**DOS Basics, Multitasking 64 & More!**

**PLUS:**
- A New Games Column
- More Software Reviews
- 1988 Index

# RUN

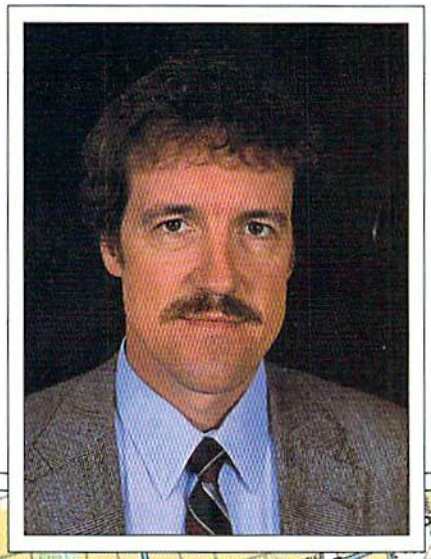
THE COMMODORE 64/128 USER'S GUIDE

**January 1989**
An IDGC/I Publication

U.S.A. $2.95
CANADA $3.95
U.K. £2.00

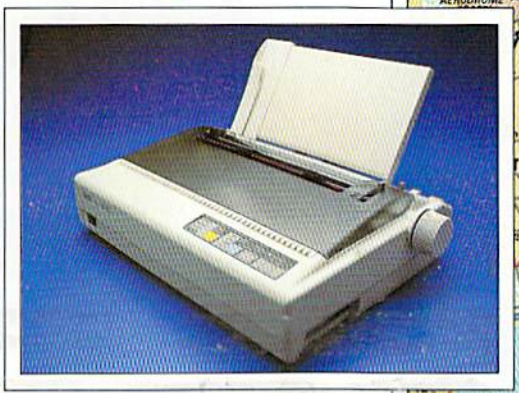
## 30 FUN FACTS AND OPINIONS

## WHO Is the Most Creative Programmer?






## WHAT Is the Best Printer?



## WHERE Is the Most Active Computing Area?

0 74470 12069 01

THE MASTERS COLLECTION

# IT WILL HOLD YOU CAPTIVE FOR DAYS.

Welcome to the world of Bantross. Where monsters don't just *look* menacing. They lunge directly at you, ready to wound, paralyze or kill.

Where whistling wind, roaring surf and echoing footsteps mix with the sound of your own heart pounding.

Where earthquakes, floods and a treacherous baron wreak havoc on entire continents.

Where you'll need exceptional skill, cunning and magic to survive.

You'll wander through ancient archives where torches glow against damp walls. You'll venture into 40 levels of dungeons. Journey to 16 different towns. Explore a mysterious labyrinth. Play games of chance, arcade games and far more.

The Legend of Blacksilver provides all the depth and challenge worthy of a skilled adventurer. Intrigue. Danger. Complexity. Unparalleled realism. All others are tame by comparison.

*Advanced Hint Book available. Details on package.*



*3-D effects and incredibly realistic first person views make the action even more spine chilling.*




*Torches flicker and crackle in the archives, where you'll acquire secret knowledge and strategic skills.*



*Scores of maps give a global perspective. You'll see geography change with earthquakes and floods.*

To order your preview disk, send a check or money order for $3.75 (Canada: add 50¢) to: Legend of Blacksilver Preview Disk, Softmail Code 155-013, 2995 Woodside Rd., Ste. 400-383, Woodside, CA 94062. Allow 4-6 weeks for delivery. Offer expires 3/31/90. Valid only in continental U.S. and Canada. Void where prohibited. Specify: Commodore 64/128.

Apple II and compatibles, Commodore 64/128, IBM PC and compatibles. Screens from Commodore. © 1988 Epyx, Inc.




EPYX

Circle 153 on Reader Service Card.




How To Fill Your Days With Fantasy, Adventure, Perception, Finance, Information, Excitement, And Much, Much More... Every Month.

# BLOW YOUR MIND FOR ONLY $9.97

### WHAT A WAY TO GO, 128!

LOADSTAR 128 is a totally new quarterly software collection designed specifically for the Commodore® 128 by the editors of LOADSTAR, the best-selling monthly disk for the Commodore 64. Every three month you will receive a new 5¼" disk filled with new 128-only programs *not found* in our monthly LOADSTAR collection.

### USE THE FULL POWER OF YOUR 128

LOADSTAR 128 issue #1 contains eight great programs for your C-128, taking advantage of the 128 features like the 80-column format, larger memory and a more powerful BASIC.

### CONTENTS OF ISSUE #1

**CHART 128**-Design professional looking charts.

**CARBUYER'S SCRATCHPAD**-Make the best deal on your new car.

**TREASURE TROVE**-Unique card solitaire game.

**WIZARD WIND**-Battle Wizards as they try to blow you away.

**BORIS**-Play chess on nine levels.

**QUESTOR**-A great graphic adventure game.

**POTPOURRI**-Test your knowledge and trivia IQ.

**80-COLUMN MONOCHROME CABLE**-Build your own cable.

### THE BEST SOFTWARE VALUE FOR THE128

LOADSTAR 128 is delivered direct to you four times each year for only $39.95. That's only $9.97 an issue. So order today with the coupon below or call **1-800-831-2694.**

YES! Please rush me my first issue of LOADSTAR 128 and start my one year subscription (4 quarterly issues) for only $39.95 (Canada/Mexico $49.95, Overseas $59.95). Make checks payable to Softdisk, Inc. (Specify U.S. funds). Louisiana residents add 4% sales tax.

Name_____

Address_____

City_____ State____ Zip + 4____-____

Home Phone (____) _____-____

☐ Discover ☐ AmEx ☐ VISA/MC ☐ Payment Enclosed (U.S. funds only!)

Card # _____ Exp.____

Signature_____

SOFTDISK, INC.
P.O. Box 30008 • Shreveport, La. • 71130-0008 RU128

**CALL TOLL FREE**
**1-800-831-2694**

Circle 66 on Reader Service card.

Commodore is a trademark of Commodore Electronics, Ltd.

# DATEL COMPUTERS




## FINAL CARTRIDGE III

- Gives your C64/128 an "Amiga Look-Alike" environment. Pull down windows/icons.
- PLUS a huge range of utilities all built into this one cartridge . . . including:
- Freezer option to freeze and copy most any memory resident program.
- Full machine code monitor with all the usual commands and more.
- Unique picture print dump – compressed/enlarged
Plus other effects.
- Fast loader – loads commercial software at up to 15 times normal speed.
- Range of desk top type tools – clock, calculator, desktools etc. etc.
- Final Cartridge 3 is a superb utilities cartridge with an added bonus of a freezer function.

**ONLY $54.99**

## TOOLKIT IV

**The ultimate disk toolkit for the 1540/1541**

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

**ONLY $14.99**



## DIGITAL SOUND SAMPLER

- The new sampler allows you to record any sound digitally into memory and then replay it with astounding effects.
- Playback forwards/backwards with echo/reverb/ring modulation.
- Full 8 bit D to A & ADC conversion.
- Midi compatible with suitable Midi interface. (see Ad')
- Full sound editing and realtime effects menu with waveforms
- Powerful sequencer plus load/save functions
- Line In/Mic In/Line Out/Feedback controls.
- Complete hardware/software package

**ONLY $89.99**



## MIDI 64

- Full specification MIDI interface at a realistic Price.
- MIDI IN - MIDI OUT - MIDI THRU
Compatible with most leading MIDI software.

**ONLY $49.99**

## TURBO ROM II



**Turbo Rom II is a replacement for the actual kernal 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 kernal at flick of a switch.
- FCOPY – 250 block file copier.
- FLOAD – special I/O loader.
- Plus lots more.
- Fitted in minutes – no soldering usually required. (On some 64's the old ROM may have be desoldered).

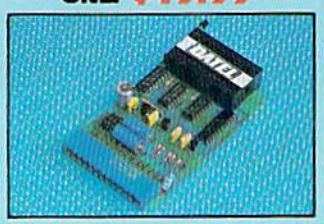
**ONLY $24.99**



## 256K SUPEROM EXPANDER

- Now you can select from any of 8 32K EPROMs
- 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.

**ONLY $49.99**



## 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 27256 chips. 12.5, 21 or 25 volts.
- Fits into user port for maximum compatibility with cartridges/Superom Board etc.
- Full feature system – all functions covered including device check/verify.
- We believe Eprommer 64 is the most comprehensive, most friendly and best value for money programmer available for the 64/128.
- Ideal companion for Superom Board. Cartridge development System, our kernal expanders or indeed any EPROM base project.
- Comes complete with instructions – plus the cartridge handbook.

**ONLY $69.99 COMPLETE**




## DEEP SCAN BURST NIBBLER™

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

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

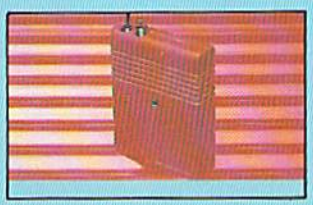
**ONLY $39.99 COMPLETE**

**SOFTWARE ONLY $19.99 CABLE ONLY $19.99**

## 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 'Fmax' and 'Rapidlock' and include titles such as 'Defender of the Crown,' Gauntlet etc. - Regularly updated to include any new titles. - This disk is by no means a necessity – the standard Burst Nibbler will copy 96% of software as is – if you want to go to the limits, this is the product for you!

**ONLY $14.99**



## SMART CART

- NOW YOU CAN HAVE A 32K CARTRIDGE THAT YOU PROGRAM LIKE RAM THEN ACTS LIKE ROM!
- 32K pseudo ROM – battery backed to last up to 2 years (lithium battery).
- Simply load the program you require – then flick the switch. The cartridge then acts like a ROM cartridge and can even be removed.
- Make your own cartridges – even auto start types, without the need for an Eprom burner.
- Can be switched in/out via software.
- I/O2 slot open for special programming techniques.

**ONLY $59.99**



## DUPLIKATOR

- Duplikator is a mass disk copier ideal for clubs, user groups etc.
- Comes with 256K on board RAM and it's own built-in operating system – no software to load.
- Makes entire backups in 8 seconds!!
- Multiple copies from one original – over 250 disks per hour. Full verify option.
- Copies upto 40 tracks and can cope with standard disk errors 21,29.
- The most price effective method of mass duplication available.

**ONLY $189.99**




## EXTERNAL 3.5" DISK DRIVE

- Slimline extra low profile unit – only 6" long!
- Top quality NEC drive mechanism. • Throughport allows daisychaining 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 SINGLE**
**ONLY $299.99 DUAL**




## 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/Full MIDI.

**ONLY $59.99**

Circle 154 on Reader Service card.

Add $4.00 Shipping/Handling

CHECKS/MONEY ORDER/CODS ACCEPTED

VISA® MasterCard

**DATEL COMPUTERS**
**3430 E. TROPICANA AVENUE, UNIT #67, LAS VEGAS, NV 89121**

# TOTAL BACK UP POWER TAKES A QUANTUM LEAP!

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

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

❑ Simple Operation: Just press the button at any point and make a complete back-up of any* memory resident program to tape or disk.

❑ Turbo Reload: All back-ups reload completely independantly of the cartridge at Turbo speed.

❑ Sprite Monitor: View the Sprite set from the frozen program – save the Sprite – transfer Sprites from one game to another. Wipe out Sprites, view the animation on screen. Create custom programs.

❑ Sprite Killer: Effective on most programs – make yourself invincible. Disable Sprite/Sprite/Backround collisions.

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

ONLY **$59.99**

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

### UNIQUE FEATURES:

### ❑ WARP 25

**Loads 50K in under 5 seconds!!**

**The ii 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 AR4 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 – Dissassemble, Hex, Find, Jump, Compare, Replace, Two Way Scroll, Full Disk Load/Save, Printer Support etc. In fact all usual monitor commands plus a few others. ● Because of Action Replay's on Board Ram the Frozen program can be looked at in it's ENTIRETY: – In it's Frozen state. That means Video Ram, Zero Page etc. and remember you see the code in it's Frozen state not in a Reset state as with competitors products. ● Restart the program at any point ● No corruption ● An absolute must for the program Hacker – make changes and see your result's instantly!

❑ Compactor: Efficient compacting techniques – 3 programs per disk side – 6 programs if you use both sides.

❑ Single File: All programs saved as a single file for maximum compatibility.

❑ Disk Commands: A host of additional commands: Rename, Append, Old, Delete, Linesave, Printer Dump.

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

❑ Unstoppable Reset: Reset button to Rectrieve 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 programme 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!

### ❑ 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 music, very easy to use. ● **Prosprite** A full sprite editor, modify/save/load feature, full edit facilities. ● **Zoom Lens** Explode sections of any saved screen to full size including Border – Superb fun and very useful.

**ONLY $19.99**

### CENTRONICS PRINTER LEAD

❑ Take full advantage of Action Replay or Final Cartridge screen dump features with this centronics lead.

❑ Connects user port to any full size Epson compatible printer.

**ONLY $18.99**

### ❑ SUPERCRUNCHER

❑ A utility to turn your Action Replay into a super powerful program compactor. Reduce programs by up to 50%! Save disk space and loading times. Can even further compact programs already crunched by Action Replay's own compactor.

**ONLY $9.99**

### NOW WITH RAMLOADER™

❑ Not only can Action Replay load your backups at 25 times normal speed... Now with the new RAMLOADER feature you can also load most of your commercial originals also at 25 times faster!

❑ Making use of our special LSI logic processor and 8K of onboard Ram Action Replay now offers the world's fastest Disk Serial Turbo.

**ORDERS ONLY** **1-800-782-9110**

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

**TECHNICAL SUPPORT CUSTOMER SERVICE (702) 454-7700**

**MONDAY THRU SATURDAY 9am to 5pm PACIFIC TIME**

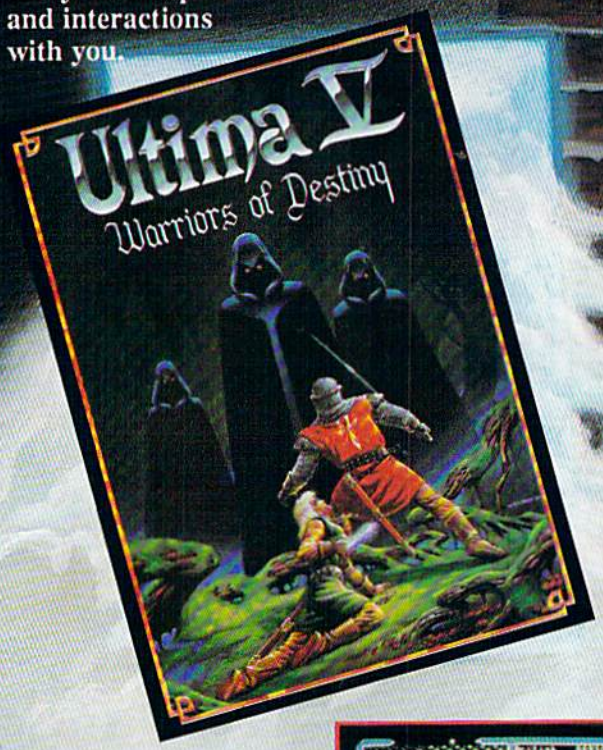
**EXTRA SHIPPING REQD. OUTSIDE CONTINENTAL U.S.**

# The wait is over... but the excitement has just begun.

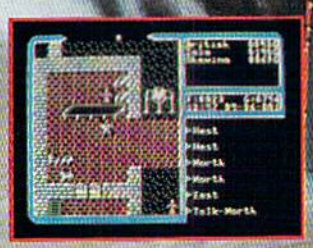
More than two years in the making, Warriors of Destiny sets the new standard for role-playing games. No other game can offer you as beautifully detailed a world or as exciting an adventure. Ultima V is the game for all role-playing gamers: Warriors of Destiny will enchant the novice and challenge the expert.

## Highlights of Ultima V

- Powerful new combat and magic systems, increasing in sophistication as your skill increases.
- Over twice the graphic detail, animation and sound effects of earlier games.
- Hundreds of truly life-like people who can carry on complex conversations and interactions with you.





Screen displays shown from the Apple™. Others may vary. Allows the use of Ultima IV characters. No previous Ultima experience required.

ORIGIN SYSTEMS INC.

136 Harvey Road
Building 'B'
Londonderry, NH 03053

Available for: IBM-PC / Tandy / compatibles, Apple II Series, Commodore 64/128, Amiga, Atari ST.

To get your copy of Ultima V, (1) visit your local retailer, (2) call 1-800-999-4939 8am to 5pm EST to order by VISA/MC, or (3) mail check (U.S. $) or VISA/MC #, cardholder name and exp. date to Origin, 136-B Harvey Road, Londonderry, NH 03053. All versions $59.95 plus $2.50 shipping and handling. Allow 1-2 weeks for delivery.

Circle 58 on Reader Service card.

# CONTENTS

VOLUME 6, NUMBER 1 JANUARY 1989



PAGE 37



PAGE 35



PAGE 50

## FEATURES


**34 WHAT DO YOU DO WITH A DEAD C-64. . .** *by Dennis Brisson*
. . . and 29 other intriguing fun facts about Commodore computing.

**40 2001: A CALENDAR PROGRAM*** *by Ken Huebner*
Keep track of your appointments and important dates right into the 21st century. For the C-64.

**50 DEMYSTIFYING DOS** *by John Ryan*
Get on the right track with this disk drive tutorial.

**56 MULTITASKING COMES TO THE C-64*** *by Michael Ingrassia*
Juggle up to three Basic programs at once.

**66 RAISING RAINBOWS*** *by Mary Wilson*
Cultivate the exotic and beautiful Amazonian rainbow plant. A C-128 game.

**72 SCREEN BASIC*** *by John Ryan*
Add 13 video programming commands to your C-64.


## DEPARTMENTS


**6 RUNNING RUMINATIONS**
Commodore's long sleep through 1988.

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

**12 MAIL RUN**
Input from our readers.

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

**20 SOFTWARE GALLERY** *Reviews of:*

- Red Storm Rising
- Infocomics
- The Write Stuff, C-128 Version
- Where in Europe is Carmen Sandiego?
- Monopoly
- Napoleon in Russia—Borodino 1812
- Stocker
- The Friendly Computer
- Rush 'N Attack/ Yie Ar Kung-Fu
- Sons of Liberty
- Deep Space
- The Bard's Tale III: Thief of Fate
- Questron II
- Battle Droidz

**65 LEARN TO WALK BEFORE YOU RUN**
First steps for new Commodore owners.

**76 COMMODORE CLINIC** *by Lou Wallace*
Answers to your questions about Commodore computing.

**78 GAMES GALLERY** *by Lou Wallace*
*RUN*'s new column covers reviews, game-playing hints and insight into games for the C-64 and C-128.

**82 GEOWATCH** *by Tim Walsh*
inGEniOuS hints and advice for GEOS users.

**84 TELECOMPUTING WORKSHOP** *by Loren Lovhaug*
*RUN*'s columnist rubs his magic lamp to take a look at GEnie.

**86 INDEX TO *RUN*'S 1988 ARTICLES AND REVIEWS**

**91 *RUN*'S CHECKSUM PROGRAM**
Run it right the first time.

**96 COMING ATTRACTIONS; LIST OF ADVERTISERS**


* The listings for these articles are also available on the January–February 1989 ReRUN disk. To order, see page 64D.

*RUN* (ISSN 0741-4285) is an independent journal not connected with Commodore Business Machines, Inc. *RUN* is published monthly by IDG Communications/Peterborough, Inc., 80 Elm St., Peterborough, NH 03458. Phone 603-924-9471. Second-class postage is paid at Peterborough, NH, and at additional mailing offices. Canadian second-class mail registration number is 9565. Subscription rates in U.S. are $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 80322-8711. (Canadian address changes to *RUN*, PO Box 1051, Fort Erie, Ontario, Canada L2A 5N8.)

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 EDITOR
JOHN RYAN

ART DIRECTOR
HOWARD G. HAPP

DESIGNERS
ANNE DILLON
LAURA JOHNSON

PRODUCTION
ALANA KORDA

ASSOCIATE PUBLISHER AND
NATIONAL ADVERTISING SALES MANAGER
KENNETH BLAKEMAN

SALES REPRESENTATIVES
NANCY POTTER-THOMPSON
BARBARA HOY

CLASS AD SALES
HEATHER PAQUETTE
603-924-9471

ADVERTISING COORDINATOR
SUE DONOHOE

CUSTOMER SERVICE REPRESENTATIVE
SUSAN MAIZEL

SECRETARY
MARGOT SWANSON

WEST COAST OFFICE:

WESTERN STATES SALES MANAGER
GIORGIO SALUTI

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

CIRCULATION DIRECTOR
PAUL RUESS
1-800-525-0643

ASSISTANT CIRCULATION MANAGER
PAM WILDER

MARKETING MANAGER
WENDIE HAINES-MARRO

MARKETING COORDINATOR
LAURA LIVINGSTON

EXECUTIVE ASSISTANT TO PUBLISHER
LISA LAFLEUR

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.

# RUNning Ruminations

*In the Commodore eight-bit market, 1988 was a non-year.*



## Year in Review

It's been a long, hard year—elections, Olympics, America's return to space. So much happened, and yet, in the Commodore computing industry, 1988 may be best remembered not for its interesting developments, but for what didn't happen.

*The president of Commodore was *not* canned. No heads rolled, no major management shakeups occurred, no major layoffs transpired at Commodore this year, as Gould, Toy, et al, continue with their successful turnaround strategy.

*Commodore did *not* introduce any new products in 1988 for the multitude of eight-bit Commodore users. Their definition of an innovative technological breakthrough for this market is changing the color of the C-64 to match that of the C-128.

*Commodore also appears oblivious to the threat from video game manufacturers. We thought that 1988 would be the year Commodore would introduce new pricing and/or software bundling for the C-64 to make it an attractive alternative to the video game machines. Instead, they are contentedly letting that market slip away.

*Even existing products weren't really there. Forget about products that weren't developed in 1988. The 1670 modem was virtually non-existent in mid-year, and the 1750 RAM expander, due to the scarcity of memory chips, was hard to come by at year's end.

Thanks, Commodore, for your non-support.

Other 1988 high(low)lights:

*Nineteen eighty-eight will be remembered as the year of the games—for 64 owners, that is. On the 64 productivity side, GEOS remains the dominant force.

*Greetings to several new software developers, including video game manufacturers who have converted their software to the C-64. Welcome aboard!

*It was a year in which many users experienced laser printer envy. Although prices are coming down, they remain just out of the reach of the average Commodore user's budget.

*It was a year when computer viruses, of all things, made the cover of *TIME* magazine.

**RUN* quietly celebrated its fifth anniversary (but we promise a noisy bash for our ten-year celebration, to which you will be invited).

*It was a year in which Commodore owners were asked to trade in their pitiful, decrepit 64s, 128s or 128Ds for a whopping $100 allowance towards the purchase of an Amiga 500 or 2000. Any takers?

*This was a year in which, if you needed your computer serviced, your patience and faith in the American enterprise system were severely tested.

*This year saw Commodore discontinue manufacturing the standard 128 in favor of the 128D.

*Any support for Commodore eight-bit users comes from some online networks, BBSs, magazines, computer shows, some software developers and, of course, the user groups, the backbone of the Commodore computing industry.

*It was a year in which smoker-bashing stooped to new depths. The National Center for Health Statistics discovered that, among their other despicable habits, smokers are less active physically and apt to get less sleep. This probably describes 90 percent of the computer users I know. (Other bad habits include tendencies to pick up hitchhikers and to drive without a seat belt. How disgusting!)

As I gaze into my murky crystal ball, I predict more of the same in store for Commodore owners in 1989. Sorry, folks.

**Dennis Brisson**
**Editor-in-Chief**

# CARRIER COMMAND

## ENCOUNTER HIGH SPEED ACTION IN AN INTELLIGENT GAME OF TACTICAL WARFARE.

**THE TIME:** The 22nd Century.
**THE PLACE:** 64 islands in the Southern Ocean.
**THE PROBLEM:** A worldwide energy crisis.
**THE MISSION:** Gain control of the islands, set up centers to mine, recycle and produce materials to form a large network of power plants.
**JUST ONE MORE PROBLEM:** Enemy terrorists are destroying the islands. . . one by one.

**FAST-PACED ARCADE ACTION:** You are in control of up to 4 aircraft and 4 amphibious vehicles simultaneously. Capture enemy islands and destroy its forces.
**STRATEGIC TACTICAL WARFARE:** Conduct war maneuvers in a huge territory that includes over 60 islands. Protect your ship with defense drones and 360-degree turret mounted laser cannon with telephoto tracking.
**SENSATIONAL GRAPHICS:** Three-dimensional solid filled graphics, smooth scrolling, fabulous sound and special effects.
**ADDICTIVE, HOURS OF PLAY:** Your choice of action game or strategy game, plus save-game option provides hours and hours of extraordinary adventure!



REALTIME GAMES SOFTWARE LIMITED

RAINBIRD

P.O. Box 2227,
Menlo Park, CA 94026,
415/322-0900

Circle 224 on Reader Service card.

HOW TO ORDER: Visit your software dealer today, or call (800) 227-6900 from U.S. or Canada for Visa, MasterCard, Amex or C.O.D. To order by mail, send check/money order: Rainbird, P.O. Box 8123, San Francisco, CA 94128. CA add 6% sales tax and TX add 7¼%. Shipping/handling is $4.50. 2-3 weeks for delivery.

AVAILABLE: IBM CGA/EGA/VGA $39.95. Amiga and Atari 512K $44.95. Macintosh 512K $49.95. Commodore 64/128 coming soon.

Rainbird and Rainbird logo are trademarks of British Telecommunications plc. Macintosh is a trademark licensed to Apple Computer, Inc. IBM, Commodore and Atari are registered trademarks of International Business Machines Corp., Commodore Electronics Ltd., and Atari Corp., respectively.

# MAGIC

*Need better control over your cursor? Want to highlight menu options on both the 64 and 128? These and other tricks will help you get more use out of your computer.*

Compiled by TIM WALSH

## $4F8 64 Windows

Programmers have been writing window utilities for the C-64 since the first one rolled off the assembly line. Now there's a machine language windowing system for the C-64 entitled 64 Windows. It's short, easy to use and simple to incorporate into your own programs.

I've included a demonstration program that creates two windows and shows how windows are created. Although the program is fully relocatable in memory, its default location is 49152. Consequently, SYS 49152 will copy screen memory, SYS 49263 will create a window and SYS 49335 will replace screen memory. After activating 64 Windows, poke the following locations with their respective values to color and position windows on the screen:

| | | |
|---|---|---|
| Left side: | Poke 251, | (0–38) |
| Right side: | Poke 252, | (1–39) |
| Bottom: | Poke 253, | (1–24) |
| Character color: | Poke 254, | (0–15) |

```
Ø REM C-64 WINDOW - TODD NEUMILLER :REM*26
1Ø J=49152:FORA=JTOJ+253:READD:CK=CK+D:POK
   E A, D:NEXT                      :REM*176
2Ø IFCK<>35641THENPRINT"ERROR IN DATA.":EN
   D                                 :REM*7
3Ø POKE251,9:POKE252,29:POKE253,1Ø:POKE254
   ,14                               :REM*238
4Ø SYS49152:SYS49263                 :REM*189
5Ø PRINTCHR$(19)SPC(5Ø)"TO SAVE THE SCREEN
   !"                                :REM*199
6Ø PRINTSPC(16)"SYS49152"            :REM*84
7Ø PRINTSPC(54)"FOR WINDOWS"         :REM*168
8Ø PRINTSPC(16)"SYS49263"            :REM*145
9Ø PRINTSPC(55)"HIT A KEY!"          :REM*11
1ØØ GETK$:IFK$=""THEN1ØØ             :REM*28
11Ø POKE251,11:POKE252,27:POKE253,8:SYS492
    63                               :REM*14
12Ø PRINTCHR$(19)SPC(52)"RESTORE SCREEN!"
                                     :REM*252
13Ø PRINTSPC(16)"SYS49335"           :REM*166
14Ø PRINTSPC(55)"HIT A KEY!"         :REM*121
15Ø GETK$:IFK$=""THEN15Ø             :REM*1Ø5
16Ø SYS49335                         :REM*95
17Ø END                              :REM*43
18Ø DATA 162,216,134,188,169,Ø,133,187,162
    ,Ø,16Ø,Ø,173,254,Ø,145,187,2ØØ:REM*174
19Ø DATA 192,4Ø,144,246,24,165,187,1Ø5,4Ø,
    133,187,165,188,1Ø5,Ø,133,188 :REM*165
2ØØ DATA 232,224,25,2Ø8,226,162,Ø,189,Ø,4,
    157,Ø,6Ø,232,224,255,2Ø8,245  :REM*132
21Ø DATA 173,255,4,141,255,6Ø,162,Ø,189,Ø,
    5,157,Ø,61,232,224,255,2Ø8,245  :REM*1
22Ø DATA 173,255,5,141,255,61,162,Ø,189,Ø,
    6,157,Ø,62,232,224,255,2Ø8,245:REM*154
23Ø DATA 173,255,6,141,255,62,162,Ø,189,Ø,
    7,157,Ø,63,232,224,255,2Ø8,245 :REM*18
24Ø DATA 96,162,4,134,188,169,Ø,133,187,16
    2,Ø,172,251,Ø,169,117,145,187 :REM*151
25Ø DATA 2ØØ,169,32,145,187,2ØØ,2Ø4,252,Ø,
    144,246,172,252,Ø,169,118,145 :REM*15Ø
26Ø DATA 187,24,165,187,1Ø5,4Ø,133,187,165
    ,188,1Ø5,Ø,133,188,232,236,253:REM*23Ø
27Ø DATA Ø,2Ø8,212,172,251,Ø,169,12Ø,145,1
    87,2ØØ,2Ø4,252,Ø,144,246,169  :REM*19Ø
28Ø DATA 12Ø,145,187,96,162,Ø,189,Ø,6Ø,157
    ,Ø,4,232,224,255,2Ø8,245,173   :REM*12
29Ø DATA 255,6Ø,141,255,4,162,Ø,189,Ø,61,1
    57,Ø,5,232,224,255,2Ø8,245,173:REM*242
3ØØ DATA 255,61,141,255,5,162,Ø,189,Ø,62,1
    57,Ø,6,232,224,255,2Ø8,245,173 :REM*88
31Ø DATA 255,62,141,255,6,162,Ø,189,Ø,63,1
    57,Ø,7,232,224,255,2Ø8,245,96 :REM*173
```

—TODD NEUMILLER, SPOKANE, WA

## $4F9 128 Windows

This trick shows a few shortcuts for making windows on the C-128 in both 40- and 80-Column modes. Because the syntax of the Window command is so confusing and difficult to remember, I've simplified it here by listing the four easily remembered Poke commands you'll need in order to create windows:

| | | |
|---|---|---|
| POKE 228, | (0–24) | Bottom of window |
| POKE 229, | (0–24) | Top of window |
| POKE 230, | (0–79) | Left margin of window* |
| POKE 231, | (0–79) | Right margin of window* |

*Note: A maximum value of 39 can be used with the 40-column screen.

After you've created a window using any of the above Pokes, you can deactivate it by pressing run-stop/restore or by pressing the home key twice.

—JOHN COLGAN, RAYTOWN, MO

## $4FA 64 Memory Saver

While the C-64 lacks a BSave (binary save) command for saving areas of memory to disk, this shortcoming can be overcome with only six lines of Basic code. The listing, 64 Memory Saver, saves a section of memory containing a machine language routine to disk as a fast loading machine language file.

As an example, let's say you have a utility that resides in locations 49152 to 49252 and is activated with SYS 49152. Just load and run the utility, then load and run 64 Memory Saver. Enter a starting address of 49152, an ending address of 49252 and a filename, such as "49152 UTILITY".

After you've saved the utility to disk with 64 Memory Saver, you can load it with LOAD "49152 UTILITY",8,1 and activate it with SYS 49152.

```
Ø REM 64 MEMORY SAVER - JOE CHARNETSKI
                                        :REM*71
1Ø INPUT"STARTING ADDRESS :";S          :REM*235
2Ø INPUT"ENDING ADDRESS :";E:E=E+1:REM*1Ø3
3Ø INPUT"FILENAME : ";F$:SYS 57812F$,8
                                        :REM*175
4Ø POKE 173,S/256:POKE 172,S-256*PEEK(173)
                                        :REM*28
5Ø POKE 78Ø,172:POKE 782,E/256          :REM*73
6Ø POKE 781,E-256*PEEK(782):SYS 65496
                                        :REM*95
```

—JOSEPH CHARNETSKI, PLAINS, PA

## $4FB JOYSTICK-CONTROLLED CURSOR

If you've ever wanted to move the C-64's cursor with something other than the cursor keys, then 64 Cursor Joystick is for you. Once typed in and enabled with SYS 49152, a joystick in port 2 lets you move the cursor anywhere around the screen.

You'll find that this program will never interfere with other program operations. It can be disabled with run-stop/restore, and the cursor speed can be adjusted by entering POKE 49174, X, where X is a value between 3 (fastest) and 15 (slowest).

```
Ø REM CURSOR JOYSTICK - LEONARDO PAKMAN
                                        :REM*63
1Ø FOR T= 49152 TO 49249:READD:POKET,D:CK=
   CK+D:NEXT                            :REM*187
2Ø IF CK<> 12Ø25 THENPRINT"ERROR IN DATA S
   TATEMENTS...":END                    :REM*151
3Ø SYS 49152:PRINT"CURSOR JOYSTICK ACTIVAT
   ED"                                  :REM*116
4Ø DATA 12Ø,169,13,141,2Ø,3,169,192,141,21
   ,3,88,96,234,234,234,2Ø6,97          :REM*187
5Ø DATA 192,2Ø8,73,169,4,141,97,192,173,Ø,
   22Ø,2Ø1,127,24Ø,61,169,1,133         :REM*195
6Ø DATA 198,173,Ø,22Ø,2Ø1,126,2Ø8,8,169,14
   5,141,119,2,76,49,234,173,Ø          :REM*229
7Ø DATA 22Ø,2Ø1,125,2Ø8,8,169,17,141,119,2
   ,76,49,234,173,Ø,22Ø,2Ø1,119         :REM*78
8Ø DATA 2Ø8,8,169,29,141,119,2,76,94,192,1
```

►


Pocket™ Author

For the C-64

**New, exciting creative software from the company that brought you the world famous, best selling "Pocket™ Writer".**

**Pocket™ Author breaks new barriers. Now you can create your own software applications without an in-depth knowledge of programing.**

With Pocket™ Author you can:

- create your own applications with pull down menus, screen management and mouse or joystick control.
- design pop-up menus with as many as eight overlays.
- move an arrow to select an "icon" or image area to be filled with text or pictures.
- "multi-task" sound and animation.
- draw or paint images.
- use the many, many other excellent features.

With Pocket™ Author, you can create games, question and answer programmes, business and educational applications, animation sequences, music, and almost anything you can imagine. The manual contains a tutorial to get you started. There are over 20 help screens summarizing how to use Pocket™ Author. Also included are examples and utilities to facilitate making your own icons and help screens.

Don't wait! Order Pocket™ Author today! You can get the newest breed of "Creativity Software" only from Digital Solutions. Send in the Order Form below or call 416-731-8775 [credit cards orders only].

**Regular price is $59.95 U.S.[$69.95 Cdn.]**

**But, our Special Introductory price is only $39.95 U.S. [$49.95 Cdn.] and We pay all shipping and handling charges.**

Ontario residents add 8% Provincial Sales Tax of $4.00 [Total of $53.95]

**Please send me Pocket™ Author**

Name_____

Address_____ City_____

State/Prov._____ Postal code_____

☐ Payment enclosed ☐ Amex ☐ Visa ☐ MasterCard

Acct#_____ Exp.___/____

Signature_____

*Credit card orders must be signed.*

Send to: Digital Solutions Inc., P.O. Box 345, Station A, Willowdale, Ontario, Canada M2N 5S9

Circle 46 on Reader Service card.

```
   73,Ø,22Ø,2Ø1,123,2Ø8,5,169        :REM*97
9Ø DATA 157,141,119,2,76,49,234,4 :REM*156
```

—LEONARDO PAKMAN, BUENOS AIRES, ARGENTINA

## $4FC 64 DISK DRIVE LIGHTSHOW

Use this C-64 bit of magic to add mystery to your programs. 64 Disk Drive Lightshow makes your 1541 or 1571 disk drive's light gradually fade off and on after you've executed the SYS 49152 command. It also suspends access to the drive until you deactivate it with run-stop/restore and turn off the disk drive.

```
Ø REM 64 DISK DRIVE LIGHT SHOW - JEREMIAH
  MANN                                :REM*157
1Ø FOR T=49152 TO 49286:READD:POKET,D:CK=C
   K+D:NEXT                           :REM*161
2Ø IF CK<> 194Ø7 THENPRINT"ERROR IN DATA S
   TATEMENTS..."                      :REM*7
3Ø PRINTCHR$(147)"TO ACTIVATE THE DISK DRI
   VE LIGHT, ENTER SYS 49152"         :REM*86
4Ø DATA 169,1,162,8,16Ø,15,32,186,255,169,
   Ø,32,189,255,32,192,255,162        :REM*173
5Ø DATA 1,32,2Ø1,255,162,Ø,169,77,32,21Ø,2
   55,169,45,32,21Ø,255,169,87        :REM*237
6Ø DATA 32,21Ø,255,138,32,21Ø,255,169,5,32
   ,21Ø,255,169,1,32,21Ø,255          :REM*168
7Ø DATA 189,9Ø,192,32,21Ø,255,138,72,32,2Ø
   4,255,162,1,32,2Ø1,255,1Ø4         :REM*89
8Ø DATA 17Ø,232,224,45,2Ø8,2Ø4,169,85,32,2
   1Ø,255,169,67,32,21Ø,255,32        :REM*164
9Ø DATA 2Ø4,255,96,169,254,17Ø,32,21,5,2Ø2
   ,224,1,2Ø8,248,32,21,5,232         :REM*1ØØ
1ØØ DATA 224,255,2Ø8,248,24Ø,235,138,72,73
    ,255,168,169,248,141,Ø,28         :REM*121
11Ø DATA 2Ø2,2Ø8,248,169,24Ø,141,Ø,28,136,
    2Ø8,248,1Ø4,17Ø,96                :REM*234
```

—JEREMIAH MANN, VISALIA, CA

## $4FD 64/128 HIGHLIGHTED MENU ROUTINE

While there are programs for creating menu systems for both the C-64 and C-128, most have some limitations, and that's usually a lack of compatibility with both computers. You'll find my 64/128 Highlighted Menu Routine has virtually no limitations and is completely compatible with both the C-64 and the C-128.

The 64/128 Highlighted Menu Routine highlights and selects menu options as you scroll through them with the up-down cursor key. Configuring this routine for your own programs is remarkably easy—just substitute your own menu options in the Data statements at the beginning of the routine and change the variable NI to one less than the number of items in the menu.

For added flexibility, you can change the variables X and Y at the beginning of the program to set the horizontal (X) and vertical (Y) locations of the menu.

```
Ø REM 64/128 HIGHLIGHTED MENU ROUTINE - RE
  X DAY                               :REM*12Ø
1Ø X=12:Y=8:Y$="{CTRL 9}":Z$="{CTRL Ø}":IF
    PEEK(65532)=61 THEN 3Ø            :REM*78
2Ø XR=781:YR=XR+1:SR=YR+1:GOTO 4Ø:REM USED
    BY C-64                           :REM*134
3Ø XR=7:YR=XR+1:SR=YR-3:REM USED BY C-128
                                      :REM*127
4Ø NI=4:FOR H=Ø TO NI:READ OP$(H):NEXT
                                      :REM*79
5Ø DATA "ADD TRANSACTIONS","VIEW TRANSACTI
   ONS","PAYMENT SUMMARY","BUDGET":REM*23Ø
6Ø DATA "EXIT"                        :REM*13Ø
7Ø PRINTCHR$(147):YY=Y:GOSUB18Ø       :REM*165
8Ø FORH= Ø TO NI:PRINTTAB(X)OP$(H):NEXT
                                      :REM*225
9Ø YY=Y+A:GOSUB 18Ø:PRINTY$;OP$(A);Z$
                                      :REM*2Ø1
1ØØ GETA$:IF A$=""THEN 1ØØ            :REM*173
11Ø GOSUB 18Ø:PRINTOP$(A)             :REM*162
12Ø IF A$="{CRSR DN}"THEN A=A+1:IF A>NI TH
    EN A=Ø                            :REM*28
13Ø IF A$="{CRSR UP}"THEN A=A-1:IF A=-1 TH
    EN A=NI                           :REM*154
14Ø IF A$<> CHR$(13) THEN 9Ø          :REM*33
15Ø PRINT:PRINTTAB(5)"{5 CRSR DNs}YOU SELE
    CTED ";Y$;OP$(A);Z$               :REM*127
16Ø IF OP$(A)="EXIT"THEN END          :REM*1Ø4
17Ø FORT=1TO1ØØØ:NEXT:GOTO 7Ø         :REM*196
18Ø POKE XR,YY:POKE YR,X:POKE SR,Ø:SYS 655
    2Ø:RETURN                         :REM*73
```

—REX DAY, MOUNTAIN HOME, ID

## $4FE WHEN ALL ELSE FAILS. . .

It's Sunday night, and you need to print a report or paper due Monday morning just as your printer ribbon breaks. Magic can help. Remove the broken ribbon and, if needed, set the print head gap for three sheets of paper. Then put into the printer two sheets of paper with a sheet of carbon paper in between. The top sheet will be illegible, but the bottom sheet will print as a carbon copy. While this is a great trick in emergencies, it's still no substitute for having a second printer ribbon handy.

—KEN ASTON, L'AMABLE, ONTARIO, CANADA

## $4FF THE OLD PROGRAM FILE DILEMMA

In the January 1988 issue of *RUN*, Magic trick $464, "Lou's Sequential Saga," showed how to convert a Basic program into a sequential file that could then be read by word processors and telecommunications programs. The code was a simple Direct Mode command as follows:

```
OPEN 8,8,8,"FILENAME,S,W":CMD8:LIST:PRINT#8:CLOSE 8:
```

While this is a handy bit of magic, if your word processor or terminal program can't read sequential files, novice computer users won't be able to load the sequential file. If you're one of the hapless souls whose word processor can't read sequential files, just substitute a ,P,W for the ,S,W that follows the word FILENAME in the above example. You'll then be able to read the file into your word processor. However, it won't be as "clean" and well-formatted as the sequential file versions.

A lowercase m will be substituted for all returns in your file. All you have to do is use your word processor's Search-with-Replace function to scan the document and replace the m's with returns.

—ANTHONY AGUIRRE, HAVERTOWN, PA

## $500 Detecting the Restore Key

Detecting most key presses on the C-64 is easily accomplished through the use of one or more Peek commands. However, detecting a restore key press is difficult. You can use my Restore Key Detection Routine in any program without affecting the run-stop/restore combination.

As written, the program monitors the RS-232 port for activity, and it pokes location 673 with a 0 to keep disk access normal. Just don't perform any RS-232 accesses when using this routine in your own programs.

```
Ø REM C-64 RESTORE KEYPRESS DETECTION - DE
  NNIS MAGAR                          :REM*187
1Ø PRINTCHR$(147):POKE 5659Ø,1:POKE 673,1
                                      :REM*1Ø1
2Ø PRINT"{HOME}PRESS RESTORE TO SEE MESSAG
  E"                                  :REM*215
3Ø IF PEEK (673)=128 THEN POKE 673,1:GOTO
  5Ø                                  :REM*114
4Ø GOTO 2Ø                            :REM*164
5Ø PRINT"PRESS RESTORE AGAIN TO END"
                                      :REM*99
6Ø IF PEEK (673)=128 THEN POKE 673,Ø:END
                                      :REM*9Ø
7Ø GOTO 6Ø                            :REM*2Ø2
```

—Dennis Magar, Wylie, TX

## $501 1670 Auto-Answer Disable

My Commodore 1670 modem is great for 1200-baud telecomputing, except that it lacks a switch to disable auto-answering. 1670 users should keep the following program handy, which can be run when you're finished using the modem. It disables the auto-answer feature without disconnecting the modem.

```
10 OPEN 2,2,2, CHR$(6)+CHR$(10)
20 PRINT#2,"ATSO=0":CLOSE 2
```

—Craig Stern, Hartsdale, NY

## $502 No-Nonsense 1670 Auto-Answer Disable

Fellow 1670 users should go to their nearest Radio Shack store and ask for part #43-127, which costs about $8. The part is a ring silencer, and you plug your incoming phone line into one end and the other end of the ring silencer into your 1670. Then you can plug a line to your telephone from the other telephone line port on the modem.

The silencer keeps the 1670 from answering incoming calls, yet allows outgoing calls. Best of all, the silencer has a light that comes on with each ring. You'll never have to run another auto-answer disable program or unplug the modem again.

—Fred J. Soderlund, Goleta, CA ■

*Magic is a forum for* RUN*'s imaginative and inventive readers to share their programming tips, brief software or hardware modifications, shortcuts or items of general interest. If you have an idea to make computing easier, faster, more exciting and enjoyable, send it to Magic,* RUN *Magazine, 80 Elm St., Peterborough, NH 03458.*

*Magic pays $10–$40 for each trick published in the column.*

*If you'd like a copy of the latest edition of* RUN*'s Magic Trick Writer's Guide, send your request with a self-addressed, stamped, business-size envelope; you'll receive a copy in two or three weeks.*


NEW from Digital Solutions

**Templates for Pocket Writer™, Pocket Filer™, Pocket Planner™ and, Applications for our newest product, Pocket™ Author for your C-64/128**

Now, we've made our "easy to use" programs even easier to use. We did all the "front end" work on these templates and applications so you can use them as they are, or modify them for your own purposes. These templates and application are only available from Digital Solutions and require the the appropriate Pocket™ program to run. You will not find them in stores. Please put a check mark in the box next to disk(s) you wish to order.

☐ **Pocket Writer™ Template Disk**
*Includes the following:*
- Medical Record
- Invitation
- Purchase Order
- Science Experiment
- Timetable
- Resume
- Will
- Offer To Lease

☐ **Pocket™ Author Application Disk**
*Includes the following:*
- English
- Music
- Fact Quiz
- Jotto
- Funny Face
- Math
- Typing Tutor
- Tic Tac Toe
- Hangman

☐ **Pocket Planner™ Template Disk**
*Includes the following:*
- Budget
- Weekly Exercise
- Fuel Efficiency
- Hockey Statistics
- Baseball Statistics
- Checkbook
- Bowling Statistics

☐ **Pocket Filer™ Template Disk**
*Includes the following:*
- Phone Book
- Music Collection
- Credit Cards
- Books
- VCR List
- Xmas List
- Recipe
- Inventory
- Car Maintenance
- School Records
- Bartender
- Disk Organizer

Don't wait! Order your Pocket™ Templates and Applications today! You can only get them from Digital Solutions. Send in this Order Form or call 416-731-8775 credit cards orders only].

**Our Special Introductory price for each disk is only $24.95 U.S. [$29.95 Cdn.] and We pay all shipping and handling charges.** Ontario residents add 8% Provincial Sales Tax of $2.39 [Total of $32.34] Can.

Name_____

Address_____ City_____

State/Prov._____ Postal code_____

☐ Payment enclosed ☐ Amex ☐ Visa ☐ MasterCard

Acct#_____ Exp.___/___

Signature_____

*Credit card orders must be signed.*

**Send to: Digital Solutions Inc., P.O. Box 345, Station A, Willowdale, Ontario, Canada M2N 559**

Circle 27 on Reader Service card.

# MAIL RUN

*Setting the record straight about geoWrite Workshop 128, 64- vs. 128-mode programs and Dark Castle.*

## A GOOD SCARE

The animated Pumpkin program in "Scared Silly!" (*RUN*, October 1988) is delightfully humorous and a terrific example of the graphics capabilities of the C-128. Hats off to programmer Joey Latimer!

—GEORGE J. CLARK
POINTE CLAIRE, QUEBEC, CANADA

## TELL IT LIKE IT IS

When I see a commercial program disk with the legend, C-64/128, I expect the program to run in both 64 and 128 modes. However, such is not the case—it runs on the C-64 and on the C-128 in 64 mode. This is misleading. Software publishers should recognize this and tell it like it is.

—ELMER ROTHFUS
SUN CITY, AZ

*We agree that it is a misleading practice. You'll note that* RUN *was one of the early pioneers in clearly distinguishing between programs that run in the 64 vs. the 128 mode.*

—EDITORS

## FAULTY TOWERS

In the Software Gallery of the September 1988 issue of *RUN*, reviewer Tim Walsh stated there was a problem loading Dark Castle in the 1571 disk drive. Of the thousands of copies of the game sold so far, only two were returned with that problem. One was badly scratched; the other disk was fine—the user's 1571 drive heads were out of alignment.

We'll be happy to run a diagnostic test on any disk an owner experiences as faulty, including Tim's, and we'll gladly replace any disk found faulty as a result of manufacturing.

—ANN FELTES
PUBLIC RELATIONS SPECIALIST
THREE-SIXTY, INC.
CAMPBELL, CA

## IS THAT WRITE?

Regarding Marte Brengle's two-part review of geoWrite Workshop 128 (*RUN*, August and September 1988, geoWatch), I have some points and some complaints to make.

Brengle can't understand why Berkeley Softworks' applications all require 1541-mode installment. Would she prefer being restricted to 1571-mode installment? Many 128 owners I know up-graded from the 64 and kept their 1541 drives, so such a scheme would leave them out in the cold.

I'd like to clarify the confusion surrounding 60-dpi printers. No matter what printer driver you use, the first thing you should do is move the right margin to the 6 on the Ruler when printing at 60 dpi. Anything beyond that won't work. Also, when using Paint Overlay to make a multicolumn geoPaint document, keep all the margins no greater than 6. Otherwise, you'll lose a piece of the right-hand column.

I was shocked to read that the Text Grabber converts the original word processor file and leaves it incomprehensible to its creator. If that were true, would Text Grabber ask for a new filename for geoWrite to create? Take a look at the deskTop after grabbing some text and you'll see what I mean.

Marte also neglected to mention an odd feature of gWW 128: There's a little "P" indicator on the Ruler that you can use to set automatic indents at the beginning of paragraphs. There's a good reason for this: though the manual neglects to mention it, regular tabs don't work in Full Justification mode.

A question: Where can someone without a modem get the double- and quad-strike print drivers that she mentioned?

—AARON PEROMSIK
WORCESTER, MA

*Marte Brengle states: "First of all, in the matter of 1541/1571 installation, there are many 128 owners who continue to use their 1541s (in fact, I'm still using mine). However, the installation procedure should work regardless of which drive is used.*

*"The Text Grabber information was indeed a mistake. I don't use that feature very often, since I generally stick to one word processor, and I neglected to check on this because I thought I remembered how it worked. Obviously, I shouldn't take my memory for granted!*

*"I talked a bit about the P for paragraph-indent marker in the original text of the article, but didn't go into detail. It's interesting to learn about all these little goodies that have been left out of the manual.*

*"Serious GEOS users should consider getting a modem and a subscription to QuantumLink, whose collection of software for the operating system is second to none. To find the print drivers you need, a good place to start would be Berkeley Softworks or a local users group."*

—EDITORS

## KNOCK ON WOOD

The game Cards-31 ("Knock!" *RUN*, September 1988) can be made more realistic and colorful by incorporating the following changes (changing the colors in the original line 20 makes the background more compatible with the red suits):

```
20 POKE53280,12:POKE53281,15
610 PRINT"{9 CRSR DNs}"TAB(18)"(4)"
1330 S$(1)="{SHFT/A}":S$(2)="{CTRL/3}{SHFT/S}{CTRL/1}"
1335 S$(3)="{CTRL/3}{SHFT/Z}{CTRL/1}":S$(4)="{SHFT/X}"
1372 BZ=(I-1)—10+5
1375 PRINTTAB(BZ)"{1 SPACE}{7 CMDR/@s}"
1380 PRINTTAB(BZ)"{SHFT/N}{7 SPACEs}{SHFT/M}"
1390 PRINTTAB(BZ)"{CMDR/G}"C$"{5 SPACEs}{CMDR/M}"
1400 PRINTTAB(BZ)"{CMDR/G}{7 SPACEs}{CMDR/M}"
1410 PRINTTAB(BZ)"{CMDR/G}{3 SPACEs}"S$"{3 SPACEs}
     {CMDR/M}"
1420 PRINTTAB(BZ)"{CMDR/G}{7 SPACEs}{CMDR/M}"
1430 PRINTTAB(BZ)"{CMDR/G}{5 SPACEs}"C$"{CMDR/M}"
```

```
1440 PRINTTAB(BZ)"{SHFT/M}{7 SPACEs}{SHFT/N}"
1445 PRINTTAB(BZ)"{1 SPACE}{7 CMDR/Ts}"
1450 PRINT"{10 CRSR UPs}"
```

—Charles W. Haynes
Beatrice, NE

### Printer Perfect

Thank you for author Tim Walsh's article, "Printers on Parade," which appeared in the October 1988 issue of *RUN*.

I know it's impractical to include all the latest printers in one short article, but I believe Mr. Walsh should have included the new Star NX-1000C, made exclusively for use with Commodore computers.

Almost every attractive feature mentioned in your article is incorporated into this printer, which lists for $299.

—Donald W. Rose
Yucca Valley, CA

*Thanks for the compliment. Stay tuned to* RUN *for a roundup of Star printers in our Hardware Gallery column.*

—Editors

### Oops!

We appreciated the vote of confidence in our product, the Epyx FastLoad Cartridge ("Rapid Transit Systems," *RUN*, August 1988). However, FastLoad actually retails for $39.95.

—Debra Simshauser,
Public Relations, Epyx, Inc.
Redwood City, CA

### In Defense of C-128 Software

This is in response to the three Mail RUN letters ("Why So Little C-128 Support?", "My 40/80 Key Stays Down!" and "Come Down From Your Mountain, Commodore!") in the September 1988 issue of *RUN*.

First, for each C-128 sold, a C-64 is also sold. As there are now some eight million C-64s and only two million C-128s, the 64 market is actually ten million units strong (since you can run any 64 program on the 128), and any software company is going to sell to the largest market.

Second, have any of these readers checked their local users groups for C-128 software? And how about Q-Link, whose 1988 Public Domain Software Directory has *37 pages* of 128 software, covering applications, CP/M, graphics, games, music, telecommunications, programmer's tools, and on and on.

Third, if all else fails, learn to write your own programs. That's the single most important factor about personal computers, that you're not at the mercy of software developers' whims—you can produce your own software.

—L. R. Hollis
Ridgecrest, CA ■


# THE ULTIMATE
## Word Processor from Digital Solutions

Here it is ...the ultimate in power ...the ultimate in ease of use...the ultimate in speed for your Commodore 64 & 128. All of the on-screen features that made Pocket Writer a 500,000 seller, plus these new exciting additions:

- Multiple columns. Print up to 4 newspaper -style columns.
- Macro capability. Record and invoke.
- Undo. To cancel last command.
- Markers. Mark up to 10 locations in one text.
- Book paging, odd-even and left/right.
- Line and box drawing modes.
- Word, sentence and paragraph count.
- Find/replace in either direction.
- Cursor movement by sentence and paragraph.



**Pocket Writer™ 3**

Professional Word Processor for the Commodore 128 and 64

***Plus all the features you've become accustomed to:***

- No complicated format commands embedded in text.
- Reads files generated by Pocket Filer 2 and Pocket Planner 2.
- On-screen text formatting and wordwrap. What you see is what you get!
- Automatic configuration for screen color, format and printer selection.
- Spelling Checker incorporated into both 64 & 128 programs. (Original Pocket Dictionary compatible)

**Special Offer!**

If you order your Pocket Writer™ 3 Program from Digital Solutions Inc. before January 31,1989, you will receive a Free Pocket Writer™ Template Disk (retail value 24.95 U.S. (29.95 Can.)

**Don't wait! Order today!** You can get the Ultimate Word Processor from Digital Solutions. Send in the Order Form or call 416-731-8878 or Fax 416-731-8915 (credit cards orders only) Price is $69.95 U.S. ($79.95 Can.) We pay all shipping and handling charges.
Ontario residents add 8% Provincial Sales Tax of $6.40 (Total $86.35)

*Please check the version you require* 64 ☐ 128 ☐

Name _____
Address _____ City _____
State/Prov. _____ Postal Code _____
Payment enclosed ☐ Amex ☐ Visa ☐ Mastercard
Acct. _____ Exp. _____
Signature _____
Credit card orders must be signed.

Digital Solutions Inc.

P.O. Box 345,
Station A,
Willowdale, Ontario,
Canada M2N 559
Phone: 416-731-8878
Fax: 416-731-8915

Circle 97 on Reader Service card.

# News and New Products

*Dress to the nines in computer T-shirts; race the fastest cars in the world; or wage battles on earth or in space.*

Compiled by HAROLD R. BJORNSEN

## Baud-y Modem

CAMARILLO, CA—MiniModem-C is a direct-connect Hayes- and 1670-compatible 300/1200-baud modem for Commodore computers. It comes with a complete set of indicator lights that tells you its status at all times. The complete Hayes AT command set is supported and software-selectable. Default settings are switchable, using internal DIP switches. A built-in speaker lets you hear line responses. MiniModem, which can run any Commodore terminal program, is available for $74.95. Aprotek, 1071-A Avenida Acaso, Camarillo, CA 93010.

Check Reader Service number 400.

## Power Dressing

HONOLULU—Computer Lust (PO Box 61734, Honolulu, HI 96839) has released silk-screen T-shirts with humorous computer themes, including Good to the Last Byte, Getting Loaded, Basic Training, RAM-Bo, Miss DOS and Transformer. Prices not available at press time. T-Shirts, which are available in several sizes, can be ordered directly from Computer Lust.

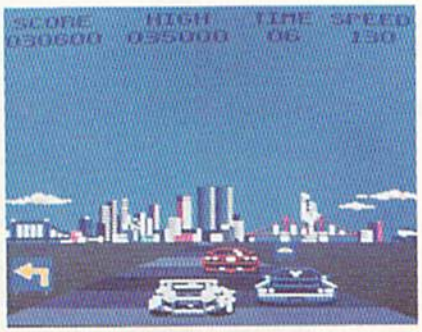
Check Reader Service number 401.

## Spec-ial Specs

CARROLLTON, TX—A Carrollton, Texas, company is developing stereoscopic 3-D glasses to be used with the C-64. Haitex Resources says the X-Specs 3-D glasses, which are cabled to the computer, control what each eye sees independently by closing and opening an optical shutter at 60 frames per second, using a high-speed liquid crystal. The glasses, when available, will not come cheap—the Amiga version costs $124.95.

## Not Fast Enough for You?

CHATSWORTH, CA—Imagine racing a Mercedes 560 SEC at speeds of up to 160 mph. Too slow for you? How about a Porsche 911 Turbo? Still too slow? Maybe a Lamborghini Countach or a Ferrari GTO is more up to par to your driving tastes. Crazy Cars lets players test their driving skills in some of the world's fastest cars on race courses in areas like Arizona, Florida and Malibu. As players successfully complete all the race courses, they'll graduate to the next level of driving skill, with 72 levels in all. Priced at $39.95 for the C-64, it's available from Titus Software, 20432 Corisco St., Chatsworth, CA 91311.




**Burn rubber in the racing game, Crazy Cars, from Titus Software.**

Check Reader Service number 407.

## Back to the Future

LONDONDERRY, NH—In 2400 AD, the Robot Patrol has been given full authority over the city of Metropolis on the planet XK-129. Metropolis was once a flourishing city where intellectual, scientific and cultural growth was in abundance. It is now in a state of siege where research is prohibited and martial law prevails. As a new arrival on the planet, you are chosen by the underground resistance to lead the revolution and restore freedom to Metropolis. The game features futuristic weaponry and a holoprojector to create a duplicate image of yourself in order to divert robot attacks. For the C-64, it's available for $39.95. Origin Systems, 136 Harvey Rd., Bldg. B, Londonderry, NH 03053.

Check Reader Service number 404.

## 3½-Inch Disk Holders

CHELTENHAM, PA—DisKeeper, a storage method for 3½-inch disks, uses a standard three-ring binder. The edged-tabbed, plastic page holds four disks locked in place while its design lets you remove a disk with one hand. The pages are light and durable, leaving labels and the write-protect switch accessible. DisKeeper is available in two packages: five pages, self-stick index labels and a black, padded, three-ring binder for $19.95; or three DisKeeper pages and self-stick index labels for $6.95; add $3 s/h. Cobar Inc., 301 Highland Rd., Cheltenham, PA 19012.

Check Reader Service number 406.

## Back to School

SPRINGFIELD, MO—ACS Software (2135 E. Sunshine, Suite 106, Springfield, MO 65804) is offering Grade Manager, a grading management software package for teachers. The C-64 and C-128 versions provide automatic conversion of grades to 100-point scale, allow searching for students by name, I.D. number, assignment date and name, and auto-advancing through the roster starting at a desired roster number. It also has a generic search capability to allow searches based on partial names. A variety of reports can be printed out, including class and attendance rosters, gradebook sheets, grade lists with or without names, mid-term and final average sheets, and student grades sheets listing each student's grades, category averages and mid-term and final averages. It's available for $69.95.

Check Reader Service number 402.

## Holm, Sweet Holm

GRANADA HILLS, CA—MicroIllusions (17408 Chatsworth St., Granada Hills, CA 91344) has released Faery Tale Adventure for the C-64. Fear and death have come to the once-peaceful land of Holm. Ogres plague the roads and wraiths walk the night. The Necromancer has stolen the Talisman that once kept the world safe. Yet not all hope is lost. With your help, brothers Philip, Julian and Kevin may venture forth into woods and mountains, across oceans and bogs in search of the Necromancer

and a way to defeat him. The game features over 17,000 screens to make up a 3-D world full of castles, cities and dungeons, and talking turtles and magic swans can help you. $49.95.

Check Reader Service number 405.

### Its Master's Voice

EUGENE, OR—In Escape from Planet X, a C-64 text adventure, a player uses voice commands to control his moves. You begin the game strapped to a table in the Human Research Lab of the noseless and mad Professor Schism. If you manage to escape, you may then explore planet X, confronting exotic ocelots in alien jungles, digging for treasure on far-off islands, co-existing with aliens or blasting them to pieces. The game is included with the Voice Master Jr. ($49.95) or the Covox Voice Master ($89.95). Or, players may obtain the game alone for $19.95 and use the keyboard in lieu of voice commands. Covox, Inc., 675-D Conger St., Eugene, OR 97402.

Check Reader Service number 409.

### What a Gas!

REDWOOD CITY, CA—Space Station Oblivion, a science fiction thriller from Epyx (PO Box 8020, Redwood City, CA 94063) is set many millenia hence, when Earth has been destroyed and generations of innerspace immigrants have found a new home on the planet Evath. There, the felonious Ketars live a blue-collar life, mining for precious metals. But their mining has left pockets of gas that threaten to annihilate them and throw planet Evath out of orbit. Your mission is to place a drill in each of 18 different sectors to release the vapors and save Evath. Available for the C-64 for $39.95.

Check Reader Service number 408.

### Music, Maestro

ST. PAUL, IN—The SID Symphony Stereo Cartridge from Dr. Evil Laboratories (PO Box 190, St. Paul, IN 47272) provides you with three additional voices over the C-64's three voices, along with true stereo sound capability. The cartridge is powered by a replaceable 9-volt alkaline battery. The only extra hardware required are two RCA male-to-male cables to connect the computer outputs to a stereo system. $34.95. Also available, for those who don't have access to SID music libraries, is the Stereo SID Music Collection Volume 1 disk. It includes public domain music for use with the cartridge. $1.

Check Reader Service number 410.

### Jet Boys

SAN JOSE—In Jet Boys, a one- or two-player arcade-style action game for the C-64, you take the role of a jet pack-equipped commando whose mission is to enter and deactivate an enemy-controlled reactor room, all the while trying to survive waves of deadly galactic terrorist attacks. The game features four increasingly difficult levels of play, and at the end of each level you must destroy a megabeast that blocks the way before proceeding to the next level. Jet Boys is available from Accolade (550 S. Winchester Blvd., Suite 200, San Jose, CA 95128) for $14.95.

Check Reader Service number 411. ■




# 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 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.

► ***Better yet,*** **CALL TOLL FREE 1-800-258-5473 and get *RUN* working for you even sooner!**

**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

4AD18

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**

# FAST DELIVERY, FREE GAMES and LOWER PRICES

## ONLY FROM tcp & Commodore®

Commodore® COLT™



The Complete IBM® Compatible Machine For The Whole Family!

