**Readers Speak Out On Software Piracy!** 

**COMPUTE**'s

June

1988

\$3.00 \$4.25 Canada

FOR COMMODORE PERSONAL COMPUTER USER

# VERSATILE NEW COMMODORE-READY PRINTERS

Color, graphics, on-board fonts, NLQ, & more for less!

#### 64 ARCADE ACTION!

ARCADE VOLLEYBALL Unique two-player version of America's favorite beach sport

JERICHO How much cloth can a super moth eat? Plenty if you can help it!

PLUS 8 MORE GREAT PROGRAMS!







#### BUY2, PICK1FREE!

We're sure that amongst all these choices, there's one that you'd like to pick – for free. So, go ahead – exercise your free choice by visiting your nearest retailer. Buy any two of these best-selling Electronic Arts products between April 1, 1988 and June 3O, 1988 – and pick a third one for free!

To redeem your free software, simply fill out either your retailer's coupon or the coupon in this ad, and mail it with your proofs of purchase (see requirements on coupon) along with \$3 for shipping and handling. If you can't find a participating retailer, order direct by calling 800-245-4525 (in CA, call 800-562-1112). Just tell us which products you want to buy, and what you want for free. Have your Visa/MC numbers ready.

# HERE ARE

- Amnesia
- Arcticfox
- The Bard's Tale
- The Bard's Tale II
- Chuck Yeager's AFT
- Deathlord
- Demon Stalkers
- Dragon's Lair
- Earl Weaver Baseball
- EOS: Earth Orbit Stations
- Get Organized
- GrandSlam Bridge
- Instant Music

- Instant Pages
  IntelliType
- · Legacy of the Ancients
- Marble Madness
- Patton vs. Rommel
- PHM Pegasus
- Return to Atlantis
- Skate or Die
- Skyfox II
- Starflight
- Strike Fleet
- · World Tour Golf

- B/Graph
- The Consultant
- DEGAS Elite
- DiskTools Plus
- Homepak
  - IS Talk
  - Outrageous Pages
  - PaperClip Publisher
  - PaperClip with Spellpak
  - PaperClip III
  - Thunder!
  - Timelink

Product availability varies by computer format. Ask your retailer ocall (415) 572-2787 for details



# 



#### AND YOUR DELUXE CHOICE

Choose from our Deluxe Creativity Series for your purchase products. Or. redeem free Deluxe software when you buy any two of these Deluxe products:

- DeluxeMusic Construction Set
- DeluxePaint II
- DeluxePhotoLab
- DeluxePaint

All products

- DeluxeProductions
- DeluxeVideo
  - DeluxePrint II



are	registered/trademarks of Electronic Arts.	i

P	ICK1FREE!
ML	AL- IN COUPON
enclosed :	e send my free software to the following address. I have the required proofs of purchase (specified below) and \$3 money order payable to Electronic Arts) for shipping and
Address	HILING CONTRACTOR
City	State
My free s	offware choice
The comp	puter I own
dated cash chased, and mand Sumn back, lower MAIL TO: E	PURCHASE REQUIREMENTS: Send the following original items: 1) the register tape(s) or sales receipt(s) showing the two products you pur- 12) find the Command Summary Card or the Manual (where no Com- nary Card exist) hidde each package, cut off the part number on the portion of the Card or Manual. Jectronic Arts, BUY 2, PICK 1 FREE, PO. Box 7530, San Mateo, CA 94403, aquests postmarked by July 15, 1988 will be honored. Allow 3-6 weeks

🕬ww.commodore.ca

#### **STEALTH MISSION**

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

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

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

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



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

Stealth Mission, the ultimate strategic simulation. From SubLOGIC.

#### See Your Dealer...

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

#### © 1988 SubLOGIC Corporation

Commodore 64 and Commodore 128 are registered trademarks of Commodore Electronics, Ltd.



