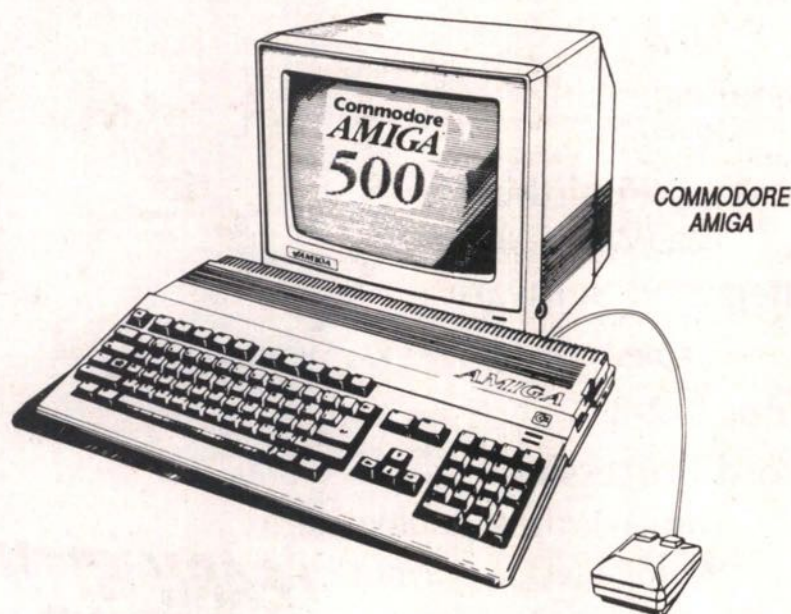
1) The article stated that only the Amiga 2000 and 2500 "can be made compatible with IBM through the addition of special boards." Both the Amiga 1000 and 500 can use all of the expansion boards designed for the 2000 if expansion slots are added.

2) Allen Earle's article states that "The major difference quality-wise is the Amiga's image sometimes has a ragged edge around it and has a visible flicker." The upcoming version of AmigaDOS will go part of the way towards eliminating the ragged edges by allowing screen resolutions up to 1007 by 1007. Mr. Earle should have also explained that this flickering occurs only in hi-res interlacing mode and not in hi-res non-interlacing mode or any of the Amiga's lo-res video modes. It is NOT a trade off or a matter of poor quality and to suggest that this is the case to your readership is simply a case of: A) the grossest ignorance of even the most rudimentary knowledge of the Amiga or B) a malicious attempt at dissuading potential Amiga buyers by presenting them with false information.

I sincerely hope that you pass this information on to Mr. Earle before he attempts to write another article about Amigas.

Jim Sanderson
19005 76th Ave.
Surrey, B.C.
V3S 4P1

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WHAT'S NEW



Superset-500

Last month in our round up of 386 computers available in the local market we left out an important contender, the Superset-500 from Computer Canada Corp. in Richmond. This unit uses a 16 MHz, zero wait state 386 processor. It comes with a 14" VGA monitor and board, 1 megabyte of RAM with room for 8 megabytes on the motherboard and a variety of optional floppy and hard drive options. The standard configuration includes a 101 Keyboard, 230 Watt power supply and a 40 megabyte hard drive. Warranty is for two years. The Superset, configured with 2 megabytes of RAM, a VGA card and Multisync monitor has a suggested retail price of \$6995 Contact: Computer Canada Corp., 105-3850 Jacombs, Richmond V6V 1Y6. (604) 278-5115

Taito Adds New PC Games

North Vancouver., April 10, 1989 — Taito Software Inc. announced shipment today of two more of its arcade games, *Renegade* and *Sky Shark*, converted to the IBM personal computer hardware format.

Taito Software, the North American home entertainment software subsidiary of \$500 million Japan-based Taito Corp.,

shipped its first conversion for the PC format, *Arkanoid*, in November.

Taito Software Inc., 267 West Esplanade, Suite 206, North Vancouver, B.C. Canada V7M 1A5. Anita Deiter (604) 984-3344.

Low Cost Network Solutions

Rimart International has announced availability two new solutions for the low cost Local Area Network market. ZeroLan, a low cost connectivity (LAN) solution for up to 6 computers. According to the distributor, the system is easy to install (less than 15 minutes per station), operates transparently using all DOS commands and requires very little user training. It retails at the low for \$149.00 per network station and includes all software, hardware and manual. It is designed for the small office environment or small work group.

ZeroNet, a Local Area Network Solution for up to 10 computers supporting record and file locking, Netbios protocol and allows each network station to have simultaneous access to 4 parallel and 4 serial devices any in the network. This network also comes complete and is priced to sell at a low price of \$299.00 per computer station which includes software, hardware and cabling.

Rimart is also offering AutoCom — a transparent modem communications software package. This software allows each modem station to access transparently through their modem any other satellite station anywhere in the world as if it were in the room next door. It supports printing directly to any other station directly from your application. It is being offered at an introductory price of \$299.00 per computer station. Contact: Rimart International Inc., Box 12151 Nelson



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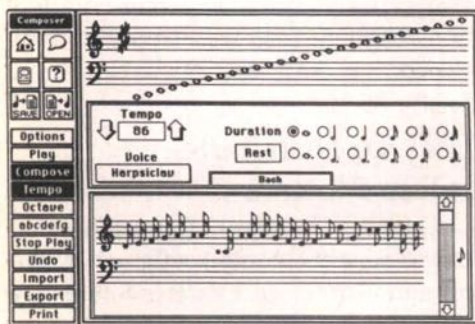


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Square, 1220-808 Nelson Street, Vancouver, British Columbia Canada V6Z 2H2. Telephone: 1-604-688-3717. FAX: 684-4589.

Race Oriented Software

Rospods Software Systems, Surrey, has designed a software package for keeping track of the start and finish times of the participants of any timed competition. Called CRM (for Cycle Race Manager) the program is designed for Cycle Racing, but easily functions as well for running events, triathalons, marathons, or any event that uses up to 4 stages of start and finish times for each participant. The software's features include: the use of 20 nameable categories, deducted bonus times, manual placing for multiple tie situations, automatic calculations for each category, printed reports by each stage or final times, and an initial time based starting order generator for each category. Price: \$149.00. For: IBMPC/XT/AT and compatibles, 640K, 2 disks or hard disk systems. For more information Ross Kelleway 581-8747.



HyperComposer Picked By Addison Wesley

Addison-Wesley Publishing Company has begun shipping *HyperComposer*™, The Sound and Music Toolkit for HyperCard, a sound and music "stack" which

makes using sound within HyperCard quick and easy, significantly expanding the sound and music capabilities of HyperCard's Play command from 256 notes to 11,000.

HyperComposer was created by Motion Works, developers of corporate presentation products using HyperCard. Motion Works is located in Vancouver, British Columbia.

HyperComposer allows the user to compose, edit, view, play, and print in two modes: HyperTalk music or a musical score. The possibilities for sound and combinations of sound and music are limitless. Although *HyperComposer* assumes familiarity with HyperCard, users can easily create music and sound scripts without any prior experience in composition.

The suggested retail price for *HyperComposer* is \$69.95. *HyperComposer* runs on the Macintosh Plus, Macintosh SE, and the Macintosh II. The program requires at least 1 megabyte of RAM and HyperCard Version 1.2.1 or later. Minimum hardware requirement: Two 800K disk drives or hard disk. Recommended with System 4.2/Finder 5.3 or later versions (not compatible with System 6.0).

PostLink Offers Postal Codes On PC's

Promark Software Inc. of North Vancouver, B.C., recently announced the release of the new edition of PostLink, a Canadian postal code data base program for IBM and compatible PC's.

New features include: Memory residency - the program may be accessed from within any of the leading text based programs. Reverse lookups - finds the address or range of addresses that apply to any postal code. Postal code output - once a code is

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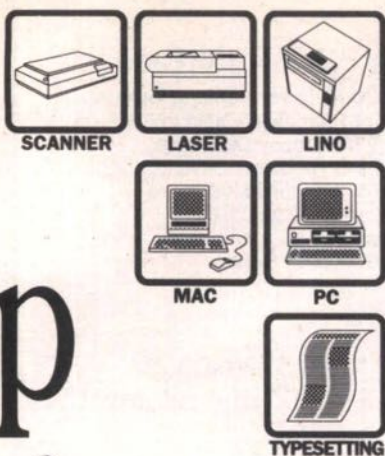


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THE KAYPRO 286

Here's the American-made computer that kicks out all your old assumptions about the cost of truly advanced technology. Consider these facts about the KAYPRO 286.

At its top speed of 16-MHz, the KAYPRO 286 is faster, yet less expensive than most standard 386 systems.* And with the OS/2-compatible KAYPRO 286, adapting to rapidly changing standards doesn't mean reinventing the wheel.

Card-based system components - including the 80286 CPU board - snap out for the ultimate in built-in non-obsolence. Don't play catch up. Keep up with the better power machine.

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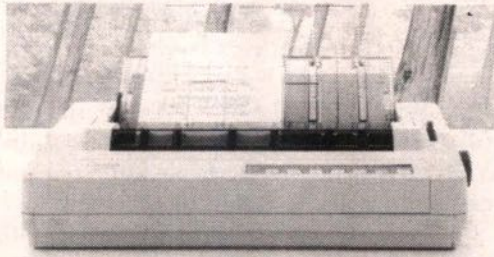
COASTWAY SYSTEM TECHNOLOGY 736-5039

*Norton S.I. of 15.3 to 18.0. Also available with 12-MHz. Trademarks: OS/2, International Business Machines, Works, Microsoft, Inc.



found, it can automatically be transferred to the cursor position in the current program. Address output - when using a word processing program, the user can transfer the complete address and postal code from the PostLink window to the cursor position in the document.

PostLink V4.0 is available in either a regional or national edition. The regional data base retails for \$99.00 and the national edition retails for \$249.00. Contact: Promark Software, Suite 404-935 Marine Drive, North Vancouver, B.C. Canada V7P 1S3. Telephone (604) 988-2051. Fax (604) 988-3040.



Bubble-Jet Printer Competes With HP LaserJet

Canon has introduced its new bubble-jet printer, one of a new breed of ink-jet printers. The company claims that they are as quiet and moderately priced as earlier attempts, but do not require special paper and produce far cleaner output. The BJ-130 is a wide carriage printer with a built-in sheet feeder tractor feed is an optional extra.

The printer includes IBM ProPrinter XL emulation in hardware. HPGL plotter language and PostScript page description language compatibility is optional via third-party software. This gives the AutoCAD and AutoShade user a wide variety of output options, balancing speed with quality. Contact: Glen Cunningham, District Sales Manager, Western Region, Systems Division, Canon Canada Inc., #70, 10551 Shellbridge Way, Richmond, B.C.

V6X 2W9. Telephone: (604) 278-1431. Fax (604) 278-2817. or Coe Computers in Victoria 386-8397 contact Al Chartrana.

PCensus Puts Stats Canada Demographics On PCs

VANCOUVER, B.C. — Directed by Parliament to cost-recover \$10 million from users of the 1986 Census, Statistics Canada has given the green light to private sector distributors to get involved. Tetrad Computer Applications Limited of Vancouver is one firm who, as an official distributor, is selling a value-added product that includes 1986 Canadian Census data.

Tetrad Computer Applications Limited has announced the release of the PCensus package and database for the total 1986 Census including both the 100% population and 20% household sample.

PCensus is a desktop demographics package for the Personal Computer that

puts over 300 census variables, including age and sex, language, ethnic origin, immigration, mobility, family, children, education, labour force, dwellings, households and income on your hard disk drive.

In addition to standard census areas such as Census Tracts and Census Subdivisions, PCensus allows the user to retrieve demographics for an area of any size or shape, anywhere in Canada. This analysis is done by defining concentric circles around a location, or a polygon to describe a neighbourhood or political boundary. In a few seconds, the computer produces a summary of the demographics of the defined area.

Demographics may also be retrieved for any postal coded Forward Sortation Areas ("FSAs") in Canada. This would be useful to organizations who have other information referenced by postal code.

Results may be viewed on the screen, printed as reports, or saved in a file to be used by other computer programs for word processing, spread sheets etc. Up to six study areas may be compared at one time.

For more information, please contact: Wilson Baker, Tetrad Computer Applications Limited, 1445 West Georgia Street, Vancouver, B.C. V6G 2T3. Telephone (604) 685-2295.

EMJ To Distribute Ioline Plotters

Guelph, Ont. — EMJ Data Systems Ltd. is now the National Canadian distributor for Ioline Plotters. Ioline is a manufacturer of A-E size pen plotters. Ioline plotters include the economical LP3500, a single pen A-D size plotter. The Ioline LP3700 is a single or 8 to 20 pen A-E size plotter. The LP4000 is a high speed (20 inches per second [axial]) 8 to 20 pen A-E size plotter.

Ioline manufactures quality products at competitive prices in their facility in Kirkland, WA. Ioline pioneered the continuous sheet plotter which allows the user to do hours of unattended plotting. By allowing up to 20 pens, a variety of users with different pen preferences can use the plotter without changing pens.

Dream Maker Ports Clip-Art to MS-DOS Computers

LOS ANGELES, CA...Dream Maker Software is now shipping two new clip art collections for MS/DOS based systems. Cliptures, Volumes 1 & 2 are a series of business oriented installations for desktop publishing and/or presentations. Each volume is a different collection of original Encapsulated PostScript (EPS) format artwork.

The images are ready to use as-is, or can be modified with Adobe's Illustrator™ program. Many of the graphics are also opaque so that layouts can easily be done over black or screened backgrounds.

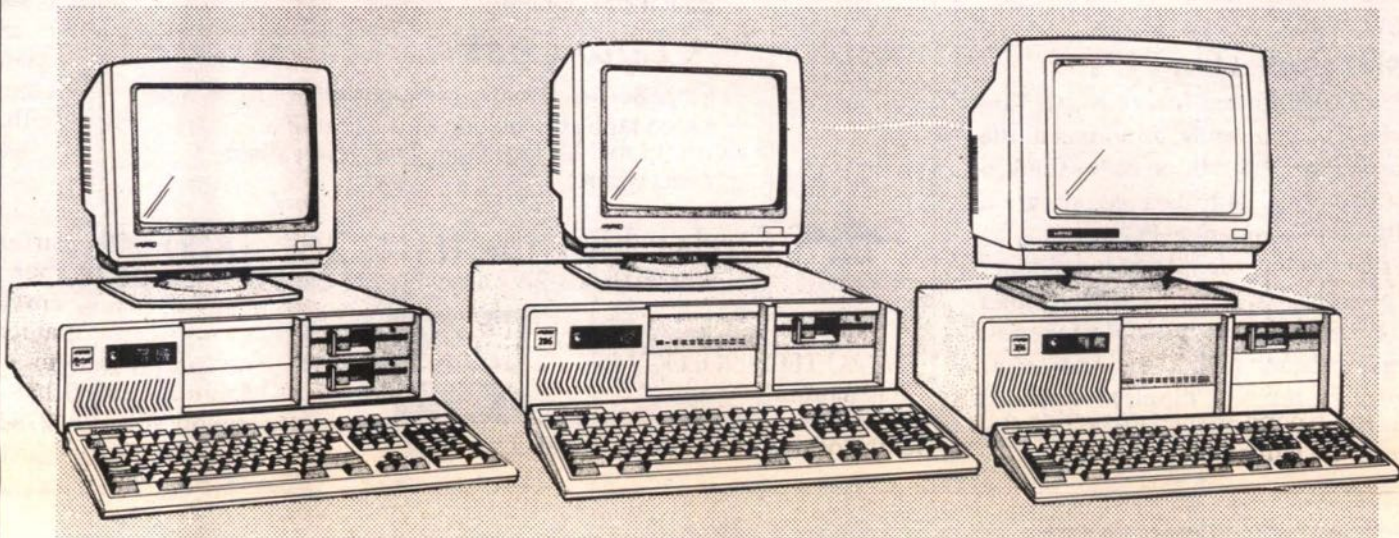
Cliptures' high resolution EPS format allows the artwork to be resized or stretched without loss of clarity or sharpness. Anyone with page layout, desktop presentations or graphics software that accepts IBM format EPS files can use these images. Printing can be done on any PostScript compatible device, from a 300 dot per inch (dpi) laser printer to a 2400 dpi Linotronic machine.

Ashley Fraser Offers Dongle Copy Protection For Software

Ashley Fraser Technologies Inc. of Burnaby, BC has announced the release of ROMLOK-p software copy protection.

ROMLOK-p is a small, self-contained coded hardware device that actively protects software from being illegally used or copied. The hardware is small, incon-

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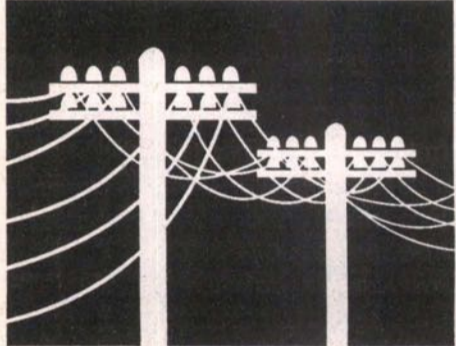


spacious (fits in the palm of your hand), and has dual connectors.

According to the company, ROMLOK-p is very simple to use; a novice can install the product in just 10 minutes. ROMLOK-p consists of three utility programs, for transforming unprotected into protected software, and a hardware device. Inside the device are a custom integrated micro-processor chip, non-volatile memory, and other support circuitry.

Ashley-Fraser claims that ROMLOK-p is the only dongle device with an install/uninstall feature. If a user who already owns a program which is protected by ROMLOK-p buys another which is also protected by ROMLOK-p, that user can simply run a special install program which will automatically upgrade the information from the new ROMLOK-p. ROMLOK-p is available directly from Ashley Fraser, and costs \$70.00. Quantity discounts available.

Ashley Fraser Technologies Inc. 2453 Beta Avenue, Burnaby, BC V5C5N1 (604) 291-2353.



BC Business Network Goes Online With Washington

One of the first tangible results of the Pacific Northwest Economic Partnership is an agreement between Washington and British Columbia to share the wealth of information in the files and databases of their economic development and trade ministries and departments. Information

will be displayed on the BCBN (and on Washington's own bulletin board systems) so that companies on both sides of the border will be able to do market research by looking at the demographics of counties and economic development regions, find distributors and agents, prospect for new customers or reply to tenders.

The first Washington and U.S. listings available include the following:

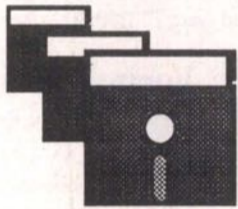
1.) Washington State Associate Development Organizations: Lists 33 county economic development associations in the State, with address, contact person, phone number, and any affiliated counties.

2.) Washington State Department of Trade: Lists 13 branches of the Department of Trade by department name, contact person, address and phone number.

3.) Trade Contacts — General:

A listing of 17 Washington State organizations involved in international trade. Includes government agencies, trade councils, custom's services.

For information about access BC Business Network contact: Ministry of International Business and Immigration, Hon. John Jansen, Minister, 750 Pacific Blvd. South, Vancouver, British Columbia, V6B 5E7. Tel. 660-3900.



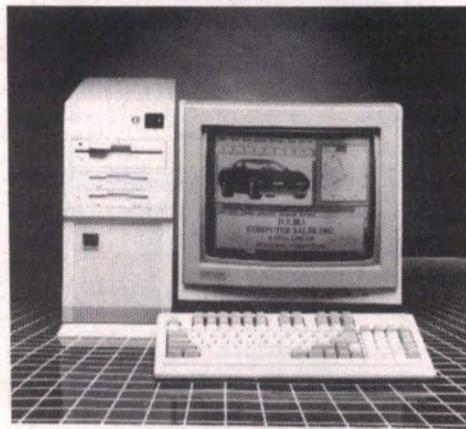
Software B.C.

The regular monthly meeting of Software B.C. was held at Benedict's Restaurant on Thursday, March 30, 1989. The topic was a popular one: marketing software to the United States.

The meeting featured two guest speakers — Jim Pettinger from International Market Access, and David McCullough of Equity magazine. Both David and Jim spoke of the enormous size of the US market and the need to be realistic about how much of this market a small start up company from B.C. can hope to capture.

David emphasized that there are a number of smaller regional distributors that can often take a product to market where the major distributors have not worked out. Jim Pettinger strongly recommended that direct mail be used in some circumstances.

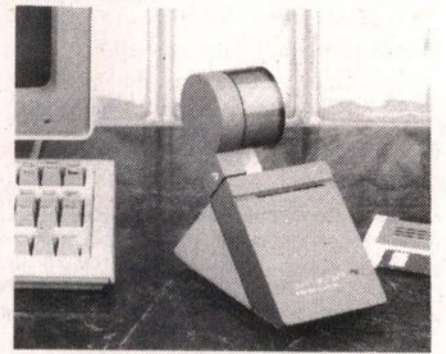
Monthly meetings of Software B.C. take place at Benedict's, 1170 West Pender, Thursdays at 7:30 p.m. The schedule so far is: May 18 Speaker: Open form, with four speakers T.B.A. Topic: "What I did right". June 15 Speaker: T.B.A. Topic: T.B.A.



Express Micro Introduces New 386 Computer

Express Micro introduces the Express 3000 series, a new series of compact 80386 systems. The Express 3000 can be used either as a desk top model or a floor model. Despite its compact in size, it can accommodate up to three 3.5" and one 5.25" drives. The power switch is conveniently located on the front panel. There

are two models in the series which operate at 20 MHz and 25 MHz respectively, each having a total memory capacity of 16 MB. Contact: Express Micro 604-270-8561.



Smart Label Printer

Every so often a product comes along that is brilliant in its simplicity. One that, when you see it, you say, "now why didn't I think of that?" Seiko has come out with what they call a Smart Label Printer, a tiny printer that has the sole job of printing labels. With just the touch of a "hot" key, or mouse, it prints letter quality address labels, file labels, bar codes, or graphics without affecting the operation of your full size printer. It works with MS-DOS and Macintoshes. The Smart Label Printer comes complete with its own software that works in the background on PCs and as a desk accessory on a Mac. It allows you to capture any text right off your screen - for example, an address in a letter - and instantly prints automatically formatted labels. At the same time, your computer and main printer can keep busy with other jobs. The software has its own database for address storage, a text editor, bar code generator and many other features.

