RUN

THE COMMODORE 64/128 USER'S GUIDE

April 1988
An IDGC/I Publication

U.S.A. $2.95
CANADA $3.95
U.K. £2.00

Join a User's Group

Boost Your Computing Know-How



What's New at CES?

Add New Fonts to Your 64

Create Windows the Easy Way!

0 74470 12069 04

FaeryTale



Enter a Magical Land where you participate in the adventures of three brothers as they seek their ultimate fate in the Faery Tale Adventure. With over 19,200 playable screens, the quest takes you through a land full of vicious monsters, enchanted princesses, fearsome dragons and even a kindly old woodcutter or two.



Alms for the poor



Julian finds a cave

BlackJack Academy



Everything you ever wanted to know about the game of BlackJack. For the novice learning, or the pro polishing skills, BlackJack Academy offers both high powered instruction and realistic game play. Develop your skills, and have fun playing BlackJack Academy!



Split hands



Game in play

FIRE POWER



Fire Power is an action packed arcade style tank battle game that features continuous shoot 'em up excitement! Plot your moves to become king of the hill and capture your opponent's flag while continually fighting off his endless attempts at yours! Features single, double and modem playability!



Helicopter patrols add another challenging dimension



A successful rescue mission nears completion

OTHER PRODUCTS FROM MICROILLUSIONS

- **ROMANTIC ENCOUNTERS AT THE DOME™**
  A true to life Adult experience
- **LAND OF LEGENDS™**
  The ultimate dungeon adventure!
- **EBONSTAR™**
  Hot Arcade style space excitement!

All Microillusions Entertainment and Educational products are developed especially for and are available on Amiga, C64/128, MAC, Apple II GS, and PC/MS DOS Formats.

microillusions™
17408 Chatsworth St., Granada Hills, Ca. 91344
Inside CA 818/360-3715 • Outside CA 800/522-2041 • FAX 818/360-1464

Circle 53 on Reader Service card.

110C/AP

Sharpen Your Commodore™ Skills and Build a Great Software Collection

ONLY $6.65!

Monthly Software for your Commodore 64 or 128™ Computer.



Learn From the Experts

Draw on the vast experience of our editors to provide you with carefully selected software you can use each month, from spreadsheets to role-playing games, from telecommunications to accounting to recipe programs. With easy-to-use documentation, you will master each new application with confidence and ease.

Become Experienced Inexpensively

Without investing a fortune, LOADSTAR will help you to see why your Commodore 64 or 128 is the most versatile and powerful tool you own. You will know more about your Commodore, its capabilities, and software for it, than you would have thought possible. At $6.65 a month, LOADSTAR is the best value in software today.

Try our Monthly Software for Three Months

Every month your postman will bring you the latest issue of LOADSTAR, contained on unprotected 5¼" diskettes. Each issue is chock-full of great software, including utilities, games, home and business applications, and educational programs. Order now and you will receive the "Best of LOADSTAR" absolutely free.

Reviewers Love LOADSTAR!

". . .I highly recommend Loadstar. If you can afford only one disk service, make it Loadstar. . ."

STEVE LEVIN, COMMODORE MICROCOMPUTERS

Subscribers Love LOADSTAR!

"The music and graphics are totally superb. Some of the best I have ever seen" . . . . . STEVEN T. BOSTON

Contents of Issue #46

- **BASIX 64 & 128** ML variable LISTer.
- **Desert Duel** You're the turret gunner on a Rommel-rousing tank.
- **Hugo 128** Produce your own VCR movie on a shoestring budget.
- **Easy Keys** Define C64 function keys.
- **Fractals 128** See and print intriguing patterns using recursive logic.
- **BridgeBrain** Play bridge against your computer for fun and practice.
- **Solitaire** Three classic card games, including "Aces Up."
- **Plus** Computer Juicer, Match Me, Exterminator, One for One, *and more!*



Commodore 64 and Commodore 128 are trademarks of Commodore Business Machines. Print Shop is a trademark of Broderbund Software.
Available at Waldenbooks, B. Dalton Booksellers, and fine bookstores everywhere (cover price $9.95). Apple II and IBM PC versions also available.

FREE the "Best of LOADSTAR" – a collection of fourteen of the best programs from recent issues – when you order the next 3 issues of LOADSTAR for your Commodore 64 or compatible computer. Contents are as follows:

Side 1	Side 2
Diskovery	Gallerie d'Art
Customizing LOADSTAR	Nature Quest
Glory Quest	Weather Conversions
Pyramid Power Struggle	VisiCalculator
Cybermine	Creeping Chromosomes
Laser Show	Sign Language Tutor
Editor in Chief	Last Things Last

Your Satisfaction Guaranteed

If you are not satisfied with your purchase for any reason, return your first issue for a full $19.95 refund. The "Best of LOADSTAR" is yours to keep. You can't lose.

Yes! Please rush my free "Best of LOADSTAR" and start my 3 month subscription to LOADSTAR for my Commodore 64 or 128 for only $19.95 postage paid. I understand that this is a **trial subscription** and that I am under no obligation to continue beyond three months. (*Overseas $27.95*)

Name_____

Address_____

City_____ State_____ Zip_____

Telephone_____

☐ VISA/MC ☐ AmEx ☐ Payment Enclosed

Card #_____ Exp. Date_____

Call Toll Free 1-800-831-2694

(In Louisiana call 1-318-221-8718) RU048

SOFTDISK • P.O. Box 30008 • Shreveport, LA 71130-0008

Circle 66 on Reader Service card.

WE JUS
FRONT PA



SNOOPS & SCOOPS

STOCKS PLUMMET IN RECORD TRADING

Television Highlights

Weather



ED'S WEEKLY

The views and news of Ed.

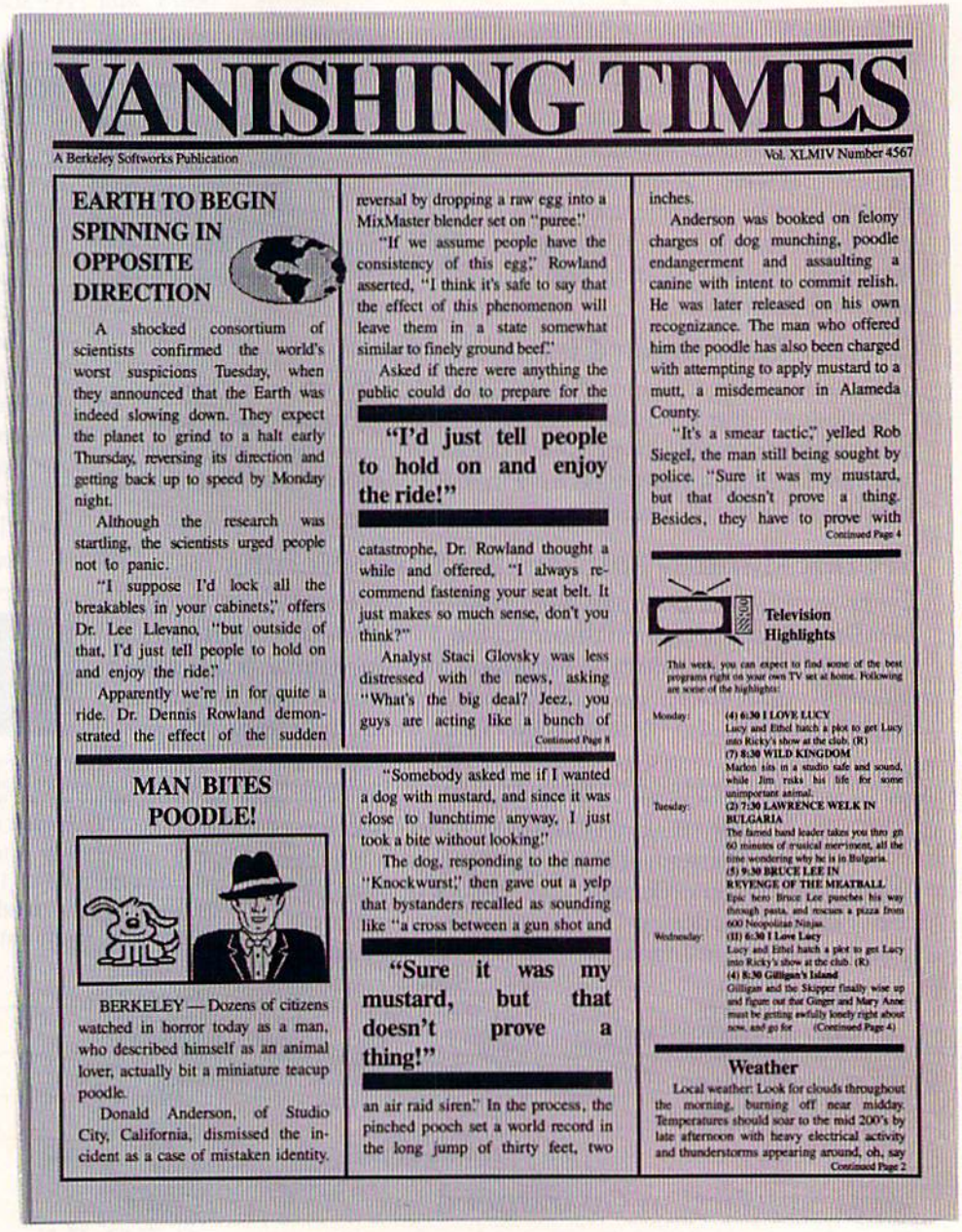
December 3

Basquing In The Beauty of Andorra

Weather

More people reading stuff like this!

Text can be printed in every font available through GEOS. These documents were printed on an Apple Laser Writer



VANISHING TIMES

A Berkeley Softworks Publication

Vol. XLMIV Number 4567

EARTH TO BEGIN SPINNING IN OPPOSITE DIRECTION

A shocked consortium of scientists confirmed the world's worst suspicions Tuesday, when they announced that the Earth was indeed slowing down. They expect the planet to grind to a halt early Thursday, reversing its direction and getting back up to speed by Monday night.

Although the research was startling, the scientists urged people not to panic.

"I suppose I'd lock all the breakables in your cabinets," offers Dr. Lee Llevano, "but outside of that, I'd just tell people to hold on and enjoy the ride."

Apparently we're in for quite a ride. Dr. Dennis Rowland demonstrated the effect of the sudden reversal by dropping a raw egg into a MixMaster blender set on "puree."

"If we assume people have the consistency of this egg," Rowland asserted, "I think it's safe to say that the effect of this phenomenon will leave them in a state somewhat similar to finely ground beef."

Asked if there were anything the public could do to prepare for the catastrophe, Dr. Rowland thought a while and offered, "I always recommend fastening your seat belt. It just makes so much sense, don't you think?"

"I'd just tell people to hold on and enjoy the ride!"

Analyst Staci Glovsky was less distressed with the news, asking "What's the big deal? Jeez, you guys are acting like a bunch of

Continued Page 8

MAN BITES POODLE!

BERKELEY — Dozens of citizens watched in horror today as a man, who described himself as an animal lover, actually bit a miniature teacup poodle.

Donald Anderson, of Studio City, California, dismissed the incident as a case of mistaken identity.

"Somebody asked me if I wanted a dog with mustard, and since it was close to lunchtime anyway, I just took a bite without looking!"

The dog, responding to the name "Knockwurst," then gave out a yelp that bystanders recalled as sounding like "a cross between a gun shot and an air raid siren." In the process, the pinched pooch set a world record in the long jump of thirty feet, two inches.

"Sure it was my mustard, but that doesn't prove a thing!"

Anderson was booked on felony charges of dog munching, poodle endangerment and assaulting a canine with intent to commit relish. He was later released on his own recognizance. The man who offered him the poodle has also been charged with attempting to apply mustard to a mutt, a misdemeanor in Alameda County.

"It's a smear tactic," yelled Rob Siegel, the man still being sought by police. "Sure it was my mustard, but that doesn't prove a thing. Besides, they have to prove with

Continued Page 4

Television Highlights

This week, you can expect to find some of the best programs right on your own TV set at home. Following are some of the highlights:

Monday:
(4) 6:30 I LOVE LUCY
Lucy and Ethel hatch a plot to get Lucy into Ricky's show at the club. (R)
(7) 8:30 WILD KINGDOM
Marlon sits in a studio safe and sound, while Jim risks his life for some unimportant animal.

Tuesday:
(2) 7:30 LAWRENCE WELK IN BULGARIA
The famed band leader takes you thru 60 minutes of musical merriment, all the time wondering why he is in Bulgaria.
(5) 9:30 BRUCE LEE IN REVENGE OF THE MEATBALL
Epic hero Bruce Lee punches his way through pasta, and rescues a pizza from 600 Neopolitan Ninjas.

Wednesday:
(11) 6:30 I Love Lucy
Lucy and Ethel hatch a plot to get Lucy into Ricky's show at the club. (R)
(4) 8:30 Gilligan's Island
Gilligan and the Skipper finally wise up and figure out that Ginger and Mary Anne must be getting awfully lonely right about now, and go for

(Continued Page 4)

Weather

Local weather: Look for clouds throughout the morning, burning off near midday. Temperatures should soar to the mid 200's by late afternoon with heavy electrical activity and thunderstorms appearing around, oh, say

Continued Page 2

Commodore and Commodore C64 are trademarks of Commodore Electronics, Ltd. GEOS, geoPublish and Berkeley Softworks are trademarks of Berkeley Softworks. LaserWriter and Print Shop are tradenames of companies other than Berkeley Softworks.

Circle 134 on Reader Service card.

T MADE GE NEWS.

These days, the biggest story in the news is geoPublish. The page-making program for GEOS-equipped 64's and 128's that replaces lifeless layouts with page after page of powerful, punchy professionalism.

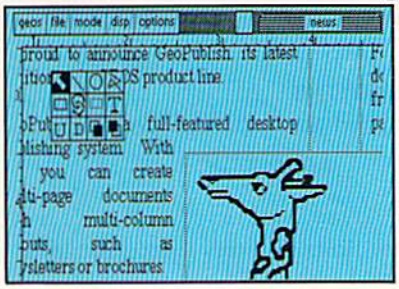
Freedom of the press.

Actually, geoPublish is very patriotic software. After all, what other application guarantees your freedom of self-expression? Well, geoPublish sure does. In fact, every piece it prints is dedicated to the preservation of your personality on paper.

Which means that finally, your newsletters never need to look like anyone else's, ever again.

All you do is draw a bunch of columns for your master layout. They could be two, four or sixteen across the page. They could be short and squat, or long and skinny. It's your call. After that, you just "pour" your geoWrite document, text, graphics and all—into column after column. Page after page.

Everything fills up automatically until it fits firmly into your finely fashioned format.



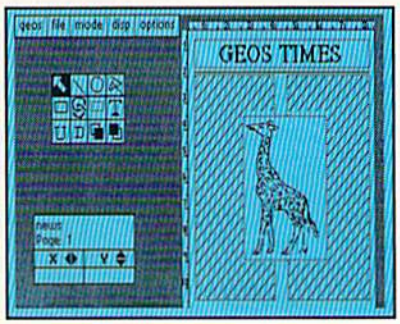
Extras! Extras! Read all about 'em!

As every editor knows, even the best stories need punching up before they go to press. Which is why geoPublish features an array of artistic appliances designed to earn your pages a place in the history books.

You can resize text. Change fonts. Even insert or delete graphics anywhere on the page. You can lay text over graphics. Graphics over text. Or even wrap text *around* graphics.

And if your image doesn't fit, no problem. The proportional scaling tool can shrink or enlarge any art, be it your original or the stuff you find in Print Shop.™

Finally, those of you intent on making banner headlines should know that geoPublish doesn't wimp out when it comes to headlines. It screams them out, with genuine, newspaper-sized, 96 point megafonts.



Now, if you think that sounds terrific on paper, just wait until you see it printed out on a Laser-Writer.™

We've saved the best news for last.

And now, for the best part: you can create and save not one, but hundreds of layouts for later use.

And because it's part of the GEOS family, you can fully integrate text and graphics from all your other programs into every geoPublish piece you print.

So now that you know the latest scoop in software, why not subscribe to geoPublish yourself? Who knows? With stuff like this, you could be making front page news in no time.

To order call 1-800-443-0100 ext. 234

geoPublish $69.95

(California residents add 7% sales tax.)

$2.50 US/$5.50 Foreign for shipping and handling. Allow six weeks for delivery.

Commodore and Commodore C64 are trademarks of Commodore Electronics, Ltd. GEOS, geoPublish and Berkeley Softworks are trademarks of Berkeley Softworks.

GEOPUBLISH

GEOS COMPATIBLE



Berkeley Softworks

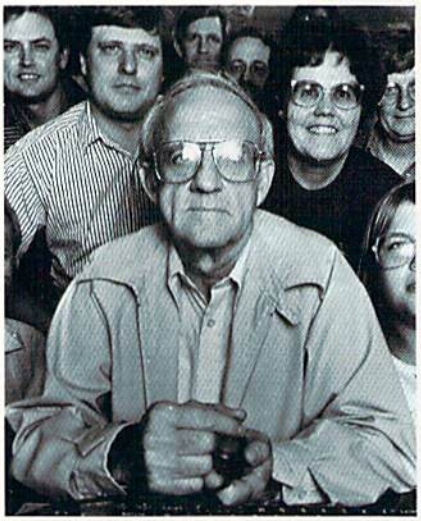
The brightest minds are working at Berkeley.

Circle 134 on Reader Service card.

VOLUME 5, NUMBER 4

RUN

APRIL '88



MEMBERS OF THE COMMODORE HOUSTON USER GROUP PHOTOGRAPHED BY WILL VAN OVERBEEK

FEATURES

COMPUTER CAMARADERIE *by Lonnie Brown* 38
Expand your computing horizons and make new friends by joining a Commodore user's group.

STARTING A USER'S GROUP *by Lou Wallace* 40
Tips for inaugurating your own club.

GET YOUR CLUB ONLINE *by Ray Roberts* 43
Running an electronic bulletin board system can make your user's group more fun and more worthwhile.

CLUB CHRONICLES *by Mike Procise* 45
A newsletter keeps user's group members informed and in contact between meetings. Here are some publishing pointers from an expert.

* **WINDOW CONSTRUCTION SET** *by John Ryan* 50
Now you can add windows to your C-64 programs with remarkable ease.

TROUBLESHOOTING TIPS *by Eric Wendt* 58
Save money by diagnosing some hardware problems yourself, and maybe even fixing them.

* **FONTASTIC 64** *by Kenny Lawson* 62
Would you believe C-64 text screens can be exciting? Use these nine new fonts with the programs you write and see for yourself.

DEPARTMENTS

RUNNING RUMINATIONS 8
CES highlights—new products and other goings-on at the recent Las Vegas show.

MAGIC *by Tim Walsh* 10
The original column of hints and tips for performing Commodore computing wizardry.

MAIL RUN 16
Input from our readers.

NEWS AND NEW PRODUCTS 22
Recent developments and releases in the world of Commodore computing.

SOFTWARE GALLERY 24
Reviews of:

- The Last Ninja
- Test Drive
- Aqua's Circus; Think Bank
- Rad Warrior; Spy vs. Spy III; Boulder Dash Construction Kit
- Nord and Bert Couldn't Make Head or Tail of It
- Micro Detective
- GeeBee Air Rally

* **EASY APPLICATIONS** *by J. C. Vollmer* 64
Short but useful applications for your Commodore computer. These neat tips will help you create windows on your C-128.

TELECOMPUTING WORKSHOP *by David Bradley* 70
Answers to your questions and other advice on using modems, terminal programs, bulletin boards and online networks.

***RUN*'S CHECKSUM PROGRAM** *by Bob Kodadek* 74
Use this program to help you type in error-free listings.

HARDWARE GALLERY 76
Reviews of:

- Hearsay 1000
- Serial Data Link Cable

RUN AMOK 87
We run corrected.

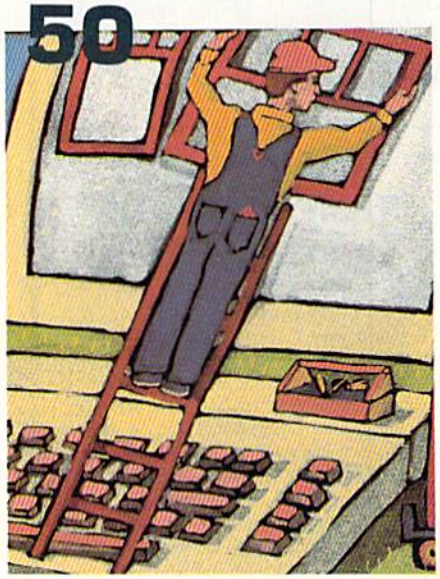
COMMODORE CLINIC *by Lou Wallace* 80
Got a problem or question related to Commodore computing? This monthly column provides the answers.

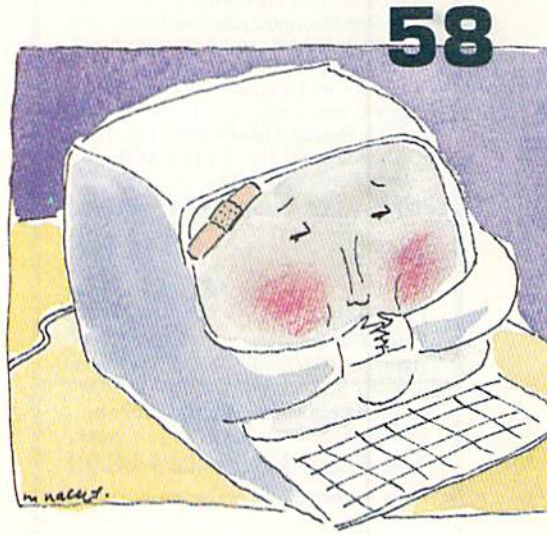
* **MEGA-MAGIC** *by Jim Borden* 92
Tips and techniques that are bigger than Magic. Create word, color and motion symphonies with this C-128 version of QuickDoc.

COMING ATTRACTIONS 96

LIST OF ADVERTISERS 96

* THIS ARTICLE CONTAINS A PROGRAM LISTING. THE PROGRAM WILL ALSO BE AVAILABLE ON THE MARCH-APRIL 1988 RERUN DISK. TO ORDER, SEE THE CARD BETWEEN PAGES 64 AND 65.





USER'S GROUP LIST—
Because of its length and magazine space constraints, we weren't able to include the promised list of U.S. and Canadian user's groups in this issue. If you'd like a list of the clubs in your state or province, please send your request and an SASE to Beth Jala, RUN Magazine, 80 Elm St., Peterborough, NH 03458.

RUN (ISSN 0741-4285) is an independent journal not connected with Commodore Business Machines, Inc. *RUN* is published monthly by IDG Communications/Peterborough, Inc., 80 Elm St., Peterborough, NH 03458. Phone 603-924-9471. Second-class postage is paid at Peterborough, NH, and at additional mailing offices. Canadian second-class mail registration number is 9565. Subscription rates in U.S. are $19.97 for one year, $29.97 for two years and $41.97 for three years. In Canada, a one-year subscription is $39.97 in Canadian funds. In Mexico, the one-year subscription rate is $24.97, with U.S. funds drawn on a U.S. bank. Foreign subscriptions are $39.97 for one year, with U.S. funds drawn on a U.S. bank. Please inquire about foreign air mail subscription rates. *RUN* is nationally distributed by International Circulation Distributors. **Postmaster**: Send address changes to *RUN*, Subscription Services, PO Box 954, Farmingdale, NY 11737. (Send Canadian changes of address to *RUN*, PO Box 1051, Fort Erie, Ontario, Canada L2A 5N8)

Entire contents copyright 1988 by IDG Communications/Peterborough, Inc. No part of this publication may be printed or otherwise reproduced without written permission from the publisher. Programs published in this magazine are for the personal use of the reader; they may not be copied or distributed. All rights reserved. *RUN* makes every effort to assure the accuracy of articles, listings and diagrams published in the magazine. *RUN* assumes no responsibility for errors or omissions in editorial or advertising content. Through our customer service representative, *RUN* assists readers with problems they may have with advertisers. However, *RUN* does not assume any liability for advertisers' claims.

MUST LIQUIDATE
SAVE OVER 75%!



COMMODORE TEMP/LIGHT LAB SOFTWARE SETS

Fun & Educational! Learn the facts about temperature and lighting the exciting way. Conduct hands-on scientific experiments to gain knowledge...with household materials, these Educational Software Lab Sets, and your Commodore computer. Order a set of these two kits now at our **LOW money-saving liquidation price!** Ages 11 and up.

- Temperature Lab Guides You Through Heat Experiments.
- Temp. Lab Includes an 8 Prong Interface, Electronic Temperature Sensor, Alcohol Bulb Thermometer, 5¼" Floppy Diskette, and Experimenter's Guide.
- Light Lab Lets You Experiment with Light and Energy.
- Light Lab Includes a Light Sensor, Light Assembly, Light Stick, Red and Blue Filters, Test Tube, Glow Panel, 5¼" Floppy Disk, and Experimenter's Guide.

90-Day Ltd. Vendor Warr. on Both.

Mfr. List **$79.95**

Liquidation Price For Sets **$19**

Item H-3162-7343-502 S/H: $4.00/set

Credit card customers can order by phone, 24 hours a day, 7 days a week.

Toll-Free: 1-800-328-0609

SEND TO:
COMO **Authorized Liquidator**
1405 Xenium Lane N/Minneapolis, MN 55441-4494

Send ___ **Commodore Software Sets(s)** Item H-3162-7343-502 at $19 per set, plus $4.00 per set for insured shipping and handling. (Minnesota residents add 6% sales tax. Sorry, no C.O.D. orders.)

☐ My check or money order is enclosed. (No delays in processing orders paid by check.)

PLEASE CHECK: ☐ VISA ☐ ☐ DISCOVER ☐

Acct. No. _____ Exp. ___/___

PLEASE PRINT CLEARLY

Name _____

Address _____ Apt. #_____

City _____

State _____ ZIP_____

Phone (___) _____

Sign Here _____

RUN

PUBLISHER
STEPHEN ROBBINS

EDITOR-IN-CHIEF
DENNIS BRISSON

MANAGING EDITOR
SWAIN PRATT

REVIEW EDITOR
BETH JALA

COPY EDITOR
PEG LEPAGE

NEW PRODUCTS EDITOR
HAROLD R. BJORNSEN

TECHNICAL MANAGER
LOU WALLACE

TECHNICAL EDITOR
TIMOTHY WALSH

ASSOCIATE EDITORS
ROBERT KODADEK; ROBERT ROCKEFELLER

ART DIRECTOR
ROSSLYN A. FRICK

ASSISTANT ART DIRECTOR
HOWARD G. HAPP

DESIGNERS
ANNE DILLON
ROGER GOODE

PRODUCTION/ADVERTISING SUPERVISOR
RUTH BENEDICT

ADVERTISING SALES MANAGER
KENNETH BLAKEMAN

SALES REPRESENTATIVES
NANCY POTTER-THOMPSON
BARBARA HOY

CLASS AD SALES-EAST COAST
HEATHER PAQUETTE
603-924-9471

ADVERTISING COORDINATOR
SUE DONOHOE

SECRETARY
SANDY KIERSTEAD

CUSTOMER SERVICE REPRESENTATIVE
LISA LAFLEUR

WEST COAST OFFICE:

SALES MANAGER
GIORGIO SALUTI

CLASS AD SALES
DANNA CARNEY

3350 W. BAYSHORE ROAD, SUITE 201
PALO ALTO, CA 94303
415-328-3470

MARKETING MANAGER
WENDIE HAINES

MARKETING COORDINATOR
LAURA LIVINGSTON

BUSINESS MANAGER
BARBARA HARRIS

PRESIDENT
MICHAEL PERLIS

VICE-PRESIDENT/GENERAL MANAGER
ROGER MURPHY

GROUP PUBLISHER,
CONSUMER/HOME PUBLICATIONS
STEPHEN TWOMBLY

CIRCULATION DIRECTOR
FRANK S. SMITH

CIRCULATION MANAGER
BONNIE WELSH

NEWSSTAND SALES
LINDA RUTH

DIRECT MARKETING MANAGER
PAUL RUESS

DIRECT SALES MANAGER
ELIZABETH R. KEHN

DIRECTOR, SPECIAL PRODUCTS
PAUL FINCH

DIRECTOR OF CREDIT SALES & COLLECTIONS
WILLIAM M. BOYER

DIRECTOR OF CORPORATE PRODUCTION
DENNIS CHRISTENSEN

MANUFACTURING MANAGER
SUSAN GROSS

TYPESETTING MANAGER
LINDA P. CANALE

SYSTEM SUPERVISOR
DOREEN MEANS

TYPESETTER
DEBRA A. DAVIES

Manuscripts: *RUN* invites its readers to send contributions in the form of manuscripts with drawings and/or photographs to be considered for possible publication. The procedure for submitting an article is outlined in the *RUN* writer's guidelines, which you can obtain by sending a self-addressed, stamped envelope. All contributions, queries, requests for writer's guidelines and any other editorial correspondence should be directed to *RUN*, Editorial Offices, 80 Elm St., Peterborough, NH 03458; telephone: 603-924-9471.

Advertising inquiries: Send your correspondence to Advertising Offices, IDG Communications/Peterborough, Inc., 80 Elm Street, Peterborough, NH 03458; telephone: 800-441-4403.

Subscription problems or address changes: Call 1-800-227-5782 (NY and Canadian residents, 1-800-732-9119) between 9 a.m. and 5 p.m. EST, Monday-Friday, or write to *RUN*, Subscription Department, PO Box 954, Farmingdale, NY 11737.

Problems with advertisers: Send a description of the problem and your current address to: *RUN*, 80 Elm Street, Peterborough, NH 03458, ATTN.: Lisa LaFleur, Customer Service, or call 1-800-441-4403.

Microfilm: *RUN* is available in Microform from University Microfilms International, 300 N. Zeeb Road, Dept. P.R., Ann Arbor, MI 48106.

Back Issues: *RUN* back issues are available for $3.50, plus $1 postage and handling from: *RUN*, Back Issue Orders, 80 Elm St., Peterborough, NH 03458. On orders of 10 or more back issues, there is a flat $7.50 shipping and handling fee. Quantities are limited, and we cannot guarantee that all back issues are available.

Problems with ReRUN: Address correspondence to ReRUN, 80 Elm St., Peterborough, NH 03458.

***RUN*'s BBS:** The Running Board is *RUN*'s reader feedback bulletin board, which you can call anytime, day or night, seven days a week for up-to-date information about the magazine, the Commodore industry and news and information of interest to all Commodore users. Call: 603-924-9704. The Running Board uses the Punter or Xmodem protocols, 300 or 1200 baud, one stop bit, no parity, full duplex and a word length of eight bits.



NOW PLAYING AT A SOFTWARE DEALER NEAR YOU

Available for Amiga, Commodore 64, IBM PC, Apple IIgs, and Atari ST, which are trademarks respectively of Commodore-Amiga, Commodore Electronics, Ltd., International Business Machines, Apple Computer Inc., and Atari Inc.

Cinemaware Corporation, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362

RUNning Ruminations

RUN's technical editor, Tim Walsh, returned from the land of glitz and glitter with these impressions of the 1988 winter CES.

WHILE THE GLARING LIGHTS were brightest and the din of the crowds was loudest at the massive Las Vegas Convention Center, the 1988 winter Consumer Electronics Show also infiltrated countless suites in many of the city's high-rise hotels and glitzy resorts. Making my appointed rounds through the Convention Center, I encountered a seemingly endless array of one- and two-story exhibitor booths manned by a veritable army of tireless business execs.

Since the winter CES, which follows the busiest shopping season of the year, is an exclusive show, open only to the press and the companies that are displaying their products, manufacturers use this media event to whet the public's appetite. Most of the companies represented had uncertain release dates that ranged from the first to the fourth quarters of 1988.

Surprisingly, products produced exclusively for the C-128 were virtually non-existent.

Why so Little C-128 Support?

If you're wondering why, it's primarily because most existing C-128-mode software consists of word processors and databases—not exactly programs used for entertainment purposes. And entertainment software dominated this year's show. If CES served to indicate new trends in 1988, useful software for your Commodore is definitely "out" and entertainment is most assuredly "in." Personally, I find this anti-productivity software scenario discouraging.

Now, don't get me wrong. I enjoy entertainment software and have earned a well-publicized reputation for indulging in a few shoot-'em-ups from time to time. But I do take issue with many software manufacturers who believe that if you need to perform serious computer work, then you need an IBM clone or a Macintosh. These same manufacturers also seem to feel that C-128 owners should be content with using their C-128s in 64 mode, so they accordingly tend to identify their C-64 products as "C-64/C-128" software.

Such logic flies in the face of many *RUN* readers who are aware of the C-128's potential as a capable desktop publishing computer and its inherent low cost and reliability as a small-business computer. With roughly 1.5 million C-128 owners starved for good native-mode software, I regret to report the absence of any comprehensive, competitively-priced application or utility program package for the C-128 announced at CES.

C-64 Enthusiasm Everywhere

Rest assured, though, that the versatile C-64 is still alive and stronger than ever in terms of support. PaperClip Publisher, Electronic Arts' new C-64 desktop publishing system that's due for release later in the spring of 1988, looks extremely promising. Designed along the lines of the Amiga Page Setter program, it looks fairly easy to use and has a nifty option to greatly reduce the area of the screen you're working on so that you can see exactly what it'll look like on the printed page.

MicroProse enjoyed a breathtaking view of Las Vegas from their CES headquarters in the top-story presidential suite of the Sahara Hotel. Most of the computers throughout their plushly appointed suite were displaying Red Storm Rising, which is based on the Tom Clancy novel. You guessed it—they even brought along Tom Clancy.

Software manufacturer Accolade had one of the busiest booths to be found on the floor at CES. Riding the crest of success with their 1987 releases, such as Test Drive, Accolade seems to be in high gear and is quickly becoming one of the leaders of this segment of the industry.

Cinemaware was another hot ticket present at CES. While they showcased their newest C-64 product, a super-speedy fast-loader cartridge called Warp Speed, it was their two new software titles, The Three Stooges and Rocket Ranger, that really caught my attention. Combining creative entertainment and adventure expanded to a new dimension with finely detailed graphics and superbly digitized sound, both of these programs are sure to catch a few of Cinemaware's competitors off guard. Although I saw only the Amiga versions, I was promised that versions for the C-64 will appear on store shelves in the months to come.

The people at Infocom aren't exactly resting on their laurels either. At CES they announced a new line of interactive software for the C-64, called Infocomics. By establishing a partnership with Tom Snyder Productions, Infocom has developed a way to get graphics into their text adventures.

"Where in Europe is Carmen Sandiego?," a sequel to the popular "Where in the World is Carmen Sandiego?," represents one of Broderbund Software's new releases at CES. I also can't wait to try "Arcade Game Construction Kit," another Broderbund product that is due for release later this spring.

I found hardware for Commodores, mainly in the form of printers, at both the Okidata and Star Micronics booths. Star showcased their new Commodore-compatible NX-1000C printer (a *RUN* review is forthcoming), and Okidata displayed their 15-inch, cost-reduced Microline 183 (also to be reviewed soon). The Microline 183 is not a new printer, but the fact that its price has been officially trimmed down should increase its popularity among Commodore users in need of a high-quality, low-cost, 15-inch printer.

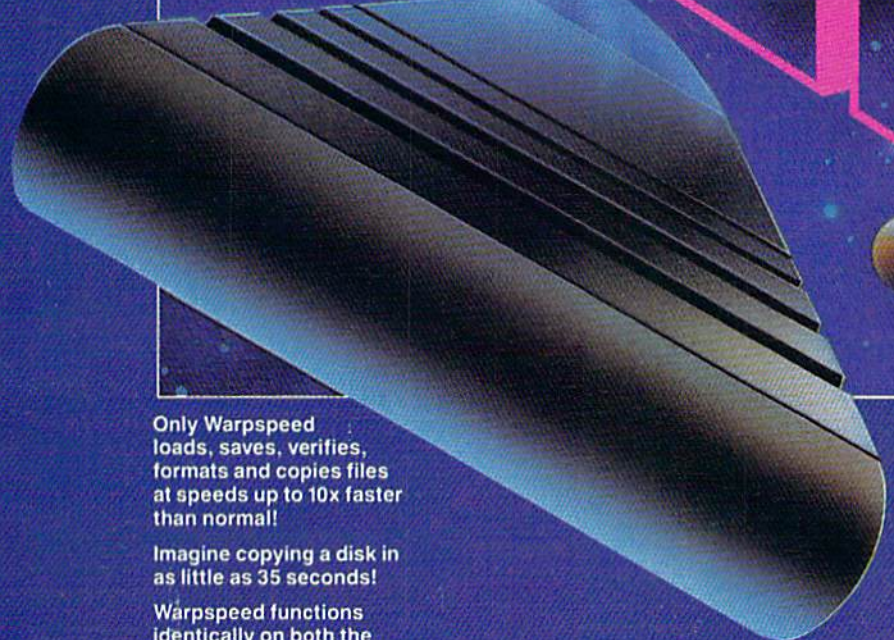
I'm saving the best for last. Epyx, the versatile software manufacturer that everyone seems to like, deserves an award for providing the most C-64 software support at CES. They announced no fewer than 12 new C-64 programs, ranging from a serious Winter Olympics simulator to a fast-action shoot-'em-up called Death Sword. These programs, however, are not yet ready for release.

Finally, in typical Commodore fashion, the number-one manufacturer of home computers opted to skip this show for reasons (or regions) unknown. If only Commodore knew how much their fans missed them.

—Tim Walsh
Technical Editor

INTRODUCING THE INDISPENSABLE ACCELERATOR CARTRIDGE FOR YOUR C64 OR C128.

WARP SPEED™



Only Warpspeed loads, saves, verifies, formats and copies files at speeds up to 10x faster than normal!

Imagine copying a disk in as little as 35 seconds!

Warpspeed functions identically on both the C64 and C128 in the 40 or 80 column mode and works with all compatible drives, including the 1581. Built in mode select and reset switches too!

Attention advanced users: An integrated sector editor and drive monitor and a full featured mini-assembler are all included!

Only Warpspeed delivers 55 features that no other cartridge can match.

Why limp along on impulse power when you can jump to Warpspeed?

CINEMAWARE
CORPORATION

Exclusively distributed by Cinemaware Corporation 4165 Thousand Oaks Blvd., Westlake Village, Ca. 91362

C64, C128 and 1581 drive are trademarks of Commodore Electronics, Ltd. Warpspeed is a trademark of Alien Technology Group.

MAGIC

Test your typing speed and accuracy with 64 Typing Tutor; redefine your 128 function keys for easy Data statement entry with RUN*'s Checksum program.*

Compiled by TIM WALSH

$485 Typing Hex Listings Made Easier

RUN has published several high-quality machine language programs (RUN Term 128, RUN Memo Book and RUN Copy) so far in 1988. Since their listings use a hexadecimal (base 16) format in the Data statements, you're required to enter numbers and the letters A through F. I've written a short C-128 program that redefines the C-128 function keys for easier data entry. Incidentally, there's no problem entering 64-mode programs in 128 mode using *RUN*'s Checksum.

Here's a list of the new function-key definitions:

F1 = A	F5 = C
F2 = E	F6 = DATA
F3 = B	F7 = D
F4 = F	F8 = , (comma)

I tested a variety of key assignments to determine which order is easiest to use. If pressing the shift/F8 combination is a little awkward for you, you could use the comma key with your left hand.

```
Ø REM REDEFINE C-128 F-KEYS - T. WALSH
                                        :REM*116
1Ø FORS= 1 TO 8:READ KY$:KEY(S),KY$:NEXT
                                        :REM*219
2Ø DATA A,E,B,F,C,",",D,DATA            :REM*72
3Ø SCNCLR:PRINT"FUNCTION KEYS ARE REDEFINE
   D!                                   :REM*151
```

—Tim Walsh, *RUN* Staff

$486 Eliminating Screen Jitters

If you stack your computer system's peripheral devices on shelves around your work area, you may be asking for electrical interference trouble. If a corner of the image on your video monitor begins to flicker, your disk drive or printer may be the culprit. Keeping the drive or printer on a shelf in close proximity to the monitor sometimes causes interference due to lack of shielding, especially if those units are non-U.S. specification devices.

Try turning off the disk drive and printer while leaving the rest of the system on. If the flickering disappears, try moving these peripheral devices away from the video monitor. Sometimes just relocating them a few inches is all that's necessary.

—Eric Pedersen, Wilstead, England

$488 Eliminating Disk Drive Jitters

Like any proud owner, I'm thrilled by my new C-128D. What I wasn't so thrilled about was the fact that the drive heads clatter a little each time I power up the machine in C-128 ►

TRICK OF THE MONTH

$487 Typing Tutor

Whether you're a touch or peek-and-poke typist, you'll find 64 Typing Tutor is guaranteed to improve your typing speed and accuracy. Best of all, you can run it in 64 mode or in 128 40- or 80-Column mode.

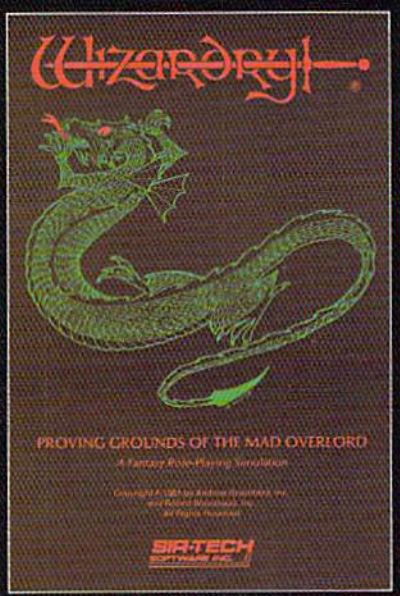
Typing Tutor 64 displays a random alpha or numeric character at the top of the screen, then moves it down at a user-selectable speed between 1 and 9. You accumulate points by pressing the corresponding key before the character reaches the bottom of the screen.

```
Ø REM 64 & 128 TYPING TUTOR - JOE CHARNET
  SKI                                   :REM*177
1Ø PRINT"{SHFT CLR}1. LETTERS{2 SPACEs}2.
    NUMBERS{2 SPACEs}3. BOTH{3 SPACEs}";:
   GOSUB9Ø:IFA$<"1"ORA$>"3"THEN1Ø:REM*218
2Ø L=57+1Ø*(A$="1"):H=65-26*(A$="2"):X=RN
   D(-TI)                               :REM*241
3Ø PRINT"{CRSR DN}SPEED (1-9){CRSR RT}";:
   GOSUB9Ø:S=VAL(A$):ON-(S<1ORS>9)GOTO3Ø:
   S=S*11:GOSUB1ØØ                      :REM*175
4Ø R=INT(RND(1)*43)+48:ON-(R>LANDR<H)GOTO
   4Ø:P$=CHR$(R):T=INT(RND(1)*38)+1:D=1
                                        :REM*33
5Ø PRINTTAB(T)"{CRSR DN}{CRSR LF}"P$"{CRS
   R UP}":GETC$:IFC$=P$THENSC=SC+1:GOSUB1
   ØØ:GOTO4Ø                            :REM*24
6Ø FORZ=STO1ØØ:NEXT:D=D+1:ON-(D<24)GOTO5Ø
   :GOSUB1ØØ:FORB=1TO1Ø:GETK$:NEXT
                                        :REM*197
7Ø PRINT"{CRSR DN}PRESS SPACE BAR TO CONT
   INUE.":GOSUB 9Ø:IFA$<>" "THENPRINT"{SH
   FT CLR}":END                         :REM*247
8Ø SC=Ø:GOSUB1ØØ:GOTO4Ø                 :REM*228
9Ø GETA$:ON-(A$="")GOTO9Ø:PRINTA$:RETURN
                                        :REM*98
1ØØ PRINTCHR$(147)"SCORE="SC:FORZ=STO2ØØ:
    NEXT:RETURN                         :REM*239
```

—Joe Charnetski, Dallas, PA

Circle 133 on Reader Service card.

Wizardry®



Now the world of Wizardry comes to Commodore 64/128

PROVING GROUNDS of the MAD OVERLORD

Also available for:
Apple II Series,
IBM PC & compatibles,
Tandy 1000 SX & EX,
Macintosh

With your Commodore 64 or 128 you can now experience an exciting initiation into the internationally-acclaimed world of the Wizardry Gaming System.

Begin with the first scenario*: Proving Grounds of the Mad Overlord. It challenges you to overcome devious tricks and sudden traps, strange and mysterious encounters, maze upon maze of puzzles, stimulating and intricate sub-plots and sophisticated themes. Ingenious multi-level, mind-bending tests abound with vile creatures, unspeakable villains, courageous adventurers and strong allies to hinder and help you achieve ultimate victory.

SIR-TECH

Sir-tech Software, Inc.,
P.O. Box 245, Ogdensburg, NY 13669
(315) 393-6633

® Registered trademark of Sir-tech Software, Inc.
© Copyright by Sir-tech Software, Inc.
Commodore is a registered trademark of Commodore International

PLAY IT TO THE HILT!

* Many other Wizardry scenarios coming for Commodore players.

mode. This situation is not a defect in hardware design; instead, the drive is simply trying to determine whether an autoboot disk is present in the drive. When a disk isn't in the drive, though, that clattering sounds expensive to my ears.

Not wanting to have to pay for a premature disk drive alignment, I've developed a sure-fire way to silence the drive whenever the computer is powered up. I simply keep a work disk in the drive when I turn on the computer. Result: No rattles, clatters or any other sound for that matter.

[Editor's Note: If you have a standard C-128 and are experiencing the same problems as Keith, simply turn your computer on first, then your disk drive. By making this practice a habit, your disk drive might last long enough for your grandchildren to inherit it in working order.]

—KEITH SILLS, NEW YORK, NY

$489 ESC-A AND ESC-C ON THE C-128

I'm a happily unemployed skier, and when I'm not on the slopes, I tend to sit around the house and write lots of Basic programs on my C-128. Sprites, music, games—I even type in most of *RUN*'s Magic tricks. I enjoy writing programs of my own design so much that I rarely work on less than five or six at a time.

A trick I discovered is always to press ESC-A to put the C-128 in Insert mode before writing programs or typing in listings. By keeping the C-128 in Insert mode, I never have to worry about inserting spaces if I forget to enter a character or word into an existing line—the characters are automatically shoved over. Also, the listing scrolls much slower when I want to closely examine the lines I've typed in. Furthermore, whenever I need to cancel ESC-A without cancelling the Fast mode, I just press ESC-C. Try it the next time you type in a listing. You'll find yourself using Insert mode constantly.

—HANS K. WEIZERSTEIN, VIENNA, AUSTRIA

$48A @PRINT FOR THE 64

Just when you think every conceivable interrupt-driven program has been developed for the C-64, along comes another that makes you wonder why it wasn't thought of before. My little program adds an @Print command to Basic 2.0.

After running my program, enter SYS 880 to activate it. Now, when you want to direct output to the printer, enter:

```
@PRINT"HERE IS A SAMPLE OF @PRINT"
```

Or, if you prefer,

```
@?"HERE IS A SAMPLE OF @PRINT"
```

While it is not required for normal use with the @Print command, pressing the & (ampersand) key closes logical file #4 that the @ sign automatically opens.

```
Ø REM @PRINT FOR THE 64 - RANDY PENCIN
                                        :REM*34
1Ø FORX=828 TO 915:READD:POKEX,D:CK=CK+D:N
   EXT                                  :REM*1Ø2
2Ø IFCK<>8933THENPRINT"ERROR IN DATA..."
                                        :REM*1Ø7
3Ø PRINT"SYS 88Ø TO ACTIVATE":PRINT"SYS 93
   Ø TO DEACTIVATE"                     :REM*21
4Ø DATA 16Ø,1,177,122,2Ø1,64,24Ø,7,2Ø1,38,
   24Ø,31,1Ø8,16Ø,3,32,115,Ø,169        :REM*26
5Ø DATA Ø,32,189,255,169,1,162,4,16Ø,255,3
   2,186,255,32,192,255,162,1           :REM*161
6Ø DATA 32,2Ø1,255,1Ø8,16Ø,3,32,115,Ø,32,2
   Ø4,255,1Ø8,16Ø,3,173,8,3             :REM*251
7Ø DATA 141,16Ø,3,173,9,3,141,161,3,169,6Ø
   ,141,8,3,169,3,141,9,3,96            :REM*194
8Ø DATA 173,16Ø,3,141,8,3,173,161,3,141,9,
   3,96                                 :REM*115
```

—RANDY PENCIN, WOODLAND, CA

$48B 64 HEARTS A-PLENTY

Don't wait for next Valentine's day to show that special someone in your life your true feelings. Just sit her down in front of the computer, run this program and tell her this is how your heart behaves whenever the two of you are together.

```
Ø REM 64 HEARTS A-PLENTY - JASON MUCKALA
                                        :REM*9Ø
1Ø PRINTCHR$(147):C=5328Ø:POKEC,Ø:POKEC+1,
   Ø:V=C-32:POKEV+21,4:POKEV+41,2       :REM*155
2Ø POKE 2Ø42,13:FORS=Ø TO 62:READD:POKE 83
   2+S,D:NEXT                           :REM*197
3Ø D=INT(RND(1)*255):POKE V+4,D:POKE V+5,D
   :POKE V+41,D:GOTO 3Ø                 :REM*1ØØ
4Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,7,131,192,
   15,199,224,31,239,24Ø,31             :REM*244
5Ø DATA 255,24Ø,31,255,24Ø,31,255,24Ø,15,2
   55,224,7,255,192,3,255,128           :REM*12Ø
6Ø DATA 1,255,Ø,Ø,254,Ø,Ø,124,Ø,Ø,56,Ø,Ø,1
   6,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø            :REM*192
```

—JASON MUCKALA, WEST COVINA, CA

$48C ME AND MY SHADOW—ER, HIGHLIGHTER

Here's a dynamic twist to assist in editing C-64 Basic programs—a Basic line highlighter. Wherever you move the cursor, the highlighter follows. You'll notice a vast improvement in your ability to keep track of which line the cursor is on.

Should you want to change the default colors, use these Pokes with Line Highlighter:

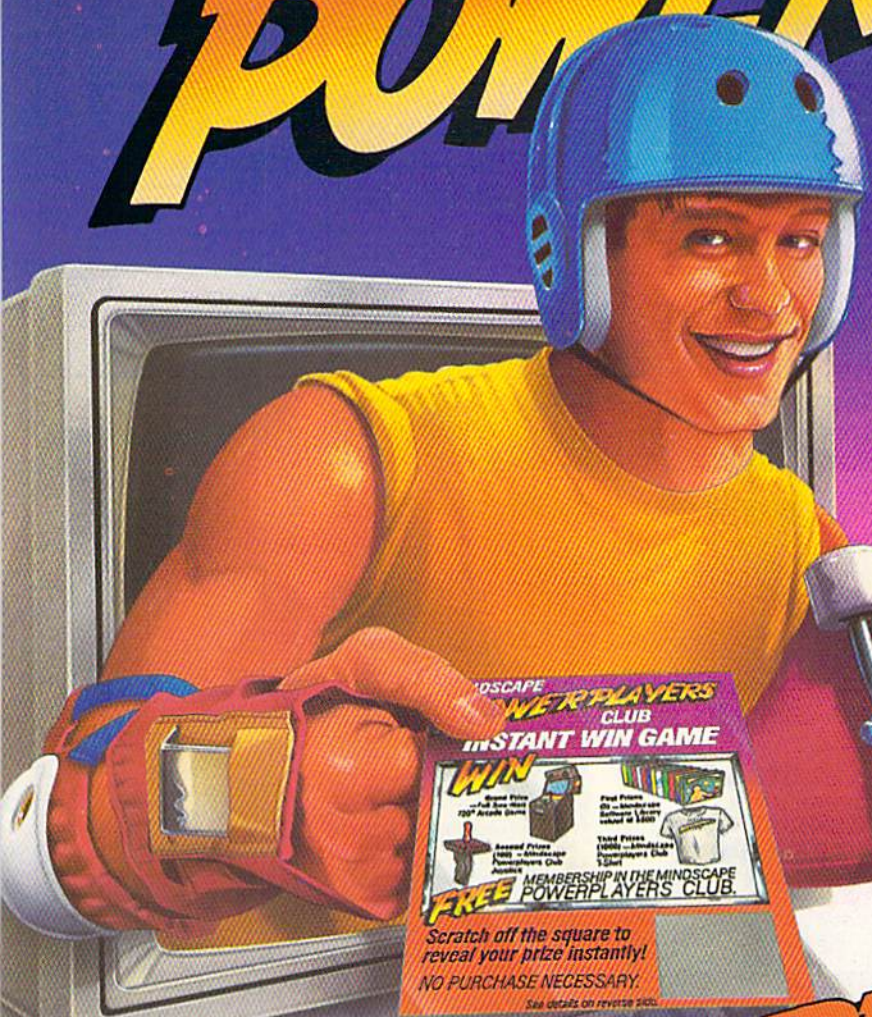
Cursor:	POKE 53024,X
Bar:	POKE 53029,X
Screen:	POKE 53036,X

```
Ø REM 64 BAR HIGHLIGHTER - THOMAS IERNA
                                        :REM*2ØØ
1Ø FOR T=52992 TO 53Ø54: READD:POKET,D:NEX
   T                                    :REM*53
2Ø SYS 52992:PRINTCHR$(147):LIST        :REM*92
3Ø DATA 12Ø,169,13,141,2Ø,3,169,2Ø7,141,21
   ,3,88,96,165,214,1Ø1,214,1Ø1         :REM*2Ø4
4Ø DATA 214,1Ø1,214,1Ø1,214,1Ø1,214,1Ø1,21
   4,1Ø1,214,1Ø5,49,16Ø,12,14Ø          :REM*2Ø4
5Ø DATA 134,2,16Ø,1,32,51,2Ø7,1Ø5,1Ø,16Ø,Ø
   ,32,51,2Ø7,76,49,234,2Ø5,18          :REM*72
6Ø DATA 2Ø8,2Ø8,251,14Ø,32,2Ø8,14Ø,33,2Ø8,
   96                                   :REM*242
```

—THOMAS IERNA, TIERRA VERDE, FL

Continued on p. 90.

MAKE A POWER PLAY IN MINDSCAPE'S INSTANT WIN GAME.



WIN



Grand Prize
—Full Size Atari 720° Arcade Game



First Prizes (5)
—Mindscape Software Library valued at $500



Second Prizes (100)
—Mindscape Powerplayers Club Joystick



Third Prizes (1000)
—Mindscape Powerplayers Club T-Shirt

FREE

Membership in the Mindscape Powerplayers Club including:

• Membership Certificate • Advanced notice of new games • Game Tips • Discounts on Powerplayer Merchandise

HOW TO PLAY

Look for the Game Cards in these specially marked Arcade Megahits. Scratch off the square to reveal your prize-instantly!











MINDSCAPE

MINDSCAPE INC

No Purchase Necessary. For official rules and Game Card write on a plain 3" x 5" card "Mindscape Players are Powerplayers" and mail it with a self-addressed, stamped #10 envelope to Mindscape Powerplayers Club Instant Win Game, P.O. Box 1167, Northbrook, IL 60065. Limit one request per envelope. Residents of the states of Washington and Vermont need not include return postage. Void where prohibited by law. Instant Win Game ends January 31, 1989 or when all game cards are distributed.

© 1988 Mindscape, Inc. Mindscape is a trademark of Mindscape, Inc. Gauntlet™ © 1984 Atari Games Corp. All rights reserved. Paperboy™ © 1984 Atari Games Corp. All rights reserved. Road Runner™ © 1985 Warner Bros. and Atari Games Corp. All rights reserved. Indiana Jones and the Temple of Doom™ © 1985 Lucasfilm Ltd. and Atari Games Corp. All rights reserved. Indiana Jones and the Temple of Doom is a trademark of Lucasfilm Ltd., used under license. 720°™ © 1986 Atari Games Corp. All rights reserved.

DON'T SETTLE FOR LESS...

C= COMMODORE 128



$229

1571 DISK DRIVE $229.00
1084 MONITOR $269.00

C128 w/1571 Drive $454.00
C128 w/1571 & 1084 Monitor..... $729.00
C128 w/1571 & Thomson 4120..... $669.00

COMMODORE 64C



$164.95

1541II DISK DRIVE $169.95
1802C MONITOR $189.00

64C w/1541II Drive $333.00
64C w/FSD-2 Drive..... $304.00
1802C with either package..... $184.00

COMMODORE 128D



$439

- 128K Memory
- Built in 1571 Disk Drive
- Detatchable Keyboard

128D w/1084 Monitor..... $719.00
128D w/Thomson 4120 ..... $649.00

TUSSEY'S SPECIAL PACKAGES

GAME GALLERY

Educational Software too!
All Games stocked for quick ship!!!

ACCESS
Echelon $29.95
Leader Board $24.95
Leader Board Tourn. Disk $16.95

ACCOLADE
Apollo 18 ..... $19.95
Comics $19.95
4th & Inches $22.95
Hard Ball $22.95
Killed Until Dead ..... $CALL
Lipstick Plus $19.95
Miniputt $24.95
Test Drive ..... $CALL

ACTIONSOFT
Last Ninja $24.95
Thunder Chopper $24.95
Up Periscope $19.95

ACTIVISION
Air Rally ..... $CALL
Aliens $22.95
Gamemaker Package with all Librarys $39.95
Maniac Mansion $27.95
Music Studio $27.95
Shanghai $24.95

ARTWORX
NBA $24.95

BRODERBUND
Lode Runner $24.95
Moebius $27.95
Superbike Challenge ..... $CALL
Ultima V $39.95

CINEMAWARE
SDI ..... $CALL
Defender of the Crown $22.95
King of Chicago $24.95

COSMI
Def Con 5 ..... $17.95

DATA EAST
Commando $17.95
Karate Champ $24.95
Kid Niki $19.95
Speed Buggy $19.95

DATASOFT
Alt Reality/Dungeon $24.95
Bismark $24.95
Dark Lord $19.95
Force 7 ..... $19.95
Theatre Europe $27.95
Tobruk $27.95
Tomahawk $24.95
Video Title Shop $25.95

ELECTRONIC ARTS
Amnesia $27.95
Arctic Fox $24.95
Bard's Tale $27.95
Bard's Tale II $29.95
Carriers at War $37.95
Chessmaster 2000 ..... $26.95
Dan Dare $16.95
Demon Stalkers ..... $CALL
Dragon Slayer $19.95
Dungeon Runners $19.95
EOS(Earth Orbit Stat'n) $19.95
Instant Music $24.95
Legacy of the Ancients $19.95
Marble Madness $23.95
Outrageous Pages $39.95
Patton vs Rommel $29.95
PHM Pegasus $24.95
Pinball Construction Set $9.95
Skate or Die $24.95
Sky Fox II $24.95
Starfleet I $29.95
Strike Fleet $29.95
World Tour Golf $27.95
Yeager AFT $24.95

EPYX
500 XJ Joystick $14.95
California Games $24.95
Champ'ship Wrestling $27.95
Create a Calendar $19.95
Deystroyer $24.95
Movie Monster $16.95
Street Sports Baseball $29.95
St Sports Basketball $29.95
Sub Battle $24.95
Summer Games $16.95
Summer Games II $26.95
Super Cycle $14.95
Winter Games $24.95
World Games $29.95
World's Gr'test Baseball $24.95
World's Gr'test Football $28.95

FIREBIRD
Elite $22.95
Guild of Thieves $24.95
Knight ORC $29.95
Pawn $24.95
Star Glider $24.95
The Sentry $27.95

GAMESTAR
Championship Baseball $27.95
Championship Football $27.95
GBA Basketball 2 on 2 ..... $24.95
Top Fuel Eliminator $19.95

INFOCOM
Beyond Zork $34.95
Hitchhiker's Guide $22.95

LANCE HAFNER for the best in sports strategy simulation
3 in 1 Football $29.95
Basketball, the Pro Game $29.95
Final Four Basketball $29.95
Full Count Baseball $29.95

MICROLEAGUE
Wrestling $24.95

MICRO PROSE
Airborne Rangers $24.95
F-15 Strike Eagle $21.95
Gunship $22.95
Kennedy Approach $17.95
NATO Commander $24.95
Pirates $24.95
Silent Service $24.95
Solo Flight $24.95
Stealth Fighter $29.95

MINDSCAPE
Gauntlet $29.95
Indiana Jones $22.95
Indoor Sports $22.95
Infiltrator II $21.95
Paperboy $24.95
Perfect Score:SAT prep $44.95
Superstar Hockey $24.95
Uchi Mata $19.95
Uridium $19.95

Call for prices on other MINDSCAPE products!

MISC GAMES
Hobbitt $24.95

SIMON & SHUSTER
Star Trek-Kobayashi Alt. $24.95
Star Trek Promethian Adv $24.95
Typing Tutor IV $29.95

SPECTRUM HOLOBYTE
Falcon $22.95
Intrigue $22.95
PT 109 ..... $27.95
Soko Ban $17.95

SOFTWARE SIMULATIONS
Football $24.95
Pure Stat Baseball $29.95
Pure Stat College BB $32.95

SSI
B-24 ..... $24.95
Eternal Dagger $27.95
Phantasie I, II, III (each) $24.95
Realms of Darkness $27.95
Rings of Zilfin $24.95
Roadwar Europa $29.95
Shard of Spring $24.95
Wargame Const Set $22.95
Wrath of Nicademus $27.95
Wizards Crown $24.95

subLOGIC
Flight Simulator II $32.95
Jet $29.95

TIMEWORKS
Desktop Publisher $39.95

UNISON WORLD
Printmaster Plus $29.95

COMMODORE 128 SOFTWARE

WORDPROCESSOR
Fleet System 4 ..... $56.95
Font Master 128 ..... $44.95
Paperclip II $54.95
Paperclip III $39.95
Superscript 128 ..... $59.95
Term Paper Writer $34.95
Vizawrite 128 ..... $CALL
Wordpro 128 ..... $59.95
Wordwriter 128 w/spell $34.95

SPREADSHEETS
Swiftcalc 128 w/sdways $49.95

DATA BASES
Consultant $39.95
Data Manager 128 ..... $34.95
Fleet Filer $29.95
Perfect Filer $49.95
Profile 128 ..... $59.95
Superbase 128 ..... $64.95

MISC. 128 SOFTWARE
Accountant Inc $69.95
Bobs Term Pro 128 ..... $47.95
CMS Acct Pkg/128 ..... $124.95
Desk Manager 128 ..... $34.95
Mach 128 ..... $39.95
Partner 128 ..... $54.95
Personal Acct. 128 ..... $34.95
Sylvia Porter's Personal Finance Planner $54.95
Vizastar 128 ..... $CALL

64C BUSINESS AND PRODUCTIVITY

64C DATABASES
Bank Street Filer $34.95
Data Manager $19.95
Profile 64 ..... $36.95

64C INTEGRATED PKGS
Homepak $39.95
Vizastar 64 4K $39.95

64C SPREADSHEETS
Swiftcalc 64 w/sideways $19.95
Sideways $19.95

64C WORD PROCESSORS
Bank Street Writer $32.95
Font Master II $34.95
Font Master 64 ..... $34.95
Paperclip w/spellpack $49.95
Paperclip III $39.95
Pocket Writer Dictionary $12.95
Wordpro 3+/64 ..... $14.95
Word Writer 64 w/speller $34.95

FINANCIAL & ACCT.
Timeworks Electr. Chkbk $19.95
Timeworks Money Mgr $19.95
CMS Acct Pkg/64 ..... $119.95

MISC. HARDWARE
Estes pwr supply for C-64 ..... $54.95
Naverone 3 Slot expander $27.95

UTILITIES
Thinking Cap $32.95
Toy Shop $42.95
Copy II 64/128 ..... $24.00
CSM 1541 align $34.95
Fast Load $24.95
Bobs Term Pro $32.95

Abacus
Call for price on books and software titles!

