

# RUN

December 1990

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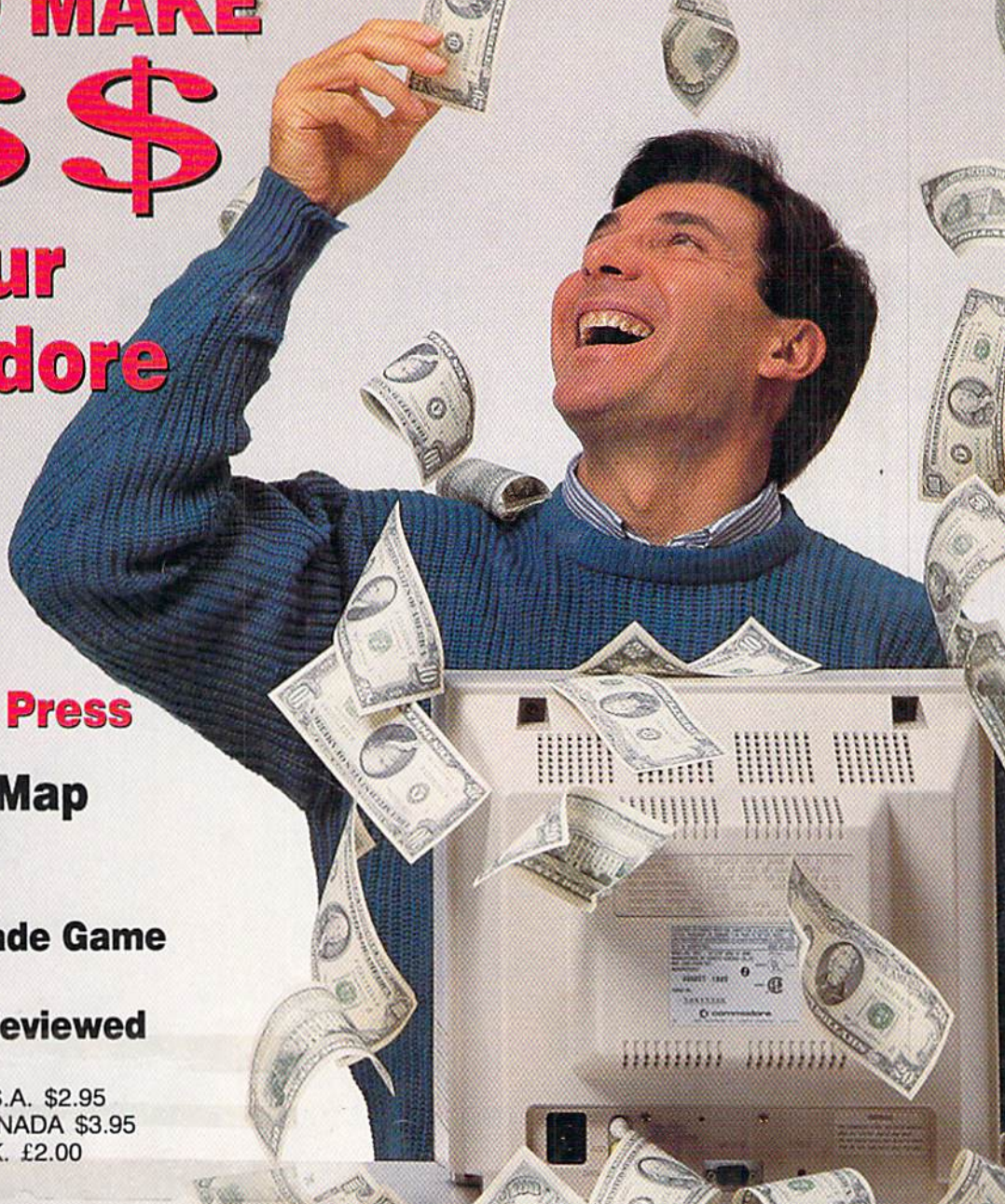
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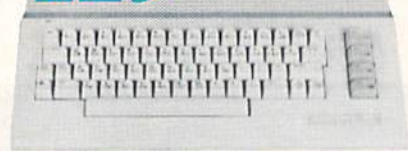
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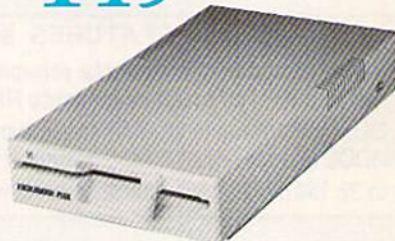
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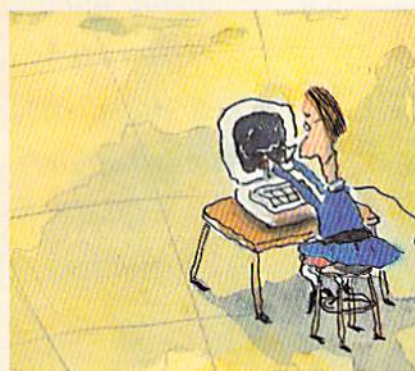
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# RUNNING RUMINATIONS

You remember those dreamy predictions of over a decade ago that depicted a world in which computers were to be our constant companions in work, play and study, and generally make our lives easier and more enjoyable.

Quite frankly, prognosticators were premature in their forecasts. The computer revolution fizzled. Most consumers are still in search of a compelling reason to buy a home computer. Let's face it: It may sound heretical, but there's nothing you can do with a computer that can't be done some other, cheaper, way.

You don't have to be a technophobe to be threatened by computers and the prospect of purchasing one. High costs, difficulty of use and the many options consumers face are intimidating factors that account for the failure of computers to attain celebrity status.

The main reason, however, is that the industry has failed to convince the public that computers will make a significant improvement in the quality of their lives—in entertainment, productivity, education. Consumers need to see that computers can improve their efficiency and serve as the solution to practical problems.

Noted computer author, Peter McWilliams, in *The Personal Computer Book*, makes the point that "computers will prove their worth to the degree that they fit into your daily life, not to the degree that you adapt your life to The Computer Age."

*RUN* doesn't recommend that readers change their lives to accommodate computers. Rather, computers should be used to allow us more time to do other, non-computer-related, activities.

Computers are wonderful tools to make our lives easier. *RUN* readers are aware of this, and, for the most part, are engaged in productive applications with their systems—word processing, managing home budgets, helping kids learn or just enjoying a good game.

Another useful application for your Commodore is making money, which is the subject of this month's feature article. There are many ways you can "cash in"—well, maybe not by making tons of money, but certainly by supplementing your income—and, at the same time, make life easier for your "client."

Consider the small business whose financial records are in a state of disarray. Also, the restaurant owner who needs help preparing menus. Your Commodore is the solution in each case. Keeping track of customers, maintaining mailing lists, writing articles, publishing newsletters, cards, banners or whatever. Your Commodore is ideally suited to handle these tasks.

*RUN* also features in this issue a program, written by a professional realtor, that will analyze the cost of home ownership and help you determine whether or not you'll qualify for a loan. A real-life situation that many have faced, and your Commodore can help.

Freeing up people's time from otherwise complex or tedious tasks. That's the promise of computers. And as long as this message is muffled, the computer revolution will continue to flounder.

*Computers  
should allow  
us more time  
to do other,  
non-computer-  
related  
activities.*



*Dennis Brisson*

**Dennis Brisson**  
Editor-in-Chief

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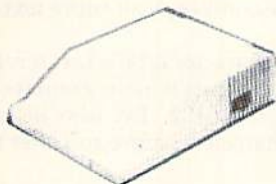
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# MAGIC

*Quickly find information concerning memory locations and RAM, and create a shutter effect on your screen.*

By TIM WALSH

## \$5AC TEXT INTO GRAPHICS 64

With my program, Text Into Graphics 64, and the SYS 49152 command, you can instantly copy an entire text screen to a graphics screen.

The program reads each character on the text screen and its specific character data, and copies it to the graphics screen at memory locations 8192 to 16192. I've also included a demo routine to show the characters before and after they're copied.

```
0 REM COPY TEXT TO GRAPHICS 64 - JAY TAPLIN :REM*58
1 FORJ=49152 TO 49278:READA:POKEJ,A:NEXT:A$ :REM*58
  =CHR$(13):B$=CHR$(147) :REM*237
2 DATA 169,24,141,24,208,169,59,141,17,20 :REM*148
  8,173,14,220,41,254,141,14,220 :REM*148
3 DATA 165,1,41,251,133,1,169,0,133,251,1 :REM*136
  33,253,169,4,133,252,169,32,133:REM*136
4 DATA 254,160,0,169,0,133,76,177,251,133 :REM*42
  ,75,24,6,75,38,76,6,75,38,76,6 :REM*42
5 DATA 75,38,76,165,76,105,208,133,76,177 :REM*141
  ,75,145,253,200,192,8,208,247 :REM*141
6 DATA 24,165,253,105,8,133,253,165,254,1 :REM*38
  05,0,133,254,24,165,251,105,1 :REM*38
7 DATA 133,251,165,252,105,0,133,252,201, :REM*218
  7,208,188,165,251,201,232,208 :REM*218
8 DATA 182,165,1,9,4,133,1,173,14,220,9,1 :REM*78
  ,141,14,220,96 :REM*78
10 PRINTB$ "CREATE TEXT FOR THE GRAPHICS S :REM*254
  CREEN ON(2 SPACES)THE TEXT SCREEN "; :REM*254
11 PRINT "AND WITH SYS 49152, IT(2 SPACES) :REM*61
  IS COPIED TO THE GRAPHICS SCREEN." :REM*140
12 PRINTA$A$A$A$ :REM*140
13 PRINTCHR$(145)" PRESS A KEY TO COPY SC :REM*11
  REEN":IFPEEK(197)=64THEN130 :REM*11
14 SYS49152:PRINTB$;:FORJ=1 TO 12 :REM*140
15 PRINT "PPPPPPPPPPPPPPPPPPPPPPPPPPPPPP :REM*87
  PPPPPPP";:NEXT :REM*87
```

—JAY TAPLIN, HAMPDEN, ME

## \$5AD PAUSE BUTTON 64

Pause Button 64 is designed to pause the execution of any program at the press of a key—plus pause the output of a listing to a screen or printer!

After typing in Pause Button 64 and saving it to disk, run it to activate it. To pause any operation, press the F1 key. Pressing F1 again resumes the operation. The program is

relocatable to any area in memory not occupied by another program.

```
0 REM REM PAUSE BUTTON 64 - DOUG MCMARTIN :REM*84
1 FOR I=0 TO 57:READ A:CK=CK+A:POKE 679+ :REM*232
  I,A:NEXT :REM*232
2 IF CK <> 6323 THEN PRINT "ERROR IN DATA. :REM*175
  ..":END :REM*175
3 PRINTCHR$(147)"PRESS F1 TO PAUSE & RESU :REM*81
  ME.":SYS 712 :REM*81
4 DATA 32,228,255,201,133,208,7,32,228,25 :REM*95
  5,201,133,208,249,108,160,3 :REM*95
5 DATA 234,120,173,160,3,141,20,3,173,161 :REM*48
  ,3,141,21,3,88,96,173,20,3 :REM*48
6 DATA 141,160,3,173,21,3,141,161,3,120,1 :REM*142
  69,167,141,20,3,169,2,141,21 :REM*142
7 DATA 3,88,96 :REM*245
```

—DOUG MCMARTIN, GREEN VILLAGE, NJ

## \$5AE ZPAGER 64

When using the FRE function (PRINT FRE(0)) to see how much free RAM is remaining on the C-64, you see a negative number. To alleviate this problem, I wrote ZPager 64. Not only does it operate concurrently with most Basic programs, it also does a lot more than just report the actual amount of free RAM.

ZPager works in both Direct and Program modes. After activating ZPager 64, entering SYS 820 gives you the following information concerning memory locations and RAM:

TXTTAB—Start of Basic text memory  
VARTAB—Beginning of Basic variables  
ARYTAB—Beginning of arrays  
STREND—The end of arrays+1  
FRETOP—Bottom of string memory  
FRESPC—Utility string pointer  
MEMSIZ—Highest Basic address  
FREE—Amount of unused RAM remaining

```
0 REM ZPAGER 64 - MICHAEL MYERS :REM*118
1 FOR T=820 TO 980:READ D:POKE T,D:CK=CK+ :REM*13
  D:NEXT :REM*13
2 IF CK <> 14451 THEN PRINT "ERROR IN DATA :REM*178
  ...":END :REM*178
3 PRINTCHR$(147)"Z PAGER ACTIVE":PRINT "EN :REM*42
  TER SYS 820 TO ACTIVATE" :REM*42
4 DATA 32,125,179,169,0,133,251,169,141,3 :REM*245
  2,114,3,169,150,32,114,3,169 :REM*245
5 DATA 159,32,114,3,169,168,32,114,3,169, :REM*64
  177,32,114,3,169,186,32,114,3 :REM*64
```

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## MAGIC

```
60 DATA 169,195,32,114,3,169,204,160,3,32,
  30,171,56,165,51,229,49,170 :REM*148
70 DATA 165,52,229,50,184,80,18,160,3,32,3
  0,171,164,251,230,251,230,251 :REM*187
80 DATA 185,43,0,170,185,44,0,32,205,189,1
  69,13,32,210,255,96,84,88,84 :REM*207
90 DATA 84,65,66,58,32,0,65,82,89,84,65,66
  ,58,32,0,86,65,82,84,65,66,58 :REM*16
100 DATA 32,0,83,84,82,69,78,68,58,32,0,70
  ,82,69,84,79,80,58,32,0,70,82 :REM*223
110 DATA 69,83,80,67,58,32,0,77,69,77,83,7
  3,90,58,32,0,70,82,69,69,32,32 :REM*35
120 DATA 58,32,0 :REM*155
```

—MICHAEL MYERS, BEARDSTOWN, IL

### \$5AF MORE 1581 HIDDEN MESSAGES

Magic trick \$59F in the August/September 1990 issue of *RUN* revealed two hidden messages buried in the Commodore 1581 disk drive's ROM. My program, More 1581 Messages, which works in both 64 and 128 modes, reveals that there are three other messages at locations \$DC01, \$D00D and \$D549, respectively. The last two messages are a tribute to the smaller size and increased efficiency of the 1581's DOS.

```
0 REM THREE MORE 1581 MESSAGES - HENNING V
  AHLENKAMP :REM*36
10 C=55:C$=CHR$(13):E$="{CRSR DN}":M$="M-R
  ":OPEN 1,8,15:REM CHANGE 8 TO DEVICE #
  :REM*138
20 PRINT#1,M$ CHR$(1) CHR$(C*4) CHR$(C)
  :REM*150
30 FOR I=1 TO C:GET#1,V$:M1$=M1$+V$:NEXT
  :REM*99
40 PRINT#1,M$ C$ CHR$(208) CHR$(49)
  :REM*183
50 INPUT#1,M2$ :REM*166
60 PRINT#1,M$ CHR$(73) CHR$(213) CHR$(15)
  :REM*224
70 INPUT#1,M3$ :REM*191
80 PRINT#1,M1$ C$ E$ M2$ C$ E$ M3$:REM*137
90 CLOSE1 :REM*93
```

—HENNING VAHLENKAMP, MATAWAN, NJ

### \$5B0 1571 MESSAGES FOR THE 64/128

If you don't own a 1581 disk drive, you can still find some hidden messages within your 1571. My short 1571 Messages program reveals some information about the developers of this disk drive. The second message, a copyright, is present only in version 5 of the 1571 ROM chip. Drives equipped with earlier versions of the ROM chip will not print the second message.

As with the above example, the 1571 messages can be revealed from either 64 or 128 mode.

```
0 REM 1571 SECRET MESSAGES - HENNING VAHLE
  NKAMP :REM*159
10 CR$=CHR$(13):M$="M-R":OPEN1,8,15
  :REM*222
```

```
20 PRINT#1,M$ CHR$(2)CHR$(128)CHR$(46)
  :REM*199
30 FOR I=1 TO 46 :REM*248
40 GET#1,V$:M1$=M1$+V$:NEXT :REM*25
50 PRINT#1,M$ CHR$(1)CHR$(192)CHR$(55)
  :REM*32
60 FOR I=1 TO 55 :REM*4
70 GET#1,V$:M2$=M2$+V$:NEXT :REM*109
80 PRINT CR$ M1$ M2$:CLOSE1 :REM*189
```

—HENNING VAHLENKAMP, MATAWAN, NJ

### \$5B1 COLOR SHUTTER 64

My program, Color Shutter 64, creates a shutter effect. When you run it, you'll see how the border and screen colors change at the press of a key.

Rather than simply change colors, a small animation routine "rolls" lines of color onto the screen, much like window shutters opening. The result is an effect unlike any other you've seen on a C-64. Use it to add spice to otherwise dull programs.

```
0 REM COLOR SHUTTER 64 - RICHARD PENN
  :REM*57
10 FOR T=918 TO 1015:READ D:POKE T,D:CK=CK
  +D:NEXT:POKE 955,200 :REM*42
20 IF CK<>14161 THENPRINT"ERROR IN DATA..."
  :END :REM*222
30 DATA 32,241,183,142,252,3,32,241,183,14
  2,253,3,173,32,208,141,254,3 :REM*84
40 DATA 173,33,208,141,255,3,169,0,141,14,
  220,173,18,208,201,0,208,249 :REM*194
50 DATA 169,200,141,250,3,169,1,141,251,3,
  174,254,3,172,255,3,142,32 :REM*219
60 DATA 208,140,33,208,174,250,3,234,202,2
  08,252,174,252,3,172,253,3,142 :REM*154
70 DATA 32,208,140,33,208,174,251,3,234,20
  2,208,252,238,251,3,206,250,3 :REM*64
80 DATA 208,210,169,1,141,14,220,96
  :REM*157
90 PRINTCHR$(147)TAB(6)"DYNAMIC SCREEN COL
  OR CHANGER" :REM*245
100 PRINTTAB(12)"(2 CRSR DNs)BY RICHARD PE
  NN" :REM*0
110 PRINTTAB(8)"PRESS A KEY TO CONTINUE"
  :REM*30
120 SYS 918,0,0 :REM*172
130 WAIT 198,1:GETA$:X=X+2:IF X>14 THEN X=
  0 :REM*84
140 SYS 918,X,X+1:GOTO 130 :REM*246
```

—RICHARD PENN, MONTREAL, QUEBEC, CANADA ■

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

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# NEWS AND NEW PRODUCTS

Read about a new newsletter for the C-64/128, compete in 28 different sporting events, and create animated cartoons.

By HAROLD R. BJORNSEN

## LEARN MATH

PORTLAND, ME—**Logo Math**, from Terrapin Software (400 Riverside St., Portland, ME 04103), is a complete math lab for the secondary math curriculum. It contains 14 programs to help students in grades 6–12 investigate math, and it requires the use of Terrapin Logo (not included) on the C-64. A single copy is \$39.95; a site license is \$99.95.

## EXTRA! EXTRA! READ ALL ABOUT IT!

BERWYN, IL—**Micro-Bytes** is a new newsletter for the C-64 and C-128. It offers several features, including Tech Trek, for hackers; The Joy of Gaming, which lists hints, tips and new products for game lovers; Q&A, a question-and-answer column; Editor's Notes, where the editor speaks out; geoBytes, an update on GEOS; plus several other sections. The newsletter is published quarterly, and each issue costs \$2. Subscriptions are also available. For more information, send an SASE to Micro-Bytes, 2648 S. Kenilworth, Berwyn, IL 60402.

## 28 IN ONE

REDWOOD CITY, CA—Epyx (PO Box 8020, Redwood City, CA 94063) is releasing its **Epyx Game Series** in one package for the C-64. The series consists of California Games (with such events as Skateboarding and BMX Biking), World Games (which includes Caber Tossing and Sumo Wrestling), Summer Games II (with sports like Kayaking and Fencing) and Winter Games (Biathlon Skiing and Bobsledding). The package contains 28 different events and is available for a limited time only. \$34.95.

## WHAT WORD DESCRIBES THIS PICTURE?

SAN RAFAEL, CA—Broderbund Software (17 Paul Drive, San Rafael, CA 94903) has released the board game, **Pictionary**, for the C-64. The game is played by drawing (either by computer or human) a picture on the screen, and then guess-



Can you identify this bird? Guessing is part of the game in Pictionary.

ing the word it represents. One to four players or two to four teams may play at one time. The package retails for \$29.95.

## FIND THE PRISM OF HEHUETOTOL

SAN MATEO, CA—In **Questmaster, The Prism of Hehuetotol**, you must find the crystal prism of Hehuetotol, a vital piece that will help conquer the evil lord Colnar. Your adventure begins in a magical world, with over 100 original pictures and over 30 animated scenes. Of course, you must battle an assortment of ferocious foes and get help from friendly characters. It's available for the C-64 for \$34.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404.

## A NEW PBS SERIES

SAN RAFAEL, CA—Broderbund Software, WGBH Boston and WQED Pittsburgh are developing a game show for the Public Broadcasting System based on Broderbund's adventure detective-chase computer game, *Where in the World Is Carmen Sandiego?*. The television program is planned for national broadcast on PBS in the fall of 1991, as a Monday through Friday half-hour game show that will promote geographical literacy.

"This is the first time a software character has been used as a basis for a television game program," said Ed Auer, Broderbund's president. "The Carmen Sandiego series fits naturally with pub-

lic television.... I think television audiences will feel challenged to outguess the contestants."

Three in-studio teams of contestants will race to recover an exotic treasure swiped by the infamous Carmen Sandiego, then try to capture Carmen herself. To ferret out Carmen and the loot, the detective teams must compete by answering geography-related questions and deducing locations from clues disclosed on the electronic game board.