For the low price of \$354, you can quit wasting time fumbling with your main printer just to print labels or envelopes. Finally, you can throw away that manual typewriter. Available in mid-June from Computer Canada Corp. 105-3850 Jacombs, Richmond V6V 1V6, 278-5115

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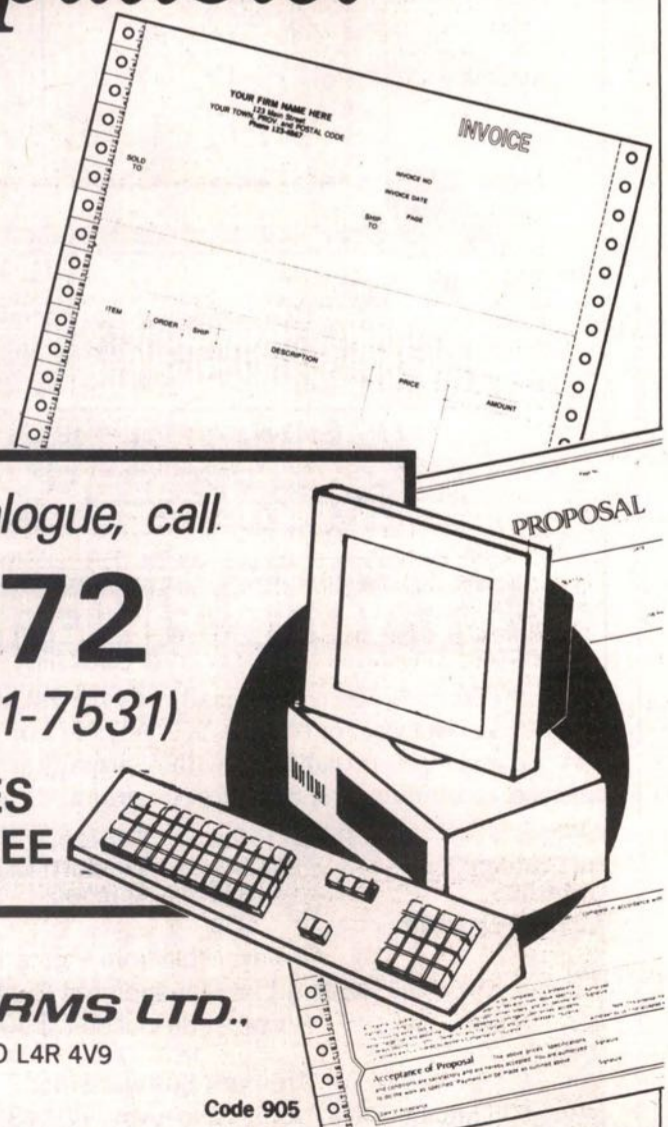
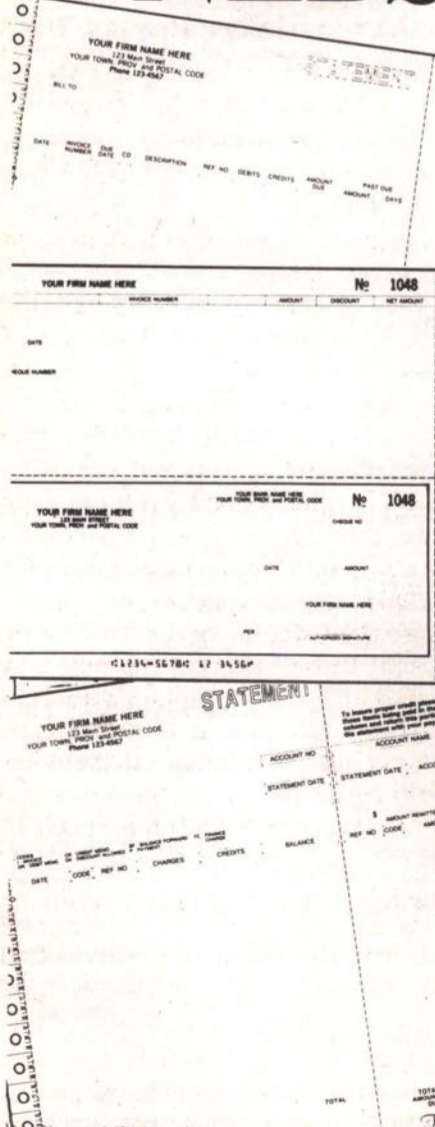
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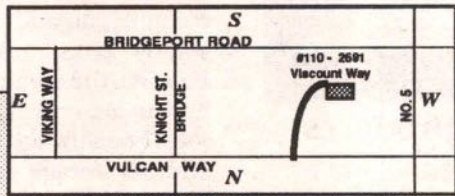
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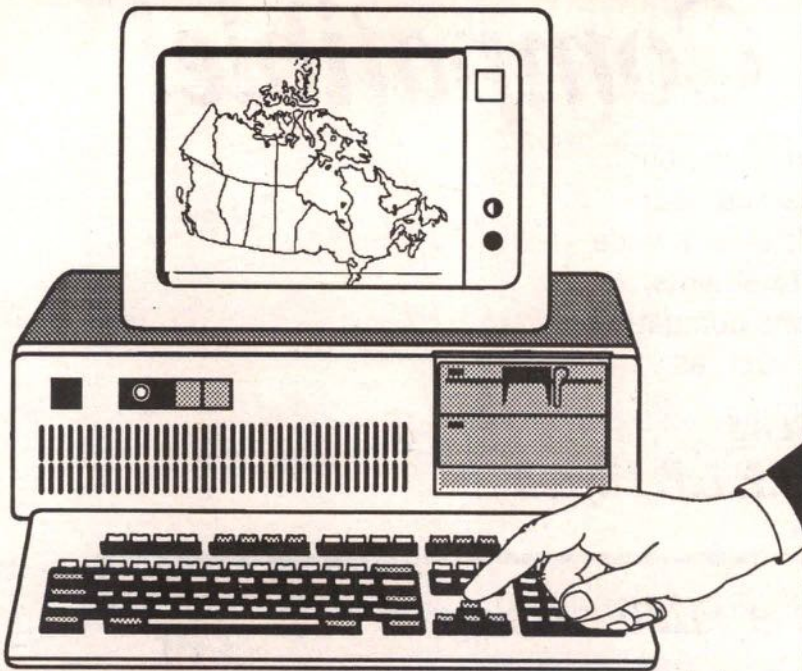
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APPLE WORLD

Nolan Bushnell Shows Up At Macintosh Software Firm

SANTA CLARA, CALIFORNIA, U.S.A., 1989 APR 2 (NB) — Nolan Bushnell, founder of Atari and one of the computer industry's best-known entrepreneurs, has merged his company, AAPPS, with Preferred Publishers, a Macintosh software publisher in Memphis, Tennessee. Preferred just shipped Database and Vantage, desk accessories, and is working on utilities and applications designed for the next, multitasking operating system from Apple Computer, according to MacWeek magazine.

In addition to snaring the Atari founder, the 16-employee company has also attracted Russ Wetmore, a member of the "future systems architectures" group at Apple, to work as part of the company's "dream team."

Preferred plans to open an office in Cupertino, California, in April.

New AutoCAD For Mac

SAUSALITO, CALIFORNIA, U.S.A., 1989 MAR 28 (NB) — Autodesk has announced Release 10 of AutoCAD for the Macintosh, \$3,000, a version of its popular computer-aided design program. As with other versions, AutoCAD Release 10 has 3-D wire frame construction and surface modeling, and AutoLISP, and can share files with other operating system versions of AutoCAD without file conversion. Autodesk is believed to control 50 percent of the computer-aided design market with an installed base of 200,000 users.

Edmonton Forms Software Vendor Moving Upmarket

EDMONTON, ALBERTA, CANADA, 1989 MAR 29 (NB) — Shana Corp. has sold its Fast Forms software and is developing a more sophisticated package for forms generation and management. John Murphy, vice-president of marketing, said his company sold Fast Forms to PowerUp of San Mateo, California early this month, so as to devote its resources to development of InForm, a package which will combine forms generation with a forms management module that includes database capabilities. That will make InForm one of the most capable forms packages on the market, Murphy said. He said Shana's experience in selling Fast Forms showed the firm that users need the database capability, something not offered by Claris' recently introduced SmartForms.

InForm is expected to cost \$490. The forms design module will be available by itself for \$295, and the forms management module will sell separately for \$195. Murphy said the company plans to release the package some time this summer, possibly at the MacWorld show in August.

There's Some SCSI Ether Out

BOULDER, COLORADO, U.S.A., 1989 MAR 20 (NB) — Compatible Systems Corporation has announced Ether+, a SCSI to Ethernet adapter which can be used with any Apple Macintosh computer. The \$495 unit utilizes a new high-integration Ethernet chip set which cuts its price to about half that of competitive products. At the same time the company claims that the second-generation chips enhance available network-management information and make it easier for the user to set up and maintain a network.

Powder Blue Begins World-wide Shipment Of Mac Clone

SANDY, UTAH, U.S.A., 1989 APR 21 (NB) — Powder Blue Computers, a small Utah computer manufacturer, has begun shipping its Blue Maq Apple Macintosh clone. According to Jim Acton, Powder Blue's sales manager, the Blue Maq is between 20 and 90 percent faster than the Mac II/SE series, but costs around 25 percent less than the official Apple product.

"We showed privately at Comdex Spring [earlier this month] and have attracted attention from dealers in several European countries, including Belgium, France, Sweden, West Germany, and the U.K.," he told Newsbytes.

Unlike previous Mac clones, the Blue Maq is being shipped with Apple's official Mac BIOS [basic input-output system] chip set. Acton said that, contrary to conflicting press reports, that Powder Blue is not getting its Mac ROMs [read-only memory] chips from Apple U.S. or its dealers. "We're getting the ROMs from a third party source. They're the genuine

Apple article, and Apple won't be able to stop us getting hold of them. Apple has contacted us about the ROMs, but can't take any action against us, as we're sourcing them through third parties. It's unlikely they'll be able to take any legal action against us in respect of the Blue Maq," he said.

The Blue Maq, which has been shipping in very small quantities in the Utah area for the past few years, ranges in price from \$3,695 to \$5,995. The entry-level model comes with four megabytes [MB] of random access memory, a 65MB hard disk and a 12-inch amber Samsung monitor.

Versions with 68000, 68020 and 68030 microprocessors are available. A 68020-based Blue Maq with similar specifications to the above-mentioned 68000 machine costs \$6,000.

Apple Unveils 32-Bit Color QuickDraw

CUPERTINO, CALIFORNIA, U.S.A., 1989 APR 17 (NB) — Apple Computer has unveiled an extension to Color QuickDraw which supports up to 32 bits of information per pixel. The new graphic system software allows 68020 and 68030-based Macintoshes with System Software Version 6.0.3 to display millions of colors, compared to the previous 8-bit version's 256. The software will enable the manipulation of 24-bit images, providing smooth shading, and "transitions in graphs and slides for truly lifelike images and textures," according to Apple's Jim Davis, director of system software marketing. "32-bit QuickDraw changes the way customers look at the Macintosh."

Among companies which plan to support 32-Bit Color QuickDraw are Radius, RasterOps, SuperMac, BarneyScan, Visual Information, Electric Image, Tektronix, and Intergraph.

Apple has also released LaserWriter 6.0, a new version of its PostScript printer driver that includes color extensions. The new driver allows most existing color Macintosh applications to print in color on color PostScript printers.

Both 32-Bit Color QuickDraw and LaserWriter 6.0 will be available free of charge from Apple dealers and other distribution channels in May.

Apple Sells More, Keeps Less

CUPERTINO, CALIFORNIA, U.S.A., 1989 APR 18 (NB) — Apple Computer sold 44 percent more product in its last quarter than in the year-ago period, translating to \$1.247 billion in sales, but net income took a nose dive to 29 percent — \$56.4 million compared to \$79.7 million a year ago. The decrease in income is generally attributed to Apple's poor timing in buying up huge quantities of dynamic random access memory [DRAM] chips when prices were high.

"We believe the problem of excess high-priced 1 MB DRAM is now substantially behind us. We look forward to improvement in gross margins in the coming quarters," explained John Sculley, Apple chairman, in a prepared statement.

Looking on the upside, Sculley remarked, "We are well on our way to surpassing \$5 billion in revenues this year." He adds "These results mark our twelfth consecutive quarter of significant revenue growth."

MindWrite, Trapeze, Drastically Cut In Price

MONTEREY, CALIFORNIA, U.S.A., 1989 APR 21 (NB) — Shunning established distribution channels, Access Technology has launched a campaign to sell its three Macintosh software products to end-users by mail, at a drastically reduced rate. Version 2.0 of MindWrite is \$39.95 compared to the normal \$195, MindWrite Express is \$49.95 compared to a regular price of \$250, and Trapeze is \$59.95 contrasted with \$295.

"The high cost of advertising and promotion has made it increasingly difficult for independent software developers of quality products to get noticed," says Ray Kingman, director of sales and marketing. "The channel is full," he told Newsbytes, "Microsoft and Claris get the mindshare [of business] because they have the most clout. We weren't getting far in that route in terms of spending so we went for the direct mail route."

MindWrite, introduced in January, 1987, is a powerful word and outline processor which offers unlimited windows, accumulating clipboard, and the ability to move text by "dragging" it with a pointer. MindWrite Express is

the network version, able to read and write document formats from WordStar, MultiMate, WordPerfect, and other MS-DOS packages. Trapeze is an integrated presentation worksheet which provides a spreadsheet in a page layout environment.

Kingman says there is no relationship between the low prices, which are part of a limited time offer, and his plans to buy out the Access Technology Macintosh division, along with others in the unit, from the company's parent. He says details on the purchase should be available next week.

Those interested in ordering should contact the company at 800-367-4334 or 408-648-4000.

Symantec Anti-Virus Utility For Macintosh

CUPERTINO, CALIFORNIA, U.S.A., 1989 APR 17 (NB) — Symantec is about to release the most powerful Macintosh virus-killing and virus-preventive program to date. Symantec AntiVirus for Macintosh, or SAM, will not only detect and identify viruses already in the system, but will prevent them from entering. Symantec says the program will stop such viruses as Scores, nVir, Hpat, Init 29, and ANTI, and promises to update the program when needed as new virus strains are documented. Once detected, the virus can be removed from the system or file. SAM also has the capability to detect some unknown viruses because it looks for illegal actions in addition to the known virus strains.

SAM will be released in May at \$99.95. It's Multifinder compatible and works in standard network environments such as AppleShare, TOPS, and MacServe. The program also has a 30-day money-back guarantee.

Macintosh Scanners From Complete PC

MILPITAS, CALIFORNIA, U.S.A., 1989 APR 18 (NB) — The Complete PC has released two reasonably-priced desktop image scanners for the Macintosh. The Complete Page Scanner for the Macintosh, \$1,199, is a 200 or 300 dots-per-inch [dpi] sheetfed scanner which can scan an image up to 8 1/2 by 14 inches in under 30 seconds. The Complete Half-Page Scanner/400, \$499, scans images up to 4 inches by 14 inches at 200, 300 or 400 dpi.

Both scanners offer 16 levels of gray, a choice of three dithering patterns, SmartScan software for image manipulation, and an interface box to attach the unit to the Macintosh SCSI port.

CAD Gets Two Awards

HUNTINGTON BEACH, CALIFORNIA, U.S.A., 1989 APR 17 (NB) — Versacad Corporation has received a pair of awards for its VersaCAD/Macintosh Edition CAD [computer-aided design] software. MacUser magazine presented the product with its 1989 "Editors' Choice Award" for the "Best New CAD/CAM [computer-aided manufacturing] Package" of 1988. The second prize was awarded by InfoWorld for "1988 Product of the Year" for "Macintosh CAD Software."

Intergraph Announces Macintosh Version Of Microstation PHILADELPHIA, PENNSYLVANIA, U.S.A., 1989 APR 18 (NB) — Intergraph has unveiled an Apple Macintosh version of its MicroStation CAD/CAM software at the NCGA '89 trade show in Philadelphia. The software takes full advantage of the Macintosh user interface.

MicroStation Mac offers a complete graphics database compatibility with other MicroStation versions, and an interface to the Oracle relational database manager, as well as true #D support.

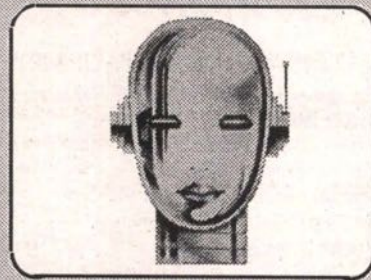
The product, which requires a Mac II, IIx, or SE/30, will be available in July of 1989, with a list price of \$3,300.

Blyth Releases New Omnis Version For The MAC

AMSTERDAM, THE NETHERLANDS, 1989 APR 21 (NB) — Blyth Software has announced a version of its Omnis V relational database management system [RDBMS] system for the Apple Macintosh. Omnis V is a relational/hierarchical database program which has been specifically designed to use the graphics interface, extended memory and color capabilities of the Macintosh II system. Such facilities don't come cheaply, however. At \$1,200, the package is one of the most expensive on the market.

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ATARI

Jack Tramiel Says Atari Aimed At Sophisticated Young Users

SYDNEY, AUSTRALIA, 1989 MAR 28 (NB) — Pocket-size computers will be as popular as calculators with the next generation, Atari Chairman Jack Tramiel said in opening the recent PC89 conference in Sydney. He just happened to have one to show, too. The pocket IBM-compatible will ship in June or July for AU\$495.

Tramiel also predicted children will become more discerning about computers, and Atari will capture users young. Atari Managing Director in Australia Nigel Shepherd said Atari would promote its computers for "cool kids" who would say "no way" when parents suggested a Commodore 64.

lion this year, and Sun Moon Star Co., with sales this year of \$55 million. Altogether Digital has sold more than two million licenses for the product since its introduction in June, 1988, according to rank Iveson, vice president of sales at Digital.

According to Computer Letter, an influential industry newsletter compiled by Technologic Partners in New York City, Digital has sprung back to life thanks to Dick Williams, a 22-year IBM veteran, who joined DRI in 1987. He ended the layoffs, promoted people, got investor capital, and oversaw development of a group of operating systems for multitasking applications — FlexOS — and graphics products — GEM.

Digital Research is the nation's 19th largest software producer, in terms of 1988 revenues, according to SoftLetter.

SoftLetter Ranks 100 Top Software Companies

CAMBRIDGE, MASSACHUSETTS, U.S.A., 1989 APR 21 (NB) — SoftLetter, Jeffrey Tarter's newsletter with an inside view of the software industry, has compiled its sixth annual survey of the 100 largest software firms, and once again Microsoft leads the pack. With revenues of \$718,570,000 last year, Microsoft is followed by Lotus, Ashton-Tate, Wordperfect, Autodesk, Borland, Adobe, Software Publishing, Aldus, and Logitech.

The growth leaders were Softbridge, which is 182 percent bigger than last year, Microlytics, 167 percent larger, in terms of revenues, Datastorm, Education Systems, Symantec, Chipsoft, MapInfo, Phoenix Technologies, Software Toolworks, and Micrographix [up 132 percent].

In the area of productivity, Microlytics was on top, with \$411,429 in sales per employee. Microway, Funk, Accolade, American Small Business Computer, Central Point, Adobe, Chronos, Electronic Arts, and Peter Norton Computing followed, in that order.

Among the companies which disappeared from this year's list were Nantucket, RealWorld, ZSoft, Laser Friendly, Palantir, Zenographics, and Pinpoint.

Graph Maker Runs On ST

MANTECA, CALIFORNIA, U.S.A., 1989 MAR 14 (NB) — Artisan Software has announced Graph Maker for all Atari ST and Mega computers. The company describes the software as a powerful GEM-based graph and mapping application for the creation of bar, line, and pie graphs. The \$59.95 product also supports the import of Neochrome and Degas pictures. Up to five separate clip-art elements can be combined in a single graph.

B.C. BYTES

Dell Hits The Road In B.C.

VICTORIA, BRITISH COLUMBIA, CANADA, 1989 APR 18 (NB) — The Province of British Columbia's Ministry of Transportation and Highways plans to buy up to C\$2.4 million worth of personal computers from Dell Computer over the next year, beginning with a first shipment valued at C\$700,000. The ministry will use Dell System 310 PCs to design new and reconstructed highways and in supervising road construction. The 20-megahertz, Intel 80386-based PCs will run commercial software as well as programs developed by the ministry. The ministry cited Dell's unlimited free technical support as one reason for its choice.

BUSINESS

Ottawa-Based Company Buys Lanpar Assets

OTTAWA, ONTARIO, CANADA, 1989 APR 7 (NB) — Softco Manufacturing, a year-old systems integrator, has bought the assets of bankrupt Lanpar Technologies of Markham, Ontario. Formed in a basement by a former Lanpar employee and an ex-stockbroker, Softco is a hitherto obscure firm that specializes in Tempest technology equipment that resists electronic eavesdropping. The purchase price has not been disclosed.

Lanpar manufactured computer terminals through a subsidiary, Northern Technologies. It also distributed an assortment of computer products and ran a nationwide third-party service operation. The Royal Bank of Canada, Lanpar's largest creditor, appointed Coopers and Lybrand as receiver for the company in March. Lanpar owed the bank C\$11 million.

CANADIAN NEWS

NeXT Stop Canada

MARKHAM, ONTARIO, CANADA, 1989 APR 7 (NB) — BusinessLand Canada already has several NeXT workstations. The Canadian subsidiary of U.S.-based BusinessLand, which recently announced a deal with Apple founder Steve Jobs' new venture, will feature the high-powered, Unix-based workstation that starts June 9. Bob Henderson, vice-president and general manager of BusinessLand Canada, said the workstation will probably be available from BusinessLand's Toronto location "well before that." A Canadian retail price has not been set yet, but BusinessLand's U.S. parent has set a retail price of \$9,995. Allowing for currency exchange and Canadian federal sales tax, this is likely to translate into a Canadian price between C\$13,000 and C\$13,500.

Acquisition Puts AISI Research On VSE

VANCOUVER, BRITISH COLUMBIA, CANADA, 1989 MAR 28 (NB) — AISI Research, a developer of home- and building-automation technology based in Victoria, British Columbia, is now listed on the Vancouver Stock Exchange under the ticker symbol "AIZ". Using a device popular for taking private companies public quickly, a company with an existing listing, Garbo Industries Ltd., took over the privately held AISI and then changed its own name to AISI Research Corp. Along with the name change, AISI announced a two-for-one stock split and private placements totalling about C\$1.2 million.

Compuadd Launches Into Canada

TORONTO, CANADA, 1989 APR 21 (NB) — Compuadd Corporation, the PC retailer, has opened its first retail store in Canada. The store, located in Toronto, covers 12,000 square feet and will employ more than 20 staff by the end of the year.

Paul Scarmardo, previously corporate sales manager for U.S. retail operations, has been appointed retail channel manager of Canadian operations. Plans call for the opening of two further Canadian stores by the end of the third quarter of 1989.

Neil Bremner, manager of Compuadd's U.K. operations, said that the Canadian operation forms the second stage of Compuadd's expansion into the international market-place, following the opening of the U.K. headquarters in Bristol, England, six months ago.

"Both operations are strategically important in helping Compuadd extend the reputation it enjoys in the U.S. to a much wider frame of reference," he said.

Compuadd currently has 17 retail outlets in the US and, including the Canadian operation, plans to have more than 40 in place by the end of the year.

DR DOS Returns Glow Of Health To Digital Research

MONTEREY, CALIFORNIA, U.S.A., 1989 APR 17 (NB) — Digital Research is enjoying a renewed vigor thanks, in part, to brisk sales of DR DOS, its low-cost, DOS-compatible operating system. Kaypro is the latest to bundle the operating system with its entire family of 80286 and 80386-based personal computers. Other companies that have snubbed Microsoft in favor of Digital's DOS are Taiwan's Auto-computer Company, Ltd., a leading Taiwanese exporter of computers with sales of \$100 mil-

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NOTICE OF CORRECTION

Last month's ad for Computer Empire contained a error. A 386 system & a 286 system were listed with VGA Card & Multisync monitor. These systems should have in fact been listed with monographic card & amber TTL monitors. We regret the error which was missed in the proofing process and apologize for any inconvenience caused to Computer Empire, its customers and competitors.

CD-ROM

CD-ROM Extensions Support Interleaved Audio

ANAHEIM, CALIFORNIA, U.S.A., 1989 MAR 28 (NB) — Microsoft Corporation [NASDAQ: MSFT] announced Microsoft MS-DOS CD-ROM Extensions version 2.1 at its Fourth Annual CD-ROM Conference. Version 2.1 includes support for interleaved audio in CD-ROM XA applications, compatibility with DOS version 4.0, and the ability to share CD-ROM drives on a LAN [local area network] server supporting Microsoft Networks.

Intel Launches

DVI Technology

ANAHEIM, CALIFORNIA, U.S.A., 1989 MAR 28 (NB) — Intel Corporation announced its Pro750 Application Development Platform for the creation of DVI [digital video interactive] software and hardware products. DVI technology brings motion video [natural images], audio and high-speed graphics to the personal computer through a combination of high-capacity storage and transparent, real-time image compression. The announcement was made at Microsoft Corporation's Fourth International Conference on CD-ROM.

The Pro750 system, comprised of three add-in boards, four add-on modules, system software and authoring software, requires an 80386 platform. Demonstration software is included which contains examples of DVI microcode routines and a collection of application software samples. Intel also announced training and support programs for the system.

Capabilities of the system include still-image capture and compression, capture and edit of digital audio, and layout and formatting for replication on CD ROM.

It was also announced at the conference that Intel would join with IBM to bring the DVI technology to IBM's PS/2 systems. The agreement calls for the development of MCA [micro channel architecture] boards for DVI. IBM will work with Intel to define new DVI technology products including boards, software and integrated circuits. However, Intel's senior vice president and general manager of the Microcomputer Components Group, David House, emphasized that the DVI technology would be an open specification. According to

House, Intel will publish the specifications for DVI-based systems for the use and review of interested parties.

At a joint press conference in Anaheim, House clarified the Intel strategy further saying that the entire DVI system would eventually be placed on chip sets priced to be "cost effective" and "pervasive." IBM's Cannavino, president of Entry Systems Division, added that IBM is "committed" to the technology as a "natural way to interface with the computer."

DESKTOP PUBLISHING & GRAPHICS

IBM And Corel Systems Ink Software Agreement

OTTAWA, ONTARIO, CANADA 1989 MAR 28 (NB) — Corel Systems and IBM have announced that COREL Draw software is now available through IBM's direct sales for in the U.S. The new product is part of the IBM Vendor Fulfillment Program.

COREL Draw is a powerful illustration/drawing package that runs on IBM AT and PS/2 computers as well as compatible equipment. COREL Draw joins Aldus PageMaker, IBM Interleaf Publisher, and IBM Publishing Systems BookMaker as part of the IBM Publishing Systems software product offerings.

Adobe Releases MS-Windows Illustrator For The PC

AMSTERDAM, THE NETHERLANDS, 1989 MAR 31 (NB) — Adobe Systems Europe has released Adobe Illustrator, the popular PostScript drawing package, for the IBM PC and close compatibles. The package retails for UKP 595 and is available immediately.

Adobe Illustrator was originally released in March '87 for the Apple Macintosh. The PC version, which runs under Microsoft Windows, requires at least 640K of main memory and 256K of expanded memory to accommodate the program and data files. In addition, a hard disk plus single floppy drive, and EGA, VGA or Hercules monochrome system card is required to run the package.



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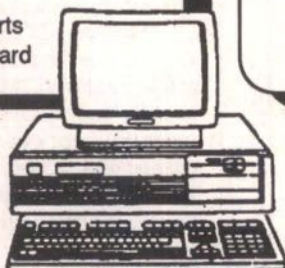
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Ad Production Management Software Debuts

CULVER CITY, CALIFORNIA, U.S.A., 1989 MAR 31 (NB) — Information International, Inc. [triple-I; NASDAQ: IINT], has introduced the Ad Manager advertisement production management system. Ad Manager's Unix-based production support modules provide control over advertising workflow in an electronic environment. System modules include Ad-Stack Monitor, Ad Auditor, Ad Reporter and AD Tracker. The integrated product was unveiled at the American Newspaper Layout Managers Association [ANLOMA] conference in Phoenix.

Ad-Stack Monitor works in conjunction with either an automated advertising layout system—such as triple-I's Layout Advisor, SCS's Layout 8000, SII Layout, or Atex Architect—or manual advertising layouts to monitor the status of all advertisements for a given product. Up to the limit of the layout system's capacity, a product may be a complete newspaper edition, a section, or a zone, and multiple products can be monitored. Advertisements are automatically associated with completed news pages and scheduled for full-page recording by Ad Monitor.

Ad Auditor analyzes the advertising make-up process, continuously and transparently collecting data on workstation functions.

Ad Reporter—scheduled for mid-year release—will provide an administrative tool with access to the production database through query-by-example. Its reports can be generated for the screen or hard copy.