GRAPHICS CORNER

Certificate Maker $32.95
Clip Art Vol 1 or 2 ..... $CALL
Desktop Publisher $39.95
GEO Publish $44.95
Graphics Library I,II,or III $16.95
Newsroom $34.95
Outrageous Pages $39.95
Print Shop $25.95
Printmaster Plus $29.95

tcp TUSSEY COMPUTER PRODUCTS

P.O.BOX 1006, STATE COLLEGE, PA 16804

tcp SHIPS IT

COMMODORE AMIGA **500 $CALL** *WITH MOUSE



A500 w/1084 Monitor &1010 Drive $CALL

A500 w/1084 Monitor $809

AMIGA SOFTWARE

PRODUCTIVITY

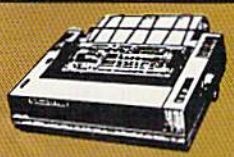
Deluxe Music Const Set	$79.95	Logistix	$89.00
Deluxe Paint II	$99.95	Superbase	$89.00
Deluxe Print II	$59.95	Vizawrite	$89.00
Deluxe Video 1.2	$99.95	Word Perfect	$CALL
Draw Plus	$189.00		

ENTERTAINMENT

Autoduel	$34.95	Halley Project	$29.95
Balance of Power	$29.95	Hot-Cold Jazz	$24.95
Bards Tale	$39.95	Leisure Suit Larry	$44.95
Beyond Zork	$37.95	Marble Madness	$34.95
Chessmaster 2000	$34.95	Racter	$27.95
Defender of the Crown	$29.95	S.D.I.	$29.95
Deja Vu	$29.95	Silent Service	$29.95
Earl Weaver Baseball	$39.95	Sinbad	$29.95
Ferrari Formula One	$39.95	Starfleet	$39.95
Flight Simulator II	$39.95	Univited	$29.95

512K RAM Upgrade.. $159.00
1010 EXT DRIVE $219.00
1680 MODEM $139.00

PRINTERS



Panasonic Office Automation

2 yr warranty

1080III	$CALL
1091III	$CALL
1092I	$299.00

star MICRONICS INC

NX-1000	$CALL
NX 1000C	FOR
NX-1000R	PRICING

(Rainbow Color Printer)

Call for latest price on
ND-10 ND-15
NB SERIES

SEIKOSHA

2 yr warranty

SP-180 VC	$139.00
SP-1000 VC	$149.00
SP-1200 AI	$169.00

120cps, NLQ Mode

CITIZEN

120D	$159.00
MSP-10	$279.00
MSP-15E	$379.00
Premier 35	$459.00
Tribute 224	$CALL

SUPER GRAPHIX JR
Printer Interface $39.95
w/Printer from Tussey $34.95

SUPER GRAPHIX
Interface w/8K buffer
down loadable fonts $59.95
w/Printer from Tussey $54.95

SUPER GRAPHIX GOLD .. $99.95
w/Printer from Tussey $89.95

Xetec



RGB/COMPOSITE COLOR MONITORS FOR THE 128



COMMODORE 1084
640 x 400 Resolution.
4 Operating Modes
.....$299.00

MAGNAVOX 8762
640 x 240 Resolution.
3 Modes. 2 yr warranty
.....$249.00

THOMSON 4120
560 x 240 Resolution.
4 Modes.1 yr warranty
.....$219.00

All 3 monitors include cables to Commodore 128

Berkeley Softworks

NEW!!... GEO PUBLISH (64/128).....$44.95

GEOS 128	$44.95	GEOS	$39.95
Geo Calc 128	$47.95	Geo Calc	$34.95
Geo File 128	$47.95	Geo File	$34.95
Geo Programmer	$49.95	Geodex	$27.95
Deskpack 128	$44.95	Deskpack	$22.95
Geo Write 128	$44.95	Fontpack	$22.95
Geo Spell	$24.95	Geo Write	$34.95

FEDERAL EXPRESS

Software orders over $100 & Accessories under 6 pounds will be shipped FEDERAL EXPRESS (Yes even at these prices) You only pay TCP's standard shipping charge of $4.00 per order. ALL orders arriving before 3:00 PM our time will be shipped out same day. If part of your order is backordered the remainder will be shipped UPS Ground FREE!

SECURITY

- Your Credit Card is not charged until your order is shipped.
- We insure your order at no extra cost to you.
- Tussey is a financially strong and well established company.

CUSTOMER SUPPORT

- After sales support.
- Knowledgeable staff, all graduates of Tussey's "Computer Boot Camp".
- Our advanced warehouse/materials handling system assures your order is shipped out accurately & on time.
- Our IBM 5360 allows instant order and inventory status.

To order by mail: We accept money order, certified check, personal check. Allow 2 weeks for personal & company checks to clear.Shipping: $4.00 for software and accessories/ $10.00 for printers and color monitors/ $8.00 for disk drives and other monitors/ Add $3.00 per box shipped COD. Call for other shipping charges. Additional shipping required on APO, FPO, AK, HI.
Terms: ALL PRICES REFLECT CASH DISCOUNT, ADD 1.9% FOR MASTERCARD OR VISA.

ALL SALES ARE FINAL Defective items replaced or repaired at our discretion. Pennsylvania residents add 6% sales tax. Prices and terms subject to change without notice.

OKIDATA 180



$229
- Built in COMMODORE* and EPSON* Interface
- 180 CPS Print Speed

Call For Other Okidata Printers

CMS
ACCOUNTING SYSTEM
Pkg. Price for all Modules:
C128 version..... $124.95
C64 version..... $119.95

EXCEL 2001
- 1571 Compatible Drive
- 1 YR Warranty

$199

C= COMMODORE 1670 MODEM $CALL

C= COMMODORE 1764 256K RAM EXPANSION $119

C= COMMODORE 1581 3 1/2" DISK DRIVE $197

Digital Solutions Inc.

Pocket Writer 2	$42.95
Pocket Filer 2	$39.95
Pocket Planner 2	$39.95
Digital Superpak	$74.95
Dictionary	$12.95

DISKS
per box of 10
BONUS DISKS

SS/DD	$6.45
DS/DD	$6.95

TUSSEY DISK CLOSEOUTS!!!

SS/DD	$4.49
DS/DD	$4.99

Call for Price on Verbatim and Maxell Disks!!

TELEX: 620 37782 (TUSSEY UD) FAX: 814-237-4450
Regular Hrs: 8:00AM-9:00PM Mon-Fri, 10:00AM-6:00PM Sat, 12:00PM-8:00PM EST

Circle 209 on Reader Service card.

CALL TOLL FREE 1-800-468-9044

tcp

INSIDE PA CALL 814-234-2236

MAIL RUN

Readers react to last January's listing-format changes and ask which is RUN's real *address.*

READER RESPONSE ON *RUN* PROGRAMS

In January and February, we presented three very lengthy program listings—RUN Term 128, RUN's *Memo Book and RUN Copy—in a new hexadecimal format to save magazine space and allow easier entry. We asked readers to let us know how they felt about the new format, which we intended to use only for extremely long listings.*

Many readers responded, and many felt our commercial-quality programs were worth the trouble of typing in, with opinion split over the format. Here's a sampling of what readers had to say.

Yes, we do want the long commercial-quality programs, and *RUN* has some very good ones. However, the new listing format is bad news to the many of us who are poor typists. Using the letter keys as well as the number keys makes it far more difficult to type and to locate mistakes after entering a line.

—RICHARD WELLER
SPENCERPORT, NY

While the new format for Data statements does save space in the publication, it adds greatly to the difficulty of typing in those statements. It's a favor to the magazine, *not* to the readers.

—T. W. MONROE, JR.
EUREKA, CA

The long Data statements are very difficult to keep straight. While commercial-quality programs might increase ReRUN disk sales, poorer folks might just switch to another magazine they feel more comfortable with. At the most, I'd suggest only one commercial-type program per issue, alternating between the C-64 and C-128.

—JEREMY A. MICHELE
BIG TIMBER, MT

To facilitate entering program listings, we're publishing in this issue a Magic trick (number $485, on page 10) that converts the C-128's function keys to enter a comma, hex letters A–F and the word "data." In conjunction with the 128 keypad, this method is a convenient way to enter listings.

—EDITORS

I believe the hexadecimal format is the better choice, because the Data statements all have the same length and structure and the quantity of data is reduced by about a third.

—A. G. DUNBAR
RICHLAND, WA

There's a give and take here. I guess we have to give up a little convenience to have more in the magazine. I just hope that only your longest programs will be in the new format, with the normal-sized ones remaining in the more familiar and easier format.

—ED MORSCH
LAFAYETTE, NJ

In my opinion, the programs are the most important part of the magazine. I really don't care what format they have or how long they are; ten, 20 or 30 pages is all right with me, as long as they're useful and of good quality.

—RONALD H. MANN
ATLANTA, GA

I think two or three long programs per year is adequate, with the balance of issues containing shorter programs. Everyone's interests must be served for a successful magazine.

—JOHN OLIVER
STETSONVILLE, WI

ANOTHER BRANCH ON THE GENEALOGY TREE

As a genealogist with 15 years research experience, I was interested in your article "All in the Family Tree" in the December issue. I've used Family Roots and Family Tree and have found problems with both. Family Roots, although providing a surprising range of sorts, was interminably slow on my C-64. Family Tree crashed several times during data input and scrambled data. To their credit, however, the distributor of Family Tree, Genealogy Software, was very supportive.

My program of choice—Personal Ancestral File (PAF), from the Church of Jesus Christ of Latter Day Saints (Mormons)—wasn't mentioned in your article. This program is available in CP/M format, so it'll run on a C-128 with two 1571s, or the equivalent. I replace a 1571 with a 1750 RAM expander, which I use as an M drive to make data input and sorts extremely fast.

PAF prints many of the standard forms recognized by genealogists. It includes data categories specific to Mormon genealogical records, but you needn't use them. PAF also provides sections for recording research and converting data to send by modem to other computers.

—PEGGY MARTIN PERKINS
BEAVER, UT

Last May, when we were beginning to pull the genealogy article together, we spoke with Lance Jacob at the Ancestral File Operations Unit of the Mormon Church in Salt Lake City. Unfortunately, he told us that they were discontinuing the CP/M version of Personal Ancestral File. While they planned to sell out their current stock, we feared that by the time our article was published, copies of the CP/M version would no longer be available.

—EDITORS

CHECKING OUR NEW CHECKSUM

I recently received my January issue of *RUN*, and much to my dismay I see you've changed the Checksum program. I've used Perfect Typist since it came out, with no problem. It's been especially easy since the addition of Michael Enders' Magic trick that places the ►

Make Any Computer Do Exactly What You Want With McGraw-Hill's

Contemporary Programming & Software Design Series



From Writing Your Own Programs to Modifying Existing Software, Here's the New, Easy, and Low Cost Way to Unlock the Secrets of Your Computer

Whether you use computers for business, for personal applications, or for fun, off-the-shelf programs will never do everything you want them to do for you. That's because they were written by programmers to satisfy what they perceived as the needs of the greatest number of potential users—often missing some or many of your specific needs.

That's why McGraw-Hill's new Contemporary Programming and Software Design Series teaches you how to create your own software . . . either from scratch or by making key modifications to existing programs.

There is nothing magical about it. You learn the process of building a computer program step-by-step with McGraw-Hill *Concept Modules* sent to you one at a time, once a month. Each of the ten modules in the Series takes you through an important step in the development of the structure and detailed logic of a program, including testing, debugging, and documentation.

Unique Interactive Hands-On Instruction

Each module includes an easy-to-understand guide PLUS a 5¼" floppy disk containing typical programs and interactive instruction that you can run on Commodore 64 and 128 computers, IBM PCs and PC compatibles for hands-on experience.

In the first Module, for example, when your sample program (Declining Interest Loans) appears on your screen, you'll find errors on certain program lines. You'll also see that the program is only three-quarters completed.



Now comes the fun part. You'll discover how this program is built, and in the process you'll learn how to identify and correct errors. And by the end of Module 1, you'll actually have completed this program yourself.

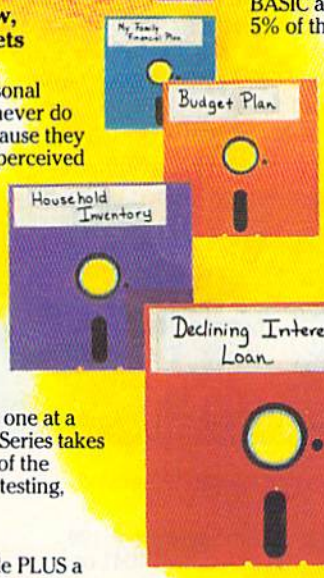
But there's more. Special graphics on your screen work in conjunction with the accompanying guide to amplify, illustrate, and deepen your understanding of software design principles.

Make no mistake. Almost all books and courses on "programming" teach you only the final 5% of the total programming process—namely, how to code in a specific language . . . information of little value if you don't know how to reach the point in the programming process when you are ready to code.

With the Series, however, you'll learn to create your own programs from scratch, even modify off-the-shelf programs. You'll learn enough BASIC and machine language to get you started on the remaining 5% of the programming process.

Build Your Own Personal Software Library

The sample programs you work with throughout the Series are excellent learning tools. But they're more than that. By combining the sample programs onto one master disk, you'll have the start of your own personal software library. In addition to the programs you've written and modified throughout the Series, you'll also receive dozens of the most popular public domain and user-supported programs, such as data base manager, word processor, calendar generator, appointments reminder and much, much more.



15-Day No-Risk Trial

To order your first module without risk, send the card today.

Examine the first module for 15 days and see how the Series will help you make your computer do exactly what you want it to do!



If someone has beaten you to the card, write to us for ordering information about the Contemporary Programming and Software Design Series.

The Crucial 95%—Learn the Foundation of Computer Programming

While the Series includes interactive disks that run on specific computers, everything you learn you can apply to any language or machine. Why is this possible? Because McGraw-Hill knows programming is far more than coding a program into the computer using a specific language. In the real world of computers, 95% of the programming process is carried out using design techniques that are independent of specific language or machine. It is this crucial 95% that you thoroughly understand and master in the Series.

McGraw-Hill Continuing Education Center
3939 Wisconsin Avenue
Washington, DC 20016

checksum number in the home position (August 1987's Trick of the Month) and Michael Broussard's AutoNum routine (April 1986). Now you've gone and changed it!

—FRANCIS J. HUNT
LAS VEGAS, NV

The Perfect Typist program, along with its two enhancements, was a very acceptable proofreader. The new Checksum program puts me back at ground zero. It places the checksum number back on the line below the currently typed line, which interferes with the AutoNum routine and makes it difficult to recheck typed lines.

—A. B. DUNBAR
RICHLAND, WA

Magic trick $484 in last month's issue (March '88) adds the home-position feature to the new Checksum program. To get the new Checksum working with AutoNum, change line 100 in AutoNum to:

```
100 BASE = 828
```

Then the two utilities will work perfectly together.

—EDITORS

ADDRESS CONFUSION—WHICH TREE IS IT?

In some communications from *RUN*, your address is listed as 80 Pine St., but in others it's 80 Elm St. Have you moved? Do you have offices at both locations? I'm confused!

—MARY E. WILSON
CLEARWATER, FL

We can understand your confusion; we were confused for a while ourselves. At one time, most of the IDG/Peterborough operation was at 80 Pine St. Then RUN, *along with some of the other magazines, changed trees by moving to 80 Elm St. However, our common mail room was still at Pine St. Last fall, a new addition to the Elm St. building was completed, and now we're all happily together. We apologize for the inconsistencies.*

For the record, send all correspondence, except that pertaining to subscriptions, to RUN Magazine, 80 Elm St., Peterborough, NH 03458, attention Editorial, Advertising, Customer Service (for problems with advertisers), Back Issues, ReRUN, a specific column or a specific person. Send subscription correspondence to RUN Subscription Department, PO Box 954, Farmingdale, NY 11737.

—EDITORS

MEMO BOOK MEMOS

The "Memo Book" article in the January issue was confusing at times. It indicated that the Memo Book program needs 523 (664 minus 141) disk blocks, but it takes up only 13 on my master disk. The article also doesn't tell how to run the program. Finally, there's no Load Old File option in the menu. Only by loading a New Book can I get back to a previously saved one.

—JEREMY A. MICHELE
BIG TIMBER, MT

You're right, Memo Book does occupy 13 disk blocks. It's run like any other Basic program. To be able to load an old file, create and save a Memo file to disk first.

—EDITORS

JOIN A PPUG

Meeting 64/128 Users Through the Mail is a Commodore pen pal user's group for those who can't attend meetings of a local club. Right now it has 32 members from the U.S., Canada and three other countries. They range in age from high school student to senior citizen, and they come from all walks of life. We correspond with each other on a personal basis, exchanging our own and public domain programs on disk and discussing problems and ideas having to do with computing. Everyone receives a bimonthly newsletter, paid for out of the nominal $5 annual dues. All Commodore users are welcome. Write to:

—JEAN P. NANCE
Rte. 1, BOX 151
ST. JOSEPH, IL 61873

A CALL TO READERS

This page is your stage, so stand up and say a few words. Extend praise, air grievances or offer hands-on advice and information.

Send your letters to Mail RUN, 80 Elm St., Peterborough, NH 03458. Each letter must include the writer's name and complete address. RUN *reserves the right to edit letters for style, clarity and space.* ■

COPY II® 64/128

NEW Version 3.1

BACKUP PROTECTED SOFTWARE FAST.

From the team who brought you Copy II for the Apple, the Macintosh and the IBM comes a revolutionary new copy program for the Commodore 64/128 computers.

- Copies many protected programs—automatically. (We update Copy II 64/128 regularly to handle new protections; you as a registered owner may update at any time for $15 plus $3 s/h.)
- Copies even protected disks in under 2 minutes (single drive).
- Copies even protected disks in under 1 minute (dual drive).
- Maximum of four disk swaps on a single drive.
- Includes fast loader, 12-second format.

Requires a Commodore 64 or 128 computer with one or two 1541 or 1571 drives.

Call 503/344-5782, M - F, 8 - 5, (West Coast time) with your VISA MasterCard in hand. Or send a check for $39.95 U.S. plus $3 s/h, $8 overseas.

$39.95

Central Point Software, Inc.
9700 S.W. Capitol Hwy. #100
Portland, OR 97219

Central Point Software INCORPORATED

Call for a catalog of our full product line.

This product is provided for the purpose of enabling you to make archival copies only.

Circle 81 on Reader Service card.

STAR RANK™ BOXING II

Take Your Best Shot



Start training for the most realistic boxing game ever. Punch, jab, hook. Move in and out with fancy footwork. Go for the knockout!

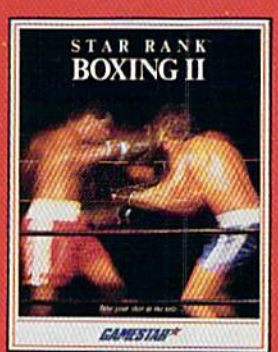
STAR RANK BOXING II creates a new state of the art for boxing simulations, with more fluid animation, more competition and more realistic boxing action.

You create each fighter, in any of three weight divisions. The Tale of the Tape shows your stats, and how you rank against the current champ and top contenders. Take on a friend in 2-player action or go up against computer boxers on your way to the top.

You'll need strength, finesse, lightning-fast reflexes and stamina to make it. But then, nobody said it was going to be easy.

$29.95 for Commodore 64/128,™ $34.95 for Apple® II series, and $42.95 for IBM® PC and compatibles, suggested retail prices.

GAMESTAR★



Ask your software retailer or order direct: just call 800/345-2888, Operator 300.

Commodore 64/128, Apple II and IBM are registered trademarks of Commodore Electronics, Ltd., Apple Computer, Inc. and International Business Machines Corp. respectively.

Circle 18 on Reader Service card.

News and New Products

With the winter CES recently concluded, this column highlights products from that show, and much more.

Compiled by HAROLD R. BJORNSEN

Three from EA

SAN MATEO, CA—Electronic Arts (1820 Gateway Drive, San Mateo, CA 94404) featured three new C-64 games at the winter CES. Skyfox II: The Cygnus Conflict continues the original story in the air combat-action/simulation game in an outer-space battle with the enemy Xenomorphs. In the sequel's new plot, the Xenomorphs have retreated into the Cygnus constellation, where they've established starbases. With varying levels of difficulty and ten possible battle situations, you must accept the role of Federation Warpwarrior and defend the Federation with the more technologically advanced Skyfox II warpfighter. $29.95.

Dan Bunten's Sport of War, a modem game, lets players randomly generate millions of different battlefields full of hills, trees, rivers and plains. There are five increasingly complex play modes for you to try your skills at. $34.95.

Strike Fleet, a military simulation from LucasFilm Games, puts you in charge of a modern naval task force equipped with the latest in hi-tech weaponry. There are ten scenarios in which you command an entire fleet of up to 16 naval warships, including guided missile frigates, destroyers, cruisers and helicopters. $29.95.

Check Reader Service number 400.

Political Action And Intrigue

WILMINGTON, CA—Cosmi (415 North Figueroa St., Wilmington, CA 90744) will release two games for the C-64. The games retail for $24.95 each.

In Navcom 6, you're in charge of the futuristic Weapons Control Center aboard a U.S. Navy warship in a powder-keg situation in the Middle East. Your mission is to escort oil tankers through the Straits of Hormuz, detect and destroy explosive mines in the shipping lanes, defend against raids by high-speed boats and come face to face with the Ayotollah's main strike force.

In The President is Missing, you must find the missing President of the United States by unravelling mystery clues on an audio cassette that's included with the software package.

Check Reader Service number 401.

To the Future

SAN RAFAEL, CA—Broderbund Software's (17 Paul Drive, San Rafael, CA 94903) first release for 1988 is the C-64 version of Magnetron, an arcade-action shoot-'em-up. Magnetron takes you, as the pilot of a photon fighter, to the future to battle against Magnetron Generators, powerful, unpredictable magnetic-force weapons that push, pull and swirl you to doom. At the same time, you must destroy 50 alien war bases surrounding Earth. The package includes a Game Generator that lets you design additional enemy forces. Available for $24.95.

Check Reader Service number 402.

Batteries Not Included

KENILWORTH, NJ—Sunrise Computer Products (PO Box 709, Kenilworth, NJ 07033) has a computer clock for your office or home. The face of the Binary Digital Wall Clock has binary numbers in place of the usual decimal or roman numbers. Its precision quartz movement is guaranteed not to gain or lose more than two minutes per year. Power is supplied by an AA battery (not included). The clock comes in light beige with black binary digits. It's available for $34.95.

Check Reader Service number 404.

Battling Evil

WESTLAKE VILLAGE, CA—Rocket Ranger begins with an urgent message from the future, a future that sees the Nazis winning World War II. An underground group of scientists in the 21st century risk their lives to send you a rocket suit, ray gun and secret decoder wheel. With them, you can change history and save mankind. $34.95.

The Three Stooges, an interactive movie, begins with our heros stumbling upon an evil banker who is about to evict an old lady and her three beautiful daughters from their broken-down orphanage. It's up to you to help the Three Stooges raise enough money to stave off foreclosure. This package retails for $34.95. Both games are available for the C-64 from Cinemaware, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362.

Check Reader Service number 406.

HeartLab

ARMONK, NY—Bodylog (34 Maple Ave., Armonk, NY 10504) has released HeartLab, a heart-monitoring system for the C-64. It includes SensorBasic, which lets you program the company's sensors, including the Pulse Rate Sensor (included in the package), for your own needs. Together, the Pulse Rate Sensor and software collect heart signals and transform them into animations, video games and sounds. The package also includes a sensor adapter cable, the HeartLab disk and workbook and the SensorBasic manual. It's available for $59.95.

Check Reader Service number 408.

Ghost Bubbles

CUPERTINO, CA—In Bubble Ghost, a game for the C-64, you direct a bubble-blowing ghost through 36 hazard-filled chambers. Fans located throughout the chambers generate turbulence, and monsters try to sabotage your ghost's efforts. The price had not been set at press time. Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014.

Check Reader Service number 411.

128 Chips

LAGRANGE, IL—The Super Chips, a custom operating system for the C-128, consists of three 16K chips to replace the U33, U34 and U35 motherboard chips in the 128. The chips add new commands and functions that list a program or file to the screen without disturbing the program in memory, append a program on disk to a program ►

The Mission is Vital. The Odds are Against You.



You're one of the elite . . . parachuting alone behind enemy lines. The enemy controls the terrain, hidden in bunkers and machine gun nests . . . you may be surrounded. You might complete the mission if you crawl through the ravine and approach from the rear . . . or maybe a frontal attack will take them by surprise.

MicroProse has broken new ground with **AIRBORNE RANGER**, the quality action game where tactical thinking and lightning reflexes determine your fate. Your missions will vary as much as the climate and terrain. Slip silently into position to rescue prisoners trapped in "tiger pits" from a P.O.W. camp, or throw caution to the wind and try to destroy a key munitions dump in the desert. But watch out . . . enemy troops can attack from any direction.

The action is fierce as you control one soldier's battle against overwhelming odds. You'll need skill and strategy to outmaneuver your enemy, plus courage and some luck to make your escape. Along the way, search out that hidden cache of weapons and first aid supplies . . . you'll probably need them.

AIRBORNE RANGER

AIRBORNE RANGER is a fast-paced, quick-to-learn game with 12 desperate missions in three different regions of the world. You'll be running, walking and crawling across full-scrolling, 3-D terrain. Arm yourself with an M-16 assault rifle, bayonet, LAW rocket (Light Antitank Weapon) or time bomb, but be wary of enemy submachine guns, antitank rockets, robot minitanks, minefields and flamethrowers.

AIRBORNE RANGER . . . More than just a great game. It's an adventure.

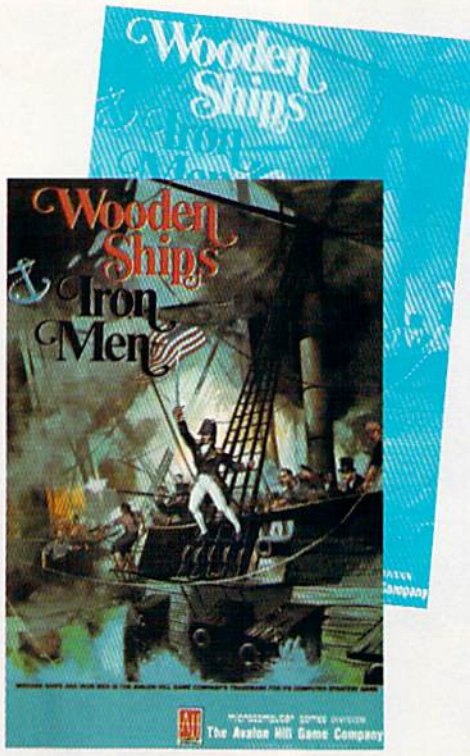
AIRBORNE RANGER is available from a "Valued MicroProse Retailer" (VMR) near you. Call us for locations! For Commodore 64/128, IBM-PC/compatibles and Apple II+/e/c. Call or write for specific machine availability, and for MC/VISA orders if product not found locally.



MICRO PROSE™
SIMULATION • SOFTWARE

180 Lakefront Drive • Hunt Valley, MD 21030 • (301) 771-1151

Circle 68 on Reader Service card.



With the Dockyard program included in Avalon Hill's Wooden Ships & Iron Men, you can create your own historical ships.

in memory, merge programs without overlapping the line numbers, change all instances of a specified string to a second specified string, resurrect a Basic program after it's been New'd or after a program reset, and redefine the function keys. Super Chips is available for $49.95. Free Spirit Software, 905 W. Hillgrove, Suite 6, LaGrange, IL 60525.

Check Reader Service number 409.

Detective Directive

CAMBRIDGE, MA—Now you can be Watson, your wits as your tools, in Sherlock: The Riddle of the Crown Jewels. Infocom and Challenge Inc., in a move new and bold, announce a new series of stories of old. You take the main role, controlling the action, and direct the tale to your satisfaction. The Prime Minister was here, his face all a-glower, o'er the theft of the jewels, right out of the Tower. 'Twas Moriarty—I know it!—he mustn't go free! But you've only two days till the Queen's Jubilee.

The riddles he left at the scene of the crime—quite clever, they were, all written in rhyme. What wasn't so pretty was the message unsaid; that scoundrel, I tell you, is after my head! To throw him off guard, there's but one thing to do: In short, my good Watson, it's now up to you. This dastardly crime is yours to resolve, with me by your side as the riddles evolve. Inside of each package, you will find a tourist map, unique in kind. A handsome key fob, a *London Thames* paper are also part of this clever caper. It's available for the C-64, for $34.95 at your favorite store. Infocom, 125 Cambridgepark Drive, Cambridge, MA 02140.

Check Reader Service number 405.

Something for Everyone

CHANDLER, AZ—Sharedata (7400 W. Detroit St., Suite 170, Chandler, AZ 85226) has started off 1988 with five new games for the C-64.

Wheel of Fortune II challenges you with all-new phrases. Jeopardy! Jr. is made especially for kids ages 8–18. Each retails for $12.99.

Deathscape/Dogfight is a double feature available for $9.99. In Deathscape, you are placed in a gladiator pit, known as the Deathscape, to destroy the Varg fortresses inside. In Dogfight 2187, a hole in the space-time continuum let hordes of marauding alien invaders gain access to our universe. You must locate and reassemble the pieces of the Spatial Generator while evading the deadly aliens.

Skate Rock puts you against stiff competition. The course is set, the flags are up and the clock is ticking, so pull on your knee pads, grab your skateboard and rock 'n' roll. $9.99.

The Orion, a starship on a mission to map and explore the galaxy, has been taken over by deadly mechanical aliens. As commander, you must complete your mission before the ship's energy drains away. $9.99.

Check Reader Service number 410.

Menu List

SAN FRANCISCO—Xytec has announced the release of two new software packages. List Master, an outline processor for the C-64, maintains lists and helps organize written material. It features single-keystroke commands, file chaining, is compatible with most printers and disk drives and can hold 500 lines in memory at once. $35.

Menu Master, a companion product and upgrade to List Master, reads files created by List Master and presents them to the user in a hierarchical, menu-driven format. $25.

Both List Master and Menu Master are also available in a single package as DocuMentor for $50. Xytec, 1924 Divisadero, San Francisco, CA 94115.

Check Reader Service number 407.

Ships of Yore

BALTIMORE—Wooden Ships & Iron Men, a naval-battle game for the C-64, recreates the battles and campaigns of the Revolutionary and Napoleonic eras. Ships can grapple, crash into each other or end up in position for raking fire. Eighteen nationalities and thirteen ship types are available for your own design. The game is available from the Avalon Hill Game Company (4517 Harford Rd., Baltimore, MD 21214) for $35.

Check Reader Service number 403.

Let Yourself Go

MOUNTAIN VIEW, CA—Rampage, for the C-64, features three-dimensional graphics and arcade sounds to generate a monster movie-style action game for one or two players. Players control one of three nasty creatures on a rampage of destruction from coast to coast, with over 157 cities and skylines to destroy. Rampage carries a retail price of $34.95. Activision, PO Box 7286, Mountain View, CA 94039.

Check Reader Service number 412.

Wiz

OGDENSBURG, NY—Wizardry: Proving Grounds of the Mad Overlord, a fantasy/role-playing adventure from Sir-Tech Software (PO Box 245, Ogdensburg, NY 13669), starts you in a castle where you assemble a party of six characters, each with his or her own characteristics, to explore the magic and mystery of the ten-level 3-D maze. Under your command, the party will accumulate experience and treasures, slay dragons and foes and prepare itself for the final battle in the search for the stolen amulet. It's available for the C-64 for $39.95.

Check Reader Service number 413. ■

Preview The Future!

PROJECT: STEALTH FIGHTER



Stealth aircraft . . . the hottest topic of discussion in aviation circles today. Space age technology and engineering make these aircraft virtually undetectable by enemy radar. Stealth fighters are believed to now be operating from top secret military bases, flown only on the most sensitive missions and only by the most experienced pilots.

Precise information about this next generation of Air Force jets is highly classified. But extensive research has enabled the aviation experts at MicroProse to incorporate the potential design and performance characteristics in a powerful new simulation.

Slip into the cockpit of **PROJECT: STEALTH FIGHTER** and familiarize yourself with the advanced "heads-up display"(HUD) and sophisticated 3-D out-the-cockpit view. At your disposal is a dazzling array of state-of-the-art electronics, weapons and countermeasures.

But remember, flying a stealth aircraft takes more than just fighter pilot reflexes. The real challenge is mastering the jet's electromagnetic profile to avoid enemy radar, while executing a deep-strike mission into North Africa or conducting delicate photo reconnaissance over Eastern Block seaports. Also featured are carrier and land-based takeoffs and landings, as well as land, sea, and air targets and threats.

PROJECT: STEALTH FIGHTER combines the combat action thrills of the best-selling F-15 STRIKE EAGLE with the sophisticated flight environment pioneered in GUNSHIP. Add the danger and suspense of clandestine missions in an innovative "invisible aircraft" and you have **PROJECT: STEALTH FIGHTER,** the latest flying challenge from MicroProse!

PROJECT: STEALTH FIGHTER is available from a "Valued MicroProse Retailer" (VMR) near you. Call us for locations!

For Commodore 64/128, IBM-PC/compatibles and Apple II/e/c. Call or write for specific machine availability, and for MC/VISA orders if product not found locally.



MICROPROSE™
SIMULATION • SOFTWARE

180 Lakefront Drive • Hunt Valley, MD 21030 • (301) 771-1151

Circle 103 on Reader Service card.

SOFTWARE GALLERY

This Spring, RUN *showers you with car and airplane racing, martial arts, programming help and plenty of pun!*

Compiled by BETH S. JALA

THE LAST NINJA ..... A+

Here's Your Chance To Live Vicariously Through Bruce Lee and Chuck Norris!

When it comes to non-educational recreational software, I'm a fan of only about ten percent of the programs. Since I'm a fan of The Last Ninja, and it is a non-educational graphics adventure game for the C-64, I guess that automatically puts it in the top ten percent of the "good stuff."

Even if it didn't possess graphics that rival some Amiga games, a multi-voiced screaming guitar soundtrack and plenty of fight action, The Last Ninja would still be a swell game. But the presence of those attributes make it stand far above the low-budget, martial arts variety of software.

What it does best is transform you from a mild-mannered home computerist into a real life, blood-thirsty Ninja, with quick death a certainty if you make a wrong move or decision. This game demands lightning-quick reflexes, coupled with methodical thinking and common sense. No scores are kept, no skill levels exist—apparently all Ninjas are created equal—and you've got three lives per game.

You are the last surviving Ninja warrior, bent on getting hold of Shogun Kunitoki after he made all your fellow Ninja buddies do a Jimmy Hoffa disappearing act. (You'll only know this piece of background information if you read the scant documentation that accompanies the software.)

If you don't like reading, just skip the manual and activate the program. A large window appears and you see a colorful garden path and a lone, finely detailed Ninja warrior, dressed from head to toe in traditional black. Using a joystick for all movements, you walk up and down the garden paths in search of treasures.

Don't expect to meet pleasant herb gatherers on any of your strolls. Most of the Samurai warriors and Shogun guards posted along the path seem to act like a violent Bruce Lee under the influence of cheap steroids. They'll slash, stab, jab, kick, punch and slice you with unabashed gusto.

Being an honorable Ninja warrior, you surely don't want the guys back at the Ninja country club wisecracking how a lowly Samurai warrior danced a Fred Astaire number on your masked face. To prevent such embarrassment and preserve your honor, it's mandatory that you learn correct joystick/fire-button maneuvers in order to do unto the Samurai before they do unto you. Moreover, you want to seek out and gather weapons like swords, numchukas and shuriken throwing stars.

Play the program a few times to know exactly where and, more importantly, how to find the weapons. Soon, you can whip any Samurai warrior or guard you encounter with minimal damage to yourself. The only problem is that there are three obstacles blocking your departure from this section of the garden—two rivers and a wasteland. Set foot in any of these and you'll die. Consequently, you usually end up killing everyone you meet, then drowning in a river or wasteland that seems impossible to cross.

While killing and maiming is The Last Ninja's solution to every problem encountered, the longer you play the game, the more clever twists are unveiled. For instance, if you execute a perfect forward flip over some opposing Samurai warriors, they'll occasionally commit hari-kari as you flee. But, perhaps the most amazing discovery you'll make after playing the game a while is the secret of easily traversing the previously unnavigable rivers and wastelands. (Hint: Use your Ninja-given abilities to do forward flips, and watch your alignment with rocks.)

The graphics are ingeniously original and are alone worth the price of the package. As you travel from path to path, the action window is updated with over 130 new, distinctly Oriental scenarios.

The loudest cheers for The Last Ninja come not from me, but from my son. He scorns many more arcade games than I do, yet became instantly absorbed into the role of a Ninja, refusing to break for lunch or let anyone interrupt his game, especially when he was busy wasting a Samurai warrior. He's fearless and ruthless in pursuit of his adversaries and shows potential with a sword and kicking accuracy. Incidentally, he turns three years old about one month after this ►

REPORT CARD

A Superb!
An exceptional program that outshines all others.

B Good.
One of the better programs available in its category. A worthy addition to your software library.

C Average.
Lives up to its billing. No major hassles, headaches or disappointments here.

D Poor.
This program has some problems. There are better on the market.

E Failure.
Many problems; should be deep-sixed!



IT'S THE NEXT BEST THING TO SKIING THERE.

Or figure skating. Or cross-country skiing. Or even luging. In short, *The Games: Winter Edition* is one game that can bring you the thrills and glories of history-making athletic competition. It was designed with the help of former U.S. Olympic Team athletes. *And it's the only computer game to earn an official license from the 1988 U.S. Olympic Team.*

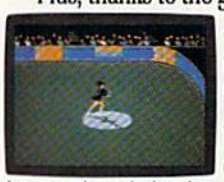


Behold the gates of glory. Now watch 'em whizz by.

Find out what it's like to be a human shock absorber in the Ski Jump. Double your blood pressure shooting down the chute in the Luge. Lean into a 30-mile-an-hour turn in Oval-Track Speed Skating. And then cross your threshold of pain in the Cross-Country event.

There are seven Herculean events in all. For one, two or up to eight players. With graphics so crisp and accurate you'll be tempted to bundle up.

Plus, thanks to the game's unique camera angles, you can view the Downhill and the Ski Jump events from the first-person or camera-angle points-of-view. One moment you're looking over your ski tips. And the next, you're watching your performance from the sidelines.



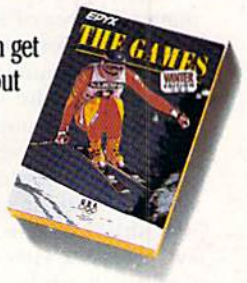
Just you and your shadow about to pull off a double-axle sit-spin.



Switch to the camera-angle point-of-view for a new perspective.

The Games: Winter Edition. Incredible graphics. Network-style camera angles. Excellent athlete control options. And opening and closing ceremonies modeled after those at Calgary.

Now you can get the thrills without the chills.



THE GAMES: WINTER EDITION BY EPYX

Commodore 64/128, Apple II & compatibles, IBM & compatibles
AUTHORIZED PURSUANT TO 36 U.S.C., SECTION 380

Circle 12 on Reader Service card.

review is published! *(Activision, 2350 Bayshore Parkway, Mountain View, CA 94043. C-64/$34.95.)*

—TIM WALSH
RUN STAFF

TEST DRIVE ..... B–

Patch Out in The Dream Machine Of Your Choice

Every so often, an entertainment program comes along with a premise so unique and a concept so intriguing that you can almost forgive its shortcomings. This is the case with Accolade's Test Drive.

Test Drive attempts to recreate the feeling of what it's like to get behind the wheel of an exotic sports car and put it through its paces: rev the engine, pop the clutch and wring it out!

Although game play is built on a tried-and-true type of arcade action, this program will appeal to those who are crazier about cars than computers. These are the folks who will really appreciate the opportunity to slip behind the wheel of a Ferrari Testarossa, Lamborghini Countach, Lotus Turbo Esprit, Porsche 911 Turbo or Chevrolet Corvette and take it for a computer-simulated test drive.

After booting the program (it won't autoboot on a C-128), you're presented with a screen featuring a stunning photograph-like portrait of one of the five dream machines and a chart listing its vital statistics. The chart is composed of actual performance figures like top speed, engine power and lateral acceleration.

Moving the joystick up or down creates a wonderfully slow dissolve of the first vehicle and an equally impressive materialization of a different roadster and its spec sheet. This graphic presentation is nearly as eye-catching as the portraits of the cars and is sure to delight any auto buff.

When you've studied the performance figures of the car you'd like to test drive, you press the fire-button and within a minute or so, you're looking out over the dashboard, ready to put the car through its paces.

The perspective is almost identical to the view you'd have if you were staring straight ahead through the windshield of one of these vehicles. At eye level is a view of a winding mountain road, while the upper left- and right-hand corners of the screen reveal a radar detector and a rearview mirror, respectively.

Right below the windshield is the top half of the steering wheel and a dashboard so realistic you can almost read the instruments. I've never actually been in two of the cars featured in Test Drive, but I remember the instrument panels of the other three looking just the way they do in the program.

While the graphics are something special, the game play is not. The object is similar to countless other arcade-type driving games: You try to get from point A to point B as quickly as possible without cracking up your vehicle.

You accelerate by pushing the joystick forward, brake by pulling it back, and steer by moving it left or right. Shifting, accomplished by pressing the fire-button, is crucial to maintaining top performance and avoiding a blown engine.



That radar detector was of little use in this leg of Accolade's Test Drive.

Although the packaging seems to indicate that you have a choice of roads on which to take your test drive, you're actually limited to the one winding mountain road. An Accolade spokesperson said supplementary disks are planned to provide new roads and more automobiles.

Your test drive covers a maximum of five difficulty levels. Each time you successfully complete a leg, you find yourself in a gas station where you're awarded points based on your average speed over that stretch.

Five crashes—or one crash into a police car—on any leg and your game is over. Your point total in each car is automatically recorded, although it can't be saved permanently to disk. You won't find that last bit of information in Test Drive's instruction manual, which is a scanty three pages filled more with hyperbole than useful, factual information about the game.

As I mentioned above, the graphics of the cars are stunning, but what lies outside the windshield pales by comparison. The mountain road and oncoming cars and trucks are rather cartoon-like.

Animation during the action part of the game is also somewhat disappointing. The screen scrolls fairly smoothly, doing a pretty good job of conveying the feeling of streaking down a road; however, the illusion is weakened by the way oncoming traffic seems to hop toward you, rather than gradually getting nearer.

Perspective is a bit distorted, making it more difficult than it should be to avoid smashing into the rock wall bordering the right side of the road, running off the cliff on the left or crashing into oncoming vehicles.

These flaws also hinder the program's ability to convey the feeling of driving five very different exotic sports cars. You do get some feel for the way performance characteristics vary from car to car, but the differences in this simulation aren't quite as dramatic as you might find them to be in real life.

Nevertheless, if you're a car nut you'll probably be willing to overlook Test Drive's shortcomings. It is, after all, the best program of its kind, because there's nothing else quite like it. Give the program's designers the highest marks for premise and concept, although their execution of the idea could have been better. *(Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014. C-64/$29.95.)*

—SCOTT WASSER
WILKES-BARRE, PA

AQUA'S CIRCUS; THINK BANK ..... C+

Here's a Way to Get Your Child to Interact with Your Commodore

[*Editor's note: The two software programs reviewed here are used in conjunction with the Hearsay 1000 unit. See this month's Hardware Gallery for a review of that speech-synthesis and voice-recognition device.*]

Aqua's Circus is designed to teach preschool children nine numbers and an equal number of colors and shapes. Aqua the Clown asks the young user to repeat each word twice as it appears on ►



FOR THOSE OF YOU WITH AN OFF-TRACK MIND.

Get ready for four of the most challenging, rugged, rump-bumping cross country road racing courses this earth has to offer.

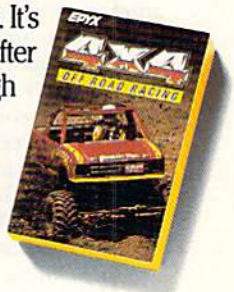


Plenty of thrills guaranteed on the following grounds: gumbo mud, packed snow, skid-sand, and the scrubbiest terrain south of the border.

Fight the torturous terrain of Baja. Rocks, boulders, skid-sand, even a few spikey cactuses. And of course, heat that's hot enough to fillet any forehead. Ever had your hands stuck to the wheel? Permanently. You will when you endure the longest winter of your life in the ice, sleet and slosh of The Michigan Course. The Georgia Red Clay Course has enough mud to keep you a human fossil for 2,000 years. And then there's Death Valley. Get it. D-E-A-T-H Valley.

Start with pre-race strategy. Select and customize your personal vehicle. Your supplies. Your repair equipment. Believe us. You'll need everything. There are boulders, rivers, potholes, and mudbogs to contend with. What are mudbogs? You'll find out. (Just after you find out there's a Demon 4 x 4 chasing you all through the race. A Demon hellbent on your destruction.)

If you win enough races, collect enough points, only then will the Victor's Cup be yours. It's the least we can do. After all, you did go through hell to get there.



4x4 OFF-ROAD RACING BY EPYX

Commodore 64/128, IBM & compatibles, Amiga

Circle 153 on Reader Service card.

the computer screen's schoolroom blackboard. This cleverly trains the computer to understand the words, and after checking them, the program asks the child which game he or she wishes to play: shapes, colors, numbers or counting. Once this choice is made, the program goes to the second scene, Aqua's Circus, where the numbers, shapes and colored objects swim and jump in a pool as three additional learning activities take place.

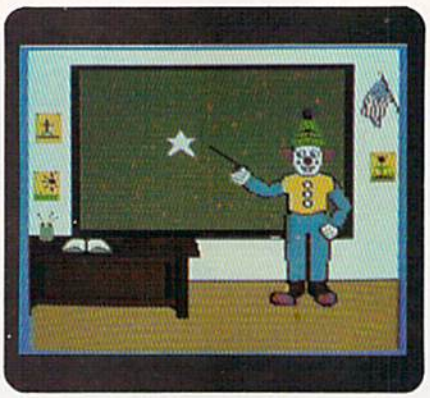
In the first activity, the object is presented and the user is asked to name it. In the second, the child chooses whatever object he wishes to see swimming in the pool. Finally, there is a "see and remember" game where the child sees a sequence of objects and then must name them in their exact order of appearance. If counting is the chosen game, the numerals 1 through 9 appear in sequence. If the number, shape or color selection game is chosen, the order is completely random in the final game.

All the objects are introduced in a logical order: the numbers 1 through 9, the shapes ranging from the simple to the more complex, and the colors beginning with the primaries. The shapes presented are the circle, square, triangle, rectangle, diamond, oval, star, heart and pentagon. The colors are red, blue, yellow, green, white, orange, gray, brown and purple. There are responses to a correct answer, but an incorrect—or misunderstood—response brings a correction or a low "boop" sound.

On the plus side, Aqua's speech, programmed directly into the Hearsay 1000's speech-synthesis and voice-recognition chip, comes through as clear and natural, without the scratchiness of digitized speech or the robotic monotone of allophone-constructed speech. Both a voice and background circus music are heard simultaneously. The child need only press the spacebar to talk to the computer and cycle though the activities, but the F1 key can be used to go on to the next activity or to return to the beginning.

On the minus side, the graphics and animation in Aqua's Circus are adequate, but unexceptional. Only the shapes, numbers and colored objects move; Aqua's arms and features do not. The large, convincing Aqua in the schoolroom scene bears only a passing resemblance to the tiny, differently dressed clown in the water circus scene. I also question Hearsay's package claim that a preschooler as young as two could use this—or any other program—without adult supervision. Further, there are several combinations of keystrokes that can crash the program.

Think Bank, a program designed to teach addition, subtraction, multiplication and division to the six-to-ten year old set, is even less graphically pleasing, but possibly more educationally useful. After loading the program, the user has the choice of training the computer to recognize the words or loading a previously saved voice. Following training, these words can be saved to disk or the program can be continued. (As with Aqua's Circus, the disk drive is not needed once the program is loaded.)



Your child can speak into the Hearsay 1000 and tell Aqua the Clown what shape is on the blackboard.

Think Bank then offers a choice between drills and games. The drills proceed from the computer reciting a problem as it's displayed, to solving for, and then filling in, a missing number or symbol. While the drill option presents the problems in ascending order of difficulty, the problems in the games option seem to be chosen randomly. Responses can be given either via keyboard or previously trained voice input, and they're limited to true/false, a multiple choice of red, yellow or blue, and the numbers 1 through 5.

Think Bank takes its name from the program's final game where the goal is to keep as much money as possible by guessing a hidden problem. This is done by choosing one of 25 possible squares on a five-by-five grid (selecting by row and column, either by voice or by keyboard) and remembering the problem or answer that's displayed. The problem is given in left-to-right order, but its elements may be in any row. Like guess-the-number games, it challenges the user to develop a strategy to minimize the number of choices. At the same time, there's an element of chance and a need to memorize what number or problem each square holds. Although the demo for Think Bank features a TV studio set with an empty podium in brown and white, the graphics are classic Commodore blue-on-blue in the version I received for review.

Aqua's Circus and Think Bank, at $29.95 each, are more visually appealing and less expensive, but also less portable, than stand-alone devices like Simon or Speak and Math (which don't respond to voice input). The instruction manuals for the two programs are brief, but well written. The reduced type of the Aqua's Circus manual is smaller than some might prefer, but legible. With regard to screen graphics, neither Aqua's Circus nor Think Bank are quite state-of-the-art compared to current non-speaking programs; however, children who enjoy computers will probably have fun with these programs as well. *(Hearsay, Inc., 1825 74th St., Brooklyn, NY 11204. C-64/$29.95 each.)*

—RICHARD H. ELDRIDGE
MIAMI, FL

RAD WARRIOR; SPY VS. SPY III; BOULDER DASH CONSTRUCTION KIT .... B+

Software Taken To the Maxx!

Opening up a new series of software, Epyx has delivered some titles on the Maxx-Out! label: Rad Warrior, Spy vs. Spy III and Boulder Dash Construction Kit. The suggested retail price of $24.95 means these games will more than likely be discounted by mail-order companies and chain stores. And that means consumers are going to be getting a good value for their money.

Rad Warrior is billed as the premiere title in the Maxx-Out! software line, which company officials say is designed to satisfy a younger, "new wave" of computer users. In this game, Tal, a champion warrior equipped only with a loin cloth and an unlimited supply of rocks, runs through the jungle in search of a radiation suit and a pair of anti-gravity boots. When he combines those, the fun really begins.

Tal uses fancy footwork to dodge falling blobs of acid rain and jungle denizens until he latches on to the suit/boots combination and heads off to the maze where the planet's alien oppressors dwell. He'll need energy packs, implosion mines and a laser to reach the generator room and destroy the power source. The ten-page in- ►

The Wildest Multi-Event Game Ever!

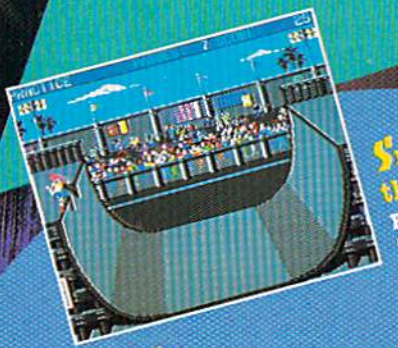
SKATE OR DIE™



Mad Max on Wheels.
Two skaters square off. Play up to 8 skaters in bouts to the death. The joust is only one of 6 rad skate events.



Skate & Destroy.
Karate chop your way down the baddest alley in the neighborhood. One of two downhill events.



Smokin' the Half-Pipe.
Roar down the ramp. Go for rock 'n rolls, hand plants, railslides, even methods!



Lester.
Ugly but bionic. He rules the Jam and Joust.

FREE "Skate or Die" Lester sticker in every package.

Rodney's Skate Shop.
He's rude and raunchy, but he's got the only store in town. Sign in, get a board, or just shoot the bull.



Software by
David Bunch, Michael Kosaka, Stephen Landrum

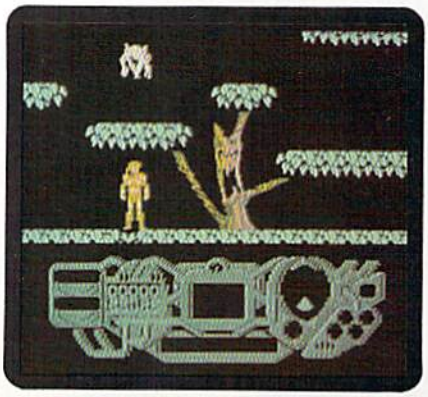
ELECTRONIC ARTS®

How to Order:
See your retailer or call 800-245-4525 for VISA or MasterCard orders (Call 800-366-1318). Or send U.S. check or money order for Electronic Arts Direct Sales, P.O. Box 7530, San Mateo, CA 94403. Add $3 shipping and handling. Allow 2-4 weeks for delivery. Commodore 64 version suggested retail price $39.95. Commodore 64 is a registered trademark of Commodore Electronics Limited. Software ©1987 Electronic Arts.

Circle 142 on Reader Service card.

struction manual has a comic-book introduction and includes a map of the kingdom for players who have problems finding needed equipment. It has good scrolling, imaginative graphics and clearly written instructions.

Rad Warrior is new, but the other two programs are variations on two popular games. The "Arctic Antics" of Spy vs. Spy III takes the shifty Black Spy and White Spy to the ice cap where they hurl snowballs face to face and set traps for each other when their backs are turned. Except for location, volume III is much the same as volume II: A split screen simultaneously shows both spies at work (handy for watching the computer or your opponent gather needed items to get off the iceberg or to set traps); and a Trapulator board



As the Rad Warrior, Tal, you're the only one who can save the human race from alien invaders.

offers a selection of snow shoes, dynamite, saw, water bucket or other implements for doing dirty work.

Game play is similar to that of volumes I and II. The execution is impressive, and the programmers seem to have finally squeezed out all the milk that this Spy vs. Spy cow has.

Another borrowed theme is the Boulder Dash Construction Kit. Rockford's back, and, boy, is he trapped! Games are constructed cave by cave, with each creation saved. And, just to give first-time cave-creators some ideas, 12 caves and three intermissions are on the construction-kit disk. Cave screens can be as large as four monitor screens, while intermission screens are only as big as one. Rockford earns extra points by surviving an intermission.

Boulders, growing walls, butterflies and amoebas are all available to the cave builder. Remember, however, to include an exit to the next level, or Rockford will get blue in the face with no means of escape.

Rockford's cave cavortings have always been rock-solid. It's fortunate that other experienced players who have learned to Houdini their way out of the mines now have a utility to generate their own challenging caves. Caves alone would make this game less inviting, but with the extra attraction of a construction kit, the program presents a challenge for all levels. *(Epyx, 600 Galveston Drive, PO Box 8020, Redwood City, CA 94063. C-64/$24.95 each.)*

—LONNIE BROWN
LAKELAND, FL

NORD AND BERT COULDN'T MAKE HEAD OR TAIL OF IT ..... A

What Would Shakespeare Think?

A three-legged dog walks into the Long Branch Saloon in Dodge City. The saloon doors swing open, the sheriff stands in the opening. "Three-legged dog," he sternly asks, "what are you doin' here in Dodge City?"

The three-legged dog turns, stares, then slowly replies: "I'm lookin' fer the man who shot my paw."

If you think that's funny (or are terrified that something that bad could find its way into print), then add Nord and Bert Couldn't Make Head or Tail of It to your software collection.

This oddity of interactive text adventure from Infocom is, for the most part, typically un-Infocom. There is a gray background, white text, no graphics and a terrific interpreter to translate what you type into computer commands. Other than those trademarks, this adventure is Info(un)Com(mon).

Infocom fans will undoubtedly love it. But Nord and Bert should draw raves, even from those who don't like text adventures but appreciate word plays, puns, spoonerisms and other linguistic twists.

You don't need to draw an intricate map to play Nord and Bert, and you don't use compass directions to move about. Instead, a status line at the top of the screen lists reachable locations, like barn, stable, yard.

Moreover, Nord and Bert isn't just one adventure game that can take days to complete: It's eight separate scenarios. You can play any of the seven offerings, but you can't reach the eighth (Meet the Mayor) until you've completed the others.

Solving these puzzles requires the use of every cliche, pun, adage and word play you can imagine—and some you won't imagine. In that case, type "hint."

Hint? In an Infocom game? And be smitten by a sarcastic response?

Nope; there are hints here. First, you'll get a list of phrases. One will probably allude to your current predicament. Highlighting that phrase produces a clue. If that isn't enough, ask again. Another clue may be forthcoming. If not, you'll be greeted by "That's all, folks!" The clues should be enough to get the ball rolling—another great cliche for Nord and Bert.

Things are not always what they seem in the land of Nord and Bert. Typing ants when the program describes aunts turns the talking aunts into helpful ants. When you pick up one stone, you might not know what to do with it until you see two birds. (Hint: If you can't figure out by now how to use the stone, Nord and Bert may not be for you.)

That example is one of the less challenging found in the story lines. Others are more challenging and will send you running to the list of hints. There, you'll learn that lunching mobsters can be turned into munching lobsters. It's all a matter of perfect grammar.

This Infocom game is a welcome change of pace from its other products. In an hour or so, you can solve a Nord and Bert adventure. Maybe you'll even get to meet the mayor.

But not unless you take the bull by the horns, put your shoulder to the wheel and hit the broadside of a barn.

I'd tell you more. But I don't want to spill the beans. *(Infocom, 125 CambridgePark Drive, Cambridge, MA 02140. C-64/$34.95.)*

—LONNIE BROWN
LAKELAND, FL

MICRO DETECTIVE ..... B–

Constructive Criticism For Your Commodore

Regardless of your level of computing talent, if you write programs or type listings in on your Commodore, you're going to produce errors. These, in turn, cause a variety of messages to appear as fast as you type RUN and press the return key. Anxiously awaiting your first mistake and ready to jump onto your video monitor or TV screen are Syntax, Out of Data, Bad Subscript and File Not Found messages. They let you know little, other than that an error has occurred on a particular program line. While the ►

STEALTH MISSION

Introducing a new generation of strategic gaming excellence from SubLOGIC! Stealth Mission redefines the state of the art in simulation sophistication and playability.

Easy flight and navigation controls, automatic landing and refueling systems, and a realtime pause feature allow you to exercise your strategic skills to the fullest. Quality programming eliminates annoying disk access.

Stealth Mission lets you fly three different jets; an F-19 Stealth fighter, the experimental forward-swept wing X-29, and a Navy F-14 Tomcat. Different flying techniques and weapons maximize the effectiveness of each aircraft. Even the Stealth fighter can be detected if you're not careful.

Select from eight different missions and ten skill levels. Choose the most effective ordnance to accomplish your mission goals. A targeting computer helps you detect, track, and lock onto enemy targets. Electronic Counter-Measures protect you from land, sea, and airborne enemy threats.

Improved 3D animation techniques provide dramatically faster frame rates for all cockpit views. Multiple external viewpoints are also available. And Stealth Mission includes complete VOR, ILS, ADF, and DME avionics for cross-country navigation.

Stealth Mission, the ultimate strategic simulation. From SubLOGIC.

See Your Dealer...
Stealth Mission is available on disk for the Commodore 64/128 computers for the suggested retail price of $49.95. For direct orders please include $2.00 for shipping (outside U.S. $6.25) and specify UPS or first class mail delivery. Visa, MasterCard, American Express, and Diners Club charges accepted.

© 1988 SubLOGIC Corporation
Commodore 64 and Commodore 128 are registered trademarks of Commodore Electronics, Ltd



Great New Release! Scenery Disk # 11



Attack at Sunrise



Locked on Target-Missile's Eye View



Pop-Up Instrument Panel

subLOGIC Corporation
713 Edgebrook Drive
Champaign IL 61820
(217) 359-8482 Telex: 206995
ORDER LINE: (800) 637-4983
(except in Illinois)

Circle 26 on Reader Service card.

C-128 offers the Help command to provide debugging clues, the C-64 offers very little in the way of identifying assistance.

Micro Detective improves this situation. Its primary function on both the C-64 and C-128 is to provide better error explanations. Although Micro Detective is more than just a Basic programmer's aid, using it is extremely uncomplicated because it simply adds commands and doesn't affect normal operation or existing commands.

Both the C-64 and C-128 versions share the same reference manual—a piece of documentation fraught with a lack of clarity. I think that fledgling programmers are likely to constitute most of the Micro Detective market, so clear, concise wording is necessary. With statements like "...you need to be real careful about any other Machine Language (ML) programs," the documentation becomes vague for beginners. Novice programmers might wonder exactly how one should "be real careful," while experienced users will note that the program's large size (it uses locations 27500 to 53247 on the C-64) eliminates the use of many machine language routines in your Basic programs.

