$3.50

PROFILES

THE MAGAZINE FOR KAYPRO COMPUTER USERS

DECEMBER 1987

MICROSOFT WINDOWS
First Session With Windows

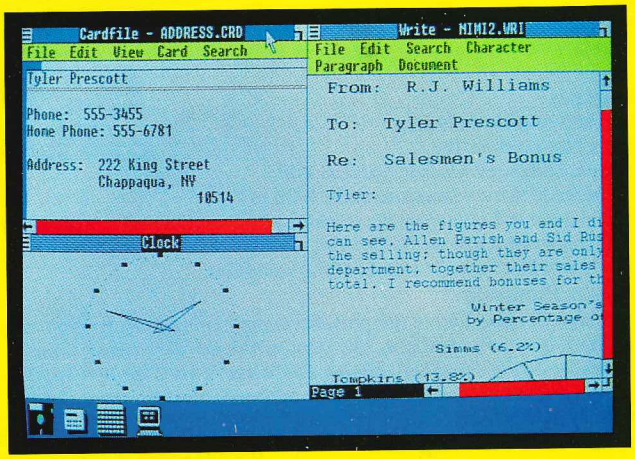
Windows Means Business

Sneak Preview of Windows 386

DATA ENCRYPTION
Encode It, Protect It!

ONLINE DATABASES
Let Your Modem Do The Walking

MORE PERFECT WRITER
Printing Foreign Language Accents With CP/M



Announcing the Brand New SHARP PC-4501

The Full Featured Laptop PC You've Been Waiting For

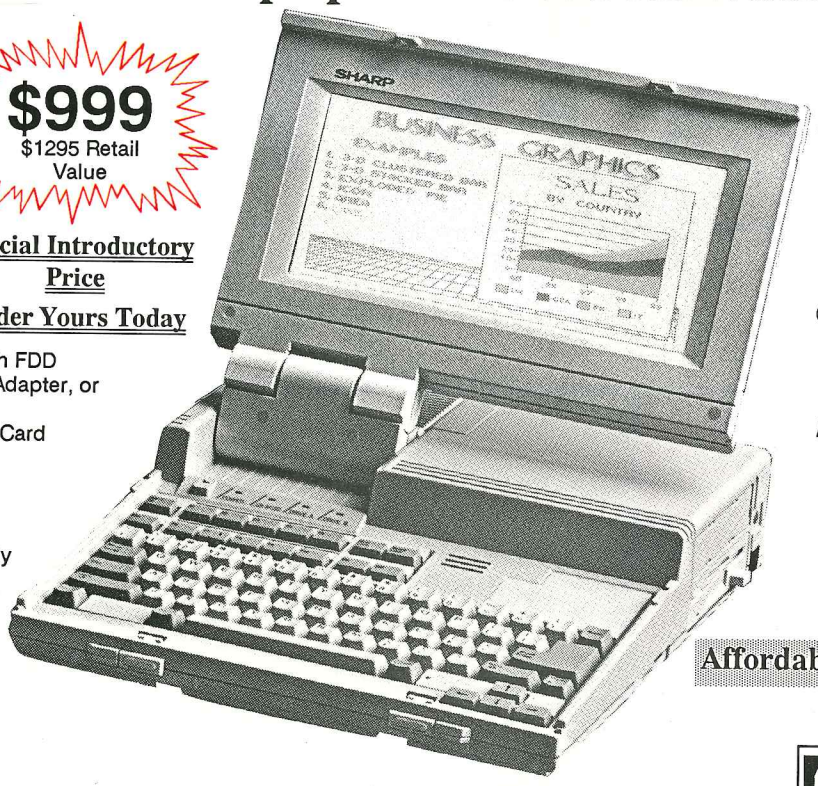
- NEC V40 CPU
- PC Compatible CPU
- 7.16 mHz Clock
- High Contrast Supertwist LCD Display
- 25 line x 80 Column
- 720K Floppy Drive
- 2nd Drive Optional
- 256k Expandable to 640k
- Up to 1.6 mb w/EMS board
- 0-180 Degree Tilt Angle
- 78 Key Sculptured Keyboard
- Parallel Port
- Expansion Port for External 5.25 Inch FDD
- Expansion Slot for EMS Card, CRT Adapter, or EPROM Card
- Expansion Slot for Serial or Modem Card
- 7 hr. Lead Battery
- 10 Lbs.
- 12 x 14 x 3 inches
- MS-DOS 2.11
- 1 Year Mfg. Parts and Labor Warranty

$999
$1295 Retail Value

Special Introductory Price

Order Yours Today

Please Include $14 Freight



Sharp, the World's Premier supplier of consumer electronics, now brings you the PC-4501. This state of the art portable offers the best features of a desktop computer in a truly usable laptop. $999. Get a great portable machine that can grow with you for this incredible introductory price. Get one now.

Powerful
Affordable SHARP Dependable
Readable

Sharp is known for producing fine quality electronic products. Central is Sharp's first authorized mail order supplier of PC-4501's. We've sold hundreds of transportable Sharp PC-7000 Series computers. They've been solid and reliable machines. Now Sharp has come out with a new product, the totally portable PC-4501 personal computer. Utilizing a NEC V40 processor, the most powerful of the 8/16 bit processors in the IBM PC family, Sharp has been able to make this 7.16 megahertz machine an incredible performer and still bring it into the US despite the Japanese trade tariffs (8/16 bit machines are exempt). This also means that the price is inconceivably low for such a tremendous computer.

SHARP®
FROM SHARP MINDS COME SHARP PRODUCTS™

CENTRAL COMPUTER PRODUCTS

330 Central Avenue • Fillmore, CA 93015
Information Please Call 805-524-4189

Finally, a Real Display in a Portable

Sharp supplies the LCD displays for almost all of the portable computer industry. It would only follow that the display in the Sharp is superb. And it is. The state-of-the-art "supertwist" liquid crystal display provides great readability in almost all lighting conditions. This is the best LCD display on the market today. And if that isn't enough, order the optional color and monochrome adaptor card for even greater display flexibility.

Ready To Grow With You - and Go With You

Two internal expansion slots give you room to grow. The supplied 256k RAM is expandable to 640k internally, or use an expansion slot to plug in the 1 megabyte EMS card, for a whopping 1.6 megabytes total. Or use this slot for an EPROM card for adding your own programs in non-volatile memory. The second slot can be used for either the optional 1200/300 baud Hayes compatible modem or a second serial port. One parallel port is standard. Complimented by a single 720k floppy, this 10.6 pound machine is a must for computer people on the go.

Outlast the Competition

One problem with most portables is short battery life. Not so with these Sharp machines: an average 7 hours operating without recharge using lead batteries. New breakthoughs in lead battery technology allow low weight and long life with none of the "memory" that limits the rechargability of nicads.

Comfortable and Full Featured - What More Do You Need

The PC-4501 has a complete 78 key keyboard with integrated numeric keypad and separate cursor keypad. IBM compatability is assured with the included MS-DOS 2.11 and GW-BASIC. $999. Order yours today and get this great introductory price.

Information & Technical Support (805) 524-4189

PC-4501	Portable Computer	$999
S45M	1200/300 Baud Internal Modem	$339
S45R	384k RAM Card w/128k Installed	$99
SRAM	128k RAM Expansion (4 IC's)	$75
S45F	2nd 3.5 inch floppy drive	$189
S45S	RS-232C Serial Card	$99
S45P	E-PROM Card	$49
S45M	DOS 2.11 Manual	$30
S45D	DOS 3.2/GW-Basic	$95
S45C	Carrying Case	$75

30 Day Unconditional Satisfaction Guarantee

Sharp Special Purchase Bonus
Get Dayflo Tracker 720 and Memory Expansion Board for $99 with purchase of Sharp PC-4501

Dayflo Tracker 720 Data Management and Tracking System PLUS 384k memory upgrade board w/128k installed. $99. Superb value. Tracker 720 is a free form data base manager that uses a unique and powerful new concept. Fields can have multiple different related entries. No more defining a field for everything that you want to track. Dayflo has created a powerful new way of handling data where you just separate each entry within a field by a predefined character. Find children's doctors that make house calls on sunday. Find stores that specialize in stoneware from South America. Don't worry that your database structure isn't correct, Tracker lets you enter groups of related information automatically indexed.

Tracker also has a number of predefined entry forms that meet many of the needs of the user.

The 384k memory board has 128k or RAM preinstalled and plugs into an expansion slot in the computer.

FREE! $40 Value
with every Sharp PC-4501 purchased.

The Interchange

3.5 to 5.25 inch data transfer software and cable.
Parallel data transfer for high speed
Supports hard disk transfer
3 year factory warranty
Get your data to and from your laptop machine quickly and easily. Transfer from 3.5 inch to 5.25 inch quickly and easily.

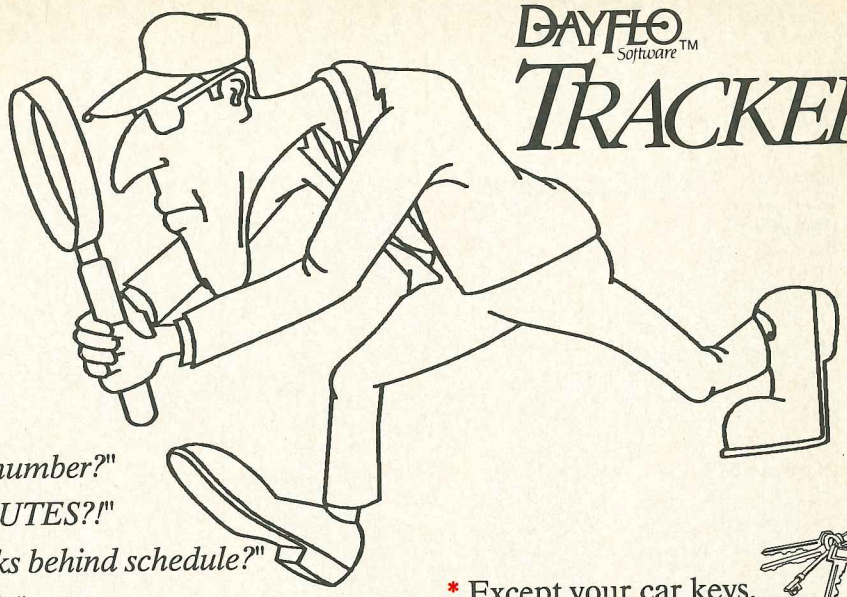
"[Dayflo is]...*an amazingly flexible program*"
Ellen Bush, PC Magazine

CENTRAL COMPUTER PRODUCTS

330 Central Avenue • Fillmore, CA 93015

Order Toll Free
USA: 800-533-8049
CA: 800-624-5628

How to keep track of absolutely everything* for $99.00



DAYFLO Software™ TRACKER

"Where's that piece of paper with his phone number?"

"You need the key prospect report in 30 MINUTES?!"

"Why am I just finding out that we are 2 weeks behind schedule?"

"What did we agree to the last time we talked?"

"What magazine had the article we need?"

Only one PC software application can answer all of these questions quickly and easily — the Dayflo™ **TRACKER**, the first Information Tracking System (ITS) for the IBM/PC/XT/AT® and compatibles. Now, at a special introductory price!

The Dayflo™ **TRACKER** keeps track of all the information that you need daily — prospects, clients, projects, schedules, reference books, meeting notes, magazine articles, followups — that no other software can handle. A database can't do it. It's to structured. A word processor can't do it. It's not structured enough. **TRACKER** combines the best of both to perform a whole new task — tracking. In any one record you can use multiple keyword entries. No longer are you limited to a tight constrained database structure. No longer is your database design obsolete when you want to add some additional information fields to your records — both your database and your data remain intact. A much greater degree of information tracking and retreival can be done with much less effort.

FREE Bonus Offer

Get started immediately with the 50+ standard forms and report formats provided in **TRACKER** and the **FREE** handy Application Pack — using simple menus. Customizing forms is easy too. And recalling records is done naturally using your own combination of key words. No more lost data! Then use the report writer to print out letters, labels, lists, etc. It's hard to believe so much sophisticated technology can be so easy to use — and so inexpensive. Order now at the special introductory price of $99 from Central Computer Products.

Order Now Toll Free

USA 800-533-8049 • CA 800-624-5628

* Except your car keys.

CENTRAL
COMPUTER PRODUCTS

30 DAY UNCONDITIONAL GUARANTEE

IF NOT SATISFIED FOR ANY REASON, RETURN THE PRODUCT IN RESELLABLE CONDITION FOR COMPANY CREDIT (RMA# Required)

ORDER TODAY

Customer Support Please Call (805) 524-4189

Central Computer Products
330 Central Avenue
Fillmore, CA 93015

Dear Central,

Please send me the items listed below. I want fast, friendly service. My check, money order, or charge card number is enclosed. Thank you.

☐ FREE PC Times ☐ FREE CP/M Times

Description _____ Price _____

_____ _____

_____ _____

_____ _____

_____ _____

Computer Type _____ Sub Total _____

30 DAY UNCONDITIONAL GUARANTEE

CA Res. 6% Tax _____

S & H $4.50

Freight _____

Total _____

Visa/MC# _____

AMEX # _____

Exp. Date _____ Sign _____

Name _____

Address _____

City _____ State _____ Zip _____

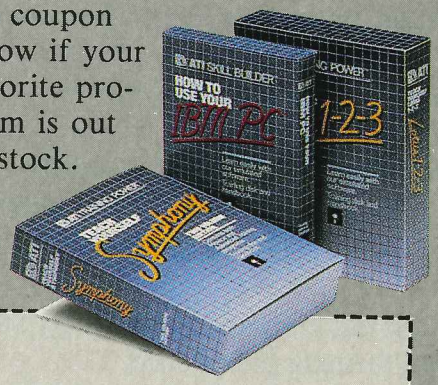
Call Toll Free - Thank You for Your Order

A $49 training program can get your valuable computer out of the closet

The computer is a wonderful invention. But the truth is that computers are not as easy to use as you've been told. In fact, a recent independent survey found out that 60% of computers in corporate America today see little or no use. ATI thinks its skill-based training programs are the answer. For as little as $49.95, anyone can learn how to operate a computer in less than two hours—without attending a class or reading a technical manual.

Over 500,000 users have happily achieved computer literacy with ATI. In fact, ATI was voted #1 training package for the third year in a row by the readers of PC World. So, whether it's training for 1-2-3 dBASE III or getting started with your PC, look to ATI.

You can find ATI training programs at your nearby computer store or use the coupon below if your favorite program is out of stock.



Please rush me the following training programs:

$75.00—ATI TRAINING POWER™ PROGRAMS

- ☐ dBASE III
- ☐ dBASE III Plus
- ☐ DisplayWrite 3
- ☐ Excel
- ☐ Framework
- ☐ Jazz
- ☐ Lotus 1-2-3
- ☐ MacCoach
- ☐ Managing with Lotus
- ☐ Microsoft Word
- ☐ MultiMate Advantage
- ☐ Multiplan
- ☐ R:base 5000
- ☐ Super Calc³
- ☐ Symphony
- ☐ WordPerfect
- ☐ WordStar
- ☐ WordStar 2000

$49.95—SKILL BUILDER™

- ☐ How to Use your IBM PC
- ☐ How to Use your IBM PCjr
- ☐ How to Use your COMPAQ
- ☐ How to Use your TI
- ☐ Intro to Business SW
- ☐ Intro to Word Processing
- ☐ Intro to Databases
- ☐ Typing Tutor
- ☐ Applesoft BASIC
- ☐ BASIC
- ☐ CP/M
- ☐ The Home Accountant
- ☐ MS-DOS
- ☐ PC-DOS
- ☐ VisiCalc
- ☐ volkswriter deluxe

Please enclose the appropriate amount plus $2.50 shipping (CA add 6.5%)

Name _____ Phone ( ) _____

Street _____

City _____ State _____ Zip _____

My computer is a: _____

My computer uses: ☐ PC DOS ☐ MS DOS ☐ CP/M ☐ Macintosh ☐ APPLE IIe 80 col.

Mail order form to:
ATI
12638 Beatrice Street
Los Angeles, CA 90066

For rush order call:
(213) 823-1129
(800) 421-4827

ATI Money Back Guarantee: If you're not completely satisfied with how fast you learn with ATI Interactive Training Power Programs, simply return within 3 days for full purchase refund.

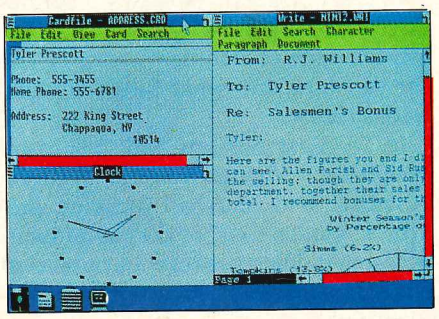
The following names are trademarks of the following companies: ATI Training Power and Skill Builder, of American Training International; CP/M, of Digital Research; PC-DOS, of IBM; WordStar, of Micropro; MS-DOS, Multiplan, Microsoft Word and BASIC, of Microsoft; dBASE III and Framework, of Ashton-Tate; SuperCalc³, of Sorcim; VisiCalc, of VisiCorp.; Lotus 1-2-3 and Symphony, of Lotus Development; COMPAQ, of COMPAQ; IBM PC and IBM PCjr, of IBM; TI Professional, of Texas Instruments; MultiMate, of MultiMate International; TK!Solver, of Software Arts; volkswriter, of Lifetree, Inc.; The Home Accountant of Arrays, Inc.

© 1986 American Training International

ATI™ Training is our middle name.

CONTENTS

1987
PROFILES
VOLUME 5 NUMBER 5 DECEMBER



ON THE COVER:

In his article, Microsoft Windows, writer Robert J. Sawyer notes how the windows screen format, with its bright colors and geometric patterns, is reminiscent of a Mondrian painting. Our art director, Susn Penn, picked up on this and carries it through on the cover and throughout the article.

FEATURES

MICROSOFT WINDOWS 18
By Robert J. Sawyer
Microsoft Windows is the user interface of the future. PROFILES gives you an in depth look at this multi-tasking software.

A FIRST SESSION WITH MICROSOFT WINDOWS 26
By Wayne Koenig and William Murdick
Get acquainted with icons, mice, and menus.

WINDOWS 386 36
By Marshall L. Moseley
A sneak preview of Microsoft Windows for the 386 machine.

WINDOWS MEANS BUSINESS 64
By Marshall L. Moseley
Using non-windows applications in the windows environment...an examination of business oriented data and graphics sharing.

DATA ENCRYPTION 71
By Ted Chiang
As more people can now access your data, PROFILES shows you how to protect it.

FOREIGN LANGUAGE ACCENTS WITH PERFECT WRITER 75
By O.B. Hardison Jr.
This month we take a look at how to reconfigure your CP/M computer's keyboard and printer to emulate foreign language accents.

WHO'S ONLINE...WHAT'S ONLINE 78
By Kathleen Low
Tap into the information age! Use your modem to access online databases.

DEPARTMENTS

PUBLISHER'S NOTES 4
LETTERS 6
Q & A 12
IN THE WORKPLACE 14
CP/M ONLY 85
KAYPRO INSIDER REPORT 87
ON THE PRACTICAL SIDE 92
NEW PRODUCTS 93
ADVERTISER'S INDEX 96

COLUMNS

DESKTOP PUBLISHER 8
By Ted Silveira

LIFE AT 300 BAUD 10
By Brock N. Meeks

EDITOR'S CHOICE 88
By Tom Enright

AT A GLANCE 90
By Derek Chalmers and Herbert C. Young

PROFILES

PUBLISHER
GWYN PRICE

TECHNICAL EDITOR
TOM ENRIGHT

ASSISTANT TECHNICAL EDITOR
MARSHALL L. MOSELEY

CONTRIBUTING EDITOR
DIANE INGALLS

REMOTE EDITORS
TED SILVEIRA
JIM SPICKARD

CONTRIBUTING WRITERS
MICHAEL CAHLIN
TED CHIANG
O.B. HARDISON JR.
WAYNE KOENIG
KATHLEEN LOW
BROCK MEEKS
WILLIAM MURDICK
ROBERT J. SAWYER

ART DIRECTOR
SUSN PENN

PRODUCTION ARTIST
STACY KRIKORIAN

CONTRIBUTING ARTISTS
STACY KRIKORIAN - ILLUSTRATOR
GLENN STEINER - PHOTOGRAPHER
MARK SWEZEY - PHOTOGRAPHER

PRODUCTION MANAGER
MICHAEL F. HERBERT

ADMINISTRATIVE ASSISTANT
KATRINA KOHANOWICH

CIRCULATION MANAGER
STEPHEN W. PHILLIPS

CIRCULATION
P.O. Box 2889
Del Mar, CA 92014
(619) 481-4353

ADVERTISING
249 S. Highway 101, Suite 321
Solana Beach, CA 92075
(619) 259-4469

EDITORIAL OFFICE
533 Stevens Avenue
Solana Beach, CA 92075
(619) 481-4353

Volume 5, Number 5
PROFILES (ISSN 8755-464X) is published twelve times a year by Kaypro Corp., 533 Stevens Avenue, Solana Beach, CA 92075.

Copyright © 1987 by PROFILES Magazine. All rights reserved. Reproduction without expressed written consent of the publisher is strictly prohibited.

Second class postage pending at Solana Beach, CA, and at additional mailing offices.
POSTMASTER: PLEASE SEND ALL CHANGES OF ADDRESS (FORM 3579) TO PROFILES, P.O. BOX 2889, DEL MAR, CA 92014.

PUBLISHER'S NOTES

CONFESSIONS OF A TECHNOPHOBE

I have a confession to make. Up until about six months ago I was a confirmed technophobe.

You might think that would be a crippling affliction for someone working on a high-tech magazine, but I concentrated on "magazine" and left the "high-tech" to the technoids. You could talk to me all you wanted to about color separations, ad deadlines, and circulation promotions, but for years all I could muster was a blank stare when the talk turned to RAM disks, virtual memory, and Turbo this and that.

The technical staff would charge into my office blazing with enthusiasm for a new product that would Change Microcomputing As We Know It. On a good day I might feign polite attention, but if it didn't have anything to do with safe, familiar WordStar and MailMerge, it had nothing to do with me. ("Power users" may not be able to relate to this attitude, but I know from our mail that plenty of readers can.)

Then it happened: swamped with work and looking for a lifeline, I was forced to consider the possibility that some of these new products might really make my life easier.

As with any phobia, admitting you have it is the first step toward a cure. I began to pay attention to conversations about new operating systems and user interfaces, looking for products that really *would* change microcomputing as I knew it.

For me and others like me, MicroSoft Windows might be just such a product. It's *designed* to be unintimidating. I listened with amazement as the staff explained how it insulated users from the MS-DOS command line with a much simpler user interface. I played with the possibilities when they told me it had the potential to let you work on several tasks at once. Enthusiasm replaced vague nervousness as we planned an issue—this one—focusing on this alternative working environment, and I hope our articles will coax you out of your cocoon if, like me, you have clung to the familiar for too long.

In "MicroSoft Windows," Robert Sawyer explains why Windows has become such a hot topic—what it can do for you now and what future releases have in store.

In "A First Session with Microsoft Windows," Wayne Koenig, William Murdick, and Marshall Moseley provide a "guided tour" of the components of the Windows package and practical examples of how its user interface functions.

In "Windows Means Business," Marshall Moseley explains how Windows greatly expands what you can accomplish using typical business applications like Lotus 1-2-3. You'll also get a sneak preview of MicroSoft's soon-to-be released Windows package for 386 machines.

For our CP/M audience, "Data Encryption," by Ted Chiang explains this high-tech method of securing your data and discusses several programs (both public domain and commercial) that will prevent others from gaining access to your valuable data. In "Foreign Language Accents with Perfect Writer," O.B. Hardison shows how to print accents, umlauts, tildes, and other foreign-language symbols. Ted Silveira makes his comeback with "CP/M Only," a monthly column dedicated to public domain and commercial software for Kaypro CP/M computers.

And, last but not least, public relations whiz Michael Cahlin kicks off a new department, "In the Workplace." Each month Michael (also a reformed technophobe) will be featuring Kaypro users, their businesses, and the computer solutions they are using to make their businesses succeed.

So go ahead, technophobes. Turn the page. I dare you.

Gwyn Price.

PERFECT WRITER FOR MS-DOS

The letter you published in the October issue (from J.A. Lingcodus of Pacific Grove, CA) found a sympathetic reverberation here.

I love Perfect Writer—not a little because I know it so well, having used it for four years on my Kaypro 4, and because I have discovered many useful enhancements through the pages of *PROFILES*. I, too, would have welcomed the opportunity to work with the program on my office IBM.

So, when one of my associates mentioned that her Columbia PC, an early IBM-PC work-alike, came bundled with Perfect Writer in MS-DOS, I jumped at the chance to try it.

I'm delighted to tell you it is indeed the old favorite, albeit with a few rough corners rounded off. Basically, though, it uses the same commands, and I've had few differences to learn. Most of those centered on the use of function keys. This program falls into the category of "If it looks like a duck, walks like a duck, and quacks like a duck, it must be a . . ."

This is yet another good reason for *PROFILES* to keep supporting (almost-)Perfect Writer.

Jack Schrier
Mendham, New Jersey

For all you Perfect Writer fans out there . . . it's true. This popular word processor once bundled with Kaypro CP/M computers is available for IBM-compatibles. The price at press time is $199 and can be purchased from:

Thorn EMI Computer Software
285 Mill Road
Chelmsford, MA 01824
(617) 256-3900

THANKS FOR THE INFO

I have been an avid reader of *PROFILES* ever since my purchase of my 2X in 1984. During that time I have picked up a lot of useful information. However, I would especially like to express my thanks for two articles that have recently appeared. One is "Advanced Uses for The Word Plus" by Robert J. Sawyer in the July 1987 issue and the other is "Use Your Feet" by Bob Keith in the April 1987 issue.

As to Mr. Sawyer's article, I had no idea that The Word Plus had all those capabilities. I have tried nearly all of them and intend to make fine use of them in the future. This points up the fact that as obsolete and outdated as it is, still most of us do not use CP/M up to anywhere near its fullest potential.

As to Mr. Keith's article, I have installed foot pedals for both the control key and the shift key. It is a great help, especially for a non-typist like myself. Now I have just about forgotten where the two conventional keys are for these two operations.

I did have some difficulty in trying to insulate the body of the jacks from ground in the manner described by Mr. Keith. I wound up mounting a piece of high-impact plastic on the inside of the case, mounting the jacks in plastic, and then drilling holes of sufficient size (3/8 inch) in the case to allow the body of the plug to pass through.

I look forward to more articles like these two in the future, especially for the older CP/M machines.

Marvin K. Miller
Imperial Beach, California

KAYPRO MARKETPLACE

I suggest you insert a classified ad section in *PROFILES* and accept "Want Ads" and "For Sale" ads for used computers, equipment, software, accessories, computer-related supplies, etc.

There is a need for such a listing of Kaypro products to be available in one place for all Kaypro users, and *PROFILES* is the logical place. It is the place for a clearing house for these specific Kaypro items.

Clay Racely
Eugene, Oregon

CONTINUED ON PAGE 6

Computer software for the busiest people—YES!

Care for your members...
Print labels for individuals or families
Prepare directories and phone lists

Care for your program...
File coming activities — meetings, training events, planning sessions
Print monthly calendars

Care for your library...
Select the right resource to study
Find the right program or disk
Index the most current articles

Care for participation...
Acknowledge good attendance
Prepare calling-committee lists

MyClass, MyChoir, MyPeers will help you save time, consolidate your records, simplify your life!

EZ SYSTEMS, INC. $59.95

P.O. BOX 23190 • NASHVILLE, TN 37202-3190 • (615) 269-6428

CONTINUED FROM PAGE 5

PROFILES introduced the "CLASSIFILES" section in the June 1987 issue as a low-cost alternative to our display advertising. (See page 81 in this issue.) We welcome advertisements in any category, including hardware, software, accessories, consulting sevices, supplies—you name it. Readers interested in placing a classified ad should contact our advertising department at (619) 259-4499 (8 a.m. to 4:30 p.m. Pacific Time) for more information and rates.

TIPS AND MORE TIPS

I would like to address points made by two of your writers. The article "Near-Desktop Publishing" (for CP/M) by Jim Spickard in the September 1987 issue was very good. The printer I use is an Epson LQ-1500. Although Fancy Font does not claim CP/M support for this printer, it will work. The trick is to tell it the printer is an RX100. All commands except for the vertical line-up work. It is very slightly off vertically, but a rough draft will solve any problems. FontStar supports the LQ-1500.

Also not touched upon in the article was downloadable fonts for dot-matrix printers. Woodsmith Software of Nashville, Indiana, sells two programs for downloading fonts. The LQ-1500 will only take one extra font. That is not bad, since it will print that font in letter quality at full printer speed. Downloading takes about one minute per print session. The software must be able to *not* send a printer reset or the font will be lost. The other way is to intercept the reset code with XtraPrint or SmartPrint.

Ted Silveira, in his "Desktop Publisher" column, has mentioned the need for accurate hyphenation. I use three programs for that purpose, all available for CP/M and MS-DOS. The Word Plus has the program HYPHEN, which is algorithhm-based with an exception list that is expandable. It has the option of setting the shortest word you want hyphenated as part of the command line.

Electric Webster is a spelling and word usage program that also will do dictionary-based hyphenation. The

hyphenation dictionary is user expandable. It is bundled free with Spellbinder or sold separately.

V-Spell by CompuView is another spelling program with a dictionary-based hyphenation option. Its dictionary is also user expandable. It offers more hyphenation points than Electric Webster and is easier to configure for a particular word processor.

Please tell Mr. Silveira that his articles and columns are the first items read in the magazine. "Good job done" to your entire staff.

George W. Richards
Rochester, New York

Thank you. We appreciate your useful tips . . . and your praise.

SUBJECT INDICES, PLEASE

I have been a faithful reader of *PROFILES* from its first issue and refer often to my back copies for all kinds of useful information. Is there any way those of us who do not have modems can get printouts of the '83 and '84 indices mentioned on page 6 of the October 1987 issue? Such indices would make my collection even more useful.

Stephen C. Parsons
Montpelier, Vermont

For those readers who do have modems, the PROFILES subject index for both 1983 and 1984 is available through the KUG ROS bulletin board at (619) 259-4437. For those who do not have or use a modem, we are preparing a printed version that will be available in the next month or two at a nominal charge. Watch upcoming issues for details. PROFILES will continue to publish a yearly subject index each January.

DataSaver400®
Standby UPS

Power protection for high-level microcomputers with peripherals, multi-tasking systems, and communication networks is here, now, with the 400 Watt DataSaver. Placed between the desktop computer and system monitor, the DataSaver 400 features a master power switch directing four power outlets. 2-stages of overvoltage transient suppression and built-in, automatically recharged batteries stand by to assure clean, uninterrupted power. 90 and 200 Watt models available.

PC MAGAZINE Editor's Choice

Cuesta Systems Corporation
3440 Roberto Court
San Luis Obispo, CA 93401

Made with pride in the U.S.A.
805/541-4160 TLX:4949381 CUESTA
Dealer, VAR, & OEM inquiries invited.

- Balance Checkbook
- Organize For Tax Time
- Easy Accounting For Home & Powerful For Business

"...does things the more expensive programs can't match."
—Peter McWilliams, syndicated columnist

Free Phone Support / Not Copy Protected
For MS-DOS, PC-DOS & most CPM systems.
Contact CDE to update earlier versions.

NEW manual for IBM-Ver. 4.1

CDE SOFTWARE
213/661-2031 (9:30-5/M-F)
948 Tularosa Drive, Dept. P, Los Angeles, CA 90026

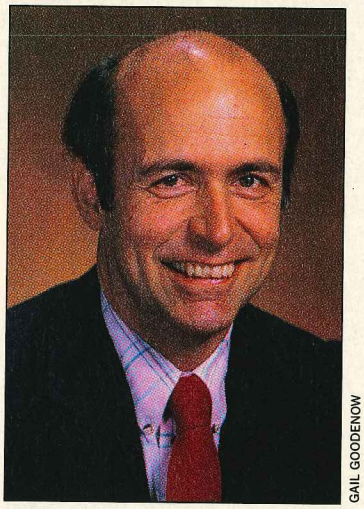
Checks & Balances™

VERSION 4.1—IBM & CP/M
NEW MANUAL FOR CP/M
NOW AVAILABLE

- Single entry system centered around the checkbook; 128 user defined accounts
- Handles cash and charge transactions
- View, edit or print any entry for a year with simple but powerful English commands
- Prints checks and has a versatile Rolodex
- Balance sheet, cash flow and profit & loss statements, plus many more reports

Please rush_____ copies of "Checks & Balances" at $74.95 each. Add $3 P/H; Calif. 6½% tax. VISA, M/C or Check

My computer is _____
Name_____
Street _____
City/State/Zip_____
Phone # _____
Card # _____ Exp_____
Signature _____



GAIL GOODENOW

GRAPPLING WITH GRAPHICS

BY TED SILVEIRA

Almost every publication contains some graphics, even if it's only a simple border or a box around some text. So when you become a desktop publisher, you inevitably have to deal with graphics as well as text.

Unfortunately, MS-DOS computers were not originally designed for graphics work. Instead, they've been adapted to it through add-ons—graphics video boards, mice, digitizers, high-resolution screens, and so on. As a result, not one but several "standards" have been developed for graphics hardware—CGA, Hercules, EGA, PGA, and now VGA, not to mention various ultrahigh-resolution boards such as AT&T's Targa. Pity the poor software developer who has to support all these systems.

And just as MS-DOS has multiple hardware standards for graphics, so it has also several "standards" for graphics file formats—PC Paintbrush PCX, GEM Paint GEM, AutoCAD SLD and DXF, Hewlett-Packard HPG, and so on. So a page make-up program like Ventura Publisher has to be able to display graphics on whatever graphics video board/monitor you have and to read whatever file format your graphics happen to be stored in. Tough job.

BIT-MAPS AND OBJECTS

There are two basic kinds of graphics, *bit-mapped* (which Ventura Publisher calls *images*) and *object-oriented* (which Ventura calls *line art*).

Bit-mapped graphics (produced by paint programs like GEM Paint and PC Paintbrush) store a picture as a series of black and white dots (sometimes called *pixels* , *short for picture elements*). The number of dots per inch used to create the picture determines its resolution—the more dots per inch, the finer the detail and the less you'll notice the actual dots themselves. A typical low-resolution computer screen (CGA, for example) may be 60 to 80 dpi—pretty coarse. Many dot-matrix printers can print graphics in the 150 to 200 dpi range, and most laser printers can print at 300 dpi.

Even though everything sent to a dot-matrix printer, laser printer, or digital typesetter gets printed in the form of black and white dots, object-oriented graphics (unlike bit-mapped graphics) aren't *stored* as black and white dots but as mathematical formulas or instructions that describe the shape of the objects making up a picture. These graphics (produced by drawing and drafting programs like AutoCAD and GEM Draw) don't have a fixed resolution because they don't get converted into dots until they are printed.

What difference does this make to you? Bit-mapped graphics and object-oriented graphics are both useful, but for different things. Bit-mapped paint programs are better for pictures with shadings, patterns, freeform lines, and other detail work, and most give you great control over your "brush," even down to painting or removing individual dots. But because a bit-mapped picture has a fixed resolution, if you create a picture at 72 dots per inch, it will always print at 72 dots per inch, even on a high-resolution typesetter capable of printing 2,500 dpi. For the same reason, if you enlarge a bit-mapped picture to fit a space on your page, it will get coarser as it gets bigger.

Object-oriented draw programs, on the other hand, are usually used for drafting and for creating the kind of technical line drawings you often find in computer and software manuals. Such drawings seldom have the kind of shading, pattern, and detail you find in bit-mapped graphics (it's very difficult to do, since you're basically working with solid lines). However, because object-oriented graphics don't have a fixed resolution, you can stretch or shrink such a drawing as much as you like without degrading it.

For example, suppose you have a bit-mapped picture with a resolution of 150 dpi and a similar object-oriented drawing. If you print them both on a cheap dot-matrix printer that prints at 150 dpi, they'll look about the same—both will be fairly crude looking, with the jagged "staircase" effect showing on any diagonal lines. If you print these same two graphics on a 2,500 dpi digital typesetter the bit-mapped graphic will still look like a crude 150 dpi picture, but the object-oriented graphic will have the beautifully smooth edges and diagonals

Copyright 1987 Ted Silveira. All rights reserved.

of a full 2,500 dpi picture.

So, if you're going to be resizing your graphics during page make-up (and you almost always will), you'll want to use object-oriented graphics when you can. And if you're going to be printing on a high-resolution output device, like a 2,500 dpi Linotronic 300 typesetter, you'll also want to use object-oriented graphics.

In fact, any time you're printing to a Linotronic 100 (1,200 dpi), Linotronic 300, or similar high-resolution PostScript typesetter, you should avoid bit-mapped graphics. First, as I've mentioned, you won't gain any resolution on the graphics. And second, bit-mapped graphics print extremely slowly on these machines, which means you'll end up paying the typesetting house a lot of extra money. So, if you're printing through a typesetter but need to include some 300 dpi bit-mapped graphics, for example, print the graphics separately on a laser printer and then paste them into your typeset output later.

SOURCES FOR GRAPHICS

And where will your graphics come from?

First and most obvious, you can create them yourself, using the appropriate draw or paint program. If, like me, you completely lack any artistic talent, you can hire a computer artist to create the graphics for you. Even if you're on a very tight budget, it makes good sense to hire a top-notch professional for art you're going to use frequently, such as a special logo for your newsletter or stationery. Just make sure the artist understands what you want and can deliver it in a format that your programs can handle.

Second, if you're writing a software manual or help sheet, you may want to include pictures of menus in the program and other "screen shots." With the proper program—something like Frieze (included with PC Paintbrush) or Hotshot—you can capture these pictures yourself, dumping a screen image straight into a disk file and then importing the file into your page make-up program. You can even capture text screens in text mode (but not graphics mode) with SideKick, using its import data function (F4).

Third, you can use a scanner to copy an existing photograph, drawing, or other piece of art into a computer-readable form. (For more information, see "Scanners" in the October 1987 issue of *PROFILES*, page 16.) Even low-end scanners still cost $900 to $2,000, so they're not cost-effective unless you'll be using them repeatedly. And scanners produce bit-mapped graphics, with the limitations discussed above.

If you use a scanner, you will probably also have to deal with copyrights and permissions. You can't simply scan and use any piece of visual art you want—many photographs, drawings, company logos, and similar works are protected by copyrights and trademarks (Coca Cola, for example, is likely to take a dim view of you using its famous logo without permission). In short, if the art you're scanning wasn't created by you or by an artist specifically for you and isn't in the public domain, you will probably have to get permission to use it (and often pay a fee to the owner). If you're creating any kind of publication, play it safe—check for copyrights on all the graphics you use.

Fourth, you can buy collections of "clip art" on a disk—collections of graphics covering various subjects (and executed with varying levels of skill). You don't need to worry about copyright problems with clip art because when you buy the disk, you gain the right to use the contents.

You need to consider three things before you start buying clip art disks, though. Because the art is created for general use, you can probably find pictures that will suit your needs in a general way, but don't expect to find something exactly right for a very specific need. Also, remember that other people can buy the same clip art disks that you can, so you may find another publication using the same graphics that you've chosen. And finally, make sure that you can get the art in a disk format *and* file format that will work with your page make-up software.

The market for clip art is growing, and you can now get MS-DOS clip art collections from companies like T/Maker, Dynamic Graphics, PC Quik-Art, and Micrografx. Most clip art, however, is still available only for the Macintosh.

Fortunately, Ventura Publisher 1.1 can now directly import both MacPaint and MacDraw (PICT) files. Since these are the most common Macintosh graphics formats, Ventura users now only have to worry about getting the files off the Macintosh disk and onto an MS-DOS disk. Though the Mac uses 3.5-inch disks, they are absolutely incompatible with the MS-DOS 3.5-format, so your best bet at the moment is to find a friend with a Mac, connect your two machines, and use standard communications programs to send the graphics files from one to the other.

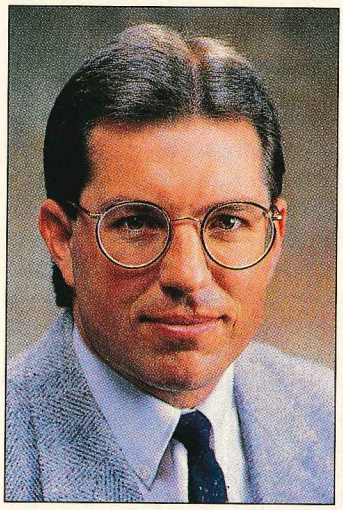
QUICK REFERENCE SUMMARY

Product: Clickart Portfolio Series
Manufacturer: T/Maker Co.
1973 Landings Dr.
Mountain View, CA 94043
Phone: (415) 962-0195
Sugg. List Price: $59.95 to $79.95

Product: Desk Top Art
Manufacturer: Dynamic Graphics, Inc.
6000 N. Forest Park Dr.
Peoria, IL 61614
Phone: (800) 255-8800
Sugg. List Price: $74.95

Product: PC Quik-Art
Manufacturer: PC Quik-Art, Inc.
394 S. Milledge Ave. #200
Athens, GA 30606
Phone: (800) 523-1796
Sugg. List Price: $59.95

Product: Windows Clipart
Manufacturer: Micrografx, Inc.
1820 N. Greenville
Richardson, TX 75081
Phone: (800) 272-3729
Sugg. List Price: $99.95


RICHARD STARKMAN

BY BROCK MEEKS

ELECTRONIC NEWS CLIPPING SERVICES

There is a popular TV commercial that shows a young businessman "drowning" in a veritable sea of information: letters, memos, computer printouts and who-knows-what. The poor man is shown bobbing up and down with the undulating current, his head barely above the surface.

Then an "information tidal wave" hits, and we see him being unceremoniously tossed about like so much flotsam and jetsam. The message is too significant to be shrugged off as slick Madison Avenue hype: If you don't get a handle on all the information pouring in on you in this, the age of information, it *will* overwhelm you.

To avoid taking a headlong dive into a bottomless pool of information, you might consider enlisting your own personal news filter, better known as an electronic news clipping service.

This column will look at three different news clipping services; but first, a look at the problem that brought these services into being: "Infoglut."

THE MENACE OF INFOGLUT

When you begin to understand just how much information is available online, it can be quite intoxicating. Information is, after all, power. However, if you cannot harness that information in some structured way, it can become impossible to deal with.

This information overload can afflict even the online veteran. The key to fighting "infoglut" is separating the "infotrash" from the "infowealth." How you define those categories depends on whether—for example—you play outside linebacker for the Chicago Bears or sit in the boardroom of a Fortune 500 company (I can't decide which is the more grueling job). What the linebacker filters out may be of great interest to the executive, and vice versa.

Mining your infowealth is a daunting task; the information motherlode is wide and deep. In addition to the major daily newspapers, there are the thousands of smaller newspapers, trade journals, newsletters, regional business publications, and more. It boggles the mind.