Great New Reléase! Scenery Disk # 11



Attack at Sunrise



Locked on Target-Missile's Eye View



#### Cwww.commodore.ca



features	
Commodore-Ready Printers: The New Generation Tom Netsel	•
A Buyer's Guide to Commodore-Ready Printers Mickey McLean	*
A Guide to Commodore User Groups, Part 2 Mickey McLean	*****
reviews	
Super Snapshot 3.0 and Slideshow Creator Art Hunkins	64
Kung-Fu Master Robert Bixby	64
Skyfox II: The Cygnus Conflict Ervin Bobo	64
Tetris David and Robin Minnick 27	64
games	
Square Logix Leonard Morris	128
Arcade Volleyball Rhett Anderson and David Hensley, Jr	64
Jericho Robert Bixby	64
Pointer       Charles Prince       52         Graphics Wedge       Phillip A. Gilley       54         Excelfont 80: Super Character Editor for the 128       Daihung Do       56         Eight Thousand Dragons       Paul Carlson       59         BASIC for Beginners: My Dear Aunt Sally       Larry Cotton       60         Machine Language Programming: Where to Locate       Jim Butterfield       62         3-D Bar Grapher for the 128       Jon Atkinson       67	64 64 128 64 128/64/+4/16 128/64 128
departments	Caller
The Editor's Notes Lance Elko	
Letters to the Editor	*
Gazette Feedback Editors and Readers	•
D'Iversions: 8K Memory Is Enough! Fred D'Ignazio	*
Horizons: Piracy—The Readers Speak Out Todd Heimarck	*
Simple Answers to Common Questions Tom R. Halfhill 40	*
The GEOS Column: geoPaint Super Chart         E. William Huffman         41           Bug-Swatter: Modifications and Corrections         42	64
Aug Suighton Madifications and Competiens	*

#### program listings

How to Type In COMPUTEI's Gazette Programs	84	
The Automatic Proofreader	86	128/64/+4/16
MLX: Machine Language Entry Program for Commodore 64 and 128	88	128/64
Advertisers Index	100	

\*=General, 64=Commodore 64, +4=Plus/4, 16=Commodore 16, 128=Commodore 128

COMPUTEL'S GAZETTE (ISSN 0737-3716) is a COMPUTEL Publication, and is published monthly by ABC Consumer Magazines, Inc., 825 Seventh Ave., New York, NY 10019, a division of ABC Publishing, Inc., a Capital Cities/ABC Inc., company. © 1988 ABC Consumer Magazines, Inc. All rights reserved. Editorial offices are located at Suite 200, 324 West Wendover Ave., Greensboro, NC 27408. Domestic subscriptions: 12 issues, \$24. POSTMASTER: Send address changes to COMPUTEL's GAZETTE, P.O. Box 10957, Des Moines, IA 50340. Second class postage paid at New York, NY and additional mailing offices.





FOR COMMODORE PERSONAL COMPUTER USERS

Editor

Everyone has to take science courses in high school. The big problem for me started with chemistry class. A barrage of elements, minerals, and chemicals, each with strange, cryptic abbreviations. Then came the bizarre chains that represent the various molecular structures: If we add H<sub>2</sub> here, will oxidation take place? If so, how is the carbon chain affected? Draw the new chain. You may recall the strange little diagrams that looked like many strings of pearls after several hours in a clothes dryer.

It was then that I began to suspect the Great Scheme. All of this information was too abstract, too far removed from the real world I thought I was beginning to understand through history, English, geography, even math. Well contrived, I thought, but not clever enough. People who had little or no talent for self-expression-writing, music, and art, for example-had long ago invented a secret society for the institution of bogus scientific systems and subsystems which has continued to expand and codify over the decades and centuries.

The culmination of my experience with that chemistry class was a drawing I made in answer to a final-exam question requiring one of those molecular chain contrivances. I drew a picture of bacon and eggs.

Freshman year, college. Required: Chemistry 101, with a twohour lab every Friday. In the labs, I remember pouring combinations of oddly colored solutions together to make an even stranger-colored one with, maybe, some smoke rising. On paper, the string of pearls became even more convoluted. My Great Scheme suspicions were now zealous convictions.

While I held these beliefs closely over the years, I never shared them until many years later. My wife is very strong in the sciences and had taken a lot of chemistry and related courses in college. She was, by then, a clinical dietitian. One day after work, she was discussing how a certain hospital patient required this and that, but no potassium-and an IV solution because of electrolyte imbalance. I let loose. The restraining walls that had held my pet theory for so many years erupted. I accused her of propagating the confounding conspiracy, the Great Scheme. She laughed, hard. But I knew her to be an honest woman-and this added to my confusion.

In January 1983, intrigued by a new mass-market product-the personal computer-I splurged and purchased a Commodore 64 for \$400. Computers fascinated me. After learning to program, I was hooked.

The following Thanksgiving, having been at COMPUTE! since the previous spring, I returned home with my wife for the holidays. Sitting around the table, some curious family members asked me questions about how these new computers worked. As the questions and answers became more complex, I heard myself explaining things about serial and parallel data transfer, raster interrupts, data storage, binary math, and electron guns used with RGB monitors. Electron guns? The great revelation. I had become a co-conspirator with my wife and old chemistry teachers. I was now part of the Great Scheme.

Welcome to the wonderful world of science.

