

Commodore<sup>®</sup>  
MAGAZINE

# RUN

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

May/June 1992  
An IDG  
Communications  
Publication

WIN A 40-MEG  
HARD DRIVE IN  
**RUN's \$2000  
Contest!**  
See p. 30 for details

## Discover the Online World of

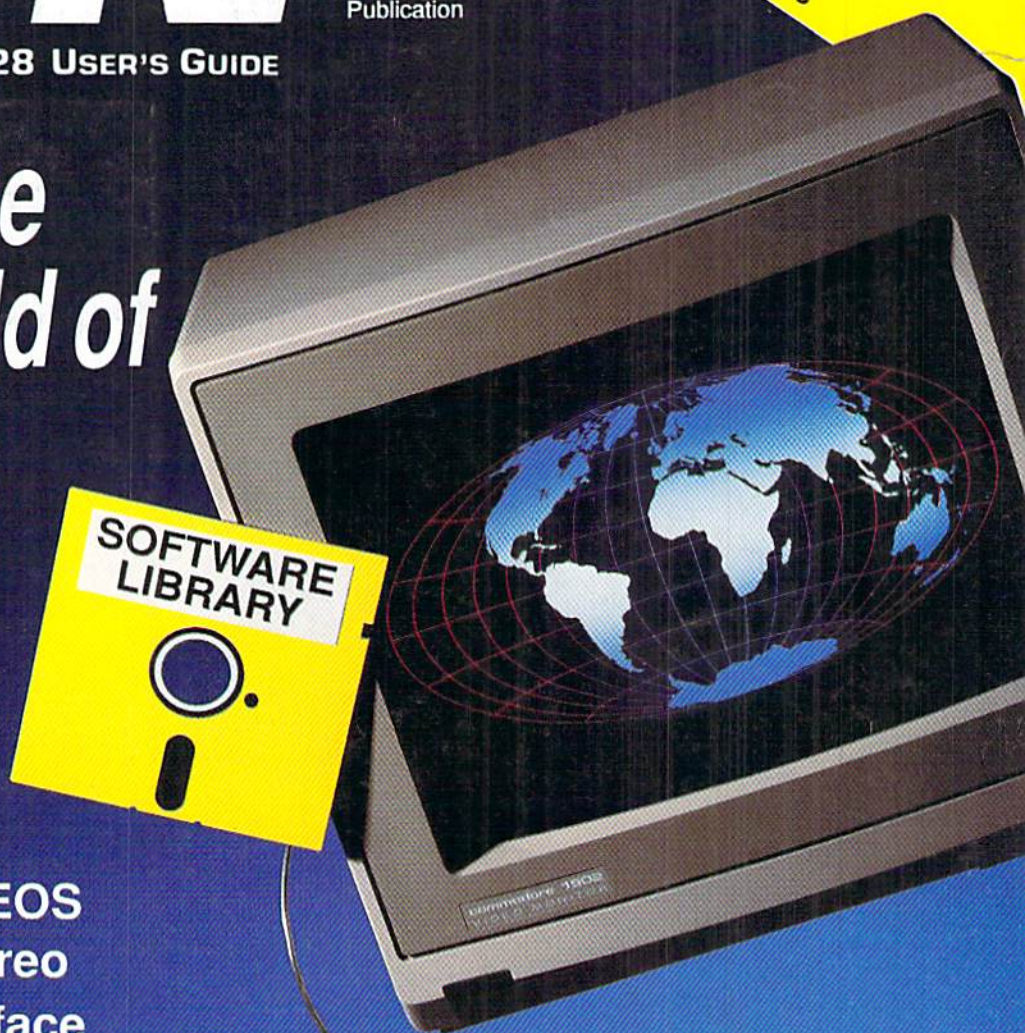
- ▶ Modems
- ▶ BBSs
- ▶ Terminals
- ▶ The Nets

### REVIEWS:

- Perfect Print for GEOS
- SID Symphony Stereo
- SwiftLink-232 Interface

### PLUS:

STOCK MARKET 64  
TRAVERSE 64  
SUNDIAL 128



Chat Mode



U.S.A. \$3.95

CANADA \$4.95

www.commodore.com

May Not Reproduce Without Permission





# Call Toll Free 1-800-233-8760



## NX-1001

- 180 CPS Draft
- 45 CPS NLO
- 4 Resident fonts
- Front Control Panel
- 2-Year Warranty



**\$129<sup>95</sup>\***

### Star Micronics

NX-1001	\$129.95*
NX-1020 Color	\$174.95
NX-2430	\$NEW
NX-2420 Color	\$283.95
XR-1020	\$314.95
XR-1520	\$399.95
XB-2420	\$439.95
XB-2425	\$539.95
LS04 Page Laser	\$849.95
SJ48 Ink Jet	\$299.95



## KX-P1180i

- Enhanced 9-Pin Printer
- 240 CPS Draft
- 48 CPS NLO
- EZ-Set Operator Panel
- 2-Year Warranty



**\$154<sup>95</sup>**

### Panasonic

1180i	\$154.95
2180 Color	NEW
2123	NEW
1123	\$189.95
1124i	\$269.95
1624	\$324.95
2624	\$365.95
1654	\$569.95
4420 Laser	\$699.95
4450i Laser	\$1075.95
4455 ps Laser	\$1689.95

## brother HJ-100i

- 83 CPS LQ mode-10cpi
- AC adapter standard
- Ni-Cad battery optional
- Ink life 700,000 (LQ)
- 1.4 million (NLO)
- Weighs under 5 lbs



**\$299<sup>95</sup>**

## PRINTERS

### Brother

M1309	\$155.95
M1324L	\$224.95
M1809	\$295.95
M1909	\$409.95
M1924L	\$539.95
M2518	\$799.95
M4309 800 CPS	\$1859.95
HL4V Laser	\$999.95
HL8V Laser	\$1399.95
HL4ps Laser	\$1689.95
HL8ps Laser	\$2259.95
HJ-100i Ink Jet	\$299.95

### Okidata

184 Turbo	NEW
380	\$219.95
320	\$309.95
320i	\$309.95
321	\$434.95
390 Plus	\$435.95
391 Plus	\$589.95
393 Plus	\$929.95
393C (color)	\$989.95
Laser 400	\$599.95
Laser 800	\$925.95
Laser 820	\$1235.95
Laser 830	\$1299.95
Laser 840	\$1599.95

\*Quantities Limited

## CITIZEN GSX-140 + Color

- 220 CPS Draft
- 72 CPS Letter Quality
- 24-Wire Dot Matrix Color Printer
- 2-Year Warranty



**\$299<sup>95</sup>**

### Citizen

200GX	\$159.95
200GX Color	\$189.95
GSX-130	\$234.95
GSX-130 Color	\$259.95
GSX-140 +	\$289.95
GSX-140 + Color	\$299.95
GSX-145	\$395.95
200GX-15	\$319.95
PN-48 Notebook Printer	\$319.95



## 200GX Color

- Color/9-wire Printer
- 240 CPS Draft
- 240x216 dpi
- 5 resident fonts
- 2-Year Warranty



**\$189<sup>95</sup>**

### Epson

LX-810	\$159.95
FX-1050	\$416.95
LQ-200	\$226.95
LQ-570	\$259.95
LQ-860	\$565.95
LQ-870	\$445.95
LQ-1070	\$359.95
LQ-1170	\$599.95
Action Laser II	\$689.95

## COMMODORE UPGRADES

### VIP 386SX/25MHZ COMPUTER

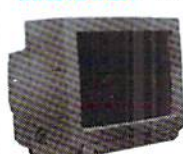


- IBM Compatible
- 2M RAM
- 101 Keyboard
- 1.2MB Floppy Disk
- 1 Par. 2 Serial Ports
- IDE/Floppy Controller

**\$529<sup>95</sup>**

\*Monitor Separate

### MAGNAVOX 1CM135 MONITOR



- Analog RGB Input
- Easy Access Front Controls
- Built-in Tilt Stand
- 640Hx200V

**\$249<sup>95</sup>**

### Monitors

Magnavox:	
1CM135	\$249.95
7CM321	\$299.95

### Accessories

Diskettes:	
5 1/4 Disk Notcher	\$5.95
Xidex 5 1/4 DSDD	\$4.95
Xidex 3 1/2 DSDD	\$9.95

Surge Protectors:	
QVS PP-102	\$15.95
QVS PP-112	\$15.95
QVS PP-106	\$22.95

Printer Interfaces:	
Xetec Jr.	\$38.95
Xetec Supergraphics	\$55.95

Printer Paper:	
1000 sheet laser	\$19.95
Address Labels	\$9.95

Drive Maintenance:	
5 1/4 Drive Cleaner	\$4.95
3 1/2 Drive Cleaner	\$4.95

### HEAD START 386SX/20MHz With Windows COMPUTER



- 80 MB18ms Hard Drive
- 2M RAM
- Software Included
- 1.44MB & 1.2MB Floppy
- 1 Par. 2 Serial Ports

**\$899<sup>95</sup>**

\*Monitor Separate

### MAGNAVOX 7CM321 MONITOR



- 14" VGA Display
- 1024 x 768
- 16 x 256 Colors
- .28 Dot Pitch

**\$299<sup>95</sup>**

Why shop at Lycocomputer? Lycocomputer offers quality name brand computer products at prices 30% to 50% below retail. If you do not see the product you want advertised, call Lycocomputer toll free. How do I know I will get the product I need? Our marketing staff receives continuous formal training by our manufacturers. 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. As thousands of people every week capitalize on our savings and services, we hope you too, will make Lycocomputer your first choice. What about warranty or service? Our Customer Service Department is available at (717) 494-1670 to assist you. We back all of our manufacturer's stated warranty terms. Before returning any item that appears to be defective, we ask that you call our Customer Service Department. Will you rush an item to me? We offer next day air, two day air, standard UPS, and postal international shipping services. Temporary shortages are normally filled within 10 days. How do I order? We have always accepted C.O.D. orders through UPS. Prepaid cash orders over \$50 are shipped freight-free in continental U.S. For orders under \$50, please add \$3 for freight. Personal and company checks require a 4 week clearing period. Visa, MasterCard, American Express and Discover Card orders are accepted for your convenience. Purchase orders and availability are subject to change. Simply send your order to Lycocomputer, P.O. Box 5088, Jersey Shore, PA, 17740. Or, call 1-800-233-8760 or (717) 494-1030. Return restrictions apply. Not responsible for typographical errors.

Sales: 1-800-233-8760  
717-494-1030  
Fax: 717-494-1441  
Hours: Mon.-Fri.  
9a.m.-9p.m.  
Sat. 10a.m.-6p.m.  
Customer Service:  
717-494-1670  
Hours: Mon.-Fri.  
9a.m.-5p.m.

# Lycocomputer Marketing & Consultants, Inc.



# OBSOLETE?



## NOT SO FAST!

Your Commodore® is *still* one of the best home computers ever produced. Why? Because Softdisk Publishing supports your Commodore with over 100 new programs every year. And, these programs can all be yours for **LESS THAN A DOLLAR EACH!**

**LOADSTAR®** is a software subscription produced especially for Commodore 64 computers. After more than seven years of publishing **LOADSTAR**, we've gathered some of the nation's leading programmers to offer you all-new, all-original programs. With **LOADSTAR** you'll discover why your Commodore is far from obsolete.

Each month seven to ten new programs will come to your mailbox postage-paid. And, if you're like most subscribers, you'll find that a single program is worth the cost of the entire subscription.

## SEND NO MONEY NOW!

Try a sample issue of **LOADSTAR** risk-free. Check our "Bill Me" option and mail or fax the coupon back to us or call Toll-Free 1-800-831-2694, Ext. 2005. Why not try it now? You have nothing to lose but your worries about your Commodore!

**Here's what you'll get with your monthly subscription:**

- A variety of games, educational tools, and productivity programs for the entire family—7 to 10 new ones every month.
- No shareware or public domain—no extra fees—we even pay postage.
- Not copy-protected; you can make your own back-ups.

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

- FREE TECHNICAL SUPPORT from **LOADSTAR** computer experts.
- Full easy-to-use documentation on disk.

## ACT NOW AND GET A FREE GIFT!

Call 1-800-831-2694, Ext. 2005, now to try an issue risk-free. Review your first issue. If you're not completely satisfied,



**CONTROL THE BLAZE IN FIREFIGHTER!  
A GAME OF HIGH-RISK STRATEGY\***

\*Available on a back issue.

for any reason, return our invoice marked "cancel" and you'll owe nothing! The first issue is yours to keep FREE.

We're so sure you'll love **LOADSTAR** that we'll even send you our **Loadstar 64 Sampler**, with your paid subscription. It's yours FREE just for subscribing.

**CALL NOW**

**1-800-831-2694, Ext. 2005**  
OR MAIL COUPON, OR FAX TO 318-221-8870

**LOADSTAR®**  
MONTHLY

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

SYSTEM REQUIREMENTS: For Commodore 64 and Commodore 128 computers; one 5.25" disk drive required.

## ATTENTION COMMODORE 128 OWNERS

Call for pricing on our quarterly publication designed just for you!  
**1-800-831-2694**

**FREE**

YES. Please rush my first RISK-FREE issue to **LOADSTAR**. I'll receive my FREE **Loadstar 64 Sampler** with my paid subscription. For fastest service, call 1-800-831-2694, Ext. 2005.

### LOADSTAR®

- ☐ 3 Months \$29.95 (Just \$9.98 per issue!)
- ☐ 12 Months \$89.95 (Just \$7.50 per issue!)

### Check Method of Payment: (check one)

- ☐ Payment enclosed (U.S. Funds Only)  
Make checks payable to Softdisk Publishing.  
LA residents add: 4% state sales tax.

### Charge My:

- ☐ Discover ☐ VISA/MC ☐ Am. Exp.

### BILL ME (U.S. only)

If I am not completely satisfied with my first issue for any reason, I will return your bill marked "cancel" and owe nothing. The first issue is mine to keep FREE.

Name \_\_\_\_\_

Address \_\_\_\_\_

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

Telephone (\_\_\_\_\_) \_\_\_\_\_

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

Signature \_\_\_\_\_

\*Call (318) 221-8718 for foreign prices. All offers subject to change. Allow 4-6 weeks for delivery of first issue.

### MAIL OR FAX TO:

SOFTDISK PUBLISHING • P.O. BOX 30008 • SHREVEPORT, LA 71130-0008 • FAX: 318-221-8870 • 1-800-831-2694

RU052



# NEW RAMCard II

with optional real time clock

geoMakeBoot makes booting GEOS from CMD devices and making back-up copies of the GEOS boot disk easy and convenient. Besides being easy to use and compatible with all devices, geoMakeBoot eliminates the need for installing some desk accessories and offers GEOS users an alternative to buying expensive copy programs. geoMakeBoot is simple, inexpensive and easy-to-use.

geoMakeBoot \$12.95 Shipping add \$2.00

RAMCard II brings the convenience of a real time clock (RTC) to RAMLink users. Through time and date stamping, you'll know exactly when you created or last modified a file. RAMCard II augments RAMLink's awesome storage capabilities by allowing you to easily locate the latest version of a file when you have copies in different directories or when making several back-up copies by date. RAMCard II replaces the original RAMCard and may be purchased with or without the RTC option. If you purchase RAMCard II without its RTC, you can add the RTC at a later date. RAMLink owners can contact CMD for upgrade details.

# NEW geoMakeBoot

Backing up GEOS made easy

# perfect print LQ for GEOS™

Eliminates jagged output • Resolution up to 360 x 360 DPI (24 Pin), 240 x 216 DPI (9 Pin) GEOCABLE compatible • Allows multiple copy printing • HQ drivers enhance graphic output

Perfect Print LQ is a complete print enhancement package for GEOS that delivers the highest quality dot matrix output possible. Includes a unique print utility and font set for enhancing GEOWRITE documents, utilities for creating fonts, and high quality drivers for other GEOS applications. Improves text and graphic output on virtually all 9 & 24 pin dot matrix printers and supports font attributes such as italics, outline, underline, bold, etc.

Main system (All drivers, utilities, and 7 fonts) \$34.95 • Font Package (42 LQ fonts) \$29.95  
Complete System (Main System & 49 fonts) \$49.95 • Shipping/Handling \$5.00 Canada add \$4.50

# NEW RAMDrive™

- Compact** - All the features you've ever wanted from RAM expansion in a compact unit. Now in five capacities: 512K, 1, 2, 4, and 8 megabytes. Dimensions: 6" x 3" x 1".
- Expandable** - New RDX Models allow for users to expand RAMDrive up to 2, 4, and 8 megabytes.
- Compatible** - Use RAMDrive with GEOS, CP/M, Q-Link, BBS programs, productivity software and more.
- Non-Volatile** - External power supply eliminates drain on computer power supply and retains data indefinitely. Internal rechargeable batteries retain data up to 7 days. RDX units with optional external battery retain data for up to 7 days. (RDX units use optional RAMLink battery)
- FAST** - Up to 400x faster than a 1541; 20x faster than RAMDOS; Built-in JiffyDOS speeds access to CMD Hard Drives and JiffyDOS-equipped floppy drives.
- Easy to Use** - Plugs into the cartridge port. Operates like a standard disk drive. File and disk copiers included along with partitioning, support utilities, and new GEOS configure.
- RD-DOS** - Organize RAM into as many as 30 manageable partitions that emulate 1541, 1571, & 1581 drives or utilize the full RAM capacity with MS-DOS style subdirectories. Autoboot 64 and 128 mode programs.

RD-512 \$199.95 • RD-1 \$249.95 • RD-2 \$299.95  
RDX-1 \$264.95 • RDX-2 \$319.95 • RDX-4 \$399.95  
RDX-8 \$549.95 • RDX External Battery unit \$24.95

# HD Series HARD DRIVES

Special Limited-Time Price Savings

The Ultimate in Mass Storage for the 64/128

- Capacity** - 20 Mb to 200 Mb capacities enable you to store the equivalent of up to 1250 1541 (170K) disks.
- Speed** - The fastest Commodore compatible hard drives. Speeds up to 50x faster than a 1541.
- Compatibility** - Ideal for use with GEOS, CP/M, Q-Link, BBS programs, productivity software and much more.
- Compact Size** - 3 1/2" SCSI technology allows for a compact case about the same size as a 1581.
- Expandability** - Chain up to six SCSI devices or connect to Macintosh, IBM-Compatible & Amiga computers.
- Built-in Real Time Clock** - Automatically time and date stamps files and sets the GEOS clock.
- HD-DOS** - Organize storage into as many as 254 partitions that emulate 1541, 1571, & 1581 drives or expand to 16Mb with MS-DOS style subdirectories.
- Easy to use** - connects like a standard drive and easy to read manual explains all facets of drive operation. Comes complete with copiers and maintenance utilities.

HD-20	499.95	CALL
HD-40	659.95	\$599.95
HD-100	999.95	\$849.95
HD-200	1299.95	\$1099.95

# RAMLink™

Power Backed REU Interface and Expandable RAM Disk

- Non-Volatile Storage** - Operates on its own external power supply. Optional rechargeable battery back-up retains data even during power outages.
- Compatible** - Use GEOS, CP/M, Q-Link, BBS programs, productivity software and more. RAM port for connection of REU or GEORAM of any capacity. Pass-thru port supports most cartridges.
- User Expandable** - Internal RAMCard allows expansion up to 16 Mb by using standard SIMM's.
- FAST** - Up to 400x faster than a 1541; 20x faster than RAMDOS; Built-in JiffyDOS plus parallel interface to speed access to CMD Hard Drives.
- Easy to Use** - Plugs into the Cartridge Port. Operates like a standard disk drive. File and disk copiers included along with partitioning and GEOS support utilities.
- RL-DOS** - Organize RAM into manageable partitions that emulate 1541, 1571, & 1581 drives or expand to the full RAM capacity with MS-DOS style subdirectories.

RAMLink (no RAMCard)	\$179.95	Battery back-up unit	\$24.95
RAMLink (w/ RAMCard II)	\$219.95	HD Parallel Cable	\$14.95
RAMLink (RAMCard II/RTC)	\$239.95	RTC add-on Kit	\$29.95
RAMCard II (with RTC)	\$79.95	1Mb SIMM	\$42.00
RAMCard II (without RTC)	\$59.95	4Mb SIMM	\$145.00

# JiffyDOS™

Hi-performance ROM upgrade • Performs all disk accesses up to 15 times faster  
Guaranteed 100% compatible • Built-in DOS Wedge & file copier • Easy to install  
JiffyDOS 64 or SX-64 \$59.95

JiffyDOS 128 or 1280 \$69.95 • Add'l Drive ROMs \$29.95  
Please specify computer & drive model with serial.

# SwiftLink™

A real RS-232 port for the C 64 and 128  
Provides an industry standard IBM style serial port that communicates at speeds from 300 to 38,400 baud and provides reliable 1200 and 2400 bps using RS-232 Hayes-compatible modems. Includes terminal programs and software for transferring files to other computers.

SwiftLink (Cart) \$39.95 • SwiftLink Cable \$9.95  
Shipping: US: \$6.00 (Cart), \$5.00 (Cable), \$7.50 (Both)

# gateWay™

A Powerful New Desktop for GEOS 2.0

Task Switching • Three drive support  
Access full capacity of HD, RAMLink, RAMDrive, expanded REU's & GEORAM

gateWay 64 \$29.95 • gateWay 128 \$29.95  
gateWay 64/128 Combo \$44.95 • Shipping: \$5.00

# SID SYMPHONY™

SID Symphony adds a second complete SID chip to your 64 or 128 and can be attached to your home stereo or amplified speaker system to provide a whole new dimension in sound. Enjoy hundreds of public domain stereo songs, import MIDI files, or use Computer's Music System book and SID editor to create original stereo music.

SID Cartridge \$39.95 • Computer's Music Book \$22.95  
Shipping: US: \$6.00 (Cart), \$5.00 (Book), \$7.50 (Both)

## Ordering Information and Shipping Charges

**CMD Hard Drives:** Continental US: \$25.00 per drive (UPS ground), \$35.00 (2nd-Day), \$45.00 (Next-Day). Canada: \$50.00 (Airmail). COD to U.S. only \$5.00 add'l charge. Foreign prices: Add \$100.00 to U.S. Retail Price  
**JiffyDOS:** Add \$5.50 per order (UPS ground), \$10.00 (2nd-Day Air), plus \$5.00 for APO, FPO, AK, HI, and Canada, or \$15.00 for overseas orders. No add'l shipping if ordered with any hard drive. COD's add'l \$5.00  
**RAMLink:** US: \$12.00 (UPS), \$20.00 (2nd day), COD add \$5.00. Canada: \$23.00. Foreign: CALL  
**Payment:** MA residents add 5% sales tax. We accept VISA, MasterCard, Money Orders, C.O.D., and personal checks (allow 3 weeks for personal checks to clear). Credit card orders provide the following: Card holders name, billing address, home/work phone, card number, expiration date and issuing bank.

Canadian Customers can now contact HOLZ COMPUTER SUPPLY, 12,6120 11TH ST. SE, CALGARY, ALBERTA T2H 2L7 PHONE: 403-262-6896 FAX: 403-255-3110

• WE VERIFY ALL CREDIT CARD INFORMATION AND PROSECUTE INDIVIDUALS ATTEMPTING TO PERPETRATE FRAUD •

Pricing and terms subject to change without notice. CMD is not responsible for misprints or information printed in error.



## Creative Micro Designs, Inc.

15 Benton Drive, P.O. Box 646  
East Longmeadow, MA 01028

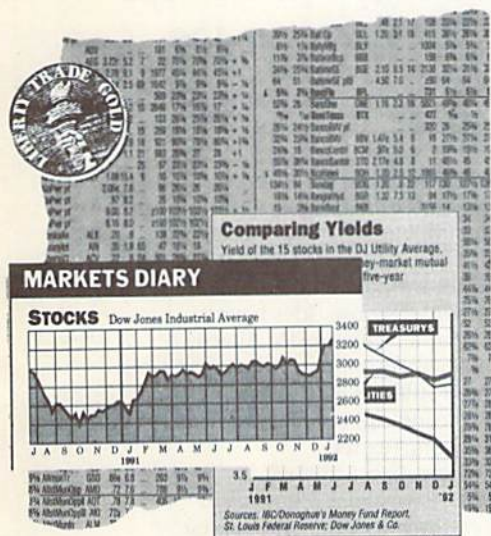
## ORDERS ONLY: 1-800-638-3263

Questions/Support: 1-413-525-0023 • FAX: 1-413-525-0147 • BBS: 1-413-525-0148  
• Office Hours: 10 am - 5 pm Mon. thru Fri •





PAGE 8



PAGE 18

COVER PHOTOGRAPHED BY ED JUDICE

*RUN* (ISSN 0741-4285) is an independent journal not connected with Commodore Business Machines, Inc. *RUN* is published bimonthly by TechMedia Publishing, Inc. (80 Elm St., Peterborough, NH 03458; 603-924-0100), a division of IDG Communications, Inc. Second-class postage paid at Peterborough, NH, and at additional mailing offices. Canadian second-class mail registration number: 9565. US subscription rates are \$22.97 per year (CA residents add 7.25% tax). In Canada, the yearly subscription rate is \$29.97, and in Mexico the yearly subscription rate is \$27.97, each with US funds drawn on a US bank. Foreign surface mail subscriptions are \$42.97 for one year, and foreign air mail one-year subscriptions are \$77.97, with US funds drawn on a US 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.)

## FEATURES

- 8 ONLINE SOLUTIONS** by John Ryan  
Knowing what questions to ask is half of the battle. Here is a practical guide for the Commodore user who wants to get online, but doesn't know where to start.
- 9 HOW SWIFTLY WILL IT GO?**  
How fast can your modem go? With CMD's SwiftLink, 9600 baud is well within reach.
- 11 NETWORK NEWS** by Tim Walsh  
Which network will give you the most for your telecommunicating dollar? Our resident expert compares QuantumLink, GENie and CompuServe.
- 13 BBS FINESSE** by Stéphane Dirschauer  
If you don't like being another face in the crowd, the networks might not be for you. Many users prefer the hometown feel of local bulletin board systems. Here's why.
- 14 A FEW BBS NUMBERS**  
If your interests reach beyond your Commodore, check out these special interest BBSs.
- 15 LIST YOUR BBS IN RUN**  
Are you a sysop? Have your BBS listed in an upcoming issue of *RUN*.
- \*16 TRAVERSE** by Tony Brantner  
It's a little like Pac Man and a little like pinball, but you've never played anything like it before!
- \*18 STOCK MARKET 64** by Reiner Richter  
Always wanted to play the market, but never wanted the risk? Here's your chance.
- 20 RUN SPECIAL REVIEW: PERFECT PRINT** by Steve Vander Ark  
With Perfect Print, your geoWrite documents will look like they were laser printed!
- 20 HOW GEOS LQ WORKS** by Steve Vander Ark  
These new printer drivers for geoWrite take a novel approach to text smoothing.

## DEPARTMENTS

- 4 RUNNING RUMINATIONS** by Dennis Brisson  
*RUN* continues to support the Commodore market with new ventures.
- 6 MAIL RUN**  
Readers give excellent advice about REUs, lay-flat manuals and Fun Graphics Machine.
- 7 RUN AMOK**  
Clarification of Mah Jongg instructions; Multicopy v3.0; plus more.
- \*24 128 MODE** by Mark Jordan  
Believe it or not, this time your Commodore 128 becomes a sundial!
- 26 COMMODORE CLINIC** by Tim Walsh  
A new, though very familiar, columnist answers questions about your computer.
- 28 MAGIC** compiled by Tim Walsh  
Tricks that let you save binary files in C-64 mode, sample the Commodore's musical talents and see page breaks in your program listings.
- 29 USER'S GROUP UPDATE**
- 31 COMING ATTRACTIONS; LIST OF ADVERTISERS**
- 32 NEWS AND NEW PRODUCTS** by Janice Greaves  
This time it's hats off to the independent developers. Plus, a special report about copyrights on software.
- 33 RUN'S CHECKSUM PROGRAM—SAME PROGRAM, NEW INSTRUCTIONS!**
- 45 SOFTWARE GALLERY** by John Ryan.  
Reviews of:  
• Arachnophobia  
• Predator 2  
• Back to the Future III  
• Calc II
- 48 CURTAIN CALL** by John Ryan  
This issue, *RUN* shines the spotlight on the SID Symphony Stereo Cartridge.

\* Daylight savings time can really cut into the evenings at the keyboard. If you're too busy mowing the lawn to type in these programs, order the May/June ReRUN disk. Just call 800-824-5499.



PRESIDENT AND PUBLISHER  
DALE STRANG

EDITOR-IN-CHIEF  
DENNIS BRISSON

MANAGING EDITOR/PRODUCTION  
VINOY LAUGHNER

NEW PRODUCTS EDITOR  
JANICE CROTTY

TECHNICAL MANAGER AND  
ANCILLARY PRODUCTS MANAGER  
TIM WALSH

CONTRIBUTING EDITOR  
JOHN RYAN

ART DIRECTOR  
HOWARD HAPP

DESIGNER  
ANN DILLON

PRODUCTION DIRECTOR  
LYNN LAGASSE

MANUFACTURING MANAGER  
ALANA KORDA

PRODUCTION SUPERVISOR  
DEBRA A. DAVIES

ASSOCIATE PUBLISHER AND  
NATIONAL ADVERTISING SALES MANAGER  
KENNETH BLAKEMAN

SALES REPRESENTATIVE AND  
CLASS AD SALES  
HEATHER GUINARD  
603-924-0113

ADVERTISING COORDINATOR  
MEREDITH BICKFORD

PUBLISHER'S ASSISTANT  
MARY MCGOLE

ADVERTISING ASSISTANT/  
CUSTOMER SERVICE REPRESENTATIVE  
MARGOT SWANSON

WESTERN SALES MANAGER  
GIORGIO SALLI  
533 AIRPORT BLVD., 4TH FLOOR  
BURLINGAME, CA 94010  
415-375-7018

DIRECTOR OF OPERATIONS  
SUSAN M. HANSHAW

CIRCULATION MANAGER  
DEBORAH M. WALSH  
1-800-274-5241

MARKETING DIRECTOR  
WENDIE MARRO

MARKETING COORDINATOR  
LAURA LIVINGSTON

BUSINESS MANAGER  
LISA LAFLEUR

Entire contents copyright 1992 by TechMedia Publishing, Inc., a division of IDG Communications, Inc. No part of this publication may be printed or otherwise reproduced without permission from the publisher. All 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.

*Commodore Magazine* is a registered trademark of Commodore Business Machines, Inc.

# RUNNING RUMINATIONS

## SPECIAL PRODUCTS AND *RUN*

Like a candidate in search of votes, today's Commodore user is looking for software and hardware to add to his or her system. Product availability—or, more accurately, the lack of it—remains the primary concern of Commodore users, who, as developers move to other markets, envision a computing wasteland of the future.

In response, *RUN* has increased its participation in the development and distribution of products for this market. (How can you *not* notice the eight-page color catalog in each issue?) We've expanded to the point where *RUN* now boasts over 60 catalog items . . . with more on the way.