Sorting through each of these publications is impossible. Or is it? It may be impossible for a human, but the task is tailor-made for software running on a mainframe. This search software is the heart and soul of a news clipping service.

Such a service allows you to set up a series of keywords or phrases, which are then continuously checked against millions of words of text each day. When a match on any of your keywords is found, the entire article is automatically saved for you in a special file. You then download these saved articles at your convenience.

NARROWING THE SEARCH

Keywords generally comprise a list of topics—telecommunications, biotechnology, modems, and superconductivity, for example. With some news clipping services a keyword can be only a single word; other services allow you to define search parameters in greater detail. These advanced services allow you to use an asterisk as a wildcard (telecomm*); combine words (computer + crime); define phrases (mutual fund stocks); or do all of the above (telecom* + computer crime).

Beyond simply defining a news search strategy, you also must decide what type of news your clipping service will monitor. For example, do you just want to clip from major newspapers like *The Wall Street Journal*, *The New York Times*, and *The Washington Post*? Or do you want to clip from hundreds of specialized, technical newsletters?

Keep these options in mind as we take a look at three news clipping services. They are all different, and each serves a different clientele—one that appears worthless to you might be priceless to the person in the next cubicle.

EXECUTIVE NEWS SERVICE

The Executive News Service (ENS) is an advanced option offered on CompuServe. ENS offers specialized services such as real-time stock quotes, advanced electronic mail, and a news clipping service.

The ENS news clipping service is moderately powerful, allowing you to

Copyright 1987 Brock N. Meeks. All rights reserved.

define up to 10 keywords. You can use a wildcard designator and combine words when setting up your search strategy. The service "clips" from a limited news base: the Associated Press news wire and *The Washington Post*. However, the amount and quality of the information from these two sources should not be underestimated.

From the AP wires you can choose from more than 51 "feeds." These include the AP "datastream" (all stories of national and international interest) or any of the 50 state feeds (news related directly to a particular state or region). When a story is clipped from the AP wire, you get the full, unedited version. (Often when AP news stories appear in your local paper, they've been edited by a copy editor at the newspaper, usually because of space limitations.)

It goes without saying that the reporting in the *Post* is of the highest quality. Articles clipped from the *Post*, like those from AP, are bylined and unedited.

You'll pay a premium per-hour rate for using the Executive News Service, in addition to the normal rates for CompuServe.

NEWSGRID

NewsGrid, an excellent, low-cost news clipping service, is available on GEnie (the General Electric news and information exchange), an information utility similar to CompuServe. NewsGrid is billed as a "real-time news service, compiled daily from dispatches of seven international news agencies and other specialized news sources."

NewsGrid is actually a product of Comtex Scientific, an electronic publishing company that offers both NewsGrid and OTC News Alert, a financial bulletin. NewsGrid is sold to GEnie, which makes it available to its subscribers.

NewsGrid is a different kind of service in that Comtex copy editors revise all of the stories they receive from other news agencies. These edited stories are then sent along to NewsGrid customers.

Robert Schwartz, managing editor for Comtex, says, "Our editors review each story [as it comes in over the news wire] and decide which of those stories gets edited based on a story's overall importance and pertinence. Each story is edited according to an established format. The editors keyword the stories and headline them. Then the stories are transmitted to all our customers."

Using NewsGrid actually puts an additional filter between you and the news, but you still get to choose what kind of information gets clipped for you.

As Schwartz explains it, the stories are edited specifically for the online user. "NewsGrid stories are more concise than even the newspaper version," Schwartz says. "We know that people don't want to waste a lot of time online, so we edit our stories with that in mind."

You choose what kind of information gets clipped for you.

GEnie calls what its clipping service provides a "customized news profile." This profile is determined by up to 10 keywords. However, you can only specify single words; wildcards and word combinations aren't possible.

One of the advantages of using this service is that GEnie doesn't charge you a premium rate for using it. And because GEnie's online rates are among the lowest in the nation, NewsGrid is especially attractive if you're on a tight budget.

NEWS FLASH

For sheer power and diversity of coverage you can't beat News Flash, a service of NewsNet.

NewsNet offers full-text access to 300 trade, industry, and investment newsletters, most of which charge $250 a year and up for print subscriptions. Subscribing to each of these publications would be financially prohibitive for the average user. News Flash, however, allows you to clip from any or all of these publications without incurring subscription costs. In addition, you can also clip from the United Press International and Associated Press wire services.

News Flash allows you to store up to 10 keywords. These keywords can use wildcards, combined words, phrases, or a combination of all three.

If there is a drawback to this service, it is the price. For every keyword you store it'll cost you $5 a month. In addition, every "clip" News Flash finds costs you 50 cents, whether you download it or not. And then you have to add NewsNet's online rates. That can amount to a hefty bill. But if you can handle the cost, NewsFlash will provide you with a gold mine of information. And because News Flash draws from a highly specialized news base, you'll often get breakthrough news long before it hits the popular press.

THE ENVELOPE, PLEASE

Which service is the best? All of them and none of them. As I said before, my infotrash might be your infowealth. Personally, I've used all three at different times for different subjects I've written about. You'll have to decide for yourself what works best.

Regardless of the service you choose, I'll guarantee you that it beats sitting in front of a stack of newspapers with a pair of scissors.

BY MARSHALL L. MOSELEY

I noticed that there are some programs on my MS-DOS disk I use all the time, like FORMAT.EXE and CHKDSK.EXE, but there are also some I don't use, like EXE2BIN.EXE, GRAFTABL.EXE, and others. The explanations in my MS-DOS manual are rather cryptic; what do these programs do? Should I be using them?

The programs you mention are some of the lesser-used utilities included with MS-DOS. If your computing work is getting done now, then you probably don't have a desperate need for them. On the other hand, you might be able to use one of them to solve some unique problem that comes up, and it never hurts to know what you have available. Following is a list of some of these programs, with short explanations of their functions. More complete definitions, with examples, can be found in the MS-DOS User's Guide.

LINK.EXE and EXE2BIN.EXE. These two programs are used with the Macro Assembler from Microsoft Corporation and some high-level compilers, such as Microsoft C. Technically LINK and EXE2BIN are not a part of MS-DOS, though they were included with version 2.1. LINK turns an "object file" produced by the assembler or compiler into an executable file with an EXE extension. If the program was so designed, it can be run at this stage, or it can be modified further into a COM file using EXE2BIN.EXE. Unless you are a programmer you can ignore these two programs.

GRAPHICS.EXE and GRAFTABL.EXE. GRAPHICS.EXE works only with certain Epson and IBM printers, or compatibles. After you install it in memory, you can print any CGA graphic appearing onscreen by pressing Shift PrtSc.

GRAFTABL.EXE loads a character table containing the IBM extended character set into memory for use by a CGA adapter operating in graphics mode.

Each of these programs increases the size of MS-DOS in memory and decreases the amount of RAM available to other programs.

EDLIN.EXE. EDLIN is the line editor from Microsoft. It doesn't deal with sentences or paragraphs, only with lines of ASCII text. EDLIN automatically numbers each line, allowing you to insert, swap or delete lines at will. It is notoriously clumsy to use, and just about any other ASCII editor will do a better job. On the other hand, EDLIN is free, and because it uses the same command line editing keys as MS-DOS, you may already know how to use it. For quick editing jobs many people use EDLIN.

SYS.EXE. SYS is for placing the MS-DOS system files on a diskette to make a bootable disk. It is also used for updating old disks with new versions of the MS-DOS system files. When a diskette already has other files on it, SYS will not work if the new system files are larger than the old ones. Unfortunately all newer versions of MS-DOS have had larger system files than prior versions. Also, SYS will not make a non-bootable diskette into a bootable one if it already has other files on it.

FC.EXE. The FC stands for File Comparison, and this utility is used to compare two files and display any differences between them. This comes in handy for people who keep multiple copies of a single file around. FC works with text files, but it can also be used with binary files by appending /B to the command line.

MS-DOS 2.1 users have a similar utility called COMP.EXE.

SHARE.EXE. SHARE is program used only when MS-DOS is running with a local area network, or LAN. It is used to designate files that can share data and files that are locked. *Do not* run this program unless you are on a network and you know what you are doing.

JOIN.EXE This is a neat little program that lets you link a disk drive to a subdirectory of another drive. This kind of thing comes in handy when you want to trick software—make it think it's accessing a hard disk when it's really going to a floppy.

For example, suppose you just bought a fancy-printing program for your Kaypro PC. To your horror, you discover that the software takes up two disks but expects to find all its files on one, some of them within a subdirectory. Don't worry—just create a subdirectory on the disk in the A drive named HDISK, copy the JOIN program over to the A drive, and type **JOIN B: A:\DISK**. Now whenever the HDISK sub-directory on the A drive is accessed, the computer will actually go to the disk in the B drive.

I have trouble saving my work when I use PolyWindows. I follow the instructions in the manual exactly, and when I issue the save command the hard disk drive light even comes on. But when I start my computer the next day, all my information is gone! How do I solve this?

The problem breaks down into two parts: how to save your work correctly, and how to recall it once it's saved. Let's start with saving the work. For that you need to understand how hard disks are organized.

As you may know, hard disks under MS-DOS are divided into directories. A directory is a storage area; you can copy files into it, and those files remain separate from any other files on the disk. When you use a particular directory you are "logged" into it—you see only its files and you do not have access to any other directories. On Kaypro computers there are different directories for word processing, telecommunications, and even one for PolyWindows.

A directory holds not only files but other directories as well. These subdirectories can have their own subdirectories, which can have *their* own subdirectories, and so on. The end result is a structure of directories called a "tree." To point to a specific directory in the tree, you must specify it by typing its *path*—the route through the tree to

Copyright 1987 Marshall Moseley. All rights reserved.

that directory.

Switching gears here, remember that PolyWindows is a RAM-resident program. You can call it up no matter what directory you are in. In fact, you almost always call it to the screen when you are inside another application, like WordStar or Mite. Consequently, when you save your work to a file, the new file appears in *whatever directory you are using*, not the PolyWindows directory.

To save your work to the POLY directory you must specify the correct directory path when saving the file. As an example we'll save the Calendar, but this applies to the Documents and Cardfile windows as well.

First call PolyWindows to the screen by typing **ΛEsc**. Go to Desk Tools and select the Calendar option. Once the Calendar is displayed, press **Enter** to bring up the appointment book. Now type something like "Lunch with Joe" in the book, then type **Shift Esc** to make the Options menu appear. From that menu press **Enter** to select the Save Book option.

A box containing the words "Name of file to SAVE text in:" will appear, with a blank line below. Type the PolyWindows directory path followed by the file name for the date book. In this case type **C:\MAIN\POLY\MYBOOK**. The hard disk light will flash, and the information will be saved in the PolyWindows directory in a file named MYBOOK.DBK.

To recall your work, load MYBOOK into PolyWindows using the INCLUDE program, which is also in the POLY directory. First make sure PolyWindows is loaded, then at the system prompt type **INCLUDE MYBOOK** and press **Enter**. The information in MYBOOK will become accessible through the appointments book.

If you use the same appointments file every day, you might wish to place its INCLUDE statement in the batch file that loads PolyWindows. That way it will be available automatically, and all you'll have to do is remember to save it at the end of the day.

QUALITY AND SERVICE MAKE THE DIFFERENCE!

Buy two programs and get one of equal value free!

*** * * Qwiz Writer $49.95 * * ***

An Exam writing tool. Tests & quizzes. Draw random questions from your test & quizzes & make final exams. Easy entry & editing.

*** * * PRO Mail $49.95 * * ***

Version 5.0 UPDATE now being shipped

At last. The software that pays for itself. Take advantage of lower postal rates with the original **PRO Mail**. Organize your mailing list & get your message across to your customers. Quick & easy entry & editing. Reports & labels in seconds. 1 to 4 across labels. Unlimited sorts. Duplicate removal. Built in backup. Up to 2 comment fields. Search any field. Mailmerge compatible. Unlimited mail lists – Name them what you want. Ditto function allows certain fields to repeat so you only type them in once. Search and replace. *** * * Still ONLY $49.95 * * ***

*** * * Home Inventory Plus $39.95 * * ***

NOW AVAILABLE WITH FINANCIAL STATEMENT OPTION $44.95

Home Inventory Plus is a complete personal inventory storage and retrieval system. Sub-totals & totals. Unlimited data files. Menu-driven, multiple files. Multiple searches. On screen totals. Easy entry and editing. Clear & concise printouts. Perfect for insurance needs, home or office.

*** * * Trivia Supreme $29.95 * * ***

Compatible with the Advent TurboRom

CP/M **MS-DOS**

Specify Disk Format & Computer

Add $3.00 S&H $7.00 UPS 2nd Day Air All others $10.00

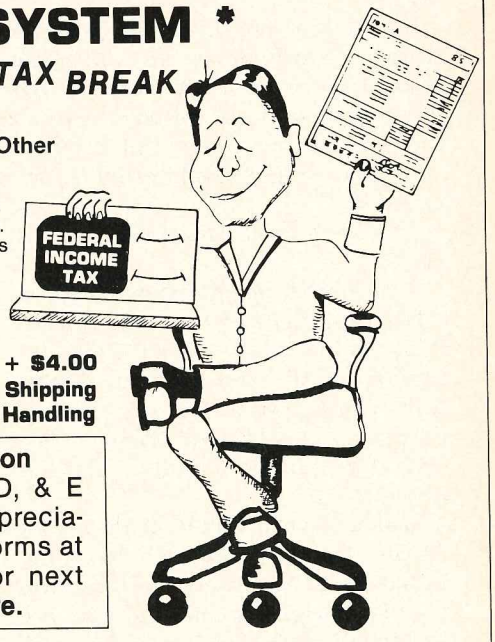
VISA ★ **HURD COMPUTER SYSTEMS** ★ MasterCard

6330 Lincoln Avenue • Cypress, CA 90630 • Tel (714) 525-0879

4th YEAR

FEDERAL INCOME TAX SYSTEM *

*Formerly ***TAX BREAK***



All Schedules and Forms 1040, 1040A. Other frequently used IRS forms.

- Prints on IRS approved forms and Fm. 1040.
- All calculations and transfers are automatic.
- Built-in Calculator and Worksheets always available.
- Direct telephone support.

AVAILABLE FOR DOS AND CP/M

only $59.95 **+ $4.00 Shipping & Handling**

New-Taxpreparer's Version Multiple Schedules C, D, & E includes complete Depreciation System. Prints all forms at one time and resets for next customer - **only $30 more.**

TO ORDER OR FOR INFO PACKET
CALL 1-800-862-2345
AT SECOND DIAL TONE: SWC or 792

MasterCard VISA

SWC, P.O. Box 706, Santa Teresa, NM 88008

THE SECRET OF MY SUCCESS

BY MICHAEL CAHLIN

Editor's note: In the Workplace is a new column that will focus on Kaypro owners and how they have used their computers to solve their business problems. This monthly column will be written by Michael Cahlin who, as a means of introducing himself, is the subject of the first installment.

Ask me the secret of my success, and I'll tell you in one word: computers. The date was June 14, 1984. I had just turned 32, and to celebrate I bought my first computer, a Kaypro II. In the next three months that 64K "magic box" changed forever the way I worked and lived—both for the better.

Now, if anyone had told me that I would be "on the cutting edge of technology," making my living with computers, I would (after I stopped laughing) have taken bets that they were wrong. You see, I'm the type of guy who feels like Albert Einstein discovering the Theory of Relativity when I record the right program on my "idiot-proof" VCR.

So, working on a computer (which a friend describes as an annoying typewriter with a TV screen) and learning how to use software with all those confusing codes and complex commands was definitely out of the question.

Or so I thought. Greed changed my mind.

I was fired from my last 9 to 5 public relations job in August 1983. For the next four months, while "Waiter Mike," the dining legend, paid the rent, "Writer Mike" was looking for any (paying) client so he could retire "Waiter Mike" and start his own public relations agency.

Which is when Walt Bilofsky and Joe Abrams from The Software Toolworks called me. The Software Toolworks was one of the original pioneers of low-cost, high-quality software. Bilofsky founded his company in a garage back in the good old days when you had to build your own computer and then write the programs so the computer would have something to do.

Which is exactly what Walt and his friends did. Faster than you can say "8-bit CP/M," Walt had a thriving software company producing programs for Kaypro, Osborne, HeathKit and others.

Bob Dylan sings about a simple twist of fate and how sometimes he just gets lucky. It was the same way with me. Because over the next six months, I saw firsthand how easily four people and three computers turned a garage operation into one of the top 100 software manufacturers in America.

If "they" could do it ...

ME AND LITTLE BLUE

I can still remember tearing into that blue and white box and setting up my soon-to-be trusty Kaypro II with single-sided, double-density drives (double-sided drives cost an extra 40 bucks). Connecting the Kaypro to a Brother HR-15 daisywheel printer and snapping on the switches on made me feel like Mr. Sulu pushing the Starship *Enterprise* into warp drive.

I brought my Kaypro home on a Friday night, and by Monday morning, I was up and running!

Over the next three months, using a handful of simple software programs bundled with my almost-trusty Kaypro II, I revolutionized Cahlin/Williams Communications. I also launched The Chocolate Software Company and tripled my income. (The gimmicky—but tasty—Original Chocolate Byte can be found, as fate would have it, in the November *PROFILES* Gift Guide!)

Using a combination of WordStar, MailMerge and SmartKey, I was able to write regular and "personalized" mail-merged letters to software editors, reviewers, and reporters that not only looked professional, but were finally spelled correctly!

Using a computer for word processing was the single most important change in my work habits. And to this day it still has the greatest effect on my ability to generate letters (which generates more business). For the first time in my life, I wasn't sending out letters that could have been written better or should have been rewritten completely but weren't simply because I didn't have the time (or

Copyright 1987 Michael Cahlin. All rights reserved.

couldn't stand the thought of retyping them for the zillionth time).

On my best day, B.M.T.K. (Before My Trusty Kaypro), I could grind out about 10 to 15 okay letters a day. A.M.T.K. (c'mon, you can figure it out), I was good for as many letters as I had stamps—and every one was perfect.

Using a combination of DataStar, SuperSort, and CalcStar, my now-trusty Kaypro kept track of billing, inventory, and advertising placement and updated my media lists and more. This allowed me to spend less time running my business and more time working on it.

With Write Hand Man (a CP/M version of Borland's SideKick), my loyal Kaypro doubled as a non-salaried secretary and kept me informed of my appointments, cleaned up my Rolodex, and even dialed my phone for me via my SmarTEAM 103/212A modem.

My Kaypro helped me become more organized, efficient, professional, and profitable.

ON LINE, ON TIME

Using Mite, the communications program bundled with my Kaypro, and my modem, I extended my ability to communicate with clients and the computer media. Suddenly, I could zap letters and press releases anywhere in the world. This saved me postage, stationery, and time. But more importantly, it was fun!

In less than 15 weeks, my Kaypro had helped me and my business to become more organized, more efficient, more professional and more profitable. It allowed me to take on more business and make more money in much less time. (That gave me more time to spend with my wife, who took even less time to spend the extra money.)

Thanks to my venerable Kaypro II, my one-man, 8-bit agency has grown from one client to a nationally recognized concern specializing in high-tech public relations. Over the past three years, the agency has launched such well-known software as XTREE, Backup Master, TopDOS, Software Golden Oldies Vol. I, and more.

The only difference between my agency today and when I first started is the level of equipment and two non-silicon salaried assistants.

And while I have moved away from CP/M to MS-DOS, my cherished Kaypro II and hard-working Brother HR-15 still record every Chocolate Byte ordered from The Chocolate Software Company (found in last issue's Christmas gift guide—just in case you missed it the first time.)

It's a good thing I'm not a betting man!

Michael Cahlin is the president of Los Angeles-based Cahlin/Williams Communications. His book, "How To Do Your Own Hi-Tech PR," will be available next year.

"Dear Genifer..."

Q: "dBASE has me stuck at the dot prompt and I'm coming unglued! Can you save me?

Help! I've been using dBASE for months at the dot prompt, but now I've got to write a stand-alone, end-user application. When I try to program, I get "Mismatched DO WHILE and ENDDO" and "Improper data type in subsubtotal expression." I just can't take it any more! Help me Genifer or I swear, I'll jump off the manual!"

– On The Edge

A: Dear On The Edge:

Take a deep breath and listen. All you need is Genifer – the application generator that creates custom-made applications in minutes. That means you don't have to know the details of dBASE programming or waste countless hours cranking out code! You see, *Genifer* quickly delivers clean, self-documented code that makes life worth living! No wonder Infoworld said, "Genifer creates programs that are more clearly written than most of the code we've seen produced by human dBASEIII programmers." If you're still in distress, go see your dealer right now. As dBASE users around the world know, Genifer cares!

To find out more about how Genifer can change *your* life, visit your dealer or call toll-free: **1-800-631-2229** for a FREE brochure.
In CA: 1-800-541-3366

Genifer.

For dBASE III applications without tears.

bytelcorporation

1029 Solano Avenue, Berkeley, CA 94706
(415) 527-1157 Telex: 176609

Trademark/Owner: Genifer/Bytel. dBase III/Ashton-Tate.
©Copyright 1987 Bytel Corporation.

SAVE!!

IMPORTANT NEWS FROM

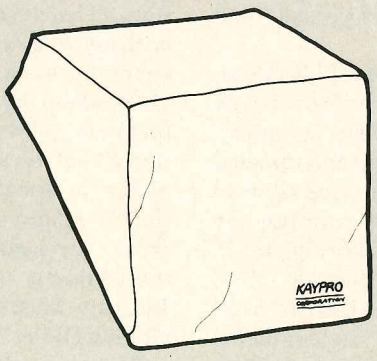
KAYPRO®
CORPORATION

SAVE!!

ON SALE NOW!!

ITEM 2502. **JUKI PRINTER CASE.** Padded blue nylon carrying case fits the Juki Printer.

CLOSEOUT PRICE: $19.95
(Regularly $79.95)

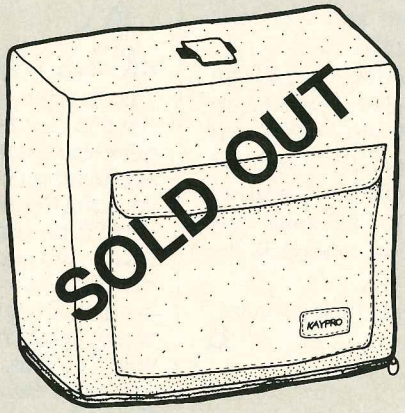


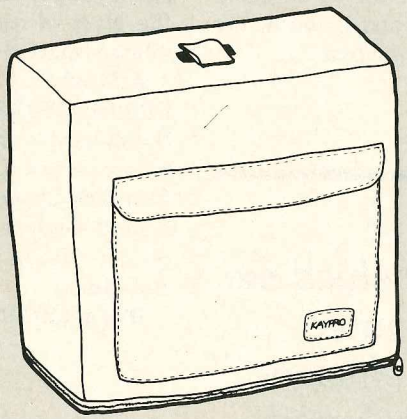
ITEM 1468 and ITEM 2403. **DUST COVERS.** Designed to shelter your Kaypro 2, 4, 10 and 16 computer. Available in black or light grey with Kaypro logo screened in blue. Specify color.

PRICE: $3.95
(Regularly $8.95)

ITEM 1225. **PADDED BLUE NYLON CARRYING CASE** for Kaypro 2, 4, 10 and 16 computers. This handsome and durable travel case has zippered closures and a wide side pocket for all your accessories.

PRICE: $19.95
(Regularly $79.95)



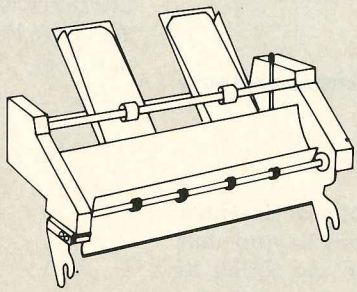


ITEM 1229. **BLACK VINYL CARRYING CASE** for Kaypro 2, 4, 10 and 16 computers. Constructed of waterproof black vinyl with zippered closures and wide side pocket for carrying all your accessories.

PRICE: $13.95
(Regularly $43.75)

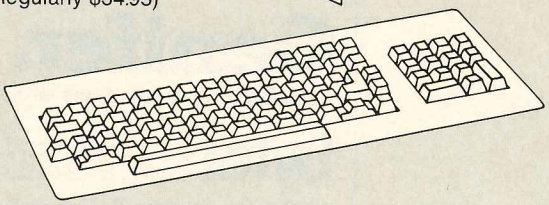
ITEM 1374. **PLASTIC ACRYLIC COMPUTER STAND.** Constructed of heavy-duty plastic acrylic designed for Kaypro portables. 19½" × 4½" × 13" with Kaypro screened in white.

PRICE: $19.95
(Regularly $34.95)



ITEM 2126. **JUKI PRINTER SHEET FEEDER.** Take advantage of this special closeout price! Quantities are limited.

CLOSEOUT PRICE: $129.95
(Regularly $395)



ITEM 1377. **KEYBOARD ASSEMBLY.** Designed for all CP/M models. Consists of interior assembly only with black keys. Numeric keypad. Instruction sheet included.

SPECIAL CLOSEOUT PRICE: $20.00

VISA & MasterCard ACCEPTED

Credit card holders call (619) 481-3958 between 8:00 and 5:00 PM PST to place your order.
Send check or money order plus 10% for shipping to: Kaypro Promotions Dept., 533 Stevens Ave., Solana Beach, CA 92075
NOTE: Credit card orders under $100 will incur a 5% handling charge. Minimum charge order $25.00.
Notice: Offers good while supply lasts. Quantities are limited on some items. Order now for best selection!

Letter Quality Printer at Super Savings

Cosmo Writer 2600

26 CPS Wide Carriage Daisywheel

CENTRAL COMPUTER PRODUCTS

$235

Good only while supplies last

- Diablo/Qume Printwheels
- Diablo/Hytype II Ribbons
- 26 CPS - 22 CPS Shannon
- 10, 12, 15 Pitch and Proportional printing
- 2K Buffer
- 4 part form capable
- 90 day manufacturer's Warranty
- Bi-Directional Printing

Diablo 630 Compatible
Parallel Interface

Order Today Limited Offer

- 110 CPL, 132 CPL, 165 CPL
- 110/220 V-50/60 Cycle
- Less than 50 dB noise level
- Dimensions - 18.7; (W) x 5.5; (H) x 13.0; (D)

Please include $17 freight

40% Off Regular Price

Make everything you write look great in print. The written communication you send to others determines how you appear to them. Dot matrix doesn't always make the cut. With this printer it is impossible to tell that the output came from anything less than a professional typewriter.

The Cosmo Writer 2600 is a quality printer offering excellent daisy wheel print performance. This printer spews out text at 26 characters per second, faster than anyone can type. And it does it in both directions, finding the next logical type position and going directly there. An internal 2 kilobyte print buffer allows the computer to rapidly send up to a page of text to the printer so that the computer can go back to doing real work, not just driving a printer. In the Shannon print speed test, a realistic appraisal of actual print speed, this printer tests out at 22 CPS, a very respectable speed at twice the price, much less Central's low price.

Works With Any Computer

Don't worry that your software won't work with this printer. This printer does everything right. The Cosmo Writer is compatible with the Diablo 630, the industry standard of daisy wheel printers. Virtually all software on the market (non- graphics) will operate beautifully with this printer. This includes bold facing, double strike, underlining, subscripts and superscripts. And character pitch can be set from the front panel.

The provided standard Centronics parallel interface is the industry standard printer interface for computers, including IBM PC and all PC clones, CP/M machines and virtually all other microcomputers built today.

Replace your typewriter

Included with this printer is a great little program called Deskteam. This program will allow you to directly replace your typewriter and use the printer for forms, envelopes, etc. Select direct type through, like your standard typewriter, or line mode, where you can enter and edit a line prior to printing it, just like the new expensive memory typewriters.

The most commonly made ribbons, Diablo HyType II, and printwheels, Diablo/Qume, are used in this printer. Central offers a complete line of printwheels, ribbons and supplies. Both the optional push- pull tractor and optional cut sheet feed mechanisms can be attached in seconds.

Get your order in soon for one of these great printers. For a limited time, included with each order is your copy of that superb printer utility, Deskteam Please order today. $199.

Description	Order No.	Central
Cosmo Writer 2600	301-04 COSW	$235.00
Tractor Feed	301-04 COST	89.00
Cut Sheet Feeder	301-04 COSF	129.00
IBM Parallel Printer Cable	306-08 R1PIB	19.00
Centronics/Centronics Cable	306-08 R1PMM	19.00
Printer Ribbons — Multi-strike 2-pak	C471	9.90
— Nylon Multi-strike 2-pak	C473	10.40

Printer Buffer

"You didn't say enough good things about it."

- Robert Bruce
- Fort Worth, Texas

Cat # 04MICS

Works with any computer and printer Reset button • Multi-copy repeat function • Auto Diagnostics • Self-test • With cable • 90 day warranty • Satisfaction guaranteed

---

Hard Disk Backup on Your Home VCR

$349

Tired of fumbling with a pile of floppies everytime you do backup? Don't spend a small fortune on a tape backup system when you probably own half of one of the best, fastest, and least expensive backup systems currently available. Videotrax uses your VCR and regular off the shelf videotape. This patented technology will store 160 megabytes to a regular video cassette. Extremely reliable, the proprietary circuitry backs up 1.3 megabytes a minute. Multiple redundant copies take care of tape dropouts and a comprehensive data certification routine gives you comfort in knowing that your data is safe.

Unattended Backup

Plug your full length Videotrax board into your PC, plug the cables into your tape deck, run the menu driven software, and viola! your tape backup system is running. Set the tape deck timer for 2 AM, and start a backup job. Your backup can run in the middle of the night, with no operator intervention.

I Want My PC-TV

USA cable network is starting a show called PC-TV. This show has data superimposed into the video broadcast. Record the show on your video tape deck, play it back through your PC, and get public domain software, demonstration programs, even show transcripts, all encoded at 82,000 bps. Watch the program and get the added benefit of free software. But remember, you can only get your free software if you have a Videotrax system.

MAX Headroom - Total Control

Your video deck can be used just fine, but if you want the ultimate in high tech automation, get the ultimate machine: the Videotrax VHS deck. This 4-head, HI-Q, Stereo video cassette deck offers the capabilities to be completely computer controlled from your PC with no operator intervention.

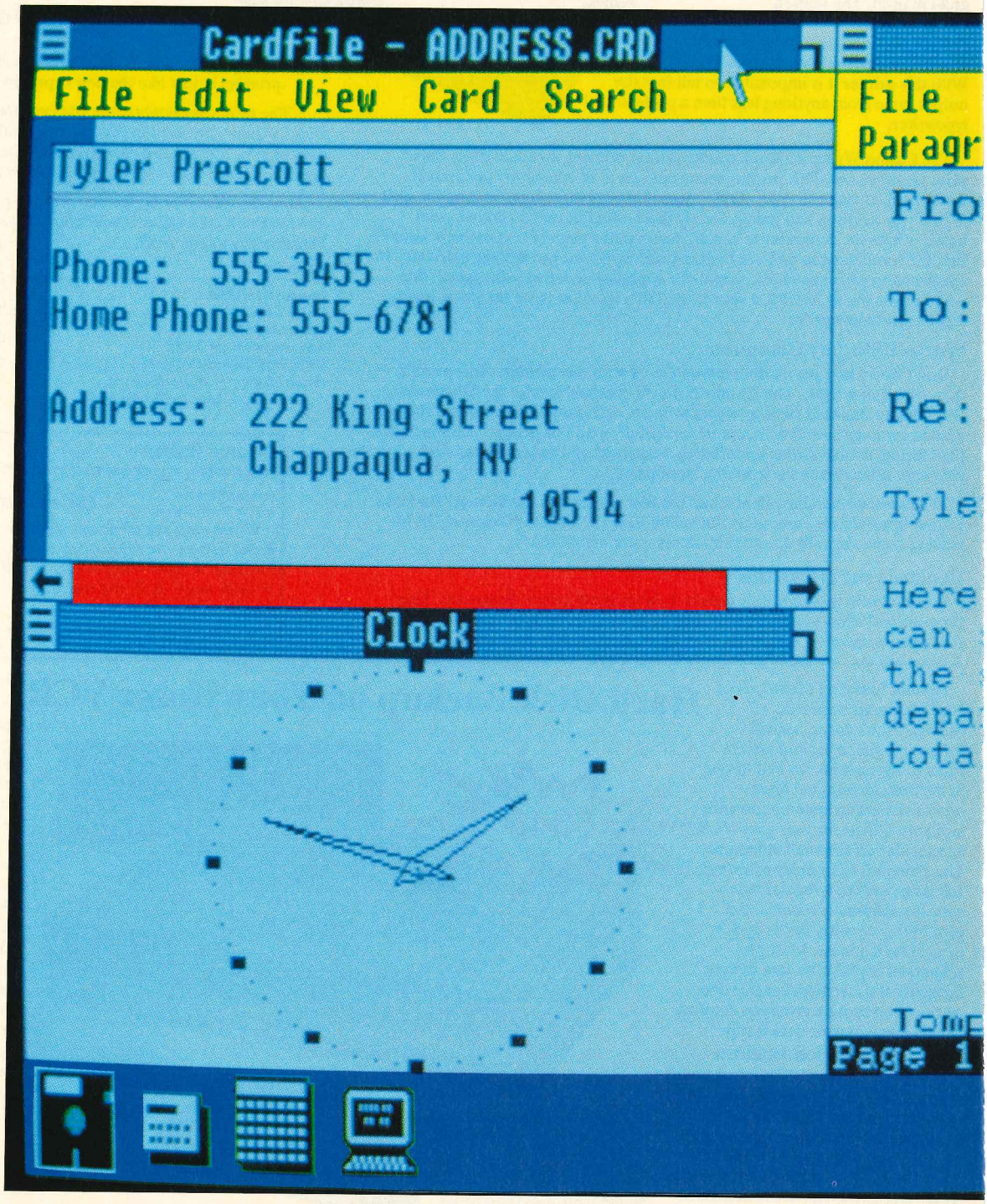
Videotrax Controller Bd.	$349
Videotrax Tape Deck	$595
Videotrax Subsystem	$849

Get Yours Now!

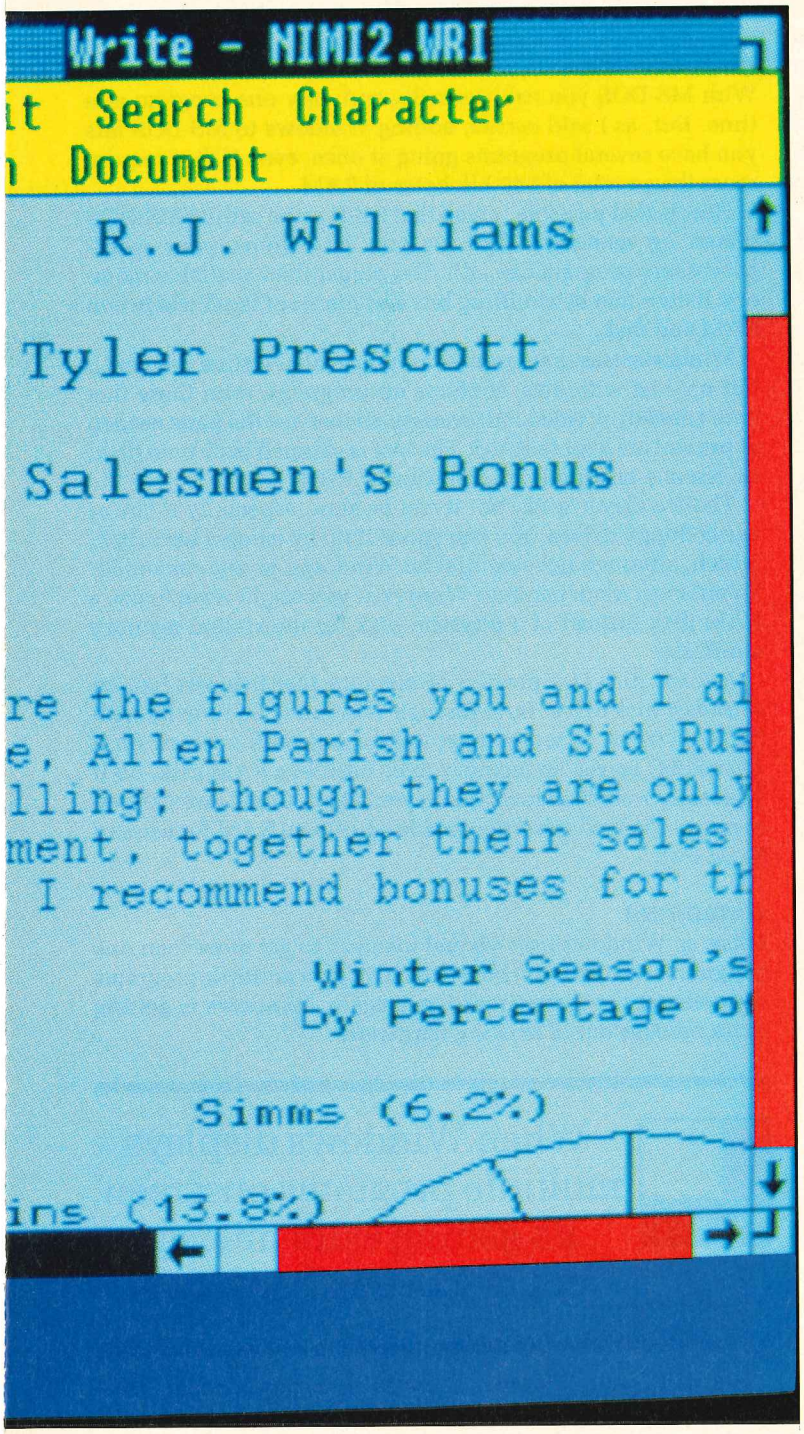
Order Now Toll Free

USA: 800-533-8049 **CA: 800-624-5628**

MICROSOFT



Copyright 1987 Robert Sawyer. All rights reserved.



WINDOWS

THE SLEEPING GIANT WAKES UP.

Ever since Microsoft introduced MS-DOS in 1981, people have complained that it's unfriendly. Fortunately, there is a product that lets you use your computer without worrying about the behind-the-scenes grittiness of the operating system. Microsoft Windows is a shell that goes over MS-DOS, creating a new, intuitive "environment," or set of working conditions, for you to do your computing in. It protects you from the horrors of the A> prompt and MS-DOS's quirky command lines by providing an alternative, easier-to-use, full-screen method for talking to your computer.

But Windows does more than just that. It also lets you have several programs running at the same time, even if together they would normally take more than 640 kilobytes of RAM, the maximum available under MS-DOS. It allows you to switch between programs as easily as you change channels on your TV. And since the programs remain in memory, when you return to one you were using earlier, you can pick up exactly where you left off. Windows also lets you divide your screen into sections—"windows"—each of which can display a different program.

CONTINUED ON PAGE 20

BY ROBERT J. SAWYER

PHOTOGRAPH BY GLENN STEINER

CONTINUED FROM PAGE 19

And it lets you transfer data from one program to another, taking, say, a Lotus 1-2-3 spreadsheet and dropping it into a WordStar memo.

I think you'll agree that's a lot for one $99 package to do. But if it's so great, why didn't *PROFILES* do a special issue on Windows when it first came on the market in 1985? Well, until recently, Windows was just a curiosity—a program that let an MS-DOS computer emulate the look of a Macintosh. Oh, it had great promise, but under the Intel 8088 microprocessor, which is the heart of the Kaypro PC and most other XT-compatibles, it was too slow to be useful.

But a new version of Windows, Windows 2.0, which was due out in September, was expected to be three to five times faster than the current version, 1.04. This, along with other improvements described later in this article, should make Windows much more attractive to users of Kaypro PCs. The real news, however, is for users of Kaypro 286 and 386 machines. In April 1987, Microsoft announced that its new OS/2 operating system for computers based on the sophisticated 80286 and 80386 microprocessors would come with an enhanced version of Windows, called the "Presentation Manager." (At this writing, OS/2 is expected to be released in January 1988.) Suddenly this curious little package is a hot topic. Let's find out what Windows can do for you now and what it will be able to do in the future.

USER INTERFACE

"User interface" refers to the way you talk to your computer. The MS-DOS user interface is a single line following the A> prompt on which you type commands. Windows replaces that with a graphics-oriented, full-screen display that has acquired the unfortunate nickname WIMP: Windowing, Icons, Mouse, and Pull-down menus.

Windowing is the ability to divide the screen into separate blocks, or "windows," each of which displays a different function. One window might contain a spreadsheet program; another, your database manager.

Icons are onscreen symbols, such as a picture of a disk drive, or a pencil representing a word-processing program.

A mouse is a hand-held rolling box used instead of arrow keys to move the cursor. It allows precise and rapid cursor positioning. (Although you can make Windows work without a mouse, it's complex to do so. If you don't like mice, you can substitute a joy stick, trackball, or light pen.)

Pull-down menus are lists of commands that are hidden until you place the cursor on the menu name. Then the menu drops down like a window shade. Once you've made your selection, the menu snaps up out of the way.

Taken together, this WIMP interface puts an end to typing command lines. Instead, you "point and shoot": find the item you want, whether it's a file name, icon, or menu choice, move the cursor over it (point) and click a mouse button or press the ENTER key (shoot). That's all there is to it. (If it sounds to you as if it should be more difficult than that, then you must be an experienced MS-DOS user. Knowing that complex operating system is almost a liability in trying to use Windows, because you expect things to be trickier than they really are.)

MULTI-TASKING

With MS-DOS you can normally run only one program at a time. But, as I said earlier, adding Windows to MS-DOS lets you have several programs going at once, even if they require more than a total of 640 kilobytes of RAM.

How is that possible, given that 640K is the ceiling MS-DOS places on memory? Well, as you may know, your word-processing program can edit files bigger than available memory. It does that by shuffling bits and pieces of the file between RAM and disk.

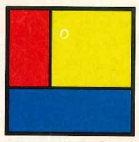
Windows uses that same technique (called virtual memory), but not just with data. It chops up programs, even those that aren't already divided into overlays, so that just the parts needed at present are kept in RAM. The rest is shunted back onto disk, in essence making it an extension of RAM.

That's a clever trick, but it can be slow, especially if you're using floppy drives. You can speed it up by using a hard disk, which, although not essential for Windows, is recommended. To put even more pep into Windows, you might want to use a RAM disk instead of a physical disk for the virtual memory shuffling.

A RAM disk is a portion of memory that behaves like an ultra-fast disk drive. But although Windows can limp by with 320K of RAM, it works best with a full 640K, which on a normal PC leaves no memory to be used as a RAM disk. So if you really want Windows to zip, you'll have to add an extended memory card, which will provide additional RAM for use as a RAM disk.

WINDOWING

Okay, so Windows uses virtual memory to get more than one program into RAM. But how does it display multiple programs onscreen at the same time? Once again, Windows is getting extra mileage out of existing hardware.