Ad Tracker—scheduled for release late in the year—will follow the physical progress, and provide the location, of advertisements as they move through the production cycle. The module obtains data from bar code and/or badge reader stations placed strategically around a newspaper plant.

All modules are built around triple-I's Sun-based display Ad makeup Station [AMS/2] and have a standard, window-driven interface.

EDUCATION

Apple Computers Eligible For Ontario School Grants

MARKHAM, ONTARIO, CANADA, 1989 APR 19 (NB) — The Ontario Ministry of Education has approved Apple Macintosh computers for classroom use, making schools that buy them eligible to have a quarter of the cost paid by the province. Canada's most populous province approved the Macintosh SE as a stand-alone classroom workstation, the Mac IIx and IIx as network workstations and the Mac SE and Mac II as network file servers.

The decision confirms the end of the province's attempt to boost Canadian PC manufacturing through school microcomputer procurement. Ontario introduced a set of specifications for educational PCs in the early 1980s to which no popular microcomputer conformed, but which were met by the Icon, a computer specially designed by Canadian Educational Microprocessor Corp. of Toronto. Unisys now markets the Icon. Later, IBM Canada adapted its PC technology to produce a machine called the EdNet which also met the specifications. However, the machines could not run popular software. Even the provincial government's own internal auditor was critical of the policy, and last year the Ministry of Education changed direction, first by extending approval to Commodore computers.

GENERAL

New Industry Survey From Dataquest And AEA

SAN JOSE, CALIFORNIA, U.S.A., 1989 MAR 29 (NB) — The American Electronics Association [AEA] and Dataquest will publish a monthly report on the worldwide computer and workstation market and say it will have analysis and statistics never before available.

"Monthly PC/WS Analysis," a monthly report, the first of which is expected to be available this fall, will cost \$2,000 per year. The report is expected to contain information about inventory, work in progress, orders and shipments, trends, book-to-bill ratios, distribution methods and component technologies, gathered from AEA member firms, of which there are 3,500.

Those companies participating in the survey are entitled to a free subscription. AEA members received discounted subscriptions.

PC Software Industry Set For Gala Awards Ceremony

WASHINGTON, D.C., U.S.A., 1989 MAR 28 (NB) — The Software Publishers Association has announced that the 1988 SPA Excellence in Software Awards will take place on May 23 in San Diego.

The formal affair will be hosted by computer-enthusiast and TV actor Harry Anderson, and will feature awards in 41 different categories. Among the products up for the Best of the Best award are, WordPerfect 5.0 from WordPerfect Corp., Adobe Illustrator 88 from Adobe Systems, Microsoft OS/2 Presentation Manager from IBM and Microsoft, MORE II from Symantec, and Q & A 3.0 from Symantec.

COMDEX Opens With Defiantly Upbeat Tone

CHICAGO, ILLINOIS, U.S.A., 1989 APR 10 (NB) — Sheldon G. Adelson devoted his customary COMDEX-opening remarks today to denying that the computer industry faces a downturn. His mood was echoed by the conference's three keynote speakers, but not everyone is as optimistic.

Alluding scornfully to press reports and magazine feature stories about the "maturing" of the computer industry, Adelson said the industry needs an equivalent of broadcast sex counsellor Dr. Ruth Westheimer to tell it that continued growth, like sex, is "not only possible, but probable" after the age of 40. He concluded his remarks by quoting the title of a current hit song, "Don't Worry, be Happy." The keynote speakers seemed to take their cue from their host. John Doerr, general partner in the venture capital firm of Kleiner Perkins Caufield and Byers, called the personal computer industry "the greatest legal creation of wealth in human history." Raymond Noorda, president and CEO of Novell, said the industry's growth is just beginning. Heidi Roizen, co-founder and president of T/Maker Co., talked of the computer as a "tool for creative expression." Roizen also noted a current industry concern, the proliferation of different hardware platforms. While acknowledging large and wealthy software developers have an advantage, though, she said small software vendors can prosper "if you only develop on one platform but you do it well."

Later in the day, however, industry analyst Will Zachmann offered a less rosy view. The president of Canopus Research in Duxbury, Mass., and a veteran industry watcher, Zachmann was a member of a panel on core issues in the PC industry. He said an economic downturn is coming and the computer industry will not be immune. "IBM is going to lose money in at least one or two quarters in the next couple of years," Zachmann said. He added, though, that the PC industry will come through the coming hard times relatively well, with the real bloodshed reserved for traditional mainframe and minicomputer vendors. Those traditional systems, Zachmann said, are "dead meat."

COMDEX Wrap Up

BURBANK, CALIFORNIA, U.S.A., 1989 APR 14 (NB) — There were two or three very important announcements at COMDEX depending on your areas of interest. One has long-term implications; the others are less enduring but will have more dramatic short-term effects on the way computers are used. The most important, of course, particularly in the long term, is the i486 chip with its integration of processor, enhanced math coprocessor, cache management and cache memory. It will provide smaller, more powerful and lower cost computers that should endure at least until the turn of the century. It might even contribute to software standardization if developers take advantage of the known cache size to write code which efficiently uses it.

Intel's announcement also means more stability for processor design. There really isn't much reason for Intel to change this chip unless it's to make it faster or less demanding of power. Those objectives can likely be achieved without changing the chip's functionality. Perhaps the integration of graphics could be justified once it has evolved to a sufficiently high level. But developers will probably jump on the stabilization to create applications which will endure. More immediate changes will come from the IBM-licensed MCA [Micro Channel architecture] clones which will appear in about two months. The appearance of these machines will probably have the same effect that the first PC AT clones had. Although the AT seemed to gain slow acceptance at first, a year after the first one or two

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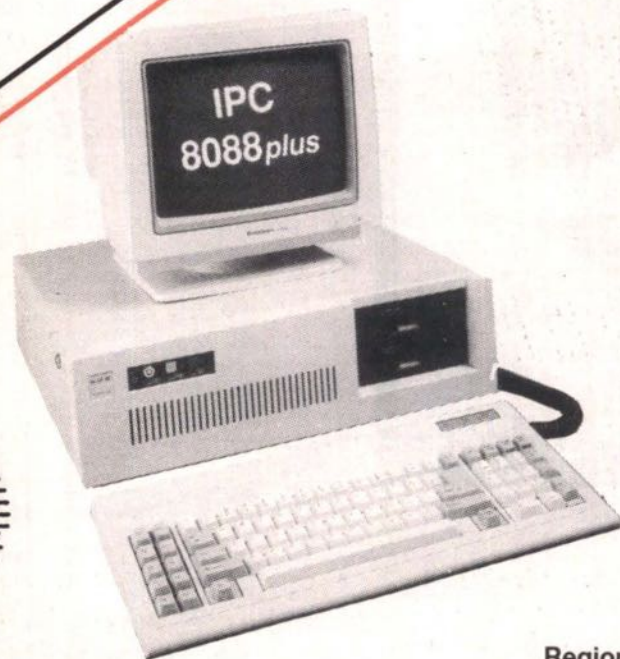
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3D Microcomputers

clones came out, everyone was busy trying to sell into the market of power users that appeared.

The market for MCA copies might penetrate corporate America too. The Darius Pro-Portable from Mission Cyrus combines both the Micro Channel and portability. It's the only game in town for companies that have committed to the MCA and need a compatible portable.

It's also an impressive machine in its own right. The \$10,000 ProPortable weighs less than 20 pounds and includes nearly every desirable option right on its motherboard. Serial and parallel ports, floppy and hard-disk controllers [IDE], a SCSI port, an 80385 cache controller and static RAM, an Ethernet controller and a Hewlett-Packard DeskJet printer are all built into the 25 MHz., 80386-based machine.

It doesn't take a particularly good memory to recall that it was Compaq's combination of quality and portability that originally helped to open the corporate doors for the first PC compatibles. History surely might repeat itself.

Atari's \$395 kneetop portable is going to

change the way many end-users compute almost immediately. With 640 kilobytes of memory, MS-DOS compatibility, built-in word processing and spreadsheet software and credit-card sized memory modules, the under-one-pound wonder will finally make it convenient to use a computer anywhere. My guess is that it will be hard to keep them on the shelves for months after they appear.

Atari also had an ST laptop and a \$4000 desktop publishing system complete with a PostScript language compatible laser printer. If they can actually deliver these products to the U.S. market in quantity, they should turn around some of their recent misfortunes.

Not only would I say that Spring COMDEX was successful, I'd say that it definitely proved itself more than a regional show with the key announcements made there. On the other hand, there were some major announcements which were made just before COMDEX and even a couple made during the show and in Chicago — but not at the show. But, even though a Hewlett-Packard or Sun might not participate on the floor, they give the event its due by choosing a nearby venue for their announcements.

Salaries Of Top Computer Execs Are Ranked

MANHASSET, NEW YORK, U.S.A., 1989 APR 10 (NB) — Computer Reseller News has ranked the salary and wealth of top computer executives, with Apple's John Sculley showing the highest salary for the second year in a row. Sculley received \$2,479,000 in salary, with Rod Canion of Compaq next at \$1,866,839, and Michael Blumenthal of Unisys third at \$1,862,886.

John Akers, chairman of IBM, the world's largest computer company, received \$1,525,500 in salary.

For the second year in a row, Microsoft Chairman Bill Gates remained the stock-richest executive, with a value of \$1,023,807,451.

Will There Be Fewer French Nuclear Tests?

MURAROA ATOLL, SOUTH PACIFIC, 1989 APR 12 (NB) — The introduction of higher power U.S. Cray supercomputers to the French nuclear weapons design laboratory is expected to reduce the number of South Pacific tests

necessary to design each future French warhead. France has on average required three times as many nuclear tests as the United States for each type of warhead developed, a United States study has found.

The respected Natural Resources Defence Council [NRDC] claims in a new study on French nuclear testing that on average since 1960, around 20 tests were required for each type of nuclear weapon in the French arsenal. That compares with 6-8 tests for each modern type of U.S. warhead.

IBM Slammed As Ozone-Killer

SAN JOSE, CALIFORNIA, U.S.A., 1989 APR 22 (NB) — IBM Corporation's facility in San Jose is the nation's largest belcher of chlorofluorocarbons [CFCs], emitting an estimated 130 million pounds a year. This was the finding of a coalition of environmentalists, including Citizens for a Better Environment. The group is appealing to IBM to pledge an immediate phase-out of CFC-113 by signing a Global Good Neighbor Agreement.

IBM's spokesman Ray Kerby says the chemical, which is known to destroy the earth's ozone layer, is used to clean and dry parts used in the making of disk drives. "We chose to use CFCs because they are nonflammable, non-corrosive, and have very low toxicity. Since the environmental effects of CFCs have been understood more fully, we have been working to reduce our use."

That's not enough, however, for protesters, including consumer watchdog Ralph Nader, who planned to stage a massive rally near IBM on Saturday, April 22. Other protests are slated for polluters in Houston, New York, and Wichita, Kansas, as well as nine other countries as part of Worldwide Earth Day '89.

The Computer Paper Launches Edition In Alberta

CALGARY, ALBERTA, CANADA, 1989 APR 21 (NB) — Calgary has joined the list of Canadian cities with a monthly computing tabloid, as *The Computer Paper*, a 16-month-old monthly based in Vancouver, launches a Calgary edition. The Calgary edition, to be distributed also in Edmonton, Alberta, will share most of its editorial content with the Vancouver paper but will carry some local news and a calendar of events in the province.

Initial circulation is expected to be 50,000. The Vancouver edition of *The Computer Paper* is also increasing circulation to 50,000 copies.

No Privacy: Computer Report

URBANA, ILLINOIS, U.S.A., 1989 APR 19 (NB) — Dr. David F. Linowes of the University of Illinois, who headed up the Privacy Protection Commission in the mid-1970s, has concluded in a follow-up book on the subject that the right to be left alone is being destroyed by computers. Businesses are rapidly adding hearsay, doctors' reports, and private investigators' reports to the files they keep on employees, denying those employees access to them, then denying those same employees promotions based on them. His book, "Privacy in America: Private Life in the Public Eye," is now being published by the University of Illinois Press, and he's on the interview circuit promoting it. Its ISBN Number is 01604-1.

In an exclusive interview with Newsbytes, Dr. Linowes denied the existence of any conspiracy. "That happens to be the pattern they're following," he said. "It's not premeditated. Over half the companies I contacted hadn't even reviewed their practices for abuses."

Linowes wants national legislation to mandate a policy on releasing information based on three principles: minimal intrusion into private affairs, a maximum of fairness to employees, and an enforceable expectation of confidentiality. "You give banks, doctors and others information with the expectation it will be held confidential, but it's not," he said. He believes it should be. Among those fighting for an enhanced privacy act now, he added, are Democratic Reps. Don Edwards of California and Glenn English of Oklahoma, and on the Republican side Rep. Ed Madigan of Illinois and Sen. Jake Garn of Utah. Expect a bill to come before Congress this session.

IBM WORLD Program Helps Analyze Stock Option Purchases

VICTORIA, BRITISH COLUMBIA, CANADA, 1989 MAR 31 (NB) — Speculation about the role of program trading in the October, 1987, stock market crash drew everyone's attention to the role of computers in the stock market.

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But many users may think software that analyzes the complex world of options and futures is only available to the pros. Not so.

Canadian software developer Radix Research recently signed a distribution agreement for its Option Valuation Model, a software package that runs on IBM PCs and compatibles and helps assess the value of stock options. Info Globe, electronic publishing subsidiary of the Toronto daily newspaper The Globe and Mail, now distributes the package in Canada. Radix intends to market OVM itself in the United States. The software sells for C\$349.

Novell Works On Foxy dBASE Server

AUSTIN, TEXAS, U.S.A., 1989 MAR 28 (NB) — Novell, Inc., and Fox Software, Inc., Tuesday announced a joint development and technology transfer agreement. The two companies plan to codevelop FoxServer, a database server which combines NetWare SQL, Novell's open- interface, relational-database engine, with Fox's dBASE-language technology.

The agreement will result in Fox providing server-based relational database management to the dBASE-language market. While FoxServer will initially support DOS workstations, the companies intend to extend support to other workstation environments in the future, including the Macintosh.

Fox Software becomes the first NetWare SQL Original Equipment Manufacturer and will exclusively manufacture, market and support FoxServer, giving their customers a single source for Fox development products. Both companies will participate in a series of joint marketing activities designed to promote the use of these products in implementing distributed database management solutions.

IBM Introduces New Advertising Campaign For Computers

WHITE PLAINS, NEW YORK, U.S.A., 1989 APR 14 (NB) — IBM has introduced a brand new advertising campaign, with the theme, "This is not the IBM I knew." The campaign, created by the ad agency Wells Rich, Green Inc., was based on extensive research, and attempts to convey that IBM is positioning itself as delivering the best set of hardware and software solutions in the industry.

An IBM spokesman said the ads, "reflect the commitment to IBM as a problem solving company committed to delivering the solutions our customers want."

Wells, Rich, Greene is using the photographer Richard Avedon as both commercial director and still photographer for the ad series, to deliver a distinctive graphic signature. Each ad in the series features a customer portrait whose business life has improved because of IBM products.

TV ads will first air on "Around the World in 80 Days" on April 17, and "War and Remembrance," on May 5-14. Print ads will first appear in The Wall Street Journal during the week of April 16.

New OCR S/W Allows Hand-Held Scanners To Read Type

CHICAGO, ILLINOIS, U.S.A., 1989 APR 10 (NB) — Olduvai Corporation has announced a version of Read It! that brings O.C.R. [optical character recognition] to inexpensive hand scanners such as the Logitech ScanMan. Read It! O.C.R. Personal is a \$195 software package which converts many hand scanners into a system that recognizes, not only monospaced characters but, proportionately-spaced characters typically found in typeset documents such as books and magazines. The software converts the printed text into codes that can be understood by computers.

The product includes many type tables which predefine popular typeset, typewriter, dot matrix, and laser printer typefaces. An editor is included which can be used to customize the type tables.

Read It! O.C.R. offers features previously found in systems costing in excess of \$3000. Among its more important features: the product can be trained by the user to learn new typefaces, it can learn italic and bold fonts, it can recognize mixed styles and sizes, it can recognize kerning and ligatures, it can analyze context-sensitive properties of the text for possible errors, and it recognizes text with an accuracy rate that the company claims is up to 99.5 percent.

Read It! O.C.R. Personal is one of two new applications shown at Spring COMDEX that run on the IBM PC or compatibles within the Microsoft Windows graphical operating environment. Olduvai's second version of the

software, Read It! O.C.R. for 80286- and 80386-based PCs, has just begun shipping. The interface for both programs is identical to that Olduvai's earlier product, Read It! O.C.R. for the Macintosh.

Premier Of 25 Meg Floppy Disk

CHICAGO, ILLINOIS, U.S.A., 1989 APR 10 (NB) — Quadram is showing a prototype of its QuadFlextra floppy drive subsystem here at Spring COMDEX. The subsystem uses Brier Technology's Flextra Twin Tier Tracking to provide 25 or 50 Mb [megabytes] of data storage on a 3.5-inch diskette. 7643)

Lotus Ships Magellan

CAMBRIDGE, MASSACHUSETTS, U.S.A., 1989 APR 17 (NB) — Lotus has started shipping Magellan, a new utility software program for IBM and compatibles. The product lets users find, view, and use information residing on their hard disks. With a single, consistent viewing environment, Magellan uses a new text search and retrieval technology that allows users to locate information by specifying

concepts, phrases, or precise words. Files can then be read or created, or users can run an application directly from Magellan.

Magellan needs a hard disk a 512 kilobytes of memory, and is priced at \$139 through June 30, 1989. The retail price will rise to \$195 after that time.

Trends & Technology

Intel To Unveil 80486 April 11

SANTA CLARA, CALIFORNIA, U.S.A., 1989 APR 1 (NB) — Intel Corporation will unveil its next-generation microprocessor, the 80486, on April 11. Said to be two to three times more powerful than the 80386, which powers high-end, IBM-compatible microcomputers, the 80486 will be priced between \$1,000 and \$1,200 to manufacturers when it reaches the market at the end of this year, according to sources.

According to California Technology Stock Letter, an influential industry watch newsletter published by CTSL Publishing Partners, in San Francisco, Sequent Computer is already designing it into supermini-computers. "The chip will migrate from superminis to high-end workstations, then into

mainstream engineering workstations and high-end personal computers," the newsletter adds.

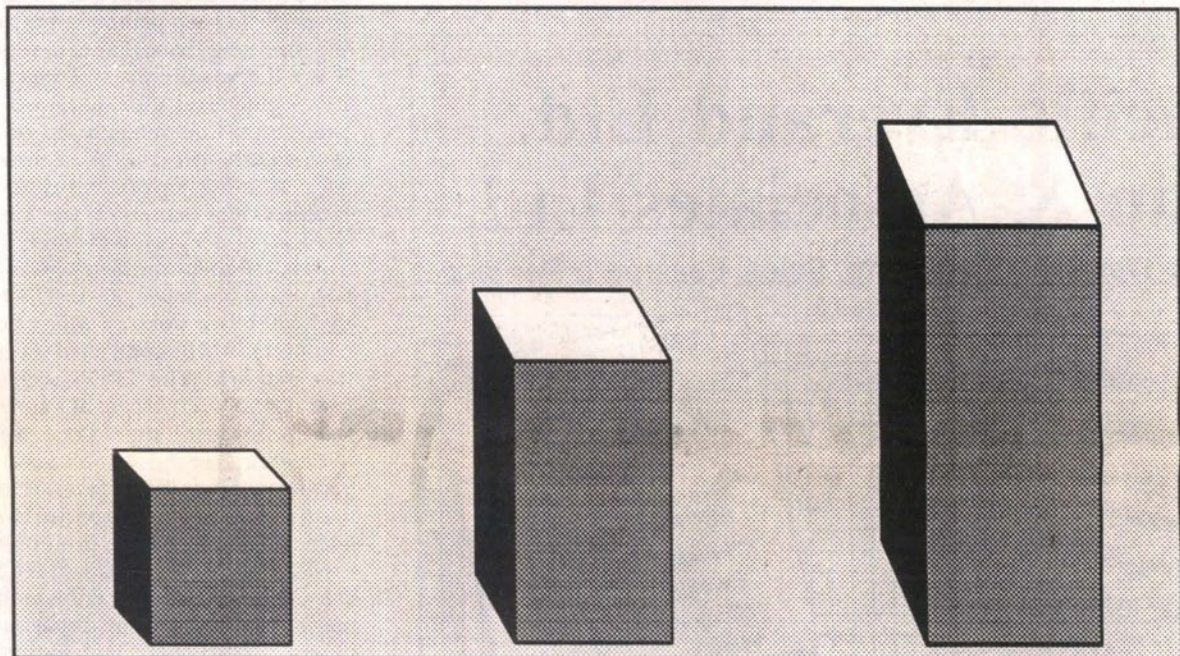
Motorola Gives Details Of Next-Generation 68040 Chip

AUSTIN, TEXAS, U.S.A., 1989 MAR 28 (NB) — Motorola's Microprocessor Products Group released architectural features of its 32-bit 68040 chip, a follow-on for the chip powering the high-end Apple Macintosh II. The new chip contains over 1.2 million transistors, and Motorola says it will be the fastest non-RISC chip on the market, outperforming even some of the RISC chips now being put into engineering workstations. The '040 is also the first conventional microprocessor to include its own floating-point processor.

Motorola said the improvements between the new 68040 and the older 68030 chip are far greater than those between the 68030 and the 68020 it replaced. The new chip includes five major functions — an integer unit, a floating-point unit, a memory management unit and separate caches for data and instructions. All the units operate together. The new chip also supports multi-processing.

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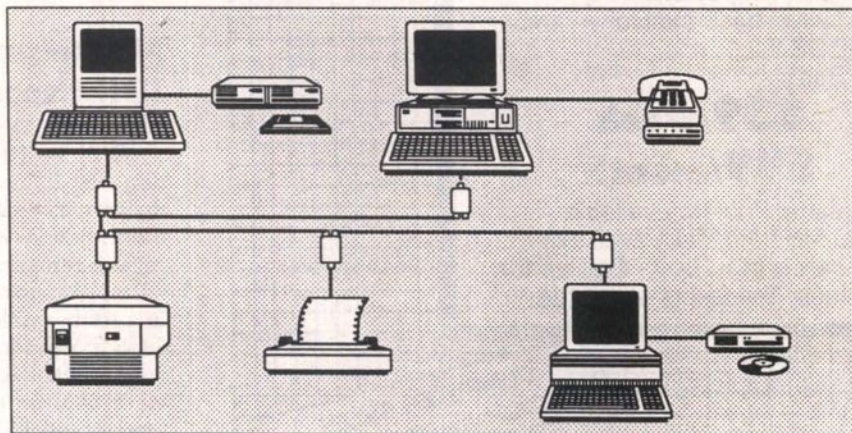
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The '040 maintains 100 percent compatibility with Motorola's 68000 family, for which \$3 billion in software has been written and \$100 billion in hardware produced. Motorola said a recent study by InfoCorp, a market research firm based in Santa Clara, Calif. showed that the 68000 architecture powers over 63 percent of all computer systems priced from \$12,000-\$300,000.

Separately, Hewlett-Packard said it will put the 040 in its new top-of-the-line workstations, and provide 040 development tools.

Annual Budget Survey Completed By Datamation

NEW YORK, NEW YORK, U.S.A., 1989 MAR 29 (NB) — According to a survey by Datamation, U.S. corporations are scaling back their information systems budgets to only a 4.4 percent growth rate. According to Parker Hodges, the Datamation magazine editor who oversaw the budget survey, "Customers are trying to sort out what kind of computing models they will need to build in the 1990s to flourish in the next century."

In 1988, Information Systems budgets grew 7.8 percent, compared to the anticipated growth rate for this year. However, the survey also revealed the managers do not expect to scale back their personnel expenses for the coming year.

Computer City With TRON Architecture

TOKYO, JAPAN, 1989 MAR 25 (NB) — In the Denno City, computers will stop traffic when a child runs into the street, and shut doors automatically to keep piano players from disturbing the neighbors. Land developer Nihon Tochi Kairyō will construct the computerized development on a 100-hectare site in Chiba prefecture. Computers based on the TRON architecture will control all urban facilities, such as living environments and transport facilities. Ken Sakamura, the TRON project advocate and a professor of the University of Tokyo, will advise the developer. The Denno City will have about 1,000 residents and 5,000 to 6,000 office workers. More than 100,000 computers will be connected via communication networks. The TRON architecture will bear fruit in every aspect of the new city. The Denno House will shut its door automatically if someone is in the next house while you are playing the piano. Buried sensors in the Denno Road will signal a radio control to stop a car if a child suddenly runs in front of it.

Nihon Tochi Kairyō will start its Chiba Denno City Conference as early as this month. Twenty major companies, from arenas such as computers, construction, and automobiles, are expected to participate. The land developer estimates the construction cost to be about 100 billion yen or \$0.76 billion and will start building the city in two years and spend seven years completing it. Professor Sakamura told reporters that Chiba Denno City will be the world's largest-scale networked city.

Maintenance Growth Slowing, IDC Canada Reports

TORONTO, ONTARIO, CANADA, 1989 MAR 31 (NB) — The old rule, "if it ain't broke, don't fix it," is bad news for the computer maintenance business — because more and more these days, it ain't broke. Increasingly reliable computer equipment has forced hardware maintenance prices down, IDC reports in a study entitled 1989 Canadian Customer Service: Vendor Profiles. Users are choosing less expensive service options and diagnosing more of their own problems. So hardware vendors and third-party maintenance vendors are fighting it out for pieces of a market that grew only 4.9 percent in Canada in 1988.