In essence, Micro Detective is an extended Basic for both the C-64 and C-128. The program is aimed at Basic programmers who want to improve their programming skills and discover why programs don't work.

Micro Detective adds lots of programming niceties to your Commodore, like a Renumber routine for the C-64 and, using the cursor keys, the ability to scroll your Basic program listings up and down.

What distinguishes Micro Detective from other extended Basics is its automatic error detection. As previously mentioned, Micro Detective provides better, more elaborate descriptions of errors. Better descriptions help to determine what caused an error to occur, which provides you with insight to a correction. Also, when you make a Direct mode error with the C-128 version, the character at the end of the statement turns to a reversed video space. Another unrelated attribute of the C-128 version is that it defaults to the Micro Detective start-up screen whenever you exit the C-128's machine language monitor.

How does Micro Detective's error detection improve upon the C-64's own error detection system? Let me quote the manual: "No more cryptic '?SYNTAX' errors,. . .but rather a meaningful message like 'Expected a comma' or 'Variable must begin with a letter.' "

Micro Detective also offers a trace feature. It gives the C-64 capabilities similar to the C-128's TRON (TRace ON) statement, except on a more elaborate scale. Rather than simply display the line number that is currently being executed, Micro Detective provides a second screen that can be toggled on and off with control/s. Obviously, this type of step-by-step tracing would prove invaluable for instructors trying to teach elementary Basic programming. Thanks to this option, students could see the cause and effect of each statement.



Some introductory remarks in the C-64 version of Micro Detective.

The manual calls the trace routine by a variety of names. You'll find it referred to as a professional debugger, a bugbuster, a trace routine and even The Trace. Unless you can accurately associate all these words with a single thought, you'll probably be slightly confused.

While Micro Detective adds 31 commands to Basic, Trace mode also adds ten program options, available by pressing the control key and one of ten letters. For instance, if you need help: control/h. Want to list all program variables? Press control/v. Need to list the program? Press control/l; and so on.

Programs are traced by holding down the Commodore key to execute each statement within a program. The C-64 version traces the execution of a program by printing the lines on screen. The C-128 version, on the other hand, has a window that appears in the top half of the screen that shows exactly what lines are being executed.

An important aspect of this product is that three versions exist: two for the C-64 and one for the C-128. Earlier C-64 versions contained error-detection routines, but lacked a trace feature; later C-64 versions contained both. Only one version for the C-128 has been released so far; it contains the trace feature, but lacks the error-detection routines. Beware—this arrangement is every bit as confusing as it sounds!

An addendum to the C-64 manual accompanies Micro Detective 128, and it states that the C-128 version is missing some of the key elements found in the C-64 version. These missing options include the advanced error-detection routines. However, the C-128 version compensates for this shortcoming by automatically listing and highlighting errors whenever they occur.

Author Bennett Cookson deserves credit for his hard work in developing a good C-64 product and praise for making a C-128 specific version. Micro Detective's biggest drawback is its rather expensive pricetag. At a rather steep suggested retail cost of $49.95, Micro Detective is priced out of the range of most Basic extension programs. But, until more error-detection programs come along, no viable alternatives exist. *(American Made Software, PO Box 323, Loomis, CA 95650. C-64, C-128/ $49.95 each.)*

—TIM WALSH
RUN STAFF

GEEBEE AIR RALLY ..... A *Fun, Fast, Furious, Fantastic Flying!*

Check the ailerons, trim the tabs. Set the VOR. File a flight plan.

Hold on one minute. If you really didn't sign on to be an airline pilot, and it's good old barnstorming, seat-of-the-pants flying you seek instead, then put on the goggles and don the neck scarf. The GeeBee Air Rally awaits.

We're talking a case of Waldo Pepper derring-do here. Snoopy and his Sopwith Camel would be proud. There's not a single air-control tower in sight. The opening screen shot—a black-and-white picture of a 1930s-era "aeroplane" surrounded by curious people—sets a nostalgic mood for the game.

The rest of the game is in color, of course. Your view is solo flight, from slightly above and behind your GeeBee. You pilot it through one of 16 air courses marked off with signposts to designate the outside curves and ►



Get the lion's share online with GEnie.™

"GEnie changed my mind about what an online service can do for me! I always knew that GEnie offered a princely selection of Special Interest Groups featuring thousands of software files, dynamic bulletin boards, lively discussions and "tips" from the experts. But now GEnie gives me more than my share of valuable information services like NewsGrid and USA Today Decisionlines, American Airlines EAASY SABRE℠ personal reservation system, new and exciting multi-player games and access to Dow Jones News/Retrieval.® And the people on GEnie are so friendly and helpful they make me feel like a member of royalty!

You don't need to pay a king's ransom to get the lion's share, because only GEnie offers you so much online, for less."

B. A. King

Services Available	Compare & Save	Pricing*			
		Registration Fee	Monthly Minimum	Non-prime Time Rates	
				300 baud	1200 baud
Electronic Mail • CB • SIGs/User Groups • Travel • Shopping • Finance • Reference Professional • Leisure • Games • News	**GEnie†**	**$29.95***	**None**	**$5.00**	**$5.00**
	CompuServe	$39.95	None	$6.00	$12.50
	Other	$49.95	$10.00	$8.40	$10.80

$18 Registration fee extended to 12/31/87.

Just $5 per hour. Get online today!

1. Have your major credit card or checking account number ready.
2. Set your modem for local echo (half duplex)—300 or 1200 baud.
3. Dial 1-800-638-8369. When connected, enter HHH
4. At the U#= prompt enter **XJM11826,GEnie** then RETURN.

Need help or more information? No modem yet? We can help. In U.S. or Canada call **1-800-638-9636.**

We bring good things to life.

*Basic rates and services in effect 9/87 apply in U.S. only. †Non-prime time rates apply Mon.-Fri. 6 PM-8 AM local time and all day Sat., Sun., and nat'l. holidays. Subject to service availability. Some services offered on GEnie may include additional charges. Dow Jones News/Retrieval is a registered service mark of Dow Jones & Company, Inc.

© 1987 General Electric Company, U.S.A.

straightaways; blue-and-white checkered boxes mark inside turns.

An air-speed indicator, altimeter and compass are visible on the lower portion of the screen, but are there mostly for show. You can't crash the GeeBee by flying too low. The main problem is getting around the other airplanes that are also flying the course. Remember, use instincts, not instruments.

Fast-scrolling graphics zip by without a jitter. You quickly move up on other racers. Go under, over or around them. When you're passing a competitor, the audio produces a Doppler effect, not unlike the rising and falling wail of a passing train's whistle. That's not the only audible; come too close, and you'll hear the clatter of wings clipping one another.

Come even closer, and your propeller flies off, sending you to the ground. Crashes cost time—you begin again from where the collision took place. If you don't complete the course in the allotted time, you get a second chance.

If you don't finish the course on the second attempt, you can add your name to the on-disk listing of the 15 highest scores. (Human players can compete only for the highest score. There's no one-on-one flying allowed in the air rally.) Completing a course early lets the player carry over some of the time into the next round. That's an important consideration in a race where every second counts.

When a crash occurs, as the unlucky pilot you're treated to a full-screen picture of the resulting bailout. You land in a pig sty, or perhaps the desert, or even in a farmyard, staring up at a farmer's daughter in scanty shorts. (This may be seen as a somewhat chauvinistic cheap-shot, for not all daredevils were male pilots. Remember Amelia Earhart?)

Stereotypes aside, these graphic intermissions, sandwiched in between crashes and the next take off, provide a breather from the hectic flying scenes. Another diversion you may enjoy is that GeeBee pilots can earn extra points by popping balloons or flying on a slalom course. (Be careful not to mistake a telephone pole for a balloon!)

When the course level is completed, another full-screen graphic appears. Perhaps the lucky pilot will be on the winner's stand having his picture taken or receiving a kiss from an admiring fan.

The Activision people have made an extra effort to preserve the illusion of turning back the calendar to the 1930s by printing the instructions as part of a four-page tabloid that recounts, with imaginary stories and advertisements, the daring days of the barnstorming heroes.

Clear! Contact! Chocks away!! *(Activision, 2350 Bayshore Parkway, Mountain View, CA 94043. C-64/$29.95.)*

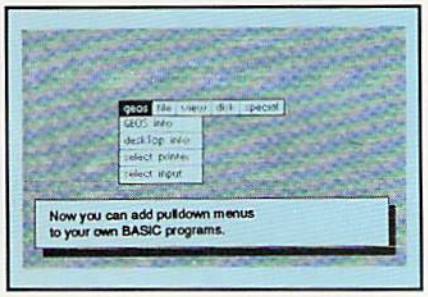
—LONNIE BROWN
LAKELAND, FL ■

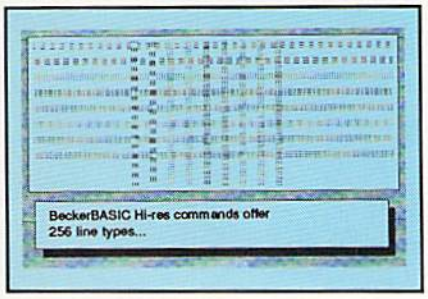


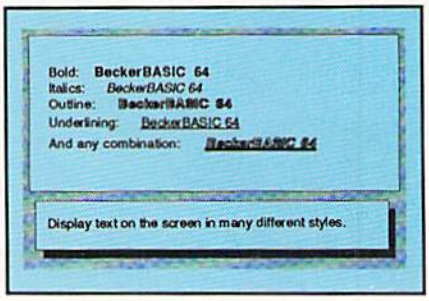
Circle 7 on Reader Service card.

Make GEOS™ work for you.

Introducing BeckerBASIC — Now you can write BASIC applications to work with GEOS.







Introducing **BeckerBASIC**. If you already know BASIC, you can now write you own GEOS applications in BASIC, easily.

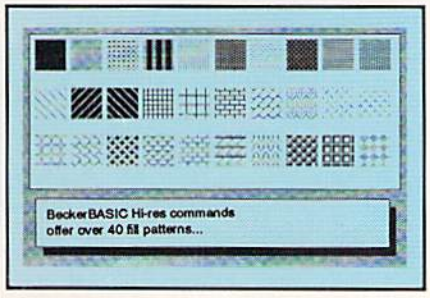
BeckerBASIC gives you the power of over 270 new commands and functions.

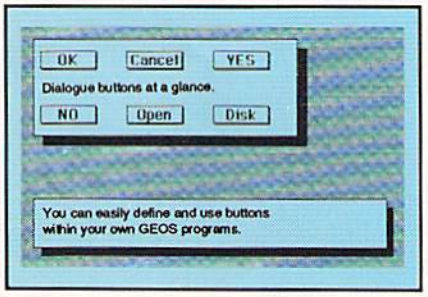
Over 20 commands to make your programming easier. For example, TRACE, RENUMBER, DUMP, DIR, etc.

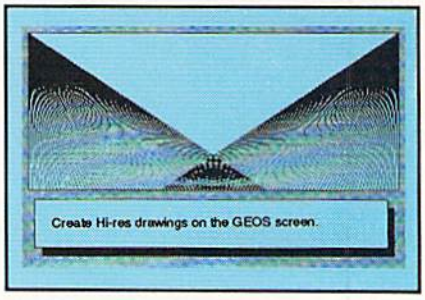
Packed with over 50 commands for easy disk access. Load and save blocks of memory or selected lines of your program. You can even PEEK and POKE into your disk drive's memory.

10 commands can be used for easier cursor control. Turn the cursor on and off. Set how quickly it flashes. Set it to any location on the screen.

20 commands are available for all your Hi-res programming needs.







Create boxes, plot points, and draw lines.

18 commands alone are dedicated to creating sound. Set ring modulation, change the filter, alter the waveform and set the envelope.

Over 35 commands let you create and animate sprites with ease. Load and save sprites directly. Alter their size, change their positions and check for collisions. Use the sprite editor to create sprites and icons.

Use the *Pulldown Menu Construction Set* and *Dialog Box Construction Set* to aid in the creation of you own applications. Royalty-free distribution of your **BeckerBASIC** applications.

Now anyone can create applications in BASIC to run with GEOS. Only $49.95

Call today or mail the coupon for your free catalog covering our complete line of software and books for the Commodore 64 and 128. Or ask for the location of the dealer nearest you. You can order direct by phone using your VISA, American Express or MasterCard or detatch and mail your completed coupon. Dealer inquiries welcome—over 2400 nationwide.

Abacus

Dept. R3 • 5370 52nd Street SE
Grand Rapids, MI 49508
Telex 709-101 • FAX 616/698-0325
Phone 616/698-0330

Yes! Please rush me _____ copies of **BeckerBASIC** at $49.95 each plus $4.00 for shipping a handling (Foreign include $12.00 per item). MI residents include 4% sales tax.

Payment: VISA MC AMEX Check Money Order

Card No._____ Exp._____

Name _____

Address _____

City _____ State _____ Zip _____

Phone No. (_____) _____

☐ Please send me a **free** catalog of your complete line of Commodore software and books.

To order, mail this coupon or call:

(616) 698-0330

Abacus · 5370 52nd Street · Grand Rapids, MI · 49508 R3

GEOS is a trademark of Berkeley Softworks.
Commodore is a trademark of Commodore Electronics Ltd.

Circle 33 on Reader Service card.

TOTAL BACK UP POWER TAKES A QUANTUM LEAP!

ACTION REPLAY IV THE ULTIMATE UTILITIES/BACK-UP CARTRIDGE FOR THE 64/128

• Action Replay allows you to Freeze the action of any memory Resident Program and make a complete back-up to disk or tape – but thats not all . . . . Just compare these features

- Simple Operation: Just press the button at any point and make a complete back-up of any* memory resident program to tape or disk.
- Turbo Reload: All back-ups reload completely independantly of the cartridge at Turbo speed.
- Sprite Monitor: View the Sprite set from the frozen program – save the Sprite – transfer Sprites from one game to another. Wipe out Sprites, view the animation on screen. Create custom programs.
- Sprite Killer: Effective on most programs – make yourself invincible. Disable Sprite/Sprite/Backround collisions.
- Unique Picture Save: Freeze and save any Hires Screen to tape or disk. Saved in Koala, Blazing Paddles Format.
- Screen Dump: Print out any Screen to Host or Printers. 16 Gray Scales, Double size print options.

ONLY **$59.99**

WARP 25
BREAKS THE 5 SECOND BARRIER!!!

- Yes it's true WARP 25 is the World's Fastest Serial Disk Turbo – A typical back-up will reload in under 5 seconds – thats 4 times faster than Action Replay's closest competing utility!!!
- No additional hardware required
- No special disk formats – WARP files can be mixed with other standard files
- A 202 block file will load in 5 seconds – 250 blocks in under 7 seconds!
- Super reliable
- Machine code Turbo comes close
- Fast Load/Save also available from Basic for your own use

POWERFUL DESIGN WITH ON BOARD LSI LOGIC PROCESSOR CHIP PLUS 40K OF ON BOARD ROM/RAM!

PLUS
UNIQUE CODE CRACKER MONITOR

- Freeze any program and enter a full machine code monitor
- Full Monitor Features – Disassemble, Hex, Find, Jump, Compare, Replace, Two Way Scroll, Full Disk Load/Save, Printer Support etc. In fact all usual monitor commands plus a few others
- Because of Action Replay's on Board Ram the Frozen program can be looked at in it's ENTIRETY: – In it's Frozen state. That means Video Ram, Zero Page etc. and remember you see the code in it's Frozen state not in a Reset state as with competitors products.
- Restart the program at any point
- No corruption
- An absolute must for the program Hacker – make changes and see your result's instantly!

- Compactor: Efficient compacting techniques – 3 programs per disk side – 6 programs if you use both sides.
- Single File: All programs saved as a single file for maximum compatibility.
- Utility Commands: A host of additional commands: – Autonum, Append, Old, Delete, Linesave, Printer, lister
- Fast Loader: Also doubles as a Fastload cartridge to speed up your commercial disk to upto 6 times normal speed
- Unstoppable Reset: Reset button to Restrieve System and Reset even so called Unstoppable Programs
- Fully Compatible: Works with 1541/C, 1570, 1571 and Datacassette with C64,128, 128D (in 64 Mode)
- Compatible: With Fast DOS and Turbo Rom Systems
- Disk Utilities: Fast Format, Directory, List, Run and many other key commands are operated by Function Keys

- Unique Restart: Remember all of these utilities are available at one time from an integrated operating system. A running program can be Frozen to enter any Utility and the program is restarted at the touch of a key – without corruption

LSI Logic Processor: This is where Action Replay IV gets it's power. A special custom LSI chip designed to process the logic necessary for this unmatched Freeze/Restart power. No other cartridge has this power!

* In our most recent test we were unable to find any program that ARA could not cope with.

Circle 154 on Reader Service card

ORDERS ONLY

CALL TOLL FREE
1-800-782-9110
IN NEVADA 702-734-9100

CHECK – MONEY ORDER – COD ACCEPTED

VISA MasterCard

ORDERS NORMALLY SHIPPED WITHIN 48 Hrs.

ADD $3.00 Shipping/Handling

DATEL COMPUTERS
76 COUNTRY CLUB LANE
LAS VEGAS
NV 89109

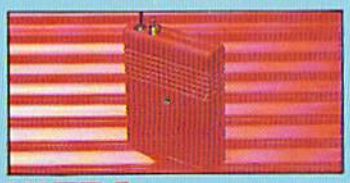
DATEL COMPUTERS

256K SUPEROM EXPANDER

- ❑ Now you can select from any of 8 32K EPROMs instantly.
- ❑ 8 sockets to accept upto a 32K EPROM in each.
- ❑ On board operating system – no programs to load.
- ❑ Program your own EPROMs using our EPROM programmer.
- ❑ No need to have loads of cartridges – just make a selection from the Superom menu.
- ❑ Directory of utilities on power up.
- ❑ Fully menu driven on power up.
- ❑ Select any slot under software controls.
- ❑ Unique EPROM generator feature will take your own programs – basic or m/c and turn them into autostart EPROMs. (EPROM burner required).
- ❑ Accepts 2764/27128/27256 EPROMs.
- ❑ On board unstoppable reset.



ONLY $49.99



ULTRA CRUNCHER

• The ultimate cartridge based program compactor.

- ❑ Compact by upto 30%!
- ❑ More programs per disk.
- ❑ 3 compacting programs on one cartridge
- ❑ Fast loading/saving routines – works with Disk Demon
- ❑ Can even further compact AR III files!
- ❑ 250 block file copy function
- ❑ Full DOS support including fast format

ONLY $24.99 COMPLETE
OR $14.99 ROM ONLY



DUPLIKATOR™

- ❑ Copies whole disk in one pass – only one drive required!
- ❑ Makes back-up copies in eight seconds!!
- ❑ Duplikator is the fastest, most efficient and easiest to use disk copying system ever conceived.
- ❑ Comes complete with 256K on-board ram and it's own operating system – no software to load.
- ❑ Makes multiple copies from one original.
- ❑ Full disk verification during back-up process.
- ❑ Copies standard software as well as errors 21-29 and upto 40 tracks.
- ❑ Full disk error check in eight seconds.
- ❑ Full disk verify against ram in fifteen seconds.
- ❑ A must for clubs, user groups etc. How else can you copy over 250 disks an hour for less than $200.
- ❑ Comes complete with on/off switch and reset button.
- ❑ Fitted in minutes – no soldering usually required.

ONLY $159.99



TURBO ROM II

Turbo Rom II is a replacement for the actual kernal inside your 64. It provides superfast load/save routines.

- ❑ Loads most programs at 5-6 times normal speed.
- ❑ Saves at 5-6 times normal.
- ❑ Improved DOS support including 10 sec format.
- ❑ Programmed function keys:- load, directory, old, etc.
- ❑ Return to normal kernal at flick of a switch.
- ❑ FCOPY – 250 block file copier.
- ❑ FLOAD – special I/O loader.
- ❑ Plus lots more.
- ❑ Fitted in minutes – no soldering usually required. (On some 64's the old ROM may have to be desoldered).

ONLY $24.99



DIGITAL SOUND SAMPLER

- ❑ The new sampler allows you to record any sound digitally into memory and then replay it with astounding effects.
- ❑ Playback forwards/backwards with echo/reverb/ring modulation etc.
- ❑ Now with full sound editing module to produce outstanding effects.
- ❑ Full 8 bit D to A and ADC conversion.
- ❑ MIDI compatible with suitable interface. (I.e. Datel unit for $39.99).
- ❑ Live effects menu includes real time display of waveforms.
- ❑ Line in/mic in/line out/feedback controls.
- ❑ Powerful sequencer with editing features.
- ❑ Load/save sample.
- ❑ Up to 8 samples in memory at one time.
- ❑ Complete software/hardware package ~~$89.99~~.

TOOLKIT IV

The ultimate disk toolkit for the 1540/1541

- ❑ A disk toolkit is an absolute must for the serious disk hacker. Toolkit IV has more features than most for less.
- ❑ DISK DOCTOR V2 – Read and write any track and sector including extra and renumbered tracks. Repair damaged sectors. Look underneath read errors.
- ❑ HEADER/GAP EDITOR – Decodes and displays ALL header information including off bytes and header gap. Rewrite the entire header and header gap. Renumber sectors. Also edit any sector tail gap.
- ❑ DISK LOOK – Sort directory. Recover lost files. Display file start/end addresses. Disassemble any file program directly from the disk to SCREEN or PRINTER including undocumented opcodes. Edit Bam. Much, much more.
- ❑ FILE COMPACTOR – Can compact machine programs by up to 50%. Saves disk space. Compacted programs run as normal.
- ❑ FAST DISK COPY – Copy an entire disk in 2 minutes or less using single 1541.
- ❑ FAST FILE COPY – Selective file copy. Works at up to 6 times normal speed.
- ❑ FORMATTER – 10 second format an entire disk or format any individual track or half track 0 to 41. Redefine any of 30 parameters to create or recreate unique disk formats.
- ❑ ERROR EDIT – Quickly find and recreate all read errors including extra and renumbered tracks or sectors and half tracks from 0 to 41. Even recreates data under errors and allows you to redefine any necessary parameters.

ONLY $14.99



DEEP SCAN BURST NIBBLER™

- ❑ The most powerful disk nibbler available anywhere, at any price!
- ❑ Burst Nibbler is actually a two part system – a software package **and** a parallel cable to connect the 1541/1570/1571 to 64/128 (state type).
- ❑ What gives Burst Nibbler its power? Conventional nibblers have to decode the data from the disk before it can transfer it using the serial bus – when non standard data is encountered they are beat. Burst Nibbler transfers data as raw GCR code via the parallel cable without the need to decode it so you get a perfect copy of the original.

- ● Will nibble upto 41 tracks. ● Copy a whole disk in under 2 minutes. ● Full instructions.
- ● Regular updates – we always ship the latest. ● Fitted in minutes – no soldering usually required.
- ● Full or ½ tracks. ● No need to buy parallel cable if you have Professional DOS etc.
- ● Cable has throughbus extension for other add ons.

ONLY $39.99 COMPLETE
SOFTWARE ONLY $19.99 CABLE ONLY $19.99



EPROMMER 64™

- ❑ A top quality, easy-to-use EPROM programmer for the 64/128.
- ❑ Fully menu driven software/hardware package makes programming/reading/verifying/copying EPROMs simplicity itself.
- ❑ Will program 2716, 2732, 2764, 27128 and 27256 chips. 12.5, 21 or 25 volts.
- ❑ Fits into user port for maximum compatibility with cartridges/Superom Board etc.
- ❑ Full feature system – all functions covered including device check/verify.
- ❑ We believe Eprommer 64 is the most comprehensive, most friendly and best value for money programmer available for the 64/128.
- ❑ Ideal companion for Superom Board, Cartridge Development System, our kernal expanders or indeed any EPROM base project.
- ❑ Comes complete with instructions – plus the cartridge handbook.

ONLY $69.99 COMPLETE

Circle 154 on Reader Service card.

ORDERS ONLY

CALL TOLL FREE
1-800-782-9110
IN NEVADA 702-734-9100

CHECK – MONEY ORDER – COD ACCEPTED

VISA® MasterCard

ORDERS NORMALLY SHIPPED WITHIN 48 Hrs.

ADD $3.00 Shipping/Handling

DATEL COMPUTERS
76 COUNTRY CLUB LANE
LAS VEGAS
NV 89109

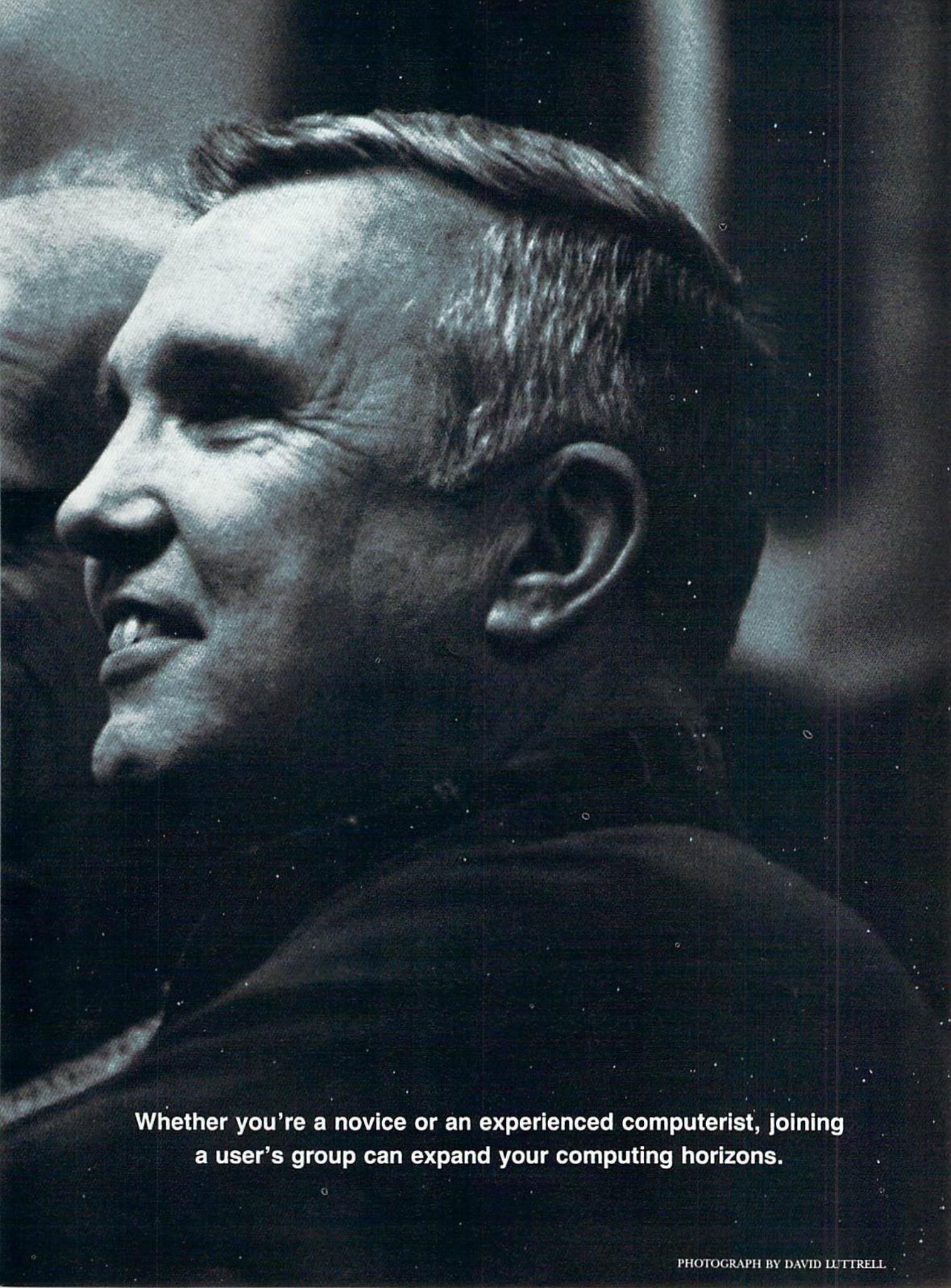
COMPUTER CAMARADERIE

By LONNIE BROWN

Earl Dunlop said he's owned Commodore computers "ever since I can remember. I go all the way back to the VIC-20." In spite of his experience, however, when Earl's wife, Gwen, took a disk drive into a store for repair and saw a poster advertising a user's group meeting, they decided the meeting might give their computing knowledge a boost.

So that's how Earl, Gwen and son Jason found themselves at a Friday night meeting of the Tampa (Florida) Commodore User Group. "After three meetings, I knew we hadn't been getting all we could have from our computers," said Earl. "It's been helpful."

Something's amusing at a Nashville, Tennessee, Commodore User's Group meeting.



Whether you're a novice or an experienced computerist, joining a user's group can expand your computing horizons.

PHOTOGRAPH BY DAVID LUTTRELL

Such unsolicited praise brings a smile to TCUG President Lloyd R. Rankin, Jr. As a retired executive who established businesses and reorganized failing ones, Rankin is particularly proud that the struggling group he and other members took over in the spring of 1987 is now the largest organization using the Town-'n'-County Community Center.

"It used to be that if we had a dozen members at a meeting, that was a success," recalled member Lester Baumgardner, the club's sergeant-at-arms. "We've got about 50 people here tonight, and 60 members on the roster."

Rankin attributes TCUG's success to a philosophy he has about computer club meetings: "If, in three meetings, you don't learn something new, then maybe you've outgrown the club or the club isn't doing its job."

Rankin also has a variation on that theme: "If you're not learning from the meetings, maybe it's time to get involved in helping present the programs. You're computer smarter than you think," which means that although you may know nothing about the "save-replace" bug, you may have a wealth of knowledge about another facet of Commodore computing.

Club Benefits

So, students become teachers. At one meeting, a club member showed others how Computer-Eyes can be used to make pictures on T-shirts. At another, a club officer briefly explained the sound interface device (SID) chip, then demonstrated a disk of songs downloaded from QuantumLink. As Rankin said, "We want to build on one another's knowledge."

Belonging to a user's group means you don't have to reinvent the wheel. Chances are that if you encounter a problem, someone else in the group has already solved it. Say you want to make a small change in a Basic program. There's no need to learn how to program the computer; just ask for help at a meeting.

Want to print a disk directory on a mailing label to stick on the disk cover? Check the club's public domain software library. The chances are that you'll find what you're after. "We've got 1600 titles, from the simple to the sophisticated, in our public domain library," said Rankin.

Buying a game, word processor or database program? User's group members probably have experience with several and can tell you what to look for and what to avoid.

STARTING A USER'S GROUP

SO YOU'VE DECIDED to take the plunge and join your local user's group. You begin to make inquiries and discover, to your horror, that there are none! Well, don't panic, because there's a solution—start your own.

It's not all that difficult. In fact, since Commodores are still number one in personal computing, the chances are that there are many people in your community who'd welcome such an organization and be willing to help get it started.

There's no formula for setting up a user's group; the plan you adopt will depend a lot on your community. However, I can offer you the following suggestions:

•Try to find a local meeting place. This can range from someone's home (for a small group) to a room supplied by a local school, church or business. If you have a community college nearby, check with them about using a room. Most community colleges are glad to offer their classrooms to responsible members of the community. If any new members of the group are teachers, they might be able to make the arrangements.

•Go to your local Commodore dealer and/or service center, and ask if you can put up a notice that a group is forming. If you've already set the date and time of the first meeting, the poster or sign can tell when and where and give the name and phone number of a person to contact. Odds are the dealer or service center will be happy to cooperate, since a healthy user's group means a steady stream of customers for their services. After you get started, the salespeople and technicians may be a good source of information and expertise.

•Put up notices on bulletin boards at schools, grocery stores, laundromats. If your area has a computer BBS, get the SYSOP to post a message there about your new group.

•Perhaps you can get the local newspapers, radio stations and television station to give your group a plug. After all, a user's group is a community organization.

•Find out who the local Commodore experts are. Ask if they'd be interested in teaching a workshop or helping in some other way. And remember that being an expert doesn't necessarily mean a programmer. It can mean explaining how a certain word processor works, or even what word processing means. Also keep in mind that you may be an expert. If you've had your computer for even a little while, you know more about some aspect of computing than someone who just got theirs yesterday.

•When planning the agenda for the get-acquainted meeting, keep it light, but informative. Find out everyone's name, perhaps by having them introduce themselves. Ask what computers they use, so you can get an idea of the needs of the group. Ask what their skills are, as well as what they'd like to see in future meetings. You also might give a demonstration of some new computer game or application.

•At the first meeting, get volunteers to help with future meetings, whether by making arrangements or giving demonstrations or lectures. Before long, you should also get a committee together to plan elections and draw up rules and agendas. R

—LOU WALLACE



Three serious listeners at a meeting
of the Commodore User Group of Santa Cruz, California.

Group meetings also offer a chance to see and compare a variety of monitors, disk drives, interfaces, printers and other computer accessories. You can talk to the people who own them and get a completely different perspective from that of those who are trying to sell them.

Strength in Numbers

Being a member of a user's group frequently means increased buying power. When ten users in one group recently went together to purchase ten of the same printer, delivered COD to the same address, the price was substantially below what an individual could have obtained.

On the other side of the coin, members can pool their resources to buy individual items. For instance, TCUG members purchased a MacInker. According to club president Rankin, "It wouldn't have been as feasible for a single user to purchase the re-inking machine, but as a group we could do it cheaply. Members pay to use the re-inker, and the money goes to help the club."

While you might find disks on special sale at a store, a computer club might offer them at meetings for a price even below the store special. Buying hundreds of disks at a time guarantees a low price—and that saving is passed on to club members.

Meeting Programs

Warren Mason, now a sales representative for ComputerLand in Lakeland, Florida, is past-president of a Commodore user's group in Oklahoma. "Our best-attended meetings were those in which we'd explain simple Basic programming," he noted. "When people can understand a little of that, they can use that knowledge as a stepping-stone."

"People also want to know how the computer works," he added, "and they want to know about word processors and other useful applications. Those types of programs were very successful."

Mason believes programs should be held to a half-hour or 45 minutes and shouldn't try to cover too much territory, particularly when dealing with explanations of programming. He also believes user's group fees should be reasonable—$2 to $3 a month seems common—and the group's officers should willingly supply receipts for dues and purchases, as well as a monthly accounting of the treasury.

"A good public domain library can be a big help, particularly if you're interested in programming," said Mason. "I learned a lot from looking at the ways other programmers did things, and I could always take a subroutine out of a program and use it to improve another program I was working on."

Mason finds that "In a user's group, there's usually somebody who's willing to give you some help when you get stuck on a problem." And bless them, user's group members have patience to spare! ■

Lonnie Brown is an editorial writer and computer columnist for The Ledger, *a newspaper in Lakeland, Florida. Lou Wallace, now* RUN*'s technical manager, was formerly the charter president of the Gainesville, Florida, Commodore Users Group.*

PHOTOGRAPH BY BILL BEATTIE



A demonstration at the Gainesville, Florida, Commodore User Group.

GET YOUR CLUB ONLINE

Add a new dimension to your user's group with an electronic bulletin board system.

By RAY ROBERTS

WHEN I BOUGHT A C-64 several years ago, I immediately joined the local Commodore user's group. Like many other clubs, we meet weekly, and I try to attend often, because the meetings are a good opportunity to see the latest in commercial software, exchange information and get public domain and shareware software. Sometimes, though, when the agenda doesn't strike my fancy, or if other obligations conflict or the trip across town just seems too much after a hard day at work, I'll skip a meeting.

Even if I don't attend, however, I remain an active member by keeping in touch with others through the club's electronic bulletin board system (BBS). In this way, I meet and make new friends, get and give programming help, communicate with disabled members who can't attend meetings, get free software, and so on. For me, it's the best service the club provides, because it fulfills so many of my needs and I can use it at my convenience.

What!? Your user's group doesn't have a BBS? Well, read on. I'll tell you what can be done with a BBS and how to set one up for your club.

The Power of a BBS

A BBS is a computer system that includes a modem for communicating over the phone line, special software to run the board and a person called the systems operator (SYSOP) who watches over the whole works. The software detects incoming phone calls, answers the phone and then lets you (the caller) give commands to the BBS computer. Once you're online and have entered your name or password, there are four BBS features you can access.

First, you can use the electronic message system—always a primary feature of a BBS. In fact, this "bulletin board" is where the BBS name originated. This is the electronic version of a combined cork bulletin board and mail system. You can post public messages and read messages that others have left, and you can make your messages private if you like (but don't forget, the SYSOP can read them!). Some BBS message systems divide the public messages into boards dedicated to specific subjects, while others have a single database of private and public messages.

A second popular feature of most BBSs is the public domain and shareware software library. Here, computer files can be transmitted (downloaded) from the BBS to your computer. To help you make choices, most BBSs allow you to download a list, with short descriptions, of the programs available. The programs are usually listed by computer type, but some BBSs also organize them by category (such as education, games, database management). I've obtained some excellent software from my local BBS library, and it's available to me 24 hours a day!

Reading text files online is another BBS activity. Text files are sequential files stored on the BBS disk that can be selected (usually from a menu), transmitted and displayed on your screen. This is a good place for the user's group to post a membership directory, a list of officers, information about future meetings and other announcements. When I was SYSOP of our BBS, we posted the entire club newsletter on the BBS every month.

A relatively new feature of BBSs is the availability of online games, such as blackjack, roulette and football. Just select a game from a menu and see if you can beat the scores of other BBS users.

Hardware

Most Commodore user's group BBSs are run on a C-64. The computer is inexpensive, reliable and sufficiently powerful to operate a sophisticated system. An inexpensive monochrome monitor is also needed (color isn't necessary).

Although it's possible to operate a BBS on a 300-baud modem, your system will be much more successful and appreciated if you can offer 1200-baud service. Make sure the modem you get is Hayes compatible, so it'll work with any BBS software. Commodore's 1670 modem isn't a good choice, because it isn't 100 percent Hayes compatible, and it also has the annoying habit of answering the phone even when the BBS software isn't online.

Perhaps the most critical piece of equipment for a BBS is the disk drive. Get the largest disk capacity you can afford. You won't need too much for a small message base, but if your BBS grows and you add a software library, text files and games, you may eventually need several megabytes (Mb) of disk capacity to accommodate it all. Our club has used a 7.5 Mb Commodore D9090 hard drive for about four years, and even with that amount of space, during the last year we've had to stop posting new ►

PHOTOGRAPH BY ACEY HARPER

text files and do a lot of house-cleaning to accommodate new software.

Commodore has produced several disk drives that are commonly used on BBSs. Some of them are no longer in production, but can often be picked up used or as rebuilt units from mail-order suppliers. These include the SFD 1001 single-floppy drive (1 Mb), the 8050 dual-floppy drive (1 Mb), the 8250 dual-floppy drive (2 Mb), the D9060 hard drive (5 Mb) and the D9090 hard drive (7.5 Mb). All of them use the parallel bus and require an IEEE interface that plugs into the cartridge port on the computer.

A current Commodore product that has become a popular BBS disk drive is the 1581 3½-inch floppy. With a capacity of 0.8 Mb, it's adequate for maintaining a message base, some text files for announcements and a small software download library. The 1581 is a good buy at less than $200.

A BBS with a large software library requires a hard disk drive for storage. As I mentioned, our club has used a Commodore D9090 for four years, and it's proven to be a reliable work-horse. However, it's noisy (the drive motor runs constantly), and it generates a lot of heat. I measured our D9090's electrical consumption and calculated that it consumes about $10 worth of electricity per month!

When we started our BBS, the D9090 was the only choice we had, but now there are several other companies producing higher-capacity hard disk drives for the C-64 and C-128 that are quieter and more economical to operate. Table 1 lists the hard drives now in production. If you want to add a hard drive to your BBS, I suggest you write each of the companies for details about their products. You might also read the review of hard drives in the April 1987 issue of *RUN*.

Software

Selecting BBS software can be difficult, but it's extremely important. Here are a few hints and suggestions that may help you.

1. Be certain that the software supports the hardware you'll be using (or vice-versa). For example, some BBS software supports only disk drives using the IEEE parallel interface and won't work with Commodore 1541, 1571 or 1581 drives.

2. Check out the user interface carefully. I like to see a main menu after signing on that clearly tells how to get to all the main features of the system, rather than just presenting the user with a command prompt. It's helpful to have an "expert" mode, too, so experienced users don't have to fight their way through multiple menus to reach their destination.

3. Check out the message board and the editor carefully. The text editors provided for entering messages online are usually line-oriented, which makes correcting spelling and grammar more difficult than with a word processor. Look for one that's as easy to use as possible, so users won't get discouraged when trying to upload messages. A nice feature of some BBSs lets the user create messages offline with a word processor and then upload them.

Other features I like to see in a message system are a "scan" function to read just the message headers, a "new" or "global" function to read only the messages posted since the last sign-on, a "poll" function, so users can vote on issues, and a "trace" or "thread" option that groups messages with their replies, making it easier to follow conversations on the message board.

4. The organization of the download software library is also an important consideration. The BBS software should be flexible enough to catalog each file by computer type and category. Each file should also have a description associated with it that the user can read before downloading. I also like to see upload and down-

Table 1. Currently available hard disk drives compatible with the C-64 and C-128.

JCT SERIES
JCT
8550 New Hope Rd.
Grants Pass, OR 97526
503-474-5678
JCT-1000 (3.7 Mb), $495;
JCT-1005 (5 Mb), $595;
JCT-1010 (10 Mb), $695;
JCT-1020 (20 Mb), $795

LT. KERNAL SERIES
Xetec, Inc.
2804 Arnold Rd.
Salina, KS 67401
913-827-0685
20 Mb; C-64 version, $899.95;
C-128 version, $949.95

MINI-CHIEF SERIES
InConTrol, Inc. (ICT)
100 Sunset Blvd.
Chambersburg, PA 17201
717-267-1879
MC-20 (20 Mb), $795;
MC-40 (40 Mb), $1195

Table 2. C-64 and C-128 BBS software.

BBS64
Steve Punter
4342 Forest Fire Lane
Mississauga, Ontario
Canada L4W 3P4
416-896-1446—weekdays 12–5 PM, voice; weekdays 6 PM–10 AM and all day weekends, BBS
C-64, $100 U.S. funds
Supports hard drives and a BBS network

C-NET
SofTech Enterprises
PO Box 23397
Lexington, KY 40523
606-268-2283
Version 12.0, C-64, $59.95; version 2.5, C-128, $84.95
Supports hard drives and RAM expanders

COLOR 64
Greg Pfountz
14 Longdale Rd.
Bristol, VA 24201
703-466-2120, modem
C-64; $50
Supports hard drives and RAM expanders

SPENCE-XP BBS
Read/Write Media
60 St. Clair Ave. W, Suite 1
Toronto, Ontario
Canada M4V 1M7
416-694-0303, voice; 416-622-7198, modem
C-64; $10 U.S. or Canadian funds
Supports hard drives and RAM expanders

VISION BBS
Vision Software Co.
PO Box 534
Bronx, NY 10461
212-829-1538 and 718-229-5739, voice; 718-631-9065, BBS
C-64, $69.95
Supports hard drives

load logs that show the most recently posted software and the most frequently downloaded programs.

5. How the BBS manages text files can also be important. Some systems have you input a number or letter to select text files for display from a few menus, but this arrangement is inadequate if the text file library becomes very large. A preferable system lets the SYSOP create a multilayered and branching menu system.

You won't find any BBS program that provides all these features and has no weaknesses. Your choice will depend on the hardware available for running your BBS and the features that are most important to your club. Table 2 shows some of the Commodore-compatible BBS programs and addresses where you can get more information.

If your club is interested in setting up a BBS or has already done so, you'll also find valuable information on both software and hardware in *RUN*'s monthly Telecomputing Workshop column.

Financing Your BBS

When we proposed a BBS to our user's group four years ago, many members were opposed to the idea. At that time, modems were still quite expensive, and the cost of equipment to operate the BBS totaled more than $2000. Since some felt they would never use the system, they didn't want their club dues applied to it. A compromise was finally reached by financing part of the purchase with a local computer store and "borrowing" the remainder of the money from the club. The loans were repaid by charging club members who used the BBS an extra $20 per year. The BBS has now been fully paid for, and it's open to all of our club members.

Hopefully you can garner more support for a club BBS. It should be easier these days, because modems have become less expensive and high-capacity disk drives also cost much less than a few years ago. You may even be able to find someone willing to donate equipment for the BBS. It never hurts to ask! ■

Ray Roberts is a biochemist and author of Multifinder, a shareware C-64 database manager. He is also SYSOP of the KnowledgeWare BBS in Gainesville, Florida.

CLUB CHRONICLES

Follow these guidelines to start a successful user's group newsletter or improve the one you already have.

By MIKE PROCISE

THE TIES THAT UNITE US, as Commodore users, include magazines, modems and, of course, our local user's groups. We're particularly linked by the user's group newsletter, which keeps us in contact with the club even when we can't make meetings. Ranging from one-page photocopies to glossy, saddle-stapled mini-magazines, these publications tell us the "who, what, when, where and why" of our Commodore computing world.

At its most basic, a newsletter is a "town crier," mailed out to inform members of the next club meeting. The phone number of the club contact person is usually provided for the convenience of new computer owners. Other important reasons for producing a newsletter are to recruit new members, comment on current affairs, review new products and survey the club's volunteer efforts in the community.

User's group newsletters recently entered the political arena, urging members to write the Federal Communications Commission in opposition to telecommunications rate increases. The result was a flood of letters to the FCC.

Many newsletter editors make an art form out of their publication, laying it out attractively and brightening it up with eye-catching and informative graphics. These are the newsletters nobody wants to miss!

If you have a computer, word processor and printer, you can produce a newsletter for your club. To help you get started, this article presents some guidelines I've developed over my years as a newsletter editor. If your publication is already established, these pointers should make the job go more smoothly. As you gain experience, you and your staff may want to add guidelines of your own. Just remember not to cast them in stone. Adhere to guidelines, yes; become a slave to them, no.

Get Help

It's important to develop a core group of solution-oriented people who can put in some time helping with the newsletter. I'm not talking about forty-hour weeks, but ►



The younger generation gets involved at a group meeting in Foxboro, Massachusetts.

you need people to call on who are interested in writing or soliciting articles, reviewing other newsletters for reprintable information or typing. Even if you're the most willing worker, without help and encouragement, you may burn out. Nobody will blame you when the newsletter decays or you quit the job, but the whole club will suffer.

Separate the Power

Cooperation between the newsletter and other special interest groups within your club should be promoted. At the same time, the newsletter needs some independence. One of our first, and best, decisions as a user's group was to set aside a portion of each membership fee for newsletter production. The money is administered by the editor with the understanding that it has to last all year. Earn the confidence of your club, and then get the authority and means to carry on!

PEEK & POKE

THE *PEEK & POKE* NEWSLETTER originated with the Peek & Poke Graphics Group in Westbrook, Maine, but has become the official voice of the New England section of MARCA (Mid-Atlantic Regional Commodore Associations). While primarily aimed at New Englanders, it circulates to groups throughout the U.S.

***Peek & Poke* has grown from 50 copies of the first issue, in October 1983, to 2200 copies last December. Each newsletter contains 14 or more 8½ by 11 pages, stapled at the corner. They're distributed free through user's groups, newsstands and computer stores.**

Seven people make up the core staff of *Peek & Poke*, but the efforts of a dozen individuals, from rank beginners to computer veterans, are represented in each issue. One writer, Dave Loomis, has produced over fifty interesting articles in the past three years; many other fine articles have been written by newcomers.

***Peek & Poke* is now supported entirely by paid advertising from vendors. With these revenues, the staff has been able to purchase a tabletop offset printing press and enough computer equipment to serve 91 user's groups in New England's Commodore community.** Ⓡ

Sound Positive

Keep the newsletter *upbeat*, for it's the window through which the outside world views your user's group. I suggest that complaining articles be rejected 90 percent of the time, so you don't sound like a "losers" group.

For instance, don't print the treasurer's sour comments about the state of the finances. That will make your club look tacky. If you're having a problem with some product or vendor, get on the phone, obtain some answers and turn the negative experience into a positive article. Remember, solutions are important.

Explore New Frontiers

Don't use reprints from other newsletters any more than necessary to publish needed information. Print the kind of news that will make your readers afraid to miss the next issue!

Be Responsible

Even if you publish a disclaimer to the contrary, as editor you're responsible for the entire newsletter—and your readers know it! This is a learning experience, so it's OK if you get some criticism. On the other hand, don't be too modest to accept praise.

Solve Problems Creatively

If you don't have enough money to print extra newsletters for the local computer store, have a member of your club who does a lot of business there solicit an advertisement from them. If a meeting was poorly attended because the newsletter came out late, delegate someone to give you an up-to-date preformatted list of club functions each month—and make sure it's in your hands a month in advance. Get everyone to help turn problems into solutions, and your newsletter efforts will be successful!

Cultivate Writers

Wherever you go, be on the lookout for people with good verbal skills, and ask them to write about some computing experience that was significant to them. Remember, sharing is the real issue here, so wait until after you've established their willingness before you address details of topic, length and style.

New writers may feel exposed to criticism and ridicule. If it would help, offer to print an article without the author's name.

Don't impose on your authors the kind of strict author guidelines that professional publishers use; it'll only discourage new contributors. Instead, remove as many obstacles as possible, so your readers can easily become writers.

Work with your writers by answering every question they have. A feeling of teamwork will develop; then, when you have a disagreement over content or style, it won't be too painful. And feel free to help writers by editing their rambling prose, no matter who the author is.

Remember the Beginners

Newcomers are your raw material, and they're ready givers. If they're new to computers and need keyboard practice, ask them to help type in material. You can also encourage them to write. Help them get started with their computer; then, when they begin to feel confident, pop the big question—"Would you write something for the newsletter?"

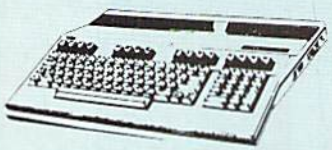
Be Flexible

Files sent on disk or transmitted by modem are convenient, but gather material any way you can. I take information by phone, scribble notes on napkins in the donut shop and even print items shouted out the window of passing cars. After all, news is news! ■

Mike Procise, a member of the Peek & Poke Graphics Group in Westbrook, Maine, has been editor of the Peek & Poke *newsletter since its inception. He also belongs to the New England Computer Pioneers, an organization devoted to helping user's groups. Professionally, Mike is a computer consultant.*

PHOTOGRAPH BY ED MALITSKY

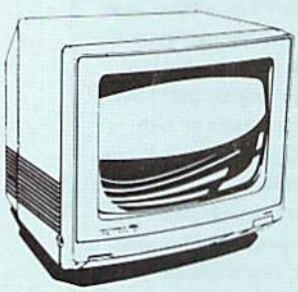
commodore



64C. $129.95*
128. . . . . $189.95*
128D. $429.95*
C64 . . . Refurbished . . . $99.95*
*package pricing



FSD-2 . . . . . $149.95
1541-II . . . . . $Call
1581 . . . . . $179.95
SFD 1001 (1 Meg). . . . . $Call
1571 . . . . . $219.95
RF500C $209.95



1802c. $189.95
1084 . . . . . $CALL
MAGNAVOX 8562 . . . $240

commodore PC10-1
IBM Compatible

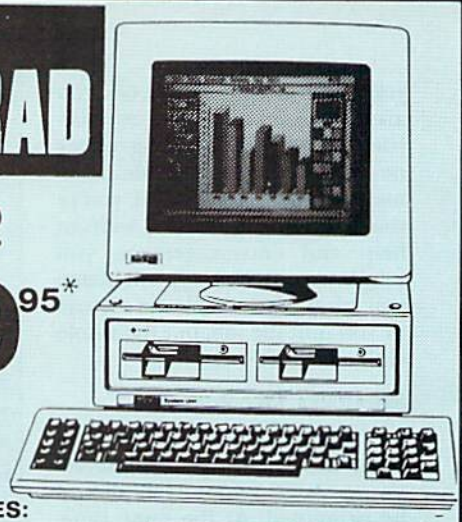


- 512K
- 360K Dual Sided Drive
- CGA Board
- One year warranty
- Parallel Port
- Serial Port
- GW BASIC
- DOS 3.2

FREE Sidekick by Borland
$499.95*
*W/Monitor Purchase

AMSTRAD

PC1512



$479.95*
*with any monitor purchase
DUAL DRIVE AVAIL.

SYSTEM INCLUDES:
- 512K
- CGA Card
- 360K DOUBLE SIDED Drive
- 8086 (8 MHZ)
- Mouse
- Parallel & Serial Port
- Joystick Port
- Tilt Mon. Stand
- XT Style Keyboard
- Quartz Clock

20 MEG w/cont. $259.95
30 MEG w/cont. $299.95

FREE SOFTWARE!
(500.00 Value)
DOS 3.2 ● GEM Desktop
GEM Paint ● GEM Doodle
Basic 2

ALL IBM SOFTWARE 40% OFF!

AMIGA NEW RELEASES

Superbase Pro	$180	Video Titler	$Call	X-Cad	$360	4X4 Road Racing	$ 24
Indoor Sports	$ 30	Intro Cad	$ 42	Echilon	$ 30	Ferrari Formula 1	$ 30
The Director	$ 42	Pix Mate	$ 48	Animate 3D	$ 90	Hunt for Red October	$ 32
Page Setter Pro	$240	Gauntlet	$Call	Delux Photo Lab	$ 62	Return to Atlantis	$ 32
Word Perfect	$200	Comic Setter	$ 60	Auto Duel	$Call	California Games	$ 24

MOST SOFTWARE 40% OFF

Bard's Tale	$26.00
Bard's Tale II	26.00
Chessmaster 2000	26.00
World Tour Golf	20.00
Marble Madness	20.00
Pegasus	20.00
Murder Party	23.00
Scrabble	23.00
America's Cup	23.00
Artic Fox	26.00
All Classics	11.00
Amnesia	26.00
Bismark	23.00
Chuck Yeager	23.00
Tobruk	23.00
Paper Clip III	32.00
Outrageous Pages	32.00
Clue Books	$CALL
Dan Dare	14.00
Earth Orbit Station	20.00

MINDSCAPE

Defender of the Crown	$21.00
Bop and Wrestle	18.00
Super Star Hockey	21.00
High Roller	18.00
Indoor Sports	18.00
Infiltrator	18.00
Parallax	18.00
Uridium	18.00
Super Star Soccer	21.00

Fast Hackem	25.00
Kracker Jax	$$Save

ACCOLADE

Hard Ball	$17.00
Apollo	$18.00
Test Drive	$18.00
Ace of Aces	18.00
Comics	18.00
Mini-Putt	18.00
Fourth and Inches	18.00

Jeopardy	
Wheel of Fortune	$9.95
Family Feud	each

Berkeley Softworks

GEOS	$36.00
Fontpak 1	18.00
Desk Pack	21.00
Writer Work Shop	30.00
Geodex	24.00
GeoCalc/GeoFile	each 30.00
GeoCable	30.00
GEOS 128	42.00
Geopublish	42.00
Geoprogr[illegible]mer	$CALL
GEOspell	18.00
Triple Pack	$Call
Dictionary Disk	10.00

Abacus

GEOS Tricks and Tips	9.00
Abacus Books	$SAVE
GEOS In and Out (Disk)	9.00
Basic 128	36.00
Basic 64	24.00
Cadpak 128	36.00
Cadpak 64	24.00
Chartpak 128	24.00
Chartpak 64	24.00
Cobol 64	24.00
Cobol 128	36.00
Super C Compiler 64/128	36.00
Super Pascal	36.00

ACCESS

MACH-128	$30.00
Leaderboard	24.00
Echelon	27.00
World Class Leaderboard	24.00
10th Frame	24.00
Exec Tournament	12.00
Tournament 1	12.00
Triple Pak	12.00
Famous Course	12.00
Famous Courses 2	12.00

ACTIVISION

Portal	$24.00
Titanic	18.00
Labrynth	21.00
Aliens	21.00
Last Ninja	21.00
Hacker II	21.00
Top Fuel Elim	$CALL
Game Maker	24.00
Music Studio	18.00
Maniac Mansion	$21.00
Air Ralley	$Call

SPRINGBOARD

Certificate Maker	$30.00
Newsroom	30.00
Clip Art 1	18.00
Clip Art 2	24.00

FIREBIRD

Knight Ork	$24.00
Golden Path	$CALL
Pawn	24.00
Talking Teacher	24.00
Guild of Thieves	24.00
Adv. Ocp Art Studio	$Call
Starglider	$Call
Elite	$Call
Sentry	$Call
Tracker	$Call

EPYX

Fast Load	$24.00
Rad Warrior	$CALL
Street Sports	
-Baseball/Basketball	each 24.00
World Karate Champ	15.00
Summer Games II	20.00
Super Cycle	24.00
World Games	24.00
Football	20.00
Multi-Plan	24.00
Winter Games	20.00
Sub Battle	24.00
California Games	24.00
Boulder Dash Construction	$CALL
Spy vs. Spy III	$CALL

Broderbund Software

Printshop	$25.00
Graphics Lib	15.00
Carmen Sandiego (World)	21.00
Karateka	18.00
Print shop comp	21.00
Origin Titles	$Call
Carmen/USA	24.00
Destroyer	24.00
Auto Duel	24.00

subLOGIC

Flight Sim II	$30.00
Scenery Disk	17.00
Jet	30.00
Football	24.00
Baseball	30.00
Thunder Chopper	$20.00
Up Periscope	18.00

TIMEWORKS

Data Mgr. 128	$36.00
Swiftcalc 128	36.00
Wordwriter 3	30.00
All business titles	36.00
Partner 64	36.00
Partner 128	42.00
Sylvia Porters	36.00
Desktop Publisher	$CALL

MicroProse

Gunship	$21.00
F-15	21.00
Project Stealth Fighter	24.00
Airborne Ranger	24.00
Silent Service	24.00
Pirates	24.00
Top Gunner	18.00

Accolade, Inc

Font Master II 64	$30.00
Font Master 128 W/Spell	42.00

SSI

Gemstone Healer	$18.00
Gettysburg	36.00
Kampfgruppe	36.00
Phantasie 2	24.00
Ring of Zelfin	24.00
Road War 2000	24.00
Shard of Spring	24.00
Wizard's Crown	24.00

MICROPROSE

Micro L. Baseball	$24.00
General Mgr	24.00
Stat Disk	15.00
86' Team Disk	12.00
Micro League Wrestling	$Call

Digital Solutions Inc.

Super Pack 128	45.00
Pocket Writer 2/Filer Planner	36.00
Super Pack 2 (128)	60.00
Pocket Writer 128/Filer/Planner	30.00
Pocket Writer 64/Filer/Planner	24.00

UNISON WORLD

Art Gallery	$16.00
Art Gallery 2	16.00
Print Master	21.00

PRACTICAL PERIPHERALS

Superbase 128	$60.00
Superbase 64	48.00
Superscript 128	48.00
Superscript 128	48.00
Visastar 64	54.00
Visawrite 128	54.00
Microlawyer	36.00

NEW RELEASES

Infiltrator II	$21.00
Clue Books	$CALL
Dungeon Runners	18.00
Instant Music	18.00
Legacy of Ancient	18.00
Patton vs. Rommel	18.00
Skate or Die	18.00
Tomahawk	18.00
Monopoly	26.00
Beyond Zork	$CALL
King of Chicago	30.00
NBA	$CALL
Paper Boy	18.00
Nord and Bert	21.00
Mousetrap	12.00
Business Card Maker	30.00
Xevious	18.00
Flexidraw	50.00
Desk Pack 128	$Call
Geocalc 128	$Call
Deofile 128	$Call
Car Sign Designer	21.00
Geowrite 128	42.00
Skarlten	21.00
Ultima V	$Call
Wizardry	$Call
Swift Tax	$Call
Outrageous Pages	$Call
Strike Fleet	$Call
Geoprogrammer	$Call
Final Cartridge	$Call
Top Fuel Challenge	$Call
Paper Clip III	$Call

Circle 207 on Reader Service card.

☑ Check THEIR Ad then ☑ CHECK OUR PRICE!

Circle 207 on Reader Service card.

AMIGA MAKES IT POSSIBLE . . .
MCS MAKES IT AFFORDABLE!

- 256K Ram $70
- Insider (1 Meg) . . . $300

- PRO DRIVE . . $180 (1010 compatible)
- 1010 Drive . . . $200

- 20 MEG $650
- 40 MEG $950

- 1680 Modem $120
- GENLOCK $200



AMIGA

500/2000 SPECIAL PROMO...

$CALL

- PRO GEN
- FRAME GRABBER

Special Introductory Price!

SPECIAL PRICING
- Bridge Card
- 2 Meg Ram
- Hard Drive Controller

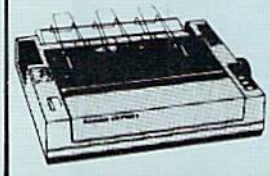
- 512K Ram $120
- 1 Meg $300
- 2 Meg $400

Magnavox 515 . . . . . $275
1084 . . . . . $275
Sony 1302 MultiScan . . . . . $Call

18 C.P.S. Letter Quality
I.B.M. Compatible Printer
$100

- MARAUDER II $24
- ARKANOID $30

Panasonic Industrial Company



Laser	$Call
1080i-II	$160*
1091I-II	$180*
1092i	$280*
1592i-II	$380*
1524i-II	$520*

*W/2 Ribbon Purchase

MODEMS

SUPRA
Hayes Compatible
External
2400 . . . $159.95*

KISS ENGINEERING
2400 . . . . $149.95
INTERNAL

Avatex

1200 Baud	$79.95*
1200 Int.	$99.95
1200 H.C.	$99.95*
2400 Baud	$179.95*

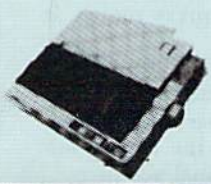
*W/Cable Purchase

HARDWARE

- 1764 RAM $119.95
- 1351 Mouse $34.95
- AB Switch $30
- ALPS Color Prtr $400
- Cannon Cartridges . . . $Call
- CASIO CZ101 . . . . . $250
- Digiview 2.0 . . . . . $129.95
- Digiview Camera . . . $199.95 w/16mm Lens
- Digiview Stand $55
- Disk Case(3½) $8
- Disk Head Clnr $8
- Educator 64 . . . . . $124.95
- Epyx Joystick $15
- Most Cables $15
- Mouse Pad $6
- Okimate 20 . . . . . $179.95 w/Interface
- Hard Cards . . . . . $Call
- Printer Drivers . . . . . $Call
- Roland Plotters . . . . . $Call
- S.C.S.I. Controllers . . . $Call
- Sonix Speakers $70

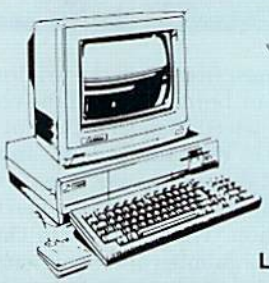
star micronics

NX1000 Rainbow
$Call



Laser	$Call
NX1000	$180*
NX15	280*
NB2410	380*
NR15	420*
Powertpe L.Q.	160*

*w/2 Ribbon Purchase



AMIGA 1000
REFURBISHED
$499.95
MONITOR OPTIONAL
Limited Quantities

FREE-TRIAL OFFER!