When Windows displays multiple programs onscreen, it's getting extra mileage out of existing hardware.

Normally your computer operates in character mode, displaying a standard typeface stored in ROM. This is fast, but is pretty much limited to the standard 25 lines of 80 characters.

Glossary of Terms

Clipboard: a part of memory set aside to hold material you have cut or copied from other applications. The contents of the Clipboard can be viewed and pasted into other programs.

Dialog Box: a window in which the Windows program asks you questions and you type in your answers. It may contain **check boxes**, listing options you can toggle on or off; **option buttons**, which let you select multiple parameters; and **command buttons**, which let you cancel or initiate a function.

Icon: a symbol used to represent an application that is still running in memory but is not currently displaying its activities on screen. Clicking on the icon with a mouse will cause it to expand into a full display of the application.

Mouse: a hand-held roller used instead of cursor keys. As you move it across a flat surface, the cursor moves onscreen.

Pull-Down Menu: a list of commands that drops down like a window shade.

Program Information File (PIF): a 369-byte file containing information about memory requirements, subdirectory location, and so on for programs that did not come as part of the Windows package.

Standard applications: programs not specifically designed to work with Windows; each requires a Program Information File to run under Windows.

WIMP: the user interface used by the Windows program, combining windows, icons, a mouse, and pull-down menus.

WIN applications: the ever-increasing body of software designed specifically for use with Windows.

Window: a rectangular area, which may or may not take up the whole screen, in which an application runs. Several windows can be open at once.

—**R. J. Sawyer**

Windows bypasses the character ROM and instead transforms your screen into a bit-mapped display, individually addressing each screen dot. This lets it completely control what appears on screen, drawing the icons we've talked about and making various typefaces. It also lets it divide the screen into windows. Unfortunately, bit-mapped displays are much slower than character-oriented ones.

To allow bit-mapping, your computer must have a graphics adapter. The one that comes with the Kaypro PC works fine, as do the Enhanced Graphics Adapter and Hercules Graphics Card. You can also run Windows under a Color/Graphics Adapter, but you'll get a fuzzy display.

Even though it's a programming no-no, some software

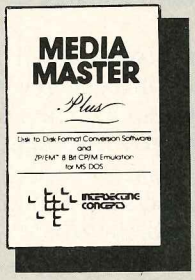
CONTINUED ON PAGE 22

"MAKE YOUR IBM PC KAYPRO COMPATIBILE"

Intersecting Concepts Announces 3 Solutions To Solve Your Computer Incompatibility!

"But will it work on my computer?" *YES!* Finally, there are three *easy* ways to exchange information, transfer files, and run CP/M software on MS-DOS machines.

1. MEDIA MASTER™ is our direct disk-to-disk format conversion program. Already an accepted industry standard, this *$39.95** program uses simple screen prompts that lets you read, write and format up to 155 different 5 1/4" diskettes from CP/M, MS-DOS and PC-DOS operating systems. So if you work on a IBM PCompatible at the office, but use a CP/M computer at home, now you can easily transfer files that would otherwise be "foreign" to your computer's operating system. ***NEW! Version 4.1 for the IBM PC and compatibles is now 300% faster!***



2. MEDIA MASTER PLUS™ features our new *Media Master 4.0*, plus a new version of *ZP/EM*, our powerful CP/M-80 emulator program. The results of this two-program set are amazing! Now you can run 8-bit Z80 CP/M programs from your Osborne, Kaypro or Zenith computers on your IBM PC or compatible. For only $59.95, you can save your CP/M data *and* programs, and continue to get your money's worth out of your CP/M investment!

3. ACCELERATE 8/16™ dramatically improves the performance of *Media Master Plus* by tailoring the CP/M emulation around a user-installable NEC V20 microchip. Once installed, the NEC V20 chip will run your CP/M software 350% faster than *ZP/EM*! (MS-DOS programs run 15% faster). You can quickly command *Accelerate 8/16* to use 8080 software emulation, Z80 software emulation, or the V20's hardware 8080 mode to run your CP/M programs. This new version of *Accelerate 8/16* includes all the software packaged in *Media Master Plus*, V20 CP/M Emulation Software, and the NEC chip for only *$99.95!*

TO ORDER

To order *Media Master, Media Master Plus,* or *Accelerate 8/16,* call **800-422-8018**

In CA **805-373-3900**

INTERSECTING CONCEPTS
80 Long Ct., Ste. 1A
Thousand Oaks, CA
91360

MasterCard VISA

Dealer inquiries invited.

** $99.95 for Dec Rainbow*

CONTINUED FROM PAGE 21

speaks directly to the video hardware of the computer. Windows can't take control of the screen for bit-mapping when such programs are actively running. When it encounters such a bully, Windows steps aside, alternating at the press of a key between its own windowed display and the normal display of that application.

A few programs let you choose whether they access the video hardware directly. WordStar 4, for instance, can be installed either for an "IBM Compatible using video RAM directly," which means it will take up the full screen when running under Windows, or for an "IBM Compatible using ROM BIOS calls only," which will let it be bit-mapped into a window.

Unlike the Macintosh, which has windows that overlap the way pieces of paper do, the current version of Microsoft Windows places its windows side by side as separate rectangular panes.

Using the mouse, you can make these panes bigger or smaller and arrange them to suit your fancy: place them in a regular grid, like the set of "Hollywood Squares," or make them different sizes and proportions, like the elements of a Mondrian painting.

Either way, one might contain your spreadsheet program; another, Windows Write, the word processor that comes with Windows; a third, Windows' analog clock display, complete with sweep-second hand; and a fourth, Reversi, a computer game that's thrown in with Windows like the surprise toy in a Cracker Jacks box. Or, if you prefer, you could have multiple copies of the same program running in separate Windows, letting you work on several documents or spreadsheets at once.

And if you're waxing nostalgic for the A> prompt, you can even make a window for COMMAND.COM, the MS-DOS command processor, and go back to typing those arcane command lines. But who would want to do that?

To let a program run under it, Windows needs the lowdown on how much memory that application requires, whether it directly accesses the video hardware, and where you've located its files. It gets that from a 369-byte Program Information File, or PIF. IBM created the PIF format for its TopView environment, an early competitor for Windows that was outclassed and out-performed by Microsoft's offering.

Windows comes with a slew of PIFs for popular applications, including dBASE II and III, Lotus 1-2-3, Microsoft BASIC, Microsoft Word, R:Base 5000, and WordPerfect. You can also make your own PIFs lickety-split with PIFEDIT, a program supplied with Windows.

Windows lets you remove programs from the display without removing them from memory. Instead, it shrinks them down to icons at the bottom of the screen. Programs designed to work with Windows (called WIN applications) have fancy icons such as a pencil or a calculator; other applications just show a plain box with an abbreviation of the program's name in it.

To reactivate one of these sleepers, just move the mouse over the icon and press a button. The program will reappear on screen with your cursor at the same place in the same file you were last working on.

With the current version of Windows, only one program at a time is truly active—that is, receptive to input from you. To make an inactive program the active one, just move the mouse to its window and click a button.

The Kaypro 386, however, uses the advanced 32-bit Intel 80386 microprocessor. Running in its virtual 8086 mode, it can act as if it were a whole room full of individual PCs. When the 80386-based version of OS/2 becomes available, including, presumably, an 80386-based version of the Windows Presentation Manager, I suspect you will be able to have applications in different windows with all of them active simultaneously. Thus, you could be reformatting your WordStar document, sorting your dBASE files, recalculating your spreadsheet, and downloading messages from CompuServe all at once, with each program's display updating constantly.

DATA TRANSFER

Windows offers powerful data transfer capabilities. MS-DOS lets you print out what's on screen by pressing the Shift and PrtSc keys. Windows takes an additional step. Pressing Alt PrtSc takes a snapshot of your screen in one application. The INS key will then paste that snapshot into a different program.

Windows offers powerful data-transfer capabilities. Just lasso the information you want with the mouse.

Although the Alt PrtSc technique is useful, Windows can provide more sophisticated data transfer between WIN applications (those written especially for Windows, remember?). Just lasso the information you want with the mouse and pull down the standard EDIT menu that all WIN applications have. Select either CUT or COPY. Either way, Windows transfers the information to the Clipboard, a chunk of memory set aside to hold material you are moving. Now go to the other application, select PASTE from its EDIT menu, and Windows will insert the information at the cursor. It's fast and accurate, moving graphics as easily as it moves text

You don't have any WIN applications, you say? Ah, but Windows comes with a dozen of them, including an index-card database, a modem program, an appointment calendar, a calculator, a complete word-processing package, and a drawing program.

These programs, and the ever-growing number of WIN applications from many software publishers, use the WIMP interface. Once you know how to use one WIMP program, you know how to use them all. Forget about trying to remember whether you have to do ^KX or /Q or type the word SYSTEM to get out of a program. You exit every WIN application the same way: pull down the SYSTEM menu, always found at the top left of the screen, and click on the CLOSE option. But instead of dumping you at the A> prompt, Windows will fill your screen with its file directory, so you can point and shoot again.

DEVICE INDEPENDENCE

Windows has one more trick up its sleeve: it allows software to be made device independent by looking after all direct communication with monitors and printers.

Before Windows, applications that wanted to use graphics had to contain drivers for all the different graphics cards and displays available. Not only were those time consuming to write, but every software vendor had to reinvent the wheel, coming up with its own drivers for the same hardware.

Now as long as a program will work with Windows, it will work with all the graphics hardware Windows supports. And when a new piece of graphics hardware becomes available, individual software vendors won't have to worry about whether to support it or not. As long as Microsoft does, WIN applications will be able to use it.

Likewise, every word-processing program comes with a slew of printer drivers—often a full floppy disk's worth. Publishers provide these so that their software can work with the wide range of printers now available, each of which speaks its own peculiar language. Windows comes with its own printer drivers and, for WIN applications, it assumes the burden of communicating with your printer.

WHAT'S IT ALL MEAN?

So now you know what Windows can do and how it does it. The big question remains: what does it all mean? Well, shielding users from the A> prompt should make computers more inviting to those who aren't familiar with them. It should also cut down training time, since you can master Windows in about an hour, whereas learning gobbledygook like REN *.DOC *.TXT takes continual practice. OS/2 will allow you to bypass the Windows Presentation Manager to access the A> prompt, but Microsoft believes only 10 percent of computer users will do that regularly.

Although 640K used to seem like a tremendous amount of memory, it's starting to feel cramped—like shirts you used to wear in college. Windows' sophisticated memory manage-

CONTINUED ON PAGE 24

BATTERIES INCLUDED

A 1200-baud portable modem that's big enough to handle all your computing needs.

Introducing the TravelComm 1200. The battery-powered, easy to use, 1200-baud modem for computer users on the go. And it's available now.

Whether you're checking your E-mail, searching through an information service database, or sending a late-breaking story to the news desk, the TravelComm 1200 can help you do it faster. And because the TravelComm 1200 communicates at 1200-baud–four times the rate of 300-baud modems–it can reduce your connect charges by as much as 75%.

NOW Fully Hayes-Compatible NEW LOW PRICE!

List price $299. Special Traveling Software price for Kaypro users only $179.

Use with *all* Kaypro computers including the II, IV, 16, 286i and the Kaypro 2000 laptop. To order call toll-free 1-800-343-8080.

TRAVELING SOFTWARE ®

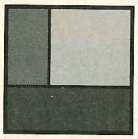
Traveling Software, Inc.
19310 North Creek Pkwy.
Bothell, WA 98011
(206) 483-8088

CONTINUED FROM PAGE 23

ment capabilities provide a way to make that 640K seem like a lot more. Although OS/2 will allow direct use of several megabytes of RAM, that, too, will eventually seem constricting. Whether operating with MS-DOS or OS/2, Windows will let you get the most out of your machine's precious memory.

The standard WIMP user interface employed by all WIN applications should also save training time. Once you've learned one WIN package, you can pick up others in minutes. And the WIN interface is so similar to that used on Macintosh computers, you'll find yourself comfortable with one of those should the need ever arise. Likewise, people who only have Mac experience will now be able to use MS-DOS computers without being reduced to tears by their complexity.

Windows' data transfer capabilities will save time moving information from one program to another. In fact, it might erode the market for integrated packages like Symphony and Framework. After all, since Windows allows you to cut and paste between programs, there's not much point in trying to have one piece of software be a jack-of-all-trades. Users will be able to mix applications, coming up with the best combination for their tasks.



Device independence will mean you won't have to fuss with getting programs to drive your printer.

Device independence will make software installation a breeze, since you won't have to fuss with getting the program to drive your printer. Software will be leaner, without all that code required to address the display or printer. And, as long as Windows supports your printer and graphics card, you won't have to worry about whether a specific program will work with your hardware.

As I mentioned earlier, Windows, currently available in version 1.04, will be upgraded soon. Here's a sneak peek at what Microsoft says will be in the next release, to be called Windows 2.0. First, it will supposedly be three to five times faster, so that the new version on a 6 MHz AT clone will be speedier than the current one on a 16 MHz 80386-based machine. Also promised is improved support for expanded memory cards. Furthermore, windows will be able to overlap, rather than just butt up against each other, and changing their sizes will be easier.

The menus will learn some manners, too: currently, they act as though they're spring-loaded, snapping up out of the way as soon as you take your finger off the mouse button. Version 2.0's menus will stay down until you click the mouse button, giving you a chance to read what they say.

A standard user interface, sophisticated memory management, fast switching between programs, easy data transfer: it's all available now. When OS/2 comes along, those who know about Microsoft Windows will be ready to take full advantage of it.

Regular PROFILES *contributor Robert J. Sawyer is also a science fiction writer. His latest work, a novelette entitled "Golden Fleece," is forthcoming in* Amazing Stories *magazine.*

Window Pains

Although Windows is the way of the future, there are some drawbacks to it that I'd like to mention.

One is the WIMP interface. Either you love it (first time users usually do) or you don't (I, as an advanced user, don't). As a touch-typist, I resent anything that makes me have to take my fingers off the home typing row. I despise function keys, cursor keys, and—most of all—mice.

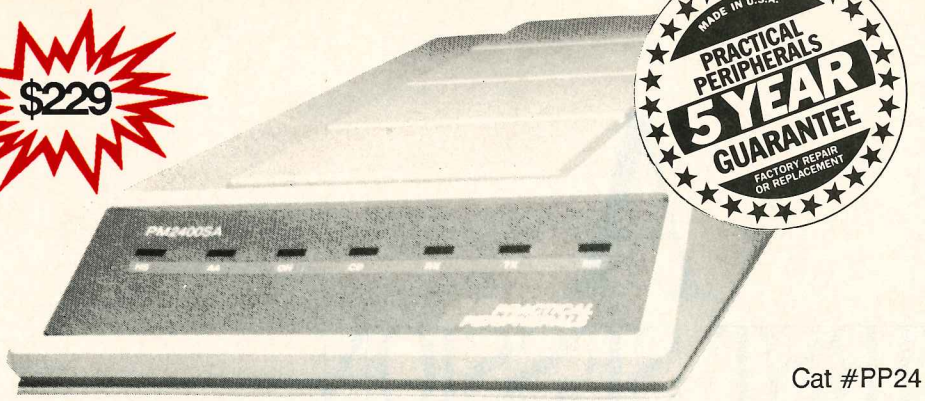
Although WordStar is admittedly hard to learn, its use of the control key combined with letters makes it an joy to work with. By contrast, Write, the word-processing package included with Windows, demands you use the mouse for all but the most pedestrian functions. It takes me four times as long to do an edit using the WIMP interface than it does using WordStar's control keys.

Another drawback is the graphics display. Granted, it's spiffy seeing all those fonts on screen, but it's slow in updating (WordStar 4 crawls in a window); it's in inverse video (making using it something like trying to read the wattage rating on a glowing light bulb); and trying to position the cursor with a mouse on a proportionally-spaced letter "i" is enough to fray anyone's nerves.

Finally, I'll admit that Windows 1.04 sings on a Kaypro 386 and it's no slouch on a 286i, but try to run that sucker on a regular PC and you'll think your life is running in slow motion. (However, Windows 2.0, not yet available at this writing, should alleviate this problem.)

—R. J. Sawyer

2400 Baud Price Breakthrough



Cat #PP24

Save money on data transmission costs and get remote performance comparable to many direct connect terminals, all at an unheard of price. And Hayes compatibility is a must. This modem is so Hayes compatible, Hayes' own communications software, Smartcom II, version 2.1 can't tell the difference. Wow, With a low price of $229, the high performance of 2400 baud, FREE Official Airline Guide, The Source Information Network, and an unbeatable 5 year warranty, it all adds up to a winner. Order today.

Epson Upgrade

If you have an Epson MX, RX, JX, or FX printer get this special attachment and do beautiful things just by touching a button. Dots Perfect is a smart hardware upgrade that gives your printer the latest Epson printer enhancements and capabilities. Includes 17 print functions and 160 different font combinations including great NLQ. Why buy a new printer? Upgrade it. $69. Order today. **$69**

Okidata Users

PC Writer is a hardware printer enhancement that makes you Okidata ML 82A or 83A into a brand new printer. Easy push button operation. Includes full emulation of the IBM Graphics Printer. Letter quality print mode. Better than Plug 'N Play and more features too. Easy to install. 1 year warranty. Guaranteed. $79. Order today. **$79**

Great Telecommunications Package and a Great Deal, too

$129

This telecom package is 100% Hayes compatibility at an incredible low price. This half card 1200 baud internal modem from Practical Peripherals is the best communications deal today.

The hottest software on the market is included. Get PFS Access, $140 worth of leading communications software, plus Pop-Up Desk Set, a group of superb, memory resident utilities including a calculator, clock, telecom, terminal emulation, and autodialer. **Great Software**

But that's not all. You also get FREE access to the Official Airline Guide for on-line reservations, ticketing and low fares. Membership to the Source, is also included, FREE. Top this incredible deal off with a 5 year guarantee. Nothing comes close. $450 value. Your cost $129. Order today. Cat # TELC

Integrated 7

General Motor's Integrated Software Choice

$67

- Easy to Use
- Menu Driven
- No Copy Protection
- Supports Math Coprocessor
- Dual Monitor Support

Min. Sys Requirement
- IBM PC Compatible
- 2 Floppy or Hard Disk
- 320k RAM
- Mono, CGA & Hercules

Twin Spreadsheet
- Lotus 123 Clone
- Macro Support
- 256 x 8192 Workspace

Word Processor
- 35,000 Word Dictionary
- Data Import from Other Modules

Datamail
- Merge Database to WP

Relational Data Manager
- 100,000 Records per File
- Multiple Key Sorting
- Merge File Capability

Graphics
- 2D and 3D Graphics
- Explosions
- Slide Shows
- Print and Plot without Exiting Program

Terminal Emulations
- IBM 3101, VT-52,100

PC Communications
- Hayes Compatible Command Set
- 9600 Baud Supported

Order Toll Free USA: 800-533-8049 - CA: 800-624-5628

CENTRAL COMPUTER PRODUCTS

30 Day Guarantee

Order Today with Confidence and Save

Description	Price
Accounting	
Checks & Balances	$64
DAC Easy GL, AR, AP	$45
DAC Easy Payroll	$45
Home Inventory Plus	$37
Business	
Bottomline V	$199
Decision Analyst	$79
Landlord	$495
MarketFax	$595
Time Slips	$89
Will Writer	$47
Communications	
Carbon Copy	$159
Mirror	$55
Mite	$49
Database	
dBase III Plus	$459
Filebase	$99
Reflex	$119
Reflex Workshop	$65
Reflex & Workshop	$159
VP Info	$79
DeskTop Publishing	
Click Art Publisher	$149
NewsMaster	$89
NewsRoom	$59

Description	Price
Educational	
Evelyn Wood Reading	$75
Family Roots	$159
I Ching	$29
Language Tutor	$47
Memory Tutor	$47
Mind Prober	$45
Mind Over Minors	$53
The Word (Bible)	$179
Typing Tutor III	$45
Quiz Writer	$47
Entertainment	
Ancient Art of War	$43
ChessMaster 2000	$45
Flight Simulator	$45
Jet	$45
Karateka	$35
Lotto Master	$25
P. W. Teaches Chess	$79
Wizard of Wall Street	$43
Graphics	
Certificate Maker	$55
Dr. Halo	$89
Fancy Font	$155
Form Tool	$89
Generic Auto Dimen.	$45
Generic CADD 2.0	$87
Generic Dot Plot	$25
Graphtrix	$99

Description	Price
PrintMaster	$49
Art Gallery I	$39
Art Gallery II	$29
PrintShop	$55
Graphics Disk 1	$33
Stella Bus. Graphics	$99
Integrated Software	
Ability	$79
Framework II	$479
Q & A	$279

Kaypro Compatible MS-DOS Software

Description	Price
Languages	
Let's C	$79
Macro Assembler	$121
Basic Compiler	$279
Turbo Pascal w/BCD	$89
Turbo Tutor	$45
Turbo Database	$65
Turbo Gameworks	$65

Description	Price
Turbo Graphix TBox	$65
Turbo Prolog	$89
Project Management	
Milestone	$95
Super Project Plus	$359
Utilities, General	
Bookmark	$69
dFastest	$49
FastPak Mail	$74
Free Filer 5.0	$79
Memory Typewriter	$39
Note It	$69
PRD Plus	$65
Print Q	$79
SideKick	$69
Sideways	$53
SmartKey 5.11	$59
SmartNotes	$69
SmartPath	$29
Twist & Shout	$31
Uniform	$59
Utilities, Disk	
Cubit	$45
Carousel	$45
Disk Optimizer	$45
Double Dos	$45
Le Menu	$75
Mace Utilities	$69
Norton Advanced	$99

Description	Price
Q-DOS II	$64
Spreadsheets	
4 Word (123)	$69
Spell It (123)	$69
SprdSht Analyst (123)	$69
Note It (123)	$69
SQZ! (123)	$69
VP-Planner	$84
Training	
ATI dBase III	$57
ATI Framework	$57
ATI Lotus 123	$57
ATI MSDOS	$57
ATI SuperCalc4	$57
ATI Word Perfect	$57
DAC Acctng Tutor	$20
Word Processing	
Grammatik II	$79
Punctuation & Style	$95
Ready	$89
Thoughtline Outline	$59
Wordfinder	$69
Word Perfect	$279
WP Library	$99
Supplies	
3M SSDD Kaypro/Box	$12
3M DSDD Kaypro/Box	$14
3M Head Cleaning Kit	$21

A FIRST SESSION WITH MICROSOFT WINDOWS

Microsoft Windows, a "shell" that isolates users from complex DOS commands with an easily learned alternative user interface, has been making a big splash in microcomputer news in recent months. Though Windows has been around since 1985, it suffered from lukewarm user response because of its slow speed and because not all software worked within the Windows environment. But when Microsoft announced that an enhanced version of Windows (The Presentation Manager) would be an integral part of OS/2, Microsoft's much-touted new multi-tasking operating system due out in early 1988, Windows came in for renewed attention. In addition, a new and much faster version of Windows (2.0) for MS-DOS users was expected to be released in September. Now Windows is positioned to become an industry-standard user interface, and a significant number of applications are being written or rewritten to run in the Windows environment.

Getting acquainted with a radically different user interface.

This article will familiarize you with the way Windows works—how it runs programs and how it communicates with the user. It will also cover some of the features that are unique to Windows, making it a powerful alternative to conventional operating systems. (Note that this article is based on Windows version 1.04; for more information on what the new versions should offer, see "Microsoft Windows" on page 18.)

But first a "guided tour" of the components of the package is in order.

GETTING ORIENTED

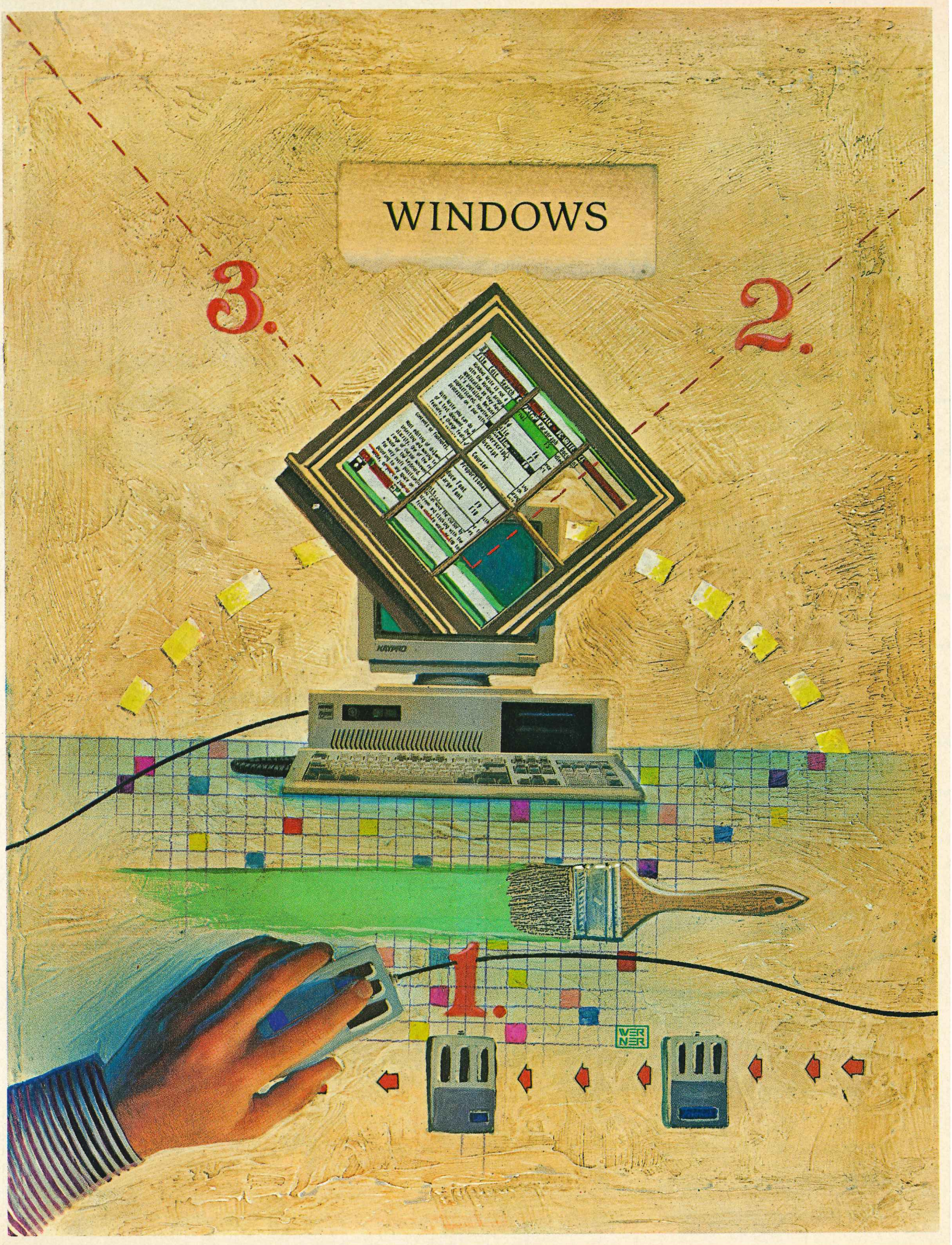
Windows 1.04 is a package of programs consisting of MS-DOS Executive, the main controlling program; a set of small applications called "desktop applications"; three utilities—The Control Panel, the Spooler, and the Clipboard; and two large applications—Write, a word processing program, and Paint, an art program. Let's look at each of these components in turn and see how they work together.

The MS-DOS Executive is what appears when you first invoke Windows. You see a list of files onscreen, along with the current directory path and small symbols for each disk drive,

CONTINUED ON PAGE 29

WAYNE KOENIG, WILLIAM MURDICK, MARSHALL L. MOSELEY
ILLUSTRATION BY JERRY WERNER

Copyright © 1987 Wayne Koenig, Marshall L. Moseley, William Murdick


WINDOWS
3.
2.
1.
VER
NER

Classics from the Kaypro General Store.

The Kaypro General Store is proud to introduce a complete line of "Made In U.S.A." merchandise. From headbands to sportsocks, Kaypro now offers a huge selection of apparel and specialty items designed for everyone! Select from this month's specials and save! Order below and receive your free copy of the Kaypro General Store Catalog.

Name:

Address:

City/State/Zip:

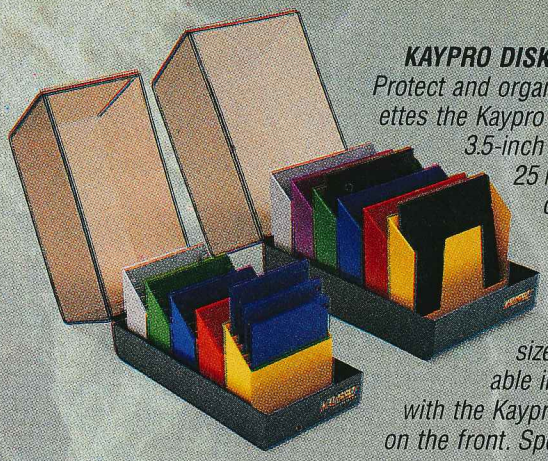
Item	Qty	Size	Price Each	Total Price

Sub Total ____

CA residents add 6% sales tax ____

Add 50¢ per item for shipping ____

Total (check or money order) ____



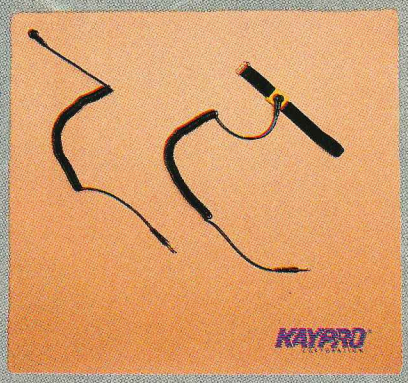
KAYPRO DISKETTE HOLDERS. *Protect and organize all your diskettes the Kaypro way! Choose the 3.5-inch size which holds 25 mini-diskettes, or our most popular 5.25-inch size which stores a maximum of 60 standard-size diskettes. Available in smoked acrylic with the Kaypro logo imprinted on the front. Specify size* ***$10.95.***

KAYPRO DISK VALET. *The ultimate new product for all computer users! This durable nylon disk valet conveniently transports and stores up to ten 5¼" disks in individual pockets. Slim enough to carry in a briefcase or tote — it's less than 1" thick when fully loaded! Designed with plastic business or ID card window and a velcro closure. A perfect match to the Kaypro Meeting Folder and Businesscard Organizer. Item #KGS-75.* ***$12.95***

ELEGANT CLOISONNE. *We chose this superior quality jewelry to display our "Made in USA" design. Each individual piece is hand applied, fired, then polished to a high lustre. The hard-glass surface remains permanently bright for a lifetime. Lapel pin is designed with jeweler's knob clutch. Tie bar is designed with a 1½" chain and jeweler's knob clutch. Keyring is constructed with a solid brass split ring.*

Cloisonne Keyring — Item #KGS-26. ***$6.95***
Cloisonne Tie Bar — Item #KGS-7. ***$6.95***
Cloisonne Lapel Pin — Item #KGS-3. ***$5.95***

KAYPRO ANTI-STATIC MAT. *Technicians take note! These high quality anti-static mats feature a special layer of carbon particles to dissipate static charges which can cause data loss or harm electronic components. An attractive grounding cord and instructions are included with each mat. Standard size of 23½" × 25½"; available in tan with the blue Kaypro logo. Constructed of heavy-duty vinyl with a non-slip backing.* ***$29.95***



made in U.S.A.

Kaypro General Store, 533 Stevens Ave., Solana Beach, CA 92075

CONTINUED FROM PAGE 27

displayed at the top of the screen. Every program is run from the Executive, and you return to the Executive when the program is finished. The MS-DOS Executive replaces the MS-DOS command line, allowing you to copy files and change, create or delete subdirectories.

The Windows Desktop Applications consist of Notepad, an electronic memo pad for quick note taking; Cardfile, a Rolodex program; Terminal, a bare-bones telecommunications program; Calendar, a personal appointment scheduler; Calculator, which performs standard artithmetic functions; Clock, which displays an animated timepiece with a sweep second hand; and Reversi, Microsoft's version of the ancient game Go.

For configuring and viewing the Microsoft Windows environment, Windows provides three utility programs: CONTROL.EXE, which lets you change screen colors, the date and time, and how you use the mouse; SPOOLER.EXE, which makes changes to the printing program built into Windows, allowing you to switch printers or cancel printing altogether; and CLIPBRD.EXE, which lets you view any text or graphics that have been placed in memory, preparatory for use within a Windows program.

The only Windows programs included with the package that are clearly full-featured applications are Windows Paint and Windows Write. Windows Paint is a drawing program with which you can create, edit, save and print artwork. Paint doesn't use colors, but the images it creates in varying shades of black and white are astounding. You can set the Windows pointer to be a paintbrush, a pencil, a spray can, or a paint can, producing brushstrokes, lines, shaded fill, and patterned fill. The images created can be transfered to any program that supports Windows graphic images.

Windows Write is a word processor, and a fairly good one, too. Like other word processors, Write does word wrapping, block copying, automatic pagination, etc., but unlike the others, it imports graphic images directly into documents. Also, Write can appear onscreen with any other Windows-specific program, and both of them can run at the same time. These features —data sharing and multi-tasking—are more a feature of Windows itself than Windows Write. In this case, an adequate word processor becomes a good one because of the system under which it runs.

THE WINDOWS ENVIRONMENT

"Environment" refers to the conditions under which you operate your computer—the nature and structure of the programs and procedures that you use to issue commands. The MS-DOS environment, for example, communicates via a system prompt (which tells you what drive you are using) and a blank line. Type a command on this line, press Enter, and MS-DOS will respond by running your program or displaying a message like "Mem Par Int 021D:0085." Obviously, this is not very helpful; the Windows environment is much friendlier.

With easily understood graphic screens and a mouse-controlled pointer, Windows lets even beginners get up and running easily. The "windows" metaphor derives from the fact that you can have two or more applications on the screen at the same time; the screen becomes two or more windows through which you view these applications. You might put a word processing document on the left side, for example, and a card file program on the right side, which you would consult while writing your document. (Unfortunately, the conventional computer screen is too small for this aspect of the package to be of much practical use, though we will try it out in the tutorial below.)

Mixing its metaphors, Microsoft also calls the screen a "desktop," onto which you can put one application while keeping others close by in a "drawer." By taking programs in and out of the drawer, you can rapidly switch back and forth between applications, getting information from one to put into another. This method of operating is much more practical than the split-screen approach and offers something new and valuable to the Kaypro owner.

INSTALLING WINDOWS

Installing Microsoft Windows is very easy, but there are a few steps to take before you begin. Because the installation program asks you detailed questions about your system, start by getting a pen and a piece of paper and making a list of your equipment.

Find out what kind of printer you have first. This is not as obvious as it may seem. Some printers operate by emulating other, better-known ones. Look in your printer manual and see if yours does this (if you have an IBM or an Epson, don't bother; those are the printers others emulate). Find out which port your printer is connected to, LPT1: or LPT2:. If you have two printers, that's fine—just write down what goes where.

Next, find out what kind of mouse you have. Again there are quite a few mice on the market, and many of them imitate the best-known ones. Windows supports the Microsoft, Mouse Systems, VisiOn, Logitech Serial, Kraft Joystick, and AT&T mice. If your mouse is one of these, or emulates one of these, you're in business.

Determine what type of graphics adapter you have. It can be an EGA, CGA, Hercules Monochrome, or Micro Display Systems GENIUS adapter. If you are using the Kaypro half-length multi-video board with a monochrome monitor, then before you run Windows, use MS.COM to enable Hercules graphics with two pages of memory.

With your equipment list in front you, place disk number one, the Setup disk, in the A drive. Log onto A, type **SETUP**, and press Enter. Read and follow the instructions carefully.

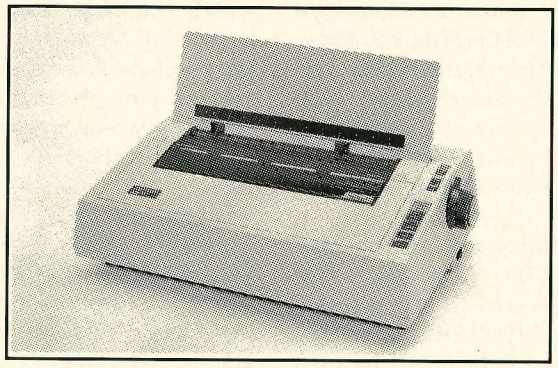
RUNNING WINDOWS

To run Windows on a hard disk system, go to your Windows

CONTINUED ON PAGE 31

KAYPRO®

DEMONSTRATOR MODEL CLOSEOUT SALE



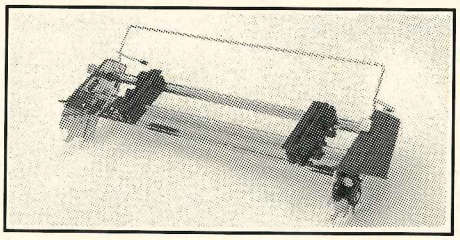
~~WAS~~ ~~695.00~~

NOW 329.00

Available in #3999 grey, and #4500 beige

LETTER QUALITY PRINTER

Use this versatile printer with nearly any computer. Features include 10, 12, and 15 pitch, plus proportional spacing; print speed of up to 19 cps; full Diablo 630 and NEC compatibility; adjustable forms length; and both serial and parallel inputs. Uses standard Spinwriter print thimbles and ribbons. Demonstrator Models. All sales final. All units sold "AS IS"*. Supplies limited, order today!



~~WAS~~ ~~99.00~~

NOW 69.00

TRACTOR FEED FOR LETTER QUALITY PRINTER

#2049 Fits grey and beige Letter Quality Printers. Buy now at this *NEW LOW PRICE!*

VISA **VISA & MASTERCARD ACCEPTED** MasterCard

NOTE: Credit card orders under $100 will incur a 5% handling charge.
Minimum charge order $25.00.

Send a check or money order plus 5% shipping to:
KAYPRO PROMOTIONS DEPARTMENT
533 Stevens Avenue
Solana Beach, CA 92075

***NO EXPRESS OR IMPLIED WARRANTY. KAYPRO DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. KAYPRO SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

Please allow 3-5 weeks for delivery. All orders are shipped UPS Brown unless otherwise indicated. Please use street address – UPS WILL NOT deliver to a P.O. Box.

CONTINUED FROM PAGE 29

directory area, type **WIN** and press Enter. If you're using a dual-floppy system, put your new operating copy of the Startup disk in drive A and the system disk in drive B. Then type **WIN** and press Enter. You will occasionally be asked to switch disks in drive A. We will not mention disk swaps in the tutorial; Windows will prompt you for those. You should be looking at the MS-DOS Executive screen, pictured in Figure 1.

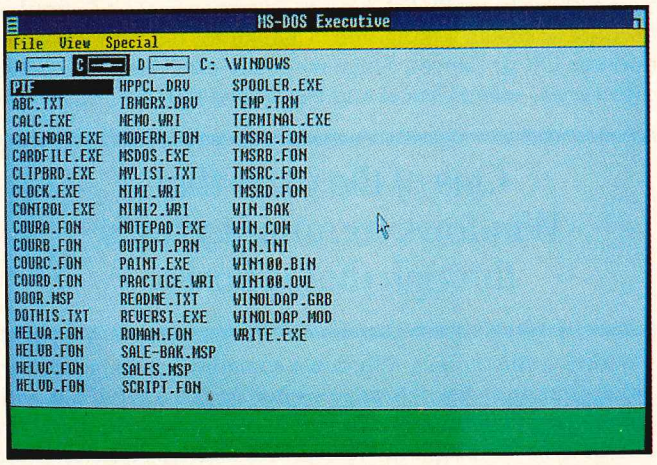


Figure 1: The MS-DOS Executive screen as it appears when Windows first runs.

OPENING AND CLOSING WINDOWS

Notice the program files that appear here, such as WRITE.EXE, PAINT.EXE and TERMINAL.EXE. Though these files have the standard EXE file extension, they are not standard MS-DOS programs. They are Windows-specific applications and can be invoked only from Windows.

Let's start by running a program in Windows. Use the mouse to place the pointer onscreen over the file name CLOCK.EXE and click once, highlighting the file name. Now press **Enter**. The MS-DOS Executive screen will disappear and will be replaced by an animated clock showing the current system time. Congratulations—you just ran your first Windows program. Now let's see how to get out of the clock program and back to the MS-DOS Executive screen.

Look at the bottom of the screen and you will see a picture of a floppy disk; this is the MS-DOS Executive *icon*. An icon is a small graphic symbol that represents an application. If an icon is at the bottom of the screen, it means that although the program depicted is not currently onscreen, *it has not stopped running*. The MS-DOS Executive screen is still there and it still takes up memory—it is simply not being used at the moment. With Windows you can start a program running, place it out of sight in the icon area—drop it in a "drawer"—move on to something else, and later return to the original program at exactly the point where you left it.

Now look at the top of the clock at the title bar, in which the program name CLOCK.EXE appears. Move the pointer over the title bar, click once, and hold the button down. You have "grabbed" the clock icon. While still holding the button, move the clock icon down to the icon area. Release the button. Now the clock program is in the "drawer," and you are presented with a blank screen containing nothing but the familiar disk icon and the new clock icon.

Now you can return to the MS-DOS Executive screen. Place the pointer over the floppy disk icon and grab it. Move the icon up into the center of the screen and release the button. Presto! The MS-DOS Executive screen returns.

What if you wanted to have both the clock and MS-DOS Executive programs onscreen at once? To do this, grab the clock icon and move it to the center of the right side of the screen, so that half the icon disappears off the edge. Release the button. There are now two windows, one showing MS-DOS Executive and one showing the clock.

Suppose you want to check your appointments calendar, too? Move the pointer to the file CALENDAR.EXE in the Executive window. Click twice, rapidly (this is the same as clicking once and pressing Enter), and the appointments calendar appears, while the Executive icon reappears in the icon area. Go and grab the Executive icon, place it on the line that separates the icon area from the rest of the screen, and release it. The Executive window returns and now you have three programs running at the same time. (Note that placing the Executive icon on the lower edge of the desktop caused the other screens to shrink and move out of the way, making room for the re-appearing screen. If you had dragged the icon into the screen proper and released the button, the Executive screen would have sent whatever program was onscreen into the icon area and taken over that space for itself.)

This is the "Windows" part of Windows; you can run many programs at once and operate each of them from a different part of the screen, though you can actively work with only one program at a time under version 1.04.

How can you tell which program is active? Look at the title bar for each program. The Executive title bar is dark, while the clock and calendar title bars are lighter. A dark title bar means that program is "selected"; it is the program you are working with at the moment. Select the calendar program by moving the pointer over its title bar and clicking once. The calendar title bar now turns dark, while the Executive title bar becomes lighter.