In the early days of this market, we recognized that there were some software needs not being met by existing developers, and we soon launched our first title: Productivity Pak. The response was tremendous, and with user feedback, we soon developed another disk, and then another. The rest, as they say, is history. We are proud to have played an active role in furthering the Commodore eight-bit market.

In addition to software, we market hardware such as modems and power supplies and, at one point, we sold REUs and some 128D computers.

An estimated 10,000 published titles have been developed for the C-64/128. *RUN* is attempting to bring together users looking for products and some of these titles, which—for one reason or another—companies are no longer interested in marketing.

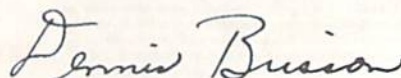
You'll note that these catalog titles are not fire-sale merchandise. They are top-quality packages, from companies whose titles have become synonymous with quality—for example, Timeworks, Abacus, MicroProse, Berkeley Softworks and Cinemaware.

*RUN*, as our name implies, will not stand still. As sure as the national debt will rise, we will continue to scout out new and existing products that we think will be of interest to our readers.

At the same time, we remain focused on our first order of business: *RUN*. Our involvement with special products allows us to maintain a symbiotic relationship between the magazine and special products and has enabled us to continue to meet the needs of our readers. The magazine supports and helps generate new product sales, which, in turn, help to finance the magazine. And, of course, *RUN* remains committed to presenting interesting articles, reviews of noteworthy products, high-quality type-ins, and special features, such as contests (see page 30), as well as providing quality products through our catalog.

Though things have changed, it remains an interesting and busy time to be publishing a magazine for the Commodore market. You can count on *RUN* to continue to keep you involved in the Commodore market and to help you get the most out of your Commodore computer system.

*In more ways  
than one, RUN  
will continue to  
do its part to  
extend the life of  
the C-64 and  
C-128.*



Dennis Brisson  
Editor-in-Chief



# YOU WON'T RECOGNIZE THE FAMOUS COMPUTER IN THIS AD. OR THE VALUE.



You'd never know the amazing things this black box can do just by looking at it. Not only does CDTV® play your audio CDs but it can bring words, music and pictures to life on your television. CDTV simply connects to your TV and stereo and through its ingenious marriage of computer, audio and video technologies lets you play with a new generation of interactive CDs.

CDTV is based on the Amiga® and if you buy the CDTV/IP system before June 30th it comes with AmigaDos®, a keyboard, floppy drive, mouse, Grolier's Electronic Encyclopedia™, Lemmings™, Appetizer pack and a savings of up to \$848.00\*.

Just pick up a CDTV Multimedia Player and you'll have a full 1Mb Amiga 500 with the potential to be a home video editing system, a home reference library, a children's learning tool, a music studio and a language learning lab. All within reach of your sofa.

For the name of the closest authorized Amiga dealer or for your free CDTV Welcome Tour video tape call 1-800-66-AMIGA, in Canada, call 1-800-661-AMIGA.

Look into CDTV Multimedia. You'll be amazed at what you see.

CDTV is a registered trademark of Commodore Electronics Ltd. Amiga and AmigaDos are registered trademarks of Commodore Amiga, Inc. Electronic Encyclopedia is a trademark of Grolier Electronic Publishing Inc. Lemmings is a trademark of Psygnosis. © 1992 Commodore Business Machines, Inc. \*Based on MSRP, actual dealer prices may vary.



# MAIL RUN

*Here are just a few from the hundreds of letters we receive here at RUN every issue.*

## EDUCATIONAL ROLE MODEL

After reading your November/December issue, I decided to write for advice.

The Instituto Anglo Mexicano is a high school (grades 8-12) where we are using Commodore 64 and 128 computers, teaching our younger students to use them as tools for their future studies. Since there is neither the technical support nor the spare parts available for these computers in Mexico, we bought PCs for higher grades.

Through your magazine, we are buying some software and spare parts in order to keep our Commodores working. As we need more computers, I would like you to let me know which computers and software are being used in high schools in the United States. This is a private school and we would like to have our pupils acquire the same level of knowledge as students in American high schools do.

Your assistance will be appreciated.

—LUIS DE LA GARZA MIJARES  
TAMPICO, MEXICO

*Many computers are used in the United States public and private school systems, including Commodore computers. They continue to be an excellent resource for students at all grade levels. Any readers with information about using Commodore computers in the classroom can write to Señor Mijares:*

Instituto Anglo Mexicano  
Div. Estudios Superiores  
Calle Lopez 601 C. Post. 89260  
Col. Campbell  
Tampico, TAM  
MEXICO

—EDITORS

## MORE PERIPHERAL SUPPORT

The January/February issue contained a list of software that supports a mouse, a 1581 disk drive and/or a RAM expander. I offer a couple of comments:

First, you note that Big Blue Reader does not support a RAM expander. I think it does. When you boot BBR, the RAM available in the expander is taken up as part of the transfer buffer—the

larger the buffer, the fewer disk swaps necessary. Although BBR does not support copying between the REU and a floppy disk, it does use the REU.

Second, you did not mention CP/M 3.0, the alternative operating system for the C-128. Later versions of DOS support the RAM expander as a RAMdisk, drive M. By using CP/M's batch file commands, you can copy your applications to the RAMdisk from a floppy when booting CP/M, work with the applications at high speed, and then save files to floppy. This also avoids possible corruption of disk files through error or power failure during read/write access.

—KENNETH BUSH  
INDIANAPOLIS, IN

*Thanks for the clarification. We have had a few other additions to the list. One caller pointed out that PaperClip supports RAM expanders only in 128 mode, and that it will support the 1581 if you configure it as a device 8 dual drive.*

—EDITORS

## REU FEEDBACK

You have likely received several letters that modify your REU articles of the past few issues. I'd like to note the following:

1) geoRAM will work with non-GEOS programs when connected to RAMLink or RAMDrive.

2) The three-slot expander from Tenex mentioned in the article will not allow simultaneous use of more than one cartridge. Only one cartridge at a time may be accessed. The Aprospan board from Briwall or Quick Brown Boxes lets me simultaneously operate two Quick Brown Boxes and a 1750 REU.

Because most accelerator cartridges are incompatible with the QBB, I have installed the JiffyDOS chips in my computer and disk drive. This provides accelerated disk operations, an expanded DOS wedge and a file copy program.

3) Regarding "Hardware RAMpage" in the January/February issue, it is worth noting that the Write Stuff has been specially adapted to work with RAMLink and RAMDrive. Aside from residing in

the device, it creates partitions—useful for those of us who wish to separate our files for different topics.

4) In the same issue you list software that supports mice/1581/REUs. The 1351 mouse works beautifully with the Final Cartridge III.

—JOHN ELLIOTT  
TRURO, NOVA SCOTIA

## LAY-FLAT MANUALS

Most manufacturers bind their instruction manuals with spiral rings so that you can open them up and lay them flat on your work surface. Some, however, use the old book binding method, which gives the manual a hard spine. These books are troublesome if you have to refer to them often—they keep closing and you have to pin them down with heavy objects.

There is, however, an easy and inexpensive solution to the problem as close as your nearest printing store (such as the Kinkos or PIP chains). I have them add what they call a "combination binding" to the offending manual. The job consists of cutting off the old spine, punching holes in the pages and inserting a plastic spiral. I had expected to lose some text when I first had this done, but instead I ended up with a nice margin on the inside of the page.

I live in a small, somewhat isolated area where prices are usually higher than average, but even so, the entire job cost only \$3. For that small amount, I now have a printer manual (among others) that lies flat. I also use different colors to indicate the different applications.

—BILL BARLOW  
BAINBRIDGE ISLAND, WA

## FUN GRAPHICS MAKES FORMS

Last fall I needed a program to make forms, but I couldn't find a commercial one to do it, and no suppliers could help.

RUN to the rescue!! The November/December issue described two different programs to make forms. But again disappointment—suppliers said one was no longer available and none had heard of Fun Graphics Machine.



Once again, *RUN* to the rescue!! In Coming Attractions, I read that you were going to feature the Fun Graphics Machine in the March/April issue. Then in the classified section I found an ad for the program. A quick call, priority mail and some really nice people had this program in my hands the next day, and—WOW!!

FGM almost makes graphics and fonts stand out at right angles from the page! The thorough manual and inexpensive keyboard overlay had me—a three-thumbed newcomer—up and running in no time. We soon had a set of forms made up exactly to our specifications.

It can do so many things with different graphics, fonts and border designs, the possibilities for it seem virtually endless. The last print program I bought required the Amiga version for smoothing. Fun Graphics Machine has a smoothing routine built in. It's excellent.

—DICK KIMKER  
COOS BAY, OR

## RUN Amok

We've had a few calls concerning the loading instructions for **Mah Jongg** (January/February). Here's what to do to play this excellent game:

Type in and save Listings 1 and 2, naming them **BOOT.MJ** and **SOURCE.MJ**, respectively. Next, load and run **SOURCE.MJ**; this automatically creates and saves a machine language file named **MAJJONGG.ML**, which contains the actual game.

To play Mah Jongg, load and run the boot program, **BOOT.MJ**.

*RUN* has a new version of MultiCopy that works around a hardware bug in early 1541 disk drives that prevents the program from running correctly. **MultiCopy v3.0** will work on all C-64 and C-

128 systems. To receive a copy of v3.0, send a blank disk and a self-addressed, stamped disk mailer to *RUN* Magazine, Multicopy v3.0, 80 Elm St., Peterborough, NH 03458.

NOTE: The Multicopy programs will not run with a cartridge or printer interface plugged into the computer.

**Steve Karstensen** deserves special acknowledgement for submitting 11 entries to *RUN*'s literary contest. His name was omitted in our March/April issue. Hats off to you, Steve.

The instructions to *RUN*'s **Checksum** have been modified to make them easier to understand. The Checksum program, however, has not changed.

## Big Blue Reader 128/64 - 4.0

Transfers word processing, text, ASCII, and binary files between C64/128 and IBM PC compatible 360K 5.25" and 720K 3.5" disks.

**New Version 4.0 features:** Transfers ASCII, PET ASCII and Screen Code files including: WordWriter, PocketWriter, SpeedScript, PaperClip, WriteStuff, GEOS, EasyScript, Fleet System and most others. Supports drives # 8-30. New Backup (C128) and Format (1571/1581) programs. Reads MS-DOS sub-directories, uses joystick, and more.

Includes C64 & C128 programs. **Requires 1571 or 1581 Disk Drive.**

**Big Blue Reader 128/64 - 4.0 only \$44.95**

BBR Version 4.0 upgrade, send original BBR disk plus \$18.

## Bible Search 3.2

1. Entire Old and New Testament text on 4-1541/71 or 2-1581 disks.
2. Exhaustive English Concordance on 2-1541/71 or 1-1581 disks; includes more than 700,000+ references.
3. Incredible five (5) second look-up time per word, per/disk.
4. Instant, automatic spell checking of more than 12,800 words.
5. Boolean search options, including AND, OR & NOT logic.
6. Search the entire Bible in 5 seconds with 1581 or HD (v3.52).
7. Money Back Guaranteed!

Includes: C64 & C128 programs; printer and disk output; users guide, disk case. Available on (7) 1541/71, or (4) 1581 disks.

**KJV \$49.95 ☆☆☆☆☆ NIV \$59.95**

☛ Any questions? Call or write for more information.

Also available! Amiga, Bible Search

Order by check, money order, or COD. US funds only.

☛ **FREE shipping in US.** No Credit Card orders.

Canada & Mexico add \$4 S/H, Overseas add \$10 S/H (\$5 BBR)

**SOGWAP Software (219)724-3900**

115 Belmont Road; Decatur, Indiana 46733

## Commodore Logo



**Just  
\$19.95!**

Why buy Logo? Because it is the best way for *you* to learn programming and for *your kids* to explore math and problem solving. Logo is used in schools and colleges across the U.S.

Famous for turtle graphics, Logo lets you draw complex designs with a few simple commands. Easier and more powerful than BASIC, Logo is the perfect language for both beginners and experienced programmers. You'll love Logo's sprites and music, list processing, global and local variables, recursion, and screen editor.

Now, you can buy the complete Commodore Logo for just \$19.95! Two disks plus 380 page Tutorial & Reference Manual. Send your check for just \$19.95 plus \$4.25 s&h, or call with your Visa/MC number. **Call toll-free today!**

**1-800-354-2744**

**Terrapin Software, Inc.**

400 Riverside Street

Portland, ME 04103



Answers to the  
most important  
questions asked  
by newcomers to  
telecommunications.

# Online

By JOHN RYAN

**T**he enemy cybernetic tank slowly emerges from around the corner and moves unwittingly into my line of sight. I think to myself, "Hah! The fool. He doesn't even know I'm here!" Carefully, I swing my turret toward the intruder and align my gun sights. He still doesn't see me. Too bad—he'll never know what hit him. Depressing my joystick button, both barrels seem to explode as I let loose two rounds of high explosive shells. The enemy is history. Game over.

I'm not describing a game between me and the computer, nor am I playing against a buddy who's plugged into the next joystick port. The enemy tank I destroyed was controlled by a friend who lives over 50 miles away. You see, I'm a telecommunicator; I own a modem.

Exploring the world of telecommunications is an exciting and affordable way to exceed the limits of your disk drive, to move beyond the boundaries of memory and model. When you have a modem you can exceed the capabilities of your Commodore computer without leaving the comfort of your desk chair.

Perhaps you have thought about purchasing a modem, but didn't know where to start. Perhaps you've just purchased your computer and know nothing about telecommunicating. Don't worry. As a telecommunicator I can show you how to increase your productivity, acquire free software and chat with like-minded people all across the continent.

In today's high-tech world, we have little excuse for failing to communicate—especially us Commodore owners. By asking a few basic questions, you can learn just about everything you need to know to get started.

## 1. What Is a Modem?

Obviously, you can't just plug your telephone line into the computer and dial. You first have to own a device that will translate the computer language into a form that can be transmitted over phone lines: the modem. It lets your computer talk to other computers over simple telephone lines. It modulates the computer's binary

language into an analog signal that can be sent through telephone lines. Once this signal reaches the destination computer, the modem demodulates the analog signal back into its binary form and feeds it into the computer. MO-DEM: MOdulator/DEModulator.

Think of an American and Russian trying to converse with one another. First the American speaks. An interpreter translates the English into Russian. When the Russian responds, the interpreter translates back into English. A modem acts in the exact same way, translating the computer's binary language into the telephone's analog language. Simple, right?

Modems can send and receive information at different speeds, called baud rates. Simply put, a modem is rated on how many bits per second (BPS) it can send and receive. Most Commodore owners have modems rated at either 300 or 1200 BPS.

Although it costs very little, the Commodore 1660 300-baud modem is a poor choice if you plan to communicate long distance. At 300 baud, sending and receiving information will be s-l-o-w, racking up painful long distance bills. (At 300 baud you can actually watch text scroll onto the screen word-by-word.)

The Commodore 1670 1200-baud modem is a perfect choice for the novice telecommunicator. It's reasonably priced and works four times faster than the 1660. (See "How Swiftly Will It Go?" on the facing page for information on super high-speed transmission.)

## 2. How Do I Control a Modem?

Almost all modems come with a *terminal* program. You may recognize this as a word that many of us use to describe a computer's monitor. Back in the early days of computing, a terminal was simply a monitor and keyboard hooked up to a mainframe computer. A terminal was a "dumb" device that relied on the mainframe computer—usually connected to the terminal by simple telephone or serial lines. Today's terminal program makes your C-64 act like the dumb terminals of yesteryear. It takes control of the computer and regulates the input and output of the modem for you.

Terminal programs contain many features to automate your telecommunicating tasks. Almost all have a phone book, which you personalize with the numbers of bulletin board systems, friends or services that you want to call most often. You simply select a number and the terminal automatically dials, waits for the other computer's modem to answer, then connects you.





# Solutions

Let's say that your friend across town owns a modem and you want to call him and chat using your computer. In other words, what you type will appear on his screen and vice-versa. You'd simply select his number from the terminal's phone book, wait for the Ring and Connect messages, then type away.

Terminal programs also contain features to make your time online more productive. Most have capture buffers that can quickly receive huge amounts of text, which you can save to disk for later review. Likewise, all terminal programs let you receive files from other computers (download) or send files to them (upload).

Some popular games have terminal programs built right

in. If you and a friend own a game that supports modem play, you can actually have the game "call" your challenger so that you can play each other remotely. One tip: Remote game play is best at speeds of 1200 baud or higher.

### 3. What Can I Use the Modem For?

You name it. I've already touched on a couple of uses: You can chat, swap programs online, play games, all sorts of stuff. There are also hundreds of bulletin board systems (BBSs) throughout the continent for Commodore computers. Chances are there are one or several in your area. (For more information, see "BBS Finesse," p. 13.)

How would you like to shop, do research, get news, ►



## How Swiftly Will It Go?

It seems that Commodore computer users have always had to serve a strict master: Speed. We've been slaves, bound in 1200-baud shackles. Well, Creative Micro Designs heard the call and let our people go: The SwiftLink-232 serial cartridge is the great baud liberator.

SwiftLink is an RS-232 serial interface cartridge that plugs into the back of your computer, letting it communicate with other RS-232 serial devices, including printers and modems. In other words, with this cartridge you can go out and buy an IBM-compatible modem and plug it directly into your C-64.

What's the benefit, you ask? How does reaching baud rates up to 38,400 sound? Some national networks, such as GENie, charge the same for 1200- or 2400-baud access, so stepping up to a high-speed modem makes sense for two reasons: It's economical and productive.

Setting up the cartridge is a snap. Plug it into the expansion port, then connect the serial cable to the cartridge and to your modem. That's it. You're ready to go.

The serial cable you need will depend on which type of modem you own. For most people who own Hayes-compatible modems, you'll need a DB-9 female to DB-25 male serial cable. (The SwiftLink cartridge has a DB-9 male connector.) These cables are relatively inexpensive, running from \$10 to \$16 at Radio Shack and other computer equipment stores.

Not all Commodore-specific terminal programs support speeds over 1200 BPS. Not to worry. Included with the SwiftLink cartridge are several excellent terminal programs for the C-64, C-128 and even CP/M systems.

Desterm128 v2.0 is perhaps the best C-128 terminal I've ever used. It's fast, good-looking and offers just about every option you'd ever need—phone books; buffer swap, save, and load; pro-

grammable function keys; and a myriad of different protocols.

Novaterm 91 is the C-64 terminal program developed to work with high-speed modems. It, too, is loaded with features, including a simulated 80-Column mode, script support and enough protocols to keep even the fussiest user happy. Qterm v4.29, the CP/M terminal program, also is included in the package.

I tested SwiftLink using my own Hayes-compatible Supra 2400-baud modem. The cartridge performed flawlessly as I dialed into GENie with Desterm and, for the first time ever, received a CONNECT 2400 message on my C-128's 80-Column screen. (I haven't yet tested the new 9600 MPN5/v.32 modems, but I can't wait!)

How fast will it go? Since the SwiftLink is an industry-standard RS-232 interface, it can reach speeds up to 38,400 baud. CMD offers a 90-day limited warranty on the cartridge and full-featured support in its forums on Q-Link and GENie. ■

—JR



play games and download thousands of programs—without leaving your chair? Then check out one of the many national information networks such as QuantumLink, GENie or CompuServe. (See "Network News," page 11.)

When you download a file from a BBS or network, it goes directly onto your disk. When you hang up, you can exit the terminal program and load your new file. Acquiring good software has never been so easy.

#### 4. What Do I Need to Get Started?

This is the easiest question of all. Since you're reading this article, chances are you already have made two of the biggest investments—a computer system and your

interest. You're also going to need a telephone and a modem. Touch-tone phones are ideal. Rotary phones (pulse) will work, but are slower when dialing.

If you plan to use your modem a lot and have call-waiting service on your telephone, you may want to cancel it. Call-waiting temporarily interrupts the signal that the modem uses to maintain its line connection. If you're online, a call-waiting signal will usually disconnect you.

(It only takes a few disconnects to try my patience.) Some areas, however, have punch-in codes that will temporarily suspend the call-waiting service.

When selecting which modem to buy, consider your needs and your budget. You can still find 300-baud modems for as little as \$10 through magazine advertisements. The 1670 modem (1200 BPS), a very good buy, sells for as little as \$25. I would recommend the 1670 to anyone who's just starting out. The money you'd save buying the 300-baud modem would soon be eaten up by other charges and aggravation.

Selecting a terminal program is ultimately a matter of personal taste, but, of course, you need to start somewhere. The 1670 modem comes with a terminal program called Common Sense. While it's not the best terminal in the world, it's enough to get you started.

Later you can choose a more elaborate terminal from the wide variety of packages available. (See the box below for popular commercial terminal programs.) Don't be surprised, though, if you find that you like a public domain or shareware terminal better than its commercial counterpart. Be sure to check out all of your options.

One final note: Some networks (such as Q-Link) pro-

vide their own specialized terminal programs as part of the subscription.

#### 5. Can I Talk to an IBM?

Just about all computers can talk to one another over telephone lines. Whether you're calling an Atari, IBM or Apple, your modem will act as universal translator, letting you chat with any computer you'd like.

This doesn't mean, however, that you can download programs from other computers and expect them to run on your Commodore. While a modem can receive files from any computer model, it is not an emulator. Only text files (sequential or ASCII) can cross the computer platform boundaries. For example, you can download a news story from CompuServe and load it into a Commodore word processor, even if the file was created with an IBM. But, you cannot download an IBM word processor program and run it on the Commodore.

GEOS users should note that all GEOS files must be converted to ASCII before they can be uploaded. Likewise, GEOS files that have been downloaded must be converted back to GEOS format before they can be used. Several utility programs can handle the task, including geoTerm II and Convert 2.5.

Other file types, including graphics files, can be used among the different computer platforms, but they must be converted with special utility programs. (For more on converting various files from one platform to another, see our September/October 1991 cover story.)

Finding the software shelf a bit bare lately? Rest easy.

Even as fewer and fewer commercial packages

make it to the marketplace, thousands of programs are available in the public domain.

There has never been a better time for Commodore owners to get online. And, once you've purchased the modem, access to local BBSs is usually free. (Of course, long-distance and network services do charge fees.)

So plug in, dial up and get on-line. There's always something good happening on the other end. ■

*John Ryan has written many articles and reviews for RUN on all aspects of Commodore computing.*



## Check Out These Terminal Programs

Every on-liner has a favorite terminal program. Following are several of the most popular. Each offers a wide range of transfer rates, protocols and features:

**BellTerm C-64** by Ed Bell (\$29.95/Parsec Inc., PO Box 111,

Salem, MA 01970)

**Dialog 128** (\$49.95 US/\$59.95 Canadian/Shining Star Software, #1205-1640 Bayview Ave., Toronto, ONT, Canada M4G 4E9)

**RUN Term 64 and 128** (Available on Super Starter Pak. See

RUN's catalog in this issue for information.)

**geoTerm II** (available on GEOS Power Pak II. See RUN's catalog in this issue for information.)

—EDITORS



# Network News

*Whether you prefer to tune in at primetime or in the wee hours, there's always something happening on the telecommunications networks.*



By TIM WALSH

I frequently receive phone calls and letters from people eager to use their Commodores on one of the major telecommunications networks. In most cases they've already earned their stripes as modem manipulators. They've connected their modems and, with disproportionate amounts of frustration and success, they've managed to get online with the help of a terminal program or two.

Most online computerists make a local bulletin board service their first stop. (See "BBS Finesse," p. 13.) But within a month or so, many enthusiasts outgrow their circle of local BBSs. For them, the next logical move is to a large network. While BBSs are a great source of Commodore files and valuable contacts, no BBS could possibly match the wide array of goods, services and social events offered by any major network.

If you've been around the computer scene for any time at all, you've heard all about the virtues of the computer networks (called "the nets" by those in the know). But nobody tells you what you get for the money you pay. Which one delivers the most for the money? Most computerists don't know.

## LOCAL HELP

Of all the free advice I've doled out over the years about the nets, the most important tidbit remains unchanged: Your best choice is selecting the one that is least expensive to you. With high connect rates, hidden costs and research areas that make pay-per-view seem like a bargain, network expenses can stack up at a frightening rate if you're not careful.

With the possible exception of those who log on to the nets from their luxury yachts, everyone worries about finances. To curb expenses, the best rule of thumb in the network selection process is: Choose one that doesn't require a long distance call. While common sense dictates logging on when rates are low and using the fastest modem your computer can support, it's still long distance calls that make the nets prohibitively expensive.

When you call a network, you're actually calling a node, a service providing local access to a network that may be thousands of miles away. Tracking down a local node, such as a local Tymnet or Telenet number, may not be a problem in metropolitan areas, but in rural and remote areas it can be difficult. You may not even be able

to find a node within your local calling area. In such cases, I recommend finding the node that is in the least expensive calling area. Usually, that means selecting the closest node. If that node supports two or more networks, say, Q-Link and GENie, simply choose the net that costs less. (Ironically, it is occasionally less expensive to call out of state than to call a nearby city. Check with the telephone company for rates.)

One case study of small town telecommunications is here in the home of *RUN* magazine, Peterborough, New Hampshire, where rush hour means eight cars waiting at the town's one stoplight. Peterborough is a classic example: Unless you choose QuantumLink, CompuServe or BIX (Byte Information Exchange), which have local nodes here, you will have to pay steep long-distance tolls to a nearby city.

## LIFE BEYOND COMPUTERS

All networks are basically created equal when it comes to basic features, such as their selection of public domain Commodore files, the ability to send and receive e-mail, and so on. Q-Link possibly has the edge when it comes to Commodore-specific files, thanks in large part to its pure Commodore dedication over the years, and to its friendly system that welcomes newcomers with easy, one-finger menu selections. Q-Link also remains the best choice for users who are testing the network waters with their Commodore. So, if you're a die-hard Commodore 8-bit user with little interest in other online activities, Q-Link is probably all you need.

On the other hand, if you view networks as more than just a Commodore file clearinghouse, then you should consider other nets, such as GENie and CompuServe. One of the best-kept secrets of these heavy-hitting networks is their unlimited potential for expanding the horizons of computer enthusiasts and non-enthusiasts alike.

Armed with massive data files, research, educational and financial areas, plus hundreds of special interest groups (SIGs), both GENie and CompuServe make Q-Link appear downright limited. Their resources are so expansive that few network subscribers, including those with years of membership under their belts, have fully explored the options offered by either one.

What follows is a brief look at QuantumLink, GENie and CompuServe, the three nets attracting the most ▶





Commodore subscribers, including some of their alternative services that may make them more attractive to some users.

#### EXCLUSIVE AND ECONOMICAL: QUANTUMLINK

As I mentioned earlier, Q-Link is still regarded as one of the most useful networks for Commodore users. It remains 100 percent dedicated to Commodore 8-bits, with its own C-64 terminal program, which you must have in order to log on. While Commodore support has waned dramatically in recent years, QuantumLink remains a viable network for those interested in obtaining software, sharing files and making contacts with other 8-bit users.

Q-Link's terminal program has been both praised and criticized: Praised because it is easy to use, and because you need only configure it once for your system; criticized because you can't log on to the network without it. If you misplace or wear out the Q-Link disk, forget about logging on until you get a replacement.

What can you do online with Q-Link? Shop, socialize, visit conferences and attend college-level classes on a variety of subjects. You can also read frequently updated national and world news and weather reports.

One of the most compelling reasons to join Q-Link is that forums are held on a regular basis by Commodore personalities. You can learn the finer points of Basic and machine language programming from some of the best in the business. Experts from companies such as Creative Micro Design and RUN hold topical forums each month. (That's right, on the last Thursday of every month, Q-Link members can meet up with the editors of RUN in a friendly candid conference.)

When it comes to cost, Q-Link is attractive to all but the tightest budgets. For \$9.95 per month, you can become a Q-Link subscriber. In addition, you must pay a charge of eight cents per minute for downloading a file, plus an additional \$1.50 to download certain "premium" files, such as those in the RUN Premium library.

#### NOT JUST FOR COMMODORE USERS: GENIE

One of my favorite networks, GENIE has grown into a wonderful resource center for thousands of Commodore users. With its numerous subscribers and services, GENIE dwarfs QuantumLink. GENIE offers great Commodore support in the Flagship Commodore RoundTable (type "CBM" at any menu), but it attracts computer users from all platforms, IBM, Apple, you name it. From shopping to an online motorcycle club, GENIE seems to have everything.

Like QuantumLink, GENIE offers shopping and socializing, but on a far larger scale. Sure, there are news and weather updates, but GENIE goes beyond with hourly updates on Dow Jones stock prices and news bulletins. GENIE offers RoundTables (equivalent to Q-Link's SIGs) on such diverse subjects as photography, medicine and even law enforcement.

Instead of a few attendees in select conferences and a handful of regulars in chat areas, GENIE RoundTables at-

tract huge numbers of participants. The Writer's Ink RoundTable (type "WRITERS" at any menu prompt), for instance, is regularly attended by experts, enthusiasts and amateurs alike. GENIE subscribers are not merely computer enthusiasts, they're interested in all sorts of subjects.

If you're hoping to go back to school some day, think about getting your education on GENIE. GENIE's Computer Aided Learning Center is frequently overbooked with students wanting to get training and college degrees online. Sign up early (type "CALC") if you're interested.

And, although it is not the least expensive network, GENIE is quite reasonable. You have access to over 100 basic services for just \$4.95 per month. Listing areas and RoundTables cost \$6 per hour to attend at any speed up to 2400 baud during nonprime time hours (6 P.M. to 8 A.M.).

#### THE EMPIRE OF NETWORKS: COMPU SERVE

CompuServe is a huge, wondrous network on a scale that is difficult to comprehend. There are almost 750,000 members and 1500 databases. Of course, CompuServe features a wide variety of staples including shopping, up-to-the minute news, financial services and educational reference databases. But what makes it unique is that it also offers special interest forums on topics you wouldn't expect to find on any computer network.

Recently I have had occasion to visit the SIGs, special areas, and conferences available on CompuServe. I've found that it offers not only the standard services, but also some that are bizarre enough to raise even the jade brow of Geraldo Rivera. From astrology and out-of-body experiences to stock market analysis and wine tasting, I think CompuServe has it all. (Maybe *this* is where Geraldo finds his guests.)

Some airline crews use CompuServe to get their flight schedules. On more than one occasion I've received calls from flight attendants and pilots wanting to use their Commodores to get on CompuServe. (Not surprisingly, it's a great place to order airline tickets!)

Moving about the countless areas on CompuServe is easy. Just type the name of the area, preceded by a "GO" command, such as "GO CBM," which will take you to the Commodore area. Once there, you'll find long lists of freely distributable programs, graphics and utilities.

This is a huge network. It is certain to offer something about anything you could want to explore. But, as with anything, there is a price for this diversity. Undoubtedly, it is more expensive than the others. Even so, CompuServe is attractive for hundreds of thousands of computerists (particularly when they can find a local node!). You're billed \$2 per month, plus \$12.80 per hour for 1200- and 2400-baud connections, or \$6 per hour for 300-baud connections. (Rates apply 24 hours-a-day.) ■

*Among other things, Tim Walsh has been RUN's telecommunications ace for longer than he cares to admit (or remember). One of his many hats is that of RUN's Technical Manager.*

**CompuServe**  
PO Box 20212  
5000 Arlington Center Blvd.  
Columbus, OH 43220  
614-457-0802  
800-848-8199

**GENIE**  
401 North Washington St.  
Rockville, MD 20850  
800-638-9636

**QuantumLink**  
8619 Westwood Center Dr.  
Vienna, VA 22182  
800-827-8444



# BBS Finesse

*Bulletin board basics, grassroots networks and anarchy on the phone lines.*



By STÉPHANE DIRSCHAUER

**A** confession of sorts: In the past five years, I've logged almost 2000 hours telecommunicating. Yet in all that time, only about 120 minutes have been spent on major networks like QuantumLink and GENie. Instead, I've devoted my online time to small bulletin board systems.

