

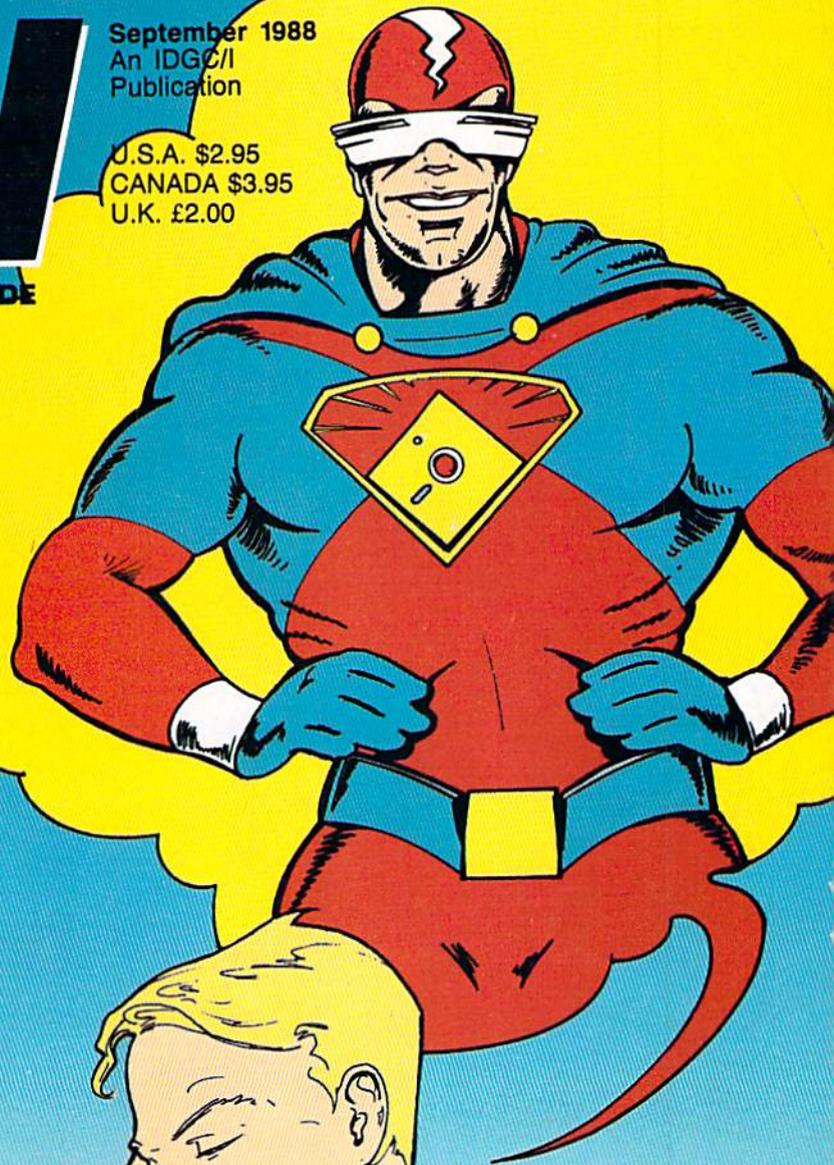
► Recreate Famous Battles on Your C-64

# RUN

THE **COMMODORE** 64/128 USER'S GUIDE

September 1988  
An IDGC/I  
Publication

U.S.A. \$2.95  
CANADA \$3.95  
U.K. £2.00



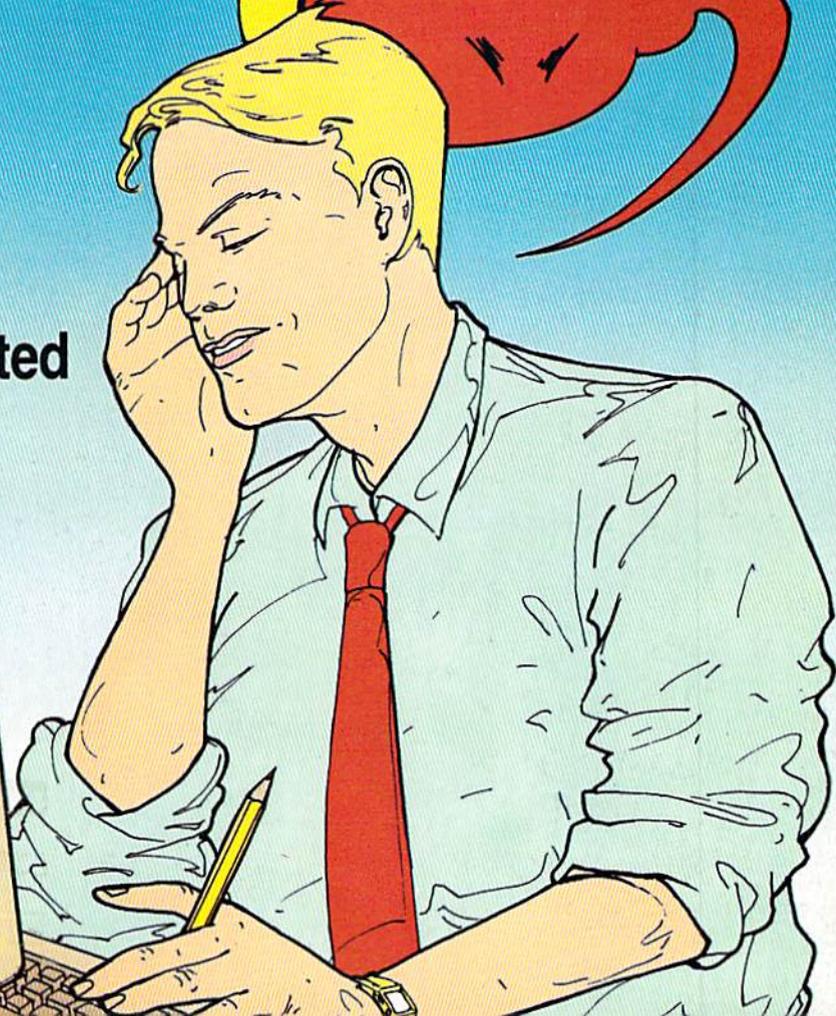
**You Can  
Become a  
Power User!**

**How to Turn Your  
Fantasy into Reality**

**Attention, New Owners:  
Guidelines on Getting Started**

**Plus:**

- Inertia Mania Arcade Action
- Card Shark 64/128
- Spelling Challenge
- C-64/128 Vacation Checklist



[www.commodore.ca](http://www.commodore.ca)  
74470 12069



# FOR THOSE OF YOU WITH AN OFF-TRACK MIND.

Get ready for four of the most challenging, rugged, rump-bumping cross



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

country road racing courses this earth has to offer.

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 slosch 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.

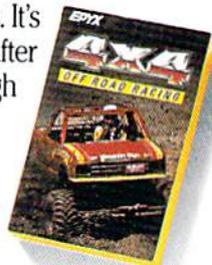
Select and customize your personal vehicle. Your supplies. Your repair equipment. Believe us. You'll need everything.

## 4x4 OFF-ROAD RACING BY EPYX

Commodore 64/128, IBM & compatibles, Amiga

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.



# Sharpen Your Commodore™ Skills While You Build a Great Software Collection— ONLY \$6.65!

**LOADSTAR™** is two disks each month filled with great software for your Commodore 64 or 128.

## 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, 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 LEVEN, COMMODORE MICROCOMPUTERS

## Subscribers Love LOADSTAR!

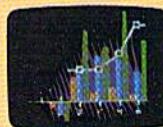
"The music and graphics are totally superb. Some of the best I have ever seen" .....

STEVEN T. BOSTON

## Contents of Issue #49

- **Power Budget** Keep track of your spending, make projections.
- **Down, Down, Down** Can you survive six levels of acid mines?
- **Robot Rescue** As Mandar II, rescue our ambassadors from the Vordax.
- **Notepad** Two text screens for notes.
- **Pop-DOS LIST** one BASIC program from another, among other things.
- **Cris-Cros Poker** Play 10 hands at once.
- **Plus** Chomp, Animal, Joystick Art, Statistics Analyzer, Template Maker, Invisible Aid 128, 2 Potato, and more!

(Available as a Back Issue)



Commodore 64 and Commodore 128 are trademarks of Commodore Business Machines.

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 family computer.

Below are the programs on the "Best of LOADSTAR:"

### Side 1

Discovery  
LOADSTAR Forum  
DiskWriter  
Submission Form  
Sector Editor  
BASIX 64 & 128  
Zorphon

### Side 2

Puzzle Maker  
File Viewer  
Star Terminal  
Banner  
Jump!  
Towers of Hanoi  
Yahtzee

## 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.

Circle 66 on Reader Service card.

**Yes!** Please rush my free "Best of LOADSTAR" and start my three month subscription to LOADSTAR for my Commodore 64 or compatible 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. (Canada/Mexico \$24.95, Overseas \$27.95) Make checks payable in U.S. funds.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ ZIP+4 \_\_\_\_\_  
Telephone \_\_\_\_\_  
 VISA/MC     AmEx     Payment Enclosed  
Card# \_\_\_\_\_ Exp. Date \_\_\_\_\_

**Call Toll Free 1-800-831-2694**

(Louisiana Residents add 4% Sales Tax)

RU098

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

**MAX TOY**  
President  
Commodore  
Business  
Machines

“I’VE PUT MY  
COMPANY ON  
THE LINE  
FOR  
YOU.”



**A** direct line, that is, from your home to Commodore® Headquarters via Q-Link, the telecommunications service that's everything a Commodore owner could hope for.

Using a Commodore 64® or 128™ disk drive, modem, and the Q-Link software, you're connected to inside information and help from the programmers and designers here at Commodore who built your machine. It's the best way I know to get you the answers quickly and personally.

Q-Link is also your link to leading Commodore software publishers and their wares, to over 15,000 public domain software programs you can download and keep, to teachers who'll help your kids with their homework, and to clubs, contests, games, and a host of other services that run the gamut of your imagination.

Experience it for yourself. And see why I've put my company on the line for you.

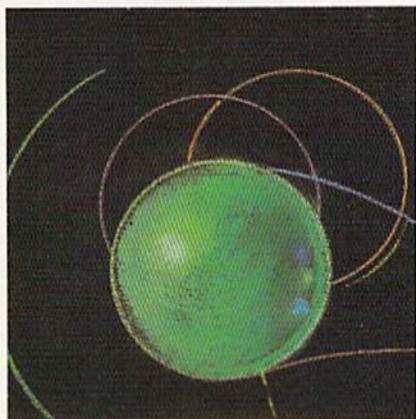
**1-800-782-2278** ext. 1556

*Join Q-Link today and you'll get a  
Commodore 300 baud modem and the  
Q-Link software free!*

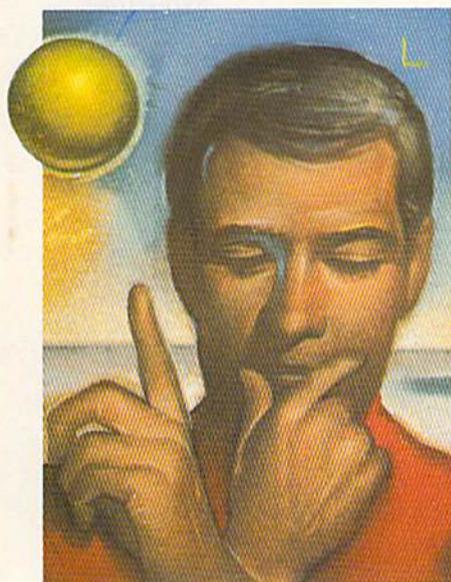


8619 Westwood Center Drive  
Vienna, VA 22180

**SPECIAL OFFER**  
Call today to find out  
about our special  
1200 baud modem offer.



PAGE 46



PAGE 60

COVER ILLUSTRATED BY ISTVAN BANYAI

**ABC** RUN (ISSN 0741-4283) is an independent journal not connected with Commodore Business Machines, Inc. RUN is published monthly by EDG 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 \$22.97 for one year, \$34.97 for two years and \$48.97 for three years. In Canada and Mexico, the one-year subscription rate is \$27.97, with U.S. funds drawn on a U.S. bank. Foreign surface mail subscriptions are \$42.97 for one year, and foreign air mail one-year subscriptions are \$77.97, with U.S. funds drawn on a U.S. bank. RUN is nationally distributed by International Circulation Distributors. **Postmaster:** Send address changes to RUN, Subscription Services, PO Box 58711, Boulder, CO 80522-8711. (Canadian address changes to RUN, PO Box 1051, Fort Erie, Ontario, Canada L2A 5N8.)

## FEATURES

- 36 So... You Want to Be a Power User?** *by Morton Kevelson*  
See how far you can expand the power of your computer.
- 41 Newcomer's Guide** *by Ellen Rule*  
Choose the hardware, software and accessories that are right for you.
- 46 Inertia Mania\*** *by Charles Orcutt*  
Control a crazy rubber ball to catch gold nuggets while avoiding cannon fire. For the C-64.
- 54 Forward into Battle!** *by Gerald McLain*  
Find out if you have what it takes to use war-game construction sets.
- 60 Try to Remember\*** *by Penny DeGroff*  
Challenge your memory and improve your spelling skills in this C-64 game.
- 64 Programmer's Pager\*** *by John Ryan*  
Take the hassle out of listing Basic programs with your C-64.
- 68 Knock!\*** *by John Feder*  
Rake in as much money as you can in this C-64/C-128 version of Cards-31.

## DEPARTMENTS

- 4 Running Ruminations**  
Beware the computer syndrome!
- 8 Magic** *by Tim Walsh*  
The original column of hints and tips for performing Commodore computing wizardry.
- 16 News and New Products**  
Recent developments and releases in the world of Commodore computing.
- 20 Mail Run**  
Input from our readers.
- 24 Software Gallery** *Reviews of:*
  - The Three Stooges
  - PaperClip Publisher
  - The President is Missing
  - Skate or Die
  - The Lurking Horror
  - Strike Fleet
  - Black Jack Academy
  - Dark Castle
  - Winter Challenge
  - Better Working Word Publisher
- 72 Easy Applications\*** *by Lou Wallace and Tim Walsh*  
Make sure you bring along everything you need for your well-deserved vacation. For the C-64 and C-128.
- 76 Telecomputing Workshop** *by Loren Lovhaug*  
Information and advice on all aspects of telecommunications.
- 78 GeoWatch** *by Marte Brengle*  
RUN's column for GEOS users.
- 80 Commodore Clinic** *by Lou Wallace*  
Answers to your questions about Commodore computing.
- 85 Authors Wanted!**  
Have you an interesting program or an article about Commodore computing? We'd like to see it!
- 86 Run Amok**  
We run corrected.
- 90 Mega-Magic\*** *by John Ryan*  
Introduce yourself to the power and speed of the C-64 Kernal.
- 91 RUN's Checksum Program**
- 96 Coming Attractions; List of Advertisers**

\* The listings for these articles are also available on the September-October 1988 ReRUN disk. To order, see page 13.

# ***RUNNING*** ***RUMINATIONS***

PUBLISHER  
**STEPHEN ROBBINS**

EDITOR-IN-CHIEF  
**DENNIS BRISSON**

MANAGING EDITOR  
**SWAIN PRATT**

SENIOR EDITOR  
**BETH S. JALA**

ASSOCIATE EDITOR  
**HAROLD R. BJORNSEN**

TECHNICAL MANAGER  
**LOU WALLACE**

TECHNICAL EDITOR  
**TIMOTHY WALSH**

COPY EDITOR  
**PEG LePAGE**

CONTRIBUTING EDITORS  
**ROBERT KODADEK; ROBERT ROCKEFELLER;  
JOHN RYAN**

ART DIRECTOR  
**HOWARD G. HAPP**

DESIGNER  
**ANNE DILLON**

PRODUCTION/ADVERTISING SUPERVISOR  
**RUTH BENEDICT**

PRODUCTION ASSISTANT  
**LAURA JOHNSON**

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 DONOHUE**

CUSTOMER SERVICE REPRESENTATIVE  
**LISA LAFLEUR**

SECRETARY  
**MARGOT SWANSON**

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**

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* assumes no responsibility for errors or omissions in editorial or advertising content. *RUN* does not assume any liability for advertisers' claims.

In a recent report I read, watching TV was listed as America's favorite evening recreational activity. The report failed to disclose how computing fared, but we suspect that computerists are not immune to the couch potato syndrome that is sweeping the nation. Any day now, scientists may warn us that too many hours in front of the computer screen can have a negative effect on your social life and turn you into something akin to a sofa spud.

To help you monitor the number of hours you spend in front of the computer screen, we've devised the following 15 early-warning signs of trouble:

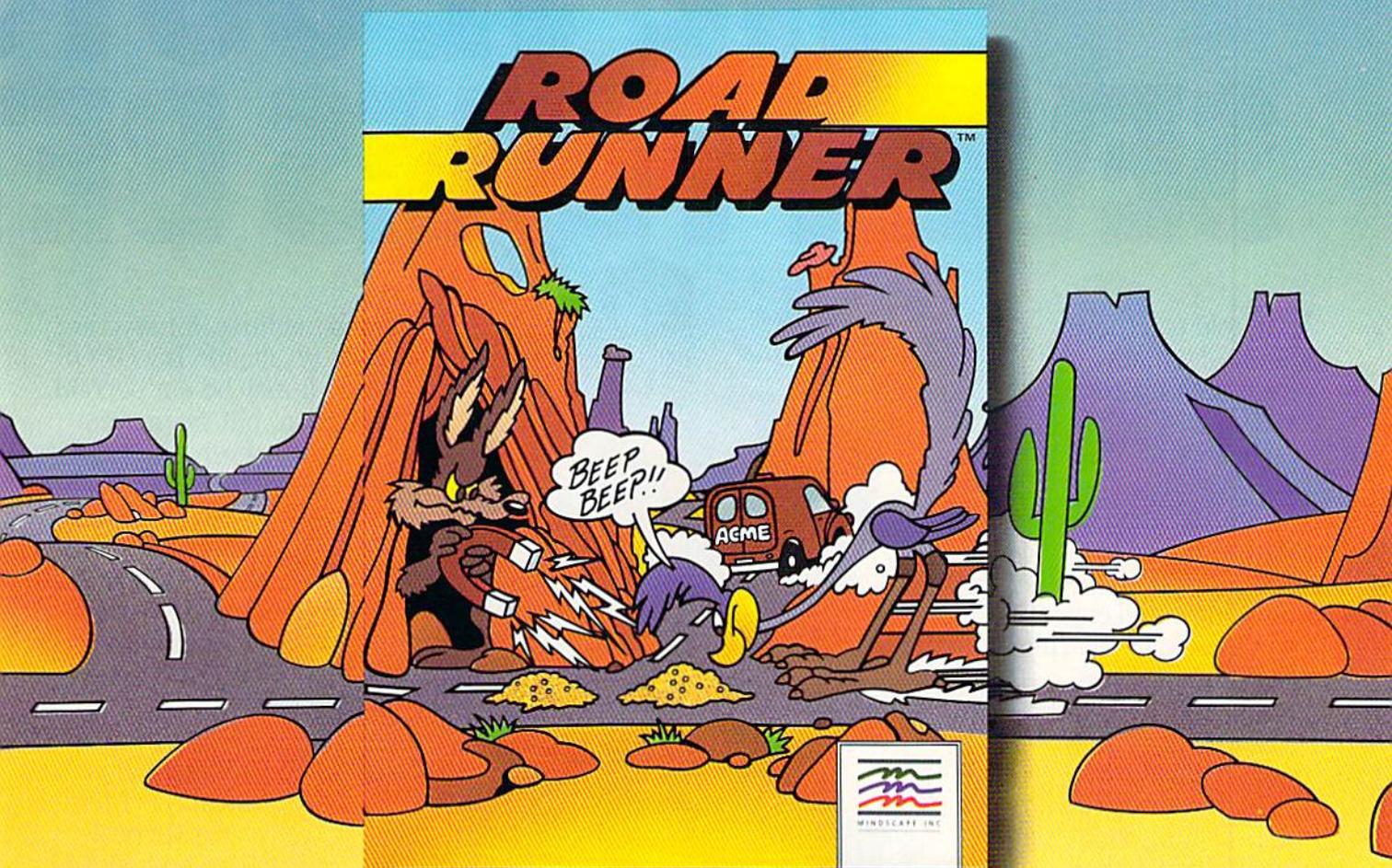
1. You know the names of all the officers of your local user group, but can't remember the name of your son's second grade teacher.
2. You have the hot-line number of your computer service center tattooed on your forearm.
3. The last book you read was the "Commodore 64 Programmer's Reference Guide."
4. Your idea of a romantic getaway is to pack your car with sheets and sheets of source code for a week-end of debugging in a dimly-lit motel room.
5. You would rather play Platoon on your computer night after night than take your spouse to the movies to see it on the big(ger) screen.
6. Your monthly bill for floppy or hard disks is twice the amount you spent on greeting cards in the last five years.
7. At a restaurant, when the waiter offers to bring you a menu, you think it's something you can pull-down on your computer screen.
8. You've been treated in the last year for computerist's wrist—the painful affliction acquired from using your mouse too much.
9. Your list of important phone numbers includes the number of your favorite computer mail-order company, but not your mother's-in-law.
10. Your telephone bill for one night of telecommunicating would put a huge dent in the national deficit.
11. You can recite countless important Poke commands and kernal routines, but you have a difficult time remembering your wedding anniversary.
12. You have no trouble writing complex sound and graphics programs, but you still haven't mastered how to heat a cup of coffee in your microwave.
13. Your idea of home improvement is adding a new printer to your computer system.
14. You can properly connect modems, printers and interfaces to your computer and easily upgrade your system with new chips, but you get all tangled up trying to string up the lights for the holiday season.
15. You still get excited when you recall the first time you successfully used the computer.

*Avoid these  
early-warning  
signs of  
"computer tuber"  
syndrome.*

*Dennis Brisson*

**Dennis Brisson**  
Editor-in-Chief

# This little birdie goes beep beep.



## GET GOING OR GET PLUCKED!



How fast can you make Road Runner run? It better be very fast because that

hungry Wile E. Coyote will catch him sure as sunrise!

Wile will fly his Jet-Pac or his rocket... maybe even his pogo stick will be pressed into the chase. Look out for everything from landmines to cannonballs because Wile E.



Coyote is never at a loss for new ways to pluck the feathers of that speedy, lovable, high-tailing bird.

Arcade-style graphics, never ending new antics, colorful scrolling scenery, great sounds make this an enjoyable classic.



Beep-beep! Pluck Road Runner off the shelf and head for home!

M I N D S C A P E

Visit your retailer. To purchase by mail send your card number and expiration date, check or money order for \$34.95 (C64™ & C128™), or \$49.95 (Atari® ST) plus \$3.00 handling to Mindscape, Inc., P.O. Box 1167, Northbrook, IL 60065. Allow 3-5 weeks for delivery. Lawyers like this part: © 1988 Mindscape, Inc. Mindscape is a trademark of Mindscape, Inc. C64 & C128 and Atari ST are registered trademarks of Commodore Electronics, Ltd., and Atari, Inc. respectively. Road Runner and Wile E. Coyote are trademarks of Warner Bros. used by Tengen under license. TM & © 1987 Warner Bros. and Tengen. All rights reserved. Licensed to Mindscape, Inc.

[www.commodore.ca](http://www.commodore.ca)  
May Not Reprint Without Permission

# WE'VE GOT SEVEN TIMES BETTER

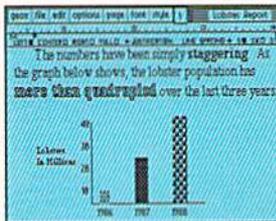
If we told you there's something that's seven times better than GEOS™ would you believe it? Well, believe it. It's called GEOS 2.0™. And it's filled with new features, including the one thing you'd expect from a package bearing the GEOS name.

Power.

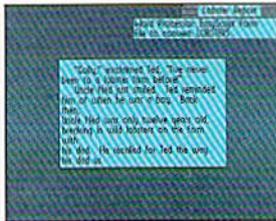
Not the kind that sends a small surge through your creativity. We're talking about major productivity power.

GEOS 2.0 is supercharged with new strengths that make it the most powerful source of integrated software your Commodore 64's ever seen. And what isn't completely new has been radically improved. In fact, we actually included other applications—products we used to sell separately—right into this package.

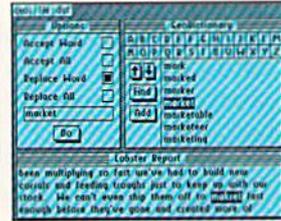
For example, the entire contents of geoWrite Workshop, including geoWrite 2.1™ (the full-featured word processor) have been added along with geoSpell™. And a new feature lets you mix graphics with text around any number of



geoWrite



Text Grabber



geoSpell

and click.

There's a new deskTop™. A new painting toolbox. And new muscle that makes your mouse

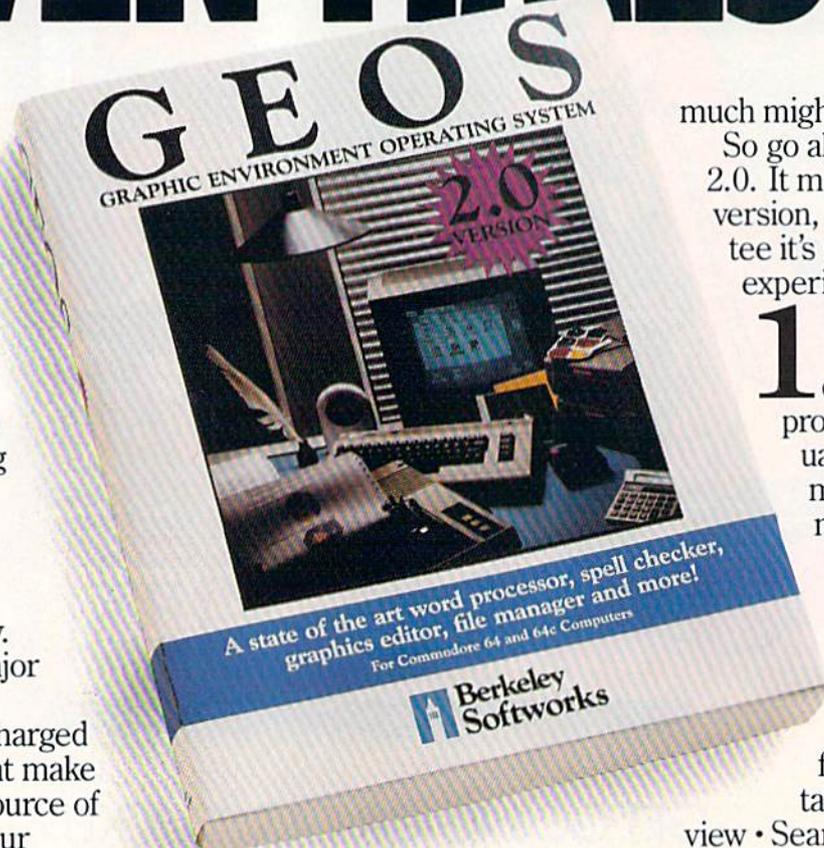
much mightier, for starters. So go ahead. Try GEOS 2.0. It may be our second version, but we guarantee it's seven times the experience.

1. geoWrite 2.1: NEW! Full-featured word processor • Individual paragraph formatting • Expand margins to 8" • Left, right, center and full justification • Multiple vertical spacing options • Headers and footers • Decimal tabs • Full page preview • Search and replace •

Word wrap • 10 fonts in 7 styles and multiple sizes • Pagination • Insert, delete, move or copy • Mix text and graphics • Special feature to create multiple columns, add headlines and borders • Produce near-type-set quality output on an Apple® LaserWriter™ with PostScript™

2. Text Grabber™: NEW!

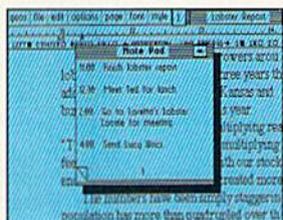
Import text from any Commodore word processor such as



# SOMETHING BETTER THAN GEOS.

PaperClip,™ Easy Script,™ Speed Script,™ Word Writer™ and others.

**3.** geoMerge:™ NEW! Create customized form letters and labels with this mail merge program.



Desk Accessories

**4.** geoSpell:™ NEW! Complete spelling resource. View dictionaries and documents while spell checking • Create and update personal dictionaries • Global search and replace • Operates 38% faster than before.

**5.** Desk Accessories: Five handy utilities accessible from within any application • 4 function calculator • 127 page notepad • Chiming alarm clock • Preference manager • Photo/text managers to save and transfer data between applications • NEW! Cut and paste from the calculator and notepad into other applications • Name photo album pictures • And more.

**6.** geoPaint:™ High resolution graphics editor. Create charts, diagrams or images up to 8" × 10" • Zoom in for detailed pixel editing or preview entire page • 16 colors, 14

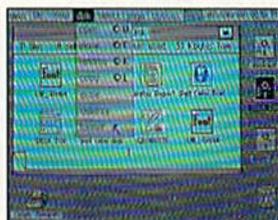
graphic tools, 32 brush shapes and 32 painting patterns • Invert, rotate, mirror or move images • Cut, copy and paste



geoPaint

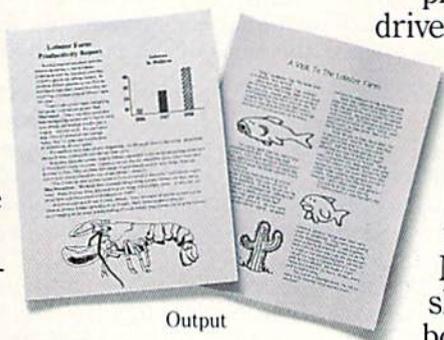
into other GEOS applications • Integrate text with graphics • NEW! Stretch and scale images • Overlay effects • Stop pattern fills in progress • New graphic shapes including connected lines, ellipses and squares • Grid function for easy sketching.

**7.** deskTop: Efficient file and disk manager • View files as icons or text • Sort files by size, type, date or name • Open, close, rearrange, copy or delete files • Manage non-GEOS files • Access and execute BASIC programs • NEW! Support for 2



deskTop

drives and a RAM Expansion Unit (including the 1541, 1571, 1581 and RAM drives) • Multiple file selection • Color code notepad and files • Date and time display • Recover most recently deleted file • Faster file copying • Simplified printer and input driver selection.



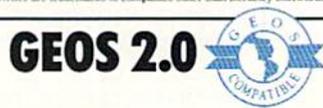
Output

**PLUS:** diskTurbo™ runs GEOS applications five to seven times faster • More keyboard shortcuts • Keyboard or input device options (mouse, joystick, lightpen or Koala Pad™) • 31 printer drivers support over 70 popular printers in draft, NLQ and high resolution printing modes • Q-Link™ telecommunications software.

**Berkeley Softworks**

The brightest minds are working with Berkeley.

For orders only, call  
1-800-443-0100 ext. 234  
**GEOS 2.0**  
(California residents add 7% sales tax)  
\$59.95 plus \$4.50 for shipping and handling.  
Commodore, Commodore and C64 are trademarks of Commodore Electronics, Ltd. GEOS, geoSpell, geoLaser, geoMerge, geoPaint, geoWrite and Berkeley Softworks are trademarks of Berkeley Softworks. PaperClip, Easy Script, Speed Script, Apple, LaserWriter, PostScript, Koala Pad, Q-Link and Word Writer are trademarks of companies other than Berkeley Softworks.



# MAGIC

Save your listings automatically; use a program that can temporarily re-align your disk drive; make cheap, sturdy peripheral stands.

Compiled by TIM WALSH

## \$4C6 C-64 JOYSTICK READER

Unlike most joystick utilities, which read only one port, my program reads input from both ports when called with a SYS command. Use Joystick Reader as a routine in your

own programs, and you'll find this relocatable program to be one of the best joystick utilities around.

If you don't program, you can still use Joystick Reader to test joystick ports and joysticks. Just load and run it. You'll get a demo with a ball on the screen that a joystick in either ►

## TRICK OF THE MONTH

### \$4C7 AUTOSAVE 64

I sometimes lose my concentration when I need to save a listing I'm typing in or a program I'm creating, so I wrote Autosave 64, an interrupt-driven utility that automatically scratches, saves and verifies my work for me. I don't even have to memorize the filename.

Type in Autosave 64 with RUN's Checksum and save it. When you're ready to work, run Autosave 64 first. You'll be asked to enter the name of the program, after

which you press return when you see SYS 850 appear on the screen.

Now you can start typing. When you want to save the listing, just press the Commodore logo and control keys together. When the cursor reappears, list the program and continue typing. If you're working on a long program, prevent memory conflicts by pressing run-stop/restore, then enter SYS 850 before using Autosave 64.

```
0 REM AUTO-SAVE 64 - C. J. SIMS :REM*26
10 POKE 644,148:POKE 643,0 :REM*52
20 FOR A=828 TO 991:READ DT:POKE A,DT:SM=
SM+DT:NEXTA :REM*129
30 FOR A=38144 TO 38259:READ DT:POKE A,DT
:SM=SM+DT:NEXTA:IF SM<>16632 THEN 140
:REM*103
40 INPUT "ENTER FILENAME ->":A$ :REM*235
50 X=LEN(A$):IF X<1 OR X>10 THEN PRINT "<
MIN 1 CHR/MAX 10 CHRS>":GOTO 40:REM*53
60 GOSUB 150 :REM*136
70 LN=LEN(OP$):FOR A=1 TO LN:CHR=ASC(MID$
(OP$,A,1)):POKE 38161+A,CHR:NEXTA
:REM*73
80 LN=LEN(SA$):FOR A=1 TO LN:CHR=ASC(MID$
(SA$,A,1)):POKE 38197+A,CHR:NEXTA
:REM*65
90 LN=LEN(VR$):FOR A=1 TO LN:CHR=ASC(MID$
(VR$,A,1)):POKE 38234+A,CHR:NEXTA
:REM*211
100 FOR ZP=38162 TO 38256:CK=PEEK(ZP):IF
CK=0 THEN POKE ZP,1 :REM*246
110 NEXT ZP:POKE 917,149:PRINT "{SHT CLR
}{CRSR DN}{2 CRSR RTS}* SYS 850 TO IN
STALL" :REM*201
120 PRINT "{2 SPACES}* C= + CTRL{2 SPACES
}TO ACTIVATE" :REM*71
130 PRINT "{2 SPACES}* RUN/STOP + RESTORE
TO DEACTIVATE":PRINT"{3 CRSR DNS}SYS
850{3 CRSR UPS}":NEW :REM*203
140 PRINT "ERROR IN DATA STATEMENTS!":END
:REM*146
150 OP$=A$+CHR$(34)+" :CLOSE 15:" :REM*141
160 SA$=A$+CHR$(34)+" ,8" :REM*42
170 VR$=A$+CHR$(34)+" ,8:" :REM*1
180 RETURN :REM*67
190 DATA 169,32,160,0,162,1,153,0,4,153,0
,5,153,0,6,153,0,7,136,208 :REM*234
200 DATA 241,96,32,60,3,160,0,185,185,3,2
01,0,240,7,32,210,255,200,76 :REM*171
210 DATA 87,3,169,113,141,20,3,169,3,141,
21,3,234,96,32,120,3,76,49 :REM*57
220 DATA 234,234,173,141,2,201,6,208,3,32
,132,3,96,234,169,49,141,20,3:REM*160
230 DATA 169,234,141,21,3,32,60,3,160,0,1
85,0,150,201,0,240,7,32,210 :REM*102
240 DATA 255,200,76,147,3,169,13,141,119,
2,169,13,141,120,2,169,13,141:REM*105
250 DATA 121,2,169,3,133,198,76,101,3,234
,234,142,19,17,17,29,29,29 :REM*98
260 DATA 29,83,65,86,69,32,45,32,85,84,73
,76,32,32,73,78,83,84,65,76 :REM*134
270 DATA 76,69,68,0,234,234,0,0,0,0,19,
79,80,69,78,32,49,53,44,56,44:REM*135
280 DATA 49,53,44,34,83,48,58,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
:REM*46
290 DATA 0,0,0,0,0,0,0,19,17,17,17,83,65,86
,69,32,34,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
:REM*238
300 DATA 0,0,0,0,0,0,0,0,0,0,0,19,17,17,1
7,17,17,17,17,86,69,82,73,70 :REM*254
310 DATA 89,32,34,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,19,0,0,0 :REM*139
```

—CEDRIC J. SIMS, BRYAN, TX

CINEMAWARE  
P R E S E N T S

MOE

# the THREE STOOGES™

Can **THREE** Stooges  
Save **ONE** orphanage  
From **FORE**closure?!

LARRY

CURLY

**OUR HEROES**

They can save the day  
by making **ASSETS**  
of themselves!



**THE EVIL BANKER**  
He took their **NEST EGG**  
and told them to **BEAT IT!**



**THE WIDOW AND HER 3 BEAUTIFUL DAUGHTERS**  
They're about to be thrown out on their **ARREARS!**

"NYUK, NYUK."  
"OH, A WISE GUY!"  
"RUFF! RUFF!"

Producers ROBERT & PHYLLIS JACOB  
Comptography by INCREDIBLE TECHNOLOGIES

MASTER DESIGNER SOFTWARE  
presents  
**THE THREE STOOGES**



Actual Amiga Screens

**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.  
May Not Reprint Without Permission Cinemaware Corporation, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362

## MAGIC

port can move about. Press the fire-button to end the demo and list the program to the screen.

```

Ø REM JOYSTICK READER - MICHAEL MYERS
:REM*29
1Ø AD=828:FORJ=AD TO AD+36:READQ:POKEJ,Q:N
EXT :REM*51
2Ø PRINTCHR$(147):X=1524:POKEX,81 :REM*65
3Ø FB=Ø:JS=Ø:SYSAD:FB=PEEK(253):JS=PEEK(25
4) :REM*5Ø
4Ø IF FB+JS=Ø THEN 3Ø :REM*68
5Ø Y=X:POKEX,32:IF FB THEN POKE 198,Ø:LIST
:REM*121
6Ø IF JS=1THENX=X-4Ø: REM UP :REM*192
7Ø IF JS=2THENX=X+4Ø: REM DOWN :REM*18
8Ø IF JS=4THENX=X-1: REM LEFT :REM*35
9Ø IF JS=5THENX=X-41: REM UP & LEFT
:REM*197
1ØØ IF JS=6THENX=X+39: REM DOWN & LEFT
:REM*224
11Ø IF JS=8THENX=X+1: REM RIGHT :REM*194
12Ø IF JS=9THENX=X-39: REM UP & RIGHT
:REM*76
13Ø IF JS=1ØTHENX=X+41: REM DOWN & RIGHT
:REM*156
14Ø IF X<1Ø24 OR X>2Ø23 THEN X=Y :REM*135
15Ø POKEX,81:GOTO3Ø :REM*149
16Ø DATA 169,Ø,133,253,133,254,173,Ø,22Ø,2
Ø1,127,2Ø8,7,173,1,22Ø :REM*12Ø
17Ø DATA 2Ø1,255,24Ø,16,72,41,16,73,16,24Ø
,2,133,253,1Ø4,41,15 :REM*93
18Ø DATA 73,15,133,254,96 :REM*58

```

—MICHAEL MYERS, BEARDSTOWN, IL

### \$4C8 BINARY FILE EXAMINER

Binary, or machine language, files are saved to disk in addresses that permit them to be reloaded into specified sections of memory. As your programming skills grow, you'll need to know where a file resides before you can load it into memory.

That's where my 64- and 128-compatible program, Binary File Examiner, comes in. Use it to examine any binary file on disk, and it will report the file's starting and ending addresses. It will also report the low- and high-byte pointers to the addresses and the total number of bytes contained in the file.

```

Ø REM BINARY FILE EXAMINER - JOSEPH CHARNE
TSKI :REM*112
1Ø INPUT"ENTER FILENAME";F$:IFF$="" THEN E
ND :REM*254
2Ø OPEN15,8,15,"IØ":OPEN2,8,8,FS :REM*183
3Ø GOSUB12Ø:SL=ASC(L$+CHR$(Ø)):SH=ASC(H$+C
HR$(Ø)):S=SL+256*SH :REM*91
4Ø PRINT"{CRSR DN}STARTING ADDRESS= "S
:REM*119
5Ø PRINT"{CRSR DN}LOW BYTE="SL" HIGH BYTE=
"SH :REM*34
6Ø INPUT"{CRSR DN}DO YOU WANT ENDING ADDRE
SS (Y/N)";A$:IFAS<>"Y"THEN14Ø :REM*72
7Ø GET#2,B$:IFST=ØTHENC=C+1:GOTO7Ø:REM*155

```

```

8Ø EA=S+C:EH=INT(EA/256):L=EA-256*EH
:REM*125
9Ø PRINT"{CRSR DN}ENDING ADDRESS="EA
:REM*199
1ØØ PRINT"{CRSR DN}LOW BYTE= "L" HIGH BYTE
="EH :REM*9Ø
11Ø PRINT"{CRSR DN}TOTAL BYTES OF FILE="C+
1:GOTO14Ø :REM*22Ø
12Ø INPUT#15,E,E$,ET,ES:IFE=ØTHENGET#2,L$,
H$:RETURN :REM*196
13Ø PRINT;E$;ET;ES :REM*75
14Ø CLOSE2:CLOSE15 :REM*247

```

—JOSEPH CHARNETSKI, DALLAS, PA

### \$4C9 C-64 BINARY FILE HANDLER

While the C-64 lacks a BLoad command, you can still easily load a binary file from disk with C-64 Binary File Handler, which lets you load a binary file into any address and then calculates the low and high bytes of the new starting address for you. This routine is also a practical complement to the Binary File Examiner program above.

```

Ø REM C-64 LOAD RELOCATOR - RICHARD PENN
:REM*185
1Ø INPUT"FILENAME";A$:A$=A$+"P,R" :REM*31
2Ø INPUT"NEW STARTING ADDRESS";SA:H=INT(SA
/256):L=SA-(256*H) :REM*11Ø
3Ø OPEN 1,8,1,A$:POKE185,Ø:POKE78Ø,Ø:POKE7
81,L:POKE782,H:SYS65493:CLOSE1 :REM*189

```

—RICHARD PENN, MONTREAL, QUEBEC, CANADA

### \$4CA C-64 DOS 5.1 AUTO-COPY

Ask C-64 users which disk utility they rely on the most, and they'll probably tell you Commodore's DOS Wedge (DOS 5.1). It comes on the 1541 and 1571 Test Demo disks and shortens the lengthy syntax of disk commands to a few characters.

However, copying this pure machine language program to other disks can be a headache for the beginner. Either a file copier or a machine language monitor to copy the program is necessary. That's why I wrote DOS 5.1 Auto-Copy, which automatically saves a copy of DOS 5.1 to disk.

To use it, run the C-64 Wedge program, then type in and run my program. Place a work disk in the drive and press the @ key followed by the — key, and DOS 5.1 will be saved to disk. Finally, copy the C-64 Wedge Loader Basic program to the same work disk. Repeat this process for each disk that you want to contain a copy of DOS 5.1.

```

Ø REM DOS 5.1 AUTO SAVE - BRET TIMMINS
:REM*72
1Ø FORT=5312Ø TO 53191:READ A:CK=CK+A:POKE
T,A:NEXT :REM*247
2Ø IF CK <> 1ØØ74 THEN PRINT"ERROR IN DATA
...":END :REM*219
3Ø POKE 52235,2Ø7:POKE 52246,127 :REM*14
4Ø PRINT"ENTER "CHR$(64)CHR$(95)" TO SAVE
MODIFIED DOS 5.1" :REM*185
5Ø DATA 14Ø,199,2Ø7,142,198,2Ø7,173,39,2Ø4
,2Ø1,95,24Ø,9,174,198,2Ø7,172 :REM*225

```



## MAGIC

```
6Ø DATA 199,2Ø7,76,72,2Ø5,169,Ø,141,39,2Ø4
,162,8,16Ø,97,32,186,255 :REM*245
7Ø DATA 162,191,16Ø,2Ø7,169,7,32,189,255,1
69,Ø,133,195,169,2Ø4,133,196 :REM*35
8Ø DATA 169,195,162,255,16Ø,2Ø7,32,216,255
,76,144,2Ø5,68,79,83,32,53 :REM*137
9Ø DATA 46,49,Ø,Ø,256 :REM*23Ø
```

—BRET M. TIMMINS, SANDY, UT

### \$4CB MODIFIED BLANK-IT! 64

My program, a modified version of Blank-It! 64 (Mega-Magic, January 1988) uses the F1 key to toggle between a blank screen and the display screen to prevent screen burn. Since the blank screen gives the impression that the monitor is off, I changed the screen color to dark gray to show that the monitor is still on.

When you run the program, it will write a machine language file to disk called BLANK-IT (910). Type in "BLANK-IT (910)",8,1 and then the SYS 910 command to run the program.

If you'd like to change the color of the blank screen, enter POKE 955,X, where X, your screen color, ranges from 0 to 15. To use the F3, F5 or F7 function keys to activate the routine, type in POKE 938,X, where X is 5, 6 or 3, respectively (F1 is 4).

```
Ø REM MODIFIED BLANK-IT 64 - BILL FISHER :REM*228
1Ø C$=CHR$(34):PRINTCHR$(147) "FILE WRITER
FOR MODIFIED BLANK-IT." :REM*147
2Ø PRINT"{CRSR DN}INSERT FORMATTED WORK DI
SK" :REM*95
3Ø PRINT"{CRSR DN}THEN PRESS RETURN"
:REM*31
4Ø GETK$:IFK$<>CHR$(13)THEN4Ø :REM*229
5Ø PRINTCHR$(17);" WORKING..." :REM*8
6Ø OPEN5,8,2,"Ø:BLANK-IT (91Ø),P,W"
:REM*144
7Ø PRINT#5,CHR$(142);CHR$(3); :REM*1Ø4
8Ø FORX=1TO111 :REM*159
9Ø READ Y:PRINT#5,CHR$(Y); :REM*179
1ØØ NEXTX :REM*151
11Ø CLOSE5 :REM*121
12Ø PRINTCHR$(147)"{2 CRSR DN}s}NOW LOAD "C
$"BLANK-IT (91Ø)"C$",8,1" :REM*16
13Ø PRINTCHR$(17);"{2 CRSR DN}s}SYS 91Ø TO
ACTIVATE - SYS 1ØØ6 TO STOP" :REM*172
14Ø DATA 12Ø,173,2Ø,3,172,21,3,141,236,3,1
4Ø,237,3,169,167,16Ø,3,141,2Ø :REM*174
15Ø DATA 3,14Ø,21,3,88,96,165,197,2Ø1,4,2Ø
8,42,173,17,2Ø8,41,16,24Ø,38 :REM*2Ø4
16Ø DATA 173,32,2Ø8,141,235,3,169,11,141,3
2,2Ø8,173,17,2Ø8,41,239,141,17:REM*23Ø
17Ø DATA 2Ø8,169,255,133,251,169,255,133,2
52,198,252,2Ø8,252,198,251,2Ø8:REM*244
18Ø DATA 244,1Ø8,236,3,173,235,3,141,32,2Ø
8,173,17,2Ø8,9,16,141,17,2Ø8 :REM*37
19Ø DATA 76,199,3,243,49,234,12Ø,173,236,3
,172,237,3,141,2Ø,3,14Ø,21,3 :REM*74
2ØØ DATA 88,96 :REM*113
```

—BILL FISHER, ARMONK, NY

### \$4CC REVERSE KN-KN-KN-KNOCKER!

If your 1541 or 1571 disk drive hasn't been behaving well lately, it may be out of alignment. You could take it to a repair shop, but before you shell out \$40 or \$50, try "knocking" some sense into it with my Reverse Knocker program.

This 64- and 128-mode program reverse-knocks the drive head 100 times, which may re-align the drive just enough to postpone an expensive realignment. Be forewarned: have an old work disk in the drive when you run it, and don't worry if running this program makes your disk drive sound like a smoldering Buddy Rich drum solo. It is a noisy program, but if you type it in correctly, it won't hurt the drive or disk at all.

```
Ø REM REVERSE KNOCK YOUR DRIVE - STEPHEN C
HEUNG :REM*225
1Ø OPEN15,8,15,"I" :REM*27
2Ø SP=1:FORI=1 TO 1ØØ:GOSUB4Ø:NEXT :REM*35
3Ø FORI=1 TO 2Ø:SP=-1:GOSUB4Ø:NEXT:PRINT"A
LL DONE!":PRINT#15,"I":CLOSE15:END
:REM*131
4Ø PRINT#15,"M-R"CHR$(Ø)CHR$(28):GET#15,A$
:A=ASC(A$+CHR$(Ø)):BI=A AND 3 :REM*9Ø
5Ø BI=BI+SP:BI=BI AND 3 :REM*7
6Ø R=(A AND 252) OR BI:PRINT#15,"M-W"CHR$(
Ø)CHR$(28)CHR$(1)CHR$(R):RETURN:REM*219
```

—STEPHEN CHEUNG, DEER PARK, NY

### \$4CD ENVELOPE ADDRESSER

When was the last time you wrote a letter with your word processor, then mailed it in an envelope with a hand-written address? Envelope Addresser, a short C-128 and C-64 program, prints both yours and the receiver's address on business and standard envelopes.

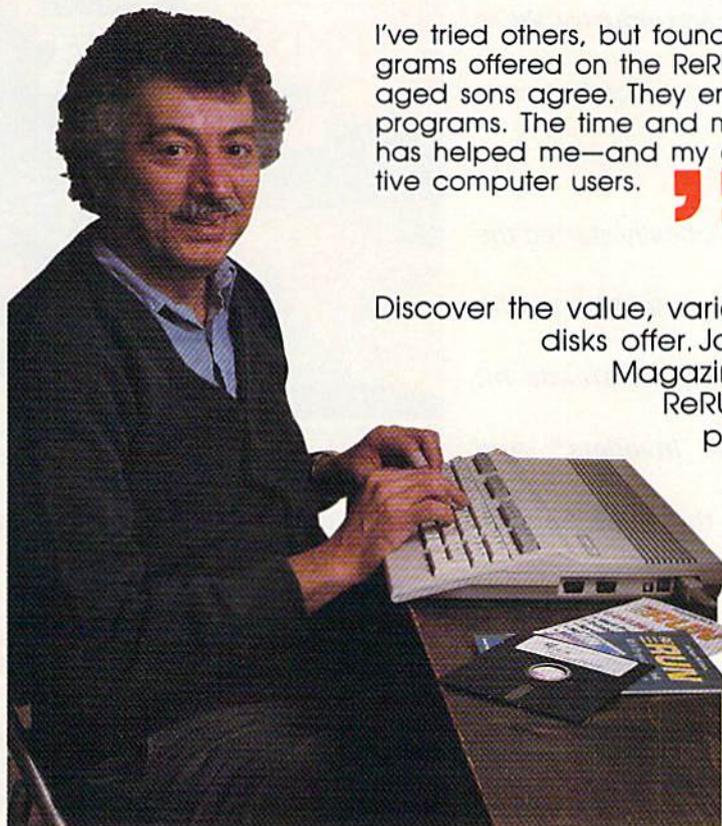
Place your address in lines 50 through 80. If the return address is only three lines, delete line 80. When you run the program, you'll be prompted for the envelope size and for up to four lines of the addressee's address.

```
Ø REM ENVELOPE ADDRESSER - JOHN E. MILLER :REM*73
1Ø DIMA$(4),B$(4):K=45:PRINTCHR$(147) :REM*191
2Ø PRINT"STANDARD OR BUSINESS ENVELOPE? (S
/B)" :REM*12Ø
3Ø GET T$:IF T$<>"S" ANDT$ <>"B"THEN3Ø :REM*242
4Ø IF T$="S"THEN K=3Ø :REM*66
5Ø A$(1)="YOUR NAME" :REM*118
6Ø A$(2)="YOUR STREET ADDRESS" :REM*117
7Ø A$(3)="YOUR CITY & STATE" :REM*1Ø5
8Ø A$(4)="YOUR ZIP CODE" :REM*86
9Ø PRINT:PRINTTAB(1Ø)"RECEIVER'S ADDRESS":
PRINT :REM*74
1ØØ FORJ=1 TO 4:PRINT"LINE #";POKE 198,1
:POKE631,34:INPUTB$(J):NEXT :REM*44
11Ø OPEN4,4:FORI=1TO4:PRINT#4,SPC(2)A$(I):
NEXT:CLOSE4 :REM*191
12Ø OPEN4,4:PRINT#4,SPC(24Ø):FORI=1 TO J-1
```

Continued on p. 89.

NOW ONLY  
\$69.97 A YEAR!

“ For my money, RERUN DISKS are the greatest.



I've tried others, but found that the quality and number of programs offered on the ReRUN disk can't be beat. My two teen-aged sons agree. They enjoy the games and educational programs. The time and money that I've saved with ReRUN has helped me—and my entire family—become more productive computer users.



—Jim Palmieri, ReRUN Subscriber  
Farmingville, NY

Discover the value, variety and ease-of-use that ReRUN disks offer. Join the thousands of RUN Magazine readers who subscribe to ReRUN. Each disk is packed with programs from the two most recent issues of RUN, plus never-before-published BONUS programs. ReRUN is great software at an affordable price, including:

- Word Processing
- Spreadsheets
- Data Bases
- Educational Applications
- Home Entertainment

ORDER A SUBSCRIPTION TODAY! CALL TOLL-FREE 1-800-343-0728

(single issues available at \$16.47 each)

## SAVE 30% ON A YEAR'S SUBSCRIPTION

**YES!** I want to save time and money! Send me the following:

One year (6 issue) subscription to **ReRUN** for only \$69.97

Back issues at \$16.47 each

month year  
month year

- Payment Enclosed       VISA  
 MasterCard       American Express

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Add \$23.70 for foreign airmail  
Please allow up to 2 weeks for delivery

mail to: **RN988**  
RERUN 80 ELM ST. PETERBOROUGH, NH 03458

# RE RUN



# WHAT'S A TAITO.?

*That's a very good question. Taito (pronounced Tie-toe) is one of the oldest and biggest names in the arcade industry. We're the world's largest manufacturer and operator of arcade games. Taito's been in the business since 1953.*

*And that's just the beginning. Taito practically started the*



**RENEGADE:** This is the one and only. Don't settle for imitations. Blistering, fast paced and real life street-style Karate action. One of the hottest games in Europe.

*video game industry with our classic arcade hit, Space Invaders.™ And*

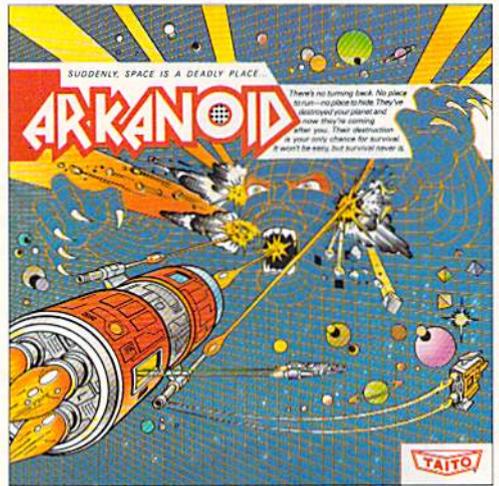
*over the years, Taito has created more than 1,000 other great action games for arcade and home play.*

*Taito has something equally exciting for you to slip into your home computer. Taito brings the same pioneering spirit, technical quality and excitement that made us the arcade leader to your*

*Commodore, Amiga, IBM, Apple and Atari computers. Your computer won't be the same again.*

*Taito is the arcade industry leader for a very good reason. We consistently make great video games that bring more action, thrills and value to the people who play our games. And literally millions of people play our games in arcades and homes all over the world.*

*Our strength comes from the massive development effort we put into creating the kind of games that satisfy the ever-growing arcade appetite and the research gathered from the more than 100,000 arcade machines Taito operates in Japan. (The money in the coin boxes at the end of the day tells you quickly if you've got*



**ARKANOID:** 33 screens of space-age excitement. Award winning coin-op hit. Over 1 million sold in Japan. "One of the best ever." —Electronic Game Player Magazine.

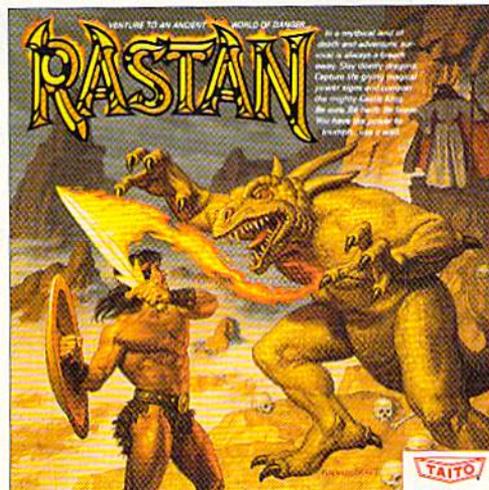


**ALCON:** The ultimate in inter-planetary combat. Battle aliens with lasers, homing missiles, bombs and shields. Fantastic vertical scrolling future-world landscapes.

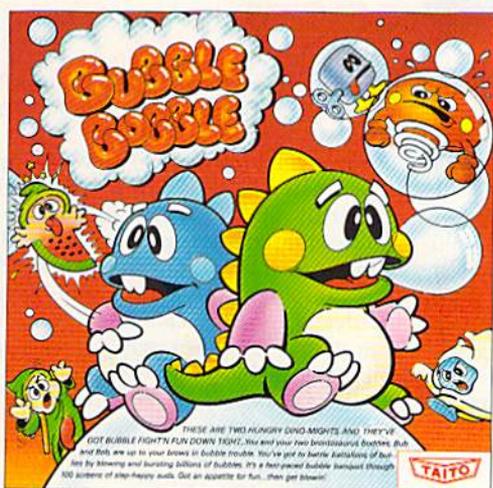
a good game or not.) And Taito is always working hard to develop the most exciting new video games that push the technology to its limits.\* We don't rest on our laurels.

Because arcade games are the benchmark for home video games, Taito's leadership in the arcade industry means that when you buy Taito products you will be getting more home video thrills—more mesmerizing arcade quality graphics, spell-binding sound and above all, action!

That's why nobody but Taito can bring you more of what you're looking for in home computer video games. You don't get to be the biggest in the arcade business by making run of the mill video games.



RASTAN: One of the biggest coin-op hits of 1987. Stunning graphics. Non-stop, mythical super hero action with multiple weapons, enemies and levels of play.



BUBBLE BOBBLE: Laugh-packed addictive action. Up to 100 levels of arcade quality play. One or 2 player action. The number one game in Europe for three months in a row.

When you buy Taito games you're getting more than just fun. We bring you games that test your nerve, your skill and your strategy. Games that make you laugh and put you on the edge of your seat, games of adventure and excitement. Taito takes you on incredible mind voyages to places you've never been before—to brave new worlds of imagination and fantasy. And after all, isn't that what great video games are all about?

And every action game we put our name on is more than just competitive confrontation. Taito games are all about the values of good triumphing over evil, of being the best you can be—games like Arkanoid™, Renegade™, Alcon™, Rastan™ and Bubble Bobble™. And we have more arcade block-busters like Operation Wolf™, Sky Shark™ and Gladiator™ coming soon to software formats for play on your home computer. Taito's home-bound hit parade of video fun has just begun.

Who but the arcade leader could bring you so much? That's Taito! Aren't you glad you asked?

Buy Taito products at leading computer stores everywhere. If no stores are near you, Visa/MasterCard holders can order direct from anywhere in the United States by calling 1-800-663-8067.



# NEWS AND NEW PRODUCTS

Make beautiful music, draw a blueprint of your dream home  
or win \$10,000.

Compiled by HAROLD R. BJORNSEN

## ELECTRONICS CHIP

MIAMI—A new microchip, called the ZR2, provides 12 different routines to be used in the electronics industry. Routines include ac and dc dimmers (allowing dims from fast to slow times), serial data manipulation (allows you to make your own simple modem and store data to tape), 16-channel decoder, a counter, four chase and zoning routines (which chase at different rates) and an 8-by-8 matrix. The ZR2 comes in a 40-pin chip, requires only +5 volts and needs one 4-MHz crystal and is 100 percent software compatible. It's available for the C-64 for \$35 from ALX Digital, 12265 S. Dixie Highway, Suite 922, Miami, FL 33156.

Check Reader Service number 400.

## SOLAR STAR

LAKE HOPATCONG, NJ—Solar Star, an arcade game for the C-64, puts you in command of the most advanced recovery craft ever designed. Your mission is to collect valuable crystals from 16 different solar grids, which are protected by a computer with deadly force. There are four separate display screens to give you a front-grid view, two scanners and a status screen. It's available for \$9.95 from Microdaft, 19 Harbor Drive, Lake Hopatcong, NJ 07849.

Check Reader Service number 410.

## \$\$\$\$\$ WIN \$10,000 \$\$\$\$\$

MIAMI—Mystery and intrigue, plus cash prizes, await the computer sleuths who solve the crimes on the luxury liner SS Bourgogne as she sails across the ocean in Murder on the Atlantic. From Intracorp (14160 SW 139th Court, Miami, FL 33186), this murder mystery is being launched with a prize giveaway valued at \$500,000.

Set in 1938, you must explore the ship's 600 salons and staterooms, seeking clues, decoding locks and messages, watching for booby-trapped rooms, locating the 40 suspects and taking their statements. The program comes with over 60 clues and 16 questions to answer



It takes logic, determination and skill to solve the mysteries in Intracorp's Murder on the Atlantic.

for entry in the prize giveaway: What is the significance of the button and the paper clip? Who was the woman who lost so much at the casino? Who kidnapped Wilhelm Reimann?

Every package of Murder on the Atlantic, available for the C-64 for \$34.95, includes an entry form for the contest, which runs through December 31, 1988. The software sleuth who submits the most correct answers will win the grand prize of \$10,000. An additional 2500 winners will each receive a software gift certificate from the company.

Check Reader Service number 409.

## THREE FROM SSI

MOUNTAIN VIEW, CA—Strategic Simulations (1046 N. Rengstorff Ave., Mountain View, CA 94043) has released three new games for the C-64.

First up is Questron II, a fantasy game, in which the only way to destroy the Evil Book of Magic is to prevent it from ever being created. And with these words from Mesron, the Great Wizard, you realize the adventure you thought had ended in Questron has only just begun. You're hurled back to the distant past, to a time before the Evil Book of Magic had been created by the six mad Sorcerors. You must find them and prevent the consummation of their abominable deed. \$39.95.

Next is Sons of Liberty, a Revolutionary War simulation. The game contains three battles (Bunker Hill, Monmouth and Saratoga), each increasing in com-

plexity and scale. In solitary play, the computer can direct either or both sides. \$34.95.

Finally, Panzer Strike!, a World War II simulation, covers three theatres: the Eastern Front, the Western Front (only those campaigns that do not involve American troops) and the North African campaign. You can simulate single battles or an entire campaign. And, you can create your own maps, troops and missions. \$44.95.

Check Reader Service number 402.

## THE SOUND OF COMMODORE MUSIC

SANTA MARIA, CA—The SFX Sound Expander, a menu-driven music generator, creates its own sounds, using the Yamaha FM synthesizer technology to produce nine different notes at one time, and each sound may be selected individually from a software library of 24 distinct instrument tones. These voices can be channeled to your monitor or hi-fi. Software options include normal or single-finger chord playing, octave transposes, ensemble on/off, chord memory and programmable split point. It's available for the C-64 for \$180.