## MAKE MENUS, INTROS, ETC.

MEDFORD, OR—AccuTone Productions (36 Myers Court, Medford, OR 97501) introduces **Screen-Pro**, a screen and animation production system for the C-64. With it, you can create menus, displays, intros, game backgrounds, cartoons, video credits, and so on. The system's many features include the ability to create animation with up to 34 successive screen frames or with up to 17 frames, using full-color and color mode combinations. \$24.95.

## JOYSTICK STAND

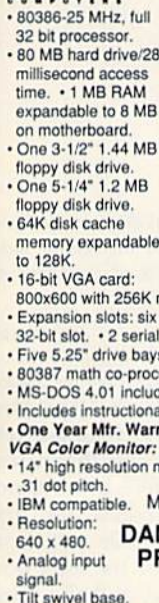
WARWICK, RI—**The Stik-Gripper Total Control Stand** is a three-piece plastic stand that you can mount your joystick on and place on your chair. Putting your legs over the base of the stand holds it in position, while your joystick is clamped in front of you, right where you need it. It's available for \$19.99. Duggan DeZign Inc., 300 Quaker Lane, Suite 7, Warwick, RI 02886.

## C-128 FINANCES

LILBURN, GA—Bremer Systems (4242 Collie Court, Lilburn, GA 30247), a newly formed company dedicated to the development of C-128 software, introduces **System 6**, a complete system for the management and control of personal finances. The 80-column, totally menu-driven program balances all accounts, lets you budget expenses and forecast income, and automatically performs all accounting functions. \$39.95 plus \$4 s/h. ■

## INTERNATIONAL, INC.

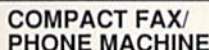
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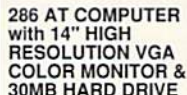
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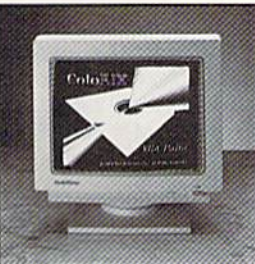
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# MAIL RUN

*A 64-produced newsletter wins first prize. And, C-64 software to match power of PC software?*

## BLOWING AWAY THE COMPETITION

We publish the official newsletter of the National Association of Rocketry, Headquarters Astro-Modeling, *ZOG Forty-Three*. It is written on a C-64, using GEOS 2.0, geoPublish and a 1541-II disk drive. The master copy of the newsletter is printed out from a Star Micronics NX-1000C printer.

Our newsletter was recently selected by the National Association of Rocketry to receive the Rockwell International Trophy for best newsletter for the 1989-1990 contest year. *ZOG* was up against newsletters from across the country. Many were published on IBMs, Apples and other brands of computers. Some were printed on laser printers, some used offset printing. Yet, with all of this, we came out on top. I think this says a lot about our little computer.

—ROBERT W. AUSTIN  
WASHINGTON, DC

## THE C-64 AND THE GENLOCK

I am an independent video consultant who designs video equipment. Recently, a customer asked me to design an interlace-genlock box (a device for capturing images) for the 64C. For the customer's application, this made more sense than an Amiga with genlock. I completed the original prototype to my customer's specifications and later added VCR input with overlay capability.

I am considering offering the 64C interlace-genlock box as a product. It would have to sell for about \$700 built and tested, or about \$400 as a kit.

However, first I need some marketing input from your readers concerning the following: Does anyone else have a need to obtain legal, broadcastable NTSC video from the 64? Is there a need to synchronously mix the 64's output with other video sources? Is this product already available elsewhere? Aside from current computer prices, are there any other advantages of a 64 with genlock over an Amiga with genlock?

I'd appreciate any comments. Read-

ers can write to me at 9100 West Evans Creek Rd., Rouge River, OR 97537, or phone me at 503-582-4137.

—BILL HERZOG  
ROGUE RIVER, OR

## MATCHING PC POWER

Clive Electronics has decided to reestablish interest in the C-64 by developing a new line of software that will include word processing, desktop publishing, spreadsheet and database programs that match the power found only on software for IBM-compatible PCs.

The software will be designed for use with a hard drive, accelerator cartridge and the 512K expansion unit. To help us make decisions on features to incorporate in the software, we would like your readers to drop us a line at Clive Electronics, 2936 34th Ave. S., Minneapolis, MN 55406-1708. We cannot, however, answer individual letters.

—KENNETH CLIVE  
MINNEAPOLIS, MN

## COMMODORE CLINIC BOO-BOOS

In your answer to Evelyn Babineau's question in *Commodore Clinic* (*RUN*, June/July 1990) about producing a newsletter on the C-64, Ellen Rule stated that she should start small and paste pictures on a newsletter printed with a word processor. This is insane! As my college computer science instructor is fond of saying, "Don't reinvent the wheel." To tell her to do something this primitive on a 64 is absolutely ludicrous, because Springboard Software produced a fabulous program for making magnificent newsletters complete with graphics. It's called *Newsroom* and was a best-seller. So, please do some research for these novices instead of telling them to start small.

—JON BECKMON  
JEROME, ID

*The two publishing programs we mentioned, PaperClip Publisher and geoPublish, are much more readily available than is Newsroom. However, you're absolutely cor-*

*rect. Newsroom is just what this user needs—if she can find it. At least one major mail order company has it advertised as a bargain-basement special.*

—EDITORS

Jim Timberlake of Fort Myers asked *Commodore Clinic* (March 1990) how to merge datafiles. The method you suggest is a generic process that works with many sequential files but will not work with datafiles, because the first field in the merged datafile will show an incorrect number for the total possible records in the file, and the third field will not show the correct number of records in the merged file.

A better answer is to use *DFMerge*, which was written by Mike Konshak, the author of *Datafile*, who also wrote a number of companion programs that can be used to manipulate datafiles in various ways.

I use *Datafile* and its companion programs constantly, and have found it, along with *RUN Calc*, to be the ideal combination for all my home finance recordkeeping.

—SI LABAR  
BETHLEHEM, PA

## S.A.M. SPEAKS

I was a ventriloquist for three years, but swollen joints and tendon problems stopped me from going any further.

I am currently trying to find a Software Automatic Mouth (S.A.M.) program that I can use on my C-64 to speak words, speeches, sentences, songs, games and other programs, and to change voices. By mixing the computer's voices and my ventriloquial experience, I feel that I can help children through storytelling on cassettes.

—DAVID SPAULDING  
MARIETTA, NY

*We suggest that you contact Busy Bee Software (PO Box 2959, Lompoc, CA 93438) for a copy of their BB Talker program, which includes S.A.M.*

—EDITORS ■

# EXPERIENCE THE POWER

In our previous ads you saw the great comments that versions 1, 2 and 3 of SUPER SNAPSHOT received from various North American reviewers. And with V4 it was more of the same except the comments took on an international tone. For example....

"...a joy to work with. ....I highly recommend it."

Eric Hoyroyd, Sept., 1989  
Australian Commodore and Amiga Review

"I personally liked the facilities that Super Snapshot gave me, and will no doubt use it regularly."

S Garton, April 1989  
YOUR COMMODORE (England)

"This cartridge just keeps getting better with every release. There's nothing else that can even touch it."

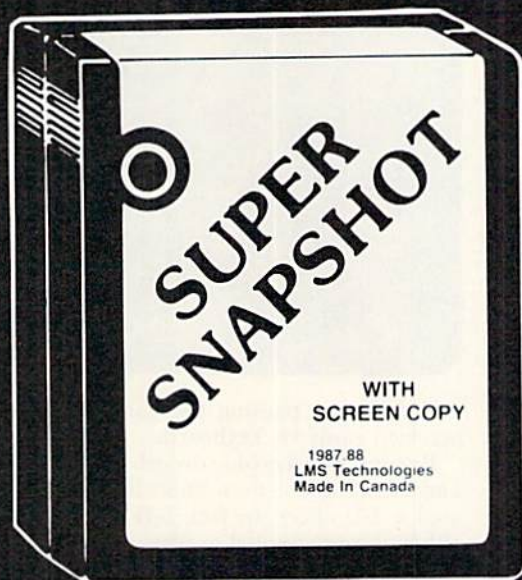
INFO March/April 1989

We were happy to receive such acclaim; but YOU wanted more. So much more that the memory required far exceeded any of the current cartridges available.

To us at LMS, the solution was obvious...we had to double the memory of our cartridge. This meant a whole new hardware design. That's right, SUPER SNAPSHOT now contains an incredible 64K rom and 8K ram combination. NO OTHER CARTRIDGE IN THE WORLD OFFERS THIS MUCH POWER!

Buying 2 or 3 competitive cartridges would still not give you all of the features listed on the right!

► Version 1, 2, 3 and 4 owners may upgrade to version 5 for \$30.00 CALL US ► C128 disable switch or 64 reset switch, add \$8.00



## SUPER SNAPSHOT SLIDESHOW CREATOR PLUS

Our popular SLIDESHOW CREATOR has also been enhanced! Many new features make this utility even more versatile and fun. Add new fonts by using the font files captured using our CHARACTER SET MONITOR. There are also more display effects, an editor screen and you can even add sound to your custom slideshows! The sound can be files generated by our SOUND SAMPLE MONITOR, any of the popular sid player files or you can even convert Amiga IFF files into 64 format! Menu driven and easy to use.

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► All features available at the press of a button ► Works with all 64 (C) and 128 (D) ► Compatible with 1700/64/50 REU ► Archive any memory resident program into 1 file ► Save 7x faster and load 15x faster on the 1541, 71 and 81. Speeds of up to 25x faster when using TURBO\*25 ► Super DOS wedge ► GAME MASTER menu with sprite killer, infinite lives generator and joystick port swapper ► Programmable function keys ► Sprite monitor ► Character set monitor ► Boot sector support ► Sound sample monitor ► 300/1200/2400 terminal program (40/80 column) ► SCREEN-COPY now loads or saves from/to disk in more graphic formats and dumps to printer in 16 gray scales or COLOR with the Star Rainbow or Epson JX-80 ► Improved full featured m/l monitor that DOES NOT CORRUPT MEMORY. Interrupt, examine and resume any running program ► Drive mon ► BASIC PLUS with 15 new basic commands ► File Management System - scratch, unscratch, rename or adjust skew. Includes our 1 or 2 drive file copier with partition support for the 1581 ► Fast disk copiers, 1 or 2 drives ► OUR FILE COPIER, DISK COPIERS and NIBBLER MAKE FULL USE OF THE REU's ► Sequential file reader ► 24 hr. BBS support ► Utility disk ► Plus much more including 150+ free Kracker Jax parameters

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# SOFTWARE GALLERY

December brings reviews to fulfill the Christmas wish lists of 128 owners, 3-D fans, dream analyzers and more!

By BETH S. JALA

## BEYOND THE BLACK HOLE ..... A

3-D Comes to the  
Computer Screen

Just when you thought you'd seen your last Breakout clone, along comes Beyond the Black Hole to prove, once again, that an old dog can be taught new tricks.

Unlike most other hit-the-brick games, which have a horizontally moving paddle on the bottom of the screen with the bricks on top, BTBH employs two vertically moving paddles, one on each side, with the targets in the center.

The ball is a space orb used to map and investigate a quadrant of the galaxy. Constantly moving from side to side, its direction is determined by the angle at which it hits the paddle. When the orb hovers over an object, pressing the joystick button eliminates a "brick" or effects some change upon it.

The center of the screen represents the Black Hole. In the 35 game levels, you'll discover a remarkable array of "bricks"—everything from killer tomatoes to bagels and lox. To complete some screens, you must eliminate all the objects, while other screens contain a puzzle to solve.

The program, I'm happy to say, contains both a save game and continue game feature, which makes it possible for you to complete most—if not all—of the levels.

Fuel runs down rapidly if the orb gets past a paddle and flies off the side of the screen or if a fuel pirate captures you. Successfully evading these star-like nemeses earns you a second orb. Unfortunately, maneuvering two orbs for more than a few seconds is virtually impossible.

For additional fuel, you must travel to the fuel depot and fly into one of the fuel pods, which is no easy task. Also, a fill-up costs 1000 credits and causes your paddles to shrink.

The paddles are controlled quite responsively by joystick, keyboard or mouse. Options, such as traveling to the



Take a look at level one of Beyond the Black Hole: Can you make it to 35?

fuel depot or pausing the game, are accessed easily via keyboard.

By constantly keeping the orb moving and changing size, the authors have created a 3-D effect. In fact, 3-D glasses, although not essential to play, are provided to enhance your viewing pleasure.

Another asset is a well-written booklet that includes scientific information about 3-D—its use in still photography,

motion pictures and comics—and classic 3-D photos, which can be viewed through a set of 3-D reading glasses (also furnished).

With new design elements, challenging and varied game play and excellent documentation, the makers of Beyond the Black Hole have taken something very old and, out of that, fashioned something very new. (*The Software Toolworks, 60 Leveroni Court, Novato, CA 94949. C-64/\$29.95.*)

—LEN POGGIALI  
SYRACUSE, NY

## REPORT CARD

### A Superb!

An exceptional program that outshines all others.

### B Good.

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

### C Average.

Lives up to its billing. No major hassles or disappointments here.

### D Poor.

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

### E Failure.

Many problems; should be deep-sixed!

## WEIRD DREAMS ..... B+

Try Interpreting  
This Dream!

Perhaps the best way to describe Weird Dreams is to say that it is the product of a fevered imagination. Still, that only hints at the game's absurdities and doesn't reveal any of its wit and charm. Furthermore, that might not cause you to rush out and purchase this game, which is something you should do, posthaste.

Weird Dreams is a British import that amply demonstrates the differences between British and American humor. The action is of life and death importance, but the course through which you must navigate is odd, even by British standards.

A lot of the preliminary action takes ▶

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place in the well-written novella that accompanies the game. The real action, however, starts when you boot the game and find yourself, in your pj's, trapped at the bottom of a huge cotton candy machine. If you manage to escape, you'll be attacked by a giant killer bee. And if you get past the bee, you'll land in a house of mirrors that leads you to a desert (complete with flying fish), a rose garden (with man-eating roses), or back into the cotton candy machine.

Fear not, however, for you're provided with weapons: a stick, an electric eel or one of those flying fish. You'll also be menaced by quicksand, two-legged totems, huge Easter Island-like heads, a ballerina and an enormous brain with one eye. In addition, you must wend your way through an oversized piano, grandfather clock, the fairgrounds, a swamp and the aforementioned desert. That's just for starters!

A clue book is provided with the software. Each clue has a dollar amount attached to it, and you are honor-bound to keep track of how much you spend in your attempt to survive this journey. Upon completion of the game, you add up the dollar amounts to determine the degree of your psychosis. The outcome can range from "Hopelessly well-adjusted" (\$0-\$50) to "Shock treatments mandatory. Could you please pay your bill in advance?" (\$995 and up).

If all this sounds just a mite bizarre, it certainly is, but keep in mind the title of this madcap little jaunt through the id. Offbeat does not begin to describe this British import, and I guarantee that you'll feel more than just a tad silly thrashing the head-biting totems with a fish. Still, it's all in good fun, and the life you save will be your own. So don't wait, pick this one up, and have a *Weird Dream* of your own. (MicroPlay; distributed by MicroProse Software, 180 Lakefront Drive, Hunt Valley, MD 21030. C-64/\$29.95.)

—BOB SODARO  
FAIRFIELD, CT

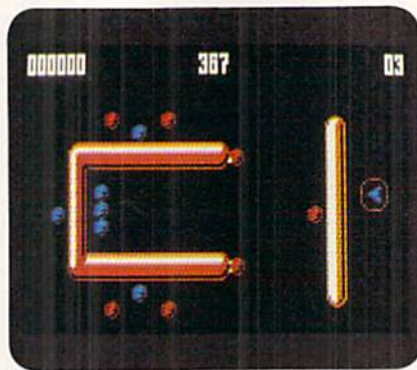
## THE GAME OF HARMONY .... B+

*Remaining Calm is the  
Challenge of This  
New Age Arcade Game*

The Game of Harmony is reminiscent of many early arcade games. It's easy to learn, difficult to master and wonderfully addictive. Where Harmony differs from the other arcade offerings,

however, is in its nonviolent approach. Instead of recklessly blasting away at your enemies with a laser pistol, your goal in Harmony is to clear each screen by bringing similarly colored floating spheres together. As the spheres disappear, they create synergy and help to "harmonize" the current level.

Each of Harmony's 50 levels presents a different configuration of pulsating spheres for you to harmonize. You push the colored spheres around with your own joystick-controlled sphere, called a seeker. The seeker is a lot like an un-



Try to "harmonize" this level in *The Game of Harmony*.

armed version of the spaceship from the arcade favorite, Asteroids.

As you play Harmony, the rate at which the colored spheres pulsate increases. If they're not harmonized within a short time, they explode and, in the process, drain energy from your seeker. To complicate matters, dissimilar spheres are often tied to one another or to your seeker by elastic connectors. In addition, many levels have colorful barriers that must be circumnavigated. Fortunately, all spheres, including your seeker, can leave one side of the screen and wrap to the opposite side.

Bringing different colored spheres together creates small spheres called pods which can be gobbled up with your seeker to increase its energy supply. If you fail to reach the pods in time, they grow into full-size spheres, which must be harmonized in the usual manner.

Thus, while it's usually a bad idea to push dissimilar spheres into one another, sometimes you can rack up a lot of points and maintain a healthy energy supply by creating as many pods as possible and gobbling them as fast as you can.

Harmony can be played by one or two players using joysticks, the keyboard or some combination of the two. In the Two-Player mode, each player controls his own seeker and must co-

operate with his partner to harmonize the level.

For those of you who have enough pressure in your lives, Harmony even offers a Mantra mode which lets you casually work your way through all 50 levels with no time limits or energy supplies to worry about, and spheres that are just too pooped to pulsate. (*Accolade*, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128. C-64/\$29.95.)

—BOB GUERRA  
CHARLESTOWN, MA

## MAIDSTONE QUEST ..... B

*Here's an Exclusive  
Graphic Adventure  
For 128 Owners*

Maidstone Quest is that rarest of commodities—a game designed specifically for the Commodore 128D or for the earlier C-128 with 64K RAM upgrade. In addition, it was written in Basic 8 and may be viewed only on an 80-column RGB color monitor.

While it was courageous of Silvasoft to market a product whose hardware requirements will limit sales, the game itself is standard fare. Billed as an animated graphic adventure, Maidstone Quest sends you through 28 levels of danger in search of an evil necromancer and the stone he has purloined.

As you journey forth, you'll discover weapons, keys, scrolls, secret messages, potions and gold. You'll also encounter helpful and bloodthirsty creatures. The former will supply information in return for a reward, while the latter will do their best to kill you.

Dispatching most of your foes is an easy matter, assuming you have weapons available in your inventory. You simply select Fight from the menu and choose either a knife, ax or sword. Then you sit back and watch as Rodney, your on-screen figure, does the dirty deed. Without the proper weapon, you suffer defeat and the loss of health points or your life.

Many obstacles won't be overcome by brute force. There are doors and chests to unlock, spells to cast and ancient runes to decipher. Some problems may be solved only by combining certain items in the proper order.

Most commands are chosen by joystick or mouse. Selecting the appropriate direction on your on-screen compass and pressing the joystick or mouse button moves your character.

## AT A GLANCE

Other options, including Search, Examine, Drop, Take and Spellcast are accessed from a pair of scrolls, often in combination with an object from the inventory area. You can save to disk as many as ten games in progress.

The musical score is melodic and evokes the atmosphere of the game's medieval, cavernous setting. Graphics are distinct and varied, and animation is smooth and nicely paced. To the author's credit, the game plays more like a machine language program than one written in Basic.

Despite the mundane theme and the rudimentary nature of combat, Maidstone Quest will provide adventure lovers with many hours of enjoyment mapping its extensive world, searching for treasure and discovering solutions to problems. Silvasoft's maiden quest on the C-128 was worth the effort. (Silvasoft, PO Box 1006, Charlotte, VT 05445. C-64/\$25 plus \$3.50 shipping and handling.)

—LEN POGGIALI  
SYRACUSE, NY

## PRO TENNIS TOUR ..... C—

Calling Pro Tennis Tour the "ultimate tennis simulation" goes beyond the bounds of industry hyperbole. Unfortunately, the game is more notable for what it lacks than for what it contains.

Gone are the player and rank editors, the table of match results, the instant replays and the time penalties—all listed in the manual but missing from the C-64 version. The most critical omission is the lack of a save/load option: To complete this tour in one sitting requires an enormous time commitment.

Pro Tennis' music and sound effects are minimal. Animation is graceful, but the graphics are unclear. Against the computer, you control the player in the foreground, but unlike many similar programs, players don't switch sides between games.

You execute most shots, including the net shot, volley and down-the-line shot,

by correctly positioning your player and pressing the firebutton. Smashes and lobs require joystick movement after the button is pushed. Because of the speed at which the computer opponent hits the ball, it will take some time before most human players are able to set up these returns successfully.

Your computer opponents all play a similar game within each difficulty level. Also, despite reports to the contrary, it is easy to ace on nearly every serve. Exploiting this programming flaw makes victory possible, even against the most formidable adversary.

As a back-and-forth test of hand-eye coordination, this game serves nicely. As an "ultimate tennis simulation," however, Pro Tennis Tour doesn't even clear the net. (UBI Soft; distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/\$29.95.)

—LEN POGGIALI ■

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# HOW TO MAKE \$\$\$ WITH YOUR COMMODORE

INSIDE EVERY COMMODORE there are greenbacks longing to be free. Getting them out requires some thought and work, but over the years, your computer system can pay part, or even all, of its cost—and then some.

If you want to generate some cash with your computer, don't set your goals too high, or you'll quickly be discouraged. There's a difference between making a living and earning extra spending money. You might make enough to buy a new program or a second disk drive, but it's unlikely you'll cover a mortgage payment on your first try.