This screen is becoming somewhat crowded, so let's close some of the programs we've opened. When a program is closed—not just dropped in the "drawer"—it stops running and is removed completely from memory. Move the pointer to the upper-left corner of the calendar window, into the small box with three horizontal bars in it. Click once and hold the button down. The *system menu* will appear with the first option highlighted in blue—see Figure 2. The system menu is part of all Windows applications and is accessed the same way

CONTINUED ON PAGE 32

CONTINUED FROM PAGE 31

in each one. It provides several functions necessary to Windows-specific programs.

While still holding the button down, move the mouse so that the Close option is highlighted. Release the button. The calendar disappears, and this time there is no icon at the bottom of the screen. Using this method, close the clock program, too.

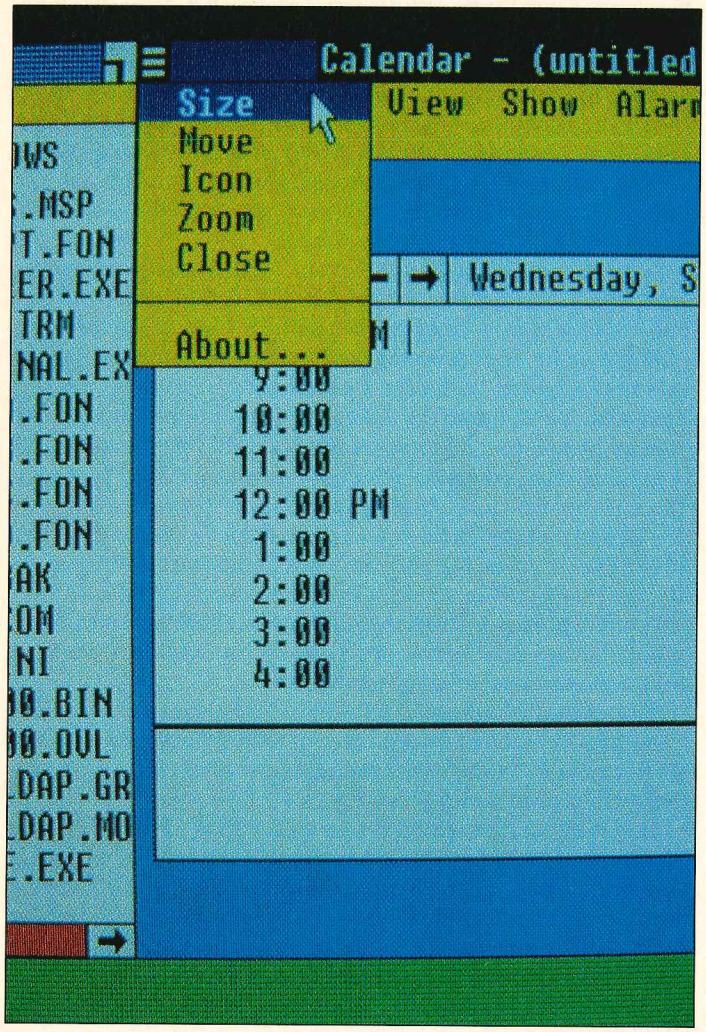


Figure 2: The Desktop with multiple applications onscreen, and the System Menu for the Calendar pulled down.

WINDOWS MESSAGES

Now that you've seen how to open, run, and close a program, let's take a look at one of the ways in which Windows communicates with the computer user: *dialog boxes*. Dialog boxes are sub-menus that appear when you have a choice to make pertaining to the program in operation. For example, you may point to a file and request Windows to delete it. A dialog box will appear containing the question "Delete this file?" and two inner boxes with the words "Yes" and "No" in them. Read the question and select your answer. What could be simpler?

To see a dialog box, let's change directories by selecting the root directory from the path at the top of the Executive screen. Move the pointer to the top of the screen, where the Windows directory path (C:\WINDOWS) is displayed. Place the tip of the arrow on the the symbol for the root directory, which is the backslash in the path. Click once. After a moment a dialog box appears onscreen asking you "Change to \ ?" You have two options: OK or Cancel. Since we really don't want to change directories, select Cancel and the screen will remain as it is.

One of the ways that Windows communicates is through dialog boxes.

Within a dialog box, Windows sometimes uses a *list box*, which contains a list of available choices and a scroll bar with which you move through the list. To see a list box, place the pointer over the program WRITE.EXE and run it by clicking twice. When the Write screen appears, select the File menu and choose the Open option. A dialog box containing a list box appears (see Figure 3). On the right side of the list box is the scroll bar; click on the up or down arrow in the scroll bar to move the file list up or down an item at a time, or grab the small white rectangle and move it; you'll scroll through the list much faster.

Also in the list box is a text box containing the file specifications for the files listed. This function or something similar appears in every Windows application; it reduces the number of files displayed by providing a "template," or filter, through which you view a file list.

In this case all the files end in WRI, so the file specification is *.WRI. You could look at all the files in the directory by clicking on the text box and replacing the current specification with *.*.

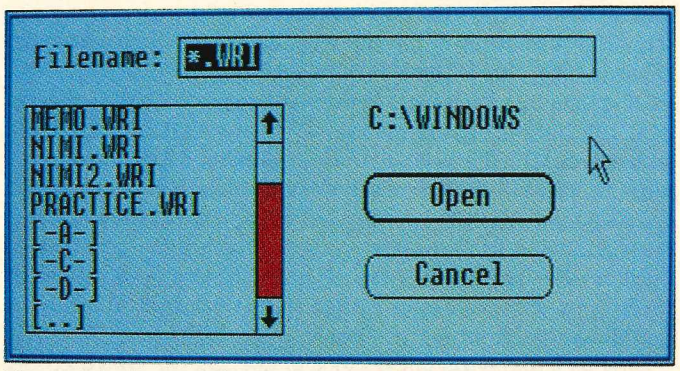


Figure 3: The "Open" dialog and list box from Windows Write.

From the list box you could switch to a different disk drive by selecting the drive letter, or open the included file PRACTICE.WRI. For now select Cancel. Then close the Write program using the System Menu.

WINDOWS UTILITY PROGRAMS

Dialog boxes, list boxes and icons are all part of the Windows environment, and you have to learn how to use them in order to use Windows. But you don't have to do everything Windows' way. Using its three built-in utility programs, you can adjust Windows to fit your specific needs or view graphics and text stored in memory.

The Control Panel. This utility lets you adjust the settings within Windows—such as screen colors and the rate at which the cursor blinks—to make using the program more comfortable for you. It also lets you designate what printers are in use, add or delete printers at will, change the system time and date, and change the serial port communications parameters to any setting you desire.

As an example, let's use the Control Panel to change the rate at which you have to double-click the mouse to get a program to run. Place the pointer over the file CONTROL.EXE and click twice. The Control Panel appears with two dialog boxes in it—one for controlling the blinking cursor rate, the other for controlling the click rate. (From here you could access the other features of the Control Panel using the pull-down menus at the top of the screen labeled Installation, Setup, and Preferences.)

Move to the box titled Double Click and place the pointer over the small white rectangle in the scroll bar. Grab it the same way you grabbed the clock icon—click and hold the button down—then move the rectangle to the side labeled "Slow." Release the button. You have now slowed the rate at which you have to double-click. To test it, place the pointer in the box marked Test and click twice. Do it correctly and the test box turns black. Double-clicking should be much easier than before because now the clicks can come farther apart. Go to the System Menu and close the Control Panel.

The Spooler. This program controls the print spooler, which is a chunk of memory used to store data going to the printer. The spooler is an integral part of Windows and is invoked automatically every time you print something with a Windows-specific program. It is used regardless of the type of data being printed. The file being printed is dumped in to the spooler, freeing up the program you are using and letting you get on with your work. The spooler automatically prints in the *background*, meaning that it sends data to the printer only when you aren't using the computer for something else. Once you start printing, you can move on to another Windows program, and the spooler will continue sending data to the printer during the idle moments (unnoticeable to you, but substantial to the computer) when you aren't typing and the computer isn't processing data.

The Spooler program is used to adjust settings within the print spooler itself—such as what printer you are using and whether Windows should devote all of its efforts to printing, or simply to print in the background.

To run the Spooler program, place the pointer over SPOOLER.EXE and double-click. The Spooler screen appears and displays a list of the printers you designated during the installation. Notice the two menus available: Priority and Controls. Priority is used when you are actually printing something. It either tells Windows to print in the background or to give its full attention to the document being printed. Controls lets you pause, resume, or cancel printing altogether. Pull down the menus and look at the options if you like, then select the System Menu and close the Spooler.

The Clipboard. Like the print spooler, the Clipboard is a chunk of memory reserved for Windows' use and is available whenever Windows is running. The Clipboard holds screen images and is used for transferring those images between programs. Each program written for the Windows Environment contains facilities for marking a screen image and placing it in the Clipboard. This is one of the most powerful features of Windows, because it allows the transfer of graphic images and text between different applications —something not easily accomplished before Windows.

The clipboard allows the transfer of graphics and text between windows.

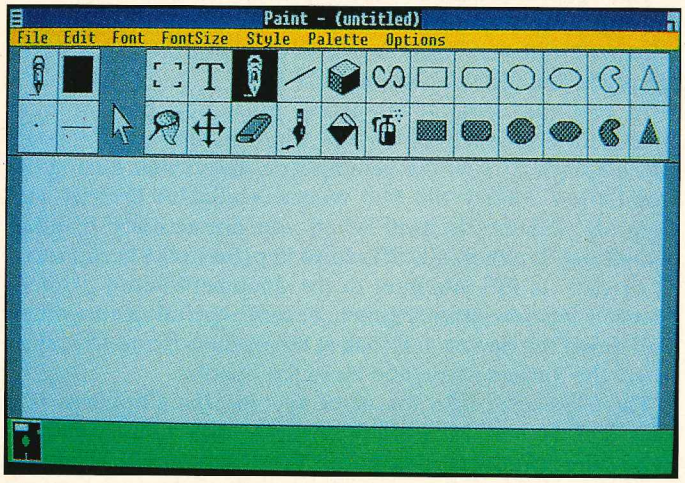
As an example of Clipboard use, let's use Windows Paint to create a graphic image and place it in the Clipboard. Then we'll place this image in a Windows Write document.

Run Windows Paint by moving the pointer to PAINT.EXE on the MS-DOS Executive opening screen and double-clicking. The screen in Figure 4 appears.

Notice the drawing tools along the top. We don't have the space to explain all of them, but we'll use one to draw a simple box onscreen. Place the pointer on the Box tool, which is next to the "S" lying on its side. Grab this tool and and move the pointer down into the drawing area, where it will become a set of cross-hairs. Place the cross-hairs in the upper left side of the screen, click once, hold the button down, and drag the cross-hairs down and to the right, creating the opaque image of a box about an inch square. Release the button and the box will solidify.

Move back up to the drawing tools and grab the four-cornered box to the left of the "T." This is the Selection Rectangle. It is used to define a rectangular area for editing.

CONTINUED ON PAGE 34



Use it as you did the Box tool to make an even larger box around the first one. Then pull down the Edit menu and select Copy. The box you drew is now in the Clipboard. Use the System Menu to close Paint; when Windows asks you if you want to save the current changes, reply "No." The MS-DOS Executive window will reappear.

If you wanted to, you could view the contents of the Clipboard from here by selecting the program CLIPBRD.EXE. But since we want to use the box we created, select Windows Write instead by double-clicking the file WRITE.EXE. When the Write screen appears, pull down the Edit menu and select Paste, and the box you created in Paint will appear on the Write screen. This simple box could have just as easily been a complex graph or chart, or an illustration. The Clipboard lets you place such things in any document you wish. Use the System Menu to close Write, replying "No" when asked if you want to save the changes.

OVER AND OUT

It's beyond the scope of this article to provide more than an introduction to Windows, but we hope that you will now at least be able to find your way around the program and that you have a feel for the Windows environment. (*Ed. note: For a more advanced tutorial, see "Windows Means Business" on page 64.*)

The only thing remaining is to tell you how to close Windows, and it's simple: pull down the System Menu of the Executive screen and select Close. When the dialog box appears informing you that this will end your Windows session and asking you if you really want to do this, select Yes. That's all there is to it.

Like anything else, learning to use Windows to its full capacity requires study and practice, but now you're on your way.

PROFILES

wants to know . . .

We're interested in how **you** have used Kaypro computers to solve your business problems.

Whether it's finance, science, telecommunications, education, the arts, or whatever—we want to hear about it!

We will be starting a new monthly column called "In The Workplace" in the Fall. It will show Kaypro users how others have found working solutions to their business problems by using their Kaypro computers, assorted software packages, and peripherals.

Send a letter to:

PROFILES

In The Workplace
533 Stevens Avenue
Solana Beach, CA 92075

YOU can be **FAMOUS!**

C.P.I. BUSINESS SYSTEMS

Our software saves you money before it's installed

Computer Professionals, Inc. has been developing computer applications for business and industry for TWENTY years, often working behind the scenes for some of the biggest names in the industry. We have learned how to pack a lot of power into each computer program but we know that raw power and ability is worth little unless coupled with ease of use, good documentation and responsive support. CPI's Business Systems are all these things and more. They run faster, support larger capacities and cost less than any similar systems marketed today. They have been installed by thousands of users (since 1978) and are available from us directly or from your KAYPRO dealer. We specialize in KAYPRO systems.

We know that floppy disk users don't appreciate shuffling four or five disks in and out per application. We know that no users like to abort in the middle of an application to change printer pitch. We know that users don't like copy protection and complex licensing agreements. We don't believe that any systems with these 'features' can be considered easy to use so we left them all out of CPI Business Systems.

Fancy packaging and expensive type set manuals add greatly to the cost of most application packages but have little lasting value. Once your system/s are up and running for a week or so their real worth is their day-to-day productivity and responsiveness; the other materials gather dust. CPI Business Systems include **comprehensive manuals, sample data files, tutorial sessions, etc.—everything you need is included.**

No system is perfect; CPI Business Systems are not exceptions. That's why users are entitled to support when they need it and that's why CPI continues to enhance each system regularly based on user's suggestions.

Most users need a little support when getting started so we include 45 days of FREE support with each application. Others charge hundreds of dollars extra. Users of CPI Business Systems can extend support for a full year for less than ten cents per day per application.

CP/M users may become MS-DOS users in the years ahead; CPI has planned ahead for this possibility and we provide data file conversion service to any user. CPI will, however, continue to support and enhance these fine systems for CP/M users for years to come. Your investments today will not be obsoleted by tomorrow's technology.

These powerful systems are described briefly below. If you don't feel confident yet ask for our 30+ page overview or try an application demo system at half price (demo prices apply to future system orders).

There are no extra charges for shipping, COD, etc. American Express, Mastercard, VISA card orders welcome. We ship in 48 hours. Please tell us what format you want (II/2X/4/10/16), etc. Demo systems in KAYPRO formats only.

COMPUTER PROFESSIONALS, INC.
1508 WEST BLUE RIDGE DRIVE
GREENVILLE, S.C. 29611
Phone: (803) 294-0494

MasterCard VISA AMERICAN EXPRESS
Personal/Company Checks OK

$100.00 CP/M — **GENERAL LEDGER** — $100.00 MS-DOS

Comprehensive system with most wanted features. Provides accurate and well organized financial information for your business. Programs adapt easily to your unique needs. Create, modify and list charts (3 formats); make new departments automatically. Easy journal entry process to enter, change, delete, list, save, increment reference- #'s, duplicate data from prior entry, last 7 entries on display; source/run totals; validate account numbers at entry; prior period adjustments; repeating entries for depreciation, etc. Trial Balance high speed posting option plus trial balance report, worksheet, detail general ledger. Financial Statements (4 formats): current year, current and prior year, current quarterly, cumulative quarterly; report on prior period/s; variable # of current period months, optional disclaimer lines, show ratios with 1 or 2 decimals, optional computation of ratios based on non-income amounts. Budget Reporting (3 formats): remaining or variance ($ and %); current, YTD, both; rerun prior periods; variable # months in current period. Full year Detail General Ledger. End-Of-Period makes backup file, updates repeating entries for next month, selects month/year end processing automatically; updates prior year's data. Accounting Transfer inputs data from other CPI Business Systems; posts; prints control reports; multiple transfers. Query Account/s to CRT or printer. Multi-client processing functions included for both CP/M and MS-DOS systems.

CAPACITIES: CP/M - 600 Accounts; MS-DOS - 2000 Accounts - 3-5 Digits for Account Numbers - 99 departments with 3.2 structure.

$100.00 CP/M — **ACCOUNTS RECEIVABLE** — $100.00 MS-DOS

Super system with Invoices, Service Invoices, Statements, etc. A full range of reporting abilities include Customer Reports, Ageing Reports, Transactions Reports, G/L Transaction List, etc. Auto billing feature eliminates mistakes. Sales can be distributed to 100 accounts. Build up statement option combines the virtues of ledger card history detail and the speeds of today's computers. Use preprinted forms and/or plain paper for invoices and statements.
CAPACITIES of 600 Customers (CP/M) 2000 (MS-DOS) - no limit on transactions, multiple customer disks OK.

$100.00 CP/M — **PAYROLL** — $100.00 MS-DOS

A complete payroll system supplied with current tax routines for every state. Multiple pay rates, multiple overtime rates, multiple other pay rates, eight user deductions (each can be an amount, a rate or %), deductions may be taken before or after taxes. Commissions, tips, tips considered as wages, earned income credit, SUI, SDI, etc. are all included. In short it's a very comprehensive payroll system but one which is very easy to use. Its functions include Employee File Maintenance; Employee Lists in multiple levels of detail; Input Worksheets; Time Card Entry; Regular, Overtime, Other, Commissions, Tips, Misc. Pay. Exception Processing is the rule so you need only enter variable data. Manual checks are processed quickly and easily. Weekly, Bi-Weekly, Semi-Monthly, Monthly pay cycles (run individually or combined); Departmental Payrolls; Checks; Check Registers; Deduction Registers; Earnings Reports; 941's; W-2's; Unemployment Reports; Multi-state; Manual Checks; G/L interface for Federal, FICA, State and Local Taxes, Federal/State Add-Ons, FICA, FUTA, SUI, SDI, EIC, 8 user deductions.
CAPACITIES - 600/2000 emp. (CPM/MS-DOS), 98 Tax File Rcds.

$100.00 CP/M — **ACCOUNTS PAYABLE** — $100.00 MS-DOS

Improve your cash management with this fine system. You'll get the up to date accurate picture of accounts to be paid, cash requirements for the data on file. Payments and notes vouchered automatically insuring timely payments. Complete check writing included. The system reports include Vendor File Lists, Open Vouchers, Ageing By Due Date, Discount Date Ageing, Cash Requirements, Check Registers, G/L Transaction List, Query Vendor Status, Credit Vouchers, Deleted Vouchers.
CAPACITIES of 600 Vendors, (CP/M), 2000 Vendors (MS-DOS) - no limit on transactions.

HARDWARE REQUIREMENTS

CP/M:	64K (53K TPA) & CP/M 2.0 or higher.
MS-DOS:	128K (or more) & MS-DOS/PC-DOS 2.0 or higher - ANSI.SYS.
Printer:	132 columns (compressed pitch supported), continuous forms.
Disk/s:	Dual Floppies/Hard Disk/Both - 191K recommended, less works.
CRT:	80/24 with Clear, Home, Clear to EOL, Up, Down, Left, Right.

CURRENT UPDATE: **NEW A/R STSTEM FOR CP/M AND MS-DOS USERS NOW SHIPPING. NEW FEATURES INCLUDE 4 LINE NAME AND ADDRESS, FINANCE CHARGES, VARIABLE AGEING, DESCRIPTIVE BILLING, ASCII OUTPUT FILES, MULTI-CLIENT PROCESSING. MANY NEW REPORTS, ITEM INVOICE FORMATS, SERVICE INVOICE FORMATS, STATEMENT FORMATS, ETC. FOR PLAIN PAPER AND MANY POPULAR PRE-PRINTED FORMS. TAXABLE AND NON-TAXABLE ITEMS ON SAME INVOICE. FLASH REPORTING TO SCREEN OR PRINTER; MORE . . .**

WINDOWS 386

Software that breaks the 640K barrier

BY MARSHALL L. MOSELEY

Computers based on the 80386 microprocessor from Intel have been available for over a year now, and during that time their true power has gone unrealized. No applications software has made use of the processor's most powerful features—its ability to multi-task (do two or more things at once) and its ability to create "virtual computers," in which memory is divided into discrete sections and each section is treated like a separate MS-DOS computer.

That is, no software has been available until now. In September 1987, Microsoft Corporation demonstrated Windows 386 for the press, and the program was due to be released to the public in October. Windows 386 is a special version of Microsoft's popular Windows software designed specifically for the 80386 processor, and it can do some pretty amazing things.

In this article we'll see what Windows 386 is and how it works. First we'll look at what makes the 80386 microprocessor so special (for a complete overview of the 80386, see "There's a Stranger in Town" in the August 1987 issue of *PROFILES*), and then we'll take an in-depth look at the unique features that allow Windows 386 to fully use the 80386.

WHAT IS WINDOWS 386?

Windows 386 is a version of Microsoft Windows designed to run on a computer that uses the 80386 microprocessor; it will not run on a computer that doesn't use the 80386. (Only the Kaypro 386 will run the program—other Kaypro MS-DOS machines will not.)

Windows 386 is functionally identical to Microsoft Windows 2.0. Any Windows-specific program that runs under Windows 2.0 will run under Windows 386. Windows 386 requires a hard disk and at least two megabytes of memory.

Up until now, users of MS-DOS computers could run several applications under Windows at the same time, but they were limited to 640K of memory; two programs that each needed more than 320K could not run. Using Windows 386 you can run several MS-DOS programs at the same time, *and each can use 640 kilobytes of memory or more*. If the programs running support the Lotus-Intel-Microsoft Expanded memory specification, each program can use up to eight megabytes.

To thoroughly understand Windows 386, let's take a look at what the 80386 microprocessor is and why it has become so popular.

THE 80386: POWER TO BURN

The 80386 microprocessor, made by Intel Corporation, is one of the most powerful processors available today. It can directly address (read from and write to) four gigabytes of memory, which is four billion bytes. By contrast, the 8088 installed in the original Kaypro PC could address only one million bytes—a megabyte. The 80386 reads and writes information to memory 32 bits at a time; previous Intel processors performed only 16-bit operations. For this reason the 80386 is referred to as a 32-bit processor.

Microprocessors in computers are controlled in part by a timing crystal, which is a miniature clock that cycles many times per second. The more clock cycles, the faster the processor and the faster your work gets done. Earlier microprocessors had a reliable top speed of 12 megahertz (millions of cycles per second). The 80386 cruises at 16 Mhz, and in fact can go much faster.

Earlier microprocessors had a top speed of 12 megahertz; the 80386 cruises at 16 megahertz.

The 80386 microprocessor can multi-task. A task is a list of instructions executed by the computer. Earlier Intel processors could execute only a single list of instructions at one time. The 80386, however, can begin executing one list, stop and switch to another, and stop again and go back to the first, all in a fraction of a second. It keeps track of where it is in each task, and what memory is being used for each one. This process of executing multiple lists of instructions is called multi-tasking.

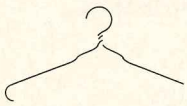
When the 80386 operates, it is in one of three modes:

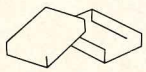
Real mode. In real mode the 80386 behaves just like an 8086 processor (a very *fast* 8086). It performs all the functions an

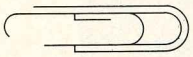
CONTINUED ON PAGE 61

Copyright © 1987 Marshall L. Moseley. All rights reserved.

THE KAYPRO GENERAL STORE





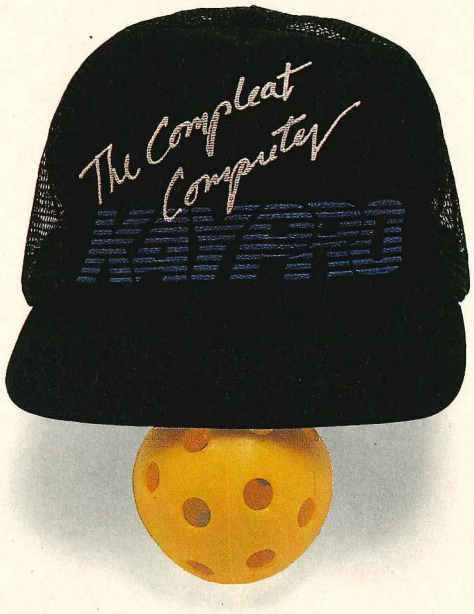


KAYPRO®

W E A R A B L E S

MADE IN U.S.A. GOLF SHIRT. Top-quality brand name Golf shirt is a wrinkle-resistant 50% cotton, 50% polyester blend. Available in white with the Kaypro "Made in U.S.A." design over the left pocket. Tee off in style the Kaypro way! S,M,L,XL Item #KGS-66

KAYPRO BLACK BALLCAP. From limelight to sunlight, Kaypro ballcaps are ideal for holding harsh glare in check. Comfortable mesh-back with polyester-foam front panel. Weatherproof visor; adjustable. Black "Compleat Computer" style; white puff print style. Item #KGS-1



MADE IN U.S.A. SPORTS TUBE SOCKS. Kaypro "Made In U.S.A." Sports Tube Socks. 23" length available in white with blue stripes. One size fits all. Item #KGS-56

KAYPRO MADE IN U.S.A. SHORT SLEEVE T-SHIRT. Constructed of heavyweight 100% cotton to provide maximum durability and comfort. Top-quality brand name. White with popular Kaypro "Made In U.S.A." design on back. S,M,L,XL Item #KGS-65

W E A R A B L E S

KAYPRO MADE IN U.S.A. BALLCAP.

From limelight to sunlight, Kaypro ballcaps are ideal for holding harsh glare in check. Comfortable mesh-back with polyester-foam front panel. Weatherproof visor; adjustable. Item #KGS-64

WHITE ABSTRACT SHORT SLEEVE T-SHIRT.

This handsome T-shirt is constructed of heavyweight 100% cotton to provide maximum durability and comfort. Top quality brand name with popular abstract computer drawing on back. S,M,L,X-L Item #KGS-5

DELUXE MADE IN U.S.A. SPORTSTOWEL.

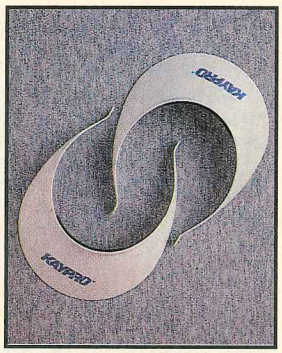
Famous name Cannon Sportstowel will keep you dry and comfortable. This 11" x 17" sheared velour towel includes grommet and hook and "sports" attractive fringe across top and bottom edges. Available in white with U.S.A. design in center. Item #KGS-74

DELUXE SUN VISOR.

This stylish Kaypro visor with terrycloth brow band will keep you cool and dry. Great for tennis, biking or any outside activity. White with blue logo. Adjustable strap. Item #KGS-2

W E A R A B L E S

KAYPRO PLASTIC SLIP-ON VISOR. Slip on this handsome Kaypro sun-visor in seconds! Constructed of top-quality, high-impact polystyrene. Lightweight and weatherproof. Available in white with the blue Kaypro logo. Optional self-applied foam strip for added comfort. One size fits all. Item #KGS-68



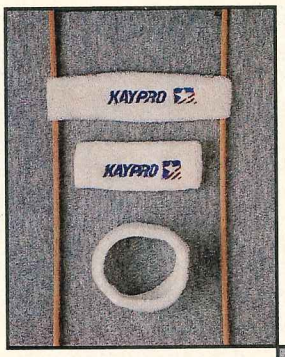
WOMEN'S "PERKY BOWS" for business or leisure wear. Dress in style the Kaypro way!
Item #KGS-30

WHITE "SCRIPT STYLE" SHORT SLEEVE T-SHIRT. Our most popular style T-shirt features "Kaypro" written in black script. Constructed of heavyweight 100% cotton to provide maximum durability and comfort. Top quality brand name; S,M,L,X-L.
Item #KGS-29

KAYPRO CLASSIC BLUE GOLF SHIRT. Get ready for the "Open" with the classic-collared Kaypro golf shirt. This Hanes shirt is a wrinkle resistant 50-50 Cotton/Polyester blend and comes in pale blue. And, the Kaypro logo over the pocket is a stroke of genius! Specify size: S, M, L, X-L.
Item #KGS-27

★

W E A R A B L E S



MADE IN U.S.A. TERRY-CLOTH HEADBAND. White terrycloth headband embroidered with the handsome "Made In U.S.A." design. One size fits all. Item #KGS-55

MADE IN U.S.A. LONG SLEEVE T-SHIRT. Kaypro heavyweight 100% cotton long sleeve T-Shirt. White with logo design on back and "Kaypro" name down right sleeve. S,M,L,X-L Item #KGS-52

KAYPRO RUNNER'S SINGLET TANK TOP. Upper portion is royal blue and is constructed of 100% closeweave nylon; bottom portion is white open mesh weave. Lightweight and quick-drying. S,M,L,X-L Item #KGS-70

KAYPRO NYLON RUNNING SHORTS. Royal blue nylon running shorts with built-in liner. Wide elastic band for added comfort and durability. Lightweight, chafe-free, cool and comfortable! S,M,L,X-L Item #KGS-69

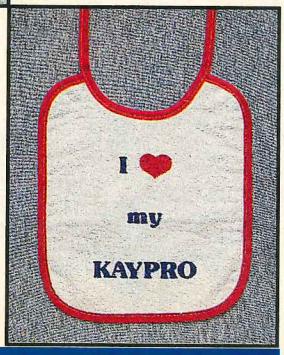
W E A R A B L E S

WOMEN'S MADE IN U.S.A. V-NECK T-SHIRT.
Smartly styled V-neck, capped-sleeve Ladies T-Shirt. Interlock weave for greater stability. 50% cotton, 50% polyester guarantees against shrinkage. White. S,M,L,X-L
Item #KGS-51

DELUXE KAYPRO SWEATPANTS. DELUXE KAYPRO CREW-NECK SWEATSHIRT.
Famous name top-quality Sweats. 50% cotton, 50% polyester guarantees against shrinkage. Sweatshirt styled with raglan sleeves. Sweatpants designed with drawstring/elastic waist. Royal Blue. S,M,L,X-L
Sweatshirt – Item #KGS-53
Sweatpants – Item #KGS-54

KAYPRO DELUXE BLACK SATIN JACKET.
Show your true colors in this popular Kaypro black satin jacket. Elegantly embroidered with the Kaypro logo – front and back – this jacket has a durable nylon lining and knit collar, cuffs, and waistband. In this jacket, you'll win the race – and look exceptional doing it. S, M, L, X-L
Item #KGS-4

KAYPRO DELUXE LINED BABY BIB. Even the little ones will love their Kaypro! These top quality bibs are constructed of durable terrycloth with vinyl backing. White with blue lettering and accented in red. One size fits all.
Item #KGS-73



CORPORATE AND GIFT GIVING

KAYPRO CORPORATE COFFEE MUG. Start your day with this smartly designed Kaypro mug. Handsomely crafted of the finest heat-retaining English Ironstone, the Kaypro mug holds up to 10 ounces of your favorite brew. Available in black or white. Personalization available. Item #KGS-6

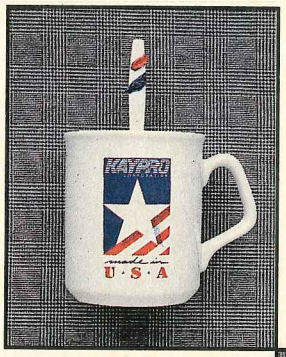
CLASSIC 10K GOLD-FILLED CROSS PEN & DELUXE BLACK CROSS PEN. A lifetime guarantee of quality writing is yours with the A.T. Cross pen. In sleek matte black or 10K gold fill with a discreet Kaypro logo, the Cross pen is the ideal gift for friends, business associates – or to reward yourself for a job well done. Get the ultimate in writing quality with an A.T. Cross pen.
Gold Pen – Item #KGS-11
Black Pen – Item #KGS-10

★

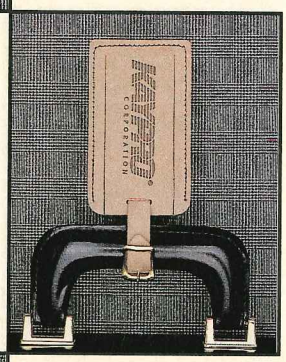
CORPORATE AND GIFT GIVING

ELEGANT CLOISONNE. We chose this superior quality jewelry to display our "Made in USA" design. Each individual piece is hand applied, fired, then polished to a high lustre. The hard-glass surface remains permanently bright for a lifetime. Lapel pin is designed with jeweler's knob clutch. Tie bar is designed with a 1½" chain and jeweler's knob clutch. Keyring is constructed with a solid brass split ring. Cloisonne Keyring – Item #KGS-26. Cloisonne Tie Bar – Item #KGS-7. Cloisonne Lapel Pin – Item #KGS-3

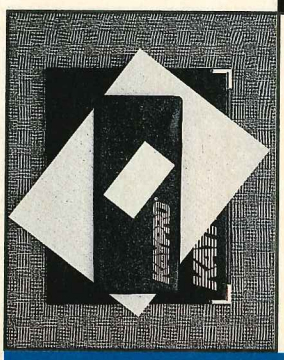
KAYPRO MADE IN U.S.A. COFFEE MUG. Handsomely crafted from the finest heat-resistant Ironstone. Holds up to 10 ounces of your favorite beverage. Available in white with the Kaypro "Made In U.S.A." design screened on both sides. Item #KGS-62



DELUXE GENUINE LEATHER LUGGAGE TAG. Uniquely branded with the Kaypro logo. Let Kaypro be your guide to first class travel! Item #KGS-49



KAYPRO DELUXE MEETING FOLDER. This handsome Meeting Folder holds a letter-size writing pad. Convenient inside pocket to store all your important papers. Nickel silver corners for long-lasting durability. Available in black with the Kaypro logo imprinted in silver foil. Personalization available. Item #KGS-15



KAYPRO BUSINESS CARD ORGANIZER. Ideal complement to the Kaypro Meeting Folder! Organize all your business contacts in this handsome textured vinyl business card organizer. Stores up to 96 cards for easy viewing and quick reference. Available in black imprinted with the silver foil Kaypro logo. Personalization available. Item #KGS-16

★

CORPORATE AND GIFT GIVING

AUTHENTIC KAYPRO TEDDY BEAR. Soft and cuddly Kaypro Teddies all decked out in their official Kaypro workout T-shirts. Go ahead, you know you can't resist! Item #KGS-36

KAYPRO COLLAPSIBLE SELF-FOLDING UMBRELLA. Face those rainy days in style with this handsome nylon Kaypro umbrella. Panels are blue and white with "Kaypro Computers" screened in white on alternate blue panels. Manual folding; 38" arc; vinyl carrying handle. Item #KGS-78

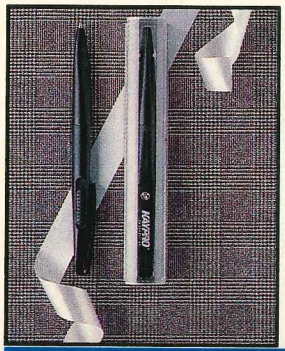
KAYPRO EXPANDABLE SPORTSBAG. Attractive royal blue cargo bag designed to hold all your gear. Constructed of heavyweight Denier acrylic coated nylon for long-lasting durability. Features include 2 outside pockets, wide shoulder straps and carrying handles. Size: 8" x 9" x 6" closed; 22" x 9" x 8" expanded. Item #KGS-34

★

CORPORATE AND GIFT GIVING

MADE IN U.S.A. SOFT KEY FOB. Kaypro "Made In U.S.A." Key Fob. Constructed of pliable plastic with a super-strong clip. Imprint carries a lifetime guarantee! Personalization available.
Item #KGS-17

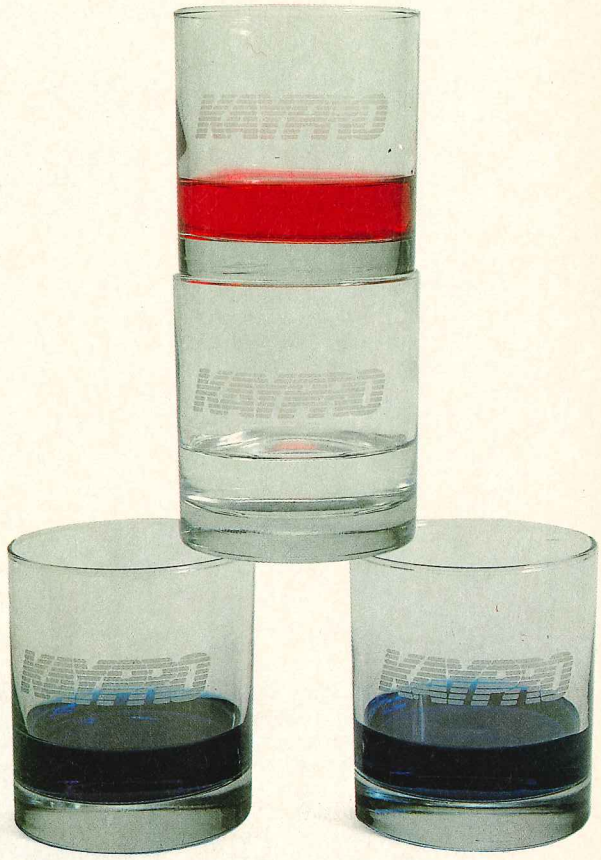
KAYPRO DESIGNER SUNGLASSES. You've got it made in the shade – and in the sun! These aviator-style sunglasses feature optimal glare reduction and break-resistant plastic. Silver and black wire frame. Look cool – and stay cool with Kaypro sunglasses. Item #KGS-9



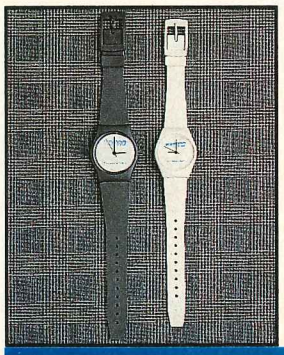
KAYPRO DESIGNER PEN WITH GIFT CASE. World famous designer, Luigi Colani was asked to design the "Perfect Pen." And Kaypro put its name on it! This distinguished signature Pelikan Pen comes gift-boxed and is a priceless pen everyone can afford!
Item #KGS-44

C O R P O R A T E
A N D G I F T
G I V I N G

I ♥ MY KAYPRO LICENSE PLATE HOLDER. Now you can dress up all your vehicles with our exclusive license plate holder. Constructed of heavy-duty polypropylene to stand up against all weather conditions. Designed with 4 holes for all applications. White only. Item #KGS-63



KAYPRO CRYSTAL TUMBLERS (Set of 4). Serve your guests the best, in these handsome crystal tumblers. Each glass holds eleven ounces and includes a distinctive, satin-etched Kaypro logo. Set of four. Available only in clear. Personalization available. Item #KGS-8



DELUXE SPORTS-WATCHES. Keep all those important appointments when wearing this handsome and sporty Kaypro watch. Designed with a white face, "Kaypro Computers — The Future's Built In" printed in blue. Ladies wristband is white; Mens wristband is grey. Adjustable; self-winding.
Ladies - Item #KGS-76
Mens - Item #KGS-77

★

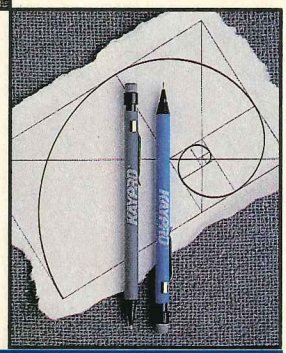
D E S K T O P

KAYPRO UNIBALL ROLLING PEN. Features the ultimate in writing smoothness yet is firm enough for multiple copy imprints. The distinctive Kaypro logo decorates this matte black pen and is also available with personalization. Item #KGS-18

KAYPRO MAGNETIC PAPER CLIP DISPENSER. No more rummaging through desk drawers looking for paperclips with this smartly designed Kaypro clip holder. Its powerful magnet holds clips for instant access. Item #KGS-39

KAYPRO SCOTCH TAPE DISPENSER. Create a Kaypro Desk ensemble with this handsome scotch tape dispenser. Designed to match the Kaypro paper clip dispenser and pencil holder, this scotch tape dispenser has a white base with black trim and black Kaypro logo, and is designed with a weighted base for easy one-hand operation. Item #KGS-27

KAYPRO MECHANICAL PENCIL. This handsome mechanical pencil holds the most popular 0.5mm lead and produces a sharp point with a single clip of the barrel. Available in grey or blue with the Kaypro logo screened in white. Personalization available. Item #KGS-38

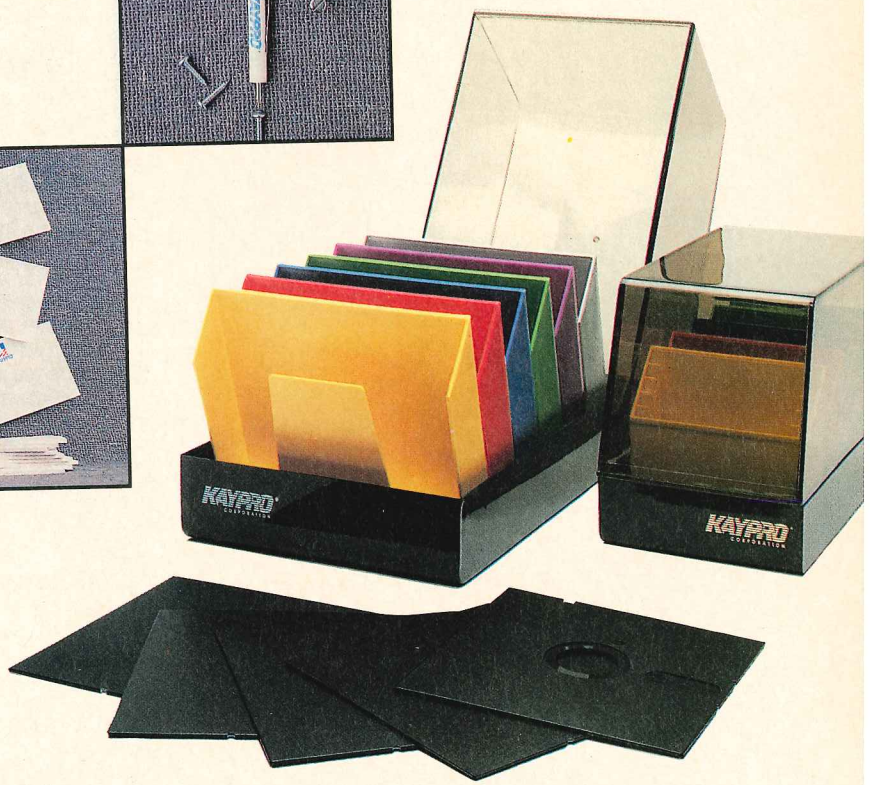


★

D E S K T O P

KAYPRO MINI-TECH SCREWDRIVERS. Constructed of high-impact, unbreakable plastic with a handy clip for carrying in your shirt pocket. Screwdriver has both standard and Phillips end. Personalization available. Item #KGS-42