An FM Composer and Sound Editor, available for \$45, complements the SFX Sound Expander to allow you to enter, edit and play back any piece of music that can be written in standard music notation. You can also modify note tempo, loudness, transpose, performance voice, key and detune, among

# PRICE & QUALITY

SUMMER SALE

## The Great Communicator

SUMMER SALE

THE DIRECT-CONNECT HAYES® AND COMMODORE® 1670 COMPATIBLE 1200 BAUD MODEM FOR ONLY \$74.95

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.

Almost all modems (and services) are set up to communicate in one or more of three speeds; 300, 1200 and 2400 Baud. Most computer users prefer 1200 Baud. (1200 Baud is about 4 times as fast as 300 which means you spend about 1/4 the time and money getting the data you want and more time enjoying it.)

2400's are great (but quite expensive). Most users can't justify the cost difference unless they do a large amount of modem work with a service that can handle 2400 baud.

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 usually foreign built and not truly Hayes® and Commodore 1670® compatible therefore not usable in all situations and with all services.

What is Hayes® compatibility? It's the industry standard and about all modem manufacturers have adopted the "AT" (Hayes) command set. Virtually all software being written now uses Hayes commands. Beware of those who don't.

Let's compare Minimodem-C™ with the 1670®

| Comparison of               | Minimodem-C™ vs. | 1670® vs.   | Avatec      |
|-----------------------------|------------------|-------------|-------------|
| Hayes® Compatibility?       | 100%             | Subset Only | Subset Only |
| Commodore Direct Connect?   | Yes              | Yes         | No          |
| Number of Status Indicators | 7                | 0           | 8           |
| Busy Detect?                | Yes              | No          | No          |
| DTR Signal Support?         | Yes              | No          | Yes         |
| High Speed Detect Line?     | Yes              | No          | No          |
| Number of DIP Switches      | 8                | 3           | 8           |
| Number of Status Registers  | 16               | 3           | ?           |
| Guarantee                   | 1 yr.            | 90 days     | ?           |

Now you have the FACTS to make an informed decision.

**What do you get for \$74.95?** Everything! You don't need to worry about cables, compatibility or anything else! 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 Minimodem-C™ is a full feature, 300/1200 Baud modem with Auto Answer, Auto Dial, Touch-Tone or rotary dialing, has status indicators and a built-in speaker. Just plug it into your computer and standard phone jack with the attached cable. Minimodem-C™ is supplied with "Multiterm" 64 and 128, and a free trial subscription to Compuserve.



Do you have more than one computer or do you plan to get another computer? We have your solution. Simply order our 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 with your Commodore. Aprotek Minimodem's are tiny. Only 4 3/4" long, 2 3/4" wide and 3/4" high. Our highly integrated, state-of-the-art circuitry makes this modem a Best Buy.

**Built with pride in the USA and fully guaranteed for 1 year. Order yours today!**

### NO RISK POLICY

Try any Aprotek product for two weeks. If you are not satisfied, call us then send it back for a prompt refund.

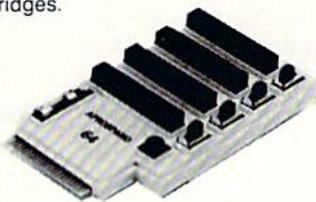
### NOW FOR THE BEST PART, THE PRICE!

| Order - | Item                    | Qty | Price | Shipping | Total |
|---------|-------------------------|-----|-------|----------|-------|
| 6212    | MINIMODEM-C (Commodore) | —   | 74.95 | —        | —     |
| 6214    | MINIMODEM-H (RS-232)*   | —   | 84.95 | —        | —     |
| 6216    | MINIMODEM-AM (Amiga)*   | —   | 84.95 | —        | —     |

www.SpecificManufacturer.com  
 \*Modem requires a separate phone line. Gen. US \$6.00; UPS Blue, CAN, AK, HI, APO \$10.00

**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 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

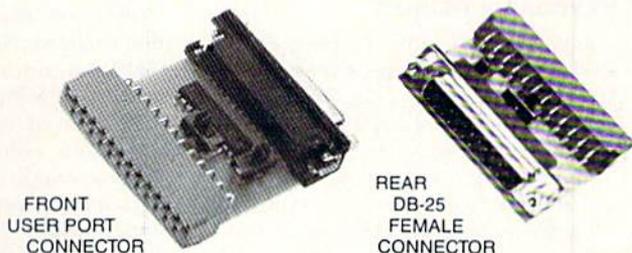
### UNIVERSAL RS-232 INTERFACE

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. Comes complete with sample driver program listings. Compatible with all Commodore home computers with a USER port. 1-year warranty. Order #5232.



**"COM-MODEM" ADAPTER** — Used only with 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).



FRONT USER PORT CONNECTOR

REAR DB-25 FEMALE CONNECTOR

Order #5100 ..... \$19.95 + S&H

**"USER EXTENDER"** — 10" Ribbon cable extender for your Commodore USER port. Order #5250 ..... \$21.95 + S&H

Com 6 Pin Serial Cable (5ft) #3006-5MM \$9.95, (8ft) #3006-8MM \$11.95  
 Commodore Serial Ext. (5ft) #3006-5MF \$9.95, (8ft) #3006-8MF \$11.95

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 info and order status call 805/987-2454 (8-5 PST)

TO ORDER CALL TOLL FREE

800-962-5800 - USA, 800-962-3800 - CA (7-6 PST)

Or send order to:



Dept. RN  
 1071-A Avenida Acaso  
 Camarillo, CA 93010

## NEW PRODUCTS

others. Fearn & Music, 519 W. Taylor #114, Santa Maria, CA 93454.

Check Reader Service number 403.

### THIS

PLACENTIA, CA—The Technological Highbred Integrated System (THIS), version 2.0, is a C-128 drawing system that can produce a simple doodle or a sophisticated blueprint. A resolution of 960-by-536 dots per drawing page increases the detail that can be added. THIS prints a complete drawing to scale within  $\frac{1}{64}$  of an inch, and printouts can range in size from 2-by-2 to 480-by-321 inches.

In addition, the program provides real-time object rotation and move; real-time cut, copy, paste and zoom; a graphics library containing over 100 detailed electronics symbols; and over 700 type sizes and ten font styles. Applications include mechanical blueprints, architectural drawings, flow charts, pattern designs in carpentry, clothing, stained glass, artwork and graphs.

The program comes with a 1351 mouse and DT-170 light-pen drivers. The light pen is available separately for \$99. THIS is available from Micro Aided Designs (PO Box 1982, Placentia, CA 92670) for \$63.99.

Check Reader Service number 404.

### KEYBOARD PECKER

ROME, GA—Typing Teacher, for the C-64 from Future Age Computers (3 McCrary Drive SW, Rome, GA 30161), is designed for beginning and expert typists. The 16 lessons on the disk have color-coded keyboard drills that show which finger to use and will even flash the key to help you find it quickly. When you have learned the key locations, a timed practice for each lesson shows you

how you're progressing. Lesson 16 reviews all keys and also provides 118 narrative tests that can be used to evaluate your developing typing skills. You can even type in new narrative tests. It's available for \$29.95.

Check Reader Service number 405.

### USE A COMPUTER? EXPECT A MALFUNCTION SOON!

CENTERPORT, NY—If you own or use a personal computer, you can expect it to malfunction in the next 12 months, according to a recent study conducted by Business Products Consulting Group, an international management consulting firm specializing in market research.

"We were a bit surprised when some of the statistics came through the wash," said the firm's Senior Research Analyst, Jim Tsivitis. "The most startling figure was a failure rate of 69.5 percent among those polled. That figure is considerably higher than most manufacturers would have you believe.

"Furthermore, we found that each system requiring a repair needed an average of 1.47 repairs per year, or nearly three repairs for every two units serviced. That's a lot of failure for such a relatively new capital investment."

### TEST YOUR NINJA SKILLS

GREENSBURG, PA—Paragon Software (600 Rugh St., Suite A, Greensburg, PA 15601) has released the C-64 version of Master Ninja: Shadow Warrior of Death, an animated martial arts adventure game. You assume the identity of the warrior sent on a quest to recover a precious magic sword stolen by an evil Japanese warlord. You must guide the ninja through more than 25 chambers of the warlord's castle, battling evil ninja war-

riors, Samurai guards, mystic ninja priests, black magic curses and deadly tigers. You call upon your martial arts skills and ninja weapons to kill your opponents, recapture the magic sword and assassinate the warlord. It's available for \$29.95.

Check Reader Service number 401.

### GRUNTS

SAN JOSE, CA—Data East USA (470 Needles Drive, San Jose, CA 95112) has released the C-64 version of Platoon, a strategic military combat simulation based on the movie of the same title. And, as in the movie, there are no winners. Instead, you parallel the movie experience in various steps with the object of trying to have your platoon of five men survive the missions, keep their sanity and morale intact, and return to base safely. The simulation consists of six sections, each presenting an increasingly arduous situation, from leading your platoon safely through the jungle to finding flares and a compass in an underground tunnel network. It's available for \$29.95.

Check Reader Service number 411.

### GEOS 2.0 IS LOADED!

BERKELEY, CA—Berkeley Softworks (2150 Shattuck Ave., Berkeley, CA 94704) has introduced an enhanced version of GEOS that includes geoSpell and geoWrite Workshop, as well as a redesigned operating system and deskTop. GEOS 2.0 also possesses an improved geoPaint, geoMerge, Text Grabber and a self-running demonstration program of the other GEOS applications.

Berkeley Chairman Brian Dougherty feels that the new package lays to rest rumors of lack of attention to the Commodore market. "We wanted to give C-64 owners the same ease of use Macintosh owners enjoyed," he said. According to Dougherty, GEOS 2.0 "is the result of two years of refinement to the GEOS operating system, extensive user research and customer-service feedback."

For \$29.95, GEOS users can upgrade to the new version or purchase the GEOS 2.0 package for \$59.95.

Berkeley also announced at CES in Chicago a \$20 price reduction (to \$49.95) for geoPublish.

In addition, Berkeley revealed a new bundling arrangement with Commodore. Commodore disk drive buyers will receive the GEOS operating system Kernel and deskTop V1.5; the GEOS 1.2 package, which includes geoPaint and

Future Age Computers' Typing Teacher lets you practice your typing skills on the standard, Dvorak and C-64 keyboards.



## NEW PRODUCTS

geoWrite, will no longer be bundled with the base unit.

Check Reader Service number 412.

### GERMAN AGENCY RESCINDS BAN ON SILENT SERVICE

COLOGNE, WEST GERMANY—Silent Service, MicroProse Software's computer simulation of WWII submarine combat, is again on sale in West Germany after the German Federal Office for Examination of Harmful Publications (BPS) lifted its ban less than 24 hours before a scheduled hearing in the Administrative Court of Cologne on the company's claim that the government agency's procedures in the case have been inadequate under German law.

The ban, imposed in February 1987, prohibited advertising Silent Service in any medium or selling it in any retail establishment that does not have an adults-only entrance.

Fred Schmidt, MicroProse Director of Marketing and Communication, has been coordinating his firm's defense against the agency. He said that as far as

he and his German attorneys know, the agency's reversal of its ban is "totally unprecedented." Schmidt also said that MicroProse's next move has not yet been determined. "Once we see how the BPS explains its turnaround, we'll know better how to proceed," he said.

### FOUR GAMES FOR HALF THE PRICE

LAGRANGE, IL—Free Spirit Software (905 West Hillgrove, Suite 6, LaGrange, IL 60525) has released Moffatt's Adventure Disk #2, a collection of four text adventures on one disk for the C-64.

In Temporal, a hit on the head with a brick plunges you into a surrealistic world, which you must wander through to find your way back to reality.

In West, you arrive as a stranger in an Old West town, where you are deputized by the sheriff and sent out to capture the notorious outlaw, Black Bart.

In Death Valley, you are stranded in the desert without food or water, and, using survival techniques, you must find your way to safety.

In The Lighthouse, a group of spies has set up headquarters on a remote island, and you are sent on a mission to capture them.

Moffitt's Adventure Disk #2 is available for \$19.95.

Check Reader Service number 407.

### PLUG-IN MODEM

ADDISON, IL—The TCM-1200H-Jr Hayes-compatible cartridge modem for the C-64 and C-128 is housed in a small case and features auto-answer, auto-dial and auto-baud select. It has an internal speaker with volume control and over 60 AT commands are available. The 4 3/4 x 2 3/4 x 3/4-inch modem plugs into the user port and requires no RS-232 interface or power supply. Both Bell 212A and the CCITT V.22 standard are supported, making it usable all over the world. The package includes software and a two-year warranty. It's available for \$89.95 from Trans Com, 703 Annonero Drive, Suite 13, Addison, IL 60101.

Check Reader Service number 408. ■

## PART 4

### "Find Red Square" Contest!

Find Red Square in Moscow and enter to win a real trip for two to Europe, courtesy of SubLOGIC and TWA! See the SubLOGIC Product Chart at your dealer or write SubLOGIC for complete details and contest rules.

**TWA**

## "WESTERN EUROPEAN TOUR"

Scenery Disk is so beautiful to fly, you'll want to make it the centerpiece of your Scenery Disk collection! This is part four of a five-part guided tour from London to Red Square.

This month we continue our tour of Germany. Flying over Frankfurt at night can be a harrowing experience. Here we have a close encounter with a telecommunications tower.

Next stop, Stuttgart! We must approach the city carefully, avoiding the mountain ranges on both sides of our flight path.

Next month - on to Moscow!



**subLOGIC**  
Corporation  
501 Kenyon Road  
Champaign, IL 61820  
(217) 359-8482 Telex: 206095  
ORDER LINE: (800) 637-4983

# MAIL RUN

*A reader makes new friends, an Okidata user is delighted and some C-128 owners get mad.*

## Q-LINK CORRECTION

Your comparison of Q-Link with GENie (Telecomputing Workshop, May 1988) was informative, but I'm sure Q-Link will have corrected you before you get my letter. You say "...you must buy their software unless you get it free with GEOS or a Commodore modem." On page 17 of the same issue, Q-Link has two offers. You can get their software free with the purchase of one month's service or receive a gift of both the software and a 300-baud Commodore 1660 auto-dial modem with the purchase of four months' service.

—LARRY D. BORSHARD  
PARSIPPANY, NJ

*Darn it! We missed that one. Thanks for pointing it out, Larry.*

—EDITORS

## WHY SO LITTLE C-128 SUPPORT?

In reference to the April RUNning Ruminations about the winter CES in Las Vegas, Technical Editor Tim Walsh asked, "Why so little C-128 support?" I've also asked this question. One thing I suggest we 128 owners do is write to the software companies and let them know how we feel. If our protest is large enough, maybe they'll seriously consider releasing 128-specific entertainment software.

I'm glad to see that Infocom is supporting the 128 with programs like Beyond Zork 128. It reminds me of when I first bought my 64 and Zork I. It seemed like there was nothing for my 64, then—boom!—the rest is history. But for now, all I can suggest is to write to the software developers and howl for C-128 support. I know I will.

—BRENT LONG  
BERNE, IN

## MY 40/80 KEY STAYS DOWN!

I'm sure I speak for many C-128 owners who are angry and dismayed by the

failure of software companies to publish serious software for our chosen machine. Perhaps their reasoning is: "There are eight or ten times as many C-64s as there are C-128s; all C-64 software will run on the C-128; therefore, write for the C-64 and all can run it." They fail to consider that they are asking us to disable a very significant part of our very superior machine to run their product. We don't like that!

We 128-ers have several options: band together and assert our strength in numbers, rely on European software, make more use of the CP/M mode or give up and use some other brand of computer.

As for me, I do not own and will not buy any C-64 software. Moreover, the 40/80 display key on my 128 stays in the "down" position!

—JESSE E. SHERWOOD  
MARTIN, TN

## COME DOWN FROM YOUR MOUNTAIN, COMMODORE!

I'm a happy C-128 owner, but Commodore seems a little mortified about their own product. They hardly ever advertise it, and programs for it are hard to find.

Commodore appears to be completely ignoring the C-128, and C-64 owners can breathe easily only because of their numbers. If history is any guide, I'd advise Amiga users to be vigilant: Their machines are only one generation of computer away from being put out to pasture. Remember the SX-64, the Plus/4, the C-16?

It's my belief that Commodore will have to come down from its mountain-top and open up to its customers if it wants to enjoy ongoing relationships.

—NORMAN MORRISON  
OXFORD, AL

## WHAT A DELIGHT!

When my husband and I upgraded to the Okidata 180, we were delighted with its speed, modes and pitches, but not happy with the graphics generated in

Commodore mode. We decided to set the 180's dip switches to Epsom emulation and connect the 180 to our G-Wiz interface. A call to Okidata confirmed my idea that it would not be harmful to the printer. And, wow! What excellent eight-pin graphics!

Then we purchased a Xetec Super Graphix interface to replace our old G-Wiz. We simply couldn't be happier with the graphics and haven't hesitated to discuss it with other people. In fact, another member of our user's group has also purchased the Okidata 180 along with the Xetec Super Graphix interface, and she seems equally delighted.

—HELEN SLABAUGH  
SEATTLE, WA

## COMMODORE CAMARADERIE

Ever since you published my letter in the October 1987 Mail RUN, I have had many letters from fellow Commodore users in the U.S. and a few phone calls from readers in the U.K. I now regularly write to some of them about Commodore computers and other matters. I've helped one of your Virginian readers trace his ancestral home in this country. Lucky enough, it was only 20-odd miles from here and very well known. There seems to be a camaraderie amongst C-64/128 users that knows no barriers of country or class. I have made more friends through my computers than I did in many years of being the president of a local club.

—DAVID PEACOCK  
FLEETWOOD, LANCS.  
ENGLAND

## MAIL RESPONSE

I read Frederick O. Smith's letter (Mail RUN, February 1988) about the military being charged double for postage, and I believe I can throw some light on the matter.

I work in the shipping department of Surfside Components International, in Capitola, California. We ship orders UPS unless the address is an APO or FPO number, to which UPS will not de-

liver. In such cases, I must make a special trip to the post office to mail the order.

Also, special packaging and care are needed when shipping to military addresses. Since a box of delicate equipment might drop 50 feet from a helicopter onto an aircraft carrier, it needs to be repackaged in a bigger box with more packing to absorb the impact. All this costs more money.

—DAVID ENGLISH  
CAPITOLA, CA

### CARDCO INTERFACE WANTED

I use C-128s to run my brain research experiments here at Northwestern University. I've been using the old Cardco type A (parallel) interfaces to dump my ultra hi-res (640 x 200) graphics presentations of brain waves to my Epson MX-80 printers. Unfortunately, my lab was recently burglarized, and the crooks took the interfaces. Does anyone know of a source of these old interfaces, since Cardco has gone out of business?

J. P. ROSENFELD, PHD  
DEPT. OF PSYCHOLOGY  
102 SWIFT HALL  
NORTHWESTERN UNIVERSITY  
EVANSTON, IL 60208

*Supra Corp. (1133 Commercial Way, Albany, OR 97321; phone 503-967-9075) has acquired the Cardco inventory, and should be able to provide the interface you need.*

—EDITORS

### MISSION ACCOMPLISHED

I'm writing to you because I got the Congressional Medal of Honor on MicroProse's Project: Stealth Fighter. I had a heck of a time getting it because I had to hit ten additional targets plus shoot down five airplanes all in the same mission. My total score was 2500 and had a stealth percentage of 29.

—TODD WYDRA  
ALBUQUERQUE, NM

*We'd also like to add Malcolm Harris of Fort Bragg, North Carolina, to the list of play-*

[www.commodore.ca](http://www.commodore.ca)  
May Not Reprint Without Permission

*ers who've earned the Congressional Medal of Honor. Congratulations to you both.*

—EDITORS

### MICE OR MOUSES?

What is the plural of mouse? My mother says mice. I say mouses. I don't think the rules of grammar apply here, since the word has a different meaning. Who's right?

—ROBERT T. KLACE  
MIAMI, FL

*Listen to your mother, Bobby. Actually, the plural of mouse is mouse input devices (according to our editor-in-chief), or mice (according to our technical people and Webster's Ninth New Collegiate Dictionary, 1984 edition), or mouses (according to this editor). And Barron's Dictionary of Computer Terms and other published sources carefully avoid using the plural altogether. We guess it's just personal preference. Readers, what do you think?*

—EDITORS

### RERUNNING RUMINATIONS

Your commentary in RUNning Ruminations (April 1988) touched a responsive chord in my heart and my pocketbook. At age 84, I've been privileged to watch the early airship and plane flights and then use this mode for almost a million miles of business travel. I drove noisy one-lungers over dusty roads and saw the automobile transformed from a luxury into a universal method of transportation.

Several years ago, convinced that the computer age was arriving, I purchased a C-64, since it appeared to be the Model T of its generation. But I was somewhat appalled by its complexity and the paucity of instructional material. Some Commodore books did help me to understand some of the fundamentals, but I decided that the computer industry had not provided the universal problem solver for the American family.

The general-purpose computer, now described as a personal machine, will enter into the life of most families only

when, as happened with air travel and automobiles, it is generally affordable, easy to use and provided with adequate service.

—CHARLES W. SEAGER  
BREVARD, NC

### TO SAVE-WITH-REPLACE OR NOT TO SAVE-WITH-REPLACE?

When that bug bites/In your disk drive,/And your files/Start to spread;/ Just a routine in the ROM chip;/A design flaw,/Or so I've read./If your syntax/Is kinda shaky,/And you don't use/SAVE at zero;/Just a schizoid/ROM routine, babe,/Cos it's snatched/From a 4040. (Sung to the tune of "Mack The Knife".)

Seriously, though, I'm going to eliminate the confusion over the SAVE@ bug and Eric R. Pickell's error once and for all.

SAVE"@FILENAME",8 (the syntax used by Eric) will create a file named "@FILENAME", just the same as SAVE"#:FILENAME",8 will create a file named "#FILENAME". Nothing on the disk gets replaced.

SAVE"@:FILENAME",8 replaces a file. However, it also stirs up the hornets' nest and leaves you open to the Bug Bite.

SAVE"@0:FILENAME",8 is the bug-proof syntax that safely replaces a file with the new version. Even Commodore has attested to this method.

—DEAN R. KAZMIERCZAK  
NORTH TONAWANDA, NY

*"Once and for all"? Well, maybe. Thanks for the little ditty you wrote (with apologies to Kurt Weill, et al).*

—EDITORS

### 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. ■*

# DON'T SETTLE FOR LESS...

## COMMODORE 64C



\$149.95

1541II DISK DRIVE .....\$169.95  
1802C MONITOR .....\$189.00

64C w/1541II Drive .....\$309  
1802C with either package .....\$184

## COMMODORE 128D



\$439

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

128D w/1084 Monitor .....\$719  
128D w/Samsung RGB Monitor .....\$638

## COMMODORE AMIGA

FOR ALL YOUR AMIGA NEEDS ...  
**CALL tcp**

512K RAM Upgrade ..... \$159  
1010 EXT DRIVE .....\$219  
1680 MODEM .....\$139

# TUSSEY'S SPECIAL PACKAGES

## GAME GALLERY

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



**ACCESS**  
Echelon .....\$27.95  
Leader Board .....\$22.95  
Leader Board Tourn. Disk \$13.95

**ACCOLADE**  
Apollo 18 .....\$19.95  
Comics .....\$19.95  
4th & Inches .....\$19.95  
Hard Ball .....\$19.95  
Killed Until Dead .....\$12.95  
Miniputt .....\$19.95  
Test Drive .....\$19.95

**ACTIONSOF**  
Thunder Chopper .....\$19.95  
Up Periscope .....\$17.95

**ACTIVISION**  
ENTERTAINMENT SOFTWARE

Air Rally .....\$19.95  
Aliens .....\$22.95  
Gamemaker Package  
with all Libraries .....\$39.95  
Last Ninja .....\$22.95  
Maniac Mansion .....\$24.95  
Music Studio .....\$19.95  
Shanghai .....\$19.95

**AVALON HILL**  
NBA .....\$27.95

**BRODERBUND**  
Lode Runner .....\$22.95  
Moebius .....\$27.95  
Superbike Challenge .....\$14.95  
Ultima V .....\$39.95

**CINEMAWARE**  
Defender of the Crown .....\$22.95  
King of Chicago .....\$32.95  
SDI .....\$27.95  
The Three Stooges .....\$27.95

**COSMI**  
Def Con 5 .....\$17.95

**DATA EAST**  
Commando .....\$14.95  
Karate Champ .....\$14.95  
Kid Niki .....\$19.95  
Platoon .....\$19.95  
Speed Buggy .....\$17.95



Alt Reality/Dungeon .....\$27.95  
Hunt For Red October .....\$27.95  
Video Title Shop .....\$19.95

**Digital Solutions Inc.**

Pocket Writer 2 .....\$39.95  
Pocket Filer 2 .....\$37.95  
Pocket Planner 2 .....\$37.95  
Digital Superpak .....\$64.95  
Dictionary .....\$12.95

**ELECTRONIC ARTS**

Bard's Tale .....\$24.95  
Bard's Tale II .....\$27.95  
Bard's Tale III .....\$24.95  
Chessmaster 2000 .....\$26.95  
Demon Stalkers .....\$19.95  
Dragon's Lair .....\$19.95  
EOS(Erth Orbit Sta'n) \$19.95  
with all Libraries .....\$22.95  
Legacy of the Ancients \$19.95  
Marble Madness .....\$19.95  
Master Ninja .....\$24.95  
Monopoly .....\$24.95  
Outrageous Pages .....\$34.95  
PHM Pegasus .....\$19.95  
Roadwars .....\$24.95  
Rockford .....\$22.95  
Skate or Die .....\$19.95  
Sky Fox II .....\$19.95  
Strike Fleet .....\$19.95  
Wasteland .....\$CALL  
World Tour Golf .....\$19.95  
Yeager AFT .....\$24.95

**EPYX**

500 XJ Joystick .....\$14.95  
California Games .....\$24.95  
Championship Wrestling \$14.95  
Create a Calendar .....\$17.95  
Destroyer .....\$22.95  
4x4 Off-Road Racing .....\$24.95  
Impossible Mission .....\$24.95  
L. A. Crackdown .....\$24.95  
Movie Monster .....\$12.95  
Street Sports Baseball \$24.95  
St Sports Basketball .....\$24.95  
Street Sports Soccer .....\$24.95  
Sub Battle .....\$22.95  
Summer Games .....\$14.95  
Summer Games II .....\$14.95  
Winter Games .....\$14.95  
World Games .....\$24.95

**FIREBIRD**  
Elite .....\$17.95  
Guild of Thieves .....\$22.95  
Knight ORC .....\$24.95  
Star Glider .....\$24.95  
The Sentry .....\$24.95

**GAMESTAR**

Championship Football .....\$24.95  
GBA Basketball 2 on 2 .....\$22.95  
Top Fuel Eliminator .....\$17.95

**INFOCOM**  
Beyond Zork .....\$26.95  
Hitchhiker's Guide .....\$14.95

**LANCE HAFNER** for the best in sports strategy simulation

3 in 1 Football .....\$29.95  
Bkball, the Pro Game .....\$29.95  
Final Four Basketball .....\$29.95  
Full Count Baseball .....\$29.95

**MICROLEAGUE**  
Baseball .....\$24.95  
Wrestling .....\$19.95

**MICRO PROSE**

Airborne Rangers .....\$24.95  
F-15 Strike Eagle .....\$21.95  
Gunship .....\$21.95  
Kennedy Approach .....\$14.95  
NATO Commander .....\$22.95  
Pirates .....\$23.95  
Silent Service .....\$21.95  
Solo Flight .....\$14.95  
Stealth Fighter .....\$24.95

### 64C BUSINESS AND PRODUCTIVITY

**64C DATABASES**  
Bank Street Filer .....\$24.95  
Data Manager II .....\$19.95

**64C INTEGRATED PKGS**  
Vizastar 64 4K .....\$24.95

**64C SPREADSHEETS**  
Swiftcalc 64 w/sideways ..\$17.95  
Sideways .....\$14.95

**64C WORD PROCESSORS**  
Bank Street Writer .....\$29.95  
Font Master II .....\$29.95  
Paperclip w/spellpack .....\$32.95  
Paperclip III .....\$39.95  
Pocket Writer Dictionary ..\$12.95  
Word Writer III .....\$34.95

**MINDSCAPE**  
Gauntlet .....\$24.95  
Indoor Sports .....\$19.95  
Infiltrator II .....\$19.95  
Paperboy .....\$22.95  
Perfect Score:SAT prep ...\$44.95  
Superstar Hockey .....\$22.95

**SIMON & SHUSTER**  
Star Trek: Promethian Adv \$24.95  
Typing Tutor IV .....\$24.95

**SPECTRUM HOLOBYTE**  
Falcon .....\$22.95  
Intrigue .....\$19.95  
PT 109 .....\$24.95  
Soko Ban .....\$17.95

**SOFTWARE SIMULAT'NS**  
Football .....\$19.95  
Pure Stat Baseball .....\$24.95  
Pure Stat College BB .....\$24.95

**SSI**  
Advanced Dungeon & Dragons .....\$24.95  
B-24 .....\$22.95  
Eternal Dagger .....\$24.95  
Phantasia I, III (each) .....\$24.95  
Rings of Zilfin .....\$24.95  
Roadwar Europa .....\$24.95  
Shard of Spring .....\$24.95  
Wargame Const Set .....\$19.95

**SUBLOGIC**  
Flight Simulator II .....\$32.95  
Jet .....\$27.95  
Stealth Mission .....\$34.95

**FINANCIAL & ACCT.**  
Timewks Electr. Checkbk ..\$17.95  
Timeworks Money Mgr .....\$17.95  
CMS Acct Pkg/64 .....\$119.95

**MISC. HARDWARE**  
Estes pwr supply for C-64 \$54.95  
Naverone 3 Slot expdr ...\$24.95

**UTILITIES**  
Thinking Cap .....\$24.95  
Toy Shop .....\$24.95  
Copy II 64/128 .....\$24.00  
Fast Load .....\$24.95  
Bobs Term Pro .....\$32.95

**WICO JOYSTICKS**

The Boss .....\$12.95  
Bat Handle .....\$17.95  
3-Way .....\$22.95

## COMMODORE 128 SOFTWARE

**WORD PROCESSORS**  
Fleet System 4 .....\$49.95  
Font Master 128 .....\$39.95  
Paperclip II .....\$54.95  
Paperclip III .....\$39.95  
Superscript 128 .....\$44.95  
Term Paper Writer .....\$29.95  
Wrdwriter 128 w/spell ..\$34.95

**SPREADSHEETS**  
Swiftcalc 128 w/sdwys \$39.95

**DATA BASES**  
Data Manager 128 .....\$34.95  
Perfect Filer .....\$44.95  
Superbase 128 .....\$49.95

**MISC. 128 SOFTWARE**  
Accountant Inc .....\$59.95  
CMS Acct Pkg/128 .....\$124.95  
Mach 128 .....\$34.95  
Partner 128 .....\$39.95  
Sylvia Porter's Personal Finance Planner .....\$44.95

## GRAPHICS CORNER

**Batteries Included**  
Paperclip Publisher .....\$39.95

**Berkeley Softworks**  
GEO Publish .....\$44.95

**Broderbund**  
Graphics Library I, II or III ..\$16.95  
Print Shop .....\$25.95

**Electronics Arts**  
Outrageous Pages .....\$34.95

**Springboard**  
Certificate Maker .....\$29.95  
Clip Art I or III .....\$19.95  
Newsroom .....\$19.95

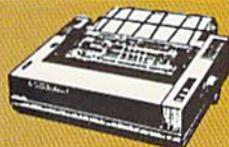
**Timeworks**  
Desktop Publisher .....\$39.95  
Unison World  
Printmaster Plus .....\$24.95

# tcp TUSSEY COMPUTER PRODUCTS

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

# ...tcp SHIPS IT

## PRINTERS



### Panasonic

Office Automation  
2 yr warranty  
1080iII .... \$164.95  
1091iII .... \$199.00  
1092i ..... \$319.00



**star**  
MICROGRAPHICS, INC.  
NX-1000  
(144 draft/36 NLQ) ... \$169.95  
NX 1000 Rainbow  
(color printer) ..... \$229.95  
NX-1000C  
(Commodore Interface) \$174.95  
NX-1000C Rainbow  
(Commodore Interface/  
Color Printer) ..... \$229.95

### SEIKOSHA



2 yr warranty  
SP-180 VC .... \$139.00  
SP-1200 VC .... \$CALL  
SP-1200 AI ... \$169.00  
120cps, NLQ Mode

### CITIZEN



120D ..... \$169.95  
180D ..... \$CALL  
MSP-40 ..... \$319.95  
Tribute 224 ..... \$679.95

### OKIDATA 180

**\$229**  
■ Built in COMMODORE®  
and EPSON® interface  
■ 180 CPS Print Speed  
Call For Other Okidata Printers



## FOR ALL YOUR AMIGA NEEDS ... CALL tcp

### 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

|                            |         |                         |         |
|----------------------------|---------|-------------------------|---------|
| 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.....     | \$32.95 |
| Chessmaster 2000.....      | \$29.95 | 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.....   | \$32.95 | Starfleet I.....        | \$39.95 |
| Flight Simulator II.....   | \$39.95 | Univited.....           | \$29.95 |
| Halley Project.....        | \$29.95 |                         |         |

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

## NEW LOWER PRICES !!

### SUPER GRAPHIX JR

Printer Interface ..... \$32.95  
w/Printer from Tussey ..... \$29.95

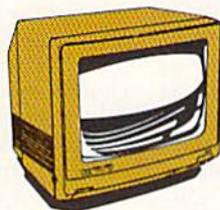
### SUPER GRAPHIX

Interface w/BK buffer  
down loadable fonts ..... \$54.95  
w/Printer from Tussey ..... \$49.95

SUPER GRAPHIX GOLD ..... \$94.95  
w/Printer from Tussey ..... \$84.95



### 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, 1 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



### GEO PUBLISH (64/128) ..... \$44.95

|                    |         |                |         |
|--------------------|---------|----------------|---------|
| GEOS 128.....      | \$44.95 | GEOS.....      | \$36.95 |
| Geo Calc 128.....  | \$44.95 | Geo Calc.....  | \$31.95 |
| Geo File 128.....  | \$44.95 | Geo File.....  | \$31.95 |
| Geo Programmer ..  | \$47.95 | Geodex.....    | \$24.95 |
| Geo Publish.....   | \$44.95 | Deskpack.....  | \$21.95 |
| Geo Write 128..... | \$44.95 | Fontpack.....  | \$19.95 |
| Geo Spell.....     | \$22.95 | Geo Write..... | \$31.95 |

# FEDERAL EXPRESS

Software orders over \$100 and Accessories under 6 pounds will be shipped Federal Express

(Even at these prices) You only pay TCP's standard shipping charge of \$4.00 per order. 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 FOR ALL HARDWARE AND ANY ACCESSORY OVER 6lbs. Call our Toll Free Number 1-800-468-9044 for shipping charges. Add \$3.00 per box shipped COD. Additional shipping required on APO, FPO, AK, HI, and foreign orders. Terms: 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.

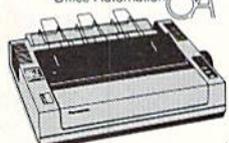


### RGB MONITOR

- 14" Anti-Glare Screen
- 640 x 240 Resolution
- Tilt/Swivel

only \$219

### Panasonic



1080iII Printer  
■ 144 cps (draft)  
■ NLQ Mode  
■ 2 yr Warranty

\$164.95

### COMMODORE

1670  
MODEM  
\$79

### COMMODORE

1764  
256K RAM  
EXPANSION  
\$119

### COMMODORE

1581  
3 1/2" DISK DRIVE  
\$197

### CMS

ACCOUNTING SYSTEMS  
Pkg. Price for all Modules:  
C128 version ..... \$124.95  
C64 version ..... \$119.95

### DISK-KOUNTS

per box of 10 3.5" 5.25"  
BONUS DS DD \$16.95 \$8.95  
MAXELL DS DD \$17.95 \$9.95  
VERBATIM DS DD \$19.95 \$9.95  
SONY DS DD \$16.95 \$8.95

Regular Hrs: 8:00AM-9:00PM Mon-Fri, 10:00AM-6:00PM Sat, 12:00PM-8:00PM EST

# CALL TOLL FREE 1-800-468-9044

FOR INFORMATION CALL 814-234-2236 FAX: 814-237-4450

# SOFTWARE GALLERY

Head back to school with mystery and intrigue, sports for two seasons and desktop publishing.

Compiled by BETH S. JALA

## THE THREE STOOGES ..... A

*Nyuk, Nyuk!*

*Hey, Wise Guy!*

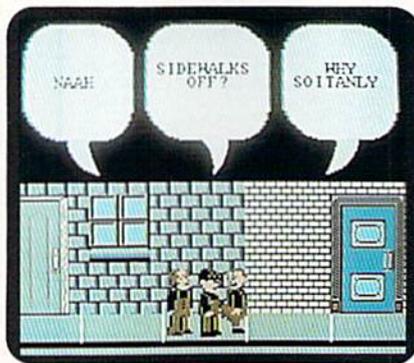
They've suffered through periods of greatly decreased popularity. Critics have said that they have no artistic merit. Moral leaders have claimed that they corrupt our youth.

All of these comments apply not only to The Three Stooges comedy team, but also to computer games. Thus, it is fitting that these two cultural phenomena should come together in The Three Stooges game for the C-64.

The software's plot centers around an orphanage. An evil banker plans to foreclose its mortgage unless Moe, Larry and Curly earn \$5000 in 30 days. An additional \$2500 will repair the building, and, if the boys are even more successful, they'll get to marry the beautiful daughters of the orphanage's owner.

A day's activities for our heroes begin at a map of Stoogetown. Moe's fingers move rapidly over representations of six items and locations, which vary with each round of play. Pressing the joystick button stops the hand to select one of the images, one of which is a mousetrap, which catches Moe's fingers. Landing on these images five times automatically ends the game. However, another map symbol offers a way of avoiding these hazards. If the hand picks a slapping contest square, the game faithfully reproduces the trio's most famous routine. As Moe stands between his two partners, he tries to punch, slap, poke and kick them as often as possible. If he succeeds, his fingers move more slowly on future map screens, allowing the player to more easily select a desirable image. If he misses or if Curly or Larry hit him, Moe's hand moves more quickly.

Different map symbols lead to other "shticks," which have been converted into money-producing arcade sequences. For example, the game has copied Curly's memorable encounter with a soup bowl's attack oyster. There's also a



Hey Moe, Larry and Curly: what are you doing on my Commodore?

chance to see "Pop Goes the Weasel" make a prizefighting Curly go berserk; and, of course, there's ample opportunity to engage in pie fights.

Other map pictures result in less frantic activities, such as trivia tests. Solutions to these quizzes can be found in an illustrated booklet, which serves both as an instruction manual and as a history of and tribute to the three buffoons.

The software's graphics live up to Cinemaware's stellar reputation, as does its animation. The sound is also superb, with lively background themes and speech-synthesized exclamations providing much of the game's zany atmosphere.

Fortunately, the loading of these sensory effects does not delay the action. However, the frequent switching of the game's two disks can become a minor annoyance.

The Three Stooges is not for all C-64 owners, and some will pass it up for more sophisticated entertainment. But for the millions who laugh whenever they hear "nyuk, nyuk" or "soitently," Cinemaware's well-crafted program should be an irresistible product. (Cinemaware, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362. C-64/ \$34.95.)

—WALT LATOCHA  
OAK PARK, IL

## PAPERCLIP PUBLISHER .... A

*Another Star for*

*C-64 Desktop Publishing*

I continue to marvel at the productivity software coming on the market for the humble C-64. PaperClip Publisher is easy to learn, yet versatile enough to accomplish professional results. The program includes a text and graphics editor, as well as utilities to import graphics and text files from a number of other programs.

The What-You-See-Is-What-You-Get ▶

### 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 wins my vote for *Adventure Game of the Year*."  
-William "Biff" Kritzen, *Computer Gaming World*

# HOT. MEAN. RADIO- ACTIVE.

**AUGUST 20, 2087**

Nothing could be worse than this god-forsaken, radioactive desert.

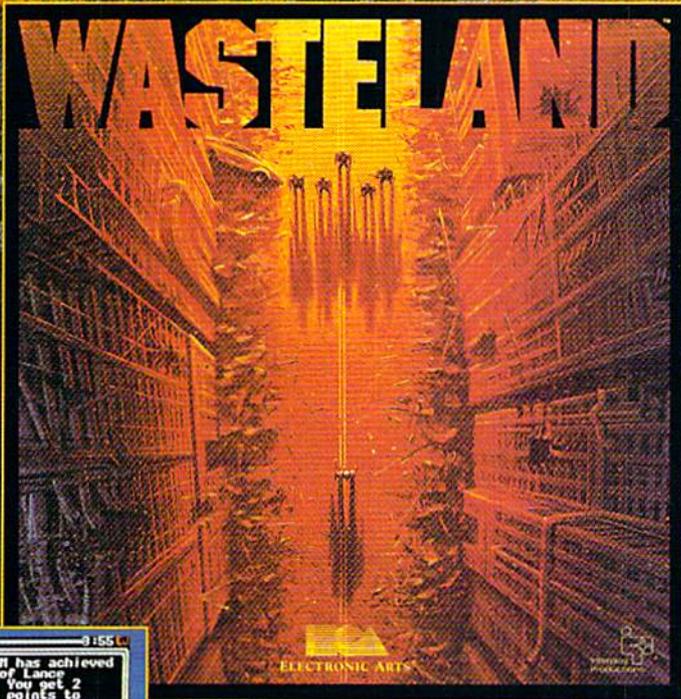
More Sniperdroids! All tracking me with their death glares. And them Uzis. They're weird trigger-twitchin' folks. I suspect it's them poisoning the water.

Or maybe it's those Leather Thugs. Heck, I don't know anymore. I heard they have a bunch of civilians cut off east of Ranger Center, which is where I'm headed. Hope not. They want me dead. Like every other mutant this side of Vegas.

The worst part is, I'm getting to be as bad as they are. You wouldn't believe some of the ways I've learned to kill. I hang out in sewers, and my best friend is a MAC 17 submachine gun.

Gramps talked about life before the nuclear war. All I know is I don't want others living this way. Gotta rebuild this desert right. Gotta make it so you can sleep with your eyes closed.

**WASTELAND™** A new role-playing game from the creators of the *Bard's Tale™* series.



**3 WAYS TO ORDER:** 1) Visit your retailer. 2) Call 800-245-4525 from U.S. or Canada, 8am to 5pm PST to order by VISA/MC. 3) Mail check (U.S.\$) or VISA/MC #, cardholder name, and exp. date to Electronic Arts Direct Sales, P.O. Box 7530, San Mateo, CA 94403. Apple II version \$49.95, Commodore version \$39.95, plus \$3 shipping/handling. CA residents add 6.5% sales tax. Allow 1-3 weeks for U.S. delivery.



Apple II is a registered trademark of Apple Computer, Inc. Commodore is a registered trademark of Commodore Business Machines Ltd.

## SOFTWARE GALLERY

(WYSIWYG) screen display allows for easy page layout in sizes from 3x3 inches to 8½x14 inches. Instead of the multiple keyboard commands used by most word processors, PaperClip Publisher uses pull-down menus, tool icons and windows called Requester Boxes. Once horizontal and vertical margins are indicated, elements like headlines, subheads, copy and graphics are set in boxes. The boxes aren't printed, but act as page layout guides.

With this box system, text can be linked on a page or over a series of pages, thereby continuing articles from the first page. For further flexibility, any box and its contents can be temporarily moved to the area around the page called the Artboard. The boxes can then be rearranged on the current page or moved to another.

To get you started, PaperClip Publisher comes with some sample layouts, clip art files and five fonts in several sizes. There's a font converter that'll import fonts from Outrageous Pages or GEOS. The only limitation is that the converter must recognize fonts of 24 points or less. Any font can be set in light, bold, italic, back-slant, outlined, underlined, shadowed, reversed, mirrored, upside-down, superscript or subscript. This is an impressive list of style options in addition to the great variety of fonts that can be used by the program.

The File Converter utility imports word processing files from PaperClip I, II or III, Bank Street Writer, Word Writer I or II and PaperBack Writer. The Text Editor allows for editing and formatting the imported files, or it can be used to create new text. Text can be set flush left, flush right, centered or fully justified.

With the File Converter, you can also directly import graphics from The Print Shop, PrintMaster, Outrageous Pages, Newsroom and Doodle!. PaperClip Publisher has a great graphics editor that helps you design new art or alter existing clip art. The best feature of the editor is the ability to enlarge or reduce all or part of a drawing. The editor utilizes a Magnify mode for individual pixel editing.

The limits of 50 pages and 60 boxes should cover most situations. Each box contains only one font in one size, but boxes can be positioned so that there's a smooth transition between elements in a column. For example, I used a column-wide box for a heading, one directly beneath it for a sub-heading, and another for the body copy. Printed without the box outlines, the column doesn't

reveal its building-block beginnings.

Boxes can be superimposed or overlapped to provide many different effects. A box containing text can be created on top of a box containing a graphic border. When printed out, the elements are combined.

I was going to give the program a minus for the painfully long printing time and small list of supported printers. However, considering all that you get in a 64K program, it is worth the wait. When I couldn't find my printer on the list of 12 or so supported, a call to customer support solved the problem. I was told which driver to use and how to set the interface.

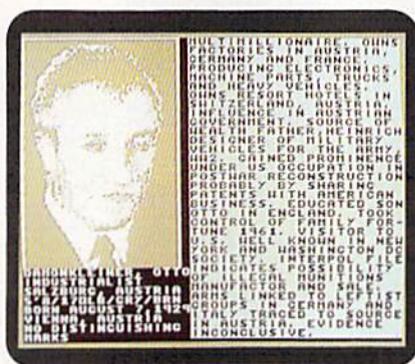
PaperClip Publisher is a handy and inexpensive way to get started in desktop publishing and to get professional results with your dot matrix printer. (Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/\$49.95.)

—SUSAN LAMB  
YUMA, AZ

### THE PRESIDENT IS MISSING ..... A

*Your Mission,  
Should You Decide  
To Accept it...*

It's refreshing to find a program that appeals to a broad spectrum of would-be gamers. The President is Missing is an enigma as far as computer games



Is this international figure one of your suspects in *The President is Missing*?

go because it transcends several game genres. It's not an adventure game, and it can't be labeled a simulation, at least in comparison to currently available simulations. If there's such an animal as a simulation of a simulation, then this intriguing software package would fit. The President is Missing could perhaps appropriately

be called an "interactive graphics adventure simulation."

As the title suggests, the unthinkable has happened: the president, along with ten other heads-of-state, has been kidnapped while attending a summit in a small European country. The planning, timing and flawless execution of the abduction suggest that the kidnapers involved are highly trained, well funded and members of an international group of professional terrorists. It's your job, as a specially appointed investigator, to identify the terrorists and collaborators and somehow find the people they kidnapped.

To aid you in this seemingly impossible task, the Central Intelligence Agency has made available the main computer of its counter-terrorist branch. To gain any margin of success with this game, the CIA's computer must become an extension of your thoughts. By combing through its massive data banks, you must reconstruct the events leading up to the abductions, analyze and investigate the data surrounding the kidnapping, and follow up clues on possible suspects and motives.

Within the computer, you'll find intelligence files on all aspects of the abduction scene, dossiers on important government officials and information pertaining to several seedy individuals usually associated with terrorist actions. Also available are satellite photos, official government documents and records and confidential reports.

One interesting item included with the program is an audio tape that includes actual newscasts of the terrorist action, official reports, interviews, and, most importantly, a transcript of the terrorist's demands. Though many of the recordings on the tape appear to offer no direct lead to the kidnapers, almost all of them can aid you in several aspects of the investigation.

Rounding out the resources at your command is the ability to send agents on various missions. Through judicious use of these CIA operatives, you can investigate people, places or things anywhere in the world. When particular missions have been completed, reports from the agents eventually filter back to you. Justice Department agents can also be used to detain and question suspects, or capture and secure premises. The results of such operations, as well as communications from the CIA, FBI and State Department, turn your computer into an information clearing house. ▶

CELEBRATING  
OUR  
20TH  
YEAR  
1968-1988

# MONTGOMERY GRANT

RUN 9/88

OUTSIDE USA---CALL  
**(718)692-0071**

FOR CUSTOMER SERVICE  
Call Mon-Fri: 9:30am-5pm  
(718)692-1148

Retail Outlet: Penn Station, Main Concourse  
(Beneath Madison Square Garden) NYC, N.Y. 10001  
Store Hours: Mon-Fri 8:30-8/Sat-Sun 9:30-7

FOR ORDERS & INFORMATION CALL TOLL FREE

**1-800-759-6565**

OR WRITE TO:  
Montgomery Grant Mail Order Dept.  
P.O. Box 58 Brooklyn, NY 11230

FAX NO. 7186923372  
TELEX 422132MGRANT

OPEN 7 DAYS A WEEK FOR ORDERS: Monday-Friday 9am-7:30pm/Saturday & Sunday 9:30am-6pm (EDT)

NO SURCHARGE FOR CREDIT CARD ORDERS/WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS/CORPORATE LEASING AVAILABLE

## Commodore

**C-128**

### COMPUTER PACKAGES



#### #1 COMPLETE PACKAGE

COMMODORE 128 COMPUTER  
COMMODORE 1541 DISK DRIVE  
12" MONITOR  
COMPUTER PRINTER

**\$449** COLOR MONITOR  
ADD \$110

TO SUBSTITUTE 1571 FOR  
1541 - ADD \$60



#### #2 DELUXE PACKAGE

COMMODORE 128 COMPUTER  
COMMODORE 1571 DISK DRIVE  
COMMODORE 1502 RGB COLOR MONITOR  
COMMODORE 1515 80 COL. PRINTER

**\$659**

SPECIAL!

C-128/D DELUXE PACKAGE  
C-128 COMPUTER W/ BUILT-IN  
DISK-1902 RGB COLOR MONITOR  
• COMMODORE COLOR PRINTER

**\$639**

**C-64C**

### COMPUTER PACKAGES



#### #3 COMPLETE PACKAGE

COMMODORE C-64/C COMPUTER  
COMMODORE 1541/C DISK DRIVE  
COMPUTER PRINTER  
12" MONITOR  
GEOS SOFTWARE PROGRAM

**\$349**

COLOR MONITOR ADD \$110

#### #4 COLOR PACKAGE

COMMODORE C-64C COMPUTER  
COMMODORE 1541/C DISK DRIVE  
COMPUTER PRINTER  
COLOR MONITOR  
GEOS SOFTWARE PROGRAM

**\$478**



**C-64C**  
With Geos  
Software

**\$149.95**

**C-128** **\$219.95**

NEW C-128D with Built

in Disk Drive **\$429**

#1764 EXPANSION MODULE.....\$119.95  
XETEC S. GRAPHIX JR. INTERFACE.....\$29.95  
XETEC S. GRAPHIX SR. INTERFACE.....\$49.95  
XETEC SUPER GRAPHIX GOLD.....\$79.95  
C-128 POWER SUPPLY.....\$39.95  
C64/C64-C POWER SUPPLY.....\$29.95  
C-1660 MODEM.....\$19.95  
1670 MODEM.....\$65.95  
COMMODORE MOUSE.....\$26.88  
XETEC LT. KERNEL 20MB. HARD DRIVES FOR  
C64-C.....\$749  
C-128.....\$799

### COMMODORE DISK DRIVES



**C-1541/C** **\$149.95**  
**C-1571** **\$199.95**  
**C-1581** **\$184.95**  
**C-1541II** **\$164.95**

### MONITORS

**C-1802 COLOR**.....\$169.95  
**C-1084 COLOR**.....\$284.95  
THOMSON HI-RES RGB  
COLOR MONITOR.....\$299.95  
MAGNAVOX RGB 13"  
COLOR MONITOR.....\$199.95

### COMMODORE PRINTERS

**C-mps-1060** **\$159**  
**C-mps-1250** **\$229**  
DPS-1101 DAISY  
WHEEL PRINTER **\$149**



AMIGA 500  
IN STOCK - CALL FOR LOW PRICE!  
AMIGA 500W/1084.....\$779  
AMIGA 500/1084/1010.....\$979

### AMIGA 2000 IN STOCK

ALL PERIPHERALS IN STOCK  
A-501 512K EXPANSION • A-1010 3.5"  
FLOPPY DRIVE • A-1020T 5.25" DISK DRIVE  
WITH TRANSFORMER • A-2088D BRIDGE  
CARD • A-1084 RGB COLOR MONITOR • A-  
1680 MODEM • A-2090 HARD DRIVE CON-  
TROLLER FOR A-2000 • A-2010 3.5" INTERNAL  
DISK DRIVE FOR A-2000 • A-2052 2MB  
EXPANSION FOR A-2000

Supra 20MB Hard Drive for A-500.....\$699

**NEW**

**COMMODORE COLT**

COMMODORE COLT Computer • 640K  
4.77-7.16MHz • 2 Floppy Disk Drives • 12"  
High Resolution Mono Monitor • All Hook  
Up Cables & Adapters • Box of 10 Disk-  
ettes

**\$719**

**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 & Adapters  
Package of 10 Diskettes

**\$499**

SAME PACKAGE  
W/20 MB HARD DRIVE **\$749**

### PRINTERS

**NEC**  
P-6.....\$419.95  
P-2200.....\$339.95

**TOSHIBA**  
PS-321 SL.....\$479.95

**EPSON**  
FX-850.....\$349.95  
FX-1050.....\$489.95  
LQ-500.....\$315.95  
LQ-800.....\$329.95  
LQ-850.....\$509.95  
LQ-1050.....\$709.95  
LX-800.....\$199.95

**Panasonic**  
1080I-II.....\$159.95  
1092I.....\$299.95  
1091VII.....\$189.95  
1524.....\$499.95

**star**  
NX-1000C.....\$174.95  
NX-100C Rainbow.....\$224.95  
NX-1000.....\$169.95  
NX-1000 Rainbow.....\$219.95  
NX-15.....\$299.95  
NX-2400.....\$339.95  
NB-2410.....\$409.95

**OKIDATA**  
OKIDATA 120.....\$189.95  
OKIDATA 180.....\$219.95  
OKIDATA 183.....\$299.95  
OKIMATE 20.....\$119.95

HP LASERJET SERIES II.....\$1629

**SANYO**  
PR-3000 DAISY  
WHEEL LQ PRINTER.....\$89.50

## Apple

### PACKAGES

APPLE IIC and  
APPLE IIE



• Apple IIC or IIE Computer  
• 5.25" Drive • 12" Monitor All  
Hook-up Cables & Adapters  
Package of 10 Diskettes

APPLE IIC APPLE IIE  
**\$579 \$779**

MAC SE.....\$1949  
MAC SE W/20MB APPLE  
HARD DRIVE.....\$2599  
IMAGEWRITER II Printer.....\$459  
APPLE MAC + PACK.....\$1449  
APPLE IIGS W/APPLE  
RGB COLOR MONITOR &  
3.5" DISK DRIVE.....\$1379

### LEADING EDGE

LEADING EDGE  
MODEL D PACKAGE  
IBM PC/XT COMPATIBLE



512K RAM Computer • Key-  
board • 360K Floppy Drive  
4.7-7.16 MHz • 12" Monitor  
8088-2 Processor

**\$729**

W/20 MB HAND DRIVE.....\$889  
W/30 MB.....\$1039  
W/40 MB.....\$1089



IBM PC/XT  
COMPATIBLE PKG

512K RAM Expandable to  
640K • 360K Floppy Disk  
Drive • 12" Monitor

**\$449**

SAME PKG. WITH  
20 MB HARD DRIVE.....\$699  
SAME PKG W/ TWO  
FLOPPY DRIVES.....\$499

**SEAGATE**  
20 MB HARD DRIVE  
W/ CONTROLLER **\$269**  
40 MB HARD DRIVE & 30 MB HARD  
DRIVE NOW IN STOCK!

NO SURCHARGE FOR CREDIT CARD ORDERS

WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS



Certified Check, Bank Check, Approved P.O.'s, Money Orders, Visa, Am-Ex, Diners Club, Cart-Blanche, Discover Card & C.O.D.'s accepted. No additional surcharge for credit card orders. Non-certified checks must wait 4-6 weeks for clearance. N.Y. residents add applicable sales tax. Prices and availability subject to change without notice. Not responsible for typographical 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 Machines Corp. APG FPO orders please add 15% shipping & handling. All APO FPO orders are shipped first class priority air. All orders can be shipped Air Express-call for details. NYC DCA #809233

Circle 98 on Reader Service card.

www.commodore.com CREDIT CARD ORDER

More Help Requested Will Be a Commission

The user interface between player and computer is friendly, quick and logically laid out. The digitized, high-resolution graphics are nicely done, adding a macabre sense of realism to what could be a chilling event in world politics. Above all, *The President is Missing* exudes the self-confidence of a professionally crafted game, meticulously plotted out from inception to production.

This is definitely not, however, a program for the casual gamer, or for children less than high school age. The program requires patience, forethought and deductive reasoning. The investigation could conceivably take weeks to complete, and those could be weeks filled with identifying, analyzing, investigating and following up on leads that result in dead ends. But there are little victories to be gained along the way—just enough to shore up an investigator's resolve after chasing a hundred false leads.

With terrorist actions around the world headlining the news these days, *The President is Missing* successfully brings the world of covert intelligence operations to the safety of your own home. The audio tape supplied with the game is so realistic that it easily buttresses the frightening realization that the fiction of today may very well be the fact of tomorrow. (*Cosmi*, 431 N. Figueroa St., Wilmington, CA 90744. C-64/\$24.95.)

—JOHN RYAN  
BILOXI, MS

## SKATE OR DIE ..... B+

*Step into a World Where  
Rock 'n' Rolls are Rad  
And Aerials are Awesome!*

Hey, dude, I just got my hooks on this rad new game. From the outrageous package to the disk inside, this thing is wild, man.

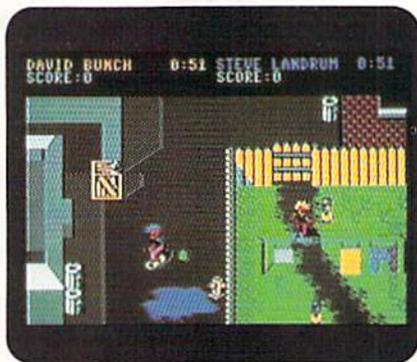
We're talkin' hot stuff here. It's like some of those other games for your Commodore—ya know, the ones that let you play all different sports—only this one is the neatest, 'cause it's about skateboarding.

It's got these five different events that you can use to practice till you're hot. Or, you can compete against the computer or up to eight buddies. Watch out for those computerized dudes. Poseur Pete is nothin'—you can use him, man. Aggro Eddie is not as sketchy, but with a little practice on your board, you can

take him. Don't go messin' with that bionic dude Lester until you've really got your act together.

You'll have to visit Rodney's skate shop first, but that's okay because he's cool. He's Lester's dad, which gives you some idea why Lester is so bad. Rodney'll let you pick whatever color board you're into, and let you see the most outrageous scores anybody ever got in competition. Best to skate out soon, 'cause Rodney will give you some lip if you hang around too long.

You can skate right into town square. Don't worry about gettin' lost, 'cause



Stay on your board and watch out for Lester in *Skate or Die's* Downhill Jam.

there are signs that tell you how to get to each event. Cruise on down the right street, then sit back for a breeze while the computer does its thing. You'll see different things dependin' on the direction you go.

In Downhill Jam, you better be tough, 'cause we're talkin' inner city blues. You'll be in some back alley where you can bust some bottles, break some flower pots or knock over a few garbage cans. But watch out for Lester, 'cause he's gonna be tryin' to trash you. Defend yourself by throwin' kicks or punches while you and Lester slide down the alley. Stayin' on the board ain't so tough, 'less Lester kicks your butt or you go slammin' into some fence. You get bonus points for everything you trash, including Lester.

Downhill Race is my favorite, man. Just you and your board in this neat oceanside park. Cruise down the hill jumpin' obstacles, tuckin' in tight through waterpipes and slidin' around some wicked curves. The more you clear and the faster your time, the better your score.

No need explaining what a Freestyle Ramp is, right? You know how to boogie in one of those babies, don't you? You can do six different moves—everything from Kickturns to Ollie Airs—just by

pressing your fire-button and movin' the stick in the right direction at the right time. You can even do 180s or 360s in mid-air! It takes split-second timing, but the more moves you do in ten passes, the more points you get. Just be cool, man, or you'll find yourself splattered all over the concrete.

The High Ramp's no tricks—just guts. Build up speed by thrashin' your joystick back and forth as fast as you can. You get up to five passes, but you might not need them all to get some good air. Hit your fire-button when you've got the most air, and you'll get points for how high you get. Yeah, it's kind of a drag, but it does take good timing.

The Pool Joust is like the Freestyle Ramp, but in an empty pool—and with someone tryin' to take your head off. You get five passes to try to slam the other guy off his board with a boffing stick. When you're not boffing, work on your Ollies and Rail Slides for extra points. First dude to get three slams on the other guy wins. This one takes guts and a lotta really heavy duty concentration as well.

No matter which event you pick, there's nothin' sketchy about the graphics or the animation. We're talkin' primo stuff here. Everything works so sweet it feels like, y'know, you're really out there on the board thrashin'. And just like a real board, even the slightest tweek of your stick makes it twitch.

And man, the detail is outta sight. Like if a dude falls out of the ramp, you can see his pads and stuff splatter when he hits the pavement. Or if he runs into a chain link fence, his body parts kinda squeeze through the links, like cheese through a grater.

Hey, that may sound like a bummer, but it ain't bad 'cause it's happenin' on the monitor and not out in the real world. Fact is, you can try some real rad moves that you wouldn't think of doin' on your real board. Or if you live someplace where it snows or rains a lot, it ain't such a drag 'cause you can do your thing right on the computer. No muss, no fuss, no broken bones, man. It's cool, and there's nothin' else like it. If you don't buy my line, man, just ask Rodney. (*Electronic Arts*, 1820 Gateway Drive, San Mateo, CA 94404. C-64/\$29.95.)

—SCOTT WASSER  
WILKES-BARRE, PA

*Editor's Note: Our author went a little overboard (pardon the pun) with his language in the foregoing review. But, like hey, if you play the game, you just might feel like bailing out and tuning in to this sport, too!*

## THE LURKING HORROR .... A

Do Not Attempt To  
Adjust Your Monitor

The Great Dome of G.U.E. Tech loomed above me, nothing more than an eerie shadow against the midnight sky. It was difficult to make out the details of the structure, especially with the blizzard threatening to toss me off the ladder leading up to the dome. As I tenaciously moved from rung to rung, I knew I could freeze to death rationalizing why I shouldn't explore the edifice. But as I entered the warmth of the dome, I realized that I had made a terrible mistake. No sooner had I stumbled into the center of the dome when a growl pierced the night. There was something crawling up the ladder! Pulling out my knife, I whirled to face the hideous thing that came flapping out of the night. I did not like my chances...

No, this is not an excerpt from a horror novel—just one of my own experiences while playing *The Lurking Horror*. The atmosphere generated by this superb adventure forces the player to reflect upon his or her innermost fears—those dark and intangible images from childhood: the shadow in the half-closed closet, or the skeleton we thought was clicking silently beneath the bed. The chances are that most of us have varying thresholds of terror. Whatever it is that alarms, unnerves, dismays, startles, or turns blood into ice water can be experienced in this boundless romp into the unknown.