To come up with an idea for making money with your computer, think about what you like to do with it. What are your computing strong points? Do you know how to fix computers? Or are you better at using them? Can you teach others to use a computer?

## TELL ME ABOUT IT

To some, the Commodore operating system is tricky to learn and use. If you're an experienced user, you might be able to sell your knowledge to others so they can use their computer to the fullest. If you want to help new users, you might print up leaflets that describe your teaching offerings and ask your local Commodore dealer if you could leave them at the store as handouts.

Prospective students can also be found at the nearest Commodore users' group. Most group members are willing to provide free advice to novices, but some new users are glad to pay for private or semiprivate lessons.

## IN A FIX

Randall Lipham, past president of a Commodore

users' group in central Florida, said he's made a few dollars by picking up computers at second-hand shops or bargain stores. After he's cleaned or fixed them, he sells them for a profit. Cleaning is important, he noted, because "you don't get top dollar for a dirty computer."

Amateur radio and electronics flea markets are another source of used machines. "These are also good places to find low prices on cast-off software," added Lipham. "What's cast off by one user is another user's find. To a new user, old software is new."

## FOLLOWING ORDERS

Trading goods for services is just as good as making money for Ellen Rule, one of *RUN's* contributing editors. "I make money with my Commodore by using it for freelance writing," Rule said. "I also keep a mailing list for a mail order company. In exchange for doing that, I get merchandise from the company."

## GETTING WITH THE PROGRAM

The important thing is to know what selling points you can offer with your knowledge of the computer.

Mark Jordan, a writer and programmer who developed the Brainstorm outline processor for the Commodore several years ago, said the programming market for the Commodore is still there. "It's not like it was when sales of the C-64 were at their peak," he said, "but Loadstar and other disk services are still looking for good programs."

Jordan said programmers can make money if they keep an eye open for potential customers. The trick here is that not all potential customers know they need a programmer. A man who laid out and painted lane marks



*"I keep a mailing list for a mail order company. In exchange... I get merchandise from the company."*

*Make your Commodore earn its keep, and earn some extra cash for yourself.*

By LONNIE BROWN

for track events was one such person, Jordan noted. "Figuring out those marks is a pretty complicated process, and one teenager developed a program to do all the math involved. It was a simple program, but it saved the man who painted the lanes and starting markers a lot of time."

The nice thing about a Commodore is that it's relatively inexpensive. (At one store, a C-64C and disk drive were priced at under \$300.) So, if you develop an application that calls for a computer, the C-64 is an obvious choice. With its user port and an interface, the Commodore can be programmed to run equipment, monitor temperatures, switch lights on or off and do other tasks.

#### ON THE DESKTOP

Money-generating jobs are in lots of places, if you just look for them. GEOS and its family of programs can assist you in a wide range of possibilities in the desktop publishing field. GEOS-created documents can be printed on a laser printer for high-quality results.

"The C-64 is doing things people never imagined it could do," said Paul Hughes. Paul and brother Peter are QuantumLink SYSOPs who keep looking for the outside of the Commodore envelope—but never seem to find it.

Paul noted that GEOS programs let the Commodore support Postscript fonts: "When people see the finished product, they say, 'You did that on a Macintosh or IBM, didn't you?'"

The desktop publishing doors are open. Restaurants might be interested in a service that provides nicely printed three-by-five cards listing daily specials, to replace the

handwritten menu notes frequently used to tell customers about the chef's offerings. GEOS can easily turn out the cards—or a redesigned menu. Showing a restaurant owner a sample of a reworked menu could lead to a sale.



*"When people see the finished product, they say, 'You did that on a Macintosh or IBM, didn't you?'"*

#### THE OLD COLLEGE TRY

While a large number of high school and college students use computers to produce their term papers, many still don't. Or they don't have the time to type from their rough, handwritten notes. A typing service, advertised on campus bulletin boards, is another way of bringing in some income.

"I do a lot of typing for professors," one woman who runs a typing service said. "Many professors I know don't want to learn how to use a computer, or they want the time to do research instead."

Typing services can also provide additional help for people who can type, but who don't have access to high-quality printers or typefaces for producing resumés. One of the best programs for creating nice-looking resumés is Xetec's Fontmaster. It's ideal for producing high-quality fonts in

various sizes. Those typefaces can really improve the resumés, term papers and other work where both content and appearance count.

#### RESEARCH AND DEVELOPMENT

Your Commodore computer can help with research work, too. In the time it takes to find a book in a library, a computer can connect to an online service, search out articles mentioning a specific subject, download the material and send it to a printer. Starting a research service is another way to make your computer system pay for itself. ▶

The Fontmaster program mentioned above (available for both the C-64 and 128) is also good for developing forms and invoices for businesses. In addition, GEOS paint programs can turn out professional-looking forms that can be printed on a laser printer.

Developing applications for GEOS is another possible source of revenue. Massachusetts programmer Joe Buckley has built up a small, one-man company by developing GEOS utility programs. And Arizona's Susan Lamb is noted for the disks of GEOS clip art she's created.

### NO NEWS IS BAD NEWS

Producing a regular newsletter for your church or club is a money-making possibility. Some groups still depend on a typewriter and copy machine to make their newsletters, and the Commodore can make an improvement on those. Of course, nonprofit organizations may not be willing to pay more than expenses, expecting you to volunteer your services.

If they're willing to pay, fine. That's how money is made. Remember: When you're trying to make money with your computer, the only things you have to sell are your time and your talent. Give either away, and you lose money.

### THE PERSONAL TOUCH

Russell Sharpe sells his time so others can save theirs. "I make cards, banners, posters and anything else my callers want," said Sharpe, who lives near Atlanta. "I use high-quality colored paper and colored ribbons to turn out attractive finished products. Sure, they're done on a computer, but my work is personalized." A birthday card has the recipient's name and age or other personal information printed on it, he added. "It's something none of the big greeting card companies can do. That's the appeal of it."

### TAKE A CHANCE ON IT

Keeping lottery information in spreadsheet form can come in handy. People will buy lists of past winning numbers or compilations of "hot" or "cold" number lists. Several programs are available for the Commodore to keep track of past winning number sets and project which numbers are "due" for a hit. Use a desktop publishing program to give a polished look to the listings. A clerk at a lottery outlet may be willing to help sell the finished tip sheets.

### TAX YOURSELF

People always need help with taxes. Sometimes, it's best that they seek advice from a professional, but they might need some assistance in finding a program that can help them do their taxes. Or they might need help in learning how to use one.

A few months before the April 15th filing deadline would be a good time to offer a freelance article to a mag-

azine or the local newspaper on what's available for tax preparation.

If you don't want to do taxes, you might want to design spreadsheets for keeping track of income and expenses during the year. Many accountants charge by the hour for tax preparation, and it's quicker for them to search a spreadsheet for figures than it is for them to dig through a shoe box filled with receipts. A well-organized spreadsheet can save money. Even if you don't convince others to use your product, you should be able to shave some off your tax bill through good recordkeeping.

### GARAGE GAME ROOM

As mentioned earlier, time is valuable. One inventive (some might say "Scrooge-like") Commodore owner charges neighborhood kids 25 cents an hour for use of the computer. After all, not all the great games in the world are available for the television game machines that some computer owners sneeringly call "lobotomized computers." So the kids gladly pay (costs less than an arcade machine), and when the end of the month rolls around, there's money in the till to buy a new computer game—and renew the attraction to visit the garage/computer room and pay for the privilege.

### SPREAD THE WORD

The Hughes brothers (those GEOS mavens mentioned earlier) say that the biggest moneymaker you can purchase for a Commodore is a word processor. "Get a good one," advised Paul Hughes. "You can do a lot with a word processor, such as write an article for a computer magazine or do some typing. The main way to make

money with a Commodore is to perform a needed service for someone else."

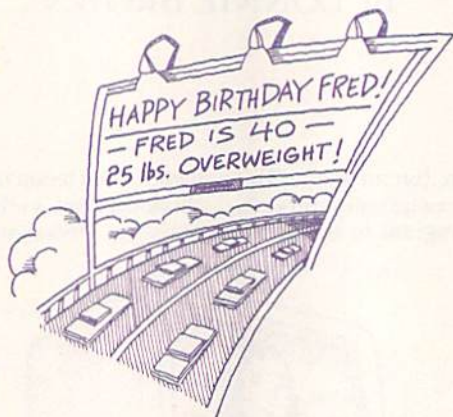
He added that if you're working for someone who has an IBM-compatible computer, programs like Big Blue Reader can transfer text files from C-64 to IBM format.

Those word processors can really come in handy. Robert M. Mayo of Baton Rouge, Louisiana, recently wrote to say that he uses a word processor as a datafile for keeping genealogy records. "It doesn't restrict me to fixed-dimension fields, and by using the Search function, I can quickly find any item that's in the file." Mayo also earned \$5 for sending his word processor tip to RUN's ProTips column.

As I said, you might not get rich using your Commodore, but if you keep at it, the computer can pay its own way. ■

*Editor's note: We're sure that there are plenty of RUN readers making money by employing their Commodores in inventive ways. If you're one of them, we'd like to hear from you.*

*Lonnie Brown uses his Commodore to make extra cash by frequently contributing articles and reviews to RUN.*



*Birthday cards can be personalized to include the recipient's name, age and other personal information.*



# 1990

## Holiday Shopping Guide

**W**ith the holidays fast approaching, you're probably asking the same question you asked last year: "What do I buy for the Commodore user who has everything?"

The C-64 is approaching its eighth birthday, and most users already have monitors, printers, modems, additional disk drives and shelves bulging with applications and game programs. But there is hope for the gift giver. Following is a list of nifty gifts you can give to the computerist who has "everything." Some of these gifts may seem a bit untraditional, but remember that innovation is the key to gift giving. I've

grouped the ideas according to price, from stocking stuffers to those that fit under the tree. Refer to Table 1 for the manufacturers' addresses.

### STOCKING STUFFERS— FOR \$10 OR LESS

Some things still cost less than \$10: a box of floppy disks, a disk drive cleaning kit, a furry little 1351 mouse cover. But why not give a stocking stuffer that will knock your loved one's socks off?

*Dreaming of GENie.* For instance, you could add GENie to his or her telecommunications assets. The General Electric Network for Information Ex-

change recently announced its Star\*Services. For \$4.95 a month and no connect charges, modem owners can now enjoy more than 100 GENie services, including education, games, news and special-interest roundtables. In addition, non-prime-time 300-, 1200- and 2400-baud access to GENie's software libraries, chat lines, interactive games and other premium services has been reduced from \$10 to \$6 an hour. To top that off, the \$29.95 sign-up fee has also been discontinued.

*The Missing Link.* For any modem owner who isn't already on Quantum-Link, a subscription to this premier forum for Commodore telecommunications is a must. Q-Link is truly a gift that keeps on giving; for only \$9.95 a month, it offers access to hundreds of services, including encyclopedias, massive software libraries and the famous Q-Link People Connection.

*Making the Connection.* Speaking of telecommunications, you can't get online without a modem. So, as luck would have it, RUN is offering a starter kit that makes it easy to enter the exciting world of telecommunications. You'll receive a Commodore 1660 modem (300 baud), the cable to connect to your phone line, all the software you need, as well as introductory free time on Q-Link. All this for only \$10!

*Music Masters.* Digital Arts & Technologies, a leading retailer of MIDI software, offers a definitive resource for the computer music lover in your family. With a \$5 subscription, he or she will receive the *Musician's Music Software Catalog*, an annual 96-page guide that provides comprehensive overviews of current music software and MIDI products for all popular computers, including the 64 and 128.

TH RUN Ed Lou, I have a question  
TH RUN Ed concerning RUN Paint.  
TH RUN Ed Is it available for  
downloading  
TH RUN Ed from Q-Link?  
LouHallaace Yes, it is available  
LouHallaace in the RUN area.  
LouHallaace It is a premium  
download, which means  
LouHallaace your account will be charged  
LouHallaace a small fee.



For \$10 or less, you might give  
a subscription to GENie or  
Q-Link, or a Commodore 1660  
modem from RUN.

By JOHN RYAN



*Stuck on an idea? You might consider one of these suggestions.*

*Tidings of Joy(sticks).* The lifespan of a joystick is probably less than that of your average Christmas lightbulb or alkaline battery. If you have a heavy-duty arcade fanatic on your gift list, you may want to consider either the Magnum or Warrior joystick. Both retail for \$7.95 and come in a pistol-grip configuration with bubble switches.

#### **SUPER STOCKING STUFFERS—FOR UP TO \$50**

*Touché, Amiga!* Tired of hearing about the Amiga's high resolution and nifty colors? Check out I Paint (\$39.95) for the C-128. I Paint invokes the 128's little known Interlace mode, similar to that on the Amiga. This mode provides an effective resolution of 640x400 pixels and an expanded palette of thousands of apparent colors. A 64K VDC chip is required.

*More Than 20 Questions.* If you're weary of your spouse asking questions about computers, why not give him or her Voyager Mindtool's 500 C-128 Questions Answered (\$16.95). This all-new guidebook is the definitive reference for almost any question about the C-128. Subjects range from programming to software applications to simple hardware maintenance.

*Sticky Business.* The ReMarkAble Label System (\$39.95) is a great way to solve a loved one's disk labeling headache. The RMA System includes 100 white and 100 color-coded thin, adhesive plastic labels and a special marker. Marked labels can be easily erased for disk updates.

*Bug-Eyed.* Eyestrain from too much time at the computer can cause headaches and irritability. The Eye-Mate Optical Massage Device may help relieve stress around the eyes after prolonged monitor use. This \$39.95 unit

is worn like eyeglasses. Tiny, battery-operated dynamos massage nine different areas around the eyes.

*Stereo SID.* The SID Symphony Stereo Cartridge (\$35) makes a superb gift for the music lover. This small black box plugs directly into the expansion port of the C-64 or C-128, adding three voices to the SID chip and making stereo playback possible. The cartridge is powered directly from the user port, is fully programmable and is compatible with Sidplayer and the Sidplayer files found on most commercial networks and BBSs.

#### **A HEALTHY NEW YEAR—FOR LESS THAN \$100**

*A Good Lead.* You can protect a loved one from the possibly cancer-causing radiation emitted by video monitors with the Maxi-Lite video display apron. Selling for \$99, this lightweight apron is lined with .33 millimeters of lead to absorb stray electromagnetic energy.

*Plus and Minus.* Along with the apron, why not buy the Screen E.L.F. (\$99.95)? This small device sits atop the video monitor and generates a steady stream of negative ions within

a six-foot radius. These ions counter harmful positive ions that can be generated by the high voltage of video display devices. If nothing else, with the apron, the E.L.F. and the Eye-Mate glasses, you'll be set for the next shuttle launch.

*In a Jiff.* If you've ever watched someone age before your eyes while loading a file with a 1541 disk drive, consider buying them the JiffyDOS disk drive enhancement system from Creative Micro Designs (\$59.95 for the C-64, \$69.95 for the C-128). JiffyDOS is a hardware and software combination that not only greatly improves disk drive performance, but places screen dump functions, file-copy routines and DOS-wedge commands at your fingertips.

#### **SANTA REALLY DELIVERS—FOR OVER \$100**

If you can spend more than \$100, you may want to consider buying premium gifts that are sure to please even the most discriminating Commodore user.

*Socket to 'Em.* Anyone with a desk full of disk drives, printers and other peripherals can tell you that wall sockets and power buttons always seem to



The Screen E.L.F., the SID Symphony Stereo Cartridge and the Eye-Mate Optical Massage Device can be under the tree for less than \$100 each.

be in the wrong place. Solve this problem for friend or family with the Curtis Command Center. At \$149.95, this sleek system offers push-button control for up to five peripherals, making it easy to arrange an entire computer system. With plenty of socket space, plus a high level of power and telephone-line surge protection, this is a high-voltage gift for any computer enthusiast.

**Data phones.** Some lucky person on your list can be the first on the block to have Computerfone, a two-way telephone-to-C-64 voice digitizer and phone control unit. Operating from the computer's RS-232 interface, Computerfone accepts, digitizes, stores and transfers incoming speech. It also dials telephones and converts tone to a standard digital signal for further processing. Computerfone automates an office or home office telephone system for \$695.

**Drive Someone Crazy.** Do you have a real power user on your list this year? If so, supercharge his or her system with a Commodore-compatible hard drive from Creative Micro Designs. The HD series of drives comes in 20-, 40- and 100-megabyte configurations for \$600, \$800 and \$1300, respectively. They offer a high degree of

compatibility with most nonprotected C-64 and C-128 programs, and they're compatible with GEOS, CP/M and CMD's JiffyDOS system.

**Printer Power.** If you really want to wow your favorite power user, give him or her a Tandy LP 1000 laser printer, a high-quality dynamo with an output of six pages per minute. The standard LP 1000 configuration includes one megabyte of memory and eight fonts. It works well with GEOS, Basic 8 and RUN Script, and it can emulate Tandy's DMP 2110 printer as well as IBM's Wheelprinter and Prowriter. The unit delivers over 1500 pages per toner cartridge (replacements can be purchased at your local Radio Shack store). Suggested retail is \$2634.

So there it is, *RUN's* 1990 holiday shopping list. Armed with these suggestions, surely you can please any Commodore owner on your list—and at a price within your budget.

By the way, I've always wanted one of those fuzzy little covers for my 1351 mouse. . . ■

*John Ryan, one of RUN's contributing editors, works as an air traffic control instructor. His favorite topic is guiding airborne sleighs on cold December nights.*



A gift of a Curtis Command Center or a CMD hard drive would be a hit with any Commodore user.



**Table 1. Products and manufacturers.**

#### **GEnie**

GE Information Services  
401 North Washington St.  
Rockville, MD 20850

#### **Q-Link**

Quantum Computer Services  
8620 Westwood Center Drive  
Vienna, VA 22180

#### **Commodore Modem**

**RUN**  
80 Elm St.  
Peterborough, NH 03458

#### **Musician's Music Software Catalog**

Digital Arts & Technologies  
21 Glen Ridge Rd.  
Dept. BR  
Mahopac, NY 10541

#### **Magnum and Warrior**

Cameric  
230 5th Ave.  
New York, NY 10011

#### **I Paint and**

**500 C-128 Questions Answered**  
Voyager Mindtools  
PO Box 11578  
Minneapolis, MN 55411

#### **ReMarkable Label System**

Weber & Sons  
3468 Highway 9, RD #4  
Freehold, NJ 07728

#### **Eye-Mate Optical Massage Device**

Man Wah Corp.  
57 Erickson Drive  
Red Deer, Alberta  
Canada T4R 1X8

#### **SID Symphony Stereo Cartridge**

Dr. Evil Labs  
3885 Bohannon Drive  
Menlo Park, CA 94025

#### **Maxi-Lite**

A. D. Carroll, Inc.  
Maxi-Lite Division  
500 N. Temple Blvd.  
Tempe, PA 19560

#### **Screen E.L.F.**

Zenion Industries  
5430 Commerce Blvd.  
Rohnert Park, CA 94928

#### **JiffyDOS and HD Series Hard Drives**

Creative Micro Designs  
PO Box 646  
East Longmeadow, MA 01028

**Curtis Command Center**  
Curtis Manufacturing Co.  
30 Fitzgerald Drive  
Jaffrey, NH 03452

#### **Computerfone**

SunCoast Systems  
PO Box 7105  
Pensacola, FL 32514

#### **LP 1000**

Tandy Corp.  
1700 One Tandy Center  
Fort Worth, TX 76102

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Right now, there exist huge databases filled with information of every imaginable type. Electronic newspapers publish accurate accounts of events only minutes after they've occurred! People send and receive E-Mail (electronic mail) messages to and from each other, regardless of their physical location on the planet! People are buying and selling things, paying bills, getting college educations, and even working (called "Telecommuting") from their own homes. And this doesn't even scratch the surface of what's coming.

Why wait any longer to join the Information Revolution? Especially when Arotek has just made it so easy for you to buy today! How? By giving you easy to use high-speed modems at breakthrough prices! A modem is just a device that allows your computer to talk to other computers over ordinary phone lines. Modems come in different speeds. Right now, 2400 baud is the fastest speed that's practical for the dial-up phone system.

For the more experienced among you, the Arotek Minimodem are completely Hayes "AT" command set and are 2400 baud "ampersand command" compatible, auto-dial, auto-answer devices that auto-switch between 300, 1200, and 2400 baud for maximum communications flexibility and service compatibility. Minimodems carry built-in sound capabilities (internal speaker on the RS-232 & C64/128 versions, monitor speaker on the Amiga version) and a full array of status indicator lights.

If you're new to telecommunications, don't let the terms above throw you - it's just a technical way of saying that Minimodems will give you every feature you could ever need in modem.

The C64/128 Minimodem plugs directly into the user port on the back of your computer. The Amiga version plugs right into the serial port and comes with a built in extension cable so you'll be able to use it with an Amiga 500 or 2000 series and still be able to see the status indicator lights. The Commodore version works on ALL 64's or 128's ever made, while the Amiga version works on the 500 or the 2000/2500 series of computers. A separate RS-232 and Amiga 1000 version is also available (please call for details).

The most exciting aspect of the Minimodems is the remarkable prices! We've NEVER been able to offer this kind of sophisticated power at prices so low before! Now there's no good reason not to get involved in the Information Revolution today — and begin exploring the world of tomorrow.



Built with pride in the USA and fully guaranteed for 1 year.

Order #	Item	Price	Shipping	Total
6412	MINIMODEM-C24™ (2400B Commodore)	99.95		
6414	MINIMODEM-H24™ (2400B RS-232 w/male DB-25)	99.95		
6216	MINIMODEM-AM24™ (AMIGA 500/2000 SELF PWD)	99.95		
6212	MINIMODEM-C™ (1200B Commodore)	64.95		
6214	MINIMODEM-H™ (1200B RS-232, specify M/F)	74.95		

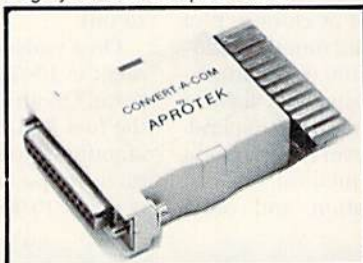
Modem shipping—Cont. US \$6.00; UPS Blue, CAN, AK, HI, APO \$10.00

## CONVERT-A-COM™

Convert your Commodore direct-connect modem for use on another computer.