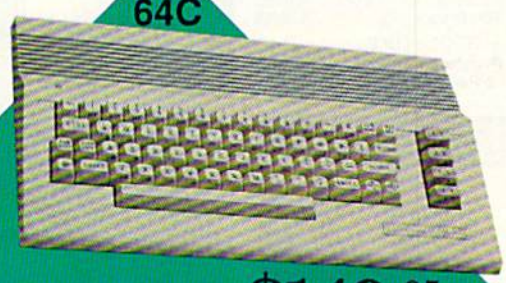
**$699**

w/o Optional Commodore 1084 Color Monitor

- 640K RAM/Dual Floppy Drives
- Dual Speed - 4.77 & 8MHz
- Parallel, Serial & Mouse Ports
- Built-In Monochrome/Color Video Card
- Includes MS-DOS 3.2

| | |
|---|---|
| With Commodore 1084 Color Monitor | $995 |
| With Samsung Color Monitor | $899 |
| With Hi-Resolution Monochrome Monitor | $769 |

Commodore® 64C



Includes GEOS & Quantum Link **$149.95**

| | |
|---|---|
| 64C w/1541 II Disk Drive | $309 |
| 64C w/1541 Drive &1802C Monitor | $519 |

Commodore® 128D

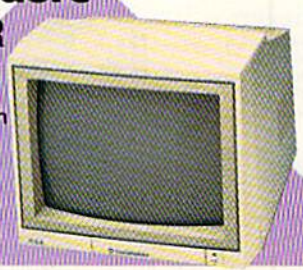


- 128K Memory
- Built-In 1571 Disk Drive
- Detachable Keyboard

**$439**

| | |
|---|---|
| 128D w/Commodore 1084 Color Monitor | $719 |
| 128D w/Magnavox 8762 Color Monitor | $679 |

Commodore® 1084 COLOR MONITOR



- 640 x 400 Resolution
- 4 Operating Modes

**$299**

| | |
|---|---|
| MAGNAVOX 8762 ■ 640 X 240 Resolution ■ 3 Modes ■ 1 Yr Warranty | $249 |
| MAGNAVOX 8702 ■ 350 x 330 Resolution ■ Tilt Stand ■ 1 Yr Warranty | $179 |
| COMMODORE 1802C Color Monitor | $199 |

**FREE** COMMODORE GAMES WITH ANY PURCHASE!



*See Following Pages For Details*

Commodore® 1351 MOUSE

- Mouse & Joystick Operation
- GEOS Compatible

**$39.95**

Commodore® 3½" DISK DRIVE



**$189**

Commodore® 1670 MODEM

1200 BAUD DIRECT CONNECT

**$69**



Commodore® 1764 256K RAM EXPANSION

**$119**



Commodore® 1541II 5¼" DISK DRIVE

**$175**



Circle 209 on Reader Service card.

*SEE FOLLOWING PAGES FOR ORDERING INFORMATION*

**TUSSEY COMPUTER PRODUCTS** TOLL FREE **1-800-468-9044** tcp

# GAME GALLERY

## Educational Software too!

*ALL GAMES STOCKED FOR QUICK SHIP!*

**ACCESS**
Echelon ..... $25.95
Leader Board ..... $22.95

**ACCOLADE**
Apollo 18 ..... $17.95
Comics ..... $19.95
4th & Inches ..... $18.95
Hard Ball ..... $9.95
Miniputt ..... $18.95
Test Drive ..... $18.95

**ACTIONSOFT**
Thunder Chopper ..... $18.95
Up Periscope ..... $17.95

**ACTIVISION**



Air Rally ..... $19.95
Aliens ..... $9.95
Gamemaker Package with all Libraries ..... $39.95
Last Ninja ..... $19.95
Maniac Mansion ..... $21.95
Music Studio ..... $19.95
Shanghai ..... $18.95

**AVALON HILL**
NBA ..... $24.95

**BRODERBUND**
Cauldron ..... $9.95
Karateka ..... $9.95
Lode Runner ..... $9.95
Superbike Challenge ..... $12.95
Toy Shop ..... $19.95
Ultima V ..... NEW! $34.95

**CINEMAWARE**
Defender of the Crown ..... $21.95
SDI ..... $21.95
The Three Stooges ..... $21.95

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

**DATA EAST**
Commando ..... $13.95
Karate Champ ..... $9.95
Kid Niki ..... $18.95
Platoon ..... $18.95
Speed Buggy ..... $18.95

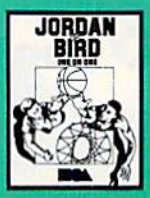
**Datasoft**



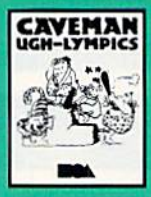
Hunt For Red October .. $25.95
Alt Reality/Dungeon ..... $25.95
Video Title Shop ..... $19.95

**DIGITAL SOLUTIONS**
Pocket Writer 2 ..... $32.95
Pocket Filer 2 ..... $19.95
Pocket Planner 2 ..... $34.95
Digital Superpak 2 ..... $57.95
Pocket Writer Dictionary .. $11.95

**ELECTRONIC ARTS™**



Jordan vs Bird.NEW $19.95
Bard's Tale ..... $24.95
Bard's Tale II ..... $24.95
Bard's Tale III ..... NEW $24.95
Chessmaster 2000 ..... $24.95
Demon Stalkers ..... $19.95
Deathlord ..... NEW $19.95
Double Dragon .... NEW $24.95

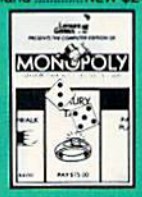


Caveman Ughlympics.$19.95

Dragon's Lair ..... $19.95
Marble Madness ..... $19.95
Mars Saga ..... NEW $24.95
Master Ninja ..... $19.95
Moebius ..... $27.95
Modem Wars ..... NEW $24.95
Pinball Construction ..... $9.95



Scruples ..... NEW $24.95
Skate or Die ..... $19.95
Sky Fox II ..... $19.95
Strike Fleet ..... $19.95
World Tour Golf ..... $19.95
Yeager AFT ..... $22.95
Wasteland ..... NEW $24.95



Monopoly ..... $19.95

**EPYX®**



Impossible Mission 2 .... $23.95
NEW! 200 XJ Joystick ..... $11.95
500 XJ Joystick ..... $14.95
California Games ..... $22.95
Champ'ship Wrestling ..... $13.95
Create a Calendar ..... $18.95
Destroyer ..... $23.95
4x4 Off-Road Racing ..... $23.95
L. A. Crackdown ..... NEW $23.95
Movie Monster ..... $12.95
Street Sports Baseball ..... $23.95
Street Sports Basketball .. $23.95



Street Sports Football .. $23.95
Street Sports Soccer NEW $23.95
Sub Battle ..... $23.95
Summer Games ..... $13.95
Summer Games II ..... $13.95
Winter Games ..... $13.95
World Games ..... $13.95

**FIREBIRD**
Elite ..... $11.95
Guild of Thieves ..... $22.95
Knight ORC ..... $24.95
Star Glider ..... $22.95
The Sentry ..... $24.95

**GAMESTAR★**
Championship Football .... $21.95
GBA Basketball 2 on 2 ..... $11.95
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
Bktball, the Pro Game .$29.95
Courtside College Basketball ..... $29.95

**MICROLEAGUE**
Baseball ..... $24.95
Wrestling ..... $18.95

**MICRO PROSE™**
SIMULATION + SOFTWARE



Airborne Rangers ..... $21.95
F-15 Strike Eagle ..... $21.95
Gunship ..... $21.95
NATO Commander ..... $22.95
Pirates ..... $23.95
Red Storm Rising ..... NEW $23.95
Silent Service ..... $21.95
Stealth Fighter ..... $24.95

**MINDSCAPE**
Gauntlet ..... $22.95
Harrier Combat Simulator $18.95
Indoor Sports ..... $18.95
Paperboy ..... $21.95
Superstar Hockey ..... $22.95

**SIMON & SHUSTER**
Star Trek: Promethian Adv $19.95
Typing Tutor IV ..... $24.95

**SPECTRUM HOLOBYTE**
Falcon ..... NEW $22.95
PT 109 ..... $24.95
Soko Ban ..... $17.95

**SSI**



Pool of Radiance .NEW $24.95
Battles of Napoleon ..NEW $32.95
B-24 ..... $21.95
Eternal Dagger ..... $24.95
Heroes of the Lance .NEW $24.95
Phantasie I, III (each) ..... $24.95
Questron II ..... $24.95
Rings of Zilfin ..... $23.95
Roadwar Europa ..... $24.95
Shard of Spring ..... $23.95
Wargame Const Set ..... $18.95

**SUBLOGIC**
**& (SOFTWARE SIMULATIONS)**
Jet ..... $25.95
Flight Simulator II ..... $31.95
Pure Stat Baseball ..... $22.95
Pure Stat College BB ..... $22.95
Stealth Mission ..... $31.95

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

**64C BUSINESS AND PRODUCTIVITY**

Vizastar 64 4K
Integrated Productivity Package For The 64
NOW ONLY $9.95

**64C DATABASES**
Bank Street Filer ..... $19.95
Data Manager II ..... $13.95

**64C SPREADSHEETS**
Swiftcalc 64 w/sideways .. $13.95
Sideways ..... $12.95

**64C WORD PROCESSORS**
Bank Street Writer ..... $29.95
Font Master II ..... $26.95
Paperclip w/spellpack ..... $29.95
Paperclip III ..... $31.95
Word Writer III ..... $25.95

**FINANCIAL & ACCT.**
Timewks Electr. Checkbk . $14.95
Timeworks Money Mgr ..... $14.95

**MISCELLANEOUS**
Estes pwr supply for C-64 $54.95
Thinking Cap ..... $24.95
Copy II 64/128 ..... $19.95
Fast Load ..... $23.95
Bobs Term Pro ..... $32.95

**COMMODORE 128 SOFTWARE**

**WORD PROCESSORS**
Fleet System 4 ..... $47.95
Font Master 128 ..... $33.95
Paperclip III ..... $32.95
Superscript 128 ..... $44.95
Term Paper Writer ..... $29.95
Wrdwriter 128 w/spell . $31.95

**SPREADSHEETS**
Swiftcalc 128 w/sdwys $32.95

**DATA BASES**
Data Manager 128 ..... $31.95
Perfect Filer ..... $19.95
Superbase 128 ..... $39.95

**MISC. 128 SOFTWARE**
Mach 128 ..... $31.95
Partner 128 ..... $36.95
Sylvia Porter's Personal Finance Planner ..... $29.95

**GRAPHICS CORNER**

**Batteries Included**
Paperclip Publisher .... $32.95
**Berkeley Softworks**
GEO Publish ..... $39.95
**Broderbund**
Graphics Lib'ry I,II or III . $15.95
Print Shop ..... $25.95
**Springboard**
Certificate Maker ..... $13.95
Clip Art I or III ..... $9.95
Newsroom ..... $13.95
**Unison World**
Printmaster Plus ..... $21.95

**DISK-KOUNTS**

| per box of 10 | | 3.5" | 5.25" |
|---|---|---|---|
| BONUS | DS DD | | $6.95 |
| MAXELL | DS DD | $17.95 | $9.95 |
| VERBATIM | DS DD | $19.95 | $9.95 |
| SONY | DS DD | $19.95 | $10.95 |

**tcp TUSSEY COMPUTER PRODUCTS** P.O. BOX 1006 STATE COLLEGE, PA 16804 **1-800-468-9044**

## CHOOSE YOUR WEAPON!



NEW! 200 XJ ..$11.95
500 XJ .....$14.95
The Boss .....$12.95
Bat Handle .....$17.95
3-Way .....$22.95

## FREE GAMES! With any purchase

From Commodore/Infocom & TCP



*As a "thank you" to our many valued customers we are giving away one of these Infocom Adventure Games (your choice), with every order. This offer is good on any of the items in this ad, when ordered before December 31, 1988. If you've never ordered from TCP before, this is a great opportunity to get acquainted!*

# 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. 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 AS400 allows instant order and inventory status.

**To order:** No surcharge on MasterCard or VISA ■ Your credit card is not charged until your order is shipped ■ COD orders accepted - no COD fees ■ **Shipping :** 3% or $5 minimum for UPS Ground. Call for shipping charges on Express Air, APO, FPO, AK, HI and foreign orders. ■ **Mail Orders:** We accept money orders, certified checks, and personal checks. Allow 2 weeks for personal and company checks to clear. ■ We accept purchase orders from qualified Educational and Corporate institutions.
**ALL SALES ARE FINAL.**
Defective items replaced or repaired at our discretion. Pennsylvania deliveries add 6% sales tax. Prices and terms subject to change without notice.

COMMODORE AMIGA

### AMIGA SOFTWARE

**PRODUCTIVITY**

| | |
|---|---|
| Deluxe Music Const Set | $59.95 |
| Deluxe Paint II | $79.95 |
| Deluxe Print II | $49.95 |
| Deluxe Video 1.2 | $79.95 |
| Draw Plus | $159.95 |
| Logistix | $114.95 |
| Superbase | $89.00 |
| Vizawrite | $89.00 |
| Word Perfect | $179.00 |
| Word Perfect Library | $69.00 |

**ENTERTAINMENT**

| | |
|---|---|
| Balance of Power | $29.95 |
| Bard's Tale II | $37.95 |
| Beyond Zork | $29.95 |
| Black Lamp | $18.95 |
| Chessmaster 2000 | $27.95 |
| Defender of the Crown | $29.95 |
| Deja Vu | $29.95 |
| F/A 18 Interceptors | $32.95 |
| Flight Simulator II | $32.95 |
| Leisure Suit Larry | $29.95 |
| Photon Paint | $59.95 |
| Silent Service | $24.95 |
| Sub Battle Simulator | $32.95 |
| Superstar Ice Hockey | $32.95 |
| Test Drive | $24.95 |
| The Three Stooges | $31.95 |
| Tracers | $24.95 |
| Univited | $29.95 |

### For All Your AMIGA Needs Call tcp

**512K RAM Upgrade .....$159**

**1010 EXT DRIVE ...$219**

**1680 MODEM .....$139**

***Call For Other AMIGA Products***

## Berkeley Softworks

| | | | |
|---|---|---|---|
| GEOS 128 | $39.95 | GEOS 2.0 | $34.95 |
| Geo Calc 128 | $39.95 | Geo Calc | $29.95 |
| Geo File 128 | $39.95 | Geo File | $29.95 |
| Geo Programmer | $39.95 | Geodex | $24.95 |
| Geo Publish | $29.95 | Deskpack | $18.95 |
| Geo Write 128 | $39.95 | Fontpack | $18.95 |
| Geo Spell | $18.95 | Geo Write | $29.95 |

# PRINTERS

## NEW LOWER PRICES !!

**SUPER GRAPHIX JR**
Printer Interface .....$32.95
w/Printer from Tussey .....$29.95

**SUPER GRAPHIX**
Interface w/8K buffer
down loadable fonts .....$54.95
w/Printer from Tussey .....$49.95

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

Xetec




## OKIDATA 180

**$229**

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

Call For Other Okidata Printers

## Panasonic Office Automation

2 yr warranty
**1080iII .....$159**
**1091iII .....$189**
**1092i .....$319**
**1124 (24 pin) $CALL**





**NX-1000**
(144 draft/36 NLQ) .....$159
**NX 1000 Rainbow**
(color printer) .....$229
**NX-1000C**
(Commodore Int'face) ....$174
**NX-1000C Rainbow**
(Commodore Interface/ Color Printer) .....$229
**NX-2400**
(24 Pin Printer) .....$CALL

star micronics inc

## Save on Printers

## CITIZEN

**120D .....$139**
**180D .....$159**
**MSP-40 .....$289**
**Tribute 224 .....$589**



## SEIKOSHA

2 yr warranty
**SP-180 VC .....$139**
**SP-1200 VC....$CALL**
**SP-1200 AI .....$169**

*Regular Hours: 8:00AM - 11:00PM Mon-Fri, 10:00AM - 8:00PM Sat, 12:00PM-8:00PM Sun EST*

Circle 209 on Reader Service card.

**CALL TOLL FREE 1-800-468-9044**

For Information
Call 814-234-2236
FAX 814-237-4450

tcp

# SOFTWARE GALLERY

*It's time to ring in the New Year with a look at word processing, submarine warfare, mystery and comics. Plus, start 1989 off right with* RUN*'s new capsule-review section!*

Compiled by BETH S. JALA

## RED STORM RISING ..... A+

*This WW III Novel-to-Screen Transition Really Makes the Grade*

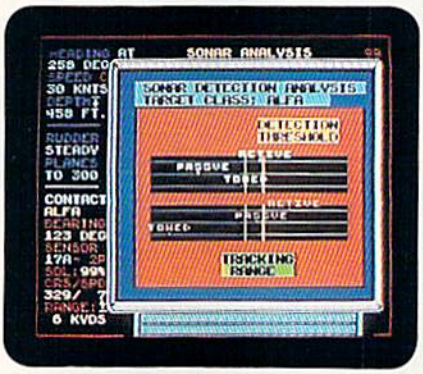
Give MicroProse credit. While some companies can't seem to resist the urge to branch out into new areas, MicroProse is a company that knows what it does best and, with few exceptions (Pirates!, Airborne Ranger), sticks to it. Quite simply, what MicroProse does best is creating sophisticated simulations that put the user in charge of his/her own piece of multi-million dollar military hardware.

In Red Storm Rising, you get to command any of five classes of modern nuclear attack submarines. Which classes you'll have to choose from depends on the time period (ranging from 1984 to 1996) you select for your mission. Sub classes and weapons systems available for scenarios set in the future are based on actual technologies that are either under development or soon to be deployed.

After choosing the level of challenge, you're ready to tackle either a training mission or the campaign. This is a multiple-mission game in which you command a nuclear attack submarine in the Norwegian Sea for the duration of World War III.

While each of the battle simulations begins with your sub already within sonar contact of the enemy forces, the campaign starts at your home port of Holy Loch, Scotland. As you sail northeastward to engage the Soviet naval forces, you must be careful to avoid discovery by Russian Tu-142 "Bears" and military reconnaissance satellites.

Fully monitoring and controlling your sub's various systems requires a thorough understanding of the boat's capabilities, and the use of nearly every key on the keyboard! Fortunately, as with most MicroProse simulations, the program is superbly documented and comes with a keyboard template that shows, both graphically and in text, the functions of most active keys. I must compliment the game's designers on a logical layout that groups related functions together.




**In Red Storm Rising, just as in real submarine warfare, working with sonar analysis increases your chances for a successful mission.**

Red Storm Rising is based on Tom Clancy's novel of the same name, which describes events leading up to, and the dramatic unfolding of, World War III. While both the simulation and the novel involve fictional scenarios, in both cases the weapons, strategy and tactics used are based firmly in reality. For players who've not read the book, an animated introduction showing the major events leading to the outbreak of the war sets the stage for the game.

What makes Red Storm Rising such a successful simulation, however, isn't the fact that it's based on a best-selling book. It's the care that was taken to ensure that things work in the game, just as they would in real submarine warfare. The realistic wargaming environment, combined with the wide variety of scenarios and play options, make Red Storm Rising the best military simulation to be released for the C-64 since Gunship. And while Red Storm Rising may not be the only submarine simulation to be based on a Clancy best-seller, there's little doubt that it's number one. *(MicroProse, 180 Lakefront Drive, Hunt Valley, MD 21030. C-64/$39.95.)*

—BOB GUERRA
SOUTH BOSTON, MA

### 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 or disappointments here.

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

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

## INFOCOMICS ..... A

*Gadzooks! I Can't Wait to See What Happens Next!*

Infocomics are not games. They are a line of computerized comic books that have a beginning, middle and ending that the reader/user cannot alter. The computer is supposed to be interactive, so why then, you ask, should I buy this product? Well, you may not be able to alter the outcome, but you can determine the path and pacing of an Infocomic.

Somewhat like a "living" play, the reader follows a particular individual, experiencing things from that person's standpoint. At certain times in the narrative, the user has the option of jumping to another character's point of view. This usually happens when a new character is introduced, or an on-screen character exits. A musical note ►

# YOUR BATTLESHIP JUST BIT THE BIG ONE.

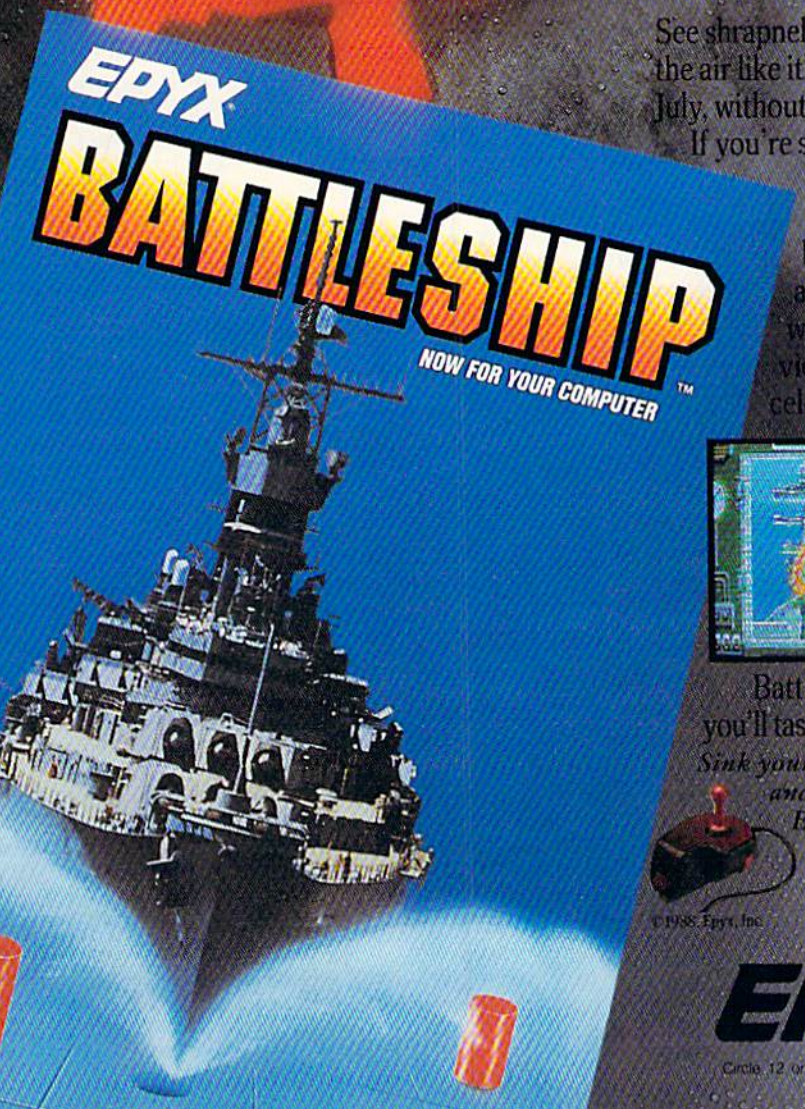
Now, you're mad. Really flamed. So assess your losses, aim your guns and turn your enemy into fish food.

**ONE OF THE MOST POPULAR GAMES OF ALL TIME COMES TO LIFE ON THE COMPUTER.**

As commander of a powerful naval fleet, you'll see destroyers and carriers sinking in a cloud of smoke. Watch planes strafing by so low, you'll practically feel the pilots breathing.



Commodore 64/128, Amiga, Atari ST, IBM PC and compatibles.
Battleship is a trademark of Milton Bradley used under license.
© Milton Bradley. All rights reserved.
Screens from Atari ST.




See shrapnel flying through the air like it's the 4th of July, without a picnic.

If you're still floating when it's all over, you'll be honored in a glorious, well-deserved victory celebration.



Battleship. So real, you'll taste the salt water.

*Sink your opponent faster and easier using an EPYX high performance joystick.*



© 1988 Epyx, Inc.

EPYX®

Circle 12 on Reader Service card.

sounds and a visual cue appears, letting the reader either branch off to the new path or continue on the existing one. No matter what path is chosen, however, you eventually reach the same ending. If this sounds a little confusing, remember this sort of storytelling already exists, via flashbacks, in both written and visual fiction.

Infocomics successfully combine written words and visual images in much the same manner as printed comics. The actual on-screen image looks like a page of a book, with the pictures appearing above a caption. Whenever people speak, their words appear in a panel. The art comes alive through limited animation, zooms and pans as both the visual perspective and the characters move and change.

With virtually no written instructions, Infocomics are simply booted up and read on-screen. There is a short explanation of what an Infocomic is and how it works. You can then move right into the story and methodically advance to a conclusion.

However, so as not to miss out on some important details and relevant interrelationships, jump to another character whenever you're given the option. In addition to being able to move between characters, you can also fast-forward or rewind the story to watch something again or choose a different path.

One of the Infocomics I looked at, Gamma Force in Pit of a Thousand Screams, follows the interplanetary adventures of Ratchet, Eskobar and Elana as they oppose the forces of the evil Nast, who has overthrown King Franz and sentenced him to the pit of a thousand screams. Ratchet, Eskobar and Elana are chosen by fate to receive special powers and become the Gamma Force. Their first mission is to rescue King Franz, overthrow Nast and reunite the King with his long-lost daughter, Sambina. Without revealing the outcome, let me just say that, while good triumphs over evil (naturally), the way has been laid for sequels.

In Zorkquest: Assault on Egreth Castle, Gurthark the Stout, along with his small band of travelers, chance upon the dark Egreth Castle that's inhabited by the evil magician Radnor. When Radnor kidnaps Guthark's charge, a battle breaks out as the good magician, Frobnit, and his apprentice, Dirin, lock horns with Radnor. Here again, there's no real doubt about the outcome, but rest assured that a part two will probably follow.

Undoubtedly, Infocom has hit upon a new application. In their own way, they've redefined the parameters of what interactive fiction is and can do. Future products in this line can only hope to improve the genre and perhaps even lead to new and even more innovative applications. Still, possibly the most exciting aspect of this software is its low $12 price tag. With that figure, who will be able to resist trying this truly innovative piece of entertainment software? *(Infocom, Inc., 125 Cambridgepark Drive, Cambridge, MA 02140. C-64/$12.)*




**An evil magician lurks beyond the walls of Infocomic's Zorkquest: Assault on Egreth Castle.**

—ROBERT J. SODARO
FAIRFIELD, CT

## THE WRITE STUFF, C-128 VERSION ..... A+

### *A Computing Phenomenon: Quality Plus Low Price!*

Imagine using a word processor that indents each paragraph and capitalizes the first letter of new sentences... automatically! How about one that converts from Qwerty to Dvorak keyboard layout, offers optional Roman numeral page numbers, or pops the result of a mathematical calculation into your text, all at the touch of a key? Wouldn't it be nice if you could teach your word processor to spontaneously type the names, words, phrases and page layout commands you use all the time?

All of these conveniences and a host of other powerful features have been incorporated into the C-128 version of The Write Stuff, BB Writer. This word processing package has been drawing a lot of well-deserved attention since it was first released as "userware" for the C-64. (Editor's note: see the review of the C-64 version of The Write Stuff in *RUN*, June 1988.) An exceptionally versatile word processor, it's the most exciting piece of new software for the 128 that I've seen in a long time.

A complete list of BB Writer 128's capabilities would take pages. Whether it's the ability to support Commodore's RAM expansion units and the 1581 drive's sub-directory system, the double-column output, or mail merge to churn out form letters, this package has it all.

BB Writer 128 has all the right moves. Most word processors let you move the cursor in increments that relate to the computer screen—a space, a line or a screen at a time. BB Writer 128's function keys speed editing by moving the cursor logically—it takes you from one word, sentence or paragraph to the beginning of the next.

If your word processing chores involve more than an occasional letter, you'll love BB Writer 128's macrotyping feature. First you create a list of words or sentences that you frequently type and assign a one- or two-character abbreviation to each. Then, type the appropriate letter or number, hit the space bar and presto! Two keystrokes can replace 250 keystrokes, causing your name and address to appear, centered at the top of the page. You can also put your signature block at the end of a letter or pop in a word you always misspell with this remarkable feature.

Another way to make this feature work for you is to define frequently used words as macros. Co becomes Computer and yr becomes you're as soon as you hit the space bar. In addition to the typing macros, 60 definable keyboard macros let you create your own one-key shortcuts for entering formatting instructions and other operating commands.

Once you get acquainted with its many functions, you'll discover that BB Writer 128 is capable of almost any task. You can create outlines with up to seven levels of detail, print and preview documents up to 250 columns wide, work in ASCII or PETASCII, read and write sequential, program or user files, and translate files from many other popular word processors. You'll even find that BB Writer can integrate data from Superbase, the powerhouse database, into form letters.

If you aren't already convinced that BB Writer merits serious consideration, how about this? R. Eric Lee, The Write Stuff's author, has just completed a version which, when installed in a programmable plug-in cartridge, is ready to go ►

# JUDGE A GAME BY ITS COVER.

Licensed by The Major League Baseball Players Association.



The action-packed statistically enhanced computer game with all 26 major league teams, and all the stars like Dave Winfield, Ozzie Smith, Jose Canseco, Roger Clemens, George Brett, Alan Trammell and Fernando Valenzuela.



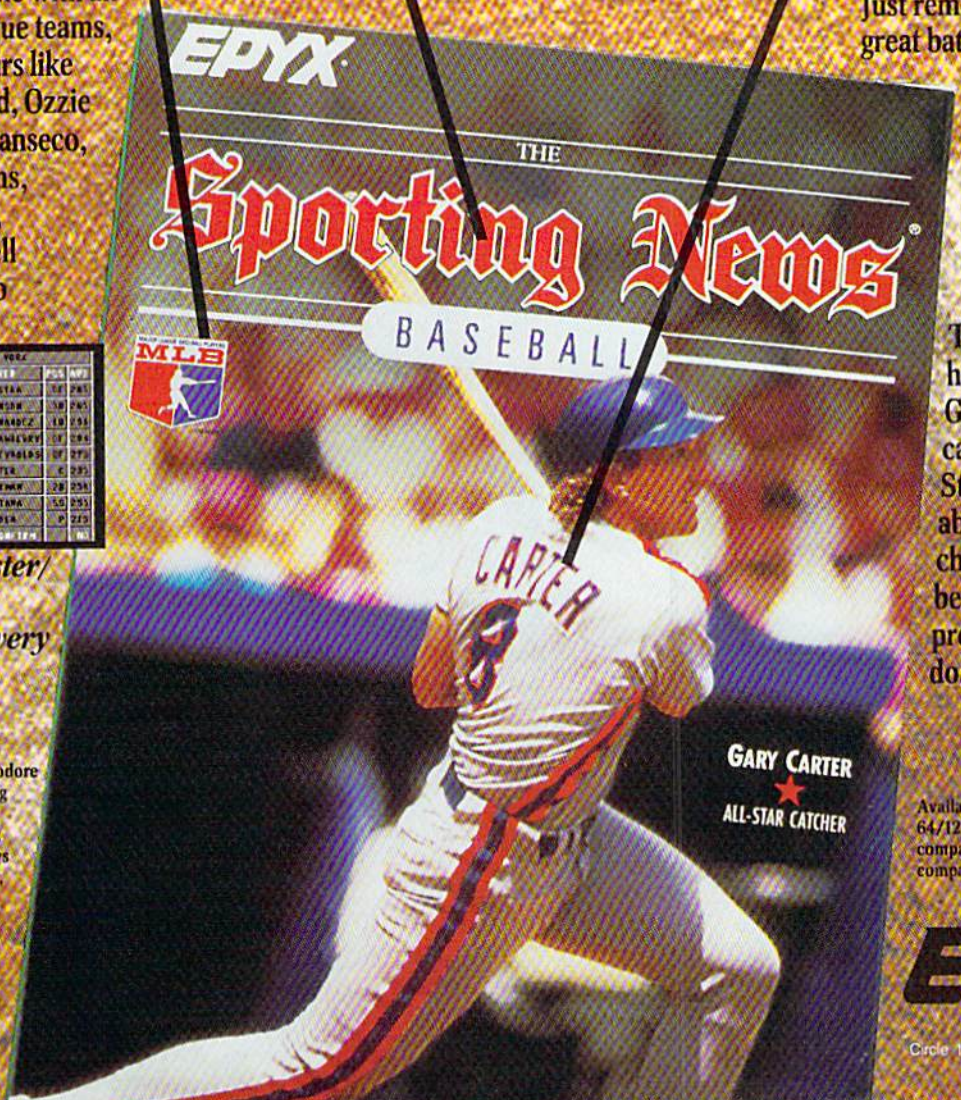
***Updated roster/ stat disks available every season.***

*"If it were any more realistic, you'd need a batting helmet."*
Gary Carter



As the pitcher, you can throw the batter a curve, a high hard one. Pitch him inside, outside. Even brush him back if he's crowding the plate. Just remember, he's got great bat control. He might even drag a bunt on you.

Endorsed and developed in part by the "Bible of Baseball," The Sporting News®.




Throw it home or hit the cutoff man. Go for the great catch or play it safe. Steal a base? How about a pitching change? Just remember. Anything the pros can do, you can do. If you're good.

Available for Commodore 64/128, Apple II & compatibles, IBM & compatibles

EPYX®

© 1988, Epyx, Inc. Screens from Commodore version. The Sporting News is a federally registered trademark of The Sporting News Publishing Company, a Times Mirror Company. The Sporting News Baseball is a trademark of EPYX, Inc.

Circle 105 on Reader Service card.

as soon as you turn your computer on.

The Quick Brown Box (QBB) permanent memory unit makes using this word processor so convenient that you'll find yourself switching on your 128 just to jot down a few notes. I only had the QBB version of BB Writer on my computer for a few days when it mysteriously disappeared, only to turn up in the user port of the machine my 10-year-old son usually uses for games. Fortunately, Busy Bee sells the QBB at a significant discount.

Speaking of discounts, while the mail order price for BB Writer 128 is certainly reasonable, Busy Bee also makes this software available through user groups for as little as $12. (Add $3 for the excellent 60-page manual.)

BB Writer 128 can't make your coffee (although it can time your eggs with its built-in alarm clock) or check your work for spelling errors. However, it certainly makes writing easier. Menu driven, with a pair of pop-up command reminder screens and several dozen easily accessed help files, BB Writer is a cinch to use. The thousands of C-128 owners who spend their workdays at the keyboard of a PC or mainframe computer will probably be wondering why their business software lacks some of BB Writer's capabilities.

BB Writer 128 reminds me of software that costs ten times as much. At $29.95, this feature-laden package is a great buy. At $12, it's a steal. You can't afford not to try it. *(Busy Bee Software, PO Box 2959, Lompoc, CA 93438. C-128/$29.95.)*

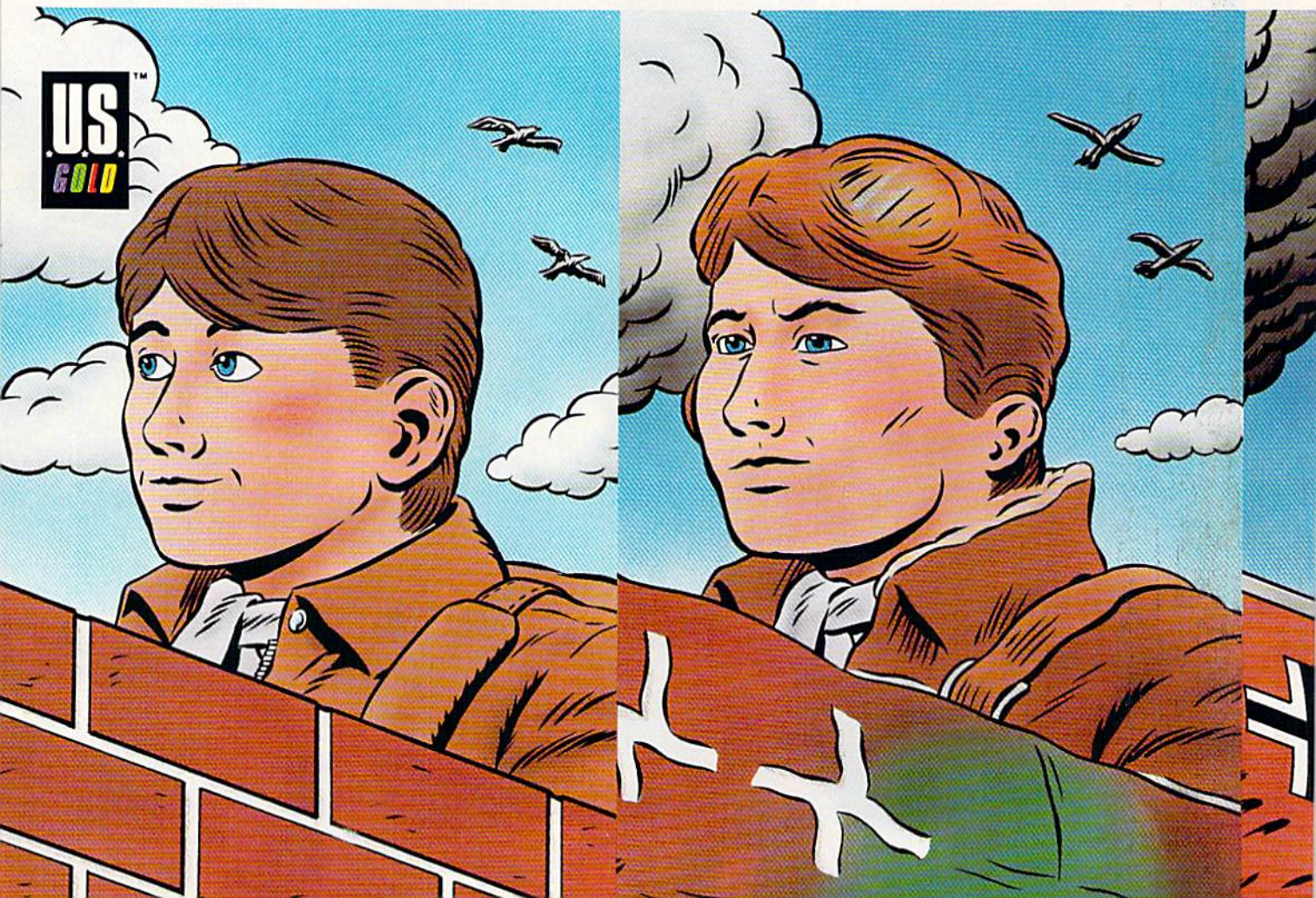
—JOHN PREMACK
LEXINGTON, MA

## WHERE IN EUROPE IS CARMEN SANDIEGO? ... A *An On-Screen Version of "To Catch a Thief"*

Where in Europe is Carmen Sandiego? is a nearly perfect computer learning tool. Map reading, problem solving, research skills and geographic facts are taught within the confines of an enjoyable, fast-moving game. The sound effects are little more than adequate, but the graphics are colorful, distinctive and animated. Also, nearly 1000 clues to sift through, 16 possible villains to encounter and 34 countries to visit make each case different.

Somewhere in Europe, Ms. Sandiego or one of her criminal cronies is engaged in the theft of Ireland's Blarney Stone, Mozart's metronome, Good King Wenceslas's stocking cap or some other precious item from a European city. As an operative for the Acme Detective Agency, your assignment is to discover the identity of the culprit, to obtain a warrant for his or her arrest, and to track down the felon before time runs out.

Initially, your chief of detectives lets you know what was stolen, where the crime occurred, the sex of the criminal and your deadline. Intelligence per-



taining to the suspect's hair and eye color and favorite types of books and movies appears on the screen periodically throughout the game. These should be entered into your electronic notebook. After three or more clues are obtained, feeding these into the crime lab computer might reward you with the name of the evil doer.

Unless you're better in geography than most Americans, following the suspect from country to country is not going to be an easy task. But, you can always refer to the *Rand McNally Concise Atlas of Europe*, which is included with the game. Some players might rely on the atlas more often, as on-screen hints use up precious time, while others might find the program more challenging by putting the book aside.

A concise, well-written user's manual provides essential instructions, as well as numerous hints on how to successfully complete the game.

The play system employs a series of menus easily accessed by either joystick




**Where in Europe is Carmen Sandiego? Could it be Denmark?**

or keyboard. While a seven-year-old should have little difficulty operating the program, it's best to have an adult on hand to monitor the youngster's learning and to help with the atlas and some of the trickier clues.

For anyone with school-age children, or for someone who thinks that Paris is around the corner from Poland, Where in Europe is Carmen Sandiego? offers solid value as an educational and entertaining program. *(Broderbund Software, Inc., 17 Paul Drive, San Rafael, CA 94903-2101. C-64/$39.95.)*

—LEN POGGIALI
SYRACUSE, NY

## MONOPOLY ..... B

*"Go Directly to Jail... Do Not Collect $200"*

"The object of the game is to become the wealthiest player through buying, renting and selling property."

While that statement might sound like a philosophy for everyday life in a competitive marketplace, most people will recognize it as each player's objective in Monopoly.

Monopoly isn't new to the C-64. Considering the world's fascination ►






Fasten your seatbelt. You're in for the dogfight of your life.

**IT'S WAR.** And the fate of the free world rests in your capable hands. Take hold of the controls and your wits. Because 20,000 feet below you thunders the most feared battleship in all of Germany's fleet: The Bismarck. Enemy fighters zoom above you, anxious to turn you into fish food. And all around you lurk treacherous U-Boats, E-Boats and mine fields.




Steady, mate. Remember all those practice flights? Now it's for real. You've got position reports to monitor incoming intelligence. A fully detailed instrument panel. And you can fire from one of two gunnery positions. All of which'll come in mighty handy when you've got 42,000 tons of riveted killing machine in your sights.

With these details, it's no wonder we fly in the face of F-15 Strike Eagle.



WELL CAPTAIN, IT LOOKS LIKE F-15 STRIKE EAGLE™ ISN'T SO STRIKING, AFTER ALL.

| | DIVE BOMBER | F-15 STRIKE EAGLE |
|---|---|---|
| Easy to use, fully detailed instrument panel | Of course | Nope |
| Look of enemy planes & ships | True to life | Stick figure |
| Pace of enemy attacks | Constant | Lagging |
| Takeoffs | Breathtaking | Nonexistent |
| Landings | Brace yourself | Limited |

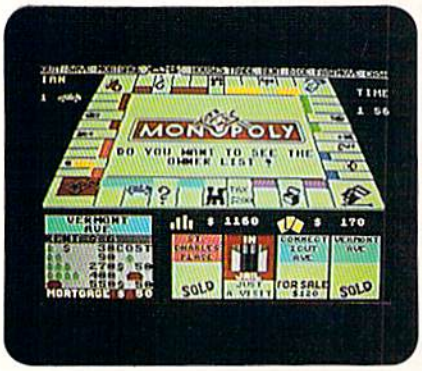
Note: Comparisons are based on current Apple, IBM, and Commodore 64/128 versions of the product.
Apple II Series & Compatibles, Atari ST, Commodore 64/128, IBM PC & Compatibles. Screens from Atari ST version of the game.
U.S. Gold is a trademark of GO America Ltd. Game program licensed from GO America Ltd. ©1987 Acme Animation/Gremlin Graphics Ltd. ©1988 Epyx, Inc.
F-15 Strike Eagle is a trademark of MicroProse Software.

DIVE BOMBER™ from U.S. GOLD™

Circle 85 on Reader Service card.

with this popular board game, it isn't surprising that a public domain version appeared almost as soon as home computers became popular. Now Leisure Genius has released a version licensed through Parker Brothers, the game's owner.

The computer Monopoly follows all the rules of the board game with the exception that from one to eight players can play, and that you can save a game and reload it to continue play at a later time.




**You're currently positioned on Vermont Ave. in the on-screen version of Monopoly.**

Knowing what the C-64 is capable of, I wasn't especially impressed by the graphics. The main board, shown in the center of the screen, is seen from above at about a 45-degree angle. None of the property names can be read, but the significant landmarks like Railroads, Jail, Free Parking, and Community Chest and Chance squares are easily recognizable.

Four cards, indicating the neighborhood in which the current player is traveling, are on the bottom right of the screen. On the bottom left is an enlarged representation of the square the player occupies, and it shows the pertinent facts about the property, including ownership, mortgage value, building prices and rent.

There's an option bar at the top of the screen that lets the player choose things like Quit, Mortgage, Owners (a list of all properties and their owners), Houses (to buy or sell), Trade and Rent. One interesting option, called Short Game, sets a time limit for the game.

My only real complaint about Monopoly is the absolutely agonizing amount of time it takes to load—almost three minutes. However, game play is smooth and fast moving. Monopoly is an enjoyable piece of software and one of those rare games that can be enjoyed by the whole family. *(Leisure Genius; distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/$29.95.)*

—ART LEWIS KIMBALL
TUSCOLA, IL

## NAPOLEON IN RUSSIA—BORODINO 1812 ..... C–

*You are Napoleon—*
*You Must Defeat*
*The Russian Army*

Borodino is a military strategy game that recreates Napoleon's attempt to defeat the Russian army in September of 1812. You are in command of Napoleon's Grande Armee during one of seven variations on the three days at Borodino. Your ultimate goal is to completely destroy the Russian forces. Infantry, cavalry and artillery units with varying attributes are all at your disposal.

Once you've chosen the scenario, difficulty levels, speed, morale and fatigue effects, the screen shows a portion of the battlefield. You scroll around and issue orders via joystick.

In most strategy simulation games, commands are given, and after a series of move, combat, retreat and melee phases are carried out by the computer, everything stops. Borodino, however, is designed so that the action doesn't stop while you select units and give orders, which accords you a better sense of the realities of battle. You don't have time to constantly give orders; instead you tend to concentrate on one area of the battle and occasionally scroll to other sections.

Unfortunately, this constant-action game system is also the major drawback to Borodino. The manual warns you about falling into an "arcade game" mentality while playing. But even if you overcome the urge to fight the battle with fast joysticking, most of the subtleties are drowned out. While there are the usual dozen or so factors—terrain and fatigue, for example—that modify combat and movement, you almost never take the time to calculate them.

Other problems in the game include the lack of options in the actual manipulation of your forces. You move or you shoot and that's it: No changing modes, no evaluating the costs in movement points or calculating the arrival times of reinforcements.

There are so many units on the map at the same time that traffic tends to get jammed. Units that have been routed wander around of their own accord and it's hard to clear a path for them. It's also difficult to rotate fresh troops to replace weary ones.

Another flaw in the game is that artillery is effective only to a certain point—beyond that, you can shell a unit ten or 20 times with no more loss of men.

The scenario of Napoleon's battle at Borodino is an intriguing one that war gamers should enjoy. Napoleon made some tactical and strategic mistakes while still winning. Trying to achieve the kind of victory that he needed could've been a fascinating challenge. Unfortunately, Napoleon in Russia—Borodino 1812 doesn't provide a playable simulation that lets you explore the nuances of battle. It isn't a strategic simulation—it's just a game and only a fair one at that. *(Datasoft; distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/$24.95.)*




**It's September 5, 1812; do you know where your units are in Borodino?**

—GUY WRIGHT
*AMIGAWORLD* STAFF

## STOCKER ..... D+

*Racing Runs*
*Rampant*

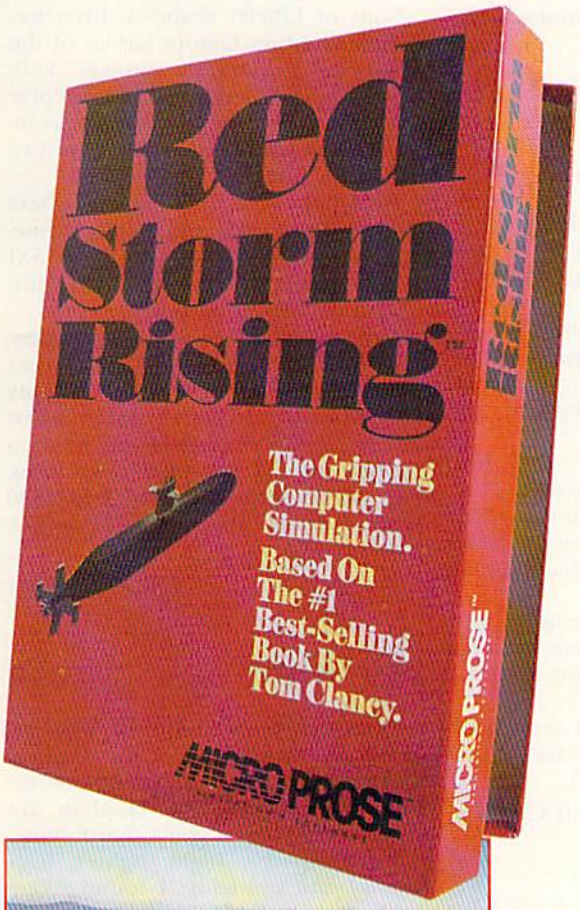
I don't understand what Stocker's appeal is or why anyone would think it would make a good translation from the arcade to the home computer.

It bothers me to say that. Contrary to what some people think, good software reviewers don't enjoy ripping a program. Personally, I try to find something good to say about every program. But despite my best efforts, it was very difficult finding things to praise about Stocker.

The game's premise is interesting ►

Presenting the **Red Storm Rising**™ Ultimate Challenge

# Win a Trip for Two to Scotland & England!




***Your skill in* Red Storm Rising *— the gripping World War III nuclear submarine simulation by MicroProse Software for the Commodore 64 — can win you and a companion an unforgettable visit to Great Britain!***

MicroProse Software has convened a Board of Naval Examiners to find the *Admiral of the Fleet* — the very best *Red Storm Rising* nuclear submarine commander in the world.

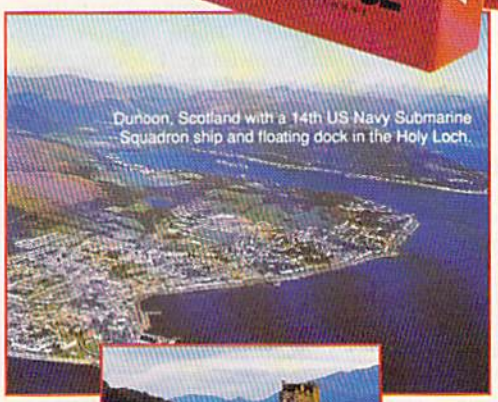
In September, 1989, the *Red Storm Rising Admiral of the Fleet* and a companion will embark on a 7-day expense-paid trip to Dunoon, Scotland, home of the US submarine base at Holy Loch from which *Red Storm Rising* players operate. Then they will visit London for the international Personal Computer Show. The *Admiral of the Fleet* and nine Runners-Up will receive other terrific prizes as well.

To enter, obtain your *Official Log Form* and complete *Rules* by sending a letter or postcard to the *Red Storm Rising* Board of Naval Examiners, 180 Lakefront Drive, Hunt Valley MD 21030. While you're waiting for the *Official Log Form*, start playing the full *Red Storm Rising* campaign game and learn to achieve maximum Efficiency Rating (ER). You can protect the ER of your campaign in progress by choosing the "Computer Log" option at the "Contact Screen" (see below) preceding each battle, and then saving your game. If your performance in the ensuing contact does not meet your standards, you can re-play it (before going on to another battle) without losing your previous score.

On the *Official Log Form* you will fill in the details of each of your most successful battles in your best campaign. The deadline for the Board of Naval Examiners to **receive** your entry — your completed *Official Log Form* and final game save disk — is March 31, 1989.

The Board of Naval Examiners is making every effort to ensure that the *Red Storm Rising Ultimate Challenge* is a fair test. As you proceed into the higher levels of competition, the Board of Naval Examiners will advise you of specific examination procedures. If you intend to win you must be available for certain arrangements during the weeks of April 10 and 17, 1989, and on April 30 and May 1, 1989.

The *Rules*, included with your *Official Log Form*, explain the details.


Dunoon, Scotland with a 14th US Navy Submarine Squadron ship and floating dock in the Holy Loch.










Contact Screen

Commodore 64 is a registered trademark of Commodore Electronics Limited.

Red Storm Rising by Tom Clancy © 1986 by Jack Ryan Enterprises Ltd. and Larry Bond.

Circle 103 on Reader Service card.

enough: you're in a coast-to-coast race against time, as measured by fuel consumption. You start in Florida with a full tank of gas that lasts 90 seconds. There are four gas stations on your trip to California, and pulling into any one of them refills your tank about 25 percent.

The farther you go without running out of gas, the more points you get. Hitting other vehicles slows you down and subtracts points from your score. Hitting a cop car gets you a ticket; three tickets ends the game.

The graphics are okay, but there's not much detail to them. In fact, about the only on-screen objects are the road, the tiny vehicles, a sprinkling of trees, a few lakes and the gas stations.

Game play is unexciting, despite the frenetic pace required to succeed. It's a bit of a challenge to avoid colliding with the other vehicles that sometimes clog the road.

But that challenge is greatly lessened by the fact that, contrary to what you might expect in a road-racing game, Stocker lets you drive your car anywhere on the screen. You can stray from the road and drive over lawns, shrubs and lakes; you can even drive right through houses! The only disadvantage to doing so is that it slows down your car.

I might be more willing to accept this off-road capability if Stocker required you to make some tough strategic decisions, but that's not the case. Once you have found the quickest way through a screen, all the decision-making is over.

Ironically, Stocker comes with an instruction manual that's as complete as any on the market. I commend Capcom for including a scene-setting prologue, thorough instructions and a place to write memos and record top scores. There's even a phone number where "game counselors" can be reached, although it's hard to imagine that anyone would really need much counseling to figure out this game.

In its defense, Stocker's simplicity might account for its popularity as an arcade game. The straightforward game play and lack of complexity are arcade-world characteristics, where game plays are limited to the number of quarters in your pocket.

But at home, where only boredom limits the number of times a game can be played, Stocker reaches that limit fairly quickly. So, unless you're someone who couldn't get enough of Stocker in the arcades, I'd recommend you save your software quarters for something else. *(Capcom, USA, Inc., 1283C Old Mountain View/Alviso Rd., Sunnyvale, CA 94089. C-64/$29.95.)*

—SCOTT WASSER
WILKES-BARRE, PA

*Editor's Note: To give our readers more coverage of the many C-64/128 software products available,* RUN *will broaden the scope of Software Gallery by presenting more reviews in capsule form.*

## THE FRIENDLY COMPUTER ..... A–

The Friendly Computer is an entertaining way of getting children, ages five through eight, to know their computer. It's the type of disk I wish had been packaged with my Commodore.

The software is also appropriate for helping children to develop spelling skills and a sense of timing and distance on the screen.

The Friendly Computer contains five games, including an introduction to the keyboard, computer parts and graphics capabilities. All have different difficulty levels and various options that the parent/teacher can pre-set.

The sound effects are amusing, but there aren't enough of them; in fact, their absence is why I graded this program a minus. Otherwise, The Friendly Computer achieves what it set out to do. *(MECC, 3490 Lexington Ave. N., St. Paul, MN 55112. C-64/$19.95.)*

—EDITH CHASEN

## RUSH 'N ATTACK/ YIE AR KUNG-FU ..... B

Yie Ar Kung-Fu is the lesser of these two programs. However, this series of martial arts battles is well done, with attractive graphics and fluid animation.

Rush 'N Attack is definitely the star attraction. There is a real problem, though, with its confusing documentation. Purchasers should be aware of that and also of Rush 'N Attack's high difficulty level. Furthermore, the absence of a pause button may frustrate some players.

Yet, veteran gamers will find much to like in the program. Graphics are colorful and crisp and sound effects nicely complement the action. The necessity of finding ways out of predicaments even provides some mental challenge.

Although not for everyone, many players will want to add this multi-game disk to their software libraries. *(Konami, Inc., 815 Mittel Drive, Wood Dale, IL 60191. C-64/$29.95.)*

—WALT LATOCHA

## SONS OF LIBERTY ..... B

Sons of Liberty features three scenarios based on famous battles of the American Revolution: Bunker Hill, Monmouth and Saratoga. You can play against another person or the computer and control either the American or British forces.

Although Sons of Liberty offers gamers many user-adjustable parameters, you'll find that, like most SSI simulations, this one is built on historical detail and accuracy.

Unless you've had a lot of wargaming experience, Sons of Liberty isn't the type of game that you can simply load and play successfully without first giving the well-organized rule books a careful perusal. *(Strategic Simulations, Inc.; distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/$34.95.)*

—BOB GUERRA

## DEEP SPACE ..... C

I was disappointed with Deep Space. While it incorporates many features that are interesting and even noteworthy, and some of the graphics are nicely done, it is a game that falters.

Deep Space's flight fighter feels clumsy and unwieldy; I found flying in the fighter rather unsensational and unconvincing. Although the first person, "you are there" scheme has worked for a few space epics, I found the game's flight mechanics and subsequent graphic depictions to be below the C-64's capabilities. While there are many battles to endure and obstacles to overcome in Deep Space, some gamers might not feel like staying with it long enough to find out what they are. *(Sir-Tech Software, Inc., PO Box 245, Ogdensburg, NY 13669. C-64/$39.95.)*

—JOHN RYAN

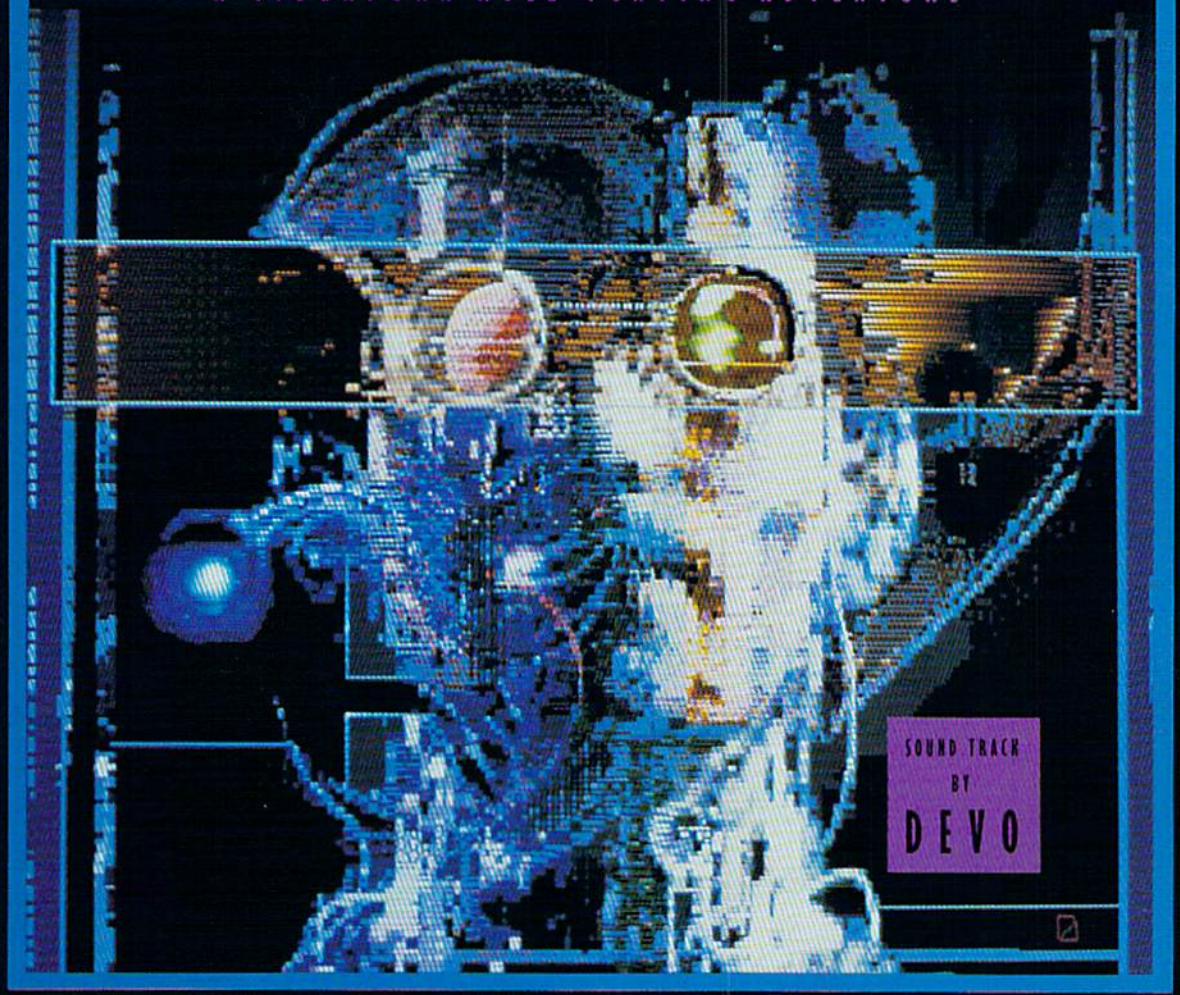
## THE BARD'S TALE III: THIEF OF FATE ..... A–

If you're a veteran of the first two Bard's Tales, you'll feel right at home with Thief of Fate. In III, however, ►

# IN A HUNDRED YEARS, HACKING WILL GET YOU KILLED.

# NEUROMANCER™

## A CYBERPUNK ROLE-PLAYING ADVENTURE






**Nowadays, hacking can get you into trouble. A hundred years from now, it can get you killed.**

Actually, death isn't bad. It's better than being a "Wilson". Of course, any hacker in his right mind would rather be a Wilson than lose all his neurons.

So what have you got going for you? About 30 megs on line, several viruses, and a wise-cracking ROM construct tagging along. You're just a cowboy trying to stay a step ahead of the AI's in a world where paranoia's not an illusion, everyone IS trying to flatline you.



It's party time in Cyberspace.

- Drawn from the pages of the smash cyberpunk novel "Neuromancer" by *William Gibson*
- Skill-based role-playing game by the designers of "The Bard's Tale™" and "Wasteland™"
- Original Sound Track by DEVO
- Soon to be a major motion picture from *Cabana Boy Productions*
- Multiple paths to a successful conclusion

Now available for the Commodore 64/128, Apple IIc, IIe/128K. Coming soon for the Amiga and IBM/Tandy.

If you can't find NEUROMANCER at a local dealer you can order direct at 1-800-227-6900.



Actual C64 Screens

Interplay™

**Interplay Productions**
**1575 Corporate Drive**
**Costa Mesa, CA**
**(714) 549-2411**

Neuromancer is a trademark of Cabana Boy Productions Inc.
Bard's Tale and Wasteland are trademarks of Electronics Arts.
Commodore is a trademark of Commodore Business Machines.
Apple is a trademark of Apple Computer Inc.
Amiga is a trademark of Commodore Business Computers.
IBM is a trademark of International Business Machines.
Tandy is a trademark of the Tandy Corporation.

exploring the game's seven dimensions will lead you to the items you'll need to prepare your adventurers to conquer the game's 84 dungeon levels.

Bard's Tale III features even better graphic animation of its various monsters, the option to save the game to disk and faster operation than its predecessors. Although the game's built-in back-up routines seem to take forever and require countless disk swaps, the entire game is not copy-protected. *(Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/$39.95.)*

—BOB GUERRA

## QUESTRON II ..... B+

The setting for Questron II is Landor, an outdoor world made up of several different types of terrain. Creature names like Slasher Boar, Stink Worm and Carrion Creeper are indicative of the kind of welcome you'll receive when you embark on your intrepid journey through their territories.

Unlike many role-playing games that overwhelm new players, Questron II only has four basic spells in its magic system.

This isn't the most complex role-playing game available, and some die-hard RPG fans may miss some of the more exotic spells like those available in the Ultima and Bard's Tale series. However, Questron II's menu-driven command structure and manageable magic make it an excellent choice for adventurers on their first or second quest. *(Strategic Simulations, Inc.; distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/$39.95.)*

—BOB GUERRA

## BATTLE DROIDZ ..... B–

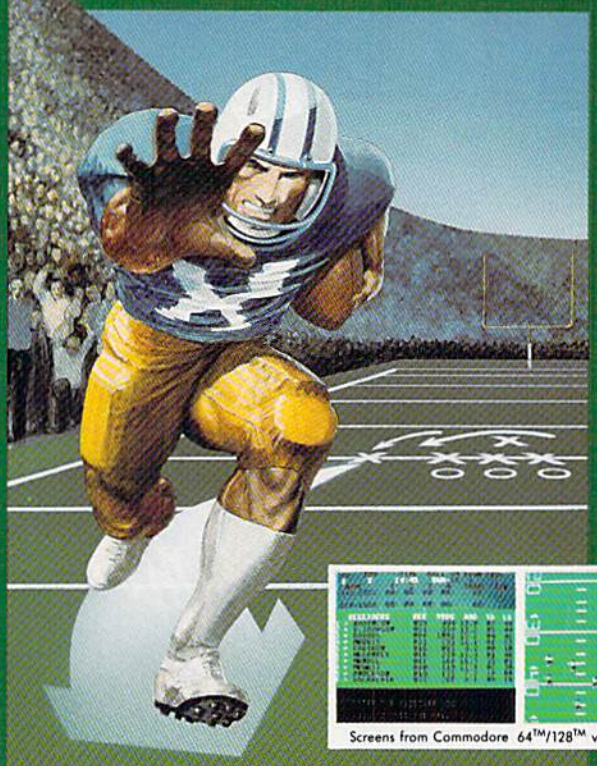
Imagine the curves, dips and precipices of a Marble Madness landscape and sprinkle in a few acid lakes. Populate it with nasty droid killers, set up some cyborite-spewing Generator Stations, and you've got a fair picture of the typical Battle Droidz warzone. The challenge here is to traverse a Chinese-checker grid of 37 war zones.

Beginning with the pick-your-own-battlefield idea, Battle Droidz offers numerous strategy options and cleverly contrived, smooth-scrolling, multi-screen gamescapes, along with good detail and lively sound.

Joystick response qualifies as barely adequate. With swarming cyborites and the diagonally oriented landscape (forward is toward the upper-right corner), the "realistically" slippery "remote droid guidance controls" add nothing. Fortunately, the fun still shines through, with lots of addictive, high-action entertainment, even for beginners. *(Datasoft; distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/$24.95.)*

—JEFF HURLBURT ■


PURE·STAT FOOTBALL



The authors of **Pure-Stat Baseball** and **Pure-Stat College Basketball** introduce their most precise simulation to date, **PURE-STAT FOOTBALL! This third generation** football game has a wide array of innovative features that include: Computer Coaching using artificial intelligence to select offensive/defensive plays, Vertical and Horizontal Scrolling of on-field action, a built-in Stat Compiler, and much more. PURE-STAT FOOTBALL will challenge even the most avid fan!

- For zero, one, or two players
- Statistically based program where Pro-Football players and teams perform as they did in real life
- Built-in Stat Compiler that includes League Standings
- Full screen graphics with 22 animated players (No X's and O's)
- Eight types of runs, 12 types of passes
  - *— Draw Plays, Reverses, Screen Passes*
  - *— Blitz Linebackers, Double Team Receivers*
  - *— Zone Defense, Prevent Defense*
  - *— Use Four Receivers, Insert a Fifth Defensive Back*
- Optional Team and Create Team Disks Available

Suggested retail price $39.95



Screens from Commodore 64™/128™ version of game.