IDC notes that vendors are lengthening the warranties on their increasingly reliable equipment, thus shutting the third-party maintenance companies out for longer. The independent maintenance companies are fighting back by cutting prices. And in the next few years, IDC predicts, all these players will face increasing competition from dealers and distributors getting into the maintenance business.

IBM A Sleeping Giant, Watch Out For The 1990s

LOS ALTOS, CALIFORNIA, U.S.A., 1989 APR 7 (NB) — While for the short term, IBM may appear to be treading water technologically, in the long term there are major surprises IBM has in store, according to International Technology Group, a Los Altos, California-based independent information service and consult-

ing firm, in a startling new report called The IBM Directions.

IBM has spent \$19 billion in research and development between 1983 and 1988 and over \$13 billion of this investment has yet to appear in any real form in the product line. The money is being spent to address the fundamental limitations in computer architecture and technology, according to the report, which was two years in the making.

Revolutionary products will appear between 1991 and 1996, according to Robert Simko, in charge of IBM corporate strategy and positioning, products such as highly advanced 96-bit architecture for large systems, capable of addressing up to 281 terabytes [trillion bytes] of single-level storage — approximately 300 times more powerful than IBM's current mainframe architecture. Also, IBM is working on a new concept of system organization that "combines multiple, functionally specialized processors to achieve levels of performance that would be impossible with historical forms of computer architecture."

In addition, says the report, IBM is working to implement complex system architectures at the chip level and high-bandwidth architecture, creating an infrastructure capable of massively greater and more complex information traffic — to the tune of 100 megabytes per second to multiple gigabytes per second.

There is also work in the area of high-level interfaces, systems to integrate data, text, graphics, image, voice, and video, gallium arsenide chip technology, optoelectronics, and RISC [reduced instruction set computer] technology.

\$40 Billion In Workgroups

MOUNTAIN VIEW, CALIFORNIA, U.S.A., 1989 APR 7 (NB) — Why is "groupware" the latest buzzword in industry circles? Because it's worth an estimated \$40 billion by 1995, according to a survey done by Market Intelligence Research Company. The \$1,495 report, based on extensive telephone interviews and secondary sources, says the U.S. will get about \$20 billion of the total world revenues for departmental workgroup multiuser computer systems, and Europe and Japan will get the rest. The multiuser systems are used for office automation, graphics, and database management, among other tasks. The biggest users of these systems will be financial services, government and military agencies, the medical, engineering, and scientific communities.

Motorola Selling 50 MHz Version Of Its 68030

AUSTIN, TEXAS, U.S.A., 1989 APR 5 (NB) — In the years after a chip is introduced, their makers learn to make faster and faster versions so users can get incremental speed increases while waiting for the next major upgrade. That's the background behind Motorola's announcement that it's now selling a 50 megahertz version of its 68030, or 030, microprocessor.

Motorola noted its new chip's clock speed is faster than both standard chips and the RISC [reduced instruction set computer] chips used in engineering workstations. Motorola rated the chips processing speed at 12 million instructions per second, not as fast as Motorola's own RISC chips but faster than other standard processors, and said it's made with a new technology which lets it make a chip in just one micron of space. The new 030 is the direct descendent of the 68000 processor first introduced by Motorola in 1979.

The new chip is only available in sample quantities, at \$650 per chip, until the third quarter of this year. Prices are expected to drop as volume increases.

Color Copier Has Mounties Worried

MISSISSAUGA, ONTARIO, CANADA, 1989 APR 7 (NB) — Canon's color copiers are like a license to print money. Not for the vendor, for the users. According to Business Week magazine, the high-end laser copiers produce such accurate reproductions they can be used to counterfeit money. The magazine says the Royal Canadian Mounted Police are maintaining a list of buyers of the Canon copiers. Apparently one user has already been caught copying Canadian currency with one of the machines, and was charged. A Canon Canada employee said his company has talked with the RCMP about the machines, and would cooperate with the national police force's efforts to control counterfeiting by copier. He could not confirm the existence of a list of buyers. Most purchasers of the copiers, which cost about C\$50,000, are print shops.

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New Chips Have Four Times The Elephant Power

CHICAGO, ILLINOIS, U.S.A., 1989 APR 10 (NB) — Toshiba America Information Systems, Inc., Irvine Computer Systems Division, is exhibiting the first commercial application of its four-megabit DRAM [dynamic-random-access memory] "super chip." The capacious bit bucket quadruples the previous standard, one Mb [megabit], of memory storage capacity. Toshiba is showing the latest DRAM technology at booth 4427 here at Spring COMDEX.

Increasing the memory which can be packed into a given area is an important requirement for the next generation of computers if they are to support newly emerging applications such as large databases, graphics intensive applications and complex operating systems [e. g., OS/2 and Unix]. Worldwide shipping of 4-MB DRAM begins this month. Shipment of the T5200 8-MB memory module is scheduled for October.

Incorporated into an eight-megabyte memory module, the chips are capable of expanding the system memory of Toshiba's 80386-based T5200 portable personal computer to a maximum 14 MB [megabytes]. Using current DRAM, in 2-MB memory modules, the T5200 could be expanded to only 8 MB.

Display Technology Shattered

CHICAGO, ILLINOIS, U.S.A., 1989 APR 10 (NB) — Toshiba America Information Systems, Inc., Irvine Computer Systems Division, is exhibiting a color LCD [liquid crystal display] panel which the company calls a "break-through in display technology." The prototype panel is a full-size color LCD mounted on Toshiba's T5200 portable personal computer.

As shown at Spring COMDEX, the modified T5200 includes a high-speed 3-D graphics controller which drives the 9-by-6.75-inch screen [11 inches diagonal]. "This technology is not yet available in production portable PCs, but, when it is, the portable PC will truly include all the features of a desktop PC," said Toshiba's director of PC marketing, Tom Sherrard, of the screen. Other features of the VGA-compatible unit include 640-by-480-dot resolution and the ability to display up to 16 simultaneous colors.

Magellan, Supercard, 1-2-3 2.2 Stars Of Hot Software Panel

CHICAGO, ILLINOIS, U.S.A., 1989 APR 11 (NB) — Lotus Development made the software hit parade here, but probably not the way the company would have liked. In the bi-annual Comdex panel on hot software products, industry watchers Mike Miller and Bobby Orbach both named Lotus 1-2-3 Release 2.2 as a hot product of 1989. Lotus would probably have preferred to see Release 3.0 of its flagship spreadsheet on the list. But Miller, executive editor for technology at InfoWorld, said the major difference between the products is Release 3.0's support for multipage or three-dimensional spreadsheets, and "I don't think that many people do that yet." Orbach, director of computer sales for 47th Street Computer, said Release 2.2 is a welcome upgrade for a very large user base.

Orbach and Miller also agreed that Lotus Magellan, a hard disk organizer, will be a hot product in the coming year. And they concurred on SuperCard, from Silicon Beach Software, which Miller described as an upgraded HyperCard.

Timbuktu, Farralon's communication software for the Macintosh, headed Orbach's list, while Magellan headed Miller's. Alan Gleicher, president of Soft-Kat, led off his list with Pages, a simple desktop publishing package for MS-DOS from Pinpoint.

The fourth panelist, author and lecturer Adam Green, posted a blank list. He criticized the concept of hot products, saying the important thing is not that a product be mentioned by this panel or written up on the front pages of industry publications, but that it meet users' needs.

AT&T ISDN Chip Set Marks A Premier

BERKELEY HEIGHTS, NEW JERSEY, U.S.A., 1989 APR 20 (NB) — AT&T has announced a new Integrated Services Digital Network [ISDN] chip set that is the first to meet the North American "U" interface standards for transmission over standard phone lines. The chip set is now available in sample quantities from AT&T.

The U standard is significant because the company expects it will prompt manufactur-

ers of ISDN equipment to begin to develop ISDN products that also match the standard. That, in turn, should lead to a rapid rise in products on the market using standard ISDN equipment, helping to promote the ISDN standard.

Study Shows CEOs Unhappy With Information Systems.

MANHASSET, NEW YORK, U.S.A., 1989 APR 17 (NB) — An exclusive study conducted by Computerworld with Fortune 1000 executives showed that over 60 percent agreed with the statement, "I do not feel my organization is getting the most for its information systems investment."

Though the majority agreed they can do better, fully 85 percent also felt that information systems holds the key to their competitive advantage in the 1990s, and 86 percent felt that information systems will "significantly change" the way their company does business in the next decade.

TELECOMM

Glasnost Finds A New Address On E-Mail

HANNOVER, WEST GERMANY, 1989 MAR 10 (NB) — The three Hannover hackers who were discovered allegedly stealing U.S. secrets for the KGB didn't dampen the news that Deutsche Mailbox, one of Europe's largest electronic mail companies, has reached an agreement with the U.S.S.R. to bring Moscow online.

Manfred Bohnen, Deutsche Mailbox board member, announced the only thing still missing to get the Soviet mailbox running is the connection. The U.S.S.R. and Deutsche Mailbox signed an accord giving Moscow access to mailbox technology. Expectations are the system will be online within three months.

But there will be limitations on electronic glasnost. Not everyone in the Soviet Union will be allowed to use the system and even those who can enroll will have limited access to services such as databases. The Soviets will maintain control over what their citizens are allowed to do with e-mail. Discussions about including East Germany in the initial link-up

have been held but no decision has been made. Deutsche Mailbox's Bohnen indicated that Moscow is only the beginning. Future plans call for adding 30 Soviet cities online through the Moscow gateway.

9,600 Dial-Up Service Coming On Fast

NEWPORT BEACH, CALIFORNIA, U.S.A., 1989 MAR 28 (NB) — Rockwell International's V.32 chip set, first shipped last summer, has produced a bumper crop of 9,600 baud modems running international standards with street prices near \$1,000. Analysts and industry executives expected prices to drop further during the year, to about \$700-800 by December. Online services and packet networks are already testing 9,600 service, and some bulletin board systems, such as Exec-PC in Shoreham, Wisconsin have added 9,600 baud lines, under the V.32 standard of the CCITT. Once error-correction questions under the V.42 are cleared up in the next year, dial-up customers are expected to get the equivalent of 19,200 service at an ease now enjoyed at 1200 baud.

While a lot of online time is wasted in picking through menus and passing commands,



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most high-speed transmission is used to "blast" painted screens at users or for uploading and downloading big files — especially program files and picture files. The new modems mean major savings for corporate users, and will dry up the market for leased lines at 9,600 baud. Insiders expect Tymnet's TymDial 9.6 service, now in 20 cities, to expand quickly. GEIS and CompuServe both offer 9,600 accounts over leased lines, and will offer it on dial-up late this year. Telenet also offers 9,600 service to some 30 cities, under the older V.29 protocol, but an executive there says the service will take V.32 also by the end of the year.

Voice Processing Show And Conference Planned

TORONTO, ONTARIO, CANADA, 1989 APR 10 (NB) — A new show and conference here in June will focus on voice processing. VoicePower '89, intended to become an annual event, will be held at the Toronto Airport Hilton hotel June 6 and 7. It will deal with areas such as integrated voice and data communications, interactive voice response technology and voice messaging. Two keynote addresses are on the schedule. The first keynote speaker is Bill Palm, vice-president of telecommunications and business development at IBM Canada. George Sollman, president of Centigram Corp., is the other. Exhibitors already signed up include AT&T Canada, IBM Canada, Mitel, Northern Telecom and Octel Communications.

Teleprime Ltd., a Toronto consulting firm, is sponsoring the show. The show organizer is Trade Show Associates of Rockville, Maryland.

Rogers Takes CNCP Stake, Vows Long-Distance Competition In Canada

TORONTO, ONTARIO, CANADA, 1989 APR 19 (NB) — Rogers Communications, a major cable television operator and the parent of Canada's national cellular telephone carrier, is buying a 40-percent interest in CNCP Telecommunications, the national data communications company. With cable TV king Ted Rogers as its new chairman, CNCP will renew its bid to provide long-distance telephone service in Canada.

Rogers will buy 40 percent of CNCP from

Canadian Pacific Ltd., a railway and hotel company which bought the half of CNCP it did not already own from former partner Canadian National Railways late last year. Rogers is paying between C\$250 million and C\$275 million for its piece of CNCP. The companies believe additional investment of C\$750 million to C\$1.5 billion would be needed to launch competitive long-distance service.

CNCP, which grew out of the two national railways' telegraph businesses, has a nationwide data communications network. Last year, CNCP unsuccessfully applied to the Canadian Radio-television and Telecommunications Commission [CRTC] to be allowed to offer long-distance telephone service in competition with regional telephone companies. The CRTC rejected the application. But George Harvey, CNCP's president and chief executive, said at a press conference announcing the Rogers purchase that the application was rejected because regulators considered his company's business plan "flawed," not because they rejected the idea of competition in long-distance service.

CNCP apparently hopes the backing of Rogers — cash-rich from the C\$1.63-billion sale of its cable TV operations in the United States last month — will help its case. Rogers' ownership of Cantel Inc., the company licensed to offer cellular phone service across Canada in competition with regional phone companies, is another factor. CNCP had already announced, two months ago, that it would file another application to offer long-distance voice service.

Incoming CNCP Chairman Ted Rogers, also president and chief executive of Rogers Communications, had some choice words about the present monopoly of phone service in Canada. "Soviet-style telecommunications monopolism is out of date," he said. "Even in Russia they are allowing some competition." Rogers went on to claim his company's agreement with CNCP may some day be seen as "the Magna Carta of Canadian telecommunications." As for the telephone companies' claim that long-distance competition would raise over-all telephone costs, Rogers said, "it's preposterous and it's nonsense."

UNIX

NeXT Workstations To Be Sold Through Businessland

SAN FRANCISCO, CALIFORNIA, U.S.A., 1989 MAR 30 (NB) — Starting in May, you'll be able to buy the "Rolls Royce" of personal computers at a neighborhood retail store. NeXT, Incorporated of Palo Alto, Ca., hopes to expand its market from colleges to corporate America, and will sell the NeXT Computers to the public through an exclusive deal with Businessland. Why is Steve Jobs doing it? While many speculate that he planned all along to enter the mainstream PC market, Jobs claims educators complained that their students would not be able to use, nor get support for NeXT machines after they graduated, and that consequently he was prompted to open up distribution channels for the machine. Analysts say he was forced to action by competitors such as Apple and Sun Microsystems.

Businessland will buy \$100 million worth of Steve Jobs' Unix-based workstations over the next year. Businessland President David Norman optimistically predicts that the dollar volume generated by its sole Unix workstation offering, the NeXT Computer, will equal that lost [\$150 million] when Compaq severed relations with the computer retailer last month. Businessland will sell the basic configuration — 8 megabytes of random access memory, the 17-inch MegaPixel Display, keyboard, mouse, 256 megabyte erasable optical drive — for \$9,995, \$3,500 more than the cost to university students and personnel. The 400 dots-per-inch NeXT PostScript printer will cost \$3,495. A four megabyte memory expansion kit is \$2,295; a 330 megabyte hard disk drive is \$3,695.

The machine is bundled with several software programs on optical disk, including Mach, a multitasking operating system compatible with 4.3BSD UNIX, NeXTStep, a software environment with a graphic interface, among other tools, a library of reference materials including Webster's Dictionary, WriteNow, Mathematica, and other programs.

At the San Francisco news conference, Steve Jobs also provided an update on the NeXT machines and his company. He revealed that NeXT has shipped 1,000 computers since December, 1988, 200 of them to software developers, the rest to some 60 colleges and univer-

sities. He said version 1.0 of the Next Computer's operating system will be ready in mid-June and predicted he'd have a color NeXT Computer System ready by year's end. The company has established 20 field offices and is now up to 250 employees.

Observers are mixed on the prospects of Jobs' launch into corporate America. Some see the product's high price tag — \$20,000 when you add all the peripherals and a laser printer — as being a fatal flaw, much as it was for Jobs' first Macintosh-like computer, the Apple Lisa. Others praise his timing, and say the computer-buying public is ready for his Unix-based machine. IBM's delay in putting out an operating system to fully tap the power of the Intel 80386 microprocessor, and the success of graphical user interfaces, such as Apple's Macintosh, have primed the public for NeXT. Jobs has put it altogether for the buyer. "We're going to do it — mainstream Unix," Jobs boasts.

Asked how Businessland would position the Apple Macintosh line, which Businessland also sells, against the NeXT workstation, David Norman, CEO, told Newsbytes, "They're complimentary technologies aimed at different markets." He sees no problem in differentiating potential customers. Asked whether Businessland would carry a competing Unix graphical interface, such as the Open Desktop under development by Tandy, DEC, Santa Cruz Operation, and others, Norman said, "This is here today. We support the people that support us."

SPARCintosh Roll Out

SAN FRANCISCO, CALIFORNIA, U.S.A., 1989 APR 12 (NB) — In an attempt to move beyond the engineering design and software development markets with which it started, Sun Microsystems has launched a new line of reduced instruction set computer, or RISC-based workstations that are faster and lower-priced than the competition's.

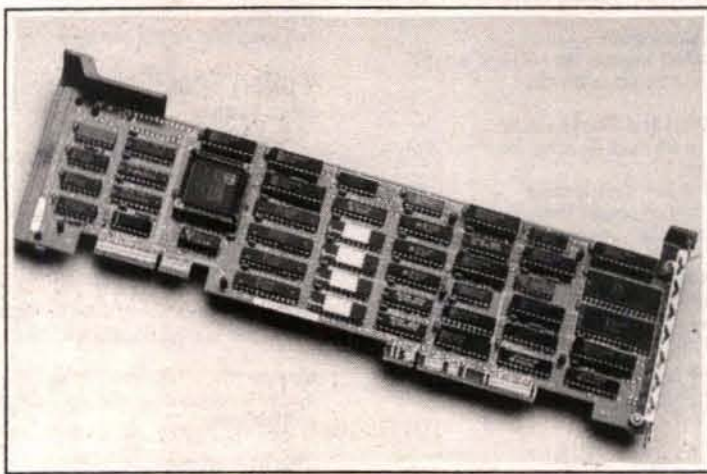
The SPARCstation 1, Sun's new entry-level machine, is designed around Sun's SPARC [RISC] chip, as are most of the new workstations. The base-priced 8 MB model at \$8995 comes without disk drives and a 17-inch monochrome monitor. Its claim to fame is its speed — a whopping 12.5 MIPS [million instructions per second] at 20 MHz, four times the speed of a similarly-priced, high-end Macintosh or three times the power of a fully-loaded

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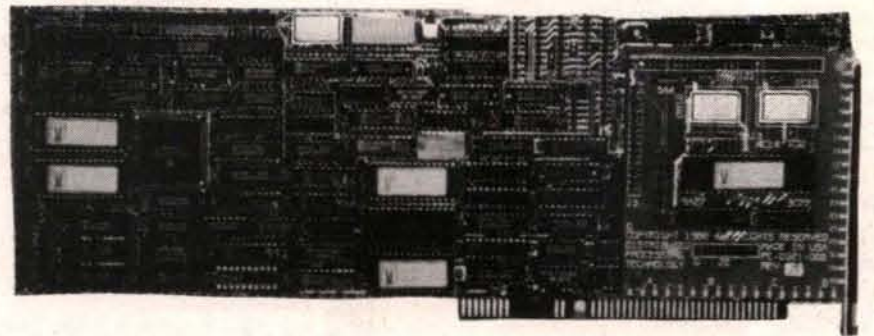
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The Hummingbird 50/60 cache-based accelerator card runs at 20-MHz to increase stock PS/2 system performance.



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It supports QNX, NOVELL, DOS, THEOS, XENIX, etc.

The PM3011 controller accesses data in as little as 0.5 ms. Overall system performance gains of three to five times are common, with some programs running ten to fifteen times faster. The intelligent hard-disk controller board with a 10MHz Motorola 68000 processor to control its 512K byte cache RAM. An optional daughterboard expands cache to 12.5 MB. Versions are available for ST506, RLL, and ESDI. The PM3011 operates transparently to different operating systems; no special drivers are needed.

"Unisys's Mehan has witnessed great productivity boosts with the PM3011. He uses seven DPT controller cards (each with 512K bytes of RAM) in a network comprising 100 computers. ... The hard disk access time has more than doubled in speed. The sequential file read went from 50 records a second to over 110 records a second. Also, deleting files from the system is about three to four times faster." PC Week, March 20, 1989.

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and accelerated PC—in a package smaller than an IBM PC. Running the Unix and [optionally] the DOS operating systems, the SPARCstation 1 also features built-in digital audio capability, two serial ports and two additional ports. Up to 208 megabytes of internal hard disk storage can be added.

Various other configurations, depending on monitors, and disk storage, can run the cost of a SPARCstation1 up to \$14,995.

As part of the sweeping new product line, Sun also introduced the SPARCstation 300 2-D/3-D workstations, ranging in price from \$30,000 to \$73,900; the SPARCserver 300 series, designed to be file servers on a network, with storage up to 32 gigabytes, also ranging in price from \$28,900 to \$71,900; and the Sun-3 desktop 2-D/3-D graphic workstations based on the Motorola 68030 and 68882 floating point coprocessor.

Several of the SPARCstation offerings also have new graphic technology called GX and GXP, based on VLSI [very large scale integration] chips. Sun says one of the chips is the largest gate array ever developed.

Finally, Sun unveiled a board which enables Sun workstations to display full-motion video. Said Dr. Bernard Peuto, vice president of Sun's Graphic Products Division, "With this new board, Sun has become the workstation leader in video display technology. We are the only company to integrate the full range of visual computing resources on the workstation—inclusing video, 2-D, 3-D, geometry acceleration and image processing." The SunVideo board, which directly competes with products from Silicon Graphics, among others, is priced at \$12,900 and will be available in the fall.

Observers were generally impressed with the new line-up, and provided Sun can deliver product within the next two months, they believe it will spell good things for the company. Especially since the products are designed to be cloned; Sun will license the technology to other companies in order to promote the SPARCstations as a standard in RISC-based workstation computing.

Sun's marketing director for graphics, Anil Gardre, predicts Sun will sell more than 100,000 new workstations within the next year.



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MINI-REVIEWS

PRODUCT: DATAVUE SPARK—IBM PC compatible laptop computer

MANUFACTURER: Datavue Corp., One Meca Way, Norcross, GA 30093 404-565-5555

PRICE: US\$1,200.00 for model reviewed. Basic price without 1200 baud internal modem is \$995.

RATING: 3

Reviewed by: Dana Blankenhorn, 1/3/89

SUMMARY: The DATAVUE SPARK is an IBM PC compatible laptop computer.

REVIEW: Buying a laptop computer means accepting compromises. Into this world comes the Datavue Spark, a middle-weight at 9 pounds, 11 with the carrying case. For two weeks, we depended on the Spark for all our computing. We dragged it through airports, left it in hot cars for hours on end, ran our favorite software on it, and saw it come through.

The Spark's case is rugged. Its 1200 baud modem (an option), addressed as COM2, runs great. The price is within reach of most computing budgets. The cloth carry-bag Datavue supplied with the Spark includes an added pouch big enough for your lunch and a few papers. Rechargeable batteries can be re-boostered overnight and run 6 hours or so, depending on disk access.

The 80C88 chip, used for its low price, took 37 seconds to load DOS each time it was turned on. The footprint of the Spark is also too large for an airline tray table, unlike the Compaq SLT 286. Entering numbers is always awkward—you have to hold down the Fn key while doing so. Again, it's a reasonable compromise, but if you're an accountant you may find this unacceptable. The Spark's cursor is also hard-to-find—fortunately utility programs are available to fix it.

RATING

PERFORMANCE: 4. Excellent perform-

ance for a 10 pound, \$1,000 machine. **USEFULNESS:** 3. The weight can become unbearable if you try to lug it around a trade show floor, but in an office or hotel room it's great. It's too big for an airline tray table.

MANUAL: 3. We didn't use it much, but the one time we needed it a necessary warning wasn't there.

AVAILABILITY: 4. Order direct from the company or via mail order at numerous mail-order houses. (Omnet Computers 3728 Main St. 872-1136)

PRODUCT: Readability Plus

SYSTEM REQUIREMENTS: Any MS-DOS PC

PUBLISHER: Scandinavian PC Systems Inc., 51 Monroe St., Suite 1101, Rockville, MD 20850, 301-294-7450

PRICE: \$94.95 [\$79.95 until May 31]

RATING: Rating: 3 [on scale of 1 to 4, 4 being highest]

Reviewed by: Grant Buckler, 4/22/89

SUMMARY: Readability Plus lets you select which of nine types of material you're trying to write, and tells you how well your writing matches that model. It can point out a number of bad habits, but it's still no substitute for a good editor.

REVIEW: Style checkers usually annoy me. The last one I tried kept complaining that my sentences were too long. I finally discovered it thought the ideal sentence length was seven words. The problem was, that program was made for office memos, not newspaper and magazine writing. So I was intrigued to hear of Readability Plus, a program that lets you choose from nine patterns against which to analyze your text.

When it analyzes a text, Readability Plus first shows you a graph, with sentence length on one axis and number of long words per sentence on the other. A dark area on this graph is the range in which your sentences should fall, given the type

of writing you have specified. The program plots a point for each sentence, and tells you what percentage fit the model.

Then, you can look at each sentence that doesn't fall in the ideal area. Readability Plus shows you the beginning of the sentence and tells you what's wrong with it. You can mark sentences for future reference. You can also see a graph showing you how many of your sentences fall into each of nine categories, from simple through normal to difficult. And Readability Plus picks up on how much you vary sentence length, another key to readable and interesting prose.

RATING : Performance: 3. Readability Plus does its analysis quickly. It reads plain ASCII files and the output of several popular word processors. Preparing to analyze a document is a bit slow.