HIGH QUALITY DS/DD
DISKETTES
19¢ each
Lifetime Warranty
100% Certified W/Sleeves
Limit One (10) Pack Per Customer

SEIKOSHA



- 2 Year Warr.
*W/2 Ribbon Purch

SL80AI	$280.00*
SP1000VC	$149.00*
SP1200AI	$154.00*
MP1300 (300 CPS)	$275.00*
LASER	$Call

DISKS

3½DS/DD Generic	$1.30
3½DS/DD	$1.80

SONY-FUJI-MAXWELL

5¼DS/DD (100 Lot) Generic	35¢
3½DS/DD (50 Lot)	60¢

BASF ● NASHUA

ORDERS ONLY **800-433-7756**
IN MICH. 313-427-7713 M-F
FAX: 313-427-7766 10-6
CUSTOMER SERVICE **313-427-0267**
Monday thru Friday — 10:00 A.M. to 8:00 P.M.
Saturday — 10:00 A.M. to 6:00 P.M. (E.S.T.)

SCHOOL P.O.'s ACCEPTED

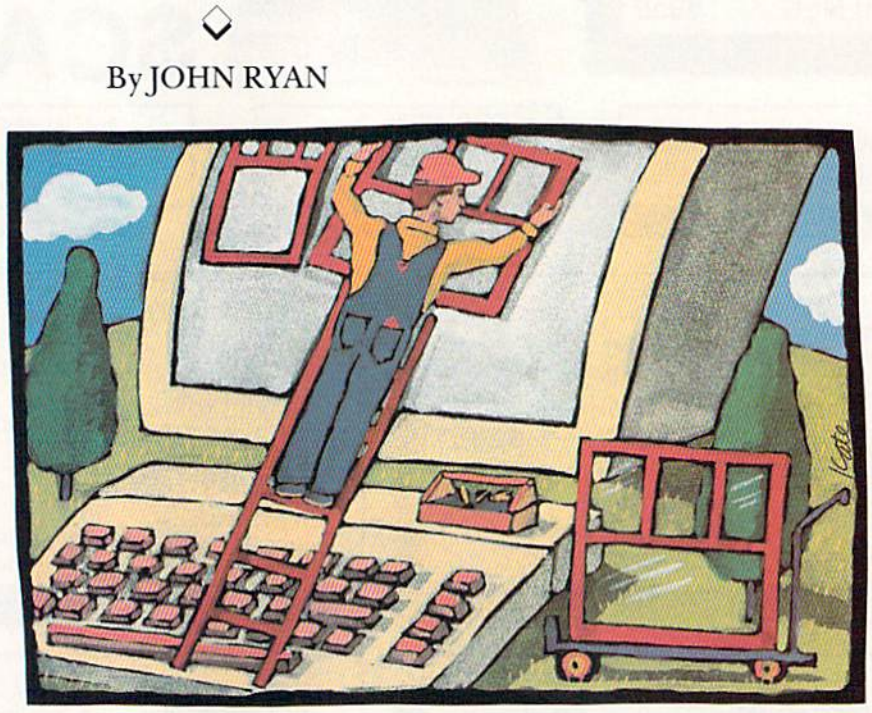
M.C.S.
MICROCOMPUTER SERVICES

CALL FOR TERMS
DEALER INQUIREES INVITED

No Surcharge for MC/VISA/DISCOVER
Sorry no walk in traffic
All returns must have RA#. Merchandise found defective will be repaired or replaced. We do not offer refunds for defective products or for products that do not perform satisfactorily. We make no guarantees for product performance. Any money back guarantee must be handled directly with the manufacturer. Call for shipping & handling info. Prices subject to change without notice.
12864 FARMINGTON ROAD, LIVONIA, MI 48150
We cannot guarantee compatibility.

Window Construction Set

You can add the wonder of windows as you create C-64 programs.



By JOHN RYAN

Pop-up windows and menus are often used in a program to spice up what would otherwise be drab displays. Designing windows, however, can be a tedious and time-consuming task—even for the advanced programmer. My program, Window Construction Set (WCS), makes the job easy and offers several advantages over other window utilities currently available.

First and foremost, it requires no programming. All you need to do to create a colorful, three-dimensional pop-up window is choose the window's style and color, type in your text and specify the location of the window on the screen. The computer does all the rest.

You can use WCS to creatively display everything from menus to program instructions, and blank windows are great for user input. Also, by placing several windows in the same screen position, you can rapidly "flip" through a lot of information without having windows scattered all over the screen.

WCS is a full-featured, menu-driven editor that's written entirely in machine language for fast and efficient operation. You can build several files, saving up to nine windows in each file, so you'll have a wide choice to use in your own programs.

Preliminaries

Type in and save Listing 1 under any filename and run it. It takes a few moments for the Data statements to slip into memory; then the program automatically saves a small machine language file, named WCS, to disk. This is the file you'll need to load, using LOAD "WCS",8,1:NEW, to place the editor in memory. Then you can access it by typing SYS 49152, which brings up the main menu.

If you're creating a new window file, you must first select the window type—plain or bordered—and the color. The latter selection determines not only the color of the window body and border, but of the text as well. Press T to toggle the window type and C to make a color selection. Then press N to choose the window number (1–9) you want to edit.

The Editor

The edit option is for creating new windows only. I'll describe later how to revise existing windows.

Press E to edit the window you selected. This brings to the screen a blank text area, measuring 16 columns across by 10 rows down and sporting the characteristics you assigned. This area contains a flashing cursor, and, as you'll see after you enter some text, it's surrounded by a one-row/one-column frame, for a total window area of 18 columns by 12 rows.

Type your text, positioned with the cursor keys, within the window. The return key is reserved for processing the window, so don't press return at this time.

The editor won't let you type past the window borders, and persistently trying to do so may corrupt part of a border. However, don't worry, the corruption won't show up in the final product.

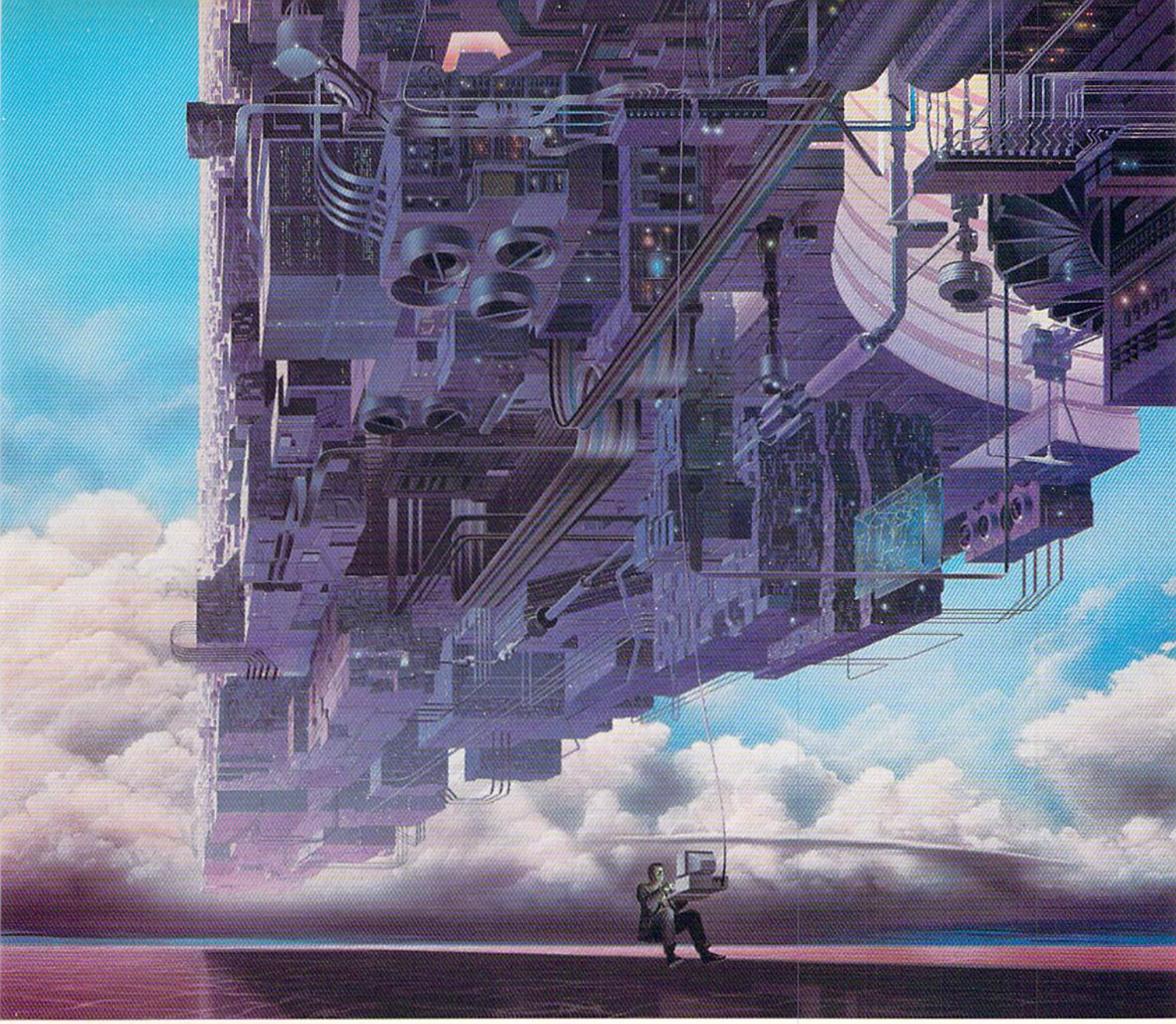
The insert/delete key is disabled in the editor, as is the shift/return combination. You should also avoid pressing clear/home, or you'll erase the editing screen and have to press return to start again.

Pressing return processes your new window and takes you back to the main menu. There you can repeat the editing process to create as many windows as you need.

Positioning Your Creations

Don't save your file yet; you still have to fix the position of your windows on ►

ILLUSTRATED BY KATE BRENNAN HALL



CONNECT YOUR COMPUTER TO A HIGHER INTELLIGENCE.

CompuServe's reference databases make you more productive, competitive, and better informed.

Remember the last time you tried to get your hands on hard-to-find facts? In a magazine article you read a year ago. In a news report you never saw. Or in a table of data you didn't know existed.

Imagine those facts just a few keystrokes away on your personal computer. Through CompuServe.

Your personal research center.

Save hours of research by going straight to the reference information you need in seconds.

Access thousands of sources of information in the areas of business, finance, medicine, education, demographics, science, law, news, popular entertainment, and sports.

What you know can help you.

Research an industry or company through articles, financial statements, and other sources. Analyze an investment. Assist in a job search. Follow market competition. Investigate a business opportunity.

Check characteristics such as age, income, and occupation in any U.S. community. For a geography report, a business plan, or a family move.

All you need to access CompuServe's unlimited world of information is a modem and just about any personal computer. Visit your computer dealer today. To order direct, or for more information, call or write:

CompuServe®

Information Services, P.O. Box 20212
5000 Arlington Centre Blvd., Columbus, OH 43220
800-848-8199
In Ohio and Canada, call 614 457-0802
An H&R Block Company

Circle 64 on Reader Service card.

the screen so the computer will know where to place them in your own programs. Press N to select a window and P for positioning, then use the cursor keys to place the small, black cursor where the upper-left corner of the window should be. The editor restricts cursor movement to an area in the upper-left region of the screen that's determined by the 18-column by 12-row size of the window and the fact that the cursor represents the upper-left corner of the window. While you're placing the cursor, the main menu remains on-screen as a location reference.

When you've found a location that looks good, press the return key to fix it and make the window appear. If the placement doesn't look right, press P again and move the cursor to another spot (the editor remembers only the most recent). When that window is all set, position the rest of your windows by cycling between the N and P keys; then save the window file and press the Commodore key to erase the screen and return to the main menu.

Saving and Revising

Press the F key to begin the save sequence; then, at the prompt, enter a filename of 16 characters or less. The Save and Load commands default to device 8, but the device number can be changed before you enter the editor with a POKE 51539, <device number>.

The revise option works exactly like the edit option, except it's for use on windows you've already created. Remember, pressing E completely erases any work you've done on a window, while R preserves your efforts. To load a WCS file so you can work on windows you've saved, press the L key and respond to the prompt.

When your windows are all set, but before including them in your own program, you should test them out with the small demo program in Listing 2. Load the demo, enter a WCS filename at the prompt, then press the space bar to cycle through the windows. If they don't look the way you envisioned, then reaccess the editor, load the file, revise and replace the offending windows, resave the file and test it again. It's that easy.

Using Windows

To include the windows in a program of your own, insert the following lines at the beginning of your Basic listing:

```
10 IF FLAG = 1 THEN GOTO 40
20 IF FLAG = 2 THEN 50
30 FLAG = 1:LOAD "WCS",8,1 :REM LOAD
   IN MAIN PROGRAM
40 FLAG = 2:LOAD "<filename>",8,1 :REM
   LOAD IN YOUR FILE
50 REM YOUR PROGRAM GOES HERE
```

If you need more than nine windows, just add a line between lines 20 and 30 with the entry IF FLAG = 3 THEN GOTO <line number>; then follow the load format in line 30.

To call a window to the screen, use

```
POKE 820, <window number (1-9)>: SYS
49155
```

Whenever a window is called, WCS preserves the current screen in memory, to be restored with

```
POKE 820,0: SYS 49155
```

when you're ready to move on. You can study the demo program to see how to use this statement.

Note that you mustn't press the run-stop/restore combination before the screen has been restored, because it would confuse the pointer that keeps track of screen restoration. If for some reason your program needs to move on without restoring the screen, use the statement

```
POKE 821,0
```

This initializes the pointer, so the next time a window is called, the program will still know which screen should be restored.

Programming Notes

Machine language programmers must resort to the Kernal load routines to access WCS files. WCS occupies memory from $C000 to $C954. It also uses storage memory from $CA00 to $CFD2 and Basic ROM memory from $B000 to $B800 for screen and color RAM storage. (The window storage area is initialized each time you access the editor via SYS 49152.) Basic ROM is switched out periodically, but this shouldn't present a problem to machine language programs as long as WCS is used as a subroutine. If you plan to incorporate WCS into any development programs, be aware that the main editor steals the IRQ vector at $0314.

Play with Window Construction Set and see what it can do for you. It's easy, it's fun, and it takes the headaches out of creating windows. R

John Ryan is an air traffic control instructor. An advanced machine language programmer, he is experienced on a number of computer systems, including, of course, the Commodore.

Listing 1. Window Construction Set program.

```
10 REM 64 WINDOW CONSTRUCTION S
   ET - JOHN RYAN        :REM*236
20 PRINT CHR$(147):PRINT:PRINTT
   AB(12)"PLEASE WAIT..."
                         :REM*48
30 I=49152:X=0           :REM*220
40 READ A:IF A=256 THEN 60
                         :REM*153
50 POKE I,A:I=I+1:X=X+A:GOTO 40
                         :REM*23
60 IF X<>287454 THEN PRINT:PRIN
   TTAB(8)"ERROR IN DATA STATME
   NTS":END              :REM*124
70 PRINT:PRINTTAB(13)"SAVING WC
   S":PRINT              :REM*220
80 SYS 57812"WCS",8,1:POKE 193,
   0:POKE 194,192        :REM*1
90 POKE 174,84:POKE 175,201:SYS
    62957                :REM*98
100 PRINT"SAVE COMPLETE -- CHEC
   K DRIVE FOR ERRORS.":REM*52
110 DATA 76,110,195,173,134,2,1
   41,55,3,173,53,3,208,6,238,
   53,3,32,67,192,173 :REM*198
120 DATA 52,3,208,4,32,123,192,
   96,141,210,199,170,202,189,
   197,200,170,189    :REM*111
130 DATA 178,207,133,251,133,25
   3,232,189,178,207,133,252,2
   32,189,178,207     :REM*252
140 DATA 133,254,32,99,196,173,
   55,3,141,134,2,96,162,255,1
   89,0,4,157,0,176   :REM*168
150 DATA 189,0,5,157,0,177,189,
   0,6,157,0,178,189,0,7,157,0
   ,179,189,0,216     :REM*70
160 DATA 157,0,180,189,0,217,15
   7,0,181,189,0,218,157,0,182
   ,189,0,219,157,0   :REM*83
170 DATA 183,202,224,255,208,20
   3,96,32,26,198,162,255,189,
   0,176,157,0,4      :REM*94
180 DATA 189,0,177,157,0,5,189,
   0,178,157,0,6,189,0,179,157
   ,0,7,189,0,180     :REM*177
190 DATA 157,0,216,189,0,181,15
   7,0,217,189,0,182,157,0,218
   ,189,0,183,157,0   :REM*186
200 DATA 219,202,224,255,208,20
   3,32,33,198,169,0,141,53,3,
   96,160,0,32,71     :REM*219
210 DATA 193,169,67,160,201,32,
   30,171,160,15,32,71,193,160
   ,0,32,207,255      :REM*181
220 DATA 153,228,200,200,201,13
   ,208,245,136,140,226,200,96
   ,169,0,32,144      :REM*121
230 DATA 255,238,33,208,169,0,1
   74,83,201,172,227,200,32,18
   6,255,173,226      :REM*163 ►
```



Bring your Commodore® to life with a FREE modem and software!

Now you can plug your Commodore into an exclusive network that's useful, easy, fun and inexpensive. Join Q-Link now and we'll give you a free modem and software to get you started.

Enjoy **unlimited access** to a wide range of Q-Link "Basic" services for a set fee of only $9.95 a month. Get help from Commodore experts — use the Hotline to ask Commodore questions, or search the database of information from Commodore to answer your questions on the spot. Access Grolier's Academic American Encyclopedia™, the latest news and entertainment updates.

Special Q-Link "Plus" services let you expand your software library with **more than 10,000 public domain programs** — games, graphics, business and educational software and much more! Also, you can preview new copyrighted software before you buy. Get answers to your software questions from Berkeley Softworks, Electronic Arts and Activision, to name a few. Participate in full-color, multi-player games like Casino (includes Blackjack, Poker, Bingo and the Slots), Chess and Bridge. "Plus" services cost only an extra 8 cents per minute — **and your first hour of "Plus" service usage each month is free!**

Offer valid in the continental U.S. and Canada for new members only. Expires 6/30/88. Prices subject to change without notice. There is a communications surcharge to Q-Link from Canada: 6 cents (U.S.) per minute from Montreal, Vancouver, Ottawa, Toronto, Quebec, Windsor, Kitchener and Calgary using the Tymnet network, and 15 cents (U.S.) per minute from over 85 other locations using the DATAPAC network. Quantum reserves the right to substitute a modem comparable to the Commodore 1660.

Commodore is a registered trademark of Commodore Electronics, Ltd. Q-Link is a servicemark of Quantum Computer Services, Inc. Grolier's Academic American Encyclopedia is a trademark of Grolier Electronic Publishing.

With Q-Link, you can sharpen your computer skills... connect with people... discover new ways to get smart... save money every day... plus have a lot of fun!

No-risk guarantee. Try Q-Link without risk. If, at any time, for any reason, you are not completely satisfied, you may cancel your membership.

Order your Q-Link software and modem today by mailing this coupon to Q-Link, 8619 Westwood Center Drive, Vienna, VA 22180 or for faster service call toll-free: **1-800-782-2278 Ext. 1506**

Q-LINK RESERVATION FORM

Choose one:

☐ **I need a modem.** Start my Q-Link membership by charging me now for my first 4 months at $39.80, and send me the FREE Q-Link software and a FREE Commodore 300 baud auto-dial modem (model 1660—retail value $69.95).

☐ **I already have a modem.** Send me my FREE Q-Link software and start my Q-Link membership by charging me now for my first month of membership at $9.95.

Full name _____

Address _____
(No P.O. Boxes)

City _____ State _____ Zip _____

Home phone _____

Choose your method of payment:

☐ Please charge my credit card. ☐ Check enclosed.
☐ Master Card ☐ Visa

Acct# _____ Exp. _____

Signature _____

Call toll-free 1-800-782-2278 Ext. 1506 or mail this coupon to:

Q-Link, 8619 Westwood Center Drive, Vienna, VA 22180

Q-link℠

The Commodore® Connection.

Circle 183 on Reader Service card.

```
24Ø DATA 2ØØ,162,228,16Ø,2ØØ,32
    ,189,255,96,169,Ø,133,155,1
    69,2Ø2,133,156      :REM*213
25Ø DATA 162,21Ø,16Ø,2Ø7,169,15
    5,32,216,255,2Ø6,33,2Ø8,165
    ,144,2Ø8,13,16Ø     :REM*23
26Ø DATA Ø,32,71,193,169,26,16Ø
    ,2Ø1,76,3Ø,171,96,16Ø,2,32,
    71,193,169,244      :REM*189
27Ø DATA 16Ø,2ØØ,32,3Ø,171,56,9
    6,169,Ø,162,Ø,16Ø,2Ø2,32,21
    3,255,8,2Ø6,33      :REM*54
28Ø DATA 2Ø8,4Ø,176,2,24,96,76,
    19,193,24,162,Ø,32,24Ø,255,
    96,189,51,199       :REM*2Ø4
29Ø DATA 133,251,133,253,232,18
    9,51,199,133,252,232,189,51
    ,199,133,254,96     :REM*132
3ØØ DATA 142,173,2,16Ø,Ø,14Ø,17
    4,2,56,165,251,237,173,2,13
    3,251,165,252       :REM*31
31Ø DATA 237,174,2,133,252,56,1
    65,253,237,173,2,133,253,16
    5,254,237,174,2     :REM*62
32Ø DATA 133,254,96,173,21Ø,199
    ,2Ø1,9,2Ø8,8,169,1,141,21Ø,
    199,76,155,193      :REM*27
33Ø DATA 238,21Ø,199,76,234,194
    ,142,173,2,16Ø,Ø,14Ø,174,2,
    24,165,251,1Ø9      :REM*143
34Ø DATA 173,2,133,251,165,252,
    1Ø9,174,2,133,252,24,165,25
    3,1Ø9,173,2,133     :REM*217
35Ø DATA 253,165,254,1Ø9,174,2,
    133,254,96,162,Ø,16Ø,Ø,173,
    2Ø7,2ØØ,2Ø8,6       :REM*84
36Ø DATA 189,15,199,76,214,193,
    169,16Ø,145,251,173,172,2,1
    45,253,232,2ØØ      :REM*1Ø1
37Ø DATA 192,18,2Ø8,23Ø,162,4Ø,
    16Ø,Ø,32,158,193,162,1Ø,16Ø
    ,Ø,173,2Ø7,2ØØ      :REM*157
38Ø DATA 2Ø8,5,169,1Ø1,76,25Ø,1
    93,169,16Ø,145,251,173,172,
    2,145,253,16Ø,17    :REM*61
39Ø DATA 173,2Ø7,2ØØ,2Ø8,5,169,
    1Ø3,76,15,194,169,16Ø,145,2
    51,173,172,2,145    :REM*198
4ØØ DATA 253,32,166,193,2Ø2,2Ø8
    ,2Ø8,16Ø,Ø,173,2Ø7,2ØØ,2Ø8,
    6,185,33,199,76     :REM*163
41Ø DATA 43,194,169,16Ø,145,251
    ,173,172,2,145,253,2ØØ,192,
    18,2Ø8,231,96       :REM*59
42Ø DATA 162,4Ø,142,173,2,16Ø,Ø
    ,14Ø,174,2,162,11,177,251,9
    ,128,145,251,169    :REM*8Ø
43Ø DATA Ø,145,253,32,166,193,2
    Ø2,2Ø8,24Ø,177,251,9,128,14
    5,251,169,Ø,145     :REM*83
44Ø DATA 253,2ØØ,192,18,2Ø8,241
    ,96,169,4Ø,141,173,2,169,Ø,
    141,174,2,162,1Ø    :REM*63
45Ø DATA 16Ø,Ø,173,2Ø7,2ØØ,2Ø8,
    5,169,32,76,126,194,169,16Ø
    ,145,251,173,172    :REM*178
46Ø DATA 2,145,253,2ØØ,192,16,2
    Ø8,232,32,166,193,2Ø2,2Ø8,2
    24,96,174,176,2     :REM*38
47Ø DATA 172,177,2,24,32,24Ø,25
    5,96,169,7,141,134,2,162,1Ø
    ,142,175,2,169,9    :REM*7Ø
48Ø DATA 141,176,2,169,Ø,141,17
    7,2,32,145,194,16Ø,Ø,185,63
    ,199,2Ø1,64,24Ø     :REM*14Ø
49Ø DATA 7,32,21Ø,255,2ØØ,76,18
    1,194,152,72,238,176,2,32,1
    45,194,1Ø4,168      :REM*51
5ØØ DATA 2ØØ,2Ø6,175,2,2Ø8,226,
    96,162,Ø,32,78,193,32,197,1
    93,162,3,32,78      :REM*3Ø
51Ø DATA 193,32,56,194,162,6,32
    ,78,193,96,169,7,141,134,2,
    16Ø,14,162,5,24     :REM*63
52Ø DATA 32,24Ø,255,169,2ØØ,16Ø
    ,199,32,3Ø,171,169,Ø,174,21
    Ø,199,32,2Ø5,189    :REM*191
53Ø DATA 96,169,7,141,134,2,162
    ,21,16Ø,9,24,32,24Ø,255,169
    ,211,16Ø,199,76     :REM*128
54Ø DATA 3Ø,171,162,1,142,176,2
    ,2Ø2,142,177,2,32,145,194,1
    69,2,16Ø,2ØØ,32     :REM*129
55Ø DATA 3Ø,171,173,2Ø7,2ØØ,24Ø
    ,1Ø,169,244,16Ø,199,32,3Ø,1
    71,76,68,195,169    :REM*1Ø4
56Ø DATA 251,16Ø,199,32,3Ø,171,
    162,2,142,176,2,32,145,194,
    169,15,16Ø,2ØØ      :REM*176
57Ø DATA 32,3Ø,171,162,Ø,189,29
    ,2ØØ,2Ø5,172,2,24Ø,4,232,76
    ,85,195,232,189     :REM*124
58Ø DATA 29,2ØØ,48,6,32,21Ø,255
    ,76,97,195,96,169,2,141,32,
    2Ø8,141,33,2Ø8      :REM*154
59Ø DATA 32,226,198,162,1,142,1
    72,2,2Ø2,142,2Ø7,2ØØ,169,12
    8,141,138,2,169     :REM*1Ø1
6ØØ DATA 7,141,216,2ØØ,169,18,1
    41,217,2ØØ,169,11,141,218,2
    ØØ,169,28,141       :REM*2Ø5
61Ø DATA 219,2ØØ,169,142,32,21Ø
    ,255,169,147,32,21Ø,255,32,
    156,194,32,234      :REM*174
62Ø DATA 194,32,27,195,173,141,
    2,2Ø1,2,2Ø8,7,173,142,2,2Ø1
    ,2,2Ø8,189,32       :REM*1Ø7
63Ø DATA 228,255,2Ø1,69,2Ø8,6,3
    2,157,196,76,121,195,2Ø1,67
    ,2Ø8,3,76,25Ø       :REM*78
64Ø DATA 196,2Ø1,84,2Ø8,3,76,23
    6,196,2Ø1,82,2Ø8,6,32,143,1
    96,76,121,195       :REM*1Ø
65Ø DATA 2Ø1,83,2Ø8,3,76,131,19
    6,2Ø1,8Ø,2Ø8,6,32,63,196,76
    ,174,195,2Ø1,78     :REM*14
66Ø DATA 2Ø8,6,32,137,193,76,17
    4,195,2Ø1,7Ø,2Ø8,17,32,19Ø,
    192,169,255,141     :REM*185
67Ø DATA 227,2ØØ,32,225,192,32,
    255,192,76,174,195,2Ø1,76,2
    Ø8,19,32,19Ø,192    :REM*195
68Ø DATA 169,Ø,141,227,2ØØ,32,2
    25,192,32,5Ø,193,176,137,76
    ,121,195,2Ø1,133    :REM*133
69Ø DATA 2Ø8,13Ø,169,147,32,21Ø
    ,255,169,6,141,33,2Ø8,169,1
    4,141,32,2Ø8,141    :REM*2Ø3
7ØØ DATA 134,2,96,169,Ø,141,223
    ,2ØØ,141,224,2ØØ,32,18,197,
    174,21Ø,199,2Ø2     :REM*Ø
71Ø DATA 189,197,2ØØ,17Ø,165,25
    1,157,178,2Ø7,232,165,252,1
    57,178,2Ø7,232      :REM*2Ø
72Ø DATA 165,254,157,178,2Ø7,23
    8,225,2ØØ,32,14Ø,198,32,197
    ,193,32,2Ø8,196     :REM*7
73Ø DATA 162,41,32,158,193,32,1
    4Ø,198,32,2Ø8,196,162,39,32
    ,158,193,32,56      :REM*138
74Ø DATA 194,96,238,32,2Ø8,173,
    32,2Ø8,141,33,2Ø8,76,174,19
    5,162,6,32,78       :REM*217
75Ø DATA 193,32,14Ø,198,32,212,
    194,76,163,196,32,212,194,3
    2,1ØØ,194,32,7      :REM*192
76Ø DATA 195,162,8       :REM*42
77Ø DATA 16Ø,12,24,32,24Ø,255,1
    73,172,2,141,134,2,32,165,1
    97,32,2Ø7,255       :REM*119
78Ø DATA 12Ø,173,178,2,141,143,
    2,173,179,2,141,144,2,88,16
    9,Ø,133,199,32      :REM*69
79Ø DATA 71,198,96,174,21Ø,199,
    2Ø2,189,197,2ØØ,17Ø,189,178
    ,2Ø7,133,251,133    :REM*97
8ØØ DATA 253,232,189,178,2Ø7,13
    3,252,232,189,178,2Ø7,133,2
    54,96,173,2Ø7       :REM*93
81Ø DATA 2ØØ,73,128,141,2Ø7,2ØØ
    ,32,27,195,76,174,195,173,1
    72,2,2Ø1,15,176     :REM*133
82Ø DATA 9,238,172,2,32,68,195,
    76,174,195,169,Ø,141,172,2,
    76,4,197,162,9      :REM*26
83Ø DATA 32,78,193,16Ø,Ø,177,25
    1,141,22Ø,2ØØ,177,253,141,2
    22,2ØØ,169,16Ø      :REM*175
84Ø DATA 145,251,169,Ø,145,253,
    32,228,255,24Ø,251,2Ø1,29,2
    4Ø,3Ø,2Ø1,157       :REM*6Ø
85Ø DATA 24Ø,5Ø,2Ø1,17,24Ø,65,2
    Ø1,145,24Ø,82,2Ø1,13,2Ø8,23
    1,96,16Ø,Ø,173      :REM*86
86Ø DATA 22Ø,2ØØ,145,251,173,22
    2,2ØØ,145,253,96,173,223,2Ø
    Ø,2Ø1,2Ø,24Ø,14     :REM*127
87Ø DATA 32,69,197,162,1,32,158
    ,193,238,223,2ØØ,76,23,197,
    76,43,197,173       :REM*193
88Ø DATA 223,2ØØ,24Ø,248,2Ø6,22
    3,2ØØ,32,69,197,162,1,32,98
    ,193,76,23,197      :REM*136
89Ø DATA 173,224,2ØØ,2Ø1,11,24Ø
    ,227,32,69,197,238,224,2ØØ,
    162,4Ø,32,158       :REM*111
9ØØ DATA 193,76,23,197,173,224,
    2ØØ,24Ø,2Ø8,32,69,197,2Ø6,2
    24,2ØØ,162,4Ø,32    :REM*156
91Ø DATA 98,193,76,23,197,12Ø,1
    73,143,2,141,178,2,173,144,
    2,141,179,2,169     :REM*2Ø2
92Ø DATA 19Ø,141,143,2,169,197,
    141,144,2,88,96,72,152,72,1
    38,72,8,165,2Ø3     :REM*5Ø
93Ø DATA 24Ø,11,2Ø1,1,2Ø8,15,17
    3,141,2,2Ø1,1,2Ø8,8,169,Ø,1 ►
```

The Great Communicator

The direct-connect® Hayes and Commodore® 1670 compatible 1200 Baud modem for ONLY $89.95

Now that you're able to do all those stand alone applications with your Commodore, like word processing, spread sheet analysis, and many others, you are probably thinking "It would sure be nice if I could expand the amount of data I have access to." You are quite right, everything from Electronic Mail (E-mail) to stock quotes and huge databases of every imaginable type is now on line to the small computer owner. You can even send and receive messages anywhere in the world. All you need is a telephone and a modem which allows your computer to communicate with others through these many services.

The next question is: "Which modem is best for me?" Let us first say that almost all modems (and services) are set up to communicate in one of three speeds; 300, 1200 and 2400 Baud. If you look around you will find that there is a flood of 300 baud modems on the market and sometimes at very low prices. The reason is simple, they are being dumped because most computer users prefer 1200 Baud. (1200 Baud is about 4 times as fast which means you spend about ¼ the time and money getting the data you want and more time enjoying it.)



You may also be wondering about getting a 2400 Baud modem. 2400's are great (and quite expensive), only if you have a dedicated, data-grade phone line. Here's why. The regular phone system doesn't have the signal clarity and bandwidth to support more than about 1200 baud and as a result, 2400 Baud modems will usually run at either 1200 or, on a real bad line, 300 Baud. They adapt to the worst-case line conditions and will slow transmission accordingly. Why buy a 2400 Baud modem for a lot more money when it's going to transmit at 1200 Baud most of the time anyway? (Kind of like buying a sports car then always running at lower speed).

You will also notice a few very cheap 1200s on the market at "too good to be true prices". They are. The reason is that they are either not truly Hayes and/or Commodore 1670 compatible therefore not usable in all situations and with all services. The Aprotek Minimodem-C™ is both Hayes and Commodore 1670 compatible and 1200 baud. Why not get a modem that will satisfy your present AND future needs by going directly to an inexpensive Aprotek Minimodem-C™ especially when we have it on sale?

What do you get for $89.95? Everything! You don't need to worry about cables, compatibility or anything else! We don't just sell hardware, we sell solutions. The Aprotek Minimodem-C™ plugs directly into your Commodore C-64, C-64C or C-128 USER port. It is unique in that it has two separate (switchable) emulation modes (Hayes and Commodore 1670) to make it compatible with ALL available software. The Aprotek Minimodem-C™ is a full feature, 1200 Baud modem with Auto Answer, Auto Dial, Touch-Tone or rotary dialing, has the full complement of status indicators on the top panel and has a built in speaker with volume control. Just plug it into your computer and standard phone jack with the supplied cable. Minimodem™ is supplied with the very comprehensive terminal program "Multiterm" which allows you to do everything with your modem. Also included is a free trial offer subscription to Compuserve, a very useful user database with local access numbers and about every feature imaginable.

Do you have more than one computer or do you plan to get another computer? You can "have your cake and eat it too." Simply order our Universal RS-232 Interface (#5232) or the new Com-Modem™ adapter (#5100) along with the standard Aprotek Minimodem-H™ which you can use with any computer that has a RS-232 serial port as well as your Commodore. The Universal RS-232 interface can also be used to connect your Commodore to any other RS-232 device. Aprotek Minimodem-C™ is tiny. Only 4¾" long, 2¾" wide and ¾" high. The smallest yet best featured modem on the market. Order yours today!

NO RISK POLICY
Try any Aprotek product for two weeks. If you are not satisfied, send it back for a prompt refund.

Now for the best part, the

MINIMODEM-C™ (for Commodore)
order #6212 ..... $ 89.95

MINIMODEM-H™ (for RS-232 serial with DB-25)
order #6214 ..... $ 99.95

Aprotek USR-232™ (Commodore-to-Universal-RS-232)
Interface order #5232 ..... $ 39.95

COM-MODEM™ Adapter
order #5100 ..... $ 18.95

Modem shipping—Cont. US $6.00, UPS Blue, CAN, AK, HI, APO $10.00
USR-232 & adapter shipping—Cont. US $3.00, UPS Blue, CAN, AK, HI, APO $6.00

ORDER INFORMATION California residents add 6% tax. All prices are cash prices—VISA and MC add 3% to total. We ship the next business day on money orders, cashier's checks, and charge cards. A 14-day clearing period is required for checks. Prices subject to change—CALL. Dealer inquiries invited.

For information and in Calif. call **805/987-2454**
TO ORDER CALL TOLL FREE
1 (800) 962-5800 - USA - (7-6 PST)

Or send order to:

APROTEK DEPT. RN
1071-A Avenida Acaso, Camarillo, CA 93010

Circle 79 on Reader Service card.

```
    33,198,169,64        :REM*53
94Ø DATA 133,2Ø3,169,Ø,133,199,
    173,2Ø7,2ØØ,24Ø,4,169,1,133
    ,199,56,32,24Ø       :REM*191
95Ø DATA 255,236,216,2ØØ,2Ø8,14
    ,232,24,32,24Ø,255,4Ø,1Ø4,1
    7Ø,1Ø4,168,1Ø4       :REM*83
96Ø DATA 1Ø8,178,2,236,217,2ØØ,
    2Ø8,4,2Ø2,76,242,197,2Ø4,21
    8,2ØØ,2Ø8,4,2ØØ      :REM*2Ø
97Ø DATA 76,242,197,2Ø4,219,2ØØ
    ,2Ø8,224,136,76,242,197,165
    ,1,41,254,133,1      :REM*87
98Ø DATA 96,165,1,9,1,133,1,96,
    174,21Ø,199,169,Ø,133,247,1
    69,2Ø2,133,248       :REM*244
99Ø DATA 2Ø2,24Ø,16,24,165,247,
    1Ø5,162,133,247,165,248,1Ø5
    ,Ø,133,248,2Ø2       :REM*229
1ØØØ DATA 2Ø8,24Ø,96,32,4Ø,198,
    16Ø,Ø,173,172,2,145,247,2Ø
    Ø,173,2Ø7,2ØØ,145    :REM*4
1Ø1Ø DATA 247,2ØØ,14Ø,22Ø,2ØØ,1
    62,6,32,78,193,169,4Ø,141,
    173,2,169,Ø,141      :REM*24Ø
1Ø2Ø DATA 174,2,162,1Ø,16Ø,Ø,17
    7,251,14Ø,221,2ØØ,172,22Ø,
    2ØØ,145,247,238      :REM*188
1Ø3Ø DATA 22Ø,2ØØ,238,221,2ØØ,1
    72,221,2ØØ,192,16,2Ø8,233,
    32,166,193,2Ø2       :REM*112
1Ø4Ø DATA 2Ø8,225,96,32,4Ø,198,
    16Ø,Ø,177,247,141,172,2,14
    1,134,2,2ØØ,177      :REM*136
1Ø5Ø DATA 247,141,2Ø7,2ØØ,173,2
    25,2ØØ,24Ø,4,2Ø6,225,2ØØ,9
    6,2ØØ,14Ø,22Ø        :REM*218
1Ø6Ø DATA 2ØØ,169,4Ø,141,173,2,
    169,Ø,141,174,2,141,221,2Ø
    Ø,162,1Ø,172,22Ø     :REM*215
1Ø7Ø DATA 2ØØ,177,247,2ØØ,14Ø,2
    2Ø,2ØØ,172,221,2ØØ,145,251
    ,173,172,2,145       :REM*227
1Ø8Ø DATA 253,2ØØ,14Ø,221,2ØØ,1
    92,16,2Ø8,229,16Ø,Ø,14Ø,22
    1,2ØØ,32,166,193     :REM*215
1Ø9Ø DATA 2Ø2,2Ø8,218,96,169,Ø,
    133,165,169,2Ø2,133,166,16
    9,21Ø,133,167        :REM*88
11ØØ DATA 169,2Ø7,133,168,169,3
    2,16Ø,Ø,166,166,228,168,14
    4,8,2Ø8,16,166       :REM*78
111Ø DATA 165,228,167,176,1Ø,14
    5,165,23Ø,165,2Ø8,236,23Ø,
    166,2Ø8,232,96       :REM*199
112Ø DATA 79,119,119,119,119,11
    9,119,119,119,119,119,119,
    119,119,119,119      :REM*51
113Ø DATA 119,8Ø,76,111,111,111
    ,111,111,111,111,111,111,1
    11,111,111,111       :REM*1Ø2
114Ø DATA 111,111,111,122,35,5,
    217,74,5,217,76,5,217,41,4
    ,216,4Ø,69,41,68     :REM*39
115Ø DATA 73,84,32,78,69,87,32,
    87,73,78,68,79,87,64,4Ø,67
    ,41,79,76,79,82      :REM*7
116Ø DATA 64,4Ø,84,41,89,8Ø,69,
    64,4Ø,83,41,67,82,69,69,78
    ,32,67,79,76,79      :REM*37
117Ø DATA 82,64,4Ø,8Ø,41,76,65,
    67,69,32,87,73,78,68,79,87
    ,64,4Ø,78,41,85      :REM*34
118Ø DATA 77,66,69,82,64,4Ø,82,
    41,69,86,73,83,69,47,82,69
    ,86,73,69,87,32      :REM*29
119Ø DATA 87,73,78,68,79,87,64,
    4Ø,7Ø,41,73,76,69,32,83,65
    ,86,69,64,4Ø,76      :REM*97
12ØØ DATA 41,79,65,68,32,7Ø,73,
    76,69,64,4Ø,7Ø,49,41,69,88
    ,73,84,32,84,79      :REM*46
121Ø DATA 32,66,65,83,73,67,64,
    87,73,78,68,79,87,32,35,58
```


* QUALITY SOFTWARE $1 TO $3 *

* CATALOG ON DISK * FREE SOFTWARE * NEWSLETTER*

REMSOFT is an organization specializing in the distribution of high-quality, low-priced software for the Commodore 64, 64c and 128 computers. **REMSOFT is not a public domain software company and our software is not available elsewhere.**

WHAT DOES REMSOFT OFFER?

Members of **REMSOFT** may purchase programs from our software catalog priced from only $1 to $3 per program on disk. Members will also receive **REMDISK**, a quarterly disk which includes our computerized software catalog, our computerized newsletter and **FREE** ready-to-run feature software!

HOW MANY PROGRAMS ARE AVAILABLE?

REMSOFT has more than 2000 programs in its Commodore software library, of which over 800 are listed in the current **REMDISK** software catalog. All the programs in our software catalog are completely revised versions, and are not protected. Categories include: GAMES, EDUCATIONAL, CHILDREN'S SECTION, BUSINESS, PERSONAL & TECHNICAL.

SAMPLE TITLES

Motocross, Meteor, Space Patrol, Exterminator, Shuttle Rescue, Eliza, French Tennis, Alien Ambush, Rear Assault, Vicious Circle, Freeway Fox, Shark Hunt, Moon Base, Power Lord, Dungeon Adventure, Trench, Mystery, Candyland, Boa Alley, Trapshoot, Las Vegas Games, Metrics, Math Tutor, Chemistry, Physics, Spanish, German, Planet Facts, Fireball, Preschool Learning Aids, World Geography, Trivia Quiz, Credit Card, Calorie Calculator, Recipe File, Auto Expense, Weather Forecaster, Conversions, Garden Help, Football Rating, Home Inventory, Investment Aids, Stock Trends, Bonds, Handicapper, Letter Writer, Budget Management, Bowling Records, Flow Chart, Statistical Analysis and much, much more!

WHAT ELSE DOES MEMBERSHIP PROVIDE?

Membership to **REMSOFT** entitles you to the quarterly newsletter **REMARKS** on disk. Each **REMARKS** newsletter offers you articles of interest, programming information, **TWO FREE FEATURE PROGRAMS** and many smaller sample programs!! Other features include **Super Saver Packages** and optional printed copy of our **REMSOFT** Sofware Catalog.

REMSOFT MEMBERSHIP ONLY A LOW $15 FEE

YES, I Want to get the most of my Commodore with the help of REMSOFT! Rush me the current **REMDISK** which includes the following: a software catalog containing over 800 programs priced from $1 to $3 each, the newsletter **REMARKS** and **FREE** feature programs. My check or money-order for $15 (U.S.) is enclosed.

Check one ☐ Commodore 64 or 64C ☐ Commodore 128

Name (please print)

Address

City **State** **Zip**

*** REMSOFT * P.O. BOX 2249 * CAMARILLO, CA 93011**

Circle 37 on Reader Service card.

```
     ,0,1,80,82,69,83    :REM*75
1220 DATA 83,32,82,69,84,85,82,
     78,32,84,79,32,80,82,79,67
     ,69,83,83,0,0,0     :REM*188
1230 DATA 0,0,0,0,0,0,0,0,83,72,6
     5,68,69,68,0,79,80,69,78,3
     2,32,0,87,73,78     :REM*202
1240 DATA 68,79,87,32,84,89,80,
     69,58,0,87,73,78,68,79,87,
     32,67,79,76,79      :REM*52
1250 DATA 82,58,0,0,66,76,65,67
     ,75,32,32,32,32,32,255,1,8
     7,72,73,84,69       :REM*22
1260 DATA 255,2,82,69,68,32,32,
     32,32,32,32,32,32,32,32,32
     ,32,32,255,3,67     :REM*29
1270 DATA 89,65,78,255,4,80,85,
     82,80,76,69,255,5,71,82,69
     ,69,78,32,32,32     :REM*215
1280 DATA 32,32,255,6,66,76,85,
     69,32,32,32,32,32,32,32,32
     ,32,255,7,89,69     :REM*250
1290 DATA 76,76,79,87,255,8,79,
     82,65,78,71,69,255,9,66,82
     ,79,87,78,32,32     :REM*226
1300 DATA 32,32,32,255,10,76,84
     ,46,32,82,69,68,255,11,71,
     82,69,89,49,32      :REM*157
1310 DATA 32,32,32,32,255,12,71
     ,82,69,89,50,255,13,76,84,
     46,32,71,82,69      :REM*65
1320 DATA 69,78,255,14,76,84,46
     ,32,66,76,85,69,32,255,15,
     71,82,65,89,51      :REM*144
1330 DATA 32,32,32,32,32,255,0,
     3,6,9,12,15,18,21,24,27,0,
     0,0,0,0,0,0,0,0     :REM*70
1340 DATA 7,18,11,28,0,0,0,0,0,0,
     0,0,0,0,0,0,0,0,0,0,0,0,0,0,
     0,0,0,0,0,0,45      :REM*46
1350 DATA 45,45,62,32,68,73,83,
     75,32,69,82,82,79,82,32,45
     ,32,80,82,69,83     :REM*136
1360 DATA 83,32,67,77,68,82,32,
     75,69,89,32,60,45,45,45,0,
     45,45,45,62,32      :REM*154
1370 DATA 83,65,86,69,32,67,79,
     77,80,76,69,84,69,32,45,32
     ,80,82,69,83,83     :REM*200
1380 DATA 32,67,77,68,82,32,75,
     69,89,32,60,45,45,45,0,69,
     78,84,69,82,32      :REM*252
1390 DATA 70,73,76,69,78,65,77,
     69,58,0,8,256       :REM*177
```

Listing 2. Demo program.

```
0 REM WINDOW CONSTRUCTION PRG.
  2 - JOHN RYAN          :REM*69
5 REM --> LISTING #2 DEMO PROGR
  AM <--                 :REM*79
10 IF FLAG=1 THEN INPUT"FILENAM
   E";NM$:GOTO40         :REM*54
20 IF FLAG=2 THEN 60     :REM*236
30 FLAG=1:LOAD "WCS",8,1:REM*87
40 FLAG=2:LOAD NM$,8,1   :REM*43
50 :                     :REM*108
60 PRINT"{SHFT CLR}":FOR A=1 TO
    184:PRINT"DEMO ";:NEXT
                         :REM*134
70 A=1                   :REM*124
80 POKE 820,A:SYS 49155:REM*253
90 A=A+1:IFA=10 THEN A=0:REM*86
100 POKE198,0:WAIT 198,1
                         :REM*231
110 GOTO 80              :REM*246
```

■

Introducing...

Super Graphix Gold



Suggested Retail $119.95

With specs that out-perform the *Super Graphix Printer Interface*—the industry standard, the ***Super Graphix Gold*** Printer Interface combines improved speed, features, and memory to satisfy the most demanding user.

* 32K Buffer—built-in
* 32 printer choices
* Supports standard serial from the C-64
* Supports fast serial from the 128
* 8 switch-selectable operating modes
* 16 active DIP switches for unequaled flexibility
* RESET and CLEAR buttons
* LED indicates activity and errors
* 2 built-in screen dumps: 16 sizes, 4 shades, inverse, single and double pass
* 4 fonts built-in and 4 downloadable to RAM
* Utility disk with more than 40 fonts
* Direct-from-disk downloads and dumps
* 21 secondary addresses
* 12 printing channels
* Command channel with more than 35 commands
* Banner channel (uses all fonts)
* 4 new channels for downloading and printing
* All fonts support *underlining, italicizing, bold-facing, super/subscripting* and *9 pitches*
* FCC Certified
* Lifetime warranty

Xetec

Xetec, Inc. 2804 Arnold Rd. Salina, KS 67401 (913) 827-0685

Circle 96 on Reader Service card.

Troubleshooting Tips

Before you ship your Commodore out for expensive maintenance, maybe there's an easy fix you can do yourself.

By ERIC WENDT

When your C-64 breaks down, is your first impulse to send it in for repairs? Wait! You may be able to save time and money by doing a few simple tests and repairs at home.



The Forgotten Power Supply

The most commonly overlooked trouble spot is the power supply, but it also can be the easiest to diagnose. If your supply goes bad in a way that doesn't damage your computer, connecting the computer to a different supply will bring it back to life. This simple step can save a costly diagnosis fee at the service center.

Be careful here, though! If you suspect your supply may be bad, *don't* hook it up to someone else's computer to test it. One common power supply problem is for the unit to start putting out too much voltage, which could damage your friend's computer as well.

The Misalignment Myth

The most frequently reported failure of Commodore equipment is in the alignment of the disk drive. However, this is also one of the biggest myths. Early 1541s had real problems with alignment, and copy-protection schemes involving excessive head bumping were the leading cause. However, as soon as the alignment problem became apparent, Commodore corrected it. Their Newtronics-type drives (with the rotating lever, as opposed to the push-up door) seldom go out of alignment. Our service center receives hundreds of Newtronics-type drives for alignment, but usually the only ones that need it are those someone else has tried to align. The same goes for the 1571s and 1541Cs.

When a drive exhibits the classic misalignment symptoms and is one of these models, clean the heads instead. If that doesn't work, then you have a more serious problem.

Should you want to try aligning your own drive, keep in mind that align-it-yourself programs aren't always accurate. To make sure you do it right, use an oscilloscope. Also, *don't* adjust the head stop unless you know what you're doing. An improperly positioned stop does more harm than good and can quickly turn an inexpensive alignment into a costly repair.

Keyboard Notes

Keyboard problems are common with C-64s, and they fall into two basic categories. In the first, numerous keys, usually in a diagonal pattern or every other one, don't function at all. This is caused by a defective chip in the board. In the second category, certain keys have to be pushed excessively hard to register—a sign of a dirty or worn keyboard.

To clean your keyboard, remove the back plate using a small Phillips screwdriver and gently wipe the contacts with an ordinary cleaner. If the problem persists, your keystems are worn and the keyboard should be replaced.

One note: When having keyboard problems, remove your joystick from the computer. A defective joystick can cause keys to stop working or to give the wrong response.

Many people add a plastic keyboard cover to their C-64 to help keep the computer clean, but these covers are easily damaged in shipping. If you're sending your computer anywhere, remove the cover; it probably just unhinges at the top.

Integrated Circuit Detection

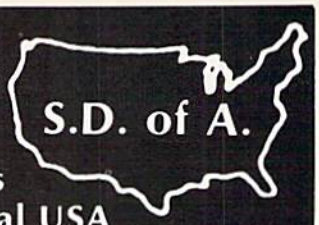
If you're brave enough to try repairing your own computer board, the following tips should help:

First of all, a visual inspection of the ICs may suggest which ones are defective. For instance, after keeping records on thousands of C-64s with defective PLA chips (part #906114-01 in location U17), we discovered that over half of them had date codes between 0583 and 4383. Commodore has never acknowledged a relationship between the date and a high failure rate, but one does appear to exist.

Again on the subject of markings, some 64s contain chips having a white splotch that looks like thin paint—usu- ►

ILLUSTRATED BY MERLE NACHT

SOFTWARE DISCOUNTERS OF AMERICA



For Orders Only—1-800-225-7638
PA Orders—1-800-223-7784
Customer Service 412-361-5291

- **Free shipping on orders over $100 in continental USA**
- **No Surcharge for VISA/MasterCard**
- **Your card is not charged until we ship**

ABACUS SOFTWARE
Assembler Monitor ...$25
Basic ...$25
Basic 128 ...$39
Cad Pak ...$25
Cad Pak 128 ...$39
Chart Pak ...$25
Chart Pak 128 ...$25
Cobol ...$25
Cobol 128 ...$25
PPM ...$25
PPM 128 ...$39
Speed Term 64 or 128 $25
Super C ...$39
Super C 128 ...$39
Super Pascal ...$39
Super Pascal 128 ...$39
TAS ...$25
TAS 128 ...$39

ACCESS
Echelon w/Lip Stik ...$29
Famous Course Disk #1 for World Class L.B. ..$14
Famous Course Disk #2 for World Class L.B. ..$14
Famous Course Disk #3 for World Class L.B. ..$14
Leader Board (Original) Triple Pack ...$14
Lip Stik Plus ...$17
Tenth Frame ...$25
Triple Pack: BH1, BH2, Raid Over Moscow ..$14
World Class Leader Board ...$25

ACCOLADE
Ace of Aces ...$19
Apollo 18 ...$19
Card Sharks ...$19
Fight Night ...$9.88
4th & Inches Football ..$19
Hardball ...$19
Mini Putt ...$19
Power at Sea ...$19
Test Drive ...$19
The Train: Escape to Normandy ...$19

ACTION SOFT
Thunder Chopper ...$19
Up Periscope! ...$19

ACTIVISION
Aliens ...$23
Black Jack Academy ..$25
Cross Country Road Race ...$9.88
Faery Tale Adventure ..Call
Gee Bee Air Rally ...$19
Ghostbusters ...$9.88
Hacker 1 or 2 ...$9.88 Ea.
Little Computer People$9.88
Maniac Mansion ...$23
Might & Magic ...$25
Music Studio ...$23
Postcards ...$16
Shanghai ...$19
The Last Ninja ...$23
Transformers ...$9.88

ARTWORX
Beach Blanket Volleyball ...$9.88
Bridge 5.0 ...$19
Cycle Knight ...$14
Highland Games ...$9.88
Int'l Hockey ...$14
Linkword French ...$16
Linkword Spanish ...$16
Police Cadet ...$9.88
Strip Poker ...$21
Data Disk #1 Female ..$14
Data Disk #2 Male ...$14
Data Disk #3 Female ..$14

AVALON HILL
NBA Basketball ...$25
Super Bowl Sunday ...$21
SBS 1985 Team Disk ..$14
SBS 1986 Team Disk ..$14
SBS Gen. Mgr. Disk ...$19

AVANTAGE
Project Space Station $9.88
Spy vs. Spy 1 & 2 ...$9.88

BERKELEY SOFTWORKS
Geos 128 ...$44
Geo-Calc 128 ...$44
Geo File 128 ...$44
Geo-Write Workshop 128 ...$44
Geos 64 ...$39
*Geo-Calc ...$33
*Geo File ...$33
*Geos Font Pak 2 ...$19
*Geo Programmer ...$44
*Geo Publish ...$44
*Geo-Spell ...$19
*Geo-Write Workshop ..$33
*Requires Geos 64!