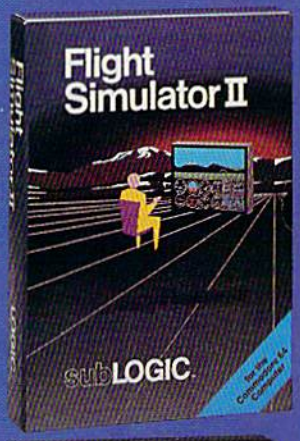
See your local dealer, or contact:

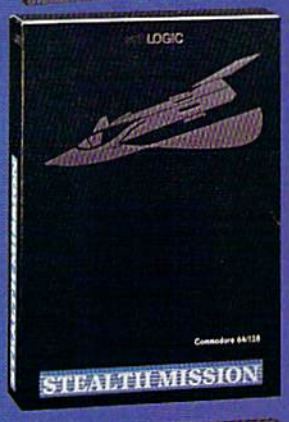
Software Simulations

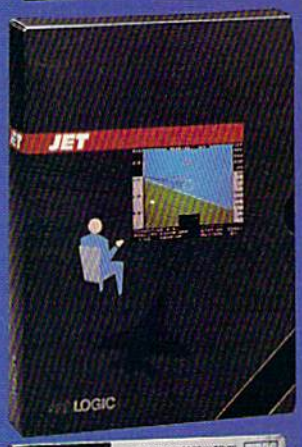
959 Main Street, Suite 204, Stratford, CT 06497
(203) 377-4339

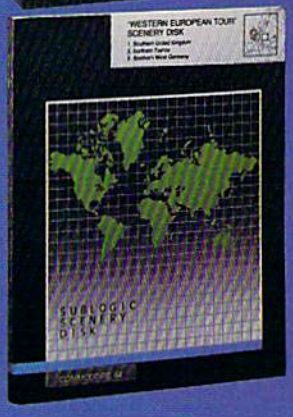



Circle 111 on Reader Service card.




## FLIGHT SIMULATOR

$49.95

Nearly 1.5 million copies of this classic, premium flight simulation program have been sold to date, and there's still nothing even close to it. Compatible with SubLOGIC Scenery Disks.

## STEALTH MISSION

$49.95

Winner of the 1988 CES "Best Strategy Game" Software Showcase Award. This advanced-technology strategic simulation is a stunning success, with sales challenging those of Flight Simulator. With nothing comparable on the market (despite similar titles), Stealth Mission's programming polish and strategic gaming excellence set new industry standards. Scenery Disk compatible.

## JET

$39.95

This award-winning jet fighter simulator defines the state of the art in action/combat simulation. Exciting and beautiful carrier-based sea missions complement multiple land-based combat scenarios. Jet's quick-reading documentation and easy flight controls provide unequalled action and fun. Scenery Disk compatible.

Special "Discover the World of SubLOGIC" promotional packaging:

* Jet for the Commodore 64/128 now includes a FREE beautiful Japan Scenery Disk, a $24.95 extra value!

* Jet is also available without Japan Scenery Disk for the special low "discover SubLOGIC" price of $29.95 through selected discount channels.

## SCENERY DISKS

$24.95 each. For use with all SubLOGIC flight simulation products.

**WESTERN EUROPEAN TOUR**
Our latest and hottest! Detailed scenery covering southern Great Britain, northern France, and southern West Germany. The basis of our fun "Find Red Square" promotion.

**JAPAN SCENERY DISK**
Detailed scenery from Tokyo to Osaka. Delightful international adventure!

**SAN FRANCISCO**
Concentrated scenery covering San Francisco and the Bay area. A consistently best-selling favorite!

**SCENERY DISK # 7**
Eastern Seaboard. Includes: Washington, Charlotte, Jacksonville, Miami. Another best-seller!

**SCENERY DISK # 11**
North-Eastern Border. Includes: Detroit. Lake Huron. Incredible variety, from industrial Detroit to beautiful Niagara Falls!

See your dealer, or write or call for more information. All products are available on disk for the Commodore 64/128 computers. For direct orders please indicate which product you want, and enclose the correct amount plus $2.50 for shipping and handling ($1.50 for each additional package). Please specify UPS or first class mail delivery. Visa, MasterCard, American Express, and Diners Club charges accepted.

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

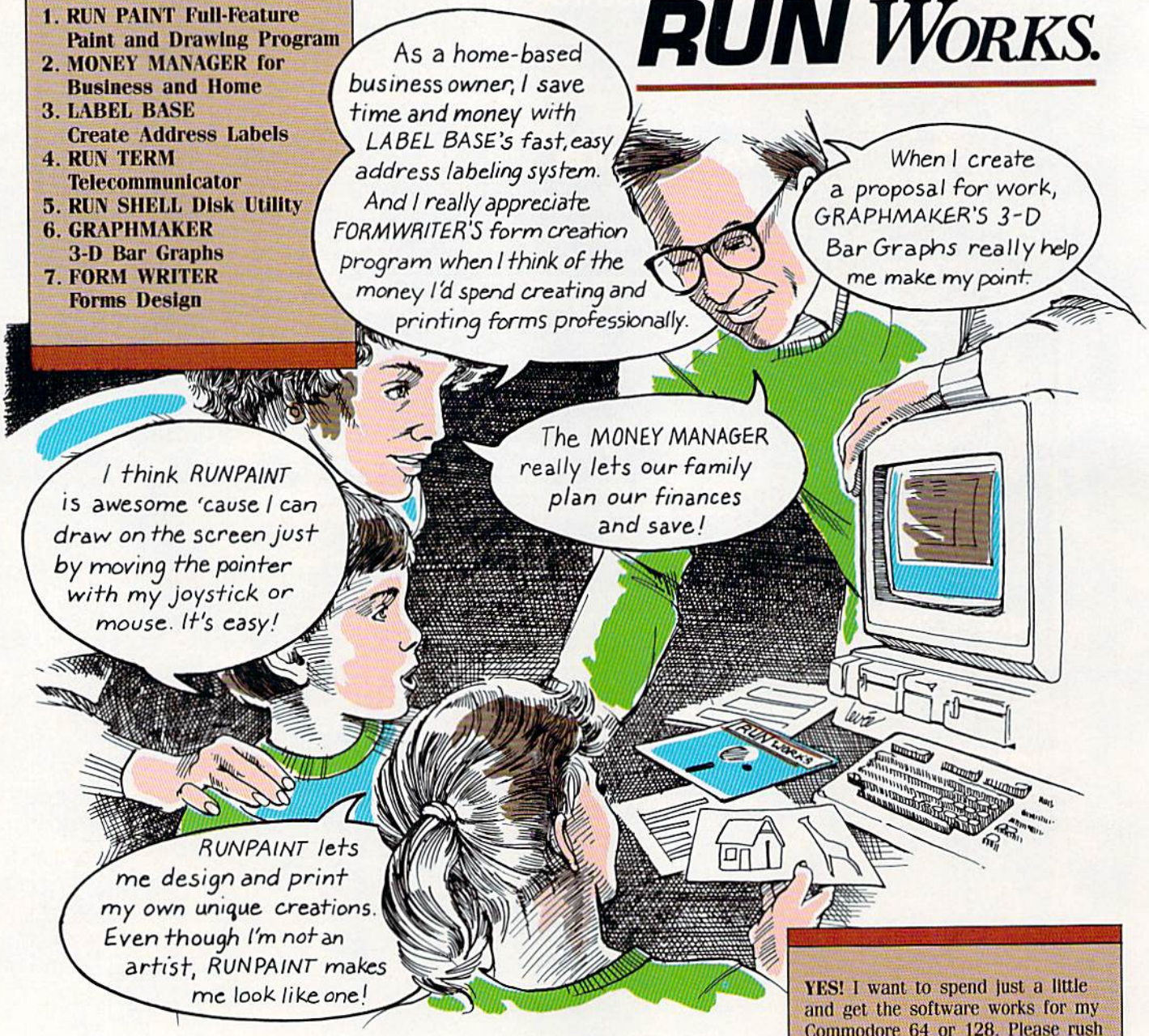
subLOGIC
Corporation
501 Kenyon Road
Champaign, IL 61820
(217) 359-8482 Telex: 206995
ORDER LINE: (800) 637-4983

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

1. **RUN PAINT Full-Feature Paint and Drawing Program**
2. **MONEY MANAGER for Business and Home**
3. **LABEL BASE Create Address Labels**
4. **RUN TERM Telecommunicator**
5. **RUN SHELL Disk Utility**
6. **GRAPHMAKER 3-D Bar Graphs**
7. **FORM WRITER Forms Design**

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

# RUN WORKS.




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

**On just one disk!**

**RUN Works 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 RUN Works at a fraction of the price you'd pay for comparable programs—up to $50 each elsewhere.

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

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

**Call 1-800-343-0728**
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 RUN Works 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

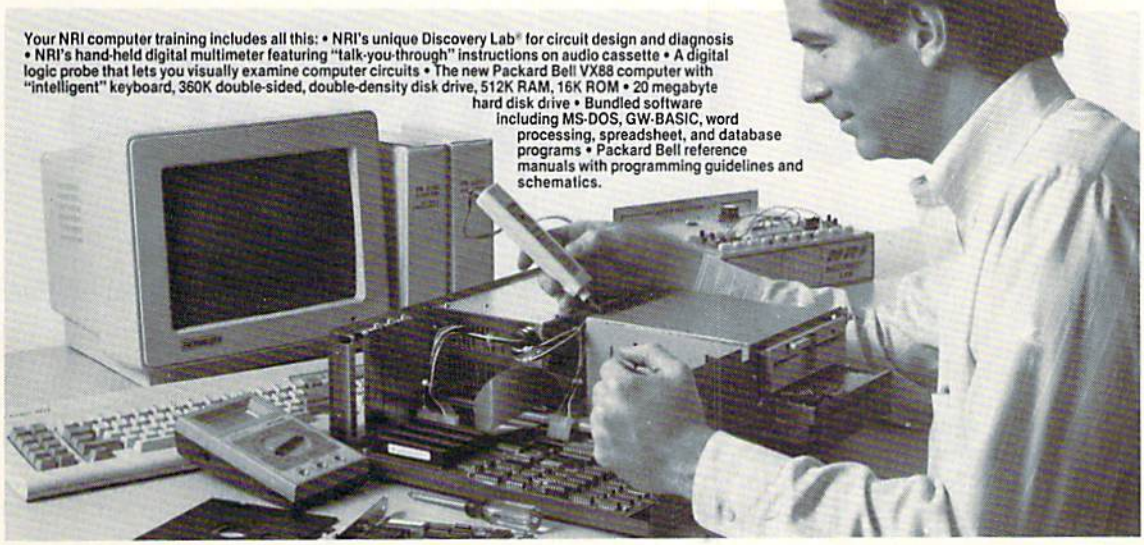
ADDRESS

CITY STATE ZIP

Foreign Airmail, please add $3.95 per order.
Mail this coupon or the postage-paid card to:
IDG Communications/Peterborough
Attn: RUN Works RW189
PO Box 802, Peterborough, NH 03458

# Learn to troubleshoot and service today's computer systems as you build a fully XT-compatible micro, complete with 512K RAM and powerful 20 meg hard drive

NEW! Includes 20 meg hard drive!



Your NRI computer training includes all this: • NRI's unique Discovery Lab® for circuit design and diagnosis • NRI's hand-held digital multimeter featuring "talk-you-through" instructions on audio cassette • A digital logic probe that lets you visually examine computer circuits • The new Packard Bell VX88 computer with "intelligent" keyboard, 360K double-sided, double-density disk drive, 512K RAM, 16K ROM • 20 megabyte hard disk drive • Bundled software including MS-DOS, GW-BASIC, word processing, spreadsheet, and database programs • Packard Bell reference manuals with programming guidelines and schematics.

### Train the NRI Way—and Earn Good Money Servicing Any Brand of Computer

Jobs for computer service technicians will almost double in the next 10 years according to Department of Labor statistics, making computer service one of the top 10 growth fields in the nation.

Now you can cash in on this exciting opportunity—either as a full-time industry technician or in a computer service business of your own—once you've mastered electronics and computers the NRI way.

NRI's practical combination of "reason-why" theory and hands-on building skills starts you with the fundamentals of electronics, then guides you through more sophisticated circuitry all the way up to the latest advances in computer technology. You even learn to program in BASIC and machine language, the essential language for troubleshooting and repair.

### Get Real-World Skills as You Train With a Powerful XT-Compatible Micro—Now With 20 Meg Hard Drive!

To give you hands-on training with the absolute in state-of-the-art computer technology, NRI includes the powerful new Packard Bell VX88 computer as the centerpiece of your training. As you assemble this fully IBM XT-compatible micro from the keyboard up, you actually see for yourself how every section of your computer works.

You assemble and test your computer's "intelligent" keyboard, install the power supply and 5¼" disk drive, then interface the high-resolution monitor. But that's not all.

Your hands-on training continues as you install a powerful 20 megabyte hard disk drive—today's most-wanted computer peripheral—now included in your course to dramatically increase the data storage capacity of your computer while giving you lightning-quick data access. Plus you work with exclusive word processing, database, and spreadsheet software, yours to use for your own professional and personal applications.

As you build your computer, performing key demonstrations and experiments at each stage of assembly, you get the confidence-building, real-world experience you need to work with, troubleshoot, and service today's most widely used computer systems.

### No Experience Needed, NRI Builds It In

This is the kind of practical, hands-on experience that makes you uniquely prepared to take advantage of today's opportunities in computer service. You learn at your own convenience in your own home. No classroom pressures, no night school, no need to quit your present job until you're ready to make your move. And all throughout your training, you've got the full support of your personal NRI instructor and the NRI technical staff, always ready to answer your questions and help you whenever you need it.

### FREE 100-Page Catalog Tells More

Send today for NRI's big, 100-page, full-color catalog that describes every aspect of NRI's innovative computer training, as well as hands-on training in robotics, video/audio servicing, electronic music technology, security electronics, data communications, and other growing high-tech career fields. If the coupon is missing, write to: NRI School of Electronics, McGraw-Hill Continuing Education Center, 3939 Wisconsin Avenue, Washington, DC 20016.

IBM is a registered trademark of International Business Machines Corporation

## SEND COUPON TODAY FOR FREE NRI CATALOG!

NRI

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

For Career courses approved under GI Bill ☐ check for details.

✓ CHECK ONE FREE CATALOG ONLY

- ☐ Computer Electronics
- ☐ TV/Video/Audio Servicing
- ☐ Robotics
- ☐ Electronic Music Technology
- ☐ Security Electronics
- ☐ Digital Electronics Servicing
- ☐ Electronic Design Technology
- ☐ Industrial Electronics
- ☐ Communications Electronics
- ☐ Basic Electronics
- ☐ Bookkeeping and Accounting
- ☐ Building Construction
- ☐ Automotive Servicing
- ☐ Air Conditioning, Heating & Refrigeration
- ☐ Small Engine Repair
- ☐ Electrician
- ☐ Locksmithing & Electronic Security
- ☐ Travel Careers
- ☐ Telephone Servicing
- ☐ Paralegal

Name (Please print) Age

Street

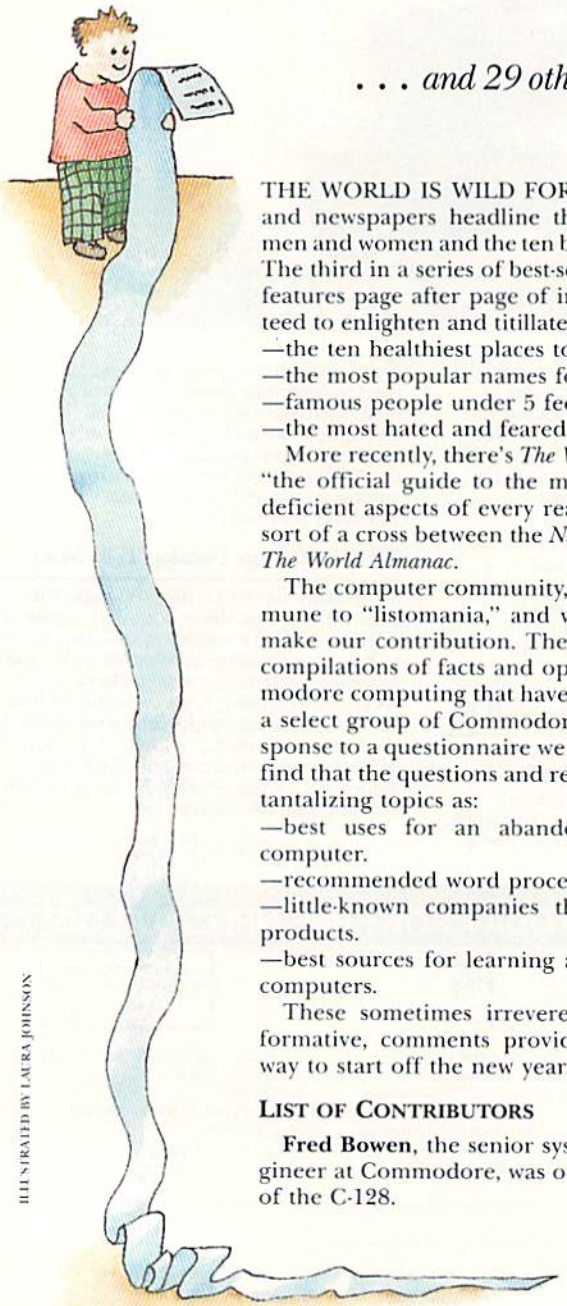
City/State/Zip

We'll give you tomorrow. Accredited by the National Home Study Council 145-019

FUN FACTS 30 AND OPINIONS

# What Do You Do With a Dead C-64...

*. . . and 29 other intriguing fun facts about Commodore computing to inform and entertain you.*



ILLUSTRATED BY LAURA JOHNSON

THE WORLD IS WILD FOR LISTS. Magazines and newspapers headline the ten best-dressed men and women and the ten best-paid executives. The third in a series of best-selling *Book(s) of Lists* features page after page of information guaranteed to enlighten and titillate. For instance:

—the ten healthiest places to live in the U.S.
—the most popular names for boys and girls.
—famous people under 5 feet, 6 inches tall.
—the most hated and feared persons in history.

More recently, there's *The Worst of Everything*—"the official guide to the most loathsome and deficient aspects of every realm of our lives"—sort of a cross between the *National Enquirer* and *The World Almanac*.

The computer community, of course, isn't immune to "listomania," and we at *RUN* want to make our contribution. The following lists are compilations of facts and opinions about Commodore computing that have been submitted by a select group of Commodore authorities in response to a questionnaire we sent them. You will find that the questions and responses cover such tantalizing topics as:

—best uses for an abandoned Commodore computer.
—recommended word processors.
—little-known companies that produce great products.
—best sources for learning about Commodore computers.

These sometimes irreverent, but always informative, comments provide an entertaining way to start off the new year.

### List of Contributors

**Fred Bowen**, the senior systems hardware engineer at Commodore, was one of the designers of the C-128.

**Tom Brown** is a freelance programmer with public domain and commercial programs to his credit. He authored *RUN*'s telecommunications program, RUN Term 128.

**Jim Grubbs**, author of a half-dozen books (his latest, *APO San Francisco 96525*, about growing up in the military), operates inDependent Publishing of Springfield, Illinois, and produces his own magazine, *iD*. A longtime Commodore enthusiast, Jim uses a C-128 in running his business.

**Peter and Paul Hughes**, the ubiquitous twins who run a computer graphics business out of Canton, Massachusetts, are Commodore enthusiasts who frequent user's group meetings, computer shows and online networks to offer their insights about Commodore computing.

**Loren Lovhaug** is the author of *RUN*'s monthly telecommunications column. He also publishes the *Twin Cities 128* newsletter and is a SYSOP on QuantumLink and GEnie.

**Margaret Morabito**, former technical manager of *RUN*, publishes the CALC (Computer-Assisted Learning Center) newsletter and heads the Community College and Tutoring Center on QuantumLink.

**William D. Pitts** is one of the graphics SYSOPs on QuantumLink.

**Ellen Rule**, active in New England user's group activities, operates the Home Computer Resource out of her New Hampshire home.

**John Ryan**, a frequent contributor to *RUN*, is an advanced machine language programmer with expertise on a number of computers, including, of course, the C-64 and C-128.

**Erin Wynn** is president of the New Mexico Commodore Users Group.

As you dive into our lists, note that numbers in parentheses indicate the same response from more than one expert.

By DENNIS BRISSON

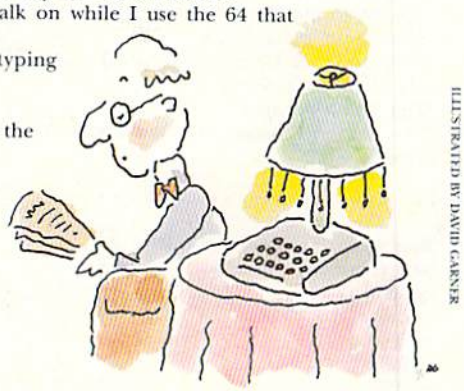
## THE LISTS



ILLUSTRATED BY KRIS STAVESON

**It's time to quit computing when. . .**
—your friends hire an interpreter so they can understand you.
—your programs make more sense than you do.
—you start talking to your computer.
—you're offered a job as editor-in-chief of *RUN*.
—the images are burned into your eyes as well as the screen.
—your family goes to the movies and doesn't invite you because they know you're working on the computer.
—you pirate software or feel destructive towards your computer.
—you toss and turn the whole night thinking of the same program line over and over.
—you dream about your computer every night.
—your wife walks into the computer room wearing a black teddy, silk stockings and a gleam in her eye.
—your husband walks into the computer room whispering sweet nothings and wearing a gleam in his eye.

**Uses for a dead C-64:**
—Door stop (3)
—Desk lamp—shift-lock key turns it on and off
—Decoy for cats to walk on while I use the 64 that works
—For kids to practice typing
—Send 'em to me
—Decoy to keep kids' attention away from the working computer



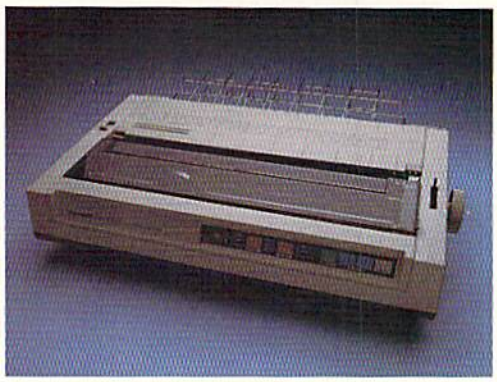
ILLUSTRATED BY DAVID GARNER

**Best mail-order companies:**
—Briwall (4)
—Tussey (2)

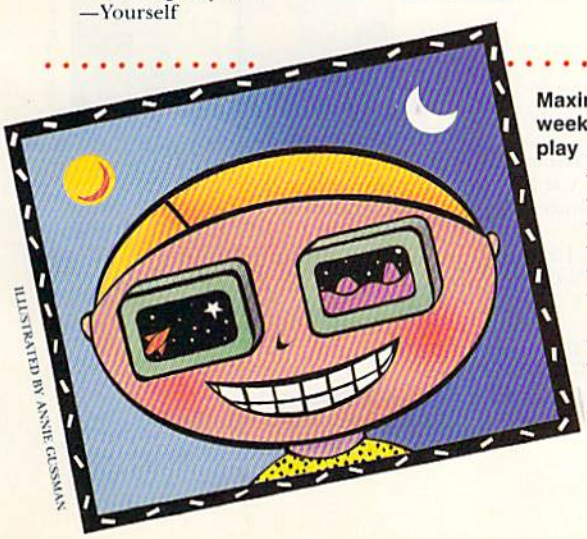
**Best descriptions of GEOS:**
—Innovative
—Arrrgh!
—Powerful
—Expensive
—Revitalizing
—Frustrating
—Poorly documented
—Okay
—Redundant

**Best software publishers:**
—Electronic Arts (3)
—Rainbird Software (2)
—Berkeley Softworks
—Origin
—Xetec
—Digital Solutions
—Precision Software
—Too many to list

**Recommended printers:**
—Star Micronics NX1000 (4)
—Seikosha SP1000-A
—Epson, Panasonic and Star 24-pin printers
—Royal Alpha 620C
—Okidata 180
—Panasonic



**Best sources for learning about Commodore computing:**
—Online services (4)
—Magazines (4)
—User's groups (4)
—Yourself



ILLUSTRATED BY ANNIE GUSSMAN

**Maximum number of hours per week children should be allowed to play computer games:**
—5 (2)
—7
—10
—14
—15
—1/2 hour per day, double on weekends
—Unlimited
—Depends on child and type of game
—Just enough so they'll leave me alone to work

**Commodore products that should never have seen the light of day:**
—Plus/4 (6)
—C-16 (2)
—1526 printer

**Creative programmers:**
—Bruce Carver (Access) (2)
—Sid Meier (MicroProse)
—Fred Bowen (Commodore)
—Brian Fargo (Electronic Arts)
—Eric Lee (Busy Bee)
—David Darus (Walrusoft)
—Jim Butterfield

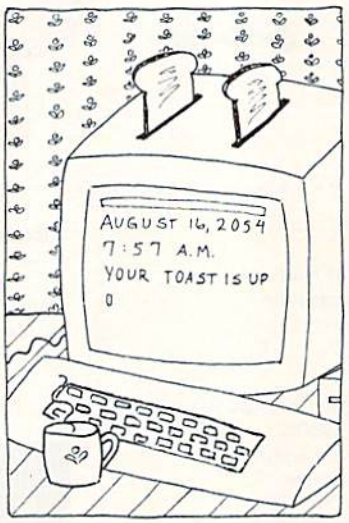
**Best computer shows to attend:**
—World of Commodore, Toronto (5)
—Comdex
—Local shows
—Consumer Electronics Show

# 30 FUN FACTS AND OPINIONS

**TV shows I'd like to see starring the Commodore computer:**
—"C-64, Where Are You?" (2)
—"Sing Along with SID"
—"Voyage to the Bottom of the C"
—"The Comm-puter Show"
—"RAM-bo (This Time It's Personal)"
—"My Mother the Computer"
—"The Three Amigas"
—"The Morton Downey, Jr., Carl Sagan and Commodore Comedy Hour"

**Recommended reading:**
—*Mapping the Commodore 64*—Compute! Books
—*First and Second Books of Machine Language*
—*Commodore 64 Programmer's Reference Guide*
—*All About the Commodore 64 and Other Commodore Computers*, by Jim Butterfield
—*RUN*'s Special Issues
—The manual that accompanies your equipment
—Anything by Jim Butterfield
—*CAD-128*
—*Mapping the Commodore 128*, by Ottis Cowper

**Year when the computer will be a common household appliance:**
—August 16, 2054, at 3:47 PM
—2000 (3)
—1999
—1998
—1990
—It already is
—1986
—1984



ILLUSTRATED BY LAURA JOHNSON

**Advice on buying Commodore equipment:**
—Find a knowledgeable, supportive dealer. (3)
—Know what you really need and compare limitations of the various machines against that need.
—Determine needs before buying.
—Buy from a reputed, locally accessible firm.
—Look at software first, then decide on a machine.
—Shop around for good values.
—Determine your needs before buying and try out candidates.
—If you buy cheap, don't expect support.
—Follow every word I've ever written on this topic.

**Best utility programs:**
—Super Snapshot (2)
—Gnome Kit
—Partner 128
—Jim Klitzing's Wedge (public domain)
—Quick Brown Box
—Blitz compiler
—FastLoad
—Disk Whiz 128

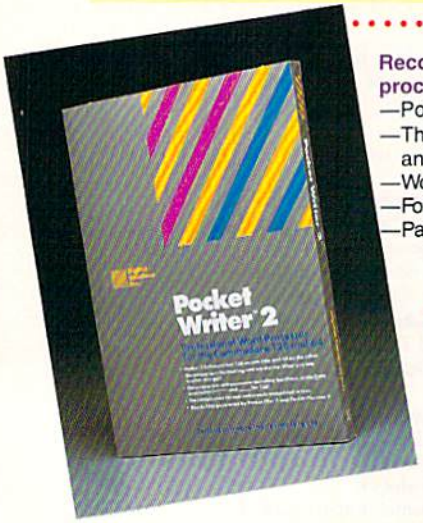
**Lesser-known companies that produce quality software:**
—Patech
—Free Spirit
—Blue Lion
—First Row
—Storm Systems
—Kidsview, BobCo, Busy Bee
—Walrusoft

**Biggest complaints about Commodore:**
—Lack of customer support and consideration (4)
—90-day warranty on Amigas
—Lack of support for vendors
—Lack of follow-through in educational market
—Poor marketing
—Poorly run since Tramiel left
—Lack of support for the 8-bit line
—They never consult me on major decisions

**Reasons a C-64 owner no longer uses his computer:**
—Lack of interest (3)
—Undergoing psychiatric evaluation
—Death, divorce or blown-up power supply
—Child doesn't need or want a computer
—Seeking more professional software, more memory and speed, better display capability

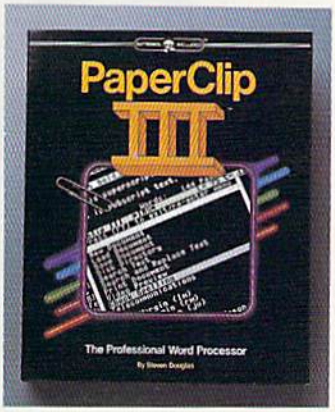


ILLUSTRATED BY KURT VARGO




**Recommended word processing packages:**
—Pocket Writer 2 (4)
—The Write Stuff 64 and 128 (2)
—Word Writer 128
—FontMaster
—PaperClip

**Magazine articles you'd like to see:**
—"Best 64/128 Bridge Card for Your Amiga"
—"Commodore Announces Knowledgeable Customer Service Department"
—"Commodore's New Laptop"
—"Making a Million Dollars with Your C-64"
—"Briefcase Portable C-128 for Under $500"
—"C-64 Laptop"
—"How Commodore Toppled IBM"
—"GeoPublish to Postscript File Utility"
—"My Rise from Impoverished Computer Journalist to the Wealthy Head of Commodore International in One Week"




**Software programs no user should be without:**
—GEOS (2)
—Merlin Assembler
—Word Writer 128
—PaperClip
—Any backup program
—A word processor (e.g., The Write Stuff or RUN Script)
—Fast Hack 'Em backup utility
—Any telecommunications program
—Disk Doctor 64 or 128

**Best integrated software packages:**
—GEOS (4)
—Pocket (Writer, Planner, Filer) series (3)
—Better Working series
—Timeworks (Word Writer, Swift Calc, Data Manager)




**Recommended graphics programs:**
—OCP Advanced Art Studio (2)
—Basic 8 (2)
—Doodle!
—Color Me (Mindscape)
—Print Shop

**Recommended brands of disk:**
—Maxell (4)
—Generic
—Memorex
—Japanese 3½-inch
—Fuji
—Any brand



**What I love about Commodore computing:**
—Variety of low-cost software
—Some of the latest technology available for sound and graphics at reasonable cost
—Lots of power/performance for low cost
—Information services/telecommunications
—Just about any application possible with software currently available
—Price that can put a computer in almost every home; the great equalizer
—Versatility
—Everything
—Keeps me from having to get a real job



ILLUSTRATED BY JAN MULLER

**What I hate about Commodore computing:**
—Entering hex-type magazine program listings
—Working around bugs and lack of foresight in the design of the computer
—Entering program listings
—Lack of respect for Commodores in the business world
—Heavy reliance on machine language, which is discouraging to would-be programmers
—Slow disk access
—Power supply burnout rate
—Lack of reliability
—Lack of real C-128 programs
—Nothing
—Lack of an inexpensive, totally compatible hard drive

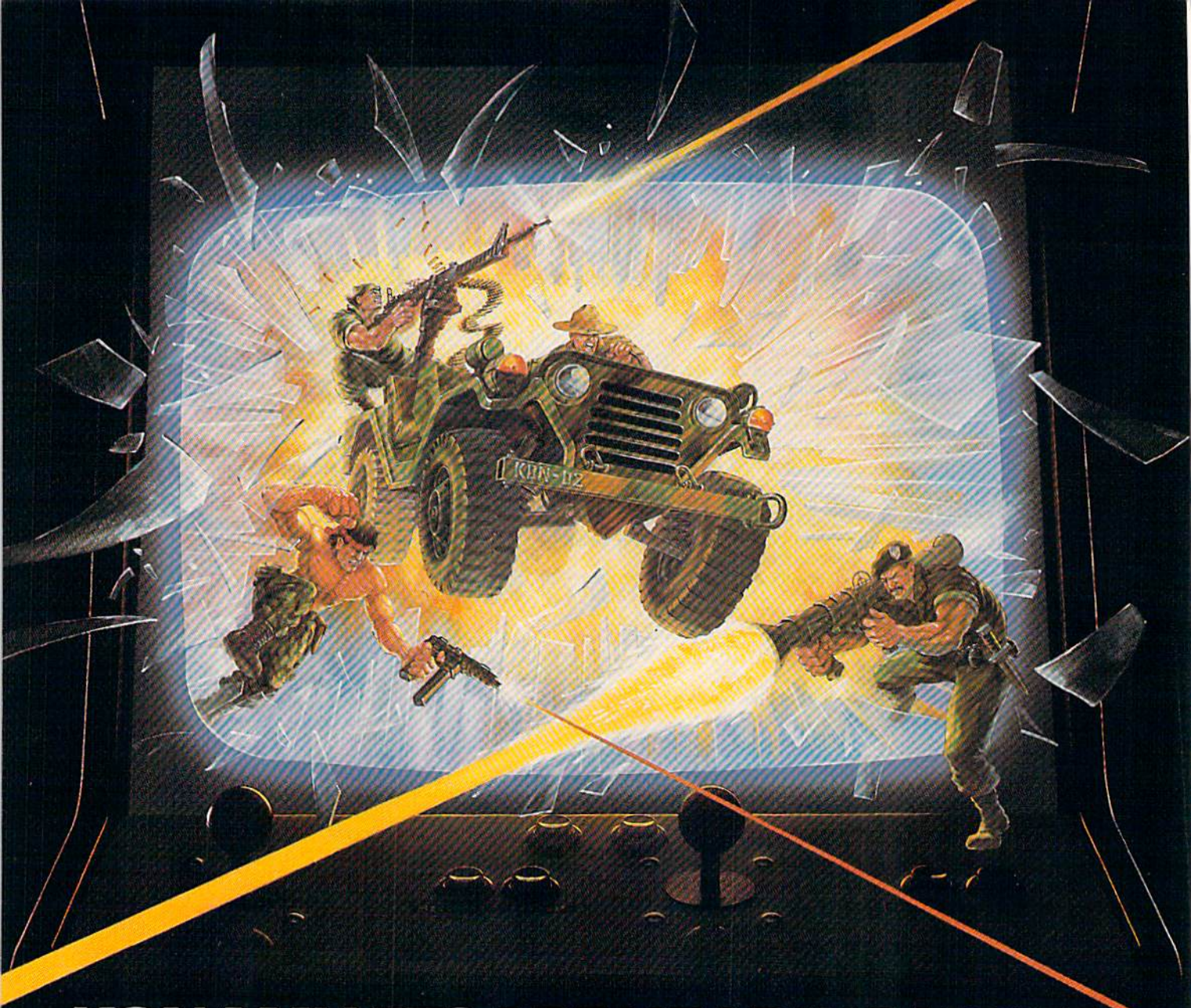
**Favorite public domain programs:**
—Fun Graphics Machine
—Chris Smeet's Self De-Arc program
—SWINTH
—SID Player
—Garry Label Maker
—Don Peterson's programs for the handicapped
—Grades, by T. Lynch
—A-Plus, by R. Croswell
—3-Minute Copier
—Disk Whiz (2)

**Most active Commodore computing areas in North America:**
—Toronto (6)
—West Chester, PA
—My living room
—My office




**Most exciting future computer applications:**
—CD ROM drives (2)
—Desktop publishing (2)
—Voice recognition (2)
—Plug-in UART chip (with ROM programs) for the C-64 and C-128
—Special user interfaces for the handicapped that don't require eye-hand coordination
—Telecommunications with drawing and text-to-speech capability
—Low-cost laser/copying/fax peripheral ■

*Dennis Brisson is* RUN*'s editor-in-chief and listomaniac par excellence.*



# KONAMI HITS ARE HEADING HOME.

## With our new software, your favorite arcade games come alive on your home computer.




If you own an IBM, Amiga or Commodore computer—Watch out! Because 4 of Konami's most awesome adventures are about to invade.

You'll confront the missions you've dreamed of in Rush 'N Attack, Contra, Jackal and Boot Camp. And you'll find yourself face to face against unequaled challenges, with incredible graphics, awesome music, and sound effects that'll blow you away.

So check out Konami's newest action wherever great software is sold. And be prepared for war.




KONAMI®

Konami® is a registered trademark of Konami Industry Co. Ltd. Rush 'N Attack,™ Contra,™ Jackal™ and Boot Camp™ are trademarks of Konami Inc. IBM® is a registered trademark of International Business Machines Inc. Amiga® and Commodore® are registered trademarks of Commodore Business Machines Inc. Screens shown were photographed on an Amiga system.

Circle 227 on Reader Service card.

# European Rush Hour.

Accolade's Grand Prix Circuit is the Formula One racing simulation that whisks you to an exclusive world of power, passion



and performance.

You'll race for the world-renowned teams of McLaren, Ferrari, and Williams on the greatest Grand Prix courses.

Slither through the curves of glamorous Monaco. Blast down the straightaways of Germany. Snarl through the tunnels of




Japan. Compete against a diverse corps of international rivals who seek the same prize—the title of World Driving Champion.

Uninhibited speed. Unchained exhilaration. It can only be found on The Grand Prix Circuit.

How to order: Visit your favorite retailer or call 800-245-7744 (In Colorado, call 303-352-6800).

ACCOLADE™
The best in entertainment software.™

From the people who brought you Test Drive.™

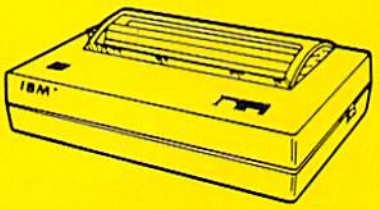
Circle 108 on Reader Service card

# BEST SERVICE IN THE USA (Price is Not Enough!)

- Fast, Low Cost Delivery
- 15 Day Home Trial
- Free Technical Assistance
- No Credit Card Fees
- 90 Day Immediate Replacement
- Free Catalogs

## Genuine IBM® Printer

**8½" 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**

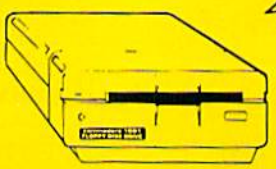
**$49.95**

List $199

## 800K 3½" Disk Drive

Commodore 1581 Works With C64/C64c, and C128/C128D.
Over 800K Bytes of Formatted Storage On Double-Sided 3.5" Microdiskettes.

Super 81 Utilities Sale $29.95



**Our Low Sale Price**

**$179.95**

List $249

## 13" Color Composite Monitor




- Anti-Glare Screen
- Audio Speaker
- Volume Control
- Black Matrix Tube
- Horizontal Resolution 260 Lines
- Includes Composite Cable

**Our Low Sale Price**

**$149.95**

List $329

## 300/1200/2400 BPS External Modem




**Modem 2400 Features:**

- 2400 BAUD Bell 212A at 300/1200/2400 BPS
- Fully Hayes Compatible
- 7 System Indicator Lights
- Both Tone & Pulse Dialing
- Built-In Speaker with Volume Control
- Buffer That Holds Up To 40 Characters
- Stores Dialed Numbers
- Separate Line and Set Connectors
- Uses RS-232C Interface (Cable Required)

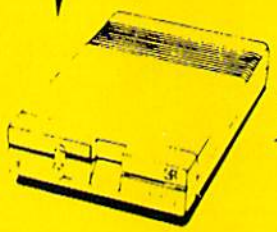
**Our Low Sale Price**

**$114.95**

List $349

## 1541-II Disk Drive

1541/1571 Drive Alignment Program *Sale $19.95*



Thousands of the most popular Software titles in stock!

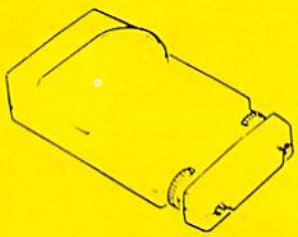
**Our Low Sale Price**

**$159.95**

List $299

## 300/1200 BPS Migent Pocket Modem

Free Terminal Software



- Hayes compatible
- Runs on AC or battery
- Turns on/off automatically
- Small enough to put in your pocket
- Plugs directly into your serial port on many computers
- Easy to use; no switches to set
- On-screen status lights show call progress

**Our Low Sale Price**

**$99.95**

List $413

VISA
MASTER CARD
COD

* Prices do not include Shipping Charges. Call to get Your Lowest Delivered Cost. We insure all shipments at no extra cost to you! All packages are normally shipped UPS Ground. 2nd Day or Overnight delivery available. Minimum shipping charge per order is $3.75, Illinois residents add 6½% sales tax. We ship to all points in the U.S; Canada, Puerto Rico, Alaska, Hawaii, Virgin Islands and APO-FPO. (Monitors only shipped in Continental USA) Prices and availability subject to change without notice. Computer Direct will match any valid nationally advertised delivered price on the exact same product & payment method (excluding sales taxes)

Circle 15 on Reader Service card.

Protecto's

# COMPUTER DIRECT

**WE WON'T BE UNDERSOLD!***

Prices Expire 1-31-89

## Complete C64c Commodore System




- 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**

**$385.95**

List $825

## C128D Computer



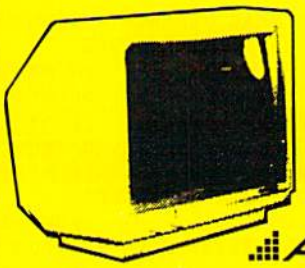

- Full 128 Detached Keyboard
- 1571 Drive With 128K Of User Memory Expandable To 640K
- 3 Operation Modes (C64, C128, & CP/M, Ver. 3.0)
- 40/80 Column Output, 16 colors
- **Free Programmer's Reference Guide**

**Our Low Sale Price**

**$419.95**

List $549

## 12" Amber Monitor



2 Year Limited Manufacturer's Warranty

AMDEK

- High Resolution
- 80 Column
- 1000 Lines At Center
- Great For Business
- Fantastic Value

**Our Low Sale Price**

**$79.95**

List $329

## 5¼" 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 |

## 3½" DS-DD Micro Disks



**99¢ each**

Quantity of 10 .. $11.90 ($1.19 each)
Quantity of 50 .. $54.50 ($1.09 each)
Quantity of 100 .... $99.00 (99¢ each)

## COMMODORE C64c COMPUTER



**OUR LOWEST SALE PRICE *EVER* ON THE 64c**

**$119.95**

List $249

## NEW Hi-Speed NLQ 180-II

**• 180 CPS • Lifetime Warranty ***



- 2 yr. Immediate Replacement
- Dot Addressable Graphics
- High Speed Dot Matrix
- Italics - Elite - Condensed - Pica
- Tractor/Friction Feed
- Centronics Parallel Port
- * Lifetime Warranty on Print Head
- 8K Print Buffer
- Near Letter Quality from Front Panel
- Low Cost Adapters available

**Our Low Sale Price**

**$149.95**

List $499

**IMMEDIATE ANSWER**

Call **800 - BUY - WISE**

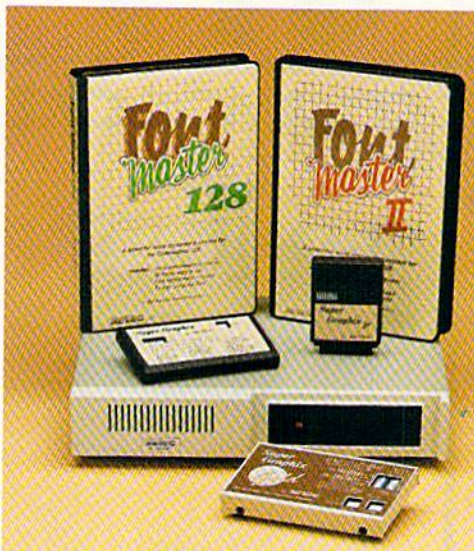
**800 - 289 - 9473**

Mail

*We Love Our Customers!*
COMPUTER DIRECT
22292 N. Pepper Rd.
Barrington, IL 60010

```
252Ø SE=1                    :REM*13Ø
253Ø IF MF$(SE)="{PI}" THEN RET
     URN                     :REM*134
254Ø SE=SE+1:IF SE<=MT THEN 253
     Ø                       :REM*1
255Ø EM$="ERROR-FILE FULL":GOTO
      3Ø5Ø                   :REM*Ø
256Ø :                       :REM*48
257Ø REM READ MESSAGE        :REM*75
258Ø GOSUB 281Ø:REM OPEN
                             :REM*231
259Ø Y=1:SE=Ø                :REM*231
26ØØ RP=(DV-1)*MT+Y          :REM*113
261Ø GOSUB 294Ø:IF EN<>Ø THEN 3
     ØlØ                     :REM*247
262Ø INPUT#3,RF$:REM READ
                             :REM*229
263Ø GOSUB 294Ø:IF EN<>Ø THEN 3
     Ø1Ø                     :REM*227
264Ø IF RF$<>"{PI}" THEN SE=SE+
     1                       :REM*58
265Ø MF$(Y)=RF$              :REM*36
266Ø Y=Y+1:IF Y>MT THEN 3Ø1Ø
                             :REM*67
267Ø IF RF$="{PI}" THEN 265Ø
                             :REM*119
268Ø GOTO 26ØØ               :REM*186
269Ø :                       :REM*182
27ØØ REM SAVE MESS-DAY       :REM*14Ø
271Ø GOSUB 281Ø:Y=1:REM OPEN
                             :REM*77
272Ø RF$=MF$(Y)              :REM*214
273Ø RP=(DV-1)*MT+Y          :REM*243
274Ø GOSUB 294Ø:IF EN<>Ø THEN 2
     79Ø                     :REM*22
275Ø PRINT#3,RF$:REM WRITE
                             :REM*133
276Ø GOSUB 294Ø:IF EN<>Ø THEN 2
     79Ø                     :REM*2
277Ø IF RF$="{PI}" THEN 279Ø
                             :REM*214
278Ø Y=Y+1:IF Y<=MT THEN 272Ø
                             :REM*5Ø
279Ø GOTO 3Ø1Ø               :REM*23
28ØØ :                       :REM*33
281Ø REM OPEN FILE           :REM*57
282Ø OPEN 15,8,15:REM OPEN
                             :REM*213
283Ø F$=STR$(MV)+"."+STR$(YV)
                             :REM*241
284Ø OPEN3,8,3,F$+",L,"+CHR$(ML
     )                       :REM*3Ø
285Ø IH=INT((RT+1)/256):IL=RT+1
     -(IH*256)               :REM*32
286Ø PRINT#15,"P"+CHR$(96+3)+CH
     R$(IL)+CHR$(IH)+CHR$(1)
                             :REM*22
287Ø PRINT#15,"P"+CHR$(96+3)+CH
     R$(IL)+CHR$(IH)+CHR$(1)
                             :REM*44
288Ø GOSUB 297Ø              :REM*166
289Ø PRINT#3," "             :REM*2Ø6
29ØØ IF EN<>5Ø THEN 297Ø
                             :REM*2Ø8
291Ø PRINT#3,CHR$(255)       :REM*1Ø6
292Ø GOTO 297Ø               :REM*194
293Ø :                       :REM*167
294Ø REM SET RECORD POS      :REM*29
295Ø IH=INT(RP/256):IL=RP-(IH*2
     56)                     :REM*223
296Ø PRINT#15,"P"+CHR$(96+3)+CH
     R$(IL)+CHR$(IH)+CHR$(1)
                             :REM*139
297Ø REM CHEK ERROR          :REM*1Ø1
298Ø INPUT#15,EN,EM$,ET,E :REM
     GET ERRORS              :REM*127
299Ø RETURN                  :REM*48
3ØØØ :                       :REM*249
3Ø1Ø REM CLOSE FILE          :REM*223
3Ø2Ø CLOSE3:CLOSE15          :REM*33
3Ø3Ø IF EN=Ø THEN RETURN:REM*64
3Ø4Ø :                       :REM*22
3Ø5Ø REM PRINT ERROR         :REM*13Ø
3Ø6Ø PRINT:PRINT EM$         :REM*43
3Ø7Ø FOR X=1 TO 15ØØ:NEXT:EN=1
                             :REM*227
3Ø8Ø RETURN                  :REM*154 ■
```

*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 Oesterreich*; BRAZIL's *DataNews, PC Mundo, Micro Mundo*; CANADA's *Computer Data*; CHILE's *Informatica, Computacion Personal*; DENMARK'S *Computerworld Danmark, PC World Danmark*; FINLAND's *Tietoviikko, Mikro*; FRANCE's *Le Monde Informatique, Distributique, InfoPC, Telecoms International*; GREECE's *Micro and Computer Age*; HUNGARY's *Computerworld SZT, PC Mikrovilag*; INDIA's *Dataquest*; ISRAEL's *People & Computers Weekly, People & Computers BiWeekly*; ITALY's *Computerworld Italia*; JAPAN's *Computerworld Japan*; MEXICO's *Computerworld Mexico*; THE NETHERLANDS' *Computerworld Netherlands, PC World Benelux*; NEW ZEALAND's *Computerworld New Zealand*; NORWAY's *Computerworld Norge, PC World Norge*; PEOPLE'S REPUBLIC OF CHINA's *China Computerworld, China Computerworld Monthly*; SAUDI ARABIA's *Arabian Computer News*; SOUTH KOREA's *Computerworld Korea, PC World Korea*; SPAIN's *CIMWORLD, Computerworld Espana, Commodore World, PC World Espana, Communicaciones World, Informatica Industrial*; SWEDEN's *Computer Sweden, MikroDatorn, Svenska PC World*; SWITZERLAND's *Computerworld Schweiz*; UNITED KINGDOM's *Computer News, DEC Today, ICL Today, PC Business World, IOTUS*; UNITED STATES' *AmigaWorld, CD-ROM Review, CIO, Computer Currents, Computerworld, Computers in Science, Digital News, Federal Computer Week, 80 Micro, FOCUS Publications, inCider, InfoWorld, Macintosh Today, MacWorld, Computer & Software News (Micro Marketworld/Lebhar-Friedman), Network World, PC World, Portable Computer Review, Publish!, PC Resource, RUN, Windows*; VENEZUELA's *Computerworld Venezuela*; WEST GERMANY's *Computerwoche, PC Welt, Run, Information Management, PC Woche.*




**Excellence...**
**for the Commodore**
The XETEC Product Family

Look for the name that spells *Quality, Affordability,* and *Reliability.*

***Lt. Kernal*** - a 20 or 40 Megabyte Hard Drive which supports 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.

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

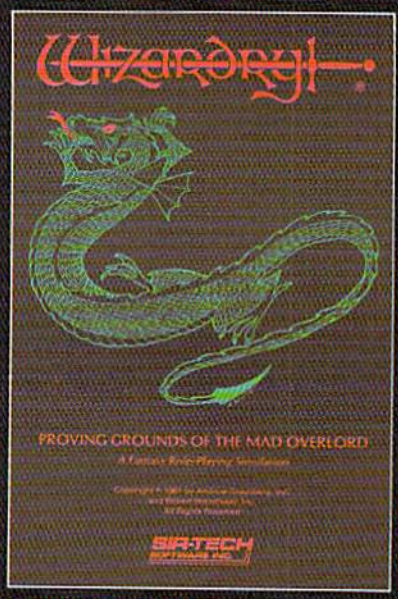
Circle 96 on Reader Service card.

# CALENDAR 2001

```
124Ø REM INPUT DATE      :REM*91
125Ø GOSUB 145Ø:REM SHOW TODAY
                         :REM*93
126Ø PRINT               :REM*128
127Ø PRINT TAB(8)"WHAT'S THE DA
     TE?":PRINT          :REM*172
128Ø YV=Ø:INPUT "(MONTH,DAY,YEA
     R)";MV,DV,YV        :REM*24
129Ø MD(2)=28:IF YV/4=INT(YV/4)
      THEN MD(2)=29      :REM*174
13ØØ IF MV<1 OR MV>12 THEN 133Ø
                         :REM*121
131Ø IF DV<1 OR DV>MD(MV) THEN
     133Ø                :REM*62
132Ø IF YV>=YB AND YV<=YE THEN
     RETURN              :REM*51
133Ø PRINT "INCORRECT DATE...":
     GOTO127Ø            :REM*226
134Ø :                   :REM*115
135Ø REM PRINT CALENDAR:REM*184
136Ø GOSUB 147Ø:REM SHOW DATE
                         :REM*215
137Ø PRINT" SUN{2 SPACEs}MON{2
     SPACEs}TUES{2 SPACEs}WED{2
      SPACEs}THURS{2 SPACEs}FRI
     {2 SPACEs}SAT"      :REM*3Ø
138Ø PRINT"''''''''''''''''''''
     ''''''''''''''''''"
                         :REM*162
139Ø Y=D1*6-6            :REM*171
14ØØ FOR X=1 TO MD(MV) :REM*1Ø8
141Ø PRINT TAB(Y)X;:Y=Y+6
                         :REM*62
142Ø IF Y>4Ø THEN Y=Ø:PRINT "{2
      CRSR DNs}"         :REM*75
143Ø NEXT:RETURN         :REM*62
144Ø :                   :REM*223
145Ø REM SHOW TODAY      :REM*188
146Ø YV=YZ:MV=MZ:DV=DZ   :REM*248
147Ø REM SHOW DATE       :REM*53
148Ø WD=5:REM 1988 DAY1  :REM*93
149Ø FOR Y=1988 TO YV    :REM*1Ø4
15ØØ MD(2)=28:IF Y/4=INT(Y/4) T
     HEN MD(2)=29        :REM*98
151Ø M=1:ME=12:IF Y=YV THEN ME=
     MV                   :REM*1
152Ø FOR M=1TO ME        :REM*218
153Ø WD=WD+MD(M)         :REM*25
154Ø NEXT M:NEXT Y       :REM*152
155Ø WD=WD-MD(M-1)       :REM*48
156Ø D1=WD-(INT(WD/7)*7)+1:REM
     DAY1                :REM*12Ø
157Ø WD=WD+DV-1          :REM*32
158Ø WD=WD-(INT(WD/7)*7)+1:REM
     DAY1                :REM*45
159Ø IF P=1THEN PRINT "{SHFT CL
     R}{CRSR DN}"        :REM*159
16ØØ P$=STR$(MV)+"/"+STR$(DV)+"
     /"+STR$(YV):GOSUB 1Ø9Ø
                         :REM*92
161Ø Z$="{2 SPACEs}"+DN$(WD)+",
      "+MN$(MV)+STR$(DV):REM*93
162Ø PRINT#P,Z$;SPC(27-LEN(Z$))
     ;P$                 :REM*2
163Ø PRINT#P," ":RETURN  :REM*4
164Ø :                   :REM*164
165Ø REM DEC DATE        :REM*162
166Ø MD(2)=28:IFYV/4=INT(YV/4)T
     HENMD(2)=29         :REM*33
167Ø DV=DV-1:IF DV>Ø THEN RETUR
     N                   :REM*218
168Ø MV=MV-1:IF MV>Ø THEN 171Ø
                         :REM*79
169Ø MV=12:YV=YV-1       :REM*248
17ØØ IF YV<YB THEN YV=YB:MV=1:E
     N=1                 :REM*135
171Ø DV=MD(MV):RETURN    :REM*221
172Ø :                   :REM*244
173Ø REM INC DATE        :REM*54
174Ø MD(2)=28:IFYV/4=INT(YV/4)T
     HENMD(2)=29         :REM*81
175Ø DV=DV+1:IFDV<=MD(MV) THEN
     RETURN              :REM*98
176Ø DV=1:MV=MV+1:IF MV<=12 THE
     N RETURN            :REM*4
177Ø MV=1:YV=YV+1:IF YV<=YE THE
     N RETURN            :REM*31
178Ø YV=YE:MV=12:DV=MD(MV):RETU
     RN                  :REM*33
179Ø :                   :REM*63
18ØØ REM MAKE APPOINTMENT
                         :REM*43
181Ø MS$="":IF KI=4 THEN 195Ø
                         :REM*7
182Ø PRINT:PRINT "APPOINTMENT W
     ITH WHOM?"          :REM*97
183Ø INPUT MS$:IF MS$="" THEN R
     ETURN               :REM*68
184Ø IF LEN(MS$)>2Ø THEN PRINT"
     MESSAGE TOO LONG":GOTO 182
     Ø                   :REM*6Ø
185Ø PRINT               :REM*212
186Ø INPUT "WHAT HOUR IS IT (1-
     12)";HR             :REM*121
187Ø IF HR<1 OR HR>12 THEN 186Ø
                         :REM*175
188Ø INPUT "MINUTES AFTER THE H
     OUR (Ø-59)";MN      :REM*142
189Ø IF MN<Ø OR MN>59 THEN 188Ø
                         :REM*11
19ØØ INPUT "AM OR PM";K$
                         :REM*168
191Ø PM=Ø:IF K$="AM" THEN 193Ø
                         :REM*234
192Ø PM=1:IF K$<>"PM" THEN 19ØØ
                         :REM*213
193Ø GOTO 2Ø1Ø           :REM*177
194Ø :                   :REM*2Ø1
195Ø REM MAKE NOTE       :REM*12
196Ø INPUT "TYPE NOTE";MS$
                         :REM*21
197Ø IF MS$="" THEN EN=1:RETURN
                         :REM*195
198Ø IF LEN(MS$)>2Ø THEN PRINT
     "MESSAGE TOO LONG":GOTO 19
     6Ø                   :REM*5
199Ø HR=Ø:MN=Ø:PM=Ø      :REM*248
2ØØØ :                    :REM*2
2Ø1Ø REM SET REMINDER     :REM*224
2Ø2Ø K$="":INPUT"{CRSR DN}DO YO
     U WISH TO BE REMINDED (Y/N
     )";K$               :REM*25Ø
2Ø3Ø RV=Ø:IF K$<>"Y" THEN RETUR
     N                   :REM*97
2Ø4Ø INPUT "HOW MANY DAYS (1-14
     )";RV               :REM*199
2Ø5Ø IF RV>14 OR RV<Ø THEN 2Ø4Ø
                         :REM*151
2Ø6Ø RETURN              :REM*146
2Ø7Ø :                    :REM*88
2Ø8Ø REM ENCODE MESSAGE  :REM*96
2Ø9Ø M$=""               :REM*11
21ØØ S$=STR$(YV):GOSUB 218Ø
                         :REM*2Ø6
211Ø S$=STR$(MV):GOSUB 218Ø
                         :REM*136
212Ø S$=STR$(DV):GOSUB 218Ø
                         :REM*164
213Ø S$=STR$(PM):GOSUB 218Ø
                         :REM*177
214Ø S$=STR$(HR):GOSUB 218Ø
                         :REM*18Ø
215Ø S$=STR$(MN):GOSUB 218Ø
                         :REM*184
216Ø M$=M$+MS$           :REM*224
217Ø RETURN               :REM*1
218Ø IF LEFT$(S$,1)=" " THEN S$
     =MID$(S$,2)         :REM*13
219Ø IF LEN(S$)<2 THEN S$="Ø"+S
     $                   :REM*198
22ØØ M$=M$+S$:RETURN     :REM*62
221Ø :                   :REM*212
222Ø REM DECODE MESSAGE:REM*147
223Ø YV=VAL(LEFT$(M$,4)):REM*55
224Ø MV=VAL(MID$(M$,5,2))
                         :REM*79
225Ø DV=VAL(MID$(M$,7,2))
                         :REM*166
226Ø PM=VAL(MID$(M$,9,2))
                         :REM*188
227Ø PD$="AM":IF PM=1 THEN PD$=
     "PM"                :REM*18
228Ø HR=VAL(MID$(M$,11,2))
                         :REM*125
229Ø MN=VAL(MID$(M$,13,2))
                          :REM*9Ø
23ØØ MS$=MID$(M$,15)     :REM*245
231Ø RETURN              :REM*157
232Ø :                    :REM*67
233Ø REM SET MESSAGE     :REM*1Ø8
234Ø GOSUB 251Ø:IF EN<>Ø THEN R
     ETURN               :REM*184
235Ø DX=VAL(MID$(M$,1,8))
                         :REM*21Ø
236Ø TX=VAL(MID$(M$,8,6))
                         :REM*1Ø2
237Ø X=1                 :REM*154
238Ø F$=MF$(X)           :REM*183
239Ø IF F$="{PI}" THEN 248Ø
                         :REM*255
24ØØ D=VAL(MID$(F$,1,8)):REM*18
241Ø T=VAL(MID$(F$,8,6)):REM*9Ø
242Ø IF DX>D THEN 245Ø   :REM*86
243Ø IF DX<D THEN 246Ø  :REM*125
244Ø IF TX<T THEN 246Ø  :REM*251
245Ø X=X+1:GOTO 238Ø     :REM*181
246Ø FOR Y=MT-1 TO X STEP -1
                         :REM*16Ø
247Ø MF$(Y+1)=MF$(Y):NEXT
                         :REM*95
248Ø MF$(X)=M$:SE=SE+1   :REM*97
249Ø RETURN              :REM*66
25ØØ :                   :REM*247
251Ø REM OPEN RECORD     :REM*78
```

Circle 133 on Reader Service card.

# Wizardry®




## Now the world of Wizardry comes to Commodore 64/128

# PROVING GROUNDS of the MAD OVERLORD

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

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

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

**SIR-TECH**

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

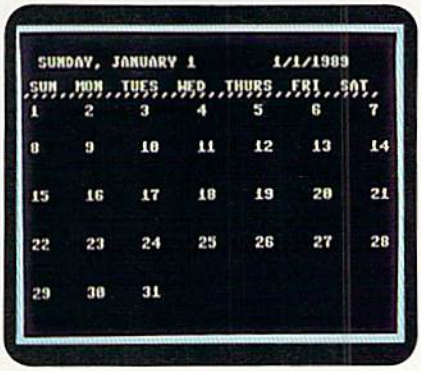
® Registered trademark of Sir-tech Software, Inc.
© Copyright by Sir-tech Software, Inc.
Commodore is a registered trademark of Commodore International

**PLAY IT TO THE HILT!**

* Many other Wizardry scenarios coming for Commodore players.