MADE IN U.S.A. 3"x 4" POST-IT NOTEPAD. Kaypro "Made In U.S.A." Post-It Notepads. Popularly sized in 3" x 4". Personalization available. Item #KGS-57

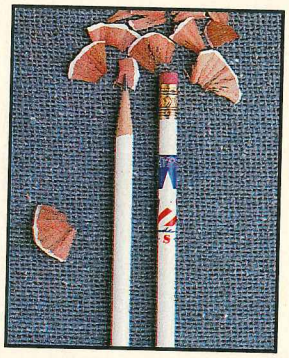


KAYPRO DELUXE DISKETTE HOLDERS. Here's the brightest idea yet for protecting and organizing diskettes. Choose the 3.5-inch size which holds up to 25 diskettes, or the 5.25-inch size, which stores a maximum of 60. Each disk is held upright in an individual frame for easy access. Prevents damage from compression or warping. Available in smoked acrylic with the Kaypro logo imprinted on the front. Item #KGS-41

MADE IN U.S.A. 3-RING BINDER. Kaypro "Made In U.S.A." 3-Ring Binder. Keep all your notes in order the Kaypro way! Personalization available. Item #KGS-58

D E S K T O P

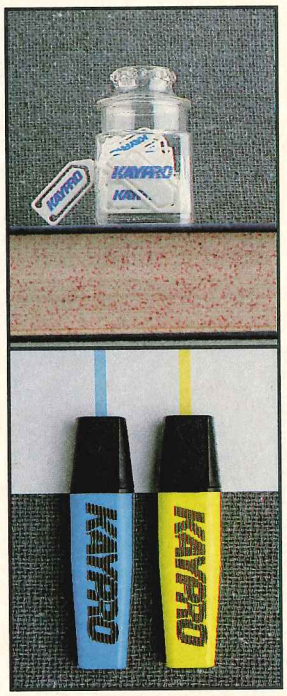
KAYPRO MADE IN U.S.A. WOODEN PENCILS. Our distinctive "Made In U.S.A." design dresses up this handsome pencil. Order extras for special promotions or give-aways!
Item #KGS-43



KAYPRO MADE IN U.S.A. BEVERAGE INSULATOR. Designed to match the Kaypro Thermos, this Koozie® beverage insulator can maintain a temperature of 45 degrees or below for 35 minutes — that's 200% longer than without any insulation! Now you can keep that cold, fresh taste no matter what the temperature is outside. White with "Made in U.S.A." design on both sides.
Item #KGS-71

EXECUTIVE LETTER OPENER/MAGNIFYING GLASS. This beautifully crafted letter opener with case and magnifying glass will enhance any desk. Open that important mail with authority – and the Kaypro letter opener.
Item #KGS-40

D E S K T O P



KOLORFUL KLIPS FROM KAYPRO! Get a firm hold on all your paperwork with these large-size plastic paperclips. Each handsome apothecary jar comes filled with 50 clips. Available in white with the familiar blue Kaypro logo. Also available in bulk quantities of 1,000. Clip size: ¾" x 1½". Item #KGS-21

STABILO FLUORESCENT HIGHLIGHTER. Make those important points stand out with highlighters from Kaypro. Great for color coding your own work or for color accents on bids, price lists, and proposals. Make an impression – in colors. Available in blue and yellow. Personalization also available. Item #KGS-19

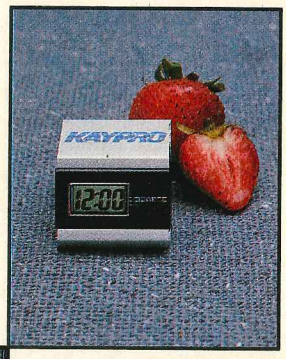
DELUXE MADE IN U.S.A. THERMOS. Popular quart size thermos is designed with a wide mouth and removable cover cup. Great for picnics and sporting events. Constructed of heavy duty polystyrene plastic with matching handle. Our popular "Made In USA" design is screened on both sides. Item #KGS-63

KAYPRO PENCIL HOLDER. This desk cup style pencil holder is constructed of sturdy plastic and has a porcupine bottom to keep all your pens and pencils straight and uniform. Stands 4" high with a 3" square black case. Upper portion is white with the Kaypro logo screened in black. Item #KGS-28

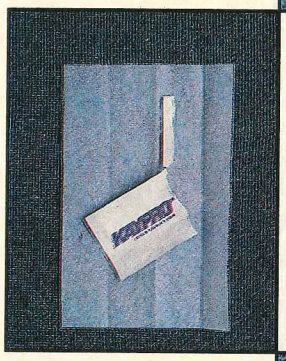
★

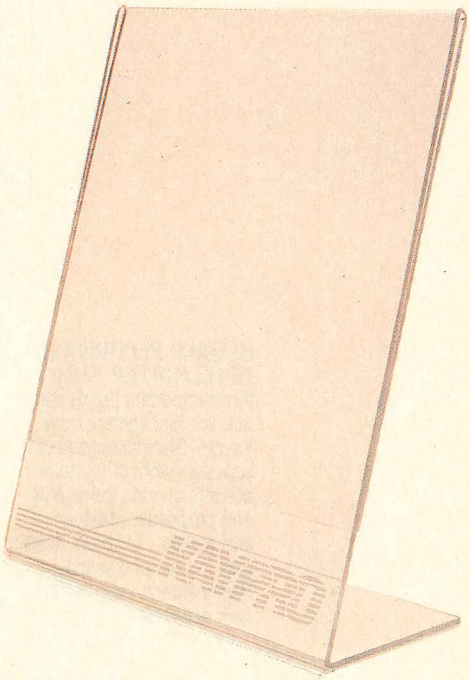
D E S K T O P

KAYPRO EXECUTIVE DESK CLOCK. Tired of coming up with timely excuses? This compact digital quartz timepiece is as accurate as it is handy. Put time on your side with the Kaypro digital quartz clock.
Item #KGS-12



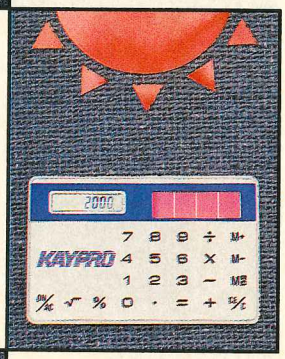
KAYPRO "SCREEN CLEANS." Screen Clean is the ideal cleaner and protective shield for CRT, video and TV screens. It reduces static and repels dust, fingerprints, and smears. Each Screen Clean cloth comes in a sealed foil packet.
Item #KGS-35





DELUXE ACRYLIC DISPLAY STANDS. Popular 8½" x 11" size with bottom base for easy displaying. Now you can proudly exhibit your favorite Kaypro flyer, announcement or bulletin. Item #KGS-46

DELUXE SOLAR-POWERED CALCULATOR. Keep track of all your sales with this ultra-thin, solar-powered calculator. Full function calculator comes packaged in a protective vinyl case and includes easy-to-read instructions. Handy credit card size. Personalization available. Item #KGS-31



ALUMINUM CLIPBOARD. Replaces current model clipboard. Constructed of heavy-gauge aluminum with durable metal utility clip. Stiff yet lightweight. Silver with blue gradated Kaypro logo. Standard 9" x 12" size.
Item #KGS-37

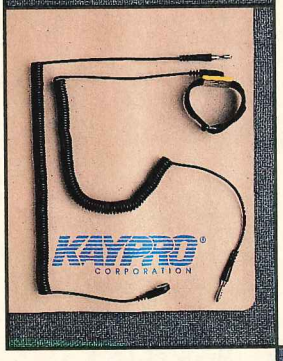
D E S K T O P

DELUXE KAYPRO PALMLIGHT. This handy palmlight is the perfect compromise between the power of a standard flashlight and the small size of a penlight. Designed with roll-on safety switch and snaps back flat to prevent accidental activation. Comes with two AA replaceable batteries. White with process blue lettering.
Item #KGS-72

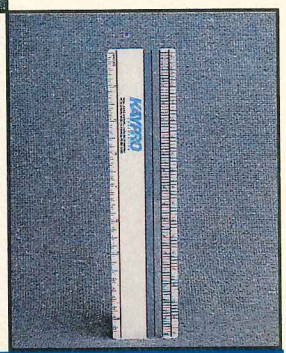
KAYPRO BUMPER STICKERS. Let everyone know you LOVE YOUR KAYPRO with this red, white and blue bumper sticker! Constructed of durable vinyl; 2″ x 12″. Order extras!
Item #KGS-32

KAYPRO DISK VALET. The ultimate new product for all computer users! This durable nylon disk valet conveniently transports and stores up to ten 5¼″ disks in individual pockets. Slim enough to carry in a briefcase or tote — it's less than 1″ thick when fully loaded! Designed with plastic business or ID card window and a velcro closure. A perfect match to the Kaypro Meeting Folder and Businesscard Organize
Item #KGS-75

KAYPRO ANTI-STATIC MAT. Technicians take note! These high quality anti-static mats feature a special layer of carbon particles to dissipate static charges which can cause data loss or harm electronic components. An attractive grounding cord and instructions are included with each mat. Standard size of 23½″ x 25½″; available in tan with the blue Kaypro logo. Constructed of heavy-duty vinyl with a non-slip backing. Item #KGS-50



PLASTIC PRINTER'S RULER. Take the guesswork out of reports, charts, or any printed material with this handy printer's ruler from Kaypro. With this precision ruler, you can choose a typesize and determine "to the letter" how that type will look on the printed page. Worth its weight in gold. Personalization available.
Item #KGS-20



★

MERCHANDISING AIDS

MADE IN U.S.A. STICKERS. Now you can order our popular "Made In USA" stickers in convenient rolls of 50. Each individual sticker is 2" x 3⅜" and is designed with easy peel-off removal. Order extras for all your promotional needs! Item #KGS-13

KOLORFUL KLIPS FROM KAYPRO!
Kaypro Plastic 1½" Klips. Great for giveaways, contests, or any store promotion. Packaged in polybags of 1,000. Item #KGS-22

MADE IN U.S.A. BUTTONS.
Our popular "Made In USA" design is now available on 2¼" round safety pin-back buttons. These attractive metal buttons are great for trade shows, regional shows or for store give aways. Packaged 25 to a polybag for easy storage. Item #KGS-33

MERCHANDISING AIDS

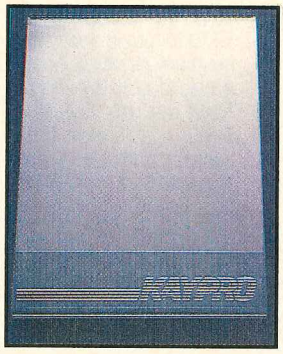
KAYPRO BALLOONS. Great for grand openings, company picnics or as an added touch to store displays. Royal blue with "Kaypro Computers" in white. Conveniently packaged in poly-bags of 25. Item #KGS-14

KAYPRO DELUXE ILLUMINATED SIGN. Light up your store showroom with these handsome illuminated signs. 49½" x 16¾" x 6¾" with high-impact polycarbonate white face. Aluminum extrusion housing; 8' cord with 3-prong plug and two 48" cool white slim line bulbs. Supplied with two hangers on top for easy hanging. Constructed for indoor application. Item #KGS-47

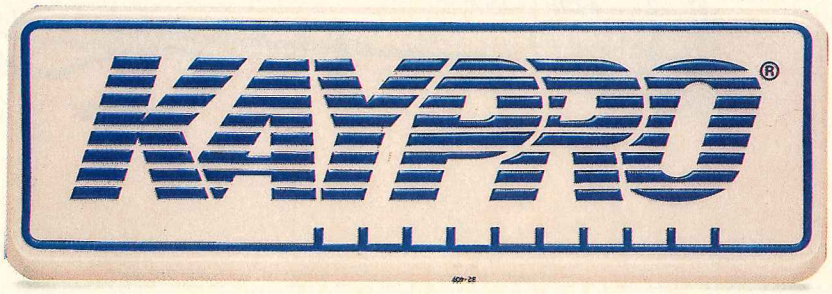
KAYPRO TRADE SHOW BAGS. Our popular "Made In USA" design is imprinted on these durable plastic bags. Reinforced carrying handles with snap closures. 15½" x 16" with 1" bottom pleat. Packaged 200 to a box. Item #KGS-59

MERCHANDISING AIDS

DELUXE ACRYLIC DISPLAY STANDS. Popular 8½" x 11" size with bottom base for easy displaying. Now you can proudly exhibit your favorite Kaypro flyer, announcement or bulletin. Item #KGS-46



MADE IN U.S.A. HANGING BANNERS. We're made in America and we're proud of it! Merchandise your store with these attractive satin banners. 30" wide 6 feet long with white fringe on bottom. Includes wooden dolls on top and bottom with white satin string at top. Order extras for special promotions! Item #KGS-25

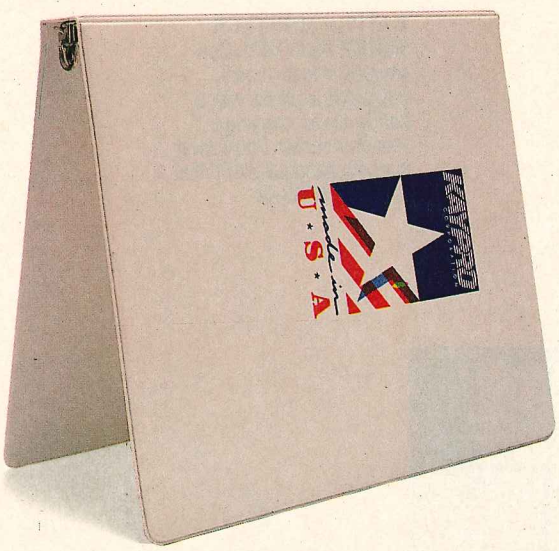


KAYPRO 4-FOOT WHITE LIGHTED SIGN. Designed for interior application. Order one to help promote all your Kaypro products! Item #KGS 47

KAYPRO BUMPER STICKERS. Let everyone know you LOVE YOUR KAYPRO with this red, white and blue bumper sticker! Constructed of durable vinyl; 2" x 12". Order extras! Item #KGS-32

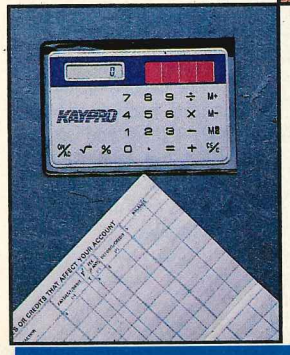
★

PERSONALIZATION



MADE IN U.S.A. 3-RING BINDER. Kaypro "Made In U.S.A." 3-Ring Binder. Keep all your notes in order the Kaypro way! Item #KGS-58

KAYPRO CORPORATE COFFEE MUG. Start your day with this smartly designed Kaypro mug. Handsomely crafted of the finest heat-retaining English Ironstone, the Kaypro mug holds up to 10 ounces of your favorite brew. Available in black or white. Item #KGS-6

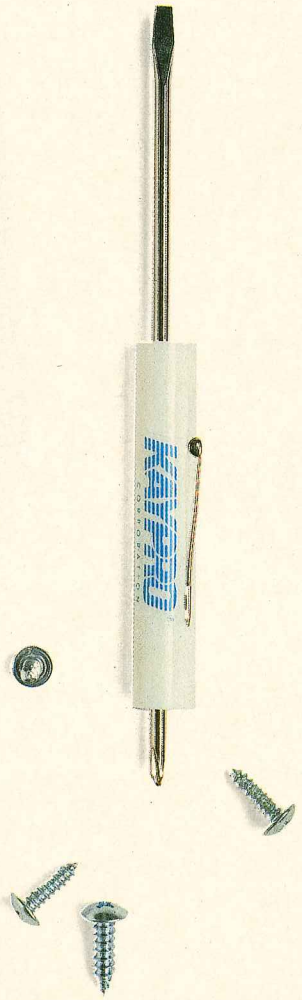


DELUXE SOLAR-POWERED CALCULATOR. Keep track of all your sales with this ultra-thin, solar-powered calculator. Full function calculator comes packaged in a protective vinyl case and includes easy-to-read instructions. Handy credit card size.
Item #KGS-31

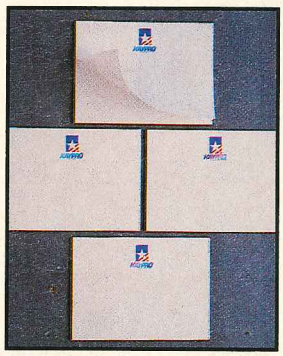
★

PERSONALIZATION

KAYPRO MINI-TECH SCREWDRIVERS. Constructed of high-impact, unbreakable plastic with a handy clip for carrying in your shirt pocket. Screwdriver has both standard and Phillips end. Item #KGS-42



MADE IN U.S.A. 3 "x 4" POST-IT NOTEPAD. Kaypro "Made In U.S.A." Post-It Notepads. Popularly sized in 3" x 4". Item #KGS-57



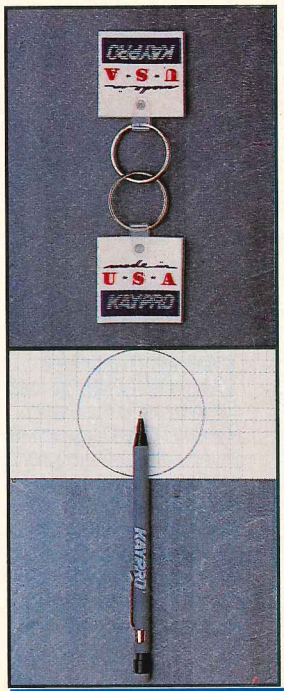
KAYPRO CRYSTAL TUMBLERS (Set of 4). Serve your guests the best, in these handsome crystal tumblers. Each glass holds eleven ounces and includes a distinctive, satin-etched Kaypro logo. Set of four. Available only in clear. Item #KGS-8

★

PERSONALIZATION

KAYPRO UNIBALL ROLLING PEN. Features the ultimate in writing smoothness yet is firm enough for multiple copy imprints. The distinctive Kaypro logo decorates this matte black pen. Item #KGS-18

MADE IN U.S.A. SOFT KEY FOB. Kaypro "Made In U.S.A." Key Fob. Constructed of pliable plastic with a super-strong clip. Imprint carries a lifetime guarantee! Item #KGS-17

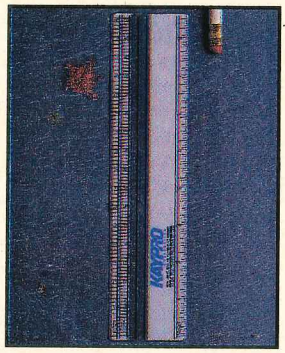


KAYPRO MECHANICAL PENCIL. This handsome mechanical pencil holds the most popular 0.5mm lead and produces a sharp point with a single clip of the barrel. Available in grey or blue with the Kaypro logo screened in white. Item #KGS-38

★

PERSONALIZATION

PLASTIC PRINTER'S RULER. Take the guesswork out of reports, charts, or any printed material with this handy printer's ruler from Kaypro. With this precision ruler, you can choose a type size and determine "to the letter" how that type will look on the printed page. Worth its weight in gold. Item #KGS-20



STABILO FLUORESCENT HIGHLIGHTER. Make those important points stand out with highlighters from Kaypro. Great for color coding your own work or for color accents on bids, price lists, and proposals. Make an impression – in colors. Available in blue and yellow. Item #KGS-19

KAYPRO DELUXE MEETING FOLDER. This handsome Meeting Folder holds a letter-size writing pad. Convenient inside pocket to to store all your important papers. Nickel silver corners for long-lasting durability. Available in black with the Kaypro logo imprinted in silver foil. Item #KGS-15

KAYPRO BUSINESS CARD ORGANIZER. Ideal complement to the Kaypro Meeting Folder! Organize all your business contacts in this handsome textured vinyl business card organizer. Stores up to 96 cards for easy viewing and quick reference. Available in black imprinted with the silver foil Kaypro logo. Item #KGS-16

For information on ORDERING GENERAL STORE MERCHANDISE, please write to:

THE KAYPRO GENERAL STORE
533 Stevens Avenue
Solana Beach, CA 92075

★

CONTINUED FROM PAGE 36

8086 does, runs MS-DOS and MS-DOS programs, and can only address one megabyte of memory.

Protected mode. Under protected mode, the 80386 can access up to four gigabytes of memory, and its multi-tasking features are enabled. Current MS-DOS programs cannot run under standard protected mode.

Virtual 8086 mode. In virtual 8086 mode—actually a subset of protected mode—the 80386 divides available memory up into one-megabyte segments, then uses its multi-tasking capabilities to treat each segment as a separate 8086-based computer. Current MS-DOS programs can run under this mode. An operating system that effectively uses virtual 8086 mode can set up many virtual machines and run a different program on each one, allowing you to calculate a spreadsheet, sort a database, and print a document all at the same time. Windows 386 uses this mode.

PROBLEMS IN USING THE 80386

The 80386 is powerful—so powerful, in fact, that creating an operating environment in which MS-DOS programs could use all of its features was quite a problem. Almost all of the programs written for MS-DOS are designed to run by themselves, and the MS-DOS operating system itself makes no provisions for multi-tasking.

One of the thorniest problems lay in how the new environment should handle sending and receiving information: reading and writing files, accepting input from the keyboard, displaying information on the screen—all of which fall under the category of I/O (Input/Output). Many MS-DOS programs work by taking care of I/O themselves, directly manipulating hardware devices like the video display or the printer and bypassing MS-DOS. Microsoft, the creator of MS-DOS, frowns upon this sort of thing and specifically states that programmers shouldn't do it, but many do because it increases program speed.

This is a problem for Windows 386 because it *must* function as the operating system, controlling access to the hardware if it is to allocate the computer's resources effectively and keep all the programs running. A program that writes to the hardware directly, rather than communicating with Windows, can bring the entire system to a screeching halt.

Yet another hurdle was memory. Most MS-DOS programs understandably assume that they are running on an 8086- or 8088-based microcomputer and that there is one megabyte of memory available. They read from and write to specific places in memory based on that assumption, and if several MS-DOS programs are going to run at the same time, many of them are going to want the same memory space. For both these reasons, Windows in virtual 8086 mode has to make the programs running use the memory it designates, not the memory they are designed to use.

Microsoft confronted many problems: it had to figure out

CONTINUED ON PAGE 62

20% Discount!
(See our coupon in this issue)

LONG & LOUD! $34.95

Sideways & Banner Printing Utility for Dot-Matrix Printers — We've given our popular TWIST & SHOUT program a new name and added lots of new features! Now print your spreadsheets (and most text files) the **LONG** way on your printer — no more cutting and pasting. With **LOUD**, you can print giant banners in our Times, Sans Serif, Olde English, Script and Symbol fonts in letters from two to eight inches high. For all CP/M and MS/DOS computers and the Radio Shack Model 4 (TRSDOS) and most dot-matrix printers. **Special offer:** any two versions for just $49.95!

REMBRANDT $39.95

Complete Business Graphics Toolkit — Profiles said, "This is the program to which all other CP/M graphics programs must be compared." REMBRANDT can do it all — draw lines, circles, boxes and large characters on-screen. Also generates pie charts, xy plots and bar charts from your data and creates dazzling on-screen slide shows. Prints graphics on most dot-matrix and daisy wheel printers. For all Kaypro CP/M , Osborne CP/M, Heath-Zenith CP/M and Radio Shack Model 4 (CP/M or TRSDOS) computers. Older (pre-1984) Kaypros, order **II/IV** version for $44.95.

PRESTO Plus! $39.95

Multi-Function Software Supercharger! — Presto Plus adds features to any programs you run. Hit a special trigger key and PRESTO stops your current program — you can then call up a perpetual calendar, a calculator, a Rolodex™, a notepad, perform CP/M functions (check a directory or copy, rename, erase and type files), perform screen dumps and more. When you're done, PRESTO takes you back to where you left off in your original program. Available *only* for the following CP/M computers: Osborne, Kaypro, Morrow, Epson QX-10 and Heath-Zenith.

MILESTONE $99.95

Electronic Business Project Planner — Never blow another deadline! Nothing boosts the bottom line like being on time and within schedule. With MILESTONE you can plan and execute complex tasks with ease. You simply input manpower, costs and time requirements for a series of tasks and MILESTONE does the rest — creating a detailed workplan, identifying critical paths and analyzing alternatives. Our catalog has full information and sample printouts. For all CP/M or MS/DOS computers — originally sold at $295! Top rated by INFOWORLD Magazine.

MEDIA MASTER $39.95
MEDIA MASTER Plus $59.95
ACCELERATE 8/16 $99.95

Solve computer incompatibility — MEDIA MASTER (for Kaypro CP/M, Osborne CP/M or IBM compatible computers) lets you read and write up to 200 different disk formats. MEDIA MASTER PLUS lets IBM compatibles actually *run* your CP/M software as well as handling foreign disk transfers. ACCELERATE 8/16 increases the 'CP/M speed' of MEDIA MASTER PLUS by up to 350%.

Order TOLL FREE 24 hours a day:
1-800-628-2828 (Extension 918)
VISA, MasterCard, American Express, COD
Technical questions, catalog requests, call 818-716-1655
Add $4 per order postage/handling. Overseas add $12.

SPECTRE TECHNOLOGIES INC.
22458 Ventura Blvd., Suite E, Woodland Hills, CA 91364

CONTINUED FROM PAGE 61

how to multi-task software that was never designed for that purpose, how to handle programs that insisted on using the same memory locations, and how to run *any* program written for the MS-DOS environment—even programs that might want to read and write directly to hardware devices such as the video display, printer, or the keyboard.

Windows 386 solves each of these problems in a unique and elegant manner.

THE WINDOWS 386 SOLUTION

Windows 386 looks exactly like Windows running on any other MS-DOS computer; all of the software magic takes place behind the scenes. The only indication that the powers of the 80386 microprocessor are available is the Settings dialog box, invoked from the Control Menu. It is from there that you determine how Windows 386 will run a given program.

Windows 386 looks like Windows on any other DOS computer; the magic takes place behind the scenes.

From within this box a program is designated as running in one of three ways. First, it can execute in the *foreground*, meaning it appears onscreen and takes up most of the microprocessor's time; second, it can run in the *background*, in which it is not onscreen and a smaller amount of the 80386's time is devoted to its needs; and it can run as an *exclusive* program, meaning that multi-tasking is temporarily suspended and all of Windows 386's efforts go to running it. Also from the Settings Dialog box you can tell Windows 386 to run an application either using the full screen or from within a window.

HIDDEN HELPERS

The Setting dialog box is a very simple way to implement some very powerful features, and it belies the complexity of the system itself.

The two unseen components of Windows 386 are the virtual machine DOS application (VMDOSAPP) module and the virtual device machine monitor (VDMM). Together, these pieces of the Windows 386 program directly control the 80386 microprocessor.

The VMDOSAPP module is a portion of program code that resides in memory and acts as an interface between Windows 386 and any MS-DOS program running on any virtual machine. Commands that a program might issue to the operating system—to open a file or switch directories, for example—are interpreted by VMDOSAPP and translated into Windows commands. VMDOSAPP interacts with as many virtual machines as there happen to be—the number is determined by the available memory.

VMDOSAPP sorts and prioritizes the commands from different virtual machines, depending on whether they originated from exclusive, background, or foreground applications. It then passes them to the VDMM.

The Virtual DOS Machine Monitor (VDMM) is the heart of Windows 386. It directly manipulates the 80386 microprocessor, controlling its multi-tasking and virtual machine abilities in order to run designated MS-DOS or Windows programs.

The VDMM is a memory manager, allocating memory for virtual computers and controlling different programs' requests for memory use. The VDMM stops programs that attempt to manipulate memory directly and makes them use the portions of memory it designates.

The VDMM also controls I/O using two techniques: file sharing and device virtualization.

In file sharing, the VDMM keeps track of which program is using which files and in which directories. The VDMM allows files to be shared and also *prevents* them from being shared when necessary. Without the VDMM's file control, there would have to be a separate directory structure for each virtual computer. This way, multiple virtual computers can share the same hard disk with few conflicts.

As for the problem of programs reading and writing to hardware directly, Microsoft's solution is to create *virtual devices*. In the same way that the 80386 creates a virtual computer in memory, the VDMM creates virtual devices—programs installed in memory and designed to imitate actual hardware devices. Any software commands to manipulate the EGA video board, for example, are intercepted and translated into Windows video commands (or, if the program running is using the entire screen, the commands are passed unchanged to the EGA board). The devices virtualized under Windows 386 are the interrupt controllers, serial and parallel ports, the floppy and hard disk controllers, the keyboard, and the EGA and VGA display adapters.

BRINGING IT ALL TOGETHER

Windows 386 breaks the 640K limit imposed by MS-DOS and allows you to run several programs at the same time. Add to this Windows' data-sharing and graphics features and it is obvious that Windows 386 is a very powerful piece of software. When Microsoft Windows first appeared two years ago, many analysts in the computer industry said it was limited but had potential. With the release of Windows 386 that potential has been realized.

THE ADVANTAGE IS EXPERIENCE

Experience counts.
Kaypro Corporation's 35 years of electronic products innovation can be seen in every detail of the new KAYPRO 386. In speed, power, and performance, the KAYPRO 386 is at the head of the class.

Time is money.
The KAYPRO 386, powered by Intel's 80386 microprocessor, runs most popular software two to three times faster. And when the pressure's on, every second counts. Whether it's engineering, business, networking, or any high-power pursuit, the KAYPRO 386 makes sense. Starting at $4995, even the price makes sense.

Kaypro Is Computers.
From the no-nonsense KAYPRO PC to the world's first AT-compatible, the KAYPRO 286i, Kaypro is computers. As with all Kaypro products, the KAYPRO 386 is backed by service and support that ensures maximum benefits for you and your business. And the advantage? Experience, pure and simple.

Seeing is Believing.
To fully appreciate what the KAYPRO 386 can do, see it in action at your nearest Kaypro dealer. Put the KAYPRO 386 to the test. It's faster than you think.

KAYPRO®
COMPUTERS
The Future's Built In

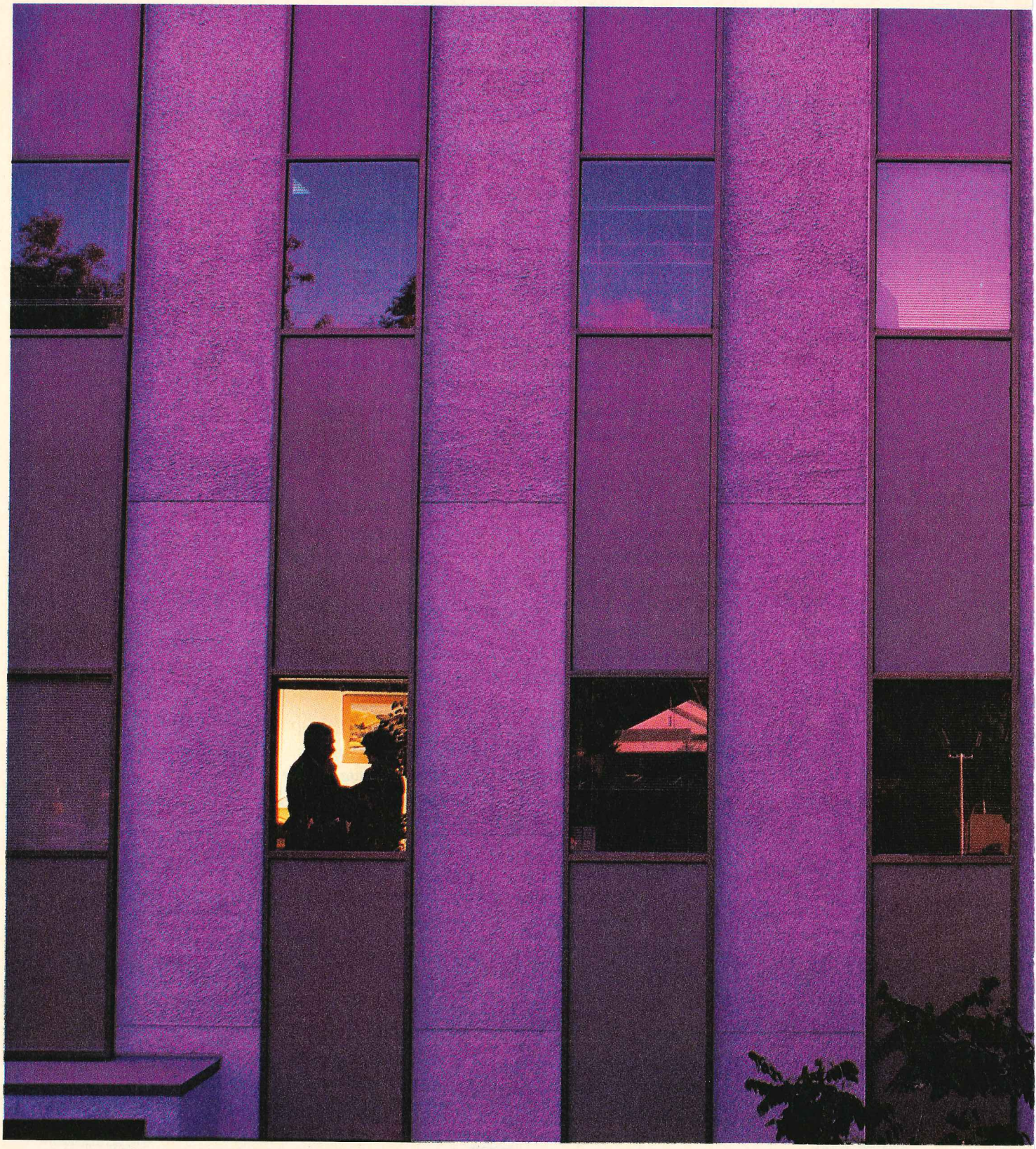
KAYPRO Lease-Link
Kaypro's Commercial Leasing

KAYPRO CARD
123 46 678
Kaypro's Revolving Charge Plan

Trademarks: IBM and AT are trademarks of International Business Machines, Inc.; Intel, Intel Corporation.

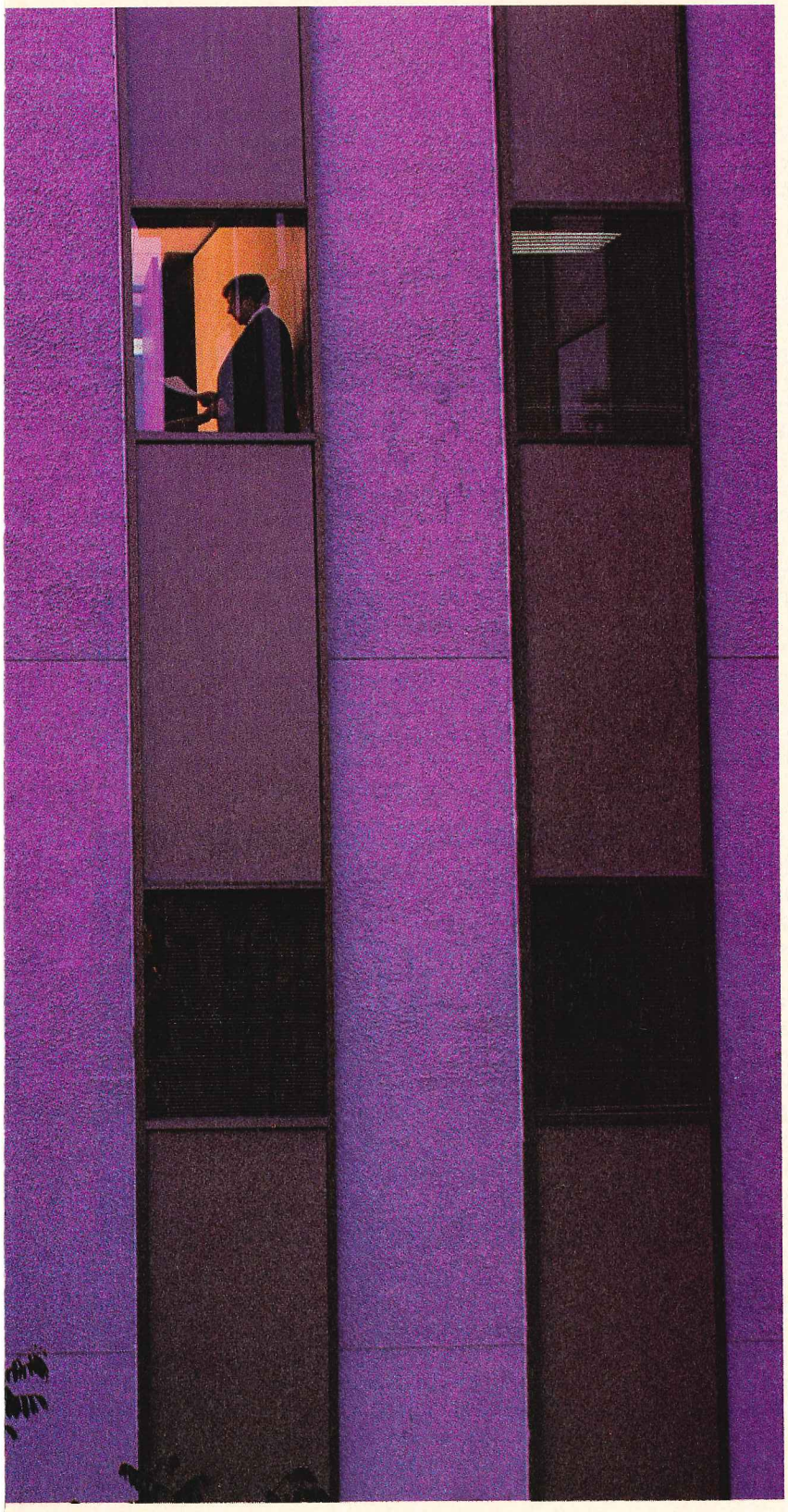
made in U.S.A.

For the Kaypro dealer near you, call 1-800-4KAYPRO.



How Windows enhances even non-Windows applications.

Make the most of your programs with Windows.



WINDOWS MEANS BUSINESS

BY MARSHALL L. MOSELEY

PHOTOGRAPH BY GLENN STEINER

Microsoft Windows, available for almost two years now, has been in the news a lot lately—mostly because a special version of it has been chosen to be part of OS/2, the new multi-user, multi-tasking operating system due out from Microsoft in January 1988. Microcomputer trade journals hail Windows as the operating environment of the future, when many applications will be written specifically for the Windows environment.

That's all well and good, but what about right now? Can it help now with the non-Windows applications people use every day? The answer is yes: Because of its data-sharing capabilities, Windows enhances the non-Windows programs used with it, letting you do things with them that you can't do—or do as easily—with MS-DOS. As a practical example, in this article we'll show you how to drop a Lotus graphic into a Microsoft Word document using Windows' Clipboard feature and its word processor, Write, as intermediaries. CONTINUED ON PAGE 66

Copyright 1987 Marshall Moseley. All rights reserved.

CONTINUED FROM PAGE 65

First we'll discuss what Windows is and how it runs non-Windows programs. Then we'll explain the capabilities and limitations of the Clipboard feature. Finally, we'll show you how to produce a professional document in which text and graphics merge seamlessly.

WINDOWS ON THE WORLD

Windows is a program that replaces visible portion of the MS-DOS operating system. Rather then presenting you with a cryptic command line, Windows uses the entire computer screen to display a colorful graphic representation of the files available on your system. From that screen you can run a program, copy files, even run different programs simultaneously. For a complete overview of Microsoft Windows, see the article "Microsoft Windows" on page 18. To gain a working knowledge of Windows, see "A First Session With Microsoft Windows" on page 26.

From here on I'll assume that you have Windows and that you have at least a beginner's knowledge of it, and that you are familiar with Lotus 1-2-3 and Microsoft Word.

HOW WINDOWS RUNS NON-WINDOWS APPLICATIONS

One of the biggest problems Microsoft faced in bringing Windows to the market was making it usable with current applications—those not written specifically to run under Windows.

The trouble stems from the nature of the computer's BIOS (Basic Input Output System). The BIOS is a series of small programs placed in memory when the computer boots. Every program, or more correctly, every command in the BIOS, performs some function relating to sending or receiving information. Theoretically, a given application program does not need to know what hardware the computer is using. The application tells the BIOS what to do—open a file or print a page—and the BIOS talks to the hardware. But programmers soon found that BIOS routines were too slow and inefficient for their purposes. To remain competitive in the cutthroat microcomputer software market, they had to increase program speed by making applications manipulate the hardware directly.

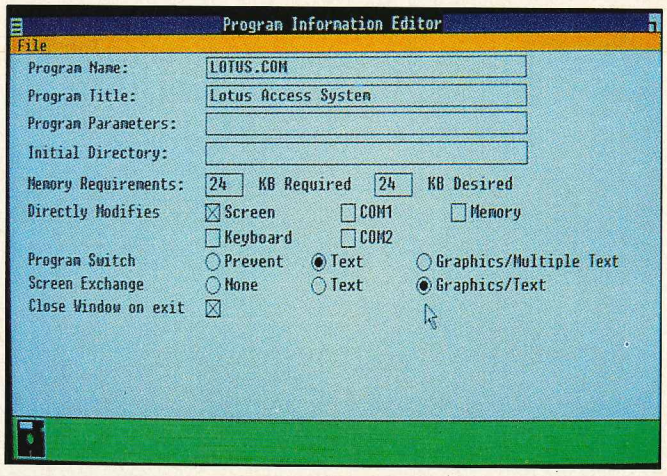
Windows is similar to the old BIOS in that it, too, wants to control the hardware. However, the most popular programs manipulate video displays and printers directly. Microsoft, being well aware of this, sought a way to let Windows know when to release control of the hardware.

The answer came from IBM. With its now-defunct operating environment TopView, IBM used Program Information Files, better known as PIF files (PIF is the filename extension). Windows also uses these 369-byte files, which contain specific information about particular programs—information which, in most cases, you provide. PIF files tell Windows the program's name, the directory it's in, its memory requirements, whether or not it directly modifies the screen or the serial ports, and whether it's a graphics- or text-based program. When Windows runs a program, a corresponding PIF file is opened, and the information within is used to run the program more efficiently. When running a program with no PIF file, Windows uses default values for each of these categories.

EDITING A PIF FILE

PIF files are a vital link between non-Windows applications and Windows. Without a correct PIF file, some non-Windows programs—the really powerful ones—will not run. The key word here is "correct." While Windows comes with PIF files for almost every popular program, the information in them is by necessity generic; you must edit the PIF files you are going to use to contain the correct information about your particular system. PIF files don't provide hard disk directory path information, for example, unless you supply it.