Do you have or do you plan to get an Amiga, a PC or other computer? CONVERT-A-COM will allow you to use your Minimodem-C or C-24 or Commodore 16xx series modem with it. CONVERT-A-COM comes ready to use with a 25 pin "D" style female connector that will connect to the RS-232 serial port of virtually any computer. 9 pin "D" adapters, order #3009, and gender changers, order #3025/M, are also readily available through us for \$5.95 each or through your local computer store.

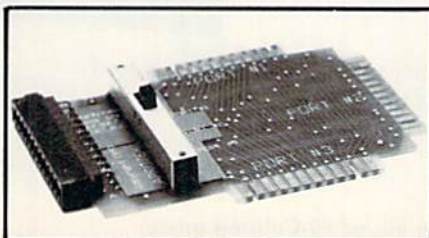
CONVERT-A-COM will convert your Arotek Minimodem-C or C-24 into a 100% Hayes compatible modem to use with your other computer. It will also work with Commodore 16xx series and Lynker types, but with their reduced Hayes command set. This unit is not usable with an Anchor 6480 type modem because of software inavailability.



ORDER #5707 ..... Only \$35.95 + \$4.00 S&H

## USER-SWITCH™

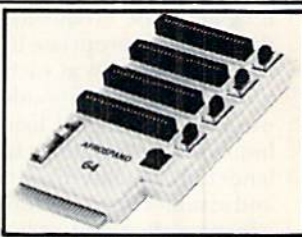
Finally, for all you C-64 & 128 owners who have more than one device that plugs into your user port, (and especially you ham operators), we have your solution. USER SWITCH is a device which will allow you to attach everything (up to 3) and simply select the one you want to use. We've designed USER SWITCH so that pins B, C, D, E, F, H, J, K, L, M, 2 & 3 are switched. This gives you maximum compatibility because virtually all user port devices use only some or all of these (All others are connected straight through.) In most cases you can put any device on any of the 3 port outputs. A few devices may be too bulky to plug into port #3, so #1 or #2 can be used for a bulky user port device.



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## The Original Aprospan-64™

Gives your Commodore 64 or 128 full expandability! This superbly designed expansion module plugs into the expansion port and gives you four switchable expansion connectors—plus fuse protection—plus a reset button! Before you buy an expander, be sure that it has a fuse to protect your computer.



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Connect and communicate with any of the popular RS-232 peripherals using your Commodore USER Port. You can now connect to printers, modems and any other RS-232 device. Comes complete with sample driver program listings. Compatible with all Commodore home computers with a USER port. 1-year warranty.

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"USER EXTENDER" — 10" Ribbon cable extender for your Commodore USER port. Order #5250 ..... \$21.95 + \$4.00 S&H

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Rogue River, OR 97537



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# Shopping for a House?

*Use this program to assess your money-borrowing qualifications—  
before you go to the bank.*



By THEODORE YONAN

**O**ne of the most difficult aspects of buying a house is shopping for the mortgage. Will a financial institution trust you to pay back \$100,000 or more? Asking will be easier if you use Prequalify 64/128 to assess your qualifications *before* you go to the lender.

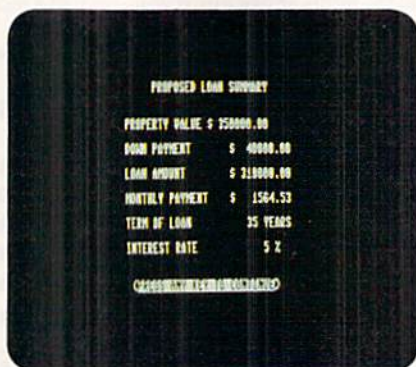
## GUIDELINES

Type in Listing 1, using *RUN's* Checksum program to look for typing errors, and save it to disk before running it. To use Prequalify, simply input the figures appropriate to your current financial situation at each prompt.

The qualification guidelines lenders use for conventional loans are simple, but exact figures differ from lender to lender. Prequalify uses typical figures and assumes that your monthly housing expenses shouldn't exceed 28 percent of your gross monthly income and, with monthly debt payments added in, shouldn't exceed 36 percent.

Refer to Table 1 to see how the guidelines are calculated. Monthly income (A) includes all your predictable income (salaries, bonuses, commissions, interest income, and so on). Monthly housing expenses (B) include payments on loan principal and interest, insurance, taxes, homeowners' association fees and assessments for special community services. Liabilities (C) include monthly payments on alimony and child support, loans, charge accounts and credit cards (including a 5 percent monthly charge against total card indebtedness), tuition, other real estate, and any other regular obligations.

Note that if your down payment is less than 10 percent of the purchase price, guideline 1 drops to 25 percent and guideline 2 to 33 percent. The smaller your down payment, the more stringent the guidelines.



**Prequalify works with the numbers you input to assess your borrowing potential.**

Also, if your down payment is less than 20 percent of the purchase price, the lender will insist that you take out private mortgage insurance (PMI) at a cost of 1–1.25 percent of the loan amount, paid up front at closing, plus 0.3–0.4 of 1 percent, paid monthly (\$25–\$33 per month on a \$100,000 loan).

Income minus housing and liability payments equals your monthly expendable income, which covers food, clothing, entertainment, medical, dental, education, transportation and other

“discretionary” expenses. It is expendable income that determines to a substantial degree your quality of life, and the VA and FHA weigh it more heavily than banks in determining qualification for a loan. A conventional loan is granted on the basis of credit worthiness and the value of the property held for security; the FHA and VA make sure you'll end up with enough cash to live decently.

After the screening to see if you qualify financially, most lenders want to check your financial, personal and employment records. Prequalify prints a checklist of such items you can review before going to your lender.

## OTHER COSTS

Assuming your loan is approved, you must have sufficient funds to cover closing costs (a down payment, points, and so on).

On a conventional loan, a down payment is 10–20 percent of the purchase price. On an FHA loan, it's 3 percent of the first \$25,000, plus 5 percent of the amount beyond \$25,000. On a VA loan, no down payment is needed if the price is equal to four times the entitlement ▶

**Table 1. Loan qualification guidelines.**

### Components:

- A. Monthly income
- B. Monthly housing expense
- C. Monthly liability (debt) payments

### Guidelines:

- 1. B divided by A not to exceed 0.28 (28 percent)
- 2. B plus C divided by A not to exceed 0.36 (36 percent)



RUN it right: C-64 or C-128 (in 40- or 80-Column mode)

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## HOUSE - SHOPPING ?

(benefits provided by the government to a specific group), but for any amount over four times the entitlement, a down payment is 25 percent.


Then there are points, each representing approximately 1 percent of the loan amount. Don't be bashful about shopping around to get the lowest percentage.

You may also have to impound escrow money to cover property taxes, mortgage insurance premiums and community service fees.

A loan origination fee may be necessary. It can range from 0.5 to 2 percent of the loan amount, so, once again, shop around.

Finally, count on other fees and

charges approaching 1-2 percent of the loan amount.

Shopping for a home will challenge your business acumen and negotiating skills. Use Prequalify 64/128 to help you play the game prudently. 

*Theodore Yonan has been in the real estate business for 14 years.*

**Listing 1. Prequalify 64/128 program. (Available on ReRUN disk. See order card facing page 48.)**

```

10 REM PREQUALIFY 64/128
20 IF PEEK(215)=128 THEN TB=22:C=2
80 IF PEEK(215)=0 OR PEEK(215)=13 THEN TB=2:C=25
40 GOTO 200
50 POKE 53265,11:RETURN:REM*162
60 POKE 53265,27:RETURN:REM*234
70 GET DE$:IF DE$="" THEN 70
80 PRINT CHR$(147):RETURN
90 FOR SPACING=1 TO V TAB:PRINT:NEXT
T:RETURN
100 REM
110 PRINT TAB(TB+3)"<{CTRL 9}PRE
SS ANY KEY TO CONTINUE{CTRL
0}>":RETURN
120 REM
130 IF V<.005 AND V>-.005 THEN V$="
.005":GOTO 170
140 V=V+.005*SGN(V):V$=STR$(V)
150 FOR J=1 TO LEN(V$):IF MID$(V$,J
,1)=". " THEN V$=LEFT$(V$,J+2)
:GOTO 170
160 NEXT J:V$=V$+"."<0>:GOTO 170
170 IF LEN(V$)<10 THEN V$=" "+V$:G
OTO 170
180 V$=" "+V$:REM*4
190 RETURN:REM*77
200 PRINT CHR$(147)CHR$(5):POKE 5
3281,0:POKE 53280,0:REM*163
210 PRINT:REM*106
220 GOSUB 190:REM*58
230 PRINT CHR$(147):GOSUB 50
240 PRINT TAB(TB+2)"PRE-QUALIFY I
NG FOR A MORTGAGE":REM*212
250 V TAB=3:GOSUB 90:REM*92
260 PRINT TAB(TB+2)"YOUR ANNUAL
INCOME":REM*230
270 PRINT:REM*166
280 PRINT TAB(TB+2)"SPOUSE'S ANN
UAL INCOME":REM*181
290 PRINT:REM*186
300 PRINT TAB(TB+2)"BONUSES/COMM
ISSIONS ":REM*83
310 PRINT:REM*206
320 PRINT TAB(TB+2)"DIVIDENDS/IN
TEREST INCOME{2 SPACES}":
REM*204
330 PRINT:REM*226
340 PRINT TAB(TB+2)"OTHER INCOME
(NET) ":REM*23
350 GOSUB 60:REM*229
360 PRINT CHR$(19):V TAB=4:GOSUB 9
0:PRINT TAB(TB+22);:INPUT GI
:REM*136
370 PRINT:PRINT TAB(TB+26);:INPU
T WI:REM*239
380 PRINT:PRINT TAB(TB+22);:INPU
T BC:REM*10
390 PRINT:PRINT TAB(TB+29);:INPU
T DV:REM*135
400 PRINT:PRINT TAB(TB+22);:INPU
T OI:REM*121
410 V=GI:GOSUB 120:GI$=V$:REM*194
420 V=WI:GOSUB 120:WI$=V$:REM*255
430 V=BC:GOSUB 120:BC$=V$:REM*112
440 V=DV:GOSUB 120:DV$=V$:REM*133
450 V=OI:GOSUB 120:OI$=V$:REM*169
460 AGI=(GI+WI+BC+DV+OI)/12:V=A
GI:GOSUB 120:AGI$=V$:REM*94
470 V=AGI*12:GOSUB 120:TX$=V$:
REM*189
480 V TAB=6:GOSUB 90:REM*85
490 GOSUB 100:GOSUB 70:REM*145
500 PRINT:REM*143
510 GOSUB 50:REM*134
520 PRINT TAB(TB+3)"QUALIFYING F
OR A HOME LOAN":REM*148
530 V TAB=4:GOSUB 90:REM*127
540 PRINT TAB(TB+2)"ASKING PRICE
OF HOUSE ":PRINT:REM*108
550 PRINT TAB(TB+2)"DOWN PAYMENT
":PRINT:REM*158
560 PRINT TAB(TB+2)"INTEREST (8.
8%=8.8) ":PRINT:REM*216
570 PRINT TAB(TB+2)"MORTGAGE TER
M: (YEARS) ":PRINT:REM*112
580 GOSUB 60:REM*206
590 PRINT CHR$(19):V TAB=6:GOSUB 9
0:PRINT TAB(TB+26);:INPUT PR
:REM*18
600 PRINT:PRINT TAB(TB+20);:INPU
T DP:REM*254
610 PRINT:PRINT TAB(TB+25);:INPU
T TIR:REM*88
620 PRINT:PRINT TAB(TB+27);:INPU
T TYR:REM*71
630 MOS=YR*12:I=IR/120:AMT=PR-
DP:REM*9
640 PAYMENT=AMT*I/(1-(1+I)^(UP A
RROW))(-MOS)):REM*35
650 V=PA:GOSUB 130:PA$=V$:REM*203
660 V=AMT:GOSUB 130:AMT$=V$:REM*237
670 V=PR:GOSUB 130:PR$=V$:REM*41
680 V=DP:GOSUB 130:DP$=V$:REM*108
690 V TAB=5:GOSUB 90:REM*6
700 GOSUB 110:GOSUB 70:GOSUB 50
:REM*154
710 PRINT:REM*92
720 PRINT TAB(TB+7)"PROPOSED LOA
N SUMMARY":V TAB=2:GOSUB 90
:REM*233
730 PRINT TAB(TB+2)"PROPERTY VAL
UE "PR$:PRINT:REM*241
740 PRINT TAB(TB+2)"DOWN PAYMENT
{7 SPACES}"DP$:PRINT:REM*173
750 PRINT TAB(TB+2)"LOAN AMOUNT{
8 SPACES}"AMT$:PRINT:REM*75
760 PRINT TAB(TB+2)"MONTHLY PAYM
ENT{4 SPACES}"PA$:PRINT:REM*29
770 PRINT TAB(TB+2)"TERM OF LOAN
{9 SPACES}"YRS "YEARS":PRIN
T:REM*238
780 PRINT TAB(TB+2)"INTEREST RAT
E{11 SPACES}"IR"%:REM*55
790 PRINT:PRINT:REM*235
800 GOSUB 110:GOSUB 60:GOSUB 70:GO
SUB 50:REM*145
810 PRINT CHR$(147)TAB(TB+12)"OT
HER COSTS":PRINT:REM*190
820 PRINT TAB(TB)"CONDO OR TOWNH
OUSE MONTHLY FEE.":REM*123
830 PRINT TAB(TB)"ENTER DATA NOW
. IF YOU WANT TO USE ":REM*13
840 PRINT TAB(TB)"THE PERCENT ES
TIMATE, JUST PRESS{2 SPACES
}":REM*79
850 PRINT TAB(TB)"RETURN. ":PRIN
T:REM*171
860 GOSUB 60:REM*225
870 PRINT TAB(TB)"ENTER ANNUAL T
AXES ";:INPUT TX:REM*14
880 IF TX>1 THEN TX=TX/12:V=TX:GOS
UB 120:TX$=V$:GOTO 900
:REM*242

```

# HOUSE - SHOPPING ?

```

890 IFTX=0THENTX=.015*PR/12:V=T
X:GOSUB120:TX$=V$ :REM*245
900 PRINT:PRINTTAB(TB)"ANNUAL I
NSURANCE PREMIUM ";:INPUTIP
:REM*4
910 IFIP>1THENIP=IP/12:V=IP:GOS
UB120:IP$=V$:GOTO930:REM*5
920 IFIP=0THENIP=.01*PR/12:V=IP
:GOSUB120:IP$=V$ :REM*196
930 PRINT:PRINTTAB(TB)"OTHER MO
NTHLY COSTS ";:INPUTMC:V=MC
:GOSUB120:MC$=V$ :REM*127
940 IFDP<.2*PRTHENPMI=(.0035/12
)*PR:V=PMI:GOSUB120:PMI$=V$
:REM*52
950 IFDP=>.2*PRTHENPMI=0:V=PMI:
GOSUB120:PMI$=V$ :REM*185
960 T=TX+IP+MC+PA+PMI :REM*144
970 V=T:GOSUB120:T$=V$ :REM*154
980 PRINTTAB(TB+6)"TAXES{6 SPAC
Es}"TX$ :REM*210
990 PRINTTAB(TB+6)"INSURANCE{2
SPACES}"IP$ :REM*104
1000 PRINTTAB(TB+6)"OTHER{6 SPA
CES}"MC$ :REM*73
1010 IFPMI>0THENPRINTTAB(TB+6)"
PR.MTG.INS."PMI$ :REM*172
1020 PRINTTAB(TB+6)"PRIN.& INT.
"PA$:PRINT :REM*99
1030 PRINT:PRINTTAB(TB+6)"TOTAL
{6 SHFT SPACES}"T$:PRINT
:REM*38
1040 GOSUB110:GOSUB60:GOSUB70:G
OSUB50 :REM*130
1050 PRINT :REM*183
1060 PRINT :REM*185
1070 FORJ=1TO14:PRINTTAB(TB+5)A
$(J):NEXT :REM*168
1080 PRINT :REM*213
1090 PRINTTAB(TB)"*ENTER CREDIT
CARD BALANCE, NOT":REM*35
1100 PRINTTAB(TB)"MONTHLY PAYME
NT. (DUE=5% BAL.)":REM*152
1110 GOSUB60 :REM*218
1120 PRINTCHR$(19)TAB(TB+3)"ENT
ER MONTHLY DEBT PAYMENTS"
:REM*200
1130 PRINT:PRINT :REM*69
1140 PRINTTAB(TB+C);:INPUTC1:V=
C1:GOSUB130:B$(1)=V$
:REM*153
1150 PRINTTAB(TB+C);:INPUTC2:V=
C2:GOSUB130:B$(2)=V$
:REM*219
1160 PRINTTAB(TB+C);:INPUTC3:V=
C3:GOSUB130:B$(3)=V$
:REM*185
1170 PRINTTAB(TB+C);:INPUTAL:V=
AL:GOSUB130:B$(4)=V$
:REM*194
1180 PRINTTAB(TB+C);:INPUTYL:V=
YL:GOSUB130:B$(5)=V$
:REM*107
1190 PRINTTAB(TB+C);:INPUTSL:V=
SL:GOSUB130:B$(6)=V$
:REM*20
1200 PRINTTAB(TB+C);:INPUTCT:V=
CT:GOSUB130:B$(7)=V$
:REM*74
1210 PRINTTAB(TB+C);:INPUTOL:V=
OL:GOSUB130:B$(8)=V$
:REM*202
1220 PRINTTAB(TB+C);:INPUTTG:V=
TG:GOSUB130:B$(9)=V$
:REM*239
1230 PRINTTAB(TB+C);:INPUTVI:V=
VI/20:GOSUB130:B$(10)=V$
:REM*102
1240 PRINTTAB(TB+C);:INPUTMA:V=
MA/20:GOSUB130:B$(11)=V$
:REM*147
1250 PRINTTAB(TB+C);:INPUTAX:V=
AX/20:GOSUB130:B$(12)=V$
:REM*16
1260 PRINTTAB(TB+C);:INPUTDI:V=
DI/20:GOSUB130:B$(13)=V$
:REM*200
1270 PRINTTAB(TB+C);:INPUTOT:V=
OT/20:GOSUB130:B$(14)=V$
:REM*190
1280 CC=(VI+MA+AX+DI+OT)/20:V=C
C:GOSUB130:CC$=V$ :REM*81
1290 MO=C1+C2+CS+AL+YL+SL+CT+OL
+TG+CC:V=MO:GOSUB130:MO$=V
$:REM*178
1300 TM=MO+T:V=TM:GOSUB130:TM$=
V$ :REM*211
1310 TW=.28*AGI:V=TW:GOSUB130:T
W$=V$ :REM*230
1320 TS=.36*AGI:V=TS:GOSUB130:T
S$=V$ :REM*130
1330 TP=.25*AGI:V=TP:GOSUB130:T
P$=V$ :REM*249
1340 TQ=.33*AGI:V=TQ:GOSUB130:T
Q$=V$ :REM*204
1350 VTAB=4:GOSUB90 :REM*182
1360 GOSUB110:GOSUB70:GOSUB50
:REM*13
1370 PRINTTAB(TB+3)"SUMMARY FIX
ED MONTHLY PAYMENTS"
:REM*59
1380 PRINT :REM*248
1390 FORJ=1TO14:PRINTTAB(TB+2)A
$(J)B$(J):NEXT :REM*171
1400 PRINT :REM*23
1410 PRINTTAB(TB+2)"TOTAL="MO$
:REM*185
1420 PRINT :REM*35
1430 GOSUB100:GOSUB60:GOSUB70:G
OSUB50 :REM*7
1440 PRINTTAB(TB+9)"CONCLUSIONS
:" :REM*40
1450 PRINT :REM*69
1460 PRINTTAB(TB)C$(2)T$
:REM*204
1470 PRINT :REM*81
1480 PRINTTAB(TB)C$(3)MO$
:REM*152
1490 PRINT :REM*109
1500 PRINTTAB(TB)C$(4)TM$
:REM*206
1510 PRINT :REM*121
1520 PRINTTAB(TB)C$(5)AGI$
:REM*172
1530 PRINT :REM*149
1540 IFDP<.10*PRTHEN1610:REM*99
1550 PRINTTAB(TB)C$(6)TW$
:REM*139
1560 PRINTTAB(TB)C$(7)T$
:REM*124
1570 IFTW<TTHENTN=T-TW:V=TN:GOS
UB120:TN$=V$ :REM*114
1580 IFTW<TTHENPRINTTAB(TB)C$(8
)TN$ :REM*48
1590 PRINT :REM*201
1600 IFDP=>.10*PRTHEN1650
:REM*79
1610 PRINTTAB(TB)C$(9)TP$
:REM*136
1620 PRINTTAB(TB)C$(7)T$
:REM*176
1630 IFTP<TTHENTL=T-TP:V=TL:GOS
UB120:TL$=V$ :REM*150
1640 IFTP<TTHENPRINTTAB(TB)C$(8
)TL$ :REM*51
1650 PRINT :REM*12
1660 IFDP<.10*PRTHEN1740
:REM*220
1670 PRINT :REM*24
1680 PRINTTAB(TB)C$(12)TS$
:REM*131
1690 PRINTTAB(TB)C$(13)TM$
:REM*125
1700 IFTM<TSTHEN1810:REM*158
1710 IFTM>TSTHENMT=TM-TS:V=MT:G
OSUB120:MT$=V$ :REM*141
1720 IFTM<TQTHEN1810:REM*228
1730 PRINTTAB(TB)C$(8)MT$
:REM*254
1740 PRINT :REM*98
1750 IFDP=>.10*PRTHEN1820
:REM*49
1760 PRINTTAB(TB)C$(15)TQ$
:REM*239
1770 PRINTTAB(TB)C$(13)TM$
:REM*173
1780 IFTM>TQTHENMT=TM-TQ:V=MT:G
OSUB120:MT$=V$ :REM*233
1790 IFTM<TQTHEN1810:REM*43
1800 PRINTTAB(TB)C$(8)MT$
:REM*55
1810 PRINT :REM*172
1820 IFTM<AGITHEN1840:REM*147
1830 IFTM>AGITHENPRINTTAB(TB)C$
(16) :REM*45
1840 PRINT :REM*206
1850 GOSUB100:GOSUB60:GOSUB70
:REM*17
1860 VTAB=3:GOSUB90 :REM*128
1870 PRINT"PRINT C=CHECKLIST S=
SUMMARY N=NO Q=QUIT"
:REM*67
1880 GET RP$:IFRP$=""THEN1880
:REM*149
1890 IFRP$<>"C"ANDRP$<>"S"ANDRP
$<>"N"ANDRP$<>"Q"THEN1880
:REM*131
1900 IFRP$="Q"THEN1950:REM*240
1910 IFRP$="N"THENCLR:GOTO10
:REM*176
1920 IFRP$="S"THENOPEN4,4,7:GOS
UB2700:PRINTCHR$(147):GOTO
1870:REM*114
1930 IFRP$="C"THENOPEN4,4,7:FOR
C=0TO21:PRINT#4,TAB(10)D$(
C):PRINT#4:NEXT:CLOSE4
:REM*154