# CALENDAR 2001

```
9Ø DIM DN$(7):DIM DC$(7):REM*88
1ØØ DIM MN$(12):DIM MD(12)
                          :REM*148
11Ø P=1:OPEN 1,3:OPEN 2,4
                          :REM*221
12Ø SP$="{17 SPACEs}"     :REM*49
13Ø :                     :REM*188
14Ø FOR X=1TO12:READN$,A
                          :REM*2Ø1
15Ø MN$(X)=N$:MD(X)=A:NEXT
                          :REM*196
16Ø FOR X=1 TO 7:READ N$:DN$(X)
    =N$:NEXT              :REM*24
17Ø DATA JANUARY,31,FEBRUARY,28
    ,MARCH,31,APRIL,3Ø,MAY,31
                          :REM*125
18Ø DATA JUNE,3Ø,JULY,31,AUGUST
    ,31,SEPTEMBER,3Ø      :REM*94
19Ø DATA OCTOBER,31,NOVEMBER,3Ø
    ,DECEMBER,31          :REM*154
2ØØ DATA SUNDAY,MONDAY,TUESDAY,
    WEDNESDAY             :REM*1Ø6
21Ø DATA THURSDAY,FRIDAY,SATURD
    AY                    :REM*12Ø
22Ø :                     :REM*23
23Ø REM INPUT DATE        :REM*77
24Ø POKE 53281,Ø          :REM*76
25Ø PRINT"{SHFT CLR}{4 CRSR DNs
    }"TAB(11)"CALENDAR 2ØØ1 AD"
                          :REM*82
26Ø PRINTTAB(12)"{CRSR DN}BY KE
    N HUEBNER{CRSR DN}"   :REM*85
27Ø GOSUB 126Ø :REM GET DATE
                          :REM*144
28Ø YZ=YV:MZ=MV:DZ=DV     :REM*6Ø
29Ø :                     :REM*93
3ØØ REM RUN MENU          :REM*115
31Ø GOSUB 145Ø:REM SHOW DATE
                          :REM*249
32Ø PRINT "{4 CRSR DNs}":EN=Ø
                          :REM*121
33Ø PRINT TAB(1Ø)"CALENDAR MENU
    ":PRINT               :REM*1Ø
34Ø PRINT TAB(12)"1-SEE CALENDA
    R"                    :REM*148
35Ø PRINT TAB(12)"2-READ CALEND
    AR"                   :REM*118
36Ø PRINT TAB(12)"3-APPOINTMENT
    "                     :REM*5
37Ø PRINT TAB(12)"4-NOTE"
                          :REM*1Ø4
38Ø PRINT TAB(12)"5-ERASE"
                          :REM*2Ø5
39Ø PRINT TAB(12)"6-EXIT"
                          :REM*242
4ØØ GETK$:KI=VAL(K$):IF KI<1 OR
     KI>6 THEN 4ØØ        :REM*31
41Ø ON KI GOSUB 48Ø,81Ø,56Ø,56Ø
    ,113Ø,44Ø             :REM*173
42Ø GOTO 3ØØ              :REM*224
43Ø :                     :REM*233
44Ø REM EXIT              :REM*167
45Ø PRINT#2:FORX=ØTO15:CLOSEX:N
    EXT                   :REM*225
46Ø PRINT "{SHFT CLR}":END
                          :REM*5
47Ø :                     :REM*18
48Ø REM LOOK CALENDAR     :REM*224
```

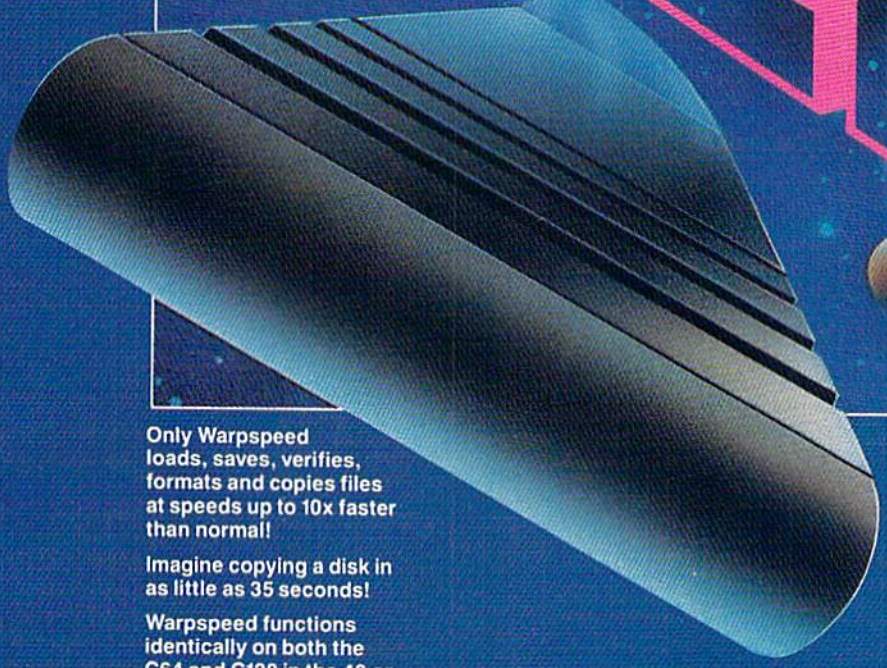



**Sample Calendar 2001 screen display.**

```
49Ø GOSUB 135Ø:REM DRAW CALENDA
    R                     :REM*76
5ØØ GETK$:IF K$="" THEN 5ØØ
                          :REM*227
51Ø IF K$=CHR$(145)THEN GOSUB 1
    76Ø                   :REM*45
52Ø IF K$=CHR$(17)THEN GOSUB 16
    8Ø                    :REM*8
53Ø IF K$=CHR$(13) THEN RETURN
                          :REM*38
54Ø GOTO 49Ø              :REM*124
55Ø :                     :REM*98
56Ø REM WRITE CALENDAR    :REM*119
57Ø GOSUB 124Ø:REM GET DATE
                          :REM*147
58Ø GOSUB 135Ø:REM DRAW CALENDA
    R                     :REM*246
59Ø GOSUB 257Ø            :REM*175
6ØØ GOSUB 251Ø            :REM*153
61Ø IF EN<>Ø THEN RETURN
                          :REM*215
62Ø GOSUB 147Ø:REM SHOW DATE
                          :REM*61
63Ø GOSUB 18ØØ:REM QUERY
                          :REM*241
64Ø GOSUB 2Ø8Ø:REM ENCODE
                          :REM*172
65Ø GOSUB 233Ø:REM SET MESSAGE
                          :REM*173
66Ø GOSUB 27ØØ:REM SAVE FILE
                          :REM*166
67Ø IF RV=Ø THEN RETURN :REM*67
68Ø GOSUB 165Ø:REM LESS DATE
                          :REM*219
69Ø IF EN<>Ø OR YV<YZ THEN RETU
    RN                    :REM*2Ø5
7ØØ IF YV>YZ THEN 74Ø     :REM*128
71Ø IF MV>MZ THEN 74Ø     :REM*94
72Ø IF MV<MZ THEN RETURN
                          :REM*117
73Ø IF DV<DZ THEN RETURN:REM*56
74Ø GOSUB 257Ø:REM LOAD MESSAGE
                          :REM*115
75Ø GOSUB 251Ø            :REM*52
76Ø IF EN<>Ø THEN RETURN:REM*76
77Ø GOSUB 233Ø            :REM*78
78Ø GOSUB 27ØØ:REM SAVE FILE
                          :REM*222
79Ø RV=RV-1:GOTO 67Ø      :REM*2ØØ
8ØØ :                     :REM*89
81Ø REM READ CALENDAR     :REM*196
82Ø GOSUB 124Ø:REM GET DATE
                          :REM*14Ø
83Ø YØ=YV:MØ=MV:DØ=DV     :REM*4
84Ø GOSUB 135Ø:REM DRAW CALENDA
    R                     :REM*235
85Ø GOSUB 257Ø:REM LOAD MESSAGE
                          :REM*129
86Ø IF EN<>Ø THEN RETURN:REM ER
    ROR                   :REM*71
87Ø :                     :REM*163
88Ø GOSUB 147Ø:C=1        :REM*8Ø
89Ø FOR X=1 TO MT         :REM*221
9ØØ M$=MF$(X)             :REM*236
91Ø IF M$="{PI}" THEN 1ØØØ
                          :REM*134
92Ø GOSUB 222Ø:REM DECODE
                          :REM*64
93Ø Z$=STR$(C):C=C+1      :REM*125
94Ø P$=STR$(MV)+"/"+STR$(DV)
                          :REM*42
95Ø GOSUB 1Ø9Ø:Z$=Z$+LEFT$(SP$,
    4-LEN(Z$))+P$         :REM*146
96Ø IF HR=Ø THEN 99Ø      :REM*1Ø4
97Ø P$=STR$(HR)+":"+MID$(M$,13,
    2)+PD$                :REM*15Ø
98Ø GOSUB 1Ø9Ø:Z$=Z$+LEFT$(SP$,
    1Ø-LEN(Z$))+P$        :REM*176
99Ø PRINT#P,Z$;SPC(18-LEN(Z$));
    MS$                   :REM*223
1ØØØ NEXT X               :REM*31
1Ø1Ø IF P=2 THENFORX=1TO3:PRINT
    #P," ":NEXT:P=1       :REM*35
1Ø2Ø YV=YØ:MV=MØ:DV=DØ :REM*147
1Ø3Ø PRINT "{CRSR DN} PRESS SPC
    -LIST, P-PRINT, OR RETURN.
    "                     :REM*4
1Ø4Ø GETK$:IFK$=" " THEN 88Ø
                          :REM*5Ø
1Ø5Ø IFK$="P"THEN P=2:GOTO 88Ø
                          :REM*62
1Ø6Ø IF K$<>CHR$(13)THEN 1Ø4Ø
                          :REM*26
1Ø7Ø RETURN               :REM*184
1Ø8Ø :                    :REM*118
1Ø9Ø FOR DX=1 TO LEN(P$):REM*98
11ØØ IF MID$(P$,DX,1)=" " THEN
    P$=LEFT$(P$,DX-1)+MID$(P$,
    DX+1)                 :REM*18Ø
111Ø NEXT:RETURN          :REM*24Ø
112Ø :                    :REM*158
113Ø REM ERASE MESSAGE    :REM*216
114Ø GOSUB 81Ø:REM READ CAL
                          :REM*126
115Ø IF EN<>Ø OR SE=Ø THEN RETU
    RN                    :REM*238
116Ø Y=Ø:PRINT:INPUT "{CRSR DN}
    ERASE WHICH MESSAGE (ID)";
    Y                     :REM*221
117Ø IF Y<1 OR Y>SE THEN RETURN
                          :REM*138
118Ø IF Y=SE THEN 121Ø    :REM*234
119Ø X=Y:FOR Y=X TO SE-1:REM*35
12ØØ MF$(Y)=MF$(Y+1):NEXT Y
                          :REM*177
121Ø MF$(Y)="{PI}"        :REM*146
122Ø GOTO 27ØØ:REM SAVE FILE
                          :REM*136
123Ø :                    :REM*13 ►
```

INTRODUCING THE INDISPENSABLE ACCELERATOR CARTRIDGE FOR YOUR C64 OR C128.

# WARP SPEED™



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

Imagine copying a disk in as little as 35 seconds!

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

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

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

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

CINEMAWARE
CORPORATION

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

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

# 2001: A Calendar Program

*When HAL isn't around to monitor your hectic schedule, consult this calendar program.*



By KEN HUEBNER

Life in the fast lane is a hallmark of the twentieth century, and, as we approach the year 2000, the pace is getting even faster. If you're having trouble remembering special events, appointments and deadlines now, how will you cope in the years to come? Well, you should do just fine with the help of Calendar 2001, the twenty-first century calendar program for your twenty-first century lifestyle.

Written in Basic, Calendar 2001 uses relative files for instant reads and writes to its data files. Type in Listing 1, using *RUN*'s Checksum program. Variable MT at the beginning of the program has a default value of 12, which represents the maximum number of reminders you expect to input for each day. Do not change the value of MT once you've run the program and created a month file.

If you have a 1541 disk drive, 12 reminders per day will fill a disk in about one year; with a 1571, 25 per day will fill the disk in about the same period. Larger values will require scratching old reminders to make room for new ones from time to time, or will necessitate the use of a new reminder disk.

Once MT is set, save the program and a backup to disk. Then format a fresh disk to hold your reminders. You could also save a copy of the program to your data disk, so everything's together and easier to use; just be sure there's a backup elsewhere.

To use Calendar 2001, load it, insert the data disk if it's separate and type in RUN. When the program asks "What's the date?", enter today's date in numerical form, with the numbers separated by commas (12,20,1988), and press the return key (it is not necessary to type in leading zeroes with one-digit numbers).

Soon a menu will appear with the date you input at the top. There are six menu options:

1.— See the Calendar
2.— Read from Calendar
3.— Make an Appointment
4.— Save a Note
5.— Erase from Calendar
6.— Exit to Basic.

Option 1 displays a calendar showing the days of the current month. Press the cursor-up key to move forward to the next month or the cursor-down key to move back a month. When you've finished viewing the calendar, press return.

Option 2 lets you read a selected day's reminders. Just enter the date, again in numerical form, and the list will appear on-screen. On the left are numbers you'll need for identifying your reminders when using other options. On the right are the date, and perhaps a time, for each reminder, along with the contents of the reminder.

You can review the list any number of times by pressing the space bar. You can also make a hardcopy by just pressing P. Press the return key when you're finished.

Option 3 is for creating an appointment reminder and saving it to disk. At the query, enter the date of the appointment to load that day's file into the computer. This load will take longer when you're first using the program or starting a new month, because the program has to open a new file first. Once the file is available, Calendar 2001 will ask "Appointment with whom?" Reply with a name that's no more than 20 characters long. Then, at the queries for time, enter a number from 1 to 12 for the hour and a number from 0 to 59 for the minutes.

You also need to indicate whether you want to be reminded of the appointment in advance. If not, answer no or press return, and the reminder will be saved only to the date of the appointment. If you answer yes, you'll be asked how many days ahead of time you want the reminders to start. Enter a number from 1 to 14, and the reminder will be saved to the actual date, plus the specified number of days before.

Option 4 is for creating other types of reminders and saving them to disk. Except that there's no query for time, this option works just like option 3.

Option 5 erases reminders. Type in the date concerned, and, when the reminders appear on-screen, locate the one you want to erase, note its I.D. number and press return. Then, at the query, type in the I.D. number and press return again to erase the reminder from your data file.

When you're finished using Calendar 2001, press 6 to exit to Basic.

This program is most effective if used daily, so try to get into that habit. Then you'll be on a clear-charted course into the twenty-first century! R

*Ken Huebner is a software designer who runs his own business, called Softrek, out of Watertown, WI.*

**Listing 1. Calendar 2001 program.**

```
10 REM CALENDAR 2001 - KEN HUEB
   NER                    :REM*179
20 REM                    :REM*163
30 :                      :REM*88
40 MT=12:REM MESSAGES PER DAY
                          :REM*175
50 ML=14+20:REM MESSAGE LENGTH
                          :REM*242
60 RT=MT*31:REM REC/FILE:REM*48
70 YB=1988:YE=2001:REM YEAR RAN
   GE                     :REM*147
80 DIM MF$(MT)            :REM*244 ►
```

RUN it right: **C-64; printer optional**

# YOU'LL FIND KONAMI GAMES IN THESE STRATEGIC LOCATIONS.

## BABBAGES

## CHILD WORLD AND CHILDREN'S PALACE

## ELECTRONICS BOUTIQUE

## FEDCO STORES

## LIONEL KIDDIE CITY, LIONEL PLAYWORLD AND LIONEL TOY WAREHOUSE

## TOYS "R" US

## WAREHOUSE ENTERTAINMENT

## ZAYRE
(Boston and Washington D.C. Area Stores Only.)

Attention Dealers:
For further information on Konami's line of computer games, call customer service at (312) 595-1443.

**ARIZONA**
MESA
Compute or Play
1000 Fiesta Mall

**CALIFORNIA**
BAKERSFIELD
Software Etc.
2701 Ming Ave.
V. Plaza

CHULA VISTA
R & R Software
1048 3rd Ave.
(619) 426-7011

CITY OF INDUSTRY
Software Etc.
Pomona Hwy. at Azusa

FOSTER CITY
Home Computing Center
1125 E. Hillsdale Blvd., #103

SAN DIEGO
Computer Outlet
7940 Silverton Ave.
(619) 740-0113

SUNNYVALE
HT Electronics
346 W. Maude
(408) 737-0900

TORRANCE
The Warehouse
19701 Hamilton Ave.
(213) 538-2314

**CONNECTICUT**
DARIEN
Walden Software
800 Post Road

NEW BRITAIN
Romek Home Computer
432 W. Main St.

**FLORIDA**
GAINESVILLE
Florida Bookstore
1614 W. University
(904) 376-5606

LAUDERDALE LAKES
Software City
3700 W. Oakland Park Blvd.
(305) 735-6700

PANAMA CITY
Gulf Coast Computers
674 W. 23rd St.

PLANTATION
Software Software
612 Broward Mall
(305) 476-0595

WEST PALM BEACH
Computers 4 Rent
2695 N. Military Trail
(407) 471-1976

**ILLINOIS**
AURORA
Micro-Tech Solutions
991A Aurora Ave.
(312) 892-3551

CANTON
Blessman's Inc.
175 S. Main

CHICAGO
Software Plus
6212 N. Western Ave.
(312) 338-6100

DANVILLE
Data Center
108 N. Vermilion

HANOVER PARK
Software Plus West
2001 Irving Park
(312) 837-6900

LOVES PARK
Union Hall Inc.
6321 N. 2nd St.

SPRINGFIELD
Illini Software Center
2036 S. McArthur

WHEELING
Software Plus
731 W. Dundee Rd.
(312) 520-1717

**INDIANA**
PLAINFIELD
Simply Software
311 Gordon Dr.

**KENTUCKY**
LEXINGTON
Computer Dimensions
171 W. Lowry Ln.

**LOUISIANA**
SHREVEPORT
Discount Computer Software
544 E. King's Hwy.

**MAINE**
BELFAST
Skylight Software
22 Miller St.
(207) 338-1410

CARABOO
Mementos
86 Sweden St.
(207) 498-3711

WESTBROOK
Hands On Computers
861 Main St.
(207) 854-1155

**MASSACHUSETTS**
PITTSFIELD
Nichols Electronics
274 Wahconah St.
(413) 443-2568

WELLESLY
Memory Location
396 Washington St.
(617) 237-6846

WORCESTER
The Software Shop
22 Front St.
(508) 756-6452

**MICHIGAN**
CLAWSON
Software Trends
230 S. Main St.

CLIO
The Edge Connector
124 North Mill
(313) 686-1070

FLINT
I/O Software
G-3304A Corunna Rd.

GARDEN CITY
Soft-House Computer Center
32647 Ford Rd.
(313) 422-6760

TRAVERSE CITY
The Software Shop
710 Centre St.

**MISSOURI**
CAPE GIRARDEAU
Midwest Computers
203 West Park Mall
(314) 339-0022

**NEW JERSEY**
BRIDGEWATER
Software Etc.
400 Commons Way

WAYNE
Software Etc.
Willowbrook Mall

**NEW MEXICO**
ALBUQUERQUE
Page One
11200 Montgomery N.E.
(505) 294-2026

**NEW YORK**
ALBANY
Computer Cellar
911 Central Ave.
(518) 482-1462

BAY SHORE
Software Etc.
1701 Sunrise Hwy.

CHEEKTOWAGA
Papa's Computerware
2789 Union St.
(716) 684-7272

FLUSHING
Software Etc.
39-01 Main St.

HIGHLAND FALLS
Software Affair
188 Main St.
(914) 446-4121

HOLBROOK
Great Escapes
5801 Sunrise Hwy.

KENMORE
Software Supermarket
3670 Delaware Ave.
(716) 873-5321

LATHAM
Contemporary Computers
893 Loudan Rd.
(518) 783-1088

NEW YORK CITY
J&R Music World
23 Park Row
(212) 732-8600

Leigh's Computer
1475 Third Ave.
(212) 879-6257

RIDGEWOOD
Quo Vadis
70-20 Fresh Pond Rd.

ROCHESTER
Leon's Computer Mart
103 Clinton Ave.
(716) 325-2787

SCOTIA
Select Software
108 Mohawk Ave.
(518) 382-7886

**OHIO**
DAYTON
Microtyne
4049 Marshall Rd.

FAIRFIELD
Microware Magic
6625 Dixie Hwy.
(513) 874-6560

MEDINA
Ram-Run Computer Products
891 N. Court
(216) 263-4428

**PENNSYLVANIA**
WEST REDDING
English's Computers
608 Penn Ave.

**RHODE ISLAND**
WARWICK
Software Connection
101 W. Natick Rd.

WOONSOCKET
Galaxy Computers
332 River St.

**TEXAS**
BEAUMONT
Software Rental
2855 Eastex Freeway #D

FORT WORTH
Wedgewood Software
5312 Woodway
(817) 292-7353

HOUSTON
Floppy Wizard
271 Memorial
(713) 461-8660

SAN ANTONIO
Computer Experience
5525 Blanco
(512) 340-2901

**UTAH**
SALT LAKE CITY
Armadillo Brothers
3330 S. State
(801) 484-2791

**VIRGINIA**
MARTINSBURG
My Software Heaven
Meadowlane Plaza Box 2
(304) 263-1228

WOODBRIDGE
Virginia Micro Systems
13646 Jefferson Davis Hwy.
(703) 491-6502

**WASHINGTON**
LONGVIEW
Software Depot
1310 Oceanbeach Hwy.

LYNWOOD
Family Computers
3333 184th St. S.W.
(206) 775-3530

PACOMA
Nibbles & Bytes
4020 S. Steele St. #105

SEATTLE
Omni International Trading Post
3826 Woodland Park Ave. N.
(206) 547-6664

VANCOUVER
Software Support Int.
2700 N.E. Andreison D13

**WISCONSIN**
JANESVILLE
Romeyn Software
2100 E. Milwaukee

MILWAUKEE
Computer Software Center
10710 W. Oklahoma Ave.

RACINE
Computer Paradise
4901 Washington Ave.

KONAMI®

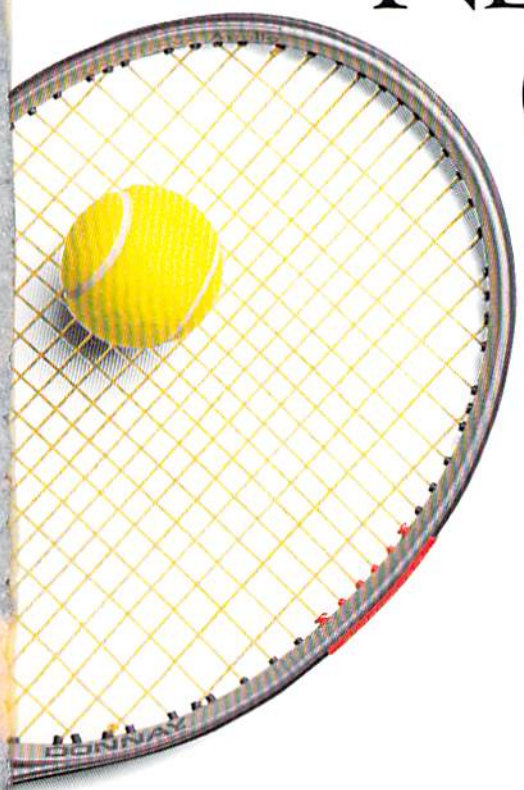
Only Rush 'N Attack and Contra will be available for Amiga in 1988. ©1988, Konami Inc.



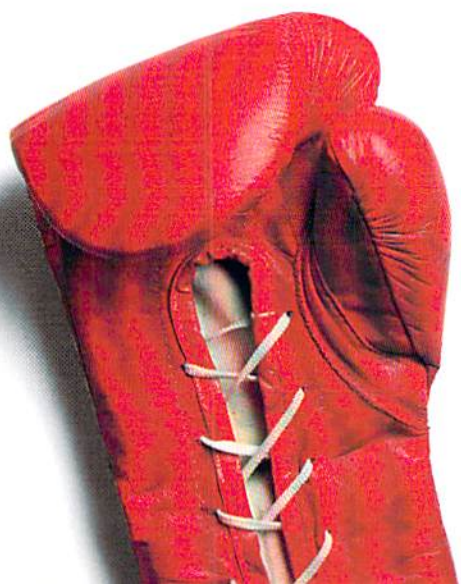


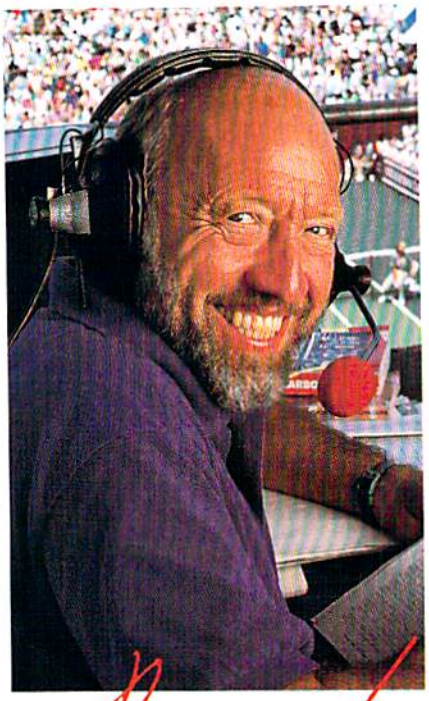
# ANNOUNCING ACCOLADE'S NEW SPORTS GAMES.











BUD COLLINS
*Television tennis analyst*

"What do I expect from a computer tennis game? Realism. I want to sense the power of a strong forehand, the ease of a smooth backhand. Accolade's Serve & Volley gives me that realism—and more.



"Serve & Volley truly captures the essence of the game—the action, the strategy, the pressure. You can select and place your shots via the animated "Strobe-O-Stroke" graphics. There's match or tournament play, three levels of difficulty, even three different court surfaces.

"Why should I leave the office to cover a tournament? Now I can play one on my computer with Serve & Volley."



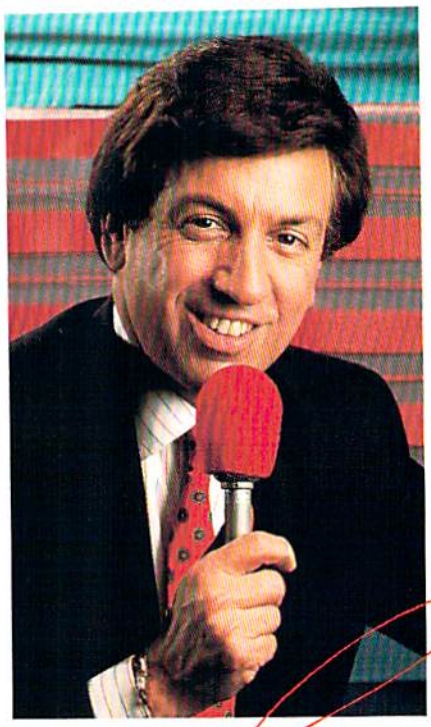
HANK STRAM
*Radio voice of NFL Monday Night Football*

"I've seen some great moves on the football field but nothing compares to the moves you'll find on 4th & Inches computer football. This is real pro football action with 11 animated players per side. It's great! The ball's snapped and you have 22 guys running around the screen buttin' heads!

"But the best part about 4th & Inches? The control. I pick the starters. I control the key players on offense and defense. Heck, this is a head coach's dream come true! And the playbook? Fantastic. You get a pro style playbook with 20 plays and 11 different formations.



"Somebody at Accolade really knew their X's and O's when they drafted 4th & Inches. Great game plan, guys!"



MARV ALBERT
*1988 Olympic boxing commentator*

"I used to think my broadcast booth at ringside was the closest I'd ever come to the true boxing experience. Then I played T.K.O. computer boxing. Talk about "up close and personal!" T.K.O. put me right in the ring, face to face with a heavyweight champ.



"During a fight I like to do all the jawing. With T.K.O. I got to jab at a fighter's jaw. I threw a right… it landed! I could actually see those familiar signs of wear and tear on the champ's face. At the bell, the champ had a black eye, a fat lip and—I suspect—a bruised ego.

"It's a unanimous decision. Accolade's T.K.O. captures the feeling of boxing like no other game.



JACK WHITAKER
*ABC golf announcer*

"Jack Nicklaus is unquestionably the greatest golfer of his time and



I've been fortunate enough to follow his play on the greatest golf courses in the world.

"Jack Nicklaus' Greatest 18 Holes Of Major Championship Golf is the Golden Bear's personal selection of the most challenging holes in all of golf. Holes that have decided the four major championships.

"Accolade has come up with a simulation that not only recreates each hole with stunning accuracy—but it allows the player to golf against a computerized Jack Nicklaus. Quite an accomplishment.

"Jack never settles for second best. This is the computer golf game that others will be judged by for years to come."



CHICK HEARN
*Voice of the Los Angeles Lakers*

"To play championship basketball, you've got to have a great fast break. To play three-on-three, full court computer basketball you've got to have Accolade's Fast Break.

"No other computer basketball game gives you this much control and playability. You run the offense and defense. There are more plays, more players and more shots. And the thing that really impressed me was the network television court perspective. The animation was so fluid—I thought I was watching my monitor at The Forum!

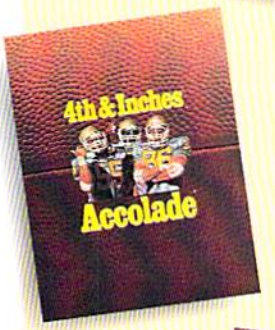
"Take it from a guy who's



seen his share of great fast breaks—Accolade's Fast Break is a slam dunk."

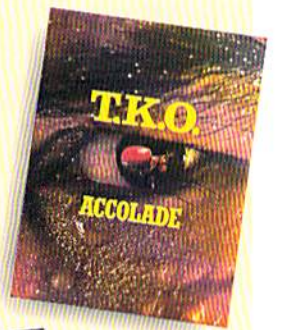
*Available on C64/128, IBM PC, Tandy & compatibles and Apple IIGS.*

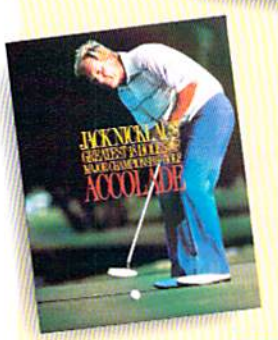



*Available on C64/128, IBM PC, Tandy & compatibles, Amiga and Apple IIGS.*

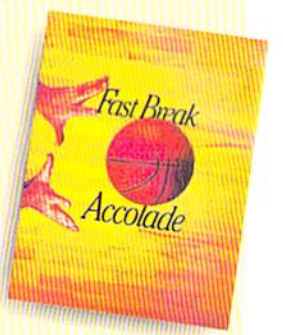
*Available on C64/128, IBM PC, Tandy & compatibles.*




*Available on IBM PC, Tandy & compatibles, C64/128, Amiga and Apple IIGS.*

*Available on C64/128 and IBM PC, Tandy & compatibles.*




*How to order:*
*Visit your favorite retailer or call*
*800-245-7744*
*(In Colorado, call 303-352-6800)*

# ANNOUNCING ACCOLADE'S

# PLAY BY PLAY™

## SWEEPSTAKES

*Win your choice of a Sports Fan Fantasy for two!*

### OFFICIAL ACCOLADE MAIL-IN ENTRY FORM

Complete and mail in time for receipt by 3/31/89 to: ACCOLADE PLAY-BY-PLAY SWEEPSTAKES, P.O. Box 914, Wilton, CT 06898-0914.

*My choice of Sports Fan Fantasy is an opportunity to... (check ONE please):*

- ☐ Visit with and attend a boxing match broadcast by Marv Albert.
- ☐ Visit with and attend a Los Angeles Lakers game broadcast by Chick Hearn.
- ☐ Visit with and attend an NFL Monday Night Football game broadcast by Hank Stram.
- ☐ Visit with and attend a tennis tournament broadcast by Bud Collins.
- ☐ Visit with and attend a PGA golf tournament broadcast by Jack Whitaker.

YOUR NAME (please print)

YOUR COMPLETE ADDRESS

CITY/STATE ZIP (required)

NAME OF RETAIL OUTLET YOU SHOP FOR SOFTWARE

CITY & STATE OF THAT STORE LOCATION

Type of Computer Owned: ☐ IBM/Tandy & Compatibles ☐ Commodore 64/128 ☐ Apple II Series ☐ Apple IIGS ☐ Other

Offer good only in U.S.A. Offer void wherever restricted or prohibited by law.

ACCOLADE™

**OFFICIAL RULES—NO PURCHASE NECESSARY**

**How to Enter.** Provide all the information called for on the official entry form (including your choice of Sports Fan Fantasy prize), or print this same information on a plain 3" x 5" piece of paper and mail your entry in time for receipt by March 31, 1989 to: Accolade Play-By-Play Sweepstakes, P.O. Box 914, Wilton, CT 06898-0914. Enter as often as you wish, but each entry must be sent in a separate envelope via First Class Mail.

**Prize Awards.** The five (5) different Sports Fan Fantasies listed on the entry form comprise this program's prize offering, each fantasy to include such transportation arrangements and other accommodations as may be necessary for two persons traveling together, including the sports event tickets. All arrangements shall be made by Accolade at its discretion as to announcer visit time and place and event selection. Applicable period for fan fantasy arrangements shall be 4/15-12/31/89. Each winner will be offered the option of receiving $1,500 cash instead of the fan fantasy prize for two.

**Winner Drawings.** One winner will be chosen for each of the five different Sports Fan Fantasy prizes by means of a series of random drawings to be conducted on 4/1/89 by AMA, Ltd., an independent judging organization whose decisions are final. Prize winners will be notified by mail by 4/8/89. Odds of winning the Sports Fantasy indicated as an individual entrant's choice depend on the number of entries received indicating that same event choice. Winners will be required to provide social security number and to sign an affidavit of eligibility and publicity/travel release. Tax liability on prize winnings is responsibility of each winner. Prizes are not transferable, although any prize won by a minor will be awarded in the name of a parent or legal guardian.

**Eligibility.** Sweepstakes open to all U.S. residents except employees of Accolade, Inc., its marketing agencies, this program's suppliers, and their immediate families. Void wherever prohibited or restricted by law. To request a list of the prize winners, send a stamped, self-addressed envelope before 4/1/89 to: Accolade Play-By-Play Winners, P.O. Box 7180, Wilton, CT 06897-7180.

ALL REGISTERED TRADEMARKS AND NAMES ARE PROPERTIES OF THEIR RESPECTIVE OWNERS.

# THERE ARE SOME THINGS YOU JUST CAN'T DO WITH GEOS . . .

only $24.97

## . . . UNTIL NOW, THAT IS.

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:

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

**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 conferences 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**

GP189

# Demystifying DOS

*Get on the right track with this disk drive tutorial.*



By JOHN RYAN

I bought my first C-64 in early 1983 and, at the time, marveled at the power and versatility this machine offered in comparison with its little brother, the VIC-20. I also found the cassette recorder that used to be OK for the VIC totally unacceptable for my shiny new treasure. After several agonizing months, I finally bought the then new 1541 disk drive.

Dreaming of hyperspacing through data zones never traversed before, I was astonished when, as I tried to save a short three-line program, I was greeted by a Drive Not Ready error! Two hours later, a quick (and rather curt) phone call left me feeling a bit doltish...

"Well, did you format the disk?" the salesman asked.

"Format?" I replied.

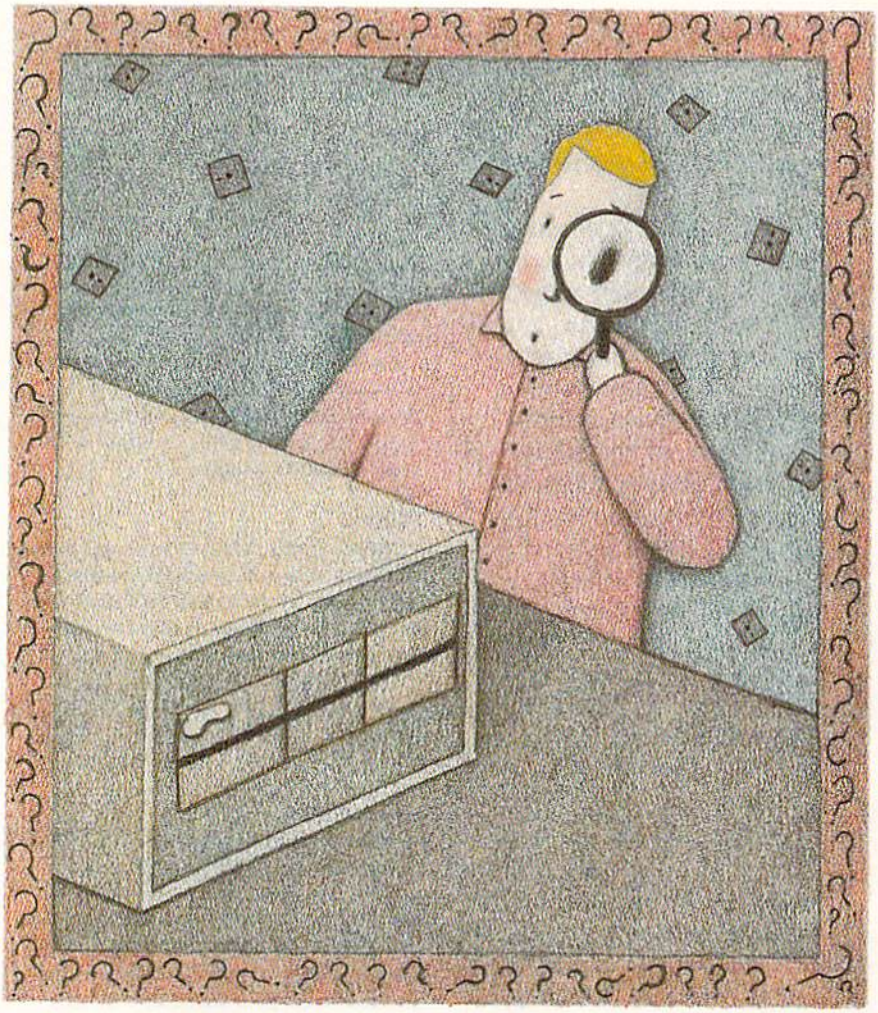
"Yes, you know—did you "new" the disk from DOS?"

"Doss? Doss? What's a Doss?"

"Disk operating system," the salesman sighed impatiently. "The 1541 is an intelligent drive that possesses its own microprocessor."

"Well, it can't be that smart if it won't save anything!"

I think you get the picture. I suffered from a malady common to neophytes: ignorance. It comes from the exuberance of owning a new toy, coupled with reading only the first three pages of the manual. The 1541, 1571 and 1581 family of disk drives are indeed intelligent, but, like computers, only as intelligent as their owners.



Because a Commodore disk drive is equipped with a microprocessor of its own that runs DOS, you aren't required to "babysit" file operations as with many personal computer systems. For the most part, you can type a command and the drive will do all the work.

DOS is there as soon as you turn the disk drive on, and all you need to know to access its features is a handful of commands. Of course, as your computing savvy grows, you can use more advanced commands and programming tricks to delve into the heart of the disk drive's microprocessor and data storage areas. Here, I'll deal with the basics—simple commands that all new drive owners should know how to use.

## Three Versions

To make using DOS a bit easier, Commodore includes a handy utility, called the DOS Wedge, on the Test/Demo disk that comes with the disk drive. This program is intended primarily for C-64 users, as Basic 2.0 has hardly any commands designed to handle DOS, unlike Basic 7.0 in the C-128. With the DOS Wedge, you'll find sending disk commands very simple—usually taking just a keypress or two.

For the purpose of comparison, I'll include the commands for the DOS ►

ILLUSTRATED BY PAUL YALOWITZ

# NO QUARTER

## Just Endless Arcade Action

**Now you can take home some of the best Arcade games you've ever played, to play on your own personal computer!**

**Skillful programming has taken the superb graphics and addictive game play of Arcade hits Double Dragon and Sidewinder and faithfully reproduced them in home computer versions.**

**Join in deadly combat with the savage street gang of the infamous Shadow Boss in Double Dragon. Indulge in an orgy of action and destruction in the high-energy shoot-em-up Sidewinder (part of the Awesome Arcade Action pack on Amiga and Atari ST). Go on the rampage and smash buildings and munch tiny natives in Aaargh!**

**Nothing but endless Arcade action – Arcadia has spared no quarter!**




ARCADIA

Circle 241 on Reader Service card.

Double Dragon is a joint publication of Arcadia and Tradewest.
© 1988 Mastertronic International, Inc. Licensed from Technos Japan.
Arcadia is a member of the Mastertronic Group.

ARCADIA 711 West 17th St., Unit G9, Costa Mesa, CA 92627.
Tel. (714) 631-1001.

Wedge (see Table 1), Basic 2.0 and Basic 7.0 in this tutorial. Any time that you're in doubt about a command, keep in mind that the Basic 2.0 DOS commands will work with any of the Commodore disk drives.

When using Basic 2.0, you must ensure that the command channel is open before sending a disk command. You accomplish this by entering:

```
OPEN 15,8,15
```

The first number, which specifies the channel through which your data will travel, could be any number from 1 to 255, but 15 has become standard. The second value is the device number. For a second or third disk drive, this would probably be 9 or 10. The third numeral specifies the secondary address, or channel, over which commands will travel.

You should be aware that the command sequence

```
OPEN 15,8,15
PRINT #15, "disk command"
CLOSE 15
```

can also be entered as:

```
OPEN 15,8,15,"disk command":CLOSE 15
```

### Formatting a Disk

The following are the commands to format a disk:

```
Basic 2.0: OPEN 15,8,15,"N0:disk name,
  id":close15
Basic 7.0: HEADER "disk name,id"
DOS Wedge: @N0:disk name,id
```

Before anything can be stored on a disk, it must be formatted, or "newed." This procedure creates a pattern of tracks and sectors on the disk, as well as a fresh disk directory, which includes the drive's internal guide to the disk directory called the block availability map, or BAM (more on this later).

To format a disk, just enter a header name of 16 characters or less and a unique two-letter I.D. code. This I.D. is mandatory only when the disk you use is being formatted for the first time or has been erased using a magnetic eraser. If the disk has been used before and you don't mind using the same I.D. again, you can reformat it by entering only the header name.

This operation, commonly known as a short "new," just renames the disk header and clears the BAM. Unlike a full "new," which formats every track and creates a new BAM—and takes its own sweet time in doing so, I might add—a short "new" affects only two sectors on track 18 (sectors 0 and 1, which deal with the BAM and directory) and takes just a few seconds. Because of its more limited effect on the disk, you can recover lost files accidentally wiped out by a short "new" by using a disk utility designed for that purpose.

### Initializing a Disk

Here is the command sequence for initializing a disk:

```
Basic 2.0: OPEN 15,8,15,"I0":CLOSE 15
Basic 7.0: DCLEAR
DOS Wedge: @I0
```

The Initialize command does not reset the disk drive, as is commonly believed. All it does is force the disk drive to read the BAM into the drive's random access memory. With Commodore disk drives, this normally happens automatically each time a disk is inserted (triggered by an optical write-protect switch within the drive).

To understand why the Initialize function is important, whether automatic or not, it's necessary to know how data storage is handled. The DOS would soon become hopelessly confused if it had no way to keep track of which sectors (blocks) have been used and which are available for storage. This is where the BAM comes in. It is simply a storage area on the disk filled with 1s and 0s for corresponding sectors—1 if the sector is used, 0 if it's free. The BAM is usually read into the drive's RAM only once and then updated to the disk when changed by a file write or erase operation. When this happens, DOS checks the disk I.D. prior to writing a new BAM. If the I.D. on the disk corresponds to the I.D. in the drive's memory, the BAM is rewritten and all is well—or is it?

This is why unique disk I.D.s are important. Suppose, for some reason, you possessed two disks with the same I.D., and, after you removed the first disk and inserted the second, the drive didn't initialize automatically. What would happen? As you tried to write new information to this second disk, the drive would assume, from the duplicate I.D., that everything was fine and use the BAM of the first disk to assign data blocks on the second. This, in effect, would allocate sectors already being used and vice-versa. Such scrambled directories aren't recoverable, unless you're really talented with a disk sector editor.

Although the chance of this happening (because of automatic initialization) is small, it's always a good idea to reinitialize a disk after a disk error or when you suspect that drive memory may be corrupted in some way. (A momentary power glitch comes to mind.)

### Scratching a File

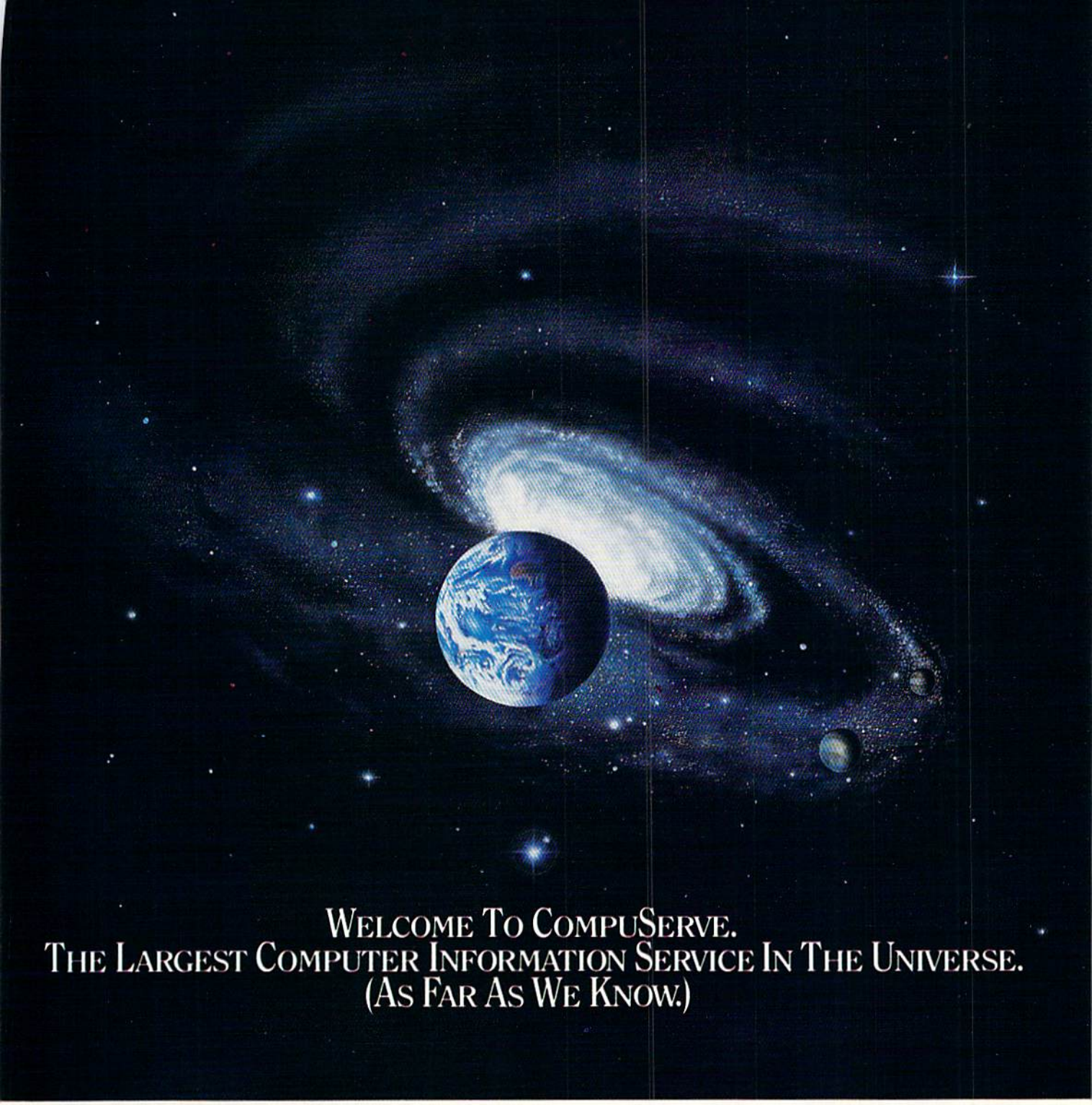
The commands for scratching any file are:

```
Basic 2.0: OPEN 15,8,15,"S0:filename":
  CLOSE 15
Basic 7.0: SCRATCH "filename"
DOS Wedge: @S0:filename
```

This DOS function eliminates a filename from the disk directory by "zeroing out" its file type and releasing to the BAM those sectors that were used by the file. In other words, the file isn't actually erased from the disk. Files that have been accidentally scratched can be restored by a restoring utility, as long as you don't write anything else to the disk beforehand. Some or all of the old ►

**Table 1. DOS Wedge quick-reference chart.**

| Command | Function |
|---|---|
| @ | Displays the current disk status |
| @$ | Displays the directory |
| @# <device> | Sends DOS commands to this device |
| @Q | Quits the DOS Wedge |
| @C0:new file = old file | Copies a file to the same disk |
| @I0 | Initializes the drive |
| @S0:filename | Scratches a file |
| @N0:disk name,id (optional) | Formats a disk |
| @R0:new name = old name | Renames a file |
| @V0 | Validates a disk |
| @UI | Resets DOS |
| /filename | Loads a Basic file (same as LOAD "name",8) |
| %filename | Loads a binary file (same as LOAD "name",8,1) |
| ↑filename | Loads and runs a file (from Basic) |
| ←filename | Saves a file (from Basic) |
| ←@0:filename | Saves-with-replace a file |



# WELCOME TO COMPUSERVE.
# THE LARGEST COMPUTER INFORMATION SERVICE IN THE UNIVERSE.
# (AS FAR AS WE KNOW.)

More people use CompuServe than any other online computer information service on Earth.

Half a million members access hundreds of information, communications and entertainment services online.

Thousands with similar interests and special expertise converge regularly and exchange ideas on an ever-expanding list of special-interest Forums.

They have access to a combination of more financial information, a greater variety of shopping services, and deeper research resources than any other online computer service. Anywhere.

Of course, it's conceivable that there's a service like ours somewhere that could give you more for your money. But you may have to travel a few light-years to find it.

Instead, all you have to do is visit your nearest computer dealer today. To order CompuServe direct, or for more information, write: CompuServe, 5000 Arlington Centre Blvd., Columbus, OH 43220. Or call, 800 848-8199. In Ohio and Canada, call 614 457-0802.

**CompuServe®**

AN H&R BLOCK COMPANY

Circle 64 on Reader Service card.

file might get overwritten by the new. (Please, don't use the Validate command if you have hopes of ever seeing your scratched file alive again!)

You can use wild-card expressions to scratch a range of similarly named files. The * wild card instructs DOS to scratch files whose names begin with the same sequence of characters. For example:

```
@S0:TEST*
```

would scratch any filename starting with TEST, such as TESTING and TESTER.

Conversely, the ? wild card scratches files whose names end with the same sequence of characters *and* which contain the same number of characters. For example:

```
OPEN 15,8,15,"S0:?EST"
```

would scratch TEST, REST and NEST from a directory.

You can also mix the wild cards. For example:

```
SCRATCH "?RAM*"
```

would scratch any filename with RAM as the second through fourth letters, such as GRAMMY or DRAMA.

An asterisk next to a file type (*PRG, *SEQ) in the directory indicates an improperly closed, or "splatted," file, which you should not scratch. Since the file was improperly closed, and thus the BAM not correctly calculated, scratching it could release sectors being used by other programs. Instead, use the Validate command below.

### Renaming a File

To rename a file, enter:

```
Basic 2.0: OPEN 15,8,15,"R0:new
  name = old name":CLOSE 15
Basic 7.0: RENAME "old name" to
  "new name"
DOS Wedge: @R0:new name = old name
```

This operation gives a file a new name in the directory. Except in Basic 7.0, you may enter a filename of any length, but only the first 16 characters will be used in the filename. Any characters except asterisks, commas, question marks, colons and quotation marks are acceptable. Using shifted characters (especially spaces) will result in unpredictable directory listings. Note that the Basic 2.0 and DOS Wedge commands are very similar, but the sequence of names is reversed.

### Validating a Disk

Repeated scratch operations often fool the BAM into believing that certain disk sectors are being used, when, in fact, they are not. Since a scratch operation doesn't actually erase any file data, after a time you may have more blocks free on a disk than the directory indicates. Other causes of an incorrect BAM are scratching improperly closed files and using the Save-with-Replace command on a full disk. Occasionally, using Save-with-Replace creates a splatted file.

When you issue the powerful Validate command:

```
Basic 2.0: OPEN 15,8,15,"V0":CLOSE 15
Basic 7.0: COLLECT
DOS Wedge: @V0
```

the DOS reads through the files on the disk, determines which sectors are being


BUY•SELL•TRADE BUY•SELL•TRADE BUY•SELL•TRADE

Computer Repeats

UNBELIEVABLE DEALS EVERYDAY! TRADE-IN FOR ANYTHING WE SELL!

Amiga 500 + Free VCR
Includes $450 software
●Textcraft+
●Money Mentor
●TV Text
●Graphic Studio
●Ferrari Formula One
Retail value: $1599
$499 NEW
with trade-in of C128, 1571, 1902 OR $659 with 64, 1541, 1702
$CALL for your system

Used

| | | | |
|---|---|---|---|
| C64 CPU | $119 | C128 CPU | $199 |
| 1351 Mouse | $29 | 1541 Drive | $125 |
| Amiga 500 CPU | $439 | Commodore Plus4 | $49 |
| Printers from | $39 | 1764 256K RAM | $99 |
| MPS-801 Printer | $79 | C1660 Modem | $24 |
| Okimate color w/PIP | $99 | C1702 Monitor | $139 |
| Dgtizers/Synths from | $39 | Monitors from | $39 |
| 1571 Drive | $189 | Xetec Super Gr. Gld. | $95 |
| Joysticks from | $1 | Software/Books from | $1 |

New

| | | | |
|---|---|---|---|
| Amiga 2000 CPU | $1499 | A501 512K RAM | $149 |
| 1084S Stereo Mon | $309 | C128 Power Supply | $75 |
| Flex. Data Am 1010 | $149 | 1581 3-1/2 Drive | $179 |
| MW350 10K Intfc | $59 | C1670 1200 baud | $75 |
| Avatex 2400HC | $189 | Okidata 183 wide prn | $315 |
| Star NX-1000 144cps | $189 | Star NX-1000 Color | $249 |
| 128D CPU | $449 | 64C CPU w/GEOS | $159 |
| Excel 2001 128 Drive | $209 | BMC Monitor Stand | $19 |
| Excelerator+ Drive | $159 | 1581 Drive | $179 |

Commodore 1084S
Stereo Monitor
$185 NEW
with trade-in of 1902A OR $235 with 1702
$CALL for your system

Commodore 128D
$249 NEW
with trade-in of C128, 1571 OR $319 with 64C, 1541
$CALL for your system

Excelerator+ FSD-2
$65 NEW
with trade-in of 1571 OR add $32 with 1541
$CALL for your system

$Cash for your equipment
Thousands of software & book titles
Plus, MUCH, MUCH MORE!
5721 Arapahoe Suite 1B
Boulder, CO 80303
Technical Support/Questions: 1-303-939-8144

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. Mail order prices shown.
WE CHECK FOR CREDIT CARD THEFT!

1-800-347-3457

Authorized Sales & Service for COMMODORE/AMIGA and ATARI ST/XL/XE Computers and Accessories.

VISA MASTERCARD DISCOVER AMERICAN EXPRESS COD

Circle 226 on Reader Service card.

used and frees the unused ones, thereby updating the BAM. It's interesting to note how this is accomplished. When the drive receives the command, it creates a blank BAM in its own memory, then begins to read the disk directory, tracing each entry's track and sector pointers. Every block that's part of a file is then marked, or allocated, in this new BAM. Splatted files aren't marked and are skipped over. Once all the directory files have been traced, this new BAM is written to track 18, sector 0.

Don't use the Validate command on commercial disks, which may have certain tracks allocated for specialized uses, such as copy-protection schemes. Likewise, there's no need to validate a write-protected disk. Finally, don't attempt to validate a disk containing random-access files (I'm not talking about relative files). Programs such as databases use this type of file most often.

### Copying a File

The following Copy command duplicates files, including relative files, on the same disk:

Basic 2.0: OPEN 15,8,15,"C0:new filename = old filename":CLOSE 15
Basic 7.0: COPY "old filename" to "new filename"
DOS Wedge: @C0:new filename = old filename

It can also combine up to four files into a single file—most often sequential files, such as small word processing files. Copy will not merge two program files into one recognizable program, and don't attempt to combine relative files!

The syntax for combining two files is:

Basic 2.0: OPEN 15,8,15,"C0:new file = old file1,old file2":CLOSE 15
Basic 7.0: CONCAT "add file" to "master file"
DOS Wedge: @C0:new file = old file1, old file2

### Tidying Up

Anyone who's owned a Commodore for a while probably knows how to load a directory by entering LOAD "$",8 (C-64) or DIRECTORY (C-128). DOS Wedge users can bring a nondestructible directory listing to the screen by entering @$. They can also slow the screen scrolling by pressing the control key, and stop and start it by pressing the space bar.

The DOS Wedge always assumes device #8 and directs all communication with it, but you can easily change the control device number by entering @#<device number>. Likewise, C-128 owners can access device 9 or higher by adding the suffix ",D0,U<device number>" to many disk commands.

Also note that the DOS Wedge can be disengaged by the command @Q, then reinitialized by the command string: SYS 52224:@#<device>. This is most useful to C-128 owners who love to push the reset button in C-64 mode!

The Commodore disk operating system is a very powerful and flexible computing environment, with ease-of-use its major strong point. Experiment with DOS, but use an expendable disk! You'll find it a ready friend in time of need. ■

*John Ryan, one of* RUN*'s contributing editors, sufficiently overcame his fear of DOS to share his hard-won knowledge.*




Circle 40 on Reader Service card.

# Multitasking Comes To the C-64

*This amazing program enables you to run three Basic programs at the same time.*



By MICHAEL INGRASSIA

So, you thought your C-64 could never do multitasking! Well, think again. Now that capability of its more expensive big brother, the Amiga, is yours with MOS (multitasking operating system) 1.0, which lets you edit and run two or three Basic programs at the same time. As a bonus, MOS 1.0 is short and easy to type in. In fact, the code is amazingly compact for all that it does.

Possible applications of MOS are myriad and challenge the imagination. How about playing background music with one program while playing a game with another or printing a clock on one screen to keep track of your time running a program on another?

Maybe you'd like to display a document file while checking the code that accompanies it; compare two versions of a program by running them alternately; examine a disk directory without destroying the program in memory; or display variable values while a program is running? All are within easy reach once you start using MOS.

And even if you never use MOS for multitasking, its ability to load three programs at once so you can run or edit them in any order without accessing the disk drive makes it worthwhile to have on every disk you use.

To explain multitasking, here's an analogy from college life. If, as frequently happens, two adjunct professors share a desk, at the end of the first professor's office hours, he gathers up his materials from the desktop and puts them into his briefcase, leaving the desktop free for his colleague's use. Then the second professor comes in, removes the materials he needs from his briefcase and sets them out on the desk. Changing the contents of the desktop constitutes a context switch.

My desk, on the other hand, is single-tasking. I don't share it with anyone, and it's covered with all sorts of things—books, correspondence, a nameplate, my wedding picture. I couldn't possibly pop all those things into a briefcase to give someone else a place to work.




The MOS 1.0 start-up screen, showing the three spreads.

The Basic operating system that's built into the C-64 is like me. It "takes over the desk," getting out its wedding picture and nameplate and generally making itself at home in memory. Or, to be more exact, it fills memory with data, values and addresses of routines needed to run a program. To make Basic multitasking, so context switches can take place between Basic programs in the C-64's memory, these values and addresses must be saved and restored at each switch. That's what MOS does.

## Program Overview

The C-64 provides only 38K of Basic workspace, but most Basic programs occupy only a fraction of that, so workspace is not a major limitation for MOS. (Divide the number of blocks a program fills by 4 to determine roughly how many K it fills. Most of my Basic programs are under 7K in length.) MOS chops the 38K into three areas called "spreads," plus an area for its own workings. Spread 1 can hold a 10K program, spread 2 a 12K program and spread 3 an 11K program.

To run three programs at once without becoming hopelessly confused, you need more than one screen. The Amiga, for example, "partitions" the screen into individual windows for the programs that need to display output. However, this would be difficult to accomplish on the C-64, so I've used "window shades" instead of windows. Pull the top shade all the way down and that's all you see. Raise it halfway and pull the second shade all the way down, and you see half of the first shade and half of the second. Lift both shade screens. and the third screen appears as a backdrop. (See below for information on the keys to manipulate these shaded areas.) The top shade shows spread 1's output, the second shade shows spread 2's output and the stationary backdrop shows spread 3's output.

You're probably wondering how the CPU can execute three programs at once. Well, of course, it can't really, but by dividing its processing time equally among the three programs, it gives that illusion. This division of effort is called time-slicing, because each program gets slices of the CPU's time in "round-robin" fashion. If one of the programs fin- ►

# "ACCESS™" Your Computer!




## WORLD CLASS LEADER BOARD
### Pro Golf Simulator

Now you have the opportunity to play the same courses that have challenged golf's greatest legends. "WORLD CLASS" LEADER BOARD features three famous 18-hole golf courses and each hole authentically reproduces the distance, traps, trees, rough and water hazards of:

St. Andrews - "The Most Revered Course in Golf"
Doral Country Club - "The Florida Blue Monster"
Cypress Creek - "The Largest and the Finest"

The Fourth course, designed specifically for "WORLD CLASS" is the "GAUNTLET COUNTRY CLUB". Only those who have mastered the best courses in the world should expect to come close to par at "THE GAUNTLET".

"WORLD CLASS" will challenge you with the same strategy and option decisions you face in your real game. And because the look and feel are so life-like, it may improve your actual golf game as well!

C-64/128, AMIGA, IBM PC, APPLE II SERIES, MACINTOSH

## HEAVY METAL
### Modern Land Combat

Do you have the courage, skill and intelligence to move up the ranks in today's modern army? Here's your chance to find out.

Find yourself in a full simulation of an M1 A1 Abrams tank, the U.S. Army's most sophisticated and powerful main battle tank.

Or how about behind the wheel of an XR 311 FAV (fast attack vehicle) going over 100 mph attacking enemy supply depots. Trying to defend your supply stations is going to be less difficult using an ADAT (air defense anti-tank) system, but it will never be easy. You'll face a challenge you never expected to get in OTS (Officer's Training School). Add to this the fact that battles are going on at three different fronts at once and you'll soon find out what you're made of. Do you have what it takes? TAKE THE HEAVY METAL CHALLENGE TO FIND OUT!

C-64/128, AMIGA, IBM PC

## ECHELON
### Space Flight Simulator

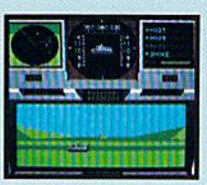
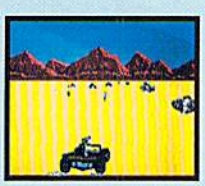
As a top ISF pilot you are given command of a C-104 Tomahawk and are stationed in Patrol Zone 106. Yours is the only patrol craft in this zone and you must fly daily reconnaissance missions and search for artifacts and clues that may reveal the location of the Space Pirate Stronghold.

ECHELON is a true simulator that puts you at the controls of the C-104 and in the heart of the action. The craft can be operated inside the patrol zone under 3 different classifications. These include:

(1) Scientific - This level is for those who wish to fly, explore and gather information without being attacked.
(2) Patrol - Encounter enemy spacecraft while exploring the unknown.
(3) Military - Non-stop action facing hostile enemy spacecraft.

C-64/128, APPLE II SERIES, IBM PC





ACCESS™ Software Incorporated

Circle 7 on Reader Service card.

If you can't find our products at your local dealer, you can order direct. For mail orders, enclose check or money order, plus $1.00 shipping and handling, and specify machine version desired. Order by phone on VISA, MasterCard or C.O.D. by calling TOLL FREE (800) 824-2549.
ACCESS SOFTWARE, INC., 545 W. 550 S., Suite 130, Bountiful, UT 84010.

ishes executing before the others, the CPU just shifts to dividing its time between the two still running.

You'll notice the time-slicing, because each of your programs will run about one-third slower than normal. Actually, it will run even a little slower than that, due to the complexity of context-switching. Still, MOS is cheaper than buying three computers!

Normally, only the current screen is affected by input and output, including input from the keyboard. Whichever program gets to the keyboard buffer first gets any input from the keyboard, so make sure you never have two programs wanting input at the same time. In Interactive mode, there's no problem, because you can specify which spread gets the input by using the Spread command (see below).

## Using MOS

Listing 1 is the main MOS program in the form of Basic hex Data statements. Type it in, using *RUN*'s Checksum program, and save it to disk. Next, run it, and it'll write to disk a seven-block ML file named "+MOS ML". Then boot this ML file by entering:

```
LOAD "+MOS ML",8,1
SYS 37891
```

The second line directs the computer to load MOS at memory address 37891.

Portions of all three screens will appear, with green for the top shade, orange for the middle shade and purple for the backdrop. The cursor will be blinking on the green screen, indicating that you're ready to begin working with spread 1.

Use the following function keys to raise and lower the shades:

**F1**—Lowers the top shade.
**F2**—Raises the top shade.
**F3**—Lowers the second shade.
**F4**—Raises the second shade.

These keys operate in both Direct and Program modes, and they're also placed in the keyboard buffer for use by your programs. If you wish, you may write your programs in such a way as to ignore the function key input or disable shade-moving before your program executes by entering POKE 38226,0. To restore use of the function keys, enter POKE 38226,255. For now, hold down F1 until the top shade has descended completely.

To witness three programs running simultaneously, type in Listings 2 and 3 and save them to disk. Listing 2 is a Basic clock program, and Listing 3 is a program that displays the values of variables as they execute in spread 1. Load each into a spread as follows:

```
LOAD "LISTING 2",8
SPREAD 2
LOAD "LISTING 3",8
SPREAD 3
LOAD "LISTING 3",8
```

Naturally, you need to substitute whatever filenames you're using in place of "Listing 2" and "Listing 3." Next, type SRUN <return>, and all three will execute. This sequence assumes you're starting with spread 1, but you can change the order if you want. Also, if you're running only two programs, there's no need to load anything into an empty spread.

## MOS Commands

SPREAD n (n *must* have the value 1, 2 or 3) lets you switch from one spread (spread 1, by default) to another.

SRUN actually runs the programs simultaneously. You can be in any spread when you enter this command. To stop one program from running, tap the run-stop key as usual, but to stop all the programs, you may need to hold the key down. Immediate mode is locked out until you get the message SRUN FINISHED.

To run a single program, just go to the desired spread and type RUN; SRUN is unnecessary.

Note that you may accidentally execute a SPREAD or an SRUN if you have a syntax error in a command with READ or RUN in it. That's how MOS characterizes the new commands.

## Miscellaneous Notes

You'll notice that the separate screens have steady raster edges until you perform a disk operation. Because of the flickering during disk accesses, I recommend that you have only one screen visible at those times.

The background color of the spreads 1, 2 and 3 can be changed with a POKE 38213, POKE 38214 or POKE 38215, respectively. Avoid poking 53281, because you can't tell which screen will change color.

Should you accidentally press run-stop/restore while using MOS, reinitialize it by entering

```
SPREAD 1 <return>
SYS 37891 <return>
```

whether you can see your input on the screen or not.

You may experience some difficulties with program compatibility when using MOS. More than one program, including MOS, may need the same locations in memory. Also, the spread programs may want to divert some of the low-memory vectors that MOS has diverted for its own purposes.