To illustrate, let's edit the PIF file for Lotus 1-2-3 to reflect the directory structure of your hard disk. From the Windows Executive screen, highlight the PIF subdirectory and click the mouse twice. Once in the PIF subdirectory, run the PIF file editing program by selecting PIFEDIT.EXE and clicking twice. You are presented with a dialog window containing fields for the values you can adjust. Now go to the file menu and select **Open**. When the file selection window appears, select LOTUS.PIF if you have Release 1A, LOTUS2.PIF if you have Release 2. Release 2 users will see the following screen; Release 1A users will see different memory settings:



(You may be puzzled by the PIF category called Program Switch. This controls memory allocation; when you switch from a non-Windows program to Windows by pressing Alt Tab, Windows stores the screen you're leaving in memory. Because storing graphics requires more memory than storing text, Windows needs to know what type of screen your program produces. This setting controls how your screen is saved, either as a bit map or as ASCII text.)

Every parameter listed here is correct, except the one for

CONTINUED ON PAGE 69

BUY FIVE AND GET ONE FREE

NOW ONLY $4.00 EACH

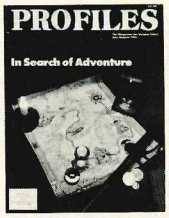
1

MARCH/APRIL 1984
- Keypad reconfiguration packages
- Accounting software

2

MAY/JUNE 1984
- Science fiction writers
- Perfect Writer book reviews

3

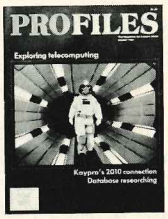


JULY/AUGUST 1984
- Turbo Pascal review
- Printing with Perfect Writer

4

SEPTEMBER 1984
- LOGO on Kaypro
- Education with PILOT

5



OCTOBER 1984
- World of online databases
- Shoppers guide to modems

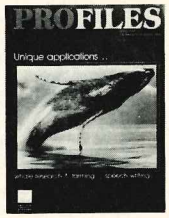
6

FEBRUARY 1985
- The disabled and computers
- Choosing floppies

PROFILES BACK ISSUES

ORDER NOW AND SAVE!

7

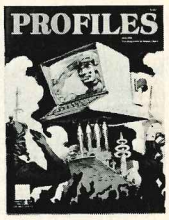


MARCH 1985
- Unique applications
- Statistical software roundup

8

APRIL 1985
- dBASE and the real-time clock
- Tax prep software

9



MAY 1985
- Alvin Toffler interview
- MBASIC marvels

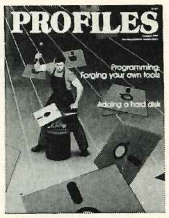
10

JUNE 1985
- Micros in the Third World
- Perfect Series ver. 2.0 review

11

SEPTEMBER 1985
- CP/M educational software
- Disk drive diagnostics

12



OCTOBER 1985
- Sorting algorithms
- C programming language

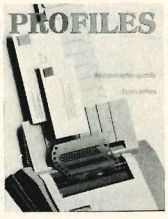
13

NOVEMBER 1985
- Bookkeeping with Perfect Calc
- Accounting software roundup

14

DECEMBER 1985
- Z-System, part 1
- Key definition programs

15



FEBRUARY 1986
- Beyond letter-quality print
- Assembly language tutorial

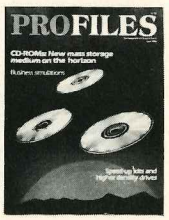
PROFILES BACK ISSUES
P.O. BOX 2889
DEL MAR, CA 92014

BUY FIVE AND GET ONE FREE

NOW ONLY $4.00 EACH

16

MAY 1986
- Turbo Lightning
- Customizing MASMENU



17

JUNE 1986
- CD-ROMs: an overview
- Business simulations

18

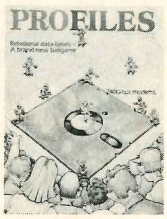
JULY 1986
- Idea processors for CP/M
- Changing WordStar translation tables
- Multi-format programs

19

AUGUST 1986
- Hong Kong software
- Multi-tasking software

20

SEPTEMBER 1986
- #1 in programming series
- Kaypro-turned-cash-register



21

OCTOBER 1986
- Relational data bases
- 2400-bps modems

PROFILES BACK ISSUES

1 ☐	2 ☐	3 ☐
4 ☐	5 ☐	6 ☐
7 ☐	8 ☐	9 ☐
10 ☐	11 ☐	12 ☐
13 ☐	14 ☐	15 ☐

CHECK THE BOX OF THE ISSUES YOU ARE ORDERING.

Name_____

Address_____

City, State, Zip_____

Telephone_____

TOTAL ORDERED = _____ $_____ enclosed

Enclose check or money order (U.S. funds drawn on U.S. bank ONLY) to:

PROFILES BACK ISSUES
P.O. BOX 2889
DEL MAR, CA 92014

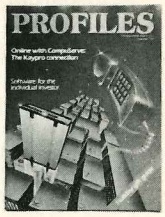
Sorry, no credit card or "bill me" orders accepted. Please allow 3-6 weeks for delivery.

16 ☐	17 ☐	18 ☐
19 ☐	20 ☐	21 ☐
22 ☐	23 ☐	24 ☐
25 ☐	26 ☐	27 ☐
28 ☐	29 ☐	30 ☐

CHECK THE BOX OF THE ISSUES YOU ARE ORDERING.

Clip order form here

22



NOVEMBER 1986
- CompuServe forums
- Stock market software

23

DECEMBER 1986
JANUARY 1987
CPM Version Only
- Desktop Publishing – An Overview
- Planning a program with Flowcharts

24

FEBRUARY 1987
- Electronic mail services
- BASIC tutorial

25

MARCH 1987
- Laser printers
- Mailing list managers

26

APRIL 1987
- Online information services
- Beginners guide to telecommunication

27

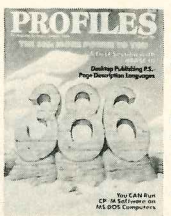
MAY 1987
- Data entry with Bar Code
- A first session with LOTUS 1-2-3

28

JUNE 1987
- Review of Ventura Publisher
- Project Management Software reviews

29

JULY 1987
- WordPerfect vs. MicroSoft Word – which one to buy?
- Local Area Networks – Workstations of the future



30

AUGUST 1987
- You *can* run CP/M software on MS-DOS computers
- Kaypro's newest computer – The 386

PROFILES BACK ISSUES
P.O. BOX 2889
DEL MAR, CA 92014

CONTINUED FROM PAGE 67

initial directory. Place the mouse-arrow within the initial directory box and click once. A vertical cursor appears. Now type the full path name of the directory containing Lotus 1-2-3, including the drive specification. On my computer, for example, Lotus is on the C drive, in the LTS directory off of MAIN, so I typed C:\MAIN\LTS.

Now pull down the file menu and select **Save**. When Windows asks you if it should overwrite the file, reply by clicking the Yes box. Leave the PIF editor by choosing **Close** from the Windows Executive.

(It's easy to create a new PIF file; instead of overwriting an old file, just save the current one under a new name. If you have a program for which no PIF file was supplied, you can create one—to find PIF file data concerning a program, search the program's documentation.)

Looking at the screen you can see that Lotus 1-2-3 has two PIF files: LOTUS.PIF and LOTUS2.PIF. How does Windows know which PIF file to use? When you run a program by selecting the program name from Windows Executive, Windows looks in the current directory for a PIF file with the same file name as the specified program, but with a PIF extension. This, however, is only one way that Windows runs a program—you can also run it by selecting its PIF file. Since the program name and directory path are in the file, Windows has no trouble finding the program you want. This technique allows you to run all the programs on your hard disk from one directory, the PIF directory. Also, you can have multiple PIF files for a single program, letting you run one program with different parameters at different times.

A KEY TOOL—WINDOWS' CLIPBOARD FEATURE

Before we can get into the particulars of merging text and graphics with Windows, we need to look at the key tool for doing it: Windows' Clipboard feature.

One of the greatest obstacles to productive computing is the inability of programs to share data. It's not very easy to print a graph inside a WordStar document, for example, or to use data from a dBASE file in Lotus 1-2-3. Windows is the first program to solve this problem effectively, and it does so by means of the Clipboard.

The Clipboard is a portion of memory used as a storage area. It holds text or graphics, letting you move them from one place in a window to another, or between windows (programs). Programs written for the Windows environment have access to the Clipboard via "cut and paste" functions. "Cutting" writes marked information to the Clipboard and "pasting" inserts the Clipboard contents at the cursor location.

Non-Windows applications work with the Clipboard, too, but there are some restrictions: First, you are required to place one screenful of information in the Clipboard—no more, no less. This is because the Clipboard imports data from non-Windows applications using a "snapshot" feature; pressing Alt PrtSc from within any program automatically copies the entire contents of the screen into the Clipboard. If the image on the screen is a graphic—such as a chart or bar graph—it is stored as bit map, in which every pixel on the screen has a corresponding bit representing it in memory. If the screen is filled with text, the data in the Clipboard is standard ASCII text. Second, the current version of Windows only allocates 64K of memory to storing graphics data; if you exceed this limit Windows displays an error message.

You can look at, but not alter, the contents of the Clipboard using the Clipboard program from the Windows Executive. Just select CLIPBRD.EXE. It will display anything in the Clipboard. Exit the program by choosing **Close** from the Windows Executive window.

A PRACTICAL EXAMPLE—WORD, WRITE, AND 1-2-3

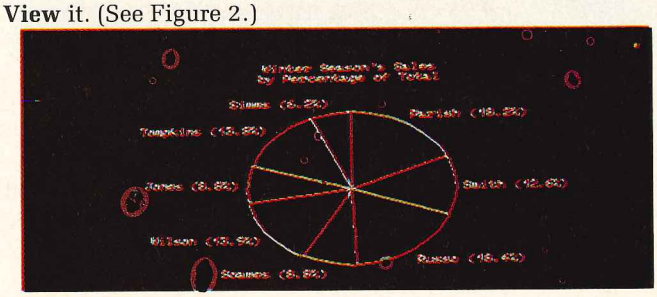
Now we get to our example of how to use Windows' special abilities with popular non-Windows applications. Imagine for a moment that, using Lotus 1-2-3, you have analyzed the performance of your sales team during the winter season and produced a good, clean pie graph to show what you have found. Additionally, you have used Microsoft Word to write a memo to your superiors, making recommendations based on your findings. You know that the memo would be clearer and have more impact if you could place the graph on the page with the text. It's easy to do with Windows.

For the sake of this example, we'll assume that the Lotus worksheet is named WINSALES.WKS and that it has an associated graphics file named WINGRPH.PIC. We'll also assume that the memo is in the \WORD directory of the C drive and is named WINSALES.TXT.

IMPORTING 1-2-3 GRAPHICS SCREENS

If you have an EGA board with an Enhanced Display and have installed Lotus 1-2-3 accordingly, you'll have to re-install it for a CGA display. The Clipboard's "snapshot" feature does not work with the EGA's high-resolution graphics mode, nor will it store Hercules monochrome graphics.

After re-installing Lotus, run Windows. From the MS-DOS Executive screen log onto the PIF subdirectory and run Lotus 1-2-3 by selecting the Lotus PIF file that you modified earlier. You are presented with the Lotus main menu. Run 1-2-3 and load the spreadsheet WINSALES.WKS, which contains the sales figures. From the 1-2-3 menu select **Graph**, **Name**, and then **Use**, load the associated graph file WINGRPH.PIC, and **View** it. (See Figure 2.)



CONTINUED ON PAGE 70

CONTINUED FROM PAGE 69

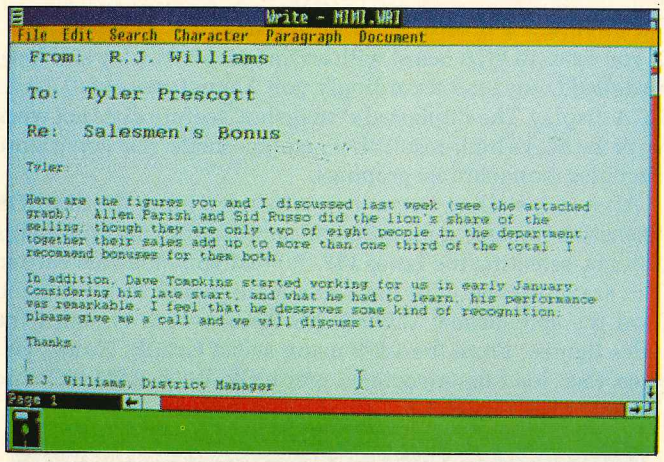
Remember, even though you can't see it, the Windows Clipboard is available. To store the graphic in the Clipboard, hold down the **Alt** key and press **PrtSc**. If you have a Kaypro enhanced keyboard—function keys along the top and extra cursor control keys—the procedure is slightly different; hold down the Alt key and press the asterisk key (*) on the numeric keypad. The screen will flash into inverse video, then return to normal. The graph is now in the Clipboard.

RUNNING WRITE

Onward to Windows Write. Exit 1-2-3 by choosing **Quit** from the pull-down menu twice. The program then asks you if you want to leave 1-2-3. Choose **Yes**. From the Lotus main menu choose **Exit**; when asked if you want to leave, choose **Yes** again.

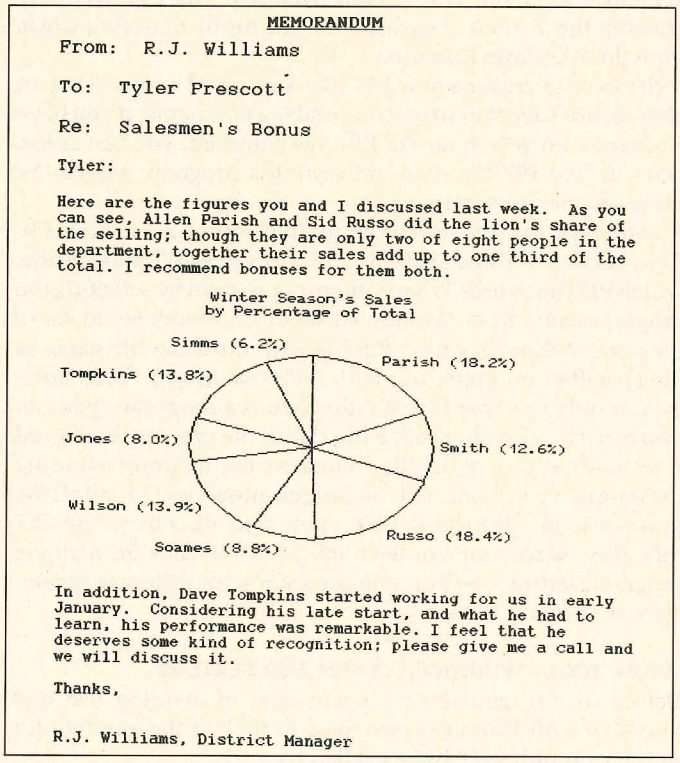
In a few moments the MS-DOS Executive screen appears. Highlight WRITE.EXE and click the mouse twice.

When Write runs you are presented with a blank page. From the File menu choose **Open**. A dialog window containing a list of available files and drives appears in the center of the screen. Now log onto the WORD subdirectory by placing the mouse-arrow inside the box labeled "Filename" and clicking once, causing a vertical cursor to appear. Type the path name where the Microsoft Word files are stored, followed by the file specification of your Word text files. In this case type **C:\WORD*.TXT**. A list of files in the WORD subdirectory ending in TXT appears. Because Write and Microsoft Word use the same file format, you can load Word files directly into Write. Highlight WINSALES.TXT and click twice, and the file will appear onscreen. (See Figure 3.)



When using Write, remember that although it is compatible with Word, the two are not the same. Write will change triple-spaced lines to double-spaced and ignore many of Word's more powerful formatting commands, such as strike-through and double-underline. Write will also use the tab settings from the first paragraph and apply them to the whole document, ignoring any subsequent changes.

Now move the mouse down to the blank line between the first and second paragraphs and click once to place the cursor there. Press **Ins** and voila! The graph you last saw in Lotus 1-2-3 appears in the middle of your memo. Move the cursor above and below the graph, inserting blank lines as needed to separate it evenly from the text. Next, edit the document so it refers to the graph. Your final document should look like this:



THE POSSIBILITIES

This article demonstrates what you can do with the Windows and non-Windows applications, but the procedure used barely touches on the power inherent in Windows. Windows-specific programs naturally go farther in realizing Windows' potential.

Windows Draw, for example, is a full-featured graphics drawing program from Micrografx Incorporated. It has a Lotus import feature that blows the Windows Clipboard away. Once Draw translates a graph into the Windows graphics format, that graph can be re-sized or the colors changed, and you can even edit the text associated with the graph. And although no release date has been announced, Microsoft has demonstrated PC Excel, a powerful spreadsheet program that will run under Windows and compete directly with Lotus 1-2-3.

Windows is an easy-to-use, almost intuitive program. Because of this, the days of the cryptic command line and the frustrated user are coming to an end. Microsoft has done more than provide a window into the future; it's built a door. All you have to do is step through, grab a mouse, and get to work.

DATA ENCRYPTION

BY TED CHIANG
ILLUSTRATION BY STACY KRIKORIAN

Computer Security with Data Encryption Programs.

In ancient times, if a landowner wanted to send a confidential message, he shaved the head of a slave and tattooed the message on his scalp. Once the hair had grown back, the slave was sent to the other party to be reshaved and the message read; there was little time pressure back then. Nowadays, we have much more demanding requirements for secrecy, in part due to the nature of modern society, and in part due to they way computers handle data. In this article, we'll take a look at data encryption as a part of computer security.

Microcomputer security covers everything from preventing theft of your hardware, to safeguarding against unintentional erasures by novices, to thwarting attempts at snooping. Confining our attention to this last matter, how can you tell if you have a security problem with your data? (A note on usage: in this context, privacy is the legal concept, while security is the physical means of insuring privacy.)

First, you have to consider whether your data is valuable to anyone. Is there anyone who would gain tangibly from seeing your data? Next, consider whether unauthorized access to your system is possible. If your computer is located in an office, then

CONTINUED ON PAGE 72

Copyright 1987 Ted Chiang. All rights reserved.

CONTINUED FROM PAGE 71

probably anyone can walk up and start playing with your machine. If your computer is hooked up in a LAN (local area network) where everyone's work resides on a common hard disk, then it may be easy for someone to get at your data. If you transmit valuable information over phone lines, then there is a huge number of possible places for someone to intercept your data.

Now if you've determined that there is a security problem, what can you do about it? There are many lines of defense for restricting file access: locking your computer if it has a hard disk and locking your disk case are obvious possibilities. Password protection can be installed on individual computers and on networks. And finally, there's data encryption, or encoding your data into something that looks like gibberish. It provides the lowest-level, and in some ways, the most effective protection. Encrypting your data before transmitting it is much easier than ensuring that a commercial phone line is secure, and office snoops will almost certainly give up once they find that your files are encrypted.

Encryption can be done by either hardware or software. In this article we will confine our discussion to software encryption. With encryption software, you manually encrypt and decrypt files whenever you want, ensuring your privacy by being the only one with the *key*, or password, to that file. Obviously, you should keep your key secret. Neither should you choose a key that is easy for someone to guess (such as your favorite color). At the same time it should be one that you aren't likely to forget during a long vacation. If you do forget it, you can bid your data a sad farewell, as you'll be in the same position as those whom you were trying to keep out.

Is there anyone who would gain tangibly from seeing your data?

This brings up the question of codebreaking; will you have to worry about someone actually attempting to penetrate the encryption on your files? That depends on the value of your data—i.e., how much it would be worth to someone to get the information you've encrypted. If you just want privacy from the nosy people around the office, a simple encryption will be sufficient; none but the most determined hackers will attempt to break the encryption. On the other hand, if you've got information on a multimillion-dollar funds transfer, or a vital trade secret, someone might put in an enormous amount of effort and money to break your encryption; in such cases, you'll need an ultrahigh security code.

Why not just use the ultrahigh security code for everything, including keeping out the office snoops? The answer is that, in general, the more secure the code is, the longer it takes to encrypt and decrypt your data. High-speed, hardware-based encryptors are available, but they cost several hundred dollars. Therefore you don't want a great deal more security than is necessary, since you don't want to waste time or money with the encryption process. You want the fastest and most economical method that will satisfy your needs.

The time required to encrypt your files is one of the inconveniences of encryption. Another is the fact that files are unusable in their encrypted form; they're unreadable by applications programs, and it's difficult to tell whether a file has been damaged without decrypting it. As part of your general backup policy, you should keep unencrypted copies of all of files in a safe place. You should also be wary of keeping the encryption program itself where anyone can find it. A malicious prankster could double-encrypt your files, using a key that only he knows; then the files are inaccessible to both of you.

DES, THE DATA ENCRYPTION STANDARD

Methods of encryption can be divided into two categories: proprietary—those developed by particular software companies and unique to their products; and DES, short for Data Encryption Standard. DES is a method of encryption approved by the National Bureau of Standards in 1977. Like the ASCII character set, it's a standard that is recognized by all; any program or hardware board that implements DES can decrypt a file that was coded by any other DES product. Such a standard is useful for exchanging files with another party who didn't purchase the same encryption program that you did; everyone can use the standard.

Unlike various other encryption methods, the security of DES doesn't depend on keeping the algorithm secret. That is, for many types of encryption, if a cryptanalyst (codebreaker) finds out exactly which algorithm was used to encode a file, it makes it easier for him to examine your coded file and determine the key used, and how to decode it. Obviously, then, it's a good idea to keep your algorithm secret. DES isn't like that; anyone can look up how the Data Encryption Standard works, but that won't be of any help. Reading data encrypted with DES would still require centuries of work, or a hideously expensive computer designed expressly for breaking the DES code. DES is used with confidence by many government agencies and commercial banks, so if you trust their judgment, you can trust DES for even your most sensitive data.

Bearing the above in mind, let's examine some of the encryption programs available, both public domain and commercial.

SCRAMBLE (PUBLIC DOMAIN; CP/M)

SCRAMBLE is a tiny (1k) program that's been in the CP/M public domain for a long time. Usage is simple: just enter

SCRAMBLE filename key. The key must have eight characters, none of which can appear more than twice. SCRAMBLE performs the encryption in place, meaning that the original file is written over with the encrypted version, so you should make a backup copy before encrypting your file.

SCRAMBLE shares an interesting characteristic with some of the other programs reviewed: it's symmetric in its translation process, meaning that it doesn't differentiate between encrypting and decrypting. You decrypt a file with precisely the same command you used to encrypt it. You might think this would double-encrypt the file, but instead it decrypts it. The practical aspect of this is that double-scrambling a file with two different keys can be reversed by running SCRAMBLE twice, using the keys in *either order*. You can change your encryption key without ever having the files sitting around in unencoded form: simply double scramble them one day, and then descramble with the old key the next day. The files will then be encrypted with only the new key.

LOCK (VERS. 1.0, PUBLIC DOMAIN; CP/M)

LOCK is actually a group of three programs, LOCK (11k), UNLOCK (11k), and MKEY (1k). LOCK performs the encryption, and its usage is **LOCK filespec key**; UNLOCK decrypts the file, and both programs accept wildcard specifications. If someone tries to TYPE a LOCKed file, the message "= = <LOCKED FILE> = =" is the only thing displayed, other than complete gibberish.

LOCK has a feature shared by a few commercial encryption programs, and that is a master key. If you've forgotten your key, the program MKEY will read your encrypted file and produce the key for you very quickly (in under a second). It's a very useful safeguard, provided that you keep MKEY in a place where no one else can get at it.

You may think, "Someone might recognize that I used LOCK to encrypt my files; since it's a public domain program, what's to stop him from picking up a copy himself and using MKEY on my files?" Fortunately, there is a solution; the source code for all three LOCK programs is available, and each contains a table of numbers used for encryption. By making identical alterations to all three of your programs and then assembling them, you have customized copies of the programs that produce an encrypted file nobody else's copies will decrypt.

CRYPT (BY SOFTWARE TOOLWORKS; CP/M)

CRYPT (5k) comes as part of a pair of programs, along with a data compression program PACK (a commercial version of the SQ/USQ programs). The program's usage is **CRYPT [-] oldfile newfile**; you are prompted for the key, which may be of any length. The minus sign is used to decrypt an encrypted file. CRYPT creates a new file for output, leaving the original file intact after both encryption and decryption, so you'll have to erase the original once you're done.

CRYPT is perhaps more secure than the other CP/M programs mentioned in this article, but it still shares a risk of all programs that don't implement DES or something comparable: that of someone disassembling the program and then possibly breaking your code. It would be by no means an easy task, but none of these programs is recommended for use on highly sensitive data.

CFC (SHAREWARE BY ALMTEK; MS-DOS)

CFC might be considered the "teaser" for Almtek's Data Security Toolkit. CFC is available in the public domain, and sending $25 to Almtek will get you the complete Toolkit, a set of a dozen programs for general file security. The programs can erase a file beyond any unerase program's ability to restore it, hide a file invisibly on a disk, or convert a binary file to pure ASCII for transmission; also included is a group of programs that implements the "one-time pad" method of encryption, a method not practical for ordinary applications. A separate shareware product by Almtek is a public-key cryptography system, which is a well-known encryption scheme ideally suited for widespread public use, but it falls outside the scope of this article. We will only examine two of the programs: CFC and CDES.

The "FC" in CFC is short for FastCrypt . You can enter either **CFC oldfile newfile key**, or just enter **CFC** and then be prompted for everything; CFC doesn't distinguish between encrypting and decrypting, and the password may be from four to 32 characters long and can include punctuation and spaces.

For a higher level of protection, there is the CDES program in the Toolkit, which implements DES. Usage is the same, except for an additional parameter (**e** or **d**) that specifies encryption or decryption. in addition, you can't enter the key on the command line, but must be prompted for it from within the program. CDES provides two different modes of DES encryption, one of which is supposed to be the industry standard, the other being a bit more secure. However, neither mode of encryption appears to be compatible with the DES implemented by Superkey below; not having a third DES product, I couldn't tell which of these two (if either) follows the industry DES standard.

LOCK AND KEY (BY WILLISOFT; MS-DOS)

This set of programs is a bit different from the other products reviewed in that a keyword is not used. Each copy of the program has a unique number inside, like a built-in key; each copy will decrypt any files that it has encrypted, but it won't work on files encrypted by any other copy of the program. Thus, you cannot keep your copy stored on your hard disk, nor use it to encrypt different files with different keys, but you no longer have to worry about forgetting your key. A copy of the program is in the public domain for demonstration purposes,

CONTINUED ON PAGE 74

CONTINUED FROM PAGE 73

but this copy is not very useful since anyone can acquire an identical copy and read what you've encrypted with it. You must purchase your own customized copy; there are discounts for purchases of multiple copies.

The package contains two pairs of programs, both implementing proprietary algorithms. The first pair, SPEEDLOC and SPEEDKEY, work incredibly fast. The second program pair, POWERLOC and POWERKEY, are considerably slower, but the encryption they provide is claimed impenetrable without millennia of computer time. The encrypted file is written over the original. If TYPED, it bears the message that it was encrypted by Willisoft's POWERLOC.

SMARTKEY'S CRYPTOR (VERS. 5.2, BY SOFTWARE RESEARCH TECHNOLOGIES; MS-DOS)

This program and the next one are two of the most popular key redefinition programs available for MS-DOS. If you're considering purchasing one of these, remember that first and foremost their purpose is macro definition, and that data encryption is simply one of the many miscellaneous capabilities they share.

Cryptor is a stand-alone program (16k) included in the Smartkey package, and the manual claims it exceeds DES in terms of security, though it gives no details of the algorithm. Unlike DES, this program's algorithm does not distinguish between encrypting and decrypting. When loaded up, Cryptor prompts you for the input and output filenames and asks if you want the input file erased (beyond hope of recovery). Blank spaces are displayed onscreen when you enter your keyword.

SUPERKEY (BY BORLAND INTERNATIONAL; MS-DOS)

Superkey is the only program reviewed here that provides its encryption from a memory-resident program. It comes in two versions: KEY (42k), which implements a proprietary encryption algorithm, and KEYDES (45k), which implements the Data Encryption Standard. Once either version is loaded, you invoke the program with ALT-/ and choose the encryption option from a menu.

Encrypting and decrypting are two separate operations; for each one, you are prompted for the file name and then the password. A row of asterisks appears onscreen when you enter the password, and Superkey asks you for it a second time, for verification. Then you have the option of using text mode or not; text mode produces the encrypted file in ASCII form, useful for transmission purposes. If you choose normal mode, encryption is performed in place, while with text mode, you must enter a name for a separate output file. The resulting output file consists of uppercase letters only, and is about twice as long as the original file; text mode encryption also takes twice as long as normal encryption. You can specify a special directory where encrypted files are to be placed, and with normal mode you can use wildcards in the filename.

CONCLUSIONS

Admittedly, not everyone has to worry about data security, but those who do have to worry about it a lot. Computers provide unauthorized people easy access to a great deal of data, and controlling access is probably the most difficult aspect of computer security. If you're concerned about unauthorized access to your data, see if one of the above software products will suit your needs, or whether you should invest in a hardware board; the proper product will provide you with a lot of peace of mind.

T.F. Chiang is a student at Brown University and an active member of Users Group International.

QUICK REFERENCE SUMMARY

Product: SCRAMBLE (public domain)
Product: LOCK (public domain)
Available from: Tampa Bay Kaypro Users Group
14 Cypress Drive
Palm Harbor, FL 33563

Product: PACK & CRYPT
Manufacturer: Software Toolworks
15233 Ventura Boulevard, Suite 1118
Sherman Oaks, CA 91403
Phone: (818) 907-6789
Sugg. List Price: $24.95

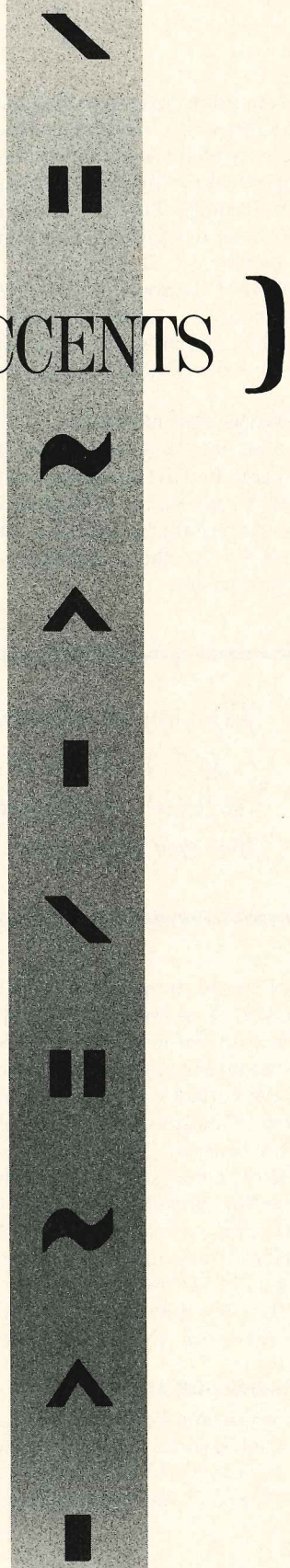
Product: CFC (public domain)
Product: The Data Security Toolkit
Manufacturer: ALMTEK
P.O. Box 6425
San Rafael, CA 94903
(no phone number available)
Sugg. List Price: $25

Product: Lock and Key
Manufacturer: Willisoft Technology, Inc.
P.O. Box 515
Hudson, MA 01749
Phone: (617) 568-0940
Sugg. List Price: $99.95

Product: Smartkey
Manufacturer: Software Research Technologies, Inc.
2130 South Vermont Ave.
Los Angeles, CA 90007-1654
Phone: (213) 737-7663
Sugg. List Price: $49.95

Product: Superkey
Manufacturer: Borland International
4585 Scotts Valley Drive
Scotts Valley, CA 95066
Phone: (408) 438-8400
Sugg. List Price: $69.95

FOREIGN-LANGUAGE @I(ACCENTS) WITH PERFECT WRITER



BY O. B. HARDISON, JR.
ILLUSTRATION BY STACY KRIKORIAN

To many Kaypro users, Perfect Writer is still the standard by which other word processors are measured. The fact is, you can look a long time to find a program that is more versatile and more responsive to the needs of the professional writer—with one exception: foreign-language accents, called "diacriticals." The frequently used languages that have diacriticals are French, German, Italian, and Spanish. Scandinavian languages are used less frequently, and Greek (transliterated) less frequently still—but you never know.

The Kaypro keyboard has equivalents for almost all of the standard accents. The same equivalents are included on the printwheels of all standard daisywheel printers and, of course, are a piece of cake for dot-matrix printers.

STANDARD ACCENTS

The keyboard characters that can be used to create standard accents are:

'' (quotation mark)	= German umlaut
' (single quotation mark)	= French (Sp., It.) aigu
` (left-to-right accent)	= French (It.) grave
^ (up-arrow)	= French circumflex
, (comma)	= French cedilla
~ (tilde)	= Spanish (Port.) tilde
/ (slash)	= Scandinavian umlaut
-^ (hyphen, up-arrow)	= Marks for transliterating Greek

CONTINUED ON PAGE 76

Copyright 1987 O.B. Hardison. All rights reserved.

CONTINUED FROM PAGE 75

There are limits, of course. A standard keyboard cannot give you the superscript "o" used by Scandinavian languages, nor can it give you the upside-down question and exclamation marks with which interrogative and exclamatory sentences begin in Spanish. Finally, the accent aigu (right to left) is vertical on my daisywheel, although it is properly slanted on my dot-matrix.

The lack of a provision for foreign language accents in Perfect Writer has always irritated me. It ought to be possible. In fact, it is possible for all accents that can be found or emulated on the standard Kaypro keyboard.

BACKSPACING FOR ACCENTS

The most obvious way to put in accents is to type the letter in question and then to backspace, add the accent, and move on. That is what you do on an English-language typewriter. It is possible to force the printer of a computer to do this by first sending it a letter, then a backspace command, and then the appropriate accent.

The most obvious way to get accents is to type a letter, backspace, add the accent, and move on.

The backspace command in ASCII is Control-H (^H, denoted by a decimal 8, or hexadecimal 08). Being a command, this sequence does not normally print on the screen. To get it to print on the screen you have to use a command not listed in the index of the Perfect Writer manual but included on the card of commands: Control-Q (^Q). This command puts you in a "quote environment." The "quote" command itself does not print, but any command you type after it does print. Thus, it is possible while using Perfect Writer to embed a ^H in the text. Theoretically, a sequence like: ". . . Empfa^H"ngt ihn Fra^H"ulein Kunigunde" should produce umlauted "a's" in Emphangt and Fraulein.

Unfortunately, it doesn't, but don't despair. There is a way to get what you want. Here is what you do:

CONFIGURING FOR ACCENTS

Make a copy of your Perfect Writer disk. Do not use your master or even your favorite copy. The procedures described below are safe, but mistakes can happen. If you botch a copy, you can erase the disk and start over and nothing will have been lost.

Put the newly copied Perfect Writer disk in drive A and the disk with PFCONFIG.COM in drive B. At the A-prompt, type B:PFCONFIG. (Note: Do not go to the B drive; you must work from the A drive to change the configuration of the Perfect Writer disk in the A drive.)

You will get some instructions and then a question asking whether you want to change disks. Type **N** for "No" and continue.

When you have the PFCONFIG menu, select option 2 (for printer types). The printer menu will appear. Type **3** and the name of the printer (or "device") you want to revise. A series of 23 (or 24) options will appear. You can ignore all of them up to number 11. To option 11, which asks about printer codes, answer **1**. (You are going to use a plain, non-proportional printer. If, like most writers, you use non-proportional spacing, this should suit you fine. However, if you use proportional spacing regularly, you may have to do some experimenting on your own.)

Except for the answer to option 11, the settings for the other options, up to 23, can be whatever your printer needs. Since they are already satisfactory, you can ignore them.

Option 23 asks what string (i.e., sequence of commands and/or letters) you will use to turn on italics. I do not use italics, so I have never done anything with the italics option. However—and this is the key to the present strategy—any string that you enter for option 23 will be sent to your printer. The string you want is ^H for backspace. My initial effort to enter this string came to nothing because the ^H wouldn't print on the screen. The solution is to use the quote command (^Q), followed by ^H. Follow this sequence, and behold: ^H will appear on your screen.

When that happens, a question that was not there before suddenly appears. Since option 23 is for turning on italics, if it is answered, PFCONFIG wants to know what turns off the italics. Since all you need is one backspace, you can ignore it and enter a carriage return. The screen will now restore the list of 24 options. Number 23 should have ^H, and number 24 should be blank.

Note that the revisions described above must be made for each "device" (i.e., each printer definition) that you want to use to print foreign-language accents.

Having completed reconfiguration of your device or devices, you exit the PFCONFIG program by following the onscreen instructions. In the process, your revisions are automatically made part of the permanent configuration of the Perfect Writer disk in drive A. On your next cold boot of the disk, they will be in effect.

KEYPAD CONFIGURATION

There's one more change that's not essential but that saves lots of time. Using the CONFIG.COM program on the CP/M disk (not to be confused with the PFCONFIG.COM program referred to earlier), configure your Perfect Writer disk so that

one of the keys of the numeric keypad will, when pressed, create the "start italics" string. To do this, put your CP/M disk in drive A and type **CONFIG**. When the program is loaded, take the CP/M disk out and replace it with your revised Perfect Writer disk.

A change that saves time is to reconfigure a keypad key to create the "start italics" string.

Now select the option "Redefine the numeric pad." When the picture of the keypad appears, use the linefeed key to move around. Choose a number key and type **3**, since you will need three characters. (Because I use a lot of foreign-language quotations, I selected the over-sized zero key on the keypad simply for convenience.) Enter Perfect Writer's command for starting italics, **@I{**. ^H will now be sent to the printer whenever you enter this string and will cause your printer to backspace. Perfect Writer requires a closing bracket (}) to match the initial bracket. While you are in CONFIG, you might as well choose a special keypad key for the closing bracket.

SAMPLE PASSAGES

Now back to writing. Fire up your reconfigured Perfect Writer. Create a standard text file and type something in a foreign language. When you encounter an accent, type the letter first, then enter the "start italics" command (@I{), then type the accent and the closing bracket (}), and then the rest of the word. Some typical sequences follow:

Type:

. . .Empfa@I{"}ngt ihn Fra@I{"}ulein Kunigunde. . . .

and:

. . .Allo@I{^}. Comment c@I{,}a va? J'espe@I{`}re bien que nous pourrons de@I{'}jeuner ensemble. . . .

These will be printed by a daisywheel "device" (e.g., "Diablo10"—my Silver Reed printer) as:

```
...Empfa"ngt ihn Fra"ulein Kunigunde....
```

And:

```
...Allô. Comment ça va? J'espère
bien que nous pourrons déjeuner ensemble....
```

The same strategy will produce:

```
...Skøl!
```

Greek transliterations use the macron (-) or the circumflex (^) to indicate omega (in contrast to omicron) and eta (in contrast to epsilon). Both can be produced, but the circumflex is much more legible:

```
"gnœme" versus "gnômê"
```

Breathers are usually indicated in transliteration by the letter "h". Theoretically, the left-to-right accent could be used in place of it. In practice, the single quotation mark is preferable. When used, it does not need a backspace since it precedes the vowel:

```
"homoiôsis" or "'omoiôsis"
"Hellên" or "'Ellên"
```

The strategy also produces a few mathematical and other signs:

≠ ≥ ≤ ± ≡

Ø ↑ → ← 35¢

Perfect Writer remains an impressive and flexible word processor long after it should have become a dinosaur. The capacity to produce diacriticals greatly enhances its flexibility.

O. B. Hardison, Jr., writes on a Kaypro 2X. His most recent book is Entering the Maze: Identity and Change in Modern Culture, *published by Oxford University Press.*

We're going to increase our computer efficiency by replacing the part that occupies that chair.

WHAT'S ONLINE

How To Track Down Online Resources.

BY KATHLEEN LOW

PHOTOGRAPH BY GLENN STEINER

Even if you're new to personal computing, you're probably aware that tons of information is supposed to be available "online"—just a phone call away via modem. You should be able to go online and find the address of a particular elementary school principal in Duluth, Minnesota, the effect of tributyltin on bass, reviews of a printer you're considering purchasing, market share reports dealing with the paper industry, or an answer to why you can't get a certain feature of WordStar to work for you. And you can—if you know what online source to tap into.

Whether you're a beginner or an experienced user, this article can help you in your search for knowledge. We'll start with a quick description of electronic bulletin boards and online databases for those who may not be familiar with them. Then we'll look at some books and magazines that tell you where to search for the information you need and suggest some additional sources of help as well. CONTINUED ON PAGE 80

WHO'S ONLINE

Copyright 1987 Kathleen Low. All rights reserved.

CONTINUED FROM PAGE 79

ELECTRONIC BULLETIN BOARDS

Thousands of electronic bulletin boards across the country supply access to all kinds of valuable information. The type of information available, however, is different from what you find in online databases. As the name implies, electronic bulletin boards allow users to "post" and answer messages. Their goal is to provide a method of exchanging ideas and information. Thus many bulletin boards also contain short files and public domain software that can be "downloaded"—that is, transferred to your own computer. In any event, they can be wonderful sources of free or inexpensive information.

Bulletin boards are run by organizations, computer stores, clubs and individuals. For instance, the U.S. Department of Commerce maintains a bulletin board listing economic statistics, press releases, and other valuable information. A San Francisco Bay Area genealogy club provides a bulletin board to help genealogists locate information on their ancestors. And Kaypro Corporation maintains a bulletin board named KUG ROS (Kaypro Users Group Remote Operating System) to assist its users with problems and questions.

ONLINE DATABASES

In contrast, online databases are run by commercial firms, research centers, or government agencies. They contain large collections of information that tend to take one of five forms.

Bibliographic Databases. The bulk of the commercially available databases fall into this category. Each record contains the author, title, and other information necessary to locate specific published items. These records may or may not also contain abstracts. Most of these databases focus on specific subject areas; for example, some bibliographic databases index selected computer publications. Here you'll be able to locate citations and possibly abstracts of hardware or software reviews, profiles of industry leaders, or any other topics carried in these publications.

Full-text databases contain the complete text of items cited.

Full-Text Databases. These databases contain the complete text of items cited, be they reports, newspaper articles or magazine articles, or wire stories. Full-text databases tend to be extremely current.

Directory Databases. In addition to standard directory information, these databases frequently contain other information, such as brief sales data, the names of executive officers, etc. Several directory databases offer you the ability to order mailing labels, or to print them yourself using directory listings.

Numeric/Financial Databases. Market share reports, financial reports, and statistical tables are samples of the type of information found in this type of database.

Biographical Databases. The number of biographical databases has been increasing lately. Most of them focus on a specific field, such as science.

The cost of accessing an online database ranges from a few dollars to approximately $300 per hour. But there are several advantages of searching for data online versus manually. One is the speed and ease with which online data can be retrieved. Another is the currency of the data. Frequently data is available online long before it is available in print.

(Perhaps you've also heard the terms "information utilities" or "information services" in reference to companies like DIALOG Information Services and BRS. These services provide access to selected databases, but they are not databases themselves. Our focus is primarily on the databases themselves, not gateways to them.)