Jance 24

Lance Elko Senior Editor

Art Director Janice R. Fary Features Editor Keith Ferrell Technical Editor Patrick Parrish Assistant Editors **Rhett Anderson** Assistant Technical Editor Assistant Features Editor Assistant Editor, Submissions & Disk Products Editorial Assistant Copy Editors

**Clifton Karnes** Dale McBane Tom Netsel

Lance Elko

Programming Assistant Contributing Editors

David Hensley Mickey McLean Karen Siepak Lori Sonoski Tammie Taylor Karen Uhlendorf Troy Tucker Todd Heimarck Jim Butterfield (Toronto, Canada)

Fred D'Ignazio (E. Lansing, MI)

ART DEPARTMENT Associate Art Director Lee Noel, Jr. Scotty Billings Robin Case Mechanical Artists Kim Potts

> PRODUCTION DEPARTMENT

Production Director Assistant Production Manager Typesetting Advertising Production Assistant Anita Armfield

Irma Swain **De Potter Carole Dunton** 

COMPUTEI PUBLICATIONS Group Vice President, Publisher/Editorial Director Managing Editor Senior Editor Editorial Operations Director Editor, COMPUTE! Books **Executive Assistant** Senior Administrative

William Tynan Kathleen Martinek Lance Elko Tony Roberts Stephen Levy Sybil Agee

Julia Fleming Assistant Julia Flemir Administrative Assistant Iris Brooks

> ABC CONSUMER MAGAZINES

Senior Vice President Marc Relsch Senior Vice President, Advertising Vice President, Finance Vice President, Operations Vice President, Production

**Richard J. Marino Richard Willis** Lucian A. Parziale llene Berson-Weiner

#### CIRCULATION DEPARTMENT

Robert I. Gursha Vice President Subscription Staff **Ora Blackman-DeBrown** Mitch Frank Tom Slater James J. Smith Customer Service Kay Harris Single Copy Sales A. Heather Wood

One of the ABC PUBLISHING Companies

President Robert G. Burton 1330 Avenue of the Americas New York, NY 10019

ADVERTISING OFFICES

ADVENTISING OFFICES New York: ABC Consumer Magazines, Inc., 825 Seventh Ave., New York, NY 10019. Tel. (212) 265-6360. Peter T. Johnsmeyer, Group Advertising Director; Bernard J. Theobald, Jr., Advertising Director Greensboro: COMPUTE! Publications, Suite 200, 324 West Wendover Ave., Greensboro, NC 27408. Tel. (919) 275-9809. Kathleen Ingram New England & Mid-Atlantic: Bernard J. Theobald, Jr., (212) 151-1665. Deter. Mach. (217) 821-2000. 315-1665; Peter Hardy (617) 681-9000. Midwest & Southwest: Jerry Thompson, Lucille Dennis (312) 726-6047 [Chicago]; (713) 731-2605 [Texas]; (303) 595-9299

[Colorado]; (415) 348-8222 [California]. West, Northwest, & British Columbia: Jerry Thompson, Lucille Dennis (415) 348-8222.

Southeast & International: Peter Hardy (617) 681-9000.

Address all advertising materials to: Anita Armfield, COMPUTEI Publications, Inc., 324 West Wendover Ave., Suite 200, Greensboro, NC 27408

Editorial inquiries should be addressed to The Editor, COMPUTE!'s GAZETTE, Suite 200, 324 West Wendover Ave., Greensboro, NC

PRINTED IN THE U.S.A.

MPA





#### CONNECT YOUR COMPUTER TO A HIGHER INTELLIGENCE.

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

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

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

#### Your personal research center.

Save hours of research by going

straight to the reference information you need in seconds.

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

#### What you know can help you.

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

Check characteristics such as age,

income, and occupation in any U.S. community. For a geography report, a business plan, or a family move.

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



Information Services, P.O. Box 20212 5000 Arlington Centre Blvd, Columbus, OH 43220 **800-848-8199** In Ohio and Canada, call 614 457-0802 COMMON COMMON COMMON COME.CA



#### **Plain Vanilla Reviews**

Let's discuss your software reviews. They are much too vanilla. What is sorely needed is a rating system that will rate software in several categories, including a warning if the product's copy-protection scheme will rattle the disk drive head.

#### Robert Nellist Brockport, NY

We've heard this complaint off and on over the past five years, and we addressed it way back in the July 1984 issue. We haven't stated our position on software reviews in recent years, so since it remains the same, here's how we addressed it four years ago in the July 1984 "Editor's Notes."

"A number of readers have asked why we don't 'grade' our reviews or 'degrade' some products. Essentially, any product we review is, in our opinion, of merit. We feel that it's only worth your time and space in GAZETTE to review products that are well designed. The market is flooded with products, and we'd rather tell you about the good ones.