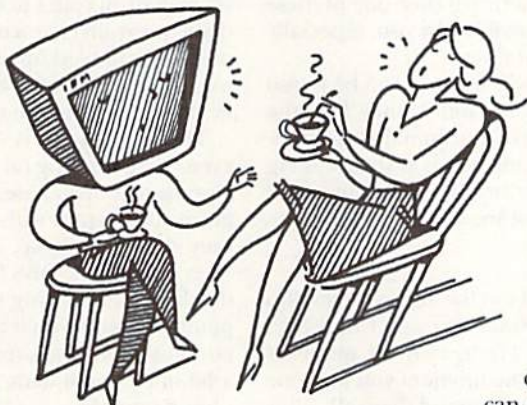
So what gives? Am I cheap? Am I sick? With all due respect to my colleague Tim Walsh, I simply prefer the homey BBS atmosphere.

Frankly, if you spend all of your online time using large services like QuantumLink and CompuServe, you're definitely neglecting one of the most delightful options available to a modem-equipped computer user. While the big boys of telecommunications may have more features and files than you could ever exhaust, BBSs have a few special attributes of their own.

## IN THE BEGINNING

Several years ago, admittedly, there was less reason to be so bullish about BBSs. When a system operator, called the *sysop*, decided to set up a system, there were few options. The bulletin board software that ran the whole thing was about as flexible and interactive as its cork-and-thumbtack namesake. And, since BBSs were technically rather difficult to start, most sysops were (by default) computer experts who reserved much of the board to computer-related discussions only. Yawn! I, for one, love my computer, but I think we all can use some variety.

Thank the computer gods that there are now, without exaggeration, hundreds of BBS programs, with at least a few dozen made specifically for the C-64. Many offer such sophisticated options as full-screen editing, networking, and online games. What's more, with a ready supply of bug-free BBS software (and some of today's economical hardware), more and more people are operating BBSs, even relative computer neophytes. As a result, BBSs cover a much wider range of interests. There



are BBSs dedicated to discussions of music, sports, literature, the environment, genealogy and on and on.

Although the features a BBS offers will vary with the system software, most offer the following:

**Messages.** In this aspect a BBS is a public forum. Using the BBS text editor, you can send a public or private message to another user, or simply address the message to "ALL." Messages are usually classified by subject, and you can scan for your particular interests. Users jump into the conversation

with comments and replies to previous messages giving the message forum a stream-of-consciousness feel.

**Uploading and Downloading.** Although they'll never be able to compete with major nets in quantity, most BBSs do carry text and program files you can download with your terminal program. The number of files available depends on the BBS's disk space, which, today, is likely to be at least a few megabytes. You can also upload your own files to the BBS.

**Bulletins.** The bulletin section of a BBS, where users can read text files online, is often the most neglected one. Some sysops just don't put up anything more interesting than a copy of the BBS's rules and a BBS list. I've a soft spot in my heart, though, for bulletin sections like NOVAC's, which offers updates on NASA missions.

**Games.** BBS programs often have "door" options letting you access programs remotely while using the board. Most doors are games, and they can get complex. Systems using certain IBM BBS programs, for example, often run a popular multiple-player adventure game named TradeWars. Since few BBSs have more than one phone line, the games are played in turns consisting of several dozen moves. Even so, the addition of a few other human players can really liven things up.

**Netmail and Echomail.** Contrary to what network users would have you believe, BBSs are not merely tiny isolationist blips on Ma Bell's map. In the last few years ▶





sysops have been stringing BBSs together into a veritable telecommunication Christmas tree. Many BBSs now belong to at least one inter-BBS network, which lets you share messages with the users of the other participating BBSs around the continent and even around the world.

The nicest (free) networking perk is the echomail conference. These are message areas where you can read and write messages that will go to every BBS linked to yours on the net. The immediacy of these discussions sometimes leads message-posters to forget that their comments are carried throughout the continent (or the world), and they'll make board-specific comments ("There's a new file in the download section . . .") that elicit puzzled replies from dozens of people around the net. (It's kind of funny, in an obnoxious sort of way.)

Echomail conferences also make it possible to establish discussions on topics that couldn't form a large enough audience locally. Looking at the list of conferences on NorthAmeriNet under C, for example, I see, among others, areas devoted to CAD, Chess, Comedy, Comics, CP/M, and Construction. Intelc, another network, offers Compression, Consumer and Cooking.

You can send private mail (netmail) over one of these grassroot networks, but it'll probably cost you, especially if the addressee's BBS is out of town.

I have to admit that all of these features can be found on the larger systems. But to my mind, they lack the more comfortable atmosphere of a personally-run BBS. It's the difference between having lunch at the local Pig & Whistle and dining *en masse* in a giant cafeteria. Of course, there's also the fact that most BBSs are free.

#### GETTING IN

So you're all excited, you pull out the Yellow Pages, flip to B for Bulletin, and . . . *nothing*. You won't find BBS numbers in the phone book. The search for numbers isn't difficult, though, because the moment you find one working number, you've essentially found them all. BBSs carry lists of other BBSs, and, in turn, the systems in those lists carry other lists.

To find that first number, you can check with the computer store where you bought your modem. Often they make a small list available, or even operate their own sys-

tem for customers. If that doesn't work, you may want to call one of the systems listed below to get you started.

Whenever you try a number for the first time, though, be ready to quickly switch to voice should your modem suddenly broadcast the irate voice of an ex-sysop or the new occupants of a sysop's former home. At least a third of BBSs are in the process of going up or down at any given time, and even established systems will occasionally change numbers, making most BBS lists hopelessly inaccurate just a year after they were compiled.

Once you see your modem's Connect message, you'll see the BBS's welcome screen (if not, tap the RETURN key a few times to show the BBS that you're ready). There's a chance you'll be asked if you want color graphics text. The answer depends on a few things. If it's a C-64/128 BBS, and your terminal program can handle PETSCII color/graphics, choosing that option will send your text in color using the full Commodore character set.

Do not select this option on IBM, Amiga or Macintosh BBSs unless the program specifies Commodore color graphics or PETSCII. The usual option on these boards is the American National Standards Institute's (ANSI's) set of control codes to change colors, clear the screen or display certain characters. You can still read the text, but it will be jumbled up with control codes. (If you want to use ANSI, check your BBS's download section for a public domain/shareware terminal that can handle it.)

The final choice is ASCII, the mode most BBSs use, even those running on C-64s and 128s. It's plain, monochrome text. If you use the Common Sense terminal program that comes with the 1670 modem, ASCII is the only choice available.

As soon as the BBS has settled that question, and has displayed its opening screen (some of these screens are painfully long), you'll be asked for your name or handle (an on-screen alias), and, because you're a new user, for a bit of personal data, including your address and telephone number.

There's also the matter of selecting a password to identify yourself when making future calls. Unfortunately, many BBSers show little imagination. When I once operated a system, I was amazed at the passwords some people used: their first names, the first few letters of the

## A Few BBS Numbers

These special interest bulletin boards show the diversity that BBSs cover. These numbers will get you started if you've

never logged on before, or they can round out your growing list.

At the time this article was prepared,

each of these BBSs was operating at the number listed 24 hours a day and could handle baud rates of 2400 or higher.

BBS name	Interest	Number
Florida Archaeology	Archaeology	904-488-6186
Esperanto	Esperanto universal language	416-731-2667
The Dead Board	Grateful Dead music	717-677-9573
Psychology Online	Psychology	404-390-0292
NIST BBS	National Institute of Standards and Technology, computer security	301-948-5717 and 301-948-5140
International Collector's Network	Collecting	213-204-0646
NOVAC BBS	Astronomy	703-256-4777
Railnet	Railroad Hobbyists	216-883-6298
The Black Bag BBS	Medicine	302-994-3772
FDA/CDRH Guidelines	FDA Guidelines	303-443-7496

—SD



alphabet, and even (ugh!) "password." Be sure, also, to use a different password on each system you use.

Once you've given all the necessary information, you're logged onto the board with time to browse through the system. Most BBSs do not grant you full access until the sysop can validate your account.

Using a BBS is relatively easy. They typically offer a list of commands automatically, or once you enter a question mark followed by a carriage return. Some BBS system software, like Ed Parry's superb EBBS 128, uses hotkeys, so you only have to press the question mark key and the BBS will bring up its help files.

When you're done, don't just hang up. Use the BBS's

Goodbye or Quit command to ensure that your account is properly updated. In the past, some BBSs would crash if the user just hung up. That's no longer true, but leaving so abruptly could create a few irregularities in your user file, so that the BBS thinks you were on longer than you really were, or that you didn't call at all, which means that you won't be able to do things like read all the messages posted since your last log-on.

Chances are, though, that once you try out a few BBSs, you'll be more eager to log on than to log off! ■

*Stéphane Dirschauer of Toronto makes frequent contact with the rest of the world with his Commodore and a modem.*

## List Your BBS in RUN

Attention BBS sysops! You can have your bulletin board system listed in *RUN's* Commodore 64/128 BBS list in an upcoming issue. To be eligible for listing, your BBS must have been operating 24 hours a day, 7 days a week, since December 1, 1991 or before, and must offer C-64/128-specific support.

To have your BBS listed simply send the following information:

- BBS name
- Telephone number(s) and location
- Available baud rates and transmission codes (ASCII, PETSCII, etc.)
- BBS system software title
- A brief description (roughly 20 words)
- Sysop's name, address and telephone number
- The date the system began operation
- A user name and password that I can

use to log on and verify the information provided).

Mail your listing to:

**BBS List**  
*RUN Magazine*  
 80 Elm Street  
 Peterborough, NH 03458

## \$99 while supplies last! Make your Commodore fly!



### TURBO MASTER CPU™

#### 4.09 MHz Accelerator Cartridge for C64

- Four times faster processing speed combined with five times faster disk Load and Save.
- Add new zip to basic, word processor scrolling and search, spreadsheets, assemblers, graphics, GEOS etc. Compatible with most software.
- Jiffy DOS (CMD) compatibility option available.
- Only \$99, Shipping Included, 10-day satisfaction guarantee.

### MASTER ADAPTER

- Makes TURBO MASTER CPU compatible with GEOGRAM and Commodore 17XX REU (when running under GEOS).
- A two slot expansion board with special circuitry and two stacked horizontal slots.
- ONLY \$49.

## Interface Cheap!

### Data Acquisition and Control Interface C-64 & C-128 NOW ONLY \$99.



### Professional quality 80 Line Digital I/O

Create your own autostart dedicated controller without relying on disk drive.

- Socket for standard ROM cartridge.
  - 40 buffered digital output lines.
  - 40 separate digital input lines.
  - Includes extensive documentation and program disk.
- Call for detailed brochure.  
 Order Model SS100 Plus \$99.

### Serious about programming?

- |                           |                                 |         |
|---------------------------|---------------------------------|---------|
| • <b>Symbol Master</b>    | Multipass Symbolic Disassembler | \$39.95 |
| • <b>PTD6510</b>          | Super-powerful Debugger         | \$49.95 |
| • <b>MAE64 6502/65C02</b> | Macro Editor/Assembler.         | \$29.95 |

Canadian Customers  
 add \$10US for cartridges  
 \$2 for each program

## SCHNEDLER SYSTEMS

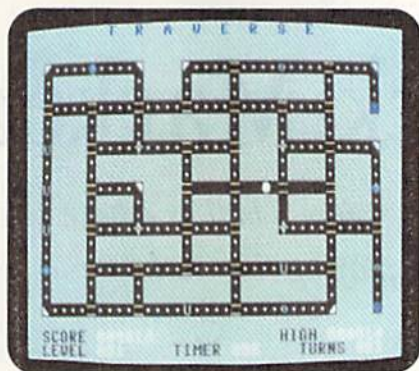
Dept. R-5, 25 Eastwood Road, PO Box 5964  
 Asheville, North Carolina 28813 Telephone: (704) 274-4646

VISA and MasterCard accepted.  
 All prices include shipping  
 prepaid to US addresses.









Traverse is a challenging combination of features from Pac Man and pinball.

```

B20110C4C7108 :REM*224
114 DATA EE9610AD9610C95A9034*A
D86100A0A186D86108D*9610AD9
310F024CE9310 :REM*152
115 DATA AC941018AD8C1079E50D*8
D8C1018AD8D1079E90D*8D8D10A
D8E1079ED0D8D :REM*40
116 DATA 8E106020720AAA38E961*C
9049025E065F02EE066*F044E06
7F059AD89104A :REM*135
117 DATA B010E068F057E069F05D*E
06AF05AE06BF0614C55*0A0A0A1
86D9410A8B93D :REM*4
118 DATA 0E4C580AA028A9609139*A
E861020FB0AAD8A10D0*03CE8B1
0CE8A104C550A :REM*24
119 DATA AD92100A0A186D9410A8*B
E2D0EBCF10DB139C920D*0384C4
70AAD1BD42903 :REM*254
120 DATA 4C580AA008D15D06868*4
C35096018AD94106902*29034C5
80A4CA60AAD94 :REM*150
121 DATA 10AABCF10DB139C920D0*0
7E88A29034C580A8E94*10A9088
D93106038AD8C :REM*157
122 DATA 10E93A4A4A4A838AD8D*1
0E9188502AD8E10E900*4A66024
602460218B94D :REM*177
123 DATA 0E65028539B9660E6900*0
904853AA028B13960A0*7AAD1BD
44A9002A0AAA2 :REM*77
124 DATA 78AD1BD44A9002A2F08C*8
C108E8D10A90008D8E10*8D93106
08D871020510B :REM*74
125 DATA 8EE3078CE4078DE50760*E
E8F10D01CEE9010AD90*10291FD
012CE9110AD91 :REM*16
126 DATA 1020510B8ED6078CD707*8
DD80760ADA10748A005*38B9A00
76900C93A9002 :REM*91
127 DATA A93099A0078810EFCAD0*E
968CDA107F00CAC8710*C8C064B
0049820C90AA0 :REM*179
128 DATA 00B9A007D9B8079013D0*0
6C8C00690F160A005B9*A00799B
8078810F760A0 :REM*83
129 DATA 05A93099A0078810FA60*A
230A030C9649006E964*E84C505
BC90A9006E90A :REM*21
130 DATA C84C5F0B093060AD9710*F
004CE97106038A926ED*86108D9
710AD9810F004 :REM*14
131 DATA CE981060AD99100A186D*9
910A8B93310D0048D99*10608D9
810A2408E04D4 :REM*176
132 DATA B934108D01D4B935108D*0
0D4E88E04D4EE991060*A000B96
D109900D4C800 :REM*96
133 DATA 1990F5601865A2C5A2D0*F
C6085028403AD00DC29*10F0F9A
202A009182F00 :REM*150
134 DATA FFA502A403201EABA00F*A
5A22920D002A0028C23*D0AD00D
C2910D0ECA202 :REM*184

```

```

135 DATA 4CFE9AD8C108D01D0AD*8
D108D00D0AD8E108D10D060A90
08D15D0A90285 :REM*29
136 DATA 04A60420FFE938A918E5*0
4AA20FFE9A90620C30B*E604A50
4C90D90E560A9 :REM*11
137 DATA A2A00E201EABA9068504*A
9CFA00E201EABA9CFA0*0E201EA
BA9A7A00E201E :REM*7
138 DATA ABC604D0E7A9038504A9*0
28505A604A4051820F0*FFAD1BD
42903AAA9F7A0 :REM*144
139 DATA 0EE00F012A9FAA00ECA*F
00BA900A00FCFA004A9*05A00F2
01EAB18A50569 :REM*24
140 DATA 0A8505C92590CA18A504*6
9038504C91590BBA90D*8D74D98
D83D98D64DA8D :REM*59
141 DATA 73DA9678D74058D8305*8
D64068D7306A9528539*853BA90
4853AA9D8853C :REM*45
142 DATA A028B139C965D00BEE8A*1
0D003EE8B14C190DC9*60D035A
9008502A203BC :REM*79
143 DATA F10DB139C920F003A901*2
CA9004A2602CA10ECA6*02BDF50
D100BAD1BD429 :REM*91
144 DATA 030910AABDF50DA02891*3
9BD0909E13B18A53969*0185398
53BA53A690085 :REM*105
145 DATA 3A290309D8853CA53AC9*0
79099A539C946909360*AD0EDC2
9FE8D0EDCA501 :REM*80
146 DATA 29FB8501A00B900D099*0
038B900D1990039C8D0*F1A5010
9048501AD0EDC :REM*252
147 DATA 09018D0EDCAD18D029F0*0
90E8D18D0AD11D00940*8D11D0A
027B9930F9908 :REM*169
148 DATA 398810F760AD9510D057*A
D00DC290FA8B91D0E10*03AD921
08D92100A0A0A :REM*144
149 DATA AAA000BDBB0F993039E8*C
8C00890FF4EE8810D003*EE8910A
D88102908AA00 :REM*114
150 DATA 00BDBB0F993839E8C8C0*0
890F4A000AD89102901*AA002A
220BDEB0F9940 :REM*86
151 DATA 39E8C8C02090F44C31EA*F
F000100000100FF000*00FF002
9502760686861 :REM*196
152 DATA 68FF62666864FF666366*6
66669696A6B0040401*0400010
704010070107 :REM*94
153 DATA 07070A0A030EFFFFF*F
F010003FF000103FF02*02FF010

```

```

0030203020100 :REM*220
154 DATA 00030201020100030203*0
1000103000203020001*0200030
100285078A0C8 :REM*218
155 DATA F018406890B8E0083058*8
0A8D0F820487098C000*0000000
0000001010101 :REM*62
156 DATA 010102020202020203*0
303030308931D1D1D1D1D1D1D1
D1D1F541D1D52 :REM*58
157 DATA 1D1D411D1D561D1D451D*1
D521D1D531D1D450013*1111110
51D1DA0A5A5A5 :REM*48
158 DATA A5A0A5A5A5A5A5A5A5A5*A
5A0A5A5A5A5A5A5A5A5A5A5A5A5A
5A5A5A5A5A5A5 :REM*23
159 DATA A5A00D001D1DA51D1D1D*1
DA51D1D1D1DA51D1D1D1DA51D1D
D1D1DA51D1D1D :REM*63
160 DATA 1DA51D1D1D1DA51D1D1D*1
DA50D001111111D2020*2020001
D1D1D1D1D1120 :REM*156
161 DATA 119D20009753434F5245*2
0053030303030302020*2020202
0202020202020 :REM*159
162 DATA 20974849474820053030*3
03030300D1D1D974C45*56454C2
0053030302020 :REM*16
163 DATA 2020209754494D455220*0
5303030202020209754*55524E5
3200530303000 :REM*104
164 DATA 1D1D1205505245535320*4
649524520544F20504C*41590D0
0120547414D45 :REM*116
165 DATA 204F5645522E2E5052*4
553532046495245D00*0000406
070787C00007C :REM*228
166 DATA 7870604000000003E1E0E*0
60200000000000060E1E*3E00000
0001818000000 :REM*81
167 DATA 0103060C183060C080C0*6
030180C0603C3C3C3C3C3C3C3C3C
300FF00000000 :REM*229
168 DATA FF00C3663C243C66C300*1
8183CE73C181800007E*7E7E7E7
E7E0000666666 :REM*95
169 DATA 66663C00000003C66663C*0
00000183C7E7E3C1800*0000007
E000000000000 :REM*36
170 DATA 007E00000000000007E*0
0000000000000007E000*0000003
C7E7E7E7E3C00 :REM*194
171 DATA 14025A14025A14025A17*0
25A1402CC1703221702*CC14038
6170386170322 :REM*238
172 DATA 1702CC14038617038617*0
3221702CC1403861703*8617032
22802CC000000 :REM*207
173 DATA 0807001A0A0000000000*0
000FFFF0000000000000*1E919F0
0000000000000 :REM*20
174 DATA 00000000000000000000*0
000000 :REM*209
175 DATA -1 :REM*29

```



# Stock Market 64

Whether you're a bull or a bear, you won't lose a dime playing this stock market simulation.

By REINER RICHTER

If you had money to invest in the stock market, how would you set up your portfolio? Would you take risks? Be aggressive? Try your hand at stock market investing with this simple stock market simulation.

You start with \$50. (All values are displayed in cents, though, so you actually have 5000 cents.) The object of the game is to invest your money wisely. After 100 days of trading the game ends. If you end the game with less than \$1000, keep your day job. A final value between \$1000 and \$2500 is good. Between \$2500 and \$10,000 is excellent. If you end up with more than that, I want your secret! Your score is then written to the high scores table.

Type in Stockmarket 64 from Listing 1 using the Checksum on page 33 and save it to disk. The first time you run the game, it will create a high score table, so be sure that there are at least two blocks free on your disk.

When you play, information about each stock is displayed across the top of the playing screen. BUY is the price at which other investors are offering to sell their shares (that is, the price at which you can buy shares). +/- is the change in the buy price since the previous day. OWN is the number of shares you own. VALUE is the current selling price of your shares. AVER is the mean (average)



## MARKETS DIARY

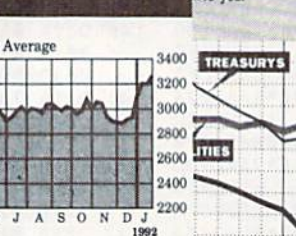
### STOCKS Dow Jones Industrial Average



9% Alcoa	630	666	8.8	253	9%	9%
9% Alcoa	630	666	8.8	253	9%	9%
9% Alcoa	630	666	8.8	253	9%	9%
9% Alcoa	630	666	8.8	253	9%	9%

### Comparing Yields

Yield of the 15 stocks in the DJ Utility Average, key-market mutual five-year



9% Alcoa	630	666	8.8	253	9%	9%
9% Alcoa	630	666	8.8	253	9%	9%
9% Alcoa	630	666	8.8	253	9%	9%
9% Alcoa	630	666	8.8	253	9%	9%

Sources: IBC/Donoghue's Money Fund Report, St. Louis Federal Reserve; Dow Jones & Co

price at which you bought the shares. The share values change daily.

Current data is displayed below the share data. DAY is the current day. TOTAL VALUE is the combined value of your cash and investments. CASH is how much money you have available to invest.

What does it feel like to bet the farm on an up-and-coming stock? You have two ways to find out: Call up E.F. Hutton ... or play Stockmarket 64.

Reiner Richter lives in Australia. He programs in Basic and assembly language.

Listing 1. Stock Market 64. Also available on the May/June ReRUN disk. To order, call 1-800-824-5499.

```

0 REM STOCKMARKET 64 - REINER R
1 ICHTER :REM*118
10 FORJ=0TO5:READSZ(J),CL$(J):N
EXT :REM*150
20 FORJ=0TO9:SH(J,0)=INT(RND(0)
*200+50):SH(J,2)=INT(RND(0)*
11-5):NEXT :REM*207
30 DL=5000:DY=1 :REM*252
40 POKE53280,0:POKE53281,0:POKE
204,1 :REM*217
50 PRINT"(SHFT CLR){CTRL 2}{4 S
PACES}{CTRL 9)STOCKMARKET 64
{CTRL 0} {COMD 5)BY REINER R
ICHTER :REM*247
60 PRINT"{CTRL 8)#(2 SPACES)BUY
SELL +/-{4 SPACES}OWN{3 SPA
CES}VALUE{2 SPACES}AVER":TT=
DL :REM*76
70 FORJ=0TO9:SH(J,1)=INT(SH(J,0)
*.9):SH(J,4)=SH(J,3)*SH(J,1)
):TT=TT+SH(J,4) :REM*6
80 SH(J,5)=0:IFSH(J,3)>0THENSH(
J,5)=INT(SH(J,6)/SH(J,3))
:REM*192
90 PRINT"{CTRL 2}"CHR$(48+J);F
ORK=0TO5 :REM*29
100 PRINT"CL$(K)RIGHT$("7 SP

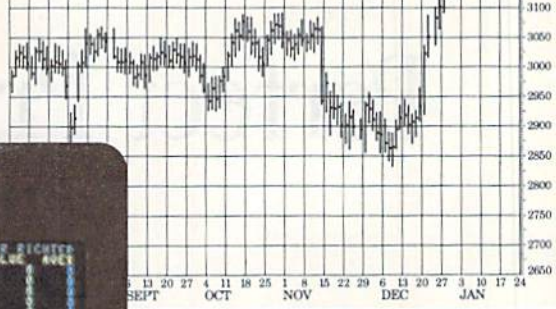
```

RUN it right: C-64



# Industrials

31 STOCKS IN INDUSTRIAL AVERAGE-NYSE CHG.			
AlliedSignal	- 1/4	DuPont	- 1/2
Alcoa	+ 1/8	Eaton	+ 1/4
Amalgamated	+ 1/4	Exxon	+ 1/4
AmTAT	+ 1/4	GenCorp	+ 1/4
Bethlehem	+ 1/4	GenCorp	+ 1/4
Boeing	+ 1/4	Goodrich	+ 1/4
Caterpillar	+ 1/4	IBM	+ 1/4
Chrysler	+ 1/4	Int'l Paper	+ 1/4
Coca-Cola	+ 1/4	McDonalds	+ 1/4
Dow	+ 1/4	Merck	+ 1/4
Eastman	+ 1/4	Minerals	+ 1/4
Exxon	+ 1/4	Morgan	+ 1/4
GenCorp	+ 1/4	Procter	+ 1/4
Goodrich	+ 1/4	Sears	+ 1/4
IBM	+ 1/4	Union Carbide	+ 1/4
Int'l Paper	+ 1/4	United Tech	+ 1/4
McDonalds	+ 1/4	Westinghouse	+ 1/4
Merck	+ 1/4	Woolworth	+ 1/4
Minerals	+ 1/4		
Morgan	+ 1/4		
Procter	+ 1/4		
Sears	+ 1/4		
Union Carbide	+ 1/4		
United Tech	+ 1/4		
Westinghouse	+ 1/4		
Woolworth	+ 1/4		



STOCK	PRICE	CHG	PERCENT
AA 1.80a	1.80	0.00	0%
ABC	1.80	0.00	0%
AMC	1.80	0.00	0%
AMX	1.80	0.00	0%
AMZ	1.80	0.00	0%
APC	1.80	0.00	0%
AT	1.80	0.00	0%
ATL	1.80	0.00	0%
ATM	1.80	0.00	0%
ATP	1.80	0.00	0%
ATU	1.80	0.00	0%
ATV	1.80	0.00	0%
ATW	1.80	0.00	0%
ATX	1.80	0.00	0%
ATY	1.80	0.00	0%
ATZ	1.80	0.00	0%
AT1	1.80	0.00	0%
AT2	1.80	0.00	0%
AT3	1.80	0.00	0%
AT4	1.80	0.00	0%
AT5	1.80	0.00	0%
AT6	1.80	0.00	0%
AT7	1.80	0.00	0%
AT8	1.80	0.00	0%
AT9	1.80	0.00	0%
AT0	1.80	0.00	0%



Buy! Sell! Diversify! Play the stock market with your C-64.

```

ACES)" + STR$(SH(J,K)),SZ(K))
;NEXT:PRINT:NEXT:REM*66
110 PRINT"(CTRL 6)DAY:{CTRL 4}"
DY"(CTRL 6) TOTAL(CTRL 4)"T
T"(CTRL 2) CASH(CTRL 4)"DL
:REM*181
120 IFDY=100THEN590:REM*54
130 PRINT"(CTRL 2)B(CTRL 8)UY,
(CTRL 2)S(CTRL 8)ELL, (CTRL
2)N(CTRL 8)O TRADE? (CTRL
2)";:REM*202
140 POKE204,0:GETA$:IFAS$=""THEN
140:REM*233
150 POKE204,1:PRINTAS$(CRSR LF)
";:REM*212
160 IFAS$="B"THEN380:REM*91
170 IFAS$="S"THEN490:REM*216
180 IFAS$<>"N"THEN140:REM*169
190 REM *** NO TRADE ***:REM*72
200 PRINT:PRINT"ANOTHER DAY..."
:DY=DY+1:REM*6
210 FORJ=0TO9:SH(J,2)=SH(J,2)+I
NT(RND(0)*11-5):REM*180
220 IFSH(J,2)<40ORRND(0)>.1THEN
240:REM*189
230 PRINT"(COMD 3)STOCK"J"CRASH
ES":SH(J,2)=INT(RND(0)*10-4
0):GOTO250:REM*235
240 IFSH(J,0)>999ANDRND(0)<.1TH
EN230:REM*51
250 IFSH(J,2)>-40ORRND(0)>.1THE
N270:REM*229
260 PRINT"(CTRL 6)TAKEOVER BID
FOR STOCK"J:SH(J,2)=INT(RND
(0)*30+10):REM*208
270 IFABS(SH(J,2))<20ORRND(0)>.
1THEN290:REM*73
280 SH(J,2)=INT(RND(0)*9):PRINT
"(COMD 8)RUMOURS CONCERNING
STOCK"J:REM*59
290 SH(J,0)=SH(J,0)+SH(J,2)
:REM*64
300 IFSH(J,0)>0THEN330:REM*215
310 PRINT"(COMD 3)STOCK(CTRL 2)
"J"(COMD 3)HAS COLLAPSED.IN
VESTMENTS LOST":REM*7
320 FORK=1TO6:SH(J,K)=0:NEXT:SH
(J,0)=INT(RND(0)*200+50)
:REM*64
330 IFSH(J,3)<100ORRND(0)>.1THE
N360:REM*166
340 PRINT"(COMD 6)STOCK"J"YEILD
S DIVIDEND OF(CTRL 2)"SH(J,
3):REM*129
350 DL=DL+SH(J,3):REM*28
360 NEXT:REM*235

```

```

370 PRINT"(CTRL 8)PRESS A KEY":
POKE204,0:WAIT197,191:POKE1
98,0:POKE204,1:GOTO400
:REM*117
380 REM *** BUY ***:REM*167
390 PRINT:PRINT"SHARE #:(CTRL 8
)":POKE204,0:REM*18
400 GETA$:IFAS$=""THEN400:REM*35
410 IFAS$<"0"ORAS$>"9"THEN400
:REM*218
420 J=VAL(AS):M=INT(DL/SH(J,0))
:REM*102
430 POKE204,1:PRINTAS$:PRINT"ENT
ER NUMBER TO BUY (MAX"M")"
:REM*163
440 INPUTK:K=INT(K):IFK<0ORK>MT
HENPRINT"(COMD 3)ILLEGAL VA
LUE":GOTO480:REM*255
450 SH(J,3)=SH(J,3)+K:M=SH(J,0)
*K:REM*123
460 SH(J,6)=SH(J,6)+M:DL=DL-M
:REM*49
470 PRINT"(CTRL 6)SHARES BOUGHT
":REM*101
480 FORJ=1TO500:NEXT:GOTO400
:REM*127
490 REM *** SELL ***:REM*128
500 PRINT:PRINT"SHARE #:(COMD 6
)":POKE204,0:REM*63
510 GETA$:IFAS$=""THEN510
:REM*170
520 IFAS$<"0"ORAS$>"9"THEN400
:REM*83
530 J=VAL(AS):POKE204,1:PRINTAS$
:REM*7
540 INPUT"ENTER NUMBER TO SELL"
;K:K=INT(K):REM*251
550 IFK<10RK>SH(J,3)THENPRINT"(
COMD 3)ILLEGAL VALUE":GOTO4
80:REM*122
560 M=SH(J,3)-K:SH(J,6)=SH(J,6)
*(M/SH(J,3)):REM*201
570 SH(J,3)=M:DL=DL+SH(J,1)*K
:REM*103
580 PRINT"(CTRL 6)SHARES SOLD":
GOTO480:REM*95
590 REM *** 100 DAYS ***
:REM*143
600 DL=TT:PRINT"(CTRL 2)END OF

```

```

GAME...":PRINT"(CTRL 8)TOTA
L VALUE(COMD 6)"DL:REM*38
610 PRINT"(CRSR DN)(CTRL 4)INSE
RT DISK...":POKE204,0:WAIT1
97,191:POKE198,0:POKE204,1
:REM*3
620 FL$="0:HISTOCK,S":OPEN15,8,
15:OPEN8,8,8,FL$+"R"
:REM*90
630 INPUT#15,J,A$,K,M:IFJ>19AND
J<62THENCLOSE8:GOTO760
:REM*1
640 IFJ<62THEN660:REM*169
650 FORJ=1TO9:HI$(J)="-":HI(J)=
0:NEXT:PS=1:GOTO670:REM*14
660 FORJ=1TO9:INPUT#8,HI$(J):IN
PUT#8,HI(J):NEXT:PS=10
:REM*79
670 FORJ=9TO1STEP-1:IFDL>HI(J)T
HENPS=J:REM*124
680 NEXT:PRINT"(CTRL 2)POSITION
":PS:REM*210
690 FORJ=8TOPSSTEP-1:HI$(J+1)=H
I$(J):HI(J+1)=HI(J):NEXT
:REM*34
700 CLOSE8:IFPS<10THENINPUT"(CT
RL 8)ENTER NAME":HI$(PS):HI
(PS)=DL:REM*153
710 PRINT#15,"S"+FL$:INPUT#15,J
,A$,K,M:IFJ>19THEN760
:REM*252
720 OPEN8,8,8,FL$+"W":REM*233
730 FORJ=1TO9:PRINT#8,HI$(J)CHR
$(13)HI(J):REM*240
740 PRINT"(CTRL 2)"CHR$(J+48)"(
CTRL 8)"HI(J)"(CRSR UP)(COM
D 6)":PRINTTAB(11)HI$(J):NE
XT:REM*80
750 CLOSE8:INPUT#15,J,A$,K,M
:REM*193
760 PRINT"(COMD 8)"J;A$;K;M:PRI
NT"(COMD 3)PRESS A KEY TO P
LAY AGAIN...":POKE204,0:CLO
SE15:REM*78
770 WAIT197,191:POKE198,0:POKE2
04,1:RUN:REM*114
780 DATA4,"(COMD 3)",4,"(CTRL 6
)",3,"(COMD 8)",6,"(CTRL 4)
",8,"(COMD 6)",4,"(COMD 7)"
:REM*34

```

RUN it right: C-64



# Perfect Print for GEOS

*At last! True letter-quality output for your geoWrite files.*



By STEVE VANDER ARK

It's a GEOS user's dream: beautifully rendered printouts of GEOS proportional fonts, each curve smooth, each angle clean—even in italics. But let's face it, a thousand fonts and every interpolating printer driver in the world won't make it happen unless you decide to shell out close to a grand for a laser printer.