```

# HOUSE - SHOPPING ?

```

1940 PRINTCHR$(147):GOTO1870      2310 C$(5)="GROSS MONTHLY INCOM
      :REM*69                      E:" :REM*80
1950 CLR:PRINTCHR$(147):END      2320 C$(6)="28% OF MONTHLY INCO
      :REM*199                     ME:" :REM*141
1960 PRINTCHR$(147):            2330 C$(7)="MONTHLY HOUSING EXP
      :REM*88                     ENSES=" :REM*150
1970 GOSUB50                    2340 C$(8)="YOU EXCEEDED LIMIT
      :REM*48                     BY:" :REM*75
1980 FORJ=1TO8:PRINT:NEXT      2350 C$(9)="25% OF MONTHLY INCO
      :REM*182                     ME=" :REM*154
1990 PRINTTAB(TB+3){COMD A}{29  2360 C$(10)="MONTHLY HOUSING EX
      SHFT *s}{COMD S} :REM*51    PENSES=" :REM*218
2000 FORI=1TO7:PRINTTAB(TB+3){  2370 C$(11)="YOU EXCEEDED LIMIT
      SHFT -}{TAB(TB+33){SHFT -  BY:" :REM*65
      }":NEXT :REM*243            2380 C$(12)="36% OF MONTHLY INC
2010 PRINTTAB(TB+3){COMD Z}{29  OME=" :REM*97
      SHFT *s}{COMD X}":REM*228  2390 C$(13)="SUM:MONTHLY OBLIGA
2020 FORJ=1TO8:PRINTCHR$(145);  TIONS" :REM*185
      NEXT :REM*77                2400 C$(14)="YOU EXCEEDED LIMIT
2030 PRINTTAB(TB+13)"RUN MAGAZI  BY:" :REM*126
      NE" :REM*54                  2410 C$(15)="33% OF MONTHLY INC
2040 PRINT :REM*153               OME=" :REM*112
2050 PRINTTAB(TB+15)"PRESENTS"  2420 FORJ=2TO15 :REM*39
      :REM*213                     2430 IFLEN(C$(J))<25THENC$(J)=
2060 PRINT:PRINT :REM*238         C$(J)+" ":GOTO2430:REM*247
2070 PRINTTAB(TB+11)"PREQUALIFY  2440 D$(0)="{7 SPACES}PERSONAL
      64/128 :REM*193             DATA CHECKLIST"+CHR$(13)+C
2080 GOSUB60 :REM*160             HR$(13) :REM*188
2090 DIM A$(15),B$(15),C$(20),D  2450 NEXT :REM*30
      $(22) :REM*56               2460 C$(16)="YOU'RE SPENDING MO
2100 A$(1)="CAR #1 PAYMENT{4 SP  RE THAN YOU EARN!" :REM*12
      ACEs}" :REM*76              2470 D$(0)="{7 SPACES}PERSONAL
2110 A$(2)="CAR #2 PAYMENT{4 SP  DATA CHECKLIST" :REM*39
      ACEs}" :REM*103             2480 D$(1)=" 1. BORROWER(S) NAM
2120 A$(3)="CHILD SUPPORT{5 SPA  E/ADDRESS/SOCIAL SECURITY
      CEs}" :REM*48               NOS.:" :REM*226
2130 A$(4)="ALIMONY{11 SPACES}"  2490 D$(2)=" 2. EMPLOYERS:LAST
      :REM*37                     TWO YEARS" :REM*107
2140 A$(5)="YOUR SCHOOL LOANS "  2500 D$(3)=" 3. ADDRESSES YOU H
      :REM*61                     AD DURING LAST 2 YEARS"
2150 A$(6)="OTHER SCHOOL LOAN "  :REM*2
      :REM*27                     2510 D$(4)=" 4. ACCOUNT/SERIAL
2160 A$(7)="CHILDREN' TUITION{2  NUMBERS OF ALL CURRENT ASS
      SPACES}" :REM*235           ETS:" :REM*134
2170 A$(8)="OTHER LOANS/REALTY"  2520 D$(5)=" 5. INVENTORY:MAJOR
      :REM*175                     PERSONAL/HOUSEHOLD ASSETS
2180 A$(9)="TITHING{11 SPACES}"  :REM*28
      :REM*95                     2530 D$(6)=" 6. SHARE/BOND HOLD
2190 A$(10)="*VISA{14 SPACES}"  ING SPECIFICS" :REM*180
      :REM*161                     2540 D$(7)=" 7. LIFE INSURANCE
2200 A$(11)="*MASTERCARD{8 SPAC  CERTIFICATES/CASH VALUES"
      Es}" :REM*154               :REM*3
2210 A$(12)="*AMERICAN EXPRESS{  2550 D$(8)="{SHFT SPACE}8. AUTO
      2 SPACES}" :REM*30         MOBILE:LOAN VALUES"
2220 A$(13)="*DISCOVER CARD{5 S  :REM*193
      PACES}" :REM*89             2560 D$(9)=" 9. ALL CURRENT LIA
2230 A$(14)="*MISC. CREDIT CARD  BILITIES FULLY DETAILED"
      " :REM*73                   :REM*11
2240 FORJ=1TO14 :REM*103          2570 D$(10)="10. FINANCIAL DATA
2250 IFLEN(A$(J))<20THENA$(J)=L  ON REALTY HOLDINGS"
      EFT$(A$(J)+"{20 SPACES}",2  :REM*36
      0):GOTO2250 :REM*195        2580 D$(11)="11. INCOME VERIFIC
2260 NEXT :REM*95                 ATION DOCUMENTATION."
2270 C$(1)="PRE-QUALIFICATION R  :REM*68
      EVIEW." :REM*80             2590 D$(12)="12. IF SELF-EMPLOY
2280 C$(2)="MONTHLY HOUSING EXP  ED:" :REM*68
      ENSES" :REM*182            2600 D$(13)="{4 SPACES}INCOME V
2290 C$(3)="FIXED MONTHLY PAYME  ERIFICATION DOCUMENTATION"
      NTS" :REM*28                 :REM*105
2300 C$(4)="SUM:MONTHLY OBLIGAT  2610 D$(14)="{4 SPACES}PLUS TWO
      IONS" :REM*151              YEARS TAX RETURNS":REM*93
2620 D$(15)="13. IF DIVORCED, P
      ROPER DOCUMENTATION"
      :REM*251
2630 D$(16)="14. EVIDENCE OF SU
      FFICIENT FUNDS TO CLOSE:"
      :REM*242
2640 D$(17)="{4 SPACES}DOWN PAY
      MENT:" :REM*182
2650 D$(18)="{4 SPACES}ESCROW {
      SHFT F}UNDS:" :REM*54
2660 D$(19)="{4 SPACES}LOAN ORI
      GINATION FEE:" :REM*157
2670 D$(20)="{4 SPACES}VARIOUS
      FEES, ETC.:" :REM*237
2680 D$(21)="15. CAREER PROSPEC
      TS:PROMOTION/RAISE/PERKS:"
      :REM*173
2690 RETURN :REM*27
2700 REM---PRINT :REM*152
2710 PRINT#4,TAB(30)"PRE-QUALIF
      YING" :REM*171
2720 PRINT#4,TAB(30)"INCOME SUM
      MARY" :REM*98
2730 PRINT#4 :REM*161
2740 PRINT#4,TAB(24)"YOUR GROSS
      INCOME{3 SPACES}"GI$
      :REM*233
2750 PRINT#4,TAB(24)"SPOUSE'S {
      SHFT I}NCOME{5 SPACES}"WI$
      :REM*194
2760 PRINT#4,TAB(24)"BONUS/COMM
      ISSIONS{3 SPACES}"BC$
      :REM*124
2770 PRINT#4,TAB(24)"DIVIDEND/I
      NTEREST{3 SPACES}"DV$
      :REM*138
2780 PRINT#4,TAB(24)"OTHER INCO
      ME{8 SPACES}"OI$ :REM*166
2790 PRINT#4,TAB(24)"TOTAL: ANN
      UALLY{5 SPACES}"TY$
      :REM*143
2800 PRINT#4,TAB(24)"TOTAL: MON
      THLY{6 SPACES}"AGI$
      :REM*190
2810 PRINT#4 :REM*241
2820 PRINT#4,TAB(30)"PROPOSED L
      OAN SUMMARY" :REM*19
2830 PRINT#4 :REM*2
2840 PRINT#4,TAB(24)"PROPERTY V
      ALUE{6 SPACES}"PR$ :REM*72
2850 PRINT#4,TAB(24)"DOWN PAYME
      NT{8 SPACES}"DP$ :REM*220
2860 PRINT#4,TAB(24)"LOAN AMOUN
      T{9 SPACES}"AMT$ :REM*193
2870 PRINT#4,TAB(24)"MONTHLY PA
      YMENT{5 SPACES}"PA$
      :REM*130
2880 PRINT#4,TAB(24)"TERM OF LO
      AN{9 SPACES}"YRS" YEARS"
      :REM*6
2890 PRINT#4,TAB(24)"INTEREST R
      ATE{12 SPACES}"IR"$
      :REM*148
2900 PRINT#4,TAB(24)"TAXES{15 S
      PACES}"TX$ :REM*208
2910 PRINT#4,TAB(24)"INSURANCE{
      11 SPACES}"IP$ :REM*48

```

# HOUSE - SHOPPING?

2920 PRINT#4,TAB(24)"OTHER (CON DO FEE?) {2 SPACES}"MC\$	:REM*143	3260 IFDP<.10*PRTHEN3330:REM*63
:REM*28	3100 PRINT#4,TAB(24)C\$(3)MO\$	:REM*203
2930 PRINT#4,TAB(24)"PRINCIPAL & INTEREST"PA\$	:REM*251	3280 PRINT#4,TAB(24)C\$(12)TS\$
:REM*42	3110 PRINT#4,TAB(24)C\$(4)TM\$	:REM*113
2940 PRINT#4,TAB(24)"PRIVATE MO RTG. INS. "PMI\$	:REM*22	3290 PRINT#4,TAB(24)C\$(13)TM\$
:REM*5	3120 PRINT#4,TAB(24)C\$(5)AGI\$	:REM*61
2950 PRINT#4	:REM*76	3300 IFTM=<TSTHEN3330:REM*210
:REM*138	3130 PRINT#4	:REM*210
2960 PRINT#4,TAB(24)"MONTHLY HO USING COST"TS\$	:REM*55	3310 IFTM>TSTHENMT=TM-TS:V=MT:G
:REM*111	3140 IFDP<.10*PRTHEN3210:REM*93	:REM*203
2970 PRINT#4	3150 PRINT#4,TAB(24)C\$(6)TW\$	3320 PRINT#4,TAB(24)C\$(14)MT\$
:REM*150	:REM*220	:REM*108
2980 PRINT#4,TAB(24)"SUMMARY: F IXED MONTHLY(SHFT SPACE)PA YMENTS"	3160 PRINT#4,TAB(24)C\$(7)TS\$	:REM*12
:REM*74	:REM*9	3340 IFDP=>.10*PRTHEN3400
2990 PRINT#4	3170 IFTW<TTHENNT=T-TW:V=TN:GOS	:REM*196
:REM*162	UB120:TN\$=V\$	:REM*187
3000 FORJ=1TO14	3180 IFTW<TTHENPRINT#4,TAB(24)C	3350 PRINT#4,TAB(24)C\$(15)TQ\$
:REM*120	\$(8)TN\$	:REM*141
3010 IF VAL(RIGHT\$(B\$(J),10))=0	:REM*202	3360 PRINT#4,TAB(24)C\$(13)TM\$
:REM*45	3190 PRINT#4	:REM*119
3020 PRINT#4,TAB(24)A\$(J)+B\$(J)	3200 IFDP=>.10*PRTHEN3250	3370 IFTM=<TQTHEN3400:REM*50
:REM*252	:REM*167	:REM*50
3030 NEXT	3210 PRINT#4,TAB(24)C\$(9)TP\$	3380 IFTM>TQTHENMT=TM-TQ:V=MT:G
:REM*84	:REM*209	:REM*47
3040 PRINT#4	3220 PRINT#4,TAB(24)C\$(10)TS\$	3390 PRINT#4,TAB(24)C\$(14)MT\$
:REM*236	:REM*35	:REM*166
3050 PRINT#4,TAB(24)"TOTAL: PAY MENTS(5 SPACES)"MO\$:REM*99	3230 IFTP<TTHENNT=T-TP:V=TL:GOS	3400 IFTM<AGITHEN3420:REM*169
:REM*248	UB120:TL\$=V\$	3410 IFTM>AGITHENPRINT#4,TAB(24
3070 PRINT#4,TAB(24)C\$(1)	:REM*220	)C\$(16)
:REM*78	3240 IFTP<TTHENPRINT#4,TAB(24)C	3420 PRINT#4:CLOSE4
:REM*5	\$(11)TL\$	:REM*156
3080 PRINT#4	:REM*39	3430 RETURN
3090 PRINT#4,TAB(24)C\$(2)TS\$	3250 PRINT#4	:REM*249
	:REM*191	

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# Software Elixir

*Companion disks are giving venerable software  
a new lease on life.*



By JOHN RYAN

**A** new game hits the market, and you excitedly shell out \$20 or \$30 to buy it, then play it through several all-night (or all-day) sessions. Five or six days later, you toss the game into your closet, where it ends up collecting dust. Sound familiar?

No matter how good it is, the entertainment value of a new game is always short-lived; that is, unless the game's challenge or diversity is increased in some way. Enter companion disks, the help some of your favorite programs just might need.

The majority of companion disks are in the sports genre, because sports programs lend themselves to enhancements such as additional team data or alternative scenery. Moreover, game publishers sometimes shore up lagging sales by releasing companion disks.

## KING OF THE HILL

Accolade is reigning king of companion disk publishers, and its preeminent disk is *Test Drive II: The Duel*, an upgraded version of the original *Test Drive* (see *Software Gallery*, April 1988). *TDII* puts you at the wheel of one of the fastest production cars ever made: a Porsche 959 or a Ferrari F40. You zoom through deserts, mountains and forests, racing head-to-head against either the computer or the clock.

The Supercars accessory disk adds to your racing fever with five European speedsters: the 1988 Lotus Turbo Esprit, a Ferrari Testarossa, a Porsche 911 RUF, a 1988 Lamborghini Countach 500S and a 1989 Corvette ZR1. If your tastes lean toward the American classics, try putting *The Muscle Cars* companion disk into gear. Its five asphalt burners include a 1963 Corvette Sting Ray Coupe, a 1968 Shelby GT500 Cobra, a 1967 Pontiac GTO, a 1969 COPO 9560 ZL-1 Camaro and a 1969 Dodge Charger Daytona.



Check out the stats of Accolade's Corvette Sting Ray Coupe.

To vary the *TDII* scenery, Accolade released two alternative scenery disks: *California Challenge* and *European Challenge*. *California Challenge* spices up race day with a route that runs from a twisting highway in northern California through lush forests, along coastlines and over deserts to San Francisco, Car-

mel, Santa Barbara and Mexico. The *European Challenge* route crosses Holland, Germany, Switzerland, Italy, France and Spain. Both disks are packed with landmarks, tunnels, mountain passes and other scenic treats. (Although at 200 miles per hour, it may be hard to appreciate the view!)

## GOLF ANYONE?

Golf is a perennial favorite with computer gamers, so golf companion disks abound. Accolade has released two for its popular *Jack Nicklaus' Greatest 18 Holes of Major Championship Golf* (Software Gallery, July 1989). The *International Course* disk offers the Australian Golf Club, Saint Creek Golf Club and St. Mellion Golf and Country Club. The *Major Championship Courses of 1989* disk simulates some of the courses played during the 1989 PGA tour: Oak Hill, Royal Troon and Kemper Lakes. Accolade is also slated to release a 1990 version of this disk. ▶

Table 1. Product information.

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provided with the parent program.

How can I discuss companion disks without mentioning the myriad scenery disks available for SubLogic's Flight Simulator II? United States scenery disks are divided into 12 distinct regions covering the entire continental U.S. Like Flight Simulator II, the scenery disks show airports, navigational aids, cities, highways and rivers. Star scenery disks are also available, offering denser scenery and more detailed landmarks. Popular Star disks show Hawaii,

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So, if you're bored with your golf course, tired of driving that old car or yawning over the same flight pattern, boot up a companion disk. It may not improve your stroke or lower your elapsed time, but it may make the golf course, race track or view from the air more fun! ■

*John Ryan is an air traffic control instructor who moonlights as one of RUN's contributing editors.*



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# GridRunner

*Your ship is on the line when you play this fast-paced, dodge 'em-type game.*

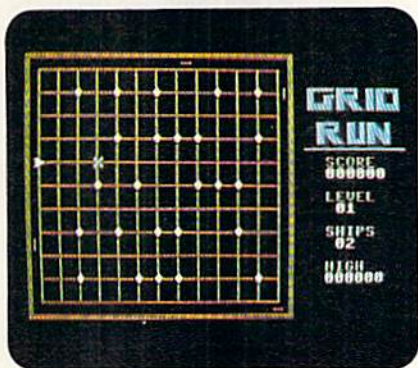
By TONY BRANTNER

It's easy to pilot your ship along the lines of the grid, collecting diamonds as you go. Easy, that is, until the guards roaming the outskirts of the grid start shooting at you! When that happens, you'll see why GridRun 64 is such a challenging and addictive game.

Type in GridRun from Listing 1, using RUN's Checksum program to catch any typing errors, then save it to a formatted work disk. Once it's been saved, run it to create GRIDRUN.ML, the executable machine language file. To play, make sure you have a joystick plugged into port 2, then load and run GRIDRUN.ML.

When the game screen appears, your ship is centered at the bottom of the grid. Move the ship in any direction to start play, then steer the ship around the grid. Passing over diamonds collects them and earns you points. Each diamond is worth ten times the current level of play.

Soon after your ship starts to move, the guards prowling the edges of the



Guide your ship around the grid, but beware a hit from the guards' atomic energy!

grid will start launching blasts of atomic energy that can send your ship into a tailspin. Getting hit not only costs you a ship, but resets the grid with more diamonds. However, if you clear the grid of diamonds without getting hit, you advance to the next, slightly faster, level of play.

You start a game with three ships and get another for every 5000 points earned. The game ends when you have no more ships in reserve. If you'd like to

play again, simply press the firebutton.

As you play, the screen continually displays your score in the current game, your highest score so far in the session, the current level of play and the number of ships you have left.

Now, place your ship on the line. . .

*Tony Brantner is a professional carpenter who constructs Commodore programs in his spare time.*

Listing 1. GridRun 64 program. (Available on ReRUN disk. See order card facing page 48.)

```

0 REM THIS LIST 1 CREATES (AND 30 C$=MID$(B$, (I*2)-1, 2):H$=LEF
  SHOULD NOT BE CALLED) GRIDRUN  T$(C$, 1):L$=RIGHT$(C$, 1)
  .ML :REM*149 70 FOR I=1 TO LEN(B$)/2:REM*221
5 OPEN 8,8,8,"GRIDRUN.ML,P,W" 35 H=VAL(H$):IF H$>"9" THEN H=A 75 C$=MID$(B$, (I*2)-1, 2):H$=LEF
  :REM*8 SC(H$)-55 :REM*85 T$(C$, 1):L$=RIGHT$(C$, 1)
6 CT=0:PRINT "{SHFT CLR}":REM*56 40 L=VAL(L$):IF L$>"9" THEN L=A :REM*140
10 READ A$:IF A$="-1" THEN CLOS SC(L$)-55 :REM*136 80 H=VAL(H$):IF H$>"9" THEN H=A
  E8:PRINT:PRINT "ALL DONE!":EN SC(H$)-55 :REM*56
  D :REM*129 85 L=VAL(L$):IF L$>"9" THEN L=A
12 PRINT "{HOME}READING LINE "+S SC(L$)-55 :REM*84
  TR$(CT):CT=CT+1 :REM*141 90 BY=H*16+L:PRINT#8,CHR$(BY);
15 IF LEN(A$)<62 THEN 55 50 NEXT:GOTO 10 :REM*115 :REM*148
  :REM*254 55 IF LEN(A$)<21 THEN B$=A$:GOT 95 NEXT:GOTO 10 :REM*160
  :REM*242 O 70 :REM*184 100 REM HEX DATA FOR GRIDRUN 64
25 FOR I=1 TO 30 60 IF LEN(A$)<42 THEN B$=LEFT$( 101 DATA 011C0B1C0A009E323036*3
  B$, 20)+MID$(A$, 1, 20)+MID$(A$, 22, 2 100 REM HEX DATA FOR GRIDRUN 64
  20)+MID$(A$, 43, 20) :REM*242 :REM*176 :REM*134
  :REM*181 65 B$=LEFT$(A$, 20)+MID$(A$, 22, 2
  
```

RUN it right: C-64; joystick

# GRID RUNNER

[illegible]

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Signature \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

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

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# The Power of The C-64 Press

*Be the center of your own publishing empire with one of these desktop publishing programs.*



By BOB GUERRA

Over the past few years, a number of terrific programs have been released for the C-64—software packages that let you combine text with graphics and print the result in a variety of useful and creative ways. These programs are specifically designed to produce greeting cards, calendars, banners and business cards, as well as full-blown, professional quality newsletters. Unfortunately, while “desktop publishing” (DTP) has served as a convenient catchall phrase to categorize these types of software, the term does little to convey their friendliness and ease of operation.