"While the grading of products may be helpful to some readers, it is often unfair to the product. If you've ever read reviews of records you really like, only to see a thumbs down or a poor grade, you probably wondered if the critic heard the same thing you did. The goal of quantifying a product with a letter or number grade is to be objective, yet it's often subjective and arbitrary. If we took a poll of our staff, we'd have a number of different answers."

To augment this position, it remains true that our staff and outside reviewers have varying opinions on software products. If there's a general consensus among our staff that a product is not good, we'll pass on it (regardless of who published it). Whether a good product should get a B or an A- is eternally debatable.

Our reviewers are sensitive to products that are abusive to the disk drive. And many have made notes to that effect in a number of reviews in the past year.

#### WordStar for CP/M

I've just read the excellent article in the March 1988 issue entitled, "Super CP/M Software for the 128, Part 1: Writer's Toolbox," by Clifton Karnes. I have always wanted to purchase Word-Star, but I didn't think I could afford its hefty price tag. Your article got me to thinking. If I could purchase WordStar 2.26 from PDSC at \$39.95, I could then upgrade to WordStar 4.0 for \$89.

Then I saw an article in FOGHORN that said WordStar 4.0 was now available to all registered CP/M users for \$89. I couldn't believe that this word processor was available to 128 users for less than \$100. I thought your readers might like to know about the new version of WordStar and its new low price.

> John L. Gordon Chadds Ford, PA

When MicroPro first released the CP/M version of WordStar 4.0, it was available only as an upgrade for owners of previous versions. As you stated in your letter, it's now available to any CP/M user at a bargain-basement price of \$89. You can order WordStar 4.0 from MicroPro at (800) 227-5609, extension 761.

#### SpeedScript Copyright

What is the present copyright status of SpeedScript? A couple of our user group members say they have seen a notice releasing the program to public domain.

> James C. Ladd San Antonio, TX

We have not released SpeedScript to the public domain, nor do we have plans to do so. While we own the copyright to Speed-Script, we do grant permission for user groups (or any individuals or organizations) to provide disk copies of Speed-Script—or any of our programs—to individuals who own a copy of the issue in which the corresponding article was printed. Version 2.0 of SpeedScript is in the January 1984 GAZETTE; version 3.0 is in the March 1985 COMPUTE!; and version 3.2 is in the May 1987 GAZETTE. Each of these issues contains full documentation.

#### Copying GAZETTE Disks

I would like to know how to copy my COMPUTE!'s Gazette disks. Are they write-protected? If so, why?

> Peter J. Cotton Waukesha, WI

The GAZETTE Disk is write-protected as a result of a damaging incident several years ago. A program on a 1985 disk, which was not write-protected, included a feature which reformatted the current disk in the drive. A number of subscribers loaded the disk menu, then pressed a key to load the program, which itself contained a menu. After pressing a number corresponding to the menu selection which reformatted the disk, they lost everything. We had a large number of returns-and a lot of phone calls. We decided at that time to write-protect the disk as a safeguard for both ourselves and subscribers. In retrospect, we're glad we did. Since that incident, we've published dozens of programs that are designed to write to disk. When those programs are published on disk, we include a message screen to remind the user that disk is write-protected.

While the disk is write-protected, it is not copy-protected. Any GAZETTE program can be saved from memory directly to a blank, formatted disk. Over the years, we've published a number of copy programs that can help with this. The most recent is "Disk Rapid Transit" (December 1987) which is easily the fastest copier program we've published. In general, copy programs are available—with varying quality—in the public domain and in user group libraries.

# ARE TO BE DIFFERENT Hot New Simulations From The Computer Craftsmen At MicroProse

#### **High Seas Adventure**



Relive the swashbuckling era of the buccaneer as a 17th century privateer captain in **PIRATES!** It's a unique gaming blend of simulation, adventure and role-playing.

You'll swordfight with other ship captains, storm the fortress of a wealthy town, explore the Caribbean, and search for lost treasure. The goal: amass a fortune, gain a reputation, and retire to a life of luxury. From award-winning game designer Sid Meier, of F-15 STRIKE EAGLE and SILENT SERVICE fame.







#### Top Secret Air Strike



Invisibility is your greatest weapon in PRO a simulation of the Air Force's unacknowledged super-tech jet fighter of tomorrow. You're the

pilot on top-secret missions to world troublespots.







Available at a Valued Microprose Retailer (VMR) near you. Call for locations. If not found locally, call for MC/VISA orders.

PIRATES! now for Commodore 64 128. Apple II. IBM-PC XT/ AT PS2 Tandy and compatibles. Suggested retail \$39 95. PROJECT: STEALTH FIGHTER (Suggested retail \$39 95) and AIRBORNE RANGER (Suggested retail \$34 95) for Commodore 64 128. Coming soon for IBM-PC Tandy compatibles.