But wait! If you've turned the page and seen the sample printouts, you know now that smooth, elegant geoWrite output on a dot-matrix printer is a reality, with Perfect Print. This new product from Creative Micro Designs is divided into two sections: LQ for geoWrite and HQ for geoPaint and geoPublish.

The star of Perfect Print is GEOS LQ (for *letter quality*). The GEOS LQ application, with its related printer drivers, prints geoWrite documents in extremely high resolution. For geoPaint and geoPublish, the HQ (*high quality*) set of interpolating drivers gives you smooth, high quality printouts. Filling out the package are special parameter files, utilities and a collection of fonts for the LQ and HQ systems.

## HQ STANDS FOR HIGH QUALITY

The HQ drivers operate on the same principle as the interpolation drivers available in the public domain, such as the Lasermatrix and Shell drivers. The printouts you can get from GEOS HQ will be quite a bit smoother than you'd get with the printer drivers that come with GEOS itself. But, although the print is rounded off somewhat, the typical "chunky" look isn't entirely eliminated.

The Perfect Print HQ fonts reduce the printout's jagged appearance only because they substitute simple angles for curves, resulting in fonts that look smooth but somewhat stilted.

This is the best that Perfect Print can deliver for geoPaint or geoPublish documents, so if you work primarily within these applications, Perfect Print is not for

you. Better HQ drivers are on their way, but for now you can get the same or better quality from public domain sources for very little money. (I use the excellent Shell drivers by George Wells found on Q-Link in the GEOS Software library Printer and Input Drivers section. Search using your printer name and the screen name GeoRep.)

But hold on to your hats. Perfect Print has an ace up its sleeve: GEOS LQ.

## LQ DELIVERS EXCELLENT PRINT

When geoWrite is the game, GEOS LQ holds the winning hand. There is simply no substitute for the quality this system will produce. Nothing like this has been possible for the Commodore before. The print quality rivals that of high profile software such as Professional Page for the Amiga.

To install GEOS LQ, you determine which installation file is needed for your

printer/interface combination. Then select two configuration files, a connection file and an adaptation file.

A third type of configure file, the parameter file, can further customize your printing. For example, one parameter file adjusts page length, one makes labels, another slightly reduces the image to improve the quality and then lengthens the geoWrite page to compensate, and there are others. These files are presented as geoWrite documents that can be examined and modified as you choose.

You have complete control over your printer's operation. But if you're not the kind of user who likes to tinker under the hood, don't worry. The manual makes it relatively easy to select the proper files to get you started.

## USING GEOS LQ

Once you've set up for GEOS LQ with configure files, a font or two, and the LQ ▶

## How GEOS LQ Works

To print documents, GEOS normally translates the individual dots on the screen (pixels) to dots on the printed page, dot for dot. On the screen the image blurs together and everything looks smooth, however, on paper the dots produce a definite jagged edge wherever there is an angle or a curve.

The pixel size determines how many pixels are on the screen; large pixels mean lower resolution, fewer dots being sent to the printer, and a more jagged printout. Unfortunately, Commodore pixels are fairly large.

To increase the number of dots used to make up the printed character, *multi-strike* drivers add dots between the ones GEOS itself asks for, thereby filling in some of the jagged edges. *Interpolation* drivers go that method one better, us-

ing algorithms to determine where to insert the dots for best results.

GEOS LQ uses a different method altogether. Added dots mean added resolution, but the system doesn't just guess where they'd look best on the page. Instead, it starts with the bit-mapped image of a larger version of the font and condenses it to the size you want. To print in 12-point Roma, for example, LQ takes the dot pattern of 36-point Roma and scrunches it down to 12 point. If a font size doesn't exist in a multiple of the requested point size, such as 12- and 36-point, GEOS LQ scales the nearest equivalent to fill in. Therefore, some sizes print more accurately than others. □

—SVA





Commodore  
**AMIGA**

# Software Hut

2534 S Broad St  
Philadelphia, PA 19145  
Orders 800-848-0079

Information 215-462-2268  
FAX 215-339-5336

- One of the East Coast's largest
- Authorized Commodore/AMIGA
- Full line of hardware
- Full line of peripherals
- Full line of software

## It's Still a Land Of Plenty for C64 and C128 Owners

*We do not publish a catalog. However, if you don't see what you want, please call and talk to one of our friendly staff.*

### 1571 Drives Are Back! \$179.95

- Made by Commodore
- Final Product Run
- New 90 Day Warranty
- Complete w/software, manuals
- Double Sided - Double Density
- Only 200 remaining
- Perfect for C128 Owners

### Monitors

1084 Color \$265.00  
1084S Color \$285.00

### Hardware

1351 Mouse	\$33.95
Power Supply by CBM for 64/64C	\$29.95
Supra 2400 Baud Modem	\$99.95
Computer/Disk Drive Cable - 6 ft.	\$12.95
Peak Modem Interface	\$29.95
Supra Graphix Jr	\$36.95
Super Snapshot	\$56.00
Aprotek 2400 Baud Modem w/software	\$89.95
1660 Modem	\$18.00
1670 Modem	\$34.00
801/803/1525/1526 Printer Ribbon (Specify)	\$7.00
1541-II, 1581, 1571-II Power Supply	\$29.95
64C Replacement Keyboard	\$35.00
JVC Disks 5.25, Box of 10	\$6.00
JVC Disks 3.5, Box of 10	\$8.00
IconTroller	\$15.95
G Wiz Printer Interface	\$40.00
Ergo Joystick	\$18.00
SpeedKing Joystick	\$15.00
6 Outlet Surge Protector w/EMI Filter	\$14.00
Super Explorer V5	\$45.00

### Games & Closeouts

Dark Lord	\$6.00
Napoleon In Russia	\$6.00
ChessMaster 2100	\$15.00
Where In (Specify) is Carmen San Diego	\$27.00
Skate Wars	\$10.00
Xenophobe	\$10.00
Destroyer Escort	\$9.00
Conflict in Viet-Nam	\$10.00
Silent Service	\$10.00
Solo Flight	\$10.00
Crossbow	\$7.00
Die Hard	\$8.00
Ghostbusters II	\$8.00
Rambo III	\$9.00
Operation Wolf	\$9.00
Ace of Aces	\$7.00
Hardball	\$6.00
Fight Night	\$6.00
Killed Until Dead	\$7.00
Arkanoid II	\$8.00
Rick Dangerous	\$10.00
Scrabble or Monopoly or Risk	\$17.00
Simpsons Arcade	\$29.00
Teenage Turtles Arcade	\$29.00
Sports Collection by Mindscape	\$14.00
Puffy Saga	\$10.00
Qix	\$9.00

### 1750 Clone - \$148.00

- From Chip Level Design
- This REU has 512K RAM
- Compatible w/CBM 1750 Units
- Works w/ALL 64 & 128 models

### Amiga 500 Starter System \$399.00

- A500 Computer w/512K RAM
- Internal 880K Floppy Drive
- 2 Button Mouse • Joystick
- Amiga DOS • 5 Programs

520 Adapter for use w/your TV - \$35.00  
501 Ram Expansion w/Clock - \$49.00

### 1541C Drive - \$124.95

This drive is a great replacement for your VIC 20, 64, 64C and will work on your 128 & 128D.

We have had as much success with this drive as with the 1541-II and, at a lower price, it is an excellent value.

Factory new & with a 90 day warranty. Hurry, as quantities are limited.

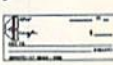
### Productivity

GEOS 128 V2	\$45.00
GEOS (64)	\$39.00
WordWriter 6	\$34.00
Data Manager 2 (64) or SwiftCalc (64)	\$16.00
Dome Home Accounting	\$44.00
PrintShop	\$30.00
NewsMaker 128	\$10.00
Super 81 Utilities 64-128 (Specify)	\$14.00
1541/1571 Drive Alignment	\$29.00
Maverick	\$29.00
Fast Load	\$28.00
1541 Flash	\$46.00
Newsroom	\$14.95
Mavis Beacon Teaches Typing	\$29.00
Bob's Term Pro 64	\$36.00
Bob's Term Pro 128	\$45.00
Perfect Score SAT	\$18.00
Master Type & Writer Bundle	\$14.00
SongWriter by Scarborough	\$12.00
Big Blue Reader	\$35.00
Home Video Producer	\$39.00
Math Blaster or Spell It	\$22.00
Word Attack or AlgeBlaster	\$22.00

### Commodore 64C Computer \$139.95

### 1541-II Drive \$164.95

We are an Authorized Commodore & Amiga Dealer and Amiga Service Center, repairing products both in and out of warranty.



Supplies are limited and on a first-come first-serve basis. Please contact us for additional pricing and information. We ship via UPS. We accept Visa, MasterCard, and Discover for payment. We also ship COD, accepting Cash, Certified Check, or Money Order. Software and accessories shipping is \$3.00 for first item and \$1.00 for each additional. Hardware shipping is \$5.00 for the first item and \$2.00 for each additional. Monitors are \$10.00 to ship. Amiga 500 computers are \$12.00 to ship. COD add \$4.00. Outside U.S. orders are welcome and we will bill only for actual shipping charges at time of order.



## PERFECT PRINT

application on your geoWrite disk, you're ready to work a few printing miracles. The geoWrite documents you create should use the LQ fonts included with the system, though GEOS LQ will do a pretty slick job of smoothing out regular GEOS fonts too. If your document uses the regular Roma or University fonts, GEOS LQ will automatically substitute the LQ fonts if they're available.

GeoWrite runs as usual; all style and formatting options are supported. When

you're ready to print, there are several ways to activate GEOS LQ, including a utility to run it as a desk accessory.

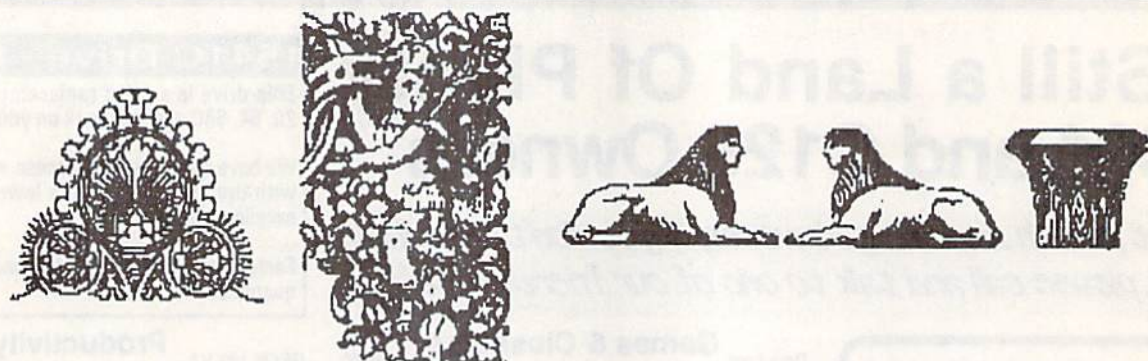
The control panel that appears on the screen lets you fine tune the process, setting parameters for page range, number of copies, density, and so on. If you don't want to reset these parameters each time, you can save your settings to disk.

Then the printer goes to work and a beautifully detailed document appears.

When the printer has finished (which sometimes takes a while), the end menu lets you return to geoWrite, go to the print control panel, or return to the deskTop.

The LQ fonts include many point sizes to give GEOS LQ all the information it needs. Of course, this makes the font files very large, and you might find yourself quickly using up disk space. To ease the disk space crunch, the package in-

*Continued on p. 30.*



The graphics shown above are an example of bit-mapped output from geoWrite using the "Epson24pin" GEOS printer driver by George Wells on an Epson LQ-500 24 pin printer. This text was produced using the same printer and driver combination. This text was formatted in Roma 12. geoWrite also handles font styles such as *italics* and **bold**. Here are examples of some of the other fonts (in 15 point size):

California LQ

Ornament LQ

Quill LQ

Gondor LQ



The graphics shown above are an example of bit-mapped output from Perfect Print LQ using a Panasonic KX-P1123 24 pin printer at 360 x 360 dots per inch. This text was produced using the same printer with Perfect Print's GEOS LQ print system which prints geoWrite documents. This text was formatted in Roma LQ 10 point, one of the included fonts. The system also handles font styles such as *italics* and **bold**. Here are examples of some of the other fonts (in 15 point size):

California LQ

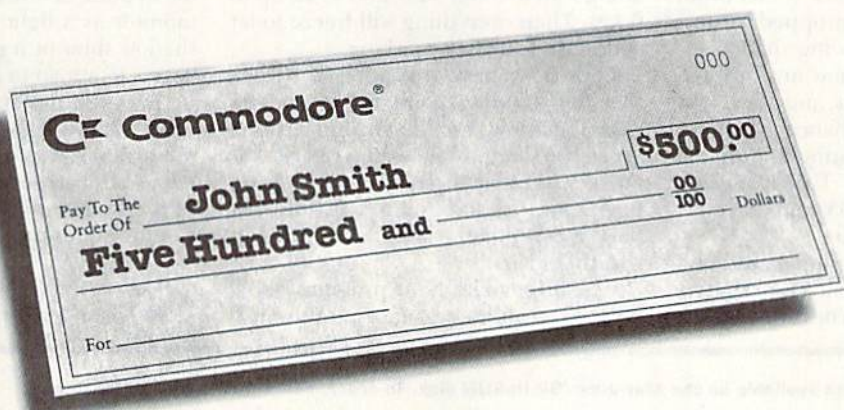
Ornament LQ

Quill LQ

Gondor LQ



# 500 Reasons To Buy An Amiga® 3000 Before April 30<sup>th</sup>



A check for five hundred bucks.

That's what you can get direct from Commodore when you buy an Amiga® 3000-25/50, or 3000-25/100 before April 30th. Or, you can even use your \$500 immediately right in the store toward the purchase of your Amiga.

Amiga 3000 series computers set the standard for multimedia platforms, with true 32-bit architecture for demanding video and graphics applications. The A3000-25/100 features a 100M hard drive and 5M RAM.



The A3000-25/50 has a 50M hard drive and 2M RAM.

All Amiga 3000's feature four-voice, two-channel sound, thousands of displayable colors, AmigaVision™ (which lets you control graphics and video simultaneously), on-site service\* and convenient leasing terms.

For more information, call 1-800-66-AMIGA. Or see your participating authorized Commodore-Amiga dealer before April 30th. (Terms may vary in Canada. Call 1-800-661-AMIGA.)

**Commodore®**  
**AMIGA®**



www.Commodore.ca  
May Not Reprint Without Permission

© 1992 Commodore Business Machines, Inc. Commodore and the Commodore logo are registered trademarks of Commodore Electronics Ltd. Amiga is a registered trademark of Commodore-Amiga, Inc. Not valid with any other promotional offers. \*Available on systems purchased in the U.S. through an authorized Commodore-Amiga dealer.



# 128 MODE

*You've used your C-128 for a lot of different things over the years, but I'll bet you've never used it as a sundial.*

By MARK JORDAN

ONE EVENING RECENTLY I was sitting in my living room with the TV on and the lights off. I was vacantly watching a shadow on the ceiling when it struck me that the light from the TV had enough power to create moving shadows that changed as images moved on the screen. It dawned on me that the TV was a light source, actually a bunch of lights, called pixels (for *picture elements*).

Hmmm. How could this be demonstrated with my computer? I did some quick-and-dirty programming to move a white sprite across a dark screen, and sure enough, a pencil propped against the screen created a moving shadow.

I then remembered how my kids had spotted a sundial recently, and asked how it worked. Here was a chance to kill two birds with one stone. Listing 1, "Sundial 128," is the "lab report." Type it in using the Checksum on page 33, and don't forget to save before running it.

Scrounge around your house and find a piece of cardboard about a foot square, a nail at least three inches long and a

pencil. Jab the nail through the cardboard near the center. This nail is the *gnomon* (the part that casts the shadow) on your sundial. The cardboard is the dial's face. Place the cardboard just under the front of your monitor with the nail centered with the screen. Run the program, and darken the room.

You have three options: Set, Guess and Else. Press S to set your timepiece, and you'll see the morning sun (a white ball) rise in the east (the left side of your screen). The time of day will be displayed along with it: 5:30, 5:35, and so on up to 6 A.M. Then everything will freeze to let you make your first marking.

Look down at your sundial. You'll see that the standing pointer does indeed cast a shadow, not sharp, but visible. Trace the shadow-line with a pencil. Hit any key to move the sun along by hour, tracing the shadow as it moves until you have a complete, calibrated sundial (6 A.M. to 7 P.M.).

Whenever you run the program, you'll need to recalibrate by moving the card-

board until you get the lines to match up with the times.

When you select Guess, the sun will again make its ascent, only it will stop along the way and you will be asked to guess the time using the cursor keys, which step through hours and minutes in five-minute increments. Make your selection and press RETURN to see the results.

The third option is just for the heck of it, and lets you watch the sun rise and fall with the time displayed along with it.

Doing this little experiment prompted me to think of other projects that use the monitor as a light source: an animated shadow show or a game that sends light beams to a map to give clues.

Have you done a nifty home experiment with your Commodore 128? Send me a description of it, including your name, address and telephone number. If I get enough responses I'll devote an upcoming column to them. **R**

*When he's not in his guise of Dr. Science, Mark Jordan teaches high school English.*

**Listing 1. Sundial 128. Also available on the May/June '92 ReRUN disk. To order, call 1-800-824-5499.**

```

10 GOSUB380:REM DRAW CIRCLE/SPR      "{CTRL G}"           :REM*73      IGH$(H*5),2
   ITES                               :REM*172      )+" ",3)           :REM*14
20 R={PI}/180:C=160*160:AN=11:H      160 H=H1:HH=H2       :REM*172      :REM*2
   =5:HH=0                             :REM*255      370 RETURN           :REM*2
30 PRINT"(SHFT CLR)S TO SET, G      170 CHAR,12,1,"CORRECT":GOSUB3 380 FAST:PRINT"(SHFT CLR){CTRL
   TO GUESS, ELSE OTHER KEY"         60              :REM*229      8)"", "SUNDIAL"       :REM*7
                                     :REM*190      390 COLOR4,1:COLOR0,1   :REM*29
40 GETKEYSE$:PRINT"(SHFT CLR){C      200 IFSE$<>"G"THENGOSUB350 :REM*185      400 GRAPHIC1,1       :REM*28
   OMD 4)"                             :REM*134      410 CIRCLE1,74,71,23,20 :REM*40
50 DO                                :REM*28      420 PAINT1,-1,+1     :REM*78
60 IF SE$="G" AND RND(1)>.97 TH      210 H=H+1:IFH=12THENHH=HH+1:H=0 :REM*26      430 SSHAPEA$,50,50,73,70:SPRS
   EN BEGIN                            :REM*225      440 SSHAPEA$,74,50,97,70:SPRS
70 CHAR,0,0,"USE CRSR KEYS TO G      220 S=SIN(AN*R)       :REM*47      A$,2              :REM*76
   UESS, RETURN TO CHECK"             :REM*206      450 SSHAPEA$,50,71,73,91:SPRS
                                     :REM*230      A$,3              :REM*80
80 H1=H:H2=HH:H=0:HH=0              250 X=X+160:Y=251-Y   :REM*175      460 SSHAPEA$,74,71,97,91:SPRS
90 CHAR,0,1,"{34 SPACES}"           260 POKE4861,1       :REM*209      A$,4              :REM*200
100 CHAR,0,1,"":GOSUB360             270 MOVSPR1,X,Y-20   :REM*149      470 GRAPHIC0,1       :REM*88
                                     :REM*153      280 MOVSPR2,X+24,Y-20 :REM*92      480 FORT=1TO4:MOVSPRT,0,0:NEXT
                                     :REM*172      290 MOVSPR3,X,Y       :REM*172      :REM*242
110 DO:GETKEYA$:IFA$="{CRSR DN}      300 MOVSPR4,X+24,Y   :REM*43      490 SPRITE1,1,2:SPRITE2,1,2:SPR
   "THENHH=HH+1:IFHH>15THENHH=      310 POKE4861,0       :REM*5        ITE3,1,2:SPRITE4,1,2
   0                                   :REM*235      :REM*165
120 IFA$="{CRSR RT}"THENH=H+1:I      320 IFH=1THENIFSE$="S"THENCHAR, 500 DIMHO$(15):FORT=0TO15:READA
   FH>11THENH=0                     0,2,"PRESS KEY":GETKEYA$:CH $:HO$(T)=A$:NEXT           :REM*212
130 CHAR,0,1,"":GOSUB360             AR,0,2,"{9 SPACES}"   :REM*236      510 DATA 5,6,7,8,9,10,11,12,1,2
                                     :REM*191      330 LOOP              :REM*52      ,3,4,5,6,7,8       :REM*239
140 LOOPUNTIL A$=CHR$(13)            340 GOTO20            :REM*211      520 SLOW:RETURN       :REM*62
                                     :REM*254      350 CHAR,0,0,""       :REM*203
150 IFH=H1 AND HH=H2 THEN PRINT      360 PRINT"TIME: "+HO$(HH)+" "+R

```



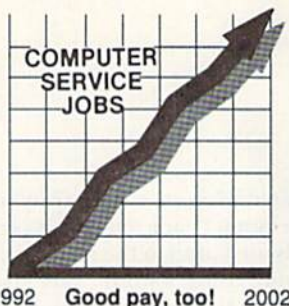
# 5 sure steps to a fast start as a high-paid computer service technician

## 1. Choose training that's right for today's good jobs

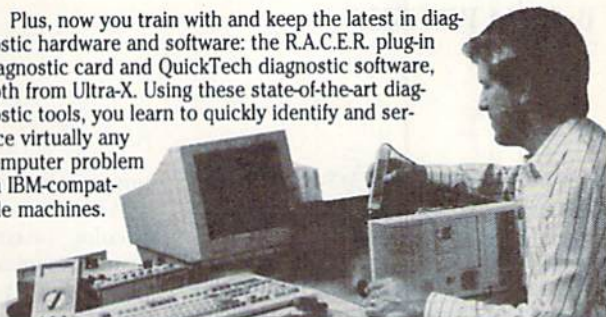
Jobs for computer service technicians will almost double in the next 10 years, according to the latest Department of Labor projections. For you, that means unlimited opportunities for advancement, a new career, or even a computer service business of your own.

But to succeed in computer service today, you need training—complete, practical training that gives you the confidence to service any brand of computer. You need NRI training.

Only NRI—the leader in career-building, at-home electronics training for more than 75 years—gives you practical knowledge, hands-on skill, and real-world experience with a powerful 386sx/20 MHz computer you keep. Only NRI gives you everything you need for a fast start as a high-paid computer service technician.



Plus, now you train with and keep the latest in diagnostic hardware and software: the R.A.C.E.R. plug-in diagnostic card and QuickTech diagnostic software, both from Ultra-X. Using these state-of-the-art diagnostic tools, you learn to quickly identify and service virtually any computer problem on IBM-compatible machines.



## 4. Make sure you've always got someone to turn to for help



Throughout your NRI training, you've got the full support of your personal NRI instructor and the entire NRI technical staff. Always ready to answer your questions and help you if you should hit a snag, your instructors will make you feel as if you're in a classroom of one, giving you as much time and personal attention as you need.

## 5. Step into a bright new future in computer service—start by sending for your FREE catalog today!

Discover for yourself how easy NRI makes it to succeed in computer service. Send today for NRI's big, full-color catalog describing every aspect of NRI's one-of-a-kind computer training, as well as training in TV/video/audio servicing, telecommunications, industrial electronics, and other growing high-tech career fields.

If the coupon is missing, write to: NRI School of Electronics, McGraw-Hill Continuing Education Center, 4401 Connecticut Avenue, NW, Washington, DC 20008.

R.A.C.E.R. and QuickTech are registered trademarks of Ultra-X, INC.



## 3. Get inside a powerful computer system

If you really want to get ahead in computer service, you have to get inside a state-of-the-art computer system. That's why NRI now includes the powerful new West Coast 386sx/20 MHz mini tower computer as the centerpiece of your hands-on training.

As you build this 1 meg RAM, 32-bit CPU computer from the keyboard up, you actually see for yourself how each section of your computer works. You assemble and test your computer's "intelligent" keyboard, install the power supply and high-density floppy disk drive, then interface the high-resolution monitor. But that's not all.

You go on to install a powerful new 40 meg IDE hard disk drive—today's most-wanted computer peripheral—included in your course to dramatically increase the data storage capacity of your computer while giving you lightning-quick data access.

**NEW!**  
386sx/20 MHz  
Mini Tower  
Computer!



**NRI** School of Electronics

McGraw-Hill Continuing Education Center  
4401 Connecticut Avenue, NW, Washington, DC 20008

### ☒ CHECK ONE CATALOG ONLY

- |  |  |
|--|--|
| <input type="checkbox"/> Microcomputer Servicing         | <input type="checkbox"/> Computer Programming            |
| <input type="checkbox"/> TV/Video/Audio Servicing        | <input type="checkbox"/> PC Applications Specialist      |
| <input type="checkbox"/> Telecommunications              | <input type="checkbox"/> Desktop Publishing & Design     |
| <input type="checkbox"/> Industrial Electronics/Robotics | <input type="checkbox"/> Programming in C++ with Windows |
| <input type="checkbox"/> Basic Electronics               | <input type="checkbox"/> Bookkeeping & Accounting        |

Name \_\_\_\_\_

Address \_\_\_\_\_

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

Accredited Member, National Home Study Council

196-052

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



# COMMODORE CLINIC

*Sure-fire cures for hard disk headaches, color printer conundrums, disk error ailments and keyboard cable cramp.*

By TIM WALSH

**Q** I occasionally read MS-DOS publications at work and notice a large number of high-capacity hard disk drives being sold for less than what I paid for my C-128 system. If I bought one of these drives and connected it to my C-128, would it work? I need to run a small business with my C-128.

—FRANK GONZALES, JR.  
SAN ANTONIO, TX

**A** The key word here is "connected." The hard drives sold through mail order companies cannot be connected to your Commodore because most are designed for computers that are SCSI-compatible (called "scuzzy," it stands for the Small Computer System Interface standard). SCSI drives require a separate hard disk controller card that plugs directly into the motherboard of the computer. While MS-DOS machines, and certain other computers, such as high-end Commodore Amiga models, are designed to accept SCSI attachments, the C-128, like the C-64, has no provisions for a hard disk controller card.

If you are interested, however, in using your C-128 as your business computer, you will need a hard disk drive. Creative Micro Designs of East Longmeadow, MA (413-525-0023) has the answer. They manufacture and support a wide range of high-capacity 40-, 60- and 120-megabyte hard disk drives for both Commodore 64s and 128s.

**Q** I bought a Star Micronics NX-1000 Rainbow color printer and a Xetec Super Graphix printer interface. I've seen samples of beautiful color graphics this printer will make, but I can't find any software for my C-64 that lets my printer print in color. Do I have to get an IBM or Apple computer to print in color?

—JASON LANGDON  
SANTA FE, NM

**A** No, you don't need to get an Apple or IBM computer in order to access your printer's color options. I'd have to say that one of the most frequently asked questions that RUN receives is how to get color printers to print in color. And, fortunately, it's always nice to reply that it's

not an overly complicated process.

When it comes to printing characters in color, the commands are found in the printer manual. If you're using a word processor that prints using the printer's character set, it's typically just a matter of preceding the text that you want printed in color with the command needed to select that color. You will also have to follow the text with a command to either turn off the color printing, or change to another color.

You'll not only have to check your printer manual for the codes needed to activate color printing and a selected color, but you'll also need to reference your word processor's documentation for information on using printer commands.