USEFULNESS: 3. All style checkers should be taken with a grain of salt. You can tell Readability Plus what sort of writing you're doing, but it still doesn't know your readers. And because it's possible to write beautifully constructed sentences that make no sense, a program like this can be a watchdog, but not a guarantee of good writing.

MANUALS: 4. The single manual is slim but complete. It reads as if it was run through Readability Plus before they printed it, and appropriate screen shots support the text.

AVAILABILITY: 2. At present, the best way to get Readability Plus is direct from the vendor. Scandinavian PC Systems is negotiating with some major distributors.

PRODUCT: Showtext

SYSTEM REQUIREMENTS: PC, PC-XT/AT+ with 512k RAM, DOS 2.0/ or greater, and dot matrix printer, laser or plotter

PUBLISHER: Micropro, P.O. Box 7079, San Rafael, CA 94901-9910, 800/227-5609

PRICE: \$89.95 by itself or \$125 as a part of the 'Productivity Package' for owners of WordStar 5.0

RATING: 3.5 [on a scale of 1 to 4]

Reviewed by: Dana Blankenhorn and TBass

SUMMARY: The SHOWTEXT application allows title pages, signs, word charts, and other text type presentations for overhead projectors to be made with ease. **REVIEW:** With 14 FONTS, 30+ preset chart designs, and the ability to modify or create your own chart designs SHOWTEXT seems to be a versatile little program that is a great addition to any one's set of applications.

SHOWTEXT was easily accessed and with only a little reading and the on-screen HELP most all areas were usable. Getting first time success in print was a breeze by using the PREVIEW selection. Print-out can be horizontal or vertical from within the program, no 'side' program needed. Also, there are pages of printers to choose from.

Most all of the operations are menu-driven and conveniently referenced on screen. Good going TIME WARE CORP! SHOWTEXT works well as a stand-alone program for your immediate needs within its area of expertise.

RATING:

PERFORMANCE: 3.8. Though limited in scope and not really interactive with other programs it is a quick and easy text presentation design application.

USEFULNESS: 3.7. All of us at some time need to produce a chart or bulletin for a reminder or teaching aide.

MANUAL: 3.5. The manual was readable and easy to follow. The alphabetical listing of the of commands and menu options was well done.

AVAILABILITY: 3. For WORDSTAR 5.0 owners it can be acquired as an add-on "Productivity Package" along with INSET and COMPARERITE.

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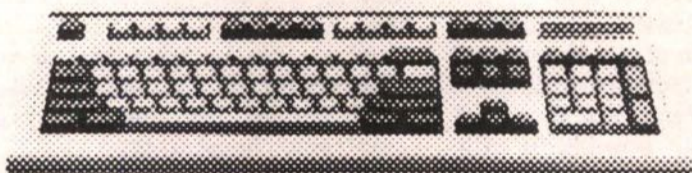
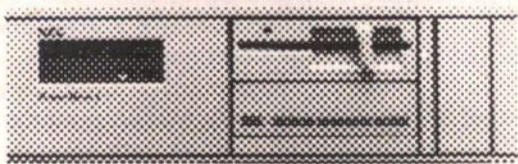
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BUYER'S GUIDE

How To Buy A Printer

Overview

Once you get past your initial decision of buying a computer, your next choice is often how to buy a printer. This month we look at buying a printer, including the three basic kinds of printer: daisy wheel, dot matrix and laser. Among the laser printers, we will examine the differences between the ink jet, true laser, LCD (liquid crystal) and LED (light emitting diode) printers. We will even introduce you to the mysteries of PostScript. To top it off, we will touch on the new high performance laser printer controllers for the AT.

By the time you are finished reading you should have clear idea which type of printer is best for your needs. More expensive is not necessarily better! We will also give you tips on how to judge printer quality. With this knowledge you can impress your friends and influence people.

Daisy, Matrix or Laser?

There are three classes of printers: daisy wheel, dot matrix and laser. Daisy wheel printers print very slowly, producing typewritten quality output in only one typeface (unless you manually change the printwheel). They look and sound like typewriters.

Dot matrix printers print quickly, producing type made of tiny dots that, at best, looks like fabric-ribbon typewriting. Dot matrix printers usually offer a range of type sizes. They usually make mild screeching sounds. Sometimes they make zipping sounds like an arcade game. The big drawback is, you guessed it, noise. The big attraction is price and the ability to handle continuous forms, such as mail labels and invoices.

Laser printers print very rapidly and quietly. The type is roughly the same quality as you would see in a newspaper. The big drawback is the high price tag and inability to handle special forms.

Daisy Wheel Printers

Daisy wheel printers are glorified electric typewriters. Instead of type bars or golf balls, they have the letters arrayed on the ends of the petals of a plastic daisy or a folded-up daisy, resembling a thimble.

Daisy Wheel Pros

Daisy wheel print looks hand typed. Form letters printed on a daisy wheel are truly convincing. Daisy wheel print looks more personal than the clinical perfection of laser printed letters. Daisies work well with hand-fed single sheet feed, such as office correspondence.

Daisy Wheel Cons

Daisy wheel printers are v-e-r-y s-l-o-w. They print 10 to 55 characters per second. Unless you are patient enough to change print wheels, they cannot do any special effects such as italic, large point sizes or condensed.

Daisy wheels are all but obsolete.

Buying a Daisy Wheel

Daisy wheel printers often have notoriously poor tractor feeds. If you plan to use continuous forms, test the printer by pressing the eject (Form Feed) button repeatedly. Poor tractors will quickly jam.

Many daisy wheel printers can only handle a light duty cycle; you cannot run them continuously. Look at a NEC or Diablo printer to learn how to recognize a heavy duty printer.

Daisy Wheel Summary

There are only a few models of daisy wheel still manufactured. The most common are the Brother HR series that can double as typewriters with the optional keyboard attachment. If all you ever print are one-page letters, buy a second-hand daisy wheel tank that will keep chugging even after a nuclear war — something like the NEC 3550.

Dot Matrix Printers

Dot matrix printers range from \$200 to well over \$10,000. There is obviously quite a bit of variability, however all dot matrix printers make their image by striking a set of fine wires through an ink-impregnated ribbon onto the page. The finer the wires, the higher the quality the printed output is.

There are three main classes of dot matrix printer: 9-wire, 18-wire and 24-wire. The 9-wire printers are the cheapest, produce the coarsest image, but they are the most robust since the wires are the thickest. 24-pin printers produce the highest quality type. With a brand new ribbon, the output might sometimes be mistaken for typewritten.

Dot Matrix Pros

Dot matrix printers are flexible. In theory they can print any possible pattern of dots. With the proper software they can print symbols, foreign languages and arbitrary pictures.

Dot matrix printers are cheap to buy and operate. For example the most popular wide carriage 24-pin printer in Vancouver is the \$732 Fujitsu DL3400. It prints 288 characters per second in draft mode and 72 characters per second in near letter quality mode.

The most popular narrow carriage 9-pin printer is the \$242 Roland 1012, also sold as the Panasonic 1080i. It can handle light duty printing at 144 characters per second in draft mode and 28 characters per second in near letter quality mode.

Dot Matrix Cons

Not only are dot matrix printers noisier than other types of printer, the noise is more grating. You can put them in sound proof boxes with fans to prevent overheating, but then the box gets in the way of threading paper. When I have a long print job, I just leave the room. For short print jobs I just grin and bear it. Because irritation is subjective, make sure everyone who will be exposed to the noise is willing to live with it, day in and day out.

Sticky Mail Labels

Sticky mail labels are the bane of matrix printers. A little bit of glue gets stuck on one of the print wires and bang — there goes your printhead. A new print head for a premium 24-pin printer such as the Toshiba P351 can cost over \$800.

Never roll sticky labels backward through a printer — only forward. If you roll them back they will detach prematurely and stick deep inside your printer. For most printers, to clean out the labels, you must completely disassemble the printer. If you are really unlucky, you might foul your print head.

Sometimes it is wise to buy an auxiliary cheap printer just to handle sticky labels. Alternatively you can avoid sticky labels altogether by printing on plain paper and hiring a mail house to glue them to the envelopes. Another option is handing the mail house a diskette containing the names and addresses.

Buying a Dot Matrix Printer

As I said in the article on buying a clone, "buy your software first." Before you buy a printer, test it with the software you plan to use! I cannot stress that enough. Word processors properly support only a handful of the thousands of printer models.

Poke your nose inside the printer. It should look tidy and easy to keep clean. Be suspicious of excess visible belts, wires, flimsy plastic comb-like dohickeys or springs.

Make sure the printer covers do not detach easily and fall on the floor. The cover should be a simple one-piece affair, not a set you have to fit together like a jigsaw puzzle.

Make sure the printer fully supports the Centronics parallel interface so that the



computer can detect if the printer is offline or out of paper — pins 12 and 13. If your printer is defective in this, your word processor may completely freeze up if the printer runs out of paper or if you accidentally forget to hit the ONLINE button.

Serial or Parallel?

For the XT/AT clone, do NOT buy a serial printer. Get a Centronics parallel interface! Centronics interfaces are fool proof. With serial interfaces you must get involved with such arcane matters as matching baud rates, stop bits, parity, null modem cables, DTE/DCE, male/female, DB9/DB25, XON/XOFF, CTS/RTS, and ETX/ACK. DOS does not properly support serial flow control (spoon feeding the printer no faster than it can swallow data). Some word processors can support serial printers, but you are asking for one giant headache if you try it.

Unless you use special boosters, parallel printers must be within 15 feet of the computer. Serial printers must be within 50 feet. This extra distance is the ONLY excuse for using a serial printer.

Paper Threading

Some printers require an advanced degree in origami to thread the paper. Others have thirty different ways to thread them. Twenty-nine look plausible and almost work. Look for a threading diagram embossed on the printer where it cannot possibly get lost.

The threading should be so simple anyone can do it flawlessly without reading the manual. It should be impossible, or at least painful, to misthread the paper. If not, you will be plagued eternally with paper jams caused by improper threading.

Ribbon Cartridges

The printer ribbon cartridge should have no more than 1 cm of ribbon exposed. This makes it almost impossible to misthread the ribbon. Ensure the printer uses ribbons stocked in several stores. Otherwise you might have to wait six months for a special order of ribbons to come in at outrageous prices.

Tractor Feeds

Make sure the tractors have sufficient horizontal latitude for pre-printed forms with unnaturally wide or narrow margins. There should be rulers in both horizontal and vertical directions to make it easy to rapidly align pre-printed forms. Ideally there should be electronic horizontal and

vertical micro-alignment buttons to adjust the form alignment on the fly.

The design of a disgraceful proportion of printer tractors is defective. A printer should be able to feed paper hour after hour without going off the rails. Many printers are lucky to get through five sheets before they jam.

How can you tell if a tractor design is defective? The simplest way is to thread the paper then press the eject (Form Feed) button repeatedly. If you can rapidly feed through a dozen sheets without jamming, you are probably in luck. Try the test with various paper stocks that represent real life. Many printers will work well on heavy stocks but jam instantly when loaded with lightweight draft paper. Others freeze up the instant they see a mail label.

I still laugh to myself about the time I watched a demonstration of the IBM Proprinter. The person giving the demo tried for 15 minutes to thread the paper in such a way it would not immediately jam. Then I offered to try. I fared no better. If even IBM has trouble designing a fool-proof tractor mechanism, imagine how much trouble some of the smaller companies have.

Bottom Feed Tractors

How can you tell a poor tractor if you are too timid to test it? Bottom feed pull tractors with a very straight paper path are the most reliable. When thick paper is forced to go around curves, it often jumps off the rails. Bottom feeds are best for mail labels, multi-part forms, card stock, or unattended runs. Teeth on the printer engage the sprocket hole perforation along the sides of the paper. Make sure at least four teeth on each side are always engaged.

The Alps Allegro uses a variant of the bottom feed where the paper feeds in the front and out the back in one of the most jam-proof designs ever conceived. Too bad the Alps engineers could only get 72 CPS (characters per second) in draft and 44 CPS in near letter quality.

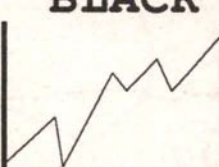
Rear Feed Tractors

If you can't get a bottom feed, go for a bi-directional tractor. The tractor engages the paper both on the way in and way out of the rear of the printer. It maintains constant tension.

If you can't get a bi-directional tractor, get a rear pull tractor. It pulls the paper out the top of the printer, in the rear.

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To use a rear feed tractor successfully you must tuck the pile of ingoing paper well underneath the printer. Otherwise, the outgoing paper stream snags on the incoming stream obscenely wrapping into a loop.

Push Tractors

If you can't find a pull tractor you will be stuck with a push tractor. A push tractor attempts to push the paper through the printer. Since paper is limp, this method is not wildly successful. Strangely, most printers used in 1988 were of the push type.

Have all the printer designers taken leave of their senses? Not quite. Push tractors have one very important advantage. To remove a sheet of paper from a pull tractor printer, you must waste a sheet of paper; with a push tractor you do not.

If you must buy a push tractor, use high quality stiff paper that comes 2000 sheets to a box. Stay away from the thin stock that comes 3000 sheets to a box. Place the in and out paper piles directly in alignment with the printer so there is no skew. Make sure the paper is not binding in the least on the sides of the carton. Adjust the tractors to optimum paper tension. You may find adjusting the room humidity might also help. You have my sympathy.

Over a five year period, you will spend about two and a half times as much on paper as you paid originally for the printer. The ability to handle cheap thin paper is the most significant factor in the overall economics.

Sheet Feeders

Single sheet feeders allow you to print on cut 8.5 x 11 sheet paper, usually letterhead. Usually they have two bins, one for letterhead and one for plain second sheets. I have only met one person in my whole life who was completely happy with her sheet feeder. Sheet feeders are notorious for jamming. There are good ones, but they can cost over \$2000.

Continuous Form Letterhead

One alternative to sheet feeders is to use continuous form letterheads. The problem with this technique is you cannot easily print page two of each letter on a plain second sheet; everything has to be printed on letterhead. However, continuous-form laser-perf letterhead is the way to go for bulk printing one-page form letters.

Manual Single Sheet Feed

Another alternative to sheet feeders is to use manual single sheet feed. Some printers take up to five minutes to convert back and forth between manual sheet feeding and continuous forms. You sometimes have to stick pieces of cardboard into the printer to temporarily defeat the paper-out mechanism, or press buttons to reassure the printer that it is perfectly ok the single sheet has cleared the paper-out sensors.

Parking

Printers with a parking feature can switch back and forth very quickly between single sheet feeding and continuous forms. You press a button to retract the continuous forms to allow single sheet feeding and press another to re-insert the continuous forms.

Unfortunately parking usually implies push tractors. Please re-read the warnings about push tractors.

Combination Tractors

Panasonic and Roland/Raven recently introduced a new line of printers that have taken Vancouver by storm. They have bottom feed for continuous forms. They also have a push tractor for back feeding short runs of stiff continuous forms. They also have a parking mechanism to remove the continuous forms to allow temporary single sheet feeding.

Okidata devised another clever combination approach. They use a pull tractor with automatically retracting paper. This lets you rip off the sheet just printed without wasting a sheet.

Control Panel

If your printer will be used by anyone other than yourself, you want the simplest possible control panel. There should be only three buttons: ONLINE, EJECT and SET-TOP-OF-FORM. Any configuring switches or controls should be hidden where novice users are unlikely to screw them up.

If you are seduced into buying one of those fancy printers with a control panel with enough buttons and lights to fly a 747, you will regret it. Fellow users will hit one of those buttons by mistake while simply trying to eject a sheet of paper. Then it will take you ten minutes to figure out what they did, and another five to set the printer back to normal. A systems analyst friend of mine wasted about half hour per day doing nothing but resetting a complex Centronics 353 printer for his users.

Even if you are the only user of your printer, the excess buttons are still just a nuisance. All the same effects can be had much more conveniently through software, either by customizing printer drivers, or with BAT files that send control sequences.

You may have trouble finding a printer with a simple control panel. The printer marketing people know that pretty lights and fancy buttons sell printers just the way they sell stereos. If you can't find a simple panel, look for one where the fancy features are done with one set of buttons and the bread and butter functions are done with another. If you cannot find one of those, write some BAT files such as EJECT.BAT to do the equivalent functions of the buttons and never use the printer controls at all.

Ideally the EJECT, sometimes called TOP-OF-PAGE or TOP-OF-FORM, should always work, whether or not the printer is online. In many printers you have to take the printer offline, then hit EJECT, then put the printer back online. Novice users constantly forget one of the steps, or hit one of the buttons prematurely, and then come to pester you because the "printer is broken."

Configuring DIP Switches

Sometimes printer features can only be controlled from the panel or DIP switches, but not through software. This is very frustrating, since any time you want to change such settings, you have to walk over to the printer, power it off, open its covers, and poke away at microscopic DIP switches.

Fujitsu pioneered the latest rage in configuring. They do away with DIP switches altogether. This new "improved" method has you answer about fifty questions by keying the answers in code on the printer panel. It takes only about 30 minutes to configure a printer, once you get the hang of it. However, the old fashioned way, with pure software control of all but the hardware interface, all this could be instantaneous.

Alarms

When printers are out of paper they correctly make a sound to call for help. Some honk long, loud and rudely. Some act like screaming infants refusing to shut up until fed with paper. Some even scream while the computer "abandons" them during reboots. A polite printer should make a noise like the old IBM 360 Model 20 MFCM (Mother Fletcher's Card Mangler) made when it wanted service—a distinctive gurgling warble reminiscent of a contented infant. Avoid printers that sound like a computer beep or a telephone ring. More than anything else, the sounds a printer makes determines its perceived "personality." Rude printers are an embarrassment to their keepers in an office setting. Deafening silence is usually quite enough inducement to bring assistance when they run out of paper.

The Character Set Scam

Printer manufacturers compose demo programs to show off their printers in the best possible light. Sometimes you will see exotic fonts like Old English, Script,

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Russian or bar codes. This is misleading since the demos often use the graphics mode where the programmer manually plans the whole page dot by dot. No word processor has the patience to do this, so you will never see such spectacular special effects in real life.

More legitimate demos show off all the text mode type faces, special effects, bold, italic, underlining, subscripting, superscripting, point sizes and the cast of characters — ideally all 255 characters in the IBM set including the single and double line drawing set, the accented letters and the special symbols such as the happy face.

However, your word processor will in all likelihood only be able to tap a small part of even this potential. The only way to find out how much, is to test the printer with your word processor before you buy.

Emulations

Sometimes your printer has mutually exclusive modes or emulations. For example, in one mode you get all the IBM characters. In the other you get proportional type. You cannot have both at once. You have to choose one feature or the other. This means for all practical purposes your there is no proportional print feature. You may also find that one program requires the printer to be in one mode and a different program requires it to be in another. Sometimes this means flipping DIP switches! The only way to avoid this sort of nonsense is to test your printer with your software before you buy.

Every printer in the world uses different commands to make it go through its paces. This is why you have to be so sure your word processor supports your printer. However there are similarities between printers.

Many printers emulate (roughly copy) the commands of IBM Proprinter XL or the IBM 5152. The IBM Proprinter has one of the most logical set of commands. Epson makes more printers and command sets than Campbell's makes soups, so "Epson compatible" means almost nothing. Sometimes manufacturers emulate specific Epson models such as the FX-86e or LQ-800. This is somewhat more meaningful. Many manufacturers accurately copy Epson standard 8-bit graphics. Because most graphic software expects to use Epson graphic commands, this is a most useful feature.

Don't fall into the trap of thinking that because your printer emulates an IBM Proprinter that you can simply tell your word processor your printer is a Proprinter and expect everything to work without a hitch. It will sometimes work, but if you get the least bit fancy, watch out!

Dot Matrix Summary

If you buy a dot matrix printer, get one with a simple control panel, a bottom feed and a Centronics parallel interface. Test it with your word processing and other software before you buy to find out which of the printer's features you will be able to access.

Dot matrix printer noise is more irritating than you might first guess, especially for long print jobs. Make sure you have taken this into consideration.

Laser Printers

While daisy wheel printers represent the low end of the price spectrum, lasers are the upscale printers starting at about \$2000.

Mechanically there are four kinds of "laser" printer: true laser, LED, LCD, and inkjet. From the point of view of software, there are three kinds of laser printer — PostScript, Hewlett Packard Laserjet Series II, and everything else.

How Laser Printers Work

Laser printers are very close cousins of the office copier. Some laser printers, such as the Xerox 4045, can even double as a low speed photocopier. They use the same rotating light-sensitive print drum, toner and heat to fuse the toner onto the paper. Paradoxically, many laser printers contain no lasers. They use LCD (liquid

crystal display) or LED (light emitting diode) technology to form the image on the print drum.

The only thing the laser does is play light over the rotating print drum. A rotating mirror directs the beam to the right spot on the drum. Many people are under the delusion the laser burns the paper or directly melts the toner. True laser printers are rather delicate because of the laser and the fragile mechanics of the moving mirror. The Hewlett-Packard Laserjet Series II is the most popular of the true laser printers.

LED Printers

The \$4814 NEC LC890 PostScript printer uses an array of tiny LEDs (light emitting diodes) to paint the light onto the drum. With fewer moving parts, this style of printer is in theory more rugged than a true laser. Note that PostScript has nothing to do with the printing mechanics. PostScript printers can have laser, LED or LCD or even dot matrix print engines. The NEC LC890 is one of the fastest PostScript printers; however, its image quality is not as high as most other laser printers. It is great as a proofing device, but not for high quality camera ready copy. (*We disagree - The Computer Paper uses an LC890 for its finished copy-ed.*)

LCD Printers

The Qume CrystalPrint Series II uses a halogen tube to generate the light. The light passes through an array of 2,000 tiny LCD (Liquid Crystal Display) shutters. Each shutter becomes alternately transparent and opaque allowing the light through to the drum to paint the desired pattern. The simple design makes the printer more rugged and cheaper to manufacture. The CrystalPrint print engine has a short life of 180,000 sheets. The printer lists for \$1,999 US.

Ink Jet Printers

There is one other printer that is often lumped in with the laser printers, the \$965 Hewlett Packard DeskJet. It works by a totally different mechanism. It sprays a fine stream of liquid ink at the paper. The output however is almost indistinguishable from laser print — with one exception. The ink is water-soluble and smudges very easily, even after it is dry. For any volume of printing the cost of ink cartridges becomes the major economic factor. Printer manufacturers have learned from Gillette — give away free razors and sell razor blades.

Laser Printer Pros

Laser printers can print dazzling text and graphics quickly and quietly. Most lasers offer a wide assortment of typefaces and sizes. Laser printers use the same reliable paper feed mechanisms used in office copiers. The printers can be trusted to pick up right where they left off after a jam. Other types of printers usually require some sort of manual software restart.

Laser Printer Cons

Laser printers are expensive, especially when you add on the "optional" extras such as graphics RAM and font cartridges.

Laser printers are expensive to operate — up to six cents per page when you consider the cost of toner cartridges, replacement drums and replacement laser units.

Laser printers are heavy, most requiring two people to move them.

Though laser printers are very quick at churning out pages of text in the same type face and size, they can be very slow printing complex pages with many varied typefaces or graphics. Sometimes even the fastest printers can take 20 minutes to print a single page.

PostScript Printers

PostScript printers are expensive, starting about \$4800. PostScript printers usually offer about 35 type faces in any point size. They are also slow, taking usually at least 30 seconds to produce a page and up to 20 minutes for complex pages. They are quite a bit quicker at printing subsequent pages, however. Most

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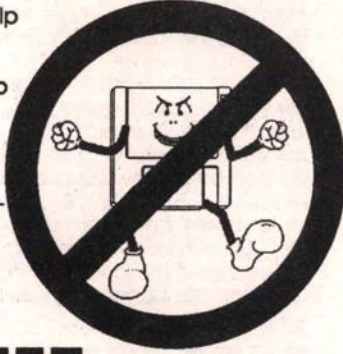
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of the delay is in preparing the bit-mapped fonts in the point sizes needed from the mathematical descriptions of the font outlines.

The number one error people make in buying a PostScript printer is getting one too slow. You can be so bowled over by the fancy effects you neglect to tote up all the time you will waste waiting for each proof to emerge. Even the fastest PostScript printers seem like molasses once you take them home.

The number two error people make is buying a desktop publishing PostScript Printer when an ordinary laser printer optimized for high speed word-processing would have been more suitable.

PostScript is a Forth-like postfix stack computer language. A computer program or computer programmer composes a program in PostScript, then sends it over to the printer for execution. The special effects are thus limited only by the ingenuity of the PostScript programmer.

I have written PostScript programs to make striped letters (similar to the IBM logo), outline letters, and fat letters. I've placed letters at odd angles, done colour separations, reduced and magnified. My friend Steve Osborne did a book cover with letters with halftone shadows that "Fade to Blue."

Very few people with PostScript printers ever compose PostScript programs directly. They get Ventura to do it for them. If you plan to program directly in PostScript, get a printer with BOTH a serial and parallel interface. The parallel interface should be used for production work. The serial interface should be used for debugging. Without the serial interface the printer cannot display error messages about syntax errors in your program. PostScript programming is difficult, fun and addictive.

PostScripts printers typically print at 300 x 300 dots per inch. This is high enough quality for newsprint reproduction. To get higher resolution, you can print the image 1.5 times larger than usual and photo-reduce. You can also take your PostScript program to a Linotronic typesetter and have it typeset at 1200 x 1200 resolution for about \$11 per page.

PostScript Printer Summary

PostScript printers are used mainly for desktop publishing. For routine office printing they are too slow and too expensive.