#### **Daring Solo Missions**



Become one of America's most elite soldiers in A RANGER. Cunning and fast reflexes are needed to succeed on 12 solo missions deep behind enemy lines.











Do you have a question or a problem? Have you discovered something that could help other Commodore users? We want to hear from you. Write to Gazette Feedback, COMPUTEI's Gazette, P.O. Box 5406, Greensboro, NC 27403. We regret that, due to the volume of mail received, we cannot respond individually to programming questions.

#### Stop Scrolling

I adapted the algorithm for scrambling the random numbers 1–1000 in the March 1988 "Gazette Feedback" column to pick random numbers in the range 1–48 for the New York state lotto.

One minor problem presents itself. The column of numbers scrolls out of sight before the program reaches the 48th number. Could you print an addition to this program that would print the numbers in four or more columns across the screen?

> Robert G. Farricy Syracuse, NY

A variety of solutions present themselves. If you're using a 128, you can press the NO SCROLL key to freeze the screen. Press it again to unfreeze it. On the Plus/4 and 16, use CTRL-S to freeze and CTRL-Q to unfreeze.

On the 64, you can build your own print-freezing routine. If you want to check for a keypress between lines 60 and 70, add these lines:

65 GET A\$: IF A\$="" THEN 70 66 GET A\$: IF A\$<>"" THEN 66

In line 65, the program checks for a keypress. If the user didn't press a key, the program jumps forward to line 70. At line 66, it waits for another keypress and doesn't break out of the loop until the user hits a key. Note that both lines use two double quotation marks with nothing between them. This is a null string, a string that contains no characters.

A quicker way to freeze the screen is to press the RUN/STOP key. When you want the program to continue, type CONT.

If you'd prefer to see all 48 numbers on the screen at the same time, you can print them in columns. Just add a comma after the variable name in the PRINT statement. Substitute PRINT X(I), (with a comma) for PRINT I,X(I) and you'll see 12 lines of four columns.

#### Doctor, Doctor

I have recently purchased a 1581 disk drive. I can't get my directory organizers and disk cataloger programs to work with it. I guess this is because there are twice as many tracks, which makes programs for the 1541 incompatible with the 1581. Can you help?

Seth Meashey Woodbridge, VA

A disk operating system (DOS) stores information in two sections: the directory and the rest of the disk. DOS designers can make disk access slightly faster if the directory is located on the middle track. A 1541 disk puts the directory on track 18 because there are a total of 35 tracks. When a program is found in the directory, the drive's read/write head will move a maximum of 17 tracks to track 1 or track 35.

A 1581 disk has 80 tracks, and the directory is located on track 40 (the middle of the disk). If you happen to have a disk doctor or directory organizer program for the 1541, it probably expects to find the directory on track 18. The programmer assumed the directory would always live on track 18.

Two suggestions come to mind: Either modify the program to look for the directory on 40 instead of 18, or write to the company that released the original program and ask them if they are working on a new version for the 1581 drive.

#### The Best Language?

I was wondering which language the creators of commercial games use—machine language or BASIC or some other language I don't know about? I was also wondering if a person like me could learn how to create games like the ones on the market today.

> Craig Cassata Orland Park, IL

Although some smaller software companies sell programs written in BASIC, most commercial software for the 64 and 128 is written in machine language (ML) because it doesn't use up much memory and it's very fast. On computers such as the IBM PC or Amiga, C language is popular because it's almost as fast as ML and it's fairly portable, meaning that you can write a program for the PC and then "port" it over to the Amiga or another computer. Pascal, Modula-2, Forth, and various other languages are also used for commercial development.

Some software companies assign an entire program to one programmer, but, on complicated projects, the work is sometimes split up between people who specialize in sprites, sound, and other aspects of a project. Some companies use expensiveand very fast-minicomputers to develop Commodore software (imagine a \$20,000 computer running an emulator that makes it act like a \$200 Commodore 64). Infocom has its own language for writing adventure games, the Zork Interactive Language (ZIL). After creating a game and the generic packaging and documentation, they can quickly compile it into several dozen versions for different computers. The resulting program is machine language, but it wasn't written directly in ML.

Some companies write all of their programs in-house, but others hire freelance programmers. Still others will evaluate software and buy it if they like what they see. If you're interested in freelance programming, write to various software companies and ask for their Author's Guidelines. Another avenue is writing for GAZETTE. Many of our programs are written by readers like yourself.

#### Vexed by Hex

My printer has many capabilities that I have been unable to use, as I am unable to give the proper commands with the information I have available. The user's manual gives commands such as this:

CHR\$(&HE) Set enlarged characters CHR\$(&H4E) Select pica characters CHR\$(&H51) Select condensed characters

Is there any cross-referencing information available for translating these codes to the 64?