Printing color graphics is another matter altogether. Most C-64 and C-128 paint programs do not support color printing. The exception is GEOS and its accompanying paint program, geoPaint. Not only will you find a color printer driver for the NX-1000 Rainbow, but there are also conversion utilities available through the public domain for converting images, such as color RUN Paint files, to geoPaint format. Check with larger user's groups and online services such as QuantumLink and GENie for such utilities.

**Q** I have used an older Commodore 128 for many years, and I've had every type of disk error imaginable. I know lots of tricks to fix the errors, such as turning the disk drive off and on, inserting another disk, and a few more tricks. As a result, I can usually save the program in memory.

Recently, I borrowed a friend's C-128D and I encountered a disk error. Because the 1571 drive is built into the computer, I couldn't figure out a solution. I couldn't turn the drive off and on, at least without turning off the computer. Any suggestions?

—BURT WALKER  
MUNCIE, IN

**A** Floppy disk errors are a common occurrence on all brands of computer systems, and, as you well know, they're unmistakable on both the Commodore 64 and 128, because the disk drive's ac-

tivity light always flashes when an error has occurred.

Disk errors often happen when you are saving a file to disk and something is amiss. In most instances the problem is simple: a file with the same name already exists on the disk, the disk is write-protected, the disk is full, or a track and sector error is encountered. The drive light starts flashing and disk access comes to a screeching halt.

If you encounter a C-128 disk error, just type the following in Direct mode:

```
PRINT DS$ {RETURN}
```

If the file already exists, the error message "63,FILE EXISTS,00,00" appears on the screen. Other disk errors are revealed in a similar fashion with the DS\$ command. To use this command in Program mode, simply precede the command with a line number.

You and many other RUN readers might be surprised to know that the C-128D's built-in 1571 disk drive has a reset button, allowing the drive to be reset without disturbing the program in memory. If you look closely at the right side of the computer's chassis, you'll notice a deeply recessed button next to the reset button. Pressing this button with a pen or other small object resets the disk drive.

**Q** Is there any way to extend the C-128D's keyboard cable? I have dreamed of the day when I can sit back and type with the keyboard in my lap instead of on the desk.

—LORI DAVIS  
SAN FRANCISCO, CA

**A** Yes, there is an easy way to extend your 128D's keyboard cable. Go to any computer dealer and pick up a 25-pin male-to-female serial cable (our local Radio Shack store carries a six-footer for \$12.95). Plug one end of the cable into the computer and the other into the keyboard and you're in business. ■

Send your questions to Commodore Clinic, RUN Magazine, 80 Elm St., Peterborough, NH 03458. Questions are answered only through this column.



BRIWALL

BRIWALL

P.O. Box 129/58 Noble Street  
Kutztown, PA 1953024 Hour FAX Line 1-215-683-8567  
Customer Service 1-215-683-5433  
Technical Support 1-215-683-5699

(NEW!)

1-800-766-5757

Outside the USA &amp; Canada (1-215-683-5661)

VISA

MasterCard

PLEASE COME VISIT US!  
Monday - Friday 9AM-6PM EST  
Saturday 9AM-12 Noon EST

## ACCESSORIES

Commodore 1541C Drive	\$139
Apro Extender 64 User Ribbon	19
Aprospan 4 Slot Cartridge Holder	27
Covers	call
Incontroller	19

Pocket Writer 3	49
Swiftscale 128 w/sideways	39
Swiftscale 64 w/sideways	19
Technical Analysis System 64	32
Word Writer 6/64	39
Write Stuff 128 w/spellchecker	29

## BRIWALL SPECIALS!

Here are two special offers that may not last long! Please call for availability before you place your order.

Commodore 64 Owner's Manual (originals) \$29  
Reconditioned 1581 3.5" Drive (while they last) \$139  
(Get Super 81 Utilities for only \$10 when you buy this drive!)

Joysticks	call
Lightpen-Model 170c	70
Minimodem C 1200 Baud	59
Minimodem C 2400 Baud	89
Monitor Cable 5-pin DIN/4 RCA	9
Monitor Cable C128 40/80cols	29
Mouse M3 (1351 substitute)	45
Power Supply - C128 - Repairable	55
Power Supply - C64 - Repairable	45
Printer Intfce Super Graphic Junior	35
Printer Intfce Super Graphic Senior	59
Ribbons	call
Ribbon Renew - Re-Ink w/no Equip	5
RS-232 Peak Interface	29
Serial Cable - 6ft	6
Video RAM 64K Daughterboard	50

## BOOKS

1571 Internals+	\$17
500 C128 Questions & Answers	16
K Jax Revealed Trilogy	32
Low Sanders Tricks & Tips	19
Low Sanders Gold Mine	24
Twin Cities 128 Compendium #1	16

## GENERAL BUSINESS

Datamanager 2 64	29
Leroy's Label Maker	27
Microlawyer	49
Microsoft Multiplan	19
Paperclip 3	39
Pocket Filer 2	29
Pocket Planner 2	29
Pocket Suprapak 2 (Digital)	69

## 1541/1571 DRIVE ALIGNMENT

This excellent alignment program is a must-have for every Commodore owner. Easy to use, it helps you to align your drive so that it runs just as if it were new! The simple instructional manual and on-screen help prompt you through the alignment procedure and help you adjust the speed and head stop of your drives. It even includes instructions on how to load the alignment program when nothing else will load!

Don't be caught short! We get more Red Label orders for this program than any other program we sell. Save yourself the expense! Order now, keep it in your library, and use it often!

Works on the 64, 128 and SX64 for the 1541, 1571, 1541-II and compatible third party drives.  
**STILL ONLY \$25**

## Why Choose Briwall?

- In-House Technical Support
- A No-surprises Shipping Policy
- Our SIXTH Year in Business
- No Surcharge for Charge Orders
- No Holding of Personal Checks
- A Fair Return/Exchange Policy
- Fast, Reliable, Friendly Service
- We have operators fluent in Spanish and German

## GEOS RELATED

GEOS 64 v.2.0 \$39

Sketchpad 128	19
Spectrum 128	24

## MISCELLANEOUS

Bible Search KJV Old&New T	60
Bridge 5.0	20
Family Tree C64/C128 and LDS	45
Tarot 128	15

## UTILITIES/LANGUAGES

1541/1571 Drive Alignment	\$25
1581 Toolkit V2/ Dos Ref	32
Basic 8-How to Get the Most Out of	19
Basic 8-Toolkit	19
Basic Compiler/128	39
Basic Compiler/64	29
Big Blue Reader V3.1 (64/128)	35
Bobstern Pro 64	39

## EDUCATION

ESP Tester	\$19
Linkword-German	29
Linkword-French 2	29
Linkword-Spanish	29
Mavis Beacon Teaches Typing /C64	35
Mickey's Runaway Zoo	17
Numbers Show 128	10
Sky Travel	39
Where in Europe Carmen Sandiego	29
Where in Time Carmen Sandiego	29
Where in USA is Carmen Sandiego	29
Where in World Carmen Sandiego	29
World Geography	29

## ENTERTAINMENT

AD&D Gateway Savage Frontier	\$36
Arachnophobia	25
Bridge 5.0	24
Clue: Master Detective	25
Elvira	33
MicroLeague Baseball II	27
Sex Vixens From Space	20
The Great War	19
Ultima Trilogy (1,2,3)	39
Ultima V	39
Ultima VI: False Prophet	46
Wizardry Trilogy	39

## SPECIAL OFFER!!

For a limited time, anyone placing an order over \$150 will receive a **FREE Surprise Pack** containing up to four pieces of software with an original retail price of at least \$100! (please specify 64 or 128)

Gateway 64 or 128	27
Geopublish 64	35
Geos 128 V2.0	49

## CREATIVITY/GRAPHICS

**Microsoft MultiPlan**  
The premier C64 spreadsheet is available again for a short time!  
**Only \$19**  
(While they last)

Animation Station	\$60
Cadpak 64	32
Colorize 128	12
Flexidraw 5.5	25
Free Spirit Graphics Bundle	35
NewsMaker 128	19
Poster Maker 128	24
Printshop	35

Bobstern Pro 128	42
CP/M Kit	29
Cobol 64 or 128	29
Digitalizer 128	24
Gnome Kit 64/128	29

## WE NOW CARRY JiffyDOS!

JiffyDOS v6.0 64	\$50
JiffyDOS v6.0 128	\$60

Please specify computer and drive when ordering

Gnome Speed Compiler 128	29
Maverick V5.0 Copier	32
Merlin 128	49
Protoline BBS 128	12
Protoliner 128	12
Super 81 Utilities 128 or 64 each	15
Super Aide 64	25
Super C 128 or 64	49
Super Disk Librarian 128	19
Super Disk Utilities 128	25
Super Pascal 128	45
Super Snapshot V5.0	59
Super Snapshot V5.0 w/128 disble	65

## JOYSTICKS

Wico Bat Handle	22
Wico Boss	16
Wico Ergo Stick	19
Gravis	39
Wico Super 3-Way	25
Suncom Incontroller	19
Suncom TAC 2	11
Gravis Mousestick	69

## PRINTERS/9-PIN B&amp;W

Panasonic 1180i	199
Panasonic 1191	269
Star NX1001	179

## PRINTERS/9-PIN COLOR

Citizen GX200 (9 pin)	189
Star NX1020R Rainbow	229
Star XR1020 (420cps)	399
Star XR1040 (420cps)	529

## PRINTERS/24-PIN B&amp;W

KXP1224i	349
Panasonic KXP1124	339

## Expand the capabilities of your 64 and 128!

CMD's new RAMLink is an expandable RAM disk, REU interface, and more. Plug your REU (1750, 1764, GEORAM) into the RAM port and the separate RAMLink power supply will maintain the contents, even when you turn the computer off! The built-in RL-DOS allows most software to use the REU as a high-speed RAM disk (20X faster than Commodore's RAMDOS.) RAMLink also has a slot for a second second cartridge port peripheral. With the optional RAMCard, the RAMLink can be expanded to a total RAM disk capacity of 16MB! The RL-DOS also includes the JiffyDOS kernel, file and disk copiers, plus much more.

RAMLink unit	\$170
RAMCard	\$55
RAMLink w/RAMCard+1MB	\$271
RAMLink w/RAMCard+2MB	\$319
Optional Battery Backup	\$24

Panasonic KXP1524	669
Panasonic KXP1624	479
Star NX2400	319
Star NX2415	479
Star NX2420	339

## PRINTERS/24-PIN COLOR

Citizen GX130	279
Citizen GX140	299
Citizen GX145 (wide)	429
Star NX2420R	369
Star XB-2410	489
Star XB2415 (wide)	659

## PRINTERS/INK JET COLOR

Canon PJ1080a	\$19
HP PaintJet	1099
Sharp JX730	2045

## PRINTERS/INK JET B&amp;W

CBM1270	249
Canon BJ300 (360dpi)	499
Canon BJ330 (360dpi)	699
HP Deskjet 500	529

## PRINTERS/LASER

Citizen PN48 Portable	379
HP Laser Series II**	964
Okidata 400 Laser	689
Panasonic KXP4420	979
Silentwriter 2 Model 90	1699

We also carry a full line of ribbons, inks, covers and many other computer accessories not listed here.

Call for a complete listing.

Are you considering an upgrade to the Amiga? If so, call for our comprehensive Amiga catalog, including software, hardware, video products and accessories.

**SHIPPING POLICY:** All UPS shipments are sent Signature Required/No Driver Release. 2nd Day and Next Day Delivery via Federal Express® are also available. Standard UPS Ground for all software orders in continental USA are \$5 per entire order. Call for other shipping methods and rates.

**ORDERING INSTRUCTIONS:** For your convenience, you can place a phone order 24 Hours/7 days a week on our TOLL-FREE LINE 1-800-638-5757. Outside the USA and Canada, please use (215) 683-5661. Briwallians man the phones Monday thru Friday, 9:00AM - 8:00PM EST. AFTER HOURS Orders Only Please! When placing an order, please specify your computer model, home & daytime telephone number, shipping address, charge card number, expiration date and billing address for credit orders.

**ACCEPTED PAYMENT METHODS:** We gladly accept Personal Checks, Money Orders, VISA, MASTERCARD, School Purchase Orders, or COD (\$4.00 additional) - for established Briwall Customers ONLY. All checks must be in US Dollars and drawn on a US bank. There is no surcharge for credit cards.

**RETURN POLICY (for Non-Entertainment software and Accessories ONLY):** We have a liberal return policy to better service your needs. If within 15 days from the time you receive an item, you are not satisfied with it for any reason, you may return it to us for either a refund, exchange, or open credit. REFUNDS ARE SUBJECT TO A 20% RESTOCKING FEE PER ITEM RETURNED (\$10.00 MINIMUM PER ITEM). EXCHANGES/OPEN CREDITS will gladly be issued for the full purchase price of the item. **DEFECTIVE ITEMS:** Entertainment software, Hardware items and Special Order items will be repaired or replaced with the same item only.

**TECHNICAL SUPPORT:** Call (215) 683-5699, Monday - Friday, 9am - 5pm EST. We do our very best to help you with your product selections before you order, and after you receive your product. General questions, such as price, compatibility, etc., will be handled by our order staff at the time you place your order. BUT, if you have specific, detailed questions about a product you will get the most help from our Technical Support Line.



www.Commodore.ca  
Maximize the power of your Commodore

PRODUCTS...SOLID SUPPORT



# MAGIC

*These handy tricks let you save binary files in C-64 mode, sample the Commodore's musical talents and see page breaks in your program listings.*

By TIM WALSH

## \$5EB PAGE BREAKS 64

If you're running low on printer paper, or simply want to get a better idea of your program listing's length, then type in Page Breaks 64. This terrific programmer's utility shows you exactly how many sheets of paper the printed listing will use before you print it out.

Page Breaks 64 works by modifying the C-64 List command. After typing in and saving the following program to disk, run it to activate the List command modification. When the program is active and you issue the List command, a line of hyphens appears across the screen every 66 lines (the length of a standard 8 1/2 x 11-inch sheet). To prevent sending the lines to the printer, always press the RUN/STOP-RESTORE key combination before listing to the printer. To reactivate Page Breaks 64, enter SYS 49152.

```
Ø REM LIST PAGE BREAKS 64 - RICHARD PENN
                                     :REM*7Ø
1Ø A=65535:POKE 1,55:POKE 56334,Ø:POKE 95,
  Ø:POKE 96,16Ø:POKE 9Ø,255:POKE 91,255
                                     :REM*121
2Ø POKE 88,255:POKE 89,255:SYS 41919:POKE
  A,PEEK(A):POKE 56334,1
                                     :REM*2Ø4
3Ø POKE 56324,149:POKE 56325,66
                                     :REM*155
4Ø FOR U=49152 TO 49219:READ Q:POKE U,Q:CK
  =CK+Q:NEXT
                                     :REM*34
5Ø IF CK <> 784Ø THEN PRINT"ERROR IN DATA.
  ..":END
                                     :REM*227
6Ø A=48589:B=42683:POKE A,76:POKE A+1,5:PO
  KE A+2,192
                                     :REM*246
7Ø POKE B,76:POKE B+1,53:POKE B+2,192:SYS4
  9152:PRINT"PAGE BREAKS INSTALLED"
                                     :REM*155
8Ø DATA 169,53,133,1,96,72,138,72,23Ø,2,16
  5,2,2Ø1,67,24Ø,1Ø,1Ø4,17Ø
                                     :REM*243
9Ø DATA 1Ø4,133,98,134,99,76,2Ø9,189,169,1
  3,32,21Ø,255,169,45,162,4Ø,32
                                     :REM*41
1ØØ DATA 21Ø,255,2Ø2,2Ø8,25Ø,169,13,32,21Ø
  ,255,169,Ø,133,2,76,16,192,8
                                     :REM*78
11Ø DATA 72,169,Ø,133,2,1Ø4,4Ø,1Ø4,1Ø4,165
  ,2Ø,76,191,166
                                     :REM*211
```

—RICHARD PENN, MONTREAL, QUEBEC

## \$5EC BINARY FILE SAVER 64

While C-128 users have the BSAVE command for saving areas of memory to disk as binary files, C-64 users are out of luck. Binary File Saver 64 is a short utility that C-64 users can use to copy any specified area of memory to disk.

You can use this utility to make copies of pure machine language files that have been loaded into memory from Direct mode or from Basic loaders. Just run Binary File Saver 64 and answer the starting and ending address prompts. Next, make certain you have a formatted work disk in the drive, and the

specified area of memory will be saved as a binary file to the disk. While the program is designed as a C-64 utility, it also works great in 128 mode!

```
Ø REM MEMORY DISK SAVER 64 - JOHN DAHLSTRO
  M
                                     :REM*94
1Ø INPUT"STARTING ADDRESS";A
                                     :REM*215
2Ø INPUT "ENDING ADDRESS";E
                                     :REM*163
3Ø INPUT"ENTER FILENAME";F$:IF F$="" THEN
  3Ø
                                     :REM*24Ø
4Ø OPEN8,8,8,F$+",P,W"
                                     :REM*1Ø7
5Ø C=INT(A/256):B=A-C*256:PRINT#8,CHR$(B);
  CHR$(C);
                                     :REM*144
6Ø PRINT#8,CHR$(PEEK(A));
                                     :REM*254
7Ø A=A+1:IF A>E THEN CLOSE8:END
                                     :REM*17Ø
8Ø GOTO 6Ø
                                     :REM*212
```

—JOHN DAHLSTROM, WOODHULL, IL

## \$5ED NOTE SAMPLER 128

If you're interested in experimenting with music on your C-128, then take a few minutes and type in Note Sampler 128. Not only will this program help you learn about the Commodore 128's note-playing capabilities, but it also lets you sample musical attributes, such as various octaves and durations.

Type in Note Sampler 128 using RUN's Checksum and save it to disk. When you run the program, press the letter of one of the attributes, followed by the letter of a note. The program will display a message if an illegal key is pressed.

```
Ø REM NOTE SAMPLER 128 - GENE MILLER
                                     :REM*68
1Ø SCNCLR: PRINT"NOTE SAMPLER 128
                                     :REM*1Ø4
2Ø PRINT:PRINT"ACTIVE KEYS ARE: C D E F G
  A B "
                                     :REM*176
3Ø PRINT:PRINT"MUSICAL FUNCTIONS:"
                                     :REM*23Ø
4Ø PRINT:PRINT"T=ENVELOPE"
                                     :REM*8Ø
5Ø PRINT"O=OCTAVE"
                                     :REM*158
6Ø PRINT"U=VOLUME"
                                     :REM*63
7Ø PRINT"V=VOICE"
                                     :REM*119
8Ø PRINT"W=WHOLE"
                                     :REM*221
9Ø PRINT"H=HALF"
                                     :REM*1Ø8
1ØØ PRINT"Q=QUARTER"
                                     :REM*195
11Ø PRINT"I=EIGHTH"
                                     :REM*133
12Ø PRINT"S=SIXTEENTH"
                                     :REM*145
13Ø PRINT:PRINT"ENTER A FUNCTION AND A NOT
  E"
                                     :REM*183
14Ø TRAP 15Ø:GETKEY$;PLAY"M"+A$:GOTO 14Ø
                                     :REM*239
15Ø IF ER=3ØØ THEN END:ELSE PRINT"{}HOME}"
                                     :REM*192
16Ø PRINT"TRY ANOTHER KEY!":SLEEP 2
                                     :REM*73
17Ø GOTO 1Ø
                                     :REM*39
```

—GENE MILLER, SAN JOSE, CA ■



# ATTENTION

## ALL COMMODORE 64/64C, AND COMMODORE 128/128D OWNERS

A complete self-tutoring BASIC programming course is available that starts with turning your computer on, to programming just about anything you want! This course is currently used in both High School and Adult Evening Education classes and has also formed the basis of teacher literacy programs. Written by a computer studies teacher, this programming course is one of the finest available today. This complete course of over 220 pages is available for the **COMMODORE 64/64C**, and for the **COMMODORE 128/128D** computers. This course (Volume 1) will take you step by step through a discovery approach to programming and you can do it all in your leisure time! The lessons are filled with examples and easy to understand explanations as well as many programs for you to make up. At the end of each lesson is a test of the information presented. Furthermore, ALL answers are supplied to all the questions, programs and tests. Follow this course step by step, lesson by lesson, and turn yourself into a real programmer! You won't be disappointed!

**FOLLOW-UP COURSE (Volume 2)** - A 200 page self-learning course for each of the above named computers dealing exclusively with **sequential** and **relative** files. Our teacher uses a unique approach to file handling that was designed especially for students with absolutely no prior file handling experience. Yet by the end of the course you will be able to make up many of your own personal and business file programs. All our courses involve active participation by the learner. You do the specially designed examples, read the complete explanations, follow the instructions, answer the many questions, do the tests, and check your answers.

**Each course is only \$21.95 plus \$3.00 for shipping and handling.** We have been developing and selling Commodore courses for over 7 years now and if you do not think that we have the best self-tutoring course you have yet come across, then just send the course back to us within 10 days of receipt for the **FULL \$24.95 refund.**

NAME: \_\_\_\_\_ Ru \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_

STATE/PROV: \_\_\_\_\_ CODE: \_\_\_\_\_

I desire the BASIC programming course (Volume 1) ☐

FOLLOW-UP course on file handling (Volume 2) ☐

The computer that the course is needed for:

COMMODORE 64/64C ☐ COMMODORE 128/128D ☐

For U.S. and Can. customers, send \$24.95 per course in the currency of your country. Can. orders add 7% GST. Overseas orders, send \$29.95 U.S.

### Brantford Educational Services

222 Portage Road 6 Pioneer Place  
P.O. Box 1327 or Brantford, Ontario  
Lewiston, New York 14092 N3R 7G7

Fax: (519) 756-6534

www.Commodore.ca  
May Not Reprint Without Permission

## The GRAPEVINE GROUP Inc.

### COMMODORE UPGRADES

#### NEW POWER SUPPLIES

- A super-heavy, repairable C-64 power supply with an output of 4.3 amps (that's over 3x as powerful as the original). Featuring 1 year warranty, ext. fuse, schematics, UL approved. Cost is **\$37.95** and includes as a bonus the Commodore Diagnostician II (valued @ **\$6.95**).
- 4.3 amp supply for C-128. Same features as above—**\$39.95** (includes bonus package)
- Our Biggest Seller • 1.8 amp repairable heavy duty supply for C-64. (Over 120,000 sold) ... **\$24.95**

#### EMERGENCY STARTUP KITS

Repair your own Commodore/Amiga and save lots of money. Kits contain all major chips, schematics, diagnostics, etc. No soldering. Send for full details. Five different kits available.

#### 512K RAM EXPANDERS

Super 1750 REU CLONE (512K). Does not require a larger power supply ... **\$142.50**  
Original REU-1750 512K Expander Unit ... **\$131.00**

#### COMMODORE DIAGNOSTICIAN II

Originally developed as a software package, then converted to a readable format, the Diagnostician has become a fantastic seller. With over 38,000 sold worldwide, Diagnostician II utilizes sophisticated cross-reference grids to locate faulty components (ICs) on all C-64 and C1541 computers (C-128/64 mode). Save money and downtime by promptly locating what chip(s) have failed. (No equipment of any kind needed.) Success rate from diagnosis-to-repair is 98%. Includes basic schematic. **\$6.95** (Avail. for Amiga computers with 312" disk at **\$14.95**).



#### Send For Free 36 Page Catalog

3 CHESTNUT ST., SUFFERN, NY 10901

Order Line 1-800-292-7445 Fax 914-357-6243

We Ship Worldwide

Hours: 9-6 E.S.T. M-F 914-357-2424 Prices subject to change

Tell a friend you've heard it through the Grapevine.

#### SPECIALS

- **COMPUTER SAVER:** This C-64 Protection System saves you costly repairs. Over 52% of C-64 failures are caused by malfunctioning power supplies that destroy your computer. Installs in seconds between power supply & C-64. No soldering. 2 year warranty. An absolute must and great seller ... **\$17.95**
- **PRINTER PORT ADAPTER** by Omnitronix. Avoid obsolescence. Allows you to use any Commodore (C-64) printer on any PC compatible or clone. Does not work with Amiga. .... **\$34.95**

#### PRINTERHEAD REFINISHING

Save time and money by having your tired, worn-out or damaged printerhead refurbished or remanufactured at a fraction of the cost of a new one. Features low cost, 5 day service and 1 year warranty. For example: Okidata 80/90/100 heads are \$64.95; Epson (9 Pin) EX/FX/LX are \$69.95.

#### REPLACEMENT/UPGRADE CHIPS & PARTS

6510 CPU .....  
6526 CIA .....  
6581 SID .....  
6567 Video ..... **\$9.95**  
PLA 906114 ..... EACH  
All 901/225-6-7-9 .....  
4164 (C-64/RAM) ..... .60  
C-128 ROMs Upgrade (set 3) ..... .24.95  
C1571 ROM Upgrade (310654-05) ..... 19.95  
C-64 Keyboard (new) .....  
Commodore Cables ..... Call  
Service Manuals for C64, C128, 1802,  
1084, 1541 ..... **\$21.95**

## User's Group Update

### Havasu Commodore

User's Group  
61 Keywester Drive  
Lake Havasu City, AZ 86403

### Southeast San Diego C-64

User's Group  
258 Euclid Ave. #B  
San Diego, CA 92114

### The Commodore Club

PO Box 25851  
Colorado Springs, CO 80936

### Front Range Commodore Club

PO Box 272  
Niwot, CO 80544

### Commodore Computer Club

141 Mango Court  
Middleburg, FL 32068

### Micro-Bytes

2648 Kenilworth  
Berwyn, IL 60402-2549

### The Sandwich Computer

User's Group  
PO Box 345  
Sandwich, IL 60548

### Hartford Commodore

User's Group  
PO Box 209  
Fallston, MD 21047

### Pittsburgh Commodore Group

PO Box 16126  
Pittsburgh, PA 15242  
BBS 412-434-5483

### Address Changes:

### McHenry County

Commodore Computer Club  
913 West Avenue  
Woodstock, IL 60098

### Cincinnati Commodore

Computer Club  
5575 Pleasant Hill Rd.  
Milford, OH 45150  
(This group now includes the former Southwest Ohio Commodore User's Group)

### West Bay Computer Society

PO Box 8707  
Cranston, RI 02920  
(This group now includes the former Warwick and Narragansett Commodore user's groups.)



## PERFECT PRINT

From p. 22.

cludes a utility that lets you remove a few of the unused point sizes from a copy of the font. CMD has also included a utility that tells GEOS LQ to find the fonts it needs on the other drive. You can, for example, set up one disk with your geoWrite and GEOS LQ applications, and other disks with a few fonts, drivers and the documents that use them. It's a very efficient way to set things up.

Seven LQ fonts are included on the Perfect Print disk, including University and Roma. These will get you a long way, but as all GEOS users know, using lots of snazzy fonts makes geoWriting fun. The optional font package gives you 42 more fonts to play with. Most of them are very well designed and will be a welcome addition to your collection. I am particularly fond of Roma, Gondor and Bold.

If that isn't enough, Jim Collette's excellent font editor (version 2.2) is in-

cluded with Perfect Print, so you can design your own fonts. You also have the utilities you need to convert your fonts into the kind GEOS LQ will recognize.

As usual, CMD has demonstrated their commitment to the Commodore users by releasing a high-quality, professional package for use with GEOS. On a system where memory and speed are a constant problem, they include utilities and support applications to minimize these aggravations. The manual is exhaustive and detailed, fully explaining the system and the utilities. Much of the information it provides is not needed to run the system, but is a boon for those who like to get inside and mess around a little bit.

You don't have to be an expert to spruce up your documents with GEOS LQ. For anyone who wants to turn out professional-looking geoWrite pages, Perfect Print is a dream come true. ■

Steve Vander Ark is a freelance writer who specializes in Commodore GEOS. He frequently contributes to RUN.

### Creative Micro Designs

15 Benton Drive  
PO Box 646  
East Longmeadow, MA 01028

Orders only 800-638-3263  
Technical Support 413-525-0023

### Perfect Print—\$34.95

(The LQ and HQ main system:  
all drivers and utilities, 7 LQ fonts.)

### Font Package—\$29.95

(Includes 42 LQ fonts.)

### Complete package—\$49.95

(The complete Perfect Print main  
system and all 49 Fonts.)

**RUN  
CONTEST!**

## \$2,000 SUMMER FUN GIVEAWAY!

It's as easy as a day at the beach!!

Just fill out and mail in the coupon below, listing your favorite articles or columns from both the May/June and July/August '92 issues of *RUN* and you'll be eligible to win one of the great prizes in *RUN* magazine's **SUMMER FUN GIVEAWAY**.

**Nothing to buy • 20 guaranteed winners • Over \$2,000 in prizes!**

- **GRAND PRIZE**—40-megabyte Hard Drive from CMD!
- **Second Prize**—2-megabyte RAMDrive from CMD!
- **Third Prize**—Complete Line of GEOS Software for the C-64/128!
- **Fourth Prize**—RAMLink with 1MB from CMD!
- **Fifth Prize**—Psygnosis Games Collection (Ballistix, Menace, Blood

- Money and Automino)!
- **Sixth Prize**—Timeworks Productivity Package (Word Writer VI, SwiftCalc 64 and Data Manager II)!
- **Seventh Prize**—JiffyDOS and SID Symphony stereo sound cartridge from CMD!
- **Eighth Prize**—Abacus Productivity Package (Datamat64, Speed-Term 64, ChartPak 64, Power Plan 64

- and Basic Compiler 64)!
- **Ninth Prize**—RUN Software Package (Super Starter Pak; Educational Disks I & II; and *RUN*'s Strategy Games I & II)!
- **Tenth Prize**—Mixed Games Pak (A collection of four great games)!
- **PLUS!** Ten other lucky winners to receive single game prizes selected from the *RUN* product catalog!

### SUMMER FUN GIVEAWAY ENTRY FORM

(Please Print)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/State/ZIP: \_\_\_\_\_  
Phone No: \_\_\_\_\_  
Favorite article from May/June '92 (issue and page number): \_\_\_\_\_  
Favorite article from July/Aug '92 (issue and page number): \_\_\_\_\_

SEND TO: *RUN* Summer Fun Giveaway, 80 Elm St., Peterborough, NH 03458. Winners will be announced in the November/December 1992 *RUN*.

Taxes and duties on all prizes are the sole responsibility of the winner. Prizes are not transferable, nor are they redeemable for cash value. No purchase is necessary. All federal, state and local laws apply. Void where prohibited by law. Employees of IDG Communications, Inc., its affiliates, subsidiaries, advertising and promotion agencies and their families are not eligible to enter. Entry constitutes permission to use the winners' names, photographs or other likenesses for promotional purposes without further compensation to the winner. Submissions become the property of *RUN* and cannot be returned. *RUN* is not responsible for lost, misdirected or late entries. All entries must be postmarked by August 15, 1992, in order to be eligible. Only one entry per household will be accepted.

To enter without a purchase, mail in a 3 × 5 card with your name, address and telephone number clearly printed.