REFERENCE BOOKS

Now that you're aware of the type of information available online, where do you go to find out what online data is available on a specific topic? Local public libraries and computer book stores are two of your best bets. They will likely have one or more of the directories, magazines, or books you need. Some specific sources are listed below.

The Directory of Online Databases, published quarterly by Cuadra/Elsevier, is probably one of the best-known database directories. It provides information on more than 3,360 databases and distinctly named online files. Each entry lists the database content, date coverage, geographic coverage, conditions of access, and other relevant data. To be included in the directory, the database has to be available online, available to the public or eligible subscribers, and available through an online service organization connected to a telecommunications network.

Computer-Readable Databases: A Directory and Data Sourcebook is a two-volume set published by the American Library Association. Volume One, subtitled *Science, Technology, Medicine*, covers the hard sciences, medicine, engineering, and related disciplines and contains more than 1,092 entries. Volume Two, *Business, Law, Social Sciences, Humanities*, also includes general databases containing data from newspapers, information on job openings, resumes, etc., and lists 1,948 entries. Subject indices appear at the ends of both volumes.

The Datapro Directory of Online Services is a loose-leaf service broken down into volumes. Volume One contains

CONTINUED ON PAGE 82

CLASSIFILES

SOFTWARE

LABELING SOFTWARE & BAR CODE READERS

Print Labels—Epson, IBM, Oki, & LaserJet. Any size/any format with **big text readable up to 50 ft.** Mix with Bar Codes: MIL-STD, AIAG, 2 of 5, MSI, UPC/EAN, Code 39. Reversals, file input, fast, easy, menu-driven—$279. Other programs from $49. Also programs to print from inside dBASE, BASIC, ANY language. **Bar Code Readers** – for PC/XT/AT, PS/2 attaches as a 2nd keyboard; reads bar codes into **ANY** program. PC/XT/AT model attaches externally to side of PC or monitor OR in an internal slot - $385. PS/2 or RS-232 model - $399. 30 day **unconditional $ back** guarantee on all.

WORTHINGTON
DATA SOLUTIONS
417-A Ingalls Street, Santa Cruz, CA 95060
408/458-9938

dBASE BUSINESS TOOLS

- General Ledger
- Accounts Recvbl.
- Order Entry
- Sales Analysis
- Purch Ord/Invntory
- Accounts Payable
- Job Costing
- Job Estimating

$99 EA. + s&h w/dBASE 2, 3 or 3+ SOURCE CODE
dATAMAR SYSTEMS Visa/MC/AMEX
4876-K Santa Monica Ave. Check/COD
San Diego, CA 92107 **(619) 223-3344**

EZ CHURCH MEMBERSHIP SYSTEMS

Put your computer to work for your church.
Five modules, only $895. MS-DOS, CP/M.

EZ SYSTEMS, INC.
P.O. Box 23190
Nashville, TN 37202
(615) 269-6428

FORMS – FAST AND EASY FORMATION (V.2.0)

Makes forms fast and easy without drawing lines on paper or on screen. Program includes variety of prints, online help, editing features, fill-in features, and much more. CP/M or MS-DOS. Works with dot-matrix printers. $89.95 plus $3. S/H. Money back guarantee. For more information, or to order contact:

PBT SOFTWARE • (616) 363-4067
1750 Leffingwell N.E., Grand Rapids, MI 49505

DATEBOOK $89.95 • APPOINTMENT SCHEDULER

Ideal for Professionals! Features include help windows, multiple bookings, flexible time intervals. Searches for openings within specified days and times. Supports 20 different schedules. Prints daily appts. IBM/XT/AT compatibles (w/hard disk). $89.95 plus $4 s/h; Check/VISA/MC; MO add tax.

EXECUTIVE COMPUTER SYSTEMS
1571 Fenpark Drive, Fenton MO 63026
(314) 343-5757

SABALINE SOFTWARE

The latest public domain, MS DOS and Kaypro CPM/Software is available on disk from Sabaline at just $3.00 a diskfull. To get our catalog on disk and later your first disk free, send your check for $3.00 to:

SABALINE
P.O. Box 232231, San Diego, CA 92123

The SABALINE PD collection is now 60 full disks and growing. Find out why people tell us our disks are the best disks around. **619-569-8613**

WHO

WHO is a program to maintain lists of names, addresses and phones. WHO can print:

Address Report • Address List • Phone List
Address Book Filler • 3 x 5 File Cards
2 x 4 Rotary Cards • Labels • Letters

Easy data entry. Select on any data item. Set up your own categories with 9 user-defined codes. Alphabetic or Zip Sequence. 32,000 names with hard disk. 1,000 names with DSDD diskette. MS-DOS or CP/M (Specify computer).

License to use on one computer, and complete user's manual: $99.00 plus 7% sales tax in California.

Order from:

ROBOTRONICS
7800 MacArthur Blvd.
Oakland, CA 94605
(415) 639-7716

THE FINANCIAL PORTFOLIO

A completely integrated financial calculation and analysis tool for loans, savings & investments, real estate, and depreciation including professional amortization schedules. Includes 36 calculations. Screen & custom print capability. Color & Monochrome. Menu driven. Complete documentation manual. Fast & accurate. Calculates mortgages, consumer loans, payoffs, affordable loans, amortization schedules, comparative analysis, annuities, present & future values, IRA's, investment yields, depreciation schedules, loan qualifications and much more.

IBM PC, XT, AT, & COMPATIBLES
Only $47.50 (complete & post paid)
Send check or money order to
(Visa & MasterCard accepted)

SYSTEM V, INC.
P.O. Box 61, Greenville, S.C. 29602
(803) 579-3003

"Guide Through DataStar/ReportStar"

is a tutorial in plain English. This DISK BOOK will help you get maximum benefit from a fine database program you already own. Print it (120 pages) with mailmerge.

Send $18.00 to:
DISK BOOKS, P.O. Box 507, Keno, OR 97627
and tell me your disk and computer.

THE LEARNING GAMES

Entertaining, challenging software for children aged 3 to 8.

- Basic Math
- Pre-Reading Skills
- Word Recognition
- Shape Recognition
- Sequencing
- Letter Recognition

For CP/M Kaypros with Graphics
Package of 4 disks, 16 games, $29.95 Single Disk, $9.95

PEGASUS EDUCATIONAL SOFTWARE
P.O. Box 236, Goshen, KY 40026 (502)228-4337

HARDWARE

'83 (Non-Graphics) KAYPRO II & 4

We support, repair, buy & sell

RAMDISK	448K to 1,984K; with printer buffer	...from $175.00
SPEEDUP KIT	5 or 7 MHz	...from $ 39.95
MONITOR EPROM	disk speedup, other features, for K-4	... $ 19.95
	for K-II; with II-to-4 board upgrade	... $ 39.95

Money-back guarantee of satisfaction
Write for information:
HIGHLAND MICROKIT, P.O. Box 21, Highland, MD 20777

FORMAT:

Advertisers may choose either a one-inch or two-inch format. PROFILES will typeset each ad. Advertisers must furnish typewritten copy. Logos and camera-ready copy will not be used. Ads should include headline, descriptive text, company name, address, and phone number. Every effort will be made to fit text in desired format. However, PROFILES reserves the right to edit copy to fit space. In this case, advertisers will be contacted.

RATES:

	1X	3X
One-inch	$150	$135
Two-inch	250	225

(Non-commissionable)
*Pre-payment **must** accompany each insertion.*
Rates effective May 1, 1987

SUGGESTED CATEGORIES:

Hardware • Software • Accessories
Hardware/Software • Consulting

Call
619-259-4499
for more information

CONTINUED FROM PAGE 80

information on the various online databases available, profiles of the sponsoring companies, reports on the major database providers, and feature reports on microcomputer modems, communications software, and other relevant topics. Volume Two focuses on remote computing service vendors and also contains reports on the major services.

The Directory of Online Systems *lists more than 600 bulletin boards.'*

The Computer Phone Book is sold as two separate volumes. Volume One, *Guide to Using Online Systems*, presents an introduction to computer communications and detailed chapters on CompuServe, The Source, NewsNet, Dow Jones, and other popular information services. Volume Two, *Directory of Online Systems*, introduces you to the world of electronic bulletin boards. For new bulletin board system (BBS) users there's a nice chapter with helpful hints and the do's and don'ts of using a BBS. There's also a chapter of rules and guidelines for would-be and new sysops (bulletin board system operators). The book has information on more than 600 bulletin boards, ranging from a law-and-business oriented BBS in Nebraska to a Christian BBS in Anchorage Alaska. These boards could keep you occupied for months!

The *Data Base Directory* provides information on more than 2,700 online databases available to the public. Each entry contains a summary of the database, its subject coverage, any corresponding printed sources, date coverage, vendor and price information, and the services through which it can be accessed. A subject index is included.

Online Bibliographic Databases: A Directory and Sourcebook provides details on 250 online databases accessible through various online service suppliers. The sourcebook also includes a directory of online service suppliers and a bibliography of selected references.

The North American Online Directory provides information on more than 2,000 firms, organizations and individuals that produce or provide access to information products, including online databases. Subject and geographical indices are included.

The Federal Database Finder: A Directory of Free and Fee-Based Databases and Files Available from the Federal Government describes more than 4,200 databases and files usually not found in any of the other database directories. These databases range from general interest (e.g., vacation site information from the Natural Resource Management System) to technical (e.g.,the toxic information in the TOXNET file of the National Library of Medicine's MEDLARS system). Each entry lists the contents of the database, full contact information, and any known charges. (Most are not-for-profit and are available either free of charge or at cost.)

The directory is broken down into two major sections: Government Controlled Databases and Government Data Files. The first section lists databases searchable by federal agencies, their contractors, or designated centers, and in some cases the general public. The second section, Government Data Files, provides you with information on recent data tapes and diskettes, the agencies that produced them, their cost, and full contact information.

The Directory of United Nations Databases and Information Systems describes selected information systems, services, and databases operated by or in association with the United Nations and its organizations. More than 600 systems operated by 38 U.N. organizations are included in this directory. Each entry includes the name of the system and full contact information in English, Spanish, and French, plus information on the subject of the database/system, geographic coverage, availability (that is, who can use the database), and working languages. The entries are arranged under the issuing organization, with name, acronym, subject, and geographic indices appearing at the end of the directory.

The EUSIDIC Database Guide focuses on European databases, although it is an international directory. In addition to a subject index, the guide also contains a geographic index.

The Encyclopedia of Information Systems and Services is a guide to systems, services, and organizations that produce or distribute information in some type of electronic form. This includes database producers, CD-ROM publishers, online host services, VideoText/Teletext information services, and much more. Volume One of the encyclopedia contains information on more than 2,700 U.S.-based information systems, while Volume Two provides information on more than 1,200 international systems, services, and organizations. The third volume contains indices to the first two volumes. Each entry contains full contact information, a description of the system, scope, input service, availability, and more.

MAGAZINES

Magazines and periodicals are also wonderful sources of information. Some computer magazines, including *PROFILES* in its "Life at 300 Baud" column, list the names and numbers of local bulletin boards. Four useful magazines devoted specifically to online databases or bulletin boards are listed below.

Bulletin Board Systems presents information on new electronic bulletin boards and provides regular coverage of computer telecommunications and bulletin board systems. The magazine is issued eight times per year.

Online and *Database* magazines both contain database news, search tips, and surveys of databases. Both titles are issued six times per year.

Link-Up is a monthly magazine that presents news coverage on the latest databases, communication technologies, software, and services. It also includes feature articles, reports on new products, and "how to" information.

The items listed above are just a few of the more popular sources. *The Directory of Directories*, published by Gale Research Company, can help you locate other relevant directories. Also, you should check your local bookstore or library to see what new printed sources are available.

Another source of good information is your local Kaypro Users Group.

MORE HELP

In addition to libraries and bookstores, another good source of information is your local Kaypro Users Group. There you'll find other computer users who are more than willing to share any knowledge and experience they've had with bulletin boards and databases. Many of them have probably discovered bulletin boards not listed in any directory. Some of them may even be running their own BBSs.

Never before has information been so easy to gather; research that used to take weeks can now take only hours. If you use your computer, modem, and a telephone correctly, you may never open another reference book again.

Kathleen Low is a librarian in Sacramento, CA.

QUICK REFERENCE SUMMARY

Bulletin Board Systems
8 issues/yr.; $26.50
Meckler Publishing
11 Ferry Lane W.
Westport, CT 06880
(203) 226-6967

Computer Phone Book
1986; v. 1 $14.95; v. 2 $18.95
New American Library
P.O. Box 999
Bergenfield, NJ 07621
(800) 526-0275

CONTINUED ON PAGE 84

The International Software Librarary
a division of U.S. Computer Supply, Inc.
511-104 Encinitas Blvd.
Encinitas, CA 92024
Only $4.99 per program Disk*
Thousands of programs available
Call for your **FREE** catalog today.

CP/M Software	MS DOS Software
7049 **VDE**: Version 2.5. Small, powerful editor takes up only 10k of memory.	**125-127 PC-Type+ 1.0:** This powerful word processor includes mail merge, a 100,000 word spelling checker, on-line help, and more. (3 disks) NEW!
7266 **SPELL**: Version 2.0. Excellent spelling checker; comes w/a 40,000 word dictionary. Has a Wordstar Spellstar output.	**204** **Arcade Games:** KONG, 3-D Pacman, Pango, Bricks. (Color monitor required)
7000 **NEW ADVENTURE**: Enter into the Colossal Cave to find fortunes of treasures and gold.	**322/348 GT POWERCOM 12.2:** ANSI Standard terminal emulation, compatible with super-micro computers, Capture Mode, limited only by available disk space, Xmodem/CRC and Ymodem/CRC protocols, Kermit file transfer protocol, and an interactive script language to automate many repetitive tasks. (2 disks)
7080 **ELECTRIC EASEL**: High powered; w/block commands and printer (Epson or Gemini) capabilities.	**501** **PC-Calc:** Spreadsheet has up to 26 columns and 255 rows.
7023 **SMALL C COMPILER**: Version 2.0. Expanded version of Ron Cains Small C. Includes sample programs.	**757** **Cartoons XXX:** X-rated cartoons. ADULTS Only! Must be 21 yrs. or older. (Requires Color Graphics Adapter)
7068 **COBOL**: Compiles to interpreted code. Includes interpreter and full documentation.	**829** **Diversified Accounting Package:** With dBASE III source (requires dBASE III): Enter the employee's time sheet, enter the supplier's bills, update the cost base, pay salaries, pay bills, enter incoming monies and more functions.
7377 **GFONT** : Prints text on a printer using the high resolution graphics mode. Works on Epson and Gemini printers.	**901&944 PC-FILE+ V1.0:** User friendly filing system now features online help, math functions, & the ability to customize the Data Base to fityour personal needs. (2 disks)
7227-7230 THE BIBLE: The New Testament. King James version. Requires dual floppy drives or hard drive. **(4 disk set. Must order all disks)**	**1305** **The Boss:** Helps implement Pop-up windows, pull down menus, status lines and in context on-line help. Also allows you to drag windows around the screen and automatically sense the video card installed. (Requires lattice C, Microsoft C or Computer Innovations C186 compiler)
7231-7242 THE BIBLE: The Old Testament. King James version. Requires dual floppy drives or hard drive. **(8 disk set. Must order all disks)**	**1712** **Mail Master:** Enter names, addresses, etc. Information may be searched, sorted, & printed.
7062 **MAGIKEY+**: A key redefinition program; allows you to create and keep key definition files.	
7400-7401 UNIX TOOLS : Cat, col, crypt, find, grep, merge, paste, pr, sort, uniq, and more. Comes with very complete documentation. **(2 disk set. Must order both disks).**	
7090 **ZCPR**: Will work on all KAYPROS that operate under CP/M.	
All disks are Kaypro II format Other formats available for $7.99	

*(Minimum order of 5) **To Order Call:**
800-992-1992 (Nat'l)
800-992-1993 (CA)
619-942-9998 (Foreign)

CONTINUED FROM PAGE 83

Computer Readable Databases
1985; $157.50
American Library Assoc.
50 East Huron St.
Chicago, IL 60611
(312) 944-6780

Data Base Directory
Semi-annual with monthly updates; $215
(American Society for Information Science)
Knowledge Industry Publications
701 Westchester Ave.
White Plains, NY 10604
(914) 328-9157

Database
6 issues/yr.; $78.00
Online Inc.
11 Tannery Lane
Weston, CT 06883
(203) 227-8466

Datapro Directory of On-Line Services
Looseleaf; $479
Datapro Research Corp.
1805 Underwood Blvd.
Delran, NJ 08075
(609) 764-0100

KAYPRO®

CLOSEOUT SALE

Looking for a new carrying case for your Kaypro 2000 Laptop Computer? This padded nylon case is constructed of durable nylon fabric and has a detachable shoulder strap with a velcro closure. Take advantage of this special **CLOSEOUT PRICE!**

Send a check or money order for $15.00 plus $2.00 shipping and handling to:

Kaypro Promotions Department
533 Stevens Avenue
Solana Beach, CA 92075

Quantities are limited. Offer good while supply lasts.

Deliver To:

Name

Street Address

City State Zip

Allow 6-8 weeks for delivery. No charge orders under $25.00 accepted. Credit card orders under $100.00 will incur a 5% handling fee.

Directory of Online Databases
Quarterly
(Cuadra Assoc. Inc.)
Cuadra-Elsevier Partners
2001 Wilshire Blvd., Suite 305
Santa Monica, CA 90403
(213) 829-9972

Directory of United Nations Databases and Information Systems
1985; $35.00
United Nations
Sales Section
Publishing Div., Room DC2-853
New York, NY 10017
(212) 754-8302

Encyclopedia of Information Systems and Services
Gale Research Co.
Book Tower
Detroit, MI 48226
(800) 223-4253

EUSIDIC: Database Guide
1983; $50
Learned Information
143 Old Marlton Pike
Medford, NJ 08055

Federal Database Finder
1987; $125
Information U.S.A. Inc.
4701 Williard Ave., Suite 1707
Chevy Chase, MD 20815
(301) 657-1200

Link-Up
Monthly; $22/yr.
Learned Information Inc.
143 Old Marlton Pike
Medford, NJ 08055
(609) 654-6266

North American Online Directory
1987; $85
R.R. Bowker Co.
205 E. 42nd St.
New York, NY 10017
(800) 521-8110

Online
6 issues/yr.; $78
Online Inc.
11 Tannery Lane
Weston, CT 06883
(203) 227-8466

Online Bibliographic Databases
1986; $105
(ASLIB)
Gale Research Company
Book Tower
Detroit, MI 48226
(313) 961-2242

FIGHTING FRAGMENTATION

BY TED SILVEIRA

Hard disks are wonderful things. They're so much faster than floppy disks that they make programs like WordStar and dBase II fly. And once you get used to having all that space (10 megabytes, 20 megabytes, or even more) and to having all your programs and data files available all the time, you can't go back to a floppy-only system. It's like returning to the Dark Ages.

But hard disks exact a price beyond the $500 to $800 you'll have to pay for one. They can be noisy (get an external hard disk with a long cord and put it under your desk to muffle the sound). They're vulnerable to mechanical breakdowns (and a 20-megabyte crash is nothing to take lightly), so you have to back up your data conscientiously—no exceptions. They require you to learn about CP/M's user areas (something most floppy users can safely avoid) in order to make the best use of the space they offer. And because, like basements and attics, they inevitably accumulate junk (knickknacks, unwanted gifts, unidentified whatsits waiting for repair), you also have to do regular housecleaning—erasing unneeded files, transferring files that have unaccountably drifted into the wrong area, and so forth. Even if you overcome all these problems, you still face one more—file fragmentation, which also affects floppy disks but is most noticeable on larger hard disks.

When you store a file on any disk, CP/M stores the file not in one big chunk but in a series of smaller chunks called blocks (on a hard disk, each block is usually 4K bytes, while on floppies it's usually 2K or even 1K on a Kaypro II). And in order to make the most efficient use of your disk space, CP/M doesn't try to store all the blocks in a file together (that is, contiguously). Instead, it starts at the beginning of the disk and sticks blocks in wherever it can find room. As a result, the various parts of any particular file may be spread all over the disk. Most of the time you don't need to worry about this, because CP/M keeps track of where all the blocks are in its directory area and fetches each part of a file when you need it.

Unfortunately, as you use any disk—editing, copying, deleting, and adding files—the files become more *fragmented*, until the files you use most often are likely to be widely scattered. And when the blocks in a file are scattered, CP/M has to run all over collecting the bits and pieces when you want the file, which takes extra time. When the fragmentation gets extensive, you'll find that reading and writing to the disk takes noticeably longer. On a floppy disk you might ignore the slowdown, but on a 20-megabyte hard disk, you'll eventually find file operations becoming sluggish.

To restore performance, you need to *defragment* your disk, rewriting all the files so that the blocks in each file are contiguous.

THE MANUAL METHOD

This method is pretty "low tech," but it works and uses only tools you already have. First, copy *all* the files off your hard disk onto floppy disks. Make sure you get them all, and make a note of what drive/user area each one came from so you can put it back in the same place. (You should always have a complete set of files on floppies anyway, as a precaution against a hard disk crash.)

Second, once you're sure you have good copies of every file on your hard disk, erase the files on the hard disk—all of them. (Don't completely reformat the hard disk. Just use NewSweep, CP/M's ERA command, or a similar function to erase the files themselves.) This step can be scary—that's why you need to make sure that you have good copies of everything.

Third, use PIP, NewSweep, or a similar copy program to copy all the files from your set of floppies back onto the hard disk (putting them all into their proper drive/user areas). Because the hard disk is now empty (all the files erased), CP/M doesn't have to hunt for space and will write each file out as one contiguous string of blocks. The result—an unfragmented disk.

You can add one extra refinement to this procedure. Some files always stay the same size—programs (like WordStar's WS.COM), program overlays (like the WordStar overlay WSMSGS.OVR), the Word Plus' main dictionary file (MAINDICT.CMP), and so forth. Other files will frequently change size—WordStar document files, dBase II data files, the Word Plus' update dictionaries (UPDICT.CMP and SPECIALS.CMP), and so forth.

Copy the programs and other files that don't change size onto your hard disk first—they'll all be together on the beginning of the disk, and that part will remain unfragmented (unless you erase or replace some of your programs). Then copy your other files—the ones most likely to get fragmented—onto the disk as you want. This trick won't prevent future fragmentation (nothing will), but it will slow it down some so that you won't need to defragment your disk quite so often. (As you've guessed, all this copying back and forth takes time, especially if you've got a nearly full 20-megabyte hard disk.)

THE AUTOMATIC METHOD

If all that copying seems like too much work, you can try the automatic method, using FIRE12 (File Restore version 1.2), a public domain program by George F. Reding.

CONTINUED ON PAGE 86

Copyright 1987 Ted Silveira. All rights reserved.

The Best-Selling Add-on Kaypro compatible Hard Disk is now the smallest!

NEW FOR FALL '87 THE MICRO SERIES HARD DISK SYSTEMS FROM ACEC!

The MICRO 20, fits in your hand, yet outperforms much larger hard disk units.

The ACEC Mini-Winnie hard disk system has become THE most popular hard disk add-on for CP/M Kaypros since its introduction in 1985, chosen as the "Best new hardware product for 1986" by Ted Silveria in Computer Currents, Dec. 86. Our reputation is that of satisfaction and support:

Ted Silveria, Computer Currents 7/86:
"Advanced Concepts has established a reputation for excellent support."

Rick Charnes, Morrow Owners Review 1/87:
"A top-notch, well-made product. And it comes with one important extra, something that is on the rare side in the computer field: customer telephone service that won't quit."

Albert Garcia, Dayton, OH:
"That hard disk is FAST. So fast, in fact, that I now have a 1 meg RAM disk for sale!"

Bill Jones, Micro Service Group, Indianapolis, IN:
"It's refreshing to find a company offering a product that they know and support well."

Dale Moberly, Nashville, IN:
"Thanks so very much. Profiles understated you."

	20/10 mb EXTERNAL drive	**20**/10 mb INTERNAL drive
Standard* 5¼":	**$790**/665	(See Note)
Micro Series 3½":	**$849**/759	**$795**/745

*Our Standard 5¼" systems feature populas drives by Seagate, Rodime, Tandon, CMI and others, chosen for reliability and value.

(INTERNAL note: 5¼" drives add excessive load to your power supply. For 3½", some early Kaypro models may require a power supply upgrade. Fan incl. if applicable.)

FEATURES

- 5 to 20 mb., larger with TurboRom option.
- Fast (twice as fast as a K-10)!
- Quiet operation.
- Installs quickly, no programming.
- Micro 10 and 20 use Hi-G ruggedized 3½" premium drives by Fuji and LaPine.
- Low power consumption.
- Retain all your floppies, lose no capability.
- Compatible with other add-ons!
- Installs as ANY logical drive letter(s), can be split into 1-4 segments under 8 mb.

Advent TurboRom!

Special edition adds direct support of the Mini-Winnie family to this popular add-on. Operates like Advent's original Hard Disk TurboRom. Not required for Mini-Winnie installation, but gives full TurboRom advantages PLUS:

- **Boot directly from H.D.**
- **TPA space remains 63K.**
- **15% more formatted space.**

$149 (existing TurboRom owners $129 exch.)

ORDER INFO: Call **305-482-7302.** Terms: UPS COD, Check/M.O. (U.S. funds), shipping extra. Please allow 4 weeks for delivery. FL. add 5% tax. May return within 30 days for refund. Warranty 90 days (Drive 6 mos.). State computer type & add-ons.

Advanced Concepts Engineering & Consulting
8926 S.W. 17th St., Boca Raton, FL 33433

CONTINUED FROM PAGE 85

FIRE12 will defragment a hard disk for you without forcing you to copy all your files from hard disk to floppies and back again. Instead, FIRE12 will read the disk directory, map and analyze the disk, and then shuffle the files around on the disk until they're all stored contiguously. All this shuffling takes a long time (though probably less time than the manual method above), but at least you don't have to sit at the computer to feed it floppy disks—you can go read the newspaper or sort your paper clips.

I haven't used FIRE12 extensively, but it seems to work fine and hasn't bombed on me yet. However, you shouldn't use FIRE12 without first making backup copies of everything on your hard disk. The program itself may be solid as a rock, but your hard disk is very vulnerable while it's doing all that reading and writing and shuffling of files. If you get hit with a power surge or power failure during the process, you could easily end up with scrambled files. Play it safe.

And if you do use FIRE12, make sure you read and follow the directions. In particular, note that you have to sort the directory of the disk using SAP (Sort And Pack, a version of which is included with FIRE12 in the FIRE12.LBR library file).

Even if you don't have a hard disk, you can improve the efficiency of your system by using either of these methods to defragment your floppy disks. (If you use the manual method, though, make sure to use PIP or NewSweep or some similar file-by-file copy program. Don't use the track-to-track copier in Kaypro's COPY or DUTIL program—that produces an exact duplicate of your disk and will leave it as fragmented as when you started.)

FIRE12 and its associated programs can be found in the library file FIRE12.LBR, which should be available both on the Kaypro bulletin board (619/259-4437) and other CP/M bulletin boards and on CompuServe (in DL1 of CPMFORUM).

THE KAYPRO 2000+

BY MARSHALL L. MOSELEY

Kaypro Corporation recently unveiled the newest addition to its line, the Kaypro 2000+ laptop computer. This machine has some new features that make it a powerful computer in its own right, not just a companion to a desk-based system.

POWER TO BURN, ROOM TO WORK

At the heart of the 2000+ is a NEC V-20 microprocessor running at 8 Mhz, which you can switch down to 4.77 Mhz if you like. Also included is a socket for an 8087 math co-processor. The computer comes with 768 kilobytes of RAM—640K for use by MS-DOS and 128K for use as a RAM disk.

The 2000+ has two 3.5-inch, side-loading microfloppy disk drives. These drives use disks that hold up to 720 kilobytes of data each, giving the computer over 1.4 megabytes of available disk space. The 2000+ has a built-in battery meter and an AT-compatible serial port. For connecting to any standard printer, there is DB-25 parallel printer port.

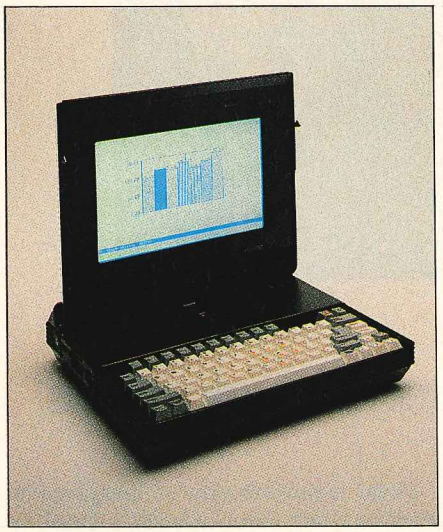
The 2000+ has a built-in lead-acid battery that will operate the computer for two to four hours, depending on how often a disk is accessed. Extensive disk activity uses more power and depletes the battery more quickly.

THE STAR OF THE SHOW

By far the most impressive feature of the 2000+ is its screen. Kaypro uses a cold cathode, supertwist backlit LCD screen that is brighter than the electro-luminescent screens in other laptop computers. This new screen has an expected life of 20,000 hours—five times longer than other LCDs.

The Kaypro 2000+ is EGA compatible; the LCD screen has a resolution of 640 by 400 pixels and supports all EGA video modes. It imitates color video using 16 different shades of gray, giving the traveling computerist access to high-resolution graphics previously unavailable from a laptop. There is also an external video connector for use with multi-scanning, CGA or MDA monitors.

All of the video modes can be accessed from the keyboard using the standard MS-DOS function keys in combination with the 2000+'s blue key. With the blue key depressed, the function keys act like DIP switches on a standard EGA board.



OTHER FEATURES

The 2000+ retains the original Kaypro 2000 keyboard, with keys that have the same spacing as on standard keyboards. It may look small, but when you place your fingers on it you notice that it *feels* like a larger keyboard.

A DB-15 connector is available for attaching an external 5.25-inch drive. This drive, available from Kaypro, can be the C drive, or you can boot from it, which lets you run programs that demand a 5.25-inch key disk.

Also included is a 100 percent Hayes-compatible, 1200/300 BPS internal modem. This modem uses the industry-standard Hayes command set and will automatically dial or answer the phone.

BUNDLED SOFTWARE

The 2000+ package includes a full range of system and application programs.

For running the computer and performing system maintenance, the 2000+ uses the MS-DOS 3.21 operating system. Included with MS-DOS is the GW-BASIC programming language.

For use with the internal modem, Kaypro provides MIRROR telecommunications software from SoftKlone Inc. MIRROR is CrossTalk IV compatible, uses all standard communication protocols, and emulates all common terminals, including VT-100 and IBM 3101 terminals.

WordStar 4.0 Professional, the latest version of this popular word processor, is shipped with the 2000+. WordStar 4.0 includes Word Finder, regarded as one of the best thesaurus programs on the market.

Speed, storage, bundled software, high-resolution graphics, and screen readability give the 2000+ a lot of value and make it a strong contender in the laptop market.

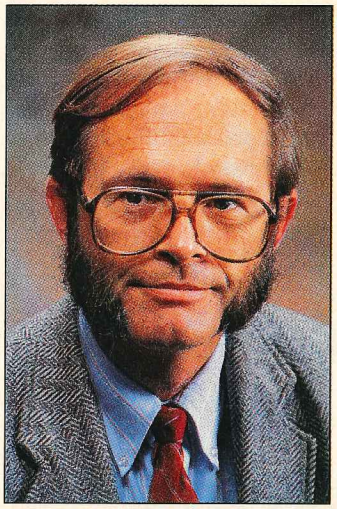
CORRECTION

There were two errors made in our "Holiday Gift Guide," featured in the November 1987 issue. The listing for Public Domain Software Company (page 35) should have been $28 PER DISK, not for the entire set of nine disks.

There was a duplicate listing for The Chocolate Software Company (page 39). Missing was The Original Chocolate Byte (pictured), which sells for $9.95. It features a slab of dark or milk chocolate molded into a 5¼" floppy disk with a "byte" missing from one corner. The byte comes in a reusable software carrying case that holds five floppy disks.

We apologize for the errors and regret any inconvenience to our readers and advertisers.

Copyright © 1987 Marhsall Moseley. All rights reserved.



RICHARD STARKMAN

THE ALPS P2400C PRINTER

BY TOM ENRIGHT

The ALPS P2400C printer is a fast (360 characters per second), surprisingly inexpensive color printer with replaceable font cartridges and personality modules. It's bigger and heavier than most printers; in fact, it's built like a tank—it's a "commercial-duty" printer.

Before I get into the main part of this review, I should explain what I mean b "commercial duty." In a medium to larg business or data-processing environment, dot-matrix printers are subjected to almost constant use. Print jobs are run in "batch" mode, which means that one centrally located printer often does all the printing for several people, or even several departments.

An ordinary printer will not stand up to that kind of use. You need one *designed* to run all day, every day—a commercial-duty printer.

You can tell if a printer really is commercial duty by looking at the specification sheet. In the section on "Reliability," look for the entry MTBF (Mean Time Before Failure). This figure is the total number of hours, at a given number of hours per day, that you should reasonably expect the printer to work before it breaks down. The P2400C is rated for 6,000 hours on a 25 percent duty cycle (a 100 percent duty cycle would be 24 hours a day). This means that a P2400C can, on the average and with prescribed maintenance, print six hours a day for two years and eight months before it breaks down.

The P2400C can print six hours a day for two years and eight months before it breaks down.

Many manufacturers of inexpensive printers don't even publish reliability figures, which I think tells you something about how long they expect the product to last. I'd prefer to buy a printer from someone who gives a reasonable estimate of product life, rather than from someone who avoids the subject completely.

FEATURES

To start off, the P2400C is a beige box 25.4 inches wide, 17.7 inches deep, and 7.1 inches high, and it weighs 43.7 pounds. This is not a wimpy printer.

The front panel has 12 buttons to control standard functions (line feed, form feed, etc.) and provide manual selection of character pitch, line pitch, print mode, type style, and default set-up values. Default values set from the front panel are held in non-volatile memory. There are no DIP switches on this printer—everything is set from the front panel or by software.

The P2400C is available in two configurations. The least expensive version ($1,295) emulates an Epson FX-185 and uses an 18-pin printhead. The other version ($1,395) answers to Epson LQ-1500 commands and has a 24-pin printhead. Plug-in "personality modules" contain the emulation circuitry, as well as both Centronics parallel and RS-232C serial interfaces. The personality modules are available separately, with matched printheads, at $295 for the FX-185 module and $395 for the LQ-1500 module.

Interestingly, either module answers to Epson JX-80 (color printer) commands. So, with applications that print color graphics, simply install a color ribbon and tell the software that you have an Epson JX-80. One color graphing package that I tested did not support Epson JX-80, but it did support the Epson LQ-2500 color printer—which worked just fine.

You also have the option of using the standard (internal) character set, downloaded character sets, or character sets from font cartridges. The P2400C holds up to two font cartridges at a time. The cartridges cost $55 each, and you have a choice of Gothic, Serif, OCR-A, Courier, Prestige, and Orator fonts.

Each of these fonts can be printed in a variety of sizes and modes. Character

Copyright 1987 Tom Enright. All rights reserved.

sizes available for the LQ-1500 version are 10 cpi, 12 cpi, 17 cpi, and proportional spacing. Printing modes available are draft, high density, and "letter quality." Claimed print speed for the LQ-1500 version is 360 cps in draft mode, 180 cps in high-density mode, and 120 cps in letter-quality mode.

The FX-185 version allows the same print sizes, but does not offer the high-density print mode. Claimed print speed for this version is 250 cps in draft and 125 cps in letter-quality mode.

All versions of the P2400C give you a choice of four different paper feed paths. You can feed paper from the bottom or lower rear of the printer with the built-in pull tractor. Pulling one lever and pivoting the tractor converts it to a push tractor fed from the upper rear (excellent for serial numbered forms). Also, when the rear cover is open to act as a sheet guide, single sheets can be fed to the printer easily.

PERFORMANCE

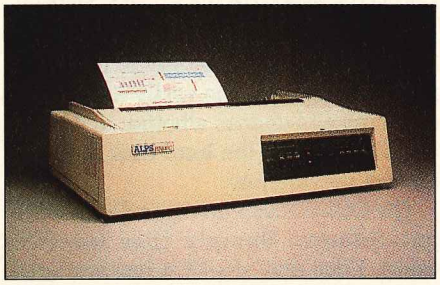
The P2400C is an impressive performer. The P2400C that I received for testing came with the Epson LQ-1500 personality module and the 24-pin printhead. Print quality in all modes is excellent. For my purposes, draft mode is the deciding factor. I want a dot-matrix printer to have clear, easily read characters in draft mode, and I want it to print fast. When I want high-quality output, I'll use a daisywheel or a laser printer, so I judge dot-matrix printers mainly on draft mode performance.

In measured performance tests the ALPS P2400C averaged 190 to 213 characters per second in draft mode. This included printing a three-page test letter that contained 50 lines of 64 characters with an eight-character left margin. The P2400C printed this letter in 59 seconds. The same series of timed tests were run on a Gemini-10X. The Gemini averaged from 67 to 103 cps and took 142 seconds (2 minutes and 22 seconds) to print the test letter.

Keep in mind that *no printer* runs as fast as the manufacturer advertises. Advertised speed is only for the portion of a line printed after the print head is at maximum speed. In order to survive the game of "specsmanship," nearly all printer manufacturers phrase their advertisements that way. Technically their claim is true *for part of each line printed*. The tests used at *PROFILES* measure overall throughput for several pages of output.

Another signal of quality in the P2400C is the way that it handles vertical white space (blank lines and form feeds). This printer does line feeds in only 50 milliseconds. (The Okidata 294 tested in March 1987 needed 100 milliseconds for a line feed.) And it form feeds at the rate of seven inches per second. That, my friends, is *fast*.

Vertical tab stops can also be set by software. This means that long database reports can be printed much faster than with printers that use line feeds for vertical paper movement.



DOCUMENTATION

The manual provided with the P2400C does an excellent job of providing information for the entire spectrum of users. Unpacking, set-up, and operating instructions are in the front and are well supplemented with illustrations. Information on printer commands is given for both personality modules, each in its own section. Timing data for both the Centronics parallel and RS-232C interfaces is included for those situations in which it may be needed.

Overall, the documentation for the P2400C strikes an excellent balance. Set-up and operating instructions assume that the operator may be new to computers. Programmers' information is concise and complete.

A professional-grade printer deserves a professional manual, and this printer has one.

THE BOTTOM LINE

My overall impression of this printer? I hate to give it back. (Maybe if I hold my breath until I turn blue I can keep it.) It is fast, solidly built, and reasonably priced. Only five years ago, commercial-duty printers that were slower, had no graphics (much less color), and used spool ribbons instead of cartridges were selling for $1,700 and up. The ALPS P2400C, as mentioned eariler, sells for $1,295 to $1,395 and would be a bargain at half again the price.

If you need a heavy-duty printer that also prints color graphics, give this one serious consideration.

SCORECARD	
Features:	Very Good
Performance:	Excellent
Documentation:	Excellent
Ease of Use:	Excellent
Support:	Very Good

QUICK REFERENCE SUMMARY

Product: ALPS P2400C printer
Manufacturer: ALPS America
3553 North First St.
San Jose, CA 95134
Phone: (408) 432-6000
Sugg. List Price: $1,295 (18-pin); $1,395 (24-pin)

PCTOOLS AND HALO DPE

BY DEREK CHALMERS AND HERBERT C. YOUNG

This month we'll look at PCTOOLS, a shell program for MS-DOS, and Halo DPE, a graphics editor for desktop publishing systems.

PCTOOLS

PCTOOLS from Central Point Software (Portland, Oregon) combines a DOS shell with file management and powerful file and disk recovery features. These functions can be made memory resident. Version 3.23 also comes with backup, restore, and hard disk file reorganization programs.

PCTOOLS 3.23 runs on any IBM PC, XT, AT, PS/2 or compatible machine with MS-DOS 2.0 or higher and 256K of RAM. PCTOOLS will work on floppy-based systems, but its features are best suited to a hard disk.

Features and Performance. PCTOOLS replaces the MS-DOS file-handling commands, disk-oriented commands, and directory commands with commands of its own. PCTOOLS also adds commands that MS-DOS does not have, such as MOVE, UNDELETE, and LOCATE. Its directory tree is shown graphically onscreen, and the MAP function shows a diagram of all files on disk.

PCTOOLS uses arrow and function keys to enter commands, which makes things easier for tyro typists. For example, typing the DOS command COPY C:\WS4\COR\LSPI0716.LET A: is replaced by the following steps:

First, press **CTRL ESC** to pop up PCTOOLS. Then press **F10 C** to select drive C. Use the arrow keys to move the cursor to the \WS4\COR directory and press **Enter** to get the list of files in that directory. Use the arrow keys again to point to LSPI0716.LET, and press **Enter** to select this file. Press **C** for Copy, **A** for drive A, and **Enter** to execute the command.

PCTOOLS includes many safety features to prevent accidents, and it has backup, restore, and recovery features to stop accidents from becoming disasters. Accidentally erased files can be undeleted before the disk space is reused by MS-DOS. Even if a you accidentally delete files or format drive C, all is not lost. The MIRROR utility, which should be run daily, makes a hidden copy of the File Allocation Table (FAT), from which the original files may be recovered.

PCTOOLS' backup program, PCBACKUP, is fast and easy to use, so there is no excuse for not doing regular backups. It backs up files at one megabyte per minute, including floppy disk changes, on an 8 MHz XT clone. Backups may be all files, selected files, selected directories, or only those files modified since last backup.

PCRESTOR, the restoration utility, accurately restored 660 files (10.7 MB) in 19 minutes. Again, all files or directories or just selected ones may be restored. You can also verify files before restoring and choose whether to replace existing files on the hard disk with the backed up versions.

The COMPRESS utility is designed to put Humpty Dumpty files together again. Files that MS-DOS has scattered in several pieces across the disk surface are reassembled in one piece, making disk operations faster.

Documentation and Support: The user manual for PCTOOLS is a slim (67 pages), softbound volume. It has four sections—a table of contents, an outline of the features of PCTOOLS, instructions for installing PCTOOLS on a hard disk and as a memory-resident program, and a tutorial-cum-reference section on using each option.

Users are told in plain language what each option does, and these descriptions are followed by keystroke-by-keystroke directions for selecting and using each option. Unfortunately, the manual stops short of giving examples of each option's use.

The explanations proceed in a logical fashion from the general (selecting a disk drive, subdirectory, or file) to the specific (for example, using a particular option such as COPY). Options are explained in the order in which they appear on the screen menu. The manual has no index but does include a detailed table of contents.

Central Point Software does not offer a free 800 customer-support number, but telephone queries about the package are answered promptly and politely, and a knowledgeable programmer will call back if the problem is very technical. While the warranty covers disk media only and not the functioning of the programs, I was called and warned of a bug in the COMPRESS option and sent a free replacement disk with a letter of apology for any inconvenience caused.—*D.C.*

SCORECARD	
Features:	Excellent
Performance:	Very good
Documentation:	Good
Ease of Use:	Very Good
Support:	Good

HALO DPE

Halo DPE (Desktop Publishing Editor), version 1.20, is one of the new products in the desktop publishing revolution. This program is designed to be used both in conjunction with other desktop publishing programs and as a stand-alone graphics editor.