Paul Offutt Louisville, KY

Some computers, but not the 64, use the &H prefix to mark hexadecimal (base 16) numbers. You'll have to translate the hex values into decimal. Just remember that the hex numerals A-F correspond to the decimal values 10–15 and that the second number from the right is the sixteens' place (not the tens' place).

The three CHR\$ codes you listed translate into CHR(14), CHR(4\*16+14), and CHR(5\*16+1)—or 14, 78, and 81.

# Prepare for the ultimate fantasy when the first official Advanced Dungeons Jagons

### Game Product comes alive on your computer!

ADIANCE

Smu

STRATEGIC SIMULANDIS, INC.

**SSI** proudly presents Pool of RADIANCE, the culmination of its collaboration with TSR to bring the legendary ADVANCED DUNGEONS & DRAGONS® fantasy role-playing system to your home computer.

POOL OF RADIANCE is set in the huge, complex world of the Forgotten Realms, a world brought to life by the combined talents and skills of top designers and programmers from both companies. Its game system adheres faithfully to AD&D® standards. Its state-of-the-art graphics push the very limits of the computer's capabilities. The only way to believe it is to experience it for yourself — wherever game software is sold.

Look for the entire line of AD&D computer products coming soon from SSI.



Roll up your characters and see their portraits and characteristics. (C-64/128 screen display.)



Every single monster type is individually drawn by superb computer graphics. (IBM PC screen display.)

STRATEGIC SIMULATIONS, INC. 1046 N. Rengstorff Avenue Mountain View, CA 94043 (415) 964-1353

Commodore 64/128. IBM PC/Compatibles. Conversions are in the works for Apple and other personal computers.

POOL OF R

ADVANCED DUNGEONS & DRAGONS and AD

ed trademarks provided by USIC line.

C. Cl988 TSR, Inc. Cl988 Strategic Simulations, Inc. All rights reserved. CHR\$(78) and CHR\$(81) are the ASCII values of the letters n and q. If you send these characters to the printer, it will just print an n or a q. It's likely that you'll need to send an Escape code, a CHR\$(27), first. Try this: OPEN 4,4,7: PRINT#4, CHR\$(27);"N": CLOSE 4. If your interface automatically translates from Commodore ASCII to true ASCII, you may need to experiment with using uppercase or lowercase for the letters like n and q.

#### **Commas Instead of Periods**

I have a question concerning the keypad and the 128. When inputting a program with numerous DATA statements, I have found it easier to use the numeric keypad. Is there some way to redefine the decimal point to a comma? If so, I wouldn't have to reach across to hit the comma key.

#### Donald Hebert APO, NY

The 128 uses five lookup tables to translate keyscan codes to ASCII values (for more information, see the entry at location 830 in Mapping the 128 from COMPUTE! Books). The five tables correspond to the five keyboard maps: plain (unshifted), SHIFT, Commodore, CONTROL, and ALT. The default location for normal, unshifted keys is 64128. The first thing to do is copy the table from ROM down to RAM. Line 20 does this in the program below. The period (decimal point) on the numeric keypad has a keyscan code of 82. A period is ASCII 46. We want to change it to a comma, which is ASCII 44. Line 30 modifies that character in the table. Then, in line 40, the pointer for the unshifted keys is moved to point to the brand new table at 6912. When you press the period on the numeric keypad, you'll get a comma instead. See the next letter for another idea.

BQ	10	RAM=6912: ROM=64128	
VD	20	POD I-AMONO. DOVEDANIT	

- XP 20 FORJ=0T088: POKERAM+J, P EEK(ROM+J): NEXT
- AG 30 POKE RAM+82,44
- CR 40 HI = INT(RAM/256): POKE {SPACE}830,RAM-HI\*256: P OKE 831,HI

#### DATA and Commas

Many BASIC programs have an extensive DATA section. It would be easier for 128 users if a one-handed entry feature could be incorporated into "The Automatic Proofreader." I'd suggest that one of the function keys be reassigned to a comma (F1, maybe?). I don't have a machine language assembler/disassembler, and my ML is a little rusty, but the change should only be a few lines. Charles F. Oller

Warwick, RI

You don't need ML. You can do everything in BASIC 7.0. Look up the two commands KEY and AUTO in your System Guide. If you want F1 to print a comma and F7 to print DATA, type these two lines:

#### KEY1,"," KEY7,"DATA"

If the DATA statements are numbered by tens, use the AUTO command to put the 128 into autonumbering mode. Type a line, press RETURN or ENTER, and the next line number will appear. Press F7 for DATA and F1 to print the commas between numbers.