Scissors photocopy or cut along line



# FUN Graphics Machine

FUN GRAPHICS MACHINE (FGM) IS AN "ALL-IN-ONE" GRAPHICS PROGRAM FOR THE C-64, WHAT CAN BE CREATED WITH FGM IS ONLY LIMITED BY YOUR IMAGINATION. JUST A FEW EXAMPLES:



BUSINESS CARDS  
CUSTOM LABELS  
VIDEO TITLING  
NEWSLETTERS  
CALENDARS  
DIAGRAMS  
POSTERS  
FORMS



SIGNS  
CHECKS  
OVERLAIDS  
BROCHURES  
LETTERHEADS  
CERTIFICATES  
GREETING CARDS  
DISK ENVELOPES

FUN GRAPHICS MACHINE SUPPORTS IMPORTING GRAPHICS AND HI-RES SCREENS FROM MANY POPULAR PROGRAMS INCLUDING:



KOALA  
GEOPRINT  
RUNPRINT  
PRINT SHOP  
ADV OCP ART  
VIDEO BYTE II

HANDYSCANNER 64  
COMPUTER EYES  
PRINTMASTER  
NEWSROOM  
GEOWRITE  
DOODLE



GEOS SCREENS CAN BE CAPTURED SIMPLY BY RESETTING COMPUTER THEN LOADING THE FUN GRAPHICS MACHINE.

FGM CLIP ART VOL. 1 OVER 200 EXCELLENT GRAPHICS-- \$8.00  
FGM FONT DISK OVER 90 FONTS IN FGM FORMAT----- \$5.00  
C-64 KEYBOARD TEMPLATE MAKE YOUR OWN OVERLAIDS-- \$5.00  
C-128 KEYBOARD TEMPLATE MAKE YOUR OWN OVERLAIDS-- \$5.00  
FGM CALENDAR TEMPLATES DAILY, WEEKLY, MONTHLY-- \$5.00

FULL KEYBOARD OVERLAIDS FOR THE FOLLOWING PROGRAMS  
CMD'S HARD DRIVE, RAMLINK, RAMDRIVE JIFFY DOS COMMANDS  
SNAP SHOT 5 ACTION REPLAY 4 & 5 EPYX FAST LOAD  
BUSINESS FORM SHOP CALC STAR BASIC  
ROCK'S ASSEMBLER THE FUN GRAPHICS MACHINE \$3.50 EA  
PLEASE STATE COMPUTER (C64, C128, SX-64) OR C64 IS SHIPPED

**The FGM Connection**  
P.O. Box 2206  
Roseburg, OR. 97470

(503)-673-2234

ADD \$3.50 FOR S/H PER ORDER

IF ONLY ORDERING OVERLAIDS THEN S/H IS \$2.00 PER ORDER



**8 BIT**

PO BOX 542

LINDENHURST NY 11757-0542

## OUR TOP 3 BEST SELLING 6 PAC SETS!

### 6 PAC DISK SET #1 FOR ONLY \$ 5.00

**ART GALLERY** : Collection of Hi-Res Images from our ART GALLERY.  
**STAR TREK** : Games, Hi-Res pictures and Music from Star Trek & T.N.G.  
**ARCADE CLASSICS** : The best versions we have found of some old hits.  
**GEOS CLIP ART** : A Sample Clip Art disk for use with GEOS ONLY!  
**BEATLES MUSIC** : 32 of the Beatles Greatest Hits with on screen words.  
**THE HOME WORKER** : Word Processor, Budget, Checkbook & More.

### 6 PAC DISK (ADULT) SET # 2 FOR ONLY \$ 10.00

**ADULT SHOW # 1** : Contains 18 Hi-Res Images of an ADULT NATURE.  
**ADULT SHOW # 2** : Contains 16 Hi-Res Images of an ADULT NATURE.  
**ADULT SHOW # 3** : Contains 16 Hi-Res Images of an ADULT NATURE.  
**ADULT SHOW # 4** : Contains 17 Hi-Res Images of an ADULT NATURE.  
**ADULT SHOW # 5** : Contains Sexy-Hexy Images of an ADULT NATURE.  
**GAMES & PICTURES DISK** : Party Demo, Sex Games, X-Rated Demo.  
**You Must State That You Are Over 18 To Receive This Set!**

### 6 PAC DISK SET "B" FOR ONLY \$ 5.00

**MARIO BROS. DISK** : Super Mario, Marios Brewery, Mario Bros II + more  
**ARKANOID DISK** : Arkanoid II, Krakout Pro 2, Krakout 4, Adictaball.  
**GENEOLOGY (2DISKS)** : Pedigree v3.0 - Keep track of your family tree  
**TRIVIA CONSTRUCTION SET** : Make your own Trivia Wiz Game  
**C.A.D. V 3.0** : Computer Aided Designing Program

Add \$2.00 shipping for total order\*U.S. Funds Only!

SORRY NO C.O.D.'s OR CREDIT CARD ORDERS

FOR A FREE COPY OF OUR CATALOG, CALL:

(516)-957-1110 MONDAY - FRIDAY 10 am to 5 pm EST

## LIST of ADVERTISERS

NATIONAL ADVERTISING SALES MANAGER  
KEN BLAKEMAN

NORTHEAST/MIDWEST/SOUTHEAST  
SALES REPRESENTATIVE  
HEATHER GUINARD

WESTERN STATES SALES MANAGER  
GIORGIO SALUTI • 415-375-7018

ADVERTISER	PAGE
Brantford Educational Service	29
Briwall	27
Commodore Business Machines	23
Commodore International Ltd.	5
Creative Micro Design	2
Eight Bit	31
FGM Connection, The	31
Grapevine Group, Inc., The	29
Jason Ranheim	47
Loadstar	1
Lycio Computer	CII
Montgomery Grant	CIII
NRI Schools/McGraw Hill	25
Rio Computers	36
RUN	
Catalog	37-44
Schnedler Systems	15
Software Hut	21
SOGWAP Software	7
Tektonics Plus, Inc.	47
Tenex Computer Express	CIV
Terrapin Software, Inc.	7

**Editorial Offices:** All manuscripts, letters to the editors, queries, requests and other editorial correspondence should be sent to RUN Magazine, 80 Elm St., Peterborough, NH 03458.

**Subscription problems or address changes:** Write to RUN Magazine Subscription Services, PO Box 58711, Boulder, CO 80322-8711.

**Back issues:** Many of RUN's back issues are available for \$3.50, plus \$1 postage and handling, from: RUN Magazine, Back Issue Orders, 80 Elm St., Peterborough, NH 03458.

## JULY/AUGUST 1992

### COMING ATTRACTIONS

**SUPER USERS**—Discover some of the most interesting and outrageous applications for the C-64. Meet some Super Users who are making their systems jump through hoops to eek out the last ounce of power and productivity from their machines.

**SHAREWARE**—Some of the best software in this market is available for free, or for a minimal cost. Find out how to add to your software library without breaking the bank.

**COMPUTER CARE**—Maybe it won't last a lifetime, but the C-64/128 system will give you many years of use with the proper care and maintenance.

**ARCADE ACTION**—No issue of RUN is complete without a line or two of great game code from programming ace Tony Brantner.

**ReRUN**—Don't forget that the programs available on the pages of RUN each issue are also available on disk on ReRUN. The current issue of ReRUN contains the programs in this issue plus a lineup of previously unpublished bonus programs.



# NEWS AND NEW PRODUCTS

*This issue, we commend the unsung heroes of Commodore computing, and their products. Here's to independent developers!*

By JANICE CROTTY

## THE VIEW FROM HERE

PETERBOROUGH, NH—As large commercial developers back out of the Commodore market, the burden of support has fallen more and more to small independent developers. These people use their Commodores every day, and develop software because they love to do it.

Such initiative is what started the computer industry. Before Brøderbund and SSI were ever conceived, there was a guy in a basement somewhere inventing something cool. Often, the things he invented were full of bugs, awkward to use and not marketable. But occasionally the invention was brilliant; those were the products that propelled the fledgling computer industry.

Well, Commodore computing has come full circle. As the major players with their major bank books leave the Commodore market, ironically they hand it back to the people they took it from: the basement hackers with their passion for inventing.

In the past year, I've received several excellent independently made products. For example, CMD's RAMDrive was de-

veloped by Peter Fiset, a Rensselaer graduate student in his mid twenties. He's young, he's sharp, he loves the Commodore, and he's not alone. There are others, like Ron Hackley, who developed Fun Graphics Machine for his personal use, because he wasn't satisfied with the limitations of Print Shop and Print Master.

The bottom line is that creative individuals started this adventure, and they can carry us through.

The remainder of this column is devoted to small developers and their products.

## PUBLISH GEONOVELS

HOLLYWOOD, CA—A few issues back, *RUN* published a program for creating books on disk. (See "Dark and Stormy Night," May/June '91.) Unfortunately, the program didn't support GEOS. Ah, that good old hacker inspiration to the rescue: Now there's a freeware GEOS book construction program called **geoNovel Workshop**.

GeoNovel offers, among other things, high-resolution screens and graphics

within the text. Of course, there is a price to this versatility: To construct a geoNovel, you need GEOS 2.0, RAM expansion, knowledge of geoBasic and geoPublish, plus a general understanding of Commodore Basic. Right.

For more information, write to fLAt-DiSk SoftWorks, 1550 N. Hobart #317, Hollywood, CA 90027.

## CHECK REGISTER UPDATE

ST. JOSEPH, MO—In January *RUN* reviewed **SEC Check Register**, a check-book maintenance program for the Commodore 128. Though it received a very good review, the author, Allen Sparks, has already produced an update, adding many new features and improving others.

These additions and improvements, initiated by feedback from users, make the program more flexible and effective. SEC Check Register v1.0418 offers reporting by date or reference number, a new withdrawal category and improvements in the Auto Check Off function, plus many other enhancements. It also comes with an improved half-sized, lay-flat manual.

SEC Check Register v1.0418 sells for \$27.95, including priority mail postage. The company's new address is PO Box 0475, St. Joseph, MO 64504-0475.

## PRINT SHOP GRAPHICS COLLECTION

CINCINNATI, OH—C-64 desktop publishers take note: There's a new collection of Print Shop graphics available from Clip Art Cupboard. **Grafix Galore** gives you more than 80 original Printshop images. Grafix Galore includes everything from skateboards to Santa, from pirates to pizza. My favorite is a collection of lizards, frogs and fish. Sports and special occasions are also well represented. Grafix Galore includes graphics for both versions of Print Shop for the Commodore 64.

Grafix Galore sells for \$11.95, including postage and handling. Write to Clip Art Cupboard, PO Box 317774, Cincinnati, OH 45231. ■

## SOFTWARE COPYRIGHTS

So you've developed an excellent program, but you don't know how to copyright it. (Hacker geniuses can't be expected to mess with such bureaucratic nonsense!)

Quite so, but the process is easy. To register your work with the U.S. Copyright Office, call and request Copyright Office Information Package #113, which includes the appropriate forms and instructions for registering software. Return the completed forms, and in 8-16 weeks you will receive your Registered Certificate of Copyright. Direct your correspondence to:

United States Copyright Office  
Library of Congress  
Washington, D.C. 20559  
Form Request Hotline: 202-707-9100  
General Information: 202-707-0700

And to any software pirates... Cut it out! All software is protected by copyright law, even if the company has gone out of business or the author has died.

According to Adam Konow of the Software Publishers Association, "General works created on or after January 1, 1978, are protected under the Copyright Law for the life of the author plus 50 years after his or her death. If the work is a joint project, then it is protected for the life of the last surviving author plus 50 years after that person's death. Finally, in cases of work made for hire, the copyright endures for a period of 75 years from the year of its first publication or 100 years from the year of its creation, whichever expires first."

To find out more, contact the SPA Piracy Hotline at 202-452-1600.

—JC



# RUN's CHECKSUM PROGRAM AND TYPING HINTS

By BOB KODADEK AND THE RUN EDITORIAL STAFF

CHECKSUM IS A PROGRAM that proofreads your typing when you enter a listing from the magazine. It assigns a numerical value to each character that you type, adds up the values of the line you typed and displays the sum. (Checksum, therefore, means that it *checks* your typing by *summing* the characters.) It also verifies that you have typed the characters in the proper order. (Checksum won't tell you if you miss a line of code entirely, so verify that yourself.)

Checksum runs in the background when you type in lines of programming code. Whenever you type a line and press RETURN, the Checksum will display a value. Compare that value to the value published next to the line of code in the magazine (eg., :REM\*123). If the numbers match, you've typed the line correctly. Simple.

## TYPING IN CHECKSUM AND OTHER GOOD ADVICE

First, type in Checksum carefully from Listing 1 below. Be sure to press RETURN after every line to enter it into memory. Once you have typed the program, save it. In fact, save it a few times while you're typing, just to be safe. (This is good advice whenever you type in a program. I usually change the name each time I save; for example, Supergame1, Supergame2, and so on.)

Double check your work, making sure that you've typed in every line, and you've pressed RETURN after every line you've typed. If you make errors when typing in Checksum, a test run of Checksum will tell you which line is incorrect. (This safety feature works only in the Checksum program itself. It does not apply to any other listings in the magazine.) Whenever you find a typing error (in any program listing), fix it, press RETURN to enter the change, *save the program again*, and try another run. Repeat as often as necessary.

Important tip: Don't get discouraged if the program won't run. Be patient. Be thorough. It will work eventually.

You'll know your Checksum is ready when you see the line

TO TOGGLE ON OR OFF, SYS(number)

## USING CHECKSUM AND EVEN MORE GOOD ADVICE

When you're ready to type in your first listing from the magazine, load and run Checksum. Make a note of the number that is displayed on the screen (49152 for the C-64; 3328 for the C-128). To activate and deactivate Checksum, type SYS followed by that number, then press RETURN. You need to have Checksum active whenever you're typing in a listing. Checksum must be deactivated, however, when you run the new program.

The next step is typing in a new program listing as it appears in the magazine. As you begin, you'll notice that at the end of each line is a colon, followed by the letters REM, an asterisk and a 1-3 digit number, like this:

:REM\*123

Don't type any of this in: It's simply the Checksum value. Stop typing before the colon and press RETURN. If you've typed the line correctly, the number displayed on the screen will match the Checksum value. If the numbers don't match, you've made a mistake. Check the line carefully, make your changes and press RETURN. The computer won't know you've made a change unless you press RETURN to enter it.

A few type-in hints: The Checksum does not verify blank spaces in the program lines unless they are within quotation marks, because adding or omitting such spaces will not affect the operation of the program. The exception to this is hexadecimal Data statements. These are the Data statements, such as this one, that don't have commas:

```
100 DATA 12345678901234567890*12345678901234567890*123
45678901234567890*
```

In statements such as these, you must have one space between the word DATA and the numbers that follow. Checksum will not catch that error.

One other common mistake is to type in the spaces that fall under the line number. In the example above you should not put a carriage return or spaces between the 3 and the 4 where the line breaks.

## WHAT THE HECK ARE CURLY BRACES?

As you type, you will undoubtedly be confused the first time you see curly braces {}. These braces mean "perform the function explained within." For example, {22 SPACES} means that you need to press the space bar 22 times. Don't type the braces. Other common examples are:

{SHIFT CLR}—hold down the SHIFT key and press the CLR-HOME key.

{2 CRSR DNs}—tap the cursor down key twice.

{CTRL 1}—hold the CONTROL key and press the 1 key.

{COMD T}—hold down the COMMODORE key and press the T key.

{5 LB.s}—press the British pound key (£ not #) 5 times.

## KEEP YOUR CHIN UP—ALL YOU NEED IS PATIENCE

Continue typing in your program, saving often and checking each checksum value with the one in the magazine, until you've finished the listing. Phew! So now you're ready to run your program, right? Not quite. First, save it. Second, deactivate Checksum by typing SYS followed by 49152 for the C-64 or 3328 for the C-128.

Now you can run. Don't be discouraged if you still get an error. It happens. There are only two errors that Checksum won't catch (omitting a line and the Data statement spaces). Use Checksum faithfully. Be patient. Be thorough. It will work eventually. **R**

## Listing 1. RUN's Checksum program.

```
10 REM RUN'S CHECKSUM 64/128 - BOB KODADEK
20 MO=128:SA=3328:IF PEEK(40960)THEN MO=64:SA=49152
30 I=0:CK=0:CH=0:LN=190
40 FOR K=0 TO 16
50 FOR J=1 TO 10:READ B:IF B>255 THEN GOTO 170
60 CH=CH+B:POKE SA+I,B:I=I+1:NEXT
70 READ LC
80 IF LC<>CH THEN GOTO 170
90 CH=0:LN=LN+10
100 NEXT K
110 POKESA+110,240:POKESA+111,38:POKESA+140,234
120 PRINTCHR$(147)STR$(MO)" RUN CHECKSUM":PRINT
130 PRINT"TO TOGGLE ON OR OFF, SYS"SA:IF MO=128 THEN 1
140 POKESA+13,124:POKESA+15,165:POKESA+25,124:POKESA+2
150 POKESA+39,20:POKESA+41,21:POKESA+123,205:POKESA+12
160 POKESA+4,INT(SA/256):SYS SA:NEW
170 PRINT"YOU HAVE A DATA ERROR IN LINE ";LN;"!":END
180 REM DO NOT CHANGE THESE DATA STATEMENTS!
190 DATA 120,162,24,160,13,173,4,3,201,24,884
200 DATA 208,4,162,13,160,67,142,4,3,140,903
210 DATA 5,3,88,96,32,13,67,152,72,169,697
220 DATA 0,141,0,255,133,176,133,180,166,22,1206
230 DATA 164,23,134,167,132,168,170,189,0,2,1149
240 DATA 240,58,201,48,144,7,201,58,176,3,1136
250 DATA 232,208,240,189,0,2,240,42,201,32,1386
260 DATA 208,4,164,180,240,31,201,34,208,6,1276
270 DATA 165,180,73,1,133,180,230,176,164,176,1478
280 DATA 165,167,24,125,0,2,133,167,165,168,1116
290 DATA 105,0,133,168,136,208,239,232,208,209,1638
300 DATA 169,42,32,210,255,165,167,69,168,170,1447
310 DATA 169,0,32,50,142,169,32,32,210,255,1091
320 DATA 32,210,255,169,13,32,210,255,104,168,1448
330 DATA 96,104,170,24,32,240,255,104,168,96,1289
340 DATA 56,32,240,255,138,72,152,72,24,162,1203
350 DATA 0,160,0,32,240,255,169,42,208,198,1304
```



# RUN CLASS ADS

## New for the C128! KeyDOS ROM!

The KeyDOS ROM is a chip for the empty socket inside your C128 and adds more than 40 new instantly available features only a keypress or two away! 20 KeyDOS F keys for simple "point & click" multiple drive access. All major DOS functions. Fast-load C64 programs in 128 mode, view SEQ files, execute batch files. Print, copy, view, scratch or rename multiple files. ASCII/CBM converter. Full 1581 subdirectory support! RAMDOS supports REUs up to 2MB. GEOS RBoot. Disk editor, ML debugger, alarm clock, screen dump editor.

LOTS MORE! Satisfaction Guaranteed! Write for more information. Only \$32.50. See why C128 users say that KeyDOS ROM is a MUST!

Antigrav Toolkit, PO Box 1074, Cambridge, MA 02142

Shipping outside of US, Canada and Mexico add \$3

## Leroy's Cheatsheets® — Commodore 64

We've helped hundreds of thousands to use their Commodore since 1982

### PROGRAM DOCUMENTATION — Manuals lost, hard to use?

You need Leroy's Cheatsheets — All the program command keystrokes available at a glance. Reference card fits on the keyboard and surrounds the keys with valuable information. All commands are grouped according to function, actual keystrokes are shown in bold type, while any variables are represented in *italics*. Leroy's Cheatsheets are offset printed for clarity and plastic laminated for years of use.

Beginner Consultant Fleet Sys 2 Newsroom Speed Script SwiftCalc  
Basic 2.0 Data Mgr 2 Flight Sim II Paper Clip III SuperBase Word Wr 4  
Blanks (3ea) Doodle Geos 2.0 Sky Travel SuperScript Word Wr 5

More available for Commodore 64 & 128 — write for free catalog

only \$3<sup>95</sup> ea  
or 3 for \$9<sup>95</sup>

plus \$2 shipping  
Pay res: add 6% sales tax

Leroy's Cheatsheets  
P.O. Box 8369  
Pittsburgh, PA 15218

## COMMENTS ON QUICK BROWN BOX

"I bought a 64K Quick Brown Box for my C64 and it is absolutely, positively the best addition I ever made to my machine. I now run my whole business with my C64 at lightning speed thanks to you." Paul Mazaika, THE FLOOR STORE, Fitchburg, MA

"I have found many uses for combining the QBB with programs captured using Super Snapshot V5. These two utilities have made my two C64 computer systems really whistle!" Richard Jongstra, Stony Mtn., Manitoba, Canada

Store your C64 or C128 programs in this battery backed cartridge.

64K to 256K units priced from \$79 to \$169 • BROWN BOXES, INC.  
26 Concord Rd., Bedford, MA 01730 (617) 275-0090, 862-3675

## Commodore Repair Services 24 hour Turnaround

\* 10 years experience fixing Commodore Equipment. \* 90 day warranty on all parts replaced. \* Factory Trained Service Technicians. \* Low Flat Rate Prices. Ask About Our AMIGA repair Services. No charges for Commodore In-Warranty Service.

\* 1541 \$45.00 • C128 \$75.00 • 1571 \$64.95 • SX64 \$75.00

Commodore Monitors \$35.00 Plus Parts

TO: J & C Repair RD #2 BOX 9  
Rockton PA. 15856

Phone (814) 583-5996 FAX (814) 583-5995

Send Computer or drive  
with your name, address,  
phone number and a  
description of the problem  
\* Power Supply not included

We will return Your System VIA UPS Ground COD. Commodore in-warranty repairs please include copy of sales slip

## ReRUN V.I.P. 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 \$59.97

CALL TOLL-FREE 1-800-824-5499



**DMBS** BULLETIN BOARD  
of the 90's  
Under New Ownership is proud to announce...

THE RELEASE OF SERIES V... \$6995

SERIES IV STILL AVAILABLE.....\$39.95

VOICE: 908-349-9187 M-F 10am-5pm & 7pm-10pm (EST)

MODER: 908-341-0945 24 HR. 3/12/2400 bps

Check or Money  
Order payable to  
Angelo Pasquella,  
P.O. Box 71,  
Beachwood,  
N.J. 08722-0071

## SPECIAL SOFTWARE PACKAGES FOR THE C-64 \* C-128 \* PLUS/4

- A: KJ Bible with 2 sides of Music, PS Graphics (A/B), & BIBLE Games (36 sides/\$35+\$4 S&H)  
B: Holiday Music-2 sides + PS Graphics (A/B Holiday, Christmas and Religious- 6 sides) (8 sides/\$7+\$2 S&H)  
C: Super Mario 3, Krakout, Slot Poker, 30 Games, Creative Fin., Grafpx, Stereophy, DBase (6 sides/\$5+\$2 S&H)  
D: 128 Potpourri—utility, productivity, education, games, telecomm. (6 sides/\$5+\$2 S&H)  
E: PLUS/4—same type of mixture as for Pkg. D (6 sides/\$5+\$2 S&H)  
F: Books (48 pgs.) Instant Activities for Commodore, Instant Activities for Apple, Apple Fun, or Graphics, Logo or Music. (Reg. \$9.95. Now \$1.50+\$1.50 S&H)  
G: Education Pack A—Math, Science, Eng., etc. (145 programs/12 sides/\$13+\$2 S&H)  
H: Education Pack B—Various subjects (approx. 600 programs/63 sides/\$70+\$7 S&H)  
I: Books—35 amazing Games/Variety—indicate C64 or C128 version (119 pgs. — Reg. \$9.95. Now \$3+\$2 S&H)  
J: Game Pack A—(Mario Fun) Brewery, Super Mario, Mario II, Super Mario 3+ (Tetris Clones for C64/C128 (80)) (\$9+\$1 S&H)  
K: Game Pack B—Trashman, Starraider, Air Demon, Scud Buster 2, Outpost (\$9+\$1 S&H)  
L: People Graphics (PS (A/B) male = 292/female = 174/children = 88 programs/7 sides/\$8+\$2 S&H)  
M: Disk Notchers — Use the back of your DS/DD disks (\$3+\$1 S&H)  
Regular pricing/disk side—\$3 down to \$1.50 + S&H \$2/10 sides (FLAT)  
Catalog: C64/128 \$4 (47 pgs) \*\* PLUS/4 \$3 (18 pgs) \* Please indicate non-Commodore (A) or Commodore (B) printer for Printshop Graphics.

Payment: MO / Check (US\$) • Canadian \$1 additional S&H • CA residents add

8.25% sales tax • No CODs / Charges

\*\* Basically, we have the PD select Commodore Library \*\*

Mail to: KF-PD SOFTWARE, PO Box 470464, LOS ANGELES, CA 90047-0464

We Focus on Quality and Quick Service!

Thanks for helping us through our first year!

C-128	\$63.00	Amiga 500 BD	\$70.00
1541 Repair	\$42.00	Amiga 1000 BD	\$87.00
1571 Repair	\$52.00	Amiga 2000 BD	\$125.00
SX64	\$66.00	All Commodore monitors	\$67.00
PC-10, PC Coll. Motherboard	\$110.00		

**C-64 repair \$37.95** **128D — \$70.00**

Prices include parts/labor.  
Except PS and drives.  
Discount for dealers & schools  
Prices subject to change without notice.

**Computer Technologies**  
1313-B Washington Ave.  
Titusville, FL 32780  
(407) 269-1081  
Toll Free 1-800-237-2835

**AUTHORIZED COMMODORE SERVICE CENTER**

## Calc II

The Fastest  
Spreadsheet  
for the  
Commodore 64

Calc II makes your math work a breeze—whether it's a mortgage calculation, budgeting or keeping sports statistics. Or use it for your non-math chores like organizing phone numbers or making a shopping list. Uses Commodore math routines for power and speed—gets results twice as fast as competitor's. Ideal for databases—sort by row or column. View lots of information fast with up to 4 configurable windows, row and column locking. Quick, responsive cursoring. Independently adjustable decimal places, width and positioning of

data. Uppercase, lowercase and Commodore graphics all available. Bar graphs on-screen with text. Over 2 dozen functions, including LOOKUP, AVG, IF, SIN & FIX. 240 rows by 240 columns. Easy to remember commands. Uses disk or tape. Simple worksheet setup. Easy text entry. The package includes a Detailed User's Guide with quick start manual and spreadsheet tips. Also on disk with Calc II, several utility programs and over 40 worksheets to use immediately. Only \$29.95 (plus \$4.95 S/H). Please allow 3-6 weeks for delivery.

PANKHURST PROGRAMMING • PO Box 49135 • Montreal • Quebec • Canada • H1N 3T6

## KASARA MICRO SYSTEMS 1-800-248-2983

Mention this ad and receive a 1541/C64 Diagnostician (a \$6.95 value) FREE with any \$30.00 parts/repair order

- |                        |   |
|------------------------|---|
| <b>SAVE MONEY</b>      | on MONTHLY SPECIALS and 90 DAY WARRANTY on all Parts and/or Repairs     |
| <b>LOW PRICES</b>      | on EXTENSIVE INVENTORY of Commodore ICs, PSs, PC Bds., and Accessories. |
| <b>QUALITY SERVICE</b> | at GUARANTEED below suggested retail with quantity discounted prices    |
| <b>FOR 10 YEARS</b>    | your RELIABLE SOURCE for Amiga, CBM, and now PC Product Line ICs        |

Weekday Hours 9:00 AM-6:00 PM EST

## STARSHIP BATTLES

C-128

- Command your own Starship from over 20 classes of ships in 5 Empires.
  - Hi-Res 320x200, 8 color graphics.
  - Dynamic sound effects.
  - Many weapons and game customizing features.
  - Send \$14.95 check or money order to:
- MICRO DESIGNS**  
8587 Richmond Ave.  
Manassas, VA 22110



# RUN CLASS ADS

## C64/128 PUBLIC DOMAIN SOFTWARE

REQUEST FREE CATALOG or send \$2 for sample disk and catalog (REFUNDABLE). Categories include education, utilities, games, business, PRINT SHOP graphics, pre-tested programs and more. Rent for 75¢ or buy as low as \$1.00 per disk side or for 80¢ for 70 or more. \$20 order gets 4 free disks of your choice.

NEXT DAY SHIPPING!

SINCE 1986



**CALOKE INDUSTRIES (Dept. BK)**  
PO BOX 18477, RAYTOWN, MO 64133



## Computer Aided Engineering

Electronics  
Hobbyists and  
Engineers  
Now!

You can design your own custom circuits using our user-friendly software on your IBM compatible or Commodore 64/128 computer.

Design:

\* Amplifiers \* Circuit Boards  
\* Oscillators \* Schematics

Free Information!  
Send Today!

**WeaselGraphics**  
PO Box 647  
Sun City, CA 92586-0647  
Phone (800) 356-8113

## DEPENDABLE SERVICE FOR YOUR COMMODORE!

C-64, 1541, C-128, or 1571 **FAST TURNAROUND!**

**\$25.00 PLUS PARTS**

Send computer\* or drive with name, address, phone, & describe problem. We'll call with parts estimate, then repair and return to you insured by UPS. Payment can be COD or VISA, M/C. Minimum charge, estimate only is \$20. \*Include power supply.

AUTHORIZED COMMODORE  
SERVICE CENTER  
\*\*\*\*\*  
90 DAY WARRANTY  
ON ALL REPAIRS

**TYCOM Inc.**

503 East St.  
Pittsfield, MA 01201

(413) 442-9771



## NUCLEAR SUB COMMAND

Realistic Nuclear Attack Sub Simulation

C64 or 128 in 64 Mode  
Command Missions Under The Arctic Ice.  
Hunt Russian Typhoons In The North Sea.

Requires C64 GEOS 1.3 or 2.0

\$19.95 Check or Money Order  
VMC Software PO Box 326  
Cambria Hts. NY 11411



## COMMODORE 64 PUBLIC DOMAIN

Highest Quality Since 1987\*

Games, Education, Business, Utilities, Print Shop, Music, Graphics & More. As low as 90¢ per collection. 1 stamp for complete catalog or \$2.00 for catalog AND 30 sample programs (refundable). 24 hour shipping.

### 64 DISK CONNECTION

4291 Holland Rd., Suite 562 • Virginia Beach, VA 23452  
(\* Formerly RVH Publications)

## AUTHORIZED COMMODORE SERVICE CENTER

### FLAT RATES

C64 \$40 C128 \$55  
C128D \$65 1541 &  
1571 DRIVES \$50

Power Supply,  
Heads & Motors not  
included.



2120 West Main, Suite #7  
Rapid City, SD 57702  
(605) 348-8333

AMIGA, PCs,  
Peripherals

A500, 1000, 2000,  
A3000 & Comm. PCs  
\$60, Comm. Printers &  
Monitors \$45. Figure  
\$15-\$45 Parts.

We pay cash for used Commodore equipment (regardless of condition).

## COMMODORE AMIGA SERVICE CENTER

AMIGA 500 C-64 (Repair) C-128 .....\$60.00 1571.....\$55.00  
(Repair) \$75.00 \$35.00 C-128D .....70.00 SX-64.....65.00  
includes parts/labor 1541.....45.00 CBM Monitors.75.00

We will beat any legitimate price on parts & supplies.