It is designed to operate on IBM PC, XT, AT or compatible machines with two disk drives or a hard disk. It requires 256K of RAM. Included are

Copyright 1987 Derek Chalmers and Herbert C. Young. All rights reserved.

drivers for 19 video cards, 14 input devices (mice and digitizers), 23 printers (including laser printers), and eight scanners.

Features and Performance: Halo DPE allows you to produce sophisiticated graphs and drawings and to merge graphics and text using a variety of fonts. DPE files can be merged into other popular programs, such as Ventura Publisher and Pagemaker. Text and data can be imported into the program from Lotus 1-2-3 and most word processing programs. Existing drawings can be input from a variety of scanners.

The main screen in Halo DPE displays the drawing area, with the program functions along the left side and bottom. Icons on the left side of the drawing area indicate various drawing functions, and graphics functions—color and pattern choices—are located along the bottom of the screen.

The program utility commands include provision for scanner input, production of TIF, IMG, and CUT files, and a file directory system. The TIF file format is compatible with Aldus Pagemaker, the IMG format is compatible with Ventura Publisher, and CUT files can be extracted from DPE and converted into either of the other formats. All Halo DPE files are raster (bit-mapped) images. (*Ed. note: for a detailed discussion of bit-mapped vs. object-oriented graphics, see the "Desktop Publisher" column in this issue.*) The program also has a virtual page feature that allows you to create drawings larger than your screen can display. It includes "cut" and "paste" features so you can take part of an image for use in another file.

The program has several different typestyles in sizes ranging from eight to 18 points. Styles include Roman 1 and 2, Cursive, Gothic, Italic, Centennial, Centmed, Cursebold, Greek, and seven proprietary fonts labeled Halo201 through Halo208.

Drawing functions include straight and curved lines, hollow or filled circles and ellipses, and hollow, filled, and three-dimensional rectangles. A pencil function is included for freehand drawing.

Circles and ellipses can be produced and filled with any of the patterns or colors available in the program. Filled and unfilled rectangles can be drawn, and borders of various widths can be added. A three-dimensional rectangle function allows you to draw three-dimensional bars and boxes.

The program includes an airbrush to "spray" various patterns and densities of color on a drawing. The "paint can" is used to fill an area or object with selected hatch patterns or colors. Images can be enlarged or shrunk using a scaling option. Several grid functions are included for reference while drawing, and there is also a figure rotation function.

Editing functions include erasing, deleting, fat-bit editing, copying, and scaling of images. Fat-bit editing allows you to enlarge a portion of the screen and edit individual pixels to create precise images. Images can also be rotated in 90-degree increments, and mirror images can be made of all or only part of the screen.

Documentation and Support. The Halo DPE manual is adequate, but no more, and it employs a hands-on approach that makes it difficult to understand unless the program is running in front of you. It includes a table of contents, a glossary of terms, and five appendices, but no index is provided.

The first two chapters include lists of supported devices and installation instructions. Chapter three is a tutorial on using the program—it's adequate but shallow. The program is capable of much more than the tutorial or manual covers.

Support is provided via a toll-free technical support number, and the support staff is knowledgeable

Overall, Halo DPE is a solid graphics and desktop publishing editor that could benefit from more extensive documentation.—*H.Y.*

SCORECARD

Features:	Very Good
Performance:	Very Good
Documentation:	Fair
Ease of Use:	Good
Support:	Satisfactory

QUICK REFERENCE SUMMARY

Product: PCTOOLS 3.23
Manufacturer: Central Point Software Incorporated
9700 Capitol Hwy., #100
Portland, OR 97219
Phone: (503) 244-5782
Sugg. List Price: $39.95

Product: Halo DPE
Manufacturer: Media Cybernetics, Inc.
8484 Georgia Avenue, Suite 200
Silver Springs, Maryland 20910
Phone: (301) 495-3305
Sugg. list price: $195

Derek Chalmers is an independent consultant specializing in the design and management of information systems for small and medium-sized businesses.

Herbert Young operates a desktop publishing business using Ventura Publisher and a Xerox 4045 laser printer.

INSTALLING A 3.5-INCH DRIVE

BY MARSHALL L. MOSELEY

It appears that 3.5-inch microfloppy disks and disk drives are here to stay. They are the standard drives for laptop computers, and some desktop machines now use them as well. A lot of popular programs, such as Lotus 1-2-3 and WordPerfect, are now available on 3.5-inch media.

There are some good reasons to use 3.5-inch disks. They are small, for one thing, capable of fitting in a breast pocket. They hold twice as much data as 5.25-inch floppies (720K or 1.4 megabytes, versus 360K or 1.2 megabytes). They are shielded by sturdy plastic shells that, unlike the older disk sleeves, can take a lot of pounding.

Following are some general tips about installing 3.5-inch drives and some specific instructions concerning Kaypro computers.

WHAT YOU NEED

First of all, you need a 3.5-inch disk drive kit like the one Kaypro sells through its dealers (part number 5248). That kit is complete, but if you choose to get a different one, make sure it has the following parts: the drive itself, a mounting bracket that lets the drive fit in a full-sized drive slot, an interface card or cable that changes the drive's 34-pin male connector to 34-pin card-edge connector, and most important, complete instructions on any of the drive's jumpers or switches that must be adjusted as part of the installation.

Only MS-DOS 3.2 and above support 3.5-inch drives. If you have an earlier version, you can purchase a new one through your Kaypro dealer.

Before beginning the installation, you need to decide what the designation of the new drive will be. If you currently have only one disk drive, the A drive, make the 3.5-inch drive the B drive. If you have two floppy disk drives, in order to use a 3.5-inch drive you will have to add another floppy disk controller to your system, mount the drive outside the computer, and use the MS-DOS device driver DRIVER.SYS to enable it. This last situation is rare, so I'll just assume you are making the 3.5-inch drive the B drive.

PREPARING THE DRIVE

Before placing the drive in the computer, set its drive select jumper or switch to match the designation you've chosen. You should consult your documentation for the exact location and nature of the drive select mechanism. With the Kaypro drive, you select the B designation by placing a jumper block over the two pins labeled D1 on top of the drive.

MODEL-SPECIFIC INSTRUCTIONS

Follow the instructions that came with your kit and you should be able to install the drive without much trouble. Once the drive is in the computer, there are some specific installation instructions for different Kaypro models.

Kaypro PC owners. You need to change the DIP switches at SW1 on the PC's processor board so they designate two floppy disk drives in the system.

Once the drive is in, there are specific installation instructions for different Kaypros.

With the cover off the computer, look at the full-length board furthest away from the power supply, the one with the speaker attached to its side. That is the processor board. Where the corner of the board meets the front of the computer, there is a small block of five switches. Set switch 4 to ON and switch 5 to OFF. If the switches read OPEN and CLOSED, then set 4 to CLOSED and 5 to OPEN.

Kaypro 286i owners. The CMOS RAM inside your computer contains information concerning your system—what types of drives you have, how much memory there is, etc. You need to alter this to reflect the addition of the new drive. First, run the program SETUP.COM, which came with your computer. From the SETUP menu press **F4** to change the second diskette drive type. SETUP does not provide for 3.5-inch disk drives, but you can come close by choosing "1.2M high density (96 TPI)." Though this isn't the correct drive type, in conjunction with the DRIVPARM statement (explained below), it gets the job done.

Unlike the Kaypro PC, the 286i makes provisions for grounding its drives. Look for a black grounding wire with a spade connector at one end; this should be attached to the top of the drive cage. Slip the spade connector over the grounding tab on the new drive.

PREPARING THE OPERATING SYSTEM

Your new drive is almost ready. Make sure the power switch on the computer is off, then plug in the computer and the monitor. Turn the computer on. It should boot up without any trouble, but if it doesn't, go over your work. Check the power connectors on both the new and the old drives, and make sure the drive cable is attached to the drives correctly.

Once the MS-DOS prompt appears, check for a file named CONFIG.SYS on your system disk or in the root directory of your hard disk. CONFIG.SYS is an ASCII text file containing information that your computer utilizes when powering up. Using WordStar in non-document mode, create a CONFIG.SYS file or edit the existing one. Either way, place the statement **DRIVPARM=/D:1 / F:2** on a line by itself. Save the file and reset your computer by pressing **Ctrl Alt Del**. When the computer reboots you should have a functioning 3.5-inch disk drive.

Copyright 1987 Marshall Moseley. All rights reserved.

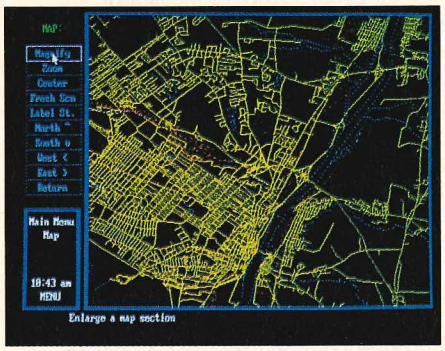
EDITED BY MARSHALL L. MOSELEY

The following New Product listings are not reviews and should not be considered endorsements. To be considered for the publication in this column, press releases should be sent to Marshall Moseley, New Products Editor, c/o *PROFILES* Magazine, 533 Stevens Ave., Solana Beach, CA 92075. Releases must state prices and the operating systems the products support. Include photos if available.

ELECTRONIC MAPS

MIDAS (Map Information Display and Analysis System) is a program that rapidly sorts and displays geographically distributed data on computerized street maps. It automatically locates street addresses and displays a "pin" map from raw data or by tapping an existing database.

MIDAS combines the speed of computerized mapping with the information sorting and analysis capabilities of a database and the affordability of a desktop computer. The program uses data in dBASE III Plus, AutoCad, or ASCII formats. MIDAS requires a hard disk, a graphics adapter, and a full 640K of memory to operate. A high-resolution graphics adapter, such as the EGA or Hercules MGA, is strongly recommended.



$750. Kaypro MS-DOS computers. Mapping Information Systems, Hendrick Hudson Building, 200 Broadway, Troy, NY 12180; (518) 274-8673.

SECURE YOUR COMPUTER

Kinetic Access is a microcomputer security and management tool. It protects against malicious snooping, piracy, and sabotage, as well as unintentional formatting, file erasure, and other errors. At the same time it provides a secure but simple and flexible user interface.

The system includes a hardware device that controls the booting process and a resident control program that requires 45K of RAM while in operation. The hardware device can be either an EPROM that fits into an available ROM socket (available only on some computers) or a short expansion board that plugs into any available expansion slot.

Kinetic Access provides four hierarchical security levels, each with its own password. Level four can view and run any application known to the system and may invoke the DOS environment.

$175 for the EPROM unit and $195 for the expansion board unit. All Kaypro MS-DOS computers except the Kaypro 2000. Kinetic Corporation, Distillery Commons 240, Louisville, KY 40206-1990; (502) 583-1679.

IMPROVED CP/M COMMANDS

The Derby CP/M Utilities are four programs that add some of the capabilities of MS-DOS to the CP/M operating system.

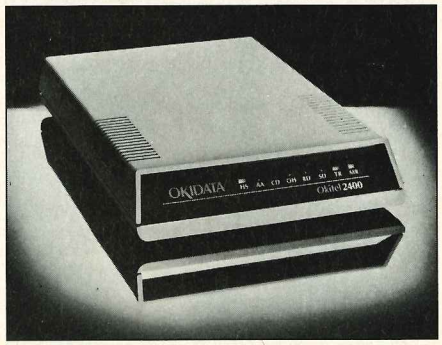
SUB replaces the SUBMIT program; it allows several SUBMIT files to be chained together in a single file with a BAT extension. It also supports multiple commands per line and will accept any valid CP/M command, including commands to run another SUBMIT file. SD replaces the STAT program, presenting the user with a list of files sorted alphabetically followed by a summary of the space used by those files. CMP compares the contents of specified files and lists the differences in either ASCII or hexadecimal form. The number of bytes compared, the differences found, and the line number of the first difference are all reported. COPY converts copying commands using the MS-DOS syntax to PIP commands and then passes control to PIP.

All of the programs are written in assembly language, making them small and compact.

$12. Kaypro CP/M computers. W.S. Derby, P.O. Box 2041, Livermore, CA 94550; (415) 443-1741.

OKIDATA MODEM

The Okitel 2400 PC is an auto-dial, auto-answer, 2400 bps external modem. It features Automatic Adaptive Equalizaton (AAE), which enhances its ability to communicate over noisy phone lines. Users can program the modem with a delay that bypasses spurious line interruptions (such as call-waiting signals) and maintains the phone connection.



Modem settings are stored in non-volatile memory so they are retained when the power is turned off. The 2400 PC is Hayes compatible and supports the full range of the AT command set.

$599. All Kaypro computers. Okidata, 532 Fellowship Rd., Mount Laurel, NJ 08054; (609) 235-2600.

EDUCATIONAL SOFTWARE

Math Blaster Plus is an educational program that helps students master

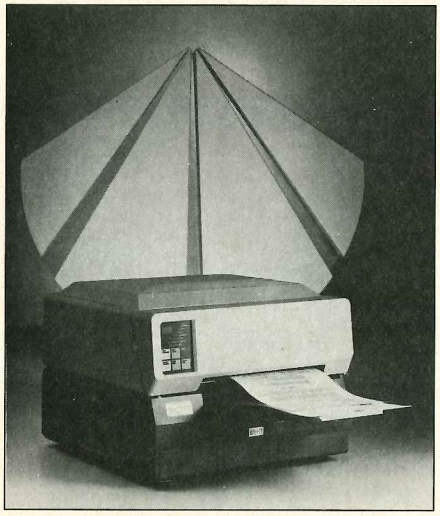
CONTINUED FROM PAGE 93

basic math skills, including addition, subtraction, multiplication, division, fractions, decimals, and percents. The program, geared for students in the first through sixth grades, contains five learning activities and covers more than 750 basic math facts. Math Blaster Plus features an interface with pull-down menus, exciting double high-resolution graphics, and mouse or keyboard access.

$49.95. All Kaypro MS-DOS computers. Davidson and Associates Inc., 3135 Kashiwa St., Torrance, CA 90505; (213) 534-4070.

CRYSTAL-CLEAR PRINTING

The CrystalPrint VIII is a non-impact page printer that uses liquid crystal shutter (LCS) technology. It is a high-resolution, eight-page-per-minute printer that features a complete "plug-and-play" emulation of the Hewlett Packard LaserJet Plus.



Three ROM-resident fonts and a font cartridge are included with the purchase of a CrystalPrint VIII. It has 1.5 megabytes of RAM for 300 DPI bit-mapped graphics and optional Epson, HPGL, and IBM ProPrinter emulations.

$2,495. Data Technology Corporation, 2551 Walsh Ave., Santa Clara, CA 95051; (408) 727-8899.

dBASE III PLUS WORK-ALIKE

TheBASE File Manager is a relational database system that uses dBASE III or Clipper compatible files. This flexible software package accepts most dBASE commands interactively and works with dBASE III or Clipper files directly. You do not have convert or re-key your data, and TheBASE handles 1,123 fields—more than than dBASE III Plus itself.

TheBASE has context-specific online help and a built-in assistance menu containing many of the most-used commands. Its Shorthand feature records macros and makes full use of the cursor and function keys. The entire package is non-copy protected.

$49.95. The Phoenix Tech Group Inc., Two Greenwich Plaza, Suite 100, Greenwich, CT 0630; (203) 6722-3903.

POWER PRINTING

PrintEase is a comprehensive printing utility program. It sends commands to all types of printers from a simple pop-up menu and can embed command characters in documents, giving users character-by-character printer control. It also lets users suspend or cancel printing jobs in progress and runs up to five printers at once.

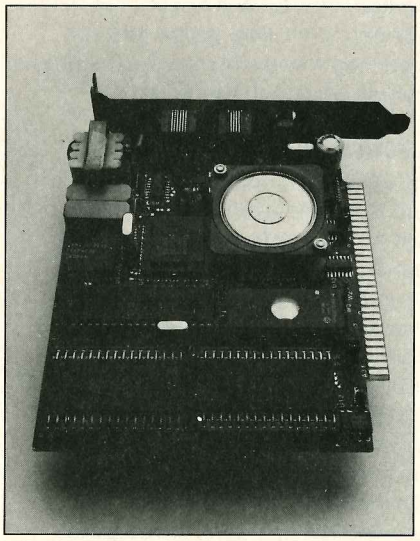
PrintEase is easy to install and use. Its documentation has been carefully prepared and profusely indexed, so even novice users can start up quickly.

$59.95. SDG Innovations Inc., 10615-G Tierrasanta Blvd., Suite 122, San Diego 92124; (619) 565-1200

2400 BPS INTERNAL MODEM

The 2400 XE/HC is an internal 2400 BPS modem. It is fully compatible with the Hayes AT command set and provides a full range of intelligent modem features.

It is Bell 103, Bell 212A, and CCITT V.22 bis compatible. The 2400 XE/HC operates in synchronous, asynchronous, full-duplex and half-duplex modes. Features include automatic equalization, automatic answering and dialing capabilities, and built-in automatic test functions. Procomm telecommunications software is included with modem.



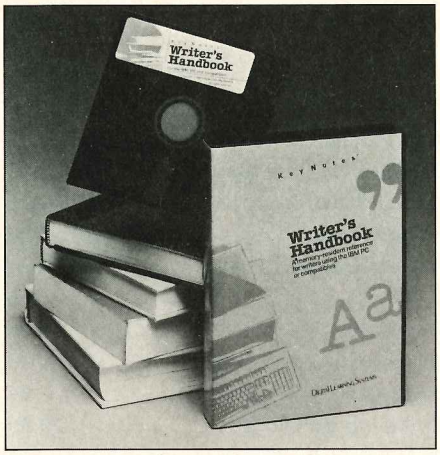
$299. Kaypro MS-DOS computers except the Kaypro 2000. Novation Inc., 20409 Prairie St., Chatsworth, CA 91311; (213) 996-5060.

A WRITER'S HELPER

The Keynotes Writer's Handbook is a memory resident reference guide designed for writers. It offers the professional wordsmith pointers on grammar and punctuation, advice on correct word usage, and forms for business correspondence.

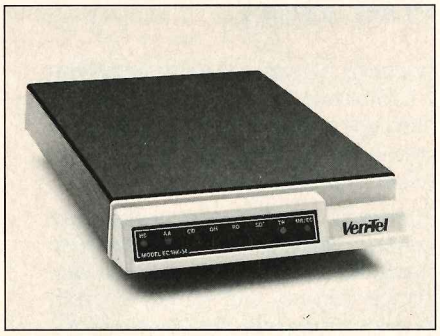
Designed as a companion to all word procession programs, the KeyNotes Writer's Handbook is accessed with a single keystroke. It is menu driven, allowing swift access to necessary information. It also has an automatic mode that lets you bypass the menus.

$29.95. Kaypro MS-DOS computers. Digital Learning Systems, 4 Century Drive, Parsippany, New Jersey 07054; (201) 538-2426.



HIGH SPEED COMMUNICATIONS

The ECK18K-34 is a high-speed 19,2000 bps modem with data compression capabilities. It is the fastest modem available for asynchronous PC communications, and is ideal for connecting LANs, or for applications requiring volume data transfer, such as CAD, graphics, and desktop publishing.



The ECK18K-34 is especially well suited for use with poor phone lines because all data transmissions are automatically checked for errors. If any are found they are corrected by the modem. At high speeds the ECK18K-34 uses a 16 bit CRC error checking scheme, while at 1200 and 2400 bps it uses MNP error correction. It also uses the Hayes AT command set, and has non-volatile internal memory that holds both configuration information and telephone numbers.

$1399. All Kaypro computers. VenTel Inc., 2121 Zanker Road, San Jose, CA 95131; (408) 436-7400.

REMOVABLE HARD DISKS

TRAVELDISKs are the world's smallest, removable line of hard disk drives. The drives available hold 10, 22, 32, 49, 64 or 98 megabytes, and offer superior portability and security.

TRAVELDISK drives are removable, so they can go home with you at night, or be locked up in a safe or filing cabinet, thus increasing data security. TRAVELDISKs are perfect for making back-ups because they operate at hard disk speeds. You no longer have to swap floppies or wait for slow tape drives.

TRAVELDISKs have an auto-switching capability, where they sense whether there is another hard disk in the system, in which case the TRAVELDISK automatically becomes the D:\ drive. If no hard disk is found the TRAVELDISK becomes the C:\ drive. If installed in a two hard disk system, and the primary disk fails, the TRAVELDISK automatically becomes the C:\ drive.

$895 and up. Kaypro MS-DOS computers except the 2000 and 2000+. Tradewinds Peripherals Inc., 10243 Glenoaks Boulevard, Pacoima, CA 91331; (818) 896-6634.

Re-ink ANY FABRIC RIBBON automatically for LESS THAN 5 CENTS with

MAC INKER™

Over 11,000 cartridges and spools supported!

MAC INKER™

IMAGEWRITER I AND II	**$42.00**
UNIVERSAL (cartridge or spool)	**$68.50**
MULTICOLOR IMAGEWRITER	**$80.00**
MULTICOLOR ADAPTER ONLY	**$40.00**

Shipping (first unit) $3.00

■ Lubricated DM INK EXTENDS PRINTHEAD LIFE! Black, blue, brown, red, green, yellow, purple, orange - 2 oz. bottle $3.00; pint $18.50. Gold, silver, indelible and OCR inks available. Heat transfer Mac Inkers and ink available plus a complete range of accessories for special applications.
■ Top quality, GUARANTEED, double density ribbon cartridges and reloads available.
■ DEDICATED MAC INKERS AVAILABLE FOR EXTRA LARGE OR SPECIAL CARTRIDGES.

MERCURY MODEM

$149.00

Shipping $4.00

*100% Hayes™ compatible!

■ 24 month warranty. ■ Status lights. ■ Speaker. ■ 300/1200 baud. ■ Call progress detection.

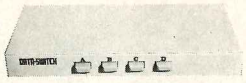
Quick Link communications software

MS DOS and Macintosh	**$29.95**
with modem	**15.00**
Cable	**15.00**

*Hayes is a trademark of Hayes Microproducts.

Connect up to 4 Peripherals! to your printer or modem port with

MAC SWITCHES



$50.00

Shipping $4.00

Cable **$15.00**

8 or 9 pin models available.

CABLES We carry cables for all common computers and peripherals. Rapid turnaround on custom orders. Competitively priced.

SPECIAL OFFER: For orders of $100.00 or more. Say you saw it in PROFILES and get a free keychain, beeper and flashlight combined! A $15.00 value!

ORDER TOLL-FREE

1-800-547-3303

In Oregon (503) 626-2291 (24 hour line)

We are and always will be your

Computer Friends®

14250 N.W. Science Park Drive
Portland, OR 97229, Telex 4949559
Dealer Inquiries Welcome.

ADVERTISER'S INDEX

Rx WORDSTAR®

Get V2.26 today with Manual & Keytops $39.00

or upgradable Reference Manual ONLY $10.00

CLASS B: Great Programs — **MailMan** List manager, **Personal Datebook** schedules, **Forth** V2.0, **Deadline** Game, **[Documate plus**-indexes and builds table of contents, **Grammatick**-checks grammar/syntax, **Footnote, Math*** calculator for WS2, **Spellguard]** $28.00 Each

CLASS C: Special Packages — **Wordpac** [all Bracketed above] Writer's packages, Originally $295.00 **Personal Pearl** 6 disk Menu driven Database, **SuperSort, DataStar, Fortran 80** with compiler. **MuMath** $39.00 Each

SUPER DEAL $99.00 — **dbase II**.31b xmanual, upgradable; or 4 × $39.00 Pacs

All of the Above, **SPECIAL** Everything-25 Disks $295

Terms: Above prices do not include format conversion fee of $2.00 per disk (from Osborne SSSD). Please add $4.50 P/H ($20.00 o/seas) per order or replacement. All sales final, P.O. damaged disks replaced. Titles copyrighted by their publishers. Prepaid U.S.$ only, Phone Order Credit Cards **Welcome.**

The Original Public Domain Software Copying Company
(P.D. Catalog $4.00 MS.Dos or CP/M, $10.00 on disks)
800-221-PDSC
33 Gold Street L3, NYC 10038 in N.Y. 212-732-2565

Advertiser	Page No.	Advertiser	Page No.
Advanced Concepts E&C	86	Hurd Computers Systems	13
American Micronics	6	Intersecting Concepts	21
ATI	2	James River Group	Back Cover
Bytel Corporation	15	Kaypro Corp.	16,30,63,84
CDE Software	7	Kaypro General Store	28,Insert
Central Computer Products	Inside Front Cover,1,17,25,Inside Back Cover	PDSC	96
		PROFILES BACK ISSUES	67,68
CLASSIFILES	81	Southwest Computing	13
Computer Friends	95	Spectre Technologies	61
Computer Professionals, Inc.	35	Traveling Software	23,96
Cuesta Systems	7	U.S. Computer Supply	83
E-Z Systems	5		

The World's Smallest Battery-Operated Full-function Printer

(which also happens to be the world's best printer value)

This amazing printer weighs only 2.2 pounds (with batteries) and measures 11 by 4.5 by 1.75 inches. With its built-in parallel interface, the TTXpress printer can connect to any of your Kaypro computers including the II, IV, 16, 286i, and the Kaypro 2000 laptop.* We even include a printer cable!

Because of its thermal technology, the TTXpress printer has fewer moving parts for greater reliability. It prints clear text (with true descenders) and graphics on either 8½" roll or single sheet paper at 50 characters per second, and 40, 80, or even 160 characters per line. It is compatible with the Epson MX-80 and prints condensed, enlarged, emphasized, and underline characters. It even supports bit-mapped graphics!

Whether you need a printer to carry in your briefcase or to sit on top of your computer in your home or office, you will not find a better value than our package. We include the TTXpress printer with 4 C batteries, A/C adapter, parallel printer cable, two rolls of paper, and even a leather-like printer cover. All this for the unheard of price of only: **$129**

30-day Money-back guarantee and a 90 day warranty included.
*** Kaypro 2000 requires serial to parallel converter.**

TTXpress Printer Paper

100 foot 8½ x 11" rolls ..... $ 9.95
200 8½ x 11" cut sheets ..... $ 9.95

TRAVELING SOFTWARE®

Traveling Software, Inc.
19310 North Creek Parkway
Bothell, WA 98011
(206) 483-8088

1-800-343-8080

Kaypro CP/M Compatible Software and Supplies

Description	Price
Accounting	
Checks & Balances	$ 64
Financial Calculator	$ 34
Home Inventory Plus	$ 37
Business	
Bottomline V	$199
Decision Analyst	$ 79
Landlord	$495
MarketFax	$395
NWA Statpak	$219
Walonick StatPak	$429
Walonick Forecast +	$495
Communications	
Crosstalk	$145
Mite	$ 49
Database	
dBase II	$389
Filebase	$ 99
FYI 3000 Plus	$339
InfoStar	$179
Notebook	$ 64
Personal Pearl	$149
SuperFile	$ 79
Educational	
Family Roots	$159
I Ching	$ 29
Home Appraiser	$ 34
Language Tutor	$ 47
Memory Tutor	$ 47
Reading Professor	$ 57
Self Search	$ 39
The Word (Bible)	$179
Touch & Go Typing	$ 28
Quiz Writer	$ 47
UnderStand Yourself	$ 24
Entertainment	
Best of Wok Talk	$ 27
Computer Chef	$ 27
Chocolate Bytes	$ 27
Deadline *	$ 45
Eliza	$ 22
Enchanter *	$ 37
HitchHikers Guide *	$ 37
Infidel *	$ 39
Lotto Master	$ 25
MyChess	$ 31
Wishbringer *	$ 37
Witness *	$ 37
Word Wiggle	$ 27
Zork 1 *	$ 39
Zork II or III *	$ 39
* Infocom games	
Graphics	
Banner Plus	$ 25
Fancy Font	$155
FontStar	$ 49
PrintMaster	$ 49
Art Gallery I	$ 39
Art Gallery II	$ 29
Rembrandt 3.0	$ 39
Rembrandt II/IV	$ 47
SCS-Draw 1.1	$ 57
Draw Image Ext	$ 19
Twist & Shout	$ 32
Integrated Software	
T/Maker Integrated	$189
Languages	
Cobol Compiler	$189
Fortran Compiler	$189
Macro Assembler	$ 99
MBasic Compiler	$239
MTBasic Compiler	$ 67
SuperSort	$139
Toolwork's C	$ 46
Toolwork's C Mathpak	$ 27
Turbo Pascal	$ 59
Turbo Tutor	$ 32
Turbo Database	$ 49
Turbo Holiday Pak	$135

Description	Price
Project Management	
Milestone	$ 95
Utilities, General	
Backgrounder	$ 45
DateMate	$ 29
DateStamper, Kaypro	$ 39
DateStamper, General	$ 46
dFastest	$ 49
FastBack 10/20	$ 89
FastPak Mail	$ 74
FeatureFormat Prof.	$ 74
Free Filer 5.0	$ 79
Media Master	$ 37
Memory Typewriter	$ 39
Presto	$ 37
SmartKey V4.2	$ 49
SmartPrint	$ 25
SmartKey/SmartPrint	$ 59
Utilities, Disk	
C/Nix	$ 54
Diagnostic II	$ 99
Disk Doctor	$150
FastBack 10/20	$ 89
PluPerfect Writer 2.2E	$ 39
PluPerfect CP/M 2.2E	$ 32
Rescue & Repair	$ 55
UniDos	$ 59
UniDos w V20	$ 89
Uniform	$ 59
Spreadsheets	
MultiPlan	$169
SuperCalc 2	$235
Training	
ATI Basic	$ 42
ATI dBase II	$ 69
ATI CP/M	$ 42
ATI Multiplan	$ 69
Word Processing	
Bibliography	$ 54
Biblio & Footnote	$ 99
Footnote & Pair	$ 54
Grammatik I	$ 69
Index	$ 79
MathStar	$ 49
MicroPro Mailmerge	$ 89
Number	$ 55
Punctuation & Style	$ 95
Thoughtline Outliner	$ 59
Word Finder	$ 69
StarIndex	$ 89
Superwriter	$175
Supplies	
3M SSDD Kaypro/Box	$ 12
3M DSDD Kaypro/Box	$ 14
3M Head Cleaning Kit	$ 21
3M KeyBd Static Mat	$ 34
Board Disk Mailers/10	$ 9
10 ft Parallel cable	$ 29
10 ft Serial cable	$ 23
Smart Cable RS232	$ 47
Juki Printwheels	$ 19
NEC ELF Thimbles	$ 22
Brother Printwheels	$ 25
Bookware	
Comp Kaypro CP/M	$ 13
CP/M Handbook	$ 15
Online Research	$ 24
Practical WordStar	$ 19
RS232 Solution	$ 19
Star Power	$ 16

Prices subject to change without notice.

See our MSDOS ad in this publication for other supplies including Hush Portable printers, 64k Printer Buffer, SmarTeam 1200AT modem, Juki 6100 tractor, Personal computer toolkit, Data Spec lifetime data switches, and Dots Perfect printer upgrade.

CENTRAL COMPUTER PRODUCTS

Call Toll Free Order Desk Only
USA: 800-533-8049
CA: 800-624-5628

For information — please call (805) 524-4189

Do You Wish Writing Were Easier?

Punctuation and Style improves, clarifies, and enriches your writing by identifying sentences with misused, redundant, faulty, cliched, or erroneous phrases, and shows you how to improve them. It helps you rewrite and check your work by quickly marking and annotating your files for easy correction. Experience the power of this valuable "Punctuation Checking and Writing Improvement Software" yourself. $95. Order today.

Educational

Super programs to boost grades. Challenging computer assisted learning at its best. More than 40 titles in CP/M Times catalog. $39 each or three for $99. Order today.

Description	Grade Level
Simple Addition	1-3
Funzeez	2-5
Simple Division	1-3
Using Fractions	5-7
Using Decimals	5-7
Practicing Percents	5-7
Vocabulary Skills	5-8
Algebra	8-college
Honors Algebra	8-college
Calculus	8-college
Geometry	8-college
Chemical Symbols	8-college
SAT Score Builder	10-12

Giant Catalog

Now you can get all the CP/M software and supplies you need through the mail. *CP/M Times* is a big 64 page catalog chock full of hundreds of CP/M software programs. You get it free when you order anything from this page. If you prefer to see fuller descriptions before ordering — send $3 and ask for the *CP/M Times catalog*. Sent by first class mail. Makes you feel like a kid in a candy store. Order today.

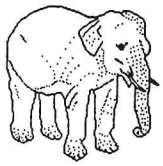
CP/M Times

Instant Electronic Thesaurus

Word Finder by Writing Consultants is a giant thesaurus that's guaranteed to make you and your WordStar a precise online writing machine. So easy to use — after one or two searches there's no turning back. Find exciting words fast.

Just put your cursor on a word in your text, press the escape key twice, and a list of synonyms appears. Choose the synonym you want, press another key, and it zips into your text. Magical. Word Finder can help you find the exact word you need to express your thought. CP/M version has 9,000 keywords and 120,000 synonyms. Word Finder is $69. Order today.

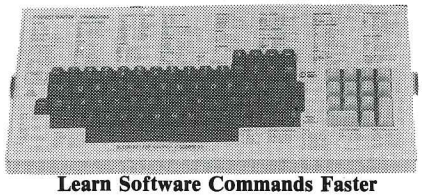
CP/M Drawing Program



SCS-Draw turns your CP/M Kaypro into a free hand drawing machine. See what you're drawing on the screen too. Comes with drawing tools, windowing capabilities that let you draw pieces larger than one screen, lettering, textures, and much more. Save to disk, or print your work anytime. Simple. There's nothing like it. Turns your Kaypro 1, 2X, New 2, 2'84, 4'84, or 10 into a real Macintosh-like drawing machine. Kids love it, adults too. $57. Draw's new $19 PrintMaster graphics extractor lets you see PrintMaster graphics on your Draw screen and alter them too. Order today.

Free Computer Tamer

CP/M SmartKey version 4.2 now comes with windows. Lets you redefine every key on your keyboard from inside any program. Just push a key, a window opens up on your screen, redefine the key. Move the cursor anywhere in the window. Make corrections in the window. Unlike similar programs, SmartKey does not interfere with the regular function of your keyboard. Lets you redefine keys, stack them with numerous complex command codes, boilerplate paragraphs, inventory numbers, or whatever, and inject any of them into your work with a single key. Super time and keystroke saver. Central's price includes Paul Golding's $15.95 book, Screen Smarts, The Computer Tamers Guide free. Smartkey — $49. Order today.



Learn Software Commands Faster

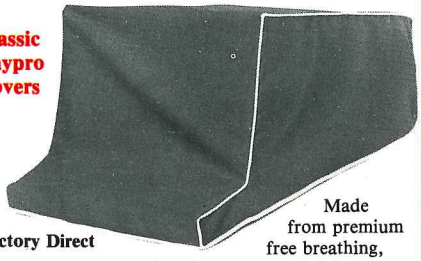
Software commands — at your fingertips. No more stumbling through a book to get a software command. Kleertex templates are made of durable non-glare plastic. Lay down and lift off keyboard instantly. Handy templates for dBase II, WordStar/Mailmerge, CalcStar, Perfect Calc, and Perfect Writer/Filer. Combine purchase for super savings. Order today.

$17.95 each ● Two for $34 ● Three for $49 ● Four for $62

Cordura Travel Case

Super tough. Made from rip, shred, and water resistant cordura. Comes fully padded and lined. Protects your Kaypro from unexpected bumps and jolts. Keeps rain, sand, and other debris out of your machines. Includes external carrying handles, detachable strap with non-slip shoulder pad, and large interior pocket for transporting manuals and diskettes. Regularly $79.95. Central's price is $59.95. Please indicate your choice of color: silver-gray, dark blue, or brown. Satisfaction guaranteed or money back.

Classic Kaypro Covers



Factory Direct

Made from premium free breathing, and fade resistant sailcloth. Comes in rich looking Navy blue or Royal blue. Includes a smart contrasting silver gray piping and trim. Made to form fit and protect a portable Kaypro that's set up and ready to use. One piece cover is $18.95. Two piece cover set includes cover for CPU and separate cover for keyboard: $21.95. Specify color. Matching printer covers are $15.95 each. Order today.

CENTRAL COMPUTER PRODUCTS

330 Central Avenue, Dept. CP-1
Fillmore, California 93015

Dear Central,

Please send me the items listed below. I want fast, friendly service. If I have purchased *SmartKey*, please remember to include my free copy of the $15.95 book *Screen Smarts*. My check, money order, or card no. is enclosed. Thank you.

Description	Price

Kaypro Model _____ Sub Total _____

CA Resident 6% Tax _____

FIRM MONEY BACK GUARANTEE ORDER WITH CONFIDENCE

Postage & Handling $ 3.50

Total $ _____

☐ Navy blue ☐ Royal blue
☐ Check enclosed ☐ Money Order enclosed

☐ Visa/Mastercard # _____

☐ Amer Exp Card # _____

Exp. Date _____ Sig. _____

Name _____

Address _____

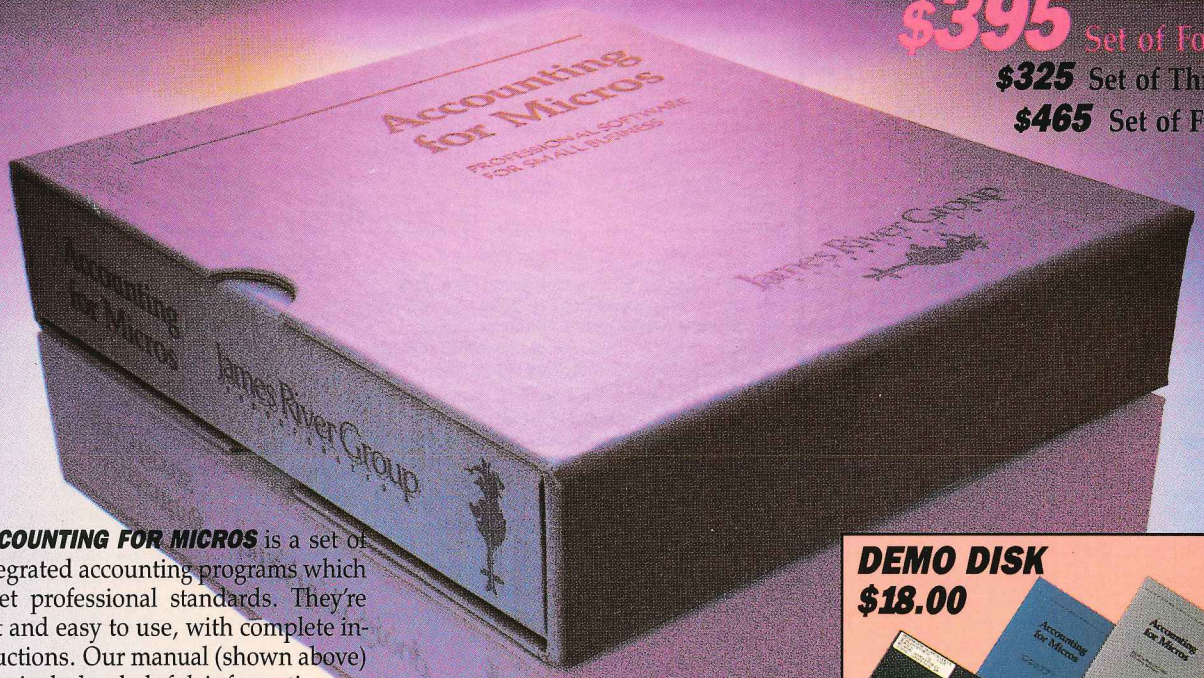
City _____ State ____ Zip _____

Credit Card phone orders accepted. **Call toll free.**
To order by mail use coupon, letter, or photo copy. Thank you.

© 1987 Central Computer Products

ACCOUNTING FOR MICROS

$395 Set of Four
$325 Set of Three
$465 Set of Five



ACCOUNTING FOR MICROS is a set of integrated accounting programs which meet professional standards. They're fast and easy to use, with complete instructions. Our manual (shown above) also includes helpful information on bookkeeping and computers.

GENERAL LEDGER $125
Allows up to 1,000 accounts & 1,000 transactions/month. Retains mo/end balances for Last year, This Year and Forecast. Includes Cash Disbursements, Cash Receipts and General Journals. Reports include Balance Sheet, Income Statement, Annual Summaries and Journal Reports.

ACCOUNTS RECEIVABLE $125
Allows up to 2,500 customers and 1,000 invoices per month. Invoicing can access Inventory Module. Keeps customer names and addresses. Invoice prints on plain paper or any pre-printed form. Statements can be printed at any time.

INVENTORY $125
Allows up to 4,000 parts. Keeps 3 month history of unit sales as well as year to date. With AR, can be used as point of sale system (prints invoices, handles cash). Reports include Inventory Value and Stock Report, Internal and Customer Price List.

ACCOUNTS PAYABLE $125
Allows up to 500 vendors and 600 invoices/mo. Records invoices and hand-written checks. Prints computer checks on any pre-printed form. Keeps vendor names and addresses.

PAYROLL $125
Will handle up to 100 employees with eight deductions per employee. Deductions may be determined as fixed dollar amounts or percentages, or referred to a table for automatic look-up. Tax tables are easily entered, or purchased separately. Prints checks and W2's.

SET OF FIVE $465
SET OF FOUR $395
SET OF THREE $325

RUN ON MOST CPM AND MSDOS

Apple CPM	*IBM PC,XT,PC jr,AT*	*Sanyo (all)*
Columbia	*Kaypro (all)*	*Tandy (all)*
Compaq	*Morrow (all)*	*TeleVideo*
Corona	*Osborne (all)*	*Zenith 100 & 150*
Eagle (all)	*Panasonic*	*8" CPM*
Epson QX-10	*Radio Shack CPM*	*Other compatibles*

DEMO DISK $18.00

Try all 5 programs above (GL, AR, AP, IN, PR). Order our DEMO DISK for $18.00 (includes shipping). Condensed versions of the programs give you the "feel" of data entry and access. Includes sample reports and instructions. Specify machine.

TMAN $125
The "Catch-All" program. Files any type of information for quick access. Name or subject oriented with 15 lines of notes per name. Use TMAN as a mailing list, filing system, notebook, etc. Can be used alone or with data from our other programs.
Try ***TMAN DEMO $16***

HOW TO ORDER: Please specify machine and disk format. You can pay by check, by VISA or MasterCard (we need your expiration date and card number), or by UPS COD (add $2.50 COD charge). Our price includes shipping. Minnesota residents, add 6% sales tax). We ship most orders the same day.

ORDER BY PHONE: 1-800-654-6903

James River Group
INCORPORATED

(612)339-2521

125 North First Street
Minneapolis, MN 55401