#### Using "Countdown Timer"

I am trying to write a BASIC program that will determine typing speed. I'd like to use "Countdown Timer" from the April GAZETTE, but when it's running I can't type on the keyboard. How can I use the Countdown Timer to stop all keyboard entry after one or five minutes?

> Steven Schulte Long Beach, CA

From your description, it sounds like you're attempting to build your program around the five-line demonstration program included in the article. This demo displays the current internal clock reading as it counts down from one minute. Near the end of the article is a description of how to incorporate the Countdown Timer into your own BASIC programs.

To do this, you'll need to include the lines from Program 1 (for the 64) or 2 (for the 128) in your program. These lines POKE the ML routine into memory. Start up Countdown timer with SYS 679 on the 64 or SYS 3072 on the 128. Next, set the internal clock using the reserved variable T1\$ (either T1\$ = ``000100'' or T1\$ = ``000500'').

Follow this with your typing input routine. Include a line near the end of the routine to check the timer. If it has wrapped around from "000000" to "235959" or something lower, the time is up and you can rate and display the user's typing speed. Otherwise, loop back to the beginning of the typing input routine.

Note that we didn't suggest that you look for exactly zero ("000000") on the timer each time through the loop. If you did this, chances are you'd miss it since the input routine may take longer than a second to execute.

#### Locating the Hi-Res Screen

I have a question regarding location 53272, which is used to select base addresses for bitmap mode on the Commodore 64. Most references I've seen will POKE 53272,29 (binary 00011101) to put the graphics screen at \$2000 (8192) and color memory at \$0400 (1024). The low nybble of this number is 13 in decimal. Shouldn't the low nybble be 8? POKEing a 29 in 53272 would seem to put the bitmap at 13\*1024 (13312). Could you explain what they're doing here?

#### Wayne Dooley Winchester, VA

Locations 53248-53294 are registers in the VIC-II chip, which is responsible for the 64's video display. The VIC chip can address only 16K of memory at a time. Data for anything shown on the screen must be located within this 16K of memory. Any of the four 16K blocks (0-16383, 16384-32767, 32768-49151, 49152-65535) can be chosen for video memory. Location 56576 (bits 0-1) determines which 16K video bank the VIC chip addresses.

The VIC chip register at 53272 does several different things. In text mode, it contains the offset address within the current video bank for the character set in the low nybble and the address for the text screen in the high nybble. The character set is 2K in length, so the low nybble (in bits 1–3) must hold an even number from 0 to 14, representing a 2K offset (since the number is always even, bit 0 is unused). Similarly, the text screen is 1K in length. So, bits 4–7 hold a number from 0 to 15, representing a 1K offset.

In normal bitmap mode, bits 4–7 still point to the offset address for the text screen. But in this case, the text screen provides color data for the graphics screen. As for the low nybble (bits 0–3) in this mode, only bit 3 is significant. It provides the 8K offset for the bitmap screen from the beginning of VIC memory. If this bit contains a 0, the offset is 0K, and if it contains a 1, the offset is 8K (8192).

Now, to consider your example. POKEing a 29 (binary 00011101) into 53272 sets bit 3. Assuming the VIC-II chip is in video bank 0 (0–16381), the bitmap screen is positioned at 8192 because bit 3 is turned on. The other bits in the low nybble are ignored. You could get the same result by POKEing a 24 (binary 00011000) into 53272.

Color memory for this hi-res screen is at 1024. A value of 1 is stored in the high nybble of 53272, and  $1 \times 1024 = 1024$ .

.

COMPUTE!'s Gazette is looking for utilities, games, applications, educational programs, and tutorial articles. If you've created a program that you think other readers might enjoy or find useful, send it to: **Submissions Reviewer**, **COMPUTE! Publications**, **P.O. Box 5406**, **Greensboro**, **NC 27403**. Please enclose an SASE if you wish to have the materials returned.

#### 10 COMPUTE!'s Gazette June 1988

Cwww.commodore.ca

# Some people really like work Some people really like work Mathematican and then

GEOPROGRAMMER

ing on their machines. And then there are some who prefer to do their tinkering under the hood. For those of you who can't wait to get your hands greasy, we proudly introduce geoProgrammer. The most sophisticated machine language programming tool on the market.

With geoProgrammer, you get the same kind of technology we use for developing our other products. Which means you can write supercharged software. Pump your own programs. And assemble just about any kind of application you can imagine.