Welcome to G.U.E. Tech. As a young freshman at this Ivy League haven for future mechanical and aerospace engineers, chemists and computer scientists, you have braved a raging blizzard to get to the campus computer center. Finishing an overdue term paper was foremost on your mind, but this night will find you drawn into a web of murder, mayhem and monsters.

Several students have recently vanished. Moreover, eerie tales of dank corridors beneath the ancient halls of G.U.E. only enhance your inexplicable urge to explore them. And what to make of this strange, rune-encrusted stone suddenly in your possession? How can the computer nerd, Hacker, help you? What about that very strange professor? And is that beast in the basement a university mascot or a demon?

While these are only a smattering of the hundreds of questions that will

undoubtedly pop up, be prepared to spend several long nights attempting to find the answers. *Lurking Horror* appears easy at first, as several clues seem to fall into your lap, but don't let this fool you.

*Lurking Horror* is interactive fiction, so you affect how the story will end, and must choose your own path to get there. It's like living a book, where you enact the drama instead of reading it.

The story's parser is limited to a vocabulary of about 600 words, which is

rather small as modern adventures go. But I found this of little consequence, and only rarely ran across entries that the program couldn't understand.

Having booted up dozens of adventure games over the years, it's refreshing to find one that compels me to return to the keyboard. *Lurking Horror* is certainly not the most sophisticated or intricate adventure you'll run across, but it's well worth the time and money. *Lurking Horror* is good, scary fun for the whole family. (Infocom, Inc., 125 Cam- ▶

3 entertainment triumphs from FIRST ROW!

- ★ **STAR EMPIRE** A space odyssey—from the people who brought you *ELITE™*
- ★ **The HONEYMOONERS** Join the hilarious antics of Ralph and Ed
- ★ **The TWILIGHT ZONE** Out of the 6th dimension comes the long-awaited graphic thriller

3 computer games destined  
to rise to the "Top of the Charts"!  
**CHECK YOUR LOCAL RETAILER  
OR CALL DIRECT 215-337-1500**

**FIRST ROW** T.M.  
Software Publishing

**FIRST ROW SOFTWARE PUBLISHING, INC.**  
900 East 8th Avenue  
King of Prussia, PA 19406  
(215) 337-1500

The Twilight Zone ©1988 CBS, Inc.  
The Honeymooners ©1988 VIP Corp.

## SOFTWARE GALLERY

bridgepark Drive, Cambridge, MA 02140.  
C-64/\$34.95.)

—JOHN RYAN  
BILOXI, MS

### STRIKE FLEET ..... B

#### Modern Naval Warfare

#### Set in Today's Hot Spots

One of the first things you might notice about Strike Fleet is the game's overall graphic similarity to last year's PHM Pegasus, also from Electronic Arts. While Pegasus put you at the helm of a single patrol vessel, however, Strike Fleet lets you command an entire task force of up to 16 ships. The movement of your fleet can be controlled from the bridge of your flagship, or you can go to the bridge of any ship in your fleet and command that one individually.

Instead of rehashing famous naval battles from WWII, Strike Fleet introduces ten new plots, all based on modern situations and current world affairs. For example, in one scenario, The Road to Kuwait, you're required to escort three reflagged Kuwaiti tankers out of the Persian Gulf through the Strait of Hormuz. Another Gulf mission puts you at the helm of the USS Stark during what may or may not be a routine patrol.

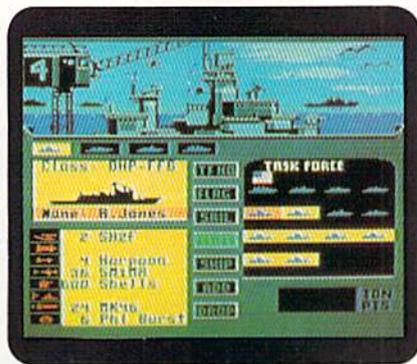
Other hot spots where you might see some action are the North Atlantic, the Falkland Islands and the Norwegian Sea. Each of the ten scenarios can be played individually, or the four most difficult can be played sequentially in a campaign game. Some games could take several hours to complete; fortunately, games in progress can be saved to disk.

Because Strike Fleet simulates modern naval warfare, the forces you'll command and the enemies you'll face are all equipped with state-of-the-art warships and missile systems. Among the surface vessels you'll command are the Kidd Class destroyer, the Belknap Class cruiser and even the Pegasus hydrofoil missilecraft. Most ships are also equipped with one or two helicopters that can be launched and operated independently. A standardized control panel and ordinance board make it a breeze to operate the entire fleet singlehandedly.

The enemies' forces are even more diverse than your own. They include a variety of Russian, Iranian, Argentinian and French-made warships, submarines and aircraft. In addition, both sides

come complete with a huge arsenal of the latest anti-ship and surface-to-air missiles and torpedoes.

Although Strike Fleet can be played entirely with a joystick by simply highlighting control panel options and clicking, there are also keyboard equivalents of all propulsion, navigation and weapons commands. These keyboard commands are diagrammed on a separate card and, once learned, allow you to quickly and smoothly operate any of the ships or helicopters in your task



Just one of the ships you can control in Strike Fleet's task force.

force. If you liked PHM Pegasus or are simply a fan of military simulations, particularly the naval variety, Strike Fleet will give you all the action you can handle. (Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/\$29.95.)

—BOB GUERRA  
SOUTH BOSTON, MA

### BLACK JACK ACADEMY .. B+

#### An Education

#### At the Table

As its name implies, Black Jack Academy not only turns your C-64 into an expert blackjack dealer, but also provides an education on the finer points of this popular casino game. In this case, the classroom is a blackjack table where you and up to four other players can learn all about card counting, splitting pairs, doubling down, breaking the bank and losing your shirt.

At the Setup menu, you begin a game by entering each player's name and the dollar amount of the chips they'll have to start with. Other adjustable parameters include the number of decks you'll play with, the minimum and maximum bets, and the rules that will be in effect during your game. Choices of rules include Las

Vegas Strip, Downtown Las Vegas, Reno and Atlantic City Rules.

From the Setup menu, you proceed directly to the table to place your first bets and begin play. As the invisible dealer goes into action, you hear the familiar sound of playing cards being shuffled followed by the light slap of each card as it hits the table. All cards, including the colorful face cards, are realistically drawn, both front and back, and the green blackjack table scrolls smoothly from left to right to accommodate all five players.

Blackjack is a relatively simple game and even amateur programmers can do a decent job of simulating it on a computer like the C-64. However, it's clear that the designers of Black Jack Academy have gone to great lengths to ensure that this game outshines anything you're likely to find in the public domain.

Besides the nice graphics and sound effects, Black Jack Academy features convenient pull-down menus, and it can be played almost entirely with a joystick or by using the equivalent keyboard commands. The Play menu, for instance, lets you hit, stand, place a bet, split a pair, double down or surrender the current hand. Other menus let you adjust the overall speed of the game, toggle the sound, save the current game to disk or restore a previously saved game.

A Strategy menu can be accessed during a game to check the optimal play for the current situation, to review basic guidelines for playing and betting, to see which rules are being used or to check the current card count. An Optimal Play Quick Reference Card shows in chart form exactly when to hit, stand, double down, split or surrender based on all possible hard and soft totals and the dealer's up card. Possible exceptions and variations to use when playing under different casinos' rules are also included.

In addition, brief tutorials on specific aspects of the game can be loaded from the program disk via a special help menu. There are ten help files in all, ranging from a simple synopsis of the basic rules to more extensive discussions of rule variations, card counting and money management. Each help file is clearly written and succinctly summarizes what you need to know to be a successful blackjack player against your C-64 or in the casinos.

Of course, it's a lot easier to wager with huge piles of digital dough in your own home than it is to gamble with your hard-earned money in the casinos.

Wherever you play, though, it's a sure bet that Black Jack Academy can increase your understanding, skill and enjoyment of the game. (*Microillusions*, distributed by Mediagenic (formerly Activision), 3885 Bohannon Drive, Menlo Park, CA 94025. C-64/\$39.95.)

—BOB GUERRA  
SOUTH BOSTON, MA

## DARK CASTLE ..... C-

*A Pretty Sound*

*And Look to a*

*Disk-Intensive Game*

I like to review a game or two occasionally, not only for personal relaxation, but also to monitor progress in the Commodore marketplace. So, I viewed the arrival of Dark Castle as an opportunity to take a look at what's new in the world of C-64 gaming.

Unfortunately, I'm disappointed. Sure, the program has great graphics and fine sound effects, but spend five minutes playing it, and you'll realize that these features are misleading. Dark Castle is nothing more than an exercise in joystick flogging.

You'll find a sophomoric story line on the Dark Castle instruction card. If that isn't sufficient, you can load more instructions from the disk. You are the hero whose primary purpose in life is to throw rocks at bats and rats. You must also find time to guide your character through dungeons, across hanging ropes, over moving rocks and other obstacles.

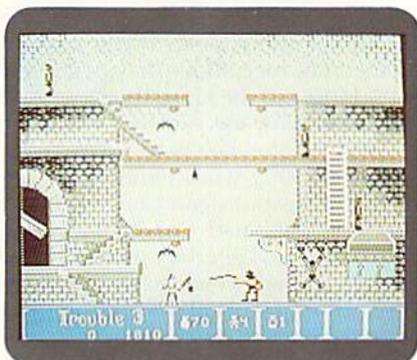
I shouldn't be excessively critical, because Dark Castle does have its merits. Scores of adolescents are certain to revel at the way Dark Castle makes good use of the joystick skills and quick reactions they've fine-tuned through countless afternoons spent at the mall pumping quarters into the arcade machines. Old timers like myself who celebrated their final teen years a dozen or more years ago are almost certain to find the program far too action-intensive to progress beyond the lowest levels.

There's a darker side to Dark Castle, which is heavily copy-protected. To begin with, high scores are saved to the master disk. Adding to this potential danger, the program accesses the disk so many times that it must be flipped from side to side during game play.

Also, I think the program should have lasted longer than four hours. That's how long it worked on my original

ROM-equipped 1571 before it decided it didn't want to load anymore. I was able to load it exactly five times on my C-128D's built-in 1571 before it decided to give up on that disk drive. Judicious use of the program keeps it in working order on my C-64/1541 combination, but the appearance of random characters during loading seems to indicate it's becoming temperamental with that equipment, too.

Dark Castle may be worth the money



**Watch out for bats and rats as you travel through Dark Castle's dungeons.**

if you like fancy graphics and sound. Just hope the program doesn't get mad at the disk drive before the day is over. (*Three-Sixty, Inc.*, 2105 S. Bascom Ave., Campbell, CA 95008. C-64/\$34.95.)

—TIM WALSH  
RUN STAFF

## WINTER CHALLENGE ..... C+

*It's Easy To Handle Winter,*

*When It's Only on Your*

*Computer!*

When the Winter Olympic Games were held in Calgary in February, millions of people watched via television. Now Thunder Mountain is hoping to attract some of those people to their computer monitors to participate in a few of the events that made the Winter Olympics such a big hit.

Winter Challenge simulates five different sporting events: slalom and downhill skiing, ski jumping, biathlon and bobsledding. If you don't like the cold, or if the old neighborhood bobsled run has closed for the season, you might enjoy passing the time with this program.

It certainly wouldn't be a waste of your time, because Winter Challenge has some features that make it worth trying. It also has some flaws, but its low price

makes them somewhat more tolerable.

My biggest complaint about Winter Challenge is the time it takes to load. Whether you're booting it up from scratch, or just waiting for the transition from one event to the next, it takes way too long. It's about as much fun as standing on a lift line at a popular ski area on a weekend afternoon.

If you have enough patience to tolerate the long load times—at least two to three minutes between events—you'll be rewarded by Winter Challenge's fine graphics. Backgrounds are particularly appealing and are often better than those found in more expensive programs.

Game play is simplistic, but nevertheless challenging. The animation in the ski jump event is a little choppy when the skier is heading down the ramp. Keeping the skis straight requires a quick, deft touch and is crucial to making a smooth landing.

The graphics in the downhill aren't quite as good as in the ski jump, and animation is again choppy. For example, trees seem to hop past, instead of smoothly rushing by. The feel is pretty realistic, though, right down to the skier leaning into the turns. The goggle perspective is a nice idea, but hard to take advantage of because the view is so small.

The graphics in the biathlon are among the best in Winter Challenge and the competition is the toughest. It's very difficult developing the right rhythm to make your skier move at top speed. It also takes great timing and quick reflexes to nail all five targets with the five allotted bullets.

The graphics in the slalom are pretty good, but the animation and feel are not. The skier looks much too cartoon-like as he dodges gates, and the slightest twitch of the joystick makes him careen across the width of the trail. The challenge is mildly entertaining, but just not realistic enough.

The graphics and animation in the bobsled competition are pretty good, but the event is boring. It takes much too long to complete a run, and the challenge disappears after a few twists and turns. Trying to shave split seconds off your time by following the perfect line through the course just isn't incentive enough to make more than a couple of runs.

Fortunately, there are enough challenges in the other events to make the program on the whole really a very decent way to pass some time. Especially if you'd rather be indoors during the cold months, Winter Challenge, with its low

# COMB

Authorized Liquidator



Surge Protector Incl.

## PC ACCESSORIES

Be Fully Equipped with this complete Accessory Set for your personal computer. Comes with a heavy-duty surge protector, anti-static keyboard cover, diskette file, and special PC screen cleaning solution. All 6 pieces are for one **LOW liquidation price**. Buy yours now!

### 6 Outlet Surge Suppressor.

- Guards PC Equipment from High Voltage.
- Spike Handling: 4500V, 4500 Amps.

### Anti-Static Keyboard Cover.

- Dissipates Static Charges.
- Protects Against Dust, Food, and Beverages.
- Anti-Static Vinyl with Stitched Seams.

### Diskette File/Organizer.

- Durable Plastic Construction.
- Holds Fifty 5 1/4" Disks or Thirty 3 1/2" Diskettes.

### PC Screen Cleaning Kit.

- Two 4-Oz. Bottles of Solution Safely Eliminate Dust Buildup.
- Includes 50 Wipes.

Mfr. List . . . . . **\$61.95**

Liquidation  
Priced At . . . . . **\$39**

Item H-3916-7398-258

Shipping, handling: \$5.50/set

Credit card customers can order by phone, 24 hours a day, 7 days a week.  
**Toll Free: 1-800-328-0609**

#### SEND TO:

COMB Authorized Liquidator  
1405 Xenium Lane N/Minneapolis, MN 55441-4494

Send      PC Accessory Set(s) Item H-3916-7398-258 at \$39 per set, plus \$5.50 per set for insured shipping, handling. (MN residents add 6% sales tax. VA residents add 4.5% 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  M/C  DISCOVER  AMERICAN EXPRESS

Acct. No. \_\_\_\_\_ Exp. / \_\_\_\_\_

PLEASE PRINT CLEARLY

Name \_\_\_\_\_

Address \_\_\_\_\_ Apt. # \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

ZIP \_\_\_\_\_ Phone (\_\_\_\_) \_\_\_\_\_

Sign Here \_\_\_\_\_

## SOFTWARE GALLERY

price, is a good buy. (*Thunder Mountain, PO Box 1167, Northbrook, IL 60062. C-64/ \$14.95.*)

—SCOTT WASSER  
WILKES-BARRE, PA

### BETTERWORKING WORD PUBLISHER . . . . . D

#### More Features

#### For GEOS

Mother always said, "If you can't say something nice, don't say anything at all." Little did she know that her words would ring in my ears as I write this review of the GEOS-based package, BetterWorking Word Publisher.

GEOS has two significant advantages over the C-64's native operating system. The icon-based interface places the user in intuitive and comfortable control of the computer, and the bit-mapped screen makes it easy to display a combination of text and graphics. The major advantage of GEOS-based word processors is their ability to print documents containing a variety of type styles and sizes. Word Publisher, for example, is capable of up to nine fonts and six type styles per page.

When you're entering and editing text with this program, it abandons the integrated What-You-See-Is-What-You-Get (WYSIWYG) screen in favor of a word-wrapped, 40-column display. Formatting commands are embedded in the text. Boldface, italics, underlining and font changes are all represented by reversed ampersand (&) characters sprinkled throughout your document. Avoiding the on-screen display of these attributes is intended to eliminate delays when you want the C-64 to scroll a bit-mapped graphics display. The result is a package that is neither a credit to GEOS nor a very good example of what a word processor can be.

Word Publisher doesn't let you see what your document will actually look like until you move from the editing screen into one of two Display modes. Two clicks of the mouse let you scroll through a WYSIWYG view of your work a page at a time or preview a representation of the page layout on the right half of your screen.

For some very powerful C-64 word processors that haven't implemented a software solution to the limitations of a 40-column screen, this is a long-accepted alternative to WYSIWYG. However, Word Publisher's other features are not strong enough to justify segregat-

ing its editing and viewing functions.

GEOS-based word processors generally recognize that their strengths lie in the ability to integrate graphics and don't try to compete with the non-GEOS powerhouses. While Word Publisher's goals are commendable, the implementation of its other features, particularly a 100,000-word spelling checker and a mail-merge option, leave something to be desired.

The spelling checker function is slow. It took almost five minutes to check a single-page document. There is no way to add words to the dictionary, and no suggestions on the correct spelling of words the program doesn't recognize.

Mail merge is another Word Publisher feature that you normally only get with a full-function word processor. The idea is to let your software churn out form letters by reading names, addresses, and so on from a separate file. Unfortunately, the instructions for actually implementing a mail merge are so cryptic that even an experienced user will have trouble understanding how this feature works.

The program has some additional minor annoyances. For example, the cursor cannot be easily positioned at the very end of a document. You must either push the black square symbol for a carriage return ahead of the text as you type, or switch off Insert mode and type over it.

Editing with the mouse is awkward, because you can only scroll up or down a screen at a time. To move the remaining lines of a paragraph into view requires that you abandon the mouse in favor of the cursor keys.

Mail merge is not the only function that is short-changed in the accompanying, spiral-bound instruction booklet. Integrating geoPaint graphics, one of Word Publisher's most important abilities, merits but a single puzzling paragraph.

In fact, the entire manual is poor. Its 31 pages include three pages of restrictions, a four-page glossary and six pages of instructions on how to start the program. The remaining 15 pages contain far less information than you need to make this program work.

By now, you may think that all I'm going to do is tear this software to bits, but in fact I did discover two nice things about Word Publisher. It comes in an attractive package and it's not copy-protected. (*Spinnaker Software, One Kendall Square, Cambridge, MA 02139. C-64/ \$39.95.*)

—JOHN PREMACK  
CAMBRIDGE, MA ■

# THERE ARE SOME THINGS YOU JUST CAN'T DO WITH GEOS... ...UNTIL NOW, THAT IS.

only  
\$24.97

Introducing **GEOS Power Pak\***, a collection of the most useful GEOS desktop accessories, utilities and applications ever assembled on one disk.

The editors of *RUN* magazine have packed this two-sided disk with over a half-dozen useful programs, a wide variety of fonts and over a hundred illustrations to use with GEOS. It features the work of some of the **BEST** talent in the GEOS market, including telecommunications expert Bill Coleman; font designers and artists Susan Lamb, Tom Trevorrow and Shaun Jones; and GEOS programmers Joe Buckley and Wayne Dempsey. This assures you, the GEOS user, of increased productivity and ease of use each and every time you boot up GEOS.

Discover how it feels to be a GEOS power user with the **GEOS Power Pak**. This disk will give you features unavailable anywhere else.

For example:

#### APPLICATIONS

—**geoTerm** is the first terminal program for GEOS. Before the **GEOS Power Pak**, this application had the experts stumped. But now you can telecommunicate to BBSs and online networks, sending and receiving messages, attending confer-

---

*"The editors of RUN have assembled the best talent in the GEOS community for this disk!"*

---

ences and uploading and downloading programs.

—**CardFile** is a file manager that comes in handy to maintain lists. Use it as an address book or to keep lists of tapes, records or household items . . . the possibilities are endless.

#### FONTS

—Choose from a wide selection of character fonts and point sizes. All the fonts are original and unpublished. Suitable for letter writing, headlines or to spruce up any newsletter, memo or sign.

#### CLIP ART

—Pick from over one hundred illustrations to use in your own documents.

#### ACCESSORIES

—**Thumbnail** is a unique program that reduces full-page geoPaint images for display on the screen and to save to disk. Catalog your geoPaint collection or paste images into a geoWrite document.

—**geoOrganizer** is a disk utility that lets you rearrange your GEOS files quickly and easily.

—**Pattern Editor** lets you create your own fill patterns for use within geoPaint.

—**geoBreak**. Enjoy this classic arcade game.

—**Convert 2.2**. Convert GEOS data and programs for uploading and downloading with geoTerm.

—**Write Hand Man**. Word and document analyzer.

—**AutoView**. geoPaint slide show maker.

—**PaintView II**. View geoPaint pages.

Like the original GEOS program, the **GEOS Power Pak** greatly enhances the capabilities of your C-64.

Let's face it. You've invested lots of time and energy learning to use GEOS. The **GEOS Power Pak** returns this investment tenfold with easy applications, expanded capabilities and increased productivity.

**GEOS Power Pak** revolutionizes the program that revolutionized your C-64.

\*GEOS Power Pak is a product of *RUN* magazine and is not connected with Berkeley Softworks, creator of GEOS, or Commodore, manufacturer of the C-64.

**YES!** I want to add more computing power to my Commodore 64. Send me the **GEOS POWER PAK** from *RUN* magazine for \$24.97.

Check enclosed     American Express  
 MasterCard         Visa

Card # \_\_\_\_\_

Exp. Date \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Foreign Airmail, please add \$3.95 per order.

Mail to: **ReRUN 80 Elm St.**  
**Peterborough, NH 03458**  
or call toll free **1-800-343-0728**

GP988

# 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 that's not all . . . . Just compare these features

Simple Operation: Just press the button at any point and make a complete backup of any memory resident program to tape or disk.

Turbo Reload: All backups reload completely independently of the cartridge at Turbo speed.

Sprite Monitor: View the Sprites 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/Background collisions.

Unique Picture Save: Freeze and save any Hires Screen to tape or disk. Saved in Koala, Blazing Paddles Format.

ONLY \$59.99

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

Compressor: 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 – Automon, Append, Old, Delete, Linesave, Printer lister

Screen Dump: Print out any Screen to Host or Printers. 16 Gray Scales, Double size print options.

Unstoppable Reset: Reset button to Rectrrieve System and Reset even so called Unstoppable Programs

Fully Compatible: Works with 1541/C, 1581, 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!

### UNIQUE FEATURES:

#### WARP 25

Loads 50K in under 5 seconds!!

The 11 true action replay features "Warp 25" the world's fastest disk serial Turbo. A typical backup will reload in under 5 seconds.

- No additional hardware required
- No special formats
- Super reliable
- Remember this is not a system where files have to be converted – with action replay you simply save directly into Warp 25 status – reload in seconds.
- Backup all your existing programs to load at unbelievable speed!
- Because AM has on board ram it can also load commercial disks directly at 25 times speed.
- This is unique to Action Replay!!
- Warp Save/Load Available straight from Basic.

#### 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 its HEX/ASCII – 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!

### PLUS SUPPORT UTILITIES

#### Action Replay Graphics Support Disk

To help take advantage of action replay's unique power to freeze any screen and save it into your favourite graphics package we have prepared a suite of graphic support facilities.

- Screen Viewer: View screens in a 'slide show' sequence – Joystick control simple to use.
- Message Maker: Add scrolling messages to your saved screens with mouse, very easy to use.
- Freezette: A full sprite editor, modify/save/load, features, full edit facilities.
- Zoom Lens: Explode sections of any saved screen to full size including Border – Superb fun and very useful.

ONLY \$14.99

#### Action Replay Parameter Support Disk

Action Replay can backup any memory resident program plus the majority of multiloading disks. To further enhance your ability to backup the small number of tricky programs we have a number of useful utilities and tips to help. These include a disk subler; track sector editor; special file copier plus a number of others. A must for the dedicated cracker.

ONLY \$14.99

\* In our most recent test we were unable to find any program that AR4 could not cope with.

Circle 154 on Reader Service card.

# ORDERS ONLY

## 1-800-782-9110

NOTE: – Technical or any other type of Enquiry cannot be answered by the staff on this number

FAX: (702) 454 7700 (After 7.30 pm)

TELEX: 6503441417 MCIVW

TECHNICAL/OTHER ENQUIRIES

(702) 454 7700

5.30pm to 7.30pm (Pacific Time) and Sat - Sun

# 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 unstopable reset.

ONLY \$49.99



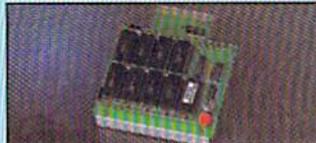
## ULTRA CRUNCHER

The ultimate cartridge based program compactor.

- Compact by upto 30%!
- More programs per disk.
- 5 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

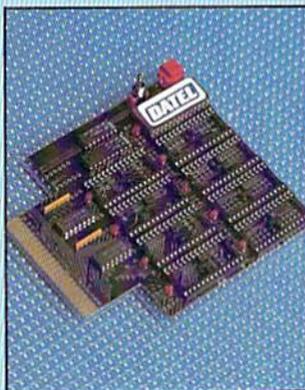
OR \$14.99 ROM ONLY



## DUPLIKATOR™

- Copies whole disk in one pass - only one drive required!
- Makes backup 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 backup 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

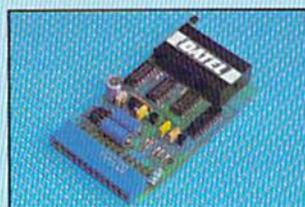


## TURBO ROM II

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

- Loads/Saves most programs at 5-6 times normal speed.
- Improved DOS support including 10 sec format.
- Programmed function keys- load, directory, old, etc.
- Return to normal kernel at flick of a switch.
- PCOPY - 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



## 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 EPROM's 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 kernel expanders or indeed any EPROM base project.
- Comes complete with instructions - plus the cartridge handbook.

ONLY \$69.99 COMPLETE



## TOOLKIT IV

The ultimate disk toolkit for the 1840/1841



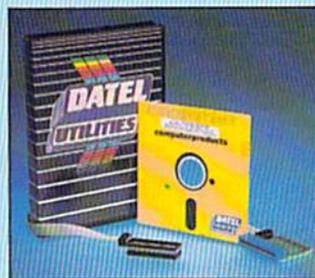
- A disk toolkit is an absolute must for the serious disk hacker. Toolkit IV has more features than most for less.
- DISK DOCTOR V2 - Read and write any track and sector including extra and renumbered tracks. Repair damaged sectors. Look underneath read errors.
- HEADER/GAP EDITOR - Decodes and displays 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 (same 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 best. Burst Nibbler transfers data as raw OCB code via the parallel cable without the need to decode it so you get a perfect copy to 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 1/4 tracks.  No need to buy parallel cable if you have Professional DOS etc.  Cable has through-hole extension for other add ons.



ONLY \$39.99 COMPLETE

SOFTWARE ONLY \$19.99

CABLE ONLY \$19.99

## BURST NIBBLER PARAMETER DISK

- Burst Nibbler is the most powerful Nibbler around - but even the best can be better.  This disk contains dozens of parameters specially written for the protection schemes impossible to Nibble. These are mainly 'Vmax' ones. Reproducible and include titles such as 'Defender of the Crown', 'Giantet' etc.  Regularly updated to include any new titles.  This disk is by no means a necessity - the standard Burst Nibbler will copy 98% of software as is - if you want to go to the limits, this is the product for you!

ONLY \$14.99



## EXTERNAL 3.5" DISK DRIVE

- Slimline extra low profile unit - only 6" long!
- Top quality NRC drive mechanism.
- Throughport allows dualysing other drives.
- A superbly styled case finished in amiga colours.
- Fully compatible.
- 1 meg unformatted capacity.
- Good length cable for positioning on your desk etc.
- Complete - no more to buy.

ONLY \$169.99



## 512K RAM EXTENSION A500

- Available with/without calendar clock option.
- Simply plugs internally into a A500 slot.  Switch in/out with switch supplied.
- Fitted in minutes - no soldering etc.
- With calendar/clock onboard time/date automatically loaded.
- Battery backed to retain time/date.

ONLY \$119.99 for standard 512K card or

ONLY \$139.99 for version with clock/cal.

## MIDIMASTER

- Full Midi Interface for A500/2000/1000 (Please state model).
- Compatible with most leading Midi packages (inc. D/Music).
- Midi In - Midi Out x 3 - Midi Thru.
- Fully Opto Isolated
- No need to p/r more - Full Midi standard.

ONLY \$49.99

Circle 154 on Reader Service card.



Add \$4.00 Shipping/Handling



CHECKS/MONEY ORDER/CODS ACCEPTED.

## DATEL COMPUTERS

3450 E. TROPICANA AVE.,  
UNIT #67  
LAS VEGAS  
NV 89121

# SO...YOU WANT TO BE A **Power User?**

If you've been on the Commodore scene for a while, maybe it's time to see how far you can expand your computer.

IF YOU THINK YOU'VE OUTGROWN the capability of your C-64, think again. With some "hardpower," you can have your little eight-bitter doing virtually anything the big boys can. Here's a look at some hardware add-ons that will help you get more from your computer.

## **Memory Storage**

A computer can never have too much memory. More memory means more space for programs, which translates directly into more features and additional functions. Extra memory also provides more space for data your programs can work with—larger word processor documents or more spreadsheet numbers, for example. With database programs, you can speed up search and sort operations by bringing larger chunks of the database file into the extra storage space.

Large blocks of memory can also be partitioned to store additional programs or applications. One way of doing this is to organize the memory to work just like an additional disk drive. The advantages of such a RAM disk are fast access to the files and compatibility with existing software.

Several products are available that expand the memory capacity of the C-64. Perhaps the largest single memory add-on is Commodore's 1764 RAM Expansion Module. It adds 256K of storage capacity to the computer—four times the internal RAM—and comes with a replacement power supply, plus software including RAMDOS, Commodore's RAM-based disk emulator that lets you use the 1764 as a high-speed drive. RAMDOS also works with commercial programs that are written to support it.

Most older programs that take control of the computer won't benefit from the 1764, although they will run with the module in place. However, some new programs, as well as updates of existing ones, have been designed to utilize the storage capacity of the expander, the most notable example being GEOS and its applications software.

You have two options when using the 1764 with GEOS. The first configures the RAM expander as a shadow drive that stores a copy of whatever is written to or read from your disk drive. The second configures the 1764 as a RAM disk, which behaves just like a second disk drive. You copy your application or document onto the RAM disk, then carry on as if it were a second drive. One limitation here is that you can't set up the RAM disk as a third drive if you already have two drives. The RAM disk will replace one of the existing drives.

While we're talking about GEOS, see if you can catch yourself a 1351 mouse. In Proportional mode, this hairless, long-tailed rodent makes GEOS a real pleasure to use, while in Joystick mode, it functions with older programs. Graphics packages designed for joystick or trackball operation work surprisingly well with the mouse, and the combination of 1764 RAM expander and 1351 mouse really makes GEOS take off!

Like regular RAM, the contents of a RAM expander disappear as soon as the computer is turned off. There are two ways to add memory that doesn't forget. One is to provide a battery backup for the RAM, as in the Quick Brown Box. Using a built-in lithium battery, this unit can retain data for up to ten years—surely an ade- ▶

BY MORTON KEVELSON



*Firman*



quate interval, since I know of no C-64s that have been in service for anywhere near that long.

The Quick Brown Box is a game-style expansion cartridge with a capacity of 16, 32 or 64 kilobytes. It comes with a number of utilities—stored inside its own RAM—that manage the



Adding four times as much external memory to your Commodore is the 1764 RAM Expander.

The second form of nonvolatile memory storage is read-only memory (ROM). Once your data is placed into ROM, it becomes virtually permanent, as it can be changed only with difficulty. Thanks to the Jason-Ranheim Company, it's possible for nearly anyone to create personalized program cartridges. Their system is hardware intensive and requires handling sensitive memory chips, but, if you can hack it, it'll place your favorite applications into instant-loading cartridges.

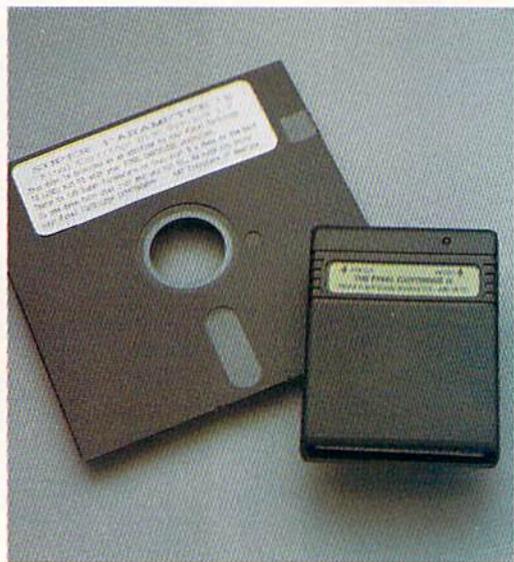
The Jason-Ranheim kit includes Capture II, a memory-grabbing cartridge; Promenade, a device that lets you program your own erasable, programmable, read-only memory (EPROM) chips; and enough hardware to create a single cartridge. (An EPROM is just like a ROM, except it's programmable with relatively simple hardware and can be reused if the data is erased by exposure to ultraviolet light.) Additional blank CPR3 cartridge kits are also available, as well as a package that includes the above plus a second cartridge kit and a DR EPROM eraser. To use the J-R kit, plug Capture II into the expansion port and Promenade into the user port, load and run your program from disk as usual, then just push the button on Capture and follow the instructions in the screen prompts.

If you do your own programming, you may wish to investigate the other cartridges available from Jason-Ranheim. The battery-operated CCSZ Clock/Calendar cartridge will automatically set the time and date in your C-64, and it also contains 8K of battery-backed RAM and space for up to 128K of programs and data in EPROM. The PTM-4 Bank-Switching Cartridge can manage up to 256K of programs and data in up to four EPROMs.

### Disk Storage

The disk drive is the true mass storage device for microcomputers, and, as we all know, Commodore's 1541, the workhorse for the C-64, is abysmally slow. However, both Dolphin DOS and RapiDOS Professional can eliminate the 1541 doldrums by giving your drive a high-speed parallel path to the 64. Once one of these computer and disk drive modification kits has been installed, even the longest C-64 programs load in less than five seconds. But be aware that installation requires opening your computer and disk drive and replacing several components, with soldering possibly involved. Taking it to a professional is probably wise. Also, the complete assembly will have an additional ribbon cable tying the computer to the disk drive.

To make the project a bit simpler at only a slight sacrifice in performance, you could install JiffyDOS or RapiDOS, which require replacement of only the Kernal ROMs in the computer and the disk drive. Once again, however, soldering may be needed. Versions of JiffyDOS are available for the C-64 and SX-64 computers and the 1541, 1571, 1581, FSD and MSD disk drives. If you're using a 1571 or 1581 with your C-64, the C-64 Burst ROM will access the high transfer speeds these disk drives can attain. For C-128



The Final Cartridge's hardware and software give you more speed, as well as windows and a calculator.

contents of the Box in connection with the 64 or the 128. The primary application for this accessory is keeping a variety of unprotected programs ready to be rapidly loaded when needed. It's particularly handy if you like to write your own programs, since you can quickly and frequently copy them into the protected battery-backed RAM. However, because it has its own operating mode, the Quick Brown Box is of limited use with commercial software.

Once your data is placed into ROM, it becomes virtually permanent.

users, the C-128 Burst ROM does the same in C-64 mode. Here again, you must open the computer and replace one of the chips.

If you'd rather not open your computer or disk drive, you might consider one of the many cartridge-based speed-up devices on the market. My personal favorite is Super Snapshot, which saves a running program to disk, plus offering many other built-in utilities, including a file copier, a machine language monitor and screen dumps to disk or printer. Another such product, The Final Cartridge, provides disk speed-up, memory save and a built-in calculator. The primary disadvantage of the cartridge-based utilities is that they tie up the cartridge port so you can't use other accessories, such as the 1764 RAM expander.

Another disk storage option available to C-64 users is the 1581 drive, which provides space for up to 800K of data on a 3½-inch disk. Unfortunately, most commercial software still supports only 5¼-inch disks.

The last, but hardly least, alternative is a hard drive, the best example of which is the Lt. Kernal. It holds many megabytes of data and markedly decreases file-transfer time by creating a high-speed, parallel data-transfer path to the C-64.

Making a disk backup is a tedious task that's neglected all too often. If your operations call for frequent duplication, then the MSD SD-2 is well worth considering. This workhorse of a dual disk drive can back up a 1541-format disk in under two minutes, and if you upgrade it with a Fast Copy ROM, less than 20 seconds are needed. The most significant disadvantage of the MSD is its incompatibility with most copy-protected software.

### Printer Enhancements

Driving a printer can tie up a C-64 for a considerable time—unless you have an interface with a RAM buffer. The latest generation of such interfaces, including the Super Graphix Gold (32K buffer), the Hot Shot Plus (8-64K) and Device One (16K), also provide built-in fonts, downloadable user fonts and numerous other features. My personal favorite is the Super Graphix Gold, because of its reasonable-sized buffer, wide selection of built-in and downloadable fonts, and ability to communicate at burst speeds with my C-128.

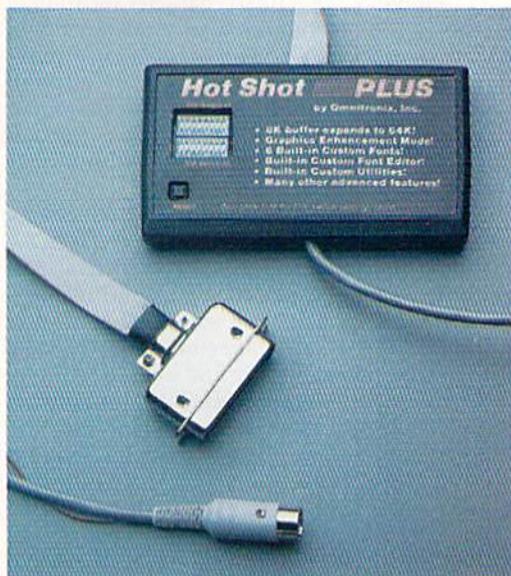
If you already have a full-featured printer interface, you can give it a boost with the Serial Box, a stand-alone 64K serial port buffer. This device accepts data, via the C-64's serial port, at the fastest possible rate, without speed-up enhancements, and its 64K buffer can store the largest C-64 documents, freeing your computer for other tasks more than four times sooner than the fastest printers.

Perhaps the speediest way to get data to the printer is via the user port, and a simple parallel cable connected to a standard Centronics buffer can work wonders. With one of these cables, even Easy Script can send text at more than 1000

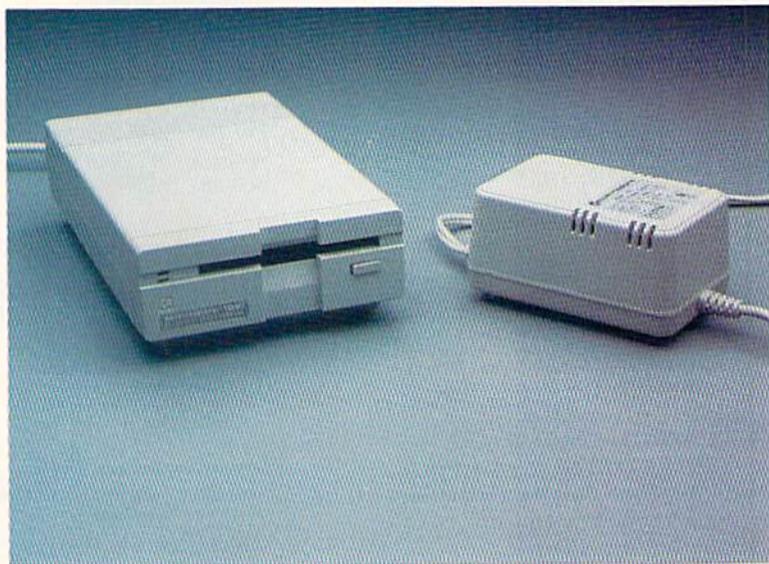
characters per second to a suitable Centronics buffer.

### Useful Widgets

Now let's turn our attention to some miscellaneous hardware add-ons. Turbo 64 places an



Providing you with a printer buffer, fonts and utility programs is Omnitronics's Hot Shot Plus.



With Commodore's 3½-inch disk drive, the 1581, you get 800K of storage.

entire microcomputer, complete with a 65C816 4-MHz, 16-bit microprocessor, 64K of RAM and 32K of ROM, on an expansion port card. The result is plenty of raw speed. A 6510 microprocessor—the brains of the C-64—can perform one million operations per second. This may sound like a lot, but they're very simple operations and it takes a very large number of them to do anything useful. In contrast, the microprocessor on the Turbo 64 can perform four million opera- ▶

**W**hen selecting power hardware, it pays to plan ahead.



tions per second, enabling most software to run three to four times faster.

Hardware add-ons for giving the C-64 an 80-column screen display used to be available, but are no longer being made. In their absence, a programming approach to increased display capacity employs a redefined character set and bit-mapping. This method is used most notably in GEOS, which can place on the screen proportionally spaced characters in a variety of point sizes. Unfortunately, because of fewer pixels per character, readability suffers somewhat. The best known example of a software 80-column display is the one in Pocket Writer.

Last, but far from least, the X-10 Powerhouse may be the most potent hardware accessory for the C-64. This stand-alone unit, which is programmed via the C-64's user port and includes a real-time clock, acts as an automatic controller for the BSR X-10 series of remote control modules for the home. Each of the plug-in modules controls an appliance or light with a power requirement from 500 to 1500 watts, and the Powerhouse can handle up to 256 modules, so it has

a virtual control capacity of 3.84 megawatts—power far beyond the needs (and the utility bill) of most homes!

### The Whole System

When selecting power hardware to enhance your computer, it pays to plan as far in advance as possible, to ensure compatibility among the various components you'll integrate into a whole. Also, as you make buying decisions, you'll probably notice that the prices of the various peripherals add up quickly, very possibly exceeding the original cost of your computer. With this in mind, you might consider a direct upgrade to the C-128. It might save you money, while providing you with the convenience of software and hardware compatibility, doubled memory, speed and display capacity, and "natural" disk drive speed enhancements. ■

*Morton Kevelson, an electrical engineer by profession, devotes his spare time to the care and feeding of a C-64, a C-128, two Amigas and four children, not necessarily, he claims, in that order.*

Table 1. Manufacturers and prices.

**1764 RAM Expansion Module, \$149**

1351 Mouse, \$49.95

1581 Disk Drive, \$249.95

Commodore Business Machines

1200 Wilson Drive

West Chester, PA 19380

**Quick Brown Box**

16K, \$69; 32K, \$99; 64K, \$129

Brown Boxes, Inc.

26 Concord Rd.

Bedford, MA 01730

617-275-0090

**Capture II, \$39.95**

Promenade, \$99.50

CPR3 Cartridge Kit, \$29.95

DR EPROM Eraser, \$34.95

CCSZ Clock/Calendar Cartridge, \$49.95

PTM-4 Bank Switching Cartridge, \$19.75

Jason-Ranheim Company

1805 Industrial Drive

Auburn, CA 95603

800-421-7731; 800-421-7748 in California

**Dolphin DOS**

Micro Accessories of S.A.

Unit 8

Hewittson Rd.

Elizabeth West

South Australia 5113

08-287-0191, 08-252-0881

**RapiDOS Professional, \$99.95**

RapiDOS, \$49.95

Turbo 64, \$189.95

C-64 Burst ROM, \$32.95

C-128 Burst ROM, \$38.95

Mass Duplicator, \$25.95

Chip Level Designs

PO Box 603

Astoria, OR 97103

503-861-1622

**JiffyDOS**

C-64, \$49.95; C-128, \$59.95

Creative Micro Designs, Inc.

PO Box 789

Wilbraham, MA 01095

413-589-7624

**Super Snapshot, \$54.95**

Software Support International

2700 NE Anderson Rd.

Vancouver, WA 98661

206-695-9648

**Final Cartridge, \$69.95**

Distributed by

(among others):

H&P Computers

154 Valley St.

S. Orange, NJ 07079

201-763-3946

**Lt. Kernal,**

C-64, \$899.95; C-128, \$949.95

Super Graphix, \$99.95

Super Graphix Gold, \$119.95

Xetec, Inc.

2804 Arnold Rd.

Salina, KS 67401

913-827-0685

**Hot Shot Plus, \$99.95**

Omnitronix, Inc.

760 Harrison St.

Seattle, WA 98109

206-624-4985

**Device One, \$119.95**

Progressive Peripherals and Software

464 Kalamath St.

Denver, CO 80204

303-825-4144

**Serial Box, \$74.95**

R. J. Brachman Associates, Inc.

PO Box 1077

Havertown, PA 19083

215-622-5495

**X-10 Powerhouse, \$49.99**

X-10 USA, Inc.

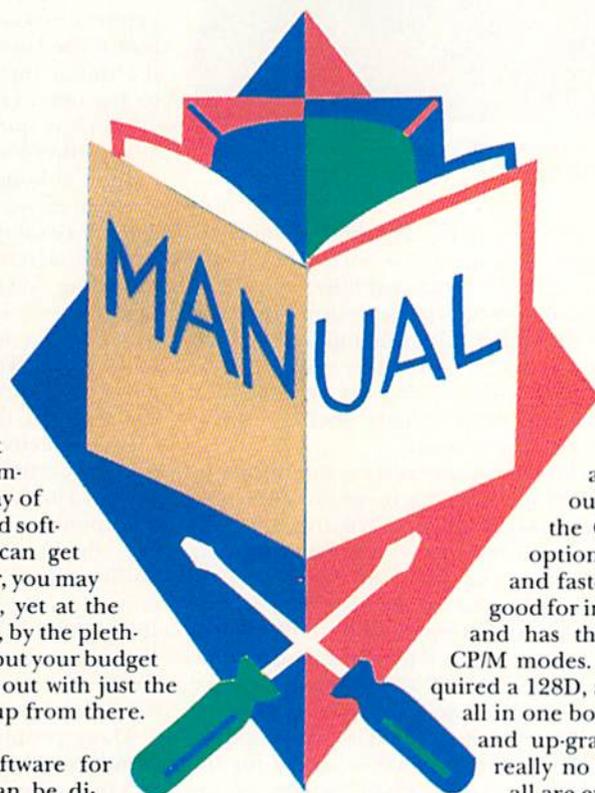
185-A LaGrande Ave.

Northvale, NJ 07647

201-784-9700

# NEWCOMER'S Guide

If you're new to Commodore computing, here are some guidelines to help you choose the right hardware, software and accessories.



ONE OF THE wonderful things about the Commodore computer is the wide array of hardware add-ons and software packages you can get for it. As a new owner, you may be a bit intimidated, yet at the same time fascinated, by the plethora of great gadgets, but your budget insists that you start out with just the essentials and work up from there. So, where to begin?

Hardware and software for your Commodore can be divided into three general areas: the must-have, the ought-to-have and the special add-ons. Your individual tastes and needs will differentiate the necessary from the purely frivolous.

## Hardware Minimums

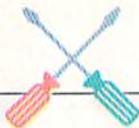
**Computer and disk drive.** The core of your system is the computer itself, along with a disk drive. Perhaps you have a C-64, the foundation

of Commodore's 8-bit computer line and a great way to start out. Or maybe you chose the C-128, which, with its optional 80-Column mode and faster disk drive access, is good for information processing and has the optional C-64 and CP/M modes. Or, you may have acquired a 128D, a C-128 and disk drive all in one box, with the latest chips and up-grades built in. There's really no "wrong" choice here; all are excellent machines and are well supported by the third-

party software industry.

The disk drive, considered optional when there was a wide selection of software for the Commodore 1530 Datassette, is now really essential, with most manufacturers issuing their programs on disk only. Drives for your Commodore may be either single-sided or double-sided. The 1541, made by Commodore, is the most common single-sided drive for the C-64. ▶

BY ELLEN RULE

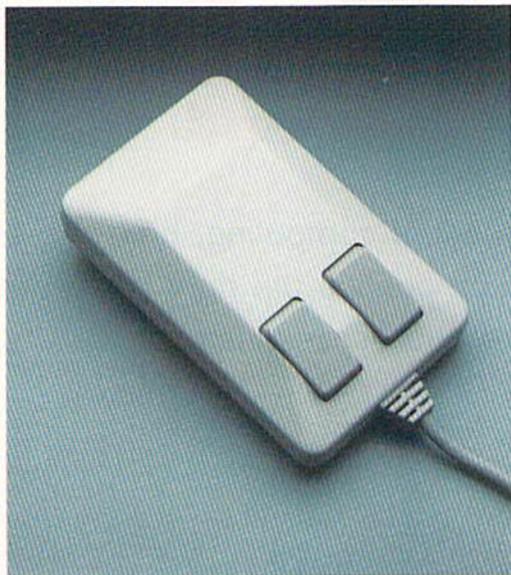


The 1571 double-sided drive is used most often with the C-128, which, among other things, can utilize the 1571's faster speed and ability to read other disk formats.

There's a variety of 1541 clones available that

# A

monitor offers the best picture and color clarity.



Keep that mouse a-rollin'. . . It's Commodore's 1351 true proportional.

will work with your C-64. The biggest inconvenience Commodore users have encountered with these units is lack of compatibility with some copy-protected commercial software. Since the problem varies with the drive manufacturer, such a purchase should be thoroughly researched to avoid disappointment. (Using the drive as your second, or data, drive usually doesn't involve copy-protection problems.)

**The monitor.** Your computer is connected to either a television set or a monitor. While the television is an economical alternative, since it's almost certainly already in your home, a monitor offers the best picture and color clarity.

The first widely used monitor for the C-64 was the color-composite Commodore 1702, which provided access to the 64's color and sound. Later, Commodore's 1802 added a monochrome option, preferred by some for word processing and spreadsheet functions. The Commodore 1902 and 1902A monitors are designed for the C-128 and 128D, accepting RGBI (red-green-blue-intensity) input for 80-column mode, as well as 40-column composite signals. The newest Commodore monitor, the 1084, can receive all of these signals, plus, should you be of a mind to upgrade, the RGBA (analog) signal sent by Amiga computers.

Many non-Commodore monitors are compatible with the C-64 and C-128. When considering a purchase for your C-64, look for a color-composite monitor. Your C-128 will benefit from a monitor that's switchable from composite to 80-column RGBI.

**The printer.** The next hardware item to select

is a printer. Like the monitor, many people view a printer as optional when they're first starting out. However, they soon discover they're underutilizing their computer by not being able to print out the results of their work. (A word processor or graphics program isn't nearly as useful if you can view the results only on the screen!) A serial printer connects directly to the computer, and a parallel printer requires an interface. The printer may use a dot matrix printhead or a daisywheel.

Commodore is one of several manufacturers of direct-connect serial printers that are technologically up to date. These machines are plug-compatible with the serial port on the back of your disk drive. Unfortunately, this convenience is offset in some models by an inability to print italics, super- or subscripts, true descenders (where tails of letters such as q and p fall below the line) or near-letter-quality (NLQ) text. Print speed and dots-per-inch (dpi) capability should be scrutinized (80 dpi is recommended) when you're considering the purchase of one of these printers. A Commodore direct-connect printer is restricted to use with the C-64 or C-128, because the built-in interface makes it difficult to connect to any other computer.

Many people choose a non-Commodore parallel printer for greater flexibility and enhanced output, although these machines require a separate interface. Epson-compatible printers are common examples. I'd recommend that you look for a dot matrix parallel printer with text options, including NLQ. However, you might also want to consider a daisywheel machine, which is apt to cost more and be slower, but whose output looks like a typewriter's. Your Commodore-oriented salesperson or fellow Commodore users can show you the capabilities of various printers.

**Input devices.** The last piece of hardware in a basic Commodore system is an input device such as a joystick or mouse. Action games require a responsive joystick, perhaps with more than one fire-button for heightened alien-zapping ability. On the other hand, you might select Suncom's IconTroller, a tiny device that attaches to the right side of your C-128 or 64C keyboard. Conveniently out of the way, it provides low-profile access to software packages that require a joystick for menu selection.

Many people prefer a mouse for menu selection. Computer mice roll on a flat surface, such as a mouse pad, which provides a textured surface for smoother movement. The Commodore 1350 mouse (no longer being manufactured) functions like a joystick, while the Commodore 1351 mouse and Contriver Corporation's M-3 mouse are what is known as "proportional." This means that they offer (in Mouse mode) finer screen control, but only with software supporting proportional input. They can, however, function alternatively as a joystick when in their Joystick mode.

Other input devices that can be used with some software are the light pen and the touch tablet. The light pen is a hand-held, software-driven unit, with either push-button switches or a touch-sen-

sitive tip, that plugs into the computer's joystick port. The touch tablet is a flat-surfaced unit that transmits the movement of your finger or a stylus to the computer screen. This is usually accomplished via the joystick port.

When choosing an input device, remember that the software you plan to use must be able to interpret the signals sent by the device, and the device must be comfortable for you to use. Check your software documentation to determine the recommended input device. The best one for a CAD program may not be the best for menu selection with your word processor, and vice versa.

### Other Hardware

Depending on your finances and the special applications you have in mind for your computer, you may want to think about add-ons such as a second disk drive, modem and memory expansion unit.

**A second disk drive.** If you plan to use your computer to manage information through word processing, a spreadsheet or data filing, you should consider a second disk drive to hold your data disk. Of course, your software must support two drives. (How can you tell? Check the manual or look for a "set-up" option on the screen.) Using a second drive for data storage saves a lot of disk swapping and preserves your original program disk (which really shouldn't be used for saving data).

The selection of a second disk drive opens up a new possibility—the Commodore 1581 drive. Its 3 1/2-inch format provides almost six times the storage capability of the single-sided 5 1/4-inch drive! Because few software companies are issuing their titles on 3 1/2-inch disks, I don't recommend buying this unit as a primary drive for use with commercial software. However, as a second drive for writing data files, the 1581 excels, not only by virtue of its increased storage capacity, but, when used with the C-128, its impressive speed.

If a program's documentation doesn't specify 3 1/2-inch support, check with the manufacturer, a Commodore software vendor or someone who already uses the program before you take the financial plunge. Research your purchase to avoid software-hardware incompatibility problems!

**A modem.** Another specialized hardware add-on is the modem, which acts as an interface between your computer and the telephone line for access to local and national telecommunications services. Modem specifications vary in such factors as direct-connect capability, transmission speed (measured in baud rate) and internal controls.

As with printers, the modem you purchase may be a direct-connect unit or one requiring an interface. Several modems are available that plug directly into the C-64 or C-128 user port, including the 300-baud Commodore 1650 and the 1200-baud 1670. Non-plug-compatible units, requiring an RS-232 modem interface, may have enhanced features, as well as potential for use with other

computers. They're a viable alternative despite a slightly higher cost.

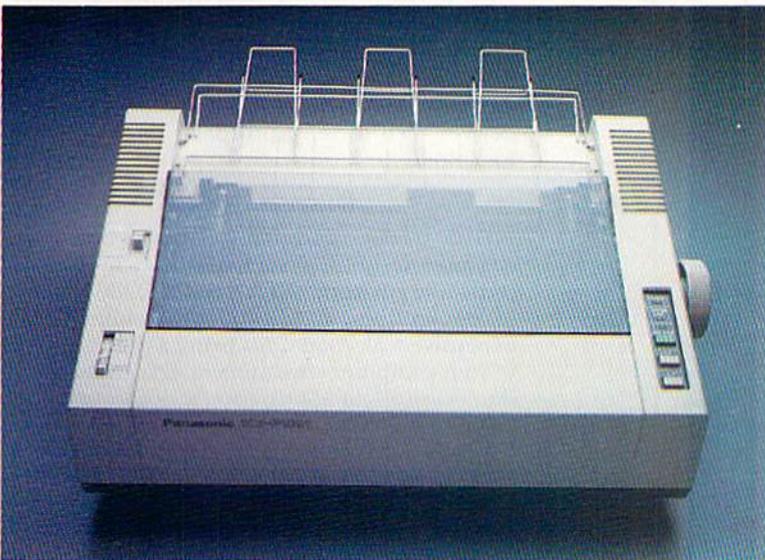
Common rates of data transmission for telecommunications on a Commodore computer are 300 and 1200 baud. If the online services you use charge by the minute for access time, a 1200-baud modem will save you money in the long run. On the other hand, your decision may be based on purchase price, and starting out with a low-cost 300-baud modem may be the smartest approach for your circumstances.

Whenever you consider hardware options, compatibility with your software is a major factor. The majority of Commodore telecommunications programs are based on traditional standards. For ease of use, your modem should be either 1650-compatible, for 300 baud, or Hayes-compatible, for 1200 baud.

**Memory-expansion units.** Commodore has produced three RAM expansion units (REUs) for use with the C-64 and C-128 computers: the 1700 and 1750 for the C-128 and the 1764 for the C-64. These units plug into the expansion port and add 128K (kilobytes), 512K and 256K of memory, respectively.

RAM expansion can be used like a disk drive, and access to a RAM disk is virtually instantaneous, because it has no mechanical parts. However, like the RAM in the computer itself, Commodore RAM expansion units lose the contents of their memory when the computer is powered down.

A common misunderstanding among Commodore owners is that the RAM expansion unit



Panasonic's KX-P1091 dot matrix printer features NLQ, Draft and Compressed modes.

will automatically add accessible K to their active RAM. In fact, the C-64 has no way of knowing that the excess memory is in place, and there are no commands in Basic 2.0 to access it. Software support is critical here! In contrast, the C-128 can access the REU using Basic 7.0 or CP/M, both built in. GEOS, Basic 8 (for the C-128) and some ▶

**I**t's wise to make backups of your programs and data.



word processors, by Professional Software, Digital Solutions and Xetec, among others, take advantage of the speed and storage capability of the RAM expansion units.

An alternative to the volatile REU is a battery-



Suncom's IconTroller doesn't take up much space and works well with games.

backed RAM, such as the Quick Brown Box. This device, too, plugs into the expansion port of your computer and provides instant access to your stored programs, data, utilities or games. However, its lithium battery preserves the memory even when the cartridge is unplugged. RAM expansion units and the Quick Brown Box, as well as other cartridges, can be used together via devices such as the Apropand Cartridge Port Expander.

### Organization

**Disk storage units.** Disk storage boxes are designed to hold 50 or more disks in a clean, static-free environment. They're usually made of plastic and may have locking capability. More expensive teakwood units bring a designer look to your computer environment. Of course, if you don't care about appearance, a clean cardboard box like a shoe box will do just as well.

Smaller disk cases will carry five to 15 floppies safely to school, work or computer-club meetings. Some of these units snap together to provide a versatile transportation/storage system.

**System organization.** Good hardware organization and adequate work space are critical to efficient computer operation. Finances and personal taste will be the major influence on your layout. Your scheme may consist of a tilt-and-swivel monitor base, an economy printer stand and a surge-suppressing power strip. Either a home-built shelf or a commercial computer desk will support your monitor at a comfortable viewing height and elevate your printer for convenient paper storage. A system organizer, such as

the Ketek Command Center, combines compact storage and support for your computer, disk drives and monitor, while also providing surge suppression and a cooling fan.

### Software: The "Big Four"

Many people buy a computer "to get organized," hence the "big four" of applications software: word processors, databases, spreadsheets and telecommunications programs.

A word processor is used to produce text documents. For writing letters, you might choose an inexpensive, easy-to-use package. More advanced applications (such as term papers, form letters and newsletter production) require a multifaceted program.

Selecting word processing software can be tough, particularly for newcomers. Drop-down menus, WYSIWYG (what-you-see-is-what-you-get) displays and on-screen help may all be useful. Try out various programs and choose the one with the features you like best.

Databases are programs that file text information. Tidying up all those scraps of paper with phone numbers and addresses, cataloging your video-cassette library or tracking the inventory of your home-based business can be accomplished with this tool. A good database features flexible layout, room for a large number of entries and swift, versatile sorting capabilities.

For management of numeric data, or "number crunching," you should have a spreadsheet. Think of this application as a large electronic sheet of columnar paper into which you can plunk numbers, text and formulas. The figures can be calculated and recalculated at will, allowing you to easily explore "what-if" options. Keeping your budget, tracking the family's bowling scores and producing sales invoices are all functions at which a spreadsheet shines.

Telecommunications software is your computer's link to the outside world. You may want to gather information from an electronic encyclopedia service, check stock market trends, chat with users across the country through a national telecommunications network, or download games and utilities from a local bulletin board system (BBS). QuantumLink, the Commodore network, is by far the easiest nationwide service for Commodore users to access and use, since the parameters on the Q-Link software are preset, and, once you're online, choices are menu-driven. Other national networks are accessible via general-use telecommunications software. Subscribers to these and local BBSs quickly learn the command sequences that will let them take advantage of the many services available through the telephone lines.

As you research the purchase of applications software, you'll no doubt encounter "integrated packages." As separate units or in specially priced sets, the programs in these packages can read and use the information produced by one another. With an integrated package, you can draw financial data from a spreadsheet into a text report, produce copies for individuals se-

lected from your database, then upload those files to a telecommunications network for electronic mail delivery. Most of us don't need anywhere near that much capability, but incorporating the family's PacMan scores into the annual Christmas letter and producing graphics-enhanced mailing labels might be fun!

When selecting your applications software, ask yourself questions regarding hardware compatibility. Will my telecommunications software allow me to use my modem? Will this word processor support my printer? Will the data files be compatible with my 1581 drive? Magazine reviews, manufacturers' promotional literature and the opinions of fellow users are excellent guides when it's necessary to make software selections.

### Other Software

The fluid memory and graphics capabilities of the personal computer have inspired "desktop publishing," my nomination for turning the "big four" into the "big five." With a desktop publisher, Commodore users can combine graphics and text to create professional-looking newsletters and flyers, a task that used to require typesetters, artists and other costly specialists.

Fast-loaders and utility cartridges help manage the computer and its peripherals. In addition to speeding up the notoriously slow Commodore 1541 drive, they can let you capture a graphics screen on disk or dump it to a printer, back up (copy) disks for archival purposes, edit the machine language component in memory and add Basic programming enhancement (toolkit) functions.

Perceiving the possibility of a better way to access the computer and all of its obscure functions, Berkeley Softworks developed GEOS, the Graphic Environment Operating System. GEOS provides access to disk and printer through a graphic instruction set, rather than the usual typed commands, and a framework within which software applications, as well as disk utilities and games, can be run. The manufacturer of GEOS produces some such programs, including the geoWrite word processor, the geoFile database, the geoCalc spreadsheet, the geoPublish desktop publisher, and more.

Up to this point, my discussion has referred to commercial software, which, like any other authored work, is subject to copyright by the author or publisher. Public domain software, on the other hand, consists of programs that have been released by the author, so they may be freely distributed and copied by anyone, and at very low cost. Many outstanding programs are available through the public domain; in fact, they constitute the largest portion of ethically managed computer club libraries and bulletin board files.

When it's permissible to do so, it's wise to make backups of your programs and data, and commercially produced copying utilities simplify the process. However, duplicating copyrighted software and distributing it to others is illegal. Please

buy the software you need, and give the authors their deserved royalties!