**24 Hour Turnaround**  
**A&M Computer Repair**

20 Guernsey Dr., New Windsor, New York 12550  
**1-800-344-4102** (914) 562-7271

Discount for Dealers, Schools & Quantities. (Mention this ad for these LOW PRICES!!)

## C-64/128 — AMIGA — IBM SOFTWARE

Thousands of PD/Shareware programs on 100's of disks. Send for free large descriptive catalog or send \$2 for catalog and sample disk.\* (SPECIFY COMPUTER TYPE.)

\*Shareware programs require separate payment to authors if found useful.

**DISKS O'PLENTY, INC.**  
7958 PINES BLVD., SUITE 270R  
PEMBROKE PINES, FL 33024

## Can Your Computer Make You \$1,000,000?

LOTTERY uses the raw power and storage of your computer to determine and refine the number selection methods that will win the various lottery games you play. Don't be limited to the one or two methods that other programs use. They might not work in your state. There is no better system available!

Specify: Lottery 64 (C-64/128) • Lottery PC • IBM PC/XT/AT and compatibles

To order: send \$29.95 for each plus \$3 postage & handling per order to:  
Illinois residents add 6% sales tax • Orders outside North America add \$3

COD orders call: **Superior Micro Systems, Inc.**  
(708) 566-4647 26151 N. Oak Ave. • Mundelein, IL 60060

## SUPER MARIO BROS™ FOR THE C-64/128!



This fantastic PD version boasts 32 worlds, dazzling graphics and awesome sound! 37 OTHER TOP QUALITY GAMES are included on two disks! At 32 cents a game, this is a bargain a true game lover can't pass up! To order, send your return address & \$9.00 for each Game Pack plus \$3 postage and handling to:

**PowerDisk • 6813 Lotus Way, West Jordan, UT 84084**

™ Super Mario Bros. is a registered trademark of Nintendo.

## 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 designing your Class Ad, questions about rates, frequency or size? Call **HEATHER GUINARD** at 1-800-441-4403 or 603-924-0100. We accept checks, money orders, MasterCard or VISA.

## Commodore Accessories & Necessities

**Ribbons!**  
MPS 801 - 802 - 803 - 1525 - 1526 - 1000 -  
1200 - 1230 - 1250  
Commodore Printer (Comm. & PC Comp.)  
C 64 C Computer • 1541-II Disk Drive  
1802 Monitor

M3 Mouse  
Modems  
Joysticks  
Icon Controller  
CMD's Ram Link  
CMD's Ram Drive

Visa  
MC or  
UPS  
COD

**SOFTWARE:** Educational - Productive - Fun • Commodore-Amiga Authorized  
Dealer & Service Center • 24-Hour Turnaround on Repairs • CALL for PRICING



**ELECTRO-TECH ELECTRONICS**  
677 East Main Street • Ventura, CA 93001 • 805-648-5417





**RIO**  
COMPUTERS

**800-782-9110** ORDERS  
ONLY  
MON-SAT 8AM-6PM PACIFIC TIME

CUST SERVICE/TECH SUPPORT  
AUTOMATIC VOICE/FAX SWITCH  
**702-454-7700**  
TUE-SAT 1PM-5PM PACIFIC TIME

## VIDEOFOX

### The Tool For Creative Video Buffs

- Generate video titles, opening credits, window advertising, animation or other small trick movies
- All of these exciting effects are easy and fun for you to do with our new Videofox software
- Provides 18 special effects such as scrolling, combing, windshield wiper and spiral mixing
- Mix text, graphics and effects to produce hundreds of combinations
- Independent adjustment of foreground and background colors
- Page flipping in real time for perfect animation sequences

ONLY \$59.95



## VIDEO DIGITIZER

- Digitize black and white or color pictures
- Digitize any video source including VCR
- Digitize either 4, 7 or 13 level grey levels
- Menu controlled picture brightness
- Includes three independent software programs for total control and editing of digitized images: DIGISON ~ DIGIFOX ~ DIGIMULTI
- Free color filters included for digitizing color images from black and white cameras
- Separate adjustment of brightness levels for each of the red - green - blue primary colors



## HANDYSCANNER 64

### The Worlds First Handscanner for the 64!

- Professional quality super high 400 dots per inch resolution ~ Reads the graphics from any printed document
- Converts any material to digitized graphics in seconds ~ B/W setting for crisp reproduction of high contrast line art
- Elaborate grey-tone scale digitizes color or black & white photos using 3 built in dithering settings
- Enlarge or reduce 300% to 33% ~ Graphic memory of 640 X 400 standard (640 X 800 with Pagefox module)
- Included software has all the standard functions of a good drawing program

ONLY \$299.95

## PAGEFOX

### 3 Easy To Use Editors For Perfect Home Desktop Publishing

#### GRAPHIC EDITOR ~ TEXT EDITOR ~ LAYOUT EDITOR

- Completely menu driven
- 100Kb storage enlargement module keeps entire page in memory
- Uses proportional mouse or joystick for total control over text, graphics or picture

ONLY \$139.95



## ACTION REPLAY V 6.0

### THE ULTIMATE UTILITY/BACKUP CARTRIDGE FOR THE C64/128

Allows You To Freeze The Action Of Any Memory Resident Program And Make A Complete Backup To Disk

- WARP 25** - The worlds fastest disk serial Turbo
  - Typical backup will reload in under 5 seconds
  - No special formats-save directly into Warp mode
  - Warp Save/Load available straight from BASIC
- RAMLOADER** - Loads most commercial originals 25 times faster than normal!
- UNIQUE CODE CRACKER MONITOR** -
  - Full monitor features
  - See the code in its Frozen state not Reset state

- MORE UNIQUE FEATURES** - Menu driven operation
  - Simple operation: Just press a button at any point
  - All backups reload WITHOUT cartridge at Warp speed
  - Sprite killer: Make yourself invincible-disable collisions
  - Freeze HiRez screen & save in Koala & Paddles format
  - Print out any screen in 16 grey scales
  - 100% compatible with ALL drives and computers
  - Disk utilities: fast format, directory, list and many other commands operated directly from function keys

#### MIDI 64 - Only \$49.99

- Full specification MIDI at a realistic price
  - MIDI In - MIDI Out - MIDI Thru
  - Works with Sampler and Adv. Music System
  - MIDI CABLES** (4 ft. prof. quality) - Only \$\*8.99
- FREE cables when you buy MIDI & ADV. MUSIC at same time

#### DIGITAL SOUND SAMPLER

Only - \$89.99

#### THE ADVANCED OCP ART STUDIO

COMPREHENSIVE, USER FRIENDLY ART AND DESIGN SOFTWARE  
Only - \$29.99

#### ADV. MUSIC SYSTEM

Powerful modular program for creating, editing, playing and printing out music

- Playback thru internal sound or external MIDI keyboard/synthesiser
- Print music in proper musical notation together with lyrics using PRINTER module
- Enter music a note at a time in written music format using the EDITOR or via on screen piano KEYBOARD emulator or via an externally connected MIDI keyboard
- Generate almost unlimited sounds with the flexible SYNTHESIZER module
- Linker joins files to form large compositions

Only - \$29.99

#### MAKE THE MOST OF YOUR ACTION REPLAY

##### GRAPHICS SUPPORT DISK

- View screens in a slide show sequence
  - Add scrolling messages to your saved screens
  - Contains full sprite editor
  - Explodes sections of saved screens to full size
- Only - \$19.99

##### SUPERCRUNCHER - ONLY \$9.99

Turn your Action Replay into a super powerful program compactor. Reduce programs by up to 50%! Further compact programs already crunched by Action Replays compactor

**RIO COMPUTERS**

3310 BERWYCK STREET

LAS VEGAS, NV 89121

www.commodore.ca

May Not Reprint Without Permission

Add \$6.00 shipping/handling in the continental U.S.: \$8.00 - PR, AK, HI, FPO, APO: \$11.00-Canada: Other foreign orders call or write for shipping charges: C.O.D. orders add \$5.00 to above charges: SPECIFY COMPUTER MODEL WITH ORDER: VISA/MC/Checks/Money Orders/C.O.D. Accepted: Please call for return authorization number or your package will be refused - returns may be subject to a 20% restocking fee after 15 days: Prices subject to change without notice.

**800-782-9110**

**702-454-7700**

IN NEVADA



# RUN

NEW  
PRODUCTS  
JUST IN!

## Special Catalog Section

**FREE GAMES OFFER** with orders over \$50.

See details on catalog order form page.

**LOWEST PRICES YOU'LL FIND ANYWHERE!**

### NEW PRODUCTS JUST ARRIVED:

#### ■ Productivity Software from Time Works —

- Word Writer 6 — A best-selling word processor for the C-64 and 128. #RNT1 Only \$29.97 (suggested retail, \$49.95)
- SwiftCalc 64 — If number-crunching on a spreadsheet is your thing, SwiftCalc from TimeWorks is your program. #RNT2 Now only \$15.97. (suggested retail, \$39.95)
- DataManager 2 — A powerful database for your C-64 and 128. #RNT3 Only \$15.97. (suggested retail, \$39.95)

#### ■ Entertainment Software from Sir-Tech —

- Wizardry Trilogy — Three disk C-64 action adventure. Includes *Legacy of Llygamyn*, *Knight of Diamonds*, *Proving Grounds of the Mad Overlord*. #RNS1 Only \$25.97 (suggested retail, \$44.95)
- Wizardry V — *Heart of the Maelstrom* offers heart-pounding excitement. #RNS2 Only \$23.97 (suggested retail, \$39.95)

#### ■ Entertainment Software from Psygnosis —

- Ballistix — You need hair-trigger reflexes for this sophisticated ball game. #RNP1 Only \$14.97 (suggested retail, \$29.95)
- Menace — Prepare to destroy the planet Draconia! #RNP2 Only \$17.97 (suggested retail, \$39.95)
- Blood Money — A fast-paced C-64 graphic action game. #RNP3 Only \$17.97 (suggested retail, \$39.95)
- Atomino — A molecular brain-teasing delight for your 64! #RNP4 Only \$17.97 (suggested retail, \$39.95)

#### ■ Productivity Tools from Precision Software —

- Superbase 64 — One of the most versatile C-64 databases. #RNV1 Only \$22.97 (suggested retail \$34.95)
- Superbase 128 — Faster disk access and 2 MHz operation make this a proven 128 database tool. #RNV2 Only \$22.97 (suggested retail \$34.95)
- Superscript 64 — Word processing perfection for the 64. #RNV3 Only \$22.97 (suggested retail \$34.95)
- Superscript 128 — A powerful WP tool for your 128. #RNV4 Only \$22.97 (suggested retail \$34.95)

More on next page →



# RUN Product Catalog

## MORE NEW PRODUCTS JUST IN!

### ■ Entertainment Software from Origin Systems —

- **Ultima I** — The great adventure game that started it all. #RNO1 Only **\$16.97** (suggested retail \$39.95)
- **Ultima III** — Go forth to conquer evil and let your weapons do the talking.  
#RNO2 Only **\$16.97** (suggested retail \$49.95)
- **Ultima IV** — Expanded play options as the saga continues. #RNO3 Only **\$21.97** (suggested retail \$59.95)
- **Ultima V** — Seek out and survey new enchanted lands. #RNO4 Only **\$21.97** (suggested retail \$59.95)
- **Ultima VI** — The "ultimate" Ultima game of all time. #RNO5 Only **\$25.97** (suggested retail \$69.95)
- **Autoduel** — Travel far and wide in this futuristic automotive action game.  
#RNO6 Only **\$16.97** (suggested retail \$39.95)
- **Omega** — Widely acclaimed action adventure game. #RNO8 Only **\$18.97** (suggested retail \$49.95)
- **Bad Blood** — Weapons are your only hope against the mutants in this deadly adventure.  
#RNO7 Only **\$18.97** (suggested retail \$49.95)
- **Times of Lore** — Fast-paced gameplay make this menu-driven game a favorite with all ages.  
#RNO10 Only **\$16.97** (suggested retail \$39.95)
- **Space Rogue** — Travel away to a genuine space age challenge for your Commodore.  
#RNO9 Only **\$18.97** (suggested retail \$49.95)

### ■ Educational Software from Britannica —

- **Designasaurus** — You can learn all about dinosaurs while having great fun with your C-64.  
#RNQ1 Only **\$16.97** (suggested retail, \$29.95)
- **Elementary Grade Builder** — Let your Commodore help your child "make the grades."  
#RNQ2 Only **\$16.97** (suggested retail, \$29.95)
- **Junior High Grade Builder** — Junior high students can use their C-64 to improve their grades.  
#RNQ3 Only **\$16.97** (suggested retail, \$29.95)
- **MathMaze** — Solve math problems as you make progress through the mazes.  
#RNQ4 Only **\$16.97** (suggested retail, \$29.95)

### ■ Entertainment Software from Digitek —

- **Hole-in-One Miniature Golf** — All the family fun and laughter of miniature golf, on your C-64.  
#RNU1 Only **\$15.97** (suggested retail, \$29.97)
- **Tie Break Tennis** — Serve up round after round of excitement. #RNU2 Only **\$15.97** (suggested retail, \$29.97)
- **Rings of Medusa** — The award-winning C-64 action game now at an unbelievable price.  
#RNU3 Only **\$15.97** (suggested retail, \$29.97)

### ■ PRINTER HARDWARE from Xetec —

**NEW!!**

#### SUPER GRAPHIX PRINTER INTERFACE

The most sought-after printer interface available! Designed to let your C-64/128 talk to nearly all 9- and 24-pin printers. Includes an 8K print buffer that lets you access the computer while printing, 10 print modes and three internal graphic screen-dump utilities. Also includes a high-quality correspondence font, superscript, subscript, underlining and bold face. Equipped with a handy reset button.

#RNR1 Yours now for only **\$54.97** (suggested retail, \$99.95)



# GEOS™

## A powerful productivity environment for Commodore C-64 and C-128 owners

### GEOS™ 2.0

Open up your computer to a whole new world of integrated and graphically oriented applications. Easy-to-use icons, pull-down menus and windows allow the beginning user to feel right at home. More advanced users will find the power and sophistication needed for any job. Best of all, the GEOS products are fully compatible with each other.

#RPM1 \$44.95 for the C64 —NOW! \$34.97!

#RPM2 \$49.95 for the C128 —NOW \$39.97!

## POWER!

### GEOS POWER PAK

This revolutionary disk features the best talent in the GEOS community. A two-sided disk packed with ten of the most practical GEOS desktop accessories, utilities and applications, plus 21 fonts and over 100 clip art images. GEOS Power Pak expands C-64 capabilities, increases your efficiency, and makes you more productive. Isn't that why you got your C-64 in the first place? #RPA14 \$19.97

### GEOS POWER PAK II

A full-featured telecommunications package for GEOS. Shoot before you're shot in a challenging arcade-style game. Create documentation files for various GEOS-based utilities. Capture your opponent's pieces in Egyptian Siege. Save time with a fast and simple text editor. View GEOS-compatible fonts in any typestyle or size, up to 48 points. #RPA15 \$19.97

### SAVE \$5 on GEOBASIC

Bring point-and-click performance to your programs with this long-awaited high level programming language from Berkeley Softworks. Includes five specialized editors to make programming easier than you've ever dreamed. Design the exact pulldown menu you need. Include bitmap graphics in your programs with a snap. Editors for Icons and Dialog boxes and a full featured Sprite Editor, all accessible from the Text Editor. Comes complete with sample applications and 138-page spiral programming manual. #RPA12 \$34.95 —NOW \$29.97!

### GEOPROGRAMMER™

The GEOS 64 assembly language programming package for creating GEOS applications. Contains geoAssembler, geoLinker and geoDebugger. Also contains over 400 pages of documentation and documented source code of sample GEOS applications. #RPM8 \$42.95 for the C64 —NOW just \$39.97!

### GEOPUBLISH™

The GEOS desktop publisher lets you design formats, column widths and page layouts to your own specifications. Includes an array of options, features menus, and toolboxes.

#RPM3 \$39.95 for the C64 —NOW \$34.97!

### GEOCALC™

A number-crunching spreadsheet for tracking and analyzing numerical data. Create your own formulas and perform calculations from simple geometry to "what if" cost projections on a full 80-column screen.

#RPM6 \$34.97 for the C64

#RPM7 \$42.97 for the C128

### GEOFILE™

The GEOS-compatible, database manager that sorts, edits and prioritizes whatever data you feed it on a full 80 column screen. You fill out the "input form," specify your command, and geoFile takes it from there.

#RPM4 \$34.97 for the C64 —NOW \$29.97!

#RPM5 \$42.97 for the C128 —NOW \$34.97!

### GEOS COMPANION

The ultimate collection of GEOS creativity tools!

Create your own animations. Generate fantastic sound effects and compose your own songs. Play the classic Breakout game in 3D format. Get the most from GEOS with such powerful utility programs as Pattern Editor 2.0, File Merge, 1581 BootMaker, Auto-loader and Batch FileCopier. Plus noted GEOS designer Susan Lamb's best collection of special occasion images for you to use in cards, newsletters, or whatever. Designed to work on both the C-64 and C-128. 38-page documentation book included.

#RPA13 \$24.97



# RUN Product Catalog

## ReRUN

### SPECIAL OFFER!

Order a **ReRUN V.I.P. Subscription** today for only \$59.97 and you'll receive \$60 worth of **BONUS COUPONS** plus a chance to **WIN PRIZES** in the exciting ReRUN V.I.P. contests! Make sure your disk arrives on time with a convenient ReRUN subscription. Our low subscription price means you get top quality programs for less than \$1 each!

**RRSB \$59.97 (6 bimonthly disks)**

### RUN PRODUCTIVITY DISKS!

#### ■ Super Starter Pak (2-disks)\*

7 programs to meet all your essential needs: RUN Script • RUN Paint • RUN File • RUN Term • RUN Calc • RUN Shell • Label Base **RPA7 \$24.97**  
(On 1581 Disk, with booklet — **RPA6 Special! \$19.97**)

#### ■ RUN Works

7 powerful programs for the C-64 and 128: Graph-maker • Money Manager • RUN Term • Form Maker • Label Base • RUN Shell • RUN Paint **RPA3 \$24.97**

#### ■ RUN's Educational Disks\*

**Vols. I & II — Collections of educational games designed specifically for young students and parents. Programs to learn basic math skills, spelling, state capitals, even typing.**

**Vol. I — RPA8 \$14.97**  
**Vol. II — RPA9 \$14.97**

#### ■ Productivity Pak

Over 10 winning programs for practical home applications. A super bargain. **#RPA2 \$14.97 (was \$19.97)**

#### ■ RUN's Story Disk\* — NEW!

Great stories written by RUN writing contest winners. Features a unique interface. **RNA16 — ONLY \$7.95**

\*These products have disk-based documentation; no booklets.

Where else could you get ALL the great current programs from RUN magazine, ready to load and run, PLUS super never-before-published bonus programs—on one disk, six times a year, for such a fantastic price?

Only \$9.95 for each current edition! To order, use the order form in this catalog or call the 800 number printed below

**#RRH4** Landlord Helper. Easy Invoices. Money Manager. Graph Maker.

**#RRB1** Point and click interface. Envelope addresser. Questionnaire. 80 Column 64.

**#RRB87**  
\*Appointment book.  
\*\*Retirement finance planning.  
\*Calculate mortgage payments.  
\*Checker game.

**#RRD0** Organize activities on a monthly calendar.  
\*128 Basic Enhancement. C-64 adaptation of Breakout. \*C-128 variation of Tetris.

**#RRD1** Boosting Basic. Smart Shopper. Super Character Editor. \*Indexer.

**#RRD87** Complete database management system. Vocabulary expansion challenge. \*\*Recipe converter. \*C-128 screen dump.

**#RRD88** \*\*Home Inventory. \*\*Affairs of State. 64 Bowling. \*Time-Keeper 128.

**#RRG0** \*Two-disk-drive copy utility. Fast-paced driving game. Add 112 color hues to your C-64. Assembly language utility.

**#RRF86** Basketball. Label Maker. Arithme-Sketch. \*Murder Mystery.

**#RRF87** \*Mini word processor. \*Create dazzling custom windows. Notepad Command Center. Convert your computer into a drum machine.

**#RRH0** \*Calculate distances between major cities. Sound Interface Device. \*\*Disk directory organizer. \*Horseshoes.

**#RRH7** Arithmetic flash card fun. \*Ultra hi-res pie charts. \*Measure your typing speed. Electronic address book.

**#RRK0** C-64 Parcheesi. Address Manager. \*PaintView III. Quick Windows.

**#RRK86** \*\*The Loan Arranger. 64 Notepad. Sign Maker. 64 Personal Ledger.

**#RRK87**. Enhance 64 function keys. \*Organize your thoughts with Outline 128. \*128 Notepad program. Animate short messages.

**#RRK89** \*\*Display GEOS graphics. \*Generate 3D surface models. Custom function keys. \*\*Plus several exciting strategy and challenging maze games.

**#RRM0** Plaque Man. \*\*Geo Stripper. \*\*Mortgage analyzer. GEOS Disk editor.

**#RRM86** CalcAid 64. \*Run Script 128. Morse code tutorial. Math puzzles.

**#RRF1** Storydisk. Time analyzer. Bomb Squad. Metric Converter. \*Missile-Buster. Scoreboard. \*Movie Phile 128.

**#RRH1** Fuel Compare. \*YOOT. RoadTest 64. Super Keys. Movie Phile 64. \*RUN Base II. RUN Copy II. Math Matcher.

**#RRK1** \*\*MultiCopy. Rollerdash. Fraction Action. \*Classy Graphics. 128 Mode. Scramble. Menu Runner. \*Menu Maker. SourceMaster.

**#RRM1** \*Muggins. \*GEOS interlace. Volleybound. Uniport. Ultimate Sprite Editor. \*Composite Man.

\* Program runs in C-128 mode  
\*\*Both C-64 and C-128 modes  
(All others run in C-64 mode only)

**PREVIOUS  
ReRUN  
DISKS  
ONLY \$5.95  
EACH**

**ORDER TODAY. Complete money back guarantee. No questions asked!**




www.Commodore.ca  
May Not Reprint Without Permission

**Call toll-free 1-800-824-5499**



# SUPER SALE!

**Abacus**   
**BOOKS &  
SOFTWARE**

## C-64 SOFTWARE

**Datamat 64**—An easy-to-use database for your home application needs. Define up to 50 fields per record and up to 2000 records per disk. **AB01 \$15.97**

**ChartPak 64**—Transform your data into easy-to-understand charts. Draw charts in any of eight formats, including, pie, bar, line or scatter graph. **AB02 \$16.97**

**Personal Portfolio Manager**—Manage stocks, bonds, mutual funds and treasury bills, and record dividends and interest income in your portfolio. **AB03 \$16.97**

**SpeedTerm 64**—Access on-line services and bulletin board systems, upload and download programs, even bank by phone. This terminal program is compatible with most C-64 modems. **AB04 \$24.97**

**Pascal 64**—Develop your own applications with this intro-level Pascal compiler. A great way to begin programming in Pascal on the C-64. **AB05 \$9.97**

**Power Plan 64**—A super spreadsheet for your C-64. Lets you display your data in graphic format. **AB06 \$15.97**

**Basic Compiler 64**—Speed up Basic programs with this complete compiler and development system. **AB07 \$16.97**

**BeckerBasic 64**—Write GEOS applications in Basic. Includes over 270 new commands and functions. **AB08 \$19.97**

**Cobol 64**—Learn Cobol, the business programming language. Syntax editor, interpreter, compiler and symbolic debugging aids. 150-page manual. **AB09 \$16.97**

**Fortran 64**—Create fast code in Fortran, commonly used to solve math, science and engineering problems. **AB10 \$16.97**

**Super C-64**—This compiler lets you develop programs in C, today's preferred language for software developers. It produces 6502 machine code, so it's easy to transport C programs from one computer to another. Graphics and math libraries, editor, compiler, linker, comprehensive handbook and more. **AB11 \$24.97**

## C-64 BOOKS

**Adventure Gamewriter's Handbook**—A step-by-step guide to designing your own adventure games. 225 pp. **ABAG \$7.97**

**Printer Book for the C-64**—Explains what you can do with your 64 and a printer: interfacing, printing graphics, formatting program listings and more. 340 pp. **ABPR \$8.97**

**Graphics for the C-64**—Learn the fundamentals of graphics, including computer aided design, sprite design, animation and more. 350 pp. **ABGR \$7.97**

**Ideas for Use on Your C-64**—Dozens of helpful and fun programs to type into your C-64, including auto expense minder, store window advertiser, strategy games, computer poetry. 200 pp. **ABIU \$7.97**

**Tricks & Tips for the C-64**—Collection of easy-to-use programming techniques covering graphics, POKes, data transfer and more. 275 pp. **ABTT \$7.97**

**Peeks and Pokes for the C-64**—Dozens of Basic programming functions to manipulate video, sound, input devices, user port and more. 200 pp. **ABPP \$7.97**

## C-128 SOFTWARE

**SpeedTerm 128**—Here's your ticket to the wonderful world of C-128 telecommunications. Fully compatible with most modems for the 128. **AB12 \$24.97**

**ChartPak 128**—Produce professional visually-appealing charts in any of eight different formats. **AB13 \$16.97**

**CadPak 128**—Computer-aided design and drawing program for your C-128. Create and edit pictures, mechanical drawings, layouts or renderings quickly and accurately. Create exact scaled output of your designs. **AB14 \$24.97**

**Basic Compiler 128**—Make your Basic programs run faster with this easy-to-use compiler. Takes advantage of Fast mode and 80-column features. **AB15 \$24.97**

## C-128 BOOKS

**Computer Aided Design on the C-128**—Discover professional design techniques and learn the fundamentals of CAD, 3-D drawing and more. Examples and sample programs. The definitive 128 CAD book. 310 pp. **AB16 \$7.97**

**C-128 Basic Training Guide**—Learn the fundamentals of Basic: dataflow, program design, advanced programming and more. A complete reference work with useful utilities. 350 pp. **AB17 \$8.97**

**1571 Internals**—An insider's guide to the 1571 disk drive. Covers sequential and relative files, directory organization, DOS routines and more. 488 pp. **AB18 \$7.97**

# LOWEST PRICES ANYWHERE!



# GAMES, GAMES...

## Elvira Mistress of the Dark

LOWEST PRICE ANYWHERE

ELBS ~~\$29.95~~ **\$24.97**

Join Elvira, Mistress of the Dark, in a superb, award-winning fantasy role-playing game with outstanding graphics and excellent gameplay.

New Release for the C-64!

That is if... you dare!!!

Travel back in time to a land of vampires and werewolves. Elvira desperately needs your help in destroying the evil spirits in Killbragant castle—the home of her evil great-great grandmother, Emelda. You must search the gloomy castle, armed only with a spellbook containing strange concoctions. Along the way, of course, you must battle all manner of monsters, spirits, spooks, and specters. You're not afraid, are you?

- Role-playing game of the year, 1991, *Computer Gaming World*
  - Over 1 MB of code on 3 disks
  - Point-and-click joystick control
  - 800 unique screens
  - World-class graphics
  - Excellent eerie sounds
  - Turbo disk-loading
- Order Elvira, Mistress of the Dark, TODAY... if you dare!

Award Winning Game

Free Game Pick

## Entertainment Software from Cinemaware

### THE THREE STOOGES

Nyuck, Nyuck, Nyuck! Join Larry, Moe, and Curly in their zany plight to save an old lady and her three beautiful daughters from the grips of an evil banker. You'll love the digitized voices, sound effects, and superb animation.

#RPC1 \$7.97

### ROCKET RANGER

Don your rocket pack and take to the skies to bring back all the thrills and action of the classic sci-fi, rock 'em-sock 'em 1940's serials. Includes a secret decoder wheel to help you change history and save mankind.

#RPC2 \$7.97

### TOTAL ECLIPSE

Feel like you are travelling in a great Egyptian pyramid in this 3-D graphics adventure. Find puzzles, traps, treasures and more in this arcade action race against time to save mankind from destruction.

#RPC3 \$7.97

### DARK SIDE

Become a one-person army dedicated to saving the world from imminent destruction in this hi-tech 3-D adventure. Armed with lasers, shields, and a jet power pack, your challenge is to destroy the Alien weapon before the apocalypse is unleashed.

#RPC4 \$7.97

Free Game Pick

## GREAT GAMES! FANTASTIC PRICES! ACTIVISION

### PREDATOR

Based on the movie, this intense action-adventure game pits you against an alien hunter. RPE1 \$4.97

### GHOSTBUSTERS II

Devilish strategy challenges and great laughs. Digitized images from the hit movie, excellent soundtrack. RPE2 \$4.97

### LAST NINJA 2

Help the NYPD dispose of an elite corps of Ninja Warriors who are terrorizing the city. Detailed 3-D graphics and 6 different soundtracks. RPE3 \$4.97

Please Note: All Activision games require a 1541 or 1571 Disk Drive and a joystick



# & MORE GAMES!

Free  
Game  
Pick

## Exciting Games from COSMI

### THE PRESIDENT IS MISSING!

#### NAVY SEAL

Have you got what it takes to join this elite commando unit? Test your secret combat skills. Multiple levels of difficulty; realistic sound effects; lifelike animation and authentic sound effects. #RPD1 \$4.97

#### CHOMP!

Just a lowly goldfish, but what adventures you have! The bad characters you meet make for amusing fun, and a challenge. Fast-action, great graphics, realistic animation and exciting sound effects. #RPD3 \$4.97

#### GRAND SLAM BASEBALL

Two games in one—baseball and a homerun derby between Steve Garvey and Jose Canseco. Control all aspects of game play, even create your own teams and leagues. Impressive graphics and sound. #RPD4 \$4.97

You must track down the president's kidnappers! An exciting blend of graphics, mystery, adventure, simulation. Great graphics and well-thought-out game play equals hours of challenge and fun. Includes a 30-minute audiotape of info and clues. #RPD2 4.97

## MICROPROSE GAMES

#### F-15 STRIKE EAGLE

Strap yourself into the cockpit of one of the most powerful and technologically advanced fighter planes in the world and engage in combat. No C-64 game library is complete without this great simulation. #RPF1 \$9.97

#### STUNT TRACK RACER

Guaranteed to satisfy both car-racing and computer fans. Realistic animation and great graphics. #RPF3 \$9.97

#### AIRBORNE RANGER

Be one of America's elite fighting men. Embark on solo missions behind enemy lines and rescue hostages from terrorists. Plan of plenty of heavy-hitting action! #RPF4 \$9.97

#### DR. DOOM'S REVENGE

C-64 on-screen comics with great arcade game action. Spider-Man and Captain America team up to combat Dr. Doom and his gang of villains. #RPF5 \$9.97

#### 3-D POOL

Test your pool skills, or create your own with the editor. Enter tournament play against opponents. #RPF6 \$14.97

#### THE AMAZING SPIDER-MAN

The great webslinger needs your help against the evil Mysterio, master of illusions. Spidey must survive a disk-full of devious booby-traps to save himself and Mary Jane Parker. #RPF2 \$13.97 — NOW \$14.97!