Programs (even machine language programs!) that stick to Basic-style memory management are most likely to run with no problem. Your best bet is to run only programs that you thoroughly understand. And keep in mind that MOS doesn't use any of the 4K of memory from location 49152 up. R

*Michael Ingrassia is a member of the mathematics and computer science faculty at the State University of New York, New Paltz.*

**Listing 1. MOS program.**

```
Ø REM CREATE M.O.S. ML PROGRAM
                          :REM*158
5 OPEN 8,8,8,"+MOS ML,P,W"
                          :REM*116
1Ø READ A$:IF A$="-1" THEN CLOS
  E8:END                  :REM*78
15 IF LEN(A$)<62 THEN 55
                          :REM*254
2Ø B$=MID$(A$,1,2Ø)+MID$(A$,22,
  2Ø)+MID$(A$,43,2Ø)      :REM*242
25 FOR I=1 TO 3Ø          :REM*181
3Ø C$=MID$(B$,(I*2)-1,2):H$=LEF
  T$(C$,1):L$=RIGHT$(C$,1)
                          :REM*2Ø9
35 H=VAL(H$):IF H$>"9" THEN H=A
  SC(H$)-55               :REM*85
4Ø L=VAL(L$):IF L$>"9" THEN L=A
  SC(L$)-55               :REM*136
45 BY=H*16+L:PRINT#8,CHR$(BY);
                          :REM*67
5Ø NEXT:GOTO 1Ø           :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT
  O 7Ø                    :REM*184
6Ø IF LEN(A$)<42 THEN B$=LEFT$(
  A$,2Ø)+RIGHT$(A$,(LEN(A$)-21
  )):GOTO 7Ø              :REM*176
65 B$=LEFT$(A$,2Ø)+MID$(A$,22,2
  Ø)+RIGHT$(A$,LEN(A$)-42)
                          :REM*14Ø
7Ø FOR I=1 TO LEN(B$)/2:REM*221
75 C$=MID$(B$,(I*2)-1,2):H$=LEF
  T$(C$,1):L$=RIGHT$(C$,1)
                          :REM*14Ø
8Ø H=VAL(H$):IF H$>"9" THEN H=A
  SC(H$)-55               :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A
  SC(L$)-55               :REM*84
9Ø BY=H*16+L:PRINT#8,CHR$(BY);
                          :REM*148
95 NEXT:GOTO 1Ø           :REM*16Ø
1ØØ REM HEX DATA FOR MULTI-TASK
    ING OPERATING SYSTEM (MOS)
```

# 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 ReRUN 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**




PRICE INCLUDES POSTAGE AND HANDLING
For foreign airmail, please add $3.95

**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

GH189

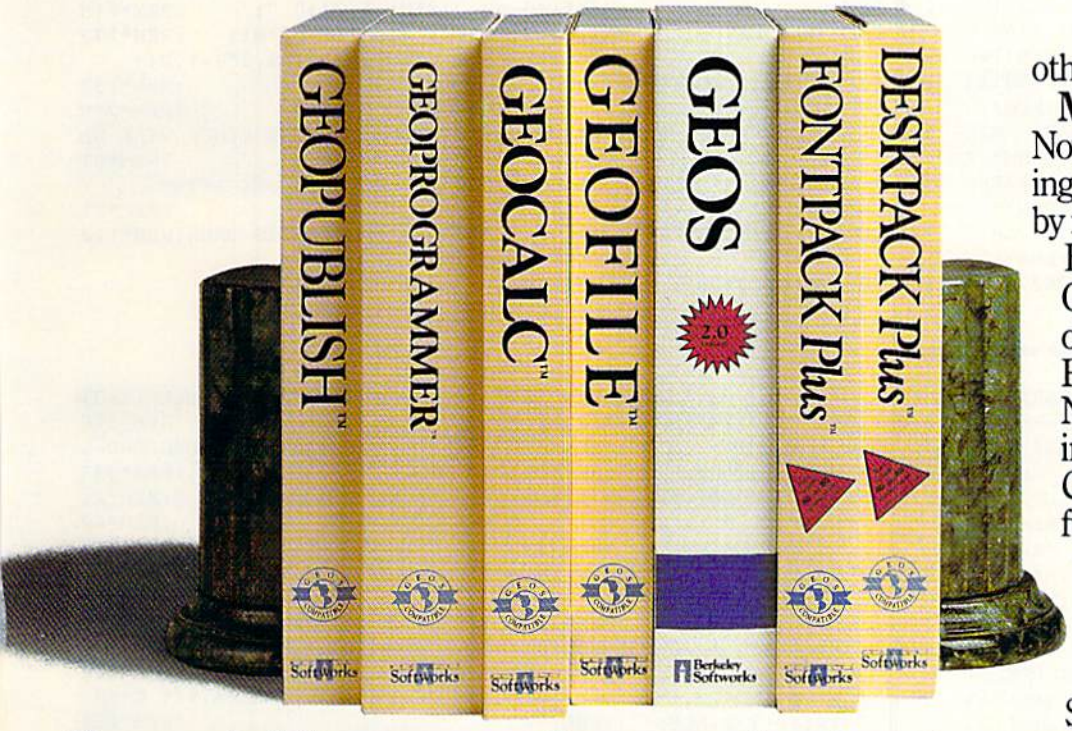
```
                                :REM*71
101 DATA Ø394A94C8DA7Ø28DAAØ2 8
    DADØ28D399AADØ2Ø3C9 6ØDØØ9A
    DØ3Ø3C997DØØ2       :REM*8Ø
102 DATA FØ16ADØ2Ø38DABØ2ADØ3 Ø
    38DACØ2A96Ø8DØ2Ø3A9 978DØ3Ø
    3ADØØØ3C9AØDØ       :REM*126
103 DATA Ø9ADØ1Ø3C995DØØ2FØ16 A
    DØØØ38DA8Ø2ADØ1Ø38D A9Ø2A9A
    Ø8DØØØ3A9958D       :REM*4
104 DATA Ø1Ø3AD14Ø3C9EBDØØ9AD 1
    5Ø3C998DØØ2FØ12AD14 Ø38DAEØ
    28D3A9AAD15Ø3       :REM*128
105 DATA 8D3B9A8DAFØ2A9ØØ8DØØ 1
    Ø8DØ11Ø8DØ21Ø8DØØ38 8DØ1388
    DØ2388DØØ688D       :REM*158
106 DATA Ø1688DØ268A9Ø18DEB99 A
    9ØØ85FBA9AØ85FCAØØØ B1FB91F
    BC8DØF9E6FCDØ       :REM*169
107 DATA F578A5Ø129FD85Ø158A9 Ø
    58D15EAA9ØØ8DEC99A9 1Ø852CA
    9ØØ8537ADF799       :REM*186
108 DATA 8538A9Ø58D21DØA9Ø88D 4
    695A9Ø48D4795A9FF8D 5295A9Ø
    Ø8D86Ø2A94ØAØ       :REM*65
109 DATA 9A2Ø1EAB78ADØDDCA97F 8
    DØDDCA9EB8D14Ø3A998 8D15Ø3A
    D11DØ297F8D11       :REM*2Ø1
110 DATA DØA95A8D12DØA9818D1A D
    Ø58A2ØØA92Ø9DØØØ89D ØØØ99DØ
    ØØA9DØØØB9DØØ      :REM*119
111 DATA ØC9DØØØD9DØØØE9DØØØF E
    8DØE52Ø44A64C74A4Ø1 Ø4Ø1Ø1Ø
    1Ø5Ø8Ø45C84FC       :REM*21
112 DATA ØØØØØ152535ØØFF9999 9
    9999999999999999999 9999999
    9999999999999       :REM*14Ø
113 DATA 99999999999999999999 9
    99999999999999999999 9999999
    9999999999999       :REM*99
114 DATA 99999999999999999999 9
    99999999999999999999 4552524
    F522Ø79ØØC987       :REM*4
115 DATA FØØBC98AFØØAC9CCFØØ9 4
    CA7Ø24CDA954C38964C AØ96534
    54D41ADEC99FØ       :REM*5
116 DATA ØE782C3F9A1ØØ3583ØF7 A
    9FF8D3F9A586Ø535Ø52 4541442
    Ø11E2E67ADØØ2       :REM*155
117 DATA E67B2Ø9EB78ADØØ5A2ØE 4
    C37A4C9Ø4BØF7788EF3 99AEEB9
    9A52D9DEC99A5       :REM*214
118 DATA 2E9DEF99A5389DF699AE F
    3998EEB99BDF399852C BDF6998
    538BDEC99852D       :REM*189
119 DATA 852F8531BDEF99852E85 3
    Ø85328AØAØA8D88Ø258 4CAEA75
    352554EA9Ø18D       :REM*118
120 DATA FA998DFB998DFC99AØ2D B
    9ØB9A994E9B991Ø9C99 D29C881
    ØF1AØØ3B9ACØØ       :REM*85
121 DATA 99499B99ØB9C99CD9C88 1
    ØF1A9ØB8D1B9CA9ØF8D DD9CAEE
    B99BDFC991869       :REM*99
122 DATA 9585FBBDFF9969ØØ85FC A
    Ø2DB9C7ØØ91FB8810F8 A9Ø38DE
    C99A9CC8DCØ97       :REM*5Ø
123 DATA A9BB857AA997857B4CE4 A
    768686868A93A8DCØ97 BA8E3C9
    A8E3D9A8E3E9A       :REM*2
124 DATA BDØØØ19DØØ9D9DØØ9E9D Ø
    Ø9FE8DØF1A2Ø3BDFC99 85FBBDF
    F9985FCAØ8FB9       :REM*118
125 DATA ØØØØ91FB88DØF8AØ2CBD F
    39991FBC8BDEC9991FB AØ2F91F
    BAØ3191FBC8BD       :REM*44
126 DATA EF9991FBAØ3Ø91FBAØ2E 9
    1FBBDF699AØ3891FBA9 FFAØ3A9
    1FBCADØB9A997       :REM*49
127 DATA 8DBF9A8D819B8D439CA9 5
    88DBE9AA9548D8Ø9BA9 498D429
    CA9ØØ8DBD9A8D       :REM*56
128 DATA 7F9B8D419C8DBB9A8D7D 9
    B8D3F9CEA2Ø6CE578A9 EF8D3A9
    AA9978D3B9A58       :REM*227
129 DATA A9BB857AA997857B4CE4 A
    7A9B2DØF3A9A9DØEF45 5849542
    ØBF95DØØ34CAA       :REM*77
130 DATA Ø2ADEB99Ø93Ø8DCC97A9 C
    5AØ972Ø1EAB78A9ØØ8D 3F9ACEE
    C99DØ17ADAEØ2       :REM*5Ø
131 DATA 8D3A9AADAFØ28D3B9A58 A
    9D8AØ972Ø1EAB4CAAØ2 AEEB99A
    9ØØ9DF99958A9       :REM*2Ø7
132 DATA ØØFØFE4D455347535Ø87 3
    13A8A3ACCØØ535Ø8732 3A8A3AC
    CØØ535Ø87333A       :REM*214
133 DATA 8A3ACCØØ5350524541442
    Ø232Ø46494E49534845 44ØDØØ5
    352554E2Ø2Ø2Ø       :REM*1Ø9
134 DATA 2Ø2Ø46494E4953484544 Ø
    DØØ4449535Ø58A5FB8D Ø39AA5F
    C8DØ49AAEEB99       :REM*15
135 DATA BDFC9985FBBDFF9985FC A
    ØØØC86891FBCØØ6DØF8 C8B9ØØØ
    Ø91FBCØ8FDØF6       :REM*93
136 DATA C8B91CØØ91FBCØ93DØF6 C
    8ADA5Ø291FBC8B932ØØ 91FBCØC
    2DØF6BDØ49A85       :REM*127
137 DATA FBBDØ79A85FCA5FF9DEØ 9
    8AD92Ø29DE398BA8AA8 B9ØØØ19
    1FBC8CØØBDØF6       :REM*99
138 DATA 8AAEEB999D3B9ACADØØ2 A
    2Ø3BDF999FØF68EEB99 BDØ49A8
    5FBBDØ79A85FC       :REM*145
139 DATA BD3B9AA8AA9AB1FB99ØØ Ø
    1C8CØØBDØF6AEEB99BD FC9985F
    BBDFF9985FCBD       :REM*8Ø
140 DATA EØ9885FFBDE3988D92Ø2 A
    ØC2B1FB9932ØØ88CØ94 DØF6B1F
    B8DA5Ø288B1FB       :REM*24
141 DATA 991CØØ88CØ8FDØF6B1FB 9
    9ØØØØ88CØØ6DØF6AØØ6 B1FB488
    8DØFAADØ39A85       :REM*2ØØ
142 DATA FBADØ49A85FCAEEB998A Ø
    AØA8D88Ø24C81EAØØØØ ØØØØØØØ
    Ø48524153AE4Ø       :REM*124
143 DATA 95AD21DØ9D4495BD4795 C
    9FCDØ794C5799EA18A2 Ø1BD419
    5ØAE87D4195ØA       :REM*189
144 DATA E87D4195ØAØA6D4Ø95AA B
    D9A9AAA8E4Ø95BC4495 EAEAEAB
    D4D95EAEAEA8D       :REM*236
145 DATA 18DØ8C21DØBD47958D12 D
    ØA9Ø18D19DØ68A868AA 684Ø8A4
    89848A94Ø8D3E       :REM*192
146 DATA 99AD5195DØØ34C399A4C A
    DØ248564552A9488D3E 99A9FF4
    D51958D5195FØ       :REM*54
147 DATA ØEAD5295FØØ9A5C538E9 Ø
    3DØØ5FØØØ4CFE98C9Ø3 BØF9AE8
    EØ2FØ1E48A9Ø5       :REM*235
148 DATA 482868AAA8B94795C93Ø F
    ØE5DE4795DE4795DE47 95DE479
    54CB99948A9Ø5       :REM*153
149 DATA 482868AAA8B94795C9FC F
    ØC7FE4795FE4795FE47 95FE479
    5AØØØC8CC4195       :REM*39
150 DATA BØ2ØA9Ø1994195A2ØØE8 8
    CEØ99ECEØ99BØEABD47 95D9479
    59ØEFA9ØØ9941       :REM*1Ø
151 DATA 95FØDBØØAE4195CA8E4Ø 9
    54CFE98Ø1ØØØ3Ø3Ø31Ø 3868ØØ1
    Ø38683868940Ø       :REM*2
152 DATA ØØØØB97B3D9A9B9CØØØØ Ø
    ØØØØØ9D9E9FØØØØ19Ø1 4ØØØ142
    ØØ1ØØCØØ7ØØØØ      :REM*171
153 DATA 27182ØØØ8Ø8Ø8Ø8Ø8Ø8Ø 8
    Ø818181818181828282 8282828
    2838383838383       :REM*188
154 DATA CØDB4C31EAFFFFFFØØ93 2
    Ø2Ø2Ø2Ø2Ø4D554C5449 5441534
    B45522Ø2Ø4D4F       :REM*97
155 DATA 532Ø56455253494F4E2Ø 3
    12E3Ø3Ø2Ø2Ø2Ø2Ø2Ø2Ø 2843292
    Ø313938382Ø42       :REM*36
156 DATA 592Ø4D494348414454C2Ø 4
    12E2Ø494E4752415353 4941202
    Ø2Ø2Ø2Ø2Ø2Ø2Ø       :REM*242
157 DATA ØDØØ454E444441544163 6
    3636363Ø3Ø3Ø363Ø2Ø2 Ø263Ø2Ø
    3Ø263Ø1Ø1Ø163       :REM*131
158 DATA Ø3Ø3Ø163Ø2Ø1Ø163Ø2Ø3 Ø
    188CØ               :REM*19Ø
159 DATA -1             :REM*13
```

**Listing 2. Basic Clock program.**

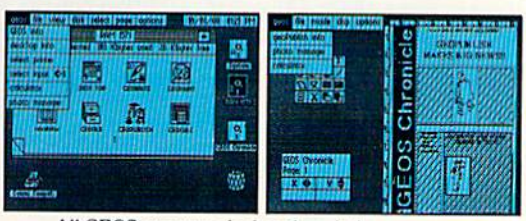
```
1ØØ REM A BASIC CLOCK PROGRAM
                        :REM*56
11Ø REM BY MICHAEL A. INGRASSIA
                        :REM*243
12Ø REM THIS ROUTINE PRINTS THE
    TIME                :REM*171
13Ø REM AT THE BOTTOM OF THE SC
    REEN.               :REM*54
14Ø REM THE CLOCK WILL RUN AT T
    HE                  :REM*241
15Ø REM PROPER SPEED WHETHER PR
    OGRAM               :REM*1Ø7
16Ø REM IS RUN IN THE ORDINARY
    WAY                 :REM*144
17Ø REM OR IS "SRUN" (EXECUTED
                        :REM*35
175 REM SIMULTANEOUSLY WITH OTH
    ER                  :REM*151 ►
```

# IS YOUR FAMILY THIS WELL RELATED?

SPECIAL BUY ONE GET ONE FREE!
See your local Commodore dealer for details from 11/1/88 thru 1/31/89.




If your productivity programs don't relate to each other, it's time to consider adopting GEOS,™ the totally integrated software system that magazines like *Commodore, RUN, Info* and *Compute!'s Gazette* have recognized as Commodore's first family of software.



All GEOS programs look and work the same way.

Like any good family, GEOS products work together and grow together. In fact, for every application you add, your capacity for production actually multiplies.

**A strong family resemblance.**

All GEOS products work and look pretty much the same. Same menus. Same icons. So once you learn how to point and click a mouse, you pretty much know how geoPublish, geoFile, geoCalc and every other family member works, too. Pretty simple, huh? Well, that's the idea.

GEOS family members freely swap data with one another, too, so importing text and graphics between programs is never a problem. Which means you spend more time creating stuff and less time deciphering all those other instruction manuals.

**Marry into the family.**

Now, when it comes to improving your looks, the best way is by marrying into our family.

Because GEOS Text and Graphics Grabbers take your old data (like Word Writer,† Paper Clip,† Print Shop† or Newsroom†) and convert it into GEOS format so that your C64 or 128 can deliver beautiful offspring quicker than you can say, "Yeah, but how am I gonna convert all my non-GEOS files?"

And that's pretty darn quick.

So if you'd like your software to relate to each other better, why not move in with us? After all, the last thing you need from your software is family problems.

Berkeley Softworks

The brightest minds are working with Berkeley.

## THE GEOS FAMILY

**GEOS 2.0* $59.95**
The Graphic Environment Operating System for C64's and C128's. With WYSIWYG word processing, spell checking, mail merging, full color painting, fast-loading disk-Turbo and support for all GEOS-compatible applications. GEOS 128 available at $69.95.

**GEOPUBLISH* $49.95**
The desktop publisher with a host of professional features for creating flyers, newsletters, brochures and more.

**DESKPACK *PLUS** $29.95**
Graphics Grabber for importing art from Print Shop, Newsroom and Print Master; Calendar; Icon Editor; Blackjack; geoDex and geoMerge. Runs in both 40 and 80 column mode.

**FONTPACK *PLUS** $29.95**
A collection of 53 fonts for use with GEOS applications. Runs in both 40 and 80 column mode.

**GEOCALC* $49.95**
Spreadsheet for analyzing all types of numerical data. Available for 128's at $69.95.

**GEOFILE* $49.95**
Database manager that sorts, edits and prioritizes data. Available for 128's at $69.95.

**GEOPROGRAMMER 2.0* $69.95**
An assembly language authoring tool and debugger. Takes full advantage of memory space in both C64's and C128's.

To order, call 1-800-443-0100 Ext. 234 or see your local Commodore dealer.

*Trademarks of Berkeley Softworks.
†Registered trademarks of others.

```
18Ø REM PROGRAMS) UNDER MOS.
                        :REM*136
185 REM                 :REM*73
19Ø A$="":C=1:S=TI/6Ø:TI$="ØØØØ
    ØØ"                 :REM*52
195 IF PEEK(394Ø4)>Ø THEN C=2
                        :REM*128
196 IF PEEK(77Ø)<>96 OR PEEK(77
    1)<>151 OR PEEK(768)<>16Ø T
    HEN C=1             :REM*1Ø6
197 REM UNDER MOS, 394Ø4 CONTAI
    NS                  :REM*77
198 REM NUMBER OF PROGRAMS BEIN
    G SRUN              :REM*74
2ØØ A$={3 SPACEs}"ØØ1Ø2Ø3Ø4Ø5Ø
    6Ø7Ø8Ø9"            :REM*169
21Ø A$=A$+"1Ø111213141516171819
    "                   :REM*183
22Ø A$=A$+"2Ø2122232425262728 29
    "                   :REM*2Ø4
23Ø A$=A$+"3Ø313233343536373839
    "                   :REM*25
24Ø A$=A$+"4Ø4142434445464748 49
    "                   :REM*86
25Ø A$=A$+"5Ø5152535455565758 59
    "                   :REM*226
26Ø REM                 :REM*146
27Ø REM THE NEXT STATEMENT MULT
    IPLIES              :REM*251
28Ø REM TI BY C TO COMPENSATE F
    OR THE              :REM*127
29Ø REM CLOCK WHICH RUNS TWICE
    AS SLOW             :REM*21Ø
3ØØ REM DURING SIMULTANEOUS EXE
    CUTION.             :REM*237
31Ø REM DIVIDING BY 6Ø CONVERTS
     T                  :REM*118
32Ø REM TO SECONDS.     :REM*195
33Ø T=C*TI/6Ø+S         :REM*57
34Ø PRINT "{HOME}{24 CRSR DNs}"
    ;                   :REM*16Ø
35Ø HO=INT(T/36ØØ):PRINT MID$(A
    $,2*HO+1,2);":";    :REM*9
36Ø T = T-36ØØ*HO       :REM*4
37Ø MI=INT(T/6Ø):PRINT MID$(A$,
    2*MI+1,2);" ";      :REM*118
38Ø T = INT(T-6Ø*MI)    :REM*172
39Ø PRINT MID$(A$,2*T+1,2);
                        :REM*138
4ØØ GOTO 33Ø            :REM*219
41Ø REM NOTE THAT CLOCK WILL NE
    ED                  :REM*81
42Ø REM TO BE RESET AFTER
                        :REM*21
43Ø REM PROGRAM IS SRUN:REM*12Ø
```

**Listing 3. Executing Basic Variables program.**

```
1ØØ REM WATCH BASIC VARIABLES E
    XECUTE              :REM*18
1Ø2 REM BY MICHAEL INGRASSIA
                        :REM*66
1Ø3 REM USE WITH MOS IN SPREAD
    2 OR 3              :REM*191
1Ø4 REM TO OBSERVE      :REM*62
1Ø5 REM VARIABLES IN SPREAD 1
                        :REM*13Ø
1Ø6 DUD=1ØØ:REM DUD IS FIRST VA
    RIABLE              :REM*53
11Ø REM FIRST CHECK THAT MOS IS
     RUNNING            :REM*44
12Ø IF PEEK(77Ø)=96 AND PEEK(77
    1)=151 AND PEEK(768)=16Ø TH
    EN GOTO 135         :REM*25
125 PRINT "ACTIVATE MOS BEFORE
    RUNNING THIS PROGRAM."
                        :REM*62
13Ø END                 :REM*3
135 IF PEEK(394Ø4)<>Ø THEN GOTO
     15Ø                :REM*245
14Ø PRINT "YOU MUST <SRUN> THIS
     PROGRAM."          :REM*18Ø
145 END                 :REM*16
15Ø REM ARY IS END OF VARIABLE
    STORAGE             :REM*167
152 REM WHILE X, INITIALLY. IS
    START               :REM*2ØØ
153 PRINT "{SHFT CLR}";:REM*218
154 DUD=1ØØ:REM DUD IS FIRST VA
    RIABLE              :REM*5
155 ARY=256*PEEK(39657)+PEEK(39
    656)                :REM*7Ø
157 VAR=256*PEEK(46)+PEEK(45)
                        :REM*221
16Ø X=256*PEEK(39655)+PEEK(3965
    4)                  :REM*61
162 DEF FN QT(X)=X*X    :REM*255
163 I%=112:P%=99        :REM*176
164 S$="-->"+CHR$(13)+"<--"
                        :REM*9Ø
2ØØ REM X IS THE ADDRESS OF
                        :REM*213
21Ø REM A VARIABLE ENTRY:REM*33
22Ø REM                 :REM*1Ø6
23Ø Y1=PEEK(X):Y2=PEEK(X+1)
                        :REM*2ØØ
24Ø B1=INT(Y1/128):B2=INT(Y2/12
    8)                  :REM*8Ø
245 PRINT X;TAB(8);     :REM*47
25Ø IF B1=Ø AND B2=Ø THEN PRINT
     "FLOATING-PT{2 SPACEs}";
                        :REM*82
26Ø IF B1=1 AND B2=1 THEN PRINT
     "INTEGER{6 SPACEs}";
                        :REM*2Ø2
27Ø IF B1=1 AND B2=Ø THEN PRINT
     "FUNCTION DEF ";   :REM*23Ø
275 IF B1=Ø AND B2=1 THEN PRINT
     "STRING{7 SPACEs}";:REM*28
28Ø Y1=Y1 AND 127:Y2=Y2 AND 127
                        :REM*127
29Ø PRINT CHR$(Y1);     :REM*165
3ØØ IF Y2=Ø THEN PRINT " ";
                        :REM*2Ø1
31Ø IF Y2<>Ø THEN PRINT CHR$(Y2
    );                  :REM*235
32Ø IF B1<>Ø OR B2<>Ø THEN GOTO
     42Ø                :REM*46
33Ø REM FLOATING-POINT  :REM*95
34Ø POKE VAR+2,PEEK(X+2)
                        :REM*215
35Ø POKE VAR+3,PEEK(X+3):REM*5Ø
36Ø POKE VAR+4,PEEK(X+4):REM*14
37Ø POKE VAR+5,PEEK(X+5)
                        :REM*1Ø6
38Ø POKE VAR+6,PEEK(X+6):REM*7Ø
385 REM PRINT 15 BLANKS THEN BA
    CKTRACK             :REM*124
386 REM DON'T LEAVE DATA ON SCR
    EEN                 :REM*114
39Ø PRINT "{15 SPACEs}{15 CRSR
    LFs}";              :REM*81
4ØØ PRINT DUD           :REM*196
41Ø GOTO 63Ø            :REM*235
415 REM ******          :REM*154
42Ø REM WASN'T FLOATING POINT
                        :REM*118
43Ø IF B1<>1 OR B2<>1 THEN GOTO
     5ØØ                :REM*191
44Ø REM INTEGER         :REM*133
45Ø PRINT "{15 SPACEs}{15 CRSR
    LFs}";              :REM*149
46Ø DUD=256*PEEK(X+2)+PEEK(X+3)
                        :REM*116
47Ø IF DUD>32767 THEN DUD=DUD-6
    5536                :REM*232
48Ø PRINT DUD           :REM*21
49Ø GOTO 63Ø            :REM*6Ø
5ØØ REM ******          :REM*247
51Ø REM WASN'T INTEGER EITHER
                        :REM*93
52Ø IF B1<>1 OR B2<>Ø THEN GOTO
     55Ø                :REM*3Ø
53Ø REM FUNCTION DEF    :REM*223
535 PRINT "{15 SPACEs}{15 CRSR
    LFs}";              :REM*224
54Ø PRINT:GOTO 63Ø      :REM*188
545 REM ******          :REM*25
55Ø REM MUST BE STRING :REM*2Ø6
551 PRINT " ";          :REM*22
555 PRINT "{15 SPACEs}{15 CRSR
    LFs}";              :REM*252
558 COUNT=PEEK(X+2):ISIT=Ø
                        :REM*5Ø
56Ø SA=256*PEEK(X+4)+PEEK(X+3)
                        :REM*193
565 IF COUNT > 15 THEN ISIT=1:C
    OUNT=13             :REM*169
57Ø PRINT "{CTRL 9}";   :REM*248
575 FOR DX=1 TO COUNT   :REM*2Ø6
58Ø CH=PEEK(SA+DX-1)    :REM*183
59Ø IF CH<32 OR ((127<CH)AND(CH
    <16Ø)) THEN PRINT "{CTRL Ø}
    ?{CTRL 9}";         :REM*24
592 IF ((31<CH)AND(CH<128))OR(C
    H>159) THEN PRINT CHR$(CH);
                        :REM*168
593 NEXT                :REM*2Ø9
595 IF ISIT=1 THEN PRINT "{CTRL
     Ø}..";             :REM*158
596 PRINT               :REM*239
63Ø X=X+7               :REM*253
635 ARY=256*PEEK(39657)+PEEK(39
    656)                :REM*167
64Ø IF X<ARY THEN GOTO 23Ø
                        :REM*4Ø
65Ø PRINT "{HOME}";:GOTO 155
                        :REM*238
```

■

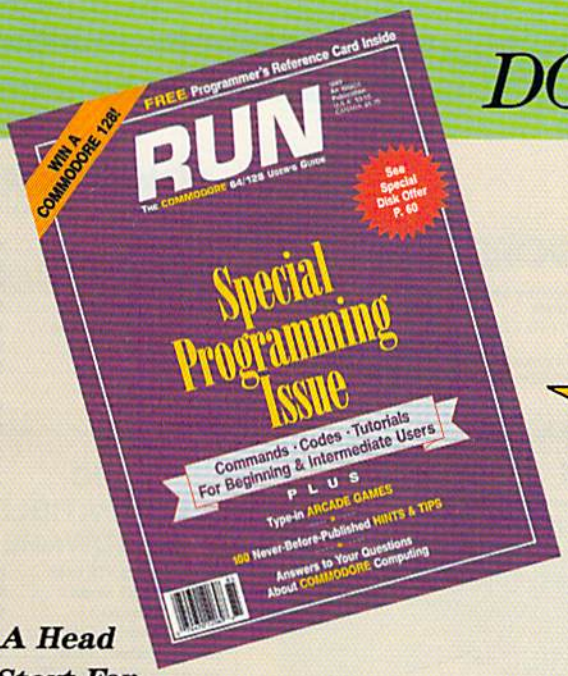
# RUN SPECIAL ISSUE

**Get A Jump On The 5th Annual RUN Special Issue—**

**ORDER NOW!**

**And catch this *runaway best seller* for only $3.95!**

**The RUN Special Issue has become a must-have for every Commodore C-64 and C-128 user. And this year's issue promises to be our hottest RUN yet—supplies won't last long so don't delay. *Rush* your order in today.**




## *DON'T WALK . RUN*

## *VALUABLE REFERENCE CARD FREE* WITH EVERY ISSUE!

A GIANT pull-out programmers' guide chock full of handy codes, peeks, pokes, commands and more for both the C-64 and C-128. With the latest info for the 1351 Mouse, RAM Expanders and 1581 Disk Drive.

## PLUS

### *A Head Start For Both Beginners and Pros*

Be the first to enjoy these tips, utilities, games and tactics—priceless programming information and applications that will boost your productivity and computing power. Here's just a quick glimpse of what you'll get...

### *FAST START SPECIAL ISSUE PROGRAM DISK*

To really RUN with speed, order the Special Issue Program Disk—every program in the issue on disk ready to load and run.

PLUS YOU'LL RECEIVE THESE FREE BONUS PROGRAMS:

- C-128 Sprite Librarian
- C-64 Sprite Database
- A Show Of Hands—sign language tutorial with graphics

### ● *The Best of Commodore Clinic*

Ten pages of the most-asked questions on programming, hardware and software from RUN's readers—with insightful and revealing answers from Commodore computing expert Lou Wallace.

### ● *100 Never-before-published "Magic" Tricks*

We've thrown in a dozen of our favorite computing tricks from 1988, PLUS a *hundred* dazzlers you've never seen before.

### ● *Arcade Games—Including The Gravitron, an Exciting Space Adventure.*

Test the limits of your skill and coordination with a challenging variety of *new* arcade games.

### ● *Programming, Utilities and Tutorials*

Whether you're a beginner or advanced programmer, you'll add *speed*, *power* and *productivity* to your C-64 and C-128, including:

- Adding C-128 sprite commands on your C-64
- Sprite tutorial for the beginning C-128 Basic programmer
- Programming sound on the Commodore
- Writing relative data files in Basic

*To Run Away With the 5th Annual Special Issue* call **1-800-343-0728** (in New Hampshire, **1-924-9471**) Or...look for the convenient post-paid order envelope in this issue!

## *RUN! Special Issue*

**RUSH me _____ copies of the 5th Annual Special Issue with my FREE Reference Card.**

**Enclosed is $3.95 for each Special Issue.**

***FAST!***

**Also send _____ Special Issue Program Disk(s) with all the Special Issue (and FREE BONUS) programs, utilities and tutorials ready to load and run. Enclosed is $7.95 for each Program Disk.**

☐Check Enclosed  Charge my: ☐Mastercard ☐VISA ☐Am. Exp.

Card # _____ Exp. Date _____

Signature _____

Name _____

Address _____

City _____ State _____ Zip _____

Canada & Mexico $4.95 (Disk $9.25), Foreign Surface $5.50 (Disk $9.50), Foreign Airmail $9.50 (Disk $11.50) (U.S. Funds drawn on U.S. Bank). Orders will begin shipping in December 1988.

**Call toll-free 1-800-343-0728 (In NH 1-924-9471) or mail coupon to:**

**RUN Special Issue, 80 Elm Street, Peterborough, NH 03458**

*Commodore 64 and 128 are registered trademarks of Commodore Business Machines, Inc.

# Lyco Computer

## Marketing & Consultants

Since 1981

Air orders processed within 24 hours.

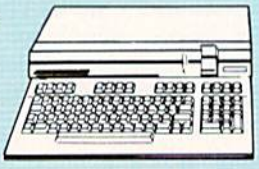
### COMMODORE 128D

- 128K Std.
- 3 Mode Operation 1-64: Runs 64 software. 2-C128: Faster, more mercury for increased productivity 3-CPM: Uses Standard cpm titles

***C128D Computer & Thomson 4120 $629.95***

*quantities limited

**$439.95**



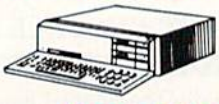
### COMMODORE 64C Special System

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

**$459.95**



### COMMODORE COLT PC

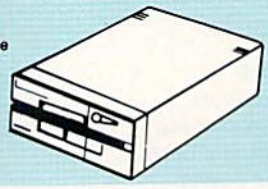


- IBM PC Compatible
- 640K Std.
- Two 5¼ Drives Std.
- Expansion for Hard Drive
- Turbo Processor
- MSDOS + GW Basic Included
- Serial + Parallel Ports
- Mono/RGB Color Card Included

**$679.95**

### Excel FSD-2+ Disk Drive

100% Commodore 64C drive compatible, this Excelerator Plus disk drive is quieter, smarter, faster, and more reliable than the 1541 and 1541C.



**$149.95**

### LASER COMPACT XTE

- 640 K RAM
- Built-in EMS Board for Memory Expansion to 166K
- Built-in 5¼ Drive
- Built-in EGA Board
- Parallel Printer Port
- Serial RS232
- Joystick/Game Port

**$589.95**



### 8088 XT

- 16 Bit 8088 Intel Running at 4.77/10 MHz
- 640 K RAM
- One 360 K Floppy, 1 Parallel Port
- Multi I/O (includes 1 Serial Port, 1 Game Port, Clock Calendar, Disk Controller for Two 360 K's)
- (8) Eight Expansion I/O Slots
- Jr. AT Case w/Keylock Turbo, Reset LED
- 101 Key Keyboard
- One Year Warranty on Parts & Labor
- Monitor Optional

**$529.95**



### Color System HEADSTART by Vendex

- 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!



**$969.95**

### LASER Turbo XT Model II

- Dual Speed 4.77-8 MHz
- 640K Std.
- Built-in ColorCard
- 8 Expansion Slots
- Can Expand to 2 Floppy & 2 Hard Drives
- Green, Amber & Color Monitors Available



**$629.95**

## COMMODORE HARDWARE

| | |
|---|---|
| 64C Computer | $149.95 |
| C128D Computer/Drive | $439.95 |
| 1541 II Disk Drive | $179.95 |
| 1581 Disk Drive | $189.95 |
| Excel FSD-2 + C64 Drive | $149.95 |
| 1802C Monitor | $179.95 |
| 1084 Monitor | $279.95 |
| C1351 Mouse | $39.95 |
| 1764 RAM C64 | $117.95 |
| Colt PC | $679.95 |

## PC COMPATIBLE HARDWARE

| | |
|---|---|
| Laser Compact XTE 640K | $589.95 |
| Laser Turbo XT Model II | $629.95 |
| Blue Chip Popular 1A | $629.95 |
| Vendex Headstart Color | $969.95 |
| Vendex Headstart Mono | $809.95 |
| Vendex Headstart 888 LTD Color | $CALL |
| Sharp PC 4501 | $CALL |
| Sharp PC 4502 | $1169.95 |
| Zucker CGA ColorCard | $89.95 |
| BCC CG ColorCard | $94.99 |
| Mitsubishi 310/AT | $1229.95 |
| ATI Graphics Solution | $129.95 |
| ATI EGA Wonder | 199.95 |
| ATI VIP | $299.95 |
| Kraft PC Joystick Card | $24.95 |

## Seagate HARD DRIVES

**5.25" Half Heights**

| | |
|---|---|
| ST225 20 meg 65msec MFM | $219.95 |
| ST225N 20 meg SCSI | $289.95 |
| ST238R 30 meg RLL | $229.95 |
| ST251 40 meg 40 msec MFM | $339.95 |
| ST251-1 40 meg 28 msec MFM | $419.95 |
| ST277R 65 meg 40 msec RLL | $379.95 |

**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!*

# 1-800-233-8760

# Answers to Important Questions About Lyco Computer!

## Why shop at Lyco Computer?

Lyco Computer is one of, if not the largest, and most established firms to provide only quality name brand computer products at prices 30% to 50% below retail. We've set many industry standards, and we are setting the pace for many more in the future. Our standards include: a separate department for customer service; a price guarantee; guaranteed factory fresh merchandise; diverse payment and shipping policies, including a C.O.D. policy which allows customers to have products in their hands before paying anything. Selection places Lyco at the forefront of the industry. Due to our in-stock volume, we cannot advertise all of our products. If you do not see the product you want advertised, call Lyco Marketing toll free.



## How do I know I will get the product I need?

Our marketing staff is well-educated in the computer industry. They receive continuous formal training by our manufacturers which enables them to develop and maintain a high degree of expertise on the products they represent. Though our strict guarantee on providing only new merchandise prohibits free trial periods and a guarantee on compatibility, a wealth of knowledge is available to our customers to help with the purchasing decision. As thousands of people every week capitalize on our savings and services, we hope you too, will make Lyco Computer your first choice.

## What about warranty or service?

We decided several years ago that a Customer Service Department was needed in the industry. Unfortunately, few of our competitors offer this service. Our Customer Service Department is available at **(717) 494-1670** to provide assistance in all warranty matters. Our product line enjoys "name brand recognition," and we back all of our manufacturer's stated warranty terms. Many manufacturers will allow defective products to be exchanged. Before returning any item that appears to be defective, we ask that you call our Customer Service Department to assist you in determining if the product is defective. If the product is determined defective, they will give you a special authorization number and speed processing of your order.



## Will you rush an item to me?

Since 1981, we have set the standard in the industry by processing orders within 24 hours — not 4 to 6 weeks. We offer next day air, two day air, standard UPS, and postal international shipping services. Our records show we fill 95% of our orders daily. Temporary shortages are normally filled within 10 days. If an order cannot be filled within 60 days, we refund your money in full, unless you choose to wait for the order and benefit from the price savings. Any time prior to shipment, you may cancel or change the out of stock product by contacting our Customer Service representatives.

## How do I order?

Send your order to Lyco Computer, P.O. Box 5088, Jersey Shore, PA, 17740. Or, call **1-800-233-8760** or **(717) 494-1030**. We provide four payment methods. We have always accepted C.O.D. orders through UPS. Prepaid orders over $50 are shipped freight-free. For orders under $50, please add $3 for freight. Orders prepaid by a certified check or money order are shipped immediately. Personal and company checks require a 4 week waiting period prior to shipping. Visa and Master Card orders are accepted for your convenience, but we cannot pass along the 4% discount offered for cash. Purchase orders are accepted from Educational Institutions. We only charge sales tax on items delivered in Pennsylvania. For APO, FPO, and international orders, please add $5 plus 3% for priority mail. Advertised prices and availability are subject to change.



**Sales: 1-800-233-8760 or 717-494-1030**
Hours: Monday through Friday, 9:00 a.m. to 9:00 p.m.
Saturday, 10:00 a.m. to 6:00 p.m.

**Customer Service: 717-494-1670**
Hours: Monday through Friday, 9:00 a.m. to 5:00 p.m.

## COMMODORE

**Access:**
Echelon ..... $25.95
Mach 128 ..... $28.95
Wld. Cl. Leader Bd. ..... $22.95
Fm. Courses 1 or 2 . ea. $11.95

**Action Soft:**
Up Periscope ..... $18.95
Thunderchopper ..... $18.95

**Activision:**
Last Ninja ..... $19.95
Might & Magic ..... $22.95
Crossbow ..... $19.95
Maniac Mansion ..... $19.95
Beyond Zork ..... $25.95

**Batteries Included:**
Paperclip III ..... $31.95

**Berkeley Softworks:**
Geofile 64 ..... $29.95
Geos 64 ..... $35.95
Geos 128 ..... $39.95
Geowrite 128 ..... $39.95
Berkeley TriPak ..... $29.95

**Broderbund:**
Bank St. Writer ..... $29.95
Print Shop ..... $26.95
Print Shop Compan. .... $20.95
Graphic Lib. 1,2,3 .. ea. $14.95
Cauldron ..... $9.95

**Electronic Arts:**
Bard's Tale III ..... $25.95
Hunt for Red October .. $25.95
Monopoly ..... $20.95
Strike Fleet ..... $20.95
Wasteland ..... $25.95
Typoon of Steel ..... $29.95
Pool of Radiance ..... $23.95

**Epyx:**
Fastload ..... $22.95
California Games ..... $22.95
4x4 Off Road Racing .. $22.95
Games: Winter Ed. ..... $22.95
Games: Summer Ed. .. $22.95

**Firebird:**
Jinxter ..... $19.95
Starglider ..... $11.95

**Microleague:**
Microleag. Baseball ..... $22.95
Microleag. Wrestling .... $16.95

**Microprose:**
Airborne Ranger ..... $22.95
Gunship ..... $19.95
Pirates ..... $22.95
Stealth Fighter ..... $22.95
Red Storm Rising ..... $22.95

**Mindscape:**
Indiana Jones ..... $20.95
Paperboy ..... $19.95
Road Runner ..... $19.95
Gauntlet ..... $20.95
Captain Blood ..... $20.95

**Origin:**
Autoduel ..... $23.95
Ultima IV ..... $34.95

**Software Simulations:**
College Basketball ..... $22.95
Football ..... $17.95

**Springboard:**
Newsroom ..... $19.95
Certificate Maker ..... $14.95

**Strategic Simulations:**
Phantasie III ..... $25.95
Questron II ..... $25.95
Pool of Radiance ..... $25.95

**Sublogic:**
Flight Simulator II ..... $30.95
Stealth Mission ..... $30.95

**Timeworks:**
Swiftcalc 128 ..... $27.95
Wordwriter 3 ..... $22.95
Geos Writer 64 ..... $22.95

**Unison World:**
Art Gallery 1 or 2 .. ea. $14.95
Print Master ..... $17.95

## COMMODORE AMIGA

**Activision:**
Fairy Tale Adventure ... $27.95
Romantic Encounters .. $22.95

**Electronic Arts:**
FA/18 Interceptor ..... $33.95
Ferrari Formula One ... $33.95
World Tour Golf ..... $24.95

**Epyx:**
Destroyer ..... $22.95
Sub Battle Simulator ... $27.95
Impossible Mission 2 ... $28.95

**Microprose:**
Silent Service ..... $22.95

**Mindscape:**
Balance of Power ..... $27.95
Harrier Combat Simulator ..... $27.95

**Origin:**
Moebius ..... $23.95
Ogre ..... $18.95

**Strategic Simulations:**
Gettysburg ..... $35.95
Kampfgruppe ..... $35.95
Phantasie III ..... $25.95

**Sublogic:**
Flight Simulator ..... $31.49
Jet Simulator ..... $31.49
Scenery Disk ..... $CALL

**Unison World:**
Print Master ..... $25.95
Art Gallery 1 or 2 .. ea. $14.95
Fonts & Borders ..... $17.95




**FREE** Special Edition Graphics Library With Print Shop

## IBM

**Access:**
Wld. Cl. Value Pack ..... $9.95
10th Frame ..... $27.95

**Action Soft:**
Up Periscope ..... $16.95

**Activision:**
Beyond Zork ..... $27.95
GBA Basketball ..... $9.95
Might & Magic ..... $27.95
Zork Trilogy ..... $28.95

**Broderbund:**
Print Shop ..... $34.95
Print Shop Comp. ..... $29.95
Carmen San Diego World ..... $23.95

**Electronic Arts:**
Yeager's AFT ..... $26.95
Weaver Baseball ..... $26.95
Hunt for Red October .. $31.95
Starflight ..... $31.95
Starfight ..... $25.95
Tomahawk ..... $25.95
Jordan vs. Bird ..... $23.95
Sentinal Worlds ..... $29.95
Twist & Shout ..... $29.95

**Epyx:**
California Games ..... $22.95
L.A. Crackdown ..... $28.95
Home Video Producer . $28.95
Print Magic ..... $32.95
4x4 Off Road Racing .. $22.95
Dive Bomber ..... $22.95

**Firebird:**
Jinxter ..... $22.95
Universal Military Simulator ..... $28.95

**Microleague:**
Microleag. Baseball ..... $22.95
GM Disk ..... $16.95
Stat Disk ..... $13.95

## IBM

**Microprose:**
F-15 Strike Eagle ..... $22.95
Silent Service ..... $22.95
Gunship ..... $27.95
Airborne Ranger ..... $22.95

**Mindscape:**
Gauntlet ..... $22.95
Harrier Combat Simulator ..... $20.95
Captain Blood ..... $22.95
Visions of Aftermath .... $22.95
Indoor Sports ..... $16.95
Paperboy ..... $22.95
Willow ..... $22.95

**Origin:**
Ultima III ..... $23.95
Ultima IV ..... $34.95
Ultima V ..... $34.95
2400 AD ..... $16.95
Auto Duel ..... $22.95

**Strategic Simulations:**
Gettysburg ..... $35.95
Phantasie III ..... $25.95
Questron II ..... $25.95
Stellar Crusade ..... $31.95

**Sublogic:**
Flight Simulator ..... $34.95
Jet Simulator ..... $30.95
Western Europe Scenery Disk ..... $14.95

**Timeworks:**
Wordwriter PC ..... $27.95
PC Quintet ..... $49.95
Partner PC ..... $22.95

**Unison World:**
Newsmaster II ..... $39.95
Print Master ..... $29.95
Art Gallery 1 or 2 .. ea. $14.95



4x4 Off Road Racing **$22.95**

## Printer Paper

1000 Sheet Laser ..... $16.95
1000 Mailing Labels ..... $8.95
200 Sheet OKI 20 ..... $8.95
Banner Paper 45' Roll . $10.95
200 Sheet Laser ..... $6.95

## 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.**

## Surge Suppressors

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

## Printer Ribbons

**Save up to 50%! We carry a stock of thousands for most applications.**

## 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

**DEALER INQUIRIES WELCOME, CALL TOLL FREE**

## Drive Maintenance

5¼ Drive Cleaner ..... $7.95
3.5 Drive Cleaner ..... $10.95

## Video Tape

**SKC T120 VHS Video Tape:**

Each ..... $3.99
3 Pack ..... $10.95
10 Pack ..... $35.95

## C64 Power Supply

**Micro R + D MW 701A**



**$34.95**

*1-Year Warranty*

## Disc Storage

QVS-10 5¼ ..... $3.95
QVS-75 5¼ ..... $10.95
QVS-40 3½ ..... $9.95

## Diskettes

### 3.5

**Maxell:**
SSDD ..... $11.50
DSDD ..... $17.95

**Bonus:**
SSDD ..... $10.95
DSDD ..... $13.95

**Verbatim:**
SSDD ..... $12.95
DSDD ..... $18.95

**SKC:**
SSDD ..... $9.95
DSDD ..... $13.99

### 5¼

Disk Notcher ..... $5.95

**Maxell:**
SSDD ..... $7.95
DSDD ..... $8.95

**Bonus:**
SSDD ..... $5.95
DSDD ..... $6.95

**SKC:**
DSDD ..... $6.95
DSHD ..... $13.95

**Generic:**
DSDD ..... $4.95

**Verbatim:**
SSDD ..... $8.99
DSDD ..... $11.50

## Joysticks

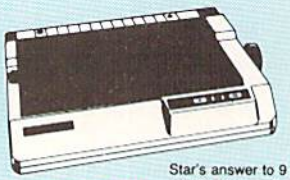


Tac 3 ..... $9.95
Tac 2 ..... $10.95
Tac 5 ..... $12.95
Tac 1 & IBM/AP ..... $26.95
Slik Stick ..... $6.95
Black Max ..... $10.95
Boss ..... $11.99
3-Way ..... $19.99
Bathandle ..... $16.75

Winner 909 ..... $24.95
Wico IBM/AP ..... $29.95
Lipstick Plus ..... $14.95
Kraft KC III AP/PC ..... $16.95
Kraft PC Joystick Card ..... $27.95
Kraft Maze Master ..... $8.95
I Controller ..... $13.95
Epyx 500 XJ ..... $13.95

## star micronics

### NX-1000



**$169.95***

*w/cable purchase

Star's answer to 9 pin dot matrix printers. A soft touch control panel and Star's paper park feature solves your multi-document needs. 144 cps draft and 36 cps NLQ give you high resolution 9 pin performance in an affordable package from Star.

| | | | |
|---|---|---|---|
| NX-1000 | $169.95* | NR-15 | $419.95 |
| NX-1000C | $169.95 | NB-15 24 Pin | $669.95 |
| NX-1000 Color | $225.95 | NX-2400 | $309.95 |
| NX-1000C Color | $229.95 | NB24-10 24 Pin | $369.95 |
| NX-15 | $289.95 | NB24-15 24 Pin | $545.95 |
| NR-10 | $319.95 | Laser 8 | $1759.95 |

*w/cable purchase

## SEIKOSHA

### SK3000Ai




- 300 Cps Draft
- 50 Cps NLQ
- Quiet 55 dba
- 7 Colors
- Rear & Bottom Paperpaths

**$369.95**

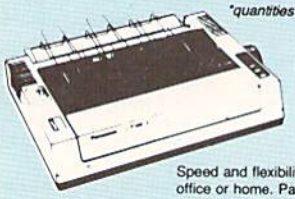
| | | | |
|---|---|---|---|
| MP5420FA | $999.95 | SP 1200AS RS232 | $179.95 |
| SP Series Ribbon | $7.95 | SL 80Ai | $329.95 |
| SK3000 Ai | $369.95 | *quantities limited | |
| SK3005 Ai | $445.95 | | |
| SPB 10 | $CALL | | |
| SL 130Ai | $599.95 | | |
| SP 1600Ai | $CALL | | |

## Panasonic Office Automation

### 1091i Model II

**$195.95***

*quantities limited



Speed and flexibility for your office or home. Panasonic combines 192 cps draft with 38 cps NLQ for a wide variety of printing needs. Quality support through a 2 year warranty from Panasonic.

| | | | |
|---|---|---|---|
| 3151 | $CALL | 1080i Model II | $149.95* |
| KXP 4450 Laser | $1599.95 | 1091i Model II | $195.95* |
| 1524 24 Pin | $559.95 | 1092i | $309.95 |
| Fax Partner | $579.95 | 1592 | $375.95 |
| Optical Scanner | $859.95 | 1595 | $439.95 |
| 1124 | $319.95 | 3131 | $289.95 |

*quantities limited

# Printers for all Reasons!




### 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 |
| 292 w/interface | $449.95 |
| 293 w/interface | $585.95 |
| 294 w/interface | $799.95 |
| 393 | $955.95 |
| Laser 6 | $CALL |
| 390 | $479.95 |
| 391 | $649.95 |
| 320 | $345.95 |
| 321 | $475.95 |

### Toshiba

| | |
|---|---|
| 321SL | $489.95 |
| 341 SL | $659.95 |
| 351 SX 400 cps | $979.95 |

### Epson

| | |
|---|---|
| LX800 | $184.95 |
| FX850 | $339.95 |
| FX1050 | $489.95 |
| EX800 | $434.95 |
| LQ500 | $339.95 |
| GQ3500 | $LOW |
| LQ850 | $525.95 |
| LQ1050 | $749.95 |

### Brother

| | |
|---|---|
| M1109 | $189.95 |
| M1509 | $335.95 |
| M1709 | $439.95 |
| Twinwriter 6 Dot & Daisy | $899.95 |
| M1724L | $569.95 |
| HR20 | $345.95 |
| HR40 | $599.95 |
| HR60 | $649.95 |

### Citizen

| | |
|---|---|
| 120 D | $149.95 |
| 180 D | $159.95 |
| MSP-40 | $279.95 |
| MSP-15E | $309.95 |
| MSP-50 | $369.95 |
| MSP-45 | $349.95 |
| MSP-55 | $469.95 |
| Premiere 35 | $539.95 |
| Tribute 224 | $539.95 |
| Tribute 124 | $439.95 |

## Monitors

### NEC

| | |
|---|---|
| Multisync II | $589.95 |

### Magnavox:

| | |
|---|---|
| BM7652 | $79.95 |
| BM7622 | $79.95 |
| 7BM-613 | $79.95 |
| 7BM-623 | $79.95 |
| CM8502 | $179.95 |
| 9CM-053 | $339.95 |
| CM8762 | $239.95 |
| 8CM-515 | $259.95 |
| 9CM-082 | $439.95 |

## MODEMS

### US Robotics:

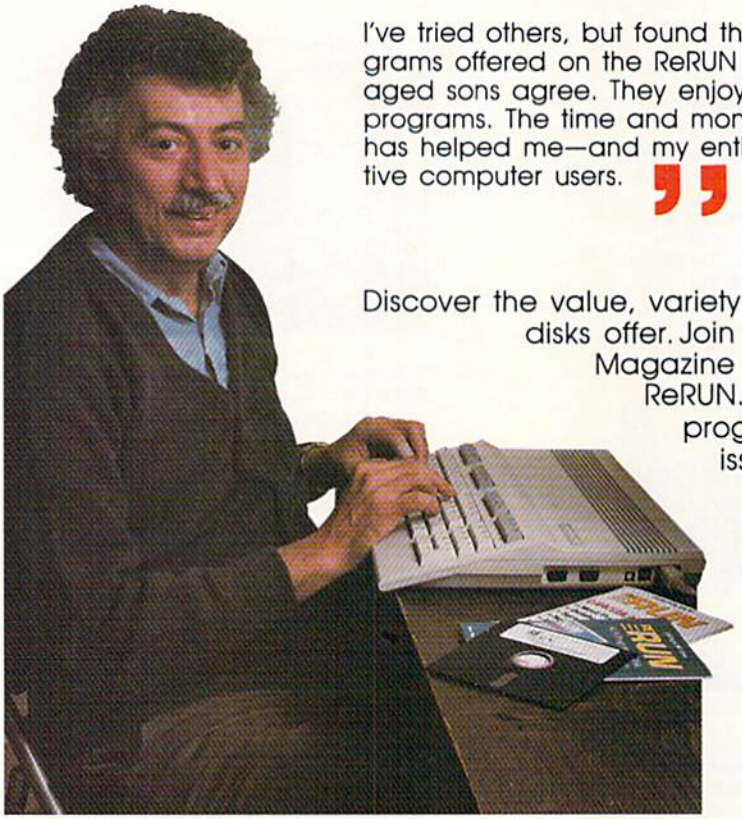
| | |
|---|---|
| Courier 1200 | $169.95 |
| Courier 2400 | $289.95 |
| Sportsler 1200 PC | $79.95 |
| Courier 2400e | $319.95 |
| Courier 2400 PS | $259.95 |
| Courier 9600 MST | $619.95 |

### Avatex:

| | |
|---|---|
| 1200e | $65.95 |
| 1200i PC Card | $65.95 |
| 1200p | $89.95 |
| 1200hc Modem | $89.95 |
| 2400 | $149.95 |
| 2400i II PC Card | $129.95 |

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 teenaged 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
☐ Nov./Dec. '88 single issue for $16.47
☐ 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: RN189
RERUN 80 ELM ST. PETERBOROUGH, NH 03458

RERUN

# Learn To Walk Before You RUN

WE RECEIVE MANY LETTERS from new Commodore owners who want to type in program listings from *RUN* and need help in getting started. To answer many of the questions novice users have, we present the following guidelines.

1. First, keep in mind that as a beginner you should enter only short Basic programs. Avoid machine language listings and lengthy Basic programs until you get the hang of what you're doing.

2. To help you catch mistakes in typing in listings, we publish *RUN*'s Checksum program elsewhere in this issue.

3. If you intend to save the program you're typing in on a brand new disk, you must format that disk. To do this, insert the disk in your drive and type:

```
OPEN15,8,15 <press return>
PRINT#15,"N0:NAME,##" <press return>
```

The ## is a two-character identifier that can be any combination of letters or digits. NAME can be any title for the disk that you choose, as long as it's 16 characters or less.

After entering the above lines, wait for a few minutes while the disk spins inside the drive. When the disk stops, the formatting is done. Then type:

```
CLOSE15 <press return>
```

In 128 mode on a C-128, you can shorten this procedure by typing:

```
HEADER "NAME,##" <press return>
```

*Caution:* The formatting process erases any material already on the disk, so if you're formatting a used disk, make sure it doesn't contain any programs you want to keep. See item 11 below, on reading the disk directory, if you need to find out what's on the disk.

4. Before you start typing in a program listing, your computer's memory needs to be empty. To make sure it is, turn the computer off, wait a few seconds, and turn it on again.

5. As you type in the listing, remember to press the return key after typing each line. This enters the line into memory.

6. If you want to review what you've entered, type LIST and press the return key; all the lines you've entered will scroll by. You can slow the scrolling on the C-64 by holding down the control key, and on the C-128 by pressing the no-scroll key. To view certain specific lines, type LIST, followed by the line numbers you want; then press the return key. For example, LIST 10-50 displays lines 10 through 50, and LIST 20 displays only line 20.

7. If you find an error in a line, delete the incorrect characters with the insert-delete key, then retype that portion and press return to enter the new line in memory.

8. Be sure to save the program to disk fairly often during the typing process. Otherwise, you could lose all your work if a power glitch wipes out your computer's memory. To save a partial or complete Basic program listing, type:

```
SAVE "NAME",8 <press return>
```

In 128 mode on a C-128, you can press F5, type in NAME and press the return key. Here, NAME is the filename you want the program to have, not the disk name you used when formatting.

Each time you save a revised program to the same disk, you must change its filename, or a disk error will occur, even if only one character is changed. An easy way to vary the filename is by adding version numbers to the end of the basic name (Program.1 and Program.2, for example). The numbers will also tell you which version is the latest.

9. If you wish to erase (scratch) unwanted programs from a disk, type:

```
OPEN15,8,15 <press return>
PRINT#15,"S0:filename" <press return and wait a few seconds>
CLOSE15 <press return>
```

In 128 mode on a C-128, you can type:

```
SCRATCH "NAME" <press return>
```

*Be sure not to erase the final version!*

10. Always save the final version of a program to two disks, so you have a backup copy in case one of the disks gets damaged. When saving to two different disks, you can use the same program name in each case.

11. To view a complete list of the filenames on a disk (i.e., read the disk directory), type:

```
LOAD "$",8 <press return>
LIST <press return>
```

In 128 mode on a C-128, you can just press F3.

12. When you know what program you want to load, next make sure you know *exactly* how its filename is spelled in the disk directory, including punctuation, special characters and spaces. A mistake in the filename will keep the load from working.

If the disk directory is still on the screen when you enter the Load command, you can refer to that for the spelling. If the directory will be gone from the screen by the time you enter the Load command, jot down the exact spelling of the filename for reference. Once you're sure of the filename, load the program by typing:

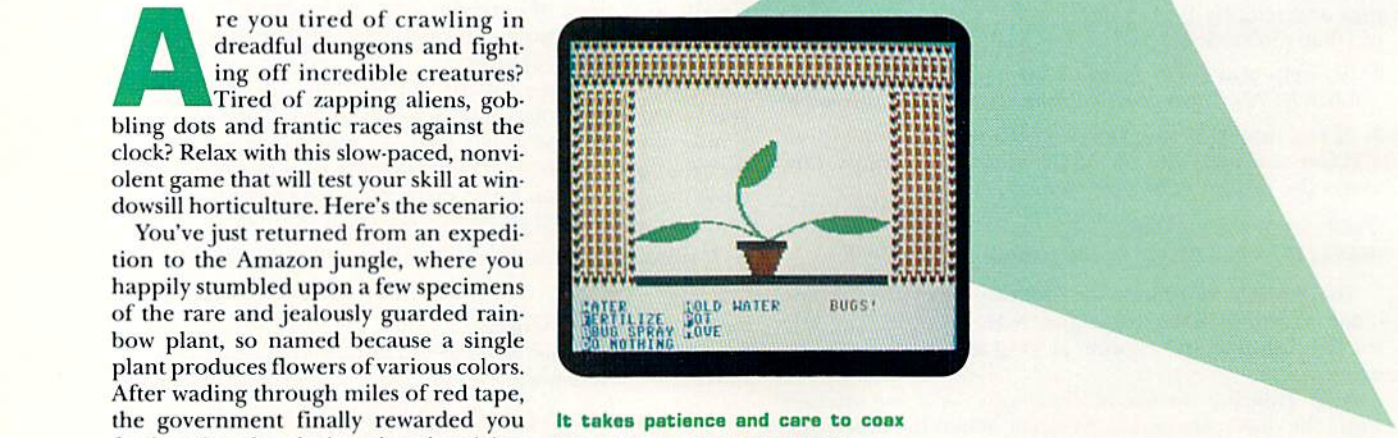
```
LOAD "NAME",8 <press return>
```

In 128 mode on a C-128, you can just press F2, type in the filename and press the return key.

13. After you've loaded the program, enter RUN to use it. ■

# Raising Rainbows

*Mary, Mary, quite contrary,*
*see how her garden grows.*



By MARY WILSON




**It takes patience and care to coax the rainbow plant into bloom.**

Are you tired of crawling in dreadful dungeons and fighting off incredible creatures? Tired of zapping aliens, gobbling dots and frantic races against the clock? Relax with this slow-paced, nonviolent game that will test your skill at windowsill horticulture. Here's the scenario:

You've just returned from an expedition to the Amazon jungle, where you happily stumbled upon a few specimens of the rare and jealously guarded rainbow plant, so named because a single plant produces flowers of various colors. After wading through miles of red tape, the government finally rewarded you for locating the elusive plant by giving you permission to take one small specimen out of the country.

Now that you have your plant safely at home, your top priority is to carefully nurture it and coax it to bloom, so you can gather seeds to start more plants to sell. Success in this venture will assure your fortune, as flower growers around the world will pay fabulous sums for even two or three seeds. So, grab your watering can and box of fertilizer, and let's see if your thumb is green.

## How Much Water?

Rainbow Plant for the C-128 is written entirely in Basic 7.0. Type in Listing 1, using *RUN*'s Checksum program, and save a copy to disk. Then enter RUN to play.

Since you're a horticulturist, it's assumed that you've potted your plant in the proper soil with the proper drainage. Now you must maintain a delicate balance of light, water, fertilizer and pot size. Your first decision is in which window to place the plant. After you choose, a window will be drawn, with your plant on the sill and the plant's condition printed in red in the lower-right corner of the screen. At the lower left you'll see a menu of things the plant might need. You can select one or just leave the plant alone for a while.

As your rainbow plant grows, more decisions will be necessary. For example, it will occasionally need a larger pot so it doesn't get rootbound and die. Be careful, though: If you choose a pot that's too large, the plant won't be able to absorb the water in so much soil and will, in effect, die from overwatering. If the plant does die, the program will tell you why, so you can avoid the same situation the next time.

You can move your plant from window to window to get the best exposure. As you do so, the color of the curtains will change to help you remember from which direction the light is coming.

You may notice some unusual screen characters in the curtains. These are standard keyboard graphics, but some of them look strange because of the distortion that occurs when printing to a hi-res screen. In this case, the distortion is an advantage.