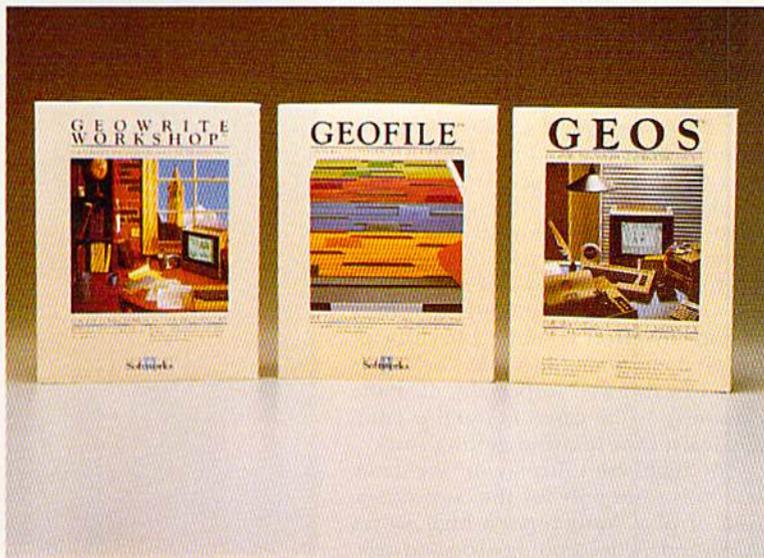
### Information and Assistance

Books with helpful information for new Commodore users aren't difficult to find, since both the 64 and 128 have now been around for several years. Browse through your book store's shelves for titles on using the Commodore 64 or describing practical uses for the home computer; then check the table of contents closely to be sure the topics match your interests. At the birth of the C-64, software wasn't readily available, so most texts from that era devote inordinate space to Basic programming.

Magazines such as *RUN* are a good way to get up-to-date information about using your Commodore computer. The wide range of subjects may seem overwhelming to a new user, but scanning a magazine's table of contents can let you spot the subjects of particular interest to you. Also read the letters column; you'll be amazed at how many others are having the same problems or asking the same questions as you are!

QuantumLink is another excellent source of information on using your computer. It puts you in touch with computer professionals, as well as other knowledgeable users willing to share their experiences.

Last but not least, don't forget your local user's group—your direct route to personal assistance and exposure to diverse interests and abilities. The experienced users in your club were all beginners once, and most will be glad to share



Just a sampling of the many GEOS-compatible applications from Berkeley Softworks.

valuable advice about getting the most from your computer system. ■

*In addition to full-time work as a Psychiatric R.N. and extensive involvement in user group activities, Ellen Rule uses her three Commodore computers to manage a home-based business, Home Computer Resource.*

# Inertia Mania

*You ought to feel delightfully bouncy after a session with this resilient arcade game.*



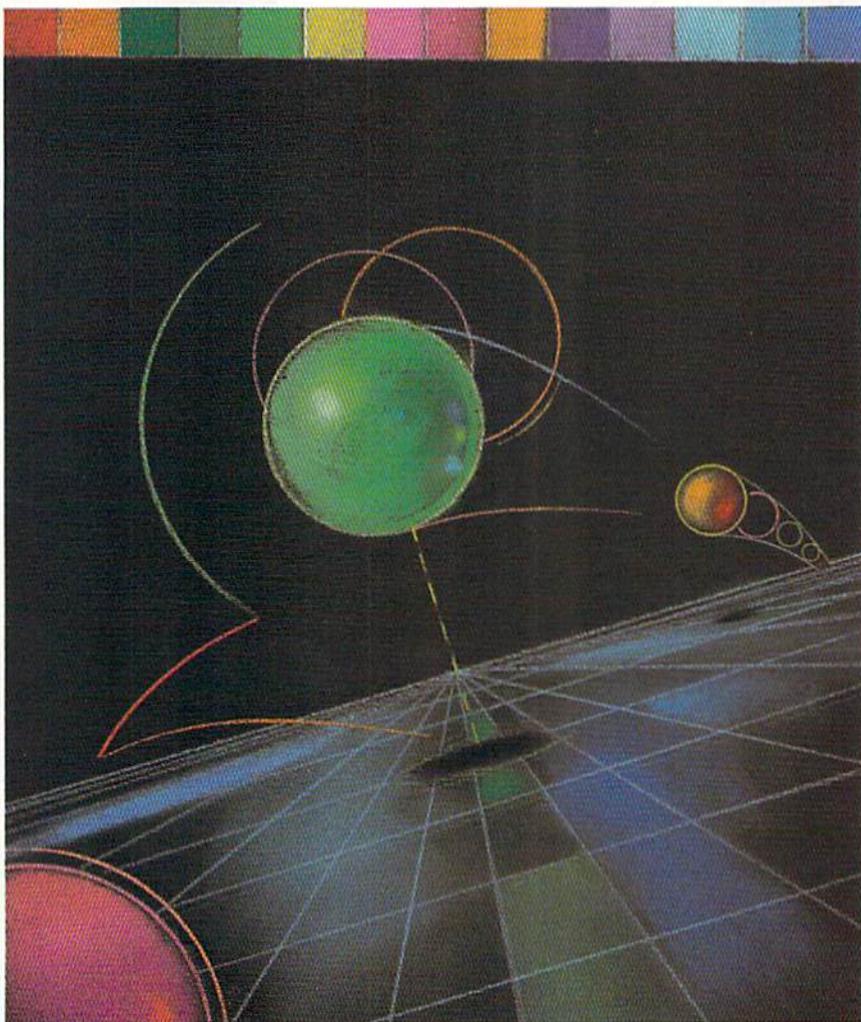
By CHARLES ORCUTT

If you've never been in a rubber room, Rubber Bandit Ball provides a golden opportunity to feel what it's like. In this smooth-scrolling, multiscreen arcade game, you use a joystick in port 2 to control a rubber ball as it bounces through corridors, trying to snatch up little golden nuggets. Guiding the ball is hard enough, but merciless cannons fire killer balls through the corridors periodically, and the rubber ball loses one of its five lives if it collides with one. A clock allows you 99 seconds to gather up all 95 nuggets, and the ball also loses a life if it runs out of time. When the ball does get all the nuggets, you proceed to the next level, where the cannons fire faster killer balls more frequently.

For each nugget snatched, you get the number of the current level in points. In other words, in level two, each nugget is worth two points. You pause the game by hitting the fire-button, and you start over again by pressing restore.

Like most objects in this universe, the rubber ball has inertia, so it tends to continue in the direction it's going. As a result, moving the joystick is like blowing on the ball or pulling it with a spring; the effect is subtle and difficult to predict. Sometimes the ball gets mired in the wall (especially near the cannons), so be careful. You'll eventually learn how to avoid getting stuck.

The high-score display on the game screen is valid only for the current session of play. Your top-ten high scores are stored, in descending order, on disk. When you run out of lives and play ends, the game boots the high-score file and checks to see whether your current score should be included. If so, enter your initials by moving the joystick up and down to cycle through the alphabet and left and right to move between your initials. When you press the fire-button,



the new top-ten roster is saved and another game commences. The high-score routines of some games have you press the fire-button as you enter the letters. Be sure not to do that here, or you won't get your initials placed.

Rubber Bandit Ball takes the form of

a hex loader (Listing 1). Type in that listing with *RUN's* Checksum and run it once to generate a copy of the game in pure machine language. Then all you need do to play is enter LOAD "+BANDIT BALL ML",8,1 and SYS 32768.

Prior to playing Rubber Bandit Ball, ▶

RUN it right: C-64; joystick

# CHECK US OUT!

# LET US EARN YOUR BUSINESS!!

☑ SERVICE
☑ SUPPORT
☑ SELECTION
☑ PRICES
☑ GUARANTEE

| HOME/BUSINESS               |        | EDUCATIONAL   |       | GEOS                      |      | AIDS/UTILITIES                |       | MISCELLANEOUS                |        |
|-----------------------------|--------|---|-------|---------------------------|------|-------------------------------|-------|------------------------------|--------|
| Bankstreet Writer           | \$35   | Easy Sign/5 +   | \$17  | Becker Basic              | \$35 | 1541/1571 Drive Alignment     | \$25  | C64 OR 1541 Cover            | EA 7   |
| 9EST Business Series 64     | EA 45  | Grandma's House/5-9   | 6     | Fontpac Plus 64/128       | 35   | BASIC 8                       | 30    | C128 OR 1571 Cover           | EA 9   |
| Business Form Shop          | 30     | Kids on Keys/5-8  | 18    | GEOS 128                  | 45   | BASIC Compiler 128            | 42    | 40/80 Column Switch Cable    | 18     |
| CMS Accountant 128          | 129    | Linkword Foreign Languages  | EA 18 | GEOS 64                   | 39   | BASIC Compiler 64             | 29    | AB Printer Switch Box        | 35     |
| CMS Inventory 128           | 53     | Little Computer People  | 51    | GEOS Companion Number One | 24   | Big Blue Reader 64/128        | 32    | Aprospan Cartridge Holder    | \$27   |
| Chartpak 128 OR 64          | EA 29  | Peter Rabbit (Reading 1) / 5-8  | 19    | GeoFile 64                | 35   | Bobstern Pro 128              | 42    | Drive Box                    | 27     |
| Datamanager 128             | 39     | Reader Rabbit/4-7   | 29    | GeoProgrammer             | 45   | Bobstern Pro 64               | 35    | Hotshot Plus Printer Interf. | 69     |
| Datamanager 2               | 17     | Rocky's Boots/9 +   | 29    | GeoPublish 4              | 45   | CPM Kit 128                   | 22    | Lightpen 170C                | 69     |
| Fleet Filer 64/128          | 29     | Stickybear Math 1/5-8   | 22    | GeoSpell                  | 19   | COBOL 128 OR COBOL 64         | EA 29 | Lightpen 184C                | 49     |
| Fleet System 2 +            | 39     | Stickybear Reading/5-8  | 22    | Geocalc 128               | 45   | Final Cartridge 3             | 49    | M3 Proportional Mouse        | 40     |
| Fleet System 4              | 52     | Stickybear Typing/5-8   | 22    | Geocalc 64                | 35   | Gnome Kit 64/128              | 29    | Mousepad                     | 8      |
| Fontmaster 128 w/Spell      | 39     | Jungle Book (Reading 2) / 6-9   | 19    | GeoFile 128               | 45   | Mach 128                      | 35    | Partner 128                  | 39     |
| Fontmaster II               | 35     | Kidwriter/6-9   | 22    | Geowrite Workshop 128     | 45   | Merlin 128                    | 45    | Partner 64                   | 29     |
| KFS Accountant 128          | 119    | Mathbusters/6-9   | 9     | Geowrite Workshop 64      | 35   | Merlin 64                     | 35    | Print & Wear Transfer Paper  | 17     |
| Add-ons - call us           | 52     | Stickybear Math 2/6-9   | 22    | Neofont                   | 19   | Physical Exam 1541 OR 1571    | 29    | Quick Brown Box - 32K        | 79     |
| Math Function Evaluator     | 27     | Stickybear Spellgrabber/6-9   | 22    | Word Publisher (GEOS)     | 28   | Power Assembler 64/128        | 30    | Quick Brown Box - 64K        | 99     |
| Microlawyer 64              | 42     | Stickybear Townbuilder/6-9  | 22    |                           |      | Power C 64/128                | 9     | RGB to TV Cable              | 9      |
| PPM 128                     | 42     | First Men on Moon Math/9 +  | 19    |                           |      | Proto Link BBS 128            | 45    | RS232 Interface Cable        | 39     |
| PPM 64                      | 29     | Stickybear Read Compreh./9 +  | 22    |                           |      | RAM DOS 128                   | 29    | Printer Paper                | **call |
| Page Builder 128            | 39     | Evelyn Wood Dynamic Read/11 +   | 17    |                           |      | Renegade                      | 29    | Printer Ribbons              | **call |
| Paperclip Publisher 64      | 39     | Pro Tutor Accounting/14 +   | 69    |                           |      | Super 81 Utilities 128 or 64  | 25    | Serial Cable - 6 Foot        | 9      |
| Paperclip 3                 | 39     | R.S.V.P. / 12 +   | 21    |                           |      | Super Aide                    | 25    | Super Graphix Gold           | 89     |
| Partner 128                 | 39     | Ticket to London, Paris, Span OR Washington/12 +  | EA 21 |                           |      | Super C 128 OR 64             | 45    |                              |        |
| Partner 64                  | 30     | Where USA Carmen  | 35    |                           |      | Super Chips 64                | 25    |                              |        |
| Pocket Dictionary           | 10     | Where World Carmen  | 35    |                           |      | Super Chips 128 or 128D       | 45    |                              |        |
| Pocket Superpak 2           | 67     | Whidam Classics / 10 +  | 35    |                           |      | Super Disk Utilities          | 25    |                              |        |
| Pocket Write/File or Plan 2 | EA 39  | Alice in Wonderland, Swiss Family Robinson, Below The Root, Treasure Island OR Wizard of OZ | EA 12 |                           |      | Super Librarian 128           | 19    |                              |        |
| Securities Assistant 128    | 35     |   |       |                           |      | Super Pascal 128 OR 64        | EA 45 |                              |        |
| Superbase 128               | 49     |   |       |                           |      | Syntech BBS Construction Set  | 43    |                              |        |
| Superbase 64                | 44     |   |       |                           |      | Syntech BBS Games Module      | 18    |                              |        |
| Superbase 128/1581 drive    | **call |   |       |                           |      | Sysres Enhanced               | 30    |                              |        |
| Swiftcalc 128 w/Sideways    | 39     |   |       |                           |      | Warp Speed 128                | 35    |                              |        |
| Swiftcalc 64                | 17     |   |       |                           |      | Kracker Jax Volumes 1-4       | EA 10 |                              |        |
| TAS 128                     | 42     |   |       |                           |      | Kracker Jax Volumes 5-7       | EA 17 |                              |        |
| TAS 64                      | 29     |   |       |                           |      | Loaded Gun 2                  | 17    |                              |        |
| Timeworks Business Series   | EA 39  |   |       |                           |      | Super Snapshot V3             | 49    |                              |        |
| Vizitaz 128                 | 60     |   |       |                           |      | Super Snapshot V3 w/C128 Disk | 54    |                              |        |
| Vizitaz Classic 128         | 60     |   |       |                           |      |                               |       |                              |        |
| Wordwriter 128              | 39     |   |       |                           |      |                               |       |                              |        |
| Wordwriter 3                | 30     |   |       |                           |      |                               |       |                              |        |

## GRAPHICS/CAD

|                               |       |
|-------------------------------|-------|
| 3D Perspective 2              | 39    |
| Advanced OCP Art Studio       | 25    |
| Animation Station             | 65    |
| BASIC 3                       | 25    |
| Billboard Maker               | 29    |
| Blazing Paddles               | 25    |
| Bumper Sticker Maker          | 35    |
| Business Card Maker           | 35    |
| CAD 3D                        | 39    |
| Cadpak 128                    | 42    |
| Cadpak 64                     | 29    |
| Certificate Maker             | 17    |
| Colorz 128                    | 12    |
| Doodle!                       | 29    |
| Flexidraw 5.5                 | 29    |
| Geopublish 64                 | 45    |
| Graphic Art Disks 1 thru 10   | EA 13 |
| Graphic Label Wizard          | 21    |
| Graphics Galleria Pak 1 OR 2  | EA 24 |
| Graphics Integrator 2         | 24    |
| Graphics Transformer          | 25    |
| Home Designer 128             | 45    |
| ICON Factory                  | 25    |
| Big Tip Book for Commodore 15 | 15    |
| C128 Programmer Ref. Guide    | 22    |
| C128 Subroutine Library       | 15    |
| GEOS Prog Ref Guide 2         | 17    |
| K Jax Revealed Book 1         | 23    |
| K Jax Revealed Book 2         | 23    |
| Superbase the Book            | 15    |
| Troubleshoot & Repair C64.    | 18    |

## BOOKS

|                            |      |
|----------------------------|------|
| Abacus Books               | call |
| Big Tip Book for Commodore | 15   |
| C128 Programmer Ref. Guide | 22   |
| C128 Subroutine Library    | 15   |
| GEOS Prog Ref Guide 2      | 17   |
| K Jax Revealed Book 1      | 23   |
| K Jax Revealed Book 2      | 23   |
| Superbase the Book         | 15   |
| Troubleshoot & Repair C64. | 18   |

## MISCELLANEOUS

|                    |    |
|--------------------|----|
| 2-for-1 Serial Box | 29 |
| 4-for-1 Serial Box | 39 |

## BRIWALL

Solid Products • Solid Support

P.O. Box 129, 56 Noble St.

Kutztown, PA 19530

TOLL-FREE 24 HOURS

1-800-638-5757

## 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!

Great Products By **Free Spirit Software Inc.**

### 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! Autoboosts to all modes. Second drive fully supported. Program disk, calibration disk and instruction manual. only \$25.00

Super 81 Utilities now available for the C64!

Super 81 Utilities is a complete utilities package for the 1581 disk drive and C128 computer. Among the many Super 81 Utilities features are:

- 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 3 1/2" and 5 1/4" 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. only \$29.00

**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 1/2 second. Programs and files can be transferred to and from disk with a single command. RAMDOS is available for only \$29.00

### PROFESSIONAL CAD FOR YOUR COMMODORE 128!

### HOME DESIGNER

This is the most powerful two-dimensional CAD program available for your C128! As an object-based package (this is what the professionals use) your drawings are created and printed with the greatest accuracy and detail possible. This object-based design provides extreme flexibility and control over your drawings because each line, circle, text-string, etc. can be manipulated (rotated, enlarged, erased) as a separate entity. With over 50 powerful commands, you can translate, rotate and mirror objects. Stretch or shorten lines as needed. Easily create parallel lines. Draw or erase arcs, circles, ellipses and boxes at will. Insert library figures anywhere into drawings at any scale and angle. Scale text to any height and width. Work in either an absolute scale or feet/inches. Your drawing screen (a 16" by 22" page) includes 5 drawing layers that can be selected/included/excluded/erased at will. HOME DESIGNER provides accurate, laser-quality output, at ANY scale, on your dot matrix printer or plotter. Use a joystick or the 1351 mouse as input.

WHEN THE DETAILS ARE IMPORTANT!

Still only \$45.00

### THE WRITE STUFF

### WRITER & TALKER

This WORDPROCESSOR is by far one of the BEST that we have seen! Let's get right to the specs: 21 function calculator - line up numbers with the decimal tab; 60 customizable help screens - 86K of disk doc's; Double-column printing in one pass; Encrypt/decrypt text; Sort up to ten columns (great for lists); Merge/Append text files; Link files; Word/paragraph counter; File translator for 15 other W/P's; Dvorak [-] QWERTY toggle; True 80 column Hi-Res preview; Key-click for typewriter sound; Mail Merge; Automatic Case; On-line clock; 1764 RAM Expander support; MACRO TYPING cuts your typing time by over 25% and more!

The WRITE STUFF even comes in a TALKING version, which includes SAM, a program that produces speech from your computer's sound capabilities. This BB TALKER recites any portion of your text, can say each letter and command as it is typed, and translates to phonetic script for additional editing. Great for the sight-impaired and the youngsters!!

C64 version - \$19.00 C128 version - \$24.00 C64 w/Talker - \$24.00

### FREE CATALOG

40 pages of detailed descriptions for over 300 fine products for your Commodore computer

CALL OR WRITE FOR YOUR COPY TODAY!

SSSSSSSS

COLLECT BONUS DOLLARS

One bonus dollar, good towards your next purchase, for every \$50.00 ordered!

COLLECT THRU 8/31/88  
USE THRU 12/31/88

CALL FOR LATEST PRODUCTS, PRICES AND COMBINATION SPECIALS!

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. Includes phone number and computer drive model with order. All items will be shipped immediately, if (we have stock) and will be shipped immediately. 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



NO



SURCHARGE

# I N E R T I A   M A N I A

you must type in and run the program called Hi-Score (Listing 2). Otherwise, the game won't find the top-ten list, and you'll get garbage on the screen.

Don't use a fast-load cartridge with

Rubber Bandit Ball. My cartridge causes errors when the program tries to store the high-score file, and I couldn't figure a way around the problem. Just use the standard Commodore DOS. ☐

*Charles Orcutt is an electronics technician who's worked in broadcasting and computer repair. He has owned Commodores since 1983 and spends a lot of his spare time working with Basic and machine language.*

## Listing 1. Rubber Bandit Ball program.

```

0 REM CREATE BANDIT BALL ML           107 DATA BE87202388A9018D27D0 8 127 DATA 1ED0A82908D00A982910 D
      :REM*179                          D28D08D29D08DF87F8D F87B8D1
5 OPEN 8,8,8,"+BANDIT BALL ML,P      C98201A88A905 :REM*161
,W" :REM*214
10 READ A$:IF A$="-1" THEN CLOS      108 DATA 8D1D98201E89A9028DFA 7 128 DATA 8920548920C38CA9008D 1
E8:END :REM*78                          F8DFA7BA9038DFB7B8D FB7F8DF
15 IF LEN(A$)<62 THEN 55              C7F8DFC7B20DE :REM*31
      :REM*254
20 B$=MID$(A$,1,20)+MID$(A$,22,      109 DATA 88A95785FBA99885FCAC 2 129 DATA 1E204989AD00DC2910F0 F
20) +MID$(A$,43,20) :REM*242          398B91198A00091FB18 A5FB690
25 FOR I=1 TO 30 :REM*181              185FBA90065FC :REM*159
30 C$=MID$(B$, (I*2)-1,2):H$=LEF      110 DATA 85FCEE2398AD2398C905 D 130 DATA FA60204989A9E885FBA9 9
TS(C$,1):L$=RIGHT$(C$,1)              00FEE2798AD2798C928 F008A90
      :REM*209                          08D23984CF780 :REM*54
35 H=VAL(H$):IF H$>"9" THEN H=A      111 DATA A000A96091FB208488AD 0 131 DATA 8D1AD078A9318D1403A9 E
SC(H$)-55 :REM*85                      5808D23D0AD06808D22 D0AD038
40 L=VAL(L$):IF L$>"9" THEN L=A      08D21D0AD0480 :REM*215
SC(L$)-55 :REM*136                    112 DATA 8D20D020AF88A90385FB A 132 DATA 00DC2908F008AD00DC29 0
45 BY=H*16+L:PRINT#8,CHR$(BY);        99885FCA22A20F988A9 F285FBA
      :REM*67                          99785FCA23220 :REM*7
50 NEXT:GOTO 10 :REM*115              113 DATA F988A90985FBA99885FC A 133 DATA 98A9028D369860EE3498 A
75 IF LEN(A$)<21 THEN B$=A$:GOT      24020F988A9F885FBA9 9785FCA
O 70 :REM*184                          27A20F988A9FD :REM*92
60 IF LEN(A$)<42 THEN B$=LEFT$(      114 DATA 85FBA99785FCA29020F9 8 134 DATA 98C902F010CE3498D005 A
A$,20)+RIGHT$(A$, (LEN(A$)-21        878A9D08D12D0AD11D0 297F8D1
)):GOTO 70 :REM*176                    1D0A9818D1AD0 :REM*197
65 B$=LEFT$(A$,20)+MID$(A$,22,2      115 DATA A9D18D1403A9858D1503 2 135 DATA 0AA9048D3498A9008D36 9
0)+RIGHT$(A$,LEN(A$)-42)              00B89AD0EDC29FE8D0E DC58AD1
      :REM*140                          ED0AD1FD0AD12 :REM*24
70 FOR I=1 TO LEN(B$)/2:REM*221        116 DATA D038C9FC90F8AD2B98D0 0 136 DATA 34988D359820368560CE 3
75 C$=MID$(B$, (I*2)-1,2):H$=LEF      320DC81AD2B98D0034C BE81205
TS(C$,1):L$=RIGHT$(C$,1)              4874CBE81AD1F :REM*217
      :REM*140
80 H=VAL(H$):IF H$>"9" THEN H=A      117 DATA D08A8CE3798D029A9018D 3 137 DATA 08AD00DC2902F02D60AD 3
SC(H$)-55 :REM*56                      798982901F01FAD3698 49038D3
85 L=VAL(L$):IF L$>"9" THEN L=A      698A9068D3798 :REM*194
SC(L$)-55 :REM*84                      118 DATA A9128D04D4A9138D04D4 8 138 DATA 9860EE3198AD3198C905 D
90 BY=H*16+L:PRINT#8,CHR$(BY);        D0ED4A9018D1F98CE38 98D029A
      :REM*148                          9018D38989829 :REM*57
95 NEXT:GOTO 10 :REM*160              119 DATA 02F01FAD339849038D33 9 139 DATA CE3198D005A9018D3198 A
100 REM HEX DATA FOR BANDIT BAL      8A9068D3898A9128D04 D4A9138
L :REM*28                                D04D48D0ED4A9 :REM*60
101 DATA 00804C08800000AA070B A      120 DATA 018D1F98209089CE3998 D 140 DATA 98A9008D339860AD3398 C
9008D20D08D21D0A000 B9618EF         00BA9048D3998209F83 2030842
00720D2FFC84C :REM*24                  0068420978418 :REM*58
102 DATA 1280EEED8EADED8E290F 8      121 DATA AD08D06D1C988D08D090 0 141 DATA 207F8560CE3298D0FAAD 3
DED8EA02799F0D88810 FAA5C5C          8AD10D049108D10D038 AD06D0E
93CD0E7A000B9 :REM*159                 D1C988D06D0B0 :REM*141
103 DATA F28F990070B9F2909900 7      122 DATA 08AD10D049088D10D020 1 142 DATA 9818A5FB692885FBA9006
1B9EE8E990040C8D0EB A94E8D1         F8718A9A465FB85FBA9 0065FC8
803A9808D1903 :REM*176                 5FC18A5FC6901 :REM*53
104 DATA 205489A900A002991698 8      123 DATA 85FCA000B1FBC911D031 9 143 DATA D0DC60AD2B98D04318AD 0
810FA205D88209E8820 C38CA90         891FB18A5FD693485FD A90065F
085FBA96885FC :REM*116                 E85FE18A5FE69 :REM*121
105 DATA A000A900A20791FBC8D0 F      124 DATA 0385FEA0009891FD20BE 8 144 DATA D069018D08D09008AD10 D
BE6FCCA10F6A0000B900 7199006        7EE2698A9018D2198A9 218D0BD
9B90007299006A :REM*97                 4A9148D229820 :REM*243
106 DATA C8D0F1A000A92099207B 9      125 DATA 2789AD2698C95FD01AEE 1 145 DATA 008D2E98A9038D2C988D 2
9207FC8C0C8D0F5A900 8DF97F8        C98205D882049892054 8920C38
DF97BBD1C9820 :REM*166                 CA9008D15D020 :REM*39
107 DATA 8E87202388A9018D27D0 8      126 DATA 1A88200B89CE2498D013 A 146 DATA B008AD10D049088D10D0 3
      :REM*179                          93C8D2498F838AD2598 E9018D2
      :REM*161                          598D8207D89AD :REM*200
      :REM*214                          128 DATA 8920548920C38CA9008D 1
      :REM*78                          5D0200B89201E89AD1E D0AD1FD
      :REM*31                          0AD00DC2910D0 :REM*186
      :REM*159                          129 DATA 1E204989AD00DC2910F0 F
      :REM*54                          9AD00DC2910D0F92054 89A000A
      :REM*215                          200E8D0FDC8D0 :REM*151
      :REM*217                          130 DATA FA60204989A9E885FBA9 9
      :REM*197                          785FCA28420F9882086 87AD00D
      :REM*24                            C2910D0F9A980 :REM*118
      :REM*194                          131 DATA 8D1AD078A9318D1403A9 E
      :REM*60                            A8D150358A9008D15D0 205D882
      :REM*58                            00B8A4C4E80AD :REM*133
      :REM*141                          132 DATA 00DC2908F008AD00DC29 0
      :REM*53                            4F02D60AD3698C901F0 10CE349
      :REM*121                          8D005A9018D34 :REM*117
      :REM*243                          133 DATA 98A9028D369860EE3498 A
      :REM*39                            D3498C905D00AA9048D 3498A90
      :REM*126                          08D369860AD36 :REM*118
      :REM*143                          134 DATA 98C902F010CE3498D005 A
      :REM*146                          9018D3498A9018D3698 60EE349
      :REM*143                          8AD3498C905D0 :REM*109
      :REM*143                          135 DATA 0AA9048D3498A9008D36 9
      :REM*143                          860AD3698C902F005C9 01F0106
      :REM*143                          0CE3598D009AD :REM*179
      :REM*143                          136 DATA 34988D359820368560CE 3
      :REM*143                          598D009AD34988D3598 20ED846
      :REM*143                          0AD00DC2901F0 :REM*1
      :REM*143                          137 DATA 08AD00DC2902F02D60AD 3
      :REM*143                          398C901F010CE3198D0 05A9018
      :REM*143                          D3198A9028D33 :REM*227
      :REM*143                          138 DATA 9860EE3198AD3198C905 D
      :REM*143                          00AA9048D3198A9008D 339860A
      :REM*143                          D3398C902F010 :REM*161
      :REM*143                          139 DATA CE3198D005A9018D3198 A
      :REM*143                          9018D339860EE3198AD 3198C90
      :REM*143                          5D00AA9048D31 :REM*135
      :REM*143                          140 DATA 98A9008D339860AD3398 C
      :REM*143                          902F005C901F01060CE 3298D00
      :REM*143                          9AD31988D3298 :REM*108
      :REM*143                          141 DATA 207F8560CE3298D0FAAD 3
      :REM*143                          1988D329820A88560A0 00201F8
      :REM*143                          7A200A0002057 :REM*73
      :REM*143                          142 DATA 9818A5FB692885FBA9006
      :REM*143                          5FC85FC18A5FD695085 FDA9006
      :REM*143                          5FE85FEE8E014 :REM*226
      :REM*143                          143 DATA D0DC60AD2B98D04318AD 0
      :REM*143                          6D069018D06D09008AD 10D0490
      :REM*143                          88D10D018AD08 :REM*14
      :REM*143                          144 DATA D069018D08D09008AD10 D
      :REM*143                          049108D10D0EE2E98AD 2E98C90
      :REM*143                          8F0034C3585A9 :REM*221
      :REM*143                          145 DATA 008D2E98A9038D2C988D 2
      :REM*143                          A988D2B9860AD2B98D0 4338AD0
      :REM*143                          6D0E9018D06D0 :REM*143
      :REM*143                          146 DATA B008AD10D049088D10D0 3
      :REM*143                          8AD08D0E9018D08D0B0 08AD10D

```

*Continued on p. 83.*

**RUNworks: A One-Disk Software System for Everything Commodore 64 and 128 Users Need**

1. RUNPAINT Full Feature Paint and Drawing Program
2. MONEY MANAGER For Business and Home
3. LABEL BASE Create Address Labels
4. RUNTERM Telecommunicator
5. RUNSHELL Disk Utility
6. GRAPHMAKER 3-D Bar Graphs
7. FORMWRITER Forms Design

*Spend a little and get the works...*

# **RUNWORKS.**

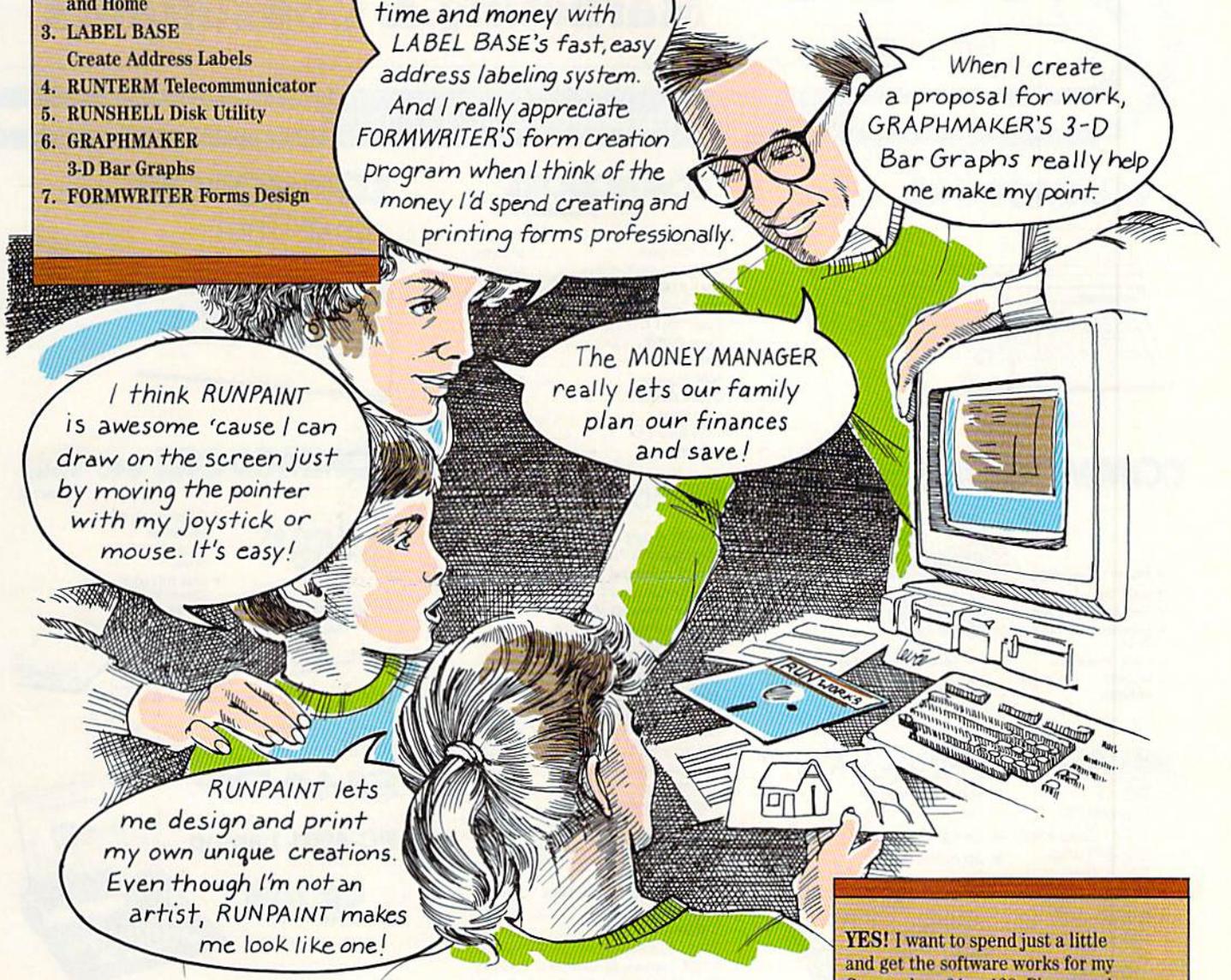
As a home-based business owner, I save time and money with LABEL BASE's fast, easy address labeling system. And I really appreciate FORMWRITER'S form creation program when I think of the money I'd spend creating and printing forms professionally.

When I create a proposal for work, GRAPHMAKER'S 3-D Bar Graphs really help me make my point.

The MONEY MANAGER really lets our family plan our finances and save!

I think RUNPAINT is awesome 'cause I can draw on the screen just by moving the pointer with my joystick or mouse. It's easy!

RUNPAINT lets me design and print my own unique creations. Even though I'm not an artist, RUNPAINT makes me look like one!



**Introducing RUNworks** ...a complete selection of all the software programs you'll ever need.

**On just one disk!**

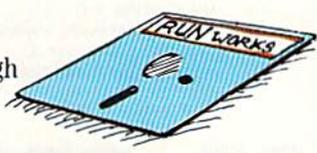
**RUNworks is easy-to-use.** But it works hard so you don't have to. Which means you're more productive and efficient.

And you can buy RUNworks at a fraction of the price you'd pay for comparable programs - up to \$50 each elsewhere.

What's more, RUNworks and its fully illustrated documentation booklet are only available through this special offer.

**So order today.** There's no risk. RUNworks is 100% Money Back Guaranteed for thirty days.

Or send back the coupon or order card today.



**YES!** I want to spend just a little and get the software works for my Commodore 64 or 128. Please rush me all seven RUNworks programs on just one easy-to-use disk.

**I'll pay only \$24.97!**

Check is enclosed.  MasterCard  
 American Express  Visa

CARD# \_\_\_\_\_ EXP. DATE \_\_\_\_\_

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

Foreign Airmail, please add \$3.95 per order.  
 Or mail this coupon or the postage-paid card to:  
 IDG Communications/Peterborough,  
 Attn: RUNworks, RW988  
 PO Box 802, Peterborough, NH 03458

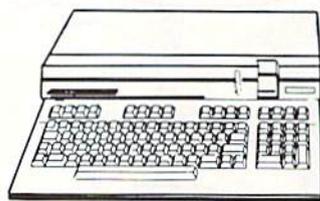


Since 1981

# Lycocomputer Marketing & Consultants

Air orders processed within 24 hours.

## COMMODORE 128D

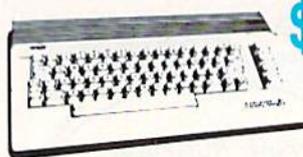


**\$439<sup>95</sup>**

## COMMODORE HARDWARE

|                              |          |
|------------------------------|----------|
| 64C Computer .....           | \$149.95 |
| C128D Computer/Drive .....   | \$439.95 |
| 1541 II Disk Drive .....     | \$175.95 |
| 1581 Disk Drive .....        | \$189.95 |
| Excel 2001 C128 Drive .....  | \$199.95 |
| Excel FSD-2+ C64 Drive ..... | \$149.95 |
| 1802C Monitor .....          | \$189.95 |
| 1084 Monitor .....           | \$299.95 |
| C1351 Mouse .....            | \$39.95  |
| 1700 RAM .....               | \$109.95 |
| 1764 RAM C64 .....           | \$117.95 |
| Colt PC .....                | \$689.95 |

## COMMODORE 64C COMPUTER



**\$149<sup>95</sup>**

## COMMODORE COLT PC



**\$689<sup>95</sup>**

- IBM PC Compatible
- 640K Std.
- Two 5 1/4 Drives Std.
- Expansion for Hard Drive
- Turbo Processor
- MSDOS + GW Basic Included

- Serial + Parallel Ports
- Mono/RGB Color Card Included

## COMMODORE 64C System Special

**\$459<sup>95</sup>**

- Commodore 64C Computer
- Excel FSD-2 Disk Drive
- Star NX1000C Commodore Ready Printer



## LASER COMPACT XT

- PC-XT Compatible
- 4.77 - 8.00 Mhz Super Turbo Clock Speed
- Built-in 5 1/4 Drive
- Built-in RGB Video Output
- Parallel Printer Port
- Serial RS232
- Joystick/Game Port



ONLY **\$469<sup>95</sup>**

## Color System HEADSTART

- Ready to plug in and use immediately
- Ultra fast 8 Mhz Intel 8088-2 Processor
- 512K RAM memory expandable to 768K
- 2-360K disk drives standard
- First complete system with clock calendar and built-in ports for printer, RS232, 2 joysticks, mouse and light pen
- Includes \$500 worth FREE software programs
- Hi Res color monitor included!



**\$989<sup>95</sup>**

## PC COMPATIBLE HARDWARE

|                                      |           |
|--------------------------------------|-----------|
| Laser Compact XTE 640K .....         | \$619.95  |
| Laser Desktop Turbo XT 640K .....    | \$599.95  |
| Blue Chip Popular .....              | \$549.95  |
| Vendex Headstart Color .....         | \$989.95  |
| Vendex Headstart Mono .....          | \$CALL    |
| Vendex Headstart 888 LTD Color ..... | \$1599.95 |
| Sharp PC 4501 .....                  | \$679.95  |
| Sharp PC 4502 .....                  | \$1239.95 |
| Zucker CGA ColorCard .....           | \$89.95   |
| BCC CG ColorCard .....               | \$94.99   |
| Laser EGA + 4 Card .....             | \$129.95  |
| ATI Graphics Solution .....          | \$129.95  |
| ATI EGA Wonder .....                 | 199.95    |
| ATI VIP .....                        | \$299.95  |
| Kraft PC Joystick Card .....         | \$27.95   |

## Seagate HARDWARE

### 5.25" Half Heights

|                              |          |
|------------------------------|----------|
| ST225 20 meg 65msec MFM ..   | \$215.95 |
| ST225N 20 meg SCSI .....     | \$289.95 |
| ST238R 30 meg RLL .....      | \$229.95 |
| ST251 40 meg 40 msec MFM .   | \$345.95 |
| ST251-1 40 meg 28 msec MFM . | \$429.95 |
| ST277R 65 meg 40 msec RLL .  | \$389.95 |

### 3.5"

|                            |          |
|----------------------------|----------|
| ST125 20 meg 40 msec MFM . | \$235.95 |
| ST125N 20 meg SCSI .....   | \$299.95 |
| ST138R 30 meg RLL .....    | \$249.95 |
| ST138N 30 meg SCSI .....   | \$329.95 |
| ST157R 49 meg RLL .....    | \$399.95 |
| ST157N 48 meg SCSI .....   | \$439.95 |

### Seagate Internal Cards

|                                |          |
|--------------------------------|----------|
| ST125 20 meg Internal Card ... | \$299.95 |
| ST157R 49 meg Internal Card .  | \$485.95 |

### Controllers

|                           |         |
|---------------------------|---------|
| MFM Controller (XT) ..... | \$55.95 |
| RLL Controller (XT) ..... | \$64.95 |

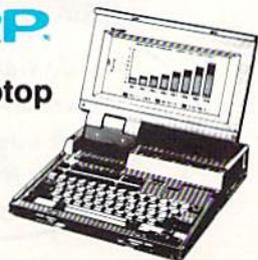
Call for kit pricing and specials.

Ask about our

Seagate Paired Solutions!

## SHARP PC-4501 Laptop

**\$679<sup>95</sup>**



## LASER Desktop PC

**\$569<sup>95</sup>**

### Desktop PC

- Dual Speed 4.77-8 Mhz
- 256K Std.
- Built-in ColorCard
- 8 Expansion Slots
- Can Expand to 2 Floppy + 2 Hard Drives!
- Green, Amber & Color Monitors Available



**1-800-233-8760**

## 5-1/4

|                           |        |
|---------------------------|--------|
| <b>Diak Notcher</b> ..... | \$5.95 |
| <b>Maxell:</b>            |        |
| SSDD .....                | \$7.95 |
| DSDD .....                | \$8.95 |
| <b>Bonus:</b>             |        |
| SSDD .....                | \$5.95 |
| DSDD .....                | \$6.95 |

|                    |         |
|--------------------|---------|
| <b>SKC:</b>        |         |
| DSDD .....         | \$6.95  |
| DSHD .....         | \$13.95 |
| Generic DSDD ..... | \$4.95  |

|                  |         |
|------------------|---------|
| <b>Verbatim:</b> |         |
| SSDD .....       | \$8.99  |
| DSDD .....       | \$11.50 |

## 3.5

|                |         |
|----------------|---------|
| <b>Maxell:</b> |         |
| SSDD .....     | \$11.50 |
| DSDD .....     | \$17.95 |

|               |         |
|---------------|---------|
| <b>Bonus:</b> |         |
| SSDD .....    | \$10.95 |
| DSDD .....    | \$13.95 |

|                  |         |
|------------------|---------|
| <b>Verbatim:</b> |         |
| SSDD .....       | \$12.95 |
| DSDD .....       | \$18.95 |

|             |         |
|-------------|---------|
| <b>SKC:</b> |         |
| SSDD .....  | \$9.95  |
| DSDD .....  | \$13.95 |

Printer  
Interfaces

|                        |         |
|------------------------|---------|
| Xetec Jr. ....         | \$35.95 |
| Xetec Supergraphics .. | \$55.95 |
| Xetec Gold .....       | \$74.95 |
| PPI .....              | \$29.95 |
| Cardco GWhiz .....     | \$32.95 |
| Cardco Super G .....   | \$44.95 |
| MW 350 .....           | \$49.95 |

We carry cables for most printer applications for many popular computers.

Great  
BargainsNew  
M-3 Mouse

- Works with Geos
- 1351 Compatible
- Less Expensive than 1351!

**\$34.95**Mouse Care  
Kit— Includes —  
Mouse Pad

- 9" x 11" Size
- Provides Clean, Dust-Free Surface for Your Mouse
- No-Mar Backing to Protect Your Desk Surface

Mouse Cleaning  
Ball

- Maintains Optimum Mouse Performance!

**Only \$19.95**

Items can be purchased separately.

|                                     |         |
|-------------------------------------|---------|
| PP102-6 outlet .....                | \$16.95 |
| PP106-6 outlet with EMI/RFI .....   | \$28.95 |
| PP104-6 outlet with indicator ..... | \$19.95 |
| PP101-6 outlet powerstrip .....     | \$9.95  |
| Modem Protector .....               | \$10.95 |

C64  
Power Supply  
Micro R + D  
MW 701A**\$34.95**

1-Year Warranty

Switch  
Boxes

|                    |         |
|--------------------|---------|
| Cent '25' AB ..... | \$39.95 |
| Cent '36' AB ..... | \$39.95 |
| RS232 ABC .....    | \$45.95 |
| Cent ABC .....     | \$49.95 |
| RS232 ABCD .....   | \$49.95 |
| Cent ABCD .....    | \$49.95 |

Video  
TapeSKC T120 VHS  
Video Tape:

|               |         |
|---------------|---------|
| each .....    | \$3.99  |
| 3 pack .....  | \$10.95 |
| 10 pack ..... | \$35.95 |

Printer  
Paper

|                             |         |
|-----------------------------|---------|
| 1000 sheet laser .....      | \$16.95 |
| 150 sheet Ivory, 20lb ..... | \$6.95  |
| 1000 mailing labels .....   | \$8.95  |
| 200 sheet OKI 20 .....      | \$8.95  |
| Transparent Labels .....    | \$4.95  |
| Banner Paper 45' Roll ..    | \$10.95 |

## COMMODORE

|                           |         |
|---------------------------|---------|
| <b>Access:</b>            |         |
| Echelon .....             | \$25.95 |
| Mach 5 .....              | \$19.95 |
| Mach - 128 .....          | \$28.95 |
| 10th Frame .....          | \$22.95 |
| Triple Pack .....         | \$11.95 |
| Wild. Cl. Leader Brd. ... | \$22.95 |
| Famous Courses #1 .....   | \$11.95 |
| Famous Courses #2 ...     | \$11.95 |
| Leader Board Pack .....   | \$12.95 |

|                      |         |
|----------------------|---------|
| <b>Action Soft:</b>  |         |
| Up Periscope .....   | \$18.95 |
| Thunderchopper ..... | \$18.95 |

|                          |         |
|--------------------------|---------|
| <b>Activision:</b>       |         |
| Champion. Basketball ..  | \$19.95 |
| Top Fuel Eliminator .... | \$17.95 |
| Beyond Zork .....        | \$25.95 |
| GFL Football .....       | \$19.95 |
| Geo Bee Air Rally .....  | \$17.95 |
| Last Ninja .....         | \$19.95 |
| Might & Magic .....      | \$22.95 |
| Aliens .....             | \$19.95 |
| Maniac Mansion .....     | \$19.95 |
| Ghostbusters .....       | \$9.95  |

|                            |         |
|----------------------------|---------|
| <b>Batteries Included:</b> |         |
| Paperclip III .....        | \$31.95 |
| Outrageous Pages .....     | \$31.95 |

|                            |         |
|----------------------------|---------|
| <b>Berkeley Softworks:</b> |         |
| Geofile C64 .....          | \$29.95 |
| Geocalc C64 .....          | \$29.95 |
| Geopublish C64 .....       | \$39.95 |
| Geos 64 .....              | \$35.95 |
| Geowrite .....             | \$29.95 |
| Geos 128 .....             | \$39.95 |
| Geowrite 128 .....         | \$39.95 |
| Geocalc 128 .....          | \$39.95 |
| Geofile 128 .....          | \$28.95 |
| Berkeley TriPak .....      | \$29.95 |

|                               |         |
|-------------------------------|---------|
| <b>Broderbund:</b>            |         |
| Bank St. Writer .....         | \$29.95 |
| Carmen San Diego .....        | \$20.95 |
| Graphic Lib. I, II, III ..... | \$14.95 |
| Print Shop .....              | \$26.95 |
| Print Shop Compan. ....       | \$20.95 |
| Cauldron .....                | \$17.95 |
| Superbike Challenge ...       | \$12.95 |
| Magnetron .....               | \$15.95 |

|                          |         |
|--------------------------|---------|
| <b>Electronic Arts:</b>  |         |
| Roadwars .....           | \$19.95 |
| Hunt for Red October ... | \$25.95 |
| Putton vs. Rommel .....  | \$19.95 |
| Skyfox II .....          | \$19.95 |
| Tobruk—Clash of Armor .. | \$19.95 |

|                                 |         |
|---------------------------------|---------|
| <b>Epyx:</b>                    |         |
| Fastload .....                  | \$22.95 |
| Winter Games .....              | \$11.95 |
| California Games .....          | \$22.95 |
| Str. Sports Basketball ..       | \$22.95 |
| Summer Games II .....           | \$11.95 |
| World Games .....               | \$22.95 |
| Rad Warrior .....               | \$13.95 |
| Death Sword .....               | \$11.95 |
| Impossible Mission 2 ...        | \$22.95 |
| The Games: Winter Edition ..... | \$22.95 |

|                        |         |
|------------------------|---------|
| <b>Firebird:</b>       |         |
| Elite .....            | \$9.99  |
| Guild of Thieves ..... | \$25.95 |
| Pawn .....             | \$9.99  |
| Tracker .....          | \$11.95 |
| Starglider .....       | \$18.95 |
| Sentry .....           | \$22.95 |

|                           |         |
|---------------------------|---------|
| <b>Microleague:</b>       |         |
| Microleag. Baseball ..... | \$22.95 |
| General Manager .....     | \$16.53 |
| Stat Disk .....           | \$13.95 |
| Microleag. Wrestling ...  | \$16.95 |
| '87 Team Disk .....       | \$11.95 |

|                         |         |
|-------------------------|---------|
| <b>Microprose:</b>      |         |
| Airborne Ranger .....   | \$22.95 |
| 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 |
| Pirates .....           | \$22.95 |
| Stealth Fighter .....   | \$22.95 |

|                      |         |
|----------------------|---------|
| <b>Mindscape:</b>    |         |
| Infiltration .....   | \$16.95 |
| Infiltration 2 ..... | \$16.95 |

|                                 |         |
|---------------------------------|---------|
| <b>Origin:</b>                  |         |
| Autoduel .....                  | \$29.95 |
| Ultima III .....                | \$23.95 |
| Ultima IV .....                 | \$34.95 |
| Moebius .....                   | \$23.95 |
| <b>Software Simulations:</b>    |         |
| Pure Stat Baseball .....        | \$22.95 |
| Football .....                  | \$17.95 |
| Pure Stat College Basketball .. | \$22.95 |

|                         |         |
|-------------------------|---------|
| <b>Springboard:</b>     |         |
| Newsroom .....          | \$19.95 |
| Certificate Maker ..... | \$14.95 |
| Clip Art Vol. #1 .....  | \$12.95 |
| Clip Art Vol. #2 .....  | \$12.95 |
| Clip Art Vol. #3 .....  | \$12.95 |
| Graphics Expander ..... | \$21.95 |

|                               |         |
|-------------------------------|---------|
| <b>Strategic Simulations:</b> |         |
| Gettysburg .....              | \$33.95 |
| Phantasia II .....            | \$22.95 |
| Phantasia III .....           | \$22.95 |
| Wizards Crown .....           | \$22.95 |
| Wargame Constr. ....          | \$16.95 |
| Battlecruiser .....           | \$33.95 |
| Eternal Dagger .....          | \$22.95 |
| Questron II .....             | \$22.95 |
| Phantasia .....               | \$22.95 |

|                           |         |
|---------------------------|---------|
| <b>Sublogic:</b>          |         |
| Flight Simulator II ..... | \$30.95 |
| Jet Simulator .....       | \$30.95 |
| Night Mission Pinball ... | \$19.95 |
| Scenery Disk 1-6 .....    | \$12.95 |
| Stealth Mission .....     | \$30.95 |

|                           |         |
|---------------------------|---------|
| <b>Timeworks:</b>         |         |
| Partner C64 .....         | \$22.95 |
| Partner 128 .....         | \$27.95 |
| Swift Calc 128 .....      | \$27.95 |
| Wordwriter 128 .....      | \$27.95 |
| Wordwriter 3 64 .....     | \$22.95 |
| Silvia Porter Vol. 1-64 . | SCALL   |

|                           |         |
|---------------------------|---------|
| <b>Unison World:</b>      |         |
| Art Gallery 1 or 2 .....  | \$14.95 |
| Print Master .....        | \$17.95 |
| Art Gallery Fantasy ..... | \$13.95 |



|                         |         |
|-------------------------|---------|
| <b>Access:</b>          |         |
| World Class Lead. Bd. . | SCALL   |
| <b>Activision:</b>      |         |
| Champ. Basketball ..... | \$25.95 |
| GFL Football .....      | \$25.95 |
| Geo Bee Air Rally ..... | \$22.95 |

|                          |         |
|--------------------------|---------|
| <b>Electronic Arts:</b>  |         |
| Weaver Baseball .....    | \$33.95 |
| Return to Atlantis ..... | SCALL   |
| Ferrari Formula One ...  | \$33.95 |
| Hunt for Red October ..  | \$33.95 |

|                      |         |
|----------------------|---------|
| <b>Epyx:</b>         |         |
| Apsahl Trilogy ..... | \$11.95 |
| Winter Games .....   | \$11.95 |
| World Games .....    | \$22.95 |
| Destroyer .....      | \$22.95 |

|                        |         |
|------------------------|---------|
| <b>Firebird:</b>       |         |
| Guild of Thieves ..... | \$25.95 |
| Pawn .....             | \$13.95 |
| Starglider .....       | \$25.95 |

|                           |         |
|---------------------------|---------|
| <b>Microprose:</b>        |         |
| Silent Service .....      | \$22.95 |
| <b>Sublogic:</b>          |         |
| Flight Simulator II ..... | \$31.49 |
| Scenery Disk .....        | SCALL   |

|                           |         |
|---------------------------|---------|
| <b>Unison World:</b>      |         |
| Print Master .....        | \$25.95 |
| Art Gallery 1 or 2 .....  | \$14.95 |
| Fonts & Borders .....     | \$17.95 |
| Art Gallery Fantasy ..... | \$13.95 |

|                          |         |
|--------------------------|---------|
| <b>Access:</b>           |         |
| Wild. Cl. Leader Board . | \$27.95 |
| 10th Frame .....         | \$27.95 |

|                         |         |
|-------------------------|---------|
| <b>Activision:</b>      |         |
| Champ. Baseball .....   | \$22.95 |
| Champ. Basketball ..... | \$22.95 |
| Zork Trilogy .....      | \$27.95 |
| Leather Goddesses ..... | \$22.95 |
| Beyond Zork .....       | \$27.95 |

|                                 |         |
|---------------------------------|---------|
| <b>Broderbund:</b>              |         |
| Ancient Art of War .....        | \$26.95 |
| Print Shop .....                | \$34.95 |
| Print Shop Compan. ....         | \$29.95 |
| Graphic Lib. I or II .....      | \$19.95 |
| Ancient Art of War at Sea ..... | \$26.95 |
| Carmen San Diego World .....    | \$23.95 |
| Superbike Challenge ...         | \$12.95 |
| Search and Destroy .....        | \$9.95  |

|                           |         |
|---------------------------|---------|
| <b>Electronic Arts:</b>   |         |
| Yeager's AFT .....        | \$26.95 |
| Hunt for Red October ..   | \$31.95 |
| Alternate Reality-City .. | \$25.95 |

|                          |         |
|--------------------------|---------|
| <b>Epyx:</b>             |         |
| Create A Calendar .....  | \$15.95 |
| Destroyer .....          | \$22.95 |
| Winter Games .....       | \$11.95 |
| World Games .....        | \$22.95 |
| Rad Warrior .....        | \$13.95 |
| Spy vs. Spy III .....    | \$13.95 |
| California Games .....   | \$22.95 |
| Death Sword .....        | \$11.95 |
| Impossible Mission 2 ... | \$22.95 |

|                  |         |
|------------------|---------|
| <b>Firebird:</b> |         |
| Knight Orc ..... | \$25.95 |

|                           |         |
|---------------------------|---------|
| <b>Microleague:</b>       |         |
| Microleag. Baseball ..... | \$22.95 |
| General Manager .....     | \$16.95 |
| Stat Disk .....           | \$13.95 |

|                           |         |
|---------------------------|---------|
| <b>Microprose:</b>        |         |
| 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 |
| Pirates .....             | \$22.95 |

|                                |         |
|--------------------------------|---------|
| <b>Mindscape:</b>              |         |
| Harrier Combat Simulator ..... | \$19.95 |
| Gauntlet .....                 | \$22.95 |

|                  |         |
|------------------|---------|
| <b>Origin:</b>   |         |
| Ultima I .....   | \$23.95 |
| Ultima III ..... | \$23.95 |
| Ultima IV .....  | \$34.95 |
| Moebius .....    | \$34.95 |
| Ogre .....       | \$17.95 |

|                               |         |
|-------------------------------|---------|
| <b>Strategic Simulations:</b> |         |
| Stellar Crusade .....         | \$28.95 |
| Sons of Liberty .....         | \$22.95 |
| Road War Europa .....         | \$22.95 |

|                        |         |
|------------------------|---------|
| <b>Sublogic:</b>       |         |
| Jet Simulator .....    | \$30.95 |
| Flight Simulator ..... | \$34.95 |

|                   |         |
|-------------------|---------|
| <b>Timeworks:</b> |         |
| Swiftcalc .....   | \$22.95 |
| Wordwriter .....  | \$27.95 |

|                        |         |
|------------------------|---------|
| <b>Unison World:</b>   |         |
| Art Gallery 2 .....    | \$14.95 |
| Newsmaster II .....    | \$39.95 |
| Print Master (+) ..... | \$29.95 |
| Fonts & Borders .....  | \$17.95 |

Here are opportunities to enjoy below cost savings on items currently not in production due to newer replacement models. Call for updated product list.

Free shipping on Prepaid cash orders over \$ 50 in the Continental U.S.



Since 1981

# Lycocomputer Marketing & Consultants

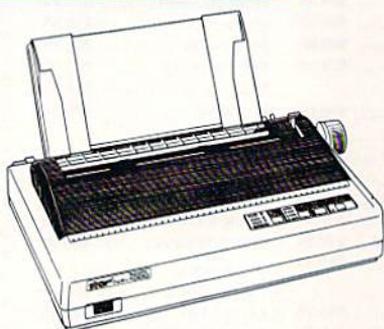
Air Orders Processed Within 24 Hours

Great Value



## NX-1000

- 144 cps Draft
- 36 cps NLQ
- EZ Operation Front Panel Control



**\$165<sup>95</sup>**

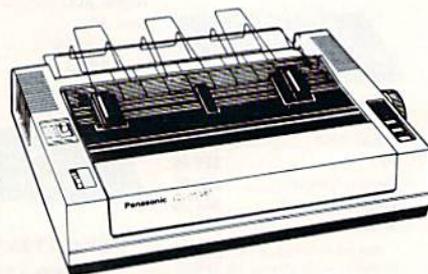
**NEW! NX1000 Rainbow  
Color Printer \$225.95**

Great Performance  
Great Price



## 1091i Model II

- 192 cps Draft
- 32 cps NLQ
- Friction & Tractor Feed
- 2-Year Warranty



**\$189<sup>95</sup>**

## PRINTERS

### Seikosha

|                  |       |           |
|------------------|-------|-----------|
| SP 180AI         | ..... | \$125.95* |
| SP 180VC         | ..... | \$125.95* |
| SP 1000VC        | ..... | \$139.95  |
| SP 1000AP        | ..... | \$159.95  |
| SP 1200VC        | ..... | \$149.95  |
| SP 1200AI        | ..... | \$159.95  |
| SP 1200AS RS232  | ...   | \$159.95  |
| SL 80AI          | ..... | \$289.95  |
| MP5420FA         | ..... | \$999.95  |
| SP Series Ribbon | ..... | \$7.95    |
| SK3000 AI        | ..... | \$339.95  |
| SK3005 AI        | ..... | \$419.95  |
| SPB 10           | ..... | \$CALL    |
| SL 130AI         | ..... | \$599.95  |

\*Quantities Limited

Interfacing available  
for IBM C 64, Apple  
and Atari

### STAR

|                |       |           |
|----------------|-------|-----------|
| NX-1000        | ..... | \$165.95* |
| NX-1000C       | ..... | \$169.95  |
| NX-1000 Color  | ..... | \$225.95  |
| NX-1000C Color | ..... | \$229.95  |
| NX-15          | ..... | \$289.95  |
| NR-10          | ..... | \$319.95  |
| NR-15          | ..... | \$419.95  |
| NB-15 24 Pin   | ..... | \$669.95  |
| NX-2400        | ..... | \$309.95  |
| NB24-10 24 Pin | ..... | \$399.95  |
| NB24-15 24 Pin | ..... | \$545.95  |
| Laser 8        | ..... | \$1759.95 |
| ND-15          | ..... | \$349.95  |
| NL-10          | ..... | \$149.95  |

\*w/cable purchase

### Toshiba

|                |       |          |
|----------------|-------|----------|
| 321SL          | ..... | \$489.95 |
| 341 SL         | ..... | \$659.95 |
| P351 Model II  | ..... | \$899.95 |
| 351 SX 400 cps | ..... | \$979.95 |

### Citizen

|             |       |          |
|-------------|-------|----------|
| 120 D       | ..... | \$144.95 |
| 180 D       | ..... | \$159.95 |
| MSP-40      | ..... | \$279.95 |
| MSP-15E     | ..... | \$309.95 |
| MSP-50      | ..... | \$369.95 |
| MSP-45      | ..... | \$399.95 |
| MSP-55      | ..... | \$469.95 |
| Premiere 35 | ..... | \$445.95 |
| Tribute 224 | ..... | \$539.95 |
| Tribute 124 | ..... | \$439.95 |

### Brother

|                             |       |          |
|-----------------------------|-------|----------|
| M1109                       | ..... | \$159.95 |
| M1509                       | ..... | \$335.95 |
| M1709                       | ..... | \$459.95 |
| Twinwriter 6 Dot &<br>Daisy | ..... | \$899.95 |
| M1724L                      | ..... | \$619.95 |
| HR20                        | ..... | \$345.95 |
| HR40                        | ..... | \$559.95 |
| HR60                        | ..... | \$649.95 |

### Panasonic

|                 |       |           |
|-----------------|-------|-----------|
| 1080i Model II  | ..... | \$159.95  |
| 1091i Model II  | ..... | \$189.95  |
| 1092i           | ..... | \$299.95  |
| 1592            | ..... | \$375.95  |
| 1595            | ..... | \$419.95  |
| 3131            | ..... | \$289.95  |
| 3151            | ..... | \$459.95  |
| KXP 4450 Laser  | ..... | \$1649.95 |
| 1524 24 Pin     | ..... | \$529.95  |
| Fax Partner     | ..... | \$579.95  |
| Optical Scanner | ..... | \$859.95  |

### Epson

|        |       |          |
|--------|-------|----------|
| LX800  | ..... | \$184.95 |
| FX850  | ..... | \$339.95 |
| FX1050 | ..... | \$424.95 |
| EX800  | ..... | \$434.95 |
| LQ500  | ..... | \$339.95 |
| LQ2500 | ..... | \$789.95 |
| GQ3500 | ..... | SLOW     |
| LQ850  | ..... | \$525.95 |
| LQ1050 | ..... | \$699.95 |

### Okidata

|                   |       |          |
|-------------------|-------|----------|
| Okimate 20        | ..... | \$129.95 |
| Okimate 20 w/cart | ..... | \$189.95 |
| 120               | ..... | \$189.95 |
| 180               | ..... | \$219.95 |
| 182               | ..... | \$209.95 |
| 182+              | ..... | \$225.95 |
| 183               | ..... | \$239.95 |
| 192+              | ..... | \$339.95 |
| 193+              | ..... | \$439.95 |
| 292 w/interface   | ..... | \$449.95 |
| 293 w/interface   | ..... | \$585.95 |
| 294 w/interface   | ..... | \$789.95 |
| 393               | ..... | \$955.95 |
| Laser 6           | ..... | \$CALL   |
| 390               | ..... | \$479.95 |
| 391               | ..... | \$649.95 |
| 320               | ..... | \$345.95 |
| 321               | ..... | \$445.95 |

# Lycy Means Total Service.



## ATTENTION

Educational Institutions  
If you are not currently using our educational service program, please call our representatives for details.