If the idea of producing imaginative printed goods with your C-64 appeals to you, but you avoid desktop publishing because you think it's too complicated or expensive, it's time you took a

second look at this exciting application. Most of the DTP programs available are completely menu driven and can be operated simply by following on-screen prompts. Many feature multiple fonts, pre-designed templates, decorative borders and large clip art collections. Creating your masterpiece can involve little more than making a few selections, usually with your choice of keyboard, joystick or mouse.

The deluge of new DTP programs has stopped, so there are plenty of bargains to be found on some of the older packages. In addition, some Commodore-ready printers let you print your creations in black and white (Star Micronics' NX-1000C) or color (Star's NX-1000C Rainbow) and can often be found selling for under \$250.

To give you an idea of the myriad

possibilities, I've assembled a list (see Table 1) of C-64 programs you may want to consider in your desktop publishing foray. All of them can help you express yourself in print.

You might not find every title on your local dealer's shelves (as indicated by “discontinued”), or the manufacturer may have gone out of business (as indicated by a lack of address), but that doesn't mean the software cannot be found: check used merchandise ads, users' group libraries, software discount houses and mail order companies. The prices listed are suggested retail, but because these programs are not new, most can be found selling for less. ■

*Bob Guerra, editor for a Boston, Massachusetts hospital, keeps a seemingly endless stream of software reviews coming RUN's way.*

Table 1. Desktop publishing programs and distributors.



**Award Maker Plus**—286 award templates; integrates high-resolution graphics from Doodle!, Print Magic and others; four fonts; ten borders; print in color with appropriate printer; \$39.95.

**Sports Award Library and Education Library**—\$24.95 each.

**Sports Cartoon Library**—\$19.95.

—Baudville, 5380 52nd St. SE, Grand Rapids, MI 49508.



**Printer's Artist**—versatile graphics program; lets you create Print Shop graphics, add text, convert picture files to Newsroom and PrintMaster formats and print one-color graphics on Commodore or non-Commodore printers; \$9.95.

**Printer's Patriot**—over 100 patriotic graphics for The Print Shop: Scouts, armed forces and other all-American images; \$9.95.

**Printer's Devil**—more than 125 additional Print Shop graphics covering a wide variety of topics; \$9.95. —BCI Software.



**geoPublish**—for use with GEOS; one of the most sophisticated and versatile desktop publishing systems; create many different documents by combining text, graphics, charts, tables, and so on; multiple fonts and

text sizes; shrink or enlarge artwork; place text over graphics; fully integrates text and graphics from other GEOS applications; \$49.95.

—Berkeley Softworks, 2150 Shattuck Ave., Berkeley, CA 94704.

**The Print Shop**—one of the first, and still one of the best; a multi-purpose graphics printing program; make greeting cards, stationery, banners, signs, posters and advertising flyers; menu driven; includes eight type styles in a wide range of sizes and dozens of pictures and symbols; combine various elements to create your own unique design; great for home or office; includes free samples of colorful paper and envelopes; \$44.95.

**The Print Shop Graphics Library, Holiday Edition**—for use in connection with The Print Shop; \$24.95 each.

—Broderbund Software, 17 Paul Drive, San Rafael, CA 94903.

**The Graphics Transformer**—indispensable graphics conversion system; converts graphics files among 20 formats, including GEOS, The Print Shop, Koala and Doodle!; extremely fast and easy to use, with clear on-screen prompting; supports dual drives; \$34.95.

—CDA, Inc.



**Doodle!**—create all types of high-resolution graphics with text; special functions include duplicate, rotate, squeeze, reduce, enlarge and stretch; \$39.95.

—Crystal Rose Software, 109 S. Los Robles, Pasadena, CA 91107.

**PaperClip Publisher**—create newsletters, flyers, price lists, menus, greeting cards, resumés, brochures, and so on; built-in graphics editor for touching up pictures; import graphics from Outrageous Pages, Doodle!, Newsroom and others; \$49.95.

**Outrageous Pages**—icons and pull-down menus; image editor and font creation utility; clip art; 60 fonts; templates for calendars, invitations and certificates; printer drivers for 12 dot matrix printers; not GEOS compatible; discontinued by manufacturer.

—Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404.

**Create A Calendar**—combine text and graphics to create daily, weekly, monthly or annual calendars; automatically repeats regularly scheduled events and major holidays; includes a wide variety of fonts, borders and graphics for holidays and other occasions; \$29.95.

—Epyx, PO Box 8020, Redwood City, CA 94063.

**Billboard Maker**—modify and print Doodle!, Print Shop, Flexidraw, Koala and other pictures in sections that combine to make posters as large as three feet by four feet; supports Star, Epson, Okidata, Panasonic, Commodore 1525 and Canon Color Inkjet printers; optimizing printer routine smooths jagged lines; \$34.95.

—Free Spirit Software, PO Box 128, Kutztown, PA 19530.

**AwardWare, CardWare, HeartWare**—simple, inexpensive graphics programs that let you create awards and certificates, greeting cards and valentines in both electronic and traditional versions; \$14.95 each.

**PartyWare**—create invitations, banners, party hats, place mats, place cards and awards; also prints preparation checklist; \$14.95.

**PrintPower**—make three styles of greeting cards, signs, stationery and banners; includes 60 assorted graphics, 40 borders, six fonts and 11 banner-type sizes; supports over 30 printers; \$14.95.

—Hi Tech Expressions, 584 Broadway, New York, NY 10012.

**Flexidraw, version 5.5**—can be used with a Flexidraw light pen, joystick, mouse or KoalaPad; sophisticated menu system; master disk includes sample drawing library, symbol templates and music synthesizer program; sprite editor/animator for programmers; \$34.95.

**The Graphics Integrator 2**—converts among several graphic file types from GEOS, Doodle!, KoalaPad, ComputerEyes, Newsroom, The Print Shop, Flexidraw and others; includes a slide show utility to display your

work; supports a variety of printer drivers; \$29.95.

—Inkwell Systems, 1050-R Pioneer Way, El Cajon, CA 92020.

**Business Card Maker**—create custom business cards with several fonts and 100 graphics; compatible with several printers, including laser and color; includes business card stock for tractor-feed printers; \$39.95.

—Intracorp, 14160 SW 139th Court, Miami, FL 33186.

**Holidays and Seasons** (Polarware)—an electronic coloring book for children three and older; uses mouse to color outlined pictures in 16 colors and print the results on an Okimate 20 color printer; \$12.95.

—Distributed by Merit Software, 13635 Gamma Rd., Dallas, TX 75244.

**Personal Newsletter**—requires GEOS; faster than geoPublish; includes clip art library disk; directly imports geoPaint files and converts Print Shop files; text can be entered directly but can't be imported from word processing files; \$49.95.

—Softsync, 162 Madison Ave., New York, NY 10016.

**Word Publisher**—requires GEOS; word processor with 100,000-word spelling checker; lets you create newsletters and other documents incorporating graphics from geoPaint; includes six built-in fonts, or you can import fonts from geoFont; supports over 100 popular printers; features Preview mode and mail-merge capabilities; \$39.95.

**Certificate Maker** (Springboard Software)—over 200 awards and certificates make this perfect for use in schools, businesses, clubs and home; select from dozens of categories and designs; personalize certificates; includes gold seals and stickers; \$14.95.

**Certificate Library** (Springboard Software)—for use with Certificate Maker; over 100 new certificates with different borders and lots of seals and stickers; \$14.95.

**Newsroom** (Springboard Software)—includes a library of over 600 pieces of clip art and five different type styles; \$14.95.

**Clip Art Collections** (Springboard Software)—for use with Newsroom; vol. 1, entitled General; vol. 2, Business; vol. 3, Sports and Recreational Activities; \$14.95 apiece.

—Distributed by Spinnaker Software, One Kendall Square, Cambridge, MA 02139.

**PrintMaster Plus**—menu driven and simple to operate; very similar to The Print Shop in both operation and capabilities; incorporates a versatile calendar maker; \$34.95.

**Art Gallery, disks I and II**—each has 140 graphics for use with PrintMaster; \$34.95.

—Unison World, 1321 Harbor Bay Parkway, Alameda, CA 94501.

Clip art from The Print Shop, RUN's Power Pak and GEOS Companion.



# BEE 64

*With these additional commands, you can type in Basic listings faster and more easily.*



By MICHAEL REBELLA

**T**he lack of commands in the C-64's ROM editor can make it difficult to enter programs that are written in Basic. Super BEE (BEE stands for Basic Editor Enhancements) adds eight new commands to the editor to remedy many of its problems. The commands include automatic line numbering, sending disk commands, deleting a group of lines, giving a directory, finding a string, merging files, renumbering lines and unnumbering.

Super BEE is a machine language program, but it is written with a Basic loader. The program contains many Data statements, so when typing it in (from Listing 1), be sure to use *RUN's* Checksum program to detect any typing errors. Also, save it to disk before running it.

The loader makes a simple check for any errors in the data that Checksum might have missed. If the Error in Data message appears, make any needed changes and resave the program. If there are no errors, Super BEE is poked into memory and activated.

Since Super BEE resides in memory locations 49152-50382, it doesn't cause any problems with your Basic programs. Neither does it affect any of the regular Basic commands.

Each Super BEE command starts with a single quote (shift/7), which lets the Basic interpreter recognize the command without tokenizing it. Not only does the single quote allow my program's commands to be executed, but it also lets you distinguish, at a glance, Super BEE commands from Basic 2.0 commands.

With the exception of the single quote, enter Super BEE commands exactly like Basic commands. You can enter them one per line or several on a line separated by colons.

Following are descriptions of Super BEE's eight commands.

## THE COMMANDS

**'AUTO step** enables automatic line numbering for typing in a program. "Step" specifies the amount (greater than zero) to be added to the previous line number. You can stop entering lines by pressing the return key immediately after a line number, without entering any other text. Note that to avoid erasing this line, you should hold down the shift key and then press return, or use the cursor keys to move to another line. This does not turn off automatic line numbering, so the next time you enter a line number with following text, another line number will be printed. To turn off line numbering, enter 'AUTO without specifying "step."

Examples:

'AUTO 10 enables automatic line numbering with an increment of 10.

'AUTO turns off automatic line numbering.

**'COMMAND string,device** sends the commands in "string" to the device number specified in "device." If a device number isn't specified, 'COMMAND defaults to drive 8. In "string," use the same commands as those specified in the disk drive owners' manual.

Examples:

'COMMAND "N0:DISKNAME,ID"

'COMMAND "S0:FILE",9

'COMMAND A\$,D

**'DELETE first TO last** deletes all lines from "first" through "last," where "first" is less than or equal to "last." If "first" is omitted, all lines from the beginning of the program through "last" are deleted. If "last" is omitted, all lines

from "first" through the end of the program are deleted.

Examples:

'DELETE 30 TO 50

'DELETE TO 50 deletes all lines except those after 50.

'DELETE 100 TO leaves only the lines numbered less than 100.

**'\$, device** gives the directory of a disk without affecting the program in memory. Again, "device" specifies the drive number and defaults to drive 8.

**'FIND string,first TO last** searches for all occurrences of "string" in the program from lines "first" through "last" and lists the lines containing "string" to the screen. "String" can be either a string or a string variable. To find a string containing quotation marks, substitute +CHR\$(34) for the marks. "First" and "last" follow the same rules as in 'DELETE, except they can both be left out to search through the whole program. You can stop the screen listing by pressing the stop key.

Examples:

'FIND "GOTO",50 TO 100 finds all occurrences of "GOTO" in lines 50 through 100.

'FIND "IFA=1" searches for "IFA=1" in all lines of the program.

'FIND "PRINT"+CHR\$(34) searches for "PRINT" in all lines of the program.

**'MERGE filename,device** adds the Basic program in the file specified by "filename" to the end of the Basic program already in memory. The combined program is stored in memory and renumbered with the same starting number and step size that were last used in the 'NUMBER command described below. Again, "device" specifies the de-

RUN it right: C-64

vice number and defaults to drive 8.

Examples:

```
'MERGE "END PROG",1
'MERGE "PROGRAM"
```

'NUMBER first,step rennumbers a program, starting with "first" and with each successive line number "step" larger than the previous. If you wish to use the same values for "first" and "step," simply enter 'NUMBER without specifying "first" and "step." 'NUMBER

does not change line numbers in GoTo and GoSub statements; you must change these yourself.

'UNNEW revives a Basic program that you erased with the New command. 'UNNEW will not work if you assigned any variables or entered any new lines since the New command.

#### ADDITIONAL NOTES

Always make sure a formatted disk is in the drive when using the '\$ com-

mand. Otherwise, you will find garbage, followed by an infinite number of carriage returns, printed to the screen. If this happens, press run-stop/restore and then enter CLOSE 1. Super BEE is not disabled by the restore key or in any way other than turning off the computer. [R]

*Michael Rebella, a recent computer science graduate from the University of Minnesota, practices programming in assembly language and Basic on his C-64.*

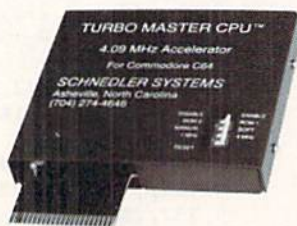
#### Listing 1. Super BEE program. (Available on ReRUN disk. See order card facing page 48.)

```
10 REM BASIC EDITOR 64 ENHANCEMENTS - MICHAEL REBELLA
   :REM*207
20 PRINT"(SHIFT CLR)POKING BASIC EDITOR ENHANCEMENTS":REM*92
30 PRINT"(CRSR DN)PLEASE WAIT"
   :REM*182
40 FOR I = 49152 TO 50382:READ
   A:POKE I,A:T=T+A:PRINT".";:N
   EXT I
   :REM*34
50 IF T <> 155586 THEN PRINT"(2
   CRSR DNs)ERROR IN DATA":EN
   D
   :REM*52
60 SYS49152: PRINT"(SHIFT CLR){C
   RSR DN}BASIC EDITOR ENHANCE
   MENTS NOW ACTIVE(COMD 7)"
   :REM*104
70 DATA 169,11,141,8,3,169,192,
   141,9,3,96,32,115,0,201,39,2
   40,6,32,121,0
   :REM*55
80 DATA 76,231,167,32,115,0,162
   ,0,221,57,192,240,8,232,224,
   8,240,15,76,29
   :REM*59
90 DATA 192,138,10,170,189,66,1
   92,72,189,65,192,72,96,76,8,
   175,78,70,65
   :REM*46
100 DATA 68,77,85,36,67,152,192
   ,54,193,90,194,236,194,183,
   195,6,196,84,196
   :REM*197
110 DATA 173,196,185,132,192,13
   3,251,185,133,192,133,252,1
   52,74,168,185
   :REM*144
120 DATA 146,192,168,32,115,0,2
   09,251,208,3,136,208,246,96
   ,82,69,66,77,85
   :REM*4
130 DATA 68,78,73,164,85,69,136
   ,69,69,71,82,69,162,78,175,
   77,77,79,108,192
   :REM*220
140 DATA 113,192,116,192,118,19
   2,121,192,125,192,127,192,5
   ,3,2,3,4,2,4,160
   :REM*94
150 DATA 0,32,81,192,240,3,76,8
   ,175,32,115,0,240,44,32,138
   ,173,32,247,183
   :REM*6
160 DATA 165,20,141,51,193,165,
   21,141,52,193,32,253,174,32
   ,138,173,32,247
   :REM*243
170 DATA 183,165,20,5,21,208,3,
   76,72,178,165,20,141,53,193
   ,165,21,141,54
   :REM*41
180 DATA 193,32,218,192,76,174,
   167,162,1,181,43,149,253,18
   9,51,193,157,49
   :REM*27
190 DATA 193,202,16,243,32,252,
   192,32,5,193,165,251,5,252,
   208,1,96,32,18
   :REM*192
200 DATA 193,76,233,192,165,253
   ,133,251,165,254,133,252,96
   ,160,0,177,251
   :REM*206
210 DATA 133,253,200,177,251,13
   3,254,200,96,173,49,193,145
   ,251,173,50,193
   :REM*245
220 DATA 200,145,251,24,173,53,
   193,109,49,193,141,49,193,1
   73,54,193,109,50
   :REM*253
230 DATA 193,141,50,193,96,0,0,
   232,3,10,0,160,2,32,81,192,
   240,3,76,8,175
   :REM*88
240 DATA 32,115,0,32,158,173,32
   ,163,182,201,41,144,3,76,11
   3,165,168,169,0
   :REM*220
250 DATA 240,2,177,34,153,206,1
   96,136,16,248,32,121,0,208,
   24,165,43,133
   :REM*62
260 DATA 251,165,44,133,252,56,
   165,45,233,2,133,253,165,46
   ,233,0,133,254
   :REM*224
270 DATA 76,135,193,201,44,240,
   3,76,8,175,32,99,195,176,22
   8,32,175,195,176
   :REM*15
280 DATA 3,76,72,178,169,0,133,
   15,32,44,168,165,251,197,25
   3,165,252,229
   :REM*160
290 DATA 254,144,3,76,174,167,1
   60,2,177,251,133,20,200,177
   ,251,133,21,162
   :REM*236
300 DATA 0,32,83,195,160,0,162,
   0,177,251,240,80,201,127,17
   6,17,157,247,196
   :REM*25
310 DATA 201,34,208,6,165,15,73
   ,1,133,15,200,232,208,231,7
   2,165,15,240,4
   :REM*171
320 DATA 104,76,191,193,104,56,
   233,127,141,49,193,152,72,1
   60,255,206,49
   :REM*99
330 DATA 193,240,8,200,185,158,
   160,16,250,48,243,200,185,1
   58,160,48,7,157
   :REM*78
340 DATA 247,196,232,76,241,193
   ,41,127,141,49,193,104,168,
   173,49,193,76
   :REM*125
350 DATA 191,193,142,49,193,169
   ,0,157,247,196,162,0,32,83,
   195,169,0,168
   :REM*46
360 DATA 170,72,162,0,189,206,1
   96,240,10,217,247,196,208,3
   9,232,200,76,31
   :REM*128
370 DATA 194,104,166,20,165,21,
   32,205,189,169,32,32,210,25
   5,160,0,185,247
   :REM*240
380 DATA 196,240,6,32,71,171,20
   0,208,245,169,13,32,210,255
   ,76,143,193,104
   :REM*138
390 DATA 168,200,152,204,49,193
   ,176,244,144,193,160,4,32,8
   1,192,240,3,76,8
   :REM*244
400 DATA 175,32,115,0,240,38,32
   ,138,173,32,247,183,165,20,
   5,21,208,3,76,72
   :REM*120
410 DATA 178,165,20,141,235,194
   ,165,21,141,236,194,169,157
   ,141,2,3,169,194
   :REM*223
420 DATA 141,3,3,76,174,167,169
   ,131,141,2,3,169,164,141,3,
   3,76,174,167,32
   :REM*214
430 DATA 96,165,134,122,132,123
   ,32,115,0,170,240,243,162,2
   55,134,58,144,6
   :REM*248
440 DATA 32,121,165,76,225,167, ▶
```

32,107,169,32,121,0,208,3,7 6,159,164,24,165 :REM*117	540 DATA 20,133,21,32,115,0,144 7,201,164,240,6,76,8,175,3 2,107,169,32,19 :REM*55	152,24,101,34 :REM*189
450 DATA 20,109,235,194,168,165 21,109,236,194,32,145,179, 32,223,189,160,0 :REM*183	550 DATA 166,165,95,133,251,165 96,133,252,32,121,0,240,15 201,164,208,230 :REM*126	640 DATA 160,0,145,43,165,35,10 5,0,200,145,43,136,162,3,23 0,34,208,2,230 :REM*93
460 DATA 185,0,1,240,6,153,119, 2,200,208,245,169,160,200,1 53,119,2,132,198 :REM*22	560 DATA 32,115,0,144,3,208,223 96,32,107,169,32,19,166,14 4,9,230,20,208,2 :REM*217	650 DATA 35,177,34,208,244,202, 208,243,165,34,105,2,133,45 165,35,105,0 :REM*64
470 DATA 76,159,164,10,0,160,6, 32,81,192,240,3,76,8,175,32 99,195,144,11 :REM*120	570 DATA 230,21,32,19,166,165,9 5,133,253,165,96,133,254,24 96,165,253,197 :REM*196	660 DATA 133,46,32,99,166,32,11 5,0,76,174,167,32,115,0,32, 250,195,160,0,32 :REM*172
480 DATA 169,0,168,145,251,200, 145,251,76,61,195,32,175,19 5,176,3,76,72 :REM*154	580 DATA 251,165,254,229,252,96 160,8,32,81,192,240,3,76,8 175,32,236,195 :REM*62	670 DATA 186,255,169,2,162,172, 160,196,32,189,255,32,192,2 55,162,1,32,198 :REM*96
490 DATA 178,160,255,162,2,32,8 3,195,160,0,177,253,145,251 141,49,193,200 :REM*69	590 DATA 160,0,32,186,255,165,4 5,56,233,2,170,165,46,233,0 168,169,0,32 :REM*215	680 DATA 255,32,207,255,32,207, 255,32,207,255,133,251,32,2 07,255,5,251,240 :REM*123
500 DATA 177,253,145,251,13,49, 193,240,20,162,2,200,177,25 3,145,251,200 :REM*173	600 DATA 213,255,144,3,76,156,2 25,134,45,132,46,32,51,165, 32,218,192,76 :REM*209	690 DATA 30,169,13,32,210,255,3 2,207,255,170,32,207,255,32 205,189,169,32 :REM*249
510 DATA 202,208,248,177,253,14 5,251,240,215,200,208,247,1 62,0,32,83,195 :REM*229	610 DATA 174,167,32,115,0,208,3 76,8,175,32,87,226,32,121, 0,240,6,32,0,226 :REM*104	700 DATA 32,210,255,32,207,255, 240,219,32,210,255,208,246, 169,1,32,195,255 :REM*129
520 DATA 165,251,133,45,165,252 133,46,32,51,165,32,99,166 76,174,167,200 :REM*150	620 DATA 76,4,196,162,8,169,1,9 6,160,10,32,81,192,240,3,76 8,175,165,43 :REM*151	710 DATA 32,204,255,76,174,167, 36,48,160,12,32,81,192,240, 3,76,8,175,32 :REM*116
530 DATA 152,24,117,251,149,251 144,2,246,252,202,202,16,2 42,96,169,0,133 :REM*98	630 DATA 133,34,165,44,133,35,1 60,3,200,177,34,208,251,200 152,24,101,34 :REM*149	720 DATA 236,195,160,15,32,186, 255,32,192,255,169,1,32,195 255,32,204,255 :REM*63
		730 DATA 76,174,167,221 :REM*149

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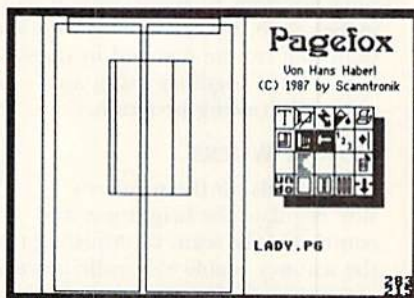
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# HARDWARE GALLERY

*A European import has appeared on U.S. shores, promising an increase in desktop publishing capabilities.*

By BETH S. JALA



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## HANDYSCANNER 64..... B+

*Here's a Novel Way  
To Spice Up All  
Your Published Products*

The Commodore 64 has always reminded me of the little car in a circus ring that dozens of performers pile out of: Just when you think you've seen everything it has to offer, something else appears.