Hewlett Packard Laserjet II

Hewlett Packard made the first reasonably priced laser printer, and has continued to lead the field with good quality low priced laser printers. The best street price is about \$2500.

Make sure you set aside sufficient funds to cover the long term costs of a generous assortment of font cartridges, replacement toner cartridges, replacement drums and even a new laser unit.

Budget for paper because the consumption will also rise. Because printing is so quick and easy, you will find yourself reprinting a ten-page document because of a change of a single sentence on page one. You cannot see what you have just printed until the entire page is finished. You thus waste paper just to have a look at a few lines.

A whole industry has built up around the Laserjet II with add-on products. For example you can buy extra RAM to beef up its rather meager 512K to help with graphics.

High Speed Controllers

The most important add-ons to the Laserjet Series II (and some other printers) are the high speed controllers. These help get data from the computer to the printer quickly. They also help generating the millions of individual dots from the font outlines that make up the cast of characters. Some can even turn a garden variety Laserjet into a full blown PostScript printer.

JLaser

The Tall Tree J laser Plus AT4 card allows you to build bit map graphic images in expanded RAM, then blast them over an auxiliary coax cable to the Laserjet printer at high speed. Normally, bit mapped graphics are very slow because they must be sent painfully slowly byte by byte over the 1000 byte per second parallel interface. Be warned, the perplexities Tall Tree manuals are legendary. Before tackling them, apprentice at the CIA in code-cracking.

LaserMaster CAP Card

The LaserMaster people build a series of graphics co-processor cards. These are like the J laser on steroids. The added oomph of a second cpu is used to create fonts on the fly from outlines. Short of one of the PS-388 accelerator, this is fastest way to crank out Ventura. The 35-font version lists for \$2,285 US.

QMS JetScript

Neither the J laser nor the LaserMaster are PostScript devices. This makes no difference if you use only Ventura. Within Ventura, the LaserMaster can even perform a few tricks PostScript cannot. If you want true Adobe Postscript, you can use the QMS JetScript card. Like the LaserMaster, it has a built-in co-processor, but it is much slower. The best street price for the 2 MB version is \$2870 Canadian.

Princeton Publishing PS-388

If you want PostScript compatibility and the ultimate in speed, use the Princeton Publishing PS-388 accelerator. It uses a Weitek 10 MIPS RISC PostScript engine. It may seem like a lot of money until you tote up the time it will save you. It lists for \$2,795 US.

If you want to explore advanced PostScript controller cards further, read the April 11, 1989 edition of PC Magazine.

Other Laser Printers

Strange as it may sound, when printers claim Adobe PostScript compatibility there is a very good chance they will be 99% compatible with all other PostScript printers. Unhappily, when they claim HP Packard Laserjet compatibility, they are mean only about a 90% approximation—not close enough to work reliably without tweaking the printer drivers of your word processor. The main area of incompatibility is in available fonts. Sometimes printers only emulate the older Laserjet or Laserjet Plus, not the Series II.

There are a few rare cases where I would recommend buying a printer that was not HP or PostScript compatible. The main one is high speed text printing. For example, the \$4263 Toshiba PageLaser can crank out 12 letters a minute hour after hour.

Overall Printer Summary

If you are unsure of what you want, get a low cost 24-pin dot matrix printer with a bottom feed, a simple control panel and a Centronics parallel interface. If you are sure you need a laser printer, but are unsure what kind you want, get a Hewlett Packard Laserjet Series II. If you are sure you need PostScript, get equipment even faster than you can afford.

If you remember any sentence from this article, let it be this one: "No matter which printer you choose, buy your software first, then thoroughly test it out on the printer before you buy."

Roedy Green is president of Canadian Mind Products, #162 - 1020 Mainland Street, Vancouver BC V6B 2T4, (604) 684-6529. He has worked with over a hundred different printers and has written over sixty multi-lingual printer drivers for Abundance and MS Word.

"My Meter Is Running"

As a result of last month's article, he was swamped with people phoning to ask for "just a few minutes of his time." The net result was he made almost no money during the month. He doesn't like being rude, but if he is to pay the rent, he must charge if you call him for further advice on buying a printer.

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Selecting an HP Laserjet Compatible Laser Printer

The intention of this article is to help you in selecting the best LaserJet compatible for your needs.

First of all, there is a big difference between LASERJET and LASERJET PLUS. The main difference is that the original Laserjet had no user memory that could be used for fonts. Fonts were available only if they came with the printer (built-in fonts) or if you purchased a font cartridge. There was also no need for macro programming, which requires memory for storing programs on the printer. Both of these features were introduced with the Laserjet Plus and the 500 Plus.

HP Compatible Fonts

There are 3 basic types of fonts for Laserjets and compatible printers:

1. Built-in fonts
2. Cartridge fonts
3. Soft fonts

Regardless which of these you use, your software must be configured to use these correctly. One software developer suggests that you can spend 40 hours or more setting up a printer driver properly, and that's if you know what you are doing.

Most major manufacturers supply printers to software developers in order to have a printer driver included with the software that work with their printers. Even in these cases, you may have to spend some time making adjustments to the driver in order to make them work 100%.

WordPerfect 5.0 was released in January 1988, and it was mid-July before they had a good working version for some of the printer drivers that they supply.

Some Microsoft Word 4.0 users are still struggling to get exactly what they need, 2 years after the release of their software.

Displaywrite users can be justifiably frustrated because the developers rarely include anything but IBM printer drivers with the software, and you may have to go to third party developers to get drivers for HP and compatibles.

In any case, you may need to have an expert come in to help you set up to use your software properly, regardless of the software packages that you currently use. This can cost you anywhere from \$350 and up, and then only if your software can be modified easily.

Some packages do not place enough emphasis on the printer and allow only the simplest modification to the programs that drive the printers.

Built-in fonts on laser printers can be misleading.

Be sure that the dealer can demonstrate which fonts are available for the Laserjet Plus mode.

For example: One manufacturer promises 12 fonts, but only 2 are available in HP emulation.

The HP Laserjet Series II claims 6 fonts, but Courier Normal, Courier Bold, and Lineprinter are really only 3 fonts that are counted twice: once for *portrait* printing, and once again if they can be used for *landscape* (sideways) printing.

Cartridge fonts are easy to use

No printer memory is required by cartridge fonts. Just plug it in, set up your software to match the cartridge fonts, and enjoy. Again, each cartridge may require similar software changes as built-in fonts, unless the cartridge manufacturer supplies ready-made printer drivers that take advantage of all of the fonts available on the cartridge(s).

The Super Cartridge from IQ Engineering is one of the best. It contains most of the fonts available on all HP cartridges, and comes with printer drivers for WordPerfect and Microsoft Word, proportional spacing tables and kerning tables. If you had to create these tables yourself, you could be looking at many hours of work!

If two or more users are sharing a printer, they must each know what the other is doing with multiple cartridges in order to have the correct cartridge plugged in when it is required.

The main advantage of the Super Cartridge is that you almost never have to change cartridges. All of the fonts are always available to all users at all times.

The cartridge is made to fit Hewlett-Packard printers and a few good compatibles like the Brother HL-8 or the new HL-8e.

Advantages and disadvantages of permanent/temporary:

- Permanent:
- + printing is faster
 - initial font load takes time
 - more memory is required

- Temporary:
- + less printer memory needed
 - careful organization required
 - printing is slower

Most soft fonts normally come in four variations: Normal, Bold, *Italic*, and *Bold/Italic* and each variation must be counted as a font because each one takes up printer memory.

Some printers can simulate the bold and italic variations and, therefore, require less memory. The same is true for landscaping. If the printer can automatically convert portrait fonts to landscape fonts internally, then you will not have to load the *italic*, *bold*, and *bold/italic* versions, and need less memory to hold your fonts.

Remember, if speed is a factor, and you plan to use soft fonts, get a printer with plenty of memory, and make certain that you know how much of the total memory can be used for soft fonts.

On the Hewlett-Packard Series II, 512K bytes of memory is standard. But, only 385K of it is useable for fonts and macros. Dataproducts also offers 512K, of which only 356K is useable.

The worst case is a manufacturer that advertises 1.3 megabytes of memory, but the memory can only be used as follows:

- 320K for fonts
- 368K for macros
- 112K for buffers
- 800K TOTAL

Presumably, the missing 500K is used for overhead. Find out before you buy! It could save a lot of frustration, as well as money.

Macro Miracles

Macro programming allows you to store forms, logos, or signatures on the laser printer, and print them by sending a short printer command from most software packages.

Take a reasonably complex form of about 100,000 bytes, with lines, boxes, circles, logos, etc. If you need to print it 100 times a day, you must transmit all of the information to the printer each time you want to print it. On a PC XT, 100,000 bytes can take about 83 seconds.

Saving the same form on the printer as a macro means transmitting it only once, and executing it 100 times. The number of characters required to execute a form is about 8 bytes.

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100 transmissions
Total: 10,000,000 bytes
8400 seconds

With Macro Method

1 transmission/100 calls
Total: 100,800 bytes
85 seconds

Using the macro method could save over 2 hours and 20 minutes, and this does not include printing time, just transmission time!

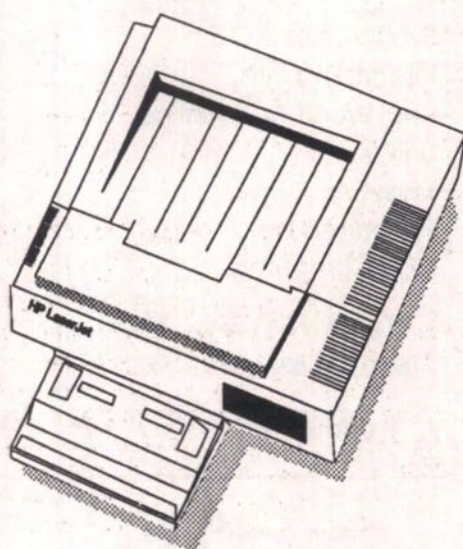
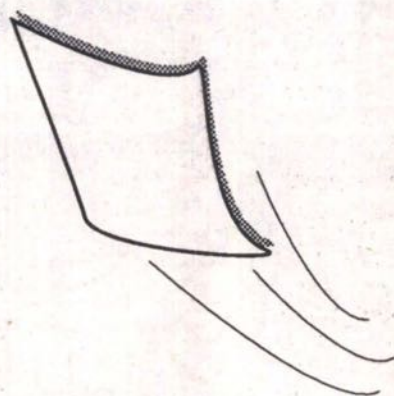
The main disadvantage of macro processing is that you must understand exactly what you are doing, or have someone on hand who can help you out with problems.

For macro processing, you also need 100% HP compatibility. Some of the printers that we have reviewed in the table below were not capable of processing macros properly, and in my opinion, playing with an incompatible printer is not worth the effort since laser printers can be difficult enough to master without compatibility problems!

The testing of the printers shown in the table was not an exhaustive, scientific approach, but intended only for our own purposes. In order to program forms into a laser printer, we had to make certain that the emulation was good enough not to cause major problems when the final product was installed. These are some of the results.

Some of the printers tested were not mentioned because they failed miserably. Others were not mentioned simply because we did not have all of the necessary information available at the deadline.

One suggestion for users sharing printers with multiple emulations: agree



on one emulation mode that meets most users' needs and don't change unless absolutely necessary. Memory is cleared when the emulation mode is changed, and any soft fonts or forms will need to be reloaded.

As this article hits the presses, we are preparing to test a new 400 dpi printer that is rumoured to be fast, Postscript compatible, HP Laserjet+ compatible, and allows scaling of fonts in HP mode.

There are many users of Hewlett-Packard laser printers and compatibles but up until very recently, there has not been much useful literature on them.

Two books are now available called "Laserjet Unlimited" and "Laserjet Companion" that can be very useful for those

of you having problems. These publications review a number of software packages, and point out problem areas and how to get around them, or little known features and tips on how to use them correctly. Please see these for further reference and advice on buying a Laserjet or compatible printer.

Roman Woroch, president of Dante Group Software Inc., specialists in laser printers and laser printer software, can be reached at 596-0111

| Make and Model | Rated Speed | Standard Memory | Printer Emulation | Built-in fonts /Pt. Size | HP Cart. | Paper Bins | Comments |
|---------------------------|-------------|-----------------|--|---|----------|--------------------|--|
| Brother HL-8 | 8 | 1.0 Mb | HPLJ+ IBM Proprinter Diablo 630 Epson FX-80 | Brougham/10 Brougham/12 Brougham/15 Letter Gothic/8.5 Anelia PS | Yes | 1 | Creates italic, bold, and bold/italic internally. Faster than Series II, particularly graphic printing. Canon SX engine. The memory is nearly enough for a full page of graphics and certainly for word processing and simple desktop publishing jobs. |
| Brother HL-8e | 8 | 1.0 Mb | HPLJ+ IBM Proprinter Diablo 630 Epson FX-80 HPGL | Brougham/10 Brougham/12 Brougham/15 Letter Gothic/8.5 Anelia PS Times Roman PS Helvetica PS | Yes | 1 | This model includes HPGL emulation, Times Roman and Helvetica 10 pt. fonts. Unfortunately they had to sacrifice something to make room for these new features, and the undocumented internal italic and bold is not available on this printer with downloadable fonts, only with internal fonts. |
| Centronics Pageprinter 8 | 8 | 1.5 Mb | HPLJ+ or (Diablo/Eps/IBM) | Courier/12 Line Printer/8.5 | No | 1 | Older machine. Slow in processing graphics and minor incompatibility in macro commands. Great for word processing applications or slow desktop publishing. Limited fonts but lots of memory. |
| Dataproducts LZR 1230 | 12 | 512K | HPLJ+ Diablo 630 Epson FX-80 | Courier/12 Prestige/10 Dutch PS Line Printer/8.5 | No | 1/2 Env. O/J | Great office machine with the multiple bin options, including envelope feeder. 1 parallel and 2 serial connections - polled by the printer! Refreshing new firmware for font selection problem. |
| Genicom 5010 | 10 | 1.7 Mb | HPLJ+ or IBM/Diablo | Courier/12 Prestige Elite/10 Line Printer/8.5 | No | 1/1 | Failed macro processing. May never be fixed since it is not available locally anymore. Inexpensive multiple bin option may be still available. |
| Hewlett-Packard Series II | 8 | 512K | HP Series II | Courier/12 Line Printer/8.5 | Yes | 1 | Best documentation. Complex macros caused print overrun during testing. Lacking fonts and/or memory, and sooner or later, you will need to add one or the other, Canon SX engine. |
| NEC LC 860 | 8 | 1.3 Mb | HPLJ+ NEC 3350 Diablo 630 | Courier/12 Letter Gothic/10 Line Printer/8.5 | No | 2 | Only 320K available for fonts, 368K for macros. Not anywhere near the 1.3 Mb. Spins its wheels displaying font on panel as it is processed! |
| NEC LC 890 | 8 | 3.0 Mb | HPLJ+ PostScript | 35 Adobe | No | 2 | Brief test of HPLJ+ hung up. NEC promised new firmware, but printer was not tested again. |
| Roland LP 1100 | 11 | 512 K | HPLJ+ Diablo 630 Epson FX-80 IBM Proprinter | Courier/6 Courier/8 Courier/9 Courier/10 Courier/12 Century PS | No | 2 | Two bins, but no manual feed! HPLJ+ emulation is documented as Roland in the reference manual. Problems with the machine hanging up were resolved by bringing in a new machine. The problem disappeared. |
| Toshiba PageLaser 12 | 12 | 512 K | HPLJ+ Diablo 630 Toshiba P351 IBM Graphics | Courier/12 Prestige Elite/10 Line Printer/8.5 | No | 1/2 Env. O/J | Macros worked okay, but we did not get a chance to fully test all of the internal font features. The HP emulation is on a cartridge, taking up one of the three cartridge slots. |

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Successful retailing involves unending attention to detail. In most cases the details require immediate attention and that demands time. A good POS system can save time by providing quick access to sales, inventory, and accounting information.

Time Bandits

What POS can do is eliminate time bandits. Every month a retailer takes inventory, reconciles his accounts and produces a statement. It tells him "The business is right here". Except when it takes a week or two to produce. Then it's like driving to Niagra Falls for your honeymoon without any maps. Every morning you call a friend to find out your location, but they can only tell you where you were yesterday. Good luck getting to Niagra Falls, not to mention staying married. With POS, every morning when you open for business you can have a meaningful picture of inventory and sales information to work from.

Let's look at another situation common to most retail operations. One of your valued employees is putting together daily or weekly merchandise orders. How much time does that take? Better for you if they are at the counter or on the floor making sales. In many businesses, the automation of this one procedure can justify the installation of a full POS system.

Choosing A System

First evaluate your needs. Some companies, who specialize in providing POS systems, will provide a needs analysis and an investment needs analysis for a small fee which can be applied to the purchase of their system should it be the one you choose. The money invested in evaluating your business will be well spent, even if it shows that the system will not pay for itself in your business environment. Then look seriously at systems that cost 1.5% of your annual sales or less.

The most valuable piece of advice for selecting any computer system is to make sure the software does what you need. First, it must fit in with your existing manual systems. Second, the software may run your business for the next twenty years with very little modification while the hardware, especially the computers, are constantly changing. Often the low-price and high-price software appear similar. The real value in the higher priced systems is in the level of control the software takes upon itself. This removes the requirement for you to be a computer expert to manage a complex business.

Be forewarned. Every POS vendor will tell you their system is easy to use. It must be easy to use and easy to manage.

What is a Point of Sale System?

A Point of Sale (POS) system records sales transactions of a retail store or chain in detail, as the sale is first recorded on a cash register or computer terminal. The data is used to update perpetual inventory and the accounts receivable. The data is also used to generate multiple sales analysis reports, and may also update the general ledger. A more elaborate system that produces sales invoices and shipping documents etc. may be called an Order Entry System.

Medium to large retailers and wholesalers have long been using POS systems with mini-computers or mainframes and expensive, polling cash registers. Reduced prices for micro-computers and new POS software now make POS practical even for small stores. Polling cash registers have dropped from \$5,000 to the \$2,000 price range.

1. Off-the-Shelf Software.

This may be purchased locally from computer retailers, or by mail order and prices start around \$600 for software only. Complete systems for a single-user setup, including computer and software, start at about \$3300. The purchaser is responsible to set up his system and make it work.

2. Software Customized by a Local Consultant

Local dealer/consultants take POS software and customize it for various types of business and market it locally. Local customer support is generally available but you may have to pay extra for it. Vendors tend to specialize in certain markets, e.g. restaurants, video stores, or clothing stores, and offer software particularly well suited to the line of business.

3. Turnkey Systems.

These systems include customizing and extensive customer support (hand holding). The more elaborate systems will have added features, such as the ability for a sales clerk to see if the product he needs is in inventory at another branch, without interrupting sales staff at the other branch.

**Mistakes To Avoid
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Continues on page 34



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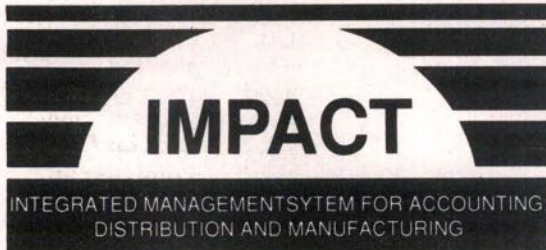
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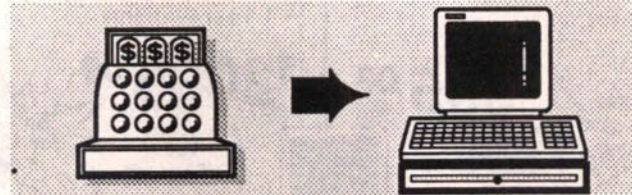
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A Point of Sale system must be both easy to use and easy to manage

POS continued from page 30

death. Any one treatment could have saved the animal. The only sure thing is that the combination was fatal. Don't assemble your own POS system unless you have a good grasp of computer systems.

Get your sales staff, to check out the cash register or data terminal of the system. If they don't like it they won't perform to their potential. This point is often ignored. Its omission can be the costliest mistake of all.

Choosing Your System: Points to Consider

1. Track Record of the Software Vendor. Phone the vendor's customers. Visit local customers and find out about their experience with the software.
2. Speed of Recording Sales. This has a major impact on customer satisfaction. Slow check-out is unacceptable.
3. Industry Hardware Components. A system that depends on custom hardware can lock you in to one software/hardware vendor. Service and support for readily available PC compatible or Macintosh computers and peripherals are widely available at competitive prices. If the software did prove unsatisfactory, switching to an alternate software supplier would be much less painful.
4. Documentation. Good operating instruction manuals and especially on-line help, for sales clerks is vitally important.
5. Software Support. Questions you need an answer to include:

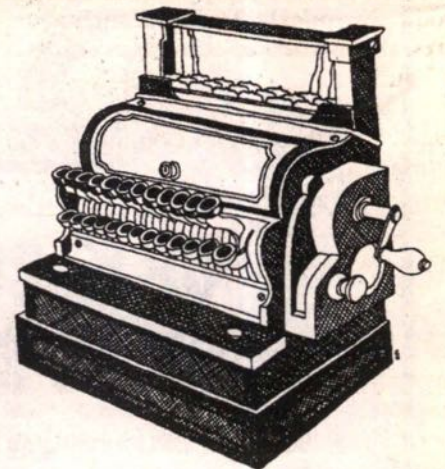
Is the vendor available to solve software problems or bugs? Can the system grow to meet your needs as your business expands to multiple check-outs and multiple locations? Are software modifications available?

6. Integration of Accounting Functions. All POS systems integrate with a perpetual inventory, but integration with accounts receivable, general ledger, and accounts payable systems may be very desirable. Some POS systems are designed to work with popular accounting software such as AccPac or Bedford.

7. Get proposals from several vendors, so you can make a more informed choice of system. Narrow your choice, then check with users of the systems which seem to best fit your needs. Customizing is costly. An alternative is to choose a system that offers the best mix of advantages and live within its constraints.

Chris J. Metten, B.Com. (325-9609) is a Technical Writer and Photographer, who specializes in writing software and hardware user manuals.

Thanks for invaluable insights go to Bernie Sparrow of Quality Logic (604) 980-2777, Gordon Phelan of CTS Quantel (604) 430-4061, Chris Maylor of Samco Software (604) 298-6377, and Ron Crohn of Syspro Touch & Sell (604) 681-6447.



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AMIGA REPORT

The Applied Amiga

Here is a look at couple of hot new products and public domain offerings for AMIGA owners.

Video genlocks, the good the bad....

The AMIGA has been blessed with a number of good low cost genlock devices to marry home video and computer graphics. Most of these, from the ProGen to the SuperGen have limited appeal for the Video Professional who requires high quality for output to S-VHS or Broadcast quality tape. Magni, distributed by Applied Electronics in BC, has what looks to be the most complete genlock system for the AMIGA.

A disappointment in the AMIGA Genlock world seems to be the repackaging of the Sytech genlock as the VidTech. All the same problems that plagued SciTech have been repackaged. Not a new idea.

Deluxe Paint III

Deluxe Paint I and II have set the standard for Amiga graphics over the past 3 years and now with version III and the addition of Animation and Extra-half bright (64 colours from the previous maximum of 32) this program comes very close to making it three in a row. Close, but not a one hundred percent winner. According to Larry Phillips, the Local graphics wizard for our Amiga club, "I bought DPaint III while I was in California, and it is definitely buggy. The file requester still has problems, and it bombs often. I'm real sorry I bought it." It may be wise to wait for the second release on this one.

Arp1.3

Part of the Amiga's appeal to computer user's who like to go beyond the basics. The Amiga can be used two ways. The easy to learn graphics interface allows new users to jump right in and get productive quickly. As with all such structures, this point and click approach has limitations. The Amiga fortunately doesn't stop there, it allows you to program it at a deeper level through it's Command Line Interface, or CLI. People switching to the Amiga from an IBM or compatible will be familiar with the CLI as it has many similarities to the DOS level.

In the history of Public Domain Software for the AMIGA Computer there has never been anything as useful as the ARP commands. Under version 1.2 of the operating system, the ARP commands gave the CLI user smaller, more powerful versions of almost every AMIGADOS command. Now with the release of AMIGADOS 1.3, the AmigaDOS Resource Project (ARP) from Microsmiths, Inc. the fast easy to use features are greatly enhanced. If you have an Amiga and you do more than point and click, you should have ARP. It is available through local Bulletin Boards (Mind Link) or contact the Pacific Northwest Amiga Association. at 270-0064. "ARP is not ShareWare. If you would like to support the ARP project, the best ways to do it are to spread the word about ARP to other Amiga users, to write and distribute programs which use ARP, and to support the commercial and shareware products which take advantage of ARP's capabilities...."

Tape Backup

Here is a plug for my own company. RSI of Vancouver is about to release a VCR tape backup unit for ALL Amiga computers. Most Amiga owners have a Video Tape recorder and the WEDGE streamer allows you to save your complete hard drive to an inexpensive Video Tape using an inexpensive device attached to the Parallel port. The anticipated retail price will be around \$250.

GVP Hard Drives / RAM

Great Valley Products has released a number of very exciting products for the

AMIGA 500 and 2000 series. SCSI hard drives with memory are now within the reach of the average consumer. One of the most noticeable aspects of GVP products is the quality of the packaging. According to reports on UseNet, GVP systems are very easy to setup with the installation programs taking your hand through the setup.