## Monitors

### Thomson:

230 Amber TTL/12" .... \$69.95\*  
4120 CGA ..... \$199.95  
4160 CGA ..... \$199.95

\*Quantities Limited

### NEC

Multisync II ..... \$589.95

### Blue Chip:

BCM 12" Green TTL ... \$64.95  
BCM 12" Amber TTL ... \$69.95

### Magnavox:

BM7652 ..... \$79.95  
BM7622 ..... \$79.95  
7BM-613 ..... \$79.95  
7BM-623 ..... \$79.95  
CM8502 ..... \$179.95  
CM8505 ..... \$199.95  
9CM-053 ..... \$339.95  
CM8762 ..... \$245.95  
8CM-515 ..... \$259.95  
9CM-082 ..... \$439.95

## Modems

### Avatex:

1200e ..... \$69.95\*  
1200i PC Card ..... \$65.95  
1200hc Modem ..... \$89.95  
2400 ..... \$149.95  
2400i PC Card ..... \$139.95

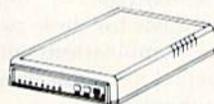
\*w/cable purchase

### Hayes:

Smartmodem 300 ..... \$139.95  
Smartmodem 1200 ..... \$279.95  
Smartmodem 2400 ..... \$419.95

### Avatex 1200e

#### Hayes Compatible Modem



**\$69.95\***

\* With Purchase of Cable Kit  
• Direct Connect Cable to Your C84/128

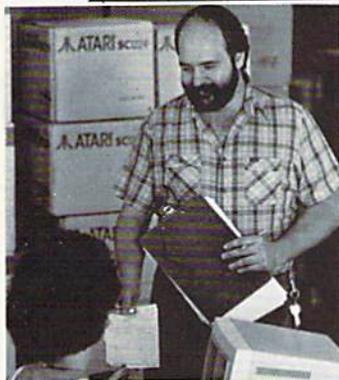


Mark "Mac" Bowser,  
Sales Manager

I would personally like to thank all of our past customers for helping to make Lycy Computer one of the largest mail order companies and a leader in the industry. Also, I would like to extend my personal invitation to all computer enthusiasts who have not experienced the services that we provide. Please call our trained

## Call Lycy

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 Lycy 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 Lycy. 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 Lycy, 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.

Lycy 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

## Here's How

C.O.D. orders. Air freight or UPS Blue/Red Label shipping is available, too. And all products carry the full manufacturers' warranties.

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 Lycy 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: Lycy Computer, Inc.  
P.O. Box 5088, Jersey Shore, PA 17740

**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 • sorry, compatibility not guaranteed • return authorization required • price/availability subject to change



# Forward into Battle!

*Alexander, Custer, Rommel, Patton and Rambo—re-create their battles or design your own with war-game construction sets.*



By GERALD McLAIN

**C**annon to right of them! Cannon to left of them! Cannon behind them! Volleyed and thundered..." If those lines from Tennyson send you running to your computer for the excitement of battle, then you're a true video warrior. If you enjoy playing commercial war games, perhaps it's time to add a dimension to your fun by creating your own confrontations. There are some excellent construction sets available for doing just that.

Three types of war games can be created with these programs. The first simulates historical battles. If you have a special interest in the Battle of Hastings or the counterattack on Pork Chop Hill, it's possible, with judicious use of digital "game pieces," to re-create those battles on your computer screen. Construction sets are available to simulate anything from small unit actions to full-scale land, sea and air assaults.

You can also use construction sets to answer "what-if?" questions about past battles. Suppose the Germans had had a heavy strategic bomber to use during the Battle of Britain. Would England have stood? A reasonable guess can be made by generating a heavy bomber force to press the battle. With careful attention to strategic detail, a computer can help you see how history might have been different.

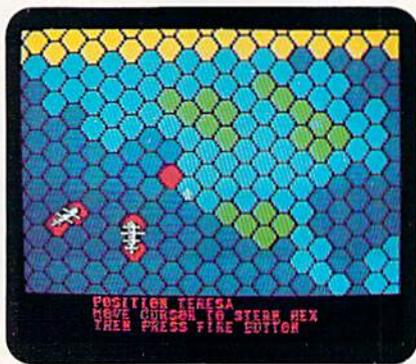
A third use of construction sets is to engage in pure fantasy battles. The movie *Final Countdown* sends the USS Nimitz back in time to encounter the Japanese just before Pearl Harbor, but leaves off with the Nimitz returning to its own time. A construction set would let you play out the scenario all the way to the end.

## A SAMPLING OF PROGRAMS

War game construction sets are all flexible, but to varying degrees. Some are open-ended, allowing almost any



**In Lords of Conquest, you can make modifications to a map of the U.S.**



**Your initial placement of ships in Wooden Ships and Iron Men is crucial.**

thing imaginable; others are quite rigid, allowing only a few alternatives. Here's a survey of some of the programs currently available, with an eye toward their options and flexibility.

Field of Fire, Computer Ambush and 50 Mission Crush, from Strategic Simulations, Inc. (all distributed by Electronic Arts), are hardly construction sets at all, but rigid game systems with interchangeable characters. Field of Fire lets you change the names of squad leaders while fighting a series of battles across World War II Europe. Computer Ambush allows man-to-man combat in

several battles, with provision for changing the combatants' abilities, and 50 Mission Crush lets you name the aircrew of a B-17 on bombing missions.

I've used the names of acquaintances for the characters; it increases the excitement and fun. The play system in these games lets your characters gain experience and ability, and, as with most computer war games, you can play them alone. Of course, with no actual construction available, special simulations aren't possible.

In Lords of Conquest, from Electronic Arts, you construct your own map on which to play. In much the same way as the Parker Brothers' board game, Risk, Lords can be customized to portray any time period or territory, from an historical or fantasy event to your own neighborhood. However, despite its mapmaking utility, Lords is not realistic; it's more of an electronic strategy board game, with lots of options.

The construction set concept reaches higher levels in games like Strategic Simulations' Mech Brigade, Warship and Eagles (again, all distributed by Electronic Arts). All have a variety of built-in scenarios, but also allow you to design custom games, providing a utility for making your own map and then placing the appropriate ships, helicopters or land vehicles on it. Once construction is completed, you're free to play either side. While Mech Brigade allows only certain types of weapons, both Warship and Eagles let you alter a variety of factors to create unlimited types of ships and planes. The manuals for these two games list possible combinations and give examples of actual historical hardware to enhance authenticity.

If your tastes run toward Napoleonic sea combat rather than the 20th century, Wooden Ships and Iron Men, from Avalon Hill, places you in command of your own ships of the line. You can design historical or fantasy scenarios by draw-

# COMPUTER DIRECT Will Not Be **UNDERSOLD!** AND WE MEAN IT!\*

Prices Expire 9-30-88

Free Catalog • Over 1,000 Software & Accessory Items In Stock

## Complete Commodore C64c System

**FREE  
GAME!**



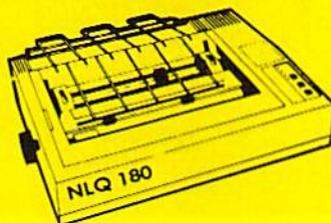
### The Complete System Includes:

- Commodore 64c Computer
- 1541 II Disk Drive
- 12" Monochrome Monitor
- Genuine IBM® Printer With Interface  
And One Roll Of Paper
- GEOS Program For Word Processing & Drawing

Our Low Sale Price  
**\$395<sup>95</sup>**  
List \$1049

## Hi-Speed NLQ Printer

Lowest Price of 180 CPS Printer  
Available Anywhere



- High Speed Dot Matrix
- Near Letter Quality Selectable From Front Panel
- Italics - Elite - Condensed - Pica
- Tractor/Friction Feed
- Centronics Parallel Port
- \* Lifetime Warranty On Print Head
- 6 Month Replacement Policy For Printer
- Super Graphics
- 8K Print Buffer

Our Low Sale Price  
**\$149<sup>95</sup>**  
List \$499

## Complete Commodore C128D System

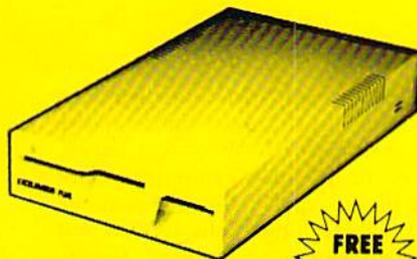


### The Complete System Includes:

- C-128D Computer With Built-In Disk Drive
- 12" Monochrome Monitor
- Genuine IBM® Printer With Interface
- One Roll Of Paper
- C-128D Programmer's Reference Guide

Our Low Sale Price  
**\$549<sup>95</sup>**  
List \$825

## Excelerator Disk Drive



**FREE  
GAME!**

- Commodore 1541 Compatible
- Faster than 1541
- 1 Year Limited Warranty

Our Low Sale Price  
**\$139<sup>95</sup>**  
List \$249

## 5 1/4" Floppy Disks

Double Sided  
Double Density **19¢ each**  
Minimum Quantity 50  
Maximum Quantity 250

Box of 50 ..... \$9.50 (19¢ each)  
(without sleeves)

Box of 50 ..... \$10.50 (21¢ each)  
(with sleeves)

Box of 100 (no limit) ... \$24.00 (24¢ each)  
(with sleeves & labels)

Economy Sleeves .... \$1.00 per quantity of 50  
Disk Labels ..... \$3.95 per quantity of 100  
Disk Notchers ..... \$3.95 each

## 5 1/4" Sony Disks

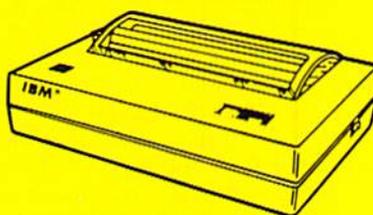


**49¢ each**  
Limited  
Quantities

Single-Sided, Double Density  
Sold In Packages Of 5 With Sleeves,  
Labels & Write Protects Included  
**\$2.45 Per Box**

## Genuine IBM® Printer

8 1/2" Letter Size • 80 Column  
Limited Quantities



- Upper & Lower Case  
(with true lower descenders)
- Advanced Dot Matrix - Heat Transfer
- Graphics With Commodore, & Apple Interfaces
- Ready to Hook Up To Serial Port Of IBM® PCjr.
- Low Cost Adapters For IBM®, Apple,  
Commodore, & Laser Computers
- Underline & Enlarged

Our Low Sale Price  
**\$44<sup>95</sup>**  
List \$199

COMPUTER DIRECT

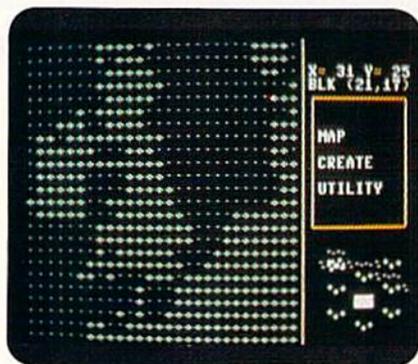
22292 N. Pepper Rd., Barrington, IL. 60010

Call (312) 382-3050 To Order!

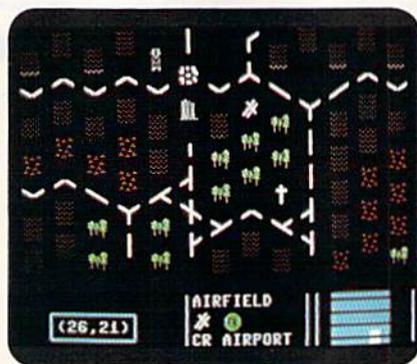
\* Illinois residents add 6 1/2% sales tax. All orders must be in U.S. Dollars. We ship to all points in the U.S., CANADA, PUERTO RICO, & APO-FPO. Please call for charges outside continental U.S. or C.O.D. MAIL ORDERS enclose cashier check, money order, or personal check. Allow 14 days delivery, 2 to 7 days for phone orders and 1 day express mail. Prices, specifications & availability subject to change without notice. Shipping - \$3.00 minimum, call for exact charges. 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.

## FORWARD INTO BATTLE!



Take a look at the map of the British Isles in Europe Ablaze.



You can design a detailed scenario in the Halls of Montezuma.



You've reached the unit-deploy phase of Wargame Construction Set.

ing a map and inserting a variety of ships from over 200 classes.

### SEA, AIR AND LAND

Grand sea, air and land warfare simulations have come into their own with Carriers at War, Europe Ablaze and Battlefront, a trio of programs also distributed by Electronic Arts. The wide variety of challenging World War II scenarios built into these programs demonstrates the construction options included. Each game allows battle components to be generated from the bottom up, including individual ships, aircraft and land battalions that are deployed on a spe-

cially created map, with allowances for almost any factor that could affect play. Depending on the game, everything from weather and the effect of rivers on air navigation to ship control capabilities and the combat experience of troops is not only weighted in game play, but changeable in construction.

You can simulate almost any type of encounter here, including "fantasy" battles like the *Final Countdown* scenario described above, and games can be saved in progress and modified as necessary. Attesting to its flexibility, Battlefront has spawned a variety of other packages, including Halls of Monte-

zuma, which simulates U.S. Marine Corps combat, and Battles of the American Civil War.

Another flexible package, Wargame Construction Set, from Strategic Simulations and also distributed by Electronic Arts, utilizes the game system used in Field of Fire. This program lets you design various terrains, unit types and adversaries, and comes with sample scenarios that range from medieval castle sieges and the Civil War to World War II, modern-day hostage rescue missions and science fiction. Scenarios can be programmed for one or two players in four different combat scales, from

## Evolution of the War Game

FOR MANY OF US, IT ALL BEGAN with TV shows like the '60's *Combat* or movies like the '80's *Rambo* series. We lived the excitement vicariously, and then wanted to experience a measure of it firsthand.

Long before, though, games like chess let players feel the thrill of victory without drawing a sword. More recent board games provided an element of realism that spawned a whole new generation of war gamers. Games such as *Cross of Iron* from Avalon Hill are so detailed that a first-time player is often daunted by their complexity. The ultimate in flexibility and complexity appears in TSR's *Dungeons and Dragons*.

However, with a few exceptions, there are two major problems with these games. First, there's no animation on the game board. Moves are made just as in chess—by manually moving the pieces. Second, the

game usually requires at least two players, and sometimes more. How can you watch a battle unfold or enjoy playing alone?

The answer came a few years ago when marvelous toys called video games hit the market. First, you could shoot a cannon at advancing aliens or low-flying airplanes; then, as microchips became more sophisticated, so did the games. A player of Mattel's Intellivision could fly down the trench of a death-star, fighting off alien ships and bombing laser batteries to save the earth.

The wonder of these games came partially from the TV set. While the screen had once shown *Twelve O'Clock High* as a movie for you to watch, now it became the flight deck of a B-17, which you could fly over Europe with a crew represented by synthesized voices. The success of the newest crop of such amusements attests to their

continuing popularity.

Gamers could take control of their TV sets, but still they wanted more. It came in the form of text adventures for the microcomputer, where the player typed in his or her name at the beginning of the session and was "spoken to" throughout. The excitement of "personally" playing the game was the next best thing to being there.

However, these games offered few or no graphics and little flexibility. Once the mystery was solved, the adventure lost meaning. Also, the gamer was at the mercy of the programmer's perception of reality. What if the game could be changed?

Enter the construction set. At last, the "game" was not a game, but a framework that let players construct their own conflict scenarios, then participate in them. Here, finally, was real gaming! □

## FORWARD INTO BATTLE!



Among the possibilities in *Adventure Construction Set* is weapons placement.

man-to-man to strategic actions.

Wargame Construction Set is probably the most flexible war game design program currently on the market. Its only fault is that units can't be named within the program, except by number and unique icon. However, its other flexibilities more than compensate for this limitation.

The C-64 version of Avalon Hill's *Under Fire* has tremendous capability for simulating World War II land battles. You can choose the type of action (attack, delay, hold position or breakout) and the objective, not to mention the armament and makeup of troops and vehicles, and an optional companion disk lets you create custom maps. The complete package makes a definitive design program and play system.

*Adventure Construction Set* from Electronic Arts was designed as a graphics adventure generator but is adaptable to war games, too. One of the first construction sets available, it still ranks as one of the most flexible, enabling you to simulate any man-to-man combat situation conceivable. You can't even draw the map until you've constructed your graphics "pieces." Weapons, terrain features, transport, miscellaneous items and nonplayer characters are all drawn, given qualities and incorporated into the game. I'm currently using the program to generate a game loosely based on the role-player *Twilight 2000* from Game Designer's Workshop. It's a daunting project, taxing my imagination to fully use the many construction options available.

### PREPARING FOR BATTLE

Suppose you have a construction set and want to create a new scenario or campaign. How is it done? The following are a few ideas I've found that make creating a game as much fun as playing it.

The first thing required is information. [www.Commodore.ca](http://www.Commodore.ca)  
May Not Reprint Without Permission

tion. You must develop an idea and "flesh it out" into a realistic conflict that can be simulated on the computer, and this can be done only through research. If you're interested in historical simulations, you probably already own books on the subject. Read everything you can so you'll understand what happened and why. Only then can you construct a realistic confrontation.

One mistake in developing a concept for a scenario is starting too big. If you plan to simulate the entire Pacific War from 1941 to 1945, you'll probably lose interest in your game long before you generate anything playable. Try to keep your first efforts simple—like the final confrontation at Little Big Horn, not the fall of the entire Indian nation.

While books are your best source of ideas, you can also learn from TV and movies. They may not give accurate historical information, but you'll be inspired to complete your *Sands of Iwo Jima* campaign after you watch *Sgt. Striker* lead his men to victory. Movies and TV can also help you visualize the battle and make play more fun.

It's vital that you use your imagination in game construction. It's difficult, if not impossible, to get the full story on historical confrontations, and, if you're doing a "what-if" scenario, everything is up to you.

The steps in building a scenario depend on the construction set you're using, but the following are always appropriate:

**1. Design the scenario.** With some sets, like *Adventure Construction Set*, you begin by drawing graphics to represent the items and people you need. With other sets, like *Battlefront* and *Warship*,

it's a matter of categorizing the terrain features, ships, and such, to reflect a specific type of battle.

Remember, at this point you set the capabilities for everything to come later, so it's better to have too many ship types, landforms or air squadrons than not enough. If you've done your homework, you may know exactly what you need, but chances are you'll forget several things.

It's a good idea to write down all your plans before entering data. This will help avoid corrections later, and, with step-by-step notes about the construction process added, the paper record will be handy for reference. You might also play with the construction routines a bit, to get an idea of how they work, what they can create and how that applies to your simulation.

**2. Draw your map.** If you're working on an historical scenario, refer to an atlas to make the map as realistic as possible. As examples, be certain to allow for width and depth of rivers (effect on fording) and amount of cover (effect on visibility for firing). Drawing the map may take more time than any other part of the construction, but it's well worth every minute. Here again, it's a good idea to put your ideas on paper first, to make actual data entry easier.

**3. Assign the combatants.** If you had to construct the opposing forces during the first step, completing this one should be easy. Constructing combatants and assigning hardware is crucial to the playability of the game. If you're doing an historically accurate simulation, resist the temptation to add a little strength to one side or the other. If you're working on a "what-if" scenario, ▶

Table 1. Manufacturers, distributors and prices.

**Field of Fire, \$19.95;**  
**Computer Ambush, \$59.95;**  
**50 Mission Crush, \$14.95;**  
**Mech Brigade, \$59.95;**  
**Warship, \$59.95;**  
**Eagles, \$9.95;**  
**Wargame Construction Set, \$29.95**  
Strategic Simulations, Inc.  
1046 N. Rengstorff Ave.  
Mountain View, CA 94043  
Distributed by:  
Electronic Arts  
1820 Gateway Drive  
San Mateo, CA 94404

**Wooden Ships and Iron Men, \$35;**  
**Under Fire, \$34.95**  
Avalon Hill Game Co.  
4517 Harford Rd.  
Baltimore, MD 21214

**Lords of Conquest, \$14.95;**  
**Adventure Construction Set, \$14.95;**  
**Carriers at War, \$49.95;**  
**Europe Ablaze, \$49.95;**  
**Battlefront, \$39.95;**  
**Halls of Montezuma, \$39.95;**  
**Battles of the American Civil War, \$39.95**  
Distributed by:  
Electronic Arts  
1820 Gateway Drive  
San Mateo, CA 94404

## FORWARD INTO BATTLE!

try several possibilities—but don't give an overwhelming advantage to one side or the other. Also, if you want uninitiated players to enjoy your game, be certain it begins easily and becomes progressively harder. Encountering an invincible Minotaur in the first room of their first text adventure can turn new players off gaming forever. Give them a chance to learn the game with a minimum of frustration. Then, when they're "hooked," throw in the heavy stuff.

**4. Set up the conflict.** This is the most important part of ensuring a good game, but, if you've done some research and keep the peculiarities of your construction set in mind, it will also be the easiest. Just make sure your ships can't sail across dry land and your planes won't bomb nonexistent targets, and, if you expect to play solitaire, instruct the computer fully (using the game-play mechanic).

**5. Be imaginative.** If the construction set you're using doesn't allow for a unit type or condition you want, simulate

the desired effect. For example, War-game Construction Set provides no forts, but it does have a category of ship that lets troops hide inside. If you assign these ships a non-naval icon, then place them on dry land without a movement allowance but with large fire and defense capability, you'll have just what you need. Since construction sets are flexible, you can find a way to solve almost any design dilemma.

**6. Test for playability.** Many construction sets have an option to let the computer play itself. Use this option several times to see what happens. If it seems impossible for one side or the other to win, see if the construction set will award the losing side points, so it can hold out longer. The Allies probably can't win a battle like Operation Market-Garden, but the amount by which they lose can be decreased. This type of game can be more challenging than one in which winning is assured, and it's also a more accurate simulation of real battle.

A final bit of advice is to make and

number a backup after every game-making session (and maybe once or twice within each session). The worst thing that could happen is for a power glitch or disk error to bomb hours of your hard work into byte oblivion.

With these suggestions and a good construction set, you should be able to simulate any type of conflict you desire. The fun is in the making—and the greatest compliment is when a friend completes your scenario and says, "That was a good game!" The satisfaction you feel at that moment will make it all worthwhile. ■

*Jerry McLain is the Assistant Director of Staff Training at the Vernon (Texas) State Hospital. A self-taught computerist, he has developed a number of data-storage and record-keeping programs for IBM-PCs at work, as well as producing graphics on his home C-64 system for work-related projects, for the American Diabetes Association and for fun. A fascination with all aspects of war and the "what-if" concept provides him with a hobby for his spare time.*

BUY•SELL•TRADE

BUY•SELL•TRADE

BUY•SELL•TRADE

# Computer Repeats, Inc.

UNBELIEVABLE DEALS EVERYDAY!

2017 13th St., Suite A  
Boulder, CO 80302

ALL ORDERS PROCESSED IN 24 HOURS!

FREE Software  
\$50 Value

Amiga 500



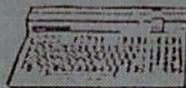
\$159  
NEW

with trade-in of C128, 1571, 1902, Gemini 10X, Xetec JR  
\$CALL for your system

### Prices - Used

|                    |       |                       |       |
|--------------------|-------|-----------------------|-------|
| C64 CPU            | \$114 | 1541 Drive            | \$125 |
| C128 CPU           | \$199 | 1571 Drive            | \$169 |
| VIC-20 CPU         | \$35  | SX-64                 | \$459 |
| C1702 Monitor      | \$135 | Vicmodem 64/128       | \$25  |
| Commodore 1530/C2N | \$20  | Koala Pad             | \$39  |
| DS1 PPI interface  | \$32  | Hayes Smartmodem      | \$39  |
| C1600 Modem        | \$24  | MPS-801 Printer       | \$72  |
| C1602 Monitor      | \$149 | VIC-1525 Printer      | \$79  |
| Monitors from      | \$39  | Okimate 10 color w/PP | \$39  |
| Xetec Graphics SR  | \$59  | Software/Books From   | \$1   |

Commodore 128D



\$249  
NEW

with trade-in of C128, 1571 OR \$315 with 64C, 1541  
\$CALL for your system

Commodore 64C



\$35  
NEW

with trade-in of C64, 1541  
\$CALL for your system

### Prices - New

|                       |       |                   |        |
|-----------------------|-------|-------------------|--------|
| 64C CPU               | \$159 | 1764 256K RAM C64 | \$119  |
| 128D CPU              | \$449 | C1084 RGB Monitor | \$299  |
| C1670 1200 Modem      | \$75  | 1581 3.5" Drive   | \$179  |
| FSD-2 (100% 1541)     | \$159 | Micro RVD 2K Intc | \$49   |
| Xetec JR Intc         | \$39  | New! PC15-III     | \$659  |
| Master 3A (Full 1010) | \$185 | Amiga 2000 CPU    | \$1499 |
| Avatec 2400HC         | \$189 | SmartLink 2400HC  | \$179  |
| Star NX-1000, 144cpe  | \$189 | Avatec 1200c      | \$79   |
| Star NX-2400 (24 PIN) | \$389 | C64 power supply  | \$29   |

\$Cash for your equipment!  
Thousands of software & book titles  
Plus MUCH, MUCH MORE!

Commodore COLT PC



\$379  
NEW

with trade-in of C128, 1571, 1902 OR \$499 with 64C, 1541, 1702  
\$CALL for your system

All references to trade-ins assume equipment to be in good working condition. Shipping/handling will be added to all prices. No additional charge for credit cards or COD. Mailorder prices shown. WE CHECK FOR CREDIT CARD THEFT!

1-303-939-8144

Modem software quotes: 1-303-939-8174

Authorized Dealers for  
COMMODORE/AMIGA  
and ATARI ST/XL/XE  
Computers and Accessories.

VISA

MASTERCARD

DISCOVER

AMERICAN EXPRESS

COD

# UTILITIES UNLIMITED, Inc.

12305 N.E. 152nd Street  
Brush Prairie, Washington 98606

Orders taken 24 hrs. a day;  
seven days a week.

**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!

## 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 **PANTASTIC 5-DISK SET** is a value of over \$100 for less than 1/2.

**\$39.95**

## 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.

**\$14.95 @**

## 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.  
**\$19.95 @**

SIMILAR PRODUCTS MAY APPEAR ELSEWHERE LATER. JUST REMEMBER YOU SAW THEM HERE FIRST!!

### If anything can copy everything, this may be it!

**Introducing SUPERCARD**  
Well folks, here it finally is. THE BEST! There is just not anything 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 makes backups of programs that no other utility can touch. With the SUPERCARD installed in your 1541 these programs are no threat. This small card (approximately 2" square) plugs in fast and easy, with only a screwdriver - and it is software upgradeable to cover new schemes. (Call for 1571 version information and price.)

### SUPERCARD has done 100% of everything we tested.

**\$44.95** C. Games or S. Fighter or A. Ranger?  
For dual drives add \$35.00  
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.

## THE 128 SUPERCHIP - A, B or C

(Another first!)  
**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 3000/1200 baud TERMINAL PROGRAM that's 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 @**

### 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.

HES MON cartridges (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 dongler (Golf & Bowling) ..... \$ 3.95

Used super snap shot (limited supply) ..... \$ 29.95

The Original Geos Standardizer ..... \$ 9.95

SUPER NIBBLER; 64/128 ..... \$ 14.95

SUPER CARTRIDGE ..... \$ 44.95



**LOCK PICK - THE BOOKS - for the C64 and C128**  
Lock Pick 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.



**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.

# Try to Remember...

*Challenge your memory and improve your spelling skills with this educational game.*



By PENNY DEGROFF

**R**emember is a combination spelling and memory-improvement game that challenges you to remember and correctly spell lists of words in the shortest possible time. The nine difficulty levels each contain five words, with two-letter words at the first level, three-letter words at the second, and so forth. The game can be customized to fit anyone's ability.

Type in and save Listing 1. When you run the program, it briefly displays the five words at the first difficulty level; then the playfield appears. This field is a matrix of all the letters of the alphabet, with a light-blue ball in the center. Above the playfield is the time display. The computer picks one of the five words, then shows one clue letter from that word below the playfield, with the other letters represented by hyphens.

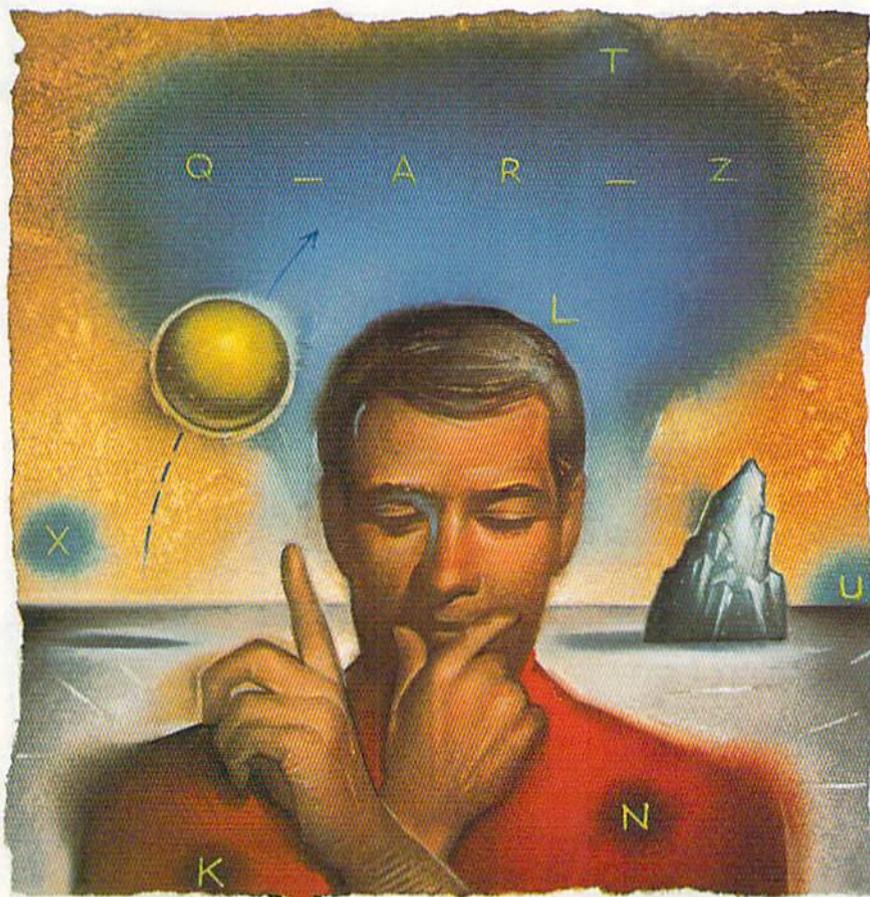
The clock is ticking, so you'd better start. Using a joystick in port 2, move the blue ball to the letter you think the first hyphen represents. Take care to move the ball in the spaces *between* the letters, for the ball turns yellow as soon as it touches *any* letter, and when it does, the die is cast: you have chosen *that* letter.

You can proceed to another letter only by guiding the (now) yellow ball to the star in the center of the playfield, at which point you hear a happy ping if your choice is correct, a dull bong if you're wrong. If you've chosen correctly, the letter will replace the hyphen; if not, try again.

Continue until the entire word is displayed. Then you'll advance to the next level.

## CUSTOMIZING THE PROGRAM

To change the length of time that the lists of words are shown, increase or decrease the 4000 in line 260 of the program. If you want to play only with



shorter words, decrease the 10 in line 240. For example, if you'd like the game to end after the six-letter words, change the 10 to 6.

You may want to replace some or all of the words from time to time. They're located in Data statements beginning at line 630, with the two-letter words in line 630, the three-letter words in line 640, and so forth. When you replace words, be sure they're the correct length for that level and that you keep five in

each Data statement. I'd also recommend that, within each level, no two words have the same letter in the same position. For example, if "but" and "pet" were in a list, the program might select one of them and "t" as the clue letter. Then, you couldn't guess the word until you'd chosen more letters, possibly wasting time. ☐

*Penny DeGross, a freelance author, writes educational and arcade games for the C-64. ▶*

RUN it right: C-64; joystick

# 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

|                                  |                                 |                                   |                                    |   |                                   |
|----------------------------------|---------------------------------|-----------------------------------|------------------------------------|---|-----------------------------------|
| <b>ABACUS SOFTWARE</b>           | Magic Madness ..... \$14        | Bismarck ..... \$19               | #1:Sports ..... \$9.88             | Bop & Wrestle ..... \$19                      | Panzer Strike! ..... \$29         |
| Assembler Monitor ..... \$25     | Strip Poker ..... \$21          | Dark Lord ..... \$14              | #2:Off the Wall ..... \$9.88       | Captain Blood ..... Call                      | Phantasia 1, 2 or 3 \$26 Ea.      |
| Basic ..... \$25                 | Data Disk #1 Female ..... \$14  | Global Commander ..... \$19       | #3:School ..... \$9.88             | Clubhouse Sports ..... \$19                   | Qwestron 2 ..... \$26             |
| Basic 128 ..... \$39             | Data Disk #2 Male ..... \$14    | Hunt for Red October \$26         | Rad Warrior ..... \$14             | *Deeper Dungeons ..... \$16                   | Rings of Zilfin ..... \$26        |
| *Becker Basic ..... \$33         | Data Disk #3 Female ..... \$14  | Rubicon Alliance ..... \$14       | Spy vs. Spy 3:                     | De Ja Vu ..... \$23                           | Shiloh: Grant's Trial ..... \$26  |
| Cad Pak ..... \$25               | <b>AVALON HILL</b>              | Tobruk ..... \$21                 | Arctic Antics ..... \$14           | Gauntlet ..... \$23                           | War Game Const. Set ..... \$19    |
| Cad Pak 128 ..... \$39           | NBA Basketball ..... \$25       | Tomahawk ..... \$21               | Street Sports:                     | Harrier Combat Simulator \$19                 | Warship ..... \$39                |
| Chart Pak ..... \$25             | NBA '85-86 Season Disk \$14     | Video Title Shop/Comp. \$21       | Baseball ..... \$24                | Indiana Jones & The                           | Wizard's Crown ..... \$26         |
| Chart Pak 128 ..... \$25         | Super Bowl Sunday ..... \$21    | <b>DAVIDSON</b>                   | Basketball ..... \$24              | Temple of Doom ..... \$23                     | <b>SUBLOGIC</b>                   |
| Cobol ..... \$25                 | SBS 1986 Team Disk ..... \$14   | Algeblaster ..... \$32            | Soccer ..... \$24                  | Indoor Sports ..... \$19                      | Flight Simulator 2 ..... \$32     |
| Cobol 128 ..... \$25             | SBS Gen. Mgr. Disk ..... \$19   | Math Blaster ..... \$32           | Sub Battle Simulator ..... \$24    | Infiltrator 1 or 2 ..... \$19 Ea.             | E.S. Scenery Disks ..... Call     |
| PPM ..... \$25                   | Under Fire ..... \$23           | Spell It ..... \$32               | Summer Games 1 or 2 \$14 Ea.       | Into the Eagle's Nest ..... \$19              | Jet ..... \$26                    |
| PPM 128 ..... \$39               | <b>AVANTAGE</b>                 | Word Attack ..... \$32            | Temple Apath Trilogy ..... \$14    | MISL Soccer ..... \$23                        | Stealth Mission ..... \$32        |
| Speed Term 64 or 128 \$25        | Project Space Station \$9.88    | <b>DESIGNWARE</b>                 | The Games: Winter                  | Paperboy ..... \$23                           | <b>THREE SIXTY</b>                |
| Super C ..... \$39               | Spy vs. Spy 1 & 2 ..... \$9.88  | Body Transparent ..... \$19       | Edition ..... \$24                 | Perfect Score SAT ..... \$44                  | Dark Castle ..... \$23            |
| Super C 128 ..... \$39           | <b>BATTERIES INCLUDED</b>       | Designasaurus ..... Call          | Winter Games ..... \$14            | Road Runner ..... \$23                        | <b>THUNDER MOUNTAIN</b>           |
| Super Pascal ..... \$39          | Paper Clip 3 ..... \$33         | Mission Algebra ..... \$19        | World Games ..... \$14             | 720 ..... Call                                | Dig Dug ..... \$6.88              |
| Super Pascal 128 ..... \$39      | Paper Clip Publisher ..... \$33 | Spellicopter ..... \$19           | <b>GAMESTAR</b>                    | S.S. Ice Hockey ..... \$23                    | Galaxian ..... \$6.88             |
| TAS ..... \$25                   | <b>BAUDVILLE</b>                | States & Traits ..... \$19        | Champ. Baseball ..... \$9.88       | Super Star Soccer ..... \$23                  | Implosion ..... \$9.88            |
| TAS 128 ..... \$39               | Award Maker Plus ..... \$25     | <b>DIGITAL SOLUTIONS</b>          | Champ. Basketball ..... \$9.88     | *Requires Gauntlet!                           | Jr. Pac Man ..... \$6.88          |
| *Requires GEOS!                  | Blazing Paddles ..... \$23      | Pocket Filer 2 ..... \$19         | GFL Ch. Football ..... \$23        | <b>MISC</b>                                   | Super Pac Man ..... \$9.88        |
| <b>ACCESS</b>                    | Video Vegas ..... \$19          | Pocket Planner 2 ..... \$19       | Main Event ..... Call              | Bob's Term Pro ..... \$29                     | Ms. Pac Man ..... \$6.88          |
| Echelon w/Lip Stik ..... \$29    | <b>BERKELEY SOFTWARES</b>       | Pocket Writer 2 ..... \$33        | Star Rank Boxing 2 ..... \$19      | Bob's Term Pro 128 ..... \$39                 | Pac Man ..... \$6.88              |
| Famous Course Disk #1            | Geos 128 ..... \$44             | *all 3 in 1 Super Pack. \$59      | <b>HI-TECH EXPRESSIONS</b>         | CSM 1541 Align Kit ..... \$29                 | Pole Position ..... \$6.88        |
| for World Class L.B. \$14        | Geo-Calc 128 ..... \$44         | <b>DIGITEK</b>                    | Astro Grover ..... \$6.88          | Doodle ..... \$25                             | Tau Ceiti ..... \$9.88            |
| Famous Course Disk #2            | Geo File 128 ..... \$44         | Vampire's Empire ..... \$19       | Award Ware ..... \$9.88            | Final Cartridge 3 ..... \$47                  | Top Gun ..... \$6.88              |
| for World Class L.B. \$14        | Geo-Write                       | <b>ELECTRONIC ARTS</b>            | Big Bird's Spc. Delivery \$6.88    | Font Master 2 ..... \$29                      | Winter Challenge ..... \$9.88     |
| Famous Course Disk #3            | Workshop 128 ..... \$44         | Software Classic Series:          | Ernie's Big Splash ..... \$6.88    | Font Master 128 ..... \$35                    | <b>TIMEWORKS</b>                  |
| for World Class L.B. \$14        | Geos 64 (2.0) ..... \$39        | Adventure Const. Set \$9.88       | Grover's Animal Adv. \$6.88        | GEOS—Inside &                                 | Data Manager 2 ..... \$14         |
| Fire Storm ..... \$9.88          | *Desk Pack Plus ..... \$19      | Archon 2 ..... \$9.88             | Matterhorn Screamer \$6.88         | Out (Book) ..... \$13                         | Data Manager 128 ..... \$33       |
| Leader Board (Original)          | *Font Pack Plus ..... \$19      | Lords of Conquest ..... \$9.88    | Pals Around Town ..... \$6.88      | GEOS—Tricks                                   | Partner 64 (R) ..... \$25         |
| Triple Pack ..... \$14           | *Geo-Calc ..... \$33            | Movie Maker ..... \$9.88          | Print Power ..... \$9.88           | & Tips (Book) ..... \$13                      | Partner 128 (R) ..... \$33        |
| Tenth Frame ..... \$25           | *Geo File ..... \$33            | Music Const. Set ..... \$9.88     | Sesame St. Print Kit. \$9.88       | Multiplan 64 ..... \$9.88                     | Swiftcalc/Sideways ..... \$14     |
| Triple Pack: BH1, BH2,           | *Geo Programmer ..... \$44      | One-on-One ..... \$9.88           | Tom Sawyers Island ..... \$6.88    | Superbase 64 ..... \$29                       | Swiftcalc/Sideways 128 ..... \$33 |
| Raid Over Moscow ..... \$14      | *Geo Publish ..... \$33         | Pinball Const. Set ..... \$9.88   | <b>INFOCOM</b>                     | Superbase 64 ..... \$29                       | Sylvia Porter's Personal          |
| World Class                      | *Requires Geos 64!              | Seven Cities Gold ..... \$9.88    | Beyond Zork 128 ..... \$29         | Superscript 64 ..... \$25                     | Fin. Planner 64 ..... \$25        |
| Leader Board ..... \$25          | <b>BOX OFFICE</b>               | Skyfox ..... \$9.88               | Border Zone ..... \$23             | Superscript 128 ..... \$29                    | Sylvia Porter's Personal          |
| <b>ACCOLADE</b>                  | All ..... \$9.88                | Super Boulder Dash ..... \$9.88   | Hitchhiker's Guide ..... \$9.88    | Super Snapshot (R) ..... \$47                 | Fin. Planner 128 ..... \$33       |
| Ace of Aces ..... \$9.88         | California Raisins ..... \$16   | <b>ELECTRONIC ARTS</b>            | Infocomms ..... Call               | <b>ORIGIN</b>                                 | Word Writer 3 ..... \$25          |
| Apollo 18 ..... \$19             | Psycho ..... \$16               | Alien Fires ..... \$19            | Leather Goddesses ..... \$9.88     | Autoduel ..... \$32                           | Word Writer 128 ..... \$33        |
| Bubble Ghost ..... \$19          | <b>BRODERBUND</b>               | Arctic Fox ..... \$23             | Zork 1 ..... \$9.88                | Moebius ..... \$25                            | <b>UNISON WORLD</b>               |
| Card Sharks ..... \$19           | Carmen Sandiego:                | Bard's Tale 1 or 2 ..... \$26 Ea. | Zork 2 ..... \$9.88                | Ultima 1 or 3 ..... \$25 Ea.                  | Art Gallery 1 or 2 ..... \$16 Ea. |
| Fast Break ..... Call            | Europe ..... \$25               | Bard's Tale 3 ..... \$26          | Zork Trilogy ..... \$29            | Ultima 4 ..... \$39                           | Art Gallery: Fantasy ..... \$16   |
| Fight Night ..... \$9.88         | USA ..... \$25                  | Chessmaster 2000 ..... \$26       | <b>INKWELL SYSTEMS</b>             | Ultima 5 ..... \$39                           | Print Master Plus ..... \$23      |
| 4th & Inches Football ..... \$19 | World ..... \$23                | Chuck Yeager's AFT ..... \$23     | #170 Deluxe L.P. .... \$69         | <b>PROFESSIONAL</b>                           | <b>WEEKLY READER</b>              |
| 4th & Inches Team Const. \$9.88  | Cauldron ..... \$9.88           | Demon Stalker ..... \$21          | #184C Light Pen ..... \$44         | Fleet System 2 Plus ..... \$33                | Stickybear Series:                |
| Hardball ..... \$9.88            | Choplifter/David's              | Dragons Lair ..... \$19           | Flexidraw 5.5 ..... \$23           | Fleet System 4 128 ..... \$43                 | ABC's ..... \$16                  |
| Mini Pull ..... \$19             | Midnight Magic ..... \$9.88     | Earth Orbit Station ..... \$21    | Graphics Galleria #1 ..... \$19    | <b>SIMON &amp; SCHUSTER</b>                   | Math 1 or 2 ..... \$16 Ea.        |
| Power at Sea ..... \$19          | Karateka ..... \$9.88           | Instant Music ..... \$21          | Graphics Galleria #2 ..... \$19    | JK Lasser Money Mgr. .... \$14                | Numbers ..... \$16                |
| Rack 'Em ..... Call              | Loderunner ..... \$9.88         | Legacy of Ancients ..... \$21     | Graphics Integrator 2 ..... \$19   | Typing Tutor 4 ..... \$25                     | Opposites ..... \$16              |
| Serve & Volley ..... Call        | Magnetron ..... \$9.88          | Marble Madness ..... \$23         | <b>MASTERTRONIC</b>                | Reading ..... \$16                            | Reading Comp. .... \$16           |
| Test Drive ..... \$19            | Print Shop ..... \$26           | Master Ninja ..... \$19           | Captain Zap ..... \$6.88           | Reading Comp. .... \$16                       | Shapes ..... \$16                 |
| The Train: Escape to             | P.S. Companion ..... \$23       | Monopoly ..... \$21               | Feud ..... \$6.88                  | Spellgrabber ..... \$16                       | <b>WINDHAM CLASSICS</b>           |
| Normandy ..... \$19              | P.S. Graphics Library           | Patton vs. Rommel ..... \$21      | Ninja ..... \$4.88                 | <b>SHARE DATA</b>                             | Alice In                          |
| <b>ACTION SOFT</b>               | #1, #2, or #3 ..... \$16 Ea.    | Pegasus ..... \$23                | Prowler ..... \$6.88               | Concentration ..... \$9.88                    | Wonderland ..... \$9.88           |
| Thunder Chopper ..... \$19       | P.S. Graphics Library           | Roadwars ..... \$21               | Shogun ..... \$6.88                | Family Feud ..... \$8.88                      | Swiss Family                      |
| Up Periscope! ..... \$19         | Holiday Edition ..... \$16      | Rockford ..... \$21               | Squash ..... \$6.88                | Jeopardy ..... \$8.88                         | Robinson ..... \$9.88             |
| <b>ACTIVISION</b>                | Toy Shop ..... \$19             | Scrabble ..... \$23               | Storm ..... \$6.88                 | Jeopardy Jr. .... \$9.88                      | Treasure Island ..... \$9.88      |
| Aliens ..... \$9.88              | <b>CENTRAL POINT</b>            | Scraples ..... \$23               | Vegas Poker ..... \$4.88           | Wheel of Fortune ..... \$8.88                 | Wizard of Oz ..... \$9.88         |
| Black Jack Academy ..... \$25    | Copy 2 ..... \$23               | Skyfox 2 ..... \$21               | Water Polo ..... \$6.88            | <b>ACCESSORIES</b>                            | Animation Station ..... \$49      |
| Crossbow ..... \$19              | <b>CINEMAWARE</b>               | Skate or Die ..... \$21           | <b>MELBOURNE HOUSE</b>             | Bonus 5S, DD ..... \$4.99 Bx.                 | Bonus DS, DD ..... \$5.99 Bx.     |
| Cross Country                    | Defender of the Crown \$23      | Star Fleet 1 ..... \$26           | Barbarian ..... \$19               | Compuserve Starter Kit \$19                   | Compuserve Starter Kit \$19       |
| Road Race ..... \$9.88           | Sinbad: Throne of the           | Strike Fleet ..... \$21           | John Elway's QB ..... Call         | Disk Case (Holds 75) ..... \$6.88             | Disk Drive Cleaner ..... \$6.88   |
| Faery Tale Adventure ..... Call  | Falcon ..... \$23               | Twilights Ransom ..... \$23       | <b>MICROLEAGUE</b>                 | Epyx 500 XJ Joystick ..... \$14               | Epyx 500 XJ Joystick ..... \$14   |
| Ghostbusters ..... \$9.88        | The Three Stooges ..... \$23    | Wasteland ..... \$26              | Baseball ..... \$25                | Intcontroller ..... \$14                      | Intcontroller ..... \$14          |
| Hacker 1 or 2 ..... \$9.88 Ea.   | Warp Speed (R) ..... \$33       | <b>DATA EAST</b>                  | Box Score Stats ..... \$16         | Suncom TAC 5 J.S. .... \$14                   | Suncom TAC 5 J.S. .... \$14       |
| Little Computer People \$9.88    | Breakthru ..... \$19            | Construction Kit ..... \$14       | General Manager ..... \$19         | Wico Bat Handle ..... \$17                    | Wico Boss ..... \$12              |
| Mainframe ..... \$23             | Commando ..... \$14             | California Games ..... \$24       | 1986 Team Data Disk ..... \$14     | Wico Ergostick J.S. .... \$19                 | XETEC Super Graphix ..... \$59    |
| Maniac Mansion ..... \$23        | Ikari Warriors ..... \$19       | Champ. Wrestling ..... \$14       | 1987 Team Data Disk ..... \$14     | XETEC Super                                   | Graphix Gold ..... \$89           |
| Might & Magic ..... \$25         | Karnov ..... \$19               | Create A Calendar ..... \$19      | WWF Wrestling ..... \$19           | XETEC Super                                   | Graphics Jr. .... \$39            |
| Music Studio ..... \$23          | Kid Niki ..... \$19             | Death Sword ..... \$14            | <b>MICROPROSE</b>                  | *All programs on disk unless otherwise noted! |                                   |
| Rampage ..... \$23               | Lock On ..... Call              | Destroyer ..... \$24              | Airborne Ranger ..... \$23         |   |                                   |
| Shanghai ..... \$19              | Platoon ..... \$19              | Fast Load (R) ..... \$24          | F-15 Strike Eagle ..... \$23       |   |                                   |
| Sky Travel ..... \$33            | Tag Team Wrestling ..... \$14   | Final Assault ..... Call          | Gunship ..... \$23                 |   |                                   |
| The Last Ninja ..... \$23        | <b>DATASOFT</b>                 | 4x4 Off Road Racing ..... \$24    | Pirates ..... \$25                 |   |                                   |
| Transformers ..... \$9.88        | Alternate Reality:              | Impossible Mission 2 ..... \$24   | Project Stealth Fighter ..... \$25 |   |                                   |
| <b>ARTWORX</b>                   | The City ..... \$19             | L.A. Crackdown ..... \$24         | Red Storm Rising ..... Call        |   |                                   |
| Bridge 5.0 ..... \$19            | The Dungeon ..... \$26          | Metrocross ..... \$16             | Silent Service ..... \$23          |   |                                   |
| Highland Games ..... \$9.88      | Battle Droidz ..... \$19        | Pitstop ..... \$6.88              | <b>MINDSCAPE</b>                   |   |                                   |
| Linkword French ..... \$16       |                                 | P.S. Graphics Scrapbook           | Bad Street Brawler ..... \$19      |   |                                   |
| Linkword Spanish ..... \$16      |                                 |                                   | Blockbuster ..... \$19             |   |                                   |

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.o.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 items purchased with the defective merchandise will be replaced with the same merchandise. 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.o.A.'s 800# order lines! Prices & availability are subject to change! New titles are arriving daily! Please call for more information. NEW, MORE CONVENIENT ORDER LINE HOURS: Mon.-Thurs. 8:30 AM-7:00 PM Fri. 8:30 AM-5:30 PM Sat. 10:00 AM-4:00 PM Eastern Time.

# REMEMBER

## Listing 1. I Remember program.

```

1 REM I REMEMBER - PENNY DEGROF
  F                               :REM*206
10 DIMD$(20),WS(5),B(26):PRINTC
   HR$(142):X=RND(-TI):GOTO480
                               :REM*25
20 PRINTD$(5)TAB(12)LEFT$(TI$,2
  ):"MID$(TI$,3,2)":"RIGHT$(T
  I$,2)                               :REM*144
30 FORDE=1TO50:NEXT:JS=PEEK(563
  20)AND15:IFJS=14THENDI=-40:G
  OTO80                               :REM*4
40 IFJS=7THENDI=1:GOTO80
                               :REM*147
50 IFJS=13THENDI=40:GOTO80
                               :REM*143
60 IFJS=11THENDI=-1:GOTO80
                               :REM*251
70 GOTO20                               :REM*194
80 NP=OP+DI:TP=PEEK(NP):TC=PEEK
  (NP+C):IFTP=160THEN20
                               :REM*148
90 IFBC=7THEN130                     :REM*152
100 IFTP=42THEN20                     :REM*95
110 BC=14:IFTP>0ANDTP<27THENBC=
  7:LC=TP                               :REM*18
120 POKENP+C,BC:POKEOP,PP:POKEN
  P,81:POKEOP+C,PC:OP=NP:PP=T
  P:PC=TC:GOTO20                       :REM*193
130 IFTP>0ANDTP<27THEN20
                               :REM*255
140 BC=7:IFTP=42THENBC=14
                               :REM*135
150 POKENP+C,BC:POKEOP,PP:POKEN
  P,81:POKEOP+C,PC:OP=NP:PP=T
  P:PC=TC:IFTP=32THEN20
                               :REM*76
160 LS=10:IFLC+64=ASC(MID$(W$(W
  P),PL,1))THENLS=50                   :REM*56
170 POKES+1,LS:POKES+4,33:FORDE
  =1TO50:NEXT:POKES+4,32:FORDE
  E=1TO100:NEXT                       :REM*149
180 IFLS=10THEN20                     :REM*113
190 POKELP,LC                          :REM*157
200 LP=LP+1:PL=PL+1:IFPEEK(LP)=
  32THEN230                             :REM*208
210 IFPEEK(LP)<>45THEN200
                               :REM*212
220 GOTO20                               :REM*91
230 TS$=TI$:FORDE=1TO1500:NEXT
                               :REM*32
240 PRINTCS$:L=L+1:IFL>10THEN41
  0                                       :REM*121
250 FORX=1TO5:READW$(X):NEXT:WL
  =LEN(W$(1)):PRINTD$(10)
                               :REM*94
260 FORX=1TO5:PRINTTAB((40-WL)/
  2)W$(X):NEXT:FORDE=1TO4000:NEXT
  NEXT                                   :REM*167
270 WP=INT(RND(1)*5)+1:LK=INT(R
  ND(1)*WL)+1                           :REM*107
280 PRINTCS$D$(6)TAB(12)R1$"{15
  SPACES}":GOSUB350                   :REM*157
290 PRINTTAB(12)R1$" "R2$"{2 SP
  ACES}A B C D E{2 SPACES}"R1
  $" ":GOSUB350                         :REM*38
300 PRINTTAB(12)R1$" "R2$" F G
  H I J K "R1$" ":GOSUB350
                               :REM*223

```



Move the ball carefully, or you'll choose a letter you don't want.

```

310 PRINTTAB(12)R1$" "R2$"{2 SP
  ACES}L M "CHR$(113)" N O{2
  SPACES}"R1$" ":GOSUB350
                               :REM*248
320 PRINTTAB(12)R1$" "R2$" P Q
  R S T U "R1$" ":GOSUB350
                               :REM*28
330 PRINTTAB(12)R1$" "R2$"{2 SP
  ACES}V W X Y Z{2 SPACES}"R1
  $" ":GOSUB350                         :REM*31
340 PRINTTAB(12)R1$"{15 SPACES}
  ":GOTO360                             :REM*152
350 PRINTTAB(12)R1$" "SPC(13)"
  ":RETURN                               :REM*3
360 OP=1523:PP=42:PC=14:REM*107
370 PRINTD$(19)TAB(12);:FORX=1T
  OWL:IFX<>LKTHENPRINT"-";:GO
  TO390                                   :REM*9
380 PRINTMID$(W$(WP),X,1);
                               :REM*46
390 NEXT:LP=1795:PL=0:IFL=2THEN
  TS$="000000"                           :REM*203
400 TI$=TS$:GOTO200                     :REM*54
410 PRINTCS$D$(9)TAB(15)"GAME O
  VER"                                     :REM*160
420 PRINTD$(11)TAB(8)"TIME THIS
  GAME: ";LEFT$(TS$,2)":"MID
  $(TS$,3,2)":";                       :REM*156
430 PRINTRIGHT$(TS$,2):IFTS$<BT
  $THENBT$=TS$                           :REM*248
440 PRINTTAB(13)"BEST TIME: "LE
  FT$(BT$,2)":"MID$(BT$,3,2)"
  ":"RIGHT$(BT$,2)                       :REM*66
450 PRINTD$(14)TAB(4)"PRESS FIR
  E BUTTON TO PLAY AGAIN"
                               :REM*253
460 FB=(PEEK(56320)AND16):IFFB=
  0THEN530                               :REM*217
470 GOTO460                             :REM*45
480 BT$="235959":D$(0)=CHR$(19)
  :FORX=1TO20:D$(X)=D$(X-1)+C
  HR$(17):NEXT                           :REM*163
490 B(1)=1478:FORX=2TO12:B(X)=B
  (X-1)+1:NEXT:B(13)=1529:B(1
  4)=1569                                 :REM*233
500 FORX=15TO25:B(X)=B(X-1)-1:N
  EXT:B(26)=1518:S=54272:C=54
  272:R1$=CHR$(18)                       :REM*168
510 R2$=CHR$(146):CS$=CHR$(147)
  :FORX=S+2TOS+23:POKEX,0:NEX
  T:POKES,10                             :REM*0
520 POKES+5,10:POKES+6,10:POKES
  +13,255:POKES+24,15:POKES532
  80,0:POKE53281,0                       :REM*52
530 PRINTCS$CHR$(28)D$(11)TAB(1
  4)R1$"{12 SPACES}" :REM*240
540 PRINTTAB(14)R1$" "R2$CHR$(1
  58)"I REMEMBER"CHR$(28)R1$"
  "                                       :REM*213
550 PRINTTAB(14)R1$"{12 SPACES}
  ":CO=1:RESTORE:GOSUB580:CO=
  6:RESTORE:GOSUB580                   :REM*77
560 CO=2:RESTORE:GOSUB580:FORDE
  =1TO100:NEXT:POKES+11,0
                               :REM*12
570 L=1:PRINTCHR$(154):FORDE=1T
  O1000:NEXT:GOTO240                   :REM*157
580 FORX=1TO26:POKE(X)+C,CO:RE
  ADHI,LO:POKES+8,HI:POKES+7,
  LO:POKES+11,17                         :REM*162
590 FORDE=1TO50:NEXT:POKES+11,1
  6:FORDE=1TO100:NEXT:NEXT:RE
  TURN                                     :REM*41
600 DATA 14,24,8,97,11,48,18,20
  9,22,96,10,143,15,210,21,31
  ,28,49                                   :REM*42
610 DATA 33,135,28,149,22,96,28
  ,49,14,24,12,143,9,104,12,1
  43,15,210                               :REM*179
620 DATA 21,31,28,49,33,135,18,
  209,12,143,9,104,12,143,16,
  195                                       :REM*78
630 DATA TO,UP,IF,MY,AN:REM*106
640 DATA RUN,ACT,DOG,TRY,MAP
                               :REM*1
650 DATA BEAN,ECHO,KITE,JUMP,TA
  LL                                       :REM*65
660 DATA SCARF,TRICK,PAPER,LIGH
  T,JELLY                                 :REM*17
670 DATA REPORT,EDITOR,HANDLE,Q
  UARTZ,UNLESS                           :REM*12
680 DATA PROGRAM,RESPOND,WHISTL
  E,SUBJECT,CAREFUL                       :REM*55
690 DATA DELUSION,COMPUTER,APPR
  OACH,PRINCESS,BANKRUPT
                               :REM*69
700 DATA HYPHENATE,SPLITTING,TR
  ANSPORT,FICTIONAL,GEOGRAPHY
                               :REM*84
710 DATA DICTIONARY,SPELLBOUND,
  INDUSTRIAL,WATERMELON,CHANG
  EABLE                                   :REM*58

```

# PCResource Presents

## PCGAMES

Experience the fun...the thrill...  
the excitement...the joy of victory!

*PCGames*, the complete Buyer's Guide to MS-DOS recreational software, is jam-packed with playing techniques, product reviews, and key information on hardware, graphics, monitors, and joysticks.

Use your personal computer for an intriguing game of "whodunit," a high-speed car race, a challenging pinball game, a fast-paced arcade game...a fabulous entertainment center for yourself and the whole family.

*PCGames* will maximize your fun, sharpen your skills and show you the best in imaginative adventures, out-of-this world fantasies, children's games, paint programs, simulation software and more!

Browse through the pages of *PCGames*—the only magazine devoted to the spellbinding world of computer amusement.

Our editors and contributors—some of the sharpest game experts in the field—make *your* entertainment their number one priority!

*PCGames* is the perfect way to find a gift for everyone on your Holiday list. It will be on sale in the newsstands in early November. But to make sure you don't miss out, you can reserve your copy *right now* by calling **toll FREE 1-800-343-0728**. Charge it to your MasterCard, VISA or American Express. Or you can fill out the coupon below.

**ORDER TODAY!**

**YES!** I want to know all the ways I can turn my PC into an exciting entertainment center!

Send me \_\_\_\_\_ copies of *PCGames* at \$3.95 per copy. My check for \$\_\_\_\_\_ is enclosed.

Charge it to my \_\_\_\_\_ MasterCard \_\_\_\_\_ VISA \_\_\_\_\_ AMEX

Number \_\_\_\_\_ Exp. Date \_\_\_\_\_ Signature \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Canada & Mexico \$4.95, Foreign Surface \$5.50, Foreign Airmail \$9.50 (U.S. Funds drawn on U.S. Bank).

www.CommodorePCGames will be shipped in early Nov., 1988.

Mail to: *PCGames*, IDG Communications/Peterborough, 80 Elm Street, Peterborough, NH 03458.

**RN988**

# Programmer's Pager

Step through your program listings conveniently  
at the press of a key.



By JOHN RYAN

**P**age Lister is a powerful, albeit short, programming utility that takes the hassle out of listing Basic programs to the screen for study and debugging. No more will you have to type in LIST <linenumber>-<line number> over and over again to search for bugs. At the touch of a function key, Page Lister brings 24 lines of Basic text to the screen and leaves them there for your perusal and editing. As a bonus, a line highlighting function is available to help eliminate the tedium of scanning for errors. Anyone who's tried to compare data between a magazine listing and the screen or who works with Data statements a lot will love this feature!

Type in Listing 1 and save it to disk before running it. When you want to use Page Lister, load and run it to generate the machine language program in its Data statements; then load the program you plan to work on. With both programs in memory, just tap the restore key to activate the Page Lister features. If you've forgotten to load your other program, a message appears to remind you. Otherwise, the screen goes blank and awaits your next keypress.