The latest bit of wizardry for the C-64 is a handscanner. This German import, called Handyscanner 64, is the first handheld scanner available for the Commodore. With it, you can digitize graphic art and photographs, edit them with the aid of accompanying drawing programs, and then use them in your newsletters, posters, letters or other published products.

A cartridge plugs into your computer's user port, and the scanner plugs into the cartridge. Since both use some power, an auxiliary power supply also plugs into the cartridge.

Handyscanner itself is about four inches wide by five inches long; its scanning window is about two-and-a-half inches wide. Photos or drawings wider than that can be scanned in strips, then pasted together using an optional drawing program.

### HOW IT WORKS

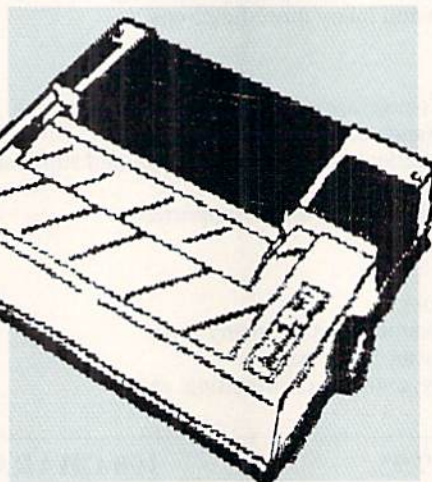
Two dials on the scanner's side regulate the brightness and contrast of the scan. By adjusting them, the scanner is able to handle just about any type of photo or drawing—even ones with poor contrast. One of the settings lets the scanner turn photos into halftones.

On top of the scanner is a window and a button. The window glows from the faintly lighted LEDs, which provide the greenish-yellow light for the material being scanned. Press the button, and the LEDs brighten, indicating that the scanner is now—literally—ready to roll.

As you slide the scanner slowly down



The Handyscanner setup: An auxiliary power supply and the scanner both plug into a cartridge in your computer's user port.



Pictures of the printer and Garfield (above) were scanned by Handyscanner 64.

the page, you won't be able to see what you're doing on the monitor. The screen turns blue and flickers as the scanner does its work. When the scan

is finished, press the run-stop key to begin the conversion process. The scanned material will appear on the screen within ten to 40 seconds, depending on the size of the scan.

Handyscanner comes with its own graphics program, so the scanned material can be cleaned up or altered. The program, which works with either a joystick or 1351 mouse, has enlargement and reduction capabilities and a pixel-editing function, and can produce patterns and ellipses.

Expect the best outcome when scanning black-and-white line drawings, charts and graphs. High-contrast color drawings also scan well. Getting good results from color photographs requires experimentation, however.

This technology has its price: The scanner head, software, cartridge and power converter carry a tag of \$299.95. Nearly the cost of a C-64 and disk drive, the scanner is a major investment compared to the cost of the computer with which it will be used.

The price may scare some C-64 own- ▶

ers away. But don't worry about purchasing a product that's been untested in the marketplace. Richard Ollins, president of Datel Computers, importers of Handyscanner 64, said the scanner has been available in Europe for about three years.

## PAGEFOX

So, what do you do with the finished scanned images? Datel has the answer. Pagefox, a desktop publishing program that's also been in Europe for some time, is available for the Handyscanner. In fact, there's even an icon in Pagefox to activate the scanning program.

"Conversion programs are now being written that will move the scanned images into drawing programs that are popular in the United States," said Ollins. He mentioned that by the time *RUN* readers see this review, those programs should be ready. "There will be a conversion program so the scanned images can be used with GEOS," he added.

Pagefox, with a suggested retail price of \$139.95, uses a cartridge that plugs

into the game port of the C-64. This cartridge is a 96K storage-expansion module that lets Pagefox work quickly.

Pagefox is also packed with features. It can flow text so that the edge of the type contours to match an adjacent drawing. It has 12 character sets, all of which can use any combination of eight special effects, including italic, bold, outline and 3-D outline.

Like desktop publishing programs for the Amiga, Pagefox uses "rubber band boxes" to designate the area where text will go. Once in place, the box can be stretched or shrunk, so the block of copy can fit on the page.

Pagefox has a menu bar across the bottom of the screen that changes when you press the space bar. There are two different bars for selecting options like free-hand drawing, text functions, erase, "spray" paint, disk commands, printing, and so on. A third menu bar offers 20 fill patterns.

Sophisticated features, including kerning (squeezing letters together so they look more appealing in headlines),

are also available in Pagefox. In addition, you can purchase a \$49.95 character-set editor called Characterfox, which lets you make your own typefaces.

The manual I received for Pagefox had been translated from German, and I found it to be a somewhat bumpy read: "Graphics you place easily by moving them to the wanted place with mouse or joystick" is one example of its awkward construction. The final version, which should smooth out those bumps, would also benefit from a tutorial showing you how to assemble a page for a two- or three-column newsletter with a banner at the top, some headlines, text and pictures.

To sum up: A pricey, but capable handscanner has arrived for the C-64 and promises GEOS compatibility. And, as a full-featured desktop publishing program with expanded memory, Pagefox works quickly. (Datel Computers, 3430 E. Tropicana Ave., Unit 67, Las Vegas, NV 89121.)

—LONNIE BROWN  
LAKELAND, FL ■

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# 128 MODE

*Learn how you can, with a few Basic commands and an atlas, easily draw a map on your 40-column screen.*

By MARK JORDAN

IT'S EASY TO DRAW MAPS on a C-128. All you need is a rudimentary knowledge of Basic (which follows) and a map to refer to.

Map-making on the 128 is so simple because its Graphics mode parallels the way maps are drawn: Both use a set of coordinates to draw lines. On the 128, these coordinates are known as X and Y, and they correspond to the horizontal and vertical axes. On a map, the corresponding coordinates are latitude and longitude. Since latitude and longitude can be determined for any point on the Earth's surface, duplicating that point on your 128 is as easy as putting map coordinates into the Draw command in a continuous stream.

## DRAWING A CONTINENT

Let's mosey through a very simple map-making venture in Basic 7.0. Since Australia is a neat, well-defined continent, we'll draw it. To show how simple the process is, we'll do the whole thing from Direct mode, which means no program lines are needed.

First get into Graphics mode with:

```
GRAPHIC 2,1,10
```

This puts us into split-screen graphics (with the split at line 10), so that we can type in our commands at the bottom half of the screen and see the map at the top.

Next, we need a map of Australia that has longitude and latitude lines. (It's a good idea to have the map in front of you now, so you can follow along.) Australia's northeastern peninsula comes to a sharp point, so let's use it as our starting point. My map says the longitude is about 143, and the latitude is approximately 11. Begin with:

```
DRAW 1,143,11
```

If you press the return key after typing the above, you'll just get a dot on your screen. We want to use the continuous drawing feature for our map, so don't press return just yet.

From this point, we need to move in



a straight line as far as we can. Since the eastern slope of Australia is roughly straight all the way to Brisbane, let's make it our next set of coordinates (153 longitude, 28 latitude). The line should now look like this:

```
DRAW 1,143,11 TO 153,28
```

See how easy it is? We can go to the next prominent point by adding another TO onto the same line. Let's go down to just east of Melbourne (149,38), then to just west of Melbourne (140,38), then arc northwest to the southern border between West Australia and South Australia (130,30), and finally over to the southwest corner

(116,34). Here's what the line looks like so far:

```
DRAW 1,143,11 TO 153,28 TO 149,38 TO 140,38 TO 130,30 TO 116,34
```

There's a place called Onslow that's almost a straight shot up Australia's western coast. It's at 115,22. From Onslow, we need to move northeast to near Darwin (132,12) before heading back south to Normanton (141,18). We complete our map by going back to the same coordinates we started with—143,11. Here's the entire continent in one Direct mode line:

```
DRAW 1,143,11 TO 153,28 TO 149,38 TO
```

RUN it right: **C-128 (in 40-Column mode)**

140,38 TO 130,30 TO 116,34 TO 115,22  
TO 132,12 TO 141,18 TO 143,11

Go ahead, press return and watch what happens. Viewing the drawing in progress should convince you of two things: anybody can do this, and ours would be a more refined map if we had taken the time to plot more points.

The more coordinates, the more accurate the map. However, you would need to turn your draw lines into program lines. When you do that, you must start each succeeding Draw command with relative coordinates. Here's how:

DRAW 1,+0,+0 TO...

The two +0s keep the pixel cursor where you last left it, so you can add more coordinates and continue your drawing.

Our map of Australia has only one problem—it's small. To double its size, we simply need to multiply the coordinates by 2; to triple its size, multiply by 3; and so forth. It's a good idea to put your coordinates into Data statements and read them out from inside a loop. That way, you can factor in the constant as you read them. If you do it this way, you'll need to type in an extra Draw command at the beginning to establish the starting point, like this:

```
10 DRAW 1,143*7,11*7
20 FOR T=0 TO 9:READ X,Y:DRAW
  1,+0,+0 TO X*7,Y*7:NEXT
30 DATA 143,11,153,28,149,38,140,38,
  130,30,116,34,115,22,132,12,141,
  18,143,11
```

Enlarging our map to fit the screen presents another problem—centering



This map of the U.S. was drawn in Basic on a C-128.

it. This can be done by adjusting the coordinates of the northwest corner of the map. First, find the west-most point (for Australia, it's 115) and deduct that value from all longitude points. Then, find the northern-most point (11) and deduct that value from all the latitudes. The loop would be readjusted like so:

```
10 FOR T=0 TO 9:READ X,Y:DRAW
  1,+0,+0 TO (X-115)*8,
  (Y-11)*8:NEXT
```

### SOME CAUTIONS

This exercise helps to understand the nature of mapping and its inherent difficulties. One obstacle is that Earth is round, not flat, and any attempt to display it on a two-dimensional surface will do injustice to the place you're drawing. Another factor is that nature's borders, unlike man-made borders, are never straight lines. Compared to Australia, drawing Colorado is a snap.

The biggest difficulty you'll run into

is the fact that longitude is measured west or east from the Greenwich meridian up to 180 degrees, and latitude is measured south or north from the equator up to 90 degrees. This means that, for areas in the western and northern hemispheres, longitude coordinates increase from right to left, and latitude coordinates increase from bottom to top, which is exactly opposite from the normal way of reading coordinates. I chose Australia for our tutorial map because it's in the southern and eastern hemispheres, and thus the map draws the way we would expect it to, with longitude increasing from left to right and latitude from top to bottom. The United States is just the opposite; draw its coordinates directly, and you'll get a map with Florida pointing towards the upper-left corner of your screen!

The way around the problem is simple: Subtract all longitude and latitude values from 180 to reverse them. The accompanying demo program (which draws a very crude U.S. map) demonstrates this. To see the demo, type in Listing 1, using RUN's Checksum program to look for typing errors, and save it to disk before running it.

The demo also shows another Basic command at work: Scale. With Scale, you can stretch and shrink maps in many interesting ways. When you run the demo, feel free to experiment. We don't have room to explore Scale's depths this month, but we will next time. Until then, map on, O Columbus! ☐

*Mark Jordan, a high school English teacher by profession, is currently mapping his way through the globe on his 128.*

Listing 1. Map drawing demo program. (Available on ReRUN disk. See order card facing page 48.)

```
10 REM MAP OF THE U.S.A.:REM*59
20 GRAPHIC0,1:PRINT"(SHIFT CLR)F
  IRST, A SPRITE-SIZED MAP":SL
  EEP1:REM*59
30 X=20500:Y=12400:GOSUB110
  :REM*209
40 DO:REM*18
50 GRAPHIC0,1:PRINT"(SHIFT CLR)P
  ICK SCALE COORDINATES":REM*250
60 PRINT"(3 SPACES)(FOR A FULL
  MAP, X=6500, Y=2800)(CURSR DN
  )":REM*230
70 INPUT"CHOOSE FROM 320-32000
  FOR X":X:REM*86
80 INPUT"CHOOSE FROM 200-32000
  FOR Y":Y:REM*62
90 GOSUB110:REM*158
100 LOOP:REM*81
110 GRAPHIC1,1:SCALE1,X,Y
  :REM*252
120 DRAW 1,12800-125*100,4950-4
  8*100:REM*240
130 RESTORE 280:FORT=0TO38:READ
  LO,LA:REM*170
140 DRAW 1,+0,+0 TO 12800-LO*100
  0,4950-LA*100:REM*79
150 NEXT:REM*25
160 IFX<>20500THENSLEEP2:GOTO27
  0:REM*122
170 REM SPRITE ROUTINE:REM*236
180 PAINT 1,500,500:REM*194
190 SCALE0:REM*5
200 FORI=0TO7STEP4:REM*97
210 FORT=0TO3:J=T+I:K=J+1
  :REM*113
220 SSHAPE A$(J),T*24,L,T*24+23
  ,L+20:SPRSAY A$(J),K:MOVSPR
  K,T*24+100,L+100:SPRITE K,
  1,5:REM*109
230 NEXT:REM*105
240 L=L+21:NEXT:REM*255
250 TI$="000000":REM*246
260 DO:FORT=1TO8:R=RND(1)*15+1:
  SPRITET,1,R:NEXT:LOOP UNTIL
  TI>300:REM*132
270 RETURN:REM*157
280 DATA 00,47,92,46,84,46,87,4
  5,88,42,87,42,85,45,83,45,8
  3,42,80,42,75,45,71,45,69,4
  7,68,47,67,45:REM*132
290 DATA 70,44,71,42,74,40,76,3
  5,82,31,80,27,81,25,84,30,9
  0,30,89,29,95,29,97,27,97,2
  6,100,28:REM*152
300 DATA 102,30,104,29,105,30,1
  07,32,110,32,115,33,117,33,
  120,35,124,40,125,48:REM*164
```

# ProTips

*Use your software and hardware to best advantage by applying this month's tips.*

By HAROLD R. BJORNSEN

**FLEET SYSTEM 4 (VERSION 4.32):** When printing fanfold postcards that have the same text, press F1, followed by O, C and N. Then enter the number of copies you want at the query.

—RICHARD L. WEST  
SPRING VALLEY, CA

**FONTMASTER:** Making address labels is so easy to do! The only time-consuming parts are making sure you have the converted graphics that you plan to use saved on your disk and saving your label formats. Once you get the setups (see below), make sure you save them. (Remember to adjust the printhead up or down to properly center text on the labels.)

For three-line labels: (ESC)pl6:lm1:rm35:tm0:bm0(ESC)ID1:(graphic)(skip a line)

For four-line labels: (ESC)pl6:lm1:rm35:tm0:bm0:cyID2:(graphic)

For a five-line label using the setup for four lines, condensed and justified: Add ls7 or 8 to ESC line and add a line or two

For six-line labels, centered: (ESC)pl6:ls7:lm1:rm35:tm0:bm0:cy

The labels—which all my friends love—even surprise those who use IBM PCs!

—JOLENE EHRET  
KILLEEN, TX

**GEOS AND THE CMD HARD DRIVE:** Even though this hard drive is faster than any other drive when using GEOS, it still may be best to use it as a storage device and use a RAM expansion unit to run the applications. Case in point: A search of a 183-record file with geoFile took 70 seconds with a 1581 drive, 30 seconds with the CMD hard drive, and ten seconds with the REU.

—BUDDY GROHS  
BAY MINETTE, AL

**GEOFILE:** The documentation mentions that you can use Commodore/Z to clear a record of data. Use this same

command to clear a search form before you enter new search data. This prevents having any inadvertent data in the search form.

Since a field will hold more characters than there is room for (the field blanks out and looks empty), you may have data in a field and not realize it. I do not recommend putting more characters in a field than there is room for; if you need more room, make the field bigger. It'll save you grief.

—BUDDY GROHS  
BAY MINETTE, AL

**PAPERCLIP PUBLISHER:** When loading PaperClip Publisher, load the main program by entering "PCP.PROG", 8, 1, and then run it. This bypasses the title screen and the waiting for the graphics and animation to finish—it gets you to the main program faster.

When saving changes (do this often) to the active (closing) file, use the Exit option from the Project menu rather than the Close option. When the program prompts you to go to Basic, answer no, and it will return you to the active file. If you use the Close option, the program makes you reopen the file, once again wasting precious time.

—ROBERT HARTLE  
TIONESTA, PA

**PAPERCLIP III:** The F2 key recalls any previously viewed disk directory instantly, because it's still in memory, just as long as the Video Preview option hasn't been used.

To see the disk name and the number of blocks free, press control/2 first, then the British pound sign twice followed by return.

—MICHAEL HABERMANN  
BALTIMORE, MD

**PAPERCLIP III:** Naming your documents with a prefix denoting their purpose lets you use the control/2 selective directory much more effectively. For example, I prefix filenames of letters with

"l." and filenames of documents with "d.". I also use the last seven characters of the filename for dating in a year/month/day (YYMMDD) format, followed by a period, or an extension letter or number if the file is part of a chain. This way, I can tell at a glance, for example, if I wrote a letter to someone on a certain day. The YYMMDD format is handy for sorting the directory with a directory editor like that found in Maverick or the 1581 Toolkit.

—D. DAYTON LIVINGSTON  
HOLBROOK, AZ

**WORD WRITER 4:** If you have a C-64 or a C-128 and a 24-pin printer, buy this program, and GO64! The printout of this word processor's many fonts has almost laser-like quality. The curved portions of the characters do not have the stair-step outlines so common to computer printouts.

—ROBERT M. MAYO  
BATON ROUGE, LA

**WORD WRITER 128:** To set this word processor for your printer, load the appropriate printer file from the boot disk (side 1), then save this as a file named "DEFAULT". If you have a screen and character color preference, set them (using the Commodore/B and Commodore/C commands) after loading the printer file, but prior to saving it as a default file. This causes Word Writer 128 to come up ready for your printer, with your screen and character colors already in place. This also works with all printer formatting commands (Reset Printer, Number Pages, and so on). It will not work if you preset the printer to such things as NLQ mode or italics.

—JEFF BOARMAN  
CLARKSVILLE, TN ■

*Send your tips to ProTips, RUN Magazine, 80 Elm St., Peterborough, NH 03458. Include your name and complete address. Note the version number (if any) of the software you use and which Commodore computer your tip is for. RUN pays \$5 per submission.*

# GOLD MINE

*More tips to help you advance in your favorite games, including Bard's Tale III, Red Storm Rising and Zak McKracken.*

By LOUIS F. SANDER

**BARD'S TALE III:** The Soul Spear is not the only item you can use to slay Tsotha Garth. If you can get close enough for hand-to-hand combat, you can kill him with the Stone Blade.

In the Valarian Tower, you'll find your way blocked by a large rock. Notice that there's a small orifice below the rock, about the size of an acorn. Hmmm.