What's New at Commodore

May 1st Commodore Business Machines is moving thier Vancouver office and opening a dealer training centre. According to Reg Nordman, Commodore's Educational Representative in Vancouver, the relocation is part of Commodore's plan to penetrate new business areas with thier new powerful line of personal computers. The move is well timed with the news that in western Canada CBM sales are up 138% over the same period last year. The new address is 8626 Commerce Court, Burnaby, V5A 4N6. Phone 421-4443 or Fax 421-1334

UNIX, AMIX and SUN

UX2500 has been in the hands of Canadian developers since Novemebr of last year and is being released to Universities. The Amiga UX2500 will run AMIX version 5, which is a direct licence from AT&T ensuring that CBM will have the latest version of this tried and true operating system. CBM now has an agreement with SUN for the XWindows interface to run on the UX2500. One developer refers to the AMIX as a "very robust Unix System."

Dave Allen is an AMIGA consultant and teacher as well as President of the Commodore Computer Club/ Pacific Northwest AMIGA Association in Vancouver. 278-6694



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Musical Micros**Choosing A Computer for Music****Do You Really Need
A Computer For Music?**

I recently received a telephone call from someone who wanted to get some general information about choosing a personal computer for music applications. The person asked me which computer I thought they should buy.

My immediate response was to question whether or not it was even necessary to use a personal computer. There are so many MIDI instruments and devices available that have microprocessors 'on board' and can handle a lot of the tasks that a personal computer might perform. Most musical instrument manufacturers have introduced instruments that can be used without a personal computer and still offer enough flexibility to create ensemble and orchestral sounds. Keyboard instruments like the Kork M1, Roland D-20 and the Ensoniq ESQ 1 come equipped complete with plenty of on-board sounds and a sequencer that is capable of recording eight or more different parts. These multi-timbral instruments feature sync capability for synchronizing the instrument to a multi-track tape deck, channel and mode assignments and also the synthesis capability for creating original sounds. In most cases, the instrument has a stereo output which means the user can go direct to a two-track cassette tape deck. To make the task easier for the budget minded musician, the on-board software even allows the user to mix the output levels of the individual tracks of the sequencer complete with effects like reverb and chorusing, thus eliminating the need for a mixing board. In short, it's worth considering whether or not it is necessary to buy a computer in order to play and write music.

Let Your Budget Decide

Having made this point to the person, I quickly pointed out that one's financial budget should play a major role in influencing decisions. Buying a computer can be a long process because to optimize your buying dollars you'll want to know a lot about the various computers available and the particular features each has to offer. Though computer and music shops have product biases, you can still get good solid information from the staff about their products' capabilities. There are so many ways of acquiring the information you need in order to make the best decision for you.

By taking time to carefully shop around, reading informative magazine reviews and talking to other musicians one can soon acquire the information they need to make the most practical choice. Just for the fun of it, why not check out some of the great music and computer shops in your area and get some demos of the available software: you're in for some BIG SURPRISES!

Monitoring Your Music

One of the many reasons in favour of using a personal computer for music applications is the monitor. The user-interface that is available with the type of keyboard instruments already mentioned is very limited. Usually a keyboard device uses a very small LED (light emitting diode) that can sufficiently allow the user to monitor events, but also impedes the manipulation of data. The small LED display screen creates major problems for equipment designers and in reality makes the end user's task into an information tangle. With such a small visual screen and a limited number of control buttons,

the user usually has problems manipulating the large amount of parameters necessary in programming and controlling the musical data.

What A Computer Can Add

Before going on, let's consider some of the options that a 'MIDled' personal computer can do. A computer is a powerful means of controlling the complete music environment and the available software enhances every aspect involved in music production. The features available in most software packages can also take advantage of graphics to represent the music data creating a more transparent user-interface. In addition to memory capability, the computer outweighs stand-alone and on-board sequences in software features and capabilities, can print music scores and is flexible in the methods of performance and commands; if you don't like one type of software, simply try another. Besides offering a much larger number of sequencer tracks, the computer can also be a means of editing program patches for samplers and synthesizers, creating libraries and storing banks of information; dumping keyboard information to disk is a major advantage over synthesizers that dump to tape. In addition to being able to handle complex musical applications, computers can handle musicians' accounting, act as a filing system and as a communication link by means of electronic billboards and modems.

As mentioned, costing a system plays a major role. Remember, once you have a personal computer, you'll still need to probably buy a MIDI interface along with the software and other minor peripherals that all add up and should be included in your budget.

**Do You Want To Be
The Next Stevie Wonder?**

Deciding which applications you want to use the computer for goes hand in hand with deciding what your long term planning will involve. Expandability in a system applies equally regardless of the use. Are you primarily interested in owning a MIDI work station to compose music in your home, for playing at live gigs or for use in professional studios or for use in education? Software availability should always be a priority when buying a computer. It's a standard rule in the computer industry to choose the software before choosing the computer. In music terms, this can simply refer to the style of the software and how well the software suits your own musical thinking and needs. Another factor to keep in mind is how much time and patience do you have in terms of learning a computer's basic system and applications. Determining the type of user interface that best works for your goals and needs can be the single most important decision you have to make besides the monetary considerations. In music situations, most creative people want the computer to enhance their ideas by allowing them to quickly manoeuvre their ideas. They don't want to spend too much time typing in commands and risk losing the essence of their creative idea. This concept led to the Apple Macintosh's popularity with professional studios in North America; a quick learning curve and a very transparent user interface unlike the IBM which requires more learning time, more key commands and didn't feature a mouse to control software parameters.

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Some other considerations include how many disks drives your require, the amount of memory, software compatibility with other software packages, cost of update and upgrades, support and service for the software and hardware in case of defects and what kind of system package price you can get from retailers: what kind of financing plans do they offer?

Try Before You Buy

Having taken a good general overview of the situation, I strongly suggest getting demonstrations of the software and hardware products you're interested in and testing the available market expertise; if you can't get a decent demo what will happen when you need real support after you've purchased the products? Keep in mind, computer stores generally don't have the expertise to demonstrate music software packages and music stores generally aren't computer hardware experts, so be prepared to think on your own and become as independent of other people's help as possible after all, you're the one who ultimately will have to control the gear and in most cases the products are usually a lot more simple than they first appear to be!

Is There Anything Good For An IBM or Compatible?

For those of you who already own or have access to a computer, you can dedicate more time to costing the MIDI interface necessary for communication between the computer and the musical instruments and checking out the type of keyboard instrument you want. It is my experience that the majority of people who have such luck are owners of any IBM computer, IBM clones or IBM compatibles. The IBM has not been the first choice of the music industry and consequently does not have as wide a cross-section of music software to choose from as the Apple Macintosh and the Atari ST however, being used to the operating system eliminates a long learning curve when using the available software since you are accustomed to the keying system and its demands. The IBM computer does have some interesting software packages available such as Cakewalk, Textures and Personal Composer and a popular MIDI interface called the MPU 401 PC.

Apple II Series

Apple's first household PC, the Apple II, has lots of time tested software available. The Apple IIe, while not known for its sound quality does have a lot of music software available for it. These earlier Apple computers also feature an open architecture which means the end-user is able to add on peripheral devices creating an expandable environment.

The Apple IIc is the portable version of the IIe and can be MIDI interfaced to musical devices with a number of economic interfaces available including the J.L. Cooper or Passport interface. A smaller and lighter machine, the Apple IIc doesn't offer the interfacing flexibility of other Apple computers.

The Apple IIGS offers good quality internal audio sound capability which allows the user to monitor sound while using software. This computer shows great potential for the education market and has already gained enough attention from software developers to create a large catalogue of quality educational software to be presently available. There are a number of quality MIDI interfaces also available including Apple's own: a definitive acknowledgment that Apple is still very serious about the hidden potential of the computer music environment in education.

A thorough retail listing of the available computer interfaces is available from a number of sources including the very inexpensive music software catalogue

called CODA offered by Wenger Corporation and MIX magazine's Book Shelf. Music Technology, Home and Studio Recording and Rhythm magazines are informative sources of the MIDI music industry and advertise all types of MIDI software and hardware available.

Mac The Musician

The Macintosh is an extremely well designed computer that is highly celebrated for its easy operation and flexibility. The Mac's design provides quick and easy operation without having to enter a lot of commands via the keyboard. Using the accompanying mouse and mouse pad, operation becomes both intuitive and transparent via simple click, drag and scrolling functions. Clicking on the various drop down menus at the top of the screen quickly lists the particular software options and commands available. Variations of this model include the Mac 512K (single sided disc drive) and the Mac Plus (double sided disc drive).

Excellent music software programs for the Macintosh are easy to find which effectively put it in a class of its own. Having no clones or compatibles creates a monopoly effect and a higher price range meant the Apple Macintosh was becoming targeted at the industrial sector. In the business community, the Mac started to appeal to the IBM market. Its easy user interface enabled people to quickly learn not only the basic desk-top hierarchy but also to take control of the software environment for programming.

This economical factor in addition to its processing power and internal sound capability attracted the industrial music and film markets as well. With this in mind, software developers designed sophisticated programs to satisfy the needs of sound engineers and musicians which in turn triggered a whole new trend and use for computer technology in all areas of sound production. With the MIDI standardization.

Memoirs Of MIDI

In 1982, the music industry created a co-operative standard implementation for all musical instrument manufacturers including Japan and other international countries. With this new digital standard, the music industry created a common language for all instruments creating a compatibility between various manufacturers products. This offered a flexibility and compatibility to the end user that the computer industry had never been able to previously offer and a boon for the music industry. Music technology created new products for not only professional studios but also for live musicians and home recording enthusiasts. The Macintosh computer fit into the scenario perfectly and quickly became the standard in the music industry. Although a closed architecture, the Macintosh can retrieve 10-20 megabytes of information with an add-on optional hard disk drive. With the trend toward external hard drives the Macintosh is a solid choice for all aspects of the music business and the heart of the many MIDI automated studio set-ups existing in North America. Originally, the price range was somewhat prohibitive for amateur and semi-professional musicians but today the cost of the earlier Macintosh models is even more accessible with Apple's decision to decrease prices.

The Macintosh SE offered an open architecture for expandability and two disk drives which conveniently avoided all the disk swapping protocol involved with the single disk drives offered with the Mac 512K and Mac Plus. Until now, Mac 512K and Mac Plus users had to settle for an add-on external disk drive which could conveniently accommodate system start-up and allowed for the exchange of files and generally aided the whole process of organization. The Mac SE also featured a quicker processing time and a solid choice for

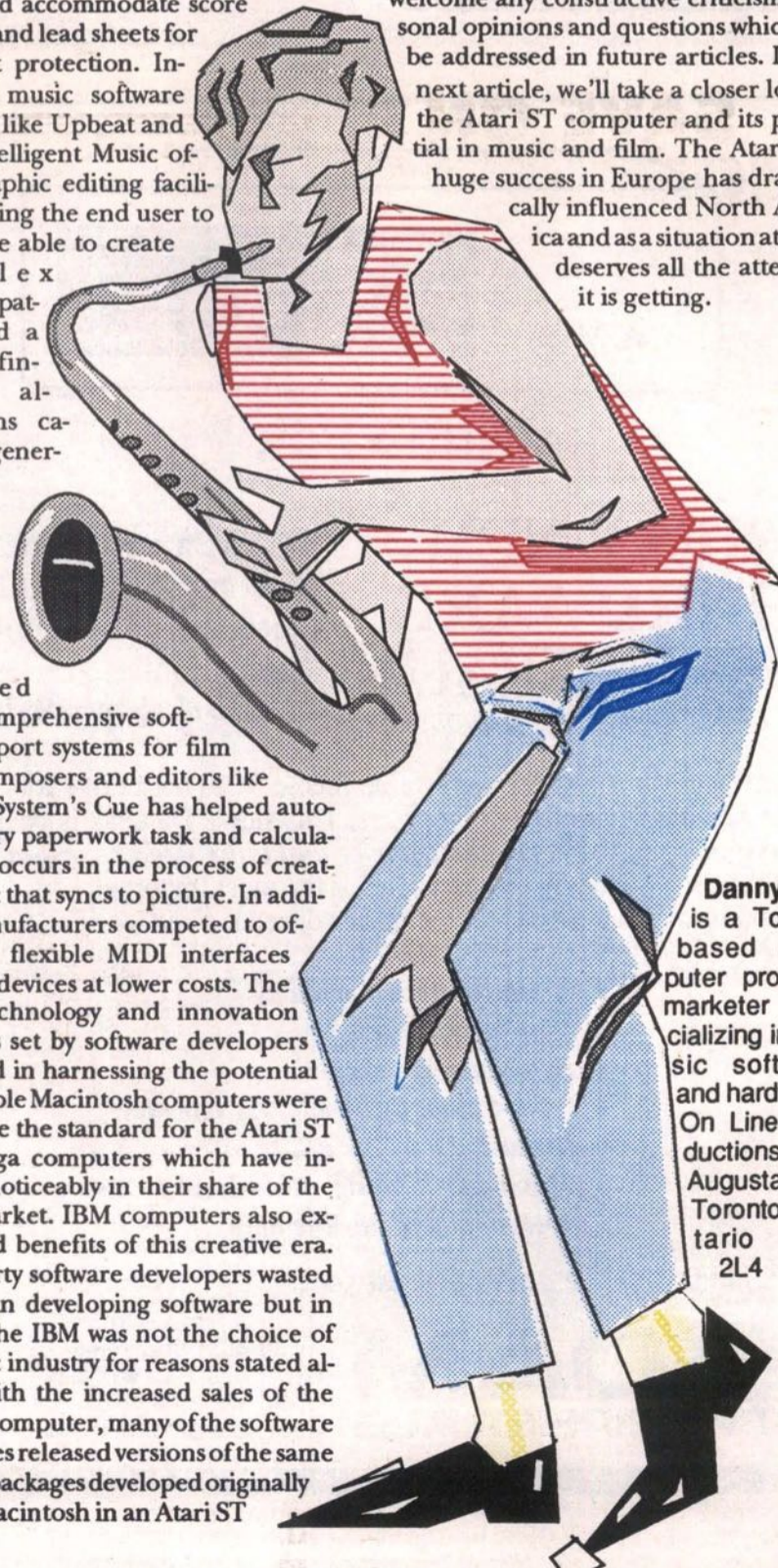
serious minded musicians and studios interested in the direct-to-disk recording system being offered like Digidesign. Digidesign's Sound Tools include an add on Digital Signal Processing Card called the Sound Accelerator which effectively accommodates high-speed processing and provides 16-Bit (CD quality) playback of individual sounds directly from the computer and also provides real-time sound processing and synthesis. Another component option is an A to D converter which allows the user to directly input audio from a number of audio sources including CD Rom and DAT sources. Other options include the Universal Sound Designer software package which works with practically all available sampler models on today's market and Q-Sheet A/V which is designed to simplify and enhance audio post production and also supports Dyaxis sample to disk system by IMS.

The software developers were quick to release software compatible with both the Mac SE and the Mac II. The Mac II while offering colour, an open architecture, a larger screen monitor and other features clearly became Apple's high-end computer with a high-end price which for most musicians was not an economical choice. Since the Apple Macintosh's premiere performances in the North American music scene, we have witnessed an ever-increasing production of high quality software that encompasses all aspects of creative sound production. Synthesizer editors and librarians helped to create and organize sound files while sophisticated sequencers like Mark of The Unicorn's Performer help set new standards in the area of digital sound recording. Music notation packages started to appear providing a way for sequences to be exchanged between software programs and accommodate score printing and lead sheets for copyright protection. Interactive music software packages like Upbeat and M by Intelligent Music offered graphic editing facilities allowing the end user to quickly be able to create complex rhythmic patterns and a user definable algorithm capable of generating randomness into the programmed parts. Comprehensive software support systems for film music composers and editors like Opcode System's Cue has helped automate every paperwork task and calculation that occurs in the process of creating music that syncs to picture. In addition, manufacturers competed to offer more flexible MIDI interfaces and sync devices at lower costs. The music technology and innovation standards set by software developers interested in harnessing the potential of the Apple Macintosh computers were to become the standard for the Atari ST and Amiga computers which have increased noticeably in their share of the music market. IBM computers also experienced benefits of this creative era. Third party software developers wasted no time in developing software but in general the IBM was not the choice of the music industry for reasons stated already. With the increased sales of the Atari ST computer, many of the software companies released versions of the same software packages developed originally for the Macintosh in an Atari ST

format. Clearly, all music software users regardless of computer brand, have benefited from the Apple Macintosh's presence and acceptance into the North American music scene.

As we will see in the next article, Europe has a different approach to the computer music software and hardware market and it is not without its own ironies. In concluding these observations let's quickly take a look at another important aspect that all owners of computers must carefully consider in assessing the long-term realities involved in owning a personal computer; support and service after the purchase. Apple Computer Inc.'s worldwide network of full-support via AppleLink, an on-line electronic information service, ensures prompt and reliable assistance to dealers and end users. With the limited warranties offered by so many computer companies, end users welcomed Apple's commitment after the point of purchase and their Appicare Service Agreement which extends full warranty covering up to three years. This kind of service and support commitment makes the Macintosh computers an even more attractive choice to the education and music industry and contrasts significantly with many other computer manufacturer's attitude in this important area of service. Again, a standard that is well worth considering when budgeting and forecasting the long-term realities of maintaining your personal computer to assure you get the greatest potential from your investment dollar.

In future articles, we will be taking a closer look at the impact the Atari ST, the Amiga, and the IBM have had in the music production. As an open policy, please feel free to draw our attention to details and facts that you feel are important and should also be mentioned. I welcome any constructive criticism, personal opinions and questions which can be addressed in future articles. In the next article, we'll take a closer look at the Atari ST computer and its potential in music and film. The Atari ST's huge success in Europe has dramatically influenced North America and as a situation at hand deserves all the attention it is getting.



Danny Mott is a Toronto based computer products marketer specializing in music software and hardware. On Line Productions 179 Augusta Ave. Toronto, Ontario M5T 2L4

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Noteworthy Programs

Spring is here and lots of new software products are popping up all over the place. I'd like to mention some noteworthy programs that have come my way in the past few months.

Redux

According to Webster, redux means "that which has been brought back; revived; restored." I got version 1.5 of this delightful back-up utility at the January 89 MacWorld Expo in San Francisco. Redux is certainly one of the best back-up programs I've seen, but it does take some time to learn its many features. However, the manual is excellent. It takes you through all the possible things you might want to do with the program in a step by step fashion. At the top of each page is a statement about what you might want to do like, "Backup a particular folder," "Just back up what's changed since my last backup," or "Let me see what's changed before it starts backing up changes." Following these statements are the exact steps required to accomplish the task. More software publishers should organize their manuals in such a task-oriented way.

Redux has one feature that I have never seen before in a back-up utility. Computer consultants can create "back-up scripts" that contain instructions for complex backups, involving selected folders or complicated file search criteria. These scripts written in a language called "BackTalk" allow naive clients to do elaborate backups long after the consultant has left the scene.

Thunder II

There is a small Toronto company called Rainmaker Research that has consistently created great Macintosh software for years. Perhaps they are best known for DiskTools II or their set of desk accessories (DA's) called Batteries Included. I met Evan Gross, their programming wizard, at the San Francisco Mac Expo and he gave me a copy of Thunder II, a new version of their DA spelling checker. Thunder II is just fantastic. Installed as a CDEV or Control Panel Device, it is available in any application from the control panel DA on the Mac. It will even run in desk accessories like ACTA or MockWrite.

You can now add spell-checking to any Mac program, including HyperCard and PageMaker. Thunder II is not crippled or pared down in any way, either. Containing many more features than the native spell-checker in Word 3 and other programs, it makes a welcome addition to a Macintosh writer's arsenal of tools.

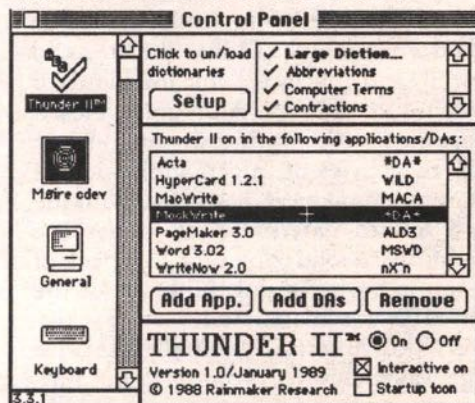


Figure 1. Thunder II is a Control Panel device (CDEV) that is available at all times on the Macintosh.

On initial set-up you can give Thunder II a list of applications and DA's so that spell-checking will automatically be added to those programs when they are started up. Thunder II also has an interactive mode that beeps at you the second you make a mistake. There are four different beeps: one for spelling errors and others for punctuation, word duplication and capitalization errors. Not only that, but these beeps are user definable and may also be assigned Macintosh sound (snd) resources.

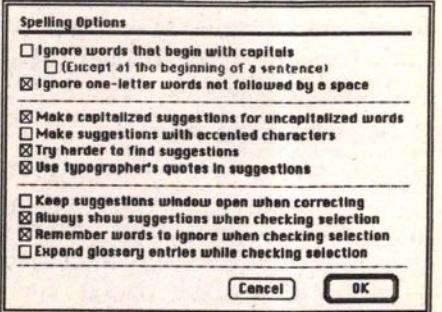


Figure 2. Here are some of the settings available during spelling checking in Thunder II.

There are no shortage of spelling options in Thunder II (see fig. 2). You may have any number of user-defined dictionaries and they may be kept on any drive. When an unknown word is encountered, Thunder II allows you to add it to a dictionary giving you the opportunity to define variations of the word that will also be remembered.

An additional benefit of Thunder II is its ability to statistically analyse a document. Besides discovering the number of words and paragraphs, an author can also obtain several readability indexes. To check spelling or get statistics, you must select the text first and then tell Thunder II to analyse it.

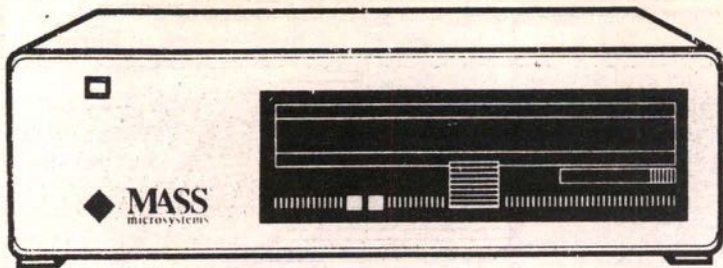
Thunder II requires 161K of disk space for the CDEV portion and 176K for its dictionary. This is fairly modest compared to other powerful spell-checkers which can require up to a megabyte of disk space. Yet this small package has a lot of smarts. For example, when being used to check text in a word processor, Thunder II is smart enough to remember all the misspelled words and use the application's own search and replace ability to go in and change each spelling mistake. This is handy because it preserves all special text formats affecting misspelled words.

The only complaint I have about Thunder II is that, like many new Macintosh programs, it is not optimized for one megabyte machines like the SE or Mac Plus. To get trouble free performance from this excellent utility you should really have more than one meg of RAM. Otherwise you will find that you have to turn off other memory intensive utilities such as menu-clocks and screen savers in order to run Thunder II without problems.

WingZ

WingZ from Informix of Lenexa, Kansas is wonderful but perhaps just a little ahead of its time. This excellent full-featured spreadsheet and graphics presentation program blows Excel away, but only if you can afford a Mac II or SE/30 with extra RAM and a laser printer. Although WingZ lists for a few dollars less than Excel—about \$395—the hardware necessary to put it through its paces will set you back nearly \$15,000. Without a doubt, in a few years computers with 32 megs of RAM and dedicated laser printers will be commonplace, however, unless you currently work for a large corporation that has a healthy budget for computer hardware, you are probably better off sticking with Excel for your day-to-day spreadsheet needs.

There is a lot to like about WingZ, though. For one thing, it is fast—a lot faster than Excel. Another feature that I really like is the way the people at Informix kept most of Excel's command-key equivalents for common commands in WingZ. For example, copy right, copy down, delete row, recalculate, and many other spreadsheet operations can still be achieved with the same keystrokes that you've been using in Excel. This makes the transition to WingZ fairly painless. In addition to this, WingZ implements a few command-key equivalents that are common to virtually all Macintosh programs but are sorely missing in Excel. For example, in WingZ, command-B makes se-



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lected text bold just as you would expect. In Excel command-B deletes the selected text.

Another great strong point of WingZ is its totally customizable Menu and dialog box system. Sample scripts in WingZ's HyperTalk-like macro language are supplied on the release disks. They clearly show how to implement custom menus in WingZ. However, the manuals do not go into enough detail about WingZ's incredibly powerful scripting language called HyperScript. There should be small examples of code showing how to implement all available language elements. Unlike HyperCard's HyperTalk which uses understandable English words, HyperScript contains hundreds of cryptic commands and functions like AXIS-MAJGRIDPAT and BASEPENFG that are hardly explained at all in the manuals. Informix does provide the HyperScript source code on disk for all the currently

the object again. This was a limitation in some early Mac programs, but virtually all Mac software now scrolls the window automatically when you try to drag an object beyond the visible screen.

Again, I can only assume that WingZ's developers were working on glorious (and expensive) Hitachi 38" colour monitors that allowed such huge windows, they never thought of dragging an object beyond the visible screen. Therefore code was never written to implement this feature. Perhaps all Macintosh software companies should force their developers to work on plain vanilla Mac SE's. Just imagine how fast their products would run on Mac II's and SE/30's. Unfortunately, WingZ was developed and optimized for big expensive memory-rich computer systems. If you are fortunate to have such a system, you will love WingZ, but if you are one of the millions of users with a small screen, one megabyte system, WingZ may just be an exercise in frustration.

The Latest on HyperCard

For all those HyperCard enthusiasts out there, I called Bill Atkinson the other day to find out when we could expect HyperCard 2.0. According to Bill, they are shooting for a September '89 release but may be able to supply demonstration copies in August. He wouldn't give me the slightest hint as to what new features we could expect to see in version 2.0 but it's widely believed in the industry that multiple open stacks, variable window size and perhaps a type of inter-process communication (that would interact with the new Macintosh System 7.0 software to be available around the same time) may be included in the new release.