If all its needs are met, your plant will grow ten leaves, and then flower stalks and buds will appear. Finally, if it's still in good condition, it will burst into bloom. Your C-128 screen will be full of color, and your thumb will be green! R

*Mary Wilson is a great-grandmother who formerly worked for the Florida State Health Services, so she knows a lot about nurturing living things.*

**Listing 1. The Rainbow Plant program.**

```
Ø REM FLOWER PROGRAM - MARY WIL
  SON                          :REM*248
1Ø GOSUB128Ø                   :REM*92
2Ø FAST:FORI=3584TO3839:READSP:
   POKEI,SP:NEXT               :REM*168
3Ø GRAPHIC 4,1,21 :COLORØ,2:COL
   OR1,6:COLOR2,1Ø:COLOR3,7
                               :REM*136
4Ø P=Ø:M=Ø:FL=Ø:N=Ø:S=Ø:R=RND(-
   TI)                         :REM*116
5Ø B$="{15 SPACEs}":SLOW
```

RUN it right: **C-128**

# MONTGOMERY GRANT

RUN 1/89

ESTABLISHED in 1968

OUTSIDE USA---CALL
(718)692-0071
FOR CUSTOMER SERVICE
Call Mon-Fri:9:30am-4:30pm
(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 422132 MGRANT

**OPEN 7 DAYS A WEEK FOR ORDERS: Monday-Friday, 9:00am-7:30pm / Saturday & Sunday 9:30am-6pm (EST)**

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

## commodore

### 128D COMPUTER PACKAGES



*SPECIAL!!*

**#1 C/128-D DELUXE PKG.**
C/128-D COMPUTER W/BUILT-IN DISK DRIVE
1902 RGB COLOR MONITOR
COMMODORE COLOR PRINTER

**$629**



**#2**
**C/128-D COMPLETE PKG.**
C/128-D COMPUTER W/BUILT-IN DISK DRIVE
COMMODORE COLOR PRINTER
12"MONITOR

**$499**

*COMMODORE 128/D W/1084S MONITOR*..... **$699**

**WE CAN RECONFIGURE ANY OF OUR COMPUTER PACKAGES TO YOUR SPECIFICATIONS. CALL FOR INFORMATION.**

### 64C COMPUTER PACKAGES



**#3 COMPLETE PACKAGE**
COMMODORE C-64/C COMPUTER
COMMODORE 1541-C DISK DRIVE
COMMODORE COLOR PRINTER
12" MONITOR
GEOS SOFTWARE PROGRAM

**$339**

**#4 COLOR PACKAGE**
COMMODORE C-64/C COMPUTER
COMMODORE 1541/C DISK DRIVE
COMMODORE COLOR PRINTER
COLOR MONITOR
GEOS SOFTWARE PROGRAM

**$478**



**64C With Geos Software**
**$139.95**

NEW C-128D with Built in Disk Drive **$415**

| | |
|---|---|
| #1764 EXPANSION MODULE | $114.95 |
| XETEC S. GRAPHIX JR. INTERFACE | $29.95 |
| XETEC S. GRAPHIX SR. INTERFACE | $49.95 |
| XETEC SUPER GRAPHIX GOLD | $79.95 |
| C-64/C -64C POWER SUPPLY | $29.95 |
| C-1660 MODEM | $19.95 |
| C-1670 MODEM | $59.95 |
| COMMODORE 1350 MOUSE | $19.95 |
| COMMODORE 1351 MOUSE | $34.95 |
| XETEC LT. KERNEL 20 MB HARD DRIVES FOR: | |
| C-64/C | $749 |
| C-128 | $799 |
| XETEC 40 MB HARD DRIVE FOR C64/128 & 128D | $1199 |

### commodore DISK DRIVES



1571 **$219.95**
1581 **$179.95**
1541II **$149.95**

### MONITORS



1084S....$294.95
THOMSON HI-RES RGB COLOR MONITOR.....$299.95
MAGNAVOX RGB 13" COLOR MONITOR.....$199.95

### AMIGA 500 RGB COLOR PACKAGE



Amiga 500 w/512K • Built-in 3.5" Disk Drive • Mouse • RGB Color Monitor • All Power Supplies & Cables • Free Software

**$759**

AMIGA 500

*IN STOCK-CALL FOR LOW PRICE!*
AMIGA 500 W/1084S.....$829
AMIGA 500 W/1084S & 1010 3.5" DRIVE...$1029

### AMIGA 2000 IN STOCK

*ALL PERIPHERALS IN STOCK*

A-501 • 512K EXPANSION • A-1010 3.5" FLOPPY DRIVE • A-2088D BRIDGE CARD A-1084S RGB COLOR MONITOR • A-1680 MODEM • 2090A HARD DRIVE CONTROLLER FOR A-2000 • A-2010 3.5" INTERNAL DISK DRIVE FOR A-2000 • A-2058 RAM EXPANSION FOR A-2000 • A-5211 1.3 WORKBENCH

Supra 20 MB Hard Drive for A-500.....$649
A-1680 Modem.....$94.98

### commodore COLT PACKAGE



COMMODORE COLT Computer • 640K • 4.77-7.16MHz • 2 Floppy Disk Drives • 12" High Resolution Mono Monitor • All Hook Up Cables & Adapters MS DOS & GW Basic

**$699**

*COMMODORE COLT W/1084S MONITOR*..... **$959**

### SANYO PR-3000
*Daisy Wheel Letter Quality Printer*



**$59**

### COMMODORE PRINTERS

| | |
|---|---|
| MPS-1250 | $219 |
| DPS-1101 DAISY WHEEL PRINTER | $149 |
| MPS 1000 PRINTER | $169 |

### COMMODORE AMIGA 2000



RGB COLOR PACKAGE

A-2000 Computer w/Keyboard • 3.5" Disk Drive • Mouse • RGB Color Monitor • All Hook-up Cables & AC Adaptors • Free Mouse & Software

**$1649**

**AMIGA 2000**
**IBM PC/XT COMPATIBLE RGB COLOR PACKAGE**

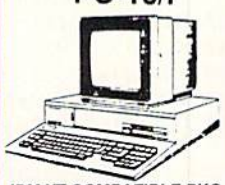
A-2000 Computer w/Keyboard • 1 MB Exp. to 9 MB. • Built-in 3.5" Disk Drive • RGB Color Monitor • 2088 IBM Compatible Bridge Card • MS DOS & GW Basic

**$2049**

**FREE MOUSE AND SOFTWARE**

### SEAGATE 20,30,40,60,80 MB HARD DRIVES IN STOCK!

### commodore PC-10/I



*IBM XT COMPATIBLE PKG.*
512K RAM • 360K Floppy Drive • 12" Monitor • Serial & Parallel Ports • Keyboard • Box of 10 Diskettes • MS DOS & GW Basic

**$499**

## EPSON

### EPSON EQUITY II+
*IBM AT Compatible Hard Drive Package*



**$1399**

Keyboard • 640K RAM 80286 Microprocessor • 1.2 MB Floppy Drive • 20 MB Hard Drive Mono Monitor • MS DOS & GW Basic
LOGITECH MOUSE M-7.....$59.95

## PRINTERS

HP LASERJET SERIES II **$1629**

**TOSHIBA**
PS-321 SI.....$449.95

**EPSON**

| | | | |
|---|---|---|---|
| FX-850 | $339 | LQ-850 | $509 |
| FX-1050 | $489 | LQ-1050 | $709 |
| LQ-500 | $315 | LX-800 | $199 |
| LQ-2550 | $959 | LQ950 | $589 |

**Panasonic**

| | | | |
|---|---|---|---|
| 1080i-II | $159 | 1092i | $299 |
| 1091i/II | $189 | 1524 | $499 |
| 1595 | $409 | 1124 | $319 |
| 4450 LASER | | | $1549 |

**STAR**

| | |
|---|---|
| NX-1000C | $169.95 |
| NX-1000C Rainbow | $224.95 |
| NX-1000 | $169.95 |
| NX-1000 Rainbow | $219.95 |
| NX-2400 | $304.95 |

**OKIDATA**

| | |
|---|---|
| OKIDATA 120 | $189.95 |
| OKIDATA 180 | $219.95 |
| OKIMATE 20 | $119.95 |
| HP Deskjet | $689 |

CITIZEN PRINTERS IN STOCK!

WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS

RUSH SERVICE AVAILABLE..CALL FOR DETAILS

Certified Check, Bank Check, Approved P.O.'s, Money Orders, Visa, Am-Ex, Diners Club, Carl 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 Machine Corp. APO/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 #800233

Circle 98 on Reader Service card.

```
                              :REM*184
6Ø GOSUB63Ø:GOSUB72Ø:GR=1
                              :REM*128
7Ø DO UNTIL FL=11              :REM*41
8Ø PRINTB$:PRINTB$            :REM*78
9Ø PRINT"{2 CRSR UPs} {CTRL 7}{
   CTRL 9}W{CTRL Ø}ATER"SPC(6)"
   {CTRL 9}H{CTRL Ø}OLD WATER"
                              :REM*113
1ØØ PRINT" {CTRL 9}F{CTRL Ø}ERT
   ILIZE{2 SPACEs}{CTRL 9}P{CT
   RL Ø}OT"                   :REM*197
11Ø PRINT" {CTRL 9}B{CTRL Ø}UG
   SPRAY{2 SPACEs}{CTRL 9}M{CT
   RL Ø}OVE"                  :REM*199
12Ø PRINT" {CTRL 9}D{CTRL Ø}O N
   OTHING{3 CRSR UPs}"        :REM*3
13Ø R=INT(RND(1)*5)+1         :REM*163
14Ø CD$(1)=" WILTING"         :REM*211
15Ø CD$(2)=" SPINDLY"         :REM*8Ø
16Ø CD$(3)=" GROWING"         :REM*14
17Ø CD$(4)="{3 SPACEs}BROWN"
                              :REM*221
18Ø CD$(5)="{3 SPACEs}BUGS!"
                              :REM*144
19Ø PRINT"{CRSR UP}"TAB(24)"{CT
   RL 3}"CD$(R):GETKEYA$:REM*3
2ØØ PRINTTAB(28)A$:SLEEP1
                              :REM*167
21Ø PRINT"{CRSR UP}";:PRINTTAB(
   24)B$                      :REM*55
22Ø IFA$="M"THENGOSUB63Ø:M=M+1:
   IFM>2THEN5ØØ               :REM*213
23Ø IFA$="P"THENP=P+1         :REM*165
24Ø ONPGOSUB115Ø,116Ø:IFP<=2THE
   NGR=GR+1                   :REM*133
25Ø IFR=1ANDA$="W"THENGR=GR+1:E
   LSE IF R=1ANDA$<>"W"THENGR=
   GR-1:IFGR=ØTHEN41Ø         :REM*138
26Ø IFR=2ANDA$="F"ORA$="M"THENG
   R=GR+1:ELSE IFR=2AND A$<>"F
   "ORA$<>"M"THENGR=GR-1:IFGR=
   ØTHEN42Ø                   :REM*181
27Ø IFR=3 ANDA$="D"THENGR=GR+1:
   ELSE IF R=3ANDA$<>"D"THENGR
   =GR-1:IFGR=ØTHEN43Ø:REM*224
28Ø IFR=4 ANDA$="H"THENGR=GR+1:
   ELSE IFR=4ANDA$<>"H"THENGR=
   GR-1:IFGR=ØTHEN44Ø         :REM*32
29Ø IFR=5 ANDA$="B"THENGR=GR+1:
   ELSE IFR=5ANDA$<>"B"THENGR=
   GR-1:IFGR=ØTHEN45Ø         :REM*13Ø
3ØØ IFGR=>1ØTHENGOSUB1Ø5Ø:GR=1:
   FL=FL+1                    :REM*123
31Ø ON FL GOSUB79Ø,81Ø,83Ø,85Ø,
   87Ø,89Ø,91Ø,93Ø,97Ø,1ØØØ
                              :REM*212
32Ø IF FL>6ANDP<1 THEN46Ø
                               :REM*64
33Ø IF FL>9ANDP<2THEN46Ø
                              :REM*166
34Ø IF FL<5ANDP>Ø THEN47Ø
                               :REM*78
35Ø IF FL<7ANDP=>2THEN47Ø
                              :REM*1Ø9
36Ø IF FL>6 AND W$="S"AND M=Ø T
   HEN 48Ø                    :REM*241
37Ø IF FL>6 AND W$="N"AND M=Ø T
   HEN 49Ø                    :REM*239
38Ø LOOP                      :REM*1Ø6
39Ø GOSUB1Ø3Ø                 :REM*197
4ØØ GOTO58Ø                   :REM*232
41Ø D$="INSUFFICIENT WATER":GOT
   O52Ø                       :REM*186
42Ø D$="UNDERNOURISHED":GOTO52Ø
                              :REM*3
43Ø D$="TOO MUCH FUSSING":GOTO5
   2Ø                         :REM*8Ø
44Ø D$="OVERWATERED":GOTO52Ø
                              :REM*228
45Ø D$="EATEN BY BUGS":GOTO52Ø
                              :REM*141
46Ø D$="ROOTBOUND":GOTO52Ø
                              :REM*252
47Ø D$="POT TOO LARGE":GOTO52Ø
                              :REM*119
48Ø D$="TOO MUCH SUN":GOTO52Ø
                              :REM*153
49Ø D$="INSUFFICIENT LIGHT":GOT
   O52Ø                       :REM*49
5ØØ D$="MOVED TOO OFTEN":GOTO52
   Ø                          :REM*1Ø2
51Ø END                       :REM*124
52Ø FORI=1TO8:SPRITEI,Ø:NEXT
                              :REM*111
53Ø FORI=1ØØØØ TO 15Ø STEP-15Ø
                               :REM*8Ø
54Ø SOUND1,I,1,Ø,Ø,1,1:NEXT
                              :REM*227
55Ø GRAPHICØ,1:COLORØ,2:PRINTTA
   B(8)"{4 CRSR DNs}{CTRL 3}SO
   RRY! PLANT DIED":PRINTTAB(8
   )"{2 CRSR DNs}REASON: "D$:S
   LEEP8                      :REM*181
56Ø FORI=1TO8:SPRITEI,Ø:NEXT:GR
   APHICØ,1:PRINTTAB(8)"{4 CRS
   R DNs}{CTRL 7}PLAY AGAIN? (
   Y/N)": GETKEYP$:IFP$="Y"THE
   N RUN3Ø                    :REM*252
57Ø FOR I=1 TO 8:SPRITE 1,Ø:NEX
   T:END                      :REM*221
58Ø GOSUB1Ø7Ø:FORI=1TO4:PRINTB$
   B$:NEXT:PRINTTAB(1)"{2 CRSR
    UPs}{CTRL 3}CONGRATULATION
   S!! YOU ARE NOW A MEMBER"
                              :REM*164
59Ø PRINTTAB(4)"OF THE {CTRL 6}
   GREEN THUMB {CTRL 3}SOCIETY
    AND"                      :REM*2
6ØØ PRINTTAB(1Ø)"{COMD 7}YOUR F
   ORTUNE IS MADE!":SLEEP8:FOR
   I=1TO4:PRINTB$;B$:NEXT
                              :REM*58
61Ø PRINTTAB(1Ø)"PLAY AGAIN? (Y
   /N)":GETKEYP$:IFP$="Y"THEN
   FORI=1TO8:SPRITEI,Ø:NEXT:RU
   N3Ø                        :REM*197
62Ø END                       :REM*238
63Ø FORI=1TO4:PRINTB$;B$:NEXT:P
   RINT"{CRSR UP}"            :REM*25Ø
64Ø PRINT"{CTRL 7}WHICH WINDOW?
   ":PRINT"{2 SPACEs}{COMD 2}N
    {COMD 7}S {COMD 3}E {CTRL
   4}W"                       :REM*223
65Ø GETKEYW$                  :REM*18Ø
66Ø IFW$="N"THENCOLOR2,9:COLOR3
   ,8:COLOR4,6:F$="{SHFT Q}":C
   $="{COMD B}":GOSUB119Ø:RETU
   RN                         :REM*155
67Ø IFW$="S"THENCOLOR2,7:COLOR3
   ,15:COLOR4,8:F$="{SHFT Z}":
   C$="{SHFT B}":GOSUB119Ø:RET
   URN                        :REM*241
68Ø IFW$="W"THENCOLOR2,5:COLOR3
   ,4:COLOR4,14:F$="{SHFT V}":
   C$="{SHFT +}":GOSUB119Ø:RET
   URN                        :REM*219
69Ø IFW$="E"THENCOLOR2,3:COLOR3
   ,11:COLOR4,4:F$="{SHFT S}":
   C$="{COMD W}":GOSUB119Ø:RET
   URN                        :REM*232
7ØØ END                       :REM*63
71Ø REM FIRST POT             :REM*38
72Ø COLORØ,2:COLOR1,6:COLOR2,3:
   COLOR3,1Ø:WIDTH2: BOX3,7Ø,1
   3Ø,9Ø,135,,1               :REM*255
73Ø DRAW2,72,135TO76,151TO84,15
   1TO88,135:PAINT2,8Ø,14Ø,1
                              :REM*238
74Ø REM FIRST 3 LEAVES        :REM*135
75Ø CIRCLE1,1Ø5,15Ø,3Ø,4Ø,272,3
   54,42,1:CIRCLE1,115,115,15,
   1Ø,1ØØ,26Ø,,1:PAINT1,12Ø,12
   Ø                          :REM*69
76Ø CIRCLE1,1ØØ,99,3Ø,38,217,33
   Ø,,1:CIRCLE1,71,72,14,23,72
   ,175,,1:PAINT1,78,78:REM*15
77Ø CIRCLE1,5Ø,149,3Ø,35,254,35
   2,6Ø,1:CIRCLE1,38,12Ø,15,1Ø
   ,87,21Ø,,1:PAINT1,45,125,1:
   GOSUB1Ø5Ø:RETURN           :REM*126
78Ø REM LEAF 4                :REM*148
79Ø COLOR1,6:CIRCLE1,1ØØ,83,25,
   3Ø,11Ø,177,,1:CIRCLE1,11Ø,1
   14,Ø8,22,253,36Ø,32,1:PAINT
   1,112,1Ø5,1:RETURN         :REM*145
8ØØ REM LEAF 5                :REM*19Ø
81Ø COLOR1,6:CIRCLE1,45,78,3Ø,4
   Ø,16Ø,21Ø,,1:CIRCLE1,4Ø,12Ø
   ,15,12,3ØØ,7Ø,,1:PAINT1,42,
   11Ø,1:RETURN               :REM*239
82Ø REM LEAF 6                :REM*216
83Ø COLOR1,6:CIRCLE1,56,8Ø,15,2
   3,3Ø,119,,1:CIRCLE1,68,75,4
   ,17,15Ø,325,,1:COLOR3,14:PA
   INT3,67,7Ø,1:RETURN:REM*2Ø1
84Ø REM LEAF 7                :REM*226
85Ø COLOR1,6:CIRCLE1,115,13Ø,3Ø
   ,5Ø,273,16 ,,1:CIRCLE1,1Ø9,
   76,18,15,112,219,,1:PAINT1,
   11Ø,86,1:RETURN            :REM*115
86Ø REM LEAF 8                :REM*13
87Ø CIRCLE1,42,158,4Ø,66,345,61
   ,,1:CIRCLE1,47,9Ø,15,13,125
   ,25Ø,,1:COLOR3,14:PAINT3,5Ø
   ,1ØØ,1:RETURN              :REM*191
88Ø REM LEAF 9                :REM*23
89Ø CIRCLE1,1ØØ,68,15,15,9Ø,17Ø
   ,,1:CIRCLE1,112,83,15,15,25
   Ø,1Ø,,1:COLOR3,14:PAINT3,1Ø
   5,75,1:RETURN              :REM*1ØØ
9ØØ REM LEAF 1Ø               :REM*88
91Ø COLOR1,6:CIRCLE1,25,88,35,2
   Ø,25,1ØØ,1Ø,1:CIRCLE1,49,74
   ,6 ,2Ø,178,27Ø,,1:PAINT1,55
   ,9Ø:RETURN                 :REM*163
92Ø REM FIRST 3 FLOWER STALKS A
```

```
    ND BUDS                 :REM*89
93Ø CIRCLE1,5Ø,122,3Ø,65,24,93,
    ,1:POKE 8184,56:SPRITE1,1,9
    ,Ø,1,1,Ø:MOVSPR1,116,92
                            :REM*121
94Ø CIRCLE1,122,152,5Ø,4Ø,3Ø8,3
    38,,1:POKE8185,57:SPRITE2,1
    ,3,Ø,1,1,Ø:MOVSPR2,215,144
                            :REM*251
95Ø DRAW1,8Ø,124TO9Ø,54:POKE818
    6,58:SPRITE3,1,5,1,1,1,Ø:MO
    VSPR3,183,85:RETURN:REM*173
96Ø REM BUDS 4 AND 5    :REM*116
97Ø CIRCLE1,2Ø,13Ø,6Ø,5Ø,19,87,
    ,1:POKE8187,56:SPRITE4,1,11
    ,Ø,1,1,Ø:MOVSPR4,87,117
                            :REM*9
98Ø CIRCLE1,13Ø,14Ø,5Ø,6Ø,284,3
    28:POKE8188,57:SPRITE5,1,15
    ,Ø,1,1,Ø:MOVSPR5,235,1Ø9:RE
    TURN                    :REM*1Ø8
99Ø REM BUDS 6,7 AND 8 :REM*167
1ØØØ POKE8189,58:SPRITE6,1,8,Ø,
    1,1,Ø:MOVSPR6,184,126
                            :REM*8Ø
1Ø1Ø CIRCLE1,28,14Ø,6Ø,22,3Ø,55
    :POKE819Ø,56:SPRITE7,1,4,Ø
    ,1,1,Ø:MOVSPR7,11Ø,15Ø
                            :REM*55
1Ø2Ø POKE8191,58:SPRITE8,1,7,1,
    1,1,Ø:MOVSPR8,159,143:RETU
    RN                      :REM*25
1Ø3Ø FOR I=8184TO8191:POKEI,59:
    NEXT                    :REM*248
1Ø4Ø SLEEP2:RETURN      :REM*97
1Ø5Ø FORI=1TO 5ØØØØ STEP 24ØØ
                            :REM*172
1Ø6Ø SOUND1,I,1,Ø,Ø,Ø,Ø,Ø:NEXT:
    RETURN                  :REM*24
1Ø7Ø TEMPO 12           :REM*151
1Ø8Ø ENVELOPE 8,8,9,8,4,2,5ØØ
                            :REM*2Ø3
1Ø9Ø FILTER 9ØØ,1,Ø,Ø,6:REM*179
11ØØ PLAY "V1 O4 T8 U8 X1"
                            :REM*1Ø9
111Ø PLAY"V1.IGSGO5.ICO4SGO5.IC
    SE QC .ICSC .IESC.IESG QE.
    ICSE QG .IE SCO4QG.IGSG"
                            :REM*254
112Ø PLAY"O5QC .ICSCQCQRM"
                            :REM*11
113Ø RETURN             :REM*252
114Ø REM POTS 1 AND 2 *******
                            :REM*1Ø7
115Ø COLOR2,3:COLOR3,1Ø:BOX3,65
    ,128,95,135,,1:DRAW2,67,13
    5TO71,151TO89,151TO93,135:
    PAINT2,69,136,1:PAINT2,91,
    136,1:RETURN            :REM*22
116Ø COLOR2,3:COLOR3,1Ø:BOX3,6Ø
    ,128,1ØØ,135,,1:DRAW2,62,1
    35TO66,151TO94,151TO98,135
    :PAINT2,64,136,1:PAINT2,95
    ,136,1                  :REM*127
117Ø RETURN             :REM*37
118Ø REM DRAW CURTAINS :REM*117
119Ø FAST:FORI=ØTO39:CHAR2,I,Ø,
    F$:NEXT                 :REM*146
12ØØ FORJ=1TO2          :REM*243
121Ø FORI=ØTO39:CHAR3,I,J,C$,1:
    NEXT:NEXT               :REM*2ØØ
122Ø FORI=ØTO39:CHAR2,I,3,F$:NE
    XT                      :REM*149
123Ø FORJ=4TO18         :REM*165
124Ø CHAR2,Ø,J,F$:FORI=1TO5:CHA
    R3,I,J,C$,1:NEXT:CHAR2,6,J
    ,F$:CHAR2,33,J,F$:FORI=34T
    O39:CHAR3,I,J,C$,1:NEXT:CH
    AR2,39,J,F$:NEXT        :REM*14
125Ø FORI=ØTO6:CHAR2,I,19,F$:NE
    XT:FORI=33TO39:CHAR2,I,19,
    F$:NEXT                 :REM*23
126Ø COLOR2,1Ø:BOX2,28,152,131,
    158,,1                  :REM*59
127Ø SLOW:RETURN        :REM*47
128Ø COLORØ,2:COLOR4,5:COLOR1,7
                            :REM*165
129Ø GRAPHIC1,1         :REM*149
13ØØ WIDTH 2            :REM*23Ø
131Ø COLOR1,7           :REM*192
132Ø DRAW 1,3Ø,4ØTO3Ø,7Ø:DRAW1,
    25,4ØTO45,4Ø TO46,42TO46,5
    ØTO 46,52TO44,54 TO 3Ø,54:
    DRAW1,4Ø,54TO45,72TO47,74T
    O29Ø,74                 :REM*152
133Ø COLOR1,6: DRAW1,6Ø,7ØTO75,
    4ØTO85,7Ø:DRAW1,68,54TO78,
    54                      :REM*4
134Ø COLOR1,8:DRAW1,1Ø5,4ØTO1Ø5
    ,7Ø                     :REM*87
135Ø COLOR1,9:DRAW1,125,7ØTO125
    ,4ØTO145,7ØTO145,4Ø
                            :REM*174
136Ø COLOR1,3:DRAW 1,165,4ØTO16
    5,7Ø:DRAW1,16Ø,4ØTO18Ø,4Ø
    TO181,42TO181,5ØTO181,52TO
    179,54 TO165,54         :REM*35
137Ø DRAW1,175,54TO177,56TO181,
    6ØTO181,68TO181,7ØTO16Ø,7Ø
                            :REM*227
138Ø COLOR1,3:DRAW 1,165,4ØTO16
    5,7Ø:DRAW1,16Ø,4ØTO18Ø,4Ø
    TO181,42TO181,5ØTO181,52TO
    179,54 TO165,54         :REM*31
139Ø COLOR1,5:CIRCLE1,212,55,12
    ,15                     :REM*176
14ØØ COLOR1,4:DRAW1,24Ø,4ØTO248
    ,7ØTO255,54TO262,7ØTO27Ø,4
    Ø                       :REM*216
141Ø COLOR1,3:DRAW1,6Ø,12ØTO6Ø,
    15Ø:DRAW 1,55,12ØTO65,12Ø:
    DRAW1,6Ø,12ØTO8Ø,12Ø TO81,
    122TO81,13ØTO 81,132TO79,1
    34TO61,134              :REM*145
142Ø COLOR1,5:DRAW1,1ØØ,12ØTO1Ø
    Ø,15ØTO12Ø,15Ø      :REM*224
143Ø COLOR1,4:DRAW1,135,15ØTO15
    Ø,12ØTO165,15Ø:DRAW1,143,1
    34TO155,134             :REM*7Ø
144Ø COLOR1,7:DRAW1,185,15ØTO18
    5,12ØTO2Ø5,15ØTO2Ø5,12Ø
                            :REM*211
145Ø COLOR1,6:DRAW1,222,12ØTO24
    8,12Ø:DRAW1,235,12ØTO235,1
    5Ø                      :REM*159
146Ø COLOR1,6:BOX1,5,4,314,195:
    PAINT1,Ø,Ø              :REM*25
147Ø WIDTH2             :REM*141
148Ø COLOR1,11:BOX1,94,175,224,
    184                     :REM*41
149Ø COLOR1,4:CHAR1,12,22," MAR
    Y E. WILSON ",1     :REM*16Ø
15ØØ SLEEP4:RETURN      :REM*49
151Ø END                :REM*96
152Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*217
153Ø DATA Ø,Ø,Ø,Ø,15,24Ø,Ø,63
                            :REM*251
154Ø DATA 252,Ø,63,254,Ø,31,255
    ,Ø                      :REM*112
155Ø DATA 15,255,128,3,255,128,
    Ø,254                   :REM*4Ø
156Ø DATA 64,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*57
157Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*231
158Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*28
159Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*18
16ØØ DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø:REM*8
161Ø DATA Ø,Ø,15,24Ø,Ø,127,248,
    1                       :REM*1Ø4
162Ø DATA 255,248,3,255,224,3,2
    55,192                  :REM*196
163Ø DATA 7,255,Ø,7,252,Ø,4,Ø
                            :REM*51
164Ø DATA Ø,8,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*64
165Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*86
166Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*76
167Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*66
168Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*12Ø
169Ø DATA Ø,Ø,Ø,Ø,Ø,192,Ø,1
                            :REM*134
17ØØ DATA 224,Ø,3,24Ø,Ø,3,248,Ø
                            :REM*139
171Ø DATA 3,248,Ø,3,248,Ø,3,248
                            :REM*14Ø
172Ø DATA Ø,1,248,Ø,Ø,248,Ø,Ø
                            :REM*85
173Ø DATA 112,Ø,Ø,32,Ø,Ø,Ø,Ø
                            :REM*155
174Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*188
175Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
                            :REM*178
176Ø DATA Ø,16,Ø,Ø,56,Ø,3Ø,124
                            :REM*141
177Ø DATA 24Ø,63,125,248,55,239
    ,184,59                 :REM*1Ø8
178Ø DATA 239,12Ø,29,238,24Ø,63
    ,255,252                :REM*236
179Ø DATA 127,215,254,241,239,3
    1,127,215               :REM*65
18ØØ DATA 254,63,255,252,15,1Ø9
    ,24Ø,3Ø                 :REM*239
181Ø DATA 238,248,29,239,12Ø,27
    ,239,184                :REM*228
182Ø DATA 31,125,248,14,124,24Ø
    ,Ø,56                   :REM*154
183Ø DATA Ø,Ø,16,Ø,Ø,Ø,Ø,136
                        :REM*216 ■
```

# Ring In The New Year

## Games And More From The




### Arkanoid

The legendary arcade classic of concentration and reflexes. Break through the 33 walls of living energy that stand between you and the destroyer of the universe.

$29.95 List Price — $16.88 Ultra Saver Price

## HOT SELLERS

Bard's Tale 3: The Thief of Fate ..... $26
Captain Blood ..... $23
GEOS 64 (2.0) ..... $39
Jordan vs. Bird ..... $21
Monopoly ..... $21
Advanced Dungeons & Dragons: Pool of Radiance ..... $26
Red Storm Rising ..... $25
Ultima 5 ..... $39
Victory Road ..... $19
Zak McKracken ..... $23

## BARGAIN BASEMENT

### Accolade

Ace of Aces ..... $9.88
Fight Night ..... $9.88
Hardball ..... $9.88
Killed Until Dead ..... $9.88

### Activision

Aliens ..... $9.88
Cross Country Road Race ..... $9.88
Ghostbusters ..... $9.88
Hacker 1 or 2 ..... $9.88 Ea.
Little Computer People $9.88
Transformers ..... $9.88

### Artworx

Beach Blanket Volleyball ..... $9.88
Equestrian Show Jumper ..... $9.88
Highland Games ..... $9.88
Thai Boxing ..... $9.88

### Avantage

Deceptor ..... $9.88
Desert Fox ..... $9.88
Jet Boys ..... $9.88
Plasmatron ..... $9.88
Power ..... $9.88
Project Space Station ..... $9.88
Sigma 7 ..... $9.88
Spy vs. Spy 1 & 2 ..... $9.88

### Box Office

Alf ..... $9.88
High Rollers ..... $9.88
$100,000 Pyramid ..... $9.88

### Broderbund

Cauldron ..... $9.88
Choplifter/David's Midnight Magic ..... $9.88
Karateka ..... $9.88
Loderunner ..... $9.88
Magnetron ..... $9.88

### CBS

Argos Expedition ..... $4.88
Math Mileage ..... $4.88
Timebound ..... $4.88
Weather Tamers ..... $4.88

### CDA

America Cooks Series:
American ..... $9.88
Chinese ..... $9.88
French ..... $9.88
Italian ..... $9.88
Mexican ..... $9.88

### Data East

Express Raiders ..... $8.88
Q-Bert ..... $8.88
TNK III ..... $8.88

### Easy Working/Spinnaker

Filer ..... $6.88
Planner ..... $6.88
Writer ..... $6.88

### Electronic Arts

Adv. Const. Set ..... $9.88
Arctic Fox ..... $9.88
Earth Orbit Station ..... $9.88
Lords of Conquest ..... $9.88
Marble Madness ..... $9.88
Movie Maker ..... $9.88
Music Const. Set ..... $9.88
One-on-One ..... $9.88
Patton vs. Rommel ..... $9.88
Pinball Const. Set ..... $9.88
Racing Dest. Set ..... $9.88
Seven Cities of Gold ..... $9.88
Skyfox ..... $9.88
Super Boulder Dash ..... $9.88
Ultimate Wizard ..... $9.88
World Tour Golf ..... $9.88

### Gamestar

Champ. Baseball ..... $9.88
Champ. Basketball ..... $9.88
On Court Tennis ..... $9.88
Star League Baseball/ On Field Football ..... $9.88

### HES

Microsoft Multiplan ..... $9.88

### Hi-Tech Expressions

Award Ware ..... $9.88
Card Ware ..... $6.88
Matterhorn Screamer ..... $6.88
Party Ware ..... $9.88
Print Power ..... $9.88
Tom Sawyer's Island ..... $6.88
Win, Lose or Draw ..... $9.88

### High-Tech Expressions

Sesame Street Series:
Astro-Grover ..... $6.88
Big Bird's Special Delivery ..... $6.88
Ernie's Big Splash ..... $6.88
Ernie's Magic Shapes $6.88
Grover's Animal Adventures ..... $6.88
Pals Around Town ..... $6.88
Sesame St. Print Kit $9.88

### Infocom

Hitchhiker's Guide ..... $9.88
Infocomics:
Gamma Force ..... $8.88
Lane Mastadon ..... $8.88
Zork Quest ..... $8.88
Leather Goddesses ..... $9.88
Zork I ..... $9.88

### Konami/Action City

Circus Charlie ..... $9.88
Hyper Sports/Ping Pong $9.88
Track & Field ..... $9.88

### Mastertronic

Action Biker ..... $4.88
Bounder ..... $6.88
Captain Zap ..... $6.88
Energy Warrior ..... $6.88
Feud ..... $6.88
Kane ..... $4.88
Last V-8 ..... $4.88
Ninja ..... $4.88
Pro Golf ..... $4.88
Prowler; War in 7150 ..... $6.88
Shogun ..... $6.88
Slam Dunk ..... $6.88
Speed King ..... $6.88
Squash ..... $6.88
Storm ..... $6.88
Ten Speed ..... $6.88
Vegas Poker & Jackpot ..... $4.88
Water Polo ..... $6.88

### Mindscape

Tink's Adventure ..... $4.88
Tinka's Mazes ..... $4.88
Tonk in the Land of Buddy Bots ..... $4.88
Tuk Goes to Town ..... $4.88

### Sega

Congo Bongo® ..... $4.88
Super Zaxxon® ..... $4.88

### Share Data

Concentration ..... $9.88
Family Feud ..... $8.88
Jeopardy ..... $8.88
Jeopardy 2 ..... $9.88
Wheel of Fortune ..... $8.88
Wheel of Fortune 2 ..... $9.88

### Sierra

Frogger ..... $6.88
Grog's Revenge ..... $6.88
Wizard & The Princess $6.88
Wiz Type ..... $6.88

### Simon & Schuster

Great Int'l. Paper Airplane Construction Set ..... $9.88

### Spectrum Holobyte

Gato ..... $9.88

### Spinnaker

Cosmic Combat ..... $4.88
Dark Tower ..... $4.88




### Battleship

The classic game of strategy and action now comes to life on your computer screen. Play against friends or the computer. Excellent graphics and sound.

$29.95 List Price — $16.88 Ultra Saver Price

Delta Drawing ..... $4.88
Facemaker ..... $4.88
Film Maker ..... $4.88
Fraction Fever ..... $4.88
Gold Record Race ..... $4.88
Karate Chop ..... $6.88
Learn the Alphabet ..... $4.88
Learn to Spell ..... $4.88
Learn to Add ..... $4.88
Railroad Tycoon ..... $4.88
Ranch ..... $4.88
Story Machine ..... $4.88

### SSI

Gemstone Healer ..... $9.88
Gemstone Warrior ..... $9.88
Questron ..... $9.88

### Telarium

Nine Princes in Amber $9.88
Perry Mason: Case of Mandarin Murder ..... $9.88

### Thunder Mountain

Army Moves ..... $6.88
Dig Dug ..... $8.88
Doc the Destroyer ..... $6.88
Felony ..... $9.88
Galaxian ..... $8.88
Great Escape ..... $6.88
Implosion ..... $9.88
Jr. Pac Man ..... $8.88
Leviathan ..... $6.88
Ms. Pac Man ..... $8.88
Murder by the Dozen ..... $9.88
Music Writer ..... $6.88
Mutants ..... $9.88
Pac Man ..... $8.88
Pole Position ..... $6.88
Rambo: First Blood Part II ..... $6.88
Slot Car Racer ..... $6.88
Super Pac Man ..... $9.88
Tai-Pan ..... $9.88
Tau-Ceti ..... $9.88
Top Gun ..... $6.88
Winter Challenge ..... $9.88
Wizball ..... $9.88

### Value Ware

Artist ..... $4.88
Educator ..... $4.88
Entertainer ..... $4.88
Home Rancher ..... $4.88
Home Manager ..... $4.88
Kitchen Manager ..... $4.88

## SUPER SAVERS

### Abacus Books

Anatomy of the 1541 ..... $14
Anatomy of the 64 ..... $14
1571 Internals ..... $14
GEOS Inside & Out ..... $13
GEOS Tricks & Tips ..... $13

### Abacus Software

Assembler Monitor ..... $25
Basic ..... $25
Basic 128 ..... $39
Becker Basic* ..... $33
Cad Pak ..... $25
Cad Pak 128 ..... $39
Chart Pak ..... $25
Chart Pak 128 ..... $25
Cobol ..... $25
Cobol 128 ..... $25
Fortran ..... $25
PPM ..... $25
PPM 128 ..... $39
Speed Term 64 or 128 ..... $25
Super C ..... $39
Super C 128 ..... $39
Super Pascal ..... $39
Super Pascal 128 ..... $39
TAS ..... $25
TAS 128 ..... $39
*Requires GEOS!

### Access

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

### Accolade

Apollo 18: Mission to the Moon ..... $19
Bubble Ghost ..... $19
Card Sharks ..... $19
Fast Break ..... $19
4th & Inches Football ..... $19
4th & Inches Team Construction Disk ..... $9.88
Mini Putt ..... $19
Power at Sea ..... $19
Rack 'Em ..... $19
Serve & Volley ..... $19
Steel Thunder ..... $19
The Train: Escape to Normandy ..... $19
T.K.O. ..... $19

### Action Soft

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

### Activision

Black Jack Academy ..... $25
Crossbow ..... $19
Mainframe ..... $23
Maniac Mansion ..... $23
Might & Magic ..... $25
Music Studio ..... $23
Neuromancer ..... $25
Ocean Ranger ..... $25
Postcards ..... $16
Shanghai ..... $19
Sky Travel ..... $33
The Last Ninja ..... $23

### American Educational

Biology ..... $12
Learn to Read (Gr. 1-4) ..... $25
Science: Grades 3/4 ..... $12
Science: Grades 5/6 ..... $12
Science: Grades 7/8 ..... $12
US Geography ..... $12
US History ..... $12
World Geography ..... $12
World History ..... $12

### Artworx

Bridge 5.0 ..... $19
Cycle Knight ..... $14
Daily Double Horse Racing ..... $14
International Hockey ..... $14
Linkword French ..... $16
Linkword German ..... $16
Linkword Russian ..... $16
Linkword Spanish ..... $16
Strip Poker ..... $21
Data Disk #1 Female ..... $14
Data Disk #2 Male ..... $14
Data Disk #3 Female ..... $14

### Avalon Hill

NBA Basketball ..... $25
NBA '86 Season Disk ..... $14
Spitfire '40 ..... $23
Super Sunday ..... $21
SBS 1986 Team Disk ..... $14
SBS Gen. Mgr. Disk ..... $19
Under Fire ..... $23

### Batteries Included

Paperclip 3 ..... $33
Paperclip Publisher ..... $33

### Baudville

Award Maker Plus ..... $23
Blazing Paddles ..... $23
Video Vegas ..... $19

### Berkeley Softworks

Geos 128 ..... $44
Geo-Calc 128 ..... $44
Geo-File 128 ..... $44
Geo-Write Workshop 128 $44
Geos 2.0 ..... $39
Desk Pack Plus* ..... $19
Font Pack Plus* ..... $19
Geo-Calc* ..... $33
Geo-Chart* ..... Call
Geo-File* ..... $33



*"We're committed to making shopping for software easy and enjoyable."*

To Order Call:

**U.S. & Canada**

**1-800-225-7638**

**(PA — 1-800-223-7784)**

Visit Us On CompuServe (GO SDA) or GEnie (SDA)

### Things you should know.

We place these ads months in advance, so prices and availability can change (usually for the better). We accept charge cards, cashiers checks, money orders, and personal checks (3 weeks clearance). Free shipping on orders over $100 in the continental U.S. On orders *under* $100, add $3.00. For AK, HI, FPO, APO, add $5.00 to *all* orders. For Canada & Puerto Rico, add $7.50 to *all* orders. You must call for a Return Authorization # before returning defective merchandise. We will replace defective merchandise with the same merchandise; other returns are subject to a 20% restocking fee. Order lines open M-TH 9:00 AM-7:00 PM; FRI 9:00 AM-5:30 PM; SAT 10:00 AM-4:00 PM Eastern Time. For information or customer service, call 412-361-5291 M-F 9:00 AM-5:30 PM Eastern Time.

**Over 1900 products in stock • If you don't see the item you want, call • No surcharge for VISA/MasterCard**

# with SDA Savings!

## Original Software Discounters




Geo-Programmer* ....$44
Geo-Publish* ....$33
*Requires GEOS 64!

**Box Office**
California Raisins ....$16
Psycho ....$16

**Broderbund**
Bank St. Writer ....$33
Carmen Sandiego:
Europe ....$25
U.S.A. ....$25
World ....$23
Downhill Challenge ....Call
Print Shop ....$26
P.S. Companion ....$23
P.S. Graphics Library #1, #2, or #3 ....$16 Ea.
P.S. Graphics Library Holiday Edition ....$16

**Capcom**
Bionic Commando ....$19
Ghosts & Goblins ....$19
Gunsmoke ....$19
Side Arms ....$19
Speed Rumbler ....$19

**Central Point**
Copy 2 ....$23

**Cinemaware**
Defender of the Crown ....$23
Rocket Ranger ....$23
Sinbad: Throne of the Falcon ....$23
The Three Stooges ....$23
Warp Speed® ....$33

**CMS**
General Acct. 128 ....$119
Inventory 128 ....$49

**Data East**
Breakthru ....$19
Commando ....$14
Ikari Warriors ....$19
Karnov ....$19
Kid Niki ....$19
Lock On ....Call
Platoon ....$19
Speed Buggy ....$19
Tag Team Wrestling ....$14

**Datasoft**
Alternate Reality:
The City ....$19
The Dungeon ....$19
Battle Droidz ....$19
Bismarck ....$19
Cosmic Relief ....$19
Dark Lord ....$14
Global Commander ....$19
Hunt for Red October ....$26
Rubicon Alliance ....$14
Tobruk ....$21
Tomahawk ....$21
Video Title Shop w/Graphics Companion $21

**Davidson**
Algeblaster ....$32
Math Blaster ....$32
Spell It ....$32
Word Attack ....$32

**Designware**
Body Transparent ....$19
Designasaurus ....$23
Spellicopter ....$19

**Digital Solutions**
Pocket Filer 2 ....$19
Pocket Planner 2 ....$19
Pocket Writer 2 ....$33
*All 3 in 1 Super Pack ....$59

**Digitek**
Vampire's Empire ....$19

**Electronic Arts**
Alien Fires ....$19
Bard's Tale 1 or 2 ....$26 Ea.

## WINNERS




THIS MONTH'S WINNERS OF PROJECT SPACE STATION ARE

*Paul S. Brown*
*Pensacola, FL*
*Charles E. Chapel*
*Salina, KS*
*Jeffrey D. Craven*
*Somerville, AL*
*Robert H. Engstrom*
*Ontario, CA*
*Charles W. Hennig*
*Clarksburg, WV*
*James A. King, Jr.*
*Rockville, MD*
*R.S. McFarland*
*Muncie, IN*
*Merlin A. Rosenlieb*
*Weirton, WV*
*James Skuba*
*E. Setauket, NY*
*Frederick D. Stockwell*
*Xenia, OH*

Winners must contact us by 1/31/89 to claim their prize. No purchase necessary.

We're giving away hundreds of $ in software to people on our mailing list every month. Not on our list? Call our toll-free number and order one of our great software bargains. Your name will automatically be added to our list. Or send us a postcard with your name, address, city, state, zip code, and computer model today.

Bard's Tale 1, 2 or 3 Hints ....$9 Ea.
Caveman Ugh-lympics ....$21
Chessmaster 2100 ....$26
Chuck Yaeger's AFT ....$23
Deathlord ....$21
Demon Stalker ....$21
Dragon's Lair ....$19
Instant Music ....$21
Legacy of Ancients ....$21
Master Ninja ....$19
Modem Wars ....$23
Pegasus ....$21
Roadwars ....$21
Rockford ....$21
Scrabble ....$23
Scruples ....$23
Skyfox 2 ....$21
Skate or Die ....$21
Star Fleet 1 ....$26
Strike Fleet ....$21
The Mars Saga ....$23
Twilights Ransom ....$23
Wasteland ....$26

**EPYX**
Boulder Dash Construction Kit ....$14
California Games ....$24
Champ. Wrestling ....$14
Create A Calendar ....$19
Death Sword ....$14
Destroyer ....$24
Fast Load® ....$24
Final Assault ....$24
Impossible Mission 2 ....$24
4 x 4 Off Road Racing ....$24
L.A. Crackdown ....$24
Metrocross ....$16
Rad Warrior ....$14
Sporting News Baseball ....$24
Street Sports:
Baseball ....$14
Basketball ....$14
Football ....$14
Soccer ....$14
Spy vs. Spy 3: Arctic Antics ....$14
Sub Battle Simulator ....$24
Summer Games ....$14
Summer Games 2 ....$14
The Games:
Summer Edition ....$24
Winter Edition ....$24
Tower Toppler ....$24
Winter Games ....$14
World Games ....$14

**Gamestar**
GFL Ch. Football ....$23
Star Rank Boxing 2 ....$19
Top Fuel Eliminator ....$19

**Infocom**
Beyond Zork 128 ....$29
Border Zone ....$23
Sherlock: The Riddle of the Crown Jewels ....$23
Zork Trilogy ....$29

**Inkwell Systems**
#170 Deluxe L.P. ....$69
#184C Light Pen ....$44
Flexidraw 5.5 ....$23
Graphics Galleria #1 ....$19
Graphics Galleria #2 ....$19
Graphics Integrator 2 ....$19

**Intracorp**
Bumper Sticker Maker ....$33
Business Card Maker ....$25
Button & Badge Maker ....$33

**Logical Design**
Club Backgammon ....$19
Vegas Craps ....$19
Vegas Gambler ....$19

**Melbourne House**
Barbarian ....$19
John Elway's QB ....$19

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

**Microprose**
Airborne Ranger ....$23
F-15 Strike Eagle ....$23
Gunship ....$23
Pirates ....$25
Project Stealth Fighter ....$25
Silent Service ....$23

**Mindscape**
Alien Syndrome ....Call
Bad Street Brawler ....$19
Blockbuster ....$19
Clubhouse Sports ....$19
Color Me: The Computer Coloring Kit ....$23
Crossword Magic ....$19
Deeper Dungeons* ....$16

De Ja Vu ....$23
Gauntlet ....$23
Harrier Combat Sim. ....$19
Indiana Jones & The Temple of Doom ....$23
Indoor Sports ....$19
Infiltrator 2 ....$19
Into the Eagle's Nest ....$19
Out Run ....$23
MISL Soccer ....$23
Paperboy ....$23
Perfect Score SAT ....$44
Power Players Joystick ....$19
Road Runner ....$23
720 ....Call
Space Harrier ....$23
Super Star Ice Hockey ....$23
Super Star Soccer ....$23
Uninvited ....Call
*Requires Gauntlet!

**MISC**
Bob's Term Pro ....$29
Bob's Term Pro 128 ....$39
Doodle ....$25
Final Cartridge 3 ....$47
Font Master 2 ....$29
Font Master 128 ....$35

**Origin**
Autoduel ....$25
Moebius ....$25
Times of Lore ....$25
Ultima 1 or 3 ....$25 Ea.
Ultima 4 ....$39

**Professional**
Fleet System 2 Plus ....$33
Fleet System 4 128 ....$43

**Rainbird**
Black Lamp ....$14
Corruption ....$25
Enlightenment ....$14
Guild of Thieves ....$25
Jinxter ....$23
Starglider ....$14

**Simon & Schuster**
JK Lasser Money Mgr. ....$14
Typing Tutor 4 ....$19

**Sir Tech**
Deep Space ....$23
Wizardry Series:
Knight of Diamonds ....$25
Proving Ground ....$25

**Springboard**
Certificate Maker ....$14
C.M. Library Vol. 1 ....$9.88
Newsroom ....$14
N.R. Clip Art Vol. 1 ....$9.88
N.R. Clip Art Vol. 2 ....$9.88
N.R. Clip Art Vol. 3 ....$9.88
P.S. Graphics Expander ....$23

**SSI**
Advanced Dungeons & Dragons:
Heroes of the Lance ....$21
Dungeon Master Assistant ....$21
Battle of Antietam ....$32
B-24 ....$23
Demon's Winter ....$21
Eternal Dagger ....$26
Gettysburg ....$39
Kampfgruppe ....$39
Panzer Strike! ....$29
Phantasie 1, 2 or 3 ....$26 Ea.
Questron 2 ....$26
Rings of Zilfin ....$26




**Test Drive**

Take some of the world's most exotic cars for a ride you'll never forget in this exciting driving simulation. Authentic graphics, sterling sound, and life-like animation.

$29.95 List Price — $16.88 Ultra Saver Price

Roadwar 2000 ....$26
Roadwar Europa ....$26
Shard of Spring ....$26
Shiloh: Grant's Trial ....$26
Sons of Liberty ....$23
Typhoon of Steel ....$32
War Game Const. Set ....$21
War in S. Pacific ....$39
Warship ....$39
Wizard's Crown ....$26

**Sublogic**
Flight Simulator 2 ....$32
FS. Scenery Disks ....Call
Jet ....$26
Stealth Mission ....$32

**Taito**
Alcon ....$19
Bubble Bobble ....$23
Operation Wolf ....Call
Rastan ....$23
Renegade ....$23

**Three Sixty**
Dark Castle ....$23
Warlock ....Call

**Timeworks**
Data Manager 2 ....$14
Data Manager 128 ....$33
Evelyn Wood Reader ....$14
Partner 64® ....$25
Partner 128® ....$33
Swiftcalc/Sideways ....$19
Swiftcalc/Sideways 128 ....$33
Sylvia Porter's Personal Fin. Planner 64 ....$25
Sylvia Porter's Personal Fin. Planner 128 ....$33
Word Writer 3 ....$25
Word Writer 128 ....$33

**Unicorn**
Decimal Dungeon ....$19
Fraction Action ....$19
Percentage Panic ....$19
Race Car Rithmetic ....$19
Ten Little Robots ....$19

**Unison World**
Art Gallery 1 or 2 ....$16 Ea.
Art Gallery 3: Fantasy ....$16
Print Master Plus ....$23

**Weekly Reader**
Stickybear Series:
ABC's ....$16
Math 1 or 2 ....$16 Ea.
Numbers ....$16
Opposites ....$16
Reading ....$16
Spellgrabber ....$16
Typing ....$16

**Accessories**
Anchor 300/1200 Baud Modem ....$69
Animation Station ....$49
Bonus SS, DD ....$4.99 Bx.
Bonus DS, DD ....$5.99 Bx.
Compuserve Starter Kit ....$19
Contriver Mouse ....$33
Disk Case (Holds 75) ....$6.88
Disk Drive Cleaner ....$6.88
Epyx 200 XJ Joystick ....$12
Epyx 500 XJ Joystick ....$14
Icontroller ....$14
Suncom Joysticks ....Call
Wico Bat Handle ....$17
Wico Boss ....$12
Wico Ergostick J.S. ....$19
XETEC Super Graphix ....$59
XETEC Super Graphix Gold ....$89
XETEC Super Graphix Jr. $39

*All programs on disk unless otherwise noted.

# Software Discounters Of America

SD of A

P.O. Box 111327 — Dept. RN — Blawnox, PA 15238

©1988 SDA

- Free shipping on orders over $100 in Continental U.S.
- Your card is not charged until we ship

# Screen Basic

*If you've had a hard time programming video screens, here's a pleasant surprise!*



By JOHN RYAN

Normally, video programming on the C-64 entails a myriad of Peeks and Pokes to accomplish the simplest task, and multiple-screen processing can be a daunting challenge to even the most seasoned programmer. Screen Basic alleviates this problem by adding 13 video programming commands to Basic 2.0. These commands provide an easy-to-use programming environment that even includes multiple screens and raster interrupts.

Screen Basic runs in both Program and, to a limited degree, Direct modes. It features three separate video screens, each with semi-independent color RAM, as well as separate background and border colors, and, by setting up raster interrupts, you can display two of the screens simultaneously. The program also provides a command to copy the Commodore character set from ROM into bank 0 or 2. This, used with the Raster command, will display two full custom character sets at once. You can save, load, "grab" and "call" video screens with Screen Basic, as well as read the error channel of your disk drive—without a line full of cryptic commands.

The program in Listing 1 creates the machine language program you actually use. Type in Listing 1, using *RUN*'s Checksum program, and save it under any filename. Then run it to generate the executable machine language object code.

To load Screen Basic, enter LOAD "SB+",<device number>,1. Then enter NEW and SYS 50176 to install it in the C-64's operating system.

## The Commands

Below are explanations of all the new commands Screen Basic provides. Each command must be preceded by an @ symbol, or a syntax error will result. Also note that most of the commands require one or more parameters.

**@VIDEO <screen number>**. As I mentioned, Screen Basic provides three separate video screens. Video 1 starts at memory location 1024 ($0400), video 2 at 32768 ($8000) and video 3 at 33792 ($8400). These addresses must be used when poking information to the various screens. Print operations to the screens are handled automatically by the program.

Since there's only one memory area for color RAM information, each time you switch from one screen to another, the current color RAM is stored in memory before the switch is made. When you return to the first screen, the color is restored. This scheme ensures the integrity of your color display, regardless of the screen you're on. (See the @Type command, below, for special considerations.)

**@HUE <screen number, color number>**. The Hue command changes the background color of any video area. The colors are numbered 1–16, just as they're listed on the C-64 keyboard. If the screen specified is the current video area, the change is immediate; if not, it becomes apparent when you bank to the specified screen. (Screen Basic remembers the color of each screen.)

**@BRDER <screen number, color number>**. Use the Brder command to change the border of a screen to a specified color. The rules are the same as for the @Hue command.

**@TYPE <screen number>**. This handy command lets you print to any of the screens, regardless of which one is currently displayed. For example, by entering @TYPE 2 you can send information being printed to the video matrix starting at 32768, even if video 1 is on the screen.

Note that even though the characters are being printed to a different area of memory, color RAM for both video areas is the same. Whenever possible, you should do your printing in the same foreground color as your current screen, or use the @Raster command (below) to "hide" the color changes.

You can return to your current screen only by issuing another @Type command. @Video won't work in this instance, since your original video area won't have changed.

**@ERASE <screen number>**. The Erase command clears a specified video area without clearing the color RAM of your current screen. It's a good idea to use this command during program initialization, as the video areas may be filled with random data. It works for all video areas, regardless of the one you're currently in.

**@GRAB <screen number>**. Grab stores the screen and color information for the current video area in memory. Three distinct storage areas are set aside for this purpose, so all three screens can be stored at once. Note that the screen number must be the same as your current video area for this command to work properly, and @Grab won't store hi-res screens. (Also see @Call, next.)

**@CALL <source screen number, target screen number>**. This versatile command lets you move previously grabbed screens to any video area. By calling two or more screens in succession, you can even achieve "page flipping" animation effects. Be careful of the syntax for this command: The source number is the number of the area previously grabbed, and the target number is the screen you're calling it to (your current screen, if color RAM preservation is important—this is not a swap command).

**@RASTER <beginning scan line, ending scan line>**. This powerful com-

RUN it right: **C-64**

mand displays two screens simultaneously. The two parameters, which can range from 1 to 254, tell the program where the division between the screens should be and where to restore the first screen. For instance, @RASTER 100, 254 will display video area 1 up to scan line 100, then video area 2 to scan line 254. When the screen is divided, the background and border colors of both video areas are displayed at once.

Note that only scan lines 40–253 are visible, so anytime you use parameters 1–39 or 254, the interrupt will take place off the visible screen. Keep in mind, too, that this command can be used only while you're on video screen 1 or 2, because those are the screens the raster interrupt displays.

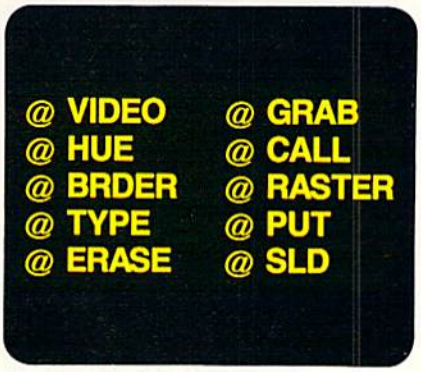
To achieve a rock-solid division, don't specify a scan line that will cut through the middle of printed screen characters. Also, if you wish to move sprites across the raster "seam," remember that two individual banks of memory are being displayed. In order to display a sprite in video bank 2, the sprite definition must also be stored in video memory from 33784, for sprite 1, to 33791, for sprite 8.

The formula for finding the sprite pointer is (storage address – 32768)/64. Thus, a sprite image stored at 40960 ($A000) would have a pointer of 128—(40960 – 32768)/64. The best place to store sprite images in bank 2 is from 40960 to 45056, if a full alternate character set is not being used, or at 33792, if video screen 3 is not being used.

Don't reinitialize Screen Basic with the Raster command activated.

**@OFF.** This command turns off the raster interrupt.

**@MEM <1 or 2>.** The @Mem command makes it easy to use custom character sets. (In fact, it's the only way you can use custom character sets with Screen Basic.) If 1 is the parameter, the character set will be copied from ROM into RAM, starting in bank 0 at location 12288 ($3000). If the parameter is 2, the set will be copied into memory starting at 40960 ($A000). With an @Raster command, you can display both sets simultaneously, as demonstrated by the program in Listing 2. Just remember to protect the bank 0 character set from Basic by lowering or raising Basic memory, if your own program is very big.




**Examples of the commands used in Screen Basic.**

To return to the standard character set, just reinitialize Screen Basic with SYS 50176.

**@PUT <"filename">.** The @Put command saves the video area you're viewing to a special disk file denoted by the suffix .scn. Both screen RAM and color RAM information is saved. Don't include the .scn in the command, because the program supplies it automatically. The device number is also supplied automaticaliy. To change it from default 8, see Program Notes, below.

**@SLD <"filename", screen number>.** This screen loading command reads a previously saved screen file from disk. With @Sld, it's easy to load several files at once when a lot of information must be presented and color RAM preservation is important. The file can be read into any video area specified after the filename, regardless of which screen was saved with the @Put command. If you specify the video area you're currently viewing, you'll see the loaded screen immediately; if not, the screen and color information will appear when you bank to the video area the screen was loaded to. As with the @Put command, don't include the .scn filename suffix in an @Sld command.

**@DISK.** Use this to view the error status of the last device accessed.

## Program Notes

Screen Basic occupies memory locations 50176–52162 ($C400–$CBC2) and uses locations 32768–50175, so both areas are unavailable for your use. The program protects these memory areas by lowering the top of Basic to 32768, which chops about 8000 bytes off the top of free Basic memory.

You can change the disk drive device number for screen loads and saves by poking 1 into location 52126.

If you use the run-stop/restore key combination on any screen but video area 1, you won't be able to see what you're typing, and the computer will seem locked up. You can get out of this by entering @TYPE 1, thus returning the screen editor to video area 1; but, better yet, disable run-stop/restore with POKE 808, 239: POKE 792, 193.

You can't use variables as parameters for any of the Screen Basic commands.