Press F1 each time you want to examine a new batch of 24 lines. At the end of the listing, the next F1 will begin recycling at the first line number. To page backward through the listing, press F3. In this case, when it reaches the beginning of the listing, the paging stops; there's no cycling with F3.

F5 activates the highlight bar, the cursor keys move it up and down and another F5 toggles it off. Pressing F7 exits from Page Lister.

This utility works fine with all Basic programs except those with embedded List-protection features and those with machine language programs automatically appended to them by certain assemblers. **R**

*John Ryan is an air traffic control instructor and advanced machine language programmer with experience on a number of computer systems, including, of course, the Commodore.*

Listing 1. Page Lister program.

```

0 REM PAGE LISTER - JOHN RYAN          50 DATA 128,232,224,5,208,245,8      2,24,96,200          :REM*27
      :REM*228                          8,96,104,168,104,170,104,88,      100 DATA 177,169,240,2,24,96,56
10 FORT=49152 TO 49848:READ D:P        32,234,255,32          :REM*20             ,96,24,165,155,105,40,133,1
   OKE T,D:X=X+D:NEXT                 60 DATA 225,255,208,3,76,102,25   55,165,156,105,0    :REM*59
20 IF X<>88770 THEN PRINT "ERROR     4,169,1,133,204,32,171,192,3     110 DATA 133,156,96,56,165,155,
   R IN DATA STATEMENTS":END        2,99,192,144          :REM*206            233,40,133,155,165,156,233,
      :REM*151                          70 DATA 10,169,157,160,194,32,3   0,133,156,96,230    :REM*120
30 PRINT"{SHFT CLR} {CTRL 9}PRE      0,171,76,84,193,169,0,141,11     120 DATA 169,208,2,230,170,96,1
   SS RESTORE TO ACTIVATE PAGE       6,194,141,117         :REM*202            62,0,169,32,157,0,4,157,0,5
   LISTER.":SYS 49152:NEW             80 DATA 194,141,113,194,169,147   ,157,0,6,157,0,7   :REM*183
      :REM*191                          ,32,210,255,162,0,160,1,24,3     130 DATA 232,208,241,96,165,43,
40 DATA 120,169,26,141,2,128,16     2,240,255,169         :REM*123            133,169,165,44,133,170,96,5
   9,192,141,3,128,162,0,189,17     90 DATA 118,160,194,32,30,171,7   6,165,45,233,3     :REM*4
   9,194,157,4          :REM*132     6,250,192,160,0,177,169,240,    140 DATA 141,167,2,165,46,233,0

```

RUN it right: C-64

GET YOUR MONEY'S WORTH

"SUPER MAGAZINE! EVERY FEATURE IS A JOY TO READ. YOU'RE DOING GREAT!"

Rick Keefer, San Diego, CA

#### GREATER VALUE

Each month, more and more Commodore users find that *RUN* not only repays the low subscription cost, but actually increases the value of their computer, issue after issue!

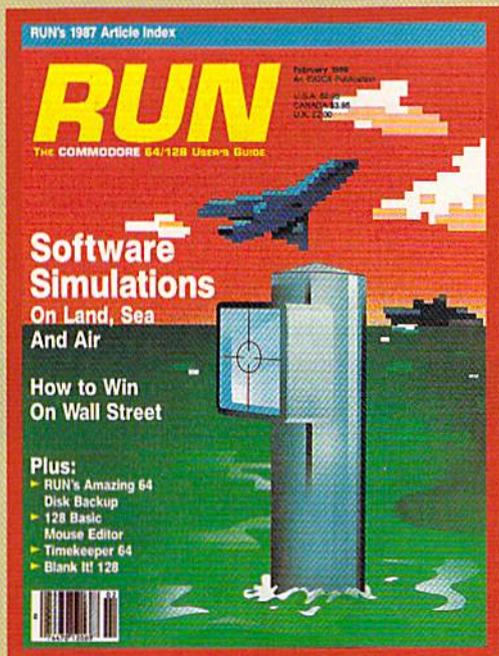
#### MANY SPECIAL FEATURES

In addition, *RUN*'s **Telecomputing Workshop** brings you all the latest developments in the fast-growing sphere of telecommunications for your Commodore, with special emphasis on efficient, error-free use. Users of GEOS will want to check out *RUN*'s **geoWatch** column for the insight into new products and enhancements for this great operating system. If you've got a problem or question regarding the how-to's and why's of Commodore hardware, software and programming, **Commodore Clinic** is for you. And, whether you're a computing novice or pro, you can pick up helpful hints and tricks in *RUN*'s **Magic** column (or share your own tricks with others!).

#### SAVE TIME • SAVE MONEY!

If *RUN*'s expert product reviews help you avoid even one mistaken purchase, you'll

▶ **Better yet, CALL TOLL FREE 1-800-258-5473 and get *RUN* working for you even sooner!**



again save yourself enough to repay your subscription, not to mention saving time and hassle. And when you're ready to buy, you won't find a better marketplace than in the pages of *RUN*.

#### SAVE 35% RIGHT NOW!

Speaking of savings, you can start those savings right now, by entering your *RUN* subscription at a full

35% off the cover price! Just complete the coupon below. Be assured of getting every issue of *RUN*, to add value and enjoyment to each hour you spend with your computer.

**YES**, I want to start saving and add to my computing enjoyment every month! Send me the next 12 issues of *RUN* at the low introductory rate of just \$22.97—a full 35% off the newsstand price!

Payment enclosed     Bill me

Name (please print)

Address

City

State

Zip

4RR2

Canada & Mexico \$27.97, Foreign Surface \$42.97, Foreign Airmail \$77.97 (U.S. Funds drawn on U.S. Bank). All rates are 1 year only. Please allow 6-8 weeks for delivery.

**RUN • PO Box 58711 • Boulder, CO 80322-8711**

P A G E R

|     |   |     |   |     |  |
|-----|---|-----|---|-----|--|
|     | ,141,168,2,56,165,169,237,1<br>67,2,141,169,2 :REM*70                                   |     | 4,160,0,140,115 :REM*71   |     | 330 DATA 233,128,32,210,255,96,<br>169,0,141,112,194,133,155,1                         |
| 150 | DATA 165,170,237,168,2,13,1<br>69,2,240,4,176,2,24,96,56,9<br>6,174,116,194 :REM*28     | 240 | DATA 194,32,239,192,32,144,<br>192,32,144,192,160,0,177,16<br>9,170,200,177 :REM*173    | 340 | DATA 92,194,32,228,255,240,<br>251,201,135,240,64,201,17,2<br>08,22,173,112 :REM*174   |
| 160 | DATA 165,169,157,184,194,23<br>2,165,170,157,184,194,232,1<br>42,116,194,96,24 :REM*29  | 250 | DATA 169,32,205,189,169,32,<br>32,210,255,32,144,192,32,14<br>4,192,160,0,177 :REM*47   | 350 | DATA 194,201,24,240,236,32,<br>92,194,32,116,192,238,112,1<br>94,32,92,194,76 :REM*78  |
| 170 | DATA 174,114,194,172,115,19<br>4,32,240,255,96,32,228,255,<br>240,251,201,133 :REM*51   | 260 | DATA 169,240,40,16,6,32,220<br>,193,76,178,193,201,34,208,<br>19,32,210,255,32 :REM*106 | 360 | DATA 33,194,201,145,208,217<br>,173,112,194,240,212,206,11<br>2,194,32,92,194 :REM*34  |
| 180 | DATA 208,28,32,151,192,32,2<br>20,192,173,113,194,240,8,16<br>9,0,141,113,194 :REM*139  | 270 | DATA 144,192,160,0,177,169,<br>240,16,201,34,240,3,76,156,<br>193,32,210,255 :REM*32    | 370 | DATA 32,130,192,32,92,194,7<br>6,33,194,160,0,177,155,73,1<br>28,145,155,200 :REM*68   |
| 190 | DATA 141,117,194,32,97,193,<br>238,117,194,76,250,192,201,<br>134,208,45,173 :REM*14    | 280 | DATA 32,144,192,76,138,193,<br>32,144,192,56,32,240,255,23<br>2,142,114,194,32 :REM*1   | 380 | DATA 192,40,208,245,96,32,9<br>2,194,76,250,192,0,0,0,0,0,<br>0,80,65,71,69,32 :REM*19 |
| 200 | DATA 117,194,201,2,144,208,<br>174,116,194,202,202,142,116<br>,194,202,202,189 :REM*120 | 290 | DATA 180,192,144,9,32,171,1<br>92,169,1,141,113,194,96,173<br>,114,194,201,23 :REM*177  | 390 | DATA 76,73,83,84,69,82,32,6<br>5,67,84,73,86,65,84,69,68,3<br>2,79,78,32,70,85 :REM*65 |
| 210 | DATA 184,194,133,169,232,18<br>9,184,194,133,170,32,151,19<br>2,32,97,193,206 :REM*184  | 300 | DATA 176,3,76,107,193,96,56<br>,233,127,170,132,73,160,255<br>,202,240,8,200 :REM*22    | 400 | DATA 78,67,84,73,79,78,32,7<br>5,69,89,83,0,78,79,32,80,82<br>,79,71,82,65,77 :REM*184 |
| 220 | DATA 117,194,169,0,141,113,<br>194,76,250,192,201,136,208,<br>3,76,123,227,201 :REM*226 | 310 | DATA 185,158,160,16,250,48,<br>245,200,185,158,160,141,53,<br>3,48,5,32,71,171 :REM*156 | 410 | DATA 32,73,78,32,77,69,77,7<br>9,82,89,33,0,195,194,205,56<br>,48,0 :REM*154           |
| 230 | DATA 135,208,159,32,19,194,<br>76,250,192,162,0,142,114,19                              | 320 | DATA 208,242,173,53,3,201,1<br>63,144,9,201,180,176,5,233,<br>127,76,15,194 :REM*40     |     |  |

A N N O U N C I N G



THE WORLD OF  
COMMODORE



USA

The largest and most successful Commodore show in the World is making its American debut in Philadelphia, November 3-6, 1988.

The World of Commodore is a showcase of all that's new and innovative in microcomputers.

Hundreds of exhibitors from all over the world will be demonstrating and counselling you on the latest software, accessories and peripherals for your present or future Commodore computer.

Many manufacturers, distributors and retailers participating in the World of

Commodore will be clearing out millions of dollars worth of inventory at the show — this can translate into big savings for you.

Don't miss this once-a-year opportunity to shop for incredible bargains and investigate the many new product introductions. Plan to be part of the biggest Commodore event ever to be presented in America!

**Exhibitor's phone or fax today to find out how you can take part in the World's largest Commodore Show.**

For information contact:  
The Hunter Group  
(416) 595-5906 Fax (416) 595-5093

PRODUCED IN ASSOCIATION WITH  
COMMODORE BUSINESS MACHINES

C I V I C C E N T R E  
NOVEMBER 3-6 '88  
PHILADELPHIA



# BANK CARDS SAME AS CASH

## 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.

## SUMMER SALE

C64/VIC20 or 1541 dust cover \$3.95  
Mix or match 5 or more just each \$2.95

Sale ends 8/31/88

C128 or 1571 drive, anti static \$7.95  
Buy one of ea. SAVE \$1.41 C128 set \$14.49

## MISCELLANEOUS

Disk Sleeves, white tyvek, 100 pack \$ 7.95  
Write protect tabs, silver, 100 pack \$ 1.49  
Disk pages, 2 pocket, 3 hole, 10 pack \$ 6.95

## 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.

## 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 3 RCA plugs   | M653   | \$ 5.95 |
| Monitor, 6 ft. 5 pin to 2 RCA plugs   | M652   | \$ 4.95 |
| Monitor ext., 10 ft. 5 pin male/fem.  | ME65   | \$ 5.95 |
| Monitor 3 ft. 8 pin to 2 RCA plugs    | M382   | \$ 4.95 |
| Monitor 3 ft. 8 pin to 5 RCA plugs    | M385   | \$ 4.95 |
| Joystick ext. 9 pin, 12 ft. male/fem. | JS12   | \$ 4.95 |
| Joystick Y, 9 pin, 1 fem./2 male      | JSY    | \$ 6.95 |
| Joystick Y, 9 pin, 1 male/2 fem.      | RJSY   | \$ 3.95 |
| Power cable, male/right ang. male     | PR6    | \$ 6.95 |
| DB9, 6 ft., male/male                 | DB9MM  | \$ 8.95 |
| DB9, 6 ft., male/fem.                 | 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/fem.            | C6MF   | \$ 9.95 |
| Parallel, 10 ft., male/fem.           | C10MF  | \$11.95 |
| Serial, 6 ft., male/male, DB25        | R6MM   | \$ 8.95 |
| Serial, 6 ft., male/fem., DB25        | 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, 6 pin, fem./fem.       | GC6FF  | \$ 4.95 |
| Gender change, parallel, male/male    | CGMM   | \$ 9.95 |
| Gender change, parallel, fem./fem.    | GCFF   | \$ 9.95 |
| Gender change, serial, male/male      | GSMF   | \$ 5.95 |
| Gender change, serial, fem./fem.      | GSFF   | \$ 5.95 |
| Gender change, DB9, male/male         | G9MM   | \$ 4.95 |
| Gender change, DB9, fem./fem.         | G9FF   | \$ 4.95 |
| Gender change, DB9, fem./DB25 male    | G9F25M | \$ 8.95 |
| Adaptor, DB25 male/36 pin male        | A2536M | \$ 8.95 |
| Null modem, DB25, male/male           | NMMM   | \$ 5.95 |
| Null modem, DB25, male/fem.           | NMMF   | \$ 5.95 |
| Null modem, DB25, fem./fem.           | NMFF   | \$ 5.95 |
| RS232 Mini tester, male/fem.          | TESMF  | \$12.95 |
| RS232 line surge protector            | SSP    | \$14.95 |
| Parallel line booster                 | PLB    | \$24.95 |

**INFORMATION:** Information or Oregon buyers: 503-246-0924.

**TO ORDER:** VISA, MASTER CARD, money orders, certified, and personal checks (Allow 21 days for checks to clear) accepted.

**SHIPPING:** \$3.00, power supplies \$4.00, power center \$5.00. \$3.00 service charge on COD orders (cash only), plus U.P.S., APO, FPO, etc., no extra charge.

**TERMS:** In stock items shipped within 48 hrs. We CANNOT GUARANTEE COMPATIBILITY. All sales FINAL. Defective items replaced or repaired at our discretion. RA# REQUIRED. Price and availability subject to change.

## VALUE SOFT INC

3641 S.W. Evelyn  
Portland, OR 97219



## NEW... MODEM LINK by VSI \$15.95

This is the LINK from a Hayes compatible modem to your Commodore. Emulates Hayes or a 1670. The LINK connects to the user port, and has been tested in 1200 or 2400 baud. Compact, full plastic case, why pay more.

## NEW... THE BUTTON by VSI \$8.95

The BUTTON is a deluxe reset for the C64. Plugs into the user port, don't worry the port is duplicated on the outside edge of the case. Comes in a compact case, 3x1 1/2 inches. do not confuse the C64 with the newer 64C.

## VOICE MASTER JR. \$37.95

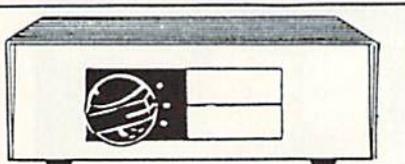
Turn your computer into a talking and listening servant. Get speech and voice recognition in ONE product. Easy to use, write music by whistling a tune. Unlimited uses for fun, education, or business.

## SAM'S BOOKS

C64 Trouble Shooting & Repair Guide \$19.95  
1541 Trouble Shooting & Repair Guide \$19.95  
C128 Trouble Shooting & Repair Guide \$19.95  
Computerfacts C64, 1541, C128, or 1571 \$19.95

## PRINTER BUFFER, 256K CALL

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. Parallel, 36 pin.



## 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, Deluxe Metal Case
- Female Sockets, Long Life 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, SERIAL, DB9, AB \$29.95

Parallel = 36 pins, serial = 25 pins.

## PARALLEL, SERIAL, DB9, ABCD \$39.95

Parallel = 36 pins, serial = 25 pins.

## PARALLEL Aa x Bb \$44.95

Two computers share two printers.

## 8 PIN MINI DIN AB \$29.95

Designed for the new Apple Computer applications.

## DISK DOUBLER \$6.95

The original! All metal Cuts an exact square notch in the disk. Same spot every time!



## BLASTER C64, C128 \$5.95

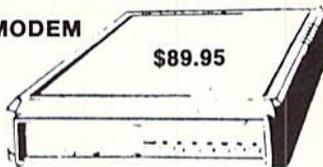
Add automatic firepower to your games, plug-in module that makes the fire button of your joystick have machine gun action. Adjustable speed control.

## "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.

## 1200 EASY DATA MODEM

Hayes COMPATIBLE  
External 300/1200 Baud  
Supports Bell 103 & 212A  
Both Half & Full Duplex  
Redial, Auto Busy Redial,  
Touch Tone & Pulse  
Auto Dial, Auto Answer  
"AT" Commands & more  
Power Up Self Test  
FCC Registered



1200 EASY DATA MODEM PLUS C64  
INTERFACE PACKAGE \$104.95

## 2400 BAUD MODEM CALL

## PHOENIX POWER SUPPLIES

CPS-30, C64, fused, repairable, all metal case. Full 1 year warranty on parts/labor. 5V DC, 2A, 10V AC, 1A. \$39.95

CPS-10, C64, heavy duty, RFI and EMI filtered 100 KHZ to 200 MHZ, 2 sockets for monitor, drive, etc. Power switch for computer/peripherals. Fused, repairable, metal case, 1 yr. warranty. 5V DC, 3A, 10V AC, 1A. \$49.95

CPS-128, in the tradition of the CPS-30, heavy duty protection for the C128 and peripherals. Power switch for computer and peripherals. Fused, filtered, metal case, repairable, 1 yr. warranty. 5V DC, 6A, 10V AC, 2A. \$59.95

CPS-500, Amiga 500, heavy duty power supports extra RAM. 3 sockets for peripherals, fused, repairable, metal case, filtered, 1 yr. warranty. 5V, 8A. \$89.95

## POWER CENTER WAS \$59.95

The POWER CENTER provides NEW LOW PRICE \$49.95  
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.

## OMNITRONIX INTERFACES

## HOT SHOT PLUS \$64.95

Printer interface, 8K buffer, expandable to 64 K. 6 fonts plus editor in ROM, prints double or quad density, CPM selection.

## DELUX RS232 INTERFACE \$39.95

Connects standard modems or RS 232 accessories to the C64, C128, 64C, SX64, VIC20, or Plus4.

## SERIAL PRINTER INTERFACE \$64.95

Use a standard RS232 type printer on the Commodore. Connects to Serial Bus (6 pin).

## IBM to CBM Adaptor \$37.95

Now use your C64 compatible printer on a PC compatible. Includes a specially designed cable and software.

## 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

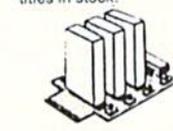
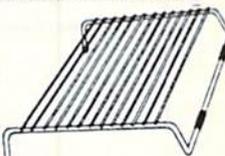
## JOYSTICK REDUCER \$3.95

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?

## SPECIAL PURCHASE

Now \$12.95

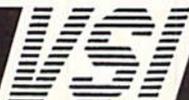
Chrome plated, heavy duty universal printer stand. Rubber feet, allows front, back, or bottom feed. For 80 or 132 column printers. Original price \$24.95, sale limited to quantities in stock.



APROSPAND 64  
plugs into the cartridge port, has 4 switchable slots, fuse protected and a reset button.

12 PLUS 12 in. cartridge port extension \$19.95

# CALL TOLL FREE 1-800-544-SOFT



# Knock!

Score 31 and win the pot in this fun-filled card game  
for your 64 or 128.



By JOHN FEDOR

"I'll bet you a nickel!" Okay, but how about \$5? The winnings are up in Cards-31, a Commodore version of the traditional game in which you try to win a "pot" of nickels by getting a total score of 31, or as close to it as possible, with cards of the same suit. Numbered cards are worth their face value, face cards are worth 10, and aces count 11. In this game, a pot of imaginary \$5 bills is at stake instead of nickels.

You can play up to four computerized opponents in Cards-31, or just sit out and watch them battle among themselves. The game starts with each player having three cards and \$15. A discard pile is established with one card facing up. When it's your turn, you have four options: draw a card from the deck; draw the exposed card from the discard pile; knock (which you do when you're as close to 31 as you figure you can get); or ask your expert opponent (the computer) to look at your cards and offer advice. If you ask for advice, don't worry—the machine won't remember your hand when playing its own.

If you draw from either the deck or the discard pile, you must discard to keep only three cards in your hand. In general, drop a card that's not of the same suit as two others in your hand or that's of less value than the others. For



Play against up to four computerized opponents in Cards-31.

instance, if you hold a jack and queen of spades and a king of diamonds and then draw a 9 of spades, drop the king of diamonds. If you hold a 7, jack and king of hearts and draw a 10 of hearts, drop the 7.

You can choose to knock when you feel you've reached the best score you're going to get, or when you chance to get a fair score early in the round and judge that your opponents may not yet have collected much in one suit. After someone knocks, each of the other players gets one more turn to better his hand. This ends the round, and the scores are com-

puted and displayed with the final hands.

Only the cards in the suit each player holds the most of count in the scores of each round. For example, if you hold a 9 and 4 of hearts and a 10 of clubs, your score is 13 (9+4). If your cards are all in different suits, only the card with the highest value is counted. The maximum you can get for your three cards is the magic 31 (the ace plus two face cards or one face card and the 10, all in the same suit).

As a round ends, each player whose score is less than the best loses \$5 to the pot, and the amount in the pot is displayed, as well as the amount each player has remaining. The next round starts with the player after the one who knocked last. When you're out of money, you're out of the game, which continues until only one player has any money left—and he wins the pot!

You'll find your computerized opponents the most skillful players this side of Las Vegas, and each has different instructions for when to knock. With the variety of play options available and the strategy involved, this version of 31 should keep you entertained for hours. R

*John Fedor is a college student who especially enjoys mathematics and working with his computer.*

## Listing 1. Cards-31 program.

```

Ø REM CARDS 31 - JOHN FEDOR                BY JOHN FEDOR"           :REM*251      $<>"D"THEN8Ø           :REM*118
:REM*134 5Ø PRINT"{2 CRSR DNs}HOW MANY O    9Ø IFAS="D"THENOP=5:MO(1)=Ø:GOT
1Ø CLR:DIM P$(5),D(52),H(5,4),Q           PPNONENTS WOULD YOU LIKE (1-4  O15Ø           :REM*1ØØ
(3),C$(13),S$(4),CA(5),MO(5)           )?"                          :REM*19Ø 1ØØ PRINT"{SHFT CLR}{2 CRSR DNs
,SC(4),T(4),TE(5)                       :REM*211 }YOU WILL PLAY AGAINST "AS"
2Ø POKES328Ø,11:POKES3281,12            YOU WOULD LIKE TO WATCH.)"  OPPONENT";:OP=VAL(AS)+1:PL
:REM*53                                     :REM*2   $="          :REM*13Ø
3Ø PRINT"{SHFT CLR}{CTRL 2}{3 C        7Ø POKE198,Ø:PL$="D":P$(1)="OBS  11Ø AS="S.":IFOP=2THENAS=".
RSR DNs}CARDS-31"                       :REM*241 ERVER"                          :REM*136
4Ø PRINT"{2 CRSR DNs}PROGRAMMED        8Ø GETAS:IF(AS<"1"ORAS>"4")ANDA  12Ø PRINTAS           :REM*254

```

RUN it right: C-64; C-128

# Best Buys From TENEX

No Gimmicks, No Hidden Charges, No Nonsense, Just Low Prices and Great Service!



## 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 C64 Dust Cover and Catalog (R2U)  
38464 C128 Dust Cover and Catalog (R2U)  
65180 64C Dust Cover and Catalog (R2U)

## From micro fal 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.

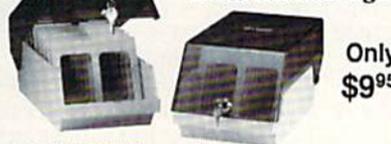
Each diskette is certified to be 100% error free and comes with a lifetime warranty (if you have a problem, we'll replace the diskette). All diskettes include hub reinforcement rings and write-protect notch.

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.1

DS, DD Diskettes, Box of 50  
32403 \$24.50 - 49¢ ea.1

## Diskette Storage



Only \$9<sup>95</sup>

- 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<sup>95</sup>

## Hardware

| Printers                               | Interfaces                           | Software                            |
|--|--------------------------------------|-------------------------------------|
| Okidata 180 Printer .....\$224.95      | Xetec Super Graphix Jr .....\$44.95  | Echelon .....\$26.95                |
| Okidata 120 Printer .....\$189.95      | Xetec Super Graphix .....\$59.95     |                                     |
| Okidata Microline 183 .....\$279.95    | Xetec Super Graphix Gold .....\$CALL |                                     |
| Okimate 20 Color Printer .....\$124.95 | PPI Interface .....\$29.95           |                                     |
| Star NX-1000 .....\$CALL               |                                      |                                     |
| Star NX-1000C .....\$CALL              |                                      |                                     |
| Star NX-1000 Rainbow .....\$CALL       | NEW! Wico Ergostick .....\$19.95     | GEOS-64 .....\$39.95                |
| Star NX-15 .....\$CALL                 | Commodore 1352 Mouse .....\$69.95    | GEOS-128 .....\$44.95               |
| Seikosha SP-180 .....\$169.95          | Epyx 500XJ .....\$15.95              | geoPublish .....\$44.95             |
| Seikosha SP 1200-AI .....\$199.95      | Cartridge Expander, C64 .....\$19.95 | geoCalc, C128 .....\$44.95          |
| Seikosha SP 1600-AI .....\$CALL        | IconTroller .....Sale \$14.95        | geoFile, C128 .....\$44.95          |
|  | SuncomTac 5 .....\$14.95             | Writer's Workshop-C128 .....\$49.95 |
|  |                                      | Writer's Workshop-C64 .....\$32.95  |
|  |                                      | Deskpack .....\$24.95               |

## Computers

|                                    |                                       |                                |
|------------------------------------|---------------------------------------|--------------------------------|
| Commodore C128D .....\$CALL        | Power Supplies                        | Cinemaware                     |
| Amiga 500 .....\$CALL              | CPS-30 Power Supply, C64 .....\$29.95 | The Three Stooges .....\$23.95 |
| Amiga 2000 .....\$CALL             | Pow'r Pak 64 .....\$49.95             | Warspeed .....\$34.95          |
| TENEX Turbo (Loaded) .....\$595.00 | Pow'r Pak 128 .....\$59.95            |                                |
|                                    |                                       | Thunder Mountain               |

## Disk Drives

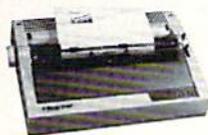
|                                      |                                       |  |
|--------------------------------------|---------------------------------------|--|
| FSD-2+ Disk Drive .....Sale \$149.00 | Disk Doubler .....\$6.95              |  |
| Excel 2001 Disk Drive Sale \$199.00  | Universal Printer Stand+ .....\$14.95 |  |
| Commodore 1581 Drive .....\$CALL     | Data Transfer Switch .....\$24.95     |  |
| Commodore 1541 Drive .....\$CALL     |                                       |  |

## Monitors

|                                      |                                 |  |
|--------------------------------------|---------------------------------|--|
| 13" Color Composite .....\$CALL      | NX-1000 Black .....\$5.95       |  |
| Com. 1084 RGB Color .....\$CALL      | Okidata 120/180/183 .....\$7.95 |  |
| Magnavox CM8762, Color .....\$269.95 | Okimate Color .....\$3.95       |  |
|                                      | Gemini 10X,SG-10/15 .....\$2.99 |  |

## Free! 56 Page "Everything" Book With Any Order!

\$89<sup>95</sup>



## True Letter-Quality Printing

The Blue Chip features bi-directional daisywheel printing with a print speed of over 150 words per minute. Its friction feed mechanism operates just like a typewriter's release lever and paper advance knob, for your use with letterhead, envelopes, etc. This printer will plug into the serial port of your Commodore. Use the included cable and you're ready to go! Includes a high-quality print ribbon that lasts for 70,000 characters. Six month warranty

|  |         |
|--|---------|
| 77428 Blue Chip Daisywheel Printer             | \$89.95 |
| 77436 Black Film Ribbon for Blue Chip          | \$5.95  |
| 77512 Black Ribbon, Multi-strike for Blue Chip | \$8.95  |

\*THE BEST PRICES\*  
\*THE BEST SERVICE\*

WHY SHOP  
ANYWHERE ELSE?

\$74<sup>95</sup>



## 1200 Baud Bargain

The VOLKS 6480 MODEM transmits at 1200 baud with the ability to slow down to 300 baud for maximum capability. This Volks Modem will connect directly to the user port of your Commodore. Its features include over 30K memory, Auto Dial/Auto Answer, Bell 212A capability, tone and pulse dialing plus more. Includes FREE Comterm IV software.

40521 Volks 6480 Modem \$74.95

## Formed For The Human Hand

Ergostick Joystick. This is the cutting edge of joystick technology. It's the Ergostick Joystick and you'll be amazed at its innovation. Unlike all other joysticks, the Ergostick literally forms around the human hand which optimizes the operator's hand/eye coordination.

76253 Ergostick Joystick \$19.95

Only \$19<sup>95</sup>



From Your Friends At

TENEX  
Computer  
Express

We gladly accept mail orders!  
P.O. Box 6578  
South Bend, IN 46660

Questions?  
Call 219/259-7051

Ad  
R2U

| Order Amount      | Shipping Charge |
|-------------------|-----------------|
| less than \$19.99 | \$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            |



No Extra Fee For Charges!

ORDER TOLL FREE  
1-800-348-2778

WE VERIFY CHARGE CARD ADDRESSES

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.

# K N O C K !

```

130 PRINT"{2 CRSR DN$}WHAT SHAL
L I CALL YOU "; :REM*75
140 INPUT$(1):P$(1)=LEFT$(P$(1
),12):FORI=1TO5:MO(I)=0:NEX
TI:MO(1)=15:CA(1)=27
:REM*172
150 FORI=2TO OP:MO(I)=15
:REM*174
160 READP$(I),CA(I):IFP$(I)=P$(
1)THEN160 :REM*135
170 NEXTI:TU=0 :REM*235
180 DATA FRED,30,TED,29,ALFRED,
28,ERNEST,27,BERTRAM,25
:REM*32
190 REM START AGAIN HERE:REM*74
200 PRINT"{SHFT CLR}{2 CRSR DN$
}THE PLAYERS ARE:{CRSR DN}"
:KN=0 :REM*96
210 FORI=1TOOP:PRINTP$(I)TAB(15
)"$MO(I):NEXT :REM*130
220 PRINT"{CRSR DN}POT:"TAB(15)
"$"; :REM*147
230 M=OP*15:FORI=1TOOP:M=M-MO(I
):NEXTI:IFP$(1)="OBSERVER"
HENM=M-15 :REM*215
240 PRINTM :REM*33
250 PRINT"{2 CRSR DN$}SHUFFLING
DECK.....
..."; :REM*251
260 FORY=0TO3:FORX=1TO13:D(Y*13
+X)=Y*100+X:NEXTX:PRINT"{CR
SR LF}{CRSR LF}";:NEXTY
:REM*106
270 FORX=1TO21:FORY=1TO7
:REM*194
280 Z1=INT(RND(1)*52)+1:Z2=INT(
RND(1)*52)+1 :REM*54
290 Z3=D(Z1):D(Z1)=D(Z2):D(Z2)=
Z3 :REM*245
300 NEXTY:PRINT"{CRSR LF}{CRSR
LF}";:NEXTX:PRINT :REM*111
310 PRINT"{CRSR DN}DEALING..."
:REM*113
320 DP=1:REM DECK POINTER
:REM*162
330 FORI=1TO 3 :REM*148
340 FORZ=1TO OP :REM*173
350 IF MO(Z)=0THEN370 :REM*185
360 H(Z,I)=D(DP):DP=DP+1
:REM*220
370 NEXTZ,I :REM*84
380 DI=D(DP):DP=DP+1:REM DISCAR
D PILE :REM*117
390 FORI=1TO3:Q(I)=H(1,I):NEXT:
REM FOR PRINT ROUTINE
:REM*218
400 TU=TU+1:IFTU>OPTHENTU=1
:REM*70
410 IF DP>52THENPRINT"{SHFT CLR
}{2 CRSR DN$}NO MORE CARDS
IN THE DECK.":GOTO990
:REM*67
420 IF KN<>0 THEN KN=KN-1:IF KN
=0 THENPRINT"{SHFT CLR}{2 C
RSR DN$}LAST ROUND COMPLETE
D.":GOTO990 :REM*46
430 IF MO(TU)=0THEN390 :REM*42
440 PRINT"{SHFT CLR}{2 CRSR DN$
}YOUR HAND:" :REM*107
450 IF MO(1)=0 THENPRINT"{3 CRS
R DN$}TAB(13){CTRL 9}NOT
AVAILABLE{4 CRSR UP$}":GOTO
470 :REM*185
460 GOSUB{2 SPACES}1300 :REM*1
470 PRINT"{7 CRSR DN$}:"PRINT"D
ISCARD PILE:"Q(1)=DI:Q(2)=
0:Q(3)=0:GOSUB1300 :REM*110
480 IFTU>1THEN830 :REM*149
490 PRINT"{8 CRSR DN$}WHAT WOUL
D YOU LIKE TO DO?" :REM*132
500 PRINT"1) PICK FROM DECK"
:REM*12
510 PRINT"2) PICK FROM DISCARD
PILE" :REM*33
520 PRINT"3) KNOCK" :REM*204
530 PRINT"4) ASK FOR ADVICE";:P
OKE198,0 :REM*107
540 GETA$:IFAS<"1"ORA$>"4"THEN5
40 :REM*243
550 IFAS="3"ANDKN<>0THEN540
:REM*75
560 IFAS="3"THEN KN=OP:PRINT"{H
OME}KNOCKING...":FORI=1TO5
000:NEXT:GOTO390 :REM*150
570 IFAS="4"THEN600 :REM*189
580 IFAS="1"THENDI=D(DP):DP=DP+
1 :REM*51
590 PRINT"{SHFT CLR}{CRSR DN}"T
AB(8)"(1)"TAB(18)"(2)"TAB(2
8)"(3)" :REM*76
600 FORI=1TO3:Q(I)=H(1,I):NEXT:
GOSUB1300 :REM*15
610 PRINT"{8 CRSR DN$}TAB(18)"
(4)" :REM*193
620 Q(1)=0:Q(2)=DI:Q(3)=0:GOSUB
1300 :REM*204
630 PRINT"{10 CRSR DN$}WHICH ON
E WOULD YOU LIKE TO DISCARD
?" :REM*194
640 POKE198,0 :REM*7
650 GETA$:IFAS<"1"ORA$>"4"THEN6
50 :REM*27
660 IFAS<>"4"THENA=DI:DI=H(1,VA
L(A$)):H(1,VAL(A$))=A
:REM*85
670 GOTO390 :REM*252
680 REM GIVE ADVICE :REM*156
690 K1=31-OP*2-2*(I=4)-4*(I=5)
:REM*155
700 REM CHECK TO SEE FOR DISCAR
D :REM*196
710 H(1,4)=DI :REM*58
720 FORI=1TO4:SC(I)=H(1,I):NEXT
:REM*186
730 GOSUB1480 :REM*51
740 IFDR=4THEN760 :REM*149
750 PRINT"{SHFT CLR}{2 CRSR DN$
}IF I WERE YOU, I WOULD PIC
K UP FROM THE DISCARD PILE.
":GOTO790 :REM*44
760 IF KN<>0THEN780 :REM*147
770 IFSC>K1THENPRINT"{SHFT CLR
}{2 CRSR DN$}IT WOULD SEEM
LOGICAL TO KNOCK AT THIS{2
SPACES}TIME.":GOTO790
:REM*48
780 PRINT"{SHFT CLR}{2 CRSR DN$
}YOU MIGHT AS WELL TAKE A C
HANCE AND PICKA CARD FROM T
HE DECK." :REM*85
790 PRINT"{3 CRSR DN$}PRESS <RE
TURN> TO CONTINUE.":REM*186
800 POKE198,0 :REM*167
810 GETA$:IFAS<>CHR$(13)THEN810
:REM*15
820 TU=TU-1:GOTO390 :REM*247
830 REM{2 SPACES}COMPUTER'S TUR
N :REM*153
840 K1=CA(TU) :REM*190
850 H(TU,4)=DI :REM*47
860 FORI=1TO4:SC(I)=H(TU,I):NEX
T :REM*247
870 GOSUB1480:PRINT"{HOME}";
:REM*245
880 IFDR=4 THEN 920 :REM*239
890 IFDI-INT(DI/100)*100<2 AND
KN=0 THEN950 :REM*92
900 A$=P$(TU)+" IS PICKING FROM
THE DISCARD PILE.":GOSUB16
50 :REM*144
910 DI=H(TU,DR):H(TU,DR)=H(TU,4
):FORI=1TO1000:NEXTI:GOTO39
0 :REM*26
920 IF SC<K1 OR KN<>0 THEN 950
:REM*89
930 A$=P$(TU)+" IS KNOCKING.":G
OSUB1650 :REM*255
940 KN=OP:FORI=1TO1000:NEXTI:GO
TO390 :REM*152
950 A$=P$(TU)+" PICKS A CARD FR
OM THE DECK.":GOSUB1650
:REM*13
960 H(TU,4)=D(DP):DP=DP+1
:REM*79
970 FORI=1TO4:SC(I)=H(TU,I):NEX
T :REM*104
980 GOSUB1480:DI=H(TU,DR):H(TU,
DR)=H(TU,4):FORI=1TO1000:NE
XTI:GOTO390 :REM*225
990 REM ROUND OVER :REM*254
1000 PRINT"{2 CRSR DN$}":FORI4=
1TOOP:GOSUB1710:NEXTI4
:REM*66
1010 X=0:SC=0:FORI=1TOOP:IFTE(I
)>SCTHENSC=TE(I) :REM*97
1020 NEXTI :REM*21
1030 FORI=1TOOP:IFTE(I)=SCTHENX
=X+1 :REM*2
1040 NEXTI:A$=" IS":IFX>1THENA$
="S ARE" :REM*220
1050 PRINT"{CRSR DN}THE WINNER"
A$": " :REM*160
1060 FORI=1TOOP:IFTE(I)=SCTHENP
RINTP$(I)," :REM*101
1070 IF TE(I)<SCTHENMO(I)=MO(I)
-5:IFMO(I)<0THENMO(I)=0
:REM*17
1080 NEXTI:PRINT"{CRSR LF}."
:REM*7
1090 PRINT"{CRSR DN}PRESS <RETU
RN> TO CONTINUE." :REM*6
1100 POKE198,0 :REM*196
1110 GETA$:IFAS<>CHR$(13)THEN11
10 :REM*173
1120 X=0:FORI=1TOOP:IFMO(I)<>0T
HENX=X+1 :REM*254
1130 NEXTI:IFX>1THEN1190 :REM*6

```

# KNOCK!

```

1140 PRINT"{SHT CLR}{2 CRSR DN
s}THE WINNER IS: ";
      REM*175
1150 FORI=1TOOP:IFMO(I)<>0THENP
RINTP$(I)
      REM*28
1160 NEXTI:PRINT"{2 CRSR DN}s}TH
E WINNING POT IS $";M=OP*
15:FORI=1TOOP:M=M-MO(I):NE
XT
      REM*185
1170 IFP$(1)="OBSERVER"THENM=M-
15
      REM*184
1180 PRINTM:GOTO1260
      REM*177
1190 IF MO(1)<>0 THEN 200
      REM*158
1200 IFPL$="D"THEN200
      REM*190
1210 PRINT"{SHT CLR}{2 CRSR DN
s}YOU ARE OUT OF THE GAME.
"
      REM*3
1220 PRINT"{CRSR DN}WOULD YOU L
IKE TO WATCH THE OTHERS PL
AY?"
      REM*176
1230 POKE198,0
      REM*71
1240 GETAS:IFAS<>"Y"ANDA$<>"N"
HEN1240
      REM*12
1250 IFAS="Y"THENPL$="D":GOTO200
      REM*242
1260 PRINT"{CRSR DN}PRESS <RETU
RN> TO RESTART."
      REM*230
1270 POKE198,0
      REM*127
1280 GETAS:IFAS<>CHR$(13)THEN12
80
      REM*139
1290 RUN
      REM*145
1300 REM PRINT OUT CARD(S)
      REM*219
1310 FORI=1TO3:A=Q(I):S=INT(A/1
00):F=A-S*100:S=S+1
      REM*227
1320 IFQ(I)=0THEN1460
      REM*222
1330 S$(1)="{SHT A}":S$(2)="{S
HT S}":S$(3)="{SHT 2}":S
$(4)="{SHT X}"
      REM*15
1340 C$(1)="2":C$(2)="3":C$(3)=
"4":C$(4)="5":C$(5)="6":C$
(6)="7":C$(7)="8"
      REM*221
1350 C$(8)="9":C$(9)="10":C$(10)
)="J":C$(11)="Q":C$(12)="K
":C$(13)="A"
      REM*254
1360 S$=S$(S):C$=C$(F)
      REM*241
1370 IFLEN(C$)<2THENC$=" "+C$
      REM*184
1380 PRINTTAB((I-1)*10+5){CTRL
9}{SHT LB.}{7 SPACES}{CO
MD *}{CTRL 0}
      REM*131
1390 PRINTTAB((I-1)*10+5){CTRL
9}"C$"{6 SPACES}{CTRL 0}
"
      REM*8
1400 PRINTTAB((I-1)*10+5){CTRL
9}{9 SPACES}{CTRL 0}
"
      REM*201
1410 PRINTTAB((I-1)*10+5){CTRL
9}{4 SPACES}"S$"{4 SPACES
}{CTRL 0}
      REM*21
1420 PRINTTAB((I-1)*10+5){CTRL
9}{9 SPACES}{CTRL 0}
"
      REM*213
1430 PRINTTAB((I-1)*10+5){CTRL
9}{6 SPACES}"C$"{CTRL 0}
"
      REM*10
1440 PRINTTAB((I-1)*10+5){COMD
*}{CTRL 9}{7 SPACES}{CTRL
0}{SHT LB.}"
      REM*167
1450 PRINT"{8 CRSR UPs}":REM*84
1460 NEXTI
      REM*206
1470 RETURN
      REM*74
1480 REM SCORE THE HAND (SC(1)-
SC(4))
      REM*81
1490 REM RETURN SC=BEST SCORE
      REM*126
1500 REM{8 SPACES}DR=WORST CARD
      REM*201
1510 FORI=1TO4:IFSC(I)=0THENS(
I)=500
      REM*7
1520 NEXTI
      REM*3
1530 DR=1:SC=0:FORI=1TO4:REM I
S THE CARD NOT TO BE INCL
UDED DURING SEARCH
      REM*17
1540 FORX=1TO4:T(X)=0:NEXTX
      REM*106
1550 FORX=1TO4:IFX=ITHEN1590
      REM*5
1560 A=SC(X):B=INT(A/100):C=1+A
-B*100:B=B+1:IFC>10THENC=1
0-(C-14)
      REM*184
1570 IFB>4THEN1590
      REM*123
1580 T(B)=T(B)+C
      REM*209
1590 NEXTX:Q=0:FORX=1TO4:IFT(X)
>QTHENQ=T(X)
      REM*200
1600 NEXTX:IFQ>SCTHENSQ=Q:DR=I:
GOTO1640
      REM*128
1610 IFQ<SCTHEN1640
      REM*198
1620 IFI=4THENDR:I=GOTO1640
      REM*70
1630 IFSC(DR)-INT(SC(DR)/100)*1
00>SC(I)-INT(SC(I)/100)*100
THENDR=I
      REM*103
1640 NEXTI:RETURN
      REM*104
1650 REM PRINT OUT A$-> NO WRAP
AROUND
      REM*170
1660 X=0:PRINT"{CTRL 9}";
      REM*11
1670 FORI=1TOLEN(A$):IFMID$(A$,
I,1)<>" "THENNEXTI:I=LEN(A
$)
      REM*117
1680 IFX+I>38THENPRINTPRINT"{C
TRL 9}";X=0
      REM*174
1690 X=X+I:PRINTLEFT$(A$,I);A$
=RIGHT$(A$,LEN(A$)-I):IFAS
<>" "THEN1670
      REM*236
1700 PRINT:RETURN
      REM*82
1710 REM PRINT OUT NAME,CARDS,S
CORE
      REM*31
1720 PRINTP$(I4);:IFI4=TTHENPR
INT"(KNOCKED)";
      REM*50
1730 PRINTTAB(23):IF MO(I4)=0TH
ENPRINT"OUT OF PLAY"TAB(36
):SC=0:GOTO1770
      REM*235
1740 FORX=1TO3:A=H(I4,X):S=INT(
A/100):F=A-S*100:S=S+1
      REM*219
1750 PRINTC$(F)S$(S){2 SPACES}
";:NEXTX:PRINTTAB(36)
      REM*108
1760 FORI=1TO3:SC(I)=H(I4,I):NE
XTI:SC(4)=0:GOSUB1480
      REM*155
1770 PRINTSC"{3 SPACES}":TE(I4)
=SC:RETURN
      REM*226

```

# 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.....\$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**



Circle 102 on Reader Service card.

*RUN* is a publication of IDG Communications/Peterborough, a division of IDG Communications, the world's largest publisher of computer-related information. IDG Communications 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 Osterreich*; BRAZIL's *Data-News*, *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*, *Distributive*, *InfoPC*, *Telecom 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*, *Comunicaciones World*, *Informatica Industrial*; SWEDEN's *Computer Sweden*, *MikroDatorn*, *Svenska PC World*; SWITZERLAND's *Computerworld Schweiz*; UNITED KINGDOM's *Computer News*, *DEC Today*, *ICL Today*, *CD 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/Lehar-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*.

# Vacation Checklist Generator

*Never again need you be troubled by the nagging uncertainty  
that you've left a crucial item behind.*



Program by Lou Wallace; Article by Tim Walsh

**H**ow do you spend your well-deserved vacations? Whether you bask in the tropical sun of Antigua, stalk wild boar in the Maine Alagash or just pitch a couple of tents in the local swamp for a Saturday night of mosquito-slapping, you could use Vacation Checklist Generator.

As its name implies, Vacation Checklist Generator allows you to produce a list of the items you're going to take on your trip. Many camping items are included on the list and automatically appear when the program is run. You simply need to answer Y or N at the prompts to add or skip an item on your list of equipment. Once it's completed to your satisfaction, you can print it out.

When packing your car or suitcases, you check off each item against your printed list. Not only are these lists invaluable for packing when you leave



home, but also for checking to see you haven't forgotten anything when you're leaving your campsite. This reduces the risk of not-so-funny whines on the ride

home, such as, "Dad, I think we left the tackle box behind." You can reassure yourself and your offspring by showing that you checked off the tackle box beforehand.

As written, the program's camping gear list was formed with the no-holds-barred camper in mind. Few vacationers have a need for a shotgun, hunting knife and camouflage when traveling to Disneyland, so the program permits you to skip any or all of the default camping equipment and create your own customized list by substituting items.

As a notoriously ill-prepared camper, I view this program as the ultimate camping accessory. Never again will you accidentally leave anything behind, except, hopefully, your worries. ☐

*Lou Wallace and Tim Walsh together form RUN's formidable technical team.*

Listing 1. Vacation Checklist program.

```

10 REM VACATION CHECKLIST GENERATOR :REM*212
20 REM RUN MAGAZINE :REM*15
30 REM EASY APPLICATIONS SEPTEMBER 1988 :REM*244
40 REM LOU WALLACE :REM*8
50 PRINT CHR$(14):POKE 53280,0:POKE 53281,0 :REM*60
60 IF ((ABS(PEEK(65533)=255))=0) THEN POKE 650,128 :REM*65
70 DIM IT$(255),VA$(20,20),CA(20),CAS(20),DC$(20),DC(20) :REM*58
80 FOR I=0 TO 78:DT$=DT$+" ":NEXT :REM*218
90 FOR I=1 TO 40:SP$=SP$+" ":NEXT :REM*8
100 RT$=CHR$(20):V=54273 :REM*103
110 READ N :REM*144
120 FOR I=1 TO N:READ CA$(I):READ D CA(I):FOR J=1 TO CA(I):READ VA$(I,J):NEXT:NEXT
130 PRINT"{SHFT CLR}"; :REM*195
140 PRINT"{CTRL 2}{SHFT V}ACATION {SHFT C}HECKLIST {SHFT G}ENERATOR" :REM*138
150 PRINT :REM*46
160 PRINT "{SHFT H}ERE IS A LIST OF ITEMS YOU MIGHT" :REM*72
170 PRINT "{2 SPACES}WANT TO BE ON YOUR CHECKLIST." :REM*227
180 PRINT:PRINT"{SHFT E}NTER {SHFT Y} FOR YES IF YOU WANT AN ITEM," :REM*213
190 PRINT"{2 SPACES}OR {SHFT N} FOR NO IF YOU DON'T." :REM*81
200 PRINT:PRINT"{SHFT Y}OU WILL BE GIVEN A CHANCE TO ADD" :REM*135
210 PRINT"{2 SPACES}YOUR OWN ITEMS AT THE END." :REM*173
220 PRINT:PRINT:DC(0)=0:CT=0 :REM*152
230 FOR I=1 TO N:DC=0 :REM*232
240 PRINT "{CTRL 2}{SHFT T}HIS CATEGORY IS {COMD 3}";CAS(I):PRINT:GOSUB 890 :REM*81
250 FOR J=1 TO CA(I) :REM*241
260 PRINT "{COMD 6}";VA$(I,J) :REM*236
270 GOSUB 800 :REM*88
280 IF KE$="N" THEN 310 :REM*95
290 IT$(CT)=VA$(I,J):CT=CT+1 :REM*61
300 DC=DC+1 :REM*181
310 NEXT:IF DC>0 THEN NC=NC+1:DC(NC)=DC:DC$(NC)=CAS(I) :REM*42

```

RUN it right: C-64; C-128 (40- or 80-Column mode); printer

# Announcing a Special Software Offer From *RUN* Magazine

## GREATEST HITS VOL. I

*RUN* Magazine's editors have compiled a disk with 12 of the best programs published on our Re*RUN* disks. These outstanding programs are a "must" for the software library of all Commodore 64 and 128 users. GREATEST HITS VOL. I includes the following programs:

| PROGRAM TITLE      | DESCRIPTION   |
|--------------------|---|
| ▶ HOME RUN DERBY   | One or two players can test their batting and pitching skills                             |
| ▶ SONGFEST         | Compose songs and music with this keyboard program  |
| ▶ PULSING PICTURES | Create the illusion of waterfalls, spinning wheels and a variety of other moving patterns |
| ▶ STACK            | The famous "Towers of Hanoi" game with four levels of difficulty                          |
| ▶ AUTORUN          | Create self-running programs that automatically begin execution after loading             |
| ▶ AUTONUMBER       | Automatic line-numbering utility  |
| ▶ LABEL MAKER      | Create and print out multiple copies of mailing labels                                    |
| ▶ ARITHME-SKETCH   | Great educational programs for elementary school students                                 |
| ▶ MURDER BY BYTE   | Find out who committed the crime in this colorful "whodunit" for your 128                 |
| ▶ DISK KEEPER      | Maintain your disks with this handy all-purpose program                                   |
| ▶ NEEDLEGRAPH      | Let your computer help create needlepoint and other design work                           |
| ▶ HOME INVENTORY   | Keep track of your household inventory of valuables on your C-64 or 128                   |

### INCLUDES DISK-BASED DOCUMENTATION



## GREATEST HITS VOL. I

# \$14.97

Payment Enclosed  MC  Visa  AE

Card # \_\_\_\_\_ Exp. Date \_\_\_\_ / \_\_\_\_

(Please Print)

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

MAIL TO: RERUN, 80 Elm St., Peterborough, NH 03458

**OR CALL TOLL FREE 1-800-343-0728**

7 days/week, 24-hour service

PRICE INCLUDES POSTAGE AND HANDLING

For foreign airmail, please add \$3.95

[www.commodore.ca](http://www.commodore.ca)

May Not Reprint Without Permission

GH988

# E A S Y   A P P L I C A T I O N S

```

320 NEXT :REM*195 SHFT V){SHFT A){SHFT C){SHF
330 PRINT:PRINT"(CTRL 2){SHFT H T A){SHFT T){SHFT I){SHFT O
}ERE IS WHAT YOU ENTERED SO }{SHFT N) {SHFT C){SHFT H){
FAR(COMD 3)":PRINT:REM*220 SHFT E){SHFT C){SHFT K){SHF
340 IF NC=0 THEN PRINT:PRINT "{ T L){SHFT I){SHFT S){SHFT T
SHFT Y}OU'VE ENTERED NOTHIN }" :REM*107
G SO FAR!":CT=0:GOTO 410 590 PRINT"{SHFT Y}OUR {SHFT C}U
:REM*11 STOMIZED {SHFT V)ACATION {S
350 CT=0:FOR I=1 TO NC:PRINT "{ HFT C)HECKLIST" :REM*130
CTRL 2)":DC$(I):FOR J=1 TO 600 PRINT#4,RT$:PRINT#4,"{SHFT
DC(I) :REM*212 I){SHFT T){SHFT E){SHFT M){
360 PRINT "{(COMD 6)":IT$(CT):CT SHFT S){25 SPACES}{SHFT C){
=CT+1:NEXT:PRINT :REM*9 SHFT O){2 SHFT Ms){SHFT E){
370 FOR TT=1 TO 50:GET TT$:NEXT SHFT N){SHFT T){SHFT S}"
:REM*183 :REM*7
380 PRINT:PRINT "{CTRL 6){SHFT 610 PRINT "{(COMD 3){SHFT I)TEMS
P)RESS ANY KEY TO CONTINUE. " :REM*93
" :REM*133 620 PRINT#4,RT$ :REM*179
390 GET A$:IF A$="" THEN 390 630 FOR I=1 TO NC :REM*77
:REM*66 640 PRINT "{CTRL 2)":DC$(I):PRI
400 PRINT:NEXT :REM*39 NT#4,DC$(I):PRINT#4,RT$
410 PRINT:PRINT"(CTRL 2){SHFT W :REM*218
}OULD YOU LIKE TO ADD $ 650 FOR J=1 TO DC(I) :REM*151
OF YOUR OWN? ((COMD 6)Y{CTR 660 OU$="{5 SPACES}" +IT$(CT)+SP
L 2)/(COMD 7)N(CTRL 2))" $ :REM*21
:REM*64 670 OU$=LEFT$(OU$,30) :REM*239
420 GOSUB 860 :REM*7 680 OU$=OU$+DT$ :REM*245
430 IF KE$="N" THEN 540 :REM*11 690 OU$=LEFT$(OU$,79) :REM*184
440 NC=NC+1:DC$(NC)="{(SHFT C){S 700 PRINT#4,OU$ :REM*250
HFT U){SHFT S){SHFT T){SHFT O){SHFT M)":DC=1 :REM*84
710 PRINT#4,RT$ :REM*6
450 PRINT:INPUT"(CTRL 2){SHFT W :REM*194
}HAT WOULD YOU LIKE TO ADD{ 730 CT=CT+1 :REM*211
COMD 6)":AD$ :REM*145 740 NEXT:NEXT :REM*101
460 PRINT"(CTRL 2){SHFT Y}OU EN 750 PRINT#4,RT$ :REM*62
TERED {COMD 6)":AD$;" :REM*35 760 PRINT#4,"{23 SPACES}{SHFT H
}
:REM*234 }{SHFT A){SHFT V){SHFT E){S
480 GOSUB 860 :REM*59 HFT SPACE){SHFT A){SHFT SPA
490 IF KE$="Y" THEN IT$(CT)=AD$ CE){SHFT G){2 SHFT Os){SHFT
:CT=CT+1:DC=DC+1:GOTO 510 D){SHFT SPACE}{SHFT T){SHF
:REM*140 T I){SHFT M){SHFT E){SHFT S
500 PRINT "{(COMD 6){SHFT O}KAY, PACE){SHFT O){SHFT N){SHFT
LET'S FORGET THAT ONE!(CTR SPACE){SHFT Y){SHFT O){SHFT
L 2)":PRINT :REM*208 770 PRINT#4,CHR$(12) :REM*58
U){SHFT R){SHFT SPACE){SHF 780 PRINT#4:CLOSE4 :REM*54
T V){SHFT A){SHFT C){SHFT A }{SHFT T){SHFT I){SHFT O){S 790 END :REM*149
HFT N)!":REM*148 800 PRINT"(CTRL 4)ADD THIS TO Y
510 PRINT:PRINT"(CTRL 2){SHFT A 780 PRINT#4:CLOSE4 :REM*54
}DD MORE? ((COMD 6)Y(CTRL 2 }{SHFT T){SHFT I){SHFT O){S
)/(COMD 7)N(CTRL 2))":GOSUB 890:GOSUB 860 :REM*14
}OUR LIST? ((COMD 6)Y(CTRL 2
520 IF KE$="Y" THEN 450:REM*163 })/(COMD 7)N(CTRL 2))"
530 DC(NC)=DC-1 :REM*235 810 GET KE$:IF KE$="" THEN 810
:REM*34
540 IF NC=0 THEN PRINT"(SHFT H 820 IF KE$<>"Y" AND KE$<>"N" TH
EY, NO REASON TO WASTE PAPE EN GOSUB 920:GOTO 810
R. {SHFT B)YE!":END :REM*54 :REM*95
550 PRINT:PRINT"(CTRL 4){SHFT O 830 IF KE$="Y" THEN PRINT"(CTRL
)KAY, THEN {SHFT I}'LL MAKE 8){SHFT Y){SHFT E){SHFT S)
THE CHECKLIST.{CTRL 2)":PR $,YOU SELECTED {CTRL 2)":VA
INT :REM*228 $ (I,J)":(CTRL 8)":PRINT:GO
560 REM PRINT STUFF HERE :REM*218 TO 850 :REM*4
570 OPEN 4,4,7:CT=0 :REM*119 840 PRINT "{(CTRL 5){SHFT N){SHF
580 PRINT#4,"{23 SPACES}{SHFT Y T O), {SHFT I) DON'T WANT A
){SHFT O){SHFT U){SHFT R) { NY (CTRL 2)":VA$(I,J)":(CTR
SHFT C){SHFT U){SHFT S){SHF L 5)":PRINT :REM*238
T T){SHFT O){SHFT M){SHFT I 850 RETURN :REM*227
){SHFT Z){SHFT E){SHFT D) {

```

# Special Sale!

From the editors  
of RUN magazine

Software written  
especially  
for you!

## RERUN'S SPECIAL DISK SERIES COLLECTIONS

3 for \$29.97 or \$12.97 each

**1986 SINGLE ISSUES**  JAN/FEB  MAR/APR  
 MAY/JUN  JUL/AUG  SEP/OCT  NOV/DEC

**SPRING EDITION** Available for the C-64 and VIC-20. Includes: Tax Records 64, CalcAid, Quatro, Fly the Grand Canyon and more!

**GAMEPAK** Features 20 never-before-published games

**SUMMER EDITION** Includes: Sound Effects, Joystick Artist, Play Ball, Money Manager and more!

**FALL EDITION** Includes: Home Run Derby, Turtle Graphics, Big Letters, Function Keys, Test Maker, Flynn's Gold, Disk Doctor and more!

**1987 SINGLE ISSUES**  JAN/FEB  MAR/APR  
 MAY/JUNE  JUL/AUG  SEP/OCT  
 NOV/DEC

**PRODUCTIVITY PAK I** Includes: Home Finance Aid, Basic 4.5, Datafile, DF Mail, DF Report, DF Calc, Runterm, Run It Write, Disk Master, Graphmaker, Memo and Screen Print

**WINTER EDITION** Includes: Perfect Typist, Pay the Bills, UltraQuiz, Perfect Pitch, Make Music, Source Reader, Source Print, Brainstorming, Songfest, Joy to the World, Adeste Fideles, Spirited Sprites and more!

**PRODUCTIVITY PAK II** Packed with productive applications, including many never-before-published programs: Logo for Kids, Disk Backup, Construction Set, The Datafile Series, Run Script, Runterm Plus, Gradebook 128, Reminder 128, Menu 128 and more!

### Subscription offer:

Save time and money, order your subscription now for convenient at-home delivery; 6 bi-monthly issues only \$69.97—save 28%!

S988

**Payment Enclosed:** Amount \$ \_\_\_\_\_

**Charge My:**  Amex  Visa  MC

Card # \_\_\_\_\_

Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Name (print) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

For foreign air mail, please add \$3.95 per order.

MAIL TO: THE RERUN DISK SERIES, 80 ELM ST., PETERBOROUGH, NH 03458

OR CALL TOLL FREE 1-800-343-0728 FOR FASTER SERVICE

# TELECOMPUTING WORKSHOP

*Everything you always wanted to know about modems  
and weren't afraid to ask!*

By LOREN LOVHAUG

IF YOU ARE A LONG-TIME Telecomputing Workshop reader, you know that the format of this column has been predominately question and answer. My predecessor did a fine job answering literally hundreds of readers' specific inquiries, but as you may have noticed in my first two columns, I've opted for a different approach.

This is not to say that question-and-answer dialogues will cease to be a part of Telecomputing Workshop. On the contrary, I plan to use your questions to steer the direction and content of the column. From time to time it may resemble the previous Q & A sessions. Rather than use specific letters, however, I'd like to concentrate on answering the most frequently asked questions. I encourage you to send in your questions, keeping in mind that they will be answered on a collective basis.

## THE MODEM MARKET

One of the recurring questions in your letters concerns the selection of modems. What type of modem should I buy for my C-64 or C-128? What speed should the modem be able to handle? How much money will an adequate modem cost? Is there any type of modem I should avoid?

Generally speaking, there are two types of modems available for use with the 64 and 128—direct-connect (sometimes called Commodore-compatible) and standard RS-232. You attach direct-connect modems to your computer's user port, with no need for other hardware, which makes them the least expensive to operate. Standard RS-232 modems are so designated because they require an RS-232 interface to work with a Commodore computer.

Commodore, the largest producer of direct-connect modems, has marketed several models for its 8-bit line of computers. The most popular in this line are the 1650, 1660 and 1670 modems. The 1650 and 1660, which are no longer being produced, are 300-baud, "dumb" modems; dumb because, unlike so-called "smart" modems, they are generally non-programmable devices that

can't do much more than dial or answer the phone. On the other hand, the currently popular 1670 is a 1200-baud smart modem that uses a subset of the industry-standard Hayes command set. (The Hayes commands are used to control various features of the 1670: its internal speaker, tone or pulse dialing, the number of rings the modem waits before answering, and so on.) Nowadays, most third-party, direct-connect modems emulate the 1670, and are partially or fully Hayes-compatible.

Standard RS-232 modems, unlike direct-connect modems, are not designed specifically for Commodore computers. They can be attached to any computer that has the standard RS-232 serial interface configuration; unfortunately, Commodore's user port does not have this configuration, so a separate RS-232 interface device is required to make standard RS-232 modems work with your C-64 or C-128. These interfaces usually cost between \$25 to \$50 in addition to the price of the modem. The vast majority of standard RS-232 modems communicate at either 1200 or 2400 baud and are at least partially Hayes command-compatible.