Get an acorn from the tree, then get a container of the Water of Life from the Water of Life fountain in the Underwater Palace. Go back to the large rock, put the acorn in the hole, and pour some Water of Life on it. A tree will grow before your very eyes, lifting the rock and clearing your way.

The old man in the fisherman's hut will give you the Gill spell, which will let your group breathe underwater for a while.

Since "special" class characters (those not controlled by you, such as statues, creatures who join you, and so on) can't use items, it is a good idea to have them carry things used by other characters, like Harmonic Gems and TNT. The extra space comes in very handy.

—RAUL SOTO  
ARECIBO, PUERTO RICO

**THE GAMES: WINTER EDITION:** In the Ski Jump, you can get at least 70-75 meters each time by using this technique: As you go into the third-person view, lean as far forward as possible, with your arms up. This makes you as flat as you can get. Pull up, and land when you feel comfortable.

—ANDREW FLEMING  
ST. MORITZ, SWITZERLAND

**POOL OF RADIANCE:** To clear the slums, you need to fight 15 random encounters and nine set encounters. The set encounters are at or near these coordinates: (13,1), (10,1), (7,0), (0,2), (3,3), (0,7), (1,5), (3,11) and (0,14).

The only magic treasure you'll find is on the set encounters, so don't waste your Detect Magic spells elsewhere.

There is a secret treasure room at

(0,0). To enter it, go to (1,0) and move West. There is also a treasure at or near (6,2), (4,10).

—TODD SINCLAIR  
SUISUN, CA

**RED STORM RISING:** If you're having trouble identifying a ship using the Acoustic Signature mode, try using the periscope to ID it. Be aware, however, that this may give away your position to surface ships.

Under the icepack, you can become invisible to torpedoes by following these directions: Go to the dirtiest water in the area, go to maximum depth, then go to zero power. Next, examine the Sea Conditions screen and compare your noise level (in the upper-right corner) to the ambient noise. If your noise level is lower than the ambient noise, then you are practically invisible.

—TIM CUNARD  
APO, NY

**TEENAGE MUTANT NINJA TURTLES:** When you are in the sewers, use Leonardo. In level 1, use Donatello to beat Bebop and Rocksteady. He is the most powerful turtle in the bunch, although he's very slow.

While in the water in level 2, use Raphael and Michaelangelo to defuse the bombs. You'll need the other two turtles for the next board. Don't worry, Raphael and Michaelangelo will pig out on pizza later.

For level 3, get about 30 Anti-Foot Clan Missiles to break through the barricades. When you get to Mecaturtle, use all your turtles.

When you are in buildings in levels 3 and 4, use Donatello. Use Raphael and Michaelangelo only as a last resort.

Your main objective in level 4 is to get to section 18, where Big Mouser holds forth. Use Donatello to beat him. All you have to do is shoot up with the Bo, and Big Mouser is history.

In level 5, find any Shuriken and shoot it into the eye of the guardian. Shredder will come next, and he's the hardest and

most powerful of all the bosses. Use all your turtles to defeat him. If you fail to beat him, he'll turn you back to an ordinary turtle and let you out on the street. That makes you a prime candidate to become a future road kill. Aaaaaaaargh!

—DAVID BUCHIN  
JAMAICA, NY

**ULTIMA V:** If you own a C-128, try booting Ultima V in 128 mode. The program's instructions say that the game takes much longer to load in 128 mode, but I have found that, to the contrary, booting in 128 mode not only loads faster than 64 mode with a fast-loader, but it also lets you listen to some catchy tunes along your journeys.

DENTON KOLLAR  
LOWELLVILLE, OH

**ZAK MCKRACKEN:** When in the Bermuda Triangle, give either the guitar or the King Fan Club card to the King. He will show you how to get home using his transporter device. He'll also let you use his very accurate lottery predicting machine.

Ring the bakery doorbell three times, and the French baker will give you a stale loaf of bread. Use the monkey wrench to remove the pipe under the sink, put the bread in the sink, and turn on the switch. Use the bread crumbs in the Peruvian bird feeder.

—MAITT PARRY  
CHATHAM, ONTARIO, CANADA ■

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# GEOWATCH

*This month, we feature an explanation of GEOS and geoBasic, for both the novice and experienced user.*

By TIM WALSH

EARLIER THIS YEAR, *RUN* announced that it would be selling and supporting geoBasic, the programming language for GEOS. No sooner had the advertisement hit the newsstands, then *RUN* was struck with a barrage of letters and telephone calls, and numerous questions were posed on QuantumLink.

Surprisingly, the inquiries were less about geoBasic and more about GEOS itself. I realized that many readers know precious little of what GEOS is, yet are intrigued by the idea of geoBasic. With a sizable segment of *RUN* readers having little or no knowledge of GEOS, or even the concept of an operating system, I eagerly accepted the opportunity to devote this column to new users. (Not to worry, experienced users—there are a few tips here you can benefit from, too!)

So, let's take a look at GEOS, followed by an overview of geoBasic.

## BACK TO BASICS WITH GEOS

What is GEOS? GEOS (Graphics Environment Operating System) is a program that creates a new operating system for the Commodore 8-bit computers. Developed in 1986 by Berkeley Softworks, the purpose of GEOS is to create an intuitive interface between the computer and the user. GEOS lets the user relate to the computer through a process of manipulating small images, or icons, on the screen. The system is designed to be simple to use, fast and powerful, and it utilizes a mouse as input instead of the keyboard, much like the Apple Macintosh.

The heart of the user interface is called the deskTop. It is from this graphic interface that all the commands are derived. A screen comprising pages of files are represented by icons. The idea that these pages can be "flipped" forward and backward was, when it first appeared, a new concept in computing for Commodore users.

Initially, the GEOS operating system was fraught with problems, and so it became the object of much Commodore-bashing at users' group meetings. Through constant upgrades, however, GEOS was eventually embraced by the



Commodore 8-bit community. Within a few years, several C-64 and C-128 versions of GEOS were released, along with GEOS applications, such as geoCalc (a spreadsheet program), geoFile (a database) and geoPublish (a desktop publishing package).

Further enhancing GEOS' acceptance was a marked increase in GEOS-related files available in the public domain and shareware arenas. These included fonts and utilities, along with a lot of graphics created using geoPaint, a GEOS color paint program.

If you like the sound of GEOS, but are thinking it might be too complex to learn, relax—the GEOS operating system is easier to learn than just about any other aspect of your 64/128 system.

With the concept of an operating system, the assorted applications and utilities and various versions of GEOS adding to the confusion, how do you get started using GEOS? Let's examine it further.

## GETTING STARTED

If you haven't used GEOS before, there is one Golden Rule. No matter how good of a discounted deal you can get on earlier versions, don't consider using any version issued before GEOS 2.0 for both the 64 and 128. Here are a few reasons why.

First, only version 2.0 supports Commodore's 1581 disk drive. Earlier ver-

sions lock up the computer if a 1581 is detected. Second, three disk drives, including any combination of REUs (RAM expansion units) and disk drives, can be used with your system by tailoring GEOS' Configure 2.0 program to your individual system. Third, more printer drivers are available for later versions. GEOS uses small printer programs (printer drivers) to control printers, so its variety of drivers is important, especially for owners of rare printers. Finally, multiple files can be copied in a minimal amount of time by highlighting files either individually or globally. This is a vast improvement over older versions of GEOS that require icons to be dragged to the border for multi-file copies.

GEOS 2.0 cures all the earlier versions' ills and gives the C-64 and C-128 a real Macintosh feel. More than anything else, GEOS adds a lot of keyboard equivalents to the operating system. Refer to Table 1 for a list of these shortcuts.

## GEOBASIC

To the uninitiated, the name geoBasic probably invokes an image of just another version of Basic for your C-64 or C-128. On the contrary, geoBasic is much more than an enhanced Basic 2.0, or even Basic 7.0. What follows are some of the fundamentals of geoBasic.

GeoBasic requires GEOS in order to be executed. GEOS is not included with geoBasic, so if you don't already own one, get a copy of GEOS before buying geoBasic. And, while it may be plainly obvious to experienced GEOS users, novice geoBasic users should note that existing Basic 2.0 and 7.0 programs will not work from within geoBasic. Similarly, your geoBasic programs will not operate outside of GEOS.

Most geoBasic applications will operate in 128 mode (40 columns only), provided they're executed from GEOS 128 2.0 and not earlier versions. GeoBasic relies on a lot of C-64 Kernel routines and, because it was written with C-64 compatibility in mind, it comes as little surprise that some C-128 compatibility is lacking. It's not uncommon for some geoBasic programs to ▶

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300 baud modem 1200 baud modem 2400 baud modem  
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## GEOWATCH

work in 64 mode, but not in 128 mode.

Many users expressed curiosity as to whether or not stand-alone geoBasic programs can be created. Stand-alone programs are those that do not require the host program—in this case geoBasic—to be present in order for the program to be executed. With geoBasic,

the answer is both yes and no.

For instance, certain preparatory steps must be taken. Within geoBasic, an option called Make Appl will create a stand-alone geoBasic application, but only from within GEOS 64, not GEOS 128. The fact that some geoBasic programs will not work in 128 mode is also

applicable to stand-alone programs.

Finally, the most compelling reason for using geoBasic is the elegance it adds to the normally tedious task of writing programs. In fact, geoBasic is one of the most painless ways to program on your Commodore 8-bit. In the spirit of GEOS, programming options are activated using drop-down menus and a mouse. Need to list a program? Select List from the menu. Need to run a program? Simply select Run. GeoBasic spoils programmers of all skill levels with such easy-to-use options.

I hope this column clarifies any questions concerning the fundamentals of GEOS. If there's any doubt whether or not you should be using GEOS, ask those who do. Watch the operating system in operation and look at the work various artists have created with GEOS. That should convince you that an investment in GEOS is a wise one. ■

*Tim Walsh, RUN's technical manager and Magic columnist, has written numerous articles on printers, monitors and GEOS.*

**Table 1. Keyboard shortcuts for GEOS.**

Pressing the Commodore key in conjunction with any one of these keys produces the following actions:

C—Closes the active disk	Q—Gives information on a file
D—Deletes a selected file	R—Resets the deskTop
E—Erases a disk	S—Creates a new page on the deskTop
F—Formats a disk	T—Deletes the current page
H—Duplicates a selected file	W—Selects all the files on a disk
I—Selects an input device	X—Selects all the files on the current page
K—Copies a file	Y—Selects all the files on the border
M—Renames a file	Z—Opens or executes a selected file
N—Renames a disk	
O—Opens a disk	
P—Prints a file	

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# COMMODORE CLINIC

*C-64/128 disk drives are the main topic this month: "thumping," loading and accompanying an Amiga.*

By ELLEN RULE

**Q** Can my 1541-II disk drive damage itself? Sometimes when I'm running a program, I shut the drive off to let it cool. Then, when I turn it back on, it may start "thumping"—a little faster than when preparing to format a disk—and keep thumping until I shut it off. I've observed that this occurs only with programs that utilize a fast-load technique of some sort. Is the thumping my drive's fault or my fault for shutting the drive off while running a program that uses a fast-loader? Either way, what damage might it cause?

—RON HARNEY  
BAYONNE, NJ

**A** Owners of older 1541 drives often take preventive measures against heat (for example, elevating the drive off the desk or using small fans to draw air through the drive). The 1541-II, however, has a remote power supply and additional side vents for improved air flow. Therefore, you shouldn't experience heat buildup unless something in the drive is defective or the side vents are blocked.

In addition, it's generally a poor idea to turn off the disk drive while the computer is running. Some copy-protection routines and fast-loaders modify the operating system in the drive's RAM, and shutting off the power makes the drive forget those modifications. Also, it's possible that a power surge from turning the drive back on could damage the computer.

The noise you're hearing is the disk head seeking track zero. Excessive thumping could knock the drive head out of alignment.

**Q** I have several programs that sometimes don't load properly. When I type `LOAD "*"8`, the program may load, or I may get the File Not Found message. Is there something wrong with my drive?

—BARNEY OLDFIELD  
DODGE CITY, KS

**A** You could be making a mistake that's common among users and even found in manuals that accompany

commercial software. The 1541 and 1571 disk drives are "intelligent" peripherals, but sometimes this intelligence can be a drive's undoing. To minimize disk access, the drive stores a portion of the disk directory in its own RAM. When you type `LOAD "*"8`, the drive attempts to load the last program referenced, which results in an error if you've just switched disks. If you've just turned the computer on, the command loads the first program on the disk.

To load the first program on the disk every time, no matter what else you've done in your work session, use `LOAD ":"8` instead. The colon forces the drive to reread the directory, and then it will correctly load the first file on the disk.

As for physical causes, your drive could be marginally out of alignment. Also, RF interference (caused by your drive or drive cables being too close to your monitor) may play a part in your problem.

**Q** Please describe how data is organized on a Commodore disk. Also, can I buy a double-sided disk drive that works with both the C-64 and Amiga 500?

—ALI MORSHEDSOLUK KARIMI  
TEHERAN, IRAN

**A** The Commodore 1541 disk format consists of 35 tracks, numbered 1 to 35 from outside to inside. Within each track are blocks, each containing up to 256 bytes (characters) of data. Blocks are also referred to as sectors. Tracks 1–17 hold 21 blocks each (numbered 0–20), tracks 18–24 hold 19 blocks each (numbered 0–18), tracks 25–30 hold 18 blocks each (numbered 0–17), and tracks 31–35 hold 17 blocks each (numbered 0–16). Track 18 contains the directory and block allocation map (BAM) for the disk. Within the other tracks, a typical data block contains two bytes that point to the file's next track and sector, followed by 254 bytes of data. Track and sector organization for the 1571 and 1581 are similar, with the double-sided 1571 having twice the tracks in a similar block arrangement.

Further details on how the data, directory and BAM are organized can be found in the appendix section of your disk drive manual. If you'd like more information beyond that, you may find Dick Immers' *Inside Commodore DOS* helpful.

I know of no disk drive specifically designed to work with both the C-64/128 and Amiga. However, there are C-64 emulator programs for the Amiga that let you use a 15X1-series drive, and may even let you use the 15X1 as an auxiliary Amiga drive. Unfortunately, this is a slow and cumbersome method of storing a relatively small amount of Amiga data.

**Q** I have a 64-C with a 1541-II disk drive. Recently I purchased a new Star Micronics NX-1000 printer with a Xetec Super Graphix Jr. interface, but I can't get NLQ printing with them. When I power up, I hold down the NLQ Type Style button and set the printer to Courier (NLQ), but when it comes time to print, I end up in Draft mode. Is this because I use GEOS?

—KARL MESOJEDNIK  
DAUPHIN, MANITOBA, CANADA

**A** There are a few tricks to achieving NLQ (near letter quality) text with GEOS. First, use the Commodore 10-point font for your document and make sure the font is copied onto the document disk. Then, select all text and choose NLQ Spacing from the drop-down menu. Finally, be sure to select the NLQ print style from the Print Options menu. It appears from your letter, printed in BSW 9-point font, that you have interfaced your printer correctly and are using the proper GEOS printer driver. ■

*Do you have a problem or question about your Commodore computer system, software or programming? Just send your questions to Commodore Clinic, RUN Magazine, 80 Elm St., Peterborough, NH 03458. Queries are answered only through this column, and, due to the volume of mail, only questions likely to appeal to the majority of our readers can be published.*

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# RUN'S CHECKSUM & PROGRAM TYPING HINTS

TYPE IN RUN'S CHECKSUM, which serves for both the C-64 and for the C-128 in either 40- or 80-Column mode, and save it to disk before running it. When typing in a program from RUN, first load and run RUN's latest version of the Checksum program, which contains a new feature explained below. The screen will display a SYS number (49152 for the C-64; 3328 for the C-128) that deactivates and reactivates the Checksum. Always disable RUN's Checksum before attempting to run another program. Note: You can abbreviate Basic keywords; spaces affect the checksum only when within quotes; and the order of characters affects the checksum.

When you press return after typing in a program line, a one-, two-, or three-digit number from 0 to 255 appears in the home position. If this number matches the checksum value in the program listing, the line as you typed it is correct. If the number that appears doesn't match the checksum value, compare the line with the magazine listing to find your error. Then move the cursor back up to the line and make your corrections. Now, after you press return, the correct checksum value should appear. Continue entering the listing until all the lines have been correctly typed. Then deactivate RUN's Checksum, using the appropriate SYS number, and save the finished program.

We sometimes get letters and phone calls from new readers who have typed in the Checksum program for the first time. They are confused by the "Out of Data Error in Line 30" message that appears when they try to run the Checksum program. Understandably, they compare line 30 of the listing with line 30 as they typed it in, and cannot find anything wrong. The message unintentionally misleads them into thinking the error is in line 30, whereas the typing mistake is actually somewhere in one of the Data statements in lines 190-350.

So, we've added a new feature to the Checksum program that alerts readers to the number of the Data statement line in the Checksum program where an error has actually been made. **Note that this feature works only on the Checksum program itself, and not on any other program listing in RUN.**

After you've entered and saved the Checksum program to disk, run it. If you've made any errors in any of the Data statements, the program will give you a specific line number. Find the mistake, correct it, press return, save the program and run it again. Repeat this procedure until the Checksum program runs flawlessly.

## CONTROL CHARACTERS DEMYSTIFIED

All the graphics and control characters in the listings in RUN have been translated into understandable key combinations. They are the instructions you see inside the curly braces. For example, {SHIFT L} means you hold down the shift key while you press the L key once. You do *not* type in the curly braces. What appears on the screen will look quite different from what is designated inside the braces. Here are some more examples:

- {22 SPACES}—press the space bar 22 times.
  - {SHIFT CLR}—hold down the shift key and press the clr-home key once.
  - {2 CRSR DNs}—press the cursor-down key twice.
  - {CTRL 1}—hold down the control key and press the 1 key.
  - {COMD T}—hold down the Commodore logo key and press the T key.
  - {5 LB.s}—press the British pound key (£, not #) five times.
- Refer to the following paragraphs for any other Error messages you get from running any program listing in RUN.

## OTHER ERROR MESSAGES

Having heard from many users over the years about their difficulties with typing in listings, we've identified a few recurring problems that plague many people but are easy to fix. So read on and see if your problem is one of these.

- You get an "Out of Data in Line xxx" message. This means that a program line was reading from Data statements and reached the end of the data before it was done reading. There are two possible problems.

One might be with the program line that reads the data, usually a For-Next loop. Make sure you have the proper values for the loop, because if, for example, the listing has a loop of 0 to 150, and you've typed 0 to 160, you'll get the Out of Data message. If the loop is

correct, then the problem lies in the Data statements themselves. One possibility is that you omitted a whole line of data. That's easy enough to find and correct. It's more likely that you've skipped one or more individual data items or typed in a period instead of a comma, which causes two data values to be read as one number. Check your typing carefully against the listing. Using RUN's Checksum program when you type in listings from the magazine should help in this case.

- You get an "Illegal Quantity Error in Line xxx" message. This means you've read a number from a Data statement and tried to poke it into a memory address. The error occurs because the number is larger than 255 (the largest value a memory address can contain), which means that somewhere in your Data statements you've made an error by typing in a number larger than 255. Again, this is easy to check for and correct. First look in your Data statements for a number larger than 255. You might have added an extra digit, or perhaps you ran two numbers together (23456 instead of 234,56).

- You get a "Syntax Error in Line xxx" message. This could be almost anything. What it tells you is that there is something wrong in the indicated line. Usually you've misspelled a Basic keyword or omitted some required character. List the line and examine it carefully.

- You get an "Error in Data" message. This occurs in programs that add up all the data as read, and, when finished, compares that sum with what it should be if the data were typed in correctly. If it isn't the same, it means an error somewhere in typing the Data statements. Go back and check the data carefully. Correct the mistake(s), save the new version and try again.

- Finally, we urge everyone who intends to type in one of our listings to use RUN's Checksum program, which will help you avoid every mistake we've mentioned above, except that it won't detect the omission of a line. **R**

**Listing. RUN's Checksum program. This program is available on RUN's BBS for users to download.**

```
10 REM RUN'S CHECKSUM 64/128 - BOB KODADEK
20 MO=128:SA=3328:IF PEEK(40960) THEN MO=64:SA=49152
30 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+1
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 200,4,162,13,160,67,142,4,3,140,903
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 200,4,164,180,240,31,201,34,208,6,1276
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
```



## Level of Programming Expertise

Advanced



7%

Intermediate



37%

Beginner



29%

No expertise, but would like to learn



18%

No expertise and not interested in learning



9%

Source: RUN reader survey, May 1989.

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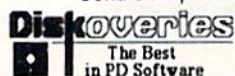
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Here's a look at two hot new products that make computing in the GEOS environment a lot more exciting.

### ReRUN PREVIEW—

Here's a sampling of the lineup for the November/December 1990 ReRUN disk: **Printer Controller 64/128**—Makes inputting printer codes easier; **Plaque Man**—A C-64 arcade game that's a twist on Pac Man; **Macro Mania**—45 Basic commands and functions for your C-64; **Geo-Stripper**—Save memory and disk space while using geoBasic. A C-64/128 program; **Shopping for a House?**—Find out if you qualify for a loan. A C-64/128 program; **GridRunner**—A fast-action, C-64 game; **BEE 64**—A Basic editor enhancer for the C-64 programmer; **Marked Square**—Play the coordinates and mark the squares with your color. A 64/128 game.

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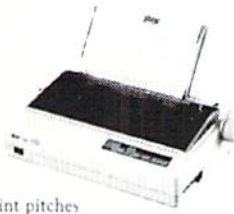
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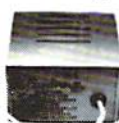
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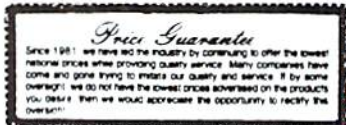
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