#### PIRATES!

Journey back to an era of swash-buckling adventure on the Caribbean seas. You'll encounter Spanish Galleons, pirates' treasure, and a wealth of historical information. An unusual blend of action, adventure and education. #RPF7 \$12.97

**Simply the Best military simulation for the C-64!!**

#### RED STORM RISING

As the commander of America's most sophisticated nuclear attack submarine, you must battle Soviet forces in a number of war game scenarios. At stake is world peace. Modern submarine warfare at its best. Based on the best-seller by Tom Clancy. #RPF8 \$13.95 — NOW \$12.95!

## Special Low-Price RUN Game Packages!

#### RUN'S STRATEGY GAMES (C-64)

• Vol. I - 9 Games: Card games, brain-teasers, strategy games, puzzles. #RPA4 \$14.97

• Vol. II - A popular Yahtzee-like game, card games, Duo and Knock. 10 Games. #RPA5 \$14.97

These 2 disks have disk-based documentation; no booklets.

#### FUN PAK 128 (FOR C-128)

Sophisticated strategy, arcade action and graphics puzzles. Leave Earth for new territory. Create a 3D adventurer. Challenge your sense of spatial relationships and powers of deduction. 28-page booklet. 8 Programs. #RPA10 \$14.97

#### GAMEPAK (FOR C-64)

Get set for plenty of action with arcade games such as Ski, Chopper Run, and Bug. Control a hungry spider-eating snake. Plus word games like Scrambler, Findword and more. Disk with 38-page booklet. #RPA1 \$14.97





## Commodore ❖ MUSIC! ❖

### DR. T's MUSIC SOFTWARE

#### DR. T's MUSIC STARTER PAK

All you need to record and edit music on your 64/128: Software, MIDI interface, cables. You supply the computer and MIDI instrument. Package includes:

(1) KCS (Keyboard Controlled Sequencer), version 2.0. (2) MIDI hardware interface to hook up your computer to a MIDI music instrument (3) 2 MIDI cables.

#DT64 for the C-64 \$180.00 **\$119.97**

#DT128 for the C-128 \$275.00 **\$149.97**

#### CAGED ARTIST AND DR. T EDITORS/LIBRARIANS (64 & 128)

A user interface which combines keyboard entry with optional joystick control. Choose the editor compatible to your synthesizer.

YAMAHA FB-01 or DX-100/21/27

— #RPH3 Four-Op Deluxe Patch Editor

DX-7 — #RPH4 DX-7 Patch Editor

CASIO CZ-101/1000/3000/5000

— #RPH5 CZ Patch Editor

**ONLY \$49.97 EACH!**

#### ALGORITHMIC COMPOSER FOR C-64

The only MIDI-capable algorithmic composition package available for the 64.

#RPH6 \$49.97

## Work 15 Times Faster!

### WITH JIFFY DOS V6.0

**LOWEST PRICES EVER!** A disk drive speed enhancement system to help you work 15 times faster! ROM's install easily into your computer and drive. Compatibility guaranteed. Built-in DOS wedge; multiple features.

**Priced to sell at \$44.97 for the C64 • \$54.97 for the C128 or 128D**

**Specify computer and drive model (with serial number) when ordering. Additional drive ROMs \$24.97**

### POWER SUPPLY

These highest quality power supplies will replace your original equipment. Both are UL and CSA approved and meet or exceed OEM specifications. Why not plan ahead?

#RPH6 for C-64 \$24.97

#RPH1 for C-128 \$34.97

### 1200 BAUD MODEM

Get important information fast with the Commodore Modem/1200. Built-in speaker, auto answer, auto dial, choice of 1200 baud or 300 baud data transfer rates. Includes FREE Q-Link software kit and first month membership.

#RPH3 \$24.97

## MAILING ORDER FORM

☐ Check here for free game offer: one game on \$50 or more, 2 games on \$100 or more. List game(s) and #(s) below.

Free gift names and numbers:

#

#

### Shipping Address

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

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

Please allow 3-4 weeks for delivery. All products are sold on a first come-first served basis.

• All orders shipped via surface mail. Call for details on optional delivery methods.

Qty	Item Number	Item Name	Unit Price	Total Price
	#		\$	\$
	#		\$	\$
	#		\$	\$
	#		\$	\$
	#		\$	\$
	#		\$	\$
	#		\$	\$
	#		\$	\$
100% Money Back Guarantee. No Questions Asked.			SUBTOTAL	\$

☐ Check enclosed

☐ Charge my

☐ Mastercard ☐ VISA

☐ AmExpress ☐ Discover

Account # \_\_\_\_\_

Expiration \_\_\_\_\_

Signature \_\_\_\_\_

Product Total \$ \_\_\_\_\_

Add \$3.95 postage & handling for each order (Canada & Mexico, add \$6; Foreign, \$11.50)

California Orders, add tax \$ \_\_\_\_\_

Canadian Orders, add 7% GST \$ \_\_\_\_\_

**TOTAL ENCLOSED** \$ \_\_\_\_\_

## FREE GIFT!

PLACE AN ORDER FOR \$50 OR MORE AND GET ONE FREE COSMI, ACTIVISION, OR CINEMAWARE GAME OF YOUR CHOICE! PLACE AN ORDER FOR \$100 OR MORE AND GET TWO FREE GAMES!

**ORDER BY PHONE  
CALL TODAY**

**1-800-824-5499**

www.Commodore.ca

8 A.M. to 6 P.M. Eastern time

MAIL TO: RUN Special Products, PO Box 2151, Salisbury, MD 21802



# SOFTWARE GALLERY

*Let's go to the movies! Reviews of the latest cinema spinoffs. Plus a look at the latest spreadsheet program for the C-64.*

By JOHN RYAN

## ARACHNOPHOBIA ..... A

*Oh, what a tangled web they weave . . .*

No, I'm not referring to the spiders you'll meet in *Arachnophobia*, Disney's latest C-64 arcade game. I'm referring to the developers who made this game so addicting that it's tough to get up and walk away.

If you saw the movie *Arachnophobia*, you'll have a good idea of the game's basic storyline: A deadly species of South American spider has been accidentally imported into the United States. The most frightening thing about these spiders is they reproduce at an astounding rate. Now the entire state is overrun and the cities are screaming for help.

Enter Delbert McClintock (that's you), a fearless entomological warrior with a knack for snuffing out eight-legged nasties. You'll have to fight thousands of soldier spiders as you guide McClintock through each infested town in search of the queen. If you manage to kill the queen spider in every town, you'll get a choice assignment from the United Nations (lucky you): a trip into the Amazon rain forests, where you'll meet arachnids that look like eight-legged bowling balls and that love the taste of human flesh.

Game play is deceptively simple. You start out in the first town, represented by an overhead map. Guiding your bug-mobile with a joystick, you travel to the various houses, schools and other buildings in town, in search of the queen spider. Once you stop at a building, the screen switches to an interior view. From here you guide McClintock through the infested rooms, doing battle with spiders, and their webs, which can seriously slow you down.

A few spider bites will do you in, so you'll find first aid kits in every structure. You'll also find goodies such as aerosol cans and matches that together make great flame throwers. McClintock is armed with three basic weapons: an insecticide spray gun, bug bombs and his sturdy workboots—yes, you can also



If you thought the movie was creepy, wait until you play the game!

stomp on the little buggers (pun intended). Once you get close enough, a single shot from the spray gun is usually enough to kill a soldier spider. Some cling to the ceilings until they can jump on your head or slide down their sticky strands to nip you in the neck. Bug bombs quickly clear an entire room, but your supply is limited.

The true objective is to find the egg sack in each building. Only one house in the town hides the queen, so you may have to clear many homes and destroy numerous egg sacks before you find your quarry. Then, watch out: The Queen spider is one bad mamma-jamma!

Everything about *Arachnophobia* is top notch, from its crisp, three-dimensional graphics, to its superb soundtrack. I was particularly impressed with the graphics, reminiscent of those in *Maniac Mansion*, only cleaner and more colorful. It can get downright creepy as you guide McClintock through the

rooms and up and down stairs.

While the joystick operation is fairly basic, it will take you a town or two before you become totally comfortable. Additionally, I suggest that you use a fastload cartridge, if you have one available; the game uses a double-sided disk and loading can be tedious.

I recommend this game to anyone who's looking for a "stomping" good time—unless you really suffer from arachnophobia. But, who knows, your fear of spiders may vanish . . . after a few dozen of them drop on your head!

(\$29.95/C-64. Walt Disney Computer Software, 500 S. Buena Vista St., Burbank, CA 91521)

## PREDATOR 2 ..... B-

*Here's one game even Popeye couldn't survive*

*Predator 2*, another Hollywood spinoff, attempts to weave the storyline from the movie into an arcade game. Does it succeed? Well, that depends on two things: One, do you have a joystick arm the size of Arnold Schwarzenegger's? Two, do you have the gobs of patience and intensity necessary to see this game through?

If you answered *no* to either question, you may want to pass on this game. But if you're a joystick junkie, *Predator 2* could be a heck of a lot of fun.

You are detective Mike Harrigan, a tough, street-wise cop, whose sole mission in life is to rid the city of its drug lords. Street wars are tearing the city apart and you must quickly put an end to them. Unfortunately, there's someone else in the city with an eye on the drug kingpins and gangsters—the Predator, an alien creature who bends visible light waves to make himself virtually invisible. As in the movie, the drug war will take most of your attention, so you won't have to fight the creature right away.

*Predator 2* offers four levels of play and puts a new spin on the Rogue's Gallery theme. You must quickly identify and shoot the bad guys, while avoiding ▶

### SOFTWARE REPORT CARD

Fantastic!	A
Real Nice	B
Pretty Good	C
Not So Hot	D
Crummy	F



hapless pedestrians. For example, the first level finds you on the city streets with a "you-are-there" perspective, and buildings smoothly scrolling by. Armed initially with a .45, you must identify and kill gang members as they emerge from doors and windows, and attack you from the street. Of course, you have to avoid killing pedestrians, police officers and bystanders, all of whom often get in your line of fire. Occasionally, ammo clips, body-armor and better weapons scroll by. Shoot them and they'll be added to your inventory. If your body-armor level falls too low, or if you wound too many pedestrians, the game ends, offering you either the chance to continue or start over. Clear a level, and you move on.

The goal is, obviously, to survive the four levels of play and confront the Predator. Whether you have the stamina or joystick prowess to do so, however, is another matter. I consider myself a joystick "contender," but I was absolutely ex-



**Predator 2** gives the *Rogue's Gallery* theme new meaning.

hausted after clearing the first level.

This is one of the few instances where I wish someone would come up with a Nintendo-type control pad for the C-64. Aiming the weapons involves moving a small target around the screen, and with my bat-style joystick the movement was

too clumsy and imprecise to clear the bad guys from the screen fast enough. Moreover, this imprecision made it difficult to grab ammo clips and weapons. Not only did my more powerful weapons run out of ammunition very quickly, but I also missed targets who went on to shoot, bomb or otherwise molest me. Very frustrating. Pistol-grip or Atari-type joysticks might give better results.

Otherwise, *Predator 2* sparkles with graphics and sound. The animation, whether you're on the street or in the slaughterhouse, is simply superb. The bad guys are big and well-drawn as they jump, tumble and run across the screen. Of course, as in most Konami games, the sound effects and soundtracks are also wonderful.

I really wanted to get to the last level and meet the Predator. Judging from the first few levels, that meeting must be excellent. So if anyone out there knows an 11-year-old with hands and nerves of

## Calc II ..... B+

### *Calc II incorporates the best of past spreadsheets*

Back in the stone age, poor Gronk had to count the number of saber-toothed hedgehogs he'd caught by separating rocks into representative piles. 74,000 years later, it took a room-sized, vacuum-bulbed monstrosity to make those computations. Now, forty years after that, you can use your Commodore computer as an electronic spreadsheet and do the work that a CPA can do, and in a fraction of the time.

There have been many spreadsheet programs for the C-64 over the past several years, each improving on its predecessor. Calc II has incorporated the best features of past spreadsheets, wrapping them all into one fast and easy-to-use package.

In its simplest terms, a spreadsheet is nothing more than a tool for tracking numbers and figures, making calculations, and asking "what if" questions about your finances. Calc II, like other spreadsheets, provides templates that run the gamut, from home mortgage and depreciation tables to future value of investments and much more.

Calc II provides you with a matrix that is 240 x 240 cells large, making it one of the roomiest C-64 spreadsheets available. Moving around the matrix is easy in Calc II, with a scrolling feature, and a Goto command that jumps to any

cell in the matrix. There's even a command to set up four independent virtual windows, letting you view and edit data from four different parts of the matrix at once.

Another impressive feature of Calc II is its speed. This is not a Basic or compiled Basic program. It's pure machine language, so you won't have to wait on calculations. Obviously, the spreadsheet supports automatic and manual calculations, text and keyboard graphic displays, and offers automatic formatting. It also includes over a dozen formulas normally used in Basic language programming, such as random numbers, integers, square roots and logarithms. And special functions for working with tables and adjusting numbers can be called upon at any time.

Information within the spreadsheet may be sorted, configured and displayed with a myriad of commands. You can display information horizontally for bar charts or graphs. Likewise, it has full-featured editing capabilities for simple deleting, inserting or otherwise manipulating columns, rows and cells.

Calc II is not difficult to learn, even for the beginner. The manual leads you through the program in tutorial style. As spreadsheets go, it's extraordinarily easy-to-use; most of its functions are accessed with CONTROL key combinations. The documentation is fully indexed for easy reference.

If you're not up to creating your own templates, then you'll be pleased to find nearly 50 prepared spreadsheet tem-

plates on disk, including a check balancer, depreciation models, as well as various loan, scientific and mathematic templates.

Calc II supports output to printers, including virtual printing that automatically splits the matrix when the spreadsheet is larger than the printer. A full range of disk functions and customizing features are available, along with a utility to merge spreadsheets together.

Unfortunately, Calc II does not support the Commodore RAM expanders. I realize that the average user would do fine with the 240 x 240 matrix, but I can envision a small business requiring more room and more memory—especially when merging spreadsheets. With an REU, Calc II could virtually double the size of the matrix offered. Perhaps future releases will take this into account. I also would have liked a pop-up calculator function, and perhaps even a simulated 80-column mode.

Even without these niceties, however, Calc II is a superior package when it comes to speed and ease-of-use. It offers just about every function you'll need to manage numbers and, as I've said, you probably will never have to create your own template. So, while Calc II doesn't break new ground, it combines the best of its predecessors, making it an excellent choice for the Commodore user.

(\$29.95/C-64. Punkhust Programming, Box 49135, Montreal, Quebec H1N 3T6, Canada)

—JR



## SOFTWARE GALLERY

steel, put him or her on this game and let me know what it takes to get there. By then, the plaster cast on my joystick wrist should be long gone.

(\$19.95/C-64. Konami, 900 Deerfield Parkway, Buffalo Grove, IL 60089)

### BACK TO THE FUTURE III ..... C

*Sharp graphics and sound just aren't enough*

Since this Software Gallery has a Hollywood theme so far, we may as well look at one more game whose claim to fame rests on the laurels of a movie: Back to the Future III. This game is a mixture of arcade and action divided into several scenes. Unfortunately, its main attraction is its great graphics and sound, otherwise it's a senseless game with little staying power.

As with many movie games, BTF3 attempts to follow several major story lines. You'll play the parts of both Marty



**This Hollywood spin off is great to look at, but not much fun to play.**

and Doc during different portions of the game. During the first series, it's Doc against time and warring Indians as he attempts to rescue his sweetheart from a runaway wagon. Using full-screen sideways and overhead views, you guide Doc's horse up, under and over a basic obstacle course that takes a good while to master. You won't have much time to sit around admiring the beautiful scrolling

graphics; if you don't get shot off your horse or fall into a ravine, you'll be smacked by objects falling from the back of the runaway buckboard.

Successfully past the first scene, you'll progress to a shooting gallery and then to a pie-throwing melee. Clear the bad guys and you'll move on to the last scene, the train. Here you're riding atop the carriage of a speeding train and must make your way to your trusty DeLorean at the train's front.

The full-screen graphics and animation in all the levels are simply magnificent and are accompanied by a great soundtrack. But what's the point? Sure the first few moments of each level are fun, but getting dumped from a horse or being shot several dozen times becomes tedious. Mastering each level involves simply memorizing the timing needed to get through the scene. When you've been through BTF3 once, the thrill is gone.

In my opinion, Back to the Future III should go back to the drawing board. (\$31.95/C-64. Konami, 900 Deerfield Parkway, Buffalo Grove, IL 60089) ■

## JASON-RANHEIM CARTRIDGE MATERIALS FOR YOUR COMMODORE 64 or 128

*Quality Products  
from the World Leader!*

- Promenade C1 EPROM Programmer
- Game Type Cartridges
- Bank Switching Cartridges
- RAM/ROM Combination Cartridges
- Capture Archival Cartridge System
- Cases, EPROMS, Erasers, Etc.

**Call or write for complete information!**

Call Toll Free 800-421-7731  
from California 916-878-0785  
Tech Support 916-878-0785



**JASON-RANHEIM**

3105 Gayle Lane  
Auburn, CA USA 95603

## FACTORY AUTHORIZED COMMODORE REPAIR CENTER 1-800-772-7289

(708) 879-2350 IN ILLINOIS

C-64 Repair (PCB only).....	42.95	C-128D Repair .....	CALL
C-128 Repair (PCB only).....	64.95	Printers.....	CALL
1541 Permanent		Monitors.....	CALL
Alignment.....	29.95	Other Equipment.....	CALL
1541 Repair (PCB only).....	79.95	IBM Compatibles .....	CALL
1571 Repair (PCB only).....	79.95		

CALL BEFORE SHIPPING FOR AUTHORIZATION NUMBER  
(HAVE SERIAL AND CARD NUMBERS READY)

PARTS AND LABOR INCLUDED

Add \$4.50 for Shipping/Handling

(APO, FPO, AIR ADD \$14.00)

30 DAY WARRANTY ON ALL REPAIRS

## COMMODORE PARTS

CALL (708) 879-2350

C-64 Power Supply .....	34.95
C-128 Power Supply.....	59.95
Other Parts.....	CALL

\*(Plus \$4.50 Shipping/Handling)

## TEKTONICS PLUS, INC.

117 South Batavia Ave.  
BATAVIA, IL 60510





## CURTAIN CALL

RUN's column where worthy products step into the spotlight and take a bow.

# SID Symphony Stereo Cartridge

**A**h, the joys of multi-voiced stereo sound. As the owner of both an Amiga and a sound-enhanced IBM, I've become a computer music snob. It's a pleasure that only owners of 16-bit computers can know.

Wanna bet? I am amazed how the C-64 keeps plugging along, proving over and over that there is indeed a lot of life left in this venerable little computer.

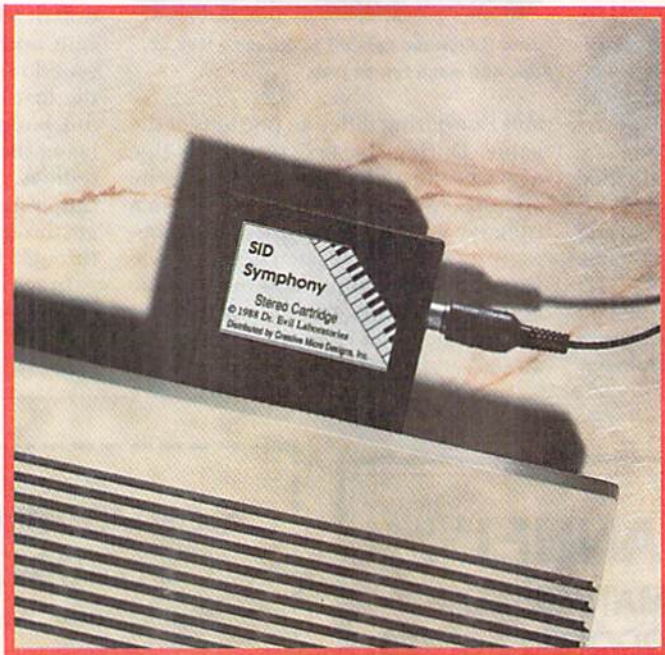
To prove the point: I give you the SID Symphony Stereo Cartridge.

This apparently innocuous black box puts C-64 music and sound in a league with the big boys. How? It adds a Sound Interface Device (SID) chip to the one already in the computer, giving you two SID chips that together command six voices in stereo. The cartridge provides three voices for the right channel, while the computer's own SID provides three voices for the left channel.

To enjoy the stereo sound, you'll have to route the cartridge's output (right channel) and the computer's output (left channel) into a stereo or an amplifier. Getting from the cartridge to the amplifier is simple: Just plug one end of an RCA male-to-male audio cable into the cartridge's RCA jack, and the other end into the amplifier's auxiliary input.

Getting sound from the computer to the stereo can vary, depending on which monitor you own. If you have a 1902A or a 1084 monitor, simply plug the audio cable into the monitor's Audio In jack and the amplifier's auxiliary input. (Audio In? I know, it sounds backwards, but it does work.)

If you have the 1084S, you have the advantage of built-in stereo. Connect one cable from the computer's Right audio jack to the amplifier's auxiliary input. To use stereo for both the cartridge and the computer, you'll need two Y-



**Pump up the volume with the SID Symphony Stereo Cartridge. It boosts Commodore audio to six channels of stereo sound.**

splitters and two more male-to-male cables. The setup is not complex, and the documentation leads you through it in just a paragraph or two. (Don't worry—you won't have to solder anything.)

So how does it sound? Quite simply—amazing. You'd be surprised exactly what three more voices can do for the C-64. You'll also receive a disk that contains a large collection of music that has been "SIDded" especially for the cartridge, plus the public domain program Stereo SID Player. With SID Player up and running, selecting and playing stereo songs becomes a simple matter of hitting a function key.

I've got to admit that the songs included on the demo disk are about the best I've ever heard on a C-64. You'll find such titles as *AxelF* from Beverly Hills Cop and Bach's *Two Part Invention #13*, both marvelous arrangements. *Johnny B. Goode*, with its funky, sliding beat, nearly puts any Amiga or IBM arrangement to shame. Likewise, *Dueling*

*Banjós* is a true marvel.

If you belong to the QuantumLink or GENie online networks, you have access to literally hundreds of songs written for this stereo cartridge. In fact, CMD has its own Q-Link area featuring hints, advice and ordering information. Moreover, Q-Link's music room stocks nearly any kind of SID music you could want.

If you want to compose your own music, then you need two other programs: Stereo Editor and Enhanced SID Player, both available from CMD. With these programs, even a novice composer can craft SID melodies, or "SID-ify" a favorite tune from sheet music.

The cartridge also supports MIDI, though with limitations. So if you plan to use the stereo cartridge with a Commodore-compatible MIDI interface, call CMD and request additional information.

I don't normally get too excited about computer music, but SID Symphony is perhaps the most innovative and useful cartridge ever developed for C-64 music. Back in 1982 the C-64 was hailed as a technological breakthrough in the area of computer sound. As the years passed, however, the 64's three voices just could not compete with the newer, more powerful machines. Now, with the SID Symphony Stereo Cartridge available, the competition's back. ■

—John Ryan

**Creative Micro Designs**  
PO Box 646  
East Longmeadow, MA 01028  
413-525-0023  
SID Symphony Stereo Cartridge  
\$45.95 (includes postage)



FOR ORDERS ONLY  
IN USA & CANADA

**800-759-6565** OR CALL: (718) 965-9077

Order Hrs, Mon-Thurs: 9:30-7/Fri:9-6:30/CLOSED Sat/OPEN Sun:9:30-6(ET)

est. 1967  
CELEBRATING OUR  
**25<sup>th</sup> ANNIVERSARY**

**MONTGOMERY GRANT®**

RUN  
5-6 92

OR WRITE TO  
MONTGOMERY GRANT  
MAIL ORDER DEPARTMENT  
33 34TH STREET DEPT. A,  
BROOKLYN, NY 11232

RETAIL OUTLET  
PENN STATION, MAIN CONCOURSE, NYC, 10001  
(Beneath Madison Square Garden)

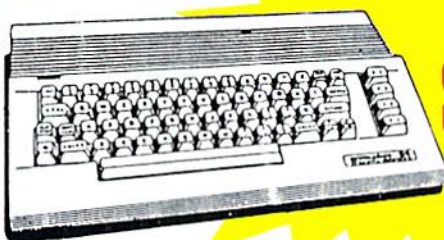
OPEN: Mon-Thurs 9:30-7/Fri 9-6/  
CLOSED Sat/OPEN Sun 10AM-6PM(ET)

FOR CUSTOMER SERVICE & ORDER STATUS CALL  
(718) 965-9285

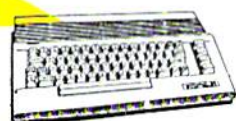
CUSTOMER SERVICE HOURS  
Monday-Thursday, 10AM-4PM/  
Friday: 10AM-3PM

• NO SURCHARGE FOR CREDIT CARD ORDERS • FAX #718-965-0664/TELEX 422132 MGRANT • NEXT DAY & 2nd DAY DELIVERY AVAILABLE •

**Commodore® 64C®**



**\$119**



**SPECIAL PACKAGE**

**COMMODORE 64C COMPUTER**  
COMPLETE WITH

**COMMODORE 1541c Refurbished  
Disk Drive**

PACKAGE  
PRICE!!

**\$199**

## SPECIAL PURCHASE BLOWOUTS

**Commodore®**

**1571  
DISK DRIVE**  
•Refurbished•

**CALL**

**Commodore®**

**1541C  
DISK DRIVE**  
•Refurbished•

**\$79**

**SANYO  
PR-3000**

**Daisy Wheel Printer**  
•Refurbished•

**\$49**

**SEIKOSHA SL-80**

**LETTER  
QUALITY  
PRINTER**

**\$149**



**IBM®**  
**80 COLUMN THERMAL PRINTER**

with  
Commodore  
Interface

**\$1995**

**DISK HOLDER COMBO**



• 40 5.25" Disks  
• 70 Disk Disk-holder

**\$1495**

**SURGE  
PROTECTOR**

**\$495**



**Commodore®**

**1084 RGB  
COLOR MONITOR**

**\$299**

## SOFTWARE & ACCESSORIES for Commodore

C-1350 MOUSE (C-128 ONLY).....	\$15	PRINT MASTER PLUS.....	\$32
C-1351 MOUSE.....	\$29	SIM CITY.....	\$23
C-1670 MODEM.....	\$69	SUPER SNAPSHOT 5.0.....	\$69
C-1700 RAM EXPANSION.....	\$49	TETRIS.....	\$19
CARDCO G-WIZ INTERFACE.....	\$49	WORD WRITER VI.....	\$34
CARMEN TIME.....	\$35	XETEC SUPER GRAPHIX Jr. INTERFACE.....	\$30
CARMEN U.S.A.....	\$35	XETEC SUPER GRAPHIX Sr. INTERFACE.....	\$59
CARMEN WORLD.....	\$35	XETEC LT. KERNAL 20MB H.D. for 64/128 (refurbished).....	\$299
DISK HOLDER/60.....	\$3.95	5.25" DISKS (10 PACK).....	\$3.95
GEO PUBLISH.....	\$30	250 SHEETS OF PAPER.....	\$4.95
GEOS VERSION 2.0.....	\$40		
MAVERICK VERSION 5.0.....	\$29		
POWER SUPPLY for 64/64C.....	\$29		
POWER SUPPLY for C/1541-II.....	\$29		
POWER SUPPLY for C/1581.....	\$29		
POWER SUPPLY for 128.....	\$39		

**LAST V-8 RACING GAME \$299**  
(C-128 ONLY)

COMMODORE  
**AMIGA**  
500

**\$399**



**ALL AMIGA COMPUTERS ARE ON SALE!**

Certified check, Bank Check, Money Orders, Approved P.O.s, Visa, Mastercard, Amex, Optima, Diners Club, COD's & Wire Transfers accepted. Please call before submitting P.O.s. Non-certified checks must wait 2-4 weeks for clearance. Prices and availability subject to change without notice. Not responsible for typographic errors. Return of defective merchandise must have prior return authorization number or returns will not be accepted. Shipping and handling additional. Canadian orders please call for shipping rates. APO/FPO orders please add 10% shipping & handling, minimum \$15. All APO/FPO orders are shipped first class priority air. 2nd day and next day Air available at extra cost. We check for credit cards theft. DCA #800233.

www.Commodore.ca  
©1992 All Rights Reserved





# Stay On the Fast Track with TENEX!

Always the most value for your money!

**Best Deal Ever on  
the Amiga 500!**

**Call for details!**

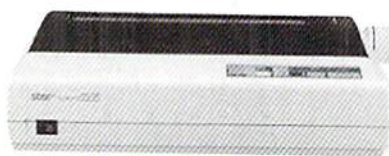
**Commodore®  
AMIGA®**



**Commodore-Ready Printer  
from Star  
At An Incredible Price!**

**\$119<sup>95</sup>**

**star**  
THE COMPUTER PRINTER



**NX-1000C.**

Enjoy near-letter quality at 36 cps and high-speed draft at 144 cps. Features the new paper parking function and convenient front panel controls. Includes four built-in fonts and over 20 typestyles. This is the Commodore-ready version of the NX-1000. You can just plug it in and start printing—no additional interfaces or cables are required.

NX-1000C Printer	75060	\$179.95
		<b>SPECIAL! \$119.95</b>
Ribbon (NX-1000C)	75471	\$5.95
Dust cover	77789	\$8.95

Sug. Retail \$299.00

**OTHER STAR PRINTERS**

NX-1001 Multi-Font	90895	\$139.95
NX-2420 Rainbow	A51047	\$299.95
NX-1020 Rainbow	A51027	\$179.95
LaserPrinter 4	A57934	\$879.00

Don't miss out on the lowest prices on the Amiga 500, plus a full line of Commodore and Amiga hardware, software, and accessories. Call today to receive your **FREE** catalog with the greatest prices on the most popular hardware and software!



**Commodore 64  
Computer**

**Only  
\$139<sup>95</sup>**



**Commodore 1541 II  
Disk Drive**

**Only  
\$169<sup>95</sup>**



**TENEX™**  
**Computer Express**

**Order Today! Call 1-800-PROMPT-1**

P.O. Box 6578  
South Bend, IN 46660  
(219)259-7051 FAX (219)259-0300  
We gladly accept mail orders!  
Circle Reader Service Number 170



**Shipping, Handling, Insurance**

Order Amount	Charge
less than \$19.99	\$4.50
\$20.00-\$39.99	\$5.75
\$40.00-\$74.99	\$6.75
\$75.00-\$99.99	\$7.75
\$100.00-\$149.99	\$8.75
\$150.00-\$299.99	\$9.75
\$300.00-\$499.99	\$11.75
\$500.00-\$699.99	\$18.75
\$700.00-\$999.99	\$24.75
\$1000 & Over	2.5% of Order

COMMODORE 64 and COMMODORE 128 are registered trademarks of Commodore Electronics, Ltd. AMIGA is a registered trademark of Commodore Amiga Inc. NOTE: Due to publishing lead-times, product prices and specifications are subject to change without notice. \*APO, FPO, AK, HI, CN, VI, GU, and foreign orders are subject to additional shipping charges.