BRODERBUND
Carmen Sandiego: Europe ...Call
USA ...$25
World ...$23
Cauldron ...$19
Choplifter/David's Midnight Magic ...$9.88
Karateka ...$9.88
Loderunner ...$9.88
Magnetron ...$19
Print Shop ...$26
P.S. Companion ...$23
P.S. Graphics Library #1, #2, or #3 ...$16 Ea.
P.S. Graphics Library Holiday Edition ...$16
Super Bike Challenge ..$14
Toy Shop ...$19

CAPCOM
Ghosts & Goblins ...$19
1942 ...$19
Speed Rumbler ...$19

CINEMAWARE
Defender of the Crown$23
The Three Stooges ...$23
Warp Speed ...$33

DATA EAST
Breakthru ...$19
Commando ...$14
Ikari Warriors ...$19
Karnov ...Call
Kid Niki ...$19
Lock On ...Call
Speed Buggy ...$19
Tag Team Wrestling ...$14
Victory Road ...$19

DAVIDSON
Algeblaster ...$32
Math Blaster ...$32
Spell It ...$32
Word Attack ...$32

DIGITAL SOLUTIONS
Pocket Filer 2 ...$33
Pocket Planner 2 ...$33
Pocket Writer 2 ...$33
*all 3 in 1 Super Pack..$59

ELECTRONIC ARTS
Software Classic Series:
Age of Adventure ...$9.88
America's Cup Sailing$9.88
Archon 1 or 2 ...$9.88 Ea.
Heart of Africa ...$9.88
Lords of Conquest ..$9.88
Mail Order Monsters $9.88
Movie Maker ...$9.88
Murder Party ...$9.88
Music Const. Set ...$9.88
One-on-One ...$9.88
Pinball Const. Set ...$9.88
Seven Cities Gold ...$9.88
Skyfox ...$9.88
Super Boulder Dash ..$9.88
Touchdown Football ..$9.88
Ultimate Wizard ...$9.88

ELECTRONIC ARTS
Alien Fires ...Call
Amnesia ...$26
American Civil War ..$26
Arctic Fox ...$23
Bard's Tale 1 or 2 ..$26 Ea.
Chessmaster 2000 ...$26
Chuck Yaeger's AFT ...$23
Demon Stalker ...$21
Dragons Lair ...$19
Earth Orbit Station ...$21
Halls of Montezuma ..$26
Hunt for Red October $26
Instant Music ...$21
Legacy of Ancients ...$21
Marble Madness ...$23
Monopoly ...$26
Outrageous Pages ...$33
Patton vs. Rommel ...$21
Pegasus ...$23
Robot Rascals ...$26
Rockford ...$21
Scrabble ...$23
Scruples ...$23
Skyfox 2 ...$21
Skate or Die ...$21
Star Fleet 1 ...$26
Strike Fleet ...$21
Twilights Ransom ...Call

EPYX
Boulder Dash Construction Kit ...$16
California Games ...$24
Champ. Wrestling ...$14
Coil Cop ...$16
Create A Calendar ...$19
Destroyer ...$24
Fast Load (R) ...$24
Movie Monster ...$14
Omicron Conspiracy ..$24
Pitstop 1 or 2 ...$6.88 Ea.
P.S. Graphics Scrapbook #1:Sports ...$9.88
#2:Off the Wall ...$9.88
#3:School ...$9.88
Spy vs. Spy 3: Arctic Antics ...$16
Street Sports: Baseball ...$24
Basketball ...$24
Sub Battle Simulator ..$24
Summer Games 1 or 2$14 Ea.
Temple Apshai Trilogy ..$14
Winter Games ...$14
World Games ...$24

FIREBIRD
Elite ...$19
Guild of Thieves ...$25
Knight Orc ...$25
Starglider ...$25
The Pawn ...$25

GAMESTAR
Champ. Baseball ...$19
Champ. Basketball ...$23
GFL Ch. Football ...$23
Star Rank Boxing 2 ...$19
Top Fuel Eliminator ...$19

HI-TECH EXPRESSIONS
Astro Grover ...$6.88
Award Ware ...$9.88
Big Bird's Spc. Delivery$6.88
Computer Club ...$9.88
Ernie's Big Splash ...$6.88
Ernie's Magic Shapes $6.88
Grover's Animal Adv. $6.88
Pals Around Town ..$6.88
Print Power ...$9.88
Sesame St. Print Kit ..$9.88

INFOCOM
Beyond Zork 128 ...$29
Border Zone ...$23
Hitchhiker's Guide ..$9.88
Infocomics ...Call
Leather Goddesses ...$23
Nord & Bert Couldn't Make Head or Tail of It ...$23
Sherlock: The Riddle of the Crown Jewels ...$23
Stationfall ...$23
The Lurking Horror ...$23
Zork 1 ...$9.88
Zork Trilogy ...$29

INKWELL SYSTEMS
#170 Deluxe L.P. ...$69
Flexidraw 5.5 ...$23
Graphics Galleria: Animals ...$16
Borders & Signs ...$16
Futuristic Encounters $16
Holiday Themes ...$16
Maps of the World ..$16
Graphics Intregrator 2 $19

KONAMI
Boot Camp ...Call
Contra ...$19
Jackal ...$19
Rush 'N Attack ...$19
Yie Ar Kung Fu 2 ...$9.88

MASTERTRONIC
Captain Zap ...$6.88
Feud ...$6.88
Knight Games ...$6.88
Ninja ...$4.88
Prowler ...$6.88
Shogun ...$6.88
Storm ...$6.88
Vegas Poker ...$4.88
Water Polo ...$6.88

MICROLEAGUE
Baseball ...$25
Box Score Stats ...$16
General Manager ...$19
1986 Team Data Disk ..$14
1987 Team Data Disk ..$14
WWF Wrestling ...$19

MICROPROSE
Acrojet ...$16
Airborne Ranger ...$23
F-15 Strike Eagle ...$23
Gunship ...$23
Kennedy Approach ...$16
Pirates ...$25
Project Stealth Fighter $25
Red Storm Rising ...Call
Silent Service ...$23
Top Gunner ...$16

MINDSCAPE
Bop & Wrestle ...$19
Color Me: The Computer Coloring Kit ...$23
De Ja Vu ...$23
Gauntlet ...$23
Indoor Sports ...$19
Infiltrator 1 or 2 ..$19 Ea.
Into the Eagle's Nest ..$19
Living Daylights ...$19
MISL Soccer ...$23
Paperboy ...$23
Perfect Score SAT ...$44
S.S. Ice Hockey ...$23
Super Star Soccer ...$23
Xevious ...$19

MISC
Bob's Term Pro ...$29
Bob's Term Pro 128 ...$39
Celebrity Cookbook ...$19
CSM 1541 Align Kit ...$29
C.P. Copy 2 ...$21
Doodle ...$25
Final Cartridge 3 ...Call
Font Master 2 ...$29
Font Master 128 ...$35
Gato ...$9.88
GEOS—Inside & Out (Book) ...$13
GEOS—Tricks & Tips (Book) ...$13
Multiplan 64 ...$9.88
Superbase 64 ...$39
Superbase 128 ...$44
Superscript 64 ...$29
Superscript 128 ...$39
Super Snapshot (R) ...$47

ORIGIN
Autoduel ...$32
Moebius ...$25
Ogre ...$19
Ultima 1 or 3 ...$25 Ea.
Ultima 4 ...$39
Ultima 5 ...$39

PROFESSIONAL
Fleet System 2 Plus ...$39
Fleet System 4 128 ...$47

SIMON & SCHUSTER
Chem. Lab ...$25
JK Lasser Money Mgr. ..$25
Star Trek: Promethean Prophecy ...$19
Typing Tutor 4 ...$25

SIR TECH
Deep Space ...$25
Wizardry: The Proving Ground ...$25

SHARE DATA
Family Feud ...$8.88
Jeopardy ...$8.88
Wheel of Fortune ...$8.88

SOFTWARE SIMULATIONS
Football ...$19
Pure Stat Baseball ...$25
Pure Stat College Basketball ...$25

SPRINGBOARD
Certificate Maker ...$25
C.M. Library Vol. 1 ...$19
Newsroom ...$32
N.R. Clip Art Vol. 1 ...$19
N.R. Clip Art Vol. 2 ..$25
N.R. Clip Art Vol. 3 ...$19
P.S. Graphics Exp ...$23

SSI
B-24 ...$23
Eternal Dagger ...$25
Gettysburg ...$37
Kampfgruppe ...$37
Panzer Strike! ...$29
Phantasie 1, 2 or 3 $25 Ea.
President Elect 1988 ..$16
Questron 2 ...$25
Realms of Darkness ...$25
Rings of Zilfin ...$25
Roadwar 2000 ...$25
Roadway Europa ...$25
Shard of Spring ...$25
Shiloh: Grant's Trial ..$25
Sons of Liberty ...$23
War Game Const. Set ..$19
Warship ...$37
Wizard's Crown ...$25

SUBLOGIC
Flight Simulator 2 ...$32
F.S. Scenery Disks ...Call
Jet ...$26
Stealth Mission ...$32

TELARIUM
Amazon ...$9.88
Dragon World ...$9.88
Fahrenheit 451 ...$9.88
Perry Mason ...$9.88
Rendezvous w/Rama ..$9.88

THREE SIXTY
Dark Castle ...$23

THUNDER MOUNTAIN
Dig Dug ...$6.88
Ms. Pac Man ...$6.88
Pac Man ...$6.88
Pole Position ...$6.88
Top Gun ...$6.88

TIMEWORKS
Data Manager 2 ...$14
Data Manager 128 ...$33
Desktop Publisher ...Call
Evelyn Wood Reader ..$14
Partner 64 (R) ...$25
Partner 128 (R) ...$33
Swiftcalc/Sideways ...$14
Swiftcalc/Sideways 128 $33
Sylvia Porter's Personal Fin. Planner 64 ...$25
Word Writer 3 ...$25
Word Writer 128 ...$33

UNICORN
Animal Kingdom ...$19
Decimal Dungeon ...$19
Fraction Action ...$19
Percentage Panic ...$19
Race Car Rithmetic ...$19

UNISON WORLD
Art Gallery 1 or 2 ..$16 Ea.
Art Gallery: Fantasy ...$16
Print Master Plus ...$23

WEEKLY READER
Stickybear Series:
ABC's ...$16
Math 1 or 2 ...$16 Ea.
Numbers ...$16
Opposites ...$16
Reading ...$16
Reading Comp. ...$16
Shapes ...$16
Spellgrabber ...$16

WINDHAM CLASSICS
Alice In Wonderland ...$9.88
Swiss Family Robinson ...$9.88
Treasure Island ...$9.88
Wizard of Oz ...$9.88

ACCESSORIES
Bonus SS, DD ..$4.99 Bx.
Bonus DS, DD ..$5.99 Bx.
Compuserve Starter Kit $19
Contriver M3 Mouse ..$39
Disk Case (Holds 75) $6.88
Disk Drive Cleaner ..$6.88
Epyx 500 XJ Joystick ..$14
Icontroller ...$14
Suncom TAC 2 J.S. ...$9
Suncom TAC 5 J.S. ...$14
Wico Bat Handle ...$17
Wico Boss ...$12
Wico Ergostick J.S. ...$19
XETEC Super Graphix ..$59
XETEC Super Graphics Jr. ...$39

*All programs on disk unless otherwise noted!

P.O. BOX 111327—DEPT. RN—BLAWNOX, PA 15238

*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! Shipping: Continental U.S.A.-Orders under $100 add $3; free shipping on orders over $100. AK, HI, FPO, APO-add $5 on all orders. Canada & Puerto Rico-add $10 on all orders. Sorry, no other International orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE HOURS: Mon.-Fri. 9 AM-5:30 PM Eastern Time. REASONS FOR CALLING CUSTOMER SERVICE—412-361-5291 (1)Status of order or back order (2)if any merchandise purchased within 60 days from S.D.of A. is defective, please call for a return authorization number. We will not process a return without a return auth. #! Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 15% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on S.D.of A.'s 800# order lines! ORDER LINE HOURS: Mon.-Fri. 9 AM-5:30 PM, SAT 10 AM-4 PM EASTERN TIME. Because this ad had to be written 2-3 mos. before it was published, prices & availability are subject to change! New titles are arriving daily! Please call for more information.

Circle 254 on Reader Service card.

ally toward the top of the chip. In units we've seen that had defects not caused by outside forces, over half failed because of a bad chip bearing this mark. This proves nothing, but is suggestive.

RAM chips are another common trouble spot in C-64s. When a power supply fails in such a way that the 5-volt line is pushed too high, RAMs are the first to go, so anytime more than one RAM is defective, you should replace your power supply. Don't expect to confirm the failure with meter readings, because sometimes the voltage spikes are only slightly high, or occur infrequently or only under the load of a computer, so they're difficult to detect.

Different brands of chips can also affect diagnosis. Commodore used many different brands of RAMs when producing the 64s, and when a power supply is putting out, for example, 5½ volts, it will damage some brands but not others. Without statistical proof, it would be unfair to advise you against certain brands, but I use Motorola.

There are cases when every RAM in the 64 goes bad at once, but not necessarily because of a bad power supply. If you have a supply with only four pins on the end that goes into the computer, great care should be taken when inserting it, for it's easy to turn it sideways by 90 degrees. This may short the ac to the 5-volt line and burn out every RAM almost instantly.

Another all-too-common source of board problems is careless desoldering in the course of replacing ICs. Doing it yourself is fine if you're good at soldering, but these boards are very picky about heat. Heating too long makes the pads lift up, and you can break traces without even noticing. Physical damage is the hardest to repair and can lead to extraordinary repair bills at some service centers.

Finally, a note on replacing boards. If your computer hasn't been physically damaged or hit by lightning, there's *no* reason to replace the board, even if it's easier and the labor cheaper. In fact, there are good reasons not to replace the board. C-64s are repaired easily enough on the component level, and no individual component costs more than a board.

Also, with new boards come new problems. If your computer has run for two years and failed only once, your chips have thousands of hours of testing. "Infant mortality"—new chips failing right away—is more common than failure later down the line. Why put yourself at the mercy of new chips when yours have worked so well?

It may seem that Commodore equipment is loaded with problems, but it's important to remember how many C-64s and C-128s there are in the world. Every common problem found in a series of units has been corrected in the next. Commodore really does try to correct their mistakes, and most of the executives really seem to care about their customers. ■

Eric Wendt is a technician with TPI Service in Batavia, Illinois, an authorized Commodore service center. He wrote this article out of thousands of hours of experience.

Quality Hardware From SCI

THE FSD-2 EXCELERATOR + PLUS

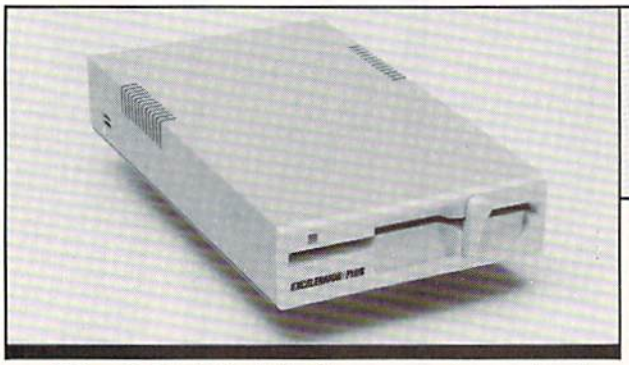
- 100% compatible for the 64 or 64C
- Faster, quieter, more reliable than the 1541 or 1541C
- Breakthrough direct drive technology
- Full one year warranty
- Half height drive, smaller and slimmer than the 1541
- Separate power supply, drive remains cool
- Priced at ~~$159~~ $149

SLIMLINE 64

- Sleek new replacement case for the 64
- Takes only 10 minutes with a phillips to install
- Gives your 64 a new image
- Priced at $29

FREEZE MACHINE

- The ultimate archival device
- Totally unstoppable freeze utility
- Built-in file copier
- Two fast loads
- Priced at $39







MODEMS

- Anchor automation
- 300/1200 switchable
- Priced at $129

EXCEL 2001

- 100% compatible with 1571
- One year warranty
- Separate power supply
- Reviewed in December issue of Run magazine
- Priced at $209

AMIGA DRIVE

- 1010 compatible drive
- 3½" external
- 28" cable; drive can be placed on either side of the Amiga 500
- Can be daisy chained
- Smaller, slimmer than the 1010
- Priced at $199

SCI Surfside Components International
P.O. Box 1836 Capitola, CA 95010
In California; 408-462-9494

1-800-548-9669

Policy: VISA, M/C, Money Order, or personal check. Personal checks require 3 weeks to clear. California residents add 6.5% sales tax. Prices reflect 3% cash discount. Add 3% for credit cards. Please call for shipping charges.

Circle 148 on Reader Service card.

VSI BANK CARDS SAME AS CASH

DATA SWITCHES

VSI switches let users share equipment, end costly duplication. Plan your own system; two computers to one disk drive and printer, or two printers to one computer, share a printer between a PC and a C128, etc . . . Cable changing is a thing of the past, turn a knob to switch from one device to another. Remember, if you need extra cables, we carry a broad selection.

• ONE YEAR WARRANTY

- Compact Design, All Metal Case
- Gold Plated Contacts
- All Female Sockets, Rotary Switch
- Anti-Skid Feet to Prevent Movement
- Full Shielding Exceeds FCC Requirements

$ SAVER AB $29.95
VIC-20, C16, Plus 4, C-64, OR C128 compatible.

SUPER SAVER ABCD $39.95
VIC-20, C16, Plus 4, C-64, OR C128 compatible.

PARALLEL or SERIAL AB $29.95
Parallel = 36 pins, serial = 25 pins.

PARALLEL or SERIAL ABCD $39.95
Parallel = 36 pins, serial = 25 pins.

PARALLEL AaxBb $44.95
Two computers share two printers.

8 PIN MINI DIN AB $29.95
Designed for the new Apple Computer applications.

DB9 AB $29.95
For monitors, modems, etc.

CABLES

Drive/printer, 6 ft. 6 pin male/male	B66	$ 5.95
Drive/printer, 9 ft. 6 pin male/male	B69	$ 7.95
Drive/printer, 18 ft. 6 pin male/male	B618	$12.95
Drive/printer, 6 ft. 6 pin male/fem.	A66	$ 5.95
Monitor, 6 ft. 5 pin to 4 RCA plugs	M654	$ 5.95
Monitor, 6 ft. 5 pin to 2 RCA plugs	M652	$ 4.95
Monitor ext., 6 ft. 5 pin male/female	ME65	$ 5.95
Joystick ext. 9 pin, 12 ft. male/fem.	JS12	$ 4.95
Joystick Y, 9 pin, 1 female/2 male	JSY	$ 7.95
Joystick Y, 9 pin, 1 male/2 female	RJSY	$ 3.95
Power cable, male/right ang. male	PR6	$ 6.95
DB9, 6 ft., male/male	DB9MM	$ 8.95
DB9, 6 ft., male/female	DB9MF	$ 8.95
8 pin Mini Din, 6 ft., male/male	8M6MM	$ 9.95
Parallel, 6 ft., male/male	C6MM	$ 9.95
Parallel, 10 ft., male/male	C10MM	$11.95
Parallel, 6 ft., male/female	C6MF	$ 9.95
Parallel, 10 ft., male/female	C10MF	$11.95
Serial, 6 ft., male/male	R6MM	$ 8.95
Serial, 6 ft., male/female	R6MF	$ 8.95
IBM printer, 6 ft., male/male	IBP6	$ 8.95
IBM printer, 10 ft., male/male	IBP10	$10.95
IBM keyboard extension, 5 pin	IBKE	$ 5.95
Gender change, parallel, male/male	CGMM	$ 9.95
Gender change, parallel, fem./fem.	CGFF	$ 9.95
Gender change, serial, male/male	RGMM	$ 5.95
Gender change, serial, fem./fem.	RGFF	$ 5.95

PRINTER BUFFERS

let you compute and print at the same time. The buffer stores the data, then sends it to the printer at the right speed while you go on with your work.

MW-256 DATA STUFFER 256k CALL
VIC20,C64, 64C, SX64, C16, C128, + 4 compatible.

MICROSTUFFER, 64K, centronics $ 69.95

INTELLIGENT BUFFER 256K, centronics $169.95

INFORMATION: For technical information or Oregon buyers phone: 503-246-0924

TO ORDER BY MAIL: We accept VISA, MASTER CARD, money orders, certified, and personal checks. Allow 21 days for personal checks to clear.

SHIPPING: $3.00 per order, power supplies $4.00, power center $5.00, $3.00 service charge on COD orders (cash only).

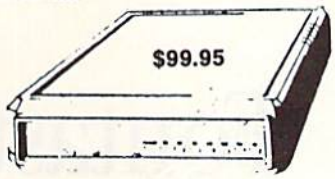
TERMS: All in stock items shipped within 48 hours. No sales tax or surcharge for credit cards. We CANNOT GUARANTEE COMPATIBILITY. All sales are final. Defective items replaced or repaired at our discretion. RA# required. Prices and items subject to change without notice.

VISA MasterCard

VALUE SOFT INC
3641 S.W. Evelyn
Portland, OR 97219

1200 EASY DATA MODEM

Hayes COMPATIBLE
External 300/1200 Baud
Supports Bell 103 & 212A Specs
Both Half & Full Duplex Modes
Redial Last Number
Touch Tone & Pulse
Auto Busy Redial
Auto Dial, Auto Answer
"AT" Commands & more
Power Up Self Test
FCC Registered



1200 EASY DATA MODEM PLUS C64 INTERFACE PACKAGE $119.95



SPECIAL PURCHASE

Now $12.95

Chrome plated, heavy duty universal printer stand. Rubber feet, allows front, back, or bottom feed. For 80 or 132 column printers. Original price $24.95, sale limited to quantities in stock.

POWER SUPPLIES

MAXTRON C-64, dependable heavy duty replacement. Output: 5V DC, 1.7A, 9V AC, 1.0A. UL Approved. 90 day warranty $29.95

PHOENIX C-64, fused, repairable, all metal case. Output: 5V DC, 1.7A, 10V AC, 1.0A. UL approved. 1 year warranty $39.95

PHOENIX C-128, fused, repairable, all metal case, 3 sockets, spike protection, EMI RFI filtering, lighted switch. Output: 5V DC, 6.0A, 10V AC, 2.0A. UL approved. 1 year warranty $59.95

COOLING FAN $29.95



Heat is a #1 enemy to your disk drive. Reduce bad loads and costly repair bills with a fan, keep your 1541 or 1571 cool. Quiet, surge and spike protection, EMI filtering

JOYSTICKS

Slik Stik	$ 6.95
IconTroller	$14.95
WICO Black Max	$11.95
TAC 5	$14.95
EPYX 500XJ	$15.95

POWER CENTER

WAS $59.95
NEW LOW PRICE $49.95

The POWER CENTER provides individual control of up to 5 components plus master on or off switch.



System protection: EMI/RFI filtering, surge and spike protection, 15 AMP breaker, heavy duty cable, 3 prong plug. Lighted rocker switches, all steel case, size: 1 3/4 H x 12 1/4 D x 15 W.

INKWELL SYSTEMS

Light Pen 184C	$49.95
Flexidraw 5.5	$27.95
Flexifont	$24.95
Graphics Int. II	$24.95
Clip Art II	$19.95
Holiday Theme	$19.95

INTERFACES

MODEM RS-232 INTERFACE, Use standard Hayes compatible RS-232 modems with VIC-20, C-64, C-128.	$29.95
DELUX RS232 INT., Omnitronix Use standard RS-232 equipment with the C64, C128, C64, SX64, VIC20 or Plus4	$39.95
HOT SHOT, printer	$49.95
HOT SHOT PLUS, printer	$64.95
Cardco G-WIZ, printer	$39.95
Cardco Super G, printer	$49.95
XETEC Super Graphics, printer	$54.95
XETEC Super Graphic Jr., printer	$34.95
XETEC Super Graphics Gold, printer	CALL

APROSPAND 64 $29.95



plugs into the cartridge port, has 4 switchable slots, fuse protected and a reset button.

12 PLUS $19.95

12 in. cartridge port extension cable. Move boards and cartridges to the side of your computer. In stock.

JOYSTICK REDUCER $3.95

Every once in a while, our buyers find one of those odd gadgets they just can't resist. The Joy Stick Reducer is odd and low-priced. It allows one joystick to be plugged into both ports at the same time. I know you are saying, what's it good for. Stop and think, how many times have you had to try both ports before finding the right one?

The Experts In Accessories

"THE STRIPPER" $9.95



The "Stripper" removes perforated edges from print-outs. Insert 1 to 20 sheets, presto edges are gone. Clean, quick

SUNCOM ANIMATION STATION C64

NEW



Touch the pad with the stylus or a finger tip, create magic with the Animation Station ... Draw pictures, graphs, etc., Software with printer option included. Compatible with many other programs for keyboard, mouse, joystick or paddles.

$79.95

40/80 COL. CABLE $19.95

One cable for both 40 or 80 columns on the C128. Flip a switch to change modes. Plugs to the back of the monitor for a sharp display. 16 colors in 40 column, black and white in 80. Not for RGB monitors or television sets.

DISK DOUBLER $6.95



The original! All metal Cuts an exact square notch in the disk. Same spot every time!

READY RESET 64 NEW $11.95

A reset button that you place where you want, not some out of the way place. Plugs into the serial port (of course the port is replaced for your disk drive), the button is on the end of a 15 inch cable.

BLASTER C64, C128 $5.95

Add automatic firepower to your games, plug-in module that makes the fire button of your joystick have machine gun action. Adjustable speed control.

DUST COVERS

C64/VIC20 or 1541 drive, anti static		$ 5.95
Buy one of ea. SAVE $1.41	C64 set	$10.49
C128 or 1571 drive, anti static		$ 7.95
Buy one of ea. SAVE $1.41	C128 set	$14.49
64C, anti static		$ 7.95
1581, 3½ drive, anti static		$ 7.95
1541C, NEW 5¼ drive, anti static		$ 7.95

BLACK BOOK of C128 $15.95



The best friend a C128 user ever had . . . Includes C-64, C128, CPM, 1541, 1571. 261 pages of easy to find information. 75 easy to read charts and tables. The Black Book of C128 is very much like a dictionary, always ready to answer your questions.

PROTECTION REVEALED C 64 $15.95

A beginners guide to software protection. Written to give you a fundamental understanding of a disk and BASIC protection. Identify what you are seeing when examining a disk. Become a master of illusion. Reveals countless tricks and tips that mystify the user. The book is 141 pages and includes a free disk of 21 utility programs.

SAM's BOOKS

C64 Troubleshooting & Repair Guide	$19.95
1541 Troubleshooting & Repair Guide	$19.95
Computer facts VIC-20	$19.95
Computer facts C-64	$19.95
Computer facts C-128	$19.95
Computer facts 1541	$19.95
Computer facts 1571	$19.95

"TOUCH ME BUTTON" $9.95

Static can KILL your COMPUTER and your PROGRAMS. Touch Me rids your system of harmful static like MAGIC before you touch your computer peripherals or other devices. The controlled electrical resistance of Touch Me, drains static charges harmlessly away to ground at low energy levels. Touch Me can add years of life to your equipment.

GROUND FAULT IND. $5.95

Computer equipment is very sensitive to ungrounded household wiring. Disk drives have a bizarre way of mixing up data. The Ground Fault Indicator tells you if your outlet is properly grounded.

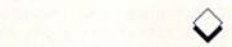
MISCELLANEOUS

CARDCO numeric keypad	$47.95
Disk Sleeves, white tyvek, 100 pack	$ 7.95
Write protect tabs, silver, 100 pack	$ 1.49
Floppy wallet, 3 1/2 in., holds 15	$ 9.95
Floppy wallet, 5 1/4 in., holds 15	$12.95
Disk pages, 2 pocket, 3 hole, 10 pack	$ 6.95
American Mouse House	$ 6.95
American Mouse Mat	$ 7.95

CALL TOLL FREE 1-800-544-SOFT VSI

Fontastic 64

Choose one of nine new fonts to spice up the look of your text displays.



By KENNY LAWSON

Do you feel stifled by the lack of text fonts available for 64 Basic? Do you wish you could add a little creativity to your video screen? Well, this "fontastic" program for the 64 will let you do just that.

It gives you a choice of nine different text fonts to replace the blah-looking set that comes with your computer. For example, you can choose underlined, cursive, all-caps, computer-style, thin-lettered and other texts.

Font Descriptions

Blockfont—changes all of the normal text letters to block letters, without affecting the graphics.

Capsfont—gives you all capital letters in large and small sizes.

Compufont—changes letters and numbers to early-computer-style letters, like the numerals you see on your bank checks.

Cursifont—displays an upper- and lowercase set of letters in cursive handwriting, but you lose some of your graphics symbols, just as with Capsfont.

Diamondset—a set of letters I designed to look diamond-shaped.

Dotfont—uses dots to form the letters.

Stencilfont—creates letters and numbers that look like they were drawn with an old-fashioned stencil, like the B on the Boston Red Sox caps (Go Sox!).

Thinfont—creates letters, numbers and some symbols that are only one pixel wide in most dimensions.

Underfont—creates an entire set of alphanumerics and symbols (including spaces) that are underlined.

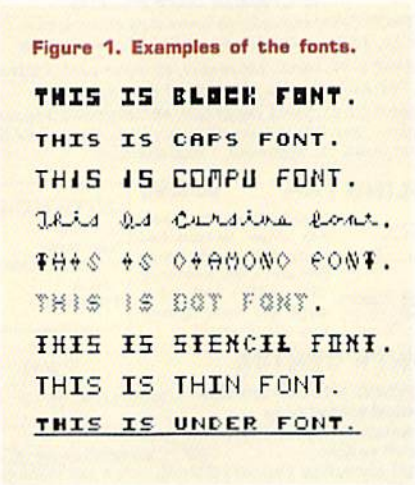
All the fonts also support reversed characters.

Using the Programs

It is easy to add these fonts to your repertoire.

First, type in the program listings (1–12) accompanying this article and save them on one disk. Then load and run the Charset Creator program (Listing 1). Next, load and run each "creator" set (Listings 4–12). Each program opens a file to disk with its own filename and writes either data items or character ROM peeks to the file. Then it closes the file and resets the disk drive.

Figure 1. Examples of the fonts.



To use your font disk, which now has nine binary files containing nine new character sets, first reset your computer by turning it off and back on again. Load the Boot Charset program (Listing 2), which automatically loads the Font Menu program (Listing 3). Once this is done, the menu page will appear on the screen. Use the cursor up/down key to highlight your choice of fonts and press the return key to load that font.

The screen will clear and the familiar cold-start screen (in the new font you selected) will appear. Note that you now have 36861 Basic bytes of memory available. You can load, save and run just about any program, except programs such as some word processors, spreadsheets, etc., that use locations 2048 to 4095. Also, if you have to hit the run-stop/restore key, just enter, in Immediate mode, SYS 755 to restore your new character set.

Now you are ready to use these new fonts in your own programs. Just be sure to save these font programs on your programming disks.

With this background on custom character sets, try designing and creating your own fonts. R

Kenny Lawson uses computer-controlled equipment in his job as set-up man at the RCA-GE plant in Indianapolis.

Listing 1. Charset Creator program.

```
10 REM CHARACTER SET CREATOR -
   KENNY LAWSON            :REM*64
20 X=828:PRINTCHR$(142) :REM*12
30 READA:IFA=-1THEN50  :REM*177
40 POKEX,A:X=X+1:GOTO30:REM*239
50 PRINT"{SHFT CLR}POKE44,16:PO
   KE4096,0:NEW"           :REM*7
60 PRINT:PRINT:PRINT"SYS828"
                          :REM*117
70 POKE631,19:POKE632,13:POKE63
   3,13:POKE198,3:NEW  :REM*132
80 DATA 173,14,220,41,254,141,1
   4,220,165,1,41,251,133,1,169
   ,0,133,251,133          :REM*86
90 DATA 253,169,8,133,252,169,2
   08,133,254,162,0,160,0,177,2
   53,145,251,200          :REM*111
100 DATA 208,249,230,252,230,25
   4,232,224,8,208,238,165,1,9
   ,4,133,1,173,14     :REM*205
110 DATA 220,9,1,141,14,220,173
   ,24,208,41,240,9,2,141,24,2
   08,96,-1                :REM*61
```

Continued on p. 84. ►

RUN it right: **C-64**

RUN 4/88

EVERYDAY LOWEST PRICES

MONTGOMERY GRANT

IN NEW YORK STATE CALL
(212) 732-4500
FOR CUSTOMER SERVICE
CALL MON-FRI/9 AM-4 PM
(718)965-8686
FAX NO. 2*25641497
TELEX NO. 422132HMOLLER

FOR ORDERS AND INFORMATION CALL TOLL FREE
1-800-345-7059
1-800-345-7058
OPEN 7 DAYS A WEEK FOR ORDERS: MONDAY-FRIDAY:9AM-7PM / SATURDAY & SUNDAY: 9:30AM-6PM EDT

OR WRITE:
MONTGOMERY GRANT
MAIL ORDER DEPT.
P.O. BOX 58
BROOKLYN, N.Y., 11230

commodore apple PRINTERS

C64C
With Geos Program!
$149.95

C128
$219

NEW C-128D with Built in Disk Drive **$429**

#1700 128K EXPANSION MODULE	$99.95
#1764 EXPANSION MODULE	$119.95
XETEC JR. INTERFACE	$34.95
XETEC SR. INTERFACE	$54.95
C-128 POWER SUPPLY	$39.95
C64/C64-C POWER SUPPLY	$29.95
1351 MOUSE	$39.95

XETEC LI. KERNEL 20 MB HARD DRIVES FOR:

C64-C	$769
C-128	$849

commodore DISK DRIVES

1541/C	$149.95
1571	$209.95
1581	$189.95

commodore MONITORS

1802 COLOR MONITOR	$169.95
1080 COLOR RGB MONITOR	$259.95
THOMPSON RGB COLOR MONITOR	$289.95

C128 COMPUTER PACKAGES

#1 COMPLETE PACKAGE
COMMODORE 128 COMPUTER
COMMODORE 1541 DISK DRIVE
12" MONITOR
COMMODORE COLOR PRINTER

$469
COLOR MONITOR ADD *$110*
TO SUBSTITUTE 1571 FOR 1541 – ADD $60

#2 DELUXE PACKAGE
COMMODORE 128 COMPUTER
COMMODORE 1571 DISK DRIVE
COMMODORE 1902 COLOR MONITOR
COMMODORE 1515 80 COL. PRINTER

$699

SPECIAL!
C-128/D DELUXE PACKAGE
C-128 COMPUTER W/ BUILT-IN DISK · 1902 COLOR MONITOR · COMMODORE COLOR PRINTER

$639

PACKAGES
Apple IIC or IIE Computer 5.25" Drive 12" Monitor All Hook-up Cables & Adaptors Package of 10 Diskettes

APPLE IIC	APPLE IIE
$579	**$799**

MACSE	$1949
MAC SE W/20 MB APPLE HARD DRIVE	$2599
APPLEWORKS	$89.95
IMAGEWRITER II Printer	$459
APPLE MAC + PACK	$1579
APPLE IIGS COLOR PACK	$1379

LEADING EDGE
MODEL D PACKAGE
IBM PC/XT COMPATIBLE

512K RAM Computer Keyboard 360K Floppy Drive 4.7-7.16 MHz. 12" Monitor 8088-2 Processor

$799

SAME PACKAGE W/20 MB HAND DRIVE **$1049**

EPSON

FX-86E	$309.95
FX-286E	$449.95
LQ-800	$399.95
LQ-850	$489.95
LQ-500	$329.95
LQ-1050	$659.95
EX-1000	$459.95

Panasonic

1080i-II	$159.95
1092	$279.95

star

NX-1000	$169.95
NX-15	$289.95
NB-2410	$399.95
NB-2415	$539.95

OKIDATA

OKIDATA-120	$199.95
OKIDATA-180	$219.95
OKIMATE-20 WITH PLUG 'N PRINT	$189.95

SANYO
PR-3000 DAISY WHEEL LQ PRINTER..... $99.50

Commodore AMIGA 500
- 68000 Processor
- 512k Ram Expandable to 9MB
- Graphics Processor

IN STOCK-CALL FOR LOW PRICE!

AMIGA 500 W/1080	*$769*
AMIGA 500/1080/1010	*$979*

AMIGA 2000 IN STOCK
ALL AMIGA PERIPHERALS IN STOCK INCLUDING:

A-501 512K EXPANSION A-1010 3.5" FLOPPY DRIVE A-1020T 5.25" DISK DRIVE WITH TRANSFORMER A-2088D BRIDGE CARD RF MODULATOR A-1084 RGB COLOR MONITOR A-1680 MODEM

C64C COMPUTER PACKAGES

#3 COMPLETE PACKAGE
COMMODORE C-64/C COMPUTER
COMMODORE 1541 DISK DRIVE
COMMODORE COLOR PRINTER
12" MONITOR
GEOS SOFTWARE PROGRAM

$369
COLOR MONITOR ADD *$110*

#4 COLOR PACKAGE
COMMODORE C-64C COMPUTER
COMMODORE 1541/C DISK DRIVE
COMMODORE COLOR PRINTER
COLOR MONITOR
GEOS SOFTWARE PROGRAM

$499

BLUE CHIP
IBM PC/XT COMPATIBLE PKG.

512K RAM Expandable to 640K 360K Floppy Disk Drive 12" Monitor

$499

SEAGATE
20 MB HARD DRIVE W/ CONTROLLER **$279**

40 MB HARD DRIVE & 30 MB HARD DRIVE NOW IN STOCK!

SPECIAL!
commodore PC10-1
PROFESSIONAL PACKAGE

PC10-1 Computer 512K Expandable to 640K 360K Disk Drive Enhanced Keyboard Serial & Parallel Ports 12" Monitor All Hook-up Cables & Adaptors Package of 10 Diskettes

$499

SAME PACKAGE W/20 MB HARD DRIVE **$769**

COMMODORE PRINTERS

MPS-1000	$169
MPS-1250	$239
DPS-1101 DAISY WHEEL PRINTER	$159

NO SURCHARGE FOR CREDIT CARD ORDERS

Certified check, bank check, Mastercard, Visa, Am-Ex, Diner's Club, CarteBlanche, Discover Card and C.O.D.'s accepted. No additional surcharge for credit card orders. Non-certified checks must wait 4-6 weeks clearance. Money orders are non-certified checks. N.Y. residents add applicable sales tax. Prices and availability subject to change without notice. Not responsible for typographic errors. Return of defective merchandise must have prior return authorization number, or returns will not be accepted. IBM PC/XT are registered trademarks of International Business Machine Corp. All orders can be shipped Air Express-call for details. Pictures are illustrative only and may not be exact.

Circle 98 on Reader Service card.

Creating Windows

Installing windows is easy on the C-128; here are some tips for doing a neat job.

By J. C. VOLLMER

This article brings you some useful techniques for manipulating windows on the C-128. The 128's window statement is controlled by five parameters and has the following syntax:

```
WINDOW <top-left col,top-left row,bottom-
right col,bottom-right row,clear flag>
```

To define a window, you must provide the coordinates of the top-left and bottom-right corners, in terms of the row and column numbers of those two points.

The column values must be in the range of 0–39 in 40-Column mode, and 0–79 in 80-Column mode. The row values must be in the range 0–23 for both modes. The optional clear flag blanks the window when it's set to one.

You can also create a window by moving the cursor to the desired top-left corner of the window and pressing the escape and T keys in sequence. Then move the cursor to where you want the lower-right corner and press the escape and B keys in sequence.

To clear the window, type in the following line:

```
WINDOW 0,0 RWINDOW(2) - 1,23,0
```

The program in Listing 1 is a demo for creating windows on both the 40- and 80-column screens. It's written for the 80-column screen, but will work in 40-Column mode if you change line 30 to the following:

```
30 UC = INT(RND(0)*20) + 1:
   LC = 37 - INT(RND(0)*18)
```

If you use your C-128 in 80-Column mode, try adding the lines below and see how they alter the windows:

```
85 IFINT(RND(0) + .5)
   THENPRINTCHR$(14);:
   ELSEPRINTCHR$(142);
86 IFINT(RND(0) + .5)
   THENPRINTCHR$(15);:
   ELSEPRINTCHR$(143);
87 IFINT(RND(0) + .5)THENPRINTCHR$(2);:
   ELSEPRINTCHR$(130);
```

Line 85 toggles between Uppercase/Graphics mode and Upper-Lowercase mode. Line 86 toggles the 8563 chip's flash feature, which, in this case, lets you set one window to flashing while another remains normal. Line 87 turns the underlining feature on and off. The latter two lines have no effect in 40-Column mode.

Borders and Titles

Lines 6000–6070 of the program create titles and borders for the windows. You can use them as a subroutine to give you windowing control. Eight variables within these lines define the following parameters:

UC—Upper-left column
UR—Upper-left row
LC—Lower-right column
LR—Lower-right row
CL—Clear flag
BC—Border color
B$—Border character
T$—Title of window

When defining a window with this subroutine, leave space between the window and the edge of the screen for the window's border, and set T$ to null (T$ = "") if you don't want to have a title. Also, make sure the title is no longer than the width of the window or it'll get truncated. R

Listing 1. Window Demo program.

```
Ø REM 8Ø-COLUMN WINDOWS - VOLLM
  ER                          :REM*85
1Ø COLORØ,1                   :REM*155
2Ø UR=INT(RND(Ø)*11)+1:LR=21-IN
  T(RND(Ø)*11)                :REM*75
3Ø FAST:UC=INT(RND(Ø)*4Ø)+1:LC=
  77-INT(RND(Ø)*36)           :REM*22
4Ø B$=CHR$(32):T$="WINDOW"+STR$
  (B+1)+":"                   :REM*193
5Ø BC=INT(RND(Ø)*6)+2         :REM*78
6Ø CL=1                       :REM*242
7Ø GOSUB6ØØØ                  :REM*124
8Ø IFINT(RND(Ø)+.5)THENPRINTCHR
  $(18);:ELSEPRINTCHR$(146);
                              :REM*149
85 IFINT(RND(Ø)+.5)THENPRINTCHR
  $(14);:ELSEPRINTCHR$(142);
                              :REM*2Ø5
86 IFINT(RND(Ø)+.5)THENPRINTCHR
  $(15);:ELSEPRINTCHR$(143);
                              :REM*24
87 IFINT(RND(Ø)+.5)THENPRINTCHR
  $(2);:ELSEPRINTCHR$(13Ø);
                              :REM*62
9Ø FORZ=1TO5Ø:FORA=65TO9Ø:PRINT
  CHR$(A);:NEXTA:NEXTZ:REM*188
1ØØ B=B+1                     :REM*1Ø7
11Ø GOTO2Ø                    :REM*234
6ØØØ GOSUB6Ø4Ø                :REM*163
6Ø1Ø COLOR5,BC:WINDOWØ,Ø,RWINDO
  W(2)-1,23,Ø:PRINTCHR$(142)
                              :REM*118
6Ø2Ø CHARØ,UC-1,UR-1,TB$,1:FORY
  =URTOLR:CHARØ,UC-1,Y,B$,1:
  CHARØ,LC+1,Y,B$,1:NEXTY:CH
  ARØ,UC-1,LR+1,BB$,1:WINDOW
  UC,UR,LC,LR,CL:RETURN
                              :REM*142
6Ø4Ø TB$="":BB$="":TB$=T$:IFCLT
  HENCL=1                     :REM*52
6Ø5Ø IF(LC-UC)<LEN(T$)THENTB$=L
  EFT$(TB$,LC-UC+2)           :REM*164
6Ø6Ø FORX=UC+LEN(T$)TOLC+2:TB$=
  TB$+B$:NEXTX                :REM*19
6Ø7Ø FORX=UCTOLC+2:BB$=BB$+B$:N
  EXTX:RETURN                 :REM*35 ■
```

RUN it right: **C-128**

S & S Wholesalers, Inc.

226 Lincoln Road • Miami Beach, Florida 33139

Dealer & Institutional Accts. 1-800-331-7054

SALES 1-800-233-6345

Customer Service
305-538-1364

commodore 64C COMPUTER



129.90*

*WITH THE PURCHASE OF SPECIAL SOFTWARE PACKAGE

STAR MICRONICS PRINTER

- 80 COLUMN PRINTER
- FULL GRAPHICS CAPABILITY
- 100% COMMODORE COMPATIBLE
- 1 YEAR WARRANTY

PANASONIC 1081 II	149.00*	OKIDATA 180	224.00*
PANASONIC 1091 II	169.00*	STAR NX1000	149.00*
PANASONIC 3131	249.00*	ESPON LX800	189.00*
PANASONIC 1524	569.00*	EPSON FX286E	479.00*
OKIMATE 20	119.00*	EPSON EX800	CALL
OKIDATA 120	179.00*	HW-10	99.00*

*WITH PURCHASE OF STARTER KIT

"1670" CLONE 1200 BAUD MODEM

DIRECT CONNECT WITH SOFTWARE

89.90

COMMODORE 300 BAUD DIRECT CONNECT MODEM

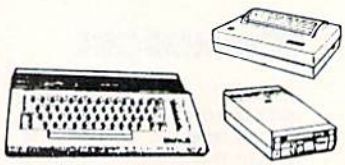
19.90

5¼" DSDD DISKETTES

19¢* 100% CERTIFIED & GUARANTEED

*MIN. 50 W/PURCHASE OF DISK FILE

commodore 128-D WORD PROCESSING SYSTEM



629.90

- Commodore 128-D Computer w/ built-in 360K double sided disk drive
- Hi Resolution 80 column monitor w/cable
- 80 Column High Speed Graphics Printer with interface & cables
- Word Processing & Database Software

1750 RAM EXPANDER	169.90
6 OUTLET SURGE PROTECTOR	18.90
C64 POWER SUPPLY	28.90

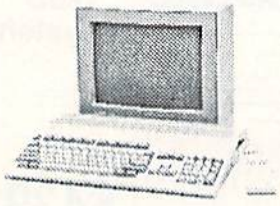
COLOR MONITOR



139.90.

*With Purchase of Blare Guard

COMMODORE AMIGA 500



CALL

commodore PC



CALL

HI RESOLUTION MONOCHROME MONITOR

40/80 Column Display



89.90

SOFTWARE

BERKLEY SOFTWORKS

GEOS	34.90
GEOS 128	41.97
GEO PUBLISH	41.97
GEOPROGRAMMER	41.97
DESK PAK - 1	14.97
FONT PAK - 1	14.97
GEO - DEX	14.97
DESK PAK II	CALL
GEOWRITE	29.97
GEOCALC	29.97
GEOFILE	29.97

ACCESS

ECHELON	26.97
MACH 128	29.97
MACH 5	20.97
LEADERBOARD	23.00
TRIPLE PAK	11.97
WORLD CLASS LEADERBOARD	23.97

SUBLOGIC/ACTION SOFT

FLIGHT SIMULATOR II	32.77
THUDER CHOPPER	17.77
UD PERISCOPE	17.77
SCEIVERY DISK 1-12	ea. 14.77
JET	25.97

DADAEAST

BREAK THROUGH	20.77
COMMANDO	20.77
IKARI WARRIOR	17.77
KUNG FU FASER	14.77
TAG TEAM WRESTLING	17.77

BRODERBUND

PRINTSHOP	26.97
KARATEKA	17.77
WHERE IN THE U.S.A.	
IS CARMEN SAN DIEGO	23.97
PRINTSHOP COMPANION	23.97
BANK ST. WRITER	29.97

TIMEWORKS

WORDWRITER 128 I	24.90
PARTNER 128	24.90
SWIFTCALC 128	24.90
DATAMANAGER 128	24.90
DESKTOP PUBLISHER	CALL

ACCOLADE

DAMBUSTERS	16.00
FIGHT NIGHT	17.77
4th & INCHES	17.77
SPY US SPY	9.77
KILLED UNTIL DEAD	17.77
TEST DRIVE	17.77

DIGITAL SOLUTIONS

POCKET DICTIONARY	8.97
POCKET WRITER II	28.77
POCKET FILER II	28.77
POCKET PLANNER II	28.77
SUPERPACK II	59.97

GAMESTAR

CHAMPIONSHIP BASEBALL	20.97
CHAMPIONSHIP FOOTBALL	20.97
STAR RANKBOXING	17.77
TOP FUEL ELIMINATOR	17.77

EPYX

CALIFORNIA CAMES	23.77
CHAMPIONSHIP WRESTLING	23.77
FAST LOAD	23.77
RAD WARRIOR	17.77
STREET SPORTS	23.77
WINTER GAMES	23.77
WORLD GAMES	23.77

ELECTORNIC ARTS

ADVENTURE CONST.	11.77
AMNESIA	24.77
ARTIC FOX	24.77
BAROS TALE II	24.77
CHESSMASTER 2000	24.77
DRAGONS LAIR	19.77
HOME PAK	14.97
FINANCIAL COOKBOOK	12.77
INSTANT MUSIC	20.77
MULE	11.77
LEGACY OF THE ACIENTS	20.77
MARBLE MADNESS	19.77
ULTIMA I/III/IV	CALL
SKY FOX II	CALL
PAPERCLIP	18.97

PROGRESSIVE

BOBS TEAM PRO	29.77
SUPERSCRIPT	29.77
SUPERBASE 64	47.77
SUPERBASE 128	52.77
SUPERSCRIPT 128	52.77

MICROPROSE

AIRBORNE RANGER	20.97
CONFLICT IN VIETNAM	23.97
F15 STRIKE EAGLE	20.97
GUNSHIP	20.97
PIRATES	23.97
STEALTH FIGHTER	23.97
SILENT SERVICE	23.97

MINDSCAPE

BOP N WRESTLE	17.77
DEFENDER OF THE CROWN	20.77
GAUNTLET	20.77
INDOORSPORTS	20.77
KING OF CHICAGO	20.77
PAPERBOY	20.77
SDI	20.77

CLOSEOUTS

	WAS	NOW
HOME ACCOUNTANT	74.95	24.90
PAPERCLIP II	79.95	19.90
EASY SCRIPT	69.95	12.90
JANE 128	99.90	14.90
LOGO	69.90	29.90
MS PAC MAN	29.90	7.77
PAC MAN	29.90	7.77
ZORK II	39.90	6.77
ZORK III	49.90	6.77
DEADLINE	59.90	6.77
SUSPENDED	49.90	6.77

FREE FREIGHT ON ORDERS OVER $100.00 All prices reflect a 3% cash discount. Add 3% for credit card purchases. C.O.D. orders add $4.00 per box. Orders under $100.00 add $4.00 shipping and handling. Quantities on some items may be limited. Prices are subject to change without notice. APA, FPO add 6% additional shipping. Foreign orders actual freight charged. All sales are final. Return of defective merchandise for replacement only with authorization. Authorized returns are subject to a restocking fee. Complete listing of all sales policies available upon request. Florida residents add 6% sales tax.

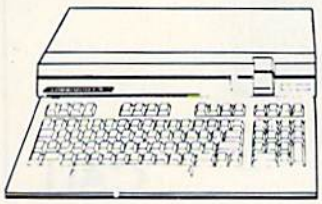
Lyco Computer

Marketing & Consultants

Since 1981

Order processed within 24 hours.

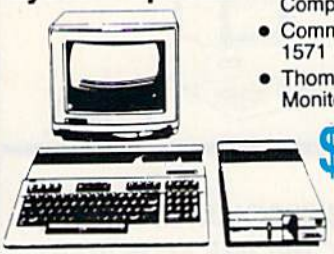
COMMODORE 128D System



$439.95

COMMODORE 128 system special

- Commodore 128 Computer
- Commodore 1571 Drive
- Thomson 4120 Monitor

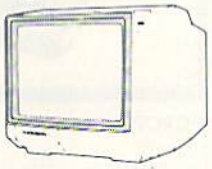


$635.95

Limited Quantity

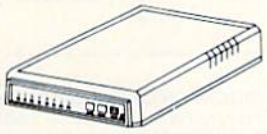
THOMSON 4120 Commodore Ready Monitor

- Color Composite for 64 Mode Operation
- Color RGB for C128 Mode Operation
- Plus Switchable in Green Monochrome
- Cables Included



$225.95

Smarteam 1200 Baud Modem



$89.95

Hayes Compatible

COMMODORE HARDWARE

1541 II Disk Drive	$175.95
1571 Disk Drive	$215.95
1581 Disk Drive	$189.95
Indus GT C-64 Drive	$169.95
1802C Monitor	$189.95
64 C Computer	$169.95
128D Computer/Drive	$439.95
C-1351 Mouse	$32.95
1700 RAM	$109.95
C-1750 RAM	$CALL
1764 RAM C64	$117.95
1084 Monitor	$239.95
128 Computer	$219.95

Seagate HARD DRIVES

ST 225 20 meg Hard Drive	$215.95*
ST 251 40 meg Hard Drive	$399.95*
*DTC Controller Kit for PC/XT	$39.95
ST 238 30 meg Hard Drive	$249.95**
**DTC RLL Controller Kit for PC/XT	$49.95
ST 125 20 meg 3.5 Hard Drive	$289.95
DTC Controller Kit for PC/XT	$39.95
ST 125 20 meg Internal Card w/Controller	$349.95

Add $10.00 for Western Digital Controllers

PC COMPATIBLE HARDWARE

BCM 12G Gr. Monitor	$75
BCM 12A Am. Monitor	$79
BCC CG Color Card	$94.99
AST	$CALL
Laser Compact XT	$475.95
Laser Compact XTE 640K	$549.95
Laser Desktop Turbo XT 256K	$569.95
Laser Desktop Turbo XT 640K	$599.95
Laser EGA + 4 Card	$129.95
Kraft PC Joystick Card	$27.95
Zucker CGA ColorCard	$89.95
ATI Graphics Solution	$129.95
ATI EGA Wonder	$199.95
Thomson GB 200	$249.95

COMMODORE 64C COMPUTER



$169.95

COMMODORE 64C System Special

- Commodore 64C Computer
- Commodore 1541 II Drive
- Seikosha Sp180VC Commodore Ready Printer

$469.95



LASER COMPACT XT

- PC-XT Compatible
- 4.77 - 8.00 Mhz Super Turbo Clock Speed
- Built-in 5¼ Drive
- Built-in RGB Video Output
- Parallel Printer Port
- Serial RS232
- Joystick/Game Port



ONLY **$475.95**

BLUE CHIP PC PERSONAL COMPUTER



- 4.77 Mhz speed
- Dual floppy
- Green monitor included

$579.95

1-800-233-8760

New Item! | Printer Paper | COMMODORE | AMIGA | IBM

1 Controller Joystick

- Adheres to Keyboard
- No Dangling Cord
- Great for Geos
- Works With Games

$13.95

Joysticks

Tac 3	$9.95
Tac 2	$10.95
Tac 5	$12.95
Tac 1 + IBM/AP	$26.95
Economy	$5.95
Slik Stick	$6.95
Black Max	$10.95
Boss	$11.99
3-Way	$19.99
Bathandle	$16.75
Winner 909	$24.95
Wico IBM/AP	$29.95
Lipstick Plus	$14.95
Kraft KC III Ap/PC	$16.95

Printer Interfaces

Xetec Jr.	$35.95
Xetec Supergraphics	$55.95
Xetec Gold	$99.95
PPI	$29.95
Cardco GWhiz	$32.95
Cardco Super G	$44.95
MW 350	$49.95

Great Bargains

M-1 Mouse

Contriver M-1 Mouse

- Works with Geos
- Complete with Graphic Utility Software

Only $32.95

Mouse Pads

- provides clean, dust-free surface for your mouse
- No-mar backing to protect your desk surface

9x11 .... $10.95

Mouse Cleaner $9.95

1000 sheet laser	$16.95
150 sheet ivory, 20lb	$6.95
150 sheet white, 20lb	$6.95
1000 sh. Gr. bar 14"	$18.95
1000 mailing labels	$8.95
200 sheet OKI 20	$8.95
Transparent Labels	$4.95

Generic Ribbons

Save up to 50% off brand prices! Call for your make and model!

Drive Maintenance

Nortronics 5¼ Drive Cleaner	$7.95
Nortronics 5¼ Drive Cleaner Kit	$15.95

Dustcovers

Pan 1081/1091	$9.95
64C	$9.95
128D	$9.95
Seik. Sp1000	$9.95
Epson LX800	$9.95

COMMODORE

Access:

Echelon	**$25.95**
Leader Board	$22.95
Mach 5	$19.95
Mach – 128	$28.95
10th Frame	$22.95
Triple Pack	$11.95
Wld. Cl. Leader Brd.	$22.95
Famous Courses #1	$11.95
Famous Courses #2	$11.95

Action Soft:

Up Periscope	$18.95
Thunder Chopper	$NEW

Activision:

Aliens	$19.95
Champion. Basketball	$19.95
Hacker	$8.95
Hacker 2	$19.95
Labyrinth	$19.95
Music Studio	$19.95
Tass Times	$16.95
Titanic	$11.95
Leather Goddesses	$22.95
Stationfall	$19.95
Lurking Horror	$19.95
Top Fuel Eliminator	$15.95

Berkeley Softworks:

Geos	$35.95
Deskpak I	$20.95
Fontpak I	$17.95
Geodex	$23.95
Geofile	$29.95
Writers Workshop	$29.95
Geo Calc	$29.95

Broderbund:

Bank St. Writer	$27.95
Carmen San Diego	$19.95
Graphic Lib. I, II, III	$13.95
Karateka	$12.95

Epyx:

Create A Calendar	$15.95
Destroyer	$22.95
Fastload	$19.95
Football	$11.95
Movie Monster	$11.95
Sub Battle	$22.95
Winter Games	$22.95
California Games	$22.95
Super Cycle	$11.95
Graphics Scrapbook	$11.95
Str. Sports Basketball	$22.95
Wld.'s Great Baseball	$11.95
Summer Games II	$22.95
Vorpol Utility Kit	$11.95
World Games	$22.95

Firebird:

Colossus Chess IV	$19.95
Elite	$18.95
Golden Path	$22.95
Guild of Thieves	$22.95
Pawn	$22.95
Talking Teacher	$22.95
Tracker	$22.95
Starglider	$22.95
Sentry	$22.95

Microleague:

Microleag. Baseball	$22.95
General Manager	$16.95
Stat Disk	$13.95
'86 Team Disk	$11.95
Microleag. Wrestling	$New

Microprose:

Airborne Ranger	$CALL
F-15 Strike Eagle	$19.95
Gunship	$19.95
Kennedy Approach	$13.95
Silent Service	$19.95
Solo Flight	$13.95
Top Gunner	$13.95

Origin:

Autoduel	$28.95
Ultima III	$22.95
Ultima IV	$33.95
Moebius	$22.95

Springboard:

Newsroom	$29.95
Certificate Maker	$29.95
Clip Art Vol. #1	$17.95
Clip Art Vol. #2	$23.95
Clip Art Vol. #3	$17.95
Graphics Expander	$21.95

Strategic Simulations:

Gemstone Healer	$16.95
Gettysburg	$33.95
Kampfgruppe	$33.95
Phantasie II	$22.95
Phantasie III	$22.95
Ring of Zelfin	$22.95
Road War 2000	$22.95
Shard of Spring	$22.95
Wizards Crown	$22.95
War in the S. Pacific	$33.95
Wargame Constr.	$16.95
Battlecruiser	$33.95
Gemstone Warrior	$7.95
Battle of Antetiem	$28.95
Colonial Conquest	$22.95
Computer Ambush	$33.95
B-24	$19.95

Sublogic:

Flight Simulator II	$31.49
Jet Simulator	$24.95
Night Mission Pinball	$18.95
Scenery Disk 1-6	$12.95

Timeworks:

Partner C64	$24.95
Partner 128	$39.95

Unison World:

Print Master	$24.95
Art Gallery 1 or 2	$18.95

Activision:

Champ. Basketball	$27.95
Championship Golf	$24.95
GFL Football	$27.95
Hacker	$16.95
Hacker 2	$24.95
Music Studio	$29.95
Tass Times	$24.95

Firebird:

Guild of Thieves	$26.95
Pawn	$26.95
Starglider	$26.95

Epyx:

Apshai Trilogy	$13.95
Rogue	$22.95
Winter Games	$22.95
World Games	$22.95

Microprose:

Silent Service	$24.95

Access:

Leader Board	$24.95
10th Frame	$24.95
Tournament #1	$14.95

Sublogic:

Flight Simulator II	$32.95
Jet Simulator	$32.95
Scenery Disk	$17.95

Disc Storage

QVS-10 5¼	$3.99
QVS-75 5¼	$16.95
QVS-40 3½	$11.95

Diskettes

5-1/4

Disk Notcher $5.95

Maxell:

SSDD	$7.95
DSDD	$8.95

Bonus:

SSDD	$5.95
DSDD	$6.95

SKC:

DSDD	$6.95
DSHD	$13.95
Generic DSDD	$4.95

Verbatim:

SSDD	$8.99
DSDD	$11.50

3.5

Maxell:

SSDD	$11.50
DSDD	$17.95

Bonus:

SSDD	$10.95
DSDD	$13.95

Verbatim:

SSDD	$12.95
DSDD	$18.95

SKC:

SSDD	$9.95
DSDD	$13.99
Generic SSDD	$9.75
Generic DSDD	$12.95

Access:

Wld. Cl. Leader Board	$27.95
10th Frame	$27.95

Activision:

Pebble Beach Golf	$22.95
Champ. Baseball	$22.95
Champ. Basketball	$22.95
Zork Trilogy	$39.95
Leather Goddesses	$22.95
Moonmist	$22.95

Broderbund:

Ancient Art of War	$25.95
Print Shop	$32.95
Print Shop Compan.	$31.95
Graphic Lib. I or II	$19.95
Karateka	$19.95
Toy Shop	$22.95
Bank St. Writer +	$44.95

Epyx:

Apshai Trilogy	$11.95
Create A Calendar	$15.95
Destroyer	$22.95
Movie Monster	$11.95
Rogue	$16.95
St. Sports Basketball	$22.95
Sub Battle Simulator	$22.95
Winter Games	$22.95
World Games	$22.95

Firebird:

Starglider	$25.95
Guild of Thieves	$25.95

Learning Company:

Think Quick	$19.95
Reader Rabbit	$22.95
Math Rabbit	$19.95
Writer Rabbit	$22.95
Magic Spells	$19.95

Microleague:

Microleag. Baseball	$22.95
General Manager	$16.95
Stat Disk	$13.95
'86 Team Disk	$11.95

Microprose:

Conflict in Vietnam	$22.95
Crusade in Europe	$22.95
Decision in Desert	$22.95
F-15 Strike Eagle	$22.95
Silent Service	$22.95
Gunship	$27.95

Strategic Simulations:

Road War 2000	$22.95
Kampfgruppe	$33.95
Shard of Spring	$22.95
Battle of Antetiem	$33.95
Computer Baseball	$7.95
Gettysburg	$33.95
Wizards Crown	$22.95
Chickamauga	$33.95

Sublogic:

Jet Simulator	$31.49
Scenery Japan	$17.95
Scenery San Fran.	$17.95
Scenery #1-#6	$64.95
Flight Simulator	$34.95

Timeworks:

Swiftcalc	$39.95
Wordwriter	$34.95

Unison World:

Art Gallery 2	$14.95
News Master	$49.95
Print Master (+)	$29.95
Fonts & Borders	$17.95

Free shipping on Prepaid cash orders over $50 in the Continental US.

Lyco Computer

Marketing & Consultants

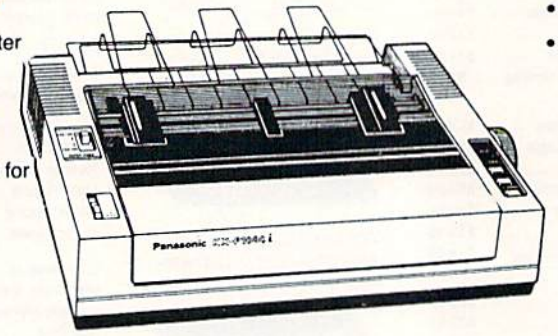
Since 1981

Order processed within 24 hours.

The Paper Saver!

Panasonic 1092i

- 240 CPS/12 Character Mode
- Push Feed Tractor
- NLQ Mode 48 CPS
- Excellent Versatility
- Interfacing Available for IBM PC and Many Others

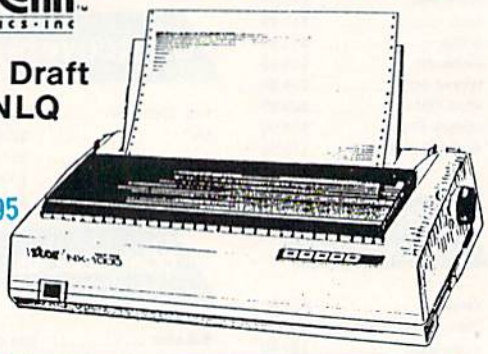


$319.95

New Release

star NX-1000

- 144 cps Draft
- 36 cps NLQ



$174.95

NEW NX-1000 Rainbow 7 color printer $225.95

PRINTERS

Panasonic

1080i Model II	$179.95
1091i Model II	$199.95
1092i	$319.95
1592	$409.95
1595	$459.95
3131	$299.95
3151	$429.95
KXP 4450 Laser	$CALL
1524 24 Pin	$559.95
Fax Partner	$589.95

OKIDATA

Okimate 20	$119
Okimate 20 w/cart	$179.95
120	$189.95
180	$219.95
182+	$225.95
183	$249.95
192+	$309.95
193+	$449.95
292 w/interface	$449.95
293 w/interface	$585.95
294 w/interface	$819.95
393	$955.95

SEIKOSHA

SP 180Ai	$129.95
SP 180VC	$129.95
SP 1000VC	$139.95
SP 1000AP	$169.95
SP 1200VC	$155.95
SP 1200Ai	$165.95
SP 1200AS RS232	$165.95
SL 80Ai	$299.95
MP1300Ai	$269.95
MP5300Ai	$399.95
MP5420Ai	$879.95
SP Series Ribbon	$7.95
SK3000 Ai	$339.95
SK3005 Ai	$419.95
SPB 10	$CALL
SL 130Ai	$599.95

Toshiba

321SL	$489
341 SL	$659
P351 Model II	$899
351 SX 400 cps	$1019

EPSON

LX800	$175.95
FX86E	$289.95
FX286E	$429.95
EX800	$374.95
EX1000	$469.95
LQ500	$CALL
LQ1000	$549.95
LQ2500	$849.95
GQ3500	$LOW
LQ850	$499.95
LQ1050	$679.95

CITIZEN

120 D	$149.95
180 D	$169.95
MSP-10	$259.95
MSP-40	$289.95
MSP-15	$324.95
MSP-50	$389.95
MSP-45	$425.95
MSP-55	$489.95
Premiere 35	$464.95
Tribute 224	$624.95

star micronics

NL-10 w/o Cart	$159.95
NX-1000	$174.95
NX-1000C	$184.95
NX-1000 Color	$225.95
NX-1000C Color	$229.95
NX-15	$309.95
ND-10	$265.95
ND-15	$379.95
NR-10	$309
NR-15	$425.95
NB-15 24 Pin	$699.95
NB24-10 24 Pin	$425.95
NB24-15 24 Pin	$579.95

BROTHER

M1109	$195
M1409	$299
M1509	$335
M1709	$475
Twinwriter 6 Dot & Daisy	$899
M1724L	$599
HR20	$339
HR40	$569
HR60	$709.95

1-800-233-8760

Lyco Means Total Service.



Educational Institutions If you are not currently using our educational service program, please call our representatives for details.