To include Screen Basic commands in a Basic program you're writing, place the following three-line routine at the beginning of your listing:

```
10 IF FLAG = 1 THEN 30
20 FLAG = 1:LOAD"SB + ",<device
   number>,1
30 SYS 50176
```

Due to the nature of video programming, I originally wrote Screen Basic to operate in Program mode only. However, after realizing that some of the commands (@Hue, @Brder) could be useful in Direct mode, I added a limited Direct Mode option. In this option, only one Screen Basic command is permitted per line, and it must be first. You can still have multiple Basic 2.0 commands in a line, as long as they follow the Screen Basic command. For example, @RASTER 1,100: PRINT "test" is legal, while PRINT "test":@HUE 1,1 and @RASTER 1,100:@HUE 1,1: @BRDER 1,1 are not. In Program mode, any combination of commands may be used. R

*John Ryan, an air traffic control instructor by profession, is a freelance computer programmer in his spare time.*

**Listing 1. Screen Basic program.**

```
Ø REM SCREEN BASIC ML DATA LIST
  ING #1 - JOHN RYAN     :REM*23
1Ø REM CHANGE DEVICE # IN LINE
   7Ø IF OTHER THAN 8  :REM*1Ø9
2Ø PRINT CHR$(147)TAB(13)"PLEAS
   E WAIT"                :REM*12
3Ø I=5Ø176:X=Ø            :REM*219
4Ø READ A:IF A=256 THEN 6Ø
                          :REM*153
5Ø POKE I,A:I=I+1:X=X+A:GOTO 4Ø
                          :REM*23
```

```
6Ø IF X<>255987 THEN PRINT CHR$
   (18)CHR$(19)TAB(8)"ERROR IN
   DATA STATEMENTS":END:REM*168
7Ø SYS 57812"SB+",8,1:POKE 193,
   Ø:POKE 194,196:POKE 174,195:
   POKE 175,2Ø3          :REM*158
8Ø SYS 62957:PRINT" SAVE COMPLE
   TE. CHECK DRIVE FOR ERRORS":
   END                   :REM*159
9Ø DATA 76,121,197,2Ø1,254,24Ø,
   4,32,26,196,96,32,17,196,169
   ,3,96,173,17          :REM*2
1ØØ DATA 2Ø8,9,128,141,17,2Ø8,9
   6,72,173,17,2Ø8,41,127,141,
   17,2Ø8,1Ø4,96         :REM*126
11Ø DATA 162,Ø,32,115,Ø,2Ø1,34,
   24Ø,11,157,16Ø,2Ø3,232,224,
   13,176,4,76,39        :REM*49
12Ø DATA 196,96,162,23,1Ø4,1Ø4,
   76,55,164,169,Ø,174,158,2Ø3
   ,16Ø,Ø,32,186         :REM*2
13Ø DATA 255,174,159,2Ø3,16Ø,Ø,
   185,154,2Ø3,157,16Ø,2Ø3,232
   ,2ØØ,192,5,2Ø8        :REM*23
14Ø DATA 244,2Ø2,138,162,16Ø,16
   Ø,2Ø3,32,189,255,96,32,89,1
   97,173,187,2Ø3        :REM*225
15Ø DATA 2Ø8,3,76,134,196,32,23
   6,2Ø1,173,123,2Ø3,24Ø,3,76,
   144,196,162,Ø         :REM*219
16Ø DATA 16Ø,4,32,165,196,176,1
   1,96,1Ø4,1Ø4,169,4,141,127,
   196,76,8Ø,198         :REM*49
17Ø DATA 1Ø4,1Ø4,169,4,141,127,
   196,76,83,198,32,121,Ø,2Ø1,
   44,2Ø8,2,24,96        :REM*76
18Ø DATA 56,96,142,188,2Ø3,14Ø,
   189,2Ø3,173,188,2Ø3,2Ø5,122
   ,2Ø3,176,1Ø,173       :REM*37
19Ø DATA 122,2Ø3,2Ø5,189,2Ø3,17
   6,2,24,96,56,96,174,1Ø6,2Ø3
   ,173,2,221,9,3        :REM*89
2ØØ DATA 141,2,221,173,24,2Ø8,4
   1,24Ø,29,132,2Ø3,141,24,2Ø8
   ,173,Ø,221,41         :REM*146
21Ø DATA 252,29,129,2Ø3,141,Ø,2
   21,173,24,2Ø8,41,15,29,135,
   2Ø3,141,24,2Ø8        :REM*212
22Ø DATA 173,183,2Ø3,24Ø,1,96,1
   89,138,2Ø3,141,136,2,96,174
   ,1Ø6,2Ø3,189,141      :REM*65
23Ø DATA 2Ø3,133,252,169,Ø,133,
   251,32,26,197,162,4,16Ø,Ø,1
   77,253,145,251        :REM*1Ø8
24Ø DATA 2ØØ,2Ø8,249,23Ø,252,23
   Ø,254,2Ø2,2Ø8,24Ø,96,169,Ø,
   133,253,169,216       :REM*238
25Ø DATA 133,254,96,165,1,9,1,1
   33,1,96,165,1,41,254,133,1,
   96,174,1Ø6,2Ø3        :REM*122
26Ø DATA 189,141,2Ø3,133,252,16
   9,Ø,133,251,32,26,197,32,42
   ,197,162,4,16Ø,Ø      :REM*66
27Ø DATA 177,251,145,253,2ØØ,2Ø
   8,249,23Ø,252,23Ø,254,2Ø2,2
   Ø8,24Ø,32,35,197      :REM*151
28Ø DATA 96,162,Ø,142,187,2Ø3,3
   2,115,Ø,2Ø1,48,144,14,2Ø1,5
   8,176,1Ø,157,113      :REM*171
29Ø DATA 2Ø3,232,238,187,2Ø3,76
   ,94,197,169,Ø,157,113,2Ø3,9
   6,169,76,133,124      :REM*189
3ØØ DATA 169,17Ø,133,125,169,19
   7,133,126,169,4,141,133,2Ø3
   ,169,Ø,141,176        :REM*152
31Ø DATA 2Ø3,32,218,2Ø1,169,4,1
   41,132,2Ø3,141,133,2Ø3,169,
   Ø,133,51,133,55       :REM*55
32Ø DATA 169,128,133,52,133,56,
   32,94,166,96,141,52,3,165,5
   8,2Ø1,255,2Ø8,15      :REM*229
33Ø DATA 173,52,3,2Ø1,64,2Ø8,18
   ,2Ø5,Ø,2,2Ø8,13,76,2Ø1,197,
   173,52,3,2Ø1,64       :REM*11Ø
34Ø DATA 2Ø8,3,76,227,197,173,5
   2,3,2Ø1,58,176,15,2Ø1,32,2Ø
   8,5,173,1Ø5,2Ø3       :REM*132
35Ø DATA 2Ø8,6,173,52,3,76,128,
   Ø,96,142,53,3,14Ø,54,3,16Ø,
   Ø,14Ø,187,2Ø3,32       :REM*92
36Ø DATA 115,Ø,32,121,Ø,56,249,
   237,2Ø2,24Ø,6,2ØØ,192,13,2Ø
   8,242,96,185,46       :REM*197
37Ø DATA 2Ø3,14Ø,187,2Ø3,168,18
   5,25Ø,2Ø2,141,1Ø4,2Ø3,162,Ø
   ,238,1Ø5,2Ø3,2ØØ      :REM*195
38Ø DATA 32,115,Ø,56,249,25Ø,2Ø
   2,24Ø,4,2Ø6,1Ø5,2Ø3,96,232,
   236,1Ø4,2Ø3,2Ø8        :REM*91
39Ø DATA 236,169,Ø,141,1Ø5,2Ø3,
   173,187,2Ø3,17Ø,189,59,2Ø3,
   17Ø,189,72,2Ø3        :REM*217
4ØØ DATA 133,253,232,189,72,2Ø3
   ,133,254,1Ø8,253,Ø,174,53,3
   ,172,54,3,76,115      :REM*4
41Ø DATA Ø,32,1Ø2,196,76,88,198
   ,76,8,175,162,14,76,55,164,
   2Ø6,122,2Ø3,173       :REM*89
42Ø DATA 122,2Ø3,2Ø5,1Ø6,2Ø3,2Ø
   8,3,76,121,Ø,173,122,2Ø3,2Ø
   1,2,2Ø8,8,173         :REM*26
43Ø DATA 176,2Ø3,16,3,76,83,198
   ,32,248,196,173,122,2Ø3,141
   ,1Ø6,2Ø3,32,191       :REM*57
44Ø DATA 196,12Ø,165,1,41,253,1
   33,1,32,49,197,165,1,9,2,13
   3,1,88,174,1Ø6        :REM*1Ø1
45Ø DATA 2Ø3,189,1Ø7,2Ø3,141,33
   ,2Ø8,189,11Ø,2Ø3,141,32,2Ø8
   ,169,13,32,21Ø        :REM*119
46Ø DATA 255,76,121,Ø,169,33,13
   3,253,169,1Ø7,133,247,169,2
   Ø3,133,248,76         :REM*2Ø7
47Ø DATA 196,198,169,32,133,253
   ,169,11Ø,133,247,169,2Ø3,13
   3,248,169,2Ø8         :REM*247
48Ø DATA 133,254,32,1Ø2,196,173
   ,122,2Ø3,141,19Ø,2Ø3,32,154
   ,196,144,3,76,8Ø      :REM*214
49Ø DATA 198,32,89,197,173,187,
   2Ø3,2Ø8,3,76,8Ø,198,32,236,
   2Ø1,173,123,2Ø3       :REM*187
5ØØ DATA 24Ø,3,76,83,198,162,Ø,
   16Ø,17,32,165,196,144,3,76,
   83,198,172,19Ø        :REM*85
51Ø DATA 2Ø3,136,2Ø6,122,2Ø3,17
   3,122,2Ø3,145,247,2Ø4,1Ø6,2
   Ø3,2Ø8,4,16Ø,Ø        :REM*23
52Ø DATA 145,253,76,121,Ø,32,1Ø
   2,196,174,122,2Ø3,2Ø2,189,1
   38,2Ø3,141,136,2      :REM*151
53Ø DATA 169,13,32,21Ø,255,76,1
   21,Ø,32,1Ø2,196,174,122,2Ø3
   ,2Ø2,189,59,2Ø3       :REM*215
54Ø DATA 17Ø,189,98,2Ø3,133,253
   ,232,189,98,2Ø3,133,254,162
   ,4,16Ø,Ø,169,32       :REM*241
55Ø DATA 145,253,23Ø,253,2Ø8,25
   Ø,23Ø,254,2Ø2,2Ø8,243,76,12
   1,Ø,32,1Ø2,196        :REM*77
56Ø DATA 174,122,2Ø3,2Ø2,189,13
   8,2Ø3,133,168,169,Ø,133,167
   ,133,249,133,251      :REM*14Ø
57Ø DATA 189,59,2Ø3,17Ø,189,144
   ,2Ø3,133,25Ø,232,189,144,2Ø
   3,133,252,32,191      :REM*244
58Ø DATA 199,32,4,197,76,121,Ø,
   32,1Ø2,196,174,122,2Ø3,2Ø2,
   142,185,2Ø3,32        :REM*227
59Ø DATA 154,196,144,3,76,8Ø,19
   8,32,1Ø2,196,174,122,2Ø3,2Ø
   2,189,138,2Ø3         :REM*149
6ØØ DATA 133,25Ø,174,185,2Ø3,18
   9,59,2Ø3,17Ø,189,144,2Ø3,13
   3,168,232,189         :REM*241
61Ø DATA 144,2Ø3,133,252,169,Ø,
   133,249,133,167,133,251,32,
   191,199,32,61         :REM*91
62Ø DATA 197,76,121,Ø,32,42,197
   ,162,4,16Ø,Ø,177,167,145,24
   9,2ØØ,2Ø8,249         :REM*212
63Ø DATA 23Ø,25Ø,23Ø,168,2Ø2,2Ø
   8,24Ø,32,35,197,96,32,115,Ø
   ,2Ø1,34,24Ø,3,76      :REM*8
64Ø DATA 8Ø,198,32,37,196,142,1
   59,2Ø3,32,65,196,32,7,2ØØ,1
   69,136,133,168        :REM*7
65Ø DATA 169,Ø,133,167,169,Ø,32
   ,144,255,16Ø,144,162,Ø,169,
   167,32,216,255        :REM*177
66Ø DATA 76,115,Ø,174,1Ø6,2Ø3,1
   89,138,2Ø3,133,168,169,216,
   133,252,169,136       :REM*93
67Ø DATA 133,25Ø,169,Ø,133,249,
   133,251,133,167,162,4,16Ø,Ø
   ,177,167,145,249      :REM*49
68Ø DATA 2ØØ,2Ø8,249,23Ø,25Ø,23
   Ø,168,2Ø2,2Ø8,24Ø,162,4,16Ø
   ,Ø,177,251,145        :REM*168
69Ø DATA 249,2ØØ,2Ø8,249,23Ø,25
   Ø,23Ø,252,2Ø2,2Ø8,24Ø,96,32
   ,115,Ø,2Ø1,34         :REM*21Ø
7ØØ DATA 24Ø,3,76,8Ø,198,32,37,
   196,142,159,2Ø3,32,115,Ø,32
   ,154,196,144,3        :REM*49
71Ø DATA 76,8Ø,198,32,1Ø2,196,1
   74,122,2Ø3,2Ø2,189,138,2Ø3,
   133,25Ø,169,136       :REM*65
72Ø DATA 133,168,174,122,2Ø3,2Ø
   2,236,1Ø6,2Ø3,24Ø,8,189,141
   ,2Ø3,133,252,76       :REM*138
73Ø DATA 132,2ØØ,169,216,133,25
   2,169,Ø,133,249,133,167,133
   ,251,32,65,196        :REM*16
74Ø DATA 169,Ø,32,144,255,169,Ø
   ,162,Ø,16Ø,136,32,213,255,1
   62,4,16Ø,Ø,177        :REM*127
```

```
75Ø DATA 167,145,249,2ØØ,2Ø8,24
    9,23Ø,168,23Ø,25Ø,2Ø2,2Ø8,2
    4Ø,162,4,16Ø,Ø      :REM*218
76Ø DATA 177,167,145,251,2ØØ,2Ø
    8,249,23Ø,168,23Ø,252,2Ø2,2
    Ø8,24Ø,169,13,32    :REM*238
77Ø DATA 21Ø,255,76,121,Ø,169,2
    55,141,127,196,32,1Ø2,196,1
    74,122,2Ø3,142      :REM*9
78Ø DATA 18Ø,2Ø3,32,154,196,144
    ,3,76,8Ø,198,32,1Ø2,196,174
    ,122,2Ø3,142,179    :REM*54
79Ø DATA 2Ø3,169,4,141,127,196,
    169,255,141,176,2Ø3,12Ø,169
    ,28,141,2Ø,3,169    :REM*5Ø
8ØØ DATA 2Ø1,141,21,3,169,27,14
    1,17,2Ø8,173,179,2Ø3,32,3,1
    96,141,18,2Ø8       :REM*1Ø3
81Ø DATA 169,1,141,26,2Ø8,141,2
    5,2Ø8,169,127,141,13,22Ø,88
    ,76,121,Ø,173,25    :REM*96
82Ø DATA 2Ø8,141,25,2Ø8,173,184
    ,2Ø3,73,1,141,184,2Ø3,17Ø,1
    89,179,2Ø3,32,3     :REM*94
83Ø DATA 196,141,18,2Ø8,224,1,2
    Ø8,23,238,183,2Ø3,162,Ø,32,
    2Ø2,196,189,1Ø7     :REM*214
84Ø DATA 2Ø3,141,33,2Ø8,189,11Ø
    ,2Ø3,141,32,2Ø8,76,99,2Ø1,2
    38,183,2Ø3,162,1    :REM*236
85Ø DATA 32,2Ø2,196,189,1Ø7,2Ø3
    ,141,33,2Ø8,189,11Ø,2Ø3,141
    ,32,2Ø8,169,Ø       :REM*69
86Ø DATA 141,183,2Ø3,173,13,22Ø
    ,41,1,24Ø,3,76,49,234,76,18
    8,254,12Ø,169,49    :REM*39
87Ø DATA 141,2Ø,3,169,234,141,2
    1,3,173,26,2Ø8,41,254,141,2
    6,2Ø8,169,129       :REM*51
88Ø DATA 141,13,22Ø,88,169,Ø,14
    1,176,2Ø3,32,115,Ø,76,126,1
    98,169;Ø,32,189     :REM*26
89Ø DATA 255,169,15,166,186,16Ø
    ,15,32,186,255,32,192,255,1
    62,15,32,198,255    :REM*87
9ØØ DATA 32,2Ø7,255,2Ø1,2Ø,144,
    2Ø,32,21Ø,255,32,2Ø7,255,2Ø
    1,Ø,24Ø,1Ø,2Ø1      :REM*95
91Ø DATA 13,24Ø,6,32,21Ø,255,76
    ,185,2Ø1,32,2Ø4,255,169,15,
    32,195,255,169      :REM*236
92Ø DATA 13,32,21Ø,255,76,115,Ø
    ,162,Ø,169,1,157,Ø,224,157,
    Ø,228,157,Ø,232     :REM*13
93Ø DATA 96,232,2Ø8,243,96,16Ø,
    Ø,169,113,133,251,169,2Ø3,1
    33,252,177,251      :REM*39
94Ø DATA 24Ø,4,2ØØ,76,246,2Ø1,1
    4Ø,121,2Ø3,136,169,Ø,141,12
    2,2Ø3,141,123       :REM*218
95Ø DATA 2Ø3,162,1,142,126,2Ø3,
    177,251,41,15,141,124,2Ø3,1
    41,127,2Ø3,169,Ø    :REM*53
96Ø DATA 141,125,2Ø3,141,128,2Ø
    3,2Ø2,24Ø,18,32,7Ø,2Ø2,173,
    124,2Ø3,141,127     :REM*241
97Ø DATA 2Ø3,173,125,2Ø3,141,12
    8,2Ø3,76,33,2Ø2,238,126,2Ø3
    ,174,126,2Ø3,32     :REM*252
98Ø DATA 1Ø9,2Ø2,136,2Ø6,121,2Ø
    3,2Ø8,2Ø2,96,24,14,124,2Ø3,
    46,125,2Ø3,14       :REM*193
99Ø DATA 124,2Ø3,46,125,2Ø3,24,
    173,127,2Ø3,1Ø9,124,2Ø3,141
    ,124,2Ø3,173        :REM*2Ø5
1ØØØ DATA 128,2Ø3,1Ø9,125,2Ø3,1
    41,125,2Ø3,14,124,2Ø3,46,1
    25,2Ø3,96,24,173    :REM*33
1Ø1Ø DATA 124,2Ø3,1Ø9,122,2Ø3,1
    41,122,2Ø3,173,125,2Ø3,1Ø9
    ,123,2Ø3,141,123    :REM*16Ø
1Ø2Ø DATA 2Ø3,96,169,3,141,127,
    196,32,1Ø2,196,169,4,141,1
    27,196,174,122      :REM*11Ø
1Ø3Ø DATA 2Ø3,2Ø2,189,59,2Ø3,17
    Ø,189,15Ø,2Ø3,133,249,232,
    189,15Ø,2Ø3,133     :REM*192
1Ø4Ø DATA 25Ø,169,Ø,133,167,169
    ,2Ø8,133,168,12Ø,165,1,41,
    251,133,1,162,16    :REM*113
1Ø5Ø DATA 16Ø,Ø,177,167,145,249
    ,2ØØ,2Ø8,249,23Ø,168,23Ø,2
    5Ø,2Ø2,2Ø8,24Ø      :REM*19Ø
1Ø6Ø DATA 165,1,9,4,133,1,174,1
    22,2Ø3,2Ø2,189,177,2Ø3,157
    ,132,2Ø3,173,122    :REM*98
1Ø7Ø DATA 2Ø3,2Ø1,2,2Ø8,5,173,1
    Ø6,2Ø3,24Ø,11,173,24,2Ø8,4
    1,24Ø,29,132,2Ø3    :REM*236
1Ø8Ø DATA 141,24,2Ø8,88,76,121,
    Ø,86,72,66,84,69,71,67,8Ø,
    83,82,79,68,77,4    :REM*176
1Ø9Ø DATA 73,68,69,79,2,85,69,4
    ,82,68,69,82,3,89,8Ø,69,4,
    82,65,83,69,3,82    :REM*2Ø
11ØØ DATA 65,66,3,65,76,76,2,85
    ,84,2,76,68,5,65,83,84,69,
    82,2,7Ø,7Ø,3,73     :REM*114
111Ø DATA 83,75,2,69,77,Ø,5,8,1
    3,17,22,26,3Ø,33,36,42,45,
    49,Ø,2,4,6,8,1Ø     :REM*63
112Ø DATA 12,14,16,18,2Ø,22,24,
    74,198,169,198,184,198,19,
    199,4Ø,199,82       :REM*47
113Ø DATA 199,126,199,216,199,6
    8,2ØØ,2Ø1,2ØØ,117,2Ø1,153,
    2Ø1,129,2Ø2,Ø,4     :REM*146
114Ø DATA Ø,128,Ø,132,Ø,Ø,Ø,6,1
    ,Ø,14,1,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,
    Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø  :REM*Ø
115Ø DATA 3,1,1,4,4,4,16,Ø,16,4
    ,128,132,224,228,232,144,1
    48,152,176,18Ø      :REM*237
116Ø DATA 184,Ø,48,Ø,16Ø,46,83,
    67,78,8,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,
    Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø  :REM*251
117Ø DATA Ø,12,8,Ø,Ø,Ø,Ø,Ø,Ø,Ø,
    Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,256
                        :REM*159
```

**Listing 2. Demo program.**

```
1Ø REM SCREEN BASIC DEMO
                        :REM*21Ø
2Ø SYS 5Ø176:@OFF:@VIDEO1:@MEM2
   :@MEM1:@ERASE 1:@ERASE2:PRIN
   T CHR$(154)          :REM*4Ø
3Ø FOR A=12288 TO 12288+512:POK
   E A,PEEK(A+2Ø48):NEXT
                        :REM*212
4Ø @HUE 1,2:@HUE 2,2:@BRDER 1,7
   :@BRDER 2,7:@RASTER 1,145:@T
   YPE2                 :REM*72
5Ø X=9:Y=2:GOSUB 29Ø:PRINT"THIS
    IS A RASTER INTERRUPT USING
    TWO"                :REM*224
6Ø PRINT TAB(3)"CHARACTER SETS.
    THIS IS SET #1"     :REM*124
7Ø @TYPE1:X=13:Y=8:GOSUB 29Ø:PR
   INT"THIS IS CHARACTER SET #2
   "                    :REM*24
8Ø GOSUB 28Ø            :REM*171
9Ø @OFF:@HUE 1,1:@HUE 2,7:@BRDE
   R 2,7:SYS 5Ø176:@RASTER 1Ø4,
   2ØØ:@ERASE 2         :REM*177
1ØØ @BRDER 1,1:@TYPE2   :REM*196
11Ø X=1Ø:Y=3:GOSUB 29Ø:PRINT"TH
   IS IS A NORMAL RASTER INTER
   RUPT":GOSUB 28Ø      :REM*254
12Ø @HUE 2,7:@BRDER 1,7:@RASTER
    56,254:@TYPE1       :REM*42
13Ø PRINTCHR$(19)CHR$(5)"THIS I
   S YET ANOTHER INTERRUPT USE
   .":GOSUB 28Ø         :REM*134
14Ø @OFF:@ERASE1        :REM*38
15Ø OPEN 15,8,15,"S0:TEST.SCN"
                        :REM*61
16Ø CLOSE15             :REM*67
17Ø M=55296:I=1Ø24:J=1Ø:C=1:
                        :REM*244
18Ø FOR A=Ø TO 39:POKE I+A,16Ø:
   POKE M+A,C:NEXT      :REM*2ØØ
19Ø I=I+4Ø:M=M+4Ø:C=C+1:J=J-1:I
   F J<>ØTHEN 18Ø       :REM*6Ø
2ØØ @GRAB1:X=13:Y=1:GOSUB 29Ø:P
   RINT"THIS IS VIDEO SCREEN #
   1, WHICH CAN BE"     :REM*186
21Ø PRINT" GRABBED AND BROUGHT
   TO ..."              :REM*112
22Ø GOSUB 28Ø:@VIDEO2:@CALL 1,2
                        :REM*117
23Ø X=12:Y=12:GOSUB 29Ø:PRINTCH
   R$(18)"VIDEO SCREEN #2":GOS
   UB 28Ø               :REM*82
24Ø PRINT:PRINT TAB(6)" SAVING
   VIDEO SCREEN TWO...":REM*27
25Ø @PUT"TEST":@ERASE3:@HUE 3,1
   4                    :REM*42
26Ø @VIDEO3:X=2:Y=3:GOSUB 29Ø:P
   RINT"NOW LOADING SCREEN #2
   TO SCREEN #3"        :REM*173
27Ø @SLD"TEST",3:X=19:Y=Ø:GOSUB
    29Ø:GOSUB 28Ø:@VIDEO1:PRIN
   T CHR$(147):END      :REM*6
28Ø PRINT:PRINT TAB(13)"PRESS A
   NY KEY":POKE 198,Ø:WAIT 198
   ,1:RETURN            :REM*65
29Ø POKE 781,X:POKE 782,Y:POKE
   783,Ø:SYS 6552Ø:RETURN
                        :REM*44
```

■

# COMMODORE CLINIC

*Discover how you can access the 80-column chip through Basic, connect a 1702 monitor to a VCR or copy single programs from ReRUN disks.*

By LOU WALLACE

**Q** *You mentioned in your July Clinic that the 1702 makes an excellent monitor for a VCR system. Exactly how would one connect them together? Also, how can I copy single programs from the ReRUN disk to another disk, so I can have all games on one disk, utilities on another, etc?*

—GEORGE GOODWIN
COCOA BEACH, FL

**A** Exactly how to connect them will depend on your particular system. On mine, I connected the two (using a pair of gold-plated shielded RCA cables) from the video-out plugs on the VCR to the front (not the back) connections on the 1702. In this way, I can use the 1702 as a TV, with the VCR supplying the tuner.

As for copying files, no problem. On the 1541/1571 Test Demo disk is a two-drive copy program by Jim Butterfield that will do the job for you. The 1571 Test Demo (for C-128 owners) has the DOS Shell program, which will make single-drive file-copying a snap. If you have a C-64 with a single 1541, you'll need to get another single-drive file copier, many of which are available in the public domain.

*RUN* published a C-64 version of the DOS Shell (November 1987), and our recently released RUN Works disk contains a version called RUN Shell, which works on a 64 or 128 (40- or 80-Column mode), and will work with one or more drives, including the 1541, 1571 and 1581. It also supports the 1700, 1750 and 1764 RAM Expansion Units as RAM drives. It's a program I recommend.

**Q** *As I understand it, the VIC-II chip occupies 1048 bytes of the C-64 memory map and consists of 47 registers each. What are the remaining 1001 bytes for? Also, is the VIC-II a ROM or RAM chip?*

—S. E. FELLERMAN
KENSINGTON, MD

**A** You are correct. The VIC-II chip consists of 47 registers, no more. And yes, it does have an extended addressing space (53248–54271). But the way the computer hardware mapping is set up, addresses of 53295 ($D02F) and above are just duplicates of the original 47 registers. Writing to them has the same effect as would writing to the first 47 registers. The VIC is neither RAM nor ROM. It's a controller device designed to create the various video displays the C-64 (or C-128) can produce.

**Q** *I want to program my C-128's 80-column screen. I can handle Basic 7.0, but machine language is beyond me. Is there any way to access the 80-column chip through Basic?*

—TED KROLL
SPRINGFIELD, MA

**A** There are several ways. While Basic 7.0 does not support the 80-column display with its graphics commands, you can still use the Print command combined with the Window command, character graphics, embedded color and cursor quote-mode commands and the extra 80-column character attributes of underlining (CHR$(2) or CTRL/B) and flashing (CHR$(15) or CTRL/O) to generate a wide variety of 80-column displays.

Also, even if you aren't a machine language programmer, you can still access the 8563 VDC chip (the 80-column chip) from Basic, using some of the built-in ROM routines (make sure BANK 15 is in context with the BANK command). The most important routine for this can be found at $CDCC. This routine will let you store a number (0–255) into any of the VDC's registers. The syntax is:

```
SYS DEC("CDCC"),Value,Register
```

If you want to read the contents of a VDC register, use this command:

```
SYS DEC("CDDA"),0,REGISTER NUMBER:
  RREG A
```

With these two commands, you can return the contents of any of the registers to a variable (I used A in this case). The zero in the first part is a dummy variable, which can be any value.

You can use these to experiment with the C-128's 80-column display. For example, if you wanted to turn on Bit-mapped Graphics mode, you'd set bit 7 of register 25 like this:

```
SYS DEC("CDCC"),128,25
```

You can return to Text mode with:

```
SYS DEC("CDCC"),64,25
```

The 8563 VDC has 37 registers for you to play with, so there are a lot of new things to discover about it. Have fun!

**Q** *I typed in RUN Copy, (*RUN, *February 1988) using* RUN's *Checksum program, and everything checked out okay. But whenever I try to run the program, my disk light blinks and the computer locks up. Am I doing something wrong?*

—ERNEST WILSON
LANTZ, NOVA SCOTIA, CANADA

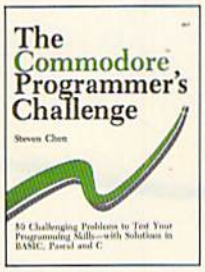
**A** The RUN Copy listing is a form of Basic loader that uses hexadecimal Data statements. The listing you typed in was not RUN Copy, but rather a program that *created* a file called RUN Copy on your disk. From your description, my guess is that you saved the first program you typed in with the filename RUNCOPY. So, when you ran the listing, it tried to create the real RUN Copy file. Instead, it encountered the Basic listing you named RUNCOPY, and it generated a File Exists error.

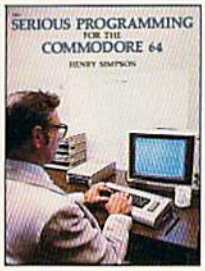
If that's the case, the simplest way to correct the problem is to rename the Basic loader you typed in, using, for example, RUNCOPY.BAS. Assuming the disk is in drive 8, use this command to rename the file:

```
OPEN 15,8,15,"R0:RUNCOPY.BAS = 0:
  RUNCOPY":CLOSE 15
```

This will change the filename to something other than RUNCOPY. Now load and run RUNCOPY.BAS. If you typed it in correctly, your drive should run for a time while the new file is being generated on your disk. When it finishes, you can then load and run the real RUN Copy program. ■

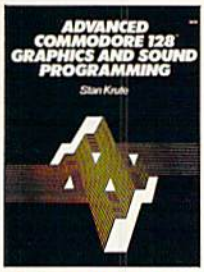
# Push Your Computer to its Limits With New Ideas from TAB's Commodore Library

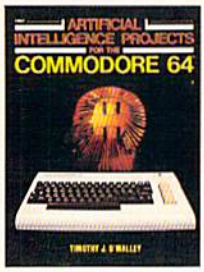


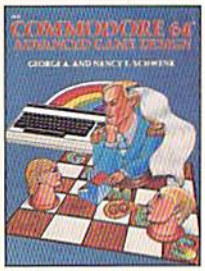










☐ **THE COMMODORE™ PROGRAMMER'S CHALLENGE: 50 Challenging Programs to Test Your Programming Skills—With Solutions in BASIC, Pascal, and C** *by S. Chen.* Expand your programming expertise. *240 pp./163 illus.*, **No. 2817P, $14.95**

☐ **SERIOUS PROGRAMMING FOR THE COMMODORE 64™** *by H. Simpson. ". . . outlines good programming techniques as well as helping you get the most out of the C64 . . ."*—**Rainbo Electronic Reviews.** *208 pp./50 illus.*, **No. 1821P, $10.95**

☐ **COMMODORE 128™ BASIC: Programming Techniques** *by M. Hardee.* Over 50 programs yield a wide range of applications. *192 pp./120 illus.*, **No. 2732H, $18.95**

☐ **ADVANCED COMMODORE 128™ GRAPHICS AND SOUND PROGRAMMING** *by S. Krute.* Create high-performance graphics and sound—includes complete source code for two programs. *416 pp./72 illus.*, **No. 2630H, $21.95**

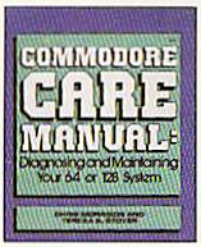
☐ **ARTIFICIAL INTELLIGENCE PROJECTS FOR THE COMMODORE 64™** *by T.J. O'Malley.* Explore artificial intelligence with the 16 BASIC programs in this book. *160 pp./9 illus.*, **No. 1883P, $12.95**

☐ **COMMODORE 64™ ADVANCED GAME DESIGN** *by G.A. and N.E. Schwenk.* Create exciting games for fun or profit—features three full-length games. *144 pp./16 illus.*, **No. 1923P, $10.95**



















☐ **COMMODORE 128™ DATA FILE PROGRAMMING** *by D. Miller.* This collection of file-handling techniques and shortcuts takes advantage of the 128's special capabilities. *300 pp./12 illus.*, **No. 2805H, $21.95**

☐ **TROUBLESHOOTING AND REPAIRING YOUR COMMODORE 64™** *by A. Margolis. "With the complete set of schematics and many well placed illustrations, this is an excellent book"*—**Online Today.** *368 pp./250 illus.*, **No. 1889H, $22.95**

☐ **COMMODORE CARE MANUAL: Diagnosing and Maintaining Your 64 or 128 System** *by C. Morrison and T.S. Stover.* Details preventive maintenance, problem diagnostics, and simple repairs. *227 pp./101 illus.*, **No. 3141P, $16.95**

☐ **FLIGHT SIMULATOR AND FLIGHT SIMULATOR II: 82 Challenging New Adventures** *by D. Prochnow.* Transform your Commodore 64/128™ into an aircraft—go barnstorming, fly with W.W.1 aces, and more. *224 pp./91 illus.*, **No. 2862P, $12.95**

☐ **GUNSHIP: 82 Challenging New Adventures** *by D. Prochnow.* Simulate the thrills and chills of a helicopter at war with your Commodore 64/128™. *208 pp./83 illus.*, **No. 3032P, $12.95**

☐ **JET: 82 Challenging New Adventures** *by D. Prochnow.* Fly exciting new jet fighter adventures using SubLOGIC's best-selling jet simulator and your Commodore 64/128™. *208 pp./108 illus.*, **No. 2872P, $12.95**







☐ **TROUBLESHOOTING AND REPAIRING YOUR COMMODORE 128™** *by A. Margolis.* A troubleshooting flowchart, chip location guide, master schematic, servicing manual and more prepare you to solve most computer problems. *448 pp./327 illus.*, **No. 3099H, $27.95**

☐ **1001 THINGS TO DO WITH YOUR COMMODORE 128™** *by M. Sawusch and D. Prochnow.* Games, household records, investment analysis, and more. It's all here in a treasury of practical and fun ideas. *208 pp./105 illus.*, **No. 2756P, $12.95**

## TOLL-FREE ORDERING
## 1-800-343-0728
Ask for the TAB BOOKS operator.

**SATISFACTION GUARANTEED**

If you are not completely satisfied with the books you receive you may return it (them) within 15 days for a complete refund—no questions asked!

☐ Check/money order made payable to TAB BOOKS Inc

Charge my ☐ VISA ☐ MasterCard ☐ American Express

Acct. No. _____ Exp. _____

Signature _____

Name _____

Address _____

City _____

State/Zip _____

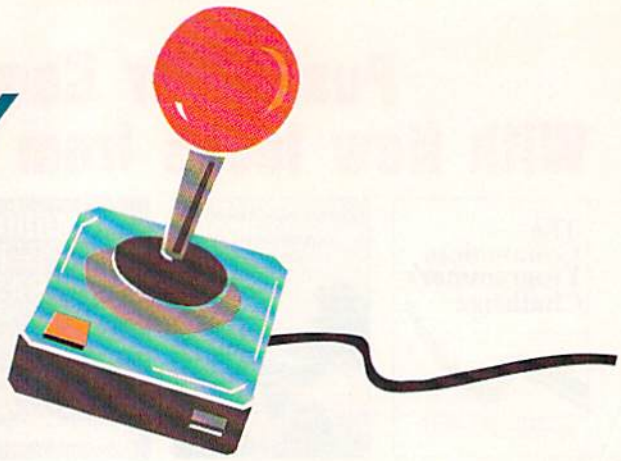
*PA, NY, and ME residents add applicable sales tax. Orders subject to credit approval. Prices subject to change.*

**Call toll-free or mail this ad to:**
TAB BOOKS Inc., Blue Ridge Summit, PA 17294-0840

RM19

# GAMES GALLERY

By LOU WALLACE



*Let the games begin!*

*Whether you're into arcade games, adventure games, strategies or simulations, tune in each month to this column for reviews, game-playing hints and insights into the companies and programmers who bring you some of the hottest entertainment in the games market. We kick off our column with a look at a genre of fast-action games that provide an up-to-date twist on an old theme.*

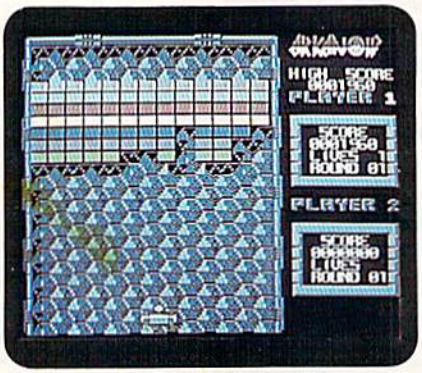
If you stretch your memory back to the prehistoric days before personal computers, you might remember a game called Breakout. Created for the cartridge-based game machines of the 1970s, it was an exceptionally successful game idea. The object was to keep a bouncing ball in motion while it slowly chipped away at layers of little blocks, eventually to "break out" and get behind them, whereupon you could rack up huge numbers of points in a few seconds. While it's basically a simple concept, somehow it hit a nerve with arcade gamers, and we played it over and over.

I remember saving the money my wife graciously allowed me for lunch so I could finally buy one of those game machines. Finally, I had enough money. The machine I selected came from Sears, and, incredibly, had built into it a total of seven variations of Breakout. I played those games for months, until I was recognized (in my household, at least) as the greatest Breakout player in all the known universe.

A lot of time and electronic evolution has gone by since then, so I have to admit that I was surprised by the wide current interest in Breakout-style games. Taito's Arkanoid was a huge commercial success as a stand-alone arcade game, and it's no wonder they've transported it to the C-64 (and other personal computers).

Mindscape subsequently released Blockbuster, another game in the Breakout tradition, and this month I'll take a quick, comparative look at these two games. Just for fun, I'll also look at two Breakout clones that are in the public domain, which means you're free to copy and distribute them to your friends. The results might surprise you.

Arkanoid has received rave reviews all year, and with good reason. The game is a great example of what can be done on a C-64 when you put talented




**With its high quality of graphics and sound, Arkanoid is the clear winner.**

programmers and artists on a project. The graphics are colorful, the sounds are excellent, and the speed of the animation is fast and fluid. It also has 33 different levels, enough to keep you busy for quite a while. Most important, it supports a variety of controllers, including the keyboard, joystick, paddles and the 1351 mouse. It's a pleasure to use, especially when played with the mouse, and I wish more companies would support it.

Arkanoid offers the same basic game idea as traditional Breakout games, but the layout used for the bricks is different with each level. It also offers a couple of new twists.

One is that "energy blocks" drop at certain times in the game. There are seven types of these blocks, which you must collect with your paddle to produce different results. For example, one makes your paddle longer; another slows the speed of the ball; still another gives you a laser you can use to destroy more blocks. There's a fourth that gives you three balls, which allows you to hit more bricks; but of course it's tougher to follow all three.

The other twist is that odd-shaped creatures appear and work down toward you. If these are hit by your ball, they will deflect it in another direction.

Blockbuster has even more levels than Arkanoid. It starts off with 80 different screens, and has an additional option for you to create 48 custom screens. You can use either the keyboard or joystick, but unfortunately there is no option for either mouse or paddle. That's too bad, for I found the joystick unwieldy and difficult to use.

Blockbuster's graphics are good, but they're not as high in quality as those of Arkanoid. The background is quite dynamic, sporting a fast-moving starfield. While they're novel, I quickly began to dislike those moving stars as unnecessary distractions. Again, while the sound effects are adequate, they're not as good as Arkanoid's.

Blockbuster doesn't have energy blocks, but it does have something similar. When you shoot some bricks, they drop little U-shaped tokens that you can catch and use to "purchase" one or more of the nine weapons and enhancements available. Some of these, such as paddle elongation, lasers and ball slowdown, are similar to those in Arkanoid, but others are entirely different. These include a Torch option, which shows hidden bricks, smart bombs that zap ►

# UTILITIES UNLIMITED, Inc.

12305 N.E. 152nd Street
Brush Prairie, Washington 98606

*Orders taken 24 hrs. a day; seven days a week.*

If you wish to place your order by phone please call **206-254-6530**. Add $3.00 shipping & handling; $2.00 for COD on all orders. Visa, M/C accepted. Dealer Inquiries Invited.

***WORLD'S BIGGEST PROVIDER OF C64/128 UTILITIES***

**Software Submissions Invited**
We are looking for HACKER STUFF: print utilities, parameters, telecommunications, and the unusual.
***We now have over 1,000 parameters in stock!***

Ad copy by RWS Ind.

## SUPER PARAMETERS 1000 Pack #1

Utilities Unltd has done it again!! We have consolidated and lowered the prices on the most popular parameters on the market . . . SuperParameters, now you can get 1000 parameters and our 64/128 nibbler package for just $39.95!!! This is a complete 10 disk set, that includes every parameter we have produced.

## SUPER PARAMETERS 500 Pack #1 and #2

**500 Pack #1 - $24.95** has the vintage parameters on it that no one else has. This pack comes in a 5-disk set.
**500 Pack #2 - $29.95** has all the most current parameters on it. And put together as only Utilities Unltd. can. All Super Parameter Packs are completely menu driven, fast and reliable. Included on both 500 Packs is our state-of-the-art 64/128 Super Nibbler at no extra charge.

**OVER 5000 UNITS SOLD.**
*IF ANYTHING CAN COPY EVERYTHING, THEN THIS IS IT!*

## SUPERCARD $44.95

Unlike our competitors, we at Utilities Unltd. have been concentrating all our time and effort in developing the latest technology, not on putting third party software in our product line. SuperCard is the product of all that effort. SuperCard is simply the most effective way to back up the latest software releases. It's fast (you can backup an unprotected disk in as little as eight, that's right — 8, seconds. SuperCard works with 1 or 2 1541s and, if you have one, a Ram expander. They say that imitation is the greatest form of flattery. Well, SuperCard is at the forefront, and on the cutting edge of this technology. The cheap imitations are already hitting the streets. There is even one well-known software developer that has produced similar hardware, and then suggests that you steal our software to make their board work. BEWARE. U.U.Inc. will see to it that our software does not work with that cheap imitation!!! U.U.Inc. guarantees that SuperCard will outperform any and all backup utilities on the market or we will gladly refund your purchase price. If there is something you are not able to back up, please call and we will let you know if SuperCard will do it.

## THE FINAL CARTRIDGE III versus super snap shot

The Cartridge war heat up. Well folks, here's the real story!!! In their latest ad, our competition claims they are getting better reviews. Well, that's partly true . . . but mostly false. First of all, they are comparing reviews written about the old Final Cartridge and not the current version III. We at Utilities Unlimited Inc. are so sure that you would choose The Final Cartridge over that other one we make the following offers:

For those of you who bought the super snap shot believing that you were buying the best, then saw the Final Cartridge III, **we offer you $30.00 for your super snap shot, as a trade in for the BEST . . . The Final Cartridge III.**

Every Final Cartridge III now includes many features not found in super snap shot, as well as our newest 64/128 nibbler and 100 Super Parameters.

(NOW W/CLOCK) Still only **$54.95**

**SIMILAR PRODUCTS MAY APPEAR ELSEWHERE LATER; JUST REMEMBER YOU SAW THEM HERE FIRST!!**

## PARAMETERS CONSTRUCTION SET

The company that has **THE MOST PARAMETERS** is about to do something **UNBELIEVABLE**. We are giving you more of our secrets. Using this **VERY EASY** program, it will not only **READ, COMPARE** and **WRITE PARAMETERS FOR YOU**; it will also **CUSTOMIZE** the disk with your name. It will impress you as well as your friends. The **"PARAMETER CONSTRUCTION SET"** is like nothing you've ever seen. In fact you can even **READ PARAMETERS** that you may have already written; then by using your construction set rewrite it with your new **CUSTOMIZED MENU. DON'T WAIT** for months for that one special parameter: **WRITE IT!** **$24.95**

**REMEMBER FOLKS, YOU SAW IT HERE FIRST!**

## (Another first!) THE 128 SUPERCHIP—A, B or C

**A** There is an empty socket inside your 128 just waiting for our **SUPER CHIP** to give you 32k worth of great **BUILT-IN UTILITIES**, all at just the **TOUCH OF A FINGER**. You get built-in features: **FILE COPIER, NIBBLER, TRACK & SECTOR EDITOR, SCREEN DUMP**, and even a 300/1200 baud **TERMINAL PROGRAM** that's 1650, 1670 and Hayes compatible. Best of all, it doesn't use up any memory. To use, simply touch a function key, and it responds to your command.

**B** Has super 81 utilities—a complete utility package for the 1581. Copy whole disks from 1541 or 1571 format to 1581. Many options include 1581 disk editor, drive monitor, Ram writer and will also perform many CP/M & MS-DOS utility functions.

**C** "C" is for combo and that's what you get. A super combination of both chips A and B in one chip, switchable at a great savings to you. **ALL CHIPS INCLUDE 100 PARAMETERS FREE!**

Chips A or B: **$29.95@** Chip C: **$44.95@**

## SUPER GRAPHICS 1000 PACK

That's right! Over 1000 graphics in a 10-disk set for only **$29.95.** There are graphics for virtually everything in this package. These graphics work with Print Shop and Print Master.



## LOCK PICK—THE BOOKS—for the C64 and C128

Lock Pik 64/128 was put together by our crack team, as a tool for those who have a desire to see the **INTERNAL WORKINGS** of a parameter. The books give you **STEP-BY-STEP INSTRUCTIONS** on breaking protection for backup of 100 popular program titles. Uses **HESMON** and **SUPEREDIT**. Instructions are so clear and precise that anyone can use it. ★**OUR BOOK TWO IS NOW AVAILABLE**★

**BOOK 1:** Includes Hesmon and a disk with many utilities such as: **KERNAL SAVE, I/O SAVE, DISK LOG FILE** and lots more, all with instructions on disk. A long-time favorite.
**BOOK 2: 100 NEW EXAMPLES**, Hesmon on disk and cartridge plus more utilities to include: **A GENERAL OVERVIEW ON HOW TO MAKE PARAMETERS** and a **DISK SCANNER.**

**$29.95** each OR BUY BOTH FOR **ONLY $29.95**

***Now with FREE Hesmon Cartridge.***



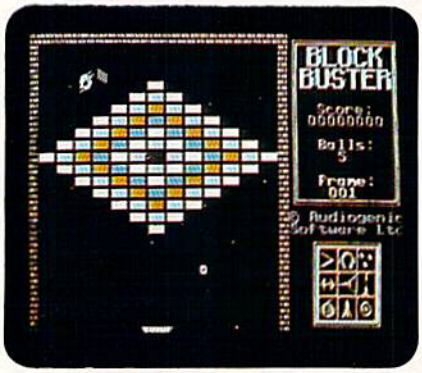
**V-MAX, RAPID LOCK DIGITAL SOLUTIONS™**

## ADULT GAME & GRAPHICS DATA DISKS

GAME: A very unusual game to be played by a very **OPEN MINDED** adult. It includes a **CASINO** and **HOUSE OF ILL REPUTE**. Please, you **MUST BE 18** to order **EITHER ONE.**
DATA ★: This **POPULAR** disk works with **PRINT SHOP** and **PRINT MASTER.**
Now version 1+2 **$24.95** ea.

**For product support, call between 10 a.m. to 4 p.m. Pacific Time.**

Circle 187 on Reader Service card.

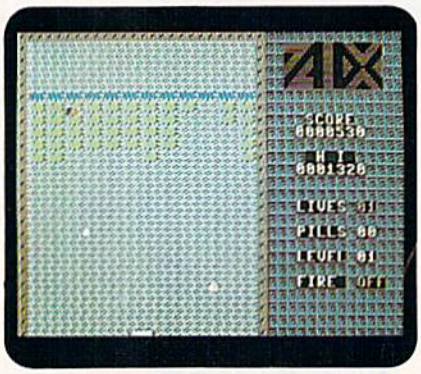



**Blockbuster has a great variety of game options and levels.**

aliens, and force fields that protect you from the ever-present aliens.

Now, while both of these games are fun, there are, as I mentioned above, public domain games that offer many of the same features. You can find one of these, called Zix, on QuantumLink. It was programmed by Pierre Messier, and is practically a clone of Arkanoid in terms of game play and options, but it does have unique game screens. The graphics are surprisingly good, the sound is adequate, and, considering the price, it's really an excellent game. It requires a joystick and does not support the mouse. Zix can be downloaded from QuantumLink's C-64 arcade-game software library. Its access number is S# 2583.

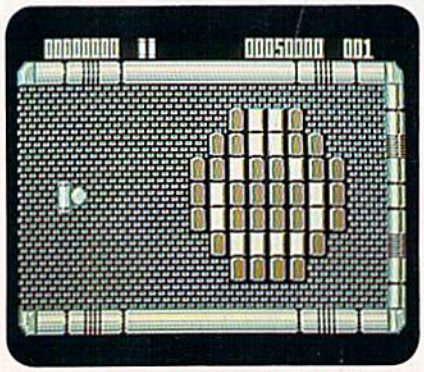
Another public domain Breakout-style game that is well worth your attention is Krackout. I haven't been able to find out who programmed it, but the uploader's name on GEnie is Jeeper. Krackout is a big game with lots of options. It has sound effects, music, scrolling backgrounds, aliens and many levels, but its orientation is somewhat different from the others, as the paddle is on the left or right side of the screen instead of at the bottom. Like Zix, it is joystick-controlled only. You can find Krackout in the Commodore libraries on GEnie; its reference number is 6045. Both these public domain programs are also available on *RUN*'s BBS, The RUNning Board (phone 603-924-9704) and you can download them at any time.




**Zix, a public domain game, is of nearly commercial quality.**

As you can see, there is a wide variety of good Breakout games to be had. If pressed to pick the best, I would say that it's Arkanoid. But, frankly, I like both Zix and Krackout better than Blockbuster. Before you spend any money on the commercial games, I suggest you try the freebies. You might decide to keep your money!

One final note. I thought it might be fun to have game-playing tricks and hints from the companies that produce Arkanoid and Blockbuster. When I called, however, neither one was forthcoming, saying they thought no one would be interested in tricks and programmers' backdoor secrets. Do you agree with those marketing types? If not, and you've discovered some super-secret gaming trick for these or other popular games, write in and tell me, and I will pass them on to the world! ■




**Krackout is another example of an excellent public domain game.**

*Lou Wallace,* RUN*'s technical manager, is the author of Commodore Clinic. Address your game tricks or comments to Games Gallery,* RUN *Magazine, 80 Elm St., Peterborough, NH 03458.*

COPY II® 64/128

NEW Version 3.4

**BACKUP PROTECTED SOFTWARE FAST.**

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

- Copies many protected programs — automatically. (We update Copy II 64/128 regularly to handle new protections; you as a registered owner may update at any time for $15 plus $3 s/h.)
- Copies even protected disks in under 2 minutes (single drive), 1 minute (dual drive).
- Improved support for ROM updates on 1571 drives.
- Maximum of four disk swaps on a single drive.
- Includes fast loader, 12-second format.

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

**Sales/Information:** call 503/690-8090, 8 - 5 P.S.T., M-F. We accept VISA. Or send a check for $39.95 U.S. plus $3 s/h, $8 overseas.

**$39.95**

Central Point Software, Inc.
15220 N.W. Greenbrier Parkway, #200
Beaverton, OR 97006

Central Point Software INCORPORATED

*Call for a catalog of our full product line.*

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

Circle 81 on Reader Service card.

# Best Buys From The TENEX Catalog

***No Gimmicks, No Hidden Charges, No Nonsense, Just Low Prices and Great Service!***

FREE

## Dust Cover & Everything Book

Discover the savings and easy shopping available from TENEX Computer Express with a **FREE** copy of our *Everything Book for Commodore Computing*. Get to know our great products, extensive selection and fast service PLUS receive a FREE dust cover for your C64, or C128. The cover is an anti-static, 8 guage vinyl sewn to our exacting standards with reinforced seams. ($2.95 Shipping Charge.)

**31627** C-64 Dust Cover and Catalog (R3A)
**38464** C-128 Dust Cover and Catalog (R3A)

## The 39¢ Diskette

From microfal

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 notches.

All diskettes are double density and work in either single or double density drives.

SS, DD Diskettes, Box of 50
**32391** **$19.50 - 39¢ ea.!**
DS, DD Diskettes, Box of 50
**32403** **$24.50 - 49¢ ea.!**

## Diskette Storage



Now Only **$9.95**

- 100 disk (5 1/4") capacity.
- Lock and keys for extra security and easy carrying.
- Includes 8 index dividers with labels for organization of filing and retrieval.
- Made of durable anti-static, high impact plastic.
- Attractive smoked color lid.

Sug. Retail $19.95
**66826** **NOW ONLY $9.95**

## Hardware

### Printers

| | |
|---|---|
| Citizen MSD 180D | $169.95 |
| Citizen MSP 40 | $329.95 |
| Citizen MDP 15E | $359.95 |
| Okidata 180 Printer | $224.95 |
| Okidata Microline 183 | $279.95 |
| Okimate 20 Color Printer | $124.95 |
| Star NX-1000 | $CALL |
| Star NX-1000C | $CALL |
| Star NX-1000 Rainbow | $CALL |
| Star NX-15 | $CALL |

### Computers

| | |
|---|---|
| Commodore 64C | $129.95 |
| Commodore 128D | $CALL |
| Amiga 500 | $CALL |
| Amiga 2000 | $CALL |
| Bridgecard W/5.25 | $CALL |
| TENEX Turbo (Loaded) | $595.00 |

### Memory

| | |
|---|---|
| Amiga 512K Expansion | $CALL |
| 1764 RAM Exp., 256K, C64 | $109.95 |

### Disk Drives

| | |
|---|---|
| FSD-2+ Disk Drive | Sale $149.95 |
| Commodore 1581 Drive | $CALL |
| Commodore 1541 Drive | $CALL |

### Power Supplies

| | |
|---|---|
| CPS-30 Power Supply, C64 | $29.95 |
| Pow'r Pak 64 | $49.95 |
| Pow'r Pak 128 | $59.95 |

### Monitors

| | |
|---|---|
| 13" Color Composite | $159.95 |
| Com. 1084S RGB Color Stereo | $CALL |
| Magnavox CM8762, Color | $269.95 |
| 1802 Composite Monitor | $199.95 |

### Joysticks/Controllers

| | |
|---|---|
| NEW! Epyx 200XJ | $9.95 |
| Wico Ergostick | $19.95 |
| Commodore 1351 Mouse | $29.95 |
| Epyx 500XJ | $15.95 |
| IconTroller | Sale $14.95 |
| Suncom Tac 5 | $14.95 |

### Interfaces

| | |
|---|---|
| Xetec Super Graphix Jr | $44.95 |
| Xetec Super Graphix | $59.95 |
| Xetec Super Graphix Gold | $CALL |
| Deluxe RS232 Interface | $44.95 |

### Accessories

| | |
|---|---|
| Cartridge Expander, C64 | $19.95 |
| Disk Doubler | $6.95 |
| Universal Printer Stand+ | $14.95 |
| Data Transfer Switch/Parallel | $24.95 |

### Ribbons

| | |
|---|---|
| NX-1000 Black | $5.95 |
| Okidata 120 /180 /183 | $8.95 |
| Okimate Color | $5.95 |
| Gemini 10X, SG-10/15 | $2.99 |

## Software

### Berkeley

| | |
|---|---|
| GEOS-64 2.0 | $39.95 |
| GEOS-12 | $44.95 |
| geoPublish | $32.95 |
| geoCalc, C128 | $44.95 |
| geoFile, C128 | $44.95 |
| Deskpack Plus | $19.95 |
| GEOS Triple Pack | $36.95 |

### Cinemaware

| | |
|---|---|
| The Three Stooges | $23.95 |
| Warpspeed | $34.95 |
| Rocket Ranger | $24.95 |
| Sinbad & Throne of Falcon | $23.95 |

### Utilities

| | |
|---|---|
| Big Blue Reader CP/M | $34.95 |
| Drive Alignment | $24.95 |
| Fast Load (Epyx) | Sale $23.95 |
| The Final Cartridge III | $53.95 |
| Flexidraw 5.5 | $23.95 |
| Renegade | $29.95 |

### Miscellaneous

| | |
|---|---|
| Wheel of Fortune | $9.95 |
| Wheel of Fortune II | $9.95 |
| Certificate Maker | $14.95 |
| Newsroom | $14.95 |

***Free! 52 Page "Everything Book" With Any Order!***

## FREE VCR With Amiga Purchase!

LIMITED SUPPLY



When you order an Amiga 500 and Commodore 1084S monitor at our regular low prices, you are eligible to buy a special software starter kit at huge savings and receive a high-quality national brand VCR absolutely **FREE!** The Amiga 500 includes 512K bytes internally and 8 megabytes externally. No other computer matches the Amiga's graphics, sound and versatility. The 1084S Color Stereo monitor allows you to take advantage of the Amiga's extraordinary graphics capabilities by giving you a display of 4,096 colors, 80 columns by 25 rows of text and 640 x 400 pixel resolution, plus stereo sound. Call for details today--when our supply of this special offer is gone, it's gone for good!

***The Best Prices***
***The Best Service***
***WHY SHOP ANYWHERE ELSE?***

## Formed For The Human Hand

Only **$19.95**



**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**

TENEX Computer Express

We gladly accept mail orders!
TENEX Computer Express
P.O. Box 6578
South Bend, IN 46660

**Questions? Call (219) 259-7051**

## ORDER TOLL FREE 1-800-348-2778

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.

**No Extra Fee For Charges!**

**Shipping, Handling, Insurance**

| Order Amount | 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 |

MasterCard · American Express Card · VISA

**We Verify Charge Card Addresses** **Ad R3A**

# GEOWATCH

*geoTips returns with some inGEniOuS hints and advice on the care and feeding of GEOS.*

By TIM WALSH

AS PROMISED THE LAST TIME I authored this column (May 1988), I'm including a handful of geoTips that have been submitted by *RUN* readers. More importantly, I'm giving you a sneak peek at Berkeley Softworks' new products, along with some geoAdvice answers to questions posed by GEOS-using readers. Since I've earned the dubious distinction of being both *RUN*'s geoWatch columnist *and* printer expert, this gives me the opportunity to address a few queries concerning the use of printers with GEOS.

### FIRST, THE NEW STUFF

The latest version of GEOS, 2.0 (reviewed in this column, November 1988), has largely met with approval from the folks who use it. Now, there is more news from Berkeley in the release of geoChart, a chart-making application that's compatible with nearly all of the other GEOS applications. GeoChart is designed to let users create a wide variety of charts and graphs by incorporating the data created with the other applications. With a suggested retail price of $29.95, geoChart is sure to be a hot-selling item. *RUN* will feature a full review in next month's column.

**Q** *I use GEOS primarily for word processing, therefore, I'm in the market for a letter-quality or NLQ printer to replace my now defunct Commodore MPS-801. Which GEOS-compatible printers represent the best dollar value?*

—DAVID W. BROWN
TALLADEGA, AL

**A** To the newcomer, it would appear that few things in the world of computers are more mysterious than the relationship between GEOS and printers. In reality, GEOS is fairly flexible within a wide range of printers. It does have its limitations, however. Because GEOS prints by employing your printer's graphics capabilities, it can't be used with a letter-quality daisy wheel printer, but it will work with a letter-quality dot matrix printer.

While I can't list all the printers that are GEOS-compatible, suffice it to say that virtually all Centronics-parallel and Commodore-compatible printers currently on the market work well with GEOS. To determine whether or not the printer you're planning to buy is compatible with GEOS, check your GEOS disk to see which printer drivers exist on it. If the printer is not listed, try a local user's group, BBS or Q-Link for hard-to-find GEOS printer drivers.

Finally, in my opinion, many of the popular dot matrix printers marketed today are excellent values for the myriad of features they possess. A few of my lower-priced favorites are the Star Micronics NX-1000, Okidata 180, Panasonic KX-P1092 and Epson FX-850, all of which offer varying degrees of GEOS compatibility.

**Q** *Why does the pointer disappear from the screen when I'm printing with GEOS 64 and my Seikosha SP-1000VC? Sometimes I can turn off the printer to get the pointer back, but at other times GEOS crashes and has to be re-booted.*

—BERNIE WILES
ALLISON PARK, PA

**A** Unfortunately, I'm not aware of a simple solution that would alleviate the disappearing pointer problem. The Seikosha SP-1000VC is designed to be totally 64/128-compatible and so has a built-in, 6-pin, DIN serial port that negates the need for a parallel interface. While this situation might sound and look good on paper, in reality, it's far from ideal, as I'll explain.

Like you, I've experienced problems with third-party Commodore-compatible printers misbehaving while performing even the simplest of printing chores with GEOS and other software packages. Thorough investigation on my part revealed that the SP-1000VC, like a few older models of Commmodore-compatible printers (such as the Star Micronics SG-10C), have a tendency to lock up the computer or disk drive when they finish printing a document or are switched from online to off. According to expert sources at Commodore, this occurs because their design does not ground them properly to the computer.

Although electricity is not my forte, I am knowledgeable on the printing limitations imposed by Commodore-compatible printers (and parallel interfaces set to Commodore 1525/MPS-803 emulation) when using GEOS. These limitations exist because most Commodore-compatible printers equipped with serial port interfaces are limited to maximum dot densities of 60 dots per inch. This means that the right-hand portion of your GEOS screen image won't be printed. (I've included Jon Allen's geoTip, below, to help anyone who is experiencing problems printing with 60 dpi printers.)

It's easy to circumvent this problem by replacing your existing printer with a parallel interface and a new Epson-code-compatible dot matrix printer. While this is expensive, a new, high-density printer will produce documents of higher quality, and will print them faster and in their entirety.

**Q** *As a GEOS 128 user, I'd like to use my printer's default characters when I create documents with geoWrite and geoPaint. Unfortunately, no matter what I do, I can't get those characters to print. Instead, the characters that appear on the output look the same as those displayed on the screen. How do I get around this problem?*

—DAVID R. MEDERT
ALBANY, OH

**A** A problem really doesn't exist. As I explained in my reply to David Brown, above, GEOS is designed to print using the graphics capabilities of your printer. GEOS fonts are actually bit-mapped images on the screen, so your printer processes them in a completely different way than it processes the input from a conventional word processing program (which uses the printer's character sets to produce a printed page). While this process is no-

ticeably slower than even NLQ printing, it permits the use of a wide range of fonts in various sizes.

GEOS isn't unique in not using your printer's character sets to print text. For example, Newsroom, Outrageous Pages, The Print Shop and a host of other graphics programs also print text without using the printer's characters.

**Q** *I've recently upgraded to a C-128, two 1571 disk drives, an RGB monitor, 1351 mouse and 1750 RAM expander. I was almost convinced to invest in GEOS, but the fact that it's copy protected makes me re-think the possibility. I never knowingly invest in copy-protected software, not because of problems making archival copies, but rather to protect my disk drives from potential head-rattling problems.*

—THOMAS D. JOHNSON
SAUCIER, MS

**A** There was a time when I, too, worried about using copy-protected software for fear of damaging my disk drives. After thousands of hours of such use, however, and after many conversations with Commodore service-center technicians, I'm convinced that heat build-up in disk drives is far more likely than copy-protection schemes to cause head-alignment problems. The presence of copy protection should not deter anyone from investing in software, because even the most intensive head-rattling schemes are virtually harmless to disk drives.

If you want complete insurance from disk drive head rattling when loading software, just enter the following command before booting GEOS or any other copy-protected disk:

```
OPEN15,8,15,"M-W";CHR$(106)CHR$(0)
CHR$(1)CHR$(133):CLOSE15
```

## GEOTIPS

### *60-DPI Printers*

My Commodore-compatible Okidata 120 has a maximum dot density of 60 dots per inch, which means it will only print a maximum of 480 horizontal dots when printing geoPaint screen images. This leaves over 160 dots on the right side of the page that are unprintable. To circumvent this, I draw a border 168 pixels to the left of the right-hand screen border and save this as a geoPaint file.

Whenever I want to create a new geoPaint screen, I boot up and use one of these geoPaint borders. Consequently, I have no difficulty staying within the borders and never experience the problem of part of the screen not printing.

—JON ALLEN
NEWFANE, NY

### *GEOS and the SX-64*

I couldn't figure out why GEOS wouldn't work with my SX-64 whenever the printer was on. At my wit's end, I finally connected my children's 1541 disk drive to my SX-64 and connected the printer to the remaining serial port, whereupon everything worked fine.

This experiment revealed that before I borrowed the 1541, the serial cable port on my SX-64 was used for my printer interface. GEOS, not differentiating between a C-64 and an SX-64, thought the printer interface cable was connected to a disk drive, which caused everything to lock up. This problem is significant because the C-128D, like the SX-64, also has a built-in disk drive and a similar problem might possibly occur if a parallel interface is plugged into the serial port.

The best solution to this problem, short of getting a second disk drive, is probably investing in Berkeley Softworks' geoCable, which would be ideal simply because it doesn't use the serial port on either your computer or disk drive.

—BILL CARR
HARRISBURG, IL ■

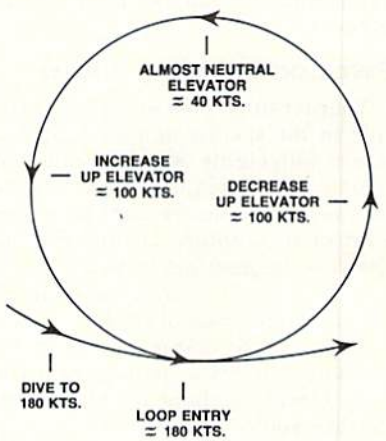
*Tim Walsh, RUN's technical editor, requests that you send your questions on GEOS and related applications, along with any geoTips you may have, to geoWatch, RUN Magazine, 80 Elm St., Peterborough, NH 03458.*


ADVERTISEMENT

Flight notes # 3A

**Better Loops with Flight Simulator** - While the "Flight Physics" manual description is adequate for most, we get enough calls from frustrated computer pilots unable to perform a loop to warrant the following additional instructions. For those already successful at looping the aircraft, these instructions should help make your loops rounder and more satisfying.

After diving to the suggested looping airspeed (180 knots will do), add as much up elevator as possible without stalling the aircraft. As you pitch up and airspeed slows you will have to reduce some of this elevator pressure. Many people leave the elevator setting on high and become frustrated when the aircraft stalls before pointing straight up. In a perfectly round loop your elevator should be almost all the way back to neutral by the time you're upside down. Since airspeed is very slow at the top of the loop (and the portion of the circle traveled is small), your pitch attitude change should be gracefully slow as well. Start adding up elevator pressure again as airspeed increases. By the time you get to the bottom of the loop, the up elevator setting should be where it was when you began the maneuver and your airspeed should be adequate to begin another loop.




In summary, up elevator setting varies throughout the loop. The faster your airspeed, the greater the up elevator pressure. Flight Simulator is the only simulation on the market that accurately portrays the flight characteristics of a light aircraft when performing this maneuver. In reality there's little room for error in the amount of up elevator you can use, and meeting the challenge of performing a perfectly round loop can be a very satisfying experience. You may even find yourself more knowledgable about loops than many non-aerobatic pilots who fly real airplanes. Happy trails!

SubLOGIC Corporation
501 Kenyon Road
Champaign, IL 61820
TELEPHONE: (217) 359-8482
ORDER LINE: (800) 637-4983

Please address any feedback/correspondence regarding SubLOGIC products, operations, or this "Flight Notes" column to ATTN: Chairman's Office.

Circle 87 on Reader Service card.

# TELECOMPUTING WORKSHOP

*Continuing his series on networks, the author rubs his magic lamp to take a look at GEnie.*

By LOREN LOVHAUG

IN THIS MONTH'S COLUMN, I'll examine Commodore 64 and 128 support and services on the GEnie telecommunications network. Unlike Quantum-Link, which was the subject of last month's column, GEnie is *not* Commodore exclusive. In fact, the majority of GEnie subscribers use other types of computers. This means that only a small portion of GEnie's services is targeted directly at Commodore owners.

However, there are a variety of reasons that might prompt Commodore users to go online with GEnie. I will focus on the GEnie support areas that are specific to C-64 and C-128 owners, along with the generic aspects of the network.

## Fast Lane or Scenic Route?

Your terminal package plays a major role in the success of your online sojourns with GEnie. At an absolute minimum, your program should support Xmodem file transfers and have some kind of text-capture facility. (For suggestions on terminal software characteristics, refer to this column in the October 1988 issue of *RUN*.)

To log on to GEnie, you must first call a local access node in or near your area. Once you have made that connection, you're prompted for your user I.D. (a string of letters and numbers) and a password. Those two steps are easily automated with a sophisticated terminal program. Without any kind of "cruise control," however, recalling, redialing and re-entering can be tedious.

Once online, you're presented with various system announcements and a main menu. You can navigate around GEnie by menu or command, which is a big plus for experienced users or for people who know exactly where in the system they want to go.

For example, suppose you want to check out the most recent public domain uploads in the Commodore eight-bit area. You could simply type "move 625;3". Menu #625 is the Commodore eight-bit area and submenu #3 is the software libraries area.

However, if you're new to the system, or if you're not sure of the various menu numbers, you could reach the same destination by moving from the Main menu to the Computing menu, then to the Commodore and Amiga Roundtables menu, and finally to the Commodore Flagship Roundtable menu, where you can select the Software Libraries menu.

As you might imagine, you can save time and money by knowing and using circumventions. Thankfully, though, GEnie's system provides good support for both the neophyte and the telecommunications pro.

Another aspect of GEnie that's difficult, but worth taking the time to learn, is the message-editing system. The editor is line based, but uses a series of commands prefixed with an asterisk to perform functions similar to those found in most good post-formatted word processors—search and replace, block delete, and so forth.

In addition, you can easily compose your electronic mail offline and upload it to the GEnie text editor by dumping it directly from your terminal program's text buffer or by uploading it via Xmodem. This option can really save you a lot of money, especially if you're a slow typist.

The electronic mail system also lets you forward your mail to one person or send multiple copies. You can even review your Email at a later time, making it easier for those who don't always have the time to reply or the proper answer ready in mind.

The public message editor is similar in operation and function to the Email system, giving GEnie a consistent nature as far as text editing is concerned.

## The Flagship

Commodore 64 and 128 support on GEnie can be found in an area called the Commodore Flagship Roundtable, which contains both the public domain libraries and public message bases.

The public domain software libraries are well-organized and provide excellent file and topic search capabilities. Looking for a specific file or type of file from among over 5000 in the Commodore Flagship is simple because you can search by filename, topic, uploader, date or even sublibrary.

Downloading public domain software is generally error-free. However, some files, particularly Basic programs that've been compiled, suffer from Xmodem padding. Fortunately, some extremely well-written and detailed online tutorials and "stripping" programs deal with that problem.

Once you learn how to use GEnie's sophisticated search capabilities and master the infrequent, but nagging, Xmodem padding problem, downloading public domain software from GEnie is a pleasure.

The public message base, which is subdivided into a variety of special sections such as music, graphics, disk drives and rumors, provides interaction and help from other Commodore owners. For the most part, the discussions on GEnie are dominated by a core group of intermediate users and SYSOPs who are helpful, friendly and quite willing to offer assistance and advice.

Rounding out GEnie's Commodore Flagship support are its conference areas, which facilitate many live online discussions among Commodore users around the country. Sometimes, these rooms are also used for special guest conferences, with personalities from around the Commodore world.

The real-time conferencing areas are very good, but you need terminal software with some kind of "chat window" to use them effectively; otherwise, incoming text from others in the conference will disturb your typing and make it virtually impossible to communicate.

## A Sinking Ship?

Unfortunately, the level of support in the Commodore Flagship area on GEnie has slipped a great deal over the past few months. This is reflected in the fact that there are fewer and fewer special guest conferences and a general slowdown in answering questions on the public message bases and in processing files uploaded to the software

libraries. I identify two reasons for this deterioration.

The first is the fact that GEnie relies on volunteer SYSOPs to staff the Commodore Flagship area; only the primary Commodore SYSOP is paid, and her duties are divided between the Flagship and two Amiga-related areas. This means that the men and women who validate and maintain the public domain software libraries, host and arrange the online conferences and field the majority of questions in the public message areas do so only because they enjoy their Commodores and telecommunications in general. It takes a great deal of time and effort to be a SYSOP on a national telecommunications network, and over the past year these demands have caused a large staff turnover in the Flagship area.