## WHAT'S RIGHT FOR YOU?

The speed and type of modem you should purchase really depend on your personal needs and budget. Be careful—bargain modems are not always the "great deals" they may appear to be. A few years ago, conventional wisdom held that if you were on a budget, an inexpensive, direct-connect, 300-baud modem was the route to go. But this is no longer the case.

Although 300-baud, direct-connect modems can usually be purchased for under \$30, I strongly recommend that, even if you're a beginner, you spend a little extra money and purchase a 1200-baud modem, the prices of which have plummeted drastically over the past year. Also, most telecommunications networks have abandoned additional charges for 1200-baud usage, meaning most services now cost the same for 1200-baud access as for 300-baud. Any-

thing you save initially by purchasing 300 baud could be more than washed away in the long run, because it'll take you four times as long to download text and programs at 300 baud, which simply translates into higher telecommunications bills. Direct-connect, 1200-baud modems like Commodore's 1670 retail for \$75 to \$95.

As mentioned above, another advantage most 1200-baud modems have over their 300-baud ancestors is that they are smart. However, not all smart modems are alike. The majority adhere, at least partially, to the Hayes command-set standard, but some do not. Those that don't will, in most cases, create problems when it comes to finding telecommunications software. Two such modems are the Volkmodem 6470 and 6480—I strongly suggest you avoid them.

When it comes to choosing between a direct-connect and a standard RS-232 modem, let your present situation and your future plans be your guide. If you use your C-64 or C-128 exclusively and have no plans to purchase another type of computer, like the Amiga, Macintosh or an MS-DOS machine, then a cheaper, direct-connect modem should serve you well. However, if you own another type of computer or think you'll be purchasing a different one in the not-too-distant future, you most definitely should consider going the standard RS-232 route. This will probably involve a larger initial investment, especially when you consider the fact that you'll need to purchase an interface to operate with your Commodore, but you'll be better off knowing that you'll be able to use that modem with any computer you buy.

## THESE CHANGING TIMES

In conclusion, keep in mind that telecommunications, like the entire computer industry, is in a constant state of flux. New technologies bring better, faster and more powerful equipment into the realm of consumer computing. For instance, just two years ago, the least expensive 1200-baud, direct-connect modem would have set you back a minimum

of 150 dollars. Today, that \$150 buys you a fully Hayes-compatible, standard RS-232, 2400-baud modem!

With that in mind, here are a few more guidelines to help ensure that the modem technology you buy into today will give you the best possible combination of performance and value.

Identify the *kinds* of telecommunicating you will be doing. If the primary focus of your online activities is sending and receiving electronic mail, then modem speed may not be as important to you as it would be if you intended to transmit or receive large amounts of data or many programs.

Next, identify *where* you'll be doing your telecommunicating. If you plan to use national telecommunications networks, find out what modem speeds are supported by the access nodes in your area and how much they charge for access at various speeds. Also find out what speeds are supported by your local bulletin-board systems.

Another important consideration is the quality of the phone lines. Those areas where fiber optic telephone lines have been installed should have no problems with telecommunications in excess of 9600 baud, while those with older phone lines might incur some

difficulty even at 1200 baud. If you're not sure about the phone line technology in your hometown, call your local phone company and ask them about it. After all, it's no fun owning a fast modem if you can't use it effectively at its top speed. ■

*Loren Lovhaug is a programmer and writer with lots of telecommunications experience. You can write to him care of:*

Telecomputing Workshop  
RUN Magazine  
80 Elm St.  
Peterborough, NH 03458

## The COMPLETE Lottery TRACKER and WHEELER™

The MOST COMPREHENSIVE Lottery Software Program on the Market Today for PICK-6 games is now available for Commodore 64/128! Look at ALL of these Features:

- Record Hundreds of Past Winning Lottery Numbers and Dates!
- Track as many State or International Lottery Games as you want! No Limit!
- Produce EXPERT Trend Charts to Identify Those HOT and DUE Numbers!
- Analyze Hits 4 ways: Bell Curves, Recency, Percentages, Frequencies, MORE!
- Produce STATISTICS for ALL Numbers You Play — No Randomizing Here!
- Select Numbers to Play 5 Different Ways! You Choose what YOU Like Best!
- Check Your Bets For WINNING Combinations! Records ALL Systems Played including BONUS NUMBER, where applicable.
- Print Charts, Statistics, Recorded Numbers and WHEELING SYSTEMS!
- We Include FREE Addresses and Phone Numbers (where available) of ALL State and International Lottery Commission Offices for Winning Number Lists.

### Includes 20 of the Worlds MOST Popular WHEELING SYSTEMS!

Use your computer to improve your odds HUNDREDS of TIMES!

Look At What Our Customers Have To Say:

"I Hit 54 CASH PRIZES the first 8 weeks with the help of your program! The Tracker and Wheeler IS the BEST lottery software program I have used overall...Over \$2100 ahead after ALL expenses!" B.C., El Paso, TX

"I won 4 cash prizes the first 2 times I used the Tracker and Wheeler!" B.L.M., Wilmington, DL

"The COMPLETE Lottery TRACKER and WHEELER is SPECTACULAR!" E.D., New York, NY

### Many, Many More Letters from CASH WINNERS on File!

No other lottery software package provides all of these features! When we say complete, WE MEAN COMPLETE. Easy to use MENU DRIVEN SCREENS. Printer and Color Monitor recommended but not required for use. All wheeling systems and program features now take only SECONDS to complete! You will LOVE this program in COLOR! Why pay UP TO \$150.00 for less?

### Don't Hesitate! Place your Order Now!

ONLY: \$34.95 Plus \$2.00 S&H

See the TRACKER in Texas Computing Magazine, Dec. 1987; "Gift Ideas for Under \$100"



Now! MC/Visa Call Toll Free 1-800-824-7888, Ext. 283  
For Canadian Callers: 1-800-544-2600

Entertainment On-Line®, Inc. P.O. Box 553, Dept. RM, Westboro, MA 01561

The PREMIERE Lottery Software and Audio Products Company

MC, Visa and MO orders shipped within 1 week. Please allow 3 to 4 weeks for Personal Checks. MA Residents add 5% sales tax. Dealers Inquiries a MUST!! © Copyright Entertainment-On-Line®, Inc., 1988

## PIK'EM 88

A Complete Pro Football Prediction Program  
For The 1988 NFL SEASON

60% + Accurate Since 1982—More In '88 To  
BEAT THE SPREAD

### ★ ★ FEATURES ★ ★

- Predicted Scores All Games
- Season Schedule By Week
- Season Schedule By Team
- Scores By Week
- Scores By Team
- Scoring Summary
- Win/Loss Record Home/Away
- Division Standings
- Stats — Accumulated & Average
- Line By Week

- Line By Team
- Record vs Line
- Record vs Common Opponents
- Individual Team Match-Ups
- Printed Copy All Screens
- 1983-1987 Data Base (Includes All of the Above)
- Easy Updates Playoffs/1988
- AND MORE Dealer Inquiries Invited

64<sup>95</sup> INCLUDES DISK AND DOCUMENTATION

- IBM, Tandy & Compatibles
- Apple II Series
- Commodore 64 — 128

Stats Needed To Run Program Available In Local Newspapers Or We Will Furnish All Stats By 1st Class Mail. Season Price 40<sup>95</sup>.

Our Bulletin Board Will Furnish All Stats, Lines, Predictions and Trends Updated Daily. Season Price 55<sup>95</sup>. Program Comes Updated Thru Current Week of Season... No Extra Charge.

ORDERS SHIPPED IN 2 DAYS  
PHONE LINES OPEN 24 HRS.  
ADD 3<sup>95</sup> SHIPPING & HANDLING

ORDER TOLL FREE  
800-722-2277

INFORMATION 214-586-8212

MARATHON SOFTWARE DEPT. 6  
P. O. BOX 1349 — 641 FORT WORTH ST.  
JACKSONVILLE, TEXAS 75766

TOLL FREE: ORDERS ONLY

Circle 119 on Reader Service card.

Circle 158 on Reader Service card.

www.Commodore.ca  
May Not Reprint Without Permission

# GEOWATCH

*The discussion of geoWrite Workshop 128, begun in the August issue, now concludes.*

By MARTE BRENGLE

*Editor's note: In the August issue, Marte Brengle introduced geoWrite Workshop 128 by describing the program's installation procedures, incompatibility factors, fonts and document formatting. She now concludes the discussion.*

## EDITING

One of the most important things to keep in mind when using any word processing program is to save your work at frequent intervals. Fortunately, geoWrite Workshop 128 automatically updates your document when you go from one page to the next or when you preview a page.

Another good idea is to insert page breaks. These not only make your printed document easier to read, but also help you with insertions and corrections. If you've finished a multi-page document and then decide to insert a paragraph on page 1, gWW 128 has to push aside all the subsequent text to let your new material in. This can be agonizingly slow. If you have a break at the end of that page, however, the program only has to push aside whatever text remains on the page.

Like the space bar, the delete key moves with glacial slowness. If you want to delete more than just one letter at a time, you can do it faster by selecting (highlighting) the particular section and pressing the delete key. Range deletion can also be accomplished by double-clicking on individual words and pressing the delete key or by highlighting the range and using the Cut option from the menu.

## GRAPHICS AND IMPORTED TEXT

If you have the Photo Manager accessory on your disk, as well as any photo albums of graphics, you can easily paste in geoPaint graphics to illustrate your text. Unfortunately, you have no say in the side-to-side placement of those graphics—they'll always be centered between the margins. You can overcome this setup to a certain extent by using the Paint Drivers and Paint Overlay features (described below). You can also change—and are told to do so

in the documentation—the margins at the point at which the picture is to be inserted. If you frequently use pasted-in graphics and would like to have total control over where they'll appear, you might want to investigate BSW's geoPublish program, which is far more versatile in that respect.

Text imported from other gWW 128 documents isn't subject to centering restrictions. The process of importing the text is rather tedious, though, and it would be nice if gWW 128 allowed for alternate screens as other programs do. As it stands, if you want to move a section of text from one geoWrite document to another, you have to copy it into a text scrap and save it into a text album. If you subsequently use the Cut or Copy command on another document, whatever you've cut or copied automatically replaces what is in the scrap.

Text created with other word processors can also be converted to gWW 128 format. Keep in mind, however, that the original file is converted, and you'll no longer be able to read it with the original word processor. If you don't want that to happen, make sure you use the text grabber only on a *copy* of your original file.

Most of the text grabbers on the disk seem to work quite well, although BSW's documentation doesn't mention that the grabbers are more versatile than they appear. The PaperClip II grabber, for example, works just as well on Pocket Writer files. This is nice to know, because the generic grabbers leave much to be desired.

## PRINTING

Printing your document can be one of the trickier procedures with gWW 128. If you have an 80-dpi driver on your disk to write and switch to a 60-dpi driver to print, the entire document has to be reformatted—that can take quite a long time.

Ignore the manual's instructions for using the "2.1 printer drivers on the back of the disk." There are no such things, and the back of the disk is blank.

In addition, the gWW 128 manual refers you to the "Choosing a Printer Driver and Printer" section in the GEOS 64 manual. That's of little help, because gWW 128 can't be used with GEOS 64. You'll find the correct instructions on pages 1-11 and 1-15 of the GEOS 128 manual.

The various double-strike and quad-strike printer drivers available on QuantumLink, other networks and BBSs work very well with this program; in fact, your printout quality may be greatly enhanced by them. It would be well worth your time to experiment with one that matches your printer.

GeoWrite Workshop 128 gives you more control over your printout than the original geoWrite did. When you choose Print from the File menu, you'll get a dialog box that lets you indicate which pages to print, what style of type to use and whether your printer uses single sheets or continuous paper.

If you want to print your document out as it appears on the screen, with all the fonts and formatting intact, choose High for high quality. If you want to use your printer's own resident typeface, choose Draft. (The format will be different, of course, since the number of characters per inch will almost certainly be different.) Draft mode selects your printer's Default mode, and some printers—Okimate 20, for example—default to near-letter-quality print.

The procedure changes if you want NLQ printing from other printers. Assuming your printer allows for NLQ, you must have your entire document in the Commodore 10 font for this feature to work. The printing speed will probably be faster than high-quality print, but slower than draft.

## PAINT DRIVERS AND PAINT OVERLAY

The Paint Drivers program is one of gWW 128's most interesting applications, yet one of the most sketchily explained. Fortunately, your gWW disk contains a demonstration file, called Cake, that can help you learn how to use the Paint Drivers program. When

using this program, you can approximate the look of a geoPublish document and combine several documents into one for a custom layout.

Paint Drivers changes your geoWrite documents into geoPaint documents. One of the unwritten advantages of doing this is that all font information is changed to graphics information, and you are freed from the necessity of having every font present on your disk in order for your document to print out properly.

Make sure you have plenty of room left on your work disk, because a new geoPaint document is created while you're working. The manual suggests that you keep available at least 5K of space, but I think it would be to your advantage to have more. Copy the Paint Drivers file onto your work disk and double-click on it. You'll get a list of all the printer drivers on the disk, and you can click on the one you usually use. The Paint Drivers application creates Paint Pages and Paint Overlay on your disk.

If you choose Paint Pages, each of the pages in your document is converted into an individual geoPaint file on your disk. The files are called Page 1, Page 2, and so forth. If you choose Paint Overlay, each page in the document is combined into a single geoPaint document. Before you try this feature, be very sure that your material is formatted correctly. The Cake demonstration file has been set up in advance for this.

When you use Select Printer to choose Paint Overlay as your printer driver, open the Cake file and choose Print from the File menu. When the dialog box appears, make sure you'll be printing from page 1 to page 2. The program then creates a geoPaint file, called Overlay, that contains the images of both pages combined. Note that any time you use the Paint Overlay feature, the resulting file is always called Overlay. If you have a file with that name already on your disk, everything from the new document is overlaid on what's already there. Once you've created your document, rename it to something more representative of what it contains.

To print your new geoPaint document, you must first switch back to your regular printer driver, and then you can print the document as you normally would.

Using the overlay feature also lets you create documents in columns. If you have graphics in those documents, they'll appear centered side to side in the column rather than in the center of the document itself.

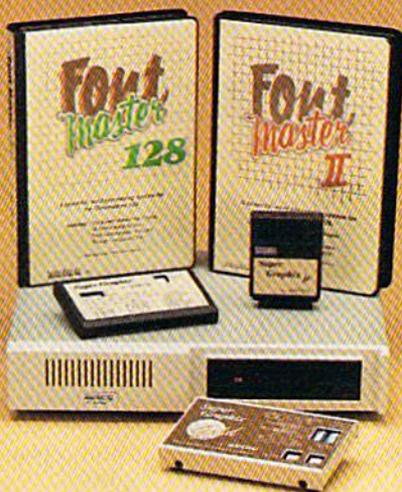
The main thing to keep in mind is that although BSW refers to Paint Overlay and Paint Pages as printer drivers, they create files *on your disk, not on your*

*printer.* You must switch back to your regular printer driver before you print your documents. ■

*Marte Brengle has spent a lot of time working with Commodore special interest groups on national networks. You can contact her on Q-Link as Sunny G.*

*Send your questions on GEOS and related applications, along with any geoTips to:*

geoWatch  
RUN Magazine  
80 Elm St.  
Peterborough, NH 03458



## Excellence... for the Commodore The **KETOC** Product Family

Look for the name that  
spells *Quality,*  
*Affordability,*  
and *Reliability.*

**Lt. Kernal** - a 20 or 40  
Megabyte Hard Drive which sup-  
ports CP/M.

**Super Graphix GOLD** - the ultimate printer interface including a 32K buffer, 4 built-in fonts, a utility disk with 27 fonts and more.

**Super Graphix** - an enhanced printer interface including NLQ, an 8K buffer, reset button, a utility disk with 27 fonts and more.

**Super Graphix jr** - an economical printer interface with NLQ and graphics.

**FontMaster II** - a powerful wordprocessor for the C64 with 30 fonts ready to use, 65 commands, font creator and more.

**FontMaster 128** - a super wordprocessor for the 128 including 56 fonts ready to use, a 102,000 word spell checker and much more.

*All Hardware is FCC Certified All Interfaces include a Lifetime Warranty*

C64 and 128 are reg. TM of Commodore Business Machines, Inc.

**KETOC** 2804 Arnold Rd. Salina, KS. 67401 (913) 827-0685

Circle 96 on Reader Service card.

# COMMODORE CLINIC

Why you should never save anything to your Q-Link disk; how to use an REU with programs you're writing; how a program generates Out of Memory errors.

By LOU WALLACE

## SOFTWARE

**Q** I have a tough time running the Autumn program in RUN's Special Issue #4. All I get is ILLEGAL QUANTITY ERROR IN LINE 110. Am I doing something wrong? I first load and run Sprite ML Maker, then load and run Autumn.

—PHIL KEIM  
ROCHESTER, NY

**A** The Illegal Quantity error message tells you that you have entered into a Data statement a number greater than 255, the maximum value a byte can hold. The data is in lines 470-730 of the listing, so recheck your Data statements for a number or numbers that are greater than 255. Make the change(s) (don't forget to press return on each line right after you make any changes) and re-save the program before running it.

**Q** Can I use Berkeley Softworks' geoProgrammer to make my own self-standing assembly language programs, or is it just for use with GEOS applications?

—HARRY T. WAITE IV  
APO, NY

**A** Yes, you can use geoProgrammer for generating normal Commodore (non-GEOS) applications, but you'll also need GEOS to run the assembler, geoWrite to generate the source files and geoPaint to create any graphics you want to include in your program. And the geoDebugger needs the GEOS Kernal to run. If you don't already have GEOS and don't want to write GEOS applications or accessories, then you should consider getting a different assembler. (See the May 1988 RUN for a roundup of assemblers.)

**Q** I just bought Q-Link's Rabbitjack Casino disk. Ever since I saved it to my Q-Link disk, I can no longer automatically boot up to log on with my C-128. Can you tell me why this happens? Q-Link doesn't

seem to know. It's a minor inconvenience, but I miss the autoboot feature. Otherwise, the disk works fine.

—JESSE JAY  
WALTHAM, MA

**A** When you copied the Rabbitjack software to your Q-Link disk, you also overwrote the autoboot sector (track 1) that has the information for autobooting the disk to your 128. Get another boot disk from QuantumLink, and never again save anything to it.

## HARDWARE

**Q** My C-64 seems to have lost its color. When I first turn it on, there is color on the screen, but within 5-10 seconds the screen goes black and white. Should I replace the color chip or could other chips be causing the problem?

—CALVIN F. STANFILL  
NASHVILLE, TN

**A** Most likely you've got a bad VIC-II graphic chip. If you're technically competent, buy one from a service center or a mail order company that sells computer components, and replace it yourself. But I recommend you take it to a Commodore service center where they can determine the exact cause of the problem and replace only what is absolutely required.

**Q** How can I get my C-64 to work with a 24-pin dot matrix printer?

—E. BURK  
SPARTA, NJ

**A** Equipped with a standard C-64 printer interface, your machine can use any type of printer that has a parallel interface. This includes 9- and 24-pin impact printers, ink jet or thermal printers, laser printers, such as the HP Laser Jet or Okimate Laserline, and even Postscript-compatible printers like the Apple LaserWriter.

The real question concerns what

C-64 software supports these various printers. If you already have a 24-pin printer, you must also have software that specifically supports yours, and not just any 24-pin printer. If you don't yet have a printer, first find a software package that does what you want and supports the type of printer you desire; then buy your printer.

**Q** I need a hard drive for my C-128D. Can I use an IBM-style controller and interface for a Seagate ST-506 (5 meg), an ST-419 (15 meg) or an ST-225 (20 meg), preferably in RLL format? Will I be able to use the hard drive with GEOS or GEOS 128? I would rather not spend the \$800 or \$900 on the system Xetec offers.

—JASON HULL  
SPRINGDALE, AR

**A** That's a great idea, but, sad to say, one that's not possible (yet). To use any hard drive, software must be provided to drive it, to perform file management of extremely large numbers of programs or datafiles, and yet still be compatible with the majority of non-copy-protected software. This is what Xetec (and others) have done. So far, no one has developed a combination interface and software for off-the-shelf hard drives. But whoever does so will likely make a lot of money!

As for using a hard drive with GEOS, current GEOS software will not work with any hard drive for a CBM computer because of copy-protection problems.

## PROGRAMMING

**Q** I've been writing an adventure game in Basic on my C-128. I've gotten to the stage where I'm able to play it, but after a certain number of entries, I get an Out of Memory message.

My manual states, "Either there is no more room for program code and/or program variables, or there are too many nested Do, For or Gosub statements in effect."

I assume that there are too many For-Next

loops, because my program uses these to determine its next action. I've tried using the Trap statement, but that only results in a computer lockup.

Have you any suggestions?

—R. JAKLITSCH  
WICKLIFFE, OH

**A** There are a couple of possible problems. First, you may be out of variable memory. Even though there's a 64K bank in the 128 set aside for variables, it's not difficult to run out of memory, if you use enough variables. Consider this DIMension statement:

```
DIM AS$(21414)
```

This allocates enough memory for 21,414 string variables in the array AS(), leaving four bytes free. Increase it to 21,415, and you get an Out of Memory error message. You're probably not using arrays this large, but it takes only a few multidimensional arrays to eat up all your variable memory.

A more likely possibility is that you're out of stack space. The computer reserves a section of memory called a stack, where it holds information it will need later. It's called a stack because programmers like to think of it as a stack of values and addresses, with the most recent addition on the bottom. Whenever you use a Do-Loop, a Do-While, a For-Next loop or a Gosub in a program, an entry is placed on the stack so the computer can find its way back when executing the loop or subroutine. If you're jumping in and out of loops, or doing recursive calls of a subroutine, you can very quickly run out of stack space, resulting in an Out of Memory error. As an example, enter this one-line program and run it:

```
10 GOSUB 10
```

You'll find that almost as soon as you press return, it will print an Out of Memory error. This small program has filled the stack by repeatedly calling itself, and never reaching a Return statement, which would remove an entry from the stack.

Check your program again, and per-

haps you will find that one of the above is causing the problem.

**Q** Can you provide me with an algorithm that takes a number assigned to a variable, say 17543, parses it into its individual component digits—1, 7, 5, 4, 3—adds each of those numbers separately to character code 48 (0) and pokes the result into five sequential screen locations?

—KEITH W. BEDARD  
BENSENVILLE, IL

**A** I can. Below is a C-64 routine that does just that, and, in addition to meeting your particular needs, it's an illustrative example of converting variable datatypes. In this case, we have a number that we convert to a string variable (essentially a word), then parse (separate) it into its component digits. These are then converted back into numbers, stored in an array and then poked to the supplied screen address.

First, we convert the supplied number, N (17543), into a string variable, N\$, using the STR\$ function (line 1020). Next, we determine the length of this string (line 1030). This must be decreased by one (also line 1030) because STR\$ results in a string with an extra digit on the left (usually a space, but it could also be a minus sign). We then remove the extra leftmost character and reassign the new value to N\$ (line 1040) using the RIGHT\$ function. Then we create the array of numeric values for each character, using a combination of VAL and MID\$ (lines 1060–1080). Finally, we have a short loop that pokes the array onto the screen, starting at the screen address that is assigned to AD (line 1100).

Remember that lines 1000–1010 contain values for N and AD, so you will need to change them for your purposes. Also, since the array NI() is not dimensioned, it uses the default maximum value of 11 elements (0–10). For numbers longer than ten digits, you'll need to DIMension that array to a larger size. And you'll notice that only the number is poked to the screen; if you need col-

ored numbers, you'll need to poke the appropriate color memory location with the desired color (POKE (55296 + (AD - 1024)),color).

```
1000 N = 17543:REM N IS THE NUMBER  
      TO PARSE  
1010 AD = 1024:REM SCREEN ADDRESS  
1020 N$ = STR$(N):REM CONVERT IT TO  
      A STRING VARIABLE  
1030 L = LEN(N$) - 1:REM SHORTEN IT  
      BY ONE  
1040 N$ = RIGHT$(N$,L):REM USE ONLY  
      THE ACTUAL CHARACTERS  
1050 REM CREATE AN ARRAY OF  
      VALUES  
1060 FOR I = 1 TO L  
1070 NI(I) = VAL(MID$(N$,I,1))  
1080 NEXT  
1090 REM POKe THE DATA TO THE  
      SCREEN  
1100 FOR I = 1 TO L:POKE AD + I - 1,  
      NI(I) + 48:NEXT
```

**Q** I'd like to use my 1750 RAM expansion module with programs I'm writing to shift stored data to the REU, retrieve the data for use in the programs, put the data back into the unit so that I can use RAM memory for other work, and save the RAM data to disk for later use. Could you give me an example of how to do this?

—ROBERT E. PORTER  
CANFIELD, OH

**A** I'll give you two examples. The first is to use Commodore's official RAMDOS software, which simulates a high-speed disk drive. With a RAM drive you can quickly load and save your data between the program you're writing and the drive. You can even chain several programs together so they act as one. And it's done so fast that it's usually transparent to the user.

If you recently bought your RAM cartridge, the RAMDOS software was probably already on the disk that came with the unit. Earlier buyers of a 1700 or 1750 unit did not get it, as it wasn't completed until this year. Commodore has now released it for public use, and you'll find it on most commercial BBS networks, ▶

## COMMODORE CLINIC

such as QuantumLink, GENie and CompuServe. You'll also find it on many smaller BBSs, including RUN's own RUNNING Board (603-924-9704).

The second example is to use the Basic 7.0 commands Stash, Fetch and Swap to store and recall data from your programs. I've given the commands and their parameters below.

FETCH,#BYTES,INTSA,EXPSA,EXPB  
STASH,#BYTES,INTSA,EXPSA,EXPB  
SWAP,#BYTES,INTSA,EXPSA,EXPB  
#BYTES—the number of bytes to Fetch, Stash or Swap

INTSA—the starting address (0-65535) of the computer's memory

EXPSA—the starting address (0-65535) of the expansion RAM

EXPB—the memory expansion bank number (0-1 for 1700, 0-7 for 1750)

The commands themselves are quite easy to understand, but you must know a great deal about the 128's memory organization in order to use them. I've written a sample program that stores the 128's 40-column graphics screen in

the RAM expansion cartridge, waits for a keypress, then restores it.

```
10 GRAPHIC1,1:REM HIGH RESOLUTION
20 REM CREATE A SCREEN TO STORE
30 FOR I=1 TO 16
40 C=INT(RND(1)*16)+1
50 COLOR I,C
60 X=INT(RND(1)*320)
70 Y=INT(RND(1)*200)
80 XR=INT(RND(1)*99)+2
90 YR=XR*.769
100 CIRCLE I,X,Y,XR,YR
110 NEXT I
120 STASH 9200,7168,0,0
130 GRAPHIC 1,1:REM CLEAR THE SCREEN
140 GETKEY A$:REM WAIT UNTIL A KEY IS PRESSED
150 FETCH 9200,7168,0,0:REM RESTORE THE SCREEN
160 GETKEY A$
170 GRAPHIC 0
```

This is just an example; there are many other ways to write the program, depending on your needs, such as having many different graphic screens, text

screens, banks of sprites or function key definitions.

**Q** Can Commodore 64 and 128 programs be converted to run on an IBM clone XT, with MS-DOS and GW Basic?

—T. WILDER  
PETERBOROUGH, NH

**A** If the programs are simple Basic programs, it is possible to convert them. However, if they use graphics, sprites, sound commands or any other machine-specific abilities, the conversion problems become significant, since IBM clones have limited sound, no sprites and different graphics resolutions. Also, you will have to rewrite any disk accesses, as they use different commands and techniques. ■

Do you have a problem or question about your Commodore computer system, software or programming? Send your questions to: Commodore Clinic, RUN Magazine, 80 Elm St., Peterborough, NH 03458.

Prof Jones, Inc.®



### PROFESSIONAL HANDICAPPING SYSTEMS™

Products from Prof Jones:



### 1988 FOOTBALL SPECIAL

One low price of only \$349.95 (a value of \$547.40)

INCLUDES:

1. PRO-BOOKIE COMBO which contains:
  - PROFESSIONAL FOOTBALL
  - BOOKIE BUSTER I (Single input to PROFESSIONAL FOOTBALL generates results in both systems)
2. FOOTBALL ADDITION (for College)
3. Enrollment into Prof Jones Bulletin Board so you can download weekly Statistics
4. Al O'Donnell's 1988 Point Spread Playbook

Other Football Products:

|                   |          |                     |          |
|-------------------|----------|---------------------|----------|
| Football Addition | \$149.95 | Pro-Series Football | \$199.95 |
| Bookie Buster I   | \$ 99.95 | Pro-Bookie Combo    | \$299.95 |
| Bookie Buster II  | \$179.95 | Enhanced Bookie     | \$169.95 |

WRITE:  
Prof Jones  
1940 W. State St.  
Boise, ID 83702  
(208) 342-6939

For more information or  
For a Free Catalog call:  
**1-800-553-2256**

## Attention Foreign Computer Stores/ Magazine Dealers

You have a large technical audience that speaks English and is in need of the kind of microcomputer information that IDG Communications/Peterborough provides.

Provide your audience with the magazines they need and make money at the same time. For details on selling AmigaWorld, RUN, CD-ROM Review, PC Resource and inCider contact:

Marjorie Rubin  
Boarts International  
747 3rd Avenue  
New York, NY 10017  
Phone: (212) 688-2778

Circle 74 on Reader Service card.

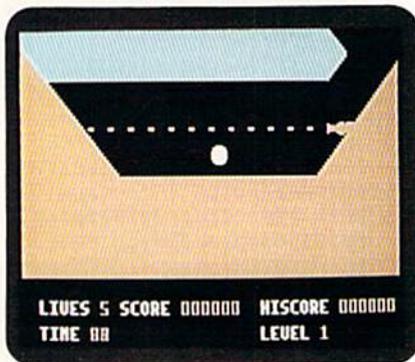
# I N E R T I A M A N I A

From p. 48.

```

049108D10D0CE :REM*30
147 DATA 2E98AD2E98C9FFF0034C 7
E85A9078D2E98A9018D 2C988D2
A988D2B9860AD :REM*232
148 DATA 2B98D023EE07D0EE09D0 E
E2D98AD2D98C908F003 4CA785A
9008D2D98A904 :REM*230
149 DATA 8D2C988D2A988D2B9860 A
D2B98D023CE07D0CE09 D0CE2D9
8AD2D98C9FFF0 :REM*143
150 DATA 034CD085A9078D2D98A9 0
28D2C988D2A988D2B98 60AD19D
08D19D02901D0 :REM*62
151 DATA 034C31EAAD12D0C9FDB0 2
BA0FD8C12D0AD18D029 F0090A8
D18D0AD11D029 :REM*118
152 DATA F81869078D11D0AD16D0 2
9F81869038D16D02072 884C3A8
6AD11D01829F8 :REM*92
153 DATA 6D2D988D11D018AD16D0 2
9F86D2E988D16D0AD18 D029F00
90C8D18D0A0D0 :REM*200
154 DATA 8C12D0207B8868A868AA 6
840AD299849048D2998 60AD2A9
89001F00DC902 :REM*193
155 DATA F012C903F017C904F01C 6
0A9078D2E9820818660 A9078D2
D98208E8660A9 :REM*21
156 DATA 008D2E9820818660A900 8
D2D98208E8660AD16D0 29F8186
D2E988D16D060 :REM*161
157 DATA AD11D029F8186D2D988D 1
1D06038AD2F98E9508D 2F98B00
3CE28986018AD :REM*210
158 DATA 2F9869508D2F989003EE 2
89860EE3098AD3098C9 50D0161
8AD2F9869508D :REM*162
159 DATA 2F98AD289869008D2898 A
9008D309860CE3098AD 3098C9F
FD01638AD2F98 :REM*41
160 DATA E9508D2F98AD2898E900 8
D2898A94F8D309860AD 2A98C90
1F00DC903F00D :REM*249
161 DATA C904F00DC90 :E0D6020 B
9866020DA8660209 003 6020AA8
660A90085FDA9 :REM*44
162 DATA 2085FEA90085FBA97818 6
D299885FC18A5FD6D30 9885FD9
002E6FE18A5FD :REM*213
163 DATA 6D2F9885FD9002E6FE18 A
5FE6D289885FE6020FB 8620408
620C184AD12D0 :REM*239
164 DATA C909D0F9204986AD18D0 4
9108D18D0A9008D2B98 604A4A4
A4A60290F1869 :REM*127
165 DATA 2899207B99207F60F8AD 1
69838CD1998902CD014 AD17983
8CD1A989021D0 :REM*168
166 DATA 09AD189838CD1B989016 A
D17988D1A98AD18988D 1B98AD1
6988D1998D820 :REM*214
167 DATA 2388D860F818AD18986D 1
C988D18989014AD1798 1869018
D1798900918AD :REM*165
168 DATA 169869018D1698D8AD18 9
8207587A03C207A87AD 1898A03
D207A87AD1798 :REM*16
169 DATA C207587A03A207A87AD17 9

```



**Gobble up the gold and watch out for cannon fire!**

```

8A03B207A87AD169820 7587A03
8207A87AD1698 :REM*26
170 DATA A039207A8760AD1C98A0 9
6207A8760AD1B982075 87A04C2
07A87AD1B98A0 :REM*25
171 DATA 4D207A87AD1A98207587 A
04A207A87AD1A98A04B 207A87A
D1998207587A0 :REM*46
172 DATA 48207A87AD1998A04920 7
A8760A9978D00DDA915 8D18D0A
91B8D11D0A9C8 :REM*210
173 DATA 8D16D060A9008D2AD08D 2
BD060A90A8D2AD08D2B D060A93
F8D02DDA9C68D :REM*153
174 DATA 00DDA9ED8D18D0A9D08D 1
6D0A9138D11D060A000 B93A98C
9FFF007991E98 :REM*11
175 DATA C84CA08860A000A203A9 0
085FBA9D885FCAD0780 91FBC8D
0FBE6FCCAD0F6 :REM*215
176 DATA A00091FBC8C0E8D0F9A9 0
9A0009948DBC8C078D0 F860A90
08D10D0A91F8D :REM*167
177 DATA 15D0A9FF8D1BD0A009B9 D
E979900D08810F760A0 00B1FBF
00B9D207B9D20 :REM*62
178 DATA 7FEB8C4CFB8860209E88 2
0848820AF8820C18420 DE88207
D8960AD1D98A0 :REM*247
179 DATA 30207A8760AD2198F01C E
E2298AD22988D08D4C9 28D00FA
9148D2298A900 :REM*134
180 DATA 8D2198A9208D0BD460A9 0
0A0189900D48810FA60 A90F8D1
8D4A9128D0CD4 :REM*227
181 DATA A9228D0DD4A90A8D05D4 A
9498D06D4A9148D01D4 A90C8D0
0D4A9058D0FD4 :REM*149
182 DATA 60AD2598207587A07F20 7
A87C8AD2598207A8760 AD1F98F
02318AD209869 :REM*227
183 DATA 088D2098AD20988D0ED4 3
8C9F0900FA9138D2098 A9008D1
F98A9128D04D4 :REM*76
184 DATA 60A9818D04D48D0BD48D 1
2D4A9148D01D4A9288D 08D4A93
C8D0FD4A9118D :REM*113
185 DATA 05D48D0CD48D13D4A922 8
D06D48D0DD48D14D4A0 00A2008
C29D0C8D0FAE8 :REM*190
186 DATA D0F7EE1E98AD1E98C905 D

```

```

0EDA9008D1E98A9018D 29D060A
9008D7497A90B :REM*48
187 DATA 8D7597A9028D20D0A900 8
D21D020998C208F8CA9 0020D5F
FA99320D2FFA9 :REM*54
188 DATA 01A0009900D89900D999 0
0DA9900DBC8D0F1A000 B94997F
00720D2FFC84C :REM*1
189 DATA 448A20268CA003B1FD8D 7
397C8B1FD8D7297C8B1 FD8D719
720A28BCE7597 :REM*82
190 DATA F00BAD7497D01B20378C 4
C538AA000B9AB97F007 20D2FFC
84C7B8A20CA8B :REM*233
191 DATA 20BB8C60A5FD8DDB97A5 F
E8DDC97CE7597F026A9 3085FDA
96085FEA93685 :REM*254
192 DATA A3A96085A4A005B1FD91 A
38810F9CE7597F008A0 0520528
C4CAF8AADD897 :REM*163
193 DATA 85FDADD9785FEA003AD 1
69891FDC8AD179891FD C8AD189
891FD20CA8BA0 :REM*101
194 DATA 00B97697F00720D2FFC8 4
CE58AADD89785FDADD C785FEE
8D0FDC8C080D0 :REM*146
195 DATA F820CA8BACDD97ADDB97 8
5FDADD9785FEB1FD49 8091FDA
D00DC2910F068 :REM*118
196 DATA AD00DCC97EF00FC97DF0 1
DC97BF029C977F03D4C FB8A18B
1FD6901297FC9 :REM*68
197 DATA 1BD002A90191FD4CFB8A 3
8B1FDE901297FD002A9 1A91FD4
CFB8AB1FD297F :REM*65
198 DATA 91FDCEDD97ADD97C9FF D
005A9008D0DD974CFB8A B1FD297
F91FDEDD97AD :REM*89
199 DATA DD97C903D005A9028DD 9
74CFB8AACDD97ADDB97 85FDADD
C9785FEB1FD29 :REM*69
200 DATA 7F91FD20BB8C20778C60 F
8AD169838CD7397901C D014AD1
79838CD729790 :REM*116
201 DATA 11D009AD189838CD7197 9
006A9018D7497D8D860 20268CA
209206D8C2037 :REM*5
202 DATA 8CCA10F720268CA209A0 0
3B1FD8D709720A38C8 20A88CA
D7097C820A88C :REM*190
203 DATA A004B1FD8D7097C8C820 A
38C20A88CAD7097C820 A88CA00
5B1FD8D709720 :REM*55
204 DATA A38CC8C8C820A88CAD70 9
7C820A88C20378CCA10 B860A92
785FBA90585FC :REM*216
205 DATA A90085FDA96085FE6018 A
5FB692885FBA90065FC 85FC18A
5FD690685FDA9 :REM*33
206 DATA 0065FE85FE6038A5A3E9 0
685A3A5A4E90085A438 A5FDE90
685FDA5FEE900 :REM*149
207 DATA 85FE60A002B1FD91FB88 1
0F96020998C208F8CA9 0085FBA
96085FCA23DA0 :REM*173
208 DATA 60A9FB20D8FF60A90BA2 B
0A08C20BDF60A900A2 08A0FF2
0BAFF604A4A4 :REM*214
209 DATA 4A6018290F693091FB60 4

```

# INERTIA MANIA

|     |   |   |  |
|-----|---|---|--|
|     | 0303A544F5054454E2E 4FAD00D0<br>C2910D0F960AD :REM*4                                  | 00000000000000000000 00DE000<br>000000000000 :REM*134                                       | 3434343430040404040 4040404<br>0404040404040 :REM*147  |
| 210 | DATA 11D029EF8D11D0A000A2 1<br>FA90085FBA92085FCA9 0391FBC<br>8D0FB6E6FCCA10 :REM*78  | 233 DATA 00000000000000000000 0<br>07E00001FF8001FF8003 FFC003F<br>FC003FFC003FF :REM*242   | 256 DATA 40404040404040404040 4<br>040404040404040404040 4040404<br>04040000434343 :REM*213  |
| 211 | DATA F6A99320D2FF20E58DA9 4<br>385A3A99285A420478E A2028E4<br>89720FB8DA9FC :REM*14   | 234 DATA C003FFC0001FF8001FF80 0<br>07E00000000000000000 0000000<br>000FF000000000 :REM*132 | 257 DATA 43434343434343434343 4<br>343434343434343434343 4343434<br>3434343434343 :REM*209   |
| 212 | DATA 85A3A99385A420478EA9 1<br>485FBA92085FC200C8E A99320D<br>2FFA2068E4897 :REM*236  | 235 DATA 00000000000000000000 0<br>00000000000000000000 0018000<br>07E000007E0000 :REM*85   | 258 DATA 43434343434343434343 4<br>3434343434344404040 4040404<br>0404040404040 :REM*47      |
| 213 | DATA 20FB8DA92585A3A99485 A<br>420478EA2098E489720 FB8DA9C<br>685A3A99485A4 :REM*25   | 236 DATA 18000000000000000000 0<br>00000000000000000000 0000000<br>000000000000FF :REM*33   | 259 DATA 40404040404040404040 4<br>343434343434343434343 4343434<br>3434440404040 :REM*174   |
| 214 | DATA 20478EA2028E489720FB 8<br>DA9EF85A3A99485A420 478EA9E<br>485FBA92785FC :REM*16   | 237 DATA FF206F72000000000000 0<br>000AAAABABAFBFBFFF FFFFFFFF<br>FFFFFFF00000 :REM*78      | 260 DATA 40404040404040404040 4<br>0404040404040404943 4343434<br>3434343434343 :REM*27      |
| 215 | DATA 200C8EA99320D2FFA964 8<br>5A3A99585A420478EA2 038E489<br>720FB8DA9FC85 :REM*139  | 238 DATA AAAAAAAAAAAAAAAAAA8A8 A<br>0A08080C0C0F0F0FCFC FFFFFFFF<br>FFCFCF0F0C0C0 :REM*102  | 261 DATA 43434343435253405140 5<br>1405140514051405140 5140514<br>0514051405149 :REM*214     |
| 216 | DATA A3A99385A420478EA208 8<br>E489720FB8DA92585A3 A99485A<br>420478EA9B485 :REM*34   | 239 DATA 02020A0A2A2AAAAA8080 0<br>0A0A8A8AAAAAAA2A2A 0A0A020<br>2AAAAEAEAFafa :REM*58      | 262 DATA 43434343434343434343 4<br>343434440404040404040 4040404<br>0404040404040 :REM*91    |
| 217 | DATA FBA92F85FC200C8EA993 2<br>0D2FFA2018E489720FB 8DA9C68<br>5A3A99485A420 :REM*27   | 240 DATA FEF003030F0F3F3FFFF F<br>FF3F3F0F0F0F3038080 A0A0A8A<br>8AAAA02020A0A :REM*121     | 263 DATA 40404040404040404040 4<br>943434343434343434343 4343444<br>0404040404040 :REM*248   |
| 218 | DATA 478EA2028E489720FB8D A<br>98D85A3A99585A42047 8E20E58<br>DA98485FBA937 :REM*1    | 241 DATA 2A2AAAAFFFFFEFEFAFA E<br>AEAFFFBFBFAFAFABAB 00000005<br>05000000028AA :REM*18      | 264 DATA 40404040404040404040 4<br>040404040404040404040 4049434<br>3434343434343 :REM*97    |
| 219 | DATA 85FC200C8EA99320D2FF A<br>D11D009108D11D060A2 098E469<br>7A9F185A3A991 :REM*201  | 242 DATA AAAAAAAAAA280002AAAA A<br>AAA02000080AAAAAAA 80000000<br>000000000000 :REM*44      | 265 DATA 43414242424242424242 4<br>2424242424242424242 4242424<br>2424245040404 :REM*76      |
| 220 | DATA 85A420478ECE4697D0F0 6<br>0A91A85A3A99285A420 478ECE4<br>897D0F060A900 :REM*105  | 243 DATA 00000000000000000000 0<br>00000000000000000000 0000000<br>000000000000 :REM*181    | 266 DATA 40404943434343434343 4<br>1424242424242424242 4242424<br>2424242424242 :REM*18      |
| 221 | DATA 85FDA90485FEA027B1FD 9<br>1FB8810F918A5FD6928 85FDA90<br>065FE85FE18A5 :REM*95   | 244 DATA 00000000000000000000 0<br>00000000000000000000 0000000<br>000000000000 :REM*180    | 267 DATA 4242424242424242454040 4<br>040404943434343434341 4242424<br>2424242424242 :REM*238 |
| 222 | DATA FB695085FBA90065FC85 F<br>CEE4797AD4797C919D0 D3A9008<br>D479760A000B1 :REM*136  | 245 DATA 00000000000000000000 0<br>00000000000000000000 0000000<br>0000000003030 :REM*95    | 268 DATA 42424242424242424242 4<br>242424242424242464040 4040404<br>0494343434142 :REM*48    |
| 223 | DATA A3F01320D2FF18A5A369 0<br>185A3A90065A485A44C 498E609<br>38E050D202020 :REM*141  | 246 DATA 3030303030303030C0C0 0<br>C0C0C3F3333333333333 330C3F3<br>030303C30303F :REM*191   | 269 DATA 42424242424242424242 4<br>242424242424242424242 4242424<br>2424246404040 :REM*11    |
| 224 | DATA 20202020202020202020 4<br>7415A494E4520505245 53454E5<br>4532E2E2E0D0D :REM*188  | 247 DATA 0F0303030F03033C3F0C 0<br>C0C0C0C0C0C333F3F3F 3333333<br>32A2222222222 :REM*29     | 270 DATA 4040404040404943444040 4<br>040404040404040404040 4040404<br>0404040404040 :REM*44  |
| 225 | DATA 0D0D0D0D0D0D0D0D0D0D 2<br>0202052554242455220 42414E4<br>449542042414C :REM*164  | 248 DATA 222A082808080808082A 2<br>A0202022A20202A2A02 02022A0<br>022A222222222 :REM*197    | 271 DATA 40404040404040404040 4<br>0404040404049004040 5140514<br>0514051405140 :REM*107     |
| 226 | DATA 4C0D0D0D0D0D0D0D0D0D 2<br>0202020202020204259 2043484<br>1524C4553204F :REM*228  | 249 DATA 2A0202022A2020200A02 0<br>22A2A2020202A22222A 2A02020<br>2020202022A22 :REM*224    | 272 DATA 51405140514051405140 5<br>1405140514051405140 5140514<br>0514054520040 :REM*118     |
| 227 | DATA 52435554540D0D0D0D0D 0<br>D0D2020202020202020 2048495<br>420123C535041 :REM*31   | 250 DATA 2222A22222A2A22222 2<br>A0202023333333F3F33 33330F3<br>0303030303030F :REM*58      | 273 DATA 404040404B4242424242 4<br>242424242424242424242 4242424<br>2424242424242 :REM*6     |
| 228 | DATA 43453E9220544F20504C 4<br>15900000000000000000 0000000<br>000000000000 :REM*76   | 251 DATA 0C3333333333330C3C33 3<br>3333F3C333305101010 1111110<br>4041111111511 :REM*33     | 274 DATA 42424242424242424240 4<br>040404B42424242424242 4242424<br>2424242424242 :REM*118   |
| 229 | DATA 0000003C00003C00003C 0<br>0003C000000000000000 0000000<br>03C00003C0000 :REM*93  | 252 DATA 1111111515151111111 1<br>5101010141010150411 1111111<br>1110411111111 :REM*90      | 275 DATA 42424242424242424242 4<br>2424242424242424240 4040404<br>C424242424242 :REM*164     |
| 230 | DATA 3C00003C000000000000 0<br>00000000000000DE0000 0000000<br>000000000000 :REM*206  | 253 DATA 11111104151010101410 1<br>0151411111115141111 0000000<br>000000000000 :REM*98      | 276 DATA 42424242424242424242 4<br>242424242424242424242 4242424<br>2424242424240 :REM*252   |
| 231 | DATA 00000000000000000000 0<br>000000000000000003FF C003FFC<br>003FFC0000000 :REM*129 | 254 DATA 00000000004343434343 4<br>343434343434343434343 4343434<br>3434343434343 :REM*180  | 277 DATA 404040404C4242424242 4<br>242424242424242424242 4242424<br>2424242424242 :REM*241   |
| 232 | DATA 00000000000000000000 0   | 255 DATA 43434343434343434343 4   | 278 DATA 42424242424242424200 5  |

# I N E R T I A   M A N I A

```

2534051405140514051 4051405 294 DATA 4040404743434343434 4
1405140514051 :REM*201 3434343434851405140 5140514
279 DATA 40514051405140514051 4 0514051405140 :REM*97
0514051405140514040 0042424 295 DATA 51405140514051405140 5
2424242424242 :REM*114 452434343434343434343 4343434
280 DATA 4242424242424242424 4 3434348404040 :REM*132
2424242424242424242 4242424 296 DATA 40404040404040404040 4
2424540404040 :REM*170 0404040404040404040 4047434
281 DATA 4042424242424242424 4 3434343434343 :REM*166
2424242424242424242 4242424 297 DATA 4343434343434343484040 4
2424242424242 :REM*135 0404040404040404040 4040404
282 DATA 424242424242424540404 4 0424242424242424242 4242424 298 DATA 47434343434343434343 4
2424242424242 :REM*235 343434343434343434840 4040404
283 DATA 4242424242424242424 4 0404040404040 :REM*105
24242424242460404242 4242424 299 DATA 4040404040404040404047 4
2424242424242 :REM*193 343434343434343434300 0000000
284 DATA 4242424242424242424 4 58E202020494E :REM*196
2424242424242424242 4242464 300 DATA 50555420594F55522049 4
0404040400042 :REM*36 E495449414C53205749 5448204
285 DATA 4242424242424242424 4 A4F5953544943 :REM*21
2424242424242424242 4242424 301 DATA 4B0000000000000000D0D 0
2424242424242 :REM*114 D0D0D0D0D0D0D0D0D0D 0D0D0D0
286 DATA 45404040404040404050 4 D0D0D0D0D02020 :REM*58
2424242424242424242 4242424 302 DATA 20202020594F55204841 5
2424242424242 :REM*69 645204D414445205448 4520544
287 DATA 4242424242424242424 4 F502054454E21 :REM*208
245404040404040404743 5042424 303 DATA 000D0D0D0D0D0D0D0D0D 0
2424242424242 :REM*236 D0D0D0D0D0D0D0D0D0D 0D20202
288 DATA 4242424242424242424 4 0202020202020 :REM*183
2424242424242424242 4246404 304 DATA 202020204E4F54204F4E 2
040404040474343 :REM*44 0544F502054454E0000 0000B07
289 DATA 4350424242424242424 4 BB07BB07B006D :REM*64
2424242424242424242 4242424 305 DATA 001D36373839203A3B3C 3
2424242424242 :REM*115 D00253334352400202622 2724002
290 DATA 464040404040404743434 4 1242324210021 :REM*174
343484040404040404040 4040404 306 DATA 22232425003222253334 3
0404040404040 :REM*110 52400B1FD91FBC80000 0000000
291 DATA 40404040404040404040 4 0000000001300 :REM*61
0404040404743434343 4343434 307 DATA 14003C990000018000000 0
8404040404040 :REM*34 00404601404040000404 0001010
292 DATA 40404040404040404040 4 2000013001400 :REM*151
0404040404040404040 4040404 308 DATA 3C9900000180000000004 0
0474343434343 :REM*60 46014040400004040001 0102FF0
293 DATA 43434343484040404040 4 0 :REM*95
040404040404040404040 4040404 309 DATA -1 :REM*167
0404040404040 :REM*67
    
```

**Listing 2. Hi-Score program.**

```

10 A$=CHR$(34):PRINT" {SHFT CLR} N THIS PROGRAM." :REM*82
{CTRL 9}{4 SPACES}HI-SCORE F 90 PRINT"THIS PROGRAM MUST BE R
OR RUBBER BANDIT BALL{5 SPAC UN AT LEAST ONCE" :REM*2
Es}" :REM*105 100 PRINT"BEFORE USING RUBBER B
20 PRINT"{CRSR DN}THIS PROGRAM ANDIT BALL." :REM*90
GENERATES THE HIGH SCORE" 110 FORX=6*4096TO6*4096+59
:REM*167 :REM*29
30 PRINT"FILE ONTO WHATEVER DIS 120 READA:C=C+1:IFC=6THEN C=0:R
K YOU USE WITH" :REM*117 ESTORE :REM*246
40 PRINT"THE GAME RUBBER BANDIT 130 POKEX,A:NEXT :REM*120
BALL." :REM*24 140 DATA 1,1,0,0,0 :REM*241
50 PRINT"{CRSR DN}USE THIS PROG 150 OPEN1,8,1,"0:TOPTEN.O"
RAM WHENEVER YOU WISH" :REM*21
:REM*253 160 POKE780,253 :REM*40
60 PRINT"TO CLEAR THE HI-SCORE 170 POKE253,0:POKE254,96:REM*74
FILE." :REM*13 180 POKE781,60:POKE782,96:REM*3
70 PRINT"BE SURE TO SCRATCH THE 190 SYS 65496:CLOSE1:END
FILE CALLED" :REM*168 :REM*190
80 PRINTA$"TOPTEN.O"A$" THEN RU
    
```

## AUTHORS WANTED!

*RUN* IS ALWAYS on the lookout for programs and articles that contain interesting and useful ideas. For the most part, those ideas come from you, our readers. We rely on you to keep our files well stocked with articles and programs from which to choose.

What kinds of articles do we need? We are looking for programs—of all kinds, shapes, sizes and colors. We need useful applications for the home, small business and school. We need utilities, programmers aids, creativity software and games.

We are sure many of you have developed unique programs that you use every day. You may not realize that a whole community of users is waiting to read about and share your creations.

If you are not a programmer, don't despair. We still need you. The introduction of new Commodore products—GEOS, the 1351 mouse, the 17xx series of RAM expanders and the 1581 drive—has opened up a vast area of topics for you to write about. What commercial software packages do you use that support these devices? What are their strengths and weaknesses? Users and potential users need to know.

These are just suggestions; we're sure you can think of more. Consider this an invitation to share your knowledge and computing experiences with tens of thousands of other Commodore users. And you will be rewarded for your efforts.

To help you submit those articles and programs for publication, we provide the *RUN* author's guidelines. These information sheets give you an idea of what kinds of material we are looking for and take you step by step through the process of preparing your articles for submission.

For a free copy, send a self-addressed, stamped, business-size envelope to:

Author Guidelines  
*RUN* Magazine  
80 Elm Street  
Peterborough, NH 03458

# RUN AMOK

We regret, and herewith correct, a + that should have been = and a printout of a listing that contained errors.

**Item:** In the answer to the first question of Commodore Clinic of June 1988 (p. 76), the plus sign in line 70 of the listing should be an equals sign.