Mark "Mac" Bowser, Sales Manager

I would personally like to thank all of our past customers for helping to make Lyco Computer one of the largest mail order companies and a leader in the industry.

Monitors

Thomson:

230 Amber TTL/12"	$79.95
450 Amber TTL/15"	$69.95*
4120 CGA	$225.95
4160 CGA	$259.95
4460 EGA	$319.95
4375 UltraScan	$389.95
GB 100 EGA Card	$129.95
GB 200 Super Card	$219.95

Quantities Limited

THOMSON
4120 Monitor

- 14" RGBI video composite analog
- Compatible with IBM and Commodore
- RGB data cable included

$225.95

Blue Chip:

BCM 12" Green TTL	$75
BCM 12" Amber TTL	$79

NEC:

Multisync II	$599

Save $210 over NEC Multisync with Thomson 4375 UltraScan $389.95

Modems

Avatex:

1200e	$69.95
1200i PC Card	$69.95
1200hc Modem	$89.95
2400	$179.95
2400i PC Card	$169.95

Hayes:

Smartmodem 300	$149.95
Smartmodem 1200	$285.95
Smartmodem 2400	$425.95

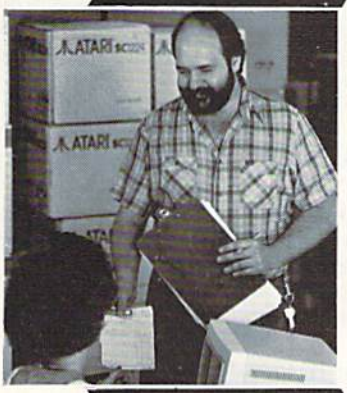
Smarteam
1200 Baud Modem



OUR PRICE **$89.95**

Hayes Compatible

Call Lyco



sales staff at our toll free number to inquire about our diverse product line and weekly specials.

First and foremost our philosophy is to keep abreast of the changing market so that we can provide you with not only factory-fresh merchandise but also the newest models offered by the manufacturers at the absolute best possible prices. And we offer the widest selection of computer hardware, software and accessories.

Feel free to call Lyco if you want to know more about a particular item. I can't stress enough that our toll-free number is not just for orders. Many companies have a toll-free number for ordering, but if you just want to ask a question about a product, you have to make a toll call. Not at Lyco. Our trained sales staff is knowledgeable about all the products we stock and is happy to answer any questions you may have. We will do our best to make sure that the product you select will fit your application. We also have Saturday hours — one more reason to call us for all your computer needs.

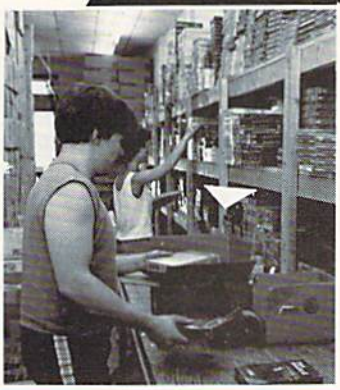
Order Now

Once you've placed your order with Lyco, we don't forget about you. Our friendly, professional customer service representatives will find answers to your questions about the status of an order, warranties, product availability, or prices.



Lyco Computer stocks a multimillion dollar inventory of factory-fresh merchandise. Chances are we have exactly what you want right in our warehouse. And that means you'll get it fast. In fact, orders are normally shipped within 24 hours. Free shipping on prepaid cash orders over $50, and there is no deposit required on C.O.D. orders. Air freight or UPS Blue/Red Label shipping is available, too. And all products carry the full manufacturers' warranties.

Here's How



I can't see why anyone would shop anywhere else. Selection from our huge in-stock inventory, best price, service that can't be beat — we've got it all here at Lyco Computer.

TO ORDER, CALL TOLL-FREE: 1-800-233-8760
New PA Wats: 1-800-233-8760
Outside Continental US Call: **1-717-494-1030**

Hours: 9AM to 8PM, Mon. - Thurs.
9AM to 6PM, Friday — 10AM to 6PM, Saturday

For Customer Service, call 1-717-494-1670,
9AM to 5PM, Mon. - Fri.
Or write: Lyco Computer, Inc.
P.O. Box 5088, Jersey Shore, PA 17740

VISA MasterCard

Risk-Free Policy: • full manufacturers' warranties • no sales tax outside PA • prices show 4% cash discount; add 4% for credit cards • APO, FPO, international: add $5 plus 3% for priority • 4-week clearance on personal checks • we check for credit card theft • compatability not guaranteed • return authorization required • price/availability subject to change • prepaid orders under $50 in Continental US, add $3.00

TELECOMPUTING WORKSHOP

Find out where to get public domain software, including terminal programs—and no foolin'!

By DAVID BRADLEY

WELCOME AGAIN to the wonderful world of telecommunications. Whether you're new to Telecomputing Workshop or a regular, fetch a tall, cool glass of your favorite beverage, pull up a chair and put up your feet, then learn and enjoy. As usual, this month I'll start with a few telecommunications notes and some news.

THE NOTES

One thing I've found out the hard way is not to use an SX-64 computer with a Commodore-specific modem that gets its power from the computer (modems such as the Commodore 1600, 1650, 1660, 1670 and 6480, the Westridge and the Total Telecommunications). My BBS was running fine on my SX-64, until one day everything stopped and the entire computer appeared to be dead. I discovered the power supply had burned out; it just wasn't built to handle long-term modem use.

If you're going to use a modem on an SX-64 for any more than an hour or two, make sure it's one that has an external power supply. Such modems usually require an interface, but that's cheaper than getting your power supply fixed or replaced.

I think Commodore has a great talent for producing computers that have plenty of ports with lots of potential. It's a shame they had to go cheap on the power supply. I don't know anybody who hasn't had to replace a 64 power supply at one time or another.

THE NEWS

Three special announcements have come in, just in time for this April column. First, there's good news for people who have a C-64 and want to use baud rates of 2400 or more. On April 1st, Commodore will release a new version of the 64—the 64 Turbo/BS. This sophisticated machine works just like a normal 64 and has all the same chips, except that they're much closer together on the circuit board, allowing higher speeds.

Second, QuantumLink has instituted a no-smoking policy. They found so many people were smoking while online that nonsmokers were complaining they couldn't read their screens through the haze. So, do your bit (no pun intended) and butt out before you go on QuantumLink.

Finally, another bit of technical information has just been released by Commodore. They suggest that, if you spill Coca-Cola on your computer, you should immediately pour on 7-Up as an antidote—their reasoning being that 7-Up is the un-cola.

So much for the news...

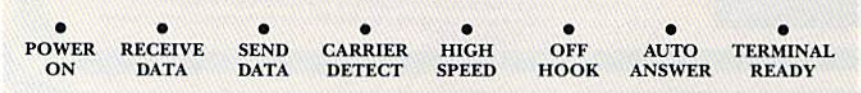
Q *What's the advantage of having a modem with LEDs, like the Trans Com TCM-1200H or the Mercury? What are all the LED's for?*

—ANDREW OBERWEGER
SARASOTA, FL

A The LEDs (light-emitting diodes) let you monitor what the modem is doing. Figure 1 is a diagram of the LEDs on the TCM-1200H. Those on the Mercury are the same, except Power On is called Modem Ready, and they're arranged differently.

With a TCM-1200H, Mercury or other LED modem, if you're connected to an online system and everything stops, you can quickly check the carrier-detect LED and see if you've lost the carrier and need to call the system back. During an upload, you can glance at the receive-data and send-data indicators to make sure data is still being transferred.

Figure 1. LEDs on a sample LED modem, the Trans Com TCM-1200H.



Q *I own a C-128, a 1571 disk drive and an Avatek modem and use MultiTerm with them. When I download C-64 programs from local BBSs, the computer is in 128 mode. My question is, will I have any problems running those C-64 programs?*

—ROLANDO ALMAGUER
JACKSONVILLE, FL

A When a program is transferred from a BBS or large system like PeopleLink, it arrives on your disk just the way it was sent. The transfer protocols don't interpret any of the information or try to run the program. In other words, the C-64 programs you download in C-128 mode should work all right in 64 mode.

Q *I have a C-64 and a 300-baud autodial Westridge modem, and I want to be able to access BBSs. Where can I find a terminal program that will work with my system and support the Punter and Xmodem protocols?*

—L. STRICANSKY
DETROIT, MI

A Refer to Table 1 for a list of five sources of public domain software available for Commodore computers. They should all have terminal programs for your modem.

Q *Is there a 2400-baud modem available for the C-64/C-128 and the Amiga? I've noticed that a lot of BBSs are going to that speed.*

—NELSON PUTNAM
CARLSBAD, NM

A I know of no Commodore-specific (plugs directly into the C-64/C-128)

Table 1. Some sources of public domain Commodore software.

Public domain programs aren't copyrighted. Therefore, they may be freely duplicated and are available without charge or at very low cost. Distributors include user's groups, both local and nationwide; online bulletin board systems and networks; and commercial concerns. The list below includes user's groups and commercial sources.

JLH Co.
Dept. 4
PO Box 67021
Topeka, KS 66667
913-478-4979

JLH offers programs for the C-64 and C-128. One program costs $1.50, with a minimum order of five ($7.50), and there's a charge of $2.50 per order for shipping and handling. They include a free disk of programs with each order. Send an SASE for a list of the programs available. No credit cards.

Lightspeed Software
PO Box 7037
Chesapeake, VA 23323

Lightspeed has programs for the C-64 and C-128, including CP/M mode. They charge $5 per ready-made disk and $10 for a disk full of programs you specify from their catalog. They also offer a locate service and a Disk-of-the-Month Club. Postage and handling is $1 on orders under $30. No credit cards.

M.U.G.S. (Muscatine User Group Support)
1836 Hershey Ave.
Muscatine, IA 52761
319-262-8279

M.U.G.S. provides C-64 and C-128 disks for $1.25 each, plus a $5 deposit per order for shipping and handling. Any of the $5 not used is returned in the form of blank disks at the rate of 35 cents per disk. M.U.G.S. also sends programs in printout form. Their catalog costs $2.

Public Domain Solutions
PO Box 832
Tallevast, FL 34270
For orders, 800-634-5546; for help, 813-378-2394

PDS distributes software for Commodores, including the PET, VIC-20, Plus/4, C-64 and C-128. They have one CP/M disk for the C-128. Their disks cost $7.95 for one, but less per disk for larger quantities. Shipping and handling is $1 per order. They also have a Disk-of-the-Month Club. Write or call for a free brochure, or send $3 for a disk catalog. Credit cards accepted.

TPUG (Toronto PET User's Group)
5300 Yonge St.
Toronto, Ontario
Canada M2N 5R2
416-733-2933

The TPUG library includes programs for PET, VIC-20, C-64, C-128 (including CP/M) and Amiga computers. Members can purchase disks for $8 and can join the Disk-of-the-Month Club. Nonmembers must pay $12 per disk. All orders require $3 shipping and handling. A disk catalog comes free with membership; nonmembers may order a printed catalog for $1. All prices are quoted in U.S. funds. Credit cards accepted.

2400-baud modem, but you should be able to use any 2400-baud Hayes-compatible modem connected to the computer with the appropriate cable or interface. The C-64/C-128 needs an RS-232 interface, such as the universal RS-232 interface available from Aprotek, 1071-A Avenida Acaso, Camarillo, CA 93010. The Amiga needs an RS-232 cable to go from its RS-232 port to the RS-232 port on the modem.

Bradley BBS Commandments

If you're online with a BBS and you become aware of an error, or you see something doesn't seem to be working right, or if a file appears to be missing, take the time to leave the SYSOP a message, because it's possible that he or she may not be aware of the trouble. It's helpful to include in the message exactly what you did just prior to the error's appearance, so the problem will be easier to find. All in all, do whatever you can to help make the system run smoothly!

As a security precaution, it's wise to use a different password for each BBS you log onto. Then, if anyone ever discovers your password, you'll have only one to change. In the same spirit, don't use passwords that have an obvious connection to you and would be easy for others to guess. ■

Telecomputing Workshop is a monthly column dedicated to the needs of RUN *readers who are using, or intend to use, a Commodore computer for telecommunications. We invite you to submit your questions and comments to:*

David Bradley
Telecomputing Workshop
RUN Magazine
80 Elm St.
Peterborough, NH 03458

You can leave messages for David Bradley on QuantumLink (DavBradley), American PeopleLink (DavBradley), Delphi (DavidBradley) or via the PunterNet to 13/Sysop or 13/David Bradley.

Circle 15 on Reader Service card.

COMPUTER DIRECT
Will Not Be UNDERSOLD!
AND WE MEAN IT!*

Prices Expire 4-30-88

Super Fast* 15MHz IBM® XT Compatible Computer

The Incredibly Quick Professional XT Computer

SALE

Sale Price

****$399.95**



List $1195 (Add $10.00 shipping.*)

- *15 MHz (Norton CI Rating)
- Super Fast V20 CPU
- Parallel, Serial & Game Ports
- AT Style Keyboard
- TTL Monochrome Monitor Card
- Security Keylock
- 512K Professional XT Turbo Computer
- Clock Calendar

** Must be purchased with **MS DOS & G.W. BASIC** Software for an additional **$79.95.** (Not sold separately.)

IBM® is the registered trademark of International Business Machines, Inc.

Complete *15MHz IBM® XT Compatible System

Computer, Drive, Monitor, Printer & Software

Sale

Sale Price



$599.95

Professional System List $2495 (Add $35.00 shipping.*)

No One Sells This System For Less!

- *15 MHz (Norton CI Rating)
- 512K Professional XT Turbo Computer
  4.77/8 MHz ; Clock/Calendar
  Parallel, Serial & Game Ports
- MS DOS 3.2 & G.W. Basic Included
- Hi-Res 12" Monochrome Monitor
- Genuine IBM 8½" Printer with Interface
  And Heat Transfer Paper
- Software: Word Processor, Spreadsheet & Data Base

IBM® is the registered trademark of International Business Machines, Inc.

Complete Apple® Compatible System

Computer, Drive, Monitor, Printer & Software

Sale Price

Sale

$479.95



List $1228 (Add $35.00 shipping.*)

No One Sells This System For Less!

- Laser 128K Computer
  Video, Parallel & Serial Ports
  Runs Virtually All of the
  Apple II/IIc/IIe Software
- Hi Res 12" Monochrome Monitor
- Genuine IBM 8½" Printer With Interface
  And Heat Transfer Paper
- Software: Word Processor, Spreadsheet & Data Entry

Apple® is the registered trademark of Apple Computers Inc.

Complete Commodore® 64c System

Computer, Drive, Monitor, Printer & Software

SALE

Sale Price



$395.95

List $1045 (Add $35.00 shipping.*)

No One Sells This System For Less!

- Commodore C-64c Computer
- Excelerator Plus Disk Drive
- Hi Res 12" Monochrome Monitor
  With Connecting Cables
- Genuine IBM 8½" Printer With Interface
  And Heat Transfer Paper
- GEOS Software: Word Processor And
  Drawing Program

Commodore® is the registered trademark of Commodore Business Machines Inc.

15 Day Home Trial • 90 Day Immediate Replacement Policy

COMPUTER DIRECT
22292 N. Pepper Rd, Barrington, IL. 60010
Call (312) 382-5050 To Order!

* Illinois residents add 6¼% sales tax. All orders must be in U.S. Dollars. We ship to all points in the U.S., CANADA, PUERTO RICO, & APO-FPO. Please call for charges outside continental U.S. or C.O.D. **MAIL ORDERS** enclose cashier check, money order, or personal check. Allow 14 days delivery, 2 to 7 days for phone orders and 1 day express mail. Prices and availability subject to change without notice. Shipping and handling charges are not refundable. (Monitors only shipped in continental U.S.) **COMPUTER DIRECT** will match any valid nationally advertised delivered price on the exact same product with a comparable payment method (excluding any applicable sales taxes). A physical copy order of the current valid lower priced ad must be supplied with the order, or within 15 days of date of purchase. **VISA — MASTERCARD — C.O.D.**

Circle 15 on Reader Service card.

COMPUTER DIRECT
Is 1st In PRICE, SUPPORT, & GUARANTEE!
WE LOVE OUR CUSTOMERS!

Prices Expire 4-30-88

Genuine IBM® Printer
8½" Letter Size • 80 Column
Limited Quantities



No One Sells This Printer For Less!

Sale $44.95 (Add $7.50 shipping.*) List $199

- Unbelievable Low Price
- Advanced Dot Matrix - Heat Transfer
- Underline
- Enlarged
- Upper & Lower Case (With True Lower Descenders)
- Graphics With Commodore, & Apple Interfaces
- Ready to Hook Up To Serial Port Of IBM® PCjr
- Low Cost Adapters For IBM®, Apple, Commodore, & Laser Computers

22 CPS Daisy Wheel
13" Daisy Wheel Printer With
True Letter Quality

No One Sells This Printer For Less!



Sale $99.95 (Add $12.00 shipping.*) List $499

- Daisy Wheel Printing
- 22 CPS, AAA Text
- True Letter Quality
- Below Wholesale Cost
- 13" Wide Carriage
- Both Daisy Print Wheel & Ribbons Compatible with Diablo™ & Qume®
- Single Sheet or Continuous Feed
- Low Cost Adapters Available

Ultra Hi-Speed Printer
300 CPS Draft • 50 CPS NLQ
With Color Printing Capabilities



Color Printing Capabilities

No One Sells This Printer For Less!

Sale $279.95 (Add $10.00 shipping.*) List $499

- 300 CPS Draft - 50 CPS Near Letter Quality
- Front Panel Margin Setting
- Download Character Setting
- Epson/IBM Modes
- Variety Of Characters & Graphics
- Bottom Feed
- Parallel & Serial Interface Ports
- 10K Buffer
- Auto Paper Load & Ejection
- **Optional 7-Color Printing Kit.....Sale $99.95**

Super Hi-Speed Printer
200 CPS Star Micronics LV-2010
With Crisp Near Letter Quality

SALE

No One Sells This Printer For Less!



Sale $199.95 (Add $10.00 shipping.*) List $499

- IBM Compatible
- Serial Impact Dot Matrix
- Near Letter Quality Mode
- Ultra High Resolution Bit Image Graphics
- 200 CPS Draft - 45 CPS Near Letter Quality
- Standard Serial & Centronics Parallel Ports
- Pull Tractor & Automatic Single Sheet Loading

15 Day Home Trial • 90 Day Immediate Replacement Policy

Call **(312) 382-5050** *We Love Our Customers!* Mail

COMPUTER DIRECT
22292 N. Pepper Road
Barrington, IL. 60010

RUN's Checksum

By BOB KODADEK

TYPE IN *RUN*'s CHECKSUM, which serves for both the C-64 and for the C-128 in either 40- or 80-Column mode, and save it to disk before running. When typing in a program from *RUN*, first load and run *RUN*'s Checksum. The screen will display the 64 or 128 version, whichever is appropriate, and a SYS number that deactivates the Checksum when typed in and followed by return. Always disable *RUN*'s Checksum before attempting to run another program. The same SYS number will reactivate the Checksum.

Keep the following in mind: You can abbreviate Basic keywords; spaces affect the checksum only when within quotes; and the order of characters affects the checksum.

When you press return after typing in a program line, a one-, two-, or three-digit number from 0 to 255 appears directly below the line just entered. If this number matches the checksum value in the program listing, the line is correct. You enter the next line by typing it in right over the previous line's checksum value. If the number that appears *doesn't* match the listing's checksum value, carefully compare the line with the magazine listing to find your error. Then move the cursor back up to the line and make your corrections. Now, after you press return, the correct checksum value should appear. Continue entering the listing in this way until all the lines have been correctly typed. Then deactivate *RUN*'s Checksum, using the SYS number. Save the finished program. R

Listing 1. *RUN*'s Checksum program.

```
10 REM RUN'S CHECKSUM 64/128 - WRITTEN BY
   BOB KODADEK
20 MO=128:SA=3328:IF PEEK(4096)THEN MO=64
   :SA=49152
30 FOR I=0TO140:READ B:CK=CK+B:POKE SA+I,B
   :NEXT
40 IFCK<>16951 THENPRINT"DATA ERROR!":END
50 PRINTCHR$(147)STR$(MO)" RUN CHECKSUM":
   PRINT
60 PRINT"TO TOGGLE ON OR OFF, SYS"SA:IF MO
   =128 THEN 90
70 POKESA+13,124:POKESA+15,165:POKESA+25,1
   24:POKESA+26,165
80 POKESA+39,20:POKESA+41,21:POKESA+123,20
   5:POKESA+124,189
90 POKESA+4,INT(SA/256):SYS SA:NEW
100 DATA 120,162,24,160,13,173,4,3,201,24,
    208,4,162,13,160,67,142,4,3,140
110 DATA 5,3,88,96,32,13,67,152,72,169,0,1
    41,0,255,133,176,133,180,166,22
120 DATA 164,23,134,167,132,168,170,189,0,
    2,240,58,201,48,144,7,201,58,176
130 DATA 3,232,208,240,189,0,2,240,42,201,
    32,208,4,164,180,240,31,201,34
140 DATA 208,6,165,180,73,1,133,180,230,17
    6,164,176,165,167,24,125,0,2,133
150 DATA 167,165,168,105,0,133,168,136,208
    ,239,232,208,209,169,42,32,210
160 DATA 255,165,167,69,168,170,169,0,32,5
    0,142,169,32,32,210,255,32,210
170 DATA 255,169,13,32,210,255,104,168,96■
```


ANOTHER FIRST! TWO NEW SUPER PRODUCTS WITH UNBELIEVABLE POWER!

If anything can copy everything, this may be it!

***Introducing:* ★ SUPERCARD ★**

Well folks, here it finally is. THE BEST!! There is just not anything any better than **Supercard**. Even our competitor has stated that to back up the newest protection schemes, a high powered software/hardware package is needed. **Supercard** is the product of 2 years and $300,000 in total investment. **Supercard** is installed easily into your 1541 or 1541c, in just minutes with no soldering required. This package will make backups of programs that no other utility can even touch.

Version A. $44.95 One Supercard in one 1541 or the 1541c will back up a disk in under 2 minutes, and installs with no soldering required. This package is upgradable at any time to work with two disk drives for just $15.00.

Version B. $59.95 One Supercard and one cable. This is a two-drive version that will back up your software in an average of 11 seconds. That's right! Eleven seconds! Again, no soldering is required.

Version C. $44.95 One Supercard for one 1571. Minor soldering will be required if Supercard is installed in the 1571 drive.

Version D. $59.95 One Supercard and one cable. For two 1571s.

Version E. $79.95 Two Supercards. Use with two 1541s or 71s. No cable required. Copies a disk in about 90 seconds.

Guarantee. If you're not satisfied with Supercard for any reason, you may return it in working and saleable condition within 10 days for a full refund, minus shipping and handling charges.

★ SUPER CARTRIDGE ★

This multifunction **Hacker Cartridge** is our design and it is **stuffed full of "Goodies"**, the likes of which you may never see anywhere! It is packed full of utilities. Here are just some we plan to include:

- HesMon
- DriveMon
- Term Program
- Text Editor
- Auto Loader
- Graphic Labeler
- Calendar Maker
- Wedge Card
- Renumber
- Screen Dupe
- Fast Loader
- ALSO 64/128 Super Nibbler and 1541/71/81 Fast File Copier
- 1581 Burst Set
- Change Address
- Fast Error OK
- Disk Search
- Unscratch
- File Locator
- Lock Files
- Unlock Files
- Bulk Erase
- Compactor
- Uncompactor
- Auto Boot Maker (1541, 1571, 1581)
- Rapid Lock Copier
- Time Works Copier
- Data Soft Copier
- V-Max Copier
- Kernal Save
- I/O Save
- Sector Editor
- Variable Cross Ref.
- Quick Scratch

This cartridge is transparent and can be left in. It also has a reset. Over 500 blocks of programming.

$4495 Due February '88

UTILITIES UNLIMITED, Inc.

12305 N.E. 152nd Street
Brush Prairie, Washington 98606

Orders taken 24 hrs. a day; seven days a week.

If you wish to place your order by phone, please call **206-254-6530**. Add $3.00 shipping & handling; $2.00 for COD on all orders. Visa, M/C accepted. Dealer Inquiries Invited.

WORLD'S BIGGEST PROVIDER OF C64/128 UTILITIES

Software Submissions Invited
We are looking for HACKER STUFF: print utilities, parameters, telecommunications, and the unusual.
We now have over 1,000 parameters in stock!

Ad copy by RWS Ind.

SUPER PARAMETERS 500 PAK

At a time when many programmers are cutting back on writing parameters, we are going full steam! After getting several requests for parameters on many of the "oldies but goodies" **WE DID JUST THAT! ANOTHER 1st: 500 MORE SUPER PARAMETERS** in one pack. This **FANTASTIC 5-DISK SET** is a value of over $100 for less than 1/2. **$49.95**

SUPER PARAMETERS 100 PAKS: 1 thru 5

. . . **YOU GET 100 OF THE BEST PARAMETERS, ANYWHERE.** Professionally done, easy to use, reliable, fast and full of performance. This package can remove all protection. Includes titles from all major software publishers for the C64/128. **$19.95@**

ALL PARAMETERS ARE TOP QUALITY—NO FILLER OR JUNK

The 'Original' Parameter Cross-Reference

Ever ask, "Is there a parameter for this program? And where do I get it?" **ASK NO MORE!** The answers are all in this book. Over 5,000 listings. **$19.95@**

PARAMETERS CONSTRUCTION SET

The company that has **THE MOST PARAMETERS** is about to do something **UNBELIEVABLE**. We are giving you more of our secrets. Using this **VERY EASY** program, it will not only **READ, COMPARE** and **WRITE PARAMETERS FOR YOU**; it will also **CUSTOMIZE** the disk with your name. It will impress you as well as your friends. The **"PARAMETER CONSTRUCTION SET"** is like nothing you've ever seen. In fact you can even **READ PARAMETERS** that you may have already written; then by using your construction set rewrite it with your new **CUSTOMIZED MENU. DON'T WAIT** for months for that one special parameter: **WRITE IT!** **$34.95**

REMEMBER FOLKS, YOU SAW IT HERE FIRST!

THE FINAL CARTRIDGE III versus super snap shot

The Cartridge war heat up. Well folks, here's the real story!!! In their latest ad, our competition claims they are getting better reviews. Well, that's partly true . . . but mostly false. First of all, they are comparing reviews written about the old Final Cartridge and not the current version III. We at Utilities Unlimited Inc. are so sure that you would choose The Final Cartridge over that other one we make the following offers:

1. 100% no-questions-asked 10-day refund Guarantee.

2. For those of you who bought the super snap shot believing that you were buying the best, then saw the Final Cartridge III, **we offer you $30.00 for your super snap shot, as a trade in for the BEST . . . The Final Cartridge III.**

Every Final Cartridge III now includes many features not found in super snap shot, as well as our newest 64/128 nibbler and 100 Super Parameters. **(NOW w/CLOCK)** Still only **$54.95**

SIMILAR PRODUCTS MAY APPEAR ELSEWHERE LATER; JUST REMEMBER YOU SAW THEM HERE FIRST!!

SUPER NIBBLER 64/128

For those who need a really super nibbler copier, for those hard to backup programs, we give you the **★ULTIMATE COPY PROGRAM★** and it works well with both C64 or C128. This package includes both a Super Fast File copier and 100 parameters. **ONLY $24.95**

SUPER PARAMETERS—GEOS PAK

This #1 seller will standardize your **GEOS** series utilities to work with anyone else's **GEOS**. Parameters are included for these: **FONTPACK 1, DESKPACK 1, WRITERS WORKSHOP, GEODEX & GEOFILE. THE ORIGINAL STANDARDIZER** for just **$9.95**

(Another first!) THE 128 SUPERCHIP—A, B or C

A There is an empty socket inside your 128 just waiting for our **SUPER CHIP** to give you 32k worth of great **BUILT-IN UTILITIES**, all at just the **TOUCH OF A FINGER**. You get built-in features: **FILE COPIER, NIBBLER, TRACK & SECTOR EDITOR, SCREEN DUMP**, and even a 300/1200 baud **TERMINAL PROGRAM** that's 1650, 1670 and Hayes compatible. Best of all, it doesn't use up any memory. To use, simply touch a function key, and it responds to your command.

B Has super 81 utilities—a complete utility package for the 1581. Copy whole disks from 1541 or 1571 format to 1581. Many options include 1581 disk editor, drive monitor, Ram writer and will also perform many CP/M & MS-DOS utility functions.

C "C" is for combo and that's what you get. A super combination of both chips A and B in one chip, switchable at a great savings to you. **ALL CHIPS INCLUDE 100 PARAMETERS FREE!**

Chips A or B: **$29.95@** Chip C: **$44.95@**

SUPER SPECIALS—PRICED TO MOVE

HES MON cartidges (limited supply)	$ 4.95
1541 Mash (for drive alignment)	$14.95
64 BBS: for 1 or 2 drives	$19.95
64 MODEM prg.: w/wargames auto dialer	$14.95
N-CODER & D-CODER: together for only	$14.95
GRAPHIC LABEL MAKER: the original	$12.95
D-COMPILER: for the famous BLITZ!	$14.95
HEAVY DUTY REPAIRABLE 64 POWER SUPPLIES	$39.95
Too many 64 repairs are due to faulty old supplies—don't wait!	
DISK NOTCHERS: double disk capacity	$ 4.95
SECURITY KEYS: lost your dongle? (Golf & bowling)	$ 3.95
Used super snap shot (limited supply)	$29.95



LOCK PICK—THE BOOKS—for the C64 and C128

Lock Pik 64/128 was put together by our crack team, as a tool for those who have a desire to see the **INTERNAL WORKINGS** of a parameter. The books give you **STEP-BY-STEP INSTRUCTIONS** on breaking protection for backup of 100 popular program titles. Uses **HESMON** and **SUPEREDIT**. Instructions are so clear and precise that anyone can use it. **★OUR BOOK TWO IS NOW AVAILABLE★**

BOOK 1: Includes Hesmon and a disk with many utilities such as: **KERNAL SAVE, I/O SAVE, DISK LOG FILE** and lots more, all with instructions on disk. A long-time favorite.

BOOK 2: 100 NEW EXAMPLES, Hesmon on disk and cartridge plus more utilities to include: **A GENERAL OVERVIEW ON HOW TO MAKE PARAMETERS** and a **DISK SCANNER.**

$29.95 each OR BUY BOTH FOR **ONLY $49.95**

Now with FREE Hesmon Cartridge.



V-MAX, RAPID LOCK DIGITAL SOLUTIONS™

ADULT GAME & GRAPHICS DATA DISKS

GAME: A very unusual game to be played by a very **OPEN MINDED** adult. It includes a **CASINO** and **HOUSE OF ILL REPUTE**. Please, you **MUST BE 18** to order **EITHER ONE.**

DATA ★ : This **POPULAR** disk works with **PRINT SHOP** and **PRINT MASTER.**

Now version 1+2 **$24.95** ea.

For product support, call between 10 a.m. to 4 p.m. Pacific Time.

Circle 187 on Reader Service card.

HARDWARE GALLERY

This Hardware Gallery lets you in on a gabfest: A cable that lets two Commodores talk to each other and a device that lets you speak to your Commodore.

Compiled by BETH S. JALA

HEARSAY 1000 ..... B–

Do You Hear What I Hear?

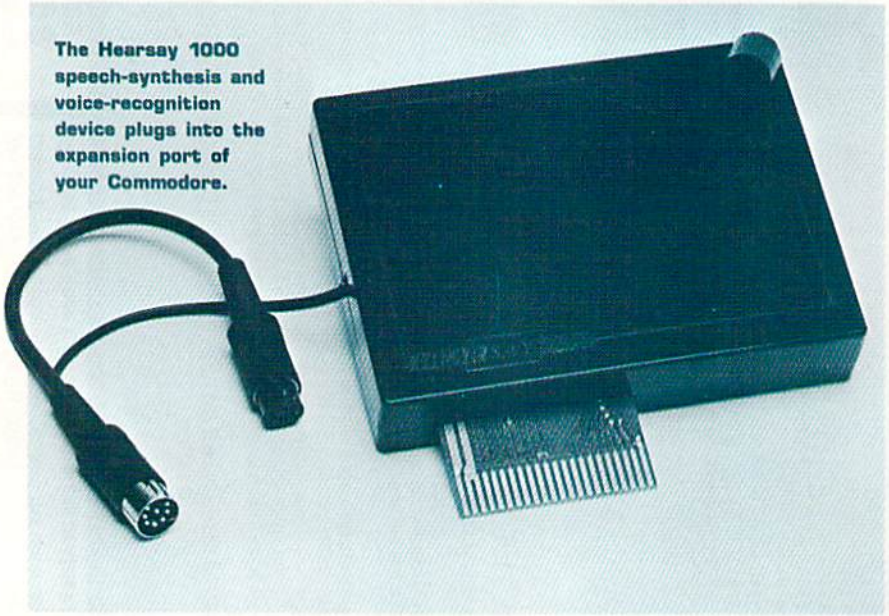
Hearsay 1000 is the latest generation of speech-synthesis and recognition devices. Based on General Instruments' SP-1000 speech-synthesis and voice-recognition chip, it fits into the expansion port of a C-64, 64C, C-128 or SX-64. Two 9-pin DIN connectors patch between the computer's Audio/Video port and the monitor. There is a micro socket that accommodates the jack found on most cassette player microphones, but this didn't work for me; luckily, the Hearsay 1000 has a good built-in mike.

An instruction manual and a demonstration disk come packaged with the hardware. The demo contains six options, including a look at software programs sold separately by Hearsay, Inc. (see this month's Software Gallery for reviews of two), an illustration of how Hearsay 1000 can be used with software from other manufacturers, and the how-to's of changing the voice, pitch and speed of Hearsay 1000's synthesized speech.

Hearsay 1000 produces speech in two ways. First, recorded on its chip are 63 allophones, or distinct sounds, that can be assembled into words. Second, there are approximately 100 separately recorded words and phrases that can be accessed with Hearsay programs. Speech recognition is accomplished when the user digitally saves a spoken word or phrase, thus training the computer, which then compares that with the latest voice input. If the utterances match, the computer executes the operation called for by the program.

The allophone-based speech is somewhat robotic, but intelligible. It sounds much like S.A.M., the software-based synthesizer, but without the Scandinavian accent or the taxicab-radio scratchiness of unedited digitized speech.

Up to 64 words or abbreviations can be loaded into a dictionary file. The catch is that only 64 words can be input by voice and loaded on each file at one time. A RAMdisk feature would enhance all speech-synthesis and voice-recognition capabilities. (It's unfortunate that planned C-128 and RAM expansion versions of speech-recognition devices seem to have been shelved as companies direct their development skills toward the MS/DOS-PC clone market.)



The Hearsay 1000 speech-synthesis and voice-recognition device plugs into the expansion port of your Commodore.

Difficulties in speech recognition can be frustrating with Hearsay 1000, as when one clearly says "two" while using Hearsay's Aqua's Circus software program, and hears Aqua reply "No, that was a two." The natural reaction when not understood, of course, is to say the word louder, which often diminishes Hearsay's chances of comprehension.

To be fair, I found the recognition capability of the Hearsay 1000 to be on a par with my Covox, which is accurate between 85 and 90 percent of the time. I have found that using words as distinct as possible—for example, able-baker-charlie rather than a-b-c—greatly improves the accuracy of voice recognition.

Clearly, Hearsay 1000's potential could be better realized if the rather sparse documentation were more complete. What is provided is uncomplicated and well organized, but less than adequate in light of the device's capabilities. I found that only three keypresses were needed for it to read Easy Script word processor files and disk directories from the screen. However, the documentation doesn't make any suggestions as to how a user could set it up to work most effectively with any type of application or game. Nor is it stated how a headset microphone might be used. Particularly welcome would be examples of how to write programs in Basic, and how to use the words individually programmed into its chips in one's own applications.

I would rank user support as better than average: My first Hearsay 1000 did not work, but after a call to the manufacturer, I soon had a newer version that worked with all the demo items as well as with the two programs reviewed in Software Gallery.

The Hearsay 1000's most useful feature may be its ability to work with existing software. The company claims that it can be used with the "off-the-shelf" software of at least 27 manufacturers, including Broderbund, Epyx, Infocom, Mindscape and Timeworks. The package is a good value for its price— ►

MONEY-BACK GUARANTEE * TOLL-FREE 24 HOUR ORDER LINE
WIDE SELECTION * NO-NONSENSE LOW PRICES * FREE CUSTOMER SUPPORT * FRIENDLY & KNOWLEDGEABLE STAFF * IMMEDIATE SHIPPING
PERSONAL ATTENTION * FOREIGN, CANADIAN, & SCHOOLS WELCOME . . .

NEED WE SAY MORE? LET US EARN YOUR BUSINESS!!

GRAPHICS & CAD

Advanced Art Studio (Firebird)	$32
Billboard Maker (Sol Unlmtd)	29
CAD 3D (IHT)	39
Cadpak-64 (Abacus)	29
Cadpak-128 (Abacus)	45
Colorez 128 (B-Ware)	12
Cybervideo (Touchstone)	30
Doodle (Crystal Rose)	29
Flexidraw 5.5 (Inkwell)	29
Galleria 1 OR Galleria 2	25
Flexifont (Inkwell)	24
Graphic Art Disk 1-9 (K-JAX)	13
Graphics Integrator 2 (Inkwell)	25
Graphic Label Wizard (K Jax)	21
Graphics Transformer (CDA)	25
Home Designer CAD 128 (Kendall)	45
Icon Factory (Sol Unlmtd)	29
Moving Pictures (CDA)	20
NeoFont (CDA)	24
PCB 64 - Circuit Board Maker	79
Perspectives II (Kira)	39
Photo Finish (Sol Unlmtd)	25
Picasso's Revenge (Progressive)	49
Printmaster Plus (Unison)	25
Art Gallery I or II	17
Print Shop 64 (Broderbund)	39
SCREEN F/X (Sol Unlmtd)	29
Slideshow Creator (Comp Mart)	13

AIDS/UTILITIES

1541/1571 Dr Align (Free Sp)	20
Assembler/Monitor (Abacus)	29
BASIC 8 (Patech)	30
BASIC Compiler 128 (Abacus)	45
BASIC Compiler 64 (Abacus)	29
BBS Construction Set (Kira)	43
Big Blue Reader 128/64 (Sogwa)	32
Bobsterm Pro 64 (Progress)	39
Bobsterm Pro 128 (Progress)	49
COBOL 64 or 128(Abacus)	29
Communicator 64 (FR SPRT)	20
CPM Kit 128 (Inca)	25
Gnome Kit 64/128 (Kira)	29
Gnome Speed 128 (Kira)	29
Explode Cartridge	27
Kyan Pascal 64 or 128	52
Merlin 64 (Roger Wagner)	39
Merlin 128 (Roger Wagner)	49
Phy Exam 1541 or 1571 (Card)	29
Power Assembler 64/128 (Spinn)	30
Power C 64/128 (Spinn)	30
Programmer's Tool Box (Spinn)	17
Prototerm 128 (B-Ware)	12
RAM DOS 128 (Progressive)	29
Super C 128 or 64 (Abacus)	45
Super Pascal 128 or 64 (Abac)	45
Super Snapshot V.3(K Jax)	49
Super 81 Utilities (Free Sp)	$29
SUPERCAT (K Jax)	22
SYSRES Enhanced (Comp Mart)	32
Super Aide 64 (Free Spirit)	24
Super Disk Lib/128 (Free Spirit)	24
Super 64 Librarian (Free Spirit)	24
Super Disk Utilities 128 (Free Sp)	29
Very First C64 or C128 (Horasoft)	12
Kracker Jax Volumes 1 - 7 EACH	17
K Jax Loaded Shotgun	17
K Jax Bull's Eye	17
K Jax C128 Cannon	29
Hacker's Utility Kit (K Jax)	17
ELITE 3 (K Jax)	10
ELITE 4 (K Jax)	15

HOME/BUSINESS

Accountant 128 (KFS)	119
Add-on modules	55
BEST A/P or A/R or G/L	45
BEST Project Planner or Inventory	45
Business Form Shop (Spinn)	30
CMS Accounting 128	129
CMS Inventory 128	53
Chartpak 128 or 64 (Abacus)	29
Fleet System 2 + (Professional)	39
Fleet System 4 (Professional)	55
Fontmaster 128 (Xetec)	39
Fontmaster II 64 (Xetec)	35
GEOS 128 (Berkeley)	49
Writers Workshop 128	49
GEOS 64 (Berkeley)	39
Geodex	29
Geocalc or Geofile	35
Fontpak I or Deskpak 1	22
Writer's Workshop	33
GEOSPELL	26
GEOPROGRAMMER	49
TRIPLE PAK	39
GEO Publish 64(Berkely)	49
GEOPUBLISH 128 (Berkely)	call
Microlawyer (Progressive)	45
Outrageous Pages (Elec Arts)	39
Personal Newsletter 64 (Soft Syn)	39
Pocket Superpak 2 64/128	69
Pocket Dictionary (Dig Sol)	10
Pocket Writer 2 (Dig Sol)	45
Security Analyst (Free Spirit)	39
Superbase 64 (Progress)	49
Superbase 128 (Progress)	55
Superscript 128 (Progress)	49
TAS 64 (Abacus)	29
TAS 128 (Abacus)	42
ThoughtForm 64 (Gollery)	25
TIMEWORKS	Call
Vizistar or Viziwrite 128	65
Wordpro 128/Spell/Filepro	30
Word Publisher (Spinnaker)	32
Wordpro 64/Spell/Turbo	$30
The Write Stuff 64 (Busy Bee)	19
The Write Stuff 64 with Talker	24

PERSONAL

Bridgemaster (Radarsoft)	12
Cardio Exercise (Bodylog)	75
CASINO 64	10
Celebrity Cookbook (Merrill)	25
Classical Music (Strider)	9
Crossword (Radarsoft)	12
Dream Analayzer (Merrill)	25
Enhanced Stress (Bodylog)	229
Family Tree 128 or 64 (Geneal)	39
Heartlab (Bodylog)	49
Judgement 64 (Synergy)	32
Muscle Development (Bodylog)	54
Sexual Edge (Merrill)	20
Standard Stress (Bodylog)	89

EDUCATIONAL

Fisher Price	
Peter Rabbit Reading (3-6)	19
Peter & Wolf Music (3-7)	19
Jungle Book Reading (6-9)	19
First Men on Moon Math (9 +)	19
Hayden Score Imp For SAT	35
Spinnaker	
Counting Parade	6
Facemaker (3-8)	18
Alphabet Zoo (3-7)	18
Kids on Keys (4-9)	18
Kindercomp (3 - 8)	18
Math Busters (8-14)	22
Kidwriter (6-10)	22
Homework Helper Math (10 +)	29
Homework Helper Write (10 +)	29
Early Learning Friends (3-8)	6
Grandma's House	6
Widham Classics	
Alice in Wonderland, Wizard of Oz, Treasure Island, Below the Root or Swiss Family Robinson (each)	12
Maps USA, World/Europe (Ea.)	19
Teddy Bear rels of Fun (DLM)	30
WEEKLY READER	call

MISCELLANEOUS

Anti-Glare Screens	18
AntiBump Boards for 1541 (CDA)	39
Hot Shot Interface (Omnitronix)	45
Hot Shot Plus (Omnitronix)	69
Lightpen 170C (Inkwell)	75
Lightpen 184C (Inkwell)	49
M-1 Mouse 64/128 (Contriver)	40
M3 Mouse-Proportional	40
Mousepad	9
Print'N'Wear Transfer Paper	$17
RS-232 INTERFACE	39
Super Graphix Gold (Xetec)	89
Super Graphix (Xetec)	65
40/80 Column Switch Cable	18
Right Time-Bat. Clock/Calendar	49

BOOKS

C128 Programmer Reference (B)	22
GEOS Programmer Reference (B)	19
How to Get Most Out of Geos	13
K Jax Revealed II (Comp. Mart)	23
Superbase The Book (Prog.)	15
Troubleshoot and Repair C64	18

!! FREE !!
CASINO 64
SLOTS & POKER
WITH ANY ORDER
OVER $100
WIN $ 50 $

BRiWALL

Solid Products • Solid Support

P.O. Box 129/56 Noble St.
Kutztown, PA 19530

TOLL-FREE 24 HOURS
1-800-638-5757
(ORDERS ONLY PLEASE)

OUR PROMISE
WE GUARANTEE YOUR SATISFACTION!!
If, for any reason, you are not satisfied with your selection within 15 days of your receipt, simply return the product to us. We will either issue you full credit for exchange on another selection, or refund your purchase price, less $5.00 for restocking and handling. Defective items are replaced free of charge!

*** PRODUCT OF THE MONTH!!**

ADVANCED OCP ART STUDIO
Multicolor Graphics at their best!

This is the finest Multi-Color graphics drawing program we have carried. It is comprehensive, easy-to-use and produces excellent color pictures.

Some of the features of this fine program include:

- Easily draw Points, Lines, Triangles, Rectangles, Circles and Rays
- Enter Text in 9 different sizes, 4 directions, bold and italic
- Comprehensive Font Editor for up to 91 User-definable characters
- 16 Drawing Pens, 8 Random Spray Cans
- 12 Multi-Color User-definable Brushes
- Multi-Color pattern fills, 12 are User-Definable
- Windows can be inverted, cut/pasted, enlarged, reduced, squashed, stretched, flipped and rotated
- Save windows to disk to create libraries
- 3 Levels of Magnification with Pan and Zoom, Pixel Clear and Plot
- Color Priority and Exclusion lists, enabling powerful manipulation of all colors
- Facility to convert pictures from Hi-res to Multi-Color
- 48 sizes of gray-scale dump on Commodore and Epson printers
- And on and on

Enough . . . You can't find a better multi-color program anywhere. But, with all its features, it is still simple to use, even for your 5 or 6 year olds. And you get the original OCP ART STUDIO, a Hi-Res drawing program with the package.

THE ADVANCED OCP ART STUDIO IS RECEIVING EXCELLENT REVIEWS! OBVIOUSLY WE AGREE. ITS QUALITY AND OUR PRICE ARE HARD TO BEAT!! ENJOY.

BRIWALL SPECIAL PRICE - $29 **Good Until 4/15/88**

* COMBINATION SPECIALS *
CALL FOR LATEST SPECIALS AND PRODUCTS

Any 3 Graphic Art Disks - **$35**
Syntech BBS + Games Module - **$59**
Flexidraw 5.5 + 170C Pen - **$100**
Flexidraw 5.5 + 184C Pen - **$75**
KFS Accountant 128 + Add-on Module - **$169**
Gallerias with Flexidraw and Pen - **$19 each**
Basic 8 + Colorez 128 - **$39**
Maps Europe + USA + World - **$50**
Kids on Keys + Early Learning Friends + Grandma's House - **$28**
Any 3 Fisher Price Educationals - **$52**
Any 3 Widham Classics - **$32 (combo special)**
Pocket Superpak 2 + Dictionary - **$77**
Viziwrite 128 + Vizistar 128 - **$125**
Any 3 Best Accounting Modules - **$129**
CP/M Kit + Big Blue Reader CP/M - **$52**
Homework Helper Math + Writer - **$49**
Mouse with Mousepad - **$45**
Superbase 128 plus The Book - **$68**
Mouse and Home Designer - **$79**
AntiGlare Screen with $50 or more order - **$16**
Gnome Speed and Gnome Kit - **$49**

ORDERING INSTRUCTIONS: VISA, MasterCard, Personal Check, Money Order or COD are welcome. Shipping USA: $3.50/ground, $5.50/2nd Day, $14.00/overnight. C.O.D. add $3.00. Canada/Mexico: $6.00 Air Mail. Foreign: $12.00 (for Air Mail use charge & specify maximum). PA residents add 6% sales tax. Include phone number and computer/drive model with order. All items will be shipped immediately, (if we are out-of-stock, we will let you know.) CHARGE IS PER ORDER.

For CUSTOMER SERVICE please call us:
Monday thru Friday, 9:30 a.m. - 4 p.m. EST
1 - (215) - 683 - 5699

Call or write for our FREE CATALOG, describing in detail, hundreds of fine products for your Commodore.

it's a versatile piece of hardware with a lot of promise for innovative uses in the educational and gaming arenas. *(Hearsay, Inc., 1825 74th St., Brooklyn, NY 11204. $79.95.)*

—RICHARD H. ELDRIDGE
MIAMI, FL

SERIAL DATA LINK CABLE ... A *The Commodore's Connected to the Commodore...*

Have you ever tried to connect two computers together so that you could transfer data, test telecommunications software or play a two-person game? If so, you've already discovered how difficult this simple-sounding task can be, especially if you contrived to convince a pair of modems to talk to each other without actually making a phone call.

Micro Development's Serial Data Link Cable simplifies this task by letting you connect two Commodore 64s, two C-128s or a C-64 and a C-128 without additional hardware. The ten-foot shielded cable plugs into the user port of each computer and acts as a null modem. It simulates the presence of an RS-232 device and effectively replaces two modems and a telephone line.

Data can be transferred under the control of telecommunications software or by simple Basic subroutines like those included in the accompanying operations guide. Micro Development recommends a maximum transfer rate of 300 baud. While Basic programs might execute too slowly for higher speeds to be practical, I found terminal software written in machine language functioned well at 1200 bps.

Only four pins of each computer's user port (Flag 2, PB0, PA2 and ground) are required to provide I/O lines for data transfer, as well as the necessary handshaking. Because of this, the plugs at either end of the cable contain only four gold-plated signal contacts. Dedicated hardware hackers who might have other applications in mind for this relatively difficult-to-find edge connector will have to supply their own contacts in order to access any of the other 17 signals available at the user port.

The Serial Data Link Cable is a passive device that contains no electronic components. If you think you might have a use for this accessory, remember that a null modem or serial data cable can only be used between two Commodore computers. Communication and/or data transfers between your Commodore and an Apple, PC or other microcomputer still requires an electronic RS-232 adapter to convert Commodore's nonstandard RS-232 voltages.

While many users may never need to interconnect two Commodore computers, those who do will find Micro Development's Serial Data Link Cable a simple, inexpensive, dependable and potentially indispensable accessory. *(Micro Development Co., PO Box 5872, Cleveland, OH 44101. $25.)*

—JOHN PREMACK
LEXINGTON, MA ■

DUST COVERS
SATISFACTION GUARANTEED
★ CUSTOM MADE TO FIT
★ HEAVY 32-oz. VINYL ANTI-STATIC
★ EXTENDS EQUIPMENT LIFE
★ Choice of Colors Light Tan or Brown

COMPUTERS
C-64/Plus 4/C-64C 8.00
C-128 .... 13.00
Datassette (C2N) 5.00
Amiga 1000 .... 13.00
(W/Amiga Mon. Stacked) 28.00
Keyboard only 7.00
Atari 800XL, 130XE 10.00
Atari 520 ST 14.00
IBM PC/XT 28.00
IBM 5051 Keybaord 8.00
(Dimensions Required for IBM Clones)

DISK DRIVES
C-1541, C-1571 .... 8.00
Amiga 3½" D/Drv 8.00
Amiga 5¼" D/Drv 9.00
Indust GT, MSD SD-1 8.00
MSD SD-2 .... 10.00
Enhancer 2000 .... 8.00
FSD-1 .... 8.00
Atari 1050 .... 8.00

PRINTERS
C-1525/MPS 801 .... 10.00
C-1526/MPS 802 .... 13.00
C-MPS/803, C-1520 .... 8.00
Panasonic 1090/91 .... 13.00
Okidata 120/192 .... 13.00
Okimate 10/20 .... 8.00
Epson MX/FX/RX80 .. 13.00
Epson LX80/C-1000 .. 13.00

PRINTERS
Seikosha SP-1000 .... 13.00
Comrex 220 .... 13.00
C'Itoh 8510 .... 13.00
Juki 5510 .... 13.00
Imagewriter 13.00
Epson JX 80 .... 13.00
Epson FX 85/185 .... 13.00
Okidata 92 .... 13.00
Citizen MSP 10 .... 13.00
C/DPS 1101 .... 16.00
Gemini 10 & Star 10's 13.00
Gemini 15 & Star 15's 16.00
Atari 1027 .... 13.00

MONITORS
Atari SC 1224RGB 19.00
C-1702, BMC Color 16.00
C-1902/Amiga 19.00
Amdek 500-700 .... 19.00
CM-141 (C-1802) 19.00
C-1902A/Magnvx 40 19.00
NEC (State Model) 19.00
Magnavox 80 RGB 19.00
Princeton (State Model 19.00
Thompson CM 365-66 19.00
Taxan (State Model) 19.00
Sakata SC-100 .... 19.00
Zenith (State Model) .. 19.00

VIDEO RECORDERS .. 13.00
State Make & Model Dimensions required including clock cut-out

Order by stating MAKE, MODEL and COLOR CHOICE · TAN or BROWN with check or money order plus $1.50 per item ($4.50 max.) shipping and handling Calif. Res. Include 6½% + local tax. APO, 2.00/item, Foreign 3.00/item

SPECIAL COVERS WILL BE MADE TO YOUR DIMENSIONS. SEND YOUR REQUIREMENTS FOR OUR LOW PRICE QUOTES.

Crown Custom Covers
24621 PAIGE CIRCLE DEPT. B
LAGUNA HILLS, CA 92653
(714) 472-6362

WE WON'T PAY YOUR TAXES!
But **TAX MASTER** will help you compute them more QUICKLY and EASILY. Be the Master of your Income Taxes with **TAX MASTER**, now available for your 1987 Federal Income Taxes for the C64/C128 with single, twin, or dual disk drive and optional printer.
- **NEW** Tax laws are covered.
- **FORMS 1040, 4562, & Schedules A, B, C, D, E, and F.**
- **PERFORMS** all arithmetic **CORRECTLY.**
- **EASY CHANGE** of any entry with automatic **RECALCULATION** of the entire form.
- **TRANSFERS** numbers between forms.
- **CALCULATES** your taxes and **REFUND.** Tax tables are included.
- **SAVES** all your data to disk for future changes.
- **PRINTS** the data from each form.
- **CALCULATOR** function is built in.
- **DISCOUNT** coupon toward the purchase of next year's updated program is included.

TAX MASTER .....(DISK ONLY).....ONLY $30.00

TIRED OF SWITCHING CABLES?
VIDEO MASTER 128 provides continuous 80 column color (RGBI), 80 column monochrome, and audio out. Switch between 80 column monochrome and 40 column color for composite monitor. Use up to 4 monitors at once! Includes composite cable.
VIDEO MASTER 128 .....for Commodore 128 .....$39.95

FED UP WITH SYNTAX ERRORS?
HELP MASTER 64 provides Instant On-Line Help screens for all 69 BASIC commands when you need them. Takes no BASIC RAM. No interference with loading, saving, editing, or running BASIC programs. Includes 368 page BASIC reference text, more.
HELP MASTER 64 ..... for Commodore 64 .....$24.95

OTHER MASTER SOFTWARE ITEMS

RESET MASTER C64 reset switch with 2 serial ports	$24.95
CHIP SAVER KIT protects computer's chips from static	$ 5.95
MODEM MASTER user port extender $29.95; with/reset	$34.95
Y-NOT? 6-foot serial Y cable, 1 male, 2 female connectors	$15.00
Y-YES! 6-foot serial Y cable, 3 male connectors	$15.00
C128 80 col monochrome cable for non-RGB monitor	$ 9.00
Disk Notcher — lets you use both sides of disk	$ 8.00
64-TRAN Fortran compiler	$50.00

Send for Free Catalog
MASTER SOFTWARE
6 Hillery Ct.
Randallstown, MD 21133
(301) 922-2962
All prices in US Dollars. Surface shipping in US & Canada is included. Foreign orders add $5. Canadian orders use Canadian POSTAL money order. Maryland residents add 5% tax. Dealer inquiries welcome!
VISA

WIN THE LOTTO
WITH YOUR HOME COMPUTER!
Use your home computer and Soft-Byte's amazing new **"Lotto Program"** to get more winning tickets.
In just seconds this software analyzes past winners and produces a powerful probability study on easy-to-read charts. With a single press of a key, you'll see trends, patterns, odds/evens, sum totals, number frequencies, and much more. It also includes automatic number wheeling, instant updating, and a built-in tutorial.
Ask your software dealer.

APPLE, IBM, and Commodore	$24.95
Atari, Radio Shack	$21.95
MacIntosh (requires M/S basic)	$29.95
Back-up Copies	$3.00

Add $2.00 shipping and handling. Credit card orders approved by phone and shipped same day.
Make checks payable to **SOFT-BYTE** and mail to:
P.O. Box 556 Forest Park
Dayton, Ohio 45405
Soft-Byte **513-278-1110**
VISA MasterCard

Circle 136 on Reader Service card.

Circle 102 on Reader Service card.

Learn To Walk Before You RUN

We receive many letters from new Commodore owners who want to type in program listings from *RUN* and need help in getting started. To answer many of the questions novice users have, we present the following guidelines.

1. First, keep in mind that as a beginner you should enter only short Basic programs. Avoid machine language listings and lengthy Basic programs until you get the hang of what you're doing.

2. To help you catch mistakes in typing in listings, we publish two checksum programs each month, called 64 Perfect Typist and 128 Perfect Typist. (Follow the directions in How To Type *RUN* Listings, elsewhere in this issue.)

3. If you intend to save the program you're typing in on a brand new disk, you must format that disk. To do this, insert the disk in your drive and type:

```
OPEN15,8,15 <press return>
PRINT#15,"N0:NAME,##" <press return>
```

The ## is a two-character identifier that can be any combination of letters or digits. NAME can be any title for the disk that you choose, as long as it's 16 characters or less.

After entering the above lines, wait for a few minutes while the disk spins inside the drive. When the disk stops, the formatting is done. Then type:

```
CLOSE15 <press return>
```

In 128 mode on a C-128, you can shorten this procedure by typing:

```
HEADER "NAME,##" <press return>
```

Caution: The formatting process erases any material already on the disk, so if you're formatting a used disk, make sure it doesn't contain any programs you want to keep. See item 11 below, on reading the disk directory, if you need to find out what's on the disk.

4. Before you start typing in a program listing, your computer's memory needs to be empty. To make sure it is, turn the computer off, wait a few seconds, and turn it on again.

5. As you type in the listing, remember to press the return key after each line. The return enters the line into memory.

6. If you want to review what you've entered, type LIST and press the return key; all the lines you've entered will scroll by. You can slow the scrolling on the C-64 by holding down the control key, and on the C-128 by pressing the no scroll key. To view certain specific lines, type LIST, followed by the line numbers you want; then press the return key. For example, LIST 10–50 displays lines 10 through 50, and LIST 20 displays only line 20.

7. If you find an error in a line, delete the incorrect characters with the insert-delete key, then retype that portion and press return to enter the new line in memory.

8. Be sure to save the program to disk fairly often during the typing process. Otherwise, you could lose all your work if a power glitch wipes out your computer's memory. To save a partial or complete Basic program listing, type:

```
SAVE "NAME",8 <press return>
```

In 128 mode on a C-128, you can press F5, type in NAME and press the return key. Here, NAME is the filename you want the program to have, not the disk name you used when formatting.

Each time you save a revised program to the same disk, you must change its filename, or a disk error will occur, even if only one character is changed. An easy way to vary the filename is by adding version numbers to the end of the basic name (Program.1 and Program.2, for example). The numbers will also tell you which version is the latest.

9. If you wish to erase (scratch) unwanted programs from a disk, type:

```
OPEN15,8,15 <press return>
PRINT#15,"S0:filename" <press return and wait a few seconds>
CLOSE15 <press return>
```

In 128 mode on a C-128, you can type:

```
SCRATCH "NAME" <press return>
```

Be sure not to erase the final version!

10. Always save the final version of a program to two disks, so you have a backup copy in case one of the disks gets damaged. When saving to two different disks, you can use the same program name in each case.

11. To view a complete list of the filenames on a disk (i.e., read the disk directory), type:

```
LOAD "$",8 <press return>
LIST
```

In 128 mode on a C-128, you can just press F3.

12. When you know what program you want to load, next make sure you know *exactly* how its filename is spelled in the disk directory, including punctuation, special characters and spaces. A mistake in the filename will keep the load from working.

If the disk directory is still on the screen when you enter the Load command, you can refer to that for the spelling. If the directory will be gone from the screen by the time you enter the Load command, jot down the exact spelling of the filename for reference. Once you're sure of the filename, load the program by typing:

```
LOAD "NAME",8 <press return>
```

In 128 mode on a C-128, you can just press F2, type in the filename and press the return key.

13. After you've loaded the program, enter RUN to use it. ■

COMMODORE CLINIC

Is there any software support for the 1581 disk drive? Is it safe to use single-sided disks for double-sided storage? Having problems with RUN*'s new Checksum?*

By LOU WALLACE

SOFTWARE

Q *I purchased my 1541 disk drive from a store that was using it as a display model. I never received a demo disk with it and have not been having a problem, but I keep seeing it referred to in the magazine. Where can I get the demo disk and instructions for its use in case a problem should come up?*

—J. VOGEL
WOBURN, MA

A I suggest you contact the dealer you bought the disk drive from. He should be able to give you a copy of the disk. Or you can drop in on the next meeting of your local user group, where you will undoubtedly find many members with the disk you need.

Q *Is any C-64 software available specifically for video stores?*

—STEPHEN L. SMITH
WOODSTOCK VALLEY, CT

A I'm afraid not. But it seems to me that a good database should do the trick. I would suggest one like Superbase, from Progressive Peripherals and Software (464 Kalamath St., Denver, CO 80204). With it, you can tailor-make a database application, as well as other applications, as the need arises.

Q *I have a 128 and GEOS 64. Is there any way to update to GEOS 128 without spending another $60?*

—DAVID BERCOVICH
HOUSTON, TX

A If you've sent in your registration card for GEOS 64, you should have gotten information about the update policy from Berkeley Softworks, the company that makes GEOS products. Berkeley allows GEOS 64 owners to upgrade to the 128 version for $22, plus $2.50 for shipping and handling. There are varying prices for updating other GEOS applications to the 128. For specific information, call their customer support line at 415-644-0890.