I think the other reason for the slippage of Commodore eight-bit support on GEnie is that many of the SYSOPs now own Amigas, thereby further tending to erode their already limited volunteer time.

You'll probably never see the kind of energy and Commodore talent on GEnie's Commodore eight-bit areas that can be found on Q-link. However, what support GEnie has to offer is good, and, combined with the sophistication of its network software, it's an excellent alternative for C-64/128 owners to consider. ■

*Loren Lovhaug is a programmer and writer with lots of telecommunications experience. Along with being SYSOP of Q-Link's C-128 Special Interest Group and co-SYSOP of GEnie's Commodore Flagship, he publishes* Twin Cities, *a newsletter for C-128 users. You can write to him care of Telecomputing Workshop,* RUN *Magazine, 80 Elm St., Peterborough, NH 03458. You can also send him electronic mail on QuantumLink (LOVHAUG) or GEnie (Sparrow.J).*


VSI

1-800-544-7638
Inquiries & Oregon buyers
1-503-246-0924

SCHOOLS
OUR
SPECIALTY

## SUNTRON C64/VIC20 POWER SUPPLY $26.95

| | | |
|---|---|---|
| 6 Pin Din, 6 ft., male/male | B66 | $5.95 |
| 6 Pin Din, 9 ft., male/male | B69 | $7.95 |
| 6 Pin Din, 18 ft., male/male | B618 | $12.95 |
| 6 Pin Din, 36 ft., male/male | B636 | $19.95 |
| 6 Pin Din Extension, 6 ft | A66 | $5.95 |
| 5 Pin Din to 3 RCA plugs, 5 ft | M653 | $5.95 |
| 5 Pin Din to 2 RCA plugs, 5 ft | M652 | $4.95 |
| 5 Pin Din Extension, 10 ft | ME65 | $5.95 |
| 8 Pin Din to 2 RCA plugs, 3 ft | M382 | $4.95 |
| 8 Pin Din to 5 RCA plugs, 3 ft | M385 | $5.95 |
| DB9, 12ft., Joystick Extension | JS12 | $4.95 |
| DB9, 'Y' cable, 1 female/ 2 male | JSY | $6.95 |
| DB9, 'Y' cable, 1 male/2 female | RJSY | $3.95 |
| DB9, 6 ft., male/male | DB9MM | $8.95 |
| DB9, 6 ft., Extension | DB9MF | $8.95 |
| Parallel, 36 Pin, 6 ft., male/male | C6MM | $9.95 |
| Parallel, 36 Pin, 10 ft., male/male | C10MM | $11.95 |
| Parallel, 36 Pin, 6 ft., male/fem | C6MF | $9.95 |
| Parallel, 36 Pin, 10 ft., male/fem | C10MF | $11.95 |
| Serial, DB25, 6 ft., male/male | R6MM | $8.95 |
| Serial, DB25, 6 ft., male/fem | R6MF | $8.95 |
| IBM Printer, 6 ft., male/male | IBP6 | $8.95 |
| IBM Printer, 10 ft., male/male | IBP10 | $10.95 |
| IBM Printer, 15 ft., male/male | IBP15 | $16.95 |
| IBM Printer, 25 ft., male/male | IBP25 | $24.95 |
| IMB Keyboard Extension, 5 Pin, 5 ft | IBKE | $5.95 |
| Power Cable, male/right angle female | PR6 | $6.95 |
| Gender Changer, 6 Pin, female/fem | GC6FF | $4.95 |
| Gender Changer, parallel, male/male | GCMM | $9.95 |
| Gender Changer, parallel, female/fem | GCFF | $9.95 |
| Gender Changer, serial, male/male | GSMM | $5.95 |
| Gender Changer, serial, female/fem | GSFF | $5.95 |
| Gender Changer, DB9, male/male | G9MM | $4.95 |
| Gender Changer, DB9, female/female | G9FF | $4.95 |
| Adaptor, DB9 female to DB25 male | G9F25M | $8.95 |
| Adaptor, DB25 male to 36 pin male | A2536M | $8.95 |
| Null Modem, DB25, male/male | NMMM | $5.95 |
| Null Modem, DB25, male/female | NMMF | $5.95 |
| Null Modem, DB25, female/female | NMFF | $5.95 |
| RS232 Mini Tester, male/female | TESMF | $12.95 |
| RS232 Line Surge Protector | SSP | $14.95 |
| Parallel Line Booster | PLB | $24.95 |

### 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.

### DISK DOUBLER $6.95

The original! All metal
Cuts an exact square notch in the disk. Same spot every time!

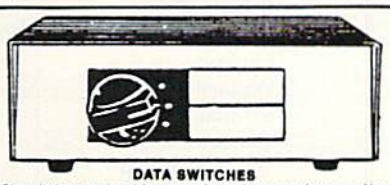


**TO ORDER:** VISA, MASTER CARD, money orders, or check (allow 21 days for check to clear) accepted.

**SHIPPING:** $3.00, power supplies $4.00, power center $5.00. $3.00 service charge on C.O.D. (cash only) plus U.P.S., APO, FPO, etc., no extra charge.

**TERMS:** All sales are final. Defective items replaced or repaired at our discretion. RA# REQUIRED. Price and availability subject to change.

VSI was founded in 1984 and has since become a leader in the field of cables and switching devices. We are dedicated to provide top value and quality on a budget. School districts large and small are a specialty of our firm. Complete catalog on request.



**DATA SWITCHES**

VSI switches end cable swapping, share equipment. Need extra cables, we stock a broad selection.

- ONE YEAR WARRANTY, Deluxe All Metal Case
- Compact Design, Rotary Switch
- Full Shielding, Exceeds FCC Requirements

AB all models ..... $29.95
ABCD all models ..... $39.95
Switch models available:
8 Pin Mini Din, 6 Pin Din, DB9, Parallel, Serial
Aa x Bb (crossover), Parallel or Serial ..... $44.95

Apple cables also available.

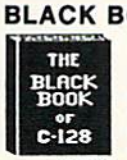
### NEW . . . MODEM LINK by VSI $15.95

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, 3x1½ inches. do not confuse the C64 with the newer 64C.

### 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.




### COOLING FAN

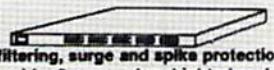
Heat is a #1 enemy to your disk drive. Reduce bad loads and costly repair bills with a fan, keep your 1541 or 1571 cool. Quiet, surge and spike protection, EMI filtering

### 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.

### POWER CENTER WAS $59.95

NEW LOW PRICE $49.95



**The POWER CENTER provides individual control of up to 5 components plus master on or off switch.**
**System protection: EMI/RFI filtering, surge and spike protection, 15 AMP breaker, heavy duty cable, 3 prong plug. Lighted rocker switches, all steel case, size: 1 3/4 H x 12 1/4 D x 15 W.**

### 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. Conncets 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.

### 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?**

## APROSPAND-64

Give your C64 or 128 full expandability. This skillfully designed expansion unit plugs into the cartridge port, this gives you 4 switchable (single or in combination) cartridge slots, includes fuse protection and a reset button!

**$26.95**

**12 PLUS** 12 in. cartridge port extension **$19.95**

### SPECIAL PURCHASE

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

**Now $12.95**



VSI 3641 S.W. Evelyn, Portland, OR 97219, Shipping $3.00, VISA, MC, money orders accepted. Price & stock, subject to change.

# 1988 INDEX

| TITLE | AUTHOR | ISSUE | PAGE | COMPUTER |
|---|---|---|---|---|
| **APPLICATIONS** | | | | |
| *RUN*'s Memo Book | Mintz | Jan | 60 | C-64 |
| Calendar Maker | Kodadek | Jan | 68 | C-64, C-128 |
| Time-Keeper 64 | Kodadek | Feb | 78 | C-64 |
| Home Inventory | Adam | Mar | 74 | C-64, C-128 |
| Time-Keeper 128 | Kodadek | Mar | 92 | C-128 |
| Creating Windows | Vollmer | Apr | 64 | C-128 |
| Cursor Commotion 128 | Borden | Apr | 92 | C-128 |
| Moving Messages | Richardson | May | 60 | C-64 |
| Tick-Tock 128 | Sherwood | May | 68 | C-128 |
| Form Writer | Brown, T. | Jun * | 46 | C-64, C-128 |
| Bill Minder | Reuter | Jul | 66 | C-128 |
| Travel Tally | Lawson | Jul * | 70 | C-64 |
| Loan Analysis | Wallace | Jul | 77 | C-64, C-128 |
| Net Worth Calculator | Schulak | Aug | 42 | C-128 |
| Mom's Kitchen Aid | Olson | Aug | 77 | C-64, C-128 |
| Vacation Checklist Generator | Wallace, Walsh | Sep | 72 | C-64, C-128 |
| Easy Banners | Ryan | Oct | 64 | C-64, C-128 |
| Joystick Mouse Emulator | Lawson | Oct | 90 | C-64 |
| Savings Forecaster | Gallagher | Nov | 53 | C-128 |
| For Good Measure | Broussard | Nov | 56 | C-64 |
| Finance 128 | Wickes | Dec | 52 | C-128 |
| Instant Address Book | Lovhaug | Dec | 94 | C-128 |
| **DESKTOP PUBLISHING** | | | | |
| Desktop Publishing with the C-64 | Lamb | Mar | 60 | C-64 |
| Club Chronicles | Procise | Apr | 45 | |
| **EDUCATION** | | | | |
| Instant Test-Maker | McMenamin | Oct | 54 | C-64, C-128 |
| Tool for Teachers | Kephart | Oct | 78 | C-64 |
| **EDUCATIONAL GAMES** | | | | |
| Affairs of State | Wilson | Mar | 84 | C-64, C-128 |
| Alphabet Cadet | Ryan | Jul | 49 | C-64 |
| Try to Remember | DeGroff | Sep | 60 | C-64 |
| Hail to the Chief | Wallace | Nov | 44 | C-64 |
| Mystery Match | Ryan | Nov | 68 | C-64 |
| Math Match | Schneider | Dec | 86 | C-64 |
| **GAMES** | | | | |
| Commodore Lanes | Fedor | Mar * | 88 | C-64 |
| Drip-Drop | Fedor | May | 56 | C-64 |

►

# DUST COVERS

Satisfaction Guaranteed

- Custom Made
- Heavy 32 oz. vinyl
- Colors: Tan or Brown
- Quantity Discounts Available

**SPECIAL**

**Mention this ad in order to get FREE SHIPPING!**

| COMPUTERS | | DISK DRIVES | |
|---|---|---|---|
| C-64 | $ 8.00 | C-1541/C | $8.00 |
| C-64C | 10.00 | C-1571 | 8.00 |
| C-128 | 13.00 | C-1581 | 8.00 |
| C-128D CPU | 13.00 | AMIGA 3.5 | 8.00 |
| C-128D KEYB'D | 8.00 | ENHANCER2000 | 8.00 |
| AMIGA 500 | 13.00 | FSD-1, -2 | 8.00 |

| MONITORS | | PRINTERS | |
|---|---|---|---|
| C-1702 | $16.00 | Dot Matrix 10" Cartridge | $13.00 |
| C-1802/CM141 | 19.00 | Dot Matrix 15" Cartridge | $16.00 |
| C-1902/AMIGA | 19.00 | | |
| C-1902A/MAG40 | 19.00 | | |
| C-1084 | 19.00 | | |
| C-2001,2 | 19.00 | | |

**VCR's**

VCR's $13.00
(Dimensions of VCR and clock cut out required.)

**SEND DIMENSIONS FOR QUOTES ON COVERS NOT LISTED**

Order by stating make, model & color choice Tan or Brown with check or M.O. plus $2.00 per item ($5.00 max.) ship. & handl. CA res. add 6% tax. CODs $3.00.

**CROWN CUSTOM COVERS**
Dept. R-1 24621 Paige Circle
Laguna Hills, CA 92653 (714) 472-6362

---

## Faster than a Speeding Cartridge
## More Powerful than a Turbo ROM

*It's Fast, It's Compatible, It's Complete, It's...*

# JiffyDOS™

*Ultra-Fast Disk Operating System for the C-64, SX-64 & C-128*

- **Speeds up all disk operations.** Load, Save, Format, Scratch, Validate, access PRG, SEQ, REL, & USR files up to **15 times faster!**
- **Uses no ports, memory, or extra cabling.** The JiffyDOS ROMs upgrade your computer and drive(s) internally for maximum speed and compatibility.
- **Guaranteed 100% compatible with all software and hardware.** JiffyDOS speeds up the loading and internal file-access operation of virtually all commercial software.
- **Built-in DOS Wedge** plus 14 additional commands and convenience features including one-key load/save/scratch, directory menu and screen dump.
- **Easy do-it-yourself installation.** No electronics experience or special tools required. Illustrated step-by-step instructions included.

JiffyDOS is available for C-64, 64C, SX-64, C-128 & C-128D (JiffyDOS/128 speeds up both 64 and 128 modes) and 1541, 1541C, 1541-II, 1571, 1581, FSD-1&2, MSD-1&2, Excel 2001, Enhancer 2000 disk drives. System includes ROMs for computer and disk drive, stock/JiffyDOS switching system, illustrated step-by-step installation instructions, User's Manual, Money-Back Guarantee, & unlimited customer support.

**C-64/SX-64 systems $49.95; C-128/C-128D systems $59.95; Add'l 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 Phone: (413) 525-0023
50 Industrial Dr., Box 646, E. Longmeadow, MA 01028 FAX: (413) 525-0147

Circle 166 on Reader Service card.

---

# Make It A Merry Christmas for the Commodore user on your list

## 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 Indentify 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: $39.95** Plus $2.00 S&H

*Now Sold in All 50 States and 17 Foreign Countries!*

## NEW The Daily Number Buster!™

You won't believe it until you see it. A COMPLETE Software Package for 3 & 4 digit DAILY NUMBER GAMES!

- Stores 100's of past winning 3 & 4 digit numbers and dates!
- Print Charts, Stats, Position Hits & more!
- Position Hit Chart displays HOT & DUE numbers by Drawn Winners!
- Choose from 4 bet methods!
- Every straight & combination bet and all BOXING BETS!
- Save your bets & review against winning numbers!
- Complete Odds explanation chart on the BUSTER DISK!
- . . . and MUCH, MUCH MORE!

If you play the Daily Number Games you will quickly see the advantages (and REWARDS!) of working with your computer to analyze and find those WINNING 3 & 4 digit numbers!

**Call or write for Your Copy Now! Only: $39.95** Plus $2.00 S&H

## NEW The 50 System Lottery Wheeler Plus!™

- 50 NEW wheels PLUS the ability to add your own favorites to the system!
- Use WITHOUT the Lottery Tracker OR Link to the Tracker Data Base to extract the Hot & Due Numbers!

*All GUARANTEED Winning Systems!*

**Introductory Price Only: $29.95** Plus $2.00 S&H

VISA MC **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 01581
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

Circle 158 on Reader Service card.

## 1988 INDEX

| TITLE | AUTHOR | ISSUE | PAGE | COMPUTER |
|---|---|---|---|---|
| Special Delivery | Hurley | Jun | 56 | C-64 |
| Now You See It. . . | DeGroff | Jun | 60 | C-64 |
| Evel's Revenge | Kaylor | Jul | 74 | C-64 |
| Islands | Ryan | Aug | 36 | C-64 |
| Video Poker | Brantner | Aug | 48 | C-64 |
| Inertia Mania | Orcutt | Sep | 46 | C-64 |
| Knock! | Fedor | Sep | 68 | C-64, C-128 |
| Monkey See. . . | Reuter | Oct | 68 | C-128 |
| Scared Silly! | Latimer | Oct | 72 | C-64, C-128 |
| No Quarters Required | Latocha, W. | Nov | 40 | |
| Crazy Caverns | Ryan | Dec | 48 | C-64 |
| **GENERAL INTEREST** | | | | |
| Index to *RUN*'s 1987 Articles and Reviews | | Feb | 104 | |
| Computer Camaraderie | Brown, L. | Apr | 38 | |
| Starting a User's Group | Wallace | Apr | 40 | |
| Troubleshooting Tips | Wendt | Apr | 58 | |
| Newcomer's Guide | Rule | Sep | 41 | C-64, C-128 |
| Who's Number One? | | Dec | 42 | |
| Journey to the Center of Your Commodore | Rule | Dec | 76 | |
| Fighting Diabetes with a Commodore | McLain | Dec | 90 | |
| **GEOS** | | | | |
| geoNewsletter | Lamb | Mar | 68 | |
| GEOS Contest Winners | | Dec | 58 | |
| Icon Editer (geoWatch) | Dempsey | Dec | 102 | C-64 |
| **GRAPHICS** | | | | |
| Graphix to the Max | Wallace | May | 50 | C-128 |
| Pixel Perfection | Walsh | Jul | 46 | |
| The Amazing Sixteen-Color Print Machine | Davis | Jul | 54 | C-64 |
| Color Cornucopia | Walsh | Jul | 59 | C-128 |
| Medium Resolution Graphics and Character Enlarger | Moore | Aug | 82 | C-64 |
| **HARDWARE REVIEWS** | | | | |
| Sprinter Printer | Walsh | Jan | 56 | |
| Hearsay 1000 | Eldridge | Apr | 76 | C-64, C-128 |
| Serial Data Link Cable | Premack | Apr | 78 | C-64, C-128 |
| Hot Shot Plus | Walsh | Jul | 86 | C-64, C-128 |
| Personal Musician | Guerra | Jul | 87 | C-64 |
| Warp Speed | Walsh | Aug | 90 | C-64, C-128 |
| So. . .You Want to Be a Power User? | Kevelson | Sep * | 36 | C-64, C-128 |
| Printers on Parade | Walsh | Oct | 40 | |
| Super Graphix Gold | Brown, L. | Dec | 38 | C-64, 128 |
| Lt. Kernal | Premack | Dec | 39 | C-64, C-128 |
| **MUSIC/SOUND** | | | | |
| Songs in the Key of C-128 | Schulak | Oct | 49 | C-128 |
| **PROGRAMMING** | | | | |
| Your Basic Mouse Editor | Lovhaug, Kress | Feb | 66 | C-128 |
| Display Frame Animation | Charnetski | Mar | 22 | C-64, C-128 |
| Window Construction Set | Ryan | Apr | 50 | C-64 |

## 1988 INDEX

| TITLE | AUTHOR | ISSUE | PAGE | COMPUTER |
|---|---|---|---|---|
| Fontastic 64 | Lawson | Apr | 62 | C-64 |
| GOTO Programming | Butterfield | May | 36 | |
| A Basic Adventure | Hurley | May | 39 | |
| Programmer's Pager | Ryan | Sep | 64 | C-64 |
| Panel Maker | Wallace | Nov | 50 | C-64 |
| Scroll, Scroll, Scroll Your Background Gently up the Screen | Wallace | Dec | 16 | C-128 |
| **SOFTWARE REVIEWS** | | | | |
| Guild of Thieves | Ryan | Jan | 28 | C-64 |
| Maniac Mansion | Ryan | Jan | 28 | C-64 |
| Bop'n Rumble | Latocha, W. | Jan | 30 | C-64 |
| Pirates! | Guerra | Jan | 32 | C-64 |
| The Graphics Transformer | Grubbs | Jan | 32 | C-64 |
| Defender of the Crown | Guerra | Jan | 34 | C-64 |
| President Elect | Weiner | Jan | 34 | C-64 |
| 1541/1571 Drive Alignment | Grubbs | Jan | 36 | C-64, C-128 |
| A Happy New You! | Brown, L. | Jan | 42 | |
| Rebel Charge at Chickamauga | Wright | Feb | 24 | C-64 |
| Alternate Reality: The Dungeon | Hurlburt | Feb | 26 | C-64 |
| Power C | Broussard | Feb | 26 | C-64, C-128 |
| The Advanced OCP Art Studio | Grubbs | Feb | 28 | C-64 |
| The Accelerated Reader | Latocha, M. | Feb | 28 | C-64 |
| Express Raider | Wasser | Feb | 30 | C-64 |
| Plundered Hearts | Ryan | Feb | 32 | C-64 |
| C-More | Broussard | Feb | 32 | C-64 |
| Simulating Real-Life Action | Walsh, et al | Feb | 38 | |
| Take Stock of Investment Software | King | Feb | 51 | |
| Airborne Ranger | Wasser | Mar | 40 | C-64 |
| B-24 | Wright | Mar | 43 | C-64 |
| Ladders to Learning: Sorting, Triangles, Bones and Joints | Chasen | Mar | 45 | C-64 |
| Thoughtform, Version 1.81 | Cohen | Mar | 47 | C-64 |
| Vegas Gambler | Brown, L. | Mar | 49 | C-64 |
| Paperboy | Wasser | Mar | 51 | C-64 |
| Rainy Day Games | Latocha, M. | Mar | 53 | C-64 |
| Sanxion | Hurlburt | Mar | 53 | C-64 |
| Wargame Construction Set | Wright | Mar | 55 | C-64 |
| Watch Out, Mac! | Begley | Mar | 64 | C-64, C-128 |
| The Last Ninja | Walsh | Apr | 24 | C-64 |
| Test Drive | Wasser | Apr | 26 | C-64 |
| Aqua's Circus; Think Bank | Eldridge | Apr | 26 | C-64 |
| Rad Warrior; Spy vs. Spy III; Boulder Dash Construction Kit | Brown, L. | Apr | 28 | C-64 |
| Nord and Bert Couldn't Make Head or Tail of It | Brown, L. | Apr | 30 | C-64 |
| Micro Detective | Walsh | Apr | 30 | C-64, C-128 |
| GeeBee Air Rally | Brown, L. | Apr | 32 | C-64 |
| Deja Vu | Hurlburt | May | 26 | C-64 |
| Instant Music | Guerra | May | 26 | C-64 |
| Apollo 18 | Hurlburt | May | 28 | C-64 |
| Darkhorn | Ryan | May | 28 | C-64 |
| Halls of Montezuma | Guerra | May | 30 | C-64 |
| Cholo | Kimball | May | 30 | C-64 |
| Dark Lord | Latocha, W. | May | 32 | C-64 |
| Strategist | King | May | 32 | C-128 |
| The Assembly Line | Broussard | May | 45 | C-64, C-128 |
| And the Latest... | Wallace | May | 47 | C-64, C-128 |
| Infiltrator II | Wasser | Jun | 30 | C-64 |
| The Train: Escape to Normandy | Walsh | Jun | 30 | C-64 |
| High Seas | Wright | Jun | 32 | C-64 |
| Knight Orc | Kimball | Jun | 34 | C-64 |

►

## 1988 INDEX

| TITLE | AUTHOR | ISSUE | PAGE | COMPUTER |
|---|---|---|---|---|
| Magnetron | Ryan | Jun | 34 | C-64 |
| The Latest Word | Cavanaugh | Jun | 40 | C-64, C-128 |
| Chernobyl | Ryan | Jul | 28 | C-64 |
| Demon Stalkers | Guerra | Jul | 30 | C-64 |
| Mini-Putt | Guerra | Jul | 30 | C-64 |
| Soko-Ban | Latocha, W. | Jul | 30 | C-64 |
| Screen F/X | Brown, L. | Jul | 32 | C-64 |
| Commando | Wasser | Jul | 34 | C-64 |
| Border Zone | Kimball | Jul | 34 | C-64 |
| Project: Space Station | Hurlburt | Jul | 35 | C-64 |
| Graphics Galore | Wallace | Jul | 40 | C-64, C-128 |
| Ready. . .Set. . .Compile! | Wallace | Jul | 60 | C-64, C-128 |
| Sherlock: The Riddle of the Crown Jewels | Kimball | Aug | 22 | C-64 |
| Stealth Mission | Walsh | Aug | 22 | C-64 |
| MISL Soccer | Wasser | Aug | 24 | C-64 |
| Q*Bert | DiPrete | Aug | 25 | C-64 |
| Kid Niki | Latocha, W. | Aug | 26 | C-64 |
| Steve Garvey vs. Jose Canseco in Grand Slam Baseball | Wasser | Aug | 27 | C-64 |
| Skyfox II | Guerra | Aug | 27 | C-64 |
| Tetris | Hurlburt | Aug | 28 | C-64 |
| Zig-Zag | Latocha, W. | Aug | 28 | C-64 |
| Speed Buggy | Wasser | Aug | 29 | C-64 |
| PrintPower | Chasen | Aug | 30 | C-64 |
| Card Sharks | Brown, L. | Aug | 30 | C-64 |
| WordPro 128 with FilePro 128 | Premack | Aug | 31 | C-128 |
| Rapid Transit Systems | Roberts | Aug * | 60 | C-64, C-128 |
| The Three Stooges | Latocha, W. | Sep | 24 | C-64 |
| PaperClip Publisher | Lamb | Sep | 24 | C-64 |
| The President is Missing | Ryan | Sep | 26 | C-64 |
| Skate or Die | Wasser | Sep | 28 | C-64 |
| The Lurking Horror | Ryan | Sep | 29 | C-64 |
| Strike Fleet | Guerra | Sep | 30 | C-64 |
| Black Jack Academy | Guerra | Sep | 30 | C-64 |
| Dark Castle | Walsh | Sep | 31 | C-64 |
| Winter Challenge | Wasser | Sep | 31 | C-64 |
| BetterWorking Word Publisher | Premack | Sep | 32 | C-64 |
| Forward into Battle! | McLain | Sep | 54 | C-64 |
| Bank Street School Filer | Weiner | Oct | 24 | C-64 |
| Pre-Reading | DiPrete | Oct | 26 | C-64 |
| Number Farm | Jerome | Oct | 26 | C-64 |
| The Electronic Writing Lab | Eldridge | Oct | 26 | C-64 |
| Dragon Game Series | Eldridge | Oct | 28 | C-64 |
| Math Power | Pratt | Oct | 30 | C-64 |
| Adventures with Fractions | Jerome | Oct | 30 | C-64 |
| Spelling Bee | DiPrete | Oct | 32 | C-64 |
| Building Perspective | DiPrete | Oct | 32 | C-64 |
| Tiger's Tales | Latocha, M. | Oct | 34 | C-64 |
| Alphabet Circus | Latocha, M. | Oct | 34 | C-64 |
| Regions of the United States | Pratt | Oct | 35 | C-64 |
| Path Tactics | Chasen | Oct | 35 | C-64 |
| Simon Says | Latocha, M. | Oct | 36 | C-64 |
| Wizardry: Proving Grounds of the Mad Overlord | Weiner | Nov | 22 | C-64 |
| Impossible Mission II | Wasser | Nov | 22 | C-64 |
| Award Maker Plus | Fishbein | Nov | 24 | C-64 |
| Street Sports Soccer | Wasser | Nov | 24 | C-64 |
| Vampire's Empire | Cavanaugh | Nov | 26 | C-64 |
| Roadwars | Cavanaugh | Nov | 26 | C-64 |
| Blockbuster | Latocha, W. | Nov | 28 | C-64 |
| BeckerBasic | Winchester | Nov | 28 | C-64 |
| Sky Travel | Chasen | Nov | 30 | C-64 |
| Tobruk | Wasser | Nov | 30 | 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

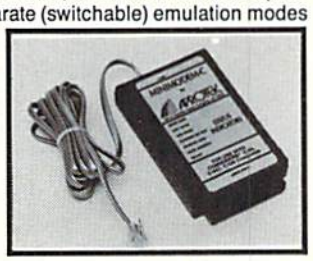
**Listing 1. *RUN*'s Checksum program. This program is available on *RUN*'s BBS for users to download.**

```
10 REM RUN'S CHECKSUM 64/128 - BOB KODADEK
20 MO=128:SA=3328:IF PEEK(4096)THEN MO=64:SA=4
   9152
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:PO
   KESA+26,165
90 POKESA+39,20:POKESA+41,21:POKESA+123,205:POK
   ESA+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 3,232,208,240,189,0,2,240,42,201,32,20
    8,4,164,180,240,31,201,34
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 255,169,13,32,210,255,104,168,96,104,1
    70,24,32,240,255,104,168
190 DATA 96,56,32,240,255,138,72,152,72,24,162,
    0,160,0,32,240,255,169
200 DATA 42,208,198
```

■


## MINIMODEM-C™ 1200 BAUD MODEM ONLY $69.95

**What's included?** 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 lights and a built-in speaker. Just plug it into your computer and standard phone jack with the attached cable. Minimodem-C™ is supplied with terminal disk software and includes 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 Aprotek Minimodem-H™ which you can use with any computer that has a RS-232 serial port as well as with your Commodore. Aprotek Minimodems™ are tiny. Only 4¾" long, 2¾" wide and ¾" high. Our highly integrated, state-of-the-art circuitry makes this modem the best on the market and a very smart buy.

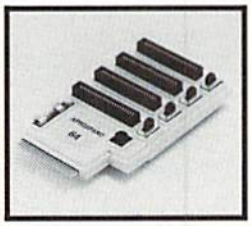
**Built with pride in the USA and fully guaranteed for 1 year. Order yours today!**

| Order # | Item | Qty | Price | Shipping | Total |
|---|---|---|---|---|---|
| 6212 | MINIMODEM-C (Commodore) | ___ | 69.95 | _____ | _____ |
| 6214 | MINIMODEM-H (RS-232) | ___ | 84.95 | _____ | _____ |

Modem shipping—Cont. US $6.00; UPS Blue, CAN, AK, HI, APO $10.00

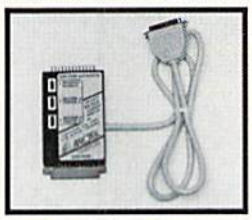
## *The Original Aprospand-64*™

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.



**Order #5064 . . . . . ONLY $29.95 + S&H**

## *UNIVERSAL RS-232 INTERFACE*



Connect and communicate with any of the popular RS-232 peripherals using your Commodore **USER** Port. You can now connect to printers, modems and any other RS-232 device. Comes complete with sample driver program listings. Compatible with all Commodore home computers with a USER port. 1-year warranty.

**Order #5232 . . . . . $39.95 + S&H**

**"COM-MODEM" ADAPTER** — Plug directly into your USER port and connect to any RS-232 modem. **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**

**Shipping per each above item: Cont. US = $4.Can, PR, HI, AK, APO, UPS Blue =$6**

**SEE YOUR LOCAL COMMODORE DEALER OR ORDER DIRECT.** DIRECT 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. 14-day clearing period for checks. Prices and availability subject to change—CALL. Dealer inquiries invited. **1 year warranty plus a 2 week satisfaction or your money back trial period on all products.**

**For info and to order call 805/987-2454** (7-5 PST)

Or send order to:

APROTEK

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

Circle 79 on Reader Service card.

## 1988 INDEX

| TITLE | AUTHOR | ISSUE | PAGE | COMPUTER |
|---|---|---|---|---|
| Coming to a Screen Near You! | Guerra | Nov | 36 | C-64 |
| Wasteland | Ryan | Dec | 28 | C-64 |
| Letters for You; Numbers Count; Opposites Attract | Latocha, M. | Dec | 28 | C-64 |
| Arkanoid | Latocha, W. | Dec | 30 | C-64 |
| MainFrame | DiPrete | Dec | 32 | C-64 |
| Jinxter | Kimball | Dec | 32 | C-64 |
| The Hunt for Red October | Guerra | Dec | 32 | C-64 |
| Star Empire | Ryan | Dec | 34 | C-64 |
| MAE, Version 5.1 | Broussard | Dec | 34 | C-64 |
| 4×4 Off-Road Racing | Wasser | Dec | 35 | C-64 |
| The Shadows of Mordor | Kimball | Dec | 36 | C-64 |
| Dear Santa | Mintz | Dec | 66 | C-64, C-128 |
| **TELECOMMUNICATIONS** | | | | |
| RUN Term 128 | Brown, T. | Jan | 50 | C-128 |
| Get Your Club Online | Roberts | Apr * | 43 | |
| **UTILITIES** | | | | |
| *RUN*'s Checksum Program | Kodadek | Jan–Dec | | C-64, C-128 |
| Blank-It! 64 | Davis | Jan | 115 | C-64 |
| RUN Copy 64 | Martin, Patel | Feb | 58 | C-64 |
| Blank-It! 128 | Elliot | Feb | 98 | C-128 |
| Scratch and Save | Archibald | May | 90 | C-64 |
| Unlockup | Host | Jun | 66 | C-64 |
| Disk Restorer | Lawson | Jul | 88 | C-64 |
| Disk File Helper | Kodadek | Aug | 56 | C-64, C-128 |
| Sequential File Design | Rogers | Aug | 66 | C-64, C-128 |
| The Remarkable Disk Directory | Hoffer | Aug | 72 | C-64 |
| Kracking the Kernal | Ryan | Sep | 90 | C-64 |
| Mass File Deleter | Lawson | Nov | 96 | C-64, C-128 |

**Note: An asterisk (*) denotes that the printed article contained some error that was later corrected in a RUN Amok item. See the RUN Amok section, below, for the issue containing the correction.**

# Index of 1988 RUN AMOK Corrections

| TITLE OF CORRECTED ARTICLE | PUBLISHED | PAGE | —CORRECTION PUBLISHED— MONTH | PAGE |
|---|---|---|---|---|
| Magic Trick $43E | Nov '87 | 12 | Apr | 87 |
| Magic Trick $44D | Nov '87 | 124 | Apr | 87 |
| Software Gallery | Dec '87 | 32 | Apr | 87 |
| Commodore Clinic | Feb '88 | 86 | Apr | 87 |
| Commodore Lanes | Mar '88 | 88 | Aug | 93 |
| Get Your Club Online | Apr '88 | 44 | Aug | 93 |
| Form Writer | Jun '88 | 46 | Aug | 93 |
| Commodore Clinic | Jun '88 | 76 | Sep | 86 |
| Travel Tally | Jul '88 | 70 | Sep | 86 |
| Rapid Transit Systems | Aug '88 | 63 | Nov | 19 |
| So. . .You Want to Be a Power User? | Sep '88 | 36 | Nov | 19 |

■




# FIND THAT WORD

## Subscription To *"The First"* Computerized Word Search Game Magazine

*member of the PuzzleMaster group of games provided by Advanced Solutions,Inc.*

It's the *NEW, EXCITING,* computerized word game magazine on diskettes *MIND CHALLENGING* Monthly Issues
Be a Charter Subscriber and get the game program (29.95 value) **FREE!!**

**Call Toll Free 1-800/835-2246 Ext. 18**

*Send Check to:*
**Advanced Solutions, Inc.**
**Dept. 1813**
**500 Ocean Avenue**
**East Rockaway, NY 11518**

Or call:
**(516) 599-6600**
**Ext. 8277**
Master Card and Visa Accepted

## As Low As $3.50 Per Issue

***GREAT HOLIDAY GIFT IDEA. . .***

*Specify 5¼" or 3½" for IBM-PC or Commodore*
Please allow 6 weeks before 1st issue arrives.

Circle 231 on Reader Service card.

# COLOR RIBBONS & PAPER

### COLOR RIBBONS
RED, BLUE, GREEN, BROWN, PURPLE, YELLOW

| Ribbons | Price Each | Black | Color | Heat Transfer |
|---|---|---|---|---|
| Brother M1109 | | 4.95 | 5.95 | 7.00 |
| C. Itoh Prowriter Jr. | | 7.00 | 9.00 | – |
| Citizen 120D/180D | | 5.00 | 6.00 | 7.95 |
| Commordore MPS 801 | | 4.15 | 4.75 | 5.75 |
| - MPS 802/1526 | | 6.00 | 6.75 | – |
| - MPS 803 | | 4.95 | 5.95 | 7.00 |
| - MPS 1000 | | 3.95 | 4.95 | 6.75 |
| - MPS 1200/1250 | | 5.00 | 6.00 | 7.95 |
| - 1525 | | 6.00 | 8.00 | – |
| Epson MX80/LX800 | | 3.75 | 4.25 | 6.75 |
| Okidata 82/92 | | 1.75 | 2.25 | 4.50 |
| Okidata 182/192 | | 6.50 | 7.50 | – |
| Panasonic K-XP 1080 | | 6.75 | 7.75 | – |
| Seikosha SP 800/1000 | | 5.25 | 6.50 | 7.95 |
| Star SG10 | | 1.75 | 2.25 | 4.50 |
| Star NX10/NL10 | | 5.00 | 6.00 | 7.95 |
| Star NX1000 | | 5.00 | 6.00 | 8.00 |
| Star NX1000C – 4-Color | | – | 10.75 | – |

### COLOR PAPER

BRIGHT PACK –
200 Sheets/50 ea. color: Red, Blue, Green, Yellow.
9 1/2 x 11 – $10.90/pk.

PASTEL PACK –
200 Sheets/50 ea. color: Pink, Yellow, Blue, Ivory.
9 1/2 x 11 – $10.90/pk.

**COLOR BANNER** – 45'/Roll – $11.95/Roll

**PARTY BANNER** – 45'/Roll – $11.95/Roll

**CHRISTMAS BANNER** – 45'/Roll – $11.95/Roll

**CERTIFICATE PAPER** – 100 Sheets/Pk. – $12.00/Pk.

**T-SHIRT RIBBONS (Heat Transfer)** – Call For Price & Avail.
COLORS: Red, Blue, Green, Brown, Purple, Yellow

### COLOR DISKETTES
5 1/4" DS/DD Rainbow Pack. 10/pack – $12.50

For ribbons & paper not listed above, call for price. Price & spec. subject to change w/o notice. Min. order $25.00. S & H $3.50 minimum. Visa, M.C., C.O.D.

***RENCO COMPUTER SUPPLIES***
P.O. Box 475, Manteno, IL 60950 U.S.A.
1-800-522-6922 • (IL) 1-800-356-9981
815-468-8081

Circle 232 on Reader Service card.

## 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**

NEW!

# SUPER CARTRIDGE EXPLODE! V4.1 w/COLOR DUMP

Introducing the **WORLD'S FIRST! COLOR SCREEN DUMP** in a cartridge. Explode! V4.1 will now SUPPORT DIRECTLY from the screen, FULL COLOR PRINTING for the RAINBOW STAR NX-1000 and also the OKIDATA 10 & 20 printers.
The **MOST POWERFUL DISK DRIVE and PRINTER CARTRIDGE** produced for the COMMODORE USER. **Super FRIENDLY** with the features most asked for.

- **SUPER FAST** built in single drive 8 or 9 FILE COPY, copy files of up to 235 BLOCKS in length, in less than 13 seconds!
- SUPER **SCREEN CAPTURE.** Capture and Convert **ANY SCREEN** to KOALA or DOODLE.
- SUPER **FAST FORMAT** (8 SEC'S). - plus FULL D.O.S. WEDGE w/standard format!
- SUPER **FASTLOAD** and **SAVE** (50k in 9 SEC'S) works with all **C-64 or C-128's NO MATTER WHAT VINTAGE!** And with most after market drives EXCEPT the 1581, M.S.D. 1 or 2.
- SUPER **PRINTER FEATURES** allows ANY DOT MATRIX PRINTER even 1526/802 to print HI-RES SCREENS (using 16 shade GRAY SCALE). **ANY PRINTER or INTERFACE COMBINATION** can be used with SUPER EXPLODE! V4.1 or V3.0
- NEW and IMPROVED **CONVERT** feature allows anybody to convert (even TEXT) **SCREENS into DOODLE or KOALA TYPE PICTURES w/FULL COLOR!**
- SUPER **FAST SAVE** of EXPLODE! SCREENS as KOALA or DOODLE FILES w/ COLOR.
- SUPER **FAST LOADING** with **COLOR RE-DISPLAY of DOODLE or KOALA** files.
- SUPER FAST LOAD or SAVE can be TURNED OFF or ON without AFFECTING the REST of SUPER EXPLODES'S FEATURES. The rest of Explode V4.1 is still active.
- SUPER **EASY LOADING and RUNNING** of ALL PROGRAMS from the DISK DIRECTORY.
- SUPER **BUILT IN TWO WAY SEQ. or PRG. file READER** using the DISK DIRECTORY.
- NEVER TYPE a FILE NAME AGAIN when you use SUPER EXPLODE'S unique LOADERS.
- CAPTURE 40 COLUMN C or D-128 SCREENS! (with optional DISABLE SWITCH). Add $5

**All the above features, and much more!**
**PLUS A FREE UTILITY DISK w/ SUPER EXPLODE! V4.1**

MAKE YOUR C-64, 64-C or C-128*, D-128* SUPER FAST and EASY to use.

**VIDEO BYTE!** THE INEXPENSIVE DIGITIZER (available NOV. 15th) $69.95
**VIDEO BYTE!** the VIDEO DIGITIZER you can use with your C-64 or 128 and a V.C.R., B&W or COLOR VIDEO CAMERA. VIDEO BYTE! is the inexpensive alternative to other more expensive units.
**VIDEO BYTE!** can be used with SUPER EXPLODE! V4.1, V4.0 or V3.0 EXPLODE!

MasterCard VISA * IN 64 MODE ONLY

**SUPER EXPLODE! V4.1 $44.95**
**EXPLODE! V3.0 $29.95**

**TO ORDER CALL 1-312-851-6667**
Personal Checks 10 Days to Clear

PLUS $1.50 S/H C.O.D.'S ADD $4.00
IL RESIDENTS ADD 6% SALES TAX

**THE SOFT GROUP, P.O. BOX 111, MONTGOMERY, IL 60538**

Circle 236 on Reader Service card.

# RUN CLASS ADS

## SAVE YOUR FAMILY!

Genealogy software with features to fit every budget and requirement: LINEAGES/Starter, LINEAGES/Standard, LINEAGES/Advanced, and our most comprehensive FAMILY ROOTS. Prices $29 & up. Data is compatible between systems and you may upgrade from one to another. Call for FREE information. Satisfaction guaranteed.

**QUINSEPT, INC.**
**PO Box 216, Lexington, MA 02173**
**1-800-637-ROOT 617-641-2930**

## TRY BEFORE YOU BUY!

Yes We Accept:

*Best selling games, utilities, educational, and classics plus new releases!*

- 100's of titles
- Low prices
- Same day shipping
- Free brochure

**RENT-A-DISC**
Frederick Bldg. #223
Huntington, WV 25701
(304) 529-3232

## WIN LOTTO MILLION$!!!

### 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.




## FREE NEWS LETTER

Two Disk Sides, From

**THE LIBRARY**

This is our way of introducing THE LIBRARY COMMODORE USERS GROUP. We are an International Membership Group of Computer friends spread to many parts of the world. We now number over 2000, and offer the benefits of friendship and buying power. We will include complete membership and group information with your News Letter. Please include $3.00 for postage and handling. $5.00 credit will be returned.

**THE LIBRARY**
PO Box 13121, Pensacola, FL 32591-3121

## ADULTS ONLY DISK SOFTWARE for the Commodore 64/128



**ALVA DATA** Dept. J15
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!

## Commodore Amiga Service Center

C-64 Repair $39.95 includes parts/labor

C-128 . . . $64.95
1541 . . . . . 25.00 (alignment)
1571 . . . . . 25.00 (alignment)
SX-64 . . . . 59.95

CALL for Commodore Chips & Power Supplies at *low* prices.

**A&M Computer Repair**
**20 Guernsey Drive, New Windsor, New York 12550**
**(914) 562-7271**

## BASIC GAME DESIGN Flashy Tricks of the Trade

Clean, fast BASIC for Scrolls, Animation, 3D Color Graphics, Sound and Music. Great NEW {c} GAMES fully explained. Any disk $15 ppd. Any 2 $25 ppd.
**1) 10 Games of Logic**–+ bonus ACTION Game, OIL WAR, + DEMOS.
**2) 10 Games of Action**–+ bonus LOGIC Game, DUFFY'S DRAWERS, + DEMOS.
**3) Music**–Easy 3-Part HARMONY, with Tremolo, Phase, Various Voices, etc. OVERTURE–play a one note melody and get Harmony. Save/load tunes to disk and EASILY add Rich MUSIC to your Own Programs! OMNIVOX–Realtime Harmony at the touch of a key! ANDROID SYMPATHY ORCHESTRA–C-64 Music in Harmony.
**4) Advanced**–WIZAD'S TOWER 1–4 Thieves of Magic face Wizad the Mad, Humor-Treachery. EMPIRE STAR a battle in 3D CubeSpace, 1–2 players-Logic. MY DEAR DR. WATSON–at last the rest of Holmes' Adventures can be told, Text-Humor. Includes AUTORUN, UNLIST, PIX, SIDLAB and More! **NEW! HOT! ROXTAR(ML)–Turns C-64 into MAXI ROCK CHORD ORGAN. $20 ppd.**
**RKDO Graphics, Rte. 1 Box 199A, Stanley, WI 54768**

## NEW ATTENTION ROLE PLAYERS NEW

Build stronger characters with our editors or solve those tough riddles with our hintbooks.
**CHARACTER EDITORS ($19.95)** — Might and Magic, Bards Tale 1, Bards Tale 2, Bards Tale 3, Wasteland, Wizardry 1, Ultima 3, Ultima 4, and Pool of Radiance.
**HINT BOOKS ($9.95)** — Wizardry 1 and Might and Magic.
Add $3.00 for shipping/handling. Specify computer type on order.

**GOSSELIN COMPUTER CONSULTANTS**
P.O. Box 1083 • Brighton, MI 48116 • (313) 229-2453

Convert your C64/C128 to a DX7 with the

## SFX SOUND EXPANDER

| | |
|---|---|
| **SFX SOUND EXPANDER**<br>**9 voice digital synthesizer module** | **$ 90.00** |
| **SFX FULL SIZED KEYBOARD** | **$ 80.00** |
| **SFX COMPOSER & SOUND EDITOR**<br>MIDI compatible sequencer and editor for Sound Expander | **$ 30.00** |

**Fearn & Music, 519 W. Taylor #114, Santa Maria, CA 93454**
**Phone 800-447-3434 In CA 805-925-6682**

## 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

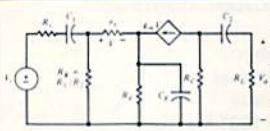
FOR YOUR OWN LIST AND DESCRIPTION OF THESE PROGRAMS SEND JUST A SASE TO:

JLH CO.
DEPT A
BOX 67021
TOPEKA, KS 66667

## ALL MODEM USERS!

All baud rates—by demand—current up to date listings on *toll-free* unlisted databases. A network war is allowing these numbers to be distributed for completely **FREE** access for you. You will find that you can access databases you have normally been spending $1000's on, such as: Stock reports, news/AP Wire, sports news, weather, educational research libraries, recent popular games to download by the 100's, and more. These numbers will be good indefinitely or your money back. Take advantage of this special offer by sending $10.00 to: **Scott Case, PO Box 2254, Kingsport, TN 37662.**

Name _____ Address _____
City _____ State _____ Zip _____
Enclosed is a $10.00 ( ) check or ( ) money order. Allow 10–14 days for delivery.
Make checks payable to Scott Case.



**ELECTRONICS AC/DC CIRCUIT ANALYSIS PROGRAM** $29.95 Disk, Tape
**Computer Heroes**
**PO Box 79A**
**Farmington, CT 06034** C-64, C-128, IBM PC
Orders only **1-800-622-4070**

Program computes general numeric solution to electronic circuit of up to 40 nodes and 63 branches. Branches may contain resistors, capacitors, inductors, current sources, voltage sources or 4 types of controlled sources. Computer displays node voltages, branch voltages, currents, powers and power factors. Step function of branch parameters or frequency with graphic display of results. Menu controlled and user friendly.

# RUN CLASS ADS


**READY-TO-USE GEOS GRAPHICS**

Now GEOS users have HIGH-QUALITY graphics without the trouble and expense of buying and converting Non-GEOS graphics packages. DISKART provides GEOS users with all kinds of graphics, from little bugs to big bombers. All directly usable with GEOS 64 and 128.



**9 disks available. . . more to come**

DISKART 1 (assorted)
DISKART 2 (assorted)
DISKART 3 (Wheels/Wings)
DISKART 4 (assorted)
DISKFORMS ready to use/design your own forms
DISKART 5 (assorted)
DISKART 6 (animals/etc.)
DISKART 7 (assorted)
MUSI-KIT create professional sheet music with GEOS

WRITE FOR MORE INFORMATION & DISK LISTINGS

EACH DISK ONLY $8.50

CALIF. RESIDENTS Add 6.5% sales tax
FOREIGN ORDERS + $2.00 per disk shipping

SEND CHECK OR MONEY ORDER (US FUNDS ONLY) TO:

***Those Designers*** 3330 Lewis Avenue, Signal Hill, CA 90807

**Top-Tech International, Inc.**
Advanced Computer Systems

***COMMODORE LIFETIME-COMPUTER®***

*Lifetime warranty for every serviced or sold C-64!*

*COMMODORE/AMIGA Sales & Service Center*

Full line of CBM computers; peripherals, power supplies, parts, protective devices; Service Manuals
Flat Service Rates—FAST, Professional Service

★ ★ ★ ★

Visa, Discover, Amex & MasterCard

**(800) 843-9901** • 1100 S. Delaware Ave., Philadelphia, PA 19147 • **(215) 389-9901**

## FREE CATALOG

Discount software for your home computer.
Apple, Atari, Commodore, IBM. . .
WMJ Data Systems-R
4 Butterfly Drive
Hauppauge, NY 11788
1-800-962-1988 Ext. 122 (516) 543-5252

## Disk Drives From Oceanic America

We Proudly Present:
FSD-2 Excelerator Plus
For the C-64/128 **$149.00**

Other Products We Carry:

6 Games in one pack for only $6.90 ANCHOR MODEM 300/1200 BAUD was $129 **Sale $69**

FREEZE MACHINE w/reset button. Make backup copies fast **$39**

Please Call For Shipping

Now Available for the Amiga:
**MASTER 3-A External Drive**
Pre-Christmas Sale: ~~$179.00~~ **$159.00**
FREE! Virus Checker Disk Included!

**SURFSIDE**
Components International
P.O. Box 1836 Capitola, CA 95010
**800-548-9669** In CA 408-462-9494
(We Verify all Charge Card Orders)

## ReRUN DISKS

Great software at affordable prices from *RUN* magazine. Each disk is packed with programs from the two most recent issues of *RUN*, plus never-before-published BONUS programs.

1-year subscription $69.97 (Single issue $16.47)
CALL TOLL-FREE **1-800-343-0728**

## *The 'Original' Parameter Cross-Reference*™

by Edward A. Mallang III

Now Shipping Our 7th Book Edition (140+ pages), And Our 3rd Quarterly Update Disk!

This book contains over 8,000 parameter listings that Cross-Reference by program title, and over 70 parameter products in the marketplace are represented. It's also complete with sources! Knowledge is power, and this product has rapidly became the standard reference manual for Archiving your valuable software. This periodical is totally revised every 3 months to include new product offerings, and is the most accurate, and comprehensive information resource of its kind available anywhere! Your Satisfaction is Guaranteed!-24 Hr 1st Class Shipping

A ***Quarterly Update Disk*** is also available that puts the newest product offerings right at your fingertips, and you won't need a parameter to back it up!

*V7 Cross-Reference Book $19.95 + 3 p/h*
*V3 Quarterly Update Disk $ 9.95 + 3 p/h*

*Now Available Direct From Publisher*
***Edward A. Mallang III***
***4725 Castle Lane***
***Everett, Wa. 98203 (206) 252-8256***
*VISA, MC, And DEALERS WELCOME*

Upgrades --- Book $14.95 - Disk $6.95 - Ask About Our Monthly Subscription Service

# RUN
## Class Ads

*RUN* Class Ads were specifically designed to provide the effectiveness of display advertising at the cost of classified advertising. This opportunity gives the Class Ad buyer the lowest cost available to reach *RUN*'s highly qualified circulation of exclusive Commodore 64 & 128 owners.

Need help in designing your Class Ad, questions about rates, frequency or size? Call **HEATHER PAQUETTE at 1-800-441-4403 or 603-924-9471**. We accept checks, money orders, Master Card or VISA.

**NOTHING LOADS YOUR PROGRAMS FASTER THAN THE QUICK BROWN BOX**
**A NEW CONCEPT IN COMMODORE© CARTRIDGES**

Store up to 30 of your favorite programs in a single battery-backed cartridge for easy, instant access. Change contents as often as you wish. The Quick Brown Box accepts most unprotected and "frozen" programs including the only word processor that saves your text as you type, "The Write Stuff." Coexists with GEOS© and Commodore RAM Expansion Units. Loader utilities included for both C-64 and C-128 modes.

16K $69; 32K $99; 64K $129 (plus $3 s/h; MA res. add 5%). Call for "Write Stuff" pkg.
Brown Boxes, Inc., 26 Concord Rd., Bedford, MA 01730: (617) 275-0090; 862-3675.

**"Good Reliable Stuff"** *Info (Jan/Feb '88)*
**"A Little Gem"** *Twin Cities 128 (Mar/Apr '88)*
**"You'll Never Lose Your Cool, or Your Programs"** *RUN (Nov '87)*
**"A Worthy Product—Long Overdue"** *Ahoy (Feb '88)*



**commodore Service**

**C-64**
**1541**
**C-128**
**1571**
**$25.00**
**•Plus Parts**

AUTHORIZED COMMODORE SERVICE CENTER
★ ★ ★ ★ ★
WE DO WARRANTY REPAIRS
CALL FOR DETAILS

We also service Amiga & other Commodore equipment, Leading Edge, Star Micronics, IBM PC & XT, and Blue Chip. Call for rates.

**90-DAY WARRANTY** ON ALL REPAIRS

**TYCOM, INC.**
503 East St.
Pittsfield, MA 01201

**(413) 442-9771**

**COMMODORE** 128 & CP/M USERS
**WORDSTAR®**

WORDSTAR V.2.26 or SuperCalc V.1.12 or WORDPAC (including Grammatic and Spellguard) or MBASIC with compiler. **$39.00** each

Wordstar/SuperCalc includes a 763 page Osborne System Manual with extensive CP/M Tutorials as well.

**800-221-7372 Don Johnson**
**PDSC, 33 Gold St. L3, NYC, NY 10038**

FEBRUARY

## COMING ATTRACTIONS

### FIRE POWER—

A joystick or mouse can make or break a game or productivity program. So it's important to find a responsive, easy-to-handle device that's right for you. Next month, technical editor Tim Walsh takes a look at the fast-action joysticks and mouse devices available for your C-64 or C-128.

### MARKETING MACHINATIONS—

What does it take to get a product noticed in a competitive market? Sometimes, you need a gimmick. In the software industry, public relations firms have tried just about everything, ranging from invitations to a rock 'n' roll party to mailing fake sticks of dynamite. Tune in next month for an interesting and amusing look at some of the promotional campaigns that have accompanied the introduction of software products.

### THE TALE OF THE MOUSE AND THE RAM—

With the increased popularity of the mouse and RAM expander for the Commodore computers, it's become more and more important for Basic programmers to create programs that utilize these peripherals. Find out how next month.

### A RAINBOW OF ARTICLES—

Next month you'll also be treated to some useful applications and entertaining programs, including a kinetic art program that will mesmerize you with colorful, undulating shapes and designs. We'll also present our regular features and columns, including reviews, news, hints and tips, answers to readers' questions and much, much more to help you get the most out of your Commodore computing system. Don't miss it!

## LIST OF ADVERTISERS


**(603) 924-7138 or (800) 441-4403**
NATIONAL ADVERTISING 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 |
|---|---|---|
| 49 | Absolute Entertainment | 15 |
| 7 | Access Software | 57 |
| 108 | Accolade | 48 |
| 40 | ActionSoft | 55 |
| 231 | Advanced Solutions | 93 |
| 79 | Aprotek | 91 |
| 241 | Arcadia | 51 |
| 134 | Berkeley Softworks | 61 |
| 81 | Central Point Software | 80 |
| * | Cinemaware Corp. | 41 |
| 64 | CompuServe | 53 |
| 226 | Computer Repeats | 54 |
| 166 | Creative Micro Design | 87 |
| * | Crown Custom Covers | 87 |
| 50 | Data East USA, Inc. | CIII |
| 154 | Datel Computers | 2, 3 |
| 235 | Demonware | 59 |
| 46 | Digital Solutions | 9 |
| 27 | Digital Solutions | 11 |
| 97 | Digital Solutions | 13 |
| 153 | EPYX | CII |
| 12 | EPYX | 21 |
| 105 | EPYX | 23 |
| 85 | EPYX | 24, 25 |
| 158 | Entertainment On-Line | 87 |
| 248 | Interplay | 29 |
| 227 | Konami | 38, 39 |
| 66 | Loadstar | 1 |
| * | Lyco Computer | 64 |
| 68 | MicroProse Software | CIV |
| 103 | MicroProse Software | 27 |
| 98 | Montgomery Grant | 67 |
| * | NRI Schools | 33 |
| 58 | Origin Systems | 4 |
| 15 | Protecto's Computer Direct. | 46, 47 |
| 224 | Rainbird | 7 |
| 232 | Renco Computer | 93 |
| * | *RUN* | |
| | RUN Subscription | 16 |
| | RUN Works | 32 |
| | GEOS | 49 |
| | ReRUN Subscription | 64D |
| | Class Ads | 94–95 |
| 133 | Sir Tech Software | 43 |
| 245 | Software Discounters of America | 70, 71 |
| 111 | Software Simulations | 30 |
| 26 | SubLogic Corp. | 31 |
| 87 | SubLogic Corp. | 83 |
| * | Tab Books, Inc. | 77 |
| 155 | Tenex Computer | 81 |
| 236 | The Soft Group | 93 |
| 209 | Tussey Computer | 17–19 |
| 187 | Utilities Unlimited | 79 |
| * | Value-Soft | 85 |
| 96 | Xetec, Inc. | 45 |

For further information from our advertisers, circle the corresponding Reader Service number on the adjoining card.
*This advertiser prefers to be contacted directly.

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.


***RUN* ALERT:** As a service to its readers, *RUN* will periodically publish the names of companies who are having difficulties meeting their customer obligations or who have gone out of business. Readers are advised to contact **Susan Maizel, Customer Service Representative, *RUN* Magazine, 80 Elm St., Peterborough, NH 03458**, before dealing with these companies: **S&S Wholesalers, Compumed, Pro-Tech-Tronics, White House Computer, Prism Software** (Waco, Texas), **Underware and Starflite**.


PRESIDENT
**MICHAEL PERLIS**

VICE-PRESIDENT/GENERAL MANAGER
**ROGER MURPHY**

VICE PRESIDENT
**STEPHEN TWOMBLY**

CORPORATE CIRCULATION DIRECTOR: **FRANK S. SMITH**
SINGLE COPY SALES MANAGER: **LINDA RUTH**
DIRECT SALES MANAGER: **MICHAEL CARROLL**
NEWSSTAND PROMOTION MANAGER: **DEBBIE WALSH**
DIRECTOR OF CREDIT SALES & COLLECTIONS: **WILLIAM M. BOYER**

CORPORATE PRODUCTION DIRECTOR: **DENNIS CHRISTENSEN**
CORPORATE PRODUCTION MANAGER: **SUSAN GROSS**; MANUFACTURING MANAGER: **LYNN LAGASSE**

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.

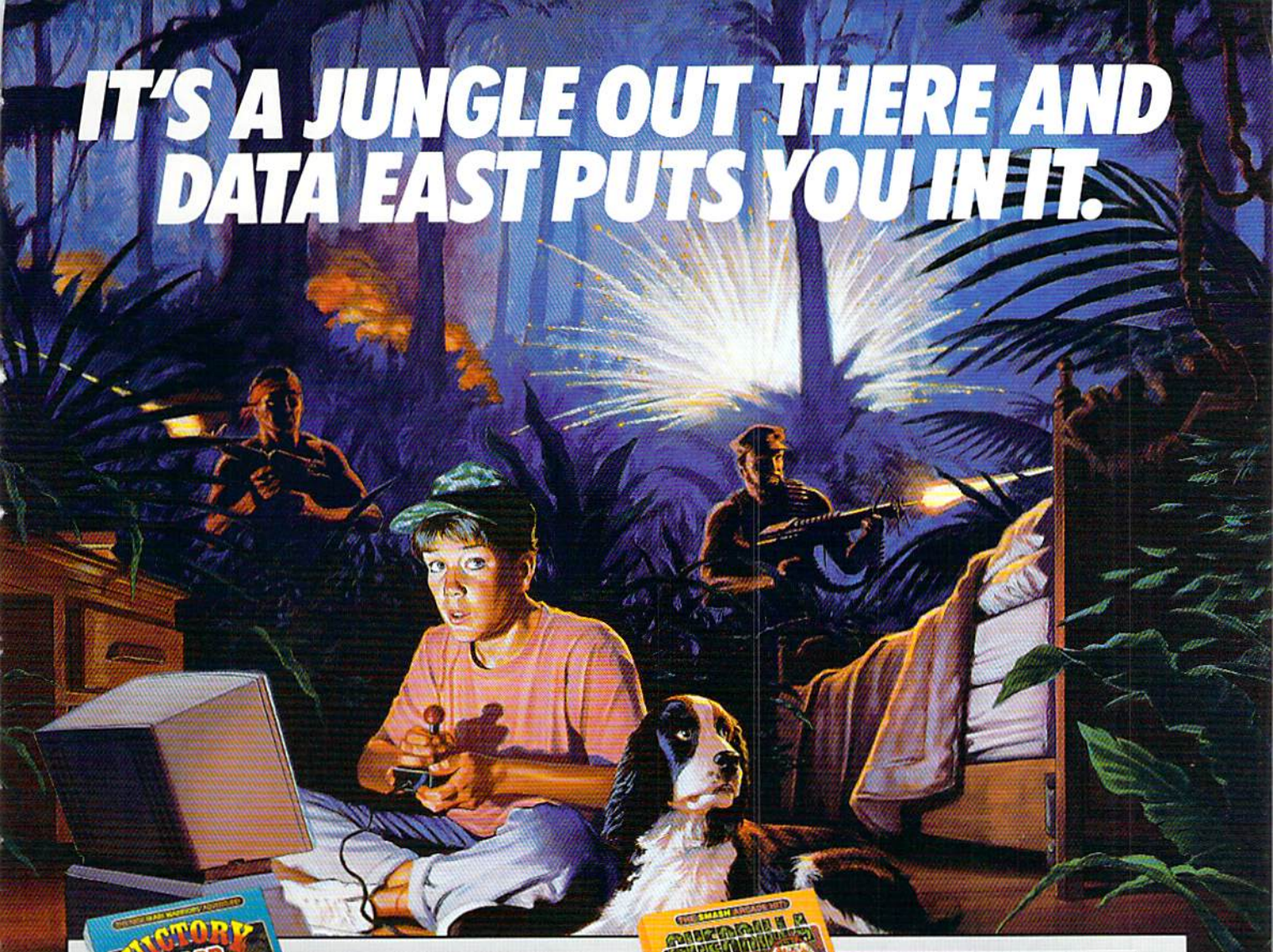
**Problems with advertisers:** Send a description of the problem and your current address to: *RUN*, 80 Elm Street, Peterborough, NH 03458, ATTN.: Susan Maizel, Customer Service.

**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 RUNning Board is *RUN*'s reader feedback bulletin board, which you can call anytime, day or night, seven days a week, for up-to-date information about the magazine, the Commodore industry and news and information of interest to all Commodore users. Call: 603-924-9704.

# IT'S A JUNGLE OUT THERE AND DATA EAST PUTS YOU IN IT.









It happens so fast. You're kicking back, you and your best friend, just checking out two of the latest arcade action games from Data East and, zap, you're fighting with full fire power and up to your neck in heart-stopping, eye-popping jungle.

*Victory Road* pits the heroes of the #1 smash hit, *Ikari Warriors,* against a hideous horde that has heroes for lunch—Stonehead and his wrecking crew of bizarre and brutal beasts.

*Guerrilla War* takes you behind the headlines to the battlelines. It's you versus them—and let us guarantee you that "them" is an army of evil that will keep your trigger finger active for hours.

*Victory Road* for the IBM, Commodore and Apple II computers. And *Guerrilla War,* for the IBM and Commodore computers. Addictive action with great graphics. Hey, it's a jungle out there. And now we've brought it home.

DATA EAST

DATA EAST USA, INC. 470 Needles Drive, San Jose, CA 95112 (408) 286-7074

IBM SCREENS SHOWN. OTHER COMPUTER VERSIONS MAY VARY

© Data East USA, Inc. Victory Road and Guerrilla War are registered trademarks of SNK. Corp. Manufactured under license by Data East USA, Inc.

Circle 50 on Reader Service card.

# Fly Miss MicroProse with Major Bill









***Major "Wild Bill Stealey" MicroProse President, USAF Reserve, graduated from the U.S. Air Force Academy in 1970. As a U.S.A.F. instructor and Pennsylvania Air National Guard pilot, he has flown more than 3,000 hours in jet airplanes.***

Now you have a chance* to take-off into the wild blue yonder with Major "Wild Bill" Stealey, president of MicroProse Software. All you have to do is send us an essay (200 words or less), telling us why you like any one of the six MicroProse products shown below. It's easy!

If you're one of the 3 grand-prize winners, we'll fly you to Maryland, give you a tour of MicroProse and take you on the ride of your life in the company's 1425-horsepower T-28 Trojan airplane — the MISS MICROPROSE. 100 other winners will receive T-shirts, stealth fighter models and a coupon for $10 off your next purchase of a MicroProse title.

Thrill to a Chesapeake Bay sunset from 5,000 feet or just enjoy the view of northern Maryland's rolling horse farms at low altitude. If you're up for it, you can even fly upside down. It's an adventure ... it's excitement ... and it's real — just like the sophisticated software from:

**MICRO PROSE™**
SIMULATION • SOFTWARE

180 LAKEFRONT DRIVE • HUNT VALLEY MD 21030 • (301) 771-1151

* Offer void where prohibited by law. All entries must be postmarked before March 31, 1989. Send to "I cheated death with Major Bill" contest. This offer is *not* affiliated, sponsored or endorsed by the U.S. Air Force.



















For IBM, Commodore 64/128, Apple, and Atari Computers. Call for specific machine type availability.

Circle 68 on Reader Service card.