When HyperCard was introduced in 1987, Bill Atkinson said that, unlike MacPaint, he would actively support HyperCard for three years because he did not actually consider it to be a "finished" product. Since almost two years have passed, I asked Bill if he would be working on HyperCard for one more year. His

answer was "Oh, I'll be working on HyperCard for many years to come." Perhaps this kind of long term commitment to a single product by one of the computer world's greatest software wizards also reflects a commitment on the part of Apple Computer to continue to support HyperCard well into the 1990's.

Barry Shell is a computer consultant in Vancouver, Canada. His three year old company, SoftShell Small Systems Software Design Incorporated, specializes in technical writing, consulting and training for Apple's Macintosh computers. In 1986 Barry won first prize in Microsoft Canada's Excel Macro writing contest with an easy to use Mailing Label macro. Barry has written two books on HyperCard and is currently the editor of CSS Update a newsletter for Artificial Intelligence research at Simon Fraser University.

Unless you currently work for a large corporation that has a healthy budget for computer hardware, you are probably better off sticking with Excel for your day-to-day spreadsheet needs.

implemented menus and dialog boxes. But you have to be pretty curious if you are prepared to wade through it all to figure it out.

One powerful feature of Excel that is missing in WingZ is the flexibility with which Excel allows you to create custom cell formats. WingZ has a rich but limited set of cell formats for numbers, dates and times but there is no way in WingZ, using cell formatting alone, to cause a date to appear as "Jan." In Excel the simple cell format of "mmm" would accomplish this. To be fair, though, it does appear that through HyperScript, it may be possible to modify the menu choices for cell formats so that such a format option would be available. But this would be no simple task compared to Excel's relatively easy implementation of user-definable cell formats.

Another problem with WingZ is the poor feedback it gives users about page breaks and margins. Unlike Excel, which marks page breaks with dotted lines on screen after a Page Setup or Print command, WingZ never shows which rows and columns will be printed unless you choose Page Preview. Even then, there is no Zoom command or magnifying glass in Page Preview, making it difficult to determine what will appear on the printed page. WingZ's creators probably assume you have the \$2000 cash required for a large screen monitor, so who needs a magnifying glass in Page Preview mode?

Besides having the fastest full-featured spreadsheet and the most comprehensive built-in macro language on the market today, WingZ's ability to display data graphically is absolutely unmatched, even in the MS-DOS world. The three dimensional graphs are particularly stunning, especially when printed on the laser printer or viewed on a colour monitor. But I had one peculiar problem with them. I found that if I wanted a 3D plot of a set of data points that was longer than it was wide—in other words, a spreadsheet selection of 3 x 20 cells—I would get a long thin 3D chart that was hard to read. There doesn't seem to be an easy way to stretch or shrink chart axes in WingZ. They are always scaled automatically. Other than this, I love the way you can create multiple charts on the same page as the data. Probably the single biggest request I get concerning Excel is, "How can I print two charts on the same page?" Answer: "Get WingZ."

One final criticism: why is it that this incredibly powerful application does not allow you to stretch or drag an object beyond the edge of the currently visible window? You have to pull it up to the edge, then use the scroll bars, then drag

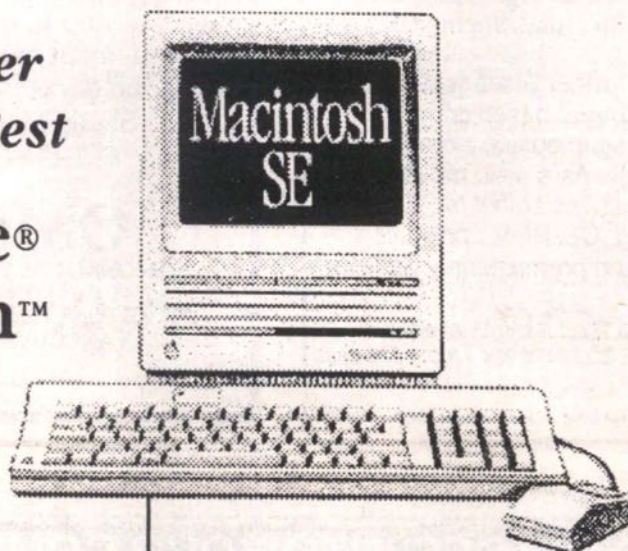
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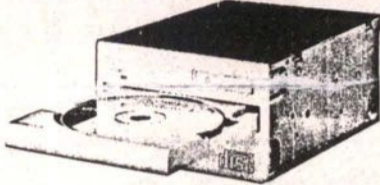
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What is KeyMaster?

With the growth of popularity of PostScript drawing programs, a number of new programs have been recently released to help in the management of PostScript artwork on the Macintosh. One such program is KeyMaster.

KeyMaster is a practical new application from Altsys Corp., which allows you to access your illustrations at the touch of a key. This new program, which is a scaled down version of Altsys's popular Fontographer font creation program, changes your artwork into a font. Once an image is converted to a font format, it can be used in any Macintosh application that has a font menu. You also need a PostScript printer in order to print out the images.

What does KeyMaster do?

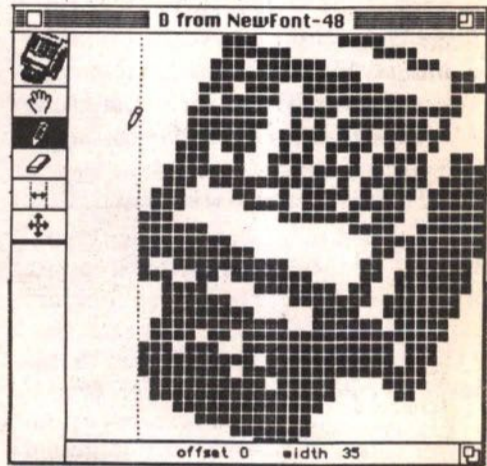
KeyMaster imports art in the EPS format from Aldus Freehand and Adobe Illustrator, and PICT format from MacDraw, SuperPaint, and most other Macintosh drawing programs. It incorporates these images into a font and makes them easily accessible. It simplifies the importing and placing process - you don't have to hunt through files and books of clip art then you have created your own font of illustrations. That is something I can appreciate since I use so many graphics, clip art, and logos in my production of ads and flyers. It can't, however, use PICT files, which contain only bitmapped images. Bitmapped images cannot be used within a PostScript font. KeyMaster also cannot read TIFF (scanned) images which are also bitmapped.

Keymaster supports all filled and stroked figures, styles, graduated, and radial fills, and text along a path. You resize your art by simply changing the font size. The limitations to size are the capabilities of the application you are working in. (Freehand can produce text up to approximately 40", and Quark Xpress can produce text up to 7" in height.

How to use KeyMaster

Creating your own font of images is a simple process. You open the program and designate a particular illustration to one key. KeyMaster then copies this illustration and voila...it is a member of your new font. KeyMaster can only accept 16 characters per font. If you have more, you must create another font.

One neat feature of the program is the edit window. Once you have your image incorporated into the KeyMaster as a letter, you can double-click on the image and an edit window will appear that has your image in fatbits. You are able to alter your image with a variety of tools.



The edit window displays your image in fatbits and allows you to alter your image.

You can save your new font under any name you choose.

Once your font is created, you install it into your system exactly as you would any other Macintosh font. Then you have created and installed your art as a new font.

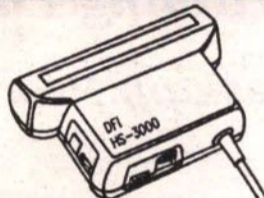
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Carolyn Howse, is a graduate of McKay Technical Institute in Desktop Publishing. She does ad production for The Computer Paper. (733-5596)

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Price: Laser Fonts \$149 (set)
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Before Image Club sprouted in 1984, Greg Kolodziejzyk says computerized clip art was created by scanning drawings. Bit-map or paint-type programs, such as MacPaint™, defined the screen images by turning on and off the memory bits associated with the "pixels" or dots on the screen. Turning a pixel off created a black dot on the screen. Shades of grey were achieved by varying the number of pixels turned off.



The problem with bit-mapping Kolodziejzyk contends was poor resolution. Reducing or enlarging an image resulted in distortion.

In 1986, ADOBE Inc. developed Postscript™, an interpreted page description language. Postscript's primary application is 'to describe the appearance of text, graphical images and sampled images on printed pages'. The resolution of a page rendered with Postscript™ becomes a function of the raster printer whether it is a laser printer at 300 dots per inch (dpi), Varityper™ at 600 dpi or a Linotronic™ at either 1270 or 2540 dpi. Postscript™'s breakthrough provided the framework for all combinations of transformations such as scaling, rotating, skewing and reflection to be applied to all elements on a page.

Next in 1988, CD-ROM's and CD players became available. Image Club's Postscript™ graphics software was transferred from floppies. In May 1988, Image Club released its first CD-ROM product known as Digit-Art™, a collection of 2400 clip art images and HotType™, its 98 downloadable fonts. In August 1988, Image Club released its second CD-ROM product, DarkRoom™, a collection of scanned photos at 1000 dpi, suitable for publishing.

Adapting to trends, Image Club launched a \$300,000 project to develop Postscript™ software for 600 new typefaces. Project planning commenced last summer, with the acquisition of font licenses that were owned by large American firms such as International Typeface Corporation and Vision Graphics to the one and two person firms in Italy and Spain. Employing 17 full-time graphic artists from January to June 1989, the culmination of their efforts will be released in Image Club's third CD-ROM, TypeFace Library, that will contain both the 600 new fonts and the original HotType™.

Sold directly from Image Club or through dealers and distributors such as Bonsu, in the U.S. and Softcode in Canada, software revenues have grown by leaps and bounds — \$10,000 in 1984 to \$750,000 in 1988. Sales could soar to \$1.5

million plus by the end of 1989 as the firm vows to harbor Canada's largest collection of clip art and fonts software. In response to market demand, 70 percent of sales are made to the United States with remaining sales to Canada and overseas.

There is increasing competition from ADOBE and ten others, admits Kolodziejzyk, a self-taught Mac user. "But the market is growing faster than the competition."

And Kolodziejzyk has come a long way since he began Image Club in 1984. Free-lancing as a graphics designer in a shared office at Topline Graphics, he recalls: "I was really naive. I put in \$200 worth of Happy Herman's furniture and they charged me \$200 month for rent."

Then Kolodziejzyk sprinted across the street from Topline to rent an office. There, he worked for printer Terry Hicks. "The work

was gross, like \$15 logos." The pay was the pits.

However, one client was using a lot of computer graphics. Edmonton cousin Tim Senger (founder of Shana Corp., another Macintosh software firm) suggested Kolodziejzyk purchase Western Canada's first LaserWriter™ in 1985. He did, after his father co-signed the \$20,000 loan for the company he leased his LaserWriter™ from.

Kolodziejzyk saw the opportunity: "It was totally obvious. This (desktop publishing) was going to revolutionize the graphics industry. It made common sense to develop software."

John MacKay, president of Skye Publishing Ltd., who uses ArtRoom™ and DarkRoom™ couldn't agree more: "Image Club's stuff is good. One nice feature is that all the fonts are Postscript™ and can be treated like graphics."

With the user in mind, Image Club developed a library retrieval system. By inputting one word, the computer searches its files for all the images associated with the word. The images appear one at a time on the screen, as the user retrieves them. Each image has 15 words associated with it. "The retrieval system works best when you don't have a particular image in mind," advises MacKay. "Here, we have nine Mac's and PC's networked to one CD player. When you use the retrieval system, you're slowing everybody else down."

Constant up-dating is part of Image Club's strategy. Greg visualizes Image Club will continue to increase software compatibility between Mac's and PC's, to accommodate in-house PC networks.

Nattalia Lea, P. Eng., is currently associate editor, Alberta Business Magazine. A Calgary based freelance journalist since 1986, she has contributed to numerous national and regional publications. This article was previously published in The Computer Paper Alberta edition.

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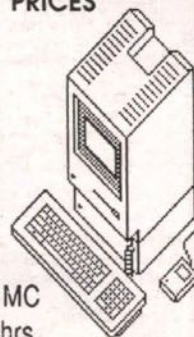
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HIGH TECH STOCKS

Hi-Tech Stocks on The VSE

Over the last six years the Vancouver Stock Exchange has seen an unprecedented number of listings involved not in traditional resource exploration plays, but rather in an incredible variety of technology plays. Some have achieved their listings directly through initial public offerings; the majority have gone the route of a reverse takeover of dormant exploration companies. The most important reason for going public has been the greater accessibility of financing, though the prospect of an early return on the money, time and effort invested by entrepreneurs and their backers is by no means at the bottom of the list.



While few of these ventures have emerged as major corporations or been bought out at a premium, most have been accompanied by a speculative stock play. From an investor's point of view, the appeal of such speculative securities lies not in such fundamental criteria as revenues, market share or earnings - none of which startup ventures usually have - but more so in the dynamics of aggregate investor expectations. Investors rarely care about a small business plugging away diligently while maintaining a low public relations profile; instead, they eagerly follow the narratives woven by promoters, speculating on their outcome.

The Players

ABC Technologies Inc (ABW-V) is still selling its flexible maintenance management software for the entire range of personal, mini and mainframe computer systems after undergoing a reorganization of management and operations last year. One of the largest assemblers and wholesalers of IBM compatibles in western Canada, **ABS Resources Inc (ABL-V)**, soon to be renamed **ABS Technology Inc**, is moving into larger production facilities to accommodate its expansion into the Toronto market. After years of a low profile while working hard to build up distribution networks for its IDM brand clones, **ABS** has reported pre-tax income of \$1,252,737 on six month revenues of \$16,679,189.

On a smaller scale, **Advanced Gravis Computer Technology (AED-V)** is targeting the Australian, European and Japanese markets for the Gravis Joysticks and Mousesticks it assembles at its 15,000 sq ft Burnaby plant. Currently the majority of its premium products are sold in the United States; net income of \$213,000 was reported on nine month sales of \$2,801,000. **AISI Research Corp (AIZ-V)**, which recently completed a reverse takeover of a VSE company producing self-compacting commercial garbage containers, has developed prototypes of the **SPIRIT** silicon chip and **SmartPlug** powerline modem. This technology aims at revolutionizing the home automation industry and is designed to allow computers and appliances to communicate over household AC circuits.

Audre Recognition Systems Inc (ADY-V), currently in the midst of raising additional financing, is busy arranging distribution agreements for its pattern recognition software that allows the high speed conversion of scanned drawings and maps into a computerized format. **Chuan Hup Canada Ltd (CJU-V)**, which acquired the worldwide marketing rights to **Fleetman** from its parent company, Singapore based **Chuan Hup Holdings**, has been keeping a low profile while structuring sub-distribution agreements. **Fleetman** is a fleet management software package that runs on **Hewlett-Packard** mini-computers.

Menlo Park based Communication Intelligence Corporation (CUA.B-V) is offering an alternative to keyboard entry; its **Handwriter**, **Proficient AutoCad Enhancer** and **Write-On** software interfaces between digitizers and standard software such as **AutoCad**, **Lotus 123** and **Word Perfect**. Based on pattern recognition technology developed at the **Stanford Research Institute**, the **Handwriter** technology is being investigated by various Japanese corporations seeking input solutions for their large "alphabet". Targeting the educational market, **Compu-U-Test Software Ltd (CUT-V)** has developed **Learning Environment**, a software authoring system that converts print based course material into a computerized study guide complete with randomly generated trial exams.

Operating losses in the last quarter have prompted **Cumulus Technology Inc (CUH-**

TV) to restructure and try to bring down production costs for its video display monitors aimed at the mini-computer market. **Digital Composition Systems Ltd (DCS-V)**, after losing out on **Signature**, a computer-aided publishing system for commercial typesetters, has rebounded with **dbPublisher**, which imports data from other programs and facilitates desktop publishing quality output. **International Prime Technologies (IPV-V)** is negotiating a joint venture to manufacture and market its **TeleSketch** products in India. **TeleSketch** is a communications board that allows two users to carry on a conversation simultaneously while

exchanging graphics and text information over telephone lines.

ISO Ventures Inc, which recently completed a rights offering, is trying to set up distribution channels for the **ISO-Pad** product line manufactured by **In-Phase Audios**. The **ISO-Pad SM3000**, which users place under their printers, is supposed to work as a substitute for printer sound covers. Formerly, called **Ray-Net Communications**, **Ixora Communications Systems (IXC-V)** has yet to release results from beta testing of its **ray-LAN**, a wireless local area network based on radio transmissions that was developed by **Chopp Computer's Herbert Sullivan**.

Merit Technologies Ltd (MTE-V) recently reported sales of \$2,282,678 for the year ending January 31, 1989, but has not revealed profit/loss figures. **Merit** markets computerized cash registers. **Microstat Development Corporation** has developed the **OMEN** quotation system for personal computer owners. **OMEN** receives ticker feeds from Canadian stock exchanges via modem or cable and maintains a historical database on stock market transactions and provides real-time quotes. In addition to trade data, the **OMEN** system also receives and stores **Vancouver Stockwatch**, a news service for VSE companies.

Migent Software Corporation (MSC-V) and the European distributor of its products, **MI Software Corporation (MSW-V)**, are presently awaiting resolution of **Migent's** financial difficulties. **Migent**, which marketed various software packages, including **Ability**, **Enrich** and **In-House Accountant**, suffered heavy losses of \$9,326,000 US on sales of \$3,508,000 US last year. After consolidating 8 old for 1 new share and settling with its creditors, **Migent** plans to acquire **LANware Executive** as an application for the **Emerald Bay** database engine developed by **dBase** developer **Wayne Ratliff**. **MI Software**, meanwhile, has acquired the European distribution rights for **dbPublisher** from **Digital Composition Systems**.

Nicholas Data Services Ltd (NDS-V) develops and supports software for vertical markets. The company reported a profit of \$7,738 on revenues of \$2,059,887 for the six months ending September 30, 1988. However, much of the revenue was attributed to hardware supplied as part of turnkey packages purchased by software buyers. Due to extremely low profit margins on the hardware component, **Nicholas** is de-emphasizing hardware sales, focusing instead on marketing its newest software product, the **Auto Rental Management System**. **Norsat International Inc**, whose normal business is the productions and marketing of satellite receivers, has begun marketing its **MicroSat**, a PC board that doubles as a receiver for video and data transmissions. Owners can presently receive satellite transmissions of public domain software from a service administered by **Norsat**.

Omoco Holdings is still awaiting regulatory approval for its acquisition of **StarSignal Inc**, which has developed a method of compressing colour images in a manner allowing fast transmission over telephone lines. This technology is to be incorporated with a colour printer to produce a colour fax machine. **Pinetree Software Canada Ltd (PSW-V)**, which has raised considerable capital from investors in the Far East, including several prospective immigrants that invested \$250,000 each, is presently suspended from trading pending clarification of its affairs. **Pinetree's** key product is the **Maximizer**, a productivity software tool for salespersons.

Promark Software Inc (PRW-V) has developed and is marketing two main software

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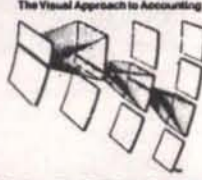
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Personal Computer Week, May 29-June 2, UBC Microcomputer Lab, 222-5251. Expert Systems and Shells: A Lab Intro May 30-31, IBM Education Centre, 222-5251.
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USER GROUPS:

Amiga User Group (PaNorAmA), BCIT, Rm 129A General Meets 2nd Wed 7:30; Programmers 4th Wed 7:30
 Apples BC Computer Society Lorne 467-6062.
 Apple II User Group Meeting BC Apple Society, Burnaby Rugby Club Kiyo Masuda 437-9935
 Apple III SIG Monthly Kiyo Masuda 437-9935
 Astute — Atari St. 1st Tues. of month 7:30
 Hastings Comm. Centre. Membership \$15. Dave Whalley 942-8301.
 Beaver Valley Commodore Club Meets first Tues every month at Montrose School Library. Call John Vink 367-6426
 B.C. Unix User's Group meets 4 times a year. Call George Pajari 925-2555, 2545 Queens Ave, West Van V7V 2Y9.
 B.C. Software, General meeting, Benedict's, 1170 West Pender, Thursdays at 7:30 p.m. May 18
 Speaker: Open form, with four speakers T.B.A. Topic, "What I did right." June 15, Speaker TBA.
 CAMsoc, meeting May 4th at Alta Visat. Speaker: David Lochhead, Vancouver School of Theology (also sysop of Agora 463-4811, and author of Theology in a Digital World). Topic: Computers and Theology.
 CAMCON IV, May 18-20, Fourth Annual Computer Applications in Ministry Conference will be held in Seattle. Registration is \$95 US (\$135 US after April 1st, less for members of sponsoring denominations.) contact: CAMCON, 4/JSAC, #450-475 Riverside Drive, New York, NY, 10115.
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Data Processing Management Association, DPMA dinner meetings 3rd Tuesday, Stanley Park Pavilion. Contact: Gail Nichols 873-3411.

Independent Computer Consultants Association Ste. 400, 1190 Melville St. Van., B.C. 682-2747.

Kaypro User Group Vancouver Portable Computer Club 3rd Monday at Kwantlen College Richmond (MS-DOS & CP/M) 271-1519

Mac User Group Meeting BC Apple Society, WCB Building, 6951 Westminister Hwy 437-9935.

MacWest Computer Society Meeting Information BC's largest Mac Only Users Group 2 monthly meetings for members, plus PD copy session that gives members and non members access to the club's 105+ megabytes of PD and Shareware files.

General Meetings - 2nd Wednesday 7:30pm
New User Meeting - 3rd Wednesday 8:00pm
Room 203, Kwantlen College, Newton Campus 13468 - 77 Avenue, Surrey, B.C.

PD Copy sessions: 2nd Thursday of the Month at various computer dealerships on a rotating basis, for info contact Bob Scales at 464-3645.

For more info on membership come to a meeting or call Bill Hall at 524-3561 or Rolf Drommer at 941-3789

Maple Ridge Computer User Group
2nd Tues of every month M.R. Sr. Secondary School 7:30 PM, John Brohman 463-9318

New Apple Alliance, May Chow 224-9199. Free

NEC APC Users Group Bi-monthly Lee 980-5825

Novell Netware Users Peter Whitelaw 669-8789

Pacific Information Exchange, P.O. Box 67366, Station O, Vancouver, V5W 3T1.

Port Coq. Computer Club Commodore Amiga & IBM 1st and 3rd Tues 7:30 Poco Rec Cent 2100 Wilson Ave 942-4286

Tandy 1000+ Club Meets 2nd Mon. 7pm
Kwantlen College, Newton Campus, Rm 209 or 211. Len Boscoe 574-5419

Sur-Tandy 1000+ Club Kwantlen College, Newton Campus, Room 201, 13468 - 77th Ave. Surrey. Third Tuesday of each month. May 16.

The New Apple Alliance May Chow 435-7609 last Saturday of month Kits Neighbourhood House.

TI Computer Club Texas Instruments Computer Club meets 2nd Wed. of each month, at 11339, 84th Ave., North Delta, Hillside Boys Club, Attn: John Auperly.

TRACE (Richmond Atari Club) Thompson Comm. Centre Linus Lane Richmond, 272-5789 1st & 2nd Monday 7:30-9:30

Vancouver Color Computer Club General Meeting, 3rd Tuesday Discovery Park, 3700 Gilmore Way, Burnaby, B.C. Access through security is

only available between 7:10 and 7:30 p.m. Contacts: John Carson 581-6690; Laurence Byers 525-9661; Steven La Favor 467-0923.

Vancouver Electronic Publ. Assoc. Box 24776, Van 875-0677 First Monday of the month, BC Club, Enterprise Cent, 750 Pacific Blvd S.

VEPA Mac SIG 683-1599 2nd Wed, 1035 WPender

VEPA Seminars: Anatomy of Type Seminar, May 16, Desktop Publishing and Printing May 2, Practical PostScript May 11 (part one) May 18 (part two), P.O. Box 24776, Vancouver, V5T 4E9.

Vancouver Netware User's Group Les Lebrant 275-8684. Meets 1st Mon of the month.

Vancouver PC Users Group Planetarium 734-0060, \$20/year membership. 7:00 pm 2nd Thursday.

Van. Sinclair Users Group. Supports all Timex-Sinclair computers. 2nd Fri. Killarney Comm. Cent., 49th & Rupert president Gerde 931-5509

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Gord Simmonds is the owner of SIMCOM Services (854-DISK) a company in Abbotsford specializing in the distribution of shareware products.

High Tech Stocks
Continued from page 42

packages. ProMark is a mailer used to generate mass mailouts, while PostLink, available in regional and national editions, is combination database/software package that retrieves the postal code for an address. Version 4.0, just released, can apparently be called up within most word processing programs and will insert the retrieved postal code anywhere in the document. Zoom Telephonics Inc (ZMTY-V), which markets a line of premium quality modems, has reported profit of \$350,000 on sales of \$6,000,000 for the year ending December 31, 1988. Zoom expects to begin shipping a 9,600 baud modem shortly.

John Kaiser is manager of information services and an account executive at Pacific International Securities Inc. PI, its employees, and clients may from time to time have positions in the securities mentioned herein. He can be reached at (604) 681-5440.

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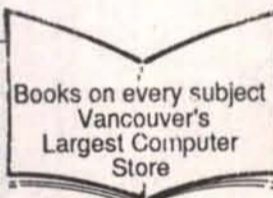
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 • Reset Switch & Keylock
 • Optional 80287 Math Co-Processor
40 MB HARD DRIVE



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 • 101 Key Enhanced Keyboard
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