Q *I've been searching for a Fortran compiler to use with my C-128, but have not found one. Does such a compiler exist?*

—ROB WHEELER
AMHERST, MA

A As far as I know, there is no Fortran compiler for the C-128. There was at one time a CP/M Fortran compiler for the C-64 called Nevada Fortran. I don't know if it's still available, or even if it would work with the C-128 CP/M system. I suggest you check with your local dealer, or better yet, perhaps one of the CP/M user groups can help. One of the largest is the Foghorn CP/M User Group. Write to them at PO Box 3474, Daly City, CA 94015.

Q *I recently bought a 1581 disk drive for my C-128. The drive is great, very fast and has a huge storage capacity (808K). The problem is, there seems to be no software support from any manufacturer of Commodore software. Do you know of any such software in 1581 format?*

—LARRY EVENS
MEMPHIS, TN

A You have a good point, because, even though it is a great disk drive, if you don't have software support, it's of limited use. And while you can copy many programs from 5¼-inch format to the 1581 drive, it would be nice to find software in that format. The good news is that there are some companies supporting the 1581. One that's doing a great job is Abacus Software. All of their unprotected C-64/C-128 programs (80 percent of their titles are unprotected, and the list is growing) are available in 1581 format. You must request 1581 format when you order; otherwise it will be shipped on 5¼-inch disks. You can get a catalog from Abacus by calling 616-698-0325. And if the rumors of a 64D computer (with a fast 1581 built in) are true, you can expect to find a steady stream of software in 3½-inch format in the near future.

Q *I've received some programs that use the Simons' Basic cartridge for the C-64. Does anyone still sell this cartridge? I need one desperately.*

—BRENT CARLSON
VIRGINIA, MN

A Simons' Basic is no longer being produced or distributed by Commodore. However, it is very likely still available in some stores and from smaller mail order houses, so call around and check. Even a member of a local user group might have one they want to sell.

Q *I've been using the C-64 for three years now, as well as an IBM PC. I've tried to write programs that can read a file from an IBM-formatted disk, but have had no success. Is there such a program available commercially?*

—DAVID WHITAKER
HAZARD, KY

A No, but there is an excellent one for the C-128 that I use all the time. It's called The Big Blue Reader and is available from S.O.G.W.A.P. Software (115 Belmont Rd., Decatur, IN 46733). Keep it in mind if you ever decide to get a C-128.

Q *My C-128 and 1571 disk drive, both not upgraded, and all of my software were recently destroyed in a house fire. I've upgraded my system to a C-128D and now wish to back up my software to avoid any such future disaster. I'm using Disector version 3.0. A problem occurs when the program tries to read a disk. On the attempt, everything stops! I tried using a friend's disk drive, which* ►

Finally, there's a beauty contest that any GEOS owner can win—provided you have the right tools. The GEOS Desktop Publishing Contest. All you need to win is your Commodore, your trusty GEOS applications (like geoWrite, geoPublish, Graphics Grabber, etc.) and your own imagination to win in any four categories and walk away with all kinds of prizes.

STOP THE PRESS!

The GEOS Desktop Publishing Contest: Over $20,000 in cash and prizes!

Including $1,000 cash.

Just send us your best looking publication (designed using GEOS applications)—printed out and on disk—by June 30, 1988. There are four categories, each with a Laser Printer and Dot Matrix Printer winner (except for the Poster category, which is Laser Printer only). Which means that there are seven first prizes. Seven second prizes. And seven thirds.

And each prize consists of lots more prizes.

So boot up and get down to designing your best layout. Then send it in with the information required below. You could win fortune—and fame, because the winners will be printed on these very pages this Fall.

Categories

FLYER—Any one-page advertisement, handbill or data sheet. Two divisions: Dot Matrix and Laser Printer.

NEWSLETTER—Two or more pages, including newsletters, brochures, reports. Two divisions: Dot Matrix and Laser Printer.

POSTER—One page, enlarged at least 200%. Laser Printer only.

OPEN DESIGN—Anything goes! No page limitation. Best use for desktop publishing. Two divisions: Dot Matrix and Laser Printer.

Seven First Prizes!

- $1,000 cash
- Publication of your entry in RUN Magazine
- Complete library of C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem, 1351 Mouse and your choice of a 1764 or 1750 RAM Expansion Module
- Six month subscription to Q-Link, the telecommunications service from Quantum Computer Services
- Twenty five pages of laser printed output from Laser Direct
- Twelve month subscription to RUN magazine

Seven Second Prizes!

- Complete library of C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem and your choice of a 1764 or 1750 RAM Expansion Module or 1351 Mouse
- Three month subscription to Q-Link, the telecommunications service from Quantum Computer Services.
- Ten pages of laser printed output from Laser Direct
- Twelve month subscription to RUN magazine

Seven Third Prizes!

- Your choice of any five C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem and your choice of a 1764 or 1750 RAM Expansion Module or 1351 Mouse
- Three month subscription to Q-Link, the telecommunications service from Quantum Computer Services.
- Five pages of laser printed output from Laser Direct
- Twelve month subscription to RUN magazine

Official Rules

1. Employees of Berkeley Softworks, Quantum Computer Services, Laser Direct, RUN Magazine, their advertising and promotional agencies and their immediate families are not eligible to enter the contest.

2. Each entry must be wholly the product of the developer in whose name the entry has been submitted. The entry may not have been published prior to this contest. Copyrighted images are ineligible.

3. Entries must be produced with GEOS or GEOS based applications (e.g. geoWrite, geoWrite Workshop, geoPaint, geoPublish, etc.).

4. Entries must be submitted in both printed output form (dot matrix or laser printed) and disk in 1541/1571 format. The following should be clearly marked on both the printout and the disk:
   A. Contestant's name, address and phone number
   B. Occupation (optional)
   C. The GEOS based application package(s) used to create the entry
   D. Intended use for the entry, if other than just for this contest (e.g. user newsletter, school, business, group etc.)

5. Entries become the property of Berkeley Softworks, which reserves the right to adapt, use or publish all entries received. No disks will be returned, so be sure to make a copy of your entry before you submit it to the contest.

6. Deadline for entries is June 30, 1988. Mail entries to Berkeley Softworks, 2150 Shattuck Avenue, Berkeley, CA, 94704 Attn: GEOS Desktop Publishing Contest.

7. Contestants may enter multiple categories, but may only submit one entry per category per division (e.g. one entry in the Flyer category, Dot Matrix division *and* one entry in the Flyer category, Laser Printer division). Regardless of the number of categories you enter, you will only be eligible to win one prize.

8. Final judging will be performed by the staff of RUN Magazine. The decisions of the judges are final in all respects. This includes decisions regarding creativity, similarity among entries and general suitability.

9. This contest is void where prohibited by law. All federal, state and local taxes are the sole responsibility of the winners.

General Conditions

- Entries will be judged on creativity, originality, composition, layout, content and overall design.
- Make sure your mailer will protect your printout and disk from damage. Affix sufficient first class postage. Mail your printout, disk and official entry blank to the above address in time to reach RUN Magazine before the June 30, 1988, deadline.
- Winners will be announced by September, 1988.

PLEASE PRINT

Name _____

Phone _____

Address _____

_____

City _____

State _____ Zip _____

Age _____

Occupation _____
(optional)

Signature _____

Parent's Signature _____
(if contestant is under 18)

Berkeley Softworks

The brightest minds are working at Berkeley.

Circle 140 on Reader Service card.

he had recently upgraded, and the same thing happened. But if I use another friend's disk drive (not upgraded), then everything works fine. Is there something in the upgraded 1571 ROM that prevents this program from running? Any answer to this perplexing problem would be greatly appreciated.

—WILLIAM C. YOUNG, JR.
WEST MIDDLESEX, PA

A Some copy programs won't work on the C-128D's built-in 1571 due to changes in the 1571 ROMs. The same is true for ROM-upgraded 1571 drives. The reasons are complex, but according to my technical sources at Commodore, the reason those programs don't work properly is that the programmers did not follow the established guidelines when programming for the original 1571. So when small changes are made to the ROMs, it can play havoc with both copy busting as well as some copy-protected software. My solution is to use only unprotected software. It's not always possible, but it certainly helps you avoid this hassle.

HARDWARE

Q *I always buy single-sided disks to save money. When I want a double-sided disk, I make a little notch on the left side of the disk (from the front viewpoint) with an ordinary hole-puncher. Is this safe? If not, then what can I use to make a notch?*

—WILLIAM A. ELLERBE
DALTON, MA

A Using a hole puncher to notch a disk is fine, so you don't need a special gadget. But I wouldn't recommend what you are doing. When a disk is manufactured, both sides of the sheets are graded as to their quality. Only if a disk passes the standards for double-sided media is it used as a double-sided disk. The single-sided disk you're using is probably made from a batch that failed the quality standards for double-sided media, and is only reliable when the proper side is used. While you may be able to use many disks this way, sooner or later you'll lose some valuable data or programs. Since disks are now relatively inexpensive, it doesn't pay to take chances.

Q *What is the best disk drive to use as a second drive?*

—M. R. HAUGE
SIERRA MADRE, CA

A It depends on your needs and your pocketbook. If you have a C-64 with a 1541 drive or a C-128 and a 1571, I would seriously consider the 1581 3½-inch drive. For less than $200, it stores over 800K and in 128 mode is very fast. If you want to stay with 5¼-inch drives, then a second 1541 or 1571 may be what you need. Or, if you have the money, you could get a hard drive.

Q *My present computer system consists of a C-64, a 1571 drive, a Sakata SC-100 monitor and a Star SL-10C printer. I want to move up to a C-128, a 1571 and a 2002 monitor, but out of financial necessity I can buy them only a unit at a time. I want to buy units that will work with some of the units I now own. What should I buy first? Will I be able to keep my SL-10C?*

—ARNOLD MUNIZ
SAN ANTONIO, TX

A Get the 128 first. It can use your present drive, printer and monitor. Then I would go for the 2002 (or a 1084) monitor. If the printer you have serves your needs, there is no need to change, and of course the 1571 is made for the C-128. You might want to eventually add a 1750 RAM expansion and a 1351 mouse. Then you'll have the ultimate C-128 system!

Q *In the November 1987 issue of* RUN, *you ran a review on the software Basic 8. Reviewer John Premack states, "Upgrading to 64K requires swapping your machine's 4416 or 4164 RAM chips for a pair of 4464s." To me, this statement is confusing because there are two rows of 4164 RAM chips, not just a pair of chips. If only a pair of chips is to be replaced, then which pair? I'm interested in buying this software, but I'd also like to upgrade my C-128 at the same time. I think your articles should be a bit more technically accurate. Thanks for your help.*

—FRANCIS J. NAPERSKY
OWINGS, MD

A The 4164 RAMs John was referring to in his review of Basic 8 are those for the 8563 80-column video display chip. They're inside the small silver box on the motherboard (which also has the 8563 and Vic-II graphic chips). Please be aware that, since the chips are soldered to the motherboard, removing them and installing the two 4464 RAMs is not a job for the casual user, even if you've done soldering before. If you want the 64K for Basic 8 (and I recommend it), take the chips and sockets to a local Commodore service center. It shouldn't cost you more than $35 to install. Doing it yourself can lead to a damaged computer. (Note: C-128Ds already have the 64K of VDC RAM as well as the latest ROM chips. I've heard of people "upgrading" their C-128Ds when there is no need to do so.)

PROGRAMMING

Q *I just bought the January 1988 issue of* RUN, *and I ran into difficulty trying to use the new checksum. I get an Out of Data error in line 30. I checked each line to see if I'd made any typing errors but could find none.*

Please advise me, as I would like to type in the Calendar Maker program, among others in your magazine.

—JANIS SUNKEN
NEVADA, IA

A You probably made an error in typing, as *RUN*'s new Checksum program works very well. But, just to be sure, I typed it in myself from the listing in the January '88 issue. No problem! It worked as it should. Since I don't have a copy of your listing, I can't be sure what is wrong. But the computer has given us a good hint with the "Out Of Data error in line 30" message. That tells us the program was trying to read a value from the Data statements and ran out of data to read, which in turn means you left out a portion of a Data statement. That could be a missing comma, a period used in place of a comma, or perhaps even a complete line. Check the listing again carefully; I'm sure you will discover the problem.

Editor's note: On page 86 of the February 1988 issue, Commodore Clinic made an error in the telephone number to call for ordering any ReRUN disk, including Productivity Pak III. The correct number is 1-800-343-0728. ■

Do you have a problem or question about your Commodore computer system, software or programming? Commodore Clinic can help. Just send your questions to:

Commodore Clinic
RUN Magazine
80 Elm St.
Peterborough, NH 03458

Queries are answered only through this column, and, due to the volume of mail, only questions likely to appeal to the majority of our readers can be published.

Jump On The TENEX Express

No Gimmicks, No Hidden Charges, No Nonsense, Just Low Prices and Great Service!

FREE

DUST COVER & EVERYTHING BOOK

Discover the savings and easy shopping available from TENEX Computer Express PLUS receive a **FREE** dust cover for your C64, C128 or 64C! Cover is anti-static, 8-gauge vinyl sewn to our exacting standards with reinforced seams. Get to know our great products, extensive selection and fast service with a **FREE** copy of our *Everything Book for Commodore Computing*. ($2.95 Shipping Charge)

31627 C-64 Dust Cover and Catalog (R2P)
38464 C-128 Dust Cover and Catalog (R2P)
65180 64C Dust Cover and Catalog (R2P)

Hardware Specials

FDS-2 Disk Drive	$159.00	Epyx 500XJ Joystick	$15.95
Excel 2001 Disk Drive	$209.00	Star NX-1000	$CALL
13-inch Color Monitor	$159.95	Star NX-1000C	$CALL
Pow'r Pak 64	$39.95	Star NX-Rainbow Color Printer	$CALL
Pow'r Pak 128	$59.95	NEW! Commodore 128D Computer	$CALL
Okidata 180 Printer	$224.95	Commodore 1571 Disk Drive	$CALL
Okidata 120 Printer	$189.95	Commodore 1581 Disk Drive	$CALL
Okimate 20 Color Printer	$124.95	Commodore 2002 Monitor	$CALL
Seikosha SP-180VC	$149.95	Commodore 1351 Mouse	$33.95
Seikosha SP-1000VC	$189.95	1750 RAM Expansion- 512 K Cartridge, C128	$179.95
Super Graphix	$59.95	1764 RAM Expansion- 256K Cartridge, C64	$124.95
Super Graphix Jr.	$44.95	C128 Computer System	$CALL
Super Graphix Gold	$CALL		
IconTroller	$17.95		

Software Specials

GEOS-64	$39.95	GEOS-128	$49.95
geoPublish	$44.95	geoFile	$32.95
geoCalc	$32.95	Writier's Workshop-64	$32.95
Deskpack	$24.95	Writer's Workshop-128	$49.95
Basic 8	$33.95	Echelon	$26.95

Free! 52 "Page Everything" Book With Any Order!

From micro Pal® . . .

THE 39¢ DISKETTE!

Are you paying too much for diskettes? Try our first quality, prime, 5 1/4" diskettes (no rejects, no seconds) at these fantastic sale prices and save, save, SAVE! Disks are packaged in boxes of 50; including diskettes in sleeves, labels, and write-protect tabs.

Each diskette is certified to be 100% error free and comes with a lifetime warranty (if you have a problem, we'll replace the diskette). All diskettes include hub reinforcement rings and write-protect notch.

All diskettes are double density and work in either single or double density drives.

SS, DD Diskettes, Box of 50
32391 $19.50 - 39¢ ea.!
DS, DD Diskettes, Box of 50
32403 $24.50 - 49¢ ea.!

Super Deal On Diskette Storage!



Only $9.95

- A whopping 100 disk (5 1/4") capacity.
- Lock and keys for extra security and easy carrying.
- Includes 8 index dividers with labels for organization of filing and retrieval.
- Made of durable anti-static, high impact plastic.
- Attractive smoked color lid.

Sug. Retail $19.95
66826 **NOW ONLY $9.95**

Unleash The Power of CP/M™ On Your C128!



ONLY $22.95

Includes Free CP/M Programs
• Word Processor • Disk Utilities • Communications

CP/M Kit includes a helpful guide to using CP/M such as: stressing the unique features of Commodore's CP/M, using your 1541 or 1571 drive with CP/M, and using your modem to access electronic bulletin boards that offer free, downloadable software.

67392 2 Disks & Manual for C128 **$22.95**

$159

FSD-2 Disk Drive



Reviewed by *RUN Magazine:*
"...higher-than-average quality...10% faster than a 1541...half the size...you can rest assured that the FSD-2 will do a fine job for you."

Runs all C64 Commercial Software.
Full 1 Year Warranty.

66166 Disk Drive **$159**

THE BEST PRICES
THE BEST SERVICE
WHY SHOP ANYWHERE ELSE?

THE FAMOUS SLIK STIK™ **Only $6.95!**

The Slik Stik™ has been a favorite for years... and for good reason. It's just the right combination of responsiveness and accuracy. And the price can't be beat! From Suncom. 90 day warranty. Connects directly to Commodore Computers.



42086 **$6.95**

From Your Friends At

TENEX Computer Express

We gladly accept mail orders!
P.O. Box 6578
South Bend, IN 46660

Ad R2P

Questions?
Call 219/259-7051

Shipping Charges

Order Amount	Charge
less than $20.00	$3.75
$20.00-$39.99	4.75
$40.00-$74.99	5.75
$75.00-$149.99	6.75
$150.00-$299.99	7.75
$300.00 & up	8.75

MasterCard · VISA

NO EXTRA FEE FOR CHARGES

WE VERIFY CHARGE CARD ADDRESSES

ORDER TOLL FREE
1-800-348-2778
INDIANA ORDER LINE 1-800-225-6838

COMMODORE 64 is a registered trademark; and COMMODORE 128 is a trademark of Commodore Electronics, Ltd. APO, FPO, AK, HI, CN, VI, GU, and foreign orders are subject to additional shipping charges. NOTE: Due to publishing lead-times, product prices and specifications are subject to change without notice.

Circle 155 on Reader Service card.

FONTASTIC 64

From p. 62.

Listing 2. Boot Charset program.

```
10 REM BOOT CHARSET - KENNY LAW
   SON                        :REM*254
20 REM SYS 682 TO RESET CHARACT
   ERS TO DEFAULT             :REM*53
30 REM SYS 755 TO RESTORE CHARA
   CTER SET AFTER RUN/STOP REST
   ORE                        :REM*73
40 FORX=682TO765:READA:POKEX,A:
   NEXT                       :REM*11
50 DATA 173,14,220,41,254,141,1
   4,220,165,1,41,251,133,1
                              :REM*119
60 DATA 169,0,133,251,133,253,1
   69,8,133,252,169,208,133,254
                              :REM*244
70 DATA 162,0,160,0,177,253,145
   ,251,200,208,249,230,252,230
   ,254                       :REM*105
80 DATA 232,224,8,208,238,165,1
   ,9,4,133,1,173,14,220
                              :REM*153
90 DATA 9,1,141,14,220,173,24,2
   08,41,240,9,2,141,24,208,96
                              :REM*58
100 DATA 173,24,208,41,240,9,2,
    141,24,208,96             :REM*228
110 POKE53280,14:POKE53281,6:PO
    KE646,6                   :REM*54
120 PRINT"{SHFT CLR}POKE44,16:P
    OKE4096,0:NEW":PRINT:PRINT:
    PRINT"SYS682"             :REM*215
130 PRINT:PRINT:PRINT"LOAD"CHR$
    (34)"FONT MENU"CHR$(34)",8"
                              :REM*187
140 PRINT:PRINT:PRINT:PRINT:PRI
    NT"RUN"                   :REM*143
150 POKE631,19:POKE632,13:POKE6
    33,13:POKE634,13:POKE635,13
    :POKE198,6                :REM*28
```

Listing 3. Font Menu program.

```
10 REM FONT MENU - KENNY LAWSON
                              :REM*219
20 POKE646,14:POKE657,128
                              :REM*120
30 OS$=CHR$(17):OT$=CHR$(145):I
   FTTTHEN240                 :REM*72
40 PRINT"{SHFT CLR}";:FORX=1TO9
   :READA$:NF$(X)=A$:NEXT
                              :REM*64
50 DATA BLOCKFONT,CAPSFONT,COMP
   UFONT,CURSIFONT,DIAMONDFONT
                              :REM*60
60 DATA DOTFONT,STENCILFONT,THI
   NFONT,UNDERFONT            :REM*109
70 A1$="{13 SPACEs}":A2$=CHR$(1
   8)+A1$+"{2 SPACEs}":A3$="{CT
   RL 9} {CTRL 0}"+A1$+"{CTRL 9
   } {CTRL 0}"                :REM*80
80 A4$=A1$+"{2 CRSR RTs}":A5$=C
   HR$(18)                    :REM*226
90 PRINT:PRINTA1$A2$:FORX=1TO19
   :PRINTA1$A3$:NEXT          :REM*103
100 PRINTA1$A2$"{HOME}{2 CRSR D
    Ns}":FORX=1TO9            :REM*43
110 PRINTA4$NF$(X)CHR$(17):NEXT
    :PRINT:PRINT              :REM*173
120 PRINT"USE {CTRL 9}CURSOR{CT
    RL 0} UP/DOWN KEY TO SELECT
     A FONT"                  :REM*208
130 PRINT"PRESS THE {CTRL 9}RET
    URN{CTRL 0} KEY TO LOAD THA
    T FONT{HOME}{2 CRSR DNs}"
                              :REM*175
140 PRINTA4$A5$NF$(1); :REM*230
150 GETA$:IFA$=""THEN150:REM*57
160 RO=PEEK(214):NF=INT(RO/2):I
    FRO=3THEN300              :REM*86
170 IFRO=19THEN350            :REM*174
180 IFA$=OS$THENPRINT"{CRSR UP}
    ":PRINTA4$NF$(NF):PRINT:PRI
    NTA4$A5$NF$(NF+1);:GOTO150
                              :REM*149
190 IFA$=OT$THENPRINT"{CRSR UP}
    ":PRINTA4$NF$(NF)"{3 CRSR U
    Ps}":PRINTA4$A5$NF$(NF-1);:
    GOTO150                   :REM*167
200 IFA$<>CHR$(13)THEN150
                              :REM*218
210 REM LOAD A PROGRAM :REM*151
220 PRINT"{SHFT CLR}":POKE646,6
                              :REM*161
230 IFTT=0THENTT=1:LOADNF$(NF),
    8,1                       :REM*185
240 FORX=1TO3000:NEXT:POKE646,1
    4                         :REM*139
250 IFNF=2ORNF=4THEN280 :REM*72
260 PRINT"{SHFT CLR}{CRSR DN}{4
     SPACEs}**** COMMODORE 64 B
    ASIC V2 ****"             :REM*25
270 PRINT"{CRSR DN} 64K RAM SYS
    TEM{2 SPACEs}36861 BASIC BY
    TES FREE":NEW             :REM*150
280 PRINT"{SHFT CLR}{CRSR DN}{4
     SPACEs}**** {SHFT C}OMMODO
    RE 64 {SHFT B}ASIC {SHFT V}
    2 ****"                   :REM*30
290 PRINT"{CRSR DN} 64{SHFT K}
    {SHFT R}AM {SHFT S}YSTEM{2
    SPACEs}36861 {SHFT B}ASIC {
    SHFT B}YTES {SHFT F}REE":NE
    W                         :REM*226
300 REM CURSOR ON TOP LINE
                              :REM*180
310 IFA$=CHR$(13)THEN210:REM*14
320 IFA$<>CHR$(17)ANDA$<>CHR$(1
    45)THEN150                :REM*197
330 IFA$=CHR$(17)THEN180
                              :REM*147
340 PRINT"{CRSR UP}":PRINTA4$NF
    $(1):POKE214,18:PRINT:PRINT
    A4$A5$NF$(9);:GOTO150
                              :REM*98
350 REM CURSOR ON BOTTOM LINE
                              :REM*231
360 IFA$=CHR$(13)THEN210:REM*88
370 IFA$<>CHR$(17)ANDA$<>CHR$(1
    45)THEN150                :REM*179
380 IFA$=CHR$(145)THEN190
                              :REM*227
390 PRINT"{CRSR UP}":PRINTA4$NF
    $(9):PRINT"{HOME}{2 CRSR DN
    s}":PRINTA4$A5$NF$(1);:GOTO
    150                       :REM*180
```

Listing 4. Block Set program.

```
10 REM BLOCK SET - KENNY LAWSON
                              :REM*4
20 OPEN8,8,8,"BLOCKFONT,P,W":PR
   INT#8,CHR$(0);CHR$(8);
                              :REM*53
30 FORX=1TO216:READA:PRINT#8,CH
   R$(A);:NEXT:RESTORE        :REM*55
40 FORX=2264TO3071:PRINT#8,CHR$
   (PEEK(X));:NEXT            :REM*145
50 FORX=1TO216:READA:PRINT#8,CH
   R$(255-A);:NEXT            :REM*68
60 CLOSE8:OPEN15,8,15,"I0":CLOS
   E15:END                    :REM*247
70 DATA 126,126,102,110,96,126,
   126,0,126,126,126,110,126,11
   0,110,0,124,126            :REM*3
80 DATA 108,120,108,126,124,0,1
   26,126,126,96,126,126,126,0,
   124,126,126,110            :REM*204
90 DATA 126,126,124,0,126,126,1
   12,126,112,126,126,0,126,126
   ,112,120,120,112           :REM*71
100 DATA 112,0,126,126,114,112,
    118,124,118,0,110,110,126,1
    26,126,110,110,0          :REM*83
110 DATA 126,126,24,24,24,126,1
    26,0,30,30,30,30,94,94,126,
    0,118,118,118             :REM*145
120 DATA 120,118,118,118,0,112,
    112,112,112,126,126,126,0,9
    8,118,126,106,98          :REM*235
130 DATA 98,98,0,102,118,126,12
    6,110,102,102,0,126,126,126
    ,110,126,126,126          :REM*231
140 DATA 0,126,126,126,110,126,
    96,96,0,124,124,124,108,124
    ,126,126,0,126            :REM*222
150 DATA 126,126,110,126,108,10
    2,0,126,126,96,126,14,126,1
    26,0,126,126,126          :REM*78
160 DATA 24,24,24,24,24,0,110,110,
    110,110,110,126,126,0,110,1
    10,110,110,110            :REM*180
170 DATA 60,24,0,98,98,98,98,98
    ,106,118,0,66,102,60,24,60,
    102,66,0,102,126          :REM*196
180 DATA 60,24,24,24,24,0,126,1
    26,14,56,96,126,126,0
                              :REM*130
```

►

PUBLIC DOMAIN SOFTWARE— WHERE TO GET IT

MANY PROGRAMS THAT RUN on Commodore computers have been placed in the public domain, which means they're not copyrighted and can be freely duplicated. For this reason, they're available without charge or at very low cost. You can get them on disk from most user's groups and some commercial sources, and online from bulletin boards and networks.

Public domain software includes a wealth of utility, productivity, entertainment and education programs. There's a range of quality, but many of the programs are excellent.

Below is a list of sources you can contact, in addition to your local user's group, BBSs and online services. All of these organizations have substantial offerings and will send you a catalog. We hope to update this list periodically, so we invite additional entries.



USER'S GROUPS:

M.U.G.S. (Muscatine User Group Support)
1836 Hershey Ave.
Muscatine, IA 52761
319-262-8279

M.U.G.S. provides C-64 and C-128 disks for $1.25 each, plus a $5 deposit per order for shipping and handling. Any of the $5 not used is returned in the form of blank disks at the rate of 35 cents per disk. M.U.G.S. also sends programs in printout form. Their catalog costs $2.

FOG
PO Box 3474
Daly City, CA 94015
415-755-2000

FOG distributes CP/M software for the C-128. Its disks are available to members for $4 each; nonmembers must pay $8 per disk. FOG programs also can be downloaded from their Roundtable on GEnie and from their 40 bulletin boards around the country. You can order FOG's two catalog disks for $4 each, and the catalog can be accessed on GEnie and the BBSs. They will format programs for your system if needed. Credit cards accepted.

TPUG (Toronto PET User's Group)
5300 Yonge St.
Toronto, Ontario
Canada M2N 5R2
416-733-2933

The TPUG library includes programs for PET, VIC-20, C-64, C-128 (including CP/M) and Amiga computers. Members can purchase disks for $8 and can join the Disk-of-the-Month Club. Nonmembers must pay $12 per disk. All orders require $3 shipping and handling. A disk catalog comes free with membership; nonmembers can order a printed catalog for $1. All prices are quoted in U.S. funds. Credit cards accepted.

COMMERCIAL SOURCES:

Elliam Associates
1230 Bayview Heights Drive
Los Osos, CA 93402

Elliam offers CP/M software at $10 per disk or three disks for $25, plus $2.50 shipping and handling per order. They'll send a six-page flyer without charge or their complete catalog for $1; the catalog also comes free with an order. Elliam will reformat CP/M programs you send them to work with your system. Credit cards accepted.

JLH Co.
Dept. 4
PO Box 67021
Topeka, KS 66667
913-478-4979

JLH offers programs for the C-64 and C-128. One program costs $1.50, with a minimum order of five ($7.50), and there's a charge of $2.50 per order for shipping and handling. They include a free disk of programs with each order. Send an SASE for a list of the programs available. No credit cards.

Lightspeed Software
PO Box 7037
Chesapeake, VA 23323

Lightspeed has programs for the C-64 and C-128, including CP/M mode. They charge $5 per ready-made disk and $10 for a disk full of programs you specify from their catalog. They also offer a locate service and a Disk-of-the-Month Club. Postage and handling is $1 on orders under $30. No credit cards.

Public Domain Solutions
PO Box 832
Tallevast, FL 34270
For orders, 800-634-5546; for help, 813-378-2394

PDS distributes software for Commodores, including the PET, VIC-20, Plus/4, C-64 and C-128. They have one CP/M disk for the C-128. Their disks cost $7.95 for one, less per disk for larger quantities. Shipping and handling is $1 per order. They also have a Disk-of-the-Month Club. Write or call for a free brochure, or send $3 for a disk catalog. Credit cards accepted.

Poseidon Electronics
103 Waverly Place
New York, NY 10011
212-777-9515

Poseidon sells CP/M software for the C-128 at $16 per disk. They'll send you a complete catalog for $2 if you mail them an SASE with 90 cents postage. Poseidon accepts checks payable to Ralph S. Lees. ■

Listing 5. Caps Set program.

```
10 REM CAPS SET - KENNY LAWSON
                              :REM*125
20 OPEN8,8,8,"CAPSFONT,P,W":PRI
   NT#8,CHR$(0);CHR$(8);:REM*56
30 FORX=2048TO2055:PRINT#8,CHR$
   (PEEK(X));:NEXT            :REM*99
40 GOSUB80:FORX=2264TO2567:PRIN
   T#8,CHR$(PEEK(X));:NEXT:GOSU
   B80                        :REM*166
50 FORX=2776TO3079:PRINT#8,CHR$
   (PEEK(X));:NEXT:RESTORE
                              :REM*129
60 GOSUB90:FORX=3288TO3591:PRIN
   T#8,CHR$(PEEK(X));:NEXT:GOSU
   B90                        :REM*207
70 CLOSE8:OPEN15,8,15,"I0":CLOS
   E15:END                    :REM*253
80 FORX=1TO208:READA:PRINT#8,CH
   R$(A);:NEXT:RETURN         :REM*220
90 FORX=1TO208:READA:PRINT#8,CH
   R$(255-A);:NEXT:RETURN
                              :REM*141
100 DATA 0,0,60,102,126,102,102
    ,0,0,0,124,98,124,98,124,0,
    0,0,60,98,96,98            :REM*227
110 DATA 60,0,0,0,0,124,98,98,
    124,0,0,0,126,96,124,96,126
    ,0,0,0,126,96              :REM*107
120 DATA 124,96,96,0,0,0,62,96,
    110,100,58,0,0,0,102,102,12
    6,102,102,0,0,0            :REM*123
130 DATA 126,24,24,24,126,0,0,0
    ,30,12,12,76,56,0,0,0,102,1
    08,120,108,102,0           :REM*173
140 DATA 0,0,96,96,96,96,126,0,
    0,0,102,90,66,66,66,0,0,0,9
    8,114,90,78,70,0           :REM*247
150 DATA 0,0,60,102,102,102,60,
    0,0,0,124,98,124,96,96,0,0,
    0,60,98,106,100            :REM*9
160 DATA 58,0,0,0,124,98,124,10
    8,102,0,0,0,60,96,60,6,60,0
    ,0,0,126,24,24             :REM*123
170 DATA 24,24,0,0,0,102,102,10
    2,102,58,0,0,0,102,102,102,
    36,24,0,0,0,66             :REM*229
180 DATA 66,66,90,102,0,0,0,66,
    36,24,36,66,0,0,0,66,36,24,
    24,24,0,0,0,126            :REM*234
190 DATA 12,24,48,126,0,60,102,
    102,126,102,102,102,0,124,9
    8,100,120,100,98           :REM*98
200 DATA 124,0,60,98,96,96,96,9
    8,60,0,124,98,98,98,98,98,1
    24,0,126,96,96             :REM*31
210 DATA 124,96,96,126,0,126,12
    6,96,96,120,96,96,0,60,98,9
    6,96,110,100,58            :REM*3
220 DATA 0,102,102,102,126,102,
    102,102,0,126,24,24,24,24,2
    4,126,0,30,12,12           :REM*3
230 DATA 12,12,76,56,0,102,108,
    120,120,108,102,98,0,96,96,
    96,96,96,96,126            :REM*224
240 DATA 0,102,90,66,66,66,66,6
    6,0,66,98,114,90,78,70,66,0
    ,60,102,102,102            :REM*1
250 DATA 102,102,60,0,124,98,98
    ,124,96,96,96,0,60,98,98,98
    ,106,100,58,0              :REM*212
260 DATA 124,98,98,124,104,100,
    98,0,60,98,96,60,6,6,60,0,1
    26,24,24,24,24             :REM*195
270 DATA 24,24,0,102,102,102,10
    2,102,102,58,0,102,102,102,
    102,102,36,24,0            :REM*124
280 DATA 66,66,66,66,66,90,102,
    0,66,66,36,24,36,66,66,0,66
    ,66,36,24,24,24            :REM*209
290 DATA 24,0,126,6,12,24,48,96
    ,126,0                     :REM*97
```

Listing 6. Compu Set program.

```
10 REM COMPU SET - KENNY LAWSON
                              :REM*132
20 OPEN8,8,8,"COMPUFONT,P,W":PR
   INT#8,CHR$(0);CHR$(8);:REM*1
30 FORX=1TO216:READA:PRINT#8,CH
   R$(A);:NEXT                :REM*174
40 FORX=2264TO2431:PRINT#8,CHR$
   (PEEK(X));:NEXT            :REM*156
50 FORX=1TO80:READA:PRINT#8,CHR
   $(A);:NEXT:RESTORE         :REM*219
60 FORX=2512TO3071:PRINT#8,CHR$
   (PEEK(X));:NEXT            :REM*152
70 FORX=1TO216:READA:PRINT#8,CH
   R$(255-A);:NEXT            :REM*56
80 FORX=3288TO3455:PRINT#8,CHR$
   (PEEK(X));:NEXT            :REM*250
90 FORX=1TO80:READA:PRINT#8,CHR
   $(255-A);:NEXT:CLOSE8:OPEN15
   ,8,15,"I0":CLOSE15         :REM*56
100 DATA 62,34,42,46,96,98,126,
    0,62,34,34,126,98,98,98,0,1
    20,68,68,124,102           :REM*167
110 DATA 102,126,0,126,66,64,96
    ,96,98,126,0,124,70,70,102,
    102,102,126,0,62           :REM*27
120 DATA 32,32,124,96,96,126,0,
    62,32,32,124,96,96,96,0,62,
    34,32,110,102              :REM*143
130 DATA 102,126,0,34,34,34,126
    ,98,98,98,0,24,24,24,56,56,
    56,56,0,4,4,4,6            :REM*193
140 DATA 6,102,60,0,68,68,72,12
    6,102,102,102,0,32,32,32,96
    ,96,96,126,0,62            :REM*99
150 DATA 42,42,106,98,98,98,0,3
    4,50,42,106,102,98,98,0,126
    ,66,66,98,98,98            :REM*84
160 DATA 126,0,60,34,34,124,96,
    96,96,0,126,66,66,98,106,10
    0,122,0,124,68             :REM*247
170 DATA 68,126,102,102,102,0,1
    26,98,96,126,6,70,126,0,126
    ,16,16,24,24,24            :REM*119
180 DATA 24,0,38,38,38,102,102,
    102,126,0,38,38,38,102,102,
    36,24,0,36,36,42           :REM*163
190 DATA 106,106,106,126,0,102,
    102,36,24,36,102,102,0,102,
    102,102,24,24,24           :REM*17
200 DATA 24,0,126,66,4,24,96,98
    ,126,0,62,38,38,106,106,106
    ,126,0,24,24,24            :REM*165
210 DATA 56,56,56,56,0,60,70,6,
    126,96,96,126,0,126,6,6,30,
    14,14,126,0,102            :REM*87
220 DATA 102,102,126,14,14,14,0
    ,126,102,96,126,14,14,126,0
    ,126,102,96,126            :REM*36
230 DATA 114,114,126,0,126,98,4
    ,8,24,24,24,0,60,52,52,60,1
    18,118,126,0,126           :REM*166
240 DATA 70,70,126,14,78,126,0
                               :REM*218
```

Listing 7. Cursive Set program.

```
10 REM CURSIVE SET - KENNY LAWS
   ON                          :REM*71
20 OPEN8,8,8,"CURSIFONT,P,W":PR
   INT#8,CHR$(0);CHR$(8);:REM*4
30 FORX=2048TO2055:PRINT#8,CHR$
   (PEEK(X));:NEXT            :REM*99
40 GOSUB80:FORX=2264TO2567:PRIN
   T#8,CHR$(PEEK(X));:NEXT:GOSU
   B80                        :REM*166
50 FORX=2776TO3079:PRINT#8,CHR$
   (PEEK(X));:NEXT:RESTORE
                              :REM*129
60 GOSUB90:FORX=3288TO3591:PRIN
   T#8,CHR$(PEEK(X));:NEXT:GOSU
   B90                        :REM*207
70 CLOSE8:OPEN15,8,15,"I0":CLOS
   E15:END                    :REM*253
80 FORX=1TO208:READA:PRINT#8,CH
   R$(A);:NEXT:RETURN         :REM*220
90 FORX=1TO208:READA:PRINT#8,CH
   R$(255-A);:NEXT:RETURN
                              :REM*141
100 DATA 0,0,56,72,84,163,0,0,1
    6,40,40,48,100,155,0,0,0,0,
    56,68,64,191,0,0           :REM*117
110 DATA 8,8,56,72,72,191,0,0,0
    ,0,16,40,40,255,0,0,16,40,4
    0,40,112,167,56            :REM*129
120 DATA 0,0,0,24,36,60,199,28,
    0,16,40,40,48,104,167,0,0,2
    4,0,24,24,36,195           :REM*5
130 DATA 0,0,24,0,24,24,40,207,
    24,0,16,40,40,48,40,231,0,0
    ,16,40,40,40,16            :REM*234
140 DATA 239,0,0,0,0,40,84,84,2
    15,0,0,0,0,24,52,84,151,0,0►
```

RUN AMOK

Item: Magic trick $44D (November 1987, p. 124) will not run correctly unless the following lines are changed to read as shown here:

```
4 DIML$(146):OPEN1,8,Ø,"$":GET#1,A$,B$
1Ø IFN>1THENL$(N)=LEFT$(C$,27):GOTO5
11 L$(N)="Ø{2 SPACEs}"+MID$(C$,4):GOTO5
15 INPUT"{CTRL 9}1-2-PRINT 3-DISPLAY
   4-END";A:ONA+1GOTO15,16,16,17:END
18 FORI=1TOX:PRINTL$(I)SPC(7)L$(X+I)
19 NEXT:IFN=X+ITHENPRINTSPC(34)L$(N)
```

Item: Also in November, in the Magic Trick of the Month ($43E, on p. 12), the line you should add to save to tape obviously cannot be numbered 25. Number it 23, or 24, or some other line number that is not already in the program.

Item: There was an error in the PO Box number of Bear Graphics, publisher of Bucks!, when that game was reviewed in Software Gallery for December 1987 (p. 32). It should have read: PO Box 12206.

Item: In Commodore Clinic for February 1988, the telephone number that appears in the last line of the first paragraph in the second column of p. 86 has been changed. The new number is 1-800-343-0728. ■

NOW $64.95
FOR ANY COMMAND CENTER CABINET.





Accessories:
Dust Cover - 19.95
Keyboard Cover - 19.95
Drive Reset - 14.95
Tilt-Swivel Monitor Stand - 14.95
Serial Cable - 9.95
Cartridge Port Ext. Cable - 24.95
Modem Switch - 9.95

Deluxe Models still available with these popular features:
- **Built-In Power Strip** with surge and noise protection
- **Built-In Cooling Fan**
- **Modular Phone Plug** with Switch (optional on 64 & 64C)
- **Master Power Switch**
- **Insert** for Single or Dual Drives
- Also available for Amiga 500

128 . . . $124.95
64 . . . 109.95
64C . . . 109.95

Data Director



$39.95

- Eliminates Cable Swapping
- Shares 2 6-pin Serial Devices
- LED Indicator Lights
- Reset Button

Continental U.S.
$4.50 for each Command Center
$2.00 for one accessory item
$3.00 for two or more accessories

APO/FPO/Canada/Puerto Rico/ Hawaii/Alaska
$13.00 for each Command Center
$ 4.00 for one accessory item
$ 6.00 for two or more accessories

KETEK
P.O. Box 203
Oakdale, IA 52319
For faster service, call
1-800-626-4582 toll free
1-319-338-7123 (IA Residents)

Circle 6 on Reader Service card.

The Hot Shot PLUS
Advanced Graphics Printer Interface for Commodore computers



The Hot Shot PLUS is the most advanced and useful printer interface available for the Commodore computer. It supports all standard features you expect in an interface. The Hot Shot PLUS comes with an 8K buffer which you can expand up to 64K. It has 6 built-in NLQ fonts. It has a special graphics enhancement features which allows you to convert regular graphics to double or quadruple density. This is a great feature you will love. If you print graphics or use Geos software, there is no better interface available. The Hot Shot PLUS has several utility programs stored in the ROM, including a status display and font designer program. You can load them in just like the Hot Shot PLUS was a disk drive. Many more features! If you are in the market for an interface, find out the facts about the Hot Shot PLUS first! Call us or mark the reader service card and we will send you a catalog.

Only $99.95

FOR A COMPLETE CATALOG OF ALL OUR PRODUCTS, CALL US OR MARK OUR READER SERVICE CARD NUMBER.

CALL TODAY! See your local Commodore dealer or call us direct at (206) 624-4985. Visa, MC, and COD welcome. All charge orders verified. Dealer and Distributor inquiries very welcome.

Omnitronix, Inc.
760 Harrison Street - Seattle Washington 98109 - (206) 624-4985

Circle 60 on Reader Service card.

McInker™, Automatic Ribbon Re-inker



will re-ink your ribbons for less than 5 cents and will pay for itself even in one day depending on printer use. Average cartridge can be re-inked 60-100 times. We support over 12000 printers, cartridges, spools, multicolor cartridges. Ask for complete catalog.

Universal McInker (cartridge or spool) 68.50
Multicolor Adaptor (4 color ribbons) 40.00
Dot matrix ink (2oz $3.00, 1 pint $18.50 any color)
Shipping 4.00

>100,000 sold since 1982, satisfaction or return

MERCURY MODEMS

100% Hayes compatible (guaranteed), full lights, autodial answer, repeat, volume control, 2 year warranty

1200 ext 99.00
1200 int 89.00
2400 ext 249.00
cables 19.00



shipping 5.00

ORDER TOLL FREE
1-800-547-3303
In Oregon (503)626-2291

Computer Friends, Inc.
14250 NW Science Park Dr.
Portland OR 97229 telex 4949559 CF
fax (503)643-5379

Circle 274 on Reader Service card.

```
    ,Ø,Ø,24,39,1ØØ       :REM*2Ø
15Ø DATA 152,Ø,Ø,Ø,Ø,16,4Ø,12Ø,
    175,32,Ø,Ø,Ø,16,4Ø,88,139,1
    2,Ø,Ø,16,28,2Ø       :REM*2Ø8
16Ø DATA 36,195,Ø,Ø,Ø,4,12,2Ø,3
    6,22Ø,Ø,Ø,Ø,16,56,16,4Ø,199
    ,Ø,Ø,Ø,Ø,4Ø,4Ø       :REM*254
17Ø DATA 1Ø4,159,Ø,Ø,Ø,Ø,4Ø,44,
    1Ø6,145,Ø,Ø,Ø,Ø,84,86,85,16
    8,Ø,Ø,Ø,Ø,2Ø,1Ø4     :REM*113
18Ø DATA 148,35,Ø,Ø,Ø,Ø,4Ø,1Ø4,
    159,8,56,Ø,Ø,Ø,56,68,152,4,
    27,Ø,8,2Ø,36,1ØØ     :REM*74
19Ø DATA 164,37,27,Ø,56,1ØØ,184
    ,56,36,37,58,Ø,12,3Ø,34,96,
    16Ø,35,3Ø,Ø,56       :REM*72
2ØØ DATA 1ØØ,164,36,36,47,122,Ø
    ,24,1ØØ,16Ø,24,56,67,6Ø,Ø,6
    Ø,68,4,3Ø,4,37       :REM*1Ø9
21Ø DATA 3Ø,Ø,36,124,164,4,116,
    79,56,Ø,36,1ØØ,164,6Ø,38,37
    ,36,Ø,16,4Ø,36       :REM*21Ø
22Ø DATA 36,164,89,54,Ø,12,2Ø,2
    Ø,12,54,73,48,Ø,36,1Ø4,176,
    48,4Ø,37,34,Ø,8      :REM*2Ø
23Ø DATA 2Ø,124,16,8Ø,161,94,Ø,
    84,25Ø,9Ø,9Ø,9Ø,9Ø,89,Ø,44,
    114,162,34,34,34     :REM*167
24Ø DATA 33,Ø,24,36,228,38,37,3
    6,24,Ø,56,1ØØ,162,56,32,32,
    32,Ø,56,68,196       :REM*11
25Ø DATA 68,84,77,62,Ø,6Ø,98,16
    2,6Ø,4Ø,37,34,Ø,24,36,36,24
    ,48,73,182,Ø,6Ø      :REM*234
26Ø DATA 68,4,4,4,37,26,Ø,72,2Ø
    Ø,72,72,72,73,54,Ø,34,1ØØ,1
    62,34,34,21,8,Ø      :REM*161
27Ø DATA 34,1Ø6,17Ø,42,42,43,2Ø
    ,Ø,68,168,4Ø,16,4Ø,69,7Ø,Ø,
    36,1ØØ,164,36,28     :REM*78
28Ø DATA 4,56,Ø,56,68,152,4,2Ø,
    45,26,Ø              :REM*114
```

Listing 8. Diamond Set program.

```
1Ø REM DIAMOND SET - KENNY LAWS
   ON                    :REM*38
2Ø OPEN8,8,8,"DIAMONDFONT,P,W":
   PRINT#8,CHR$(Ø);CHR$(8);
                         :REM*221
3Ø FORX=2Ø48TO2Ø55:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*99
4Ø FORX=1TO2Ø8:READA:PRINT#8,CH
   R$(A);:NEXT:RESTORE   :REM*4
5Ø FORX=2264TO3Ø71:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*1Ø2
6Ø FORX=3Ø72TO3Ø79:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*1Ø
7Ø FORX=1TO2Ø8:READA:PRINT#8,CH
   R$(255-A);:NEXT:RESTORE
                         :REM*58
8Ø CLOSE8:OPEN15,8,15,"IØ":CLOS
   E15:END               :REM*139
9Ø DATA 24,36,66,126,66,36,36,Ø
   ,16,4Ø,68,12Ø,68,4Ø,16,Ø,24,
   36,66,64,66,36        :REM*89
1ØØ DATA 24,Ø,16,4Ø,68,66,68,4Ø
   ,16,Ø,24,36,66,12Ø,66,36,24
   ,Ø,24,36,66,12Ø       :REM*141
11Ø DATA 64,32,16,Ø,24,36,64,68
   ,66,36,26,Ø,36,36,66,126,66
   ,36,36,Ø,16,16        :REM*2Ø6
12Ø DATA 4Ø,124,4Ø,16,16,Ø,12,4
   ,2,2,1ØØ,72,48,Ø,18,36,72,1
   12,72,36,18,Ø,8       :REM*153
13Ø DATA 8,16,32,64,64,62,Ø,36,
   36,9Ø,66,66,36,36,Ø,36,52,8
   2,9Ø,74,44,36,Ø       :REM*33
14Ø DATA 24,36,66,66,66,36,24,Ø
   ,24,36,66,124,64,32,16,Ø,24
   ,36,66,66,74,36       :REM*12Ø
15Ø DATA 26,Ø,24,36,66,124,72,3
   6,18,Ø,8,2Ø,34,16,72,36,24,
   Ø,6Ø,9Ø,24,6Ø,6Ø      :REM*139
16Ø DATA 24,24,Ø,36,36,66,66,66
   ,36,26,Ø,36,36,66,66,66,36,
   24,Ø,36,36,66,66      :REM*67
17Ø DATA 9Ø,36,36,Ø,66,36,24,24
   ,24,36,66,Ø,36,36,66,36,24,
   24,24,Ø,62,66,4       :REM*143
18Ø DATA 8,16,34,124,Ø   :REM*23Ø
```

Listing 9. Dot Set program.

```
1Ø REM DOT SET - KENNY LAWSON
                         :REM*84
2Ø OPEN8,8,8,"DOTFONT,P,W":PRIN
   T#8,CHR$(Ø);CHR$(8);:REM*1Ø9
3Ø FORX=2Ø48TO2Ø55:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*99
4Ø FORX=1TO2Ø8:READA:PRINT#8,CH
   R$(A);:NEXT:RESTORE   :REM*4
5Ø FORX=2264TO3Ø71:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*1Ø2
6Ø FORX=3Ø72TO3Ø79:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*1Ø
7Ø FORX=1TO2Ø8:READA:PRINT#8,CH
   R$(255-A);:NEXT:RESTORE
                         :REM*58
8Ø CLOSE8:OPEN15,8,15,"IØ":CLOS
   E15:END               :REM*139
9Ø DATA 24,36,66,6Ø,66,36,66,Ø,
   84,34,66,6Ø,66,34,84,Ø,4Ø,66
   ,32,64,32,66,4Ø       :REM*92
1ØØ DATA Ø,84,34,64,34,64,34,84
   ,Ø,84,32,64,4Ø,64,43,84,Ø,8
   4,32,64,4Ø,64,32      :REM*9Ø
11Ø DATA 64,Ø,84,34,64,32,76,34
   ,84,Ø,66,36,66,6Ø,66,36,66,
   Ø,16,8,16,8,16,8      :REM*1Ø2
12Ø DATA 16,Ø,8,4,8,4,8,68,4Ø,Ø
   ,66,36,72,48,72,36,66,Ø,64,
   32,64,32,64,42        :REM*159
13Ø DATA 84,Ø,66,36,9Ø,36,66,36
   ,66,Ø,66,36,82,36,74,36,66,
   Ø,2Ø,42,68,34,68      :REM*82
14Ø DATA 42,2Ø,Ø,84,42,66,6Ø,64
   ,32,64,Ø,84,42,68,34,76,42,
   22,Ø,84,42,66,6Ø      :REM*113
15Ø DATA 72,36,66,Ø,2Ø,42,64,6Ø
   ,2,84,4Ø,Ø,84,42,16,8,16,8,
   16,Ø,66,36,66,36      :REM*118
16Ø DATA 66,36,26,Ø,66,36,66,36
   ,66,36,24,Ø,66,36,66,36,9Ø,
   36,66,Ø,66,36,24      :REM*56
17Ø DATA Ø,24,36,66,Ø,66,1Ø2,36
   ,24,8,16,8,Ø,84,42,4,24,32,
   84,42,Ø               :REM*15Ø
```

Listing 10. Stencil Set program.

```
1Ø REM STENCIL SET - KENNY LAWS
   ON                    :REM*2Ø7
2Ø OPEN8,8,8,"STENCILFONT,P,W":
   PRINT#8,CHR$(Ø);CHR$(8);
                         :REM*3Ø
3Ø FORX=1TO216:READA:PRINT#8,CH
   R$(A);:NEXT           :REM*174
4Ø FORX=2264TO2431:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*156
5Ø FORX=1TO8Ø:READA:PRINT#8,CHR
   $(A);:NEXT:RESTORE    :REM*219
6Ø FORX=2512TO3Ø71:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*152
7Ø FORX=1TO216:READA:PRINT#8,CH
   R$(255-A);:NEXT       :REM*56
8Ø FORX=3288TO3455:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*25Ø
9Ø FORX=1TO8Ø:READA:PRINT#8,CHR
   $(255-A);:NEXT        :REM*146
1ØØ CLOSE8:OPEN15,8,15,"IØ":CLO
   SE15:END              :REM*159
11Ø DATA 62,34,43,11Ø,32,34,126
   ,Ø,126,36,36,126,36,36,1Ø2,
   Ø,12Ø,36,36,12Ø       :REM*143
12Ø DATA 36,36,12Ø,Ø,24,38,32,9
   6,32,38,24,Ø,12Ø,36,36,1Ø2,
   36,36,12Ø,Ø,126       :REM*2Ø8
13Ø DATA 32,32,126,32,32,126,Ø,
   126,32,32,12Ø,32,32,112,Ø,1
   24,34,32,96,46        :REM*252
14Ø DATA 36,122,Ø,1Ø2,36,36,126
   ,36,36,1Ø2,Ø,126,24,24,6Ø,2
   4,24,126,Ø,3Ø,12      :REM*16
15Ø DATA 12,14,1Ø8,6Ø,62,Ø,1Ø2,
   44,56,112,56,44,1Ø2,Ø,12Ø,4
   8,48,12Ø,48,126       :REM*6Ø
16Ø DATA 126,Ø,1Ø2,6Ø,36,1Ø2,36
   ,36,1Ø2,Ø,1Ø2,52,6Ø,11Ø,36,
   36,1Ø2,Ø,126,36       :REM*72
```

```
17Ø DATA 36,1Ø2,36,36,126,Ø,124
    ,34,34,124,32,32,112,Ø,126,
    36,36,1Ø2,52,44      :REM*56
18Ø DATA 126,Ø,124,34,34,124,56
    ,44,1Ø2,Ø,126,32,32,126,4,4
    ,126,Ø,126,24,24     :REM*21Ø
19Ø DATA 6Ø,24,24,6Ø,Ø,1Ø2,36,3
    6,1Ø2,36,36,126,Ø,1Ø2,36,36
    ,1Ø2,36,24,6Ø,Ø      :REM*24Ø
2ØØ DATA 1Ø2,36,36,1Ø2,36,6Ø,1Ø
    2,Ø,66,36,24,6Ø,24,36,66,Ø,
    1Ø2,36,24,6Ø,24      :REM*2ØØ
21Ø DATA 24,24,Ø,126,4,14,24,11
    2,32,126,Ø,24,36,36,1Ø2,36,
    36,24,Ø,56,88,24     :REM*179
22Ø DATA 6Ø,24,24,126,Ø,28,98,4
    ,24,32,64,126,Ø,28,98,2,6Ø,
    2,98,28,Ø,36,36      :REM*15Ø
23Ø DATA 36,126,4,4,4,Ø,6Ø,98,3
    2,56,6,1ØØ,56,Ø,6,8,16,96,4
    4,5Ø,28,Ø,62,98      :REM*22Ø
24Ø DATA 4,8,28,8,8,Ø,24,36,1Ø2
    ,24,36,1Ø2,24,Ø,28,36,98,34
    ,3Ø,4,8,Ø            :REM*1Ø2
```

Listing 11. Thin Set program.

```
1Ø REM THIN SET - KENNY LAWSON
                         :REM*123
2Ø OPEN8,8,8,"THINFONT,P,W":PRI
   NT#8,CHR$(Ø);CHR$(8);
                         :REM*11Ø
3Ø FORX=1TO512:READA:PRINT#8,CH
   R$(A);:NEXT:RESTORE   :REM*37
4Ø FORX=256ØTO3Ø71:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*156
5Ø FORX=1TO512:READA:PRINT#8,CH
   R$(255-A);:NEXT       :REM*86
6Ø CLOSE8:OPEN15,8,15,"I Ø":CLOS
   E15:END               :REM*247
7Ø DATA 6Ø,66,82,76,64,66,6Ø,Ø,
   6Ø,66,66,126,66,66,66,Ø,124,
   66,66,124,66,66       :REM*2Ø4
8Ø DATA 124,Ø,6Ø,66,64,64,64,66
   ,6Ø,Ø,12Ø,68,66,66,66,68,12Ø
   ,Ø,126,64,64,12Ø      :REM*3Ø
9Ø DATA 64,64,126,Ø,126,64,64,1
   2Ø,64,64,64,Ø,124,66,64,64,7
   8,66,126,Ø,66,66      :REM*188
1ØØ DATA 66,126,66,66,66,Ø,126,
    24,24,24,24,24,126,Ø,2,2,2,
    2,66,66,62,Ø,7Ø      :REM*119
11Ø DATA 72,8Ø,96,8Ø,72,7Ø,Ø,64
    ,64,64,64,64,66,126,Ø,36,9Ø
    ,9Ø,66,66,66,66      :REM*156
12Ø DATA Ø,66,98,82,74,7Ø,66,66
    ,Ø,6Ø,66,66,66,66,66,6Ø,Ø,1
    24,66,66,124,64      :REM*4Ø
13Ø DATA 64,64,Ø,6Ø,66,66,66,74
    ,68,58,Ø,124,66,66,124,72,6
    8,66,Ø,62,64,64      :REM*23Ø
14Ø DATA 6Ø,2,2,124,Ø,126,24,24
    ,24,24,24,24,Ø,66,66,66,66,
    66,36,6Ø,Ø,66,66     :REM*43
15Ø DATA 66,66,66,36,24,Ø,66,66
    ,66,66,9Ø,9Ø,36,Ø,66,36,24,
    24,24,36,66,Ø,66     :REM*21Ø
16Ø DATA 36,24,24,24,24,24,Ø,12
    6,2,4,8,16,32,126,Ø,28,16,1
    6,16,16,16,28,Ø      :REM*1Ø8
17Ø DATA 12,18,32,112,32,32,126
    ,Ø,56,8,8,8,8,8,56,Ø,8,28,4
    2,8,8,8,8,Ø,Ø,16     :REM*123
18Ø DATA 32,126,32,16,Ø,Ø,Ø,Ø,Ø
    ,Ø,Ø,Ø,Ø,Ø,16,16,16,16,16,Ø
    ,16,Ø,36,36,Ø,Ø      :REM*137
19Ø DATA Ø,Ø,Ø,Ø,36,126,36,36,3
    6,126,36,Ø,8,62,72,6Ø,1Ø,12
    4,8,Ø,Ø,98,4,8       :REM*141
2ØØ DATA 16,32,7Ø,Ø,48,72,48,8Ø
    ,74,76,5Ø,Ø,24,8,16,Ø,Ø,Ø,Ø
    ,Ø,12,16,32,32       :REM*16Ø
21Ø DATA 32,16,12,Ø,48,8,4,4,4,
    8,48,Ø,Ø,4Ø,16,124,16,4Ø,Ø,
    Ø,Ø,8,8,62,8,8,Ø     :REM*21
22Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,24,8,16,Ø,
    Ø,Ø,6Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,
    24,Ø,Ø,2,4,8,16      :REM*38
23Ø DATA 32,64,Ø,6Ø,7Ø,74,74,82
    ,98,6Ø,Ø,8,24,8,8,8,8,28,Ø,
    56,68,2,4,56,64      :REM*6
24Ø DATA 124,Ø,6Ø,66,2,28,2,66,
    6Ø,Ø,66,66,66,126,2,2,2,Ø,1
    26,64,64,124,2       :REM*17
25Ø DATA 66,6Ø,Ø,6Ø,66,64,124,6
    6,66,6Ø,Ø,62,66,2,4,4,8,8,Ø
    ,6Ø,66,66,6Ø,66      :REM*114
26Ø DATA 66,6Ø,Ø,6Ø,66,66,62,2,
    2,6Ø,Ø,Ø,Ø,24,Ø,24,Ø,Ø,Ø,Ø,
    Ø,24,Ø,24,8,16,Ø     :REM*189
27Ø DATA 4,8,16,32,16,8,4,Ø,Ø,Ø
    ,6Ø,Ø,6Ø,Ø,Ø,Ø,32,16,8,4,8,
    16,32,Ø,6Ø,66,4      :REM*234
28Ø DATA 8,8,Ø,8,Ø       :REM*192
```

Listing 12. Under Set program.

```
1Ø REM UNDERLINE SET - KENNY LA
   WSON                  :REM*1Ø4
2Ø OPEN8,8,8,"UNDERFONT,P,W":PR
   INT#8,CHR$(Ø);CHR$(8);
                         :REM*251
3Ø FORX=1TO512:READA:PRINT#8,CH
   R$(A);:NEXT:RESTORE   :REM*37
4Ø FORX=256ØTO3Ø71:PRINT#8,CHR$
   (PEEK(X));:NEXT       :REM*156
5Ø FORX=1TO512:READA:PRINT#8,CH
   R$(255-A);:NEXT       :REM*86
6Ø CLOSE8:OPEN15,8,15,"I Ø":CLOS
   E15:END               :REM*247
7Ø DATA 124,68,92,64,124,Ø,255,
   Ø,24,36,1Ø2,126,1Ø2,Ø,255,Ø,
   124,98,124,98         :REM*167
8Ø DATA 124,Ø,255,Ø,6Ø,66,64,66
   ,6Ø,Ø,255,Ø,12Ø,1ØØ,98,1ØØ,1
   2Ø,Ø,255,Ø,126        :REM*163
9Ø DATA 96,12Ø,96,126,Ø,255,Ø,1
   26,96,12Ø,96,96,Ø,255,Ø,126,
   96,11Ø,1ØØ,126,Ø      :REM*6Ø
1ØØ DATA 255,Ø,118,118,126,118,
    118,Ø,255,Ø,126,24,24,24,12
    6,Ø,255,Ø,6,6,7Ø     :REM*194
11Ø DATA 7Ø,6Ø,Ø,255,Ø,98,1ØØ,1
    2Ø,1ØØ,98,Ø,255,Ø,96,96,96,
    96,126,Ø,255,Ø       :REM*214
12Ø DATA 36,9Ø,66,66,66,Ø,255,Ø
    ,98,114,1Ø6,1Ø2,98,Ø,255,Ø,
    6Ø,66,66,66,6Ø,Ø     :REM*146
13Ø DATA 255,Ø,124,1Ø2,124,96,9
    6,Ø,255,Ø,6Ø,66,74,68,58,Ø,
    255,Ø,124,1Ø2        :REM*94
14Ø DATA 124,1Ø4,1Ø2,Ø,255,Ø,62
    ,96,6Ø,2,124,Ø,255,Ø,126,12
    6,24,24,24,Ø,255     :REM*138
15Ø DATA Ø,1Ø2,1Ø2,1Ø2,1Ø2,6Ø,Ø
    ,255,Ø,1Ø2,1Ø2,1Ø2,6Ø,24,Ø,
    255,Ø,66,66,66       :REM*211
16Ø DATA 9Ø,36,Ø,255,Ø,66,36,24
    ,36,66,Ø,255,Ø,66,36,24,24,
    24,Ø,255,Ø,126       :REM*25
17Ø DATA 12,24,48,126,Ø,255,Ø,5
    6,32,32,32,56,Ø,255,Ø,24,36
    ,112,32,124,Ø        :REM*41
18Ø DATA 255,Ø,56,8,8,8,56,Ø,25
    5,Ø,8,28,42,8,8,Ø,255,Ø,16,
    32,126,32,16,Ø       :REM*194
19Ø DATA 255,Ø,Ø,Ø,Ø,Ø,Ø,Ø,255,
    Ø,24,24,24,Ø,24,Ø,255,Ø,36,
    36,Ø,Ø,Ø,Ø,255,Ø     :REM*143
2ØØ DATA 36,126,36,126,36,Ø,255
    ,Ø,124,8Ø,124,2Ø,124,16,255
    ,Ø,76,24,48,96       :REM*195
21Ø DATA 68,Ø,255,Ø,28,4Ø,28,4Ø
    ,28,8,255,Ø,24,8,16,Ø,Ø,Ø,2
    55,Ø,8,16,16,16      :REM*2Ø1
22Ø DATA 8,Ø,255,Ø,16,8,8,8,16,
    Ø,255,Ø,16,84,56,16,4Ø,Ø,25
    5,Ø,24,24,126,24     :REM*154
23Ø DATA 24,Ø,255,Ø,Ø,Ø,24,8,16
    ,Ø,255,Ø,Ø,Ø,126,Ø,Ø,Ø,255,
    Ø,Ø,Ø,Ø,Ø,48,Ø       :REM*1ØØ
24Ø DATA 255,Ø,6,12,24,48,96,Ø,
    255,Ø,24,36,36,36,24,Ø,255,
    Ø,16,48,16,16,56     :REM*238
25Ø DATA Ø,255,Ø,24,36,12,16,6Ø
    ,Ø,255,Ø,24,36,8,36,24,Ø,25
    5,Ø,36,36,62,4,4     :REM*179
26Ø DATA Ø,255,Ø,6Ø,32,56,4,56,
    Ø,255,Ø,28,32,56,36,24,Ø,25
    5,Ø,6Ø,4,8,16,16     :REM*2
27Ø DATA Ø,255,Ø,24,36,24,36,24
    ,Ø,255,Ø,24,36,28,4,8,Ø,255
    ,Ø,Ø,24,Ø,24,Ø,Ø     :REM*239
28Ø DATA 255,Ø,Ø,24,Ø,24,8,Ø,25
    5,Ø,12,16,32,16,12,Ø,255,Ø,
    Ø,6Ø,Ø,6Ø,Ø,Ø        :REM*1Ø6
29Ø DATA 255,Ø,48,8,4,8,48,Ø,25
    5,Ø,24,36,8,Ø,8,Ø,255,Ø
                         :REM*252
```

■

PRICE & QUALITY
YOU CAN DEMAND IT FROM OTHERS—
BUT YOU CAN *EXPECT* IT FROM APROTEK

Aprospand-64™ Gives your Commodore 64 or 128 full expandability! This superbly designed expansion module plugs into the expansion port and gives you four switchable (singly or in any combination) expansion connectors—plus fuse protection—plus a reset button! Before you buy an expander, be sure that it has a fuse to protect your computer and that you can activate your cartridges in **any** combination allowed by the cartridges.