**Item:** In the July 1988 issue, an error was made in printing out the listing for Travel Tally, by Kenny Lawson (p. 70). The complete listing follows:

## Listing 1. Travel Expense Diary program.

```

10 REM BUSINESS TRIP BY KENNY L AWSON :REM*210
20 FORX=1TO10:READA$:CN$(X)=A$:NEXT :REM*93
30 FORX=828TO935:READA$:POKEX,A:NEXT :REM*12
40 W1$="(CTRL 7){CTRL 9}{29 SPACEs)":W2$=W1$+"(CTRL 9){CTRL 1)":REM*106
50 W3$="(CTRL 1)+"RIGHT$(W1$,30):MM$="{3 SPACEs}"+CHR$(18)+CHR$(129)+MID$(W1$,3,18)+"(CTRL 0){3 SPACEs)":REM*165
60 W4$="(CTRL 5){CTRL 9}{21 SPACEs)":W5$=W4$+"(CTRL 9){CTRL 1)":DY=0:FI$="EXPENSE.SQ":REM*57
70 W6$=LEFT$(W3$,23):CH$="(CTRL 9){CRSR RT)CHOOSE(CRSR RT)AN(CRSR RT)OPTION":SV=0:DIMZ$(23):REM*179
80 FORX=1TO10:FORC=1TO16-LEN(CN$(X)):CN$(X)=CN$(X)+CHR$(32):NEXTC :REM*201
90 CN$(X)=CHR$(32)+CN$(X):NEXTX:DL$="{31 COMD @s)":REM*216
100 L1$="{2 COMD Ps}{CTRL 0}":L2$="{2 COMD Os}{CTRL 0}":L3$="{2 COMD Is}{CTRL 0}":L4$="{CTRL 9}{2 COMD Us}{CTRL 0}":L5$="{CTRL 9}{2 COMD Ys}{CTRL 0}":REM*235
110 BC$="(CTRL 9){2 SPACEs}{CTRL 0}{CRSR UP}{2 CRSR LFs)":TAS$="{21 SPACEs)":REM*90
120 TA(1)=9:FORX=2TO10:TA(X)=TA(X-1)+3:NEXT :REM*46
130 CO$(1)="{CTRL 3}":CO$(2)="{CTRL 5}":CO$(3)="{CTRL 6}":CO$(4)="{CTRL 7}":CO$(5)="{COMD 7}":REM*129
140 CO$(6)="{COMD 1}":CO$(7)="{COMD 2}":CO$(8)="{COMD 6}":CO$(9)="{COMD 3}":CO$(10)="{COMD 4}":REM*101
150 OPEN15,8,15:OPEN8,8,8,FI$+" ,S,R":INPUT#15,ER$:BB$="0":ED=0 :REM*12
160 IFVAL(ER$)<19THENCLOSE8:CLOSE15:GOTO190 :REM*179
170 PRINT#15,"UJ":FORX=1TO2000:NEXT:CLOSE15 :REM*113
180 CLOSE8:OPEN8,8,8,FI$+" ,S,W":FORX=1TO10:PRINT#8,BB$:NEXT :REM*83
190 PRINTCHR$(30)CHR$(147):POKE53280,15:POKE53281,15 :REM*252
200 PRINT"(HOME){COMD 1}{SHFT O}{COMD H}"TAB(37)"(COMD N){SHFT P)":REM*88
210 PRINT"(SHFT P){37 COMD Ys}{SHFT O)":REM*204
220 FORX=1TO20:PRINT"(COMD M)"TAB(38)"(COMD H)":NEXT :REM*33
230 PRINT"(SHFT @){37 COMD Ps}{SHFT L)":REM*245
240 PRINT"(SHFT L){COMD H}"TAB(37)"(COMD N){SHFT @}":REM*127
250 PRINTCHR$(19):PRINT:PRINT:PRINT"(COMD 1){4 CRSR RTs}{CTRL 9)BUSINESS DIARY AND EXPENSE CHART(2 CRSR DNs)":REM*129
260 PRINTTAB(8)MM$:PRINTTAB(8)"{3 SPACEs}{CTRL 9}{4 SPACEs}MAIN(2 SPACEs)MENU(4 SPACEs){CTRL 0}{3 SPACEs)":REM*18
270 FORX=1TO2:PRINTTAB(8)MM$:NEXT:PRINTTAB(8)"{3 SPACEs}{CTRL 9} 1. LOAD THE FILE {CTRL 0}{3 SPACEs)":REM*191
280 PRINTTAB(8)"{3 SPACEs}{CTRL 9} 2. SAVE THE FILE {CTRL 0}{3 SPACEs)":REM*238
290 PRINTTAB(8)"{3 SPACEs}{CTRL 9} 3. ENTER AMOUNTS {CTRL 0}{3 SPACEs)":REM*33
300 PRINTTAB(8)"{3 SPACEs}{CTRL 9} 4. SEE BAR CHART {CTRL 0}{3 SPACEs)":REM*201
310 PRINTTAB(8)"{3 SPACEs}{CTRL 9} 5. CHECK TOTALS(2 SPACEs){CTRL 0}{3 SPACEs)":REM*35
320 PRINTTAB(8)"{3 SPACEs}{CTRL 9} 6. EXIT PROGRAM(2 SPACEs){CTRL 0}{3 SPACEs)":REM*122
330 FORX=1TO4:PRINTTAB(8)MM$:NEXT:PRINT"(3 CRSR UPs)":REM*201
340 PRINTTAB(11)CH$:GETA$:REM*198
350 IFAS<>""THEN370 :REM*29
360 FORX=1TO300:NEXT:PRINT"{2 CRSR UPs}":PRINTTAB(8)MM$"{CRSR UP}":FORX=1TO300:NEXT:GOTO340 :REM*160
370 A=VAL(A$):IFA<10RA>6THEN360 :REM*101
380 ONAGOTO690,790,400,1100,1560,1670 :REM*89
390 REM GET CATEGORY INPUTS :REM*131
400 POKE53280,14:POKE53281,14:PRINTCHR$(159)CHR$(147)CHR$(17) :REM*27
410 A$=CHR$(18)+CHR$(32):PRINTTAB(11)::FORX=1TO19:PRINTAS :NEXT:PRINT :REM*218
420 FORX=1TO21:PRINTTAB(11)AS$PC(17)A$:NEXT :REM*5
430 PRINTTAB(11)::FORX=1TO19:PRINTAS :NEXT:PRINTCHR$(19):FORX=1TO3:PRINT:NEXT:REM*184
440 FORX=1TO10:PRINTTAB(12)CN$(X)CHR$(17):NEXT :REM*252
450 PRINT"(HOME){3 CRSR DNs}":PRINTTAB(12)CHR$(18)CN$(1) :REM*61
460 PRINT"(HOME){3 CRSR DNs}"TAB(32)"USE THE{CRSR DN}":REM*251
470 PRINT" BUSINESS"TAB(32)"CURSOR{CRSR DN}":PRINT"{2 SPACEs)DIARY"TAB(32)"KEYS TO{CRSR DN}":REM*79
480 PRINT"{3 SPACEs)AND"TAB(32)"MOVE{CRSR DN}":PRINT" EXPENSE":PRINTTAB(32)"RETURN" :REM*118
490 PRINT"{2 SPACEs)CHART":PRINTTAB(34)"TO{CRSR DN}":PRINTTAB(32)"SELECT(2 CRSR DNs)":REM*43
500 PRINTTAB(32)"<M> FOR{CRSR DN}":PRINTTAB(33)"MENU":POKE214,3:PRINT :REM*131
510 GETA$:IFAS=""THEN510 :REM*170
520 IFAS="M"THEN190 :REM*254
530 IFAS<>CHR$(17)THEN590

```

```

:REM*238 820 GOSUB1410:OPEN15,8,15,"R0:B :REM*152
540 GOSUB870:IFCN=10THEN570 US.SEQ.DEL="+FI$ :REM*78 1140 POKE53280,0:POKE53281,0:PR
:REM*157 830 GOSUB1410:OPEN15,8,15,"S0:" INTCHR$(30)CHR$(147); :REM*145
550 PRINT:PRINTCHR$(145)TAB(12) +FI$ :REM*209
560 PRINTTAB(12)CHR$(18)CN$(CN+ 840 GOSUB1410:CLOSE8:OPEN8,8,8, 1150 HI=0:FORX=1TO10:IFCN(X)>HI
1);:GOTO510 :REM*58 850 FORX=1TO10:CS$(X)=STR$(CN(X) 1160 NEXT :REM*15
570 PRINT:PRINTCHR$(145)TAB(12) ):PRINT#8,CS$(X):NEXT :REM*55
CN$(CN):POKE214,3:PRINT:PRI 860 GOSUB1410:SV=1:GOTO250 1180 IN=INT(HI/20):SA=HI-IN
NTTAB(12)"(CTRL 9)"CN$(1); :REM*219 :REM*100 :REM*51
580 GOTO510 :REM*142 870 REM CHECK PEEK :REM*56 1190 FORX=SATO0STEP-IN:PRINT"$
590 IFA$<>CHR$(145)THEN650 880 SN=PEEK(214):IFSN=4THENCN=1 :REM*214
:REM*100 :RETURN :REM*116 1200 PRINTTAB(9)"D(2 SPACES)E(2
600 GOSUB870:IFCN=1THEN630 890 IFSN=6THENCN=2:RETURN :REM*212 SPACES)H(2 SPACES)M(2 SPA
:REM*95 :REM*55 :REM*251
610 PRINT:PRINTCHR$(145)TAB(12) 900 IFSN=8THENCN=3:RETURN :REM*44 1210 PRINT"CATEGORY I(2 SPACES)
CN$(CN):POKE214,SN-3:PRINT :REM*50 :REM*44 N(2 SPACES)T(2 SPACES)S(2
:REM*50 910 IFSN=10THENCN=4:RETURN :REM*11 1220 PRINTTAB(9)"N(2 SPACES)T(2
620 PRINTTAB(12)CHR$(18)CN$(CN- 920 IFSN=12THENCN=5:RETURN :REM*106 1230 PRINT"{CTRL 9}{9 SPACES)WO
1);:GOTO510 :REM*233 930 IFSN=14THENCN=6:RETURN :REM*168 :REM*33
630 PRINT:PRINTCHR$(145)TAB(12) 940 IFSN=16THENCN=7:RETURN :REM*94 1240 PN=IN/6:FORX=1TO10:CH(X)=I
CN$(1):POKE214,21:PRINT :REM*110 :REM*73 1250 IFCL(X)=0THENPB$(X)="" :GOT
:REM*110 :REM*168 :REM*224 O1320 :REM*35
640 PRINTTAB(12)CHR$(18)CN$(10) 950 IFSN=18THENCN=8:RETURN :REM*144 1260 IFCL(X)=<PNTHENPB$(X)=L1$:
:GOTO510 :REM*203 :REM*144 :REM*136 GOTO1320 :REM*48
650 IFA$<>CHR$(13)THEN510 960 IFSN=20THENCN=9:RETURN :REM*156 1270 IFCL(X)=<PN*2THENPB$(X)=L2
:REM*154 :REM*168 :REM*188 $:GOTO1320 :REM*101
660 GOSUB870:RO=PEEK(214):SYS82 970 CN=10:RETURN :REM*184 1280 IFCL(X)=<PN*3THENPB$(X)=L3
8:REM SAVE SCREEN :REM*97 :REM*188 :REM*136 $:GOTO1320 :REM*188
670 GOSUB980:REM INPUT ROUTINE 980 REM INPUT ROUTINE :REM*39 1290 IFCL(X)=<PN*4THENPB$(X)=L4
:REM*132 :REM*39 :REM*188 $:GOTO1320 :REM*188
680 GOTO510 :REM*234 990 GOSUB1470:TP$="" :PRINTCHR$( 1300 IFCL(X)=<PN*5THENPB$(X)=L5
690 REM LOAD FILE :REM*129 1000 POKE204,0:GETD$:IFD$="" :THE :GOTO1320 :REM*224
700 GOSUB770:REM DRAW WINDOW 1010 IFD$="" :THEN1050 :REM*83 1310 CH(X)=CH(X)+1 :REM*198
:REM*183 :REM*37 1320 NEXT :REM*175
710 PRINTTAB(9)"(CTRL 5){CTRL 9 1020 IFD$=CHR$(13)THEN1050 :REM*137 1330 FORX=1TO10:LT=0:POKE214,18
){CRSR UP){CRSR RT}LOADING{ :REM*144 :REM*104 :REM*55 :PRINT:PRINTTAB(TA(X));
2 CRSR RTs}"FI$:GOSUB1410:R :REM*144 :REM*198 :REM*220
EM READ DISK STATUS:REM*133 1030 IFD$>"/"ANDD$<": :THEN1050 :REM*124 1350 FORCT=1TOCH(X):PRINTCOS(X)
720 CLOSE8:OPEN8,8,8,"EXPENSE.S :REM*144 :REM*124 :REM*248 :REM*240
Q,S,R" :REM*169 1040 WAIT207,1:POKE204,1:GOSUB1 1100 RETURN :REM*212 1360 PRINTCOS(X)PB$(X):NEXT
730 FORX=1TO10:INPUT#8,CS$(X):C 790 GOSUB1510:GOTO990 :REM*156 1110 IFDYTHEN1140 :REM*25 :REM*240
N(X)=VAL(CS$(X)):NEXT:CLOSE 1050 IFD$<>CHR$(13)THENTP$=TP$+ 1120 GOSUB1790:GOSUB770:PRINTTA
8 :REM*111 D$:PRINTD$;:GOTO1000 :REM*104 1130 FORX=1TO2000:NEXT:GOTO250
740 FORX=1TO10:IFCN(X)<>0THENDY 1060 WAIT207,1:POKE204,1:REM*88 :REM*104 :REM*91
=1 :REM*64 1070 CN(CN)=CN(CN)+VAL(TP$):PRI :REM*104 :REM*198
750 NEXT :REM*115 1080 SYS882:POKE214,RO-1:PRINT: :REM*104 :REM*175
760 GOSUB1410:GOTO250 :REM*143 1090 IFTP$<>""THENED=1 :REM*124 :REM*104 :REM*198
770 PRINT"(HOME){10 CRSR DN$}" :REM*143 :REM*124 :REM*212 :REM*198
PRINTTAB(9)W4$:FORX=1TO3:PR 1100 REM DRAW BAR CHART :REM*26 :REM*104 :REM*175
INTTAB(9)W5$:NEXT :REM*24 1110 REM DRAW BAR CHART :REM*26 :REM*104 :REM*198
780 PRINTTAB(10)W6$"{4 CRSR UPs 1110 IFDYTHEN1140 :REM*25 :REM*104 :REM*198
)":RETURN :REM*36 1120 GOSUB1790:GOSUB770:PRINTTA :REM*26 :REM*104 :REM*198
790 REM SAVE FILE :REM*63 1120 GOSUB1790:GOSUB770:PRINTTA :REM*26 :REM*104 :REM*198
800 OPEN15,8,15,"S0:BUS.SEQ.DEL 1110 IFDYTHEN1140 :REM*25 :REM*104 :REM*198
" :REM*193 1120 GOSUB1790:GOSUB770:PRINTTA :REM*26 :REM*104 :REM*198
810 GOSUB770:PRINTTAB(10)"(CTRL 9){CTRL 5){CRSR UP}SAVING{ 1120 GOSUB1790:GOSUB770:PRINTTA :REM*26 :REM*104 :REM*198
2 CRSR RTs}"FI$ :REM*76 1130 FORX=1TO2000:NEXT:GOTO250 :REM*97 :REM*104 :REM*198

```

# R U N A M O K

```

1380 GETAS:IFAS="Y"THEN1850      LES=LES+"0":LE=LE+1      1950 IFC=100THENC=164      :REM*17
      :REM*110      :REM*107      1960 IFC=111THENC=175      :REM*125
1390 IFAS<>"N"THEN1380      :REM*16      1650 IFVAL(LE$)=INT(VAL(LE$))TH      :REM*87
1400 GOTO190      :REM*201      ENLE$=LE$+".00":LE=LE+3      1970 IFC=98THENC=162      :REM*55
1410 REM CHECK DISK STATUS      :REM*137      1980 IFC=247THENZ$(Z)=Z$(Z)+CHR      :REM*17
      :REM*13      1660 RETURN      :REM*13      $(18)+CHRS(183)+CHRS(146):      :REM*251
1420 CLOSE15:OPEN15,8,15:INPUT#      1670 REM EXIT PROGRAM      :REM*1      NEXT      :REM*251
      15,VS,W$,X$,Y$      :REM*249      1680 GOSUB1790:GOSUB770:PRINTTA      2000 IFC=248THENZ$(Z)=Z$(Z)+CHR      :REM*17
      :REM*249      B(10){CTRL 9}{CTRL 5}QUIT      $(18)+CHRS(184)+CHRS(146):      :REM*4
1430 IFVAL(V$)<19THENCLOSE15:RE      :REM*22      ? ARE YOU SURE?"      :REM*22      NEXT      :REM*4
      TURN      :REM*69      1690 PRINTTAB(17){CTRL 9}(Y/N)      2010 IFC<26THENC=C+64      :REM*207
1440 GOSUB1790      :REM*1      "":POKE198,0      :REM*63      2020 Z$(Z)=Z$(Z)+CHR$(C):NEXTX      :REM*25
1450 PRINTTAB(10){CTRL 5}{CTRL      1700 GETAS:IFAS="N"THEN250      :REM*133      SA=SA+40:NEXTZ      :REM*25
      9}{CRSR DN}DISK{CRSR RT)E      :REM*133      1710 IFAS<>"Y"THEN1700      :REM*168      2030 CLOSE4:OPEN4,4:FORX=1TO10:      :REM*171
      RROR{CRSR RT}":PRINTTAB(1      1720 IFSV=1ORED=0THEN1770      :REM*44      PRINT#4:NEXT      :REM*171
      0){CTRL 9}"W$:FORX=1TO2000      :REM*155      2040 PRINT#4,SPC(18)CHR$(14)"BU      :REM*255
      0:NEXT      :REM*155      SINESS TRIP EXPENSES"CHR$(      :REM*255
1460 PRINT#15,"UJ":FORX=1TO1000      1730 GOSUB1790:GOSUB770:PRINTTA      2050 FORX=1TO6:PRINT#4:NEXT:FOR      :REM*171
      :NEXT:CLOSE15:GOTO250      B(11){CTRL 5}{CTRL 9}CHAN      X=1TO20:PRINT#4,CHR$(15)SP      :REM*171
      :REM*199      GES NOT SAVED":POKE198,0      C(20)Z$(X)CHR$(8):NEXT      :REM*171
1470 REM DRAW WINDOW 1      :REM*98      1740 PRINTTAB(11){CTRL 9}STILL      :REM*171
1480 PRINT{HOME}{9 CRSR DNs}":      QUIT? (Y/N)"      :REM*162      2060 PRINT#4:PRINT#4,CHR$(15):F      :REM*171
      PRINTTAB(5)W1$:FORX=1TO6:P      :REM*244      ORX=21TO23:PRINT#4,SPC(20)      :REM*171
      RINTTAB(5)W2$:NEXT:REM*235      1750 GETAS:IFAS="N"THEN250      :REM*247      Z$(X):NEXT      :REM*62
1490 PRINTTAB(6)W3$"{7 CRSR UPs      :REM*247      2070 FORGG=1TO5:PRINT#4:NEXT:FO      :REM*171
      ){CTRL 7}":PRINTTAB(6){CT      :REM*214      RX=1TO10:WWS(X)=CSS(X)      :REM*127
      RL 9)ENTER{CRSR RT)TODAY'S      1760 POKE53280,14:POKE53281,6:P      :REM*127
      {CRSR RT)TOTAL{CRSR RT)AMO      OKE646,14:PRINTCHR$(147)      :REM*168
      UNT{CRSR DN}"      :REM*104      2080 LE$=WWS(X):LE=LEN(WWS(X)):      :REM*168
      :REM*139      1780 POKE198,2:POKE631,32:POKE6      GOSUB1640:WWS(X)=LE$      :REM*168
1500 PRINTTAB(6){CTRL 9}FOR"CN      32,20:END      :REM*155      2090 PRINT#4,TASCN$(X)SPC(24-LE      :REM*168
      $(CN):PRINTCHR$(17)TAB(8)"      1790 REM WARNING NOISE      :REM*26      N(CN$(X))"SPC(10-LEN(WW      :REM*224
      {CTRL 9}$ {CRSR RT){CTRL 2}      1800 VV=54272:POKEVV+23,0:POKEV      $(X))WWS(X)      :REM*224
      "":RETURN      :REM*133      V+24,15      :REM*104      NEXT:PRINT#4:GT=0:FORX=1TO      :REM*222
1510 REM DRAW WINDOW 2      :REM*174      1810 POKEVV+6,0:POKEVV+5,12:POK      :REM*222
1520 PRINT{HOME}{10 CRSR DNs}"      EVV+1,90      :REM*52      2110 PRINT#4:PRINT#4      :REM*93
      :PRINTTAB(9)W4$:FORX=1TO3:      1820 POKEVV+3,180:FORBB=1TO5:PO      :REM*93
      PRINTTAB(9)W5$:NEXT:REM*37      KEVV+4,0      :REM*235      2120 LE$=STR$(GT):LE=LEN(LE$):G      :REM*238
1530 PRINTTAB(10)W6$"{5 CRSR UP      1830 POKEVV+4,65:FORCC=1TO230:N      :REM*174      OSUB1640      :REM*238
      s){CTRL 5}":PRINTTAB(10){      EXT:NEXT      :REM*174      2130 PRINT#4,TA$" TOTAL EXPENSE      :REM*23
      CTRL 9}USE{CRSR RT)ONLY{CR      1840 POKEVV+4,0:POKEVV+24,0:RET      :REM*84      S ="SPC(7)"$"SPC(10-LEN(LE      :REM*23
      SR RT)NUMBERS{CRSR RT)OR"      URN      :REM*84      $))LE$      :REM*23
      :REM*72      1850 REM(6 SPACES)HARDCOPY DUMP      :REM*44      2140 PRINT#4:CLOSE4:GOTO190      :REM*10
1540 PRINTTAB(11){CTRL 9}DECIM      1860 CLOSE15:OPEN15,4,15:CLOSE1      :REM*152
      AL{CRSR RT}POINT{CRSR RT}(      5:IFST=0THEN1890      :REM*152      2150 DATA DINING COSTS,ENTERTAI      :REM*240
      .){CRSR DN}"      1870 POKE214,23:PRINT:PRINT"(CT      :REM*22
      :REM*87      RL 9){4 SPACES}TURN ON PRI      :REM*240
1550 PRINTTAB(10){CTRL 9)RE-EN      1880 WAIT198,1:POKE198,0:GOTO18      :REM*73
      TER{CRSR RT)THE{CRSR RT)AM      60      :REM*111      2170 DATA 162,0,189,0,4,157,0,1      :REM*220
      OUNT":FORX=1TO2500:NEXT:RE      1890 POKE214,23:PRINT:PRINT"(CT      :REM*117      92,189,0,5,157,0,193,189,0      :REM*17
      TURN      :REM*22      RL 9)POSITION PAPER TO TOP      :REM*17
      :REM*22      OF FORM & HIT KEY";      :REM*17
1560 REM DISPLAY TOTALS:REM*115      :REM*17
1570 POKE53281,5:POKE53280,5:PO      1900 WAIT198,1:POKE198,0:FORX=1      :REM*143
      KE646,13:PRINTCHR$(147):GT      TO10:CSS(X)=STR$(CN(X)):NE      :REM*117
      =0      :REM*168      XT      :REM*117
1580 FORX=1TO10:PRINTTAB(5)CN$(      1910 POKE214,23:PRINT:PRINT"(CT      :REM*194
      X)TAB(25)"$";:GOSUB1630:GT      RL 9){6 SPACES}WORKING .      :REM*163
      =GT+CN(X)      :REM*100      . PLEASE WAIT(8 SPACES)(H      :REM*148
      :REM*100      OME)"      :REM*148
1590 PRINTSPC(9-LE)LE$:PRINT:NE      1920 SA=1024:FORZ=1TO23:REM*163      2210 DATA 189,0,195,157,0,7,189      :REM*191
      XT      :REM*177      1930 FORX=0TO39:C=PEEK(SA+X)      :REM*191
      :REM*177      :REM*143      ,157,0,217      :REM*191
1600 PRINT"{2 CRSR DNs}TOTAL EX      1940 IFC=160THENZ$(Z)=Z$(Z)+CHR      :REM*220
      PENSES=$";:LE$=STR$(GT):L      $(18)+CHRS(32)+CHRS(146):N      :REM*191
      E=LEN(LE$):GOSUB1640      EXT      :REM*233      ,205,96      :REM*144
      :REM*210
1610 PRINTLE$TAB(26){CTRL 9}PR      :REM*233
      ESS ANY KEY{CTRL 0}";:POKE      :REM*233
      198,0      :REM*197
1620 WAIT198,1:POKE198,0:GOTO19      :REM*197
      0      :REM*91
1630 LE$=STR$(CN(X)):LE=LEN(LE$      :REM*197
      )      :REM*209
1640 IFMIDS(LE$,LE-1,1)="."THEN      :REM*209

```

# MAGIC

From p. 12.

```
:PRINT#4,SPC(K)B$(I):NEXT:CLOSE4
:REM*249
130 END :REM*3
—JOHN E. MILLER, HAVERHILL, OH
```

## \$4CE HI-TECH LOOK ON A LO-TECH BUDGET

If you've priced monitor and printer stands recently, you know they're outrageously expensive. So do what I did—make your own! Buy a grid chair or two (they're about \$5 each) at your local department store and shorten the legs with a hacksaw to a height of four or five inches, so a computer and peripherals will fit under the seat. Place the four rubber feet from the feet of the chair onto the legs of the chair. Saw off the back of the chair, but leave the armrests on to hold the monitor or printer in place.

—BEAU BEAUHARNOIS, PLATTSBURG, NY

## \$4CF THE DELETER

If you need to delete blocks of lines from a C-64 Basic program, append The Deleter to it to do the job for you.

In the lines beginning at 63000 in the listing below, FL is the first line number of the block you want to delete, and LL is the last line. As you can see, FL and LL have the value of 10 and 40, respectively, which are the first four lines in the listing. As a demonstration, if you run this program as listed, it will delete those lines. When you're ready to run The Deleter, enter RUN 63000 to delete lines.

(Note: If you don't have a program-append utility, you can just list this program to the screen and load in the program you want to append. Then position the cursor over each line of The Deleter from lines 63000 through 63060, and press return. You'll find The Deleter appended to the end of your program.)

```
0 REM THE DELETER - ROLF MILLER :REM*56
10 REM :REM*153
20 REM :REM*163
30 REM :REM*173
40 REM :REM*183
63000 REM ENTER 'RUN 63000' TO DELETE LINE
S :REM*78
63010 FL=10:GOTO 63040:REM MAKE FL = THE F
IRST LINE TO DELETE :REM*123
63020 LL=40: REM MAKE LL = THE LAST LINE T
O DELETE :REM*99
63030 FL=PEEK(820)+PEEK(821)*256:IF FL>LL
THEN END :REM*225
63040 PRINTCHR$(147):POKE 646,PEEK(53281):
POKE 198,3:FORX=0 TO 2:POKE 631+X,1
3 :REM*157
63050 PRINTFL:NEXT:FL=FL+1:H%=FL/256:L%=FL
-H%*256 :REM*60
63060 POKE 820,L%:POKE 821,H%:PRINT"(COMD
7)RUN 63020"CHR$(19):END :REM*229
```

—ROLF MILLER, VENTURA, CA

## \$4D0 BYTE CALCULATOR

Programmers who work with bit values to form bytes, such as when editing sprites, usually use a calculator to figure bit combinations. Byte Calculator performs the calculations for you. When the program asks you which bits are on, enter

the bit numbers in any order. It will then display the bits you input followed by the value of the byte created by that set of bits.

```
0 REM BYTE CALCULATOR - SISTER ANNE STREML
AU :REM*234
10 INPUT"WHICH BITS ARE ON";BO$ :REM*74
20 BY=0:FORX=1 TO LEN(BO$) :REM*150
30 AS=ASC(MID$(BO$,X,1)) :REM*209
40 IF AS<48 OR AS>55 THEN PRINT"INVALID BI
T #, TRY AGAIN":GOTO 10 :REM*91
50 EX=VAL(MID$(BO$,X,1)) :REM*50
60 BY=BY+2{UP ARROW}EX :REM*164
70 NEXT :REM*200
79 PRINT"BITS INPUT =";BO$ :REM*167
80 PRINT"VALUE OF BYTE =";BY :REM*195
90 GOTO10 :REM*212
```

—SISTER ANNE STREMLAU, MAUSTON, WI

## \$4D1 BRIGHTER BORDERS 64

Enhance your screen border display with Brighter Borders, an interrupt-driven program that uses the raster register to give the border a rainbow of colors. Unlike programs of similar design, running a Basic program will not affect these bars of color, making Brighter Borders easy to incorporate into your own programs.

Use POKE 867,251 to scroll the bars downward, and POKE 840,33 to transfer the bars to the inner screen.

```
0 REM BRIGHT BORDERS - JEFF A. MARTIN :REM*42
10 FORI= 828 TO 953:READA:POKEI,A:B=B+A:NE
XT :REM*220
20 IFB<>13466THENPRINT"ERROR IN DATA":END
:REM*144
30 SYS874 :REM*163
40 DATA 173,25,208,141,25,208,166,250,189,
154,3,141,32,208,198,250,202 :REM*237
50 DATA 165,251,24,125,154,3,141,18,208,19
8,250,224,0,240,6,104,168,104 :REM*24
60 DATA 170,104,64,230,252,32,145,3,108,15
2,3,173,20,3,141,152,3,173,21 :REM*230
70 DATA 3,141,153,3,120,169,60,141,20,3,16
9,3,141,21,3,88,169,127,141 :REM*2
80 DATA 13,220,169,1,141,26,208,133,251,16
9,27,141,17,208,169,31,133 :REM*213
90 DATA 250,96,49,234,26,13,10,5,250,3,234
,14,218,6,202,4,186,9,170,2 :REM*195
100 DATA 154,8,138,10,122,7,106,1,90,15,74
,12,58,11,42,0 :REM*138
```

—JEFF A. MARTIN, ROSEVILLE, CA ■

*Magic is a forum for RUN 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. A payment of \$50 and a Magic Contributor T-shirt are awarded for the Trick of the Month. For a copy of RUN's Magic Trick Writer's Guide, send your request with a self-addressed, stamped, business-size envelope.*

# MEGA-MAGIC

*Introduce yourself to the power and speed  
of the C-64 Kernal.*

## KRACKING THE KERNAL

Many beginning programmers assume the C-64 Kernal is filled with 6502 subroutines that are as mysterious as hieroglyphics and used exclusively by machine language programmers. While this may be true to some extent, anyone can use Kernal routines to access the power and speed of the built-in ML routines without having to learn machine language.

The Kernal Plot routine lets you position the cursor anywhere on the screen without using a lot of cursor commands. The three routines below show how to use the Plot routine in conjunction with the Kernal's line-clearing, line-insertion and screen-scrolling routines.

Program 1 utilizes both the Kernal Plot routine and the Kernal routine that clears a screen line. This is useful for programs that need to clear only a portion of the video screen. It also clears the screen from the bottom up. To clear the screen from the top down, change line 30 to X=0:Y=0, then reverse the logic in line 60. If you want to use just the Plot routine at 65520 (\$FFF0), set X=row (0-24) and Y=column (0-39), then place line 100 as a subroutine in your own program.

Program 2 shows how to achieve rapid screen scrolling from Basic by using the Kernal routine at 59626 (\$E8EA). This program prints a line of text at the bottom of the screen, then scrolls it to the top.

Finally, program 3 scrolls text down the video screen. The Kernal routine at 59749 (\$E965) is a subroutine the Kernal uses to insert a blank line on the screen. You can see this by listing a program, going to a line with fewer than 40 characters, then adding text until the 40-column boundary is crossed. Notice the extra blank line that appears.

Program 3 is called with the invisible cursor positioned at the top of the screen, just above the printed text. When the Insert routine is called, the computer automatically moves everything on the screen down as it adds a blank line.

The Kernal is for everyone who wants to squeeze every ounce of power from his C-64 without having to re-invent the wheel. Grab a memory map and explore the Kernal for yourself. Who knows what little ML gems you'll find for your Basic programs!

—JOHN RYAN, BILOXI, MS

### Listing 1. Kernal Plot and Clear Screen routine.

```
5 REM PROGRAM #1 :REM*7 40 POKE198,0:WAIT 198,1 :REM*163
10 REM KERNAL PLOT AND CLEAR ROUTINE :REM*117 50 GOSUB 100:SYS 59903:REM CLEAR LINE :REM*246
15 PRINT CHR$(147);"PRESS SPACE BAR" :REM*81 60 X=X-1:IF X<0 THEN X=24:GOTO15 :REM*170
20 FOR A=1 TO 176:PRINT"DEMO ";:NEXT :REM*103 70 GOTO 40 :REM*198
30 X=24:Y=0 :REM*218 90 REM - KERNAL PLOT ROUTINE :REM*47
100 POKE 781,X:POKE 782,Y:POKE 783,0:SYS 6 :REM*239
5520:RETURN
```

### Listing 2. Kernal demo for scrolling up.

```
5 REM KERNAL PROG #2 :REM*12 50 POKE198,0:WAIT 198,1 :REM*213
10 REM KERNAL SCROLL DEMO :REM*29 60 SYS 59626 :REM*0
20 PRINT CHR$(147) :REM*226 70 J=J+1:IF J<>24 THEN 50 :REM*201
30 J=0:X=24:Y=0:PRINT "PRESS SPACE BAR" :REM*156 80 GOTO 20 :REM*204
35 GOSUB 100:PRINT"THIS IS DEMO OF SCROLLI :REM*239
NG UP THE SCREEN"CHR$(19) :REM*196
```

### Listing 3. Insert routine for scrolling down.

```
5 REM KERNAL PROG #3 :REM*57 N" :REM*50
10 REM USING INSERT ROUTINE TO SCROLL 40 POKE198,0:WAIT 198,1 :REM*163
20 PRINTCHR$(147) :REM*226 60 PRINT"(HOME)";:SYS 59749 :REM*117
30 X=0 :REM*104 70 X=X+1:IF X<>24 THEN 40 :REM*80
35 PRINT"PRESS THE SPACE BAR TO SCROLL DOW 80 GOTO 20 :REM*204
```

RUN it right: C-64

## RUN'S CHECKSUM

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 a SYS number that deactivates and reactivates the Checksum. Always disable *RUN*'s Checksum before attempting to run another program. Note: You can abbreviate Basic keywords; spaces affect the checksum only when within quotes; and the order of characters affects the checksum.

With this new version, when you press return after typing in a program line, a one-, two-, or three-digit number from 0 to 255 appears in the home position. If this number matches the checksum value in the program listing, the line is correct. If the number that appears *doesn't* match the checksum value, 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 until all the lines have been correctly typed. Then deactivate *RUN*'s Checksum, using the SYS number. Save the finished program.

All the graphics and control characters in the listings in *RUN* have been translated into understandable key combinations. They are the instructions you see inside the curly braces. For example, {SHIFT L} means you hold down the shift key while you press the L key. You do *not* type in the curly braces. What appears on the screen will look quite different from what is designated inside the braces. Here are some more examples:

- {22 SPACES}—press the space bar 22 times
- {SHIFT CLR}—hold down the shift key and press the clr-home key
- {2 CRSR DNs}—press the cursor-down key twice
- {CTRL 1}—hold down the control key and press the 1 key
- {COMD T}—hold down the Commodore logo key and press the T key
- {FUNCT 1}—press the F1 key
- {5 LB.s}—press the British pound key (*not* #) five times **Ⓜ**

**Listing 1. *RUN*'s Checksum program. This program is available on *RUN*'s BBS for users to download.**

```

10 REM RUN'S CHECKSUM 64/128 - BOB KODADEK
20 MO=128:SA=3328:IF PEEK(40960)THEN MO=64:SA=49152
30 FOR I=0TO169:READB:CK=CK+B:POKE SA+I,B:NEXT
40 IFCK<>20651 THENPRINT"DATA ERROR!":END
50 POKESA+110,240:POKESA+111,38:POKESA+140,234
60 PRINTCHR$(147)STR$(MO)" RUN CHECKSUM":PRINT
70 PRINT"TO TOGGLE ON OR OFF, SYS"SA:IF MO=128 THEN 100
80 POKESA+13,124:POKESA+15,165:POKESA+25,124:POKESA+26,165
90 POKESA+39,20:POKESA+41,21:POKESA+123,205:POKESA+124,189
100 POKESA+4,INT(SA/256):SYS SA:NEW
110 DATA 120,162,24,160,13,173,4,3,201,24,208,4,162,13,160,67,142,4,3,140
120 DATA 5,3,88,96,32,13,67,152,72,169,0,141,0,255,133,176,133,180,166,22
130 DATA 164,23,134,167,132,168,170,189,0,2,240,58,201,48,144,7,201,58,176
140 DATA 3,232,208,240,189,0,2,240,42,201,32,208,4,164,180,240,31,201,34
150 DATA 208,6,165,180,73,1,133,180,230,176,164,176,165,167,24,125,0,2,133
160 DATA 167,165,168,105,0,133,168,136,208,239,232,208,209,169,42,32,210
170 DATA 255,165,167,69,168,170,169,0,32,50,142,169,32,32,210,255,32,210
180 DATA 255,169,13,32,210,255,104,168,96,104,170,24,32,240,255,104,168
190 DATA 96,56,32,240,255,138,72,152,72,24,162,0,160,0,32,240,255,169
200 DATA 42,208,190
    
```

## BIG BLUE READER 128/64 COMMODORE <=> IBM PC File Transfer Utility

**Big Blue Reader 128/64** is ideal for those who use IBM PC compatible MS-DOS computers at work and have the Commodore 128 or 64 at home.

**Big Blue Reader 128/64** is not an IBM PC emulator, but rather it is a quick and easy to use file transfer program designed to transfer word processing, text and ASCII files between two entirely different disk formats; Commodore and IBM MS-DOS. *Both C128 and C64 applications are on the same disk and requires either the 1571 and/or 1581 disk drive.* (Transfer 160K-360K 5.25 inch & 720K 3.5 inch MS-DOS disk files.)

**Big Blue Reader 128** supports: C128 CP/M files, 17xx RAM exp, 40 and 80 column modes.

**Big Blue Reader 64 Version 2** is 1571 and 1581 compatible and is available separately for only \$29.95!

### BIG BLUE READER 128/64 only \$44.95

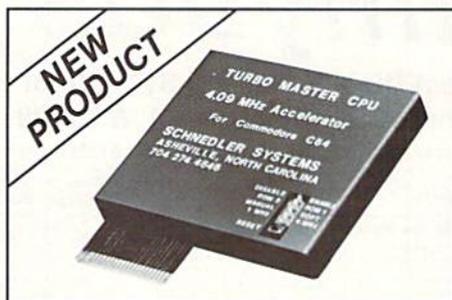
Order by check, money order, or C.O.D.  
No credit card orders please. Foreign orders add \$4  
BBR 128/64 available to current BBR users for \$18 plus your original disk.  
Free shipping and handling CALL or WRITE for more information.



To order Call or Write:  
**SOGWAP Software**

115 Belmont Rd  
Decatur, IN 46733  
Ph (219) 724-3900

## COMPLETE SPEED-UP SOLUTION FOR YOUR C64!



### TURBO MASTER CPU™ 4.09 MHz Accelerator Cartridge for C64

- Four times faster processing speed combined with five times faster disk Load and Save.
- Easy-to-use cartridge simply plugs in.
- Software actually *runs* four times as fast. Basic, wordprocessor scrolling, other productivity, assemblers, graphics, GEOS, etc. Compatible with most software.
- On-board 65C02 microprocessor, 64K RAM, 32K EPROM.
- Introductory price only \$179 including shipping in USA. Visa and Mastercard accepted.

**SCHNEDLER SYSTEMS**  
25 Eastwood Road, Dept. R9, P.O. Box 5964  
Asheville, NC 28813  
Information/Telephone Orders (704) 274-4646

Dealer inquiries invited.

# Label Maker™

Includes  
500  
Labels

by  
KEYSTONE SOFTWARE

**NEW !!** PRINT LABELS FROM  
YOUR COMMODORE 64

**Label Maker™** - A program designed specifically for making labels. No need to get out the ruler - Label Maker does it all for you with pre-designed layouts for: Standard - Envelopes - Audio Cassette - File Folder - Floppy Disk & 5 more and YES we also sell the labels. Includes a "what-you-see-is-what-you-get" screen display, edit, "freeze" areas, set a printing increment counter, and print as many copies as you need.

Plus a built-in **Database Merge Utility** gives you complete control with files from your database or word processor.

**EASILY MERGE DATA FROM:**

- Consultant
- Data Manager 2
- Data Manager 128
- Easy Script
- Fleet Filter
- Fleet System
- Paperclip
- Superbase
- & Others

**ONLY \$29.95**  
(include \$4 shipping and handling)

**Cheatsheet Products, Inc.** (412) 781-1551  
P.O. Box 111368 Dept R, Pgh. PA 15238 (800) 334-2896

Circle 225 on Reader Service card.



GET MORE  
PLEASURE  
FROM THE  
BIBLE WITH  
**LANDMARK**

## The Computer Reference Bible

Here's what LANDMARK will enable you to do:

- ✓ **SEARCH THROUGH THE BIBLE**—Find Phrases, words or sentences.
- ✓ **DEVELOP TOPICAL FILES**—Copy from The Bible text and search results then add your own comments and notes.
- ✓ **COMPILE YOUR PERSONAL BIBLE**—Outline texts in color. Add Notes and comments. Create your own supplementary Study files.
- ✓ **CREATE FILES**—Then convert them for use with wordprocessors like Paperclip and GEOS.
- ✓ **MAKE SUPPLEMENTARY STUDY FILES**—and develop translation variations.

**SUGGESTED RETAIL \$164.95**

**ASK ABOUT OUR FALL '88 SPECIAL!**

v1.2 for C64 or v2.0 for C128/1571

CALL OR WRITE TODAY FOR A FREE  
BROCHURE, WHICH SHOWS HOW VALUABLE  
LANDMARK CAN BE  
IN YOUR BIBLE STUDY

P.A.V.Y. Software P.O. Box 1584  
Ballwin, MO 63022 (314) 527-4505

ASK FOR IT AT YOUR LOCAL SOFTWARE DEALER!

Circle 221 on Reader Service card.

# JiffyDOS

**Ultra-Fast Disk Operating System for the  
Commodore C-64, SX-64, & C-128**

*JiffyDOS picks up where Cartridges & Turbo ROMs leave off!*

| Features   | JiffyDOS | Fastload | Mach-5<br>Mach-128 | Final<br>Cartridge | Turbo<br>ROM II |
|--|----------|----------|--------------------|--------------------|-----------------|
| Performs all disk operations up to 15 times faster | YES      | NO       | NO                 | NO                 | NO              |
| Speeds up SEQ, REL, & USR file access              | YES      | NO       | NO                 | NO                 | NO              |
| Works from within all types of programs            | YES      | NO       | NO                 | NO                 | NO              |
| Leaves the Cartridge Port open                     | YES      | NO       | NO                 | NO                 | YES             |
| Works with 1581, MSD1&2, Enhancer 2000, Excel 2001 | YES      | NO       | NO                 | NO                 | NO              |
| Guaranteed software-hardware compatible            | YES      | NO       | NO                 | NO                 | NO              |

- **JiffyDOS' easy ROM replacement lets you Load, Save, Format, Scratch, Validate, access PRG, SEQ, REL, & USR files up to 15 times faster**
- **Built-in DOS Wedge with 14 add'l commands & convenience features**
- **For C-64, 64C, SX-64, C-128, C-128D, 1541, 1541C, 1541-II, 1571, 1581, FSD1, FSD2 Excelsior+, MSD1&2, Enhancer 2000, Excel 2001**
- **JiffyDOS/128 speeds up disk operations in both 64 & 128 modes**
- **Money-Back Hardware/Software Compatibility Guarantee**

C-64/SX-64 versions \$49.95; C-128 version \$59.95; Additional drive ROM's \$24.95  
Please add \$4.25 shipping/handling per order. VISA/MC, COD, Money Order accepted  
Call or write for more information. Dealer, Distributor, & Users' Group pricing available  
*Please specify computer and drive when ordering*

**Creative Micro Designs, Inc.**

P.O. Box 789, Wilbraham, MA 01095  
219 Moody St., Ludlow, MA 01056

Phone: (413) 589-7624  
FAX: (413) 589-0431

Circle 166 on Reader Service card.

**Eradicator™** Now Over 250 Parameters In  
Stock That Erase Protection Fast!  
**Tejas Soft** © 1987-1988 \* Special Price \*  
\$17.95



With The New Hard Drives And 3.5" 1581's, Its More Important Than Ever To Remove The Copy Protection Entirely! That's Exactly What A Parameter Can Do For You, And Each Of Our Eradicator Volumes Contain Over 100 Of The Finest Parameters Available! Our **Mini-Paks** Are Our Most Recent Offering, And Have Up To 20 Of Our Latest Parameters For The Most Recent Titles. In Addition, Our **Mini-Pak Deluxe** Includes A Few 'Extra Special' Parameters! We Also Have The 'Original' Parameter Cross-Reference. This Is The Most Comprehensive Book Of Its Kind Available Anywhere, With Over 7,000 Listings On 52 Products In The Marketplace, And It's Also Complete With Sources! We Always Ship The Latest Release.

Our Policy Is To Produce Parameters That Work, And To Remove The Protection Entirely Whenever Practical! If You Encounter A Different Protection Scheme Than Our Parameter Was Developed For, Just Let Us Know. We'll Develop One That Will Work, Or We'll Backup Your Title For You. We Feel That Our **Programmers** Are Among The Very Best In The Business, And Challenge You, To See If You Don't Agree!

For Additional Information, Just Call Or Write For Our Free Catalog  
Let 'Tejas Soft' Erase Your Protection Problems!

The Eradicator - \$17.95    Mini-Paks - \$12.95  
The 'Original' Parameter Cross-Reference - \$19.95  
Mini-Pak \* Deluxe \* Parameter Disk - \$14.95

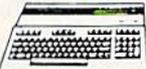
**Tejas Soft**

206 W. Denison Robinson, Texas 76706 817-662-4945  
Add \$3.00 p/h, \$7.50 Foreign. TX Residents Add 7.5% Sales Tax. UPS Air & COD Extra  
Shipping And Handling To APO & FPO Is Free - Dealers Welcome

Circle 167 on Reader Service card.



Blue Chip Daisy  
Wheel Printer \$89.95



## MODEMS

TRANSCOM 1200 H for 64/128 ..... \$119.95  
TRANSCOM 1200 Jr. for 64/128..... 89.95  
TRANSCOM 300 for 300 baud for 64/128..... 39.95

## DISK DRIVES

1571 Commodore ..... \$259.95  
1541 II Commodore ..... 189.95  
FSD-2 Accelerator Plus ..... 149.95  
EXCEL 2001 1571 Compatible ..... 219.95  
MASTER 3A for A500/A2000..... 179.95

## ACCESSORIES

Final Cartridge III ..... \$ 49.95  
Suntron C-64 power supply ..... 29.95  
Phoenix 128 power supply (repairable)..... 59.95  
Amiga 500 monitor stand..... 29.95  
1351 mouse ..... 38.95  
1764 RAM expansion..... 139.95

## COMPUTERS

64-C ..... Call for price  
128-D..... Call for price

Discount Computer Distributors

Call Toll Free 1-800-533-6796

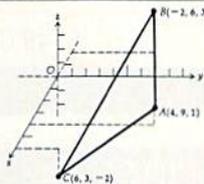
PO Box 4194, Hopkins, MN 55343



Circle 164 on Reader Service card.

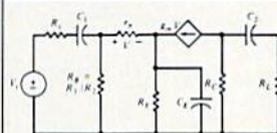
## 3 TECHNICAL PROGRAMS

Maximize:  $Z = 2X_1 + X_2$   
 $3X_1 + X_2 < 44$   
 $X_2 < 10$   
Subject to:  $X_1 + X_2 < 18$   
 $2X_1 + 5X_2 < 60$



plane, or perform 18 other geometric calculations. Entries made and answers displayed in users choice of several methods, including symmetric equation, parametric equation, multiple points, direction and magnitude.

(NOT A GRAPHICS PROGRAM)



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.

Linear Programming System (64/128) ..... \$24.95  
Analytical Geometry in 3 Dimensions (64/128) ..... \$24.95  
Electronics AC DC Circuit Analysis (64/128) ..... \$29.95  
Electronics AC DC Circuit Analysis (IBM PC) ..... \$29.95

Computer Heroes  
P.O. Box 79 Dept. 143  
Farmington, CT 06034



Orders Only 1-800-622-4070



Circle 214 on Reader Service card.

# EDDDS\*

## \*ELECTRONIC DISK DRIVE DEVICE SELECTOR

Now you can have full control over your disk drive number. No more having to run special software. No more permanently setting the device number by cutting lands. No more trying to remember what switches to set.

With the Electronic Disk Drive Device Selector (EDDDS), there is no more worry of which drive is set to what number. Using EDDDS the device number is conveniently displayed for you to see.

Changing device number is easy with the EDDDS. No need to shut off the disk drive, just press a switch and the device number is changed. The EDDDS also includes a device reset switch so you can manually reset your drive if it locks up.

The EDDDS is ideal for multiple drive use giving you maximum drive flexibility.

The EDDDS is not only easy to use but easy to install. No soldering required and no heavy electronics knowledge needed—fully illustrated, step-by-step instructions included.

Several models available to suit your needs: for 1541, 1541 II, 1571, 1581 and C128-D—EDDDS I uses quick clips for the connections with hardware mounted outside your drive in an attractive case.

For early 1541 and 1541C drives EDDDS II IN internal, or EDDDS II EX, external models available. (Internal model requires some drilling & cutting of the drive case.) Send payment to:

RAINBOWTECH ELECTRONICS  
P.O. Box 19, BRIGHTWATERS, N.Y. 11718-0019

When ordering specify drive type & EDDDS model number.

EDDDS I — for 1541, 1541 II, 1571, 1581 & C128-D — \$65.00

EDDDS II IN — for early 1541 & 1541C internal mounting — \$60.00

EDDDS II EX — for early 1541 & 1541C external mounting — \$65.00

EDDDS III — w/o Device Selector Switch (Device Display Only) — for 1541, 1541 II, 1571 & 1581 — \$45.00

Please add \$4.00 UPS shipping. C.O.D.s accepted. N.Y. State residence add 7.5% sales tax.

Check reader service number for additional information.

**RAINBOWTECH  
ELECTRONICS**

P.O. Box 19, Brightwaters, NY 11718-0019

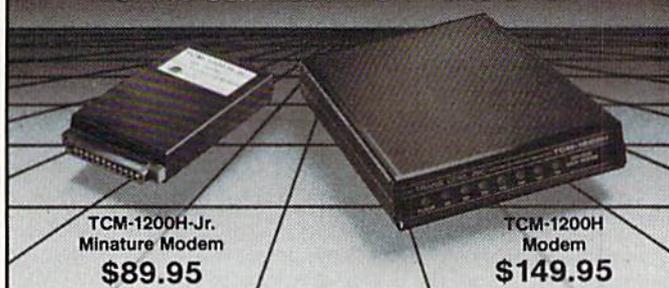
www.Commodore.ca

Circle 163 on Reader Service card.

May Not Reprint Without Permission

# THE GREAT CONNECTION

300/1200 Baud Hayes® Compatible Modems  
For the Commodore C-64 and C-128



TCM-1200H-Jr.  
Miniature Modem  
\$89.95

TCM-1200H  
Modem  
\$149.95

- Easy To Install - Plugs Directly Into User Port
- Fully Hayes® Compatible
- Includes Terminal Software With Up/Down Loading Features
- Auto Answer/ Auto Dial
- Tone or Pulse Dialing
- Internal Speaker
- Bell 212A and CCITT V.22 Compatible
- Two-Year Warranty

Plus, the TCM-1200H Has These Additional Features:

- Stand Alone Modem
- Does Not Require RS-232 Interface
- 8 LED Status Indicators
- 8 Position DIP Switches

Both the TCM-1200H-Jr. miniature modem and the TCM-1200H modem are manufactured in the U.S.A. and are registered and type accepted by the FCC.

Visa and MasterCard welcome



trans com inc.

470 Randy Road Carol Stream, IL 60188 312-668-4600

Circle 169 on Reader Service card.

# RUN CLASS ADS

|   |          |
|---|----------|
| 1670 MODEM - 300/1200 BAUD              | \$ 69.00 |
| COMMODORE 64 POWER SUPPLY               | \$ 24.95 |
| JOY STICK - retail \$19.95 - your price | \$ 9.95  |
| EXCELERATOR FSD-2 DRIVE                 | \$149.00 |
| <b>ECI 800-356-5178</b>                 |          |

## AUTHORIZED COMMODORE AMIGA SERVICE CENTER

|                          |         |                          |         |
|--------------------------|---------|--------------------------|---------|
| C-64 . . . . .           | \$37.95 | C-128 . . . . .          | \$65.95 |
| *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, Apple, Okidata & COMPAQ

Discounts for Dealers and Schools.



Computer Service Center  
1310 S. Dixie Hwy. Ste. 18W  
Pompano Beach, FL 33060

**SPECIALS**  
ROM Upgrade for 128  
\$36.00  
Includes Documentation

For more info call 305-785-2490  
Our 90 Day Warranty Can't Be Beat!

## FREE CATALOG

Discount software for your home computer.

Apple, Atari, Commodore, IBM. . .

WMJ Data Systems-R  
4 Butterfly Drive  
Hauppauge, NY 11788  
(516) 543-5252

## ADULTS ONLY DISK SOFTWARE for the Commodore 64/128



ALVA DATA Dept. J13  
28 Alva Street,  
New Bedford, MA 02740  
CHECK/MO/MC/VISA  
Add \$2.00 shipping & handling,  
foreign add \$6.00

**THE LOVEGAME** . . . . . \$24.95  
Interactive text fantasy game for two or more intimate players. Amusing and suggestive trivia quiz format with provocatively sensual "scoring" system. Use as marital aid or party laughs!  
**STUD'S CHALLENGE** . . . . . \$21.95  
A man's text adventure romp. The object: find women, figure out what pleases them, and enjoy mutually satisfying experiences! Tired of outer space mumbo-jumbo? Try this "earthy" adventure!



## 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

## WIN WORD CONTESTS!

"ANY SPONSOR"  
"ANY RULES"

(AHA Opp-Un PI WCI MM AQ TAMA PP PWP CC E2-3 P'n'P)  
**THE MOST ADVANCED CONTESTING PROGRAMS EVER. USED BY WINNERS NATIONWIDE**  
Solves Bingo & Bonus Final Playoffs in 3/4 minutes. Scores entire M/W dictionary in only 14 minutes. 3,000-word capacity. 1,800 optional input and scoring parameters. Vertical multi-column output, with or without even-value enhancement, in ascending or descending order, to printer or screen. Positional Search using A-Z, even/odd values, single-ltr wild cards, multi-ltr definable wild cards, exclus. ltrs, any lengths. Score, Analyze, Save and Load every kind of grid, words, scores etc. 5 sorts. Automatic Special-Squares math function. Word-Repeat Check. Selective Bounding. Objective & Forecasted score etc.

Playoff Solver...\$48.95  
List Creator.... 67.95  
Score/Analyze... 39.95  
ALL THREE ONLY \$137.95  
and receive FREE molded vinyl album case.

**STATGAM**  
Dept. 130  
5688 Chagrin Dr.  
Mentor, Oh 44060

Start winning today or send \$5.00 for 60pg. Users Manual and receive credit toward purchase. Ohio address please add 5% sales tax.

Commodore 64/128 w/disk drive(s) \* 30 day trial \* 12 month disk warranty

## THE AMAZING NEW VOICE MASTER<sub>jr</sub>

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

## 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"

## 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**

## GAME DESIGN FLASHY TRICKS OF THE TRADE

FIND OUT HOW IT'S DONE. Includes 5 handy utilities, 15 great new [c] GAMES, and more. 3-D Color Graphics, Animation, Sound and Music all fully explained with working examples. Arcade Action, Logic, Chance, and Strategy are covered, plus timing, scoring, AI/Expert Systems and \$COMMERCIALS. Besides all of the theory and practice, the games alone are worth \$29.95 PPD. Disk.

RKDO, RT 1 Box 199A, Stanley, Wis 54768

## 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

Convert your C64/C128 to a DX7 with the

## SFX SOUND EXPANDER

|  |           |
|--|-----------|
| <b>SFX SOUND EXPANDER</b>              | \$ 180.00 |
| 9 voice digital synthesizer module     |           |
| <b>SFX FULL SIZED KEYBOARD</b>         | \$ 145.50 |
| <b>SFX COMPOSER &amp; SOUND EDITOR</b> | \$ 45.50  |

MIDI compatible sequencer and editor for Sound Expander  
Fearn & Music, 519 W. Taylor #114, Santa Maria, CA 93454  
Phone 800-447-3434 In CA 805-925-6682



# RUN CLASS ADS

## NEW ATTENTION ROLE PLAYERS NEW

The industry leader in Apple role-playing aids announces our first Commodore conversions. Call or write for more current product list. **CHARACTER EDITORS (\$19.95)** -Might and Magic, Bards Tale 1, Bards Tale 2, Bards Tale 3, Wasteland, Wizardry 1, Ultima 3, Ultima 4. **MISC. MIGHT AND MAGIC - Hint Book (\$9.95), Monster Editor (\$12.95), Users Group (\$10.00).**

Add \$3.00 for shipping/handling. See A+ ad for Apple software.

**GOSSELIN COMPUTER CONSULTANTS**  
P.O. Box 1083 • Brighton, MI 48116 • (313) 229-2453

## CW DATA-LABS TISAR 128 BUSINESS SOFTWARE

REMARKABLE CUSTOMER DATA-BASE & INVOICE MANAGEMENT SYSTEM!

Designed for Service, sales/mktg, repair shops etc...  
Write/Read/Print Customized Invoices & Records.  
User Friendly Prompts guide you through each function.  
Full Color • Stores 500 Records/Disk on 1571 Drive.  
Track Sales or Job Status, Estimates, Dept. Codes, etc...  
Search, Cross-search, Sort, Mailing labels, Graphs, much more...  
80 Columns • Back-Up-Able • Full Documentation  
Version 2.2 includes inventory control \$89.95  
Same-day shpg. MC/VISA or COD (please no checks.)  
Call orders only • 24 hours • 1-800-537-LABS

CW DATA-LABS, 1632 Naple Ave., Philadelphia, PA 19111

## 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. add'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

## WIN LOTTO MILLIONS!!!

### NEW RELEASE! LOTTO PICKER™ PLUS v2.1

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! Guaranteed to work for all Lotto-style games worldwide. 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 \$5.55 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. IBM-Apple 3.5 inch—add \$10.00.



## NOW YOU CAN HAVE REAL STEREO FOR YOUR COMMODORE 64/128 WITH



- 100% true stereo (3 voices per channel)
- Play up to 6 voices at once in stereo
- Plug in cartridge design (no hardware modification required)
- Create your own music or convert SID music into stereo
- Great for use with Hi-Fi stereo system
- Comes with software & demo music disk

Send check or money order for \$59.95 to:  
Beta-Tronics, PO Box 411075, S.F., CA 94103  
\$3 for stereo music demo tape.

## TRY BEFORE YOU BUY!

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. #223  
Huntington, WV 25701  
(304) 529-3232



**Top-Tech International, Inc.**

Advanced Computer Systems



We repair computers: Amiga 500/1000/2000, C-64 & C-128, SX-64, VIC-20, Plus/4. We repair disk drives: 1541, 1571, 1581 — **CALL** — Up to 3 years warranty!!! We **CARRY** full line of Commodore computers and peripherals. We also **HAVE** all CBM's and more Commodore/Amiga **Parts**—Catalog of hardware, parts and more—\$5.00. **Service Manuals**—Commodore's and/or SAMS'—From \$21.95 + S&H (\$4.00 minimum). **Special:** Best Power Supply for C-64/VIC-20 with 3-yr Warranty—\$39.75 (prepaid). **Visa, Discover, Amex & MasterCard**

(215) 236-9901 • 2344 Perot Street, Philadelphia, PA 19130 • (215) 236-9901

news | reviews | tips | examples | articles | geoworld

## GEO WORLD

The definitive magazine of GEOS

Send check or m/o to:  
GEO WORLD  
38 Santa Ynez St.  
Santa Barbara, CA 93103

\$20.00 - 12 issues



## AUTHORIZED COMMODORE SERVICE CENTER

**C-64**  
**\$39.95**



- C-128 . . . . . \$65.95
- \*1541—align only . . . . . \$29.95
- \*1541—repair . . . . . \$45.95
- \*1571—align only . . . . . \$29.95
- \*1571—repair . . . . . \$45.95
- \*Does not include head stepper motors, spindle motor.

**WITH PARTS/LABOR**

**COMPUTER DOCTORS**

1703 N. 11th Ave.  
Hanford, CA 93230  
209-584-1076

You Can't Beat Our 90 Day Warranty!

## COMMODORE

- 64 Power Supplies . . . . . \$25.85
- 128 Power Supplies . . . . . \$59.85
- 64/128 Datasets or Modems . . . . . \$27.85
- 64/128 Excelerator & Disk Drive . . . . . \$139.85

Call Now **1-800-446-3446**

SAT SERV 9414 36th Ave. N, New Hope, MN 55427

## Dynavoice LETS YOUR COMMODORE TALK!

DYNAVOICE is the innovative new voice synthesizer for the Commodore 64 and 128 computers! Some possible uses: vocal proofreaders for word processors, talking games, modem talking terminal programs, artificial intelligence programs, even programs for the blind! Check out these advanced features:

- Easy to use**— No special programming skills required!
- 100% Software**— Nothing extra to buy or plug in... just load it and use it!
- Easily added to your own programs**— Adaptable to both BASIC and machine code!
- Dynavoice 64 disk: **\$29.95**
- Dynavoice 128 disk: **\$29.95**
- Demo disk: **\$3**

Return demo disk within 60 days and receive FIVE DOLLARS credit towards purchase!  
ADD \$2 per disk for shipping & handling / send check or m.o. to:  
Indiana World Trade Company, P.O. Box 8566, Michigan City, IN 46360-8566

## C-64 REPAIR

COMMODORE CHIPS AT LOW PRICES\*

**\$54.95\***

**Exclusives**

- Read/Write Heads
- Print Heads
- Amiga Chips



**Our 10th Year**

\*Plus UPS postage

**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

|                              |         |
|------------------------------|---------|
| 6510                         | \$10.95 |
| 6526                         | 11.50   |
| 6567                         | 16.50   |
| 6581                         | 12.85   |
| PLA/828100                   | 13.25   |
| 325572                       | 11.50   |
| 325302                       | 11.50   |
| 8721                         | 12.50   |
| 8520                         | 12.50   |
| 901 Series (ROM)             | 18.10   |
| (for 2 or more)              |         |
| C128 New ROMs                | 37.95   |
| Amiga Chips                  | CALL    |
| (And many others in stock)   |         |
| Quantity Pricing for Dealers |         |

OCTOBER

## COMING ATTRACTIONS

### PRINTER ROUNDUP—

Next month *RUN* takes a close look at what's available in the world of printers for the Commodore 64 and 128. For most users, a printer is a necessity. So whether you're in the market for a new one or are a first-time printer buyer, you'll find plenty in this article to help you decide which printer is best to suit your needs.

### EDUCATIONAL SOFTWARE—

October is Computer Learning Month, so next month's Software Gallery column is devoted to educational programs to be used by students and teachers in the classroom, or for moms and dads with their kids at home.

### TEACHER'S TOOL—

The education theme continues with a program to aid teachers in preparing and grading exams.

### PROGRAMMING IN GEOS—

Our geoWatch column will feature a look at getting the most from geoProgrammer. Noted GEOS programmer Bill Coleman gives some basic guidelines to improve your programming efficiency and style.

### TRICK OR TREAT!—

Of course, October is also the month when witches take to the sky and young (and old) trick or treaters don their scariest garb. We'll include a festive program that you can type in and display on your computer screen on Halloween.

### IN ADDITION—

Other type-in programs on tap for next month include a C-128 music editor and a useful banner maker program that lets you create and print out a banner for any occasion.

We'll also have our usual reviews, news, programming tips and columns.

## LIST OF ADVERTISERS

(603) 924-7138 or (800) 441-4403

SALES MANAGER: **KEN BLAKEMAN**

NORTHEAST SALES: **BARBARA HOY**

MIDWEST/SOUTHEAST SALES: **NANCY POTTER-THOMPSON**

WESTERN STATES SALES MANAGER: **GIORGIO SALUTI, (415) 328-3470**

| Reader Service | Page                                 | Reader Service | Page   |
|----------------|--------------------------------------|----------------|--|
| 79             | Aprotek . . . . . 17                 | 163            | Rainbowtech Electronics . . . . . 93         |
| 134            | Berkeley Softworks . . . . . 6, 7    |                | * <i>RUN</i>                                 |
| 73             | Briwall . . . . . 47                 |                | GEOS Power Pak . . . . . 33                  |
| *              | C.O.M.B. . . . . 32                  |                | ReRUN Subscription . . . . . 13              |
| 225            | Cheatsheet Products . . . . . 92     |                | <i>RUN</i> works . . . . . 49                |
| *              | Cinemaware . . . . . 9               |                | PC Games . . . . . 63                        |
| 15             | Computer Direct . . . . . 55         |                | <i>RUN</i> Subscription . . . . . 65         |
| 214            | Computer Heroes . . . . . 93         |                | ReRUN Greatest Hits . . . . . 73             |
| 226            | Computer Repeats . . . . . 58        |                | Back Issues . . . . . 75                     |
| 166            | Creative Micro Designs . . . . . 92  |                | Class Ads. . . . . 94, 95                    |
| 50             | Data East USA . . . . . CIII         |                | * S.O.G.W.A.P. Software . . . . . 91         |
| 154            | Datel Computers . . . . . 34, 35     | 222            | Schnedler Systems . . . . . 91               |
| 164            | Discount Computer Group . . . . . 93 | 102            | Soft-Byte . . . . . 71                       |
| 105            | EPYX . . . . . CII                   | 245            | Software Discounters of America . . . . . 61 |
| 3              | Electronic Arts . . . . . 25         | 25             | Strategic Simulations . . . . . 11           |
| 158            | Entertainment On Line . . . . . 77   | 40             | SubLogic Corp. . . . . 19                    |
| 171            | First Row Software . . . . . 29      | 179            | Taito Software . . . . . 14, 15              |
| 66             | Loadstar . . . . . 1                 | 167            | Tejas Soft. . . . . 92                       |
| *              | Lyc0 Computers . . . . . 50-53       | 155            | Tenex Computers . . . . . 69                 |
| 119            | Marathon Software . . . . . 77       | 54             | The Hunter Group . . . . . 66                |
| 53             | MicroIllusions . . . . . CIV         | 169            | Trans Com . . . . . 93                       |
| *              | Mindscape, Inc. . . . . 5            | 209            | Tussey Computer Products . . . . . 22, 23    |
| 98             | Montgomery Grant . . . . . 27        | 187            | Utilities Unlimited . . . . . 59             |
| 221            | P.A.V.Y. Software . . . . . 92       | *              | Value-Soft. . . . . 67                       |
| 74             | Prof. Jones . . . . . 82             | 96             | Xetec, Inc. . . . . 79                       |
| 183            | Quantum Link . . . . . 2             |                |  |

For further information from our advertisers, circle the corresponding Reader Service number on the adjoining card.  
\*This advertiser prefers to be contacted directly.

**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 **Lisa LaFleur, Customer Service Representative, RUN Magazine, 80 Elm St., Peterborough, NH 03458**, before dealing with these companies: **Compumed, Pro-Tech-Tronics, White House Computer, Prism Software** (Waco, Texas) and **Underware**.

PRESIDENT  
**MICHAEL PERLIS**

VICE-PRESIDENT/GENERAL MANAGER  
**ROGER MURPHY**

VICE PRESIDENT  
**STEPHEN TWOMBLY**

CIRCULATION DIRECTOR: **FRANK S. SMITH**; CIRCULATION MANAGER: **BONNIE WELSH**;  
NEWSSTAND SALES: **LINDA RUTH**; DIRECT MARKETING MANAGER: **PAUL RUESS**;  
DIRECT SALES MANAGER: **MICHAEL CARROLL**; DIRECTOR, SPECIAL PRODUCTS: **PAUL FINCH**;  
DIRECTOR OF CREDIT SALES & COLLECTIONS: **WILLIAM M. BOYER**;

DIRECTOR OF CORPORATE PRODUCTION: **DENNIS CHRISTENSEN**;  
MANUFACTURING MANAGER: **SUSAN GROSS**; ASSISTANT MANUFACTURING MANAGER: **LESLIE WALDEN**;

TYPESETTING MANAGER: **LINDA PALMISANO**; SYSTEM SUPERVISOR: **DOREEN MEANS**;  
TYPESETTER: **DEBRA A. DAVIES**

**Manuscripts:** All manuscript 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.

**Subscription problems or address changes:** Call 1-800-525-0643 (in Colorado, call 447-9330), or write to *RUN*, Subscription Services, PO Box 58711, Boulder, CO 80322-8711.

**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.

**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.

**Problems with ReRUN:** Write to ReRUN, 80 Elm St., Peterborough, NH 03458, or call 1-800-343-0728.

**RUN's BBS:** The *RUN*ning 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 NAME OF THE GAME IS SURVIVAL.

# PLATOON™

In Vietnam, an American soldier soon learned that there were no winners in this deadly game. To survive each mission with his morale and sanity intact, and return to base safely, was all he could hope for. This was captured in the award-winning film, *Platoon*.

In Data East's *Platoon*, you will experience the full impact of the film as you lead your platoon into the jungles, villages, bunkers, foxholes, and underground tunnels

of war-torn Southeast Asia.

There you will encounter guerilla fighters, snipers, booby-trapped trip wires, armed patrols, and napalm air strikes. You must pick up food, medical supplies, and ammunition along the way.

At times, the odds may seem insurmountable. But don't think about winning — to survive is enough.

**FOR COMMODORE 64/128™  
ALSO COMING SOON FOR  
IBM® APPLE II SERIES®  
AND ATARI® ST.**



**DATA EAST USA, INC.**

470 NEEDLES DR., SAN JOSE, CA 95112. (408) 286-7074.

LICENSED BY



GAME DESIGN © 1987 OCEAN SOFTWARE LTD. PLATOON: TM & © 1986 HEMDALE FILM CORP. ALL RIGHTS RESERVED. COMMODORE, APPLE, ATARI, IBM, AND OCEAN ARE REGISTERED TRADEMARKS OF COMMODORE ELECTRONICS LTD., APPLE COMPUTERS, INC., ATARI CORP., IBM CORP., AND OCEAN SOFTWARE LTD., RESPECTIVELY.





**TRI COMPLEX III**, the ultimate computer, created by man to help man. Unfortunately man was the only bug in the system... can you save mankind?



Exploring underground cave



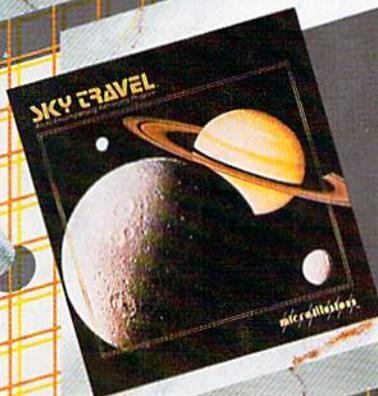
Search and destroy in your land unit



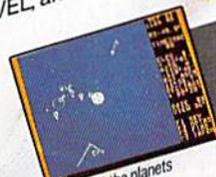
## SKY TRAVEL

An All Encompassing Astronomy Program

Sky Travel's accurate celestial representations include objects numbering in the thousands, completely flexible viewing of celestial sphere, latest NASA data, and effects of polar precession and nutation. SKY TRAVEL, an astronomical delight!



Haley's Comet in the southern sky



Display of the planets centuries in the past

## 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!



Game in play



Split hands

## OTHER PRODUCTS FROM MICROILLUSIONS

- **THE FAERY TALE ADVENTURE™**  
The hottest adventure game!
- **FIRE POWER™**  
Action packed arcade style tank battle game
- **ROMANTIC ENCOUNTERS™**  
A true to life Adult experience

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/Tandy formats.



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