The Original



Fully C-128 Compatible

ONLY $29.95 + S&H **Order #5064**

UNIVERSAL RS-232 INTERFACE

with Commodore USER Port expansion. ONLY $39.95 +S&H

Now you can connect and communicate with any of the popular RS-232 peripherals using your Commodore **USER** Port. This superb expander opens a whole new world to your Commodore computer's capabilities. You can now connect to printers, modems and any other RS-232 device. If you already have something that connects to the USER Port, don't worry because the port is duplicated on the outside edge of the interface. Simply plug it in and turn on the device you want to communicate with. Comes complete with sample driver program listings. Compatible with all Commodore home computers with a USER port. 1-year warranty. **Order #5232.**



NEW! "COM-MODEM" ADAPTER — Use any Hayes® compatible modem with DB-25 connector through your USER port. You can make it emulate a 1670 too, or turn it off entirely. Can be used with our other USER port equipment such as "USER EXTENDER" (#5250) or "UNIVERSAL RS-232 INTERFACE" (#5232).
Order #5100 . . . . . $18.95 + S&H

"EXTENDER-64" — 10" Ribbon cable extender for your Commodore CARTRIDGE port. Used with Aprospand-64.
Order #5065 . . . . . $19.95 + S&H

"USER EXTENDER" — 10" Ribbon cable extender for your Commodore USER port.
Order #5250 . . . . . $21.95 + S&H

Commodore Interfaces and Cables

Cardprint G-WIZ Printer Interface #1108 . . . . . **$39.95**
Commodore 6 Pin Serial Cable (5 ft) #3006-5MM . . . . . **$ 7.95**
Commodore 6 Pin Serial Cable (8ft) #3006-8MM . . . . . **$ 9.95**
Commodore Serial Ext. (5 ft) #3006-5MF **$7.95,** (8 ft) #3006-8MF **$ 9.95**
Amiga Printer Cable (6 ft) #3040-6MF, **$12.95**, (10 ft) #3040-10MF **$16.95**
Centronics Parallel (6 ft) #3036-6MM, **$12.95**, (10 ft) #3036-10MM **$14.95**

Shipping per each above item: Cont. US =$3.Can, PR, HI, AK, APO, UPS Blue=$6

ORDER INFORMATION California residents add 6% tax. All prices are cash prices—VISA and MC add 3% to total. We ship the next business day on money orders, cashier's checks, and charge cards. A 14-day clearing period is required for checks. Prices and availability subject to change—CALL. **Available at Selected Dealers.** Dealer inquiries invited. **2 week satisfaction or your money back trial period on all products.**

For information and in Calif. call **805/987-2454 (8-5 PST)**
TO ORDER CALL TOLL FREE
1 (800) 962-5800 - USA (7-6 PST)
Or send order to:

APROTEK **Dept. RN**
1071-A Avenida Acaso
Camarillo, CA 93010

From p. 12.

$48D New 64 Defaults

Some C-64 commercial programs have built-in default screen colors that appear after pressing run-stop/restore (a soft reset). This means that the colors won't be the usual blue screen and border; instead, the colors will be those the programmer decided to use.

You can create the same type of color control by using my program, New 64 Defaults, which lets you decide which screen colors will appear after performing a soft reset. After running my program, you'll be prompted to enter the screen, border and character colors. After you've set them, they become permanent until the computer is turned off or the reset button (C-128) is pressed. Pressing run-stop/restore clears the screen and leaves the colors unchanged.

```
Ø REM DEFAULT C-64 COLORS OF CHOICE - PETE
  R LOTTRUP                          :REM*88
1Ø FORI= 828 TO 868:READD:POKEI,D:CK=CK+D:
   NEXT                              :REM*173
2Ø IFCK<>4161 THEN PRINT"ERROR IN DATA..":
   END                               :REM*185
3Ø DATA 173,2,3,141,1Ø1,3,173,3,3,141,1Ø2,
   3,169,83,141,2,3,169,3             :REM*6
4Ø DATA 141,3,3,96,165,25Ø,141,32,2Ø8,165,
   251,141,33,2Ø8,165,252,141         :REM*84
5Ø DATA 134,2,1Ø8,1Ø1,3               :REM*44
8Ø PRINTCHR$(147)"ENTER BORDER COLOR (Ø-15
   )":INPUTA                         :REM*213
9Ø PRINT"ENTER BACKGROUND COLOR (Ø-15)":IN
   PUTB                              :REM*41
1ØØ PRINT"ENTER CHARACTER COLOR (Ø-15)":IN
    PUTC                             :REM*14Ø
11Ø T=25Ø:POKE T,A:POKET+1,B:POKET+2,C:SYS
    828                              :REM*28
```

—Peter M. L. Lottrup, Buenos Aires, Argentina

$48E Five-Character Disk IDs

Commodore disk drives limit you to a two-character identification number when you format a disk, which is fine unless you want to catalog several hundred or several thousand disks all using unique ID characters. Wouldn't it be nice to have IDs of three, four, or even five characters on your disks?

Well, my program, Five-Character ID, does just that—lets you create disks with five-character IDs. It runs in both 64 and 128 modes and is intended to be used on previously formatted disks. A note of caution, though: Be sure you have a back-up copy of the disk whose ID you are modifying. Because you're altering the ID, there is a slight chance that a disk error could occur, especially on older disks.

```
Ø REM 5-CHARACTER ID MAKER - JACOB M. SMIT
  H                                  :REM*2ØØ
1Ø PRINT"CURRENT DISK ID =";         :REM*194
2Ø OPEN15,8,15:OPEN5,8,5,"#":PRINT#15,"U1"
   ;5;Ø;18;Ø                         :REM*246
3Ø FORT=16Ø TO 166:PRINT#15,"B-P";5;T:GET#
   5,A$:PRINTA$;:NEXT:PRINT          :REM*158
4Ø PRINT"ENTER ID UP TO 5 CHARACTERS"
                                     :REM*154
5Ø INPUT ID$:ID$="{2 SPACEs}"+ID$ :REM*2ØØ
6Ø IFLEN(ID$)<7THENID$=ID$+" ":GOTO6Ø
```


Circle 193 on Reader Service card.

```
                                        :REM*190
70 ID$=LEFT$(ID$,7)                     :REM*147
80 FORT=160 TO 166:PRINT#15,"B-P";5;T:PRIN
   T#5,MID$(ID$,T-159,1);:NEXT          :REM*45
90 PRINT#15,"U2";5;0;18;0               :REM*92
100 CLOSE5:PRINT#15,"I":CLOSE15:PRINT"ALL
    DONE!"                              :REM*69
```

—JACOB M. SMITH, SILVER CREEK, NY

$48F A BETTER C-64 CTRL-G

Upon seeing Magic Trick $467 (January 1988), I felt obligated to uphold my civic duty to fellow computerists everywhere and improve upon it. Behold: CTRL-G 64 Improved. Now it's in the form of an interrupt-driven routine residing at memory location 49152; all you have to do is type it in, save it and then run it. Then, whenever you feel a need to "ring your bell," turn up the volume on your monitor and press CTRL-G.

```
0 REM A BETTER C-64 CTRL-G - ROBERT PAGANO
                                        :REM*165
10 FORT= 49152 TO 49211:READ A: POKE T,A:N
   EXT:SYS49152                         :REM*118
20 DATA 120,169,13,141,20,3,169,192,141,21
   ,3,88,96,174,203,0,172,141,2         :REM*88
30 DATA 224,26,208,34,192,4,208,30,169,21,
   141,24,212,169,9,141,5,212           :REM*36
40 DATA 169,0,141,6,212,169,48,141,1,212,1
   69,32,141,4,212,169,33,141           :REM*35
50 DATA 4,212,76,49,234                 :REM*42
```

—ROBERT PAGANO, TEANECK, NJ

$490 64 MULTI-SYS

Commodore 64 users have done without a multi-SYS utility for far too long. With it, you can reactivate several interrupt-driven (better known as "wedge") programs residing in memory by entering just one SYS command.

Let's say you've placed an interrupt-driven utility at location 828, a second wedge utility, such as *RUN*'s 64 DOS Shell (November 1987), at location 34500, a third wedge at location 49152 and a DOS wedge at a higher location (52000+). Now, should you perform a soft or hard reset, all of these utilities would be deactivated and you'd have to enter four SYS numbers to reactivate them.

However, had you run my 64 Multi-SYS program after initially activating all the above utilities, and input each utility's starting address at the prompts, you could enter SYS 730 and they would all be reactivated. In fact, 64 Multi-SYS can reactivate up to ten interrupt-driven wedge programs.

Of course, while 64 Multi-SYS is a great little utility, it requires compatibility testing on the part of the user. You must be certain beforehand that the wedge programs you intend to use with it are compatible with each other and do not use locations 730 to 763. Once you've determined their compatibility, you'll find yourself wanting to use 64 Multi-SYS whenever you're programming with more than one wedge utility.

```
0 REM 64 MULTI-SYS - ERIC B. THOMASA
                                        :REM*32
10 FORX=730 TO 762 STEP3                :REM*27
20 READ A,B,C:POKE X,A:POKE X+1,B:POKE X+2
```

►

Free Spirit Software Inc.

"...excellent, efficient program that can help you save both money and downtime."
Compute!'s Gazette, Dec., 1987

1541/1571 DRIVE ALIGNMENT

1541/1571 Drive Alignment reports the alignment condition of the disk drive as you perform adjustments. On screen help is available while the program is running. Includes features for speed adjustment and stop adjustment. Complete instruction manual on aligning both 1541 and 1571 drives. Even includes instructions on how to load alignment program when nothing else will load! Works on the C64, SX64, C128 in either 64 or 128 mode, 1541, 1571 in either 1541 or 1571 mode! Autoboots to all modes. Second drive fully supported. Program disk, calibration disk and instruction manual only **34.95!**

Super 81 Utilities is a complete utilities package for the 1581 disk drive and C128 computer. Among the many Super 81 Utilities features are:

SUPER 81 UTILITIES

- Copy whole disks from 1541 or 1571 format to 1581 partitions
- Copy 1541 or 1571 files to 1581 disks
- Copy 1581 files to 1571 disks
- Backup 1581 disks or files with 1 or 2 1581's
- 1581 Disk Editor, Drive Monitor, RAM Writer
- Supplied on both 3½" and 5¼" diskettes so that it will load on either the 1571 or 1581 drive
- Perform many CP/M and MS-DOS utility functions
- Perform numerous DOS functions such as rename a disk, rename a file, scratch or unscratch files, lock or unlock files, create auto-boot and much more!

Super 81 Utilities uses an option window to display all choices available at any given time. A full featured disk utilities system for the 1581 for only **$39.95!**

RAMDOS *Lightning Fast!* **RAM-DISK**

RAMDOS is a complete RAM based "Disk" Operating System for the Commodore 1700 and 1750 RAM expansion modules which turns all or part of the expansion memory into a lightning fast RAM-DISK. RAMDOS behaves similar to a much faster 1541 or 1571 floppy disk except that the data is held in expansion RAM and not on disk. Under RAMDOS, a 50K program can be loaded in ½ second. Programs and files can be transferred to and from disk with a single command. RAMDOS is available for only **$39.95!**



SUPER BIKE

Action-packed, fun-filled motor cycle arcade game for the C64. Race the clock in Motocross, Enduro, Supercross or Trials. Fly through the air on spectacular jumps. Bounce over woop-de-doos. Avoid logs, trees, water holes, brick walls, other bikers, etc. as you vie for the gold cup. Thrilling Super Bike action for only **$19.95.**

GALACTIC FRONTIER

Exciting space exploration game for the C64. Search for life forms among the 200 billion stars in our galaxy. Scientifically accurate. Awesome graphics! For the serious student of astronomy or the casual explorer who wants to boldly go where no man has gone before. Only **$29.95!**

Torchbearer



Years ago, Talis Vaultheart, a powerful and evil wizard, stole the Torch of Truth and hid it somewhere within the many sanctuaries and dungeons of Pastoria. With the people thus blinded, Vaultheart began to take the land. The time has come to take it back!

The land of Pastoria is a large island with many smaller islands surrounding. You will explore many of them on your quest for the lost torch. Although you start as a common citizen, you are far from common. You possess the last of the mysterious luck stones! Study magic, increase your fighting strength and speak with the townspeople. All this will help you on your quest.

Torchbearer is a challenging, graphic adventure game for the C64. **$29.95.**

ULTRA DOS UTILITIES
MODULE 1

Backup those valuable files on your Hard Disk the easy way

- High Speed whole hard drive backup with multi-format feature
- Auto configures to multi-hard drive systems or multi-partitions
- Supports up to 8.5 meg of memory
- Uses a unique double buffered file copy routine for lightning fast copies
- Full Intuition interface for maximum ease of use
- Backs up files
  1) by creation date
  2) with 'Point and click' selection (name, directory, drive)
  3) using 'wild-card' search patterns
- Fully supports Multi-tasking, does not monopolize CPU to achieve its speed. Designed to operate in the 'background'
- Compatible with any Hard drive that follows conventional AmigaDOS file protocol
- 512K Amiga required
- Hard Drive NOT REQUIRED. Ultra DOS Utilities Module 1 works equally well with dual floppy drives!

Ultra DOS Utilities, Module 1 is only **$59.95!**

Order with check, money order, VISA, MasterCard, COD. Free shipping & handling on US, Canadian, APO, FPO orders. COD & Foreign orders add $4.00. Order from:

MasterCard **FREE SPIRIT SOFTWARE, INC.** VISA
905 W. Hillgrove, Suite 6
La Grange, IL 60525
(312) 352-7323

Selected Products available from Financial Systems Software, LTD. in England.
0905-611-463

Circle 144 on Reader Service card.

```
   ,C:RESTORE:NEXT:POKEX,96          :REM*129
3Ø DATA 32,251,2                     :REM*246
4Ø ADD= 731:FORN=1 TO 1Ø             :REM*99
5Ø PRINT"ENTER SYS ADDRESS OF UTILITY:"N;
                                     :REM*242
6Ø INPUTA$:A$=RIGHT$(A$,5)           :REM*75
7Ø A=VAL(A$):IF A<1Ø THENN=1Ø:GOTO1ØØ
                                     :REM*244
8Ø HI=INT(A/256):LO=A-(HI*256):POKEADD,LO:
   ADD=ADD+1:POKEADD,HI:ADD=ADD+2    :REM*234
9Ø A$=""                             :REM*47
1ØØ NEXT                             :REM*23Ø
11Ø PRINT"SYS 73Ø RESETS ALL UTILITIES."
                                     :REM*4
```

—Eric B. Thomasa, Walker, MI ■

Magic is the original *column of reader-submitted hints and tips. Each month we present brief, useful computer tricks to help you get the most out of your Commodore system—whether you're a beginning or advanced computerist, a C-64 or C-128 owner. Magic is a forum for* RUN*'s imaginative and inventive readers to share their programming tips, brief software or hardware modifications, shortcuts or items of general interest. If you have an idea to make computing easier, faster, more exciting and enjoyable, send it to:*

Magic
RUN Magazine
80 Elm St.
Peterborough, NH 03458

RUN *pays $10 to $40 for each trick published in the column. A payment of $50 and a Magic Contributor T-shirt is awarded for the Trick of the Month. To be eligible, the Trick of the Month must be for the C-64 or the C-64 and C-128. Tricks for C-128 mode only are not eligible for Trick of the Month.*

If you'd like to have a copy of the latest edition of RUN*'s Magic Trick Writer's Guide, please send your request to the above address with a self-addressed, stamped, business-size envelope; you'll receive a copy in two or three weeks.*

MEGA-MAGIC

Record and play back your own word, color and motion symphonies with this 128 version of RUN*'s popular QuickDoc 64.*

CURSOR COMMOTION 128

I really enjoyed the QuickDoc program for the C-64 (Mega-Magic, September 1987), which lets you save and play back any series of key presses, including Commodore graphics and colors. After playing with it for a while, I decided to write a version for the C-128's 40- and 80-Column modes.

After you type in QuickDoc 128, save a copy to disk before running it. When you run it, it checks to see if you're creating a QuickDoc file or reading one back. As with the 64 version, you can press any key but F7 in creating a document. Use the F7 key only to signal that the document is done.

Because the program uses F7, you must enter POKE 828,183 before typing it in. This redefines the function keys to the C-64 values. To reinstate the default C-128 values, use POKE 828,173.

I suggest that you include the screen width in your document filenames to avoid problems such as "playing back" a full 80-column display on a 40-column screen, where only half of it will fit. R

—Jim Borden, Carlisle, PA

Listing 1. QuickDoc 128 program.

```
1Ø GRAPHIC CLR:BANK15:POKE5328Ø,12:A$="{CR
   SR LF} {CRSR LF}":C$="*":PRINT"{SHFT CL
   R}{CTRL N}{CTRL 4}"C$;            :REM*168
2Ø S1=PEEK(4624):S2=PEEK(4625):I=S1+S2*256
   :S=PEEK(I-2)+PEEK(I-1)*256        :REM*57
3Ø POKE53281,11:COLOR6,13:BANKØ:IFS=ØTHENP
   OKE828,183:GOTO6Ø                 :REM*68
4Ø FORI=STO2{UP ARROW}16:B$=CHR$(PEEK(I)):
   IFB$="{FUNCT 7}"THENPRINTA$;"{CTRL 1}";
   :END                              :REM*189
5Ø PRINTA$B$C$;:FORJ=1TO2Ø:NEXTJ,I:REM*134
6Ø DO:GETKEY B$:PRINT A$B$C$;:POKE I,ASC(B
   $):I=I+1:LOOP WHILE B$<>"{FUNCT 7}"
                                     :REM*195
7Ø POKE828,173:POKEI,S1:POKEI+1,S2:I=I+2:H
   I=INT(I/256):POKE4624,I-HI*256 :REM*2Ø8
8Ø POKE4625,HI:RUN:{2 SPACEs}QUICKDOC 128
   - JIM BORDEN                      :REM*29 ■
```

RUN it right: **C-128 (40- and 80-Column modes)**

RUN CLASS ADS

- **PRIMA GRAPHICS DISK I™** for use with PrintMaster™ and Desk-Top Publishing, C-64. Main themes, country and the sea. (ON DISK, ONLY $18.00 POSTPAID)
- **THE LEAGUE SHEET, C-64 BOWLING DATABASE SOFTWARE** for league secretaries and enthusiasts.

Computes team standings and individual statistics for up to 20 teams with 10 people per team (2, 3, or 4 games per night). Includes: High game/series, most improved/high average and much more for handicap/scratch leagues. Prints all standings and statistics, recap sheets and more. Options include adding substitutes and new teams. (ON DISK, ONLY $24.00 POSTPAID)

Send check or money order. VA residents add 4½% sales tax.

SIMONNET SOFTWARE, PO BOX 1906, GRAFTON, VA 23692

Top-Tech International, Inc.

Advanced Computer Systems

Commodore AUTHORIZED QUALITY SERVICE CENTER • CALL US FIRST!!!

We service and supply: Schools; U.S. Government & Military; NASA.

C-64 repair with 1-year warranty - **$64.95**
C-128 repair with 1-year warranty - **$79.95**

Full line of **Commodore & Packard Bell** computers and peripherals.

WORLD Largest Selection of Commodore **Parts** • Diagnostic Hardware & Software • Improved Power Supply for C-64/VIC-20 • CBM and SAMS Service Manuals • Send $3.00 for full Catalog.

AMEX, VISA & MASTER CARD

(215) 236-9901 • 2344 Perot Street, Philadelphia, PA 19130 • **(215) 236-9901**

FREE SOFTWARE

1000's of PROGRAMS available (including games, business, modem, utilities and application programs) from the **PUBLIC DOMAIN USERS GROUP** for the **C-64, C-128** (plus **CP/M PROGRAMS FOR THE C-128), IBM** and **CP/M** computers. **PDUG**, established in 1982, is one of the oldest and largest users groups, with over 10,000 members worldwide.

SPECIAL OFFER—Send $10 today and receive not only our 1 year membership, but also our new members' disk, containing 21 great programs. Or for more info, send a stamped addressed return envelope (specify computer) to:

PUBLIC DOMAIN USERS GROUP, PO Box 1442-N1, Orange Park, FL 32067

RESOURCE CENTER READERS

Margaret Morabito continues her educational coverage of Commodore computers in the monthly **CALC NEWSLETTER**. The newsletter includes articles, reviews, and news about Commodores in education and distributes public domain educational software. Resource Center disks available through CALC: Vols. 1, 2, 3, 4 and 5, 6 now available.

You can subscribe to the CALC NEWSLETTER for $15 per year.
Education software is $10 per disk.
To subscribe or order disks, send check or money order to:

MARGARET MORABITO
CALC
P.O. BOX 132
RINDGE, NH 03461

HUNDREDS OF TIMES FASTER THAN A DISK DRIVE

Use as a permanent RAM disk. Store up to 30 programs or utilities. Modify/replace any program instantly. Increase available memory. Provide crash proof RAM to protect your code. Use in C64 or C128 mode. Self contained. Loader utilities included. 16K $69; 32K $99; 64K $129 (add $3 s/h; MA res. add 5%) Brown Boxes, Inc., 26 Concord Rd, Bedford, MA 01730 617-275-0090.

THE QUICK BROWN BOX-BATTERY BACKED RAM
"THE ONLY CARTRIDGE YOU'LL EVER NEED"

Authorized Quality Service Center · Commodore

Other Commodore Repairs at Low Prices

VISA

Our 10th Year

C-64 REPAIR
$39.95
INCL. PARTS/LABOR

KASARA MICROSYSTEMS, INC.
33 Murray Hill Drive
Spring Valley, N.Y. 10977
800-248-2983 (Nationwide) • 914-356-3131
SEND FOR CHIPS/PARTS CATALOG
Prices subject to change

COMMODORE CHIPS AT LOW PRICES

6510	$ 8.95
6526	8.95
6567	14.45
6581	10.95
PLA/82S100	10.95
325572	9.95
325302	10.95
8721	10.50
8520	17.65
901 Series (ROM) (for 2 or more)	9.95
Chips mixed C128 New ROMs	37.95
Amiga Chips	CALL

Quantity Pricing for Dealers

THE BASEBALL DATABASE



• LET YOUR COMPUTER KEEP TRACK OF YOUR TEAM'S BASEBALL STATS!

EASY TO USE • COMPREHENSIVE **$49.95 APPLE IIe/IIc/IIGS**
DETAILED PRINTED REPORTS **$39.95 COMMODORE 64/128**

Add $2.50 for shipping & handling; 15 day money back guarantee; VISA/MC/check or MO; Program specs & details available upon request.

JACOBSEN SOFTWARE DESIGNS
Attn: Order - RN
1590 E. 43rd Ave., Eugene, Oregon 97405 Phone: (503) 343-8030

SAVE YOUR FAMILY!

Genealogy software with features to fit every budget and requirement: $29 for LINEAGES/Starter, $49 for LINEAGES/Standard, $99 for LINEAGES/Advanced, and our most comprehensive FAMILY ROOTS for $185. Data is compatible between systems and you may upgrade from one to another. Write or call for details and FREE samples. Satisfaction guaranteed.

QUINSEPT, INC.
PO Box 216, Lexington, MA 02173
1-800-637-ROOT 617-641-2930

NEW

COMMODORE <= => IBM MS-DOS

File Transfer Utility

BIG BLUE READER 128/64



Big Blue Reader 128/64 transfers most Commodore word processing and text files to IBM MS-DOS disks and vice-versa. The C128 version supports: C-128 CP/M files, C-1571 and C-1581 drives. The C-64 version REQUIRES the C-1571 disk drive. **Big Blue Reader 128/64** is ideal for those who use IBM PC (and compatibles) at work and have either the Commodore 128 or 64 at home. Includes both 128 and 64 applications on the same disk. **Only $44.95**

SOGWAP SOFTWARE
115 Bellmont Rd., Decatur, IN 46733 Ph. (219) 724-3900



For disk and complete instructions send $10.00 each. $15.00 for both. WA residents and 7.8% sales tax.

STAR BATTLE

A "1st person perspective" arcade game for the C-64. Exciting/fast paced game with seven screens displaying hyperspace travel, computer guided missiles, shields, damage control, asteroid showers, multiple enemy types, sector map, radar, and much more. Several skill levels ensure a continuing challenge for all ages.

AUTOMODEM 64

An auto answer/auto dial terminal emulator program featuring a 48K capture buffer. Fool proof, easy to use.

SATURN SOFTWARE
9321 Sharon Drive
Everett, WA 98204

$$$ WANTED $$$
Programmers Disk Jockies Hackers

Have you created any unique new computer programs lately? Would you like to sell and/or license any of your software creations? Not sure what to do or where to turn for help?

If you just answered yes to the above, listen closely! Our client firms are now actively scouting for computer programs in need of publishing and distribution. Our experienced marketing associates are available to you at no cost. They'll analyze your product and its marketing possibilities. If your product qualifies, we'll present a no risk plan for quickly gaining widespread distribution and recognition.

Send Programs for confidential review to:
Kessel Promotional Specialty Co.
Dept. R-488, PO Box 800, Wakefield, MA 01880

Top-Tech International, Inc.

Advanced Computer Systems

Commodore **AUTHORIZED QUALITY SERVICE CENTER**
>>>Call us for C-128 Video RAM Upgrade to 512K (8×64K)<<<

BASIC 8 PLUS
(Authorized **Basic 8** Distributor)

Discover the top-tech potential of your C-128 with RGB monitor! The World's most powerful **graphics package** ever available—superb AMIGA-like 3-D resolution, adds over 50 new graphics commands and much, much more!!! The **MUST** for every C-128 user—only **$39.95!!!**

AMEX, VISA & MASTER CARD

(215) 236-9901 • 2344 Perot Street, Philadelphia, PA 19130 • **(215) 236-9901**

RUN CLASS ADS

Convert your C64/C128 to a DX7 with the

SFX SOUND EXPANDER

SFX SOUND EXPANDER **9 voice digital synthesizer module**	**$ 180.00**
SFX FULL SIZED KEYBOARD	**$ 145.50**
SFX COMPOSER & SOUND EDITOR	**$ 45.50**

MIDI compatible sequencer and editor for Sound Expander

Fearn & Music, 519 W. Taylor #114, Santa Maria CA 93454, Phone 805-925-6682

MICRO DETECTIVE IS READY TO HELP YOU!

Write and Debug your own BASIC programs or peek into other BASIC programs, see how they work, debug, and modify them to fit your needs. The **BUGBUSTER TRACE** will list each line and variables as program runs. Also features 30 **Utility Commands** and **help with errors**.

See review in this magazine — write or call for more info.

Micro Detective for C-64 with **ADVANCED ERROR DETECTION** only $49.95
Bugbuster Trace and Utilities for BASIC 7.0 on C-128 only $49.95
Advanced Error Detection for C-128 BASIC 7.0 available soon for $49.95
Any two for $79.95 (add 6% tax in CA). Send check or money order to:
AMERICAN MADE SOFTWARE, PO Box 323, Loomis, CA 95650 (916) 652-5338

THOUGHTFORM — SERIOUS OUTLINE PROCESSING FOR THE COMMODORE-64

Organize your writing: THOUGHTFORM gives you the tools to brainstorm, arrange and rearrange your ideas, quickly and simply. Outlines can be larger than the computer's memory. Collapse outlines to see the big picture, then expand any part to examine or add details. Print your outline with a multitude of format options, or prepare it to be read by a word processor for final output. THOUGHTFORM is the most powerful, easiest to use outline processor for the Commodore-64. THOUGHTFORM costs just $29.95. Or try the demonstration disk for $5.00.
Write: **THOUGHTFORM, 45828 Emerson St., Hemet, CA 92344**

How To
WORK AT HOME
Using A Personal Computer

An informative publication for people who want to run a business from the comfort of home. Included is a list of the top 100 businesses that you can start at home with the help of a personal computer, a detailed explanation on how to start each business, information on money management, tips on targeting your customers, helpful hints to writing better advertisements, and much more.

$7.95
Check or Money Order
TN Residents Add 7.75% Sales Tax

Horizon Enterprises
PO Box 172091
Memphis, TN 38187-2091

QUAIL ELECTRONICS



?FREE? PUBLIC DOMAIN 64 + 128 others soon
Your choice • BY THE BLOCK • Mix & Match
MANY HACKER GOODIES & TONS OF PARAMETERS
DISCOUNTS ON SOFTWARE, HARDWARE & ACCESSORIES

*** SEND FOR FREE CATALOG ***
(206) 254-0324 VISA MasterCard
QUAIL P.O. Box L-1 Woodland, Wash. 98674

CAD

NOW! **ELECTRONIC TECHNICIANS, HOBBYISTS, AND ENGINEERS**
can design:
• **OSCILLATORS**
• **POWER SUPPLIES**
• **AMPLIFIERS**
• **FILTERS**
and
• **LAYOUT CIRCUIT BOARDS**
on your C-64 or C-128.

YES! We accept MasterCard VISA

Demo Disk $7.50 postpaid
Orders only 1-800-356-8113

ENTER your required input/output specifications and the computer designs the circuit.
ELEVEN user-friendly, Computer Aided Design programs will help you build any custom device.
FREE detailed info.

Write:
WEASELGRAPHICS
Dept. U47
606 Thomasville, Pocahontas, AR 72455

COLOR PRINTER RIBBONS

Red, Blue, Green, Brown, Purple, Yellow

Ribbons — Price Each	Black	Color	Ribbons — Price Each	Black	Color
Commodore MPS 801	4.15	4.75	Epson LX 80/90	3.60	4.25
Commodore MPS 802,	5.75	6.75	Epson MX/FX/RX 80/85	3.75	4.25
Commodore MPS 803	4.95	5.95	Okidata 82/92/93	1.75	2.25
Commodore MPS 1000	3.60	4.25	Seikosha SP 800/1000	5.25	6.50
Commodore MPS1200	5.00	6.00	Star SG10	1.75	2.25
Commodore MPS 1525	5.50	—	Star NX10/NL10	5.00	6.00

T-Shirt Ribbons (Heat Transfer)— Call For Price & Availability. For ribbons not listed above, call for price and availability. Price and specifications are subject to change without notice. Min. order $25.00. S & H $3.50. UPS Ground. Add $2.00 C.O.D. addt'l. IL res. add 6.25% tax. MC/Visa accepted.

RENCO COMPUTER PRINTER SUPPLIES
P.O. Box 475, Manteno, IL 60950 U.S.A. • 1-800-522-6922 • 815-468-8081

C-NET BULLETIN BOARD for the 64 & 128. The most widely used and respected BBS available. 300/1200/2400/ BPS, 1000 accounts, 40 message/file transfer SIGS, X-Modem, Punter, a FAST ML editor, on-line games, AND MUCH MORE!

SOFTECH COMPUTER SYSTEMS, INC.
POST OFFICE BOX 23397
LEXINGTON, KY 40523
(606) 268-BAUD (TECH SUPPORT)
(800) 922-SCSI (ORDERS ONLY)
CALL FOR OUR EVERYDAY LOW PRICES ON HARDWARE!!!
VISA/MASTERCARD/C.O.D. WELCOME

QUALITY SOFTWARE

NEW Products: see News column in this issue
FREE Catalog of these and other products
DISCOUNT Prices by ordering from publisher
Call 415/563-0660 or Write:

XYTEC
1924 Divisadero, San Francisco, CA 94115

C-64 Data Logger
For Labs, Industry, I/O Training and Home Use

Turn your C-64 into a real world interface. Watch input values change on screen. Scan for trigger events at rates as fast as 7 milliseconds for 8 analog or digital channels of input. 1K byte storage for each channel. Print results when done. Speed, trigger point, units and storage all user configurable in scan mode. Included Free: C-64 Mortgage Calculator. One use can pay for both programs.
Data Logger requires I/O interface attached to cartridge slot.
$24.95 for both
LoggerSoft, PO Box 404, Cleburne, TX 76031 + 2.00 Shipping

TEACHERS! STUDENTS! TRIVIA BUFFS! **QUIZ MASTER!**

A Powerful and Versatile Quiz Generator for your C-64/128!

Create & Edit Multiple Choice, Essay, True-False, and **Fill In The Blank** type **Questions & Answers** and save them to disks. **Catagorize** each question in a variety of ways which YOU define! Retrieve them with a powerful **Multiple Search** function, at **Random**, or by **Number** for very fast **Question/Ans Reviews, Quizzes,** or **Automatic/Manual** control of **Printing**. 1-6 player **Trivia Game** mode! Swap data disks from all modes for instant and direct access to all questions! **Great Self-Study Aid!** Teachers! Generate class quizzes or tests from questions catagorized to suit needs! Designed for speed and ease of use, includes sample data disk with **120 Trivia Questions! Only $34.95** + $3.00 P&H. Send check or MO to:
T&L Software, PO Box 642, Altus, OK 73522-0642

---

dtj-bbs **from DTJ Software, PO Box 669, Beatty, NV 89003**

Very powerful General Discussion System for your Commodore 64 or 128. Supports 1-8 serial bus drives, 300/1200/2400 bps modems, optional printer, 999 users, 15 SIGs, 50 self-maintained user-createable ISAM message bases, 3500 messages, + 4000 character freeform ML editor, fast ML Xmodem with built-in stripper, ASCII and CBM textfiles, email, word-wrapping, optional real-time profanity checker, sysop-definable "twit" detector, printed logs and audit trails. Xmodem terminal mode, powerful sysop and SIGop commands, and more! Easy to learn, use and maintain. $35 (docs on disk) or $40 (printed docs). Available on 5.25" or 3.5" disks (please specify). Not copy protected.
Demo Boards: (702) 553-2408, (609) 567-8516, or (609) 728-0944 (300/1200 bps)

RUN CLASS ADS

Eradicator Volume 1
TejaSoft
(c) 1987

* OVER 110 PARAMETERS! *
* ERASE PROTECTION FAST & EASY! *
* LIST INCLUDES THE NEWEST SOFTWARE! *
* SPECIAL INTRODUCTORY OFFER OF $17.95! *

* FOR MORE INFO. ON PARAMETERS CALL OR WRITE *
* LET THE ERADICATOR ERASE YOUR PROTECTION PROBLEMS AWAY! *
* Add $2.00 Shipping. TX Res. Add 7% Sales Tax *

Tejas Soft
206 W. Denison
Robinson, Texas 76706
817-662-4945

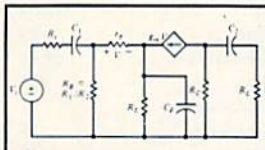
AUTHORIZED COMMODORE SERVICE CENTER

C-64	$43.95	C-128	$65.95
*1541 (align only)	$25.95	*1571 (align only)	$25.95
*1541 (repair)	$45.95	*1571 (Repair)	$45.95
SX-64	$60.95	AMIGA Products	CALL

*Not including head stepper motors or spindle motor.
We also service Epson, Star, NEC, IBM, Zenith & COMPAQ
Discounts for Dealers and Schools.

ANT Computer Service Center
1310 S. Dixie Hwy. Ste. 18W
Pompano Beach, FL 33060
CALL 305-785-2490
Our 90 Day Warranty Can't Be Beat!

SPECIALS
ROM Upgrade for 128
$36.00
Includes Documentation



ELECTRONICS AC/DC CIRCUIT ANALYSIS PROGRAM $29.95 Disk, Tape
Computer Heroes
P.O. Box 79R
Farmington, CT 06034 C-64, C-128, IBM PC
Orders only **1-800-622-4070**

Program computes general numeric solution to electronic circuit of up to 40 nodes and 63 branches. Branches may contain resistors, capacitors, inductors, current sources, voltage sources or 4 types of controlled sources. Computer displays node voltages, branch voltages, currents, powers and power factors. Step function of branch parameters or frequency with graphic display of results. Menu controlled and user friendly.

THE AMAZING NEW VOICE MASTER Jr. Junior

Get speech output and voice recognition in ONE product. Voice Master Jr. is easy to use with new commands added to BASIC. A music bonus lets you write and compose by whistling the tune! Unlimited uses for fun, education, practical applications. Demo programs included. Price only $39.95 including software and manual. A Patented price/performance breakthrough!



TO ORDER BY MAIL include $4 shipping & handling ($6 Canada, $12 overseas) per order. Visa, MasterCard phone orders accepted. Available for C64/128 and Atari 800/800XL/130XE. Specify when ordering. 30 day money back guarantee, one year warranty. Other enhanced voice I/O systems are available for Commodore, Apple, and IBM computers.

$39.95

Call or write today for FREE Product Catalog
COVOX INC. (503) 342-1271
675 Conger St., Eugene, Oregon 97402

COMMODORE 64-128

FINEST PUBLIC DOMAIN PROGRAMS
PRETESTED QUALITY PROGRAMS • $1.50 • ON DISK
YOU PICK THE PROGRAMS THAT **YOU** WANT!!!
FREE DISK FULL OF PROGRAMS WITH FIRST ORDER

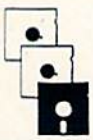
FOR YOUR OWN LIST AND DESCRIPTION OF THESE PROGRAMS SEND JUST A SASE TO:

JLH CO.
DEPT A
BOX 67021
TOPEKA, KS 66667

WIN LOTTO MILLIONS!!!
NEW! LOTTO PICKER™ PLUS v2.0

Lotto Picker™ Plus stores winning Lotto 6/7, Keno 10/11, & Pick 3/4 numbers & uses multiple statistical analysis (hot, cold, & unbiased numbers) to wheel what might be your million dollar ticket! All U.S. & Canadian games are included. Easy-to-use, fully documented, and not copy protected. Includes a database editor, programmable games, and much, much more! Never obsolete—Pays for itself! **$34.95 (Plus $4.55 S&H). ORDERS: 1-800-634-5463 ext. 293. GE RIDGE SERVICES**, 170 Broadway, Suite 201-R, New York, NY 10038. NY residents add sales tax. For IBM-PC & compatibles, PS/2, C64/128, & Apple II. Inquiries: 718-317-1961.





256K/RAMDISK for the **C64**
Introducing the **C64×5** from
PERFORMANCE PERIPHERALS, Inc.

Feature Comparison	1764	C64×5
File level support for all file types	Yes	Yes
Supports direct access DOS commands	No	Yes
Ability to run programs from expander	No	Yes
Operates concurrent with RS232/modem	No	Yes
Size of direct view into expander (byte)	0	8192
Load time for 1 sector program (second)	0.18	0.04
Intrinsically compatible DOS interface	No	Yes
Bytes of program memory disturbed	256	0
Total memory expansion allowed (kbyte)	256	2048

PERFORMANCE PERIPHERALS, inc.
5 Upper Loudon Rd.
Loudonville, NY 12211
(518) 449-1076

CALL OR WRITE FOR INTRODUCTORY OFFER & LIMITED MONEY BACK GUARANTEE

TRY BEFORE YOU BUY! Yes We Accept:
Best selling games, utilities, educational, and classics plus new releases!

- 100's of titles
- Low prices
- Same day shipping
- Free brochure



RENT-A-DISC
Frederick Bldg. #345
Huntington, WV 25701
(304) 529-3232

ATTENTION MODEM OWNERS
Call our spectacular
Bulletin Board Service
For thousands of downloads,
A XXX fantastic adult boards,
Plus much, much more . . .
Open 24 hours
CALL (718) 377-4597
300–1200 BAUD
Settings are 8 bit, 1 stop bit, no parity

image 3 ™ *the 3D graphics program*



NOW $39

Micro Development Co.
PO Box 5872 • Cleveland, Ohio 44101
(216) 671-3200 (800) 248-MICRO

RUN
Class Ads

RUN Class Ads were specifically designed to provide the effectiveness of display advertising at the cost of classified advertising. This opportunity gives the Class Ad buyer the lowest cost available to reach *RUN*'s highly qualified circulation of exclusive Commodore 64 & 128 owners.

Need help in designing your Class Ad, questions about rates, frequency or size? Call **HEATHER PAQUETTE at 1-800-441-4403 or 603-924-9471**. On the west coast call **DANNA CARNEY 1-415-328-3470**. We accept checks, money orders, Master Card or VISA.

MAY

COMING ATTRACTIONS

THE JOY OF PROGRAMMING—

You needn't be a programmer to operate a computer, so what's the attraction? Find out next month in *RUN*. You'll learn how even elementary programming skills can make computing more worthwhile and why many users become programming enthusiasts.

ADVENTURE PROGRAMMING—

After you've learned the basics of Basic, you're ready to write your own adventure game, and this tutorial will reveal programming secrets you can use. Also, we'll present Special Delivery—an exciting type-in text and graphics adventure game with a hometown twist.

MARCH/APRIL RERUN PREVIEW—

To help you decide if you'd like to order the March/April ReRUN Disk, here's a list of the programs it contains: ***Home Inventory*** **(64/128)**—Safeguard your valuables. ***Affairs of State*** **(64/128)**—Test your knowledge of the states and their capitals. ***Commodore Lanes*** **(64)**—Bowl on your computer screen. ***Time Keeper 128***—Keep time while you're programming. ***Display Frame Animator*** **(64/128)**—Light up your monitor screen. ***Window Construction Set*** **(64)**—Add windows to your programs. ***Fontastic 64***—Choose from nine new fonts to replace boring text graphics. ***Creating Windows*** **(128)**—See how easy it is. ***Cursor Commotion 128***—A symphony of color and motion. Bonus programs: ***Video Flashcards*** **(64)**—A math practice game for kids. ***64 Command Collector***—Make a single command do the work of many. ***Mister Poster*** **(64)**—Create posters from bitmap images.

ReRUN disks cost $16.47 each. To order, see page 65, phone **1-800-343-0728** or write to ReRUN, 80 Elm St., Peterborough, NH 03458.

LIST OF ADVERTISERS

ADVERTISING SALES:
(603) 924-7138 or (800) 441-4403
Sales Manager: Ken Blakeman
Northeast Sales: Barbara Hoy
Midwest/Southeast Sales: Nancy Potter-Thompson
(415) 328-3470
West Coast Sales: Giorgio Saluti

Reader Service		Page
33	Abacus Software	35
7	Access Software	34
188	ActionSoft	CIII
18	Activision	19
79	Aprotek	55
193	Aprotek	90
134	Berkeley Softworks	2, 3
140	Berkeley Softworks	81
73	Briwall	77
*	C.O.M.B.	6
81	Central Point Software	18
*	Cinemaware Corp.	7
*	Cinemaware Corp.	9
64	CompuServe	51
15	Computer Direct	72, 73
274	Computer Friends	87
*	Crown Custom Covers	78
154	Datel Computers	36, 37
46	Digital Solutions	CIV
12	EPYX	25
153	EPYX	27
142	Electronic Arts	29
144	Free Spirit Software	91
*	GE Information Services	33
6	Ketek	87
66	Loadstar	1
*	Lyco Computers	66–69
136	Master Software	78
207	MicroComputer Services	48, 49
53	MicroIllusions	CII
68	Micro Prose Software	21
103	Micro Prose Software	23
*	Mindscape, Inc.	13
98	Montgomery Grant	63
*	NRI Schools	17
60	Omnitronix	87
183	Quantum Link	53
37	REMSOFT	56
*	RUN Class Ads	93–95
*	S & S Wholesalers	65
133	Sir-tech Software	11
102	Soft Byte	78
254	Software Disc. of America	59
26	SubLogic Corp.	31
148	Surfside Components	60
155	Tenex Computer Express	83
209	Tussey Computer Products	14, 15
187	Utilities Unlimited	74, 75
*	Value-Soft	61
96	Xetec, Inc.	57

For further information from our advertisers, circle the corresponding Reader Service number on the Reader Service card.

*This advertiser prefers to be contacted directly.

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

RUN ALERT

As a service to its readers, *RUN* will periodically publish the names of companies who are having difficulties meeting their customer obligations or who have gone out of business. Readers are advised to contact *RUN* before dealing with these companies: **Digitek**, **White House Computer**, **Prism Software** (Waco, Texas) and **Underware**. If you have any questions or concerns about advertisers in *RUN*, please contact: **Lisa LaFleur, Customer Service Representative, *RUN* Magazine, 80 Elm St., Peterborough, NH 03458; 603-924-9471.** Through our customer service representative, *RUN* assists readers with problems they may have with advertisers. However, *RUN* does not assume any liability for advertisers' claims.

RUN is a publication of IDG Communications/Peterborough, a division of IDG Communications, the world's largest publisher of computer-related information. IDG Communications in publishes over 90 computer publications in 33 countries. Fourteen million people read one or more of IDG Communications' publications each month. IDG Communications publications contribute to the *IDG News Service*, offering the latest domestic and international computer news. IDG Communications publications include: ARGENTINA's *Computerworld Argentina*; ASIA's *Communications World*, *Computerworld Hong Kong*, *Computerworld Malaysia*, *Computerworld Singapore*, *Computerworld Southeast Asia*, *PC Review*; AUSTRALIA's *Computerworld Australia*, *Communications World*, *Australian PC World*, *Australian Macworld*; AUSTRIA's *Computerwelt Oesterreich*; BRAZIL's *DataNews*, *PC Mundo*, *Micro Mundo*; CANADA's *Computer Data*; CHILE's *Informatica*, *Computacion Personal*; DENMARK'S *Computerworld Danmark*, *PC World Danmark*; FINLAND's *Tietoviikko*, *Mikro*; FRANCE's *Le Monde Informatique*, *Distributique*, *InfoPC*, *Telecoms International*; GREECE's *Micro and Computer Age*; HUNGARY's *Computerworld SZT*, *PC Mikrovilag*; INDIA's *Dataquest*; ISRAEL's *People & Computers Weekly*, *People & Computers BiWeekly*; ITALY's *Computerworld Italia*; JAPAN's *Computerworld Japan*; MEXICO's *Computerworld Mexico*; THE NETHERLANDS' *Computerworld Netherlands*, *PC World Benelux*; NEW ZEALAND's *Computerworld New Zealand*; NORWAY's *Computerworld Norge*, *PC World Norge*; PEOPLE'S REPUBLIC OF CHINA's *China Computerworld*, *China Computerworld Monthly*; SAUDI ARABIA's *Arabian Computer News*; SOUTH KOREA's *Computerworld Korea*, *PC World Korea*; SPAIN's *CIMWORLD*, *Computerworld Espana*, *Commodore World*, *PC World Espana*, *Communicaciones World*, *Informatica Industrial*; SWEDEN's *Computer Sweden*, *MikroDatorn*, *Svenska PC World*; SWITZERLAND's *Computerworld Schweiz*; UNITED KINGDOM's *Computer News*, *DEC Today*, *ICL Today*, *PC Business World*, *LOTUS*; UNITED STATES' *AmigaWorld*, *CD-ROM Review*, *CIO*, *Computer Currents*, *Computerworld*, *Computers in Science*, *Digital News*, *Federal Computer Week*, *80 Micro*, *FOCUS Publications*, *inCider*, *InfoWorld*, *Macintosh Today*, *MacWorld*, *Computer & Software News (Micro Marketworld/Lebhar-Friedman)*, *Network World*, *PC World*, *Portable Computer Review*, *Publish!*, *PC Resource*, *RUN*, *Windows*; *VENEZUELA'S Computerworld Venezuela*; WEST GERMANY's *Computerwoche*, *PC Welt*, *Run*, *Information Management*, *PC Woche*.

ThunderChopper

Introducing ThunderChopper, the new standard of excellence in helicopter simulation! ThunderChopper combines SubLOGIC graphics technology with strategies and tactics by Colonel Jack Rosenow, USAF (Ret.). This simulator truly was a labor of love for the Colonel:

"I'm a chopper pilot with over 9,000 hours of flight time. Let me put you at the controls of an advanced Hughes 530MG Defender. No other helicopter simulator is as responsive to your control input, or as satisfying to fly. Start yourself out on the flight training grounds. My concise documentation will have you flying in minutes.

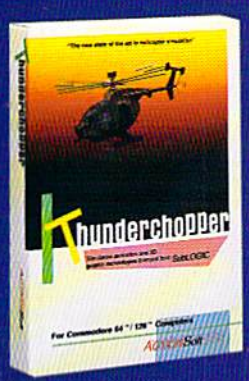
"Once you've attained a level of flying proficiency, you're ready to train for one of the most important duties a helicopter pilot can perform - the location and rescue of downed pilots.

"After you've mastered flight and rescue techniques you're ready for combat. Multiple scenarios let you test your skills under a variety of combat conditions. Escort ground troops through enemy territory. Or rescue the survivors of a major sea battle. You'll have to become adept at selecting and controlling your ordnance, and at using sophisticated electronic weapon/defense systems to locate, identify, and destroy enemy targets.

"ThunderChopper is the most realistic helicopter simulation you'll ever fly. Try ThunderChopper - the excellence comes through."

Colonel John B. Rosenow, USAF (Ret.)
President, ActionSoft Corp.



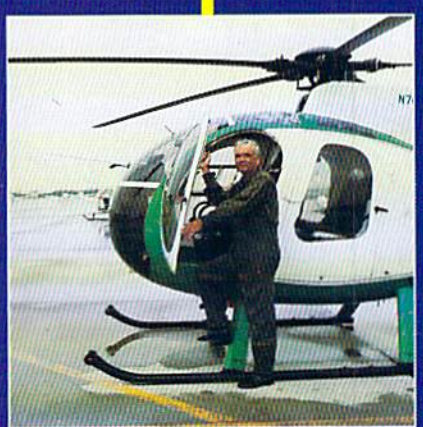




Rescue Mission - scan for flares



Escort troops through enemy territory - search and destroy enemy targets



Colonel Jack provided the strategy and tactics for ThunderChopper

See Your Dealer...

Or write or call for more information. ThunderChopper is available on disk for the Commodore 64/128 and Apple II computers. For direct orders please indicate which computer version you want. Enclose $29.95 plus $2.00 for shipping (outside U.S. $6.95) and specify UPS or first class mail delivery. Visa, MasterCard, American Express, and Diners Club charges accepted.

© 1987 ActionSoft Corporation
3D graphics and special effects courtesy SubLOGIC Corp.
Commodore 64 and Commodore 128 are registered trademarks of Commodore Electronics Ltd.
Apple is a registered trademark of Apple Computer, Inc.

-$29.95-
Better Engineering at a Better Price

ACTIONSoft
GENERATIONS AHEAD IN STRATEGY ACTION SOFTWARE

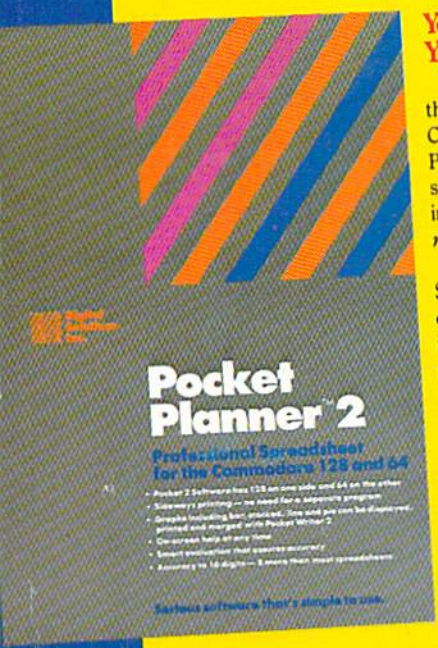
201 WEST SPRINGFIELD AVENUE, SUITE 711
CHAMPAIGN, IL 61820 (217) 398-8388

Circle 188 on Reader Service card.

"... one of the very best*..."

Write • File • Organize • Analyse • Track • Compare • Search • Graph • Report • Create • Sort
Solve • Calculate • Integrate • Express • Cut & Paste • Modify • Proof • Display • Report

You can do almost anything.



You can do it. You really can.

These are all of the wonderful things you can do with your Commodore 64 or 128 and Pocket™ 2 Software. This is the software that can make you an ace in 30 minutes . . . *even if you've never touched a computer before.*

The reason? Pocket™ 2 Software is menu driven. It has all of the help and instructions you need right on the screen. All of the power of your computer is right there at your fingertips. It's such an exhilarating feeling, you might find yourself humming the theme to 'Rocky'.

Fast, flexible and affordable.

At Digital Solutions, we're committed to making our software work for you. Naturally, all Pocket™ 2 software is fully integrated and GEOS™ compatible. It's people logical . . . not just machine logical.

All those wonderful things you've heard about Pocket™ 2 Software are true. Just wait until you get your hands on it.

Digital Superpak™ 2 . . . A super idea

One of the beauties of Pocket™ 2 Software is that all three programs work beautifully together. Working together, they're more powerful and give you a whole new range of options and possibilities.

Not only that, when you order Pocket Writer™ 2, Pocket Planner™ 2 and Pocket Filer™ bundled together in Digital Superpak™ 2, you can save a bundle of money. Just **$99.95** U.S.

Pocket Writer™ 2 The Award Winner

Experts call Pocket Writer™ 2 the best word processor ever. With its menu-driven, on-screen instructions, you'll fly through letters, presentations, memos, lists, reports and articles. In fact, if you need to write it, Pocket Writer™ 2 will make it easier. You can format your words the way you want them. You can change your mind. You can even stay on top of your spelling with Spelling Checker. Only **$59.95** U.S.

Pocket Filer™ 2 . . . like a giant file drawer

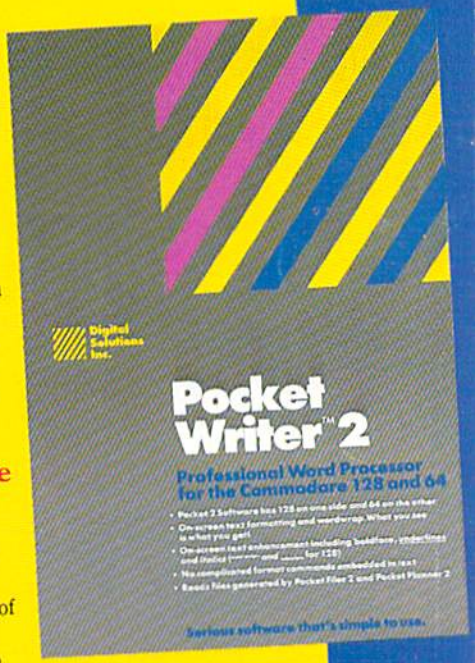
Pocket Filer™ 2 is a full-featured database that will help you to keep track of just about anything. No matter what kind of information you have to store, Pocket Filer™ 2 will help you to organize it better, process it in more ways and retrieve it faster when you need it.

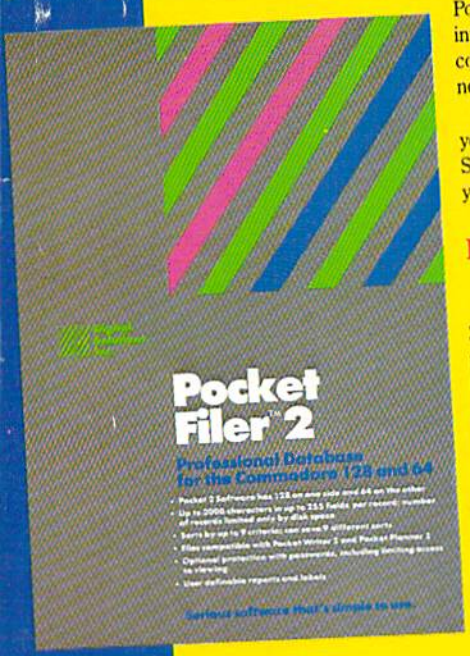
At home or at the office, now you can organize information the way *you* want it. Only **$59.95** U.S.

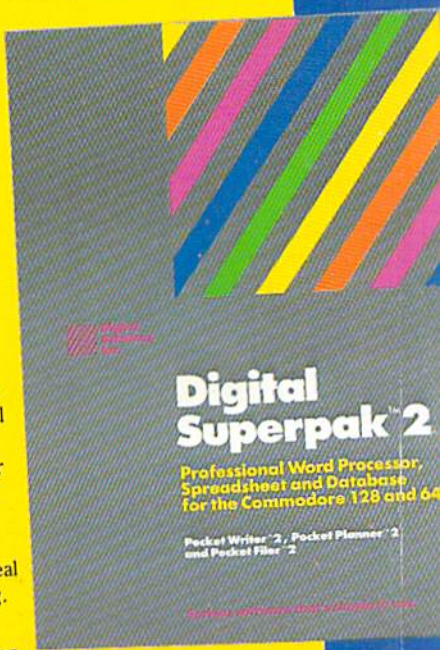
Pocket Planner™ 2 It figures

Pocket Planner™ 2 is the answer for number crunchers. This powerful electronic spreadsheet is the right tool for collecting, storing, analysing and reporting information . . . financial or numerical. It's a common-sense solution for managing your checkbook, budget, installment payments, worksheets or investment portfolio. Pocket Planner™ 2 lets you put some real bite into your number crunching. Only **$59.95** U.S.

**Commodore Magazine, July 1987*







If you can't find Pocket™ 2 Software at your dealer, use this coupon or phone (416) 731-8775 to order.

METHOD OF PAYMENT (no Purchase Orders or C.O.D.)
Money Order ___ VISA ___ MasterCard ___ Amer. Exp. ___ Check ___

CHARGE CARD # ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ EXP. ☐☐/☐☐

Credit card orders must be signed.

VISA, MasterCard and AMEX accepted. No shipping and handling charges. Ontario residents add 7% sales tax. Please allow 4-6 weeks for delivery.
Order yours today.

Circle 46 on Reader Service card.

Individual Pocket™ 2 programs are just $59.95 U.S. each.
Digital Superpak™ 2 is just $99.95 U.S.
Send me Pocket Writer™ ☐, Pocket Planner™2 ☐, Pocket Filer™2 ☐, Digital Superpak™2 ☐ Total $ _____

Name: _____
Address: _____
City: _____ State/Prov.: _____
Country: _____ Zip/Postal Code: _____

Digital Solutions Inc.
2-30 Wertheim Court
Richmond Hill, Ontario
Canada L4B 1B9
(416) 731-8775