#### It reads and writes and stomps on bugs.

The first three tools that any serious programmer needs are an assembler, a linker and a debugger. So we've installed all three, complete with sample GEOS applications that teach you the latest programming tricks in seconds.

geoAssembler not only reads directly from geoWrite files, but contains enough Pseudo Ops to

******	12	free berry	Land Brandson B
incluie marri	File	ad Doom	1. List SPRING + 10 120 0000 ; use-macro library file ; and constants file
ProgStart: Brushleon:	Joset LoadV jar LoadV jar ns	Start Addr r0, Graphes Table Graphes String r0, MainMean DoMean	start address for pro- point to graphics string table is GEOS draw it point to mean structure and draw means mithilization draw himmy data for brack icon

\*Also available for 80 col. C128's.

geoDebugger allows your program to be tested in memory with full symbolic disassembly, along with line assembly for patching code in memory. It also allows your code to be single-stepped or top-stepped, with sub-routines fully executed. It can stop a running pro-

gram with one key, or use up to eight conditional breakpoints. When your program hits the breakpoint, it prominently displays the error in an overlay window, leaving the applications screen intact.

Pro enough for you yet? Well, that's only a *partial* list of what you're in for.

#### If you understood all that, read on.

Chances are that we lost a lot of readers by now. But if you're still with us, hang in there. You have the makings of a real GEOS pro. All you need now are the right tools.

And all of them come in this one handy box.

So if you're serious about programming, consider geoProgrammer. After all, you've got nothing to lose — except your amateur status.

To order call 1-800-443-0100 ext. 234 geoProgrammer \$69.95 (California residents add 7% sales tax.) \$2.50 US/\$5.50 Foreign for shipping and handling. Allow six weeks for delivery. Consider, Commoder Det have taken by Softwarks are trademane af Berkely Softwarks. GEOPROGRAMMER



allow all kinds

of conditional assem-

blies. It has all the state-of-the-art

features you'd expect, including

some you probably never thought

pasting the image from geoPaint

directly into your program.

modules together, supporting

create non-GEOS applications.

GEOS SEQ and VLIR applications

and desk accessories. You can even

use geoAssembler and geoLinker to

possible. For example, integrating graphics is as simple as cutting and

geoLinker ties your program

www.commodore.ca

## Commodore-Ready Printers: A New Generation

#### Much More—For Less

Tom Netsel, Assistant Features Editor

Sales of more than seven million 64s and 128s have had a major impact on the printer market. The result: Printer manufacturers now offer 64 and 128 owners a wide choice of Commodore-ready printers that are filled with features undreamed of just a few years ago.

After a disk drive, a printer is the most popular computer peripheral bought by home computer users. About 65–70 percent of the people who buy a computer for personal use also buy a printer, according to Rick Lamb, product manager for Okidata, a major printer manufacturer.

For Commodore owners, there are more than 100 different printers on the market, made by 20 different companies, all listing for less than \$500. Virtually any of them can be connected to a 64 or 128 with a separate printer interface. But it's not always a simple matter to achieve compatibility among printer, interface, computer, and software.

#### Uniquely Commodore

At one time, only a Commodore printer would connect directly to Commodore's unique serial port. There wasn't much of a choice, and special features were limited. Anyone who wanted underlining, multiple pitches, subscripts and superscripts, or a choice of type styles had to buy a printer with a standard Centronics parallel port. Then a separate interface was still needed to connect the printer to the 64 or 128.

As the base of Commodore owners grew, however, more and more manufacturers began offering ready-to-use printers packed with a full range of features. Now 64 and 128 owners have a wide choice of Commodore-ready daisywheel, dotmatrix, and thermal-transfer printers to handle their black-and-white and color printing needs. (See the accompanying buyer's guide for details about Commodore-compatible printers.)

Last year, Okidata introduced a universally compatible dot-matrix printer featuring both a Commodore serial and a Centronics parallel interface. The Okidata 180 is compatible with every major personal computer. If, for example, you buy an Amiga or IBM PC, you don't have to buy another printer or interface.

#### **Determine Your Needs**

Dot-matrix and thermal printers are the most popular choices among Commodore owners. Key ingredients to their popularity are versatility and low cost. Cost alone, however, should not be the deciding factor in choosing a printer. If a bargain printer doesn't meet your printing requirements, it isn't much of a bargain.

"Too many times the printerpurchase decision is dependent upon how much money is left over in discretionary income," Lamb says. "The buyer has \$120 left, so he buys a \$120 printer. Often there is some buyer remorse. After he lives with the print quality for a while, he realizes he needs something better." Ask yourself what you want the printer to do. Decide how you plan to use the printer; then pick the one that has the features you need. If you primarily want to print graphics, you have different needs from those of the person who works with spreadsheets and needs a printer with 136 columns.

#### Daisywheels

If you write business reports, term papers, or other important correspondence requiring a professional look, a daisywheel printer offers the sharpest type. Your papers will look as though they've been typed on a quality typewriter, but you'll have to wait for them. Daisywheels are notoriously slow. Most daisywheels priced for the home market operate at speeds in the 10–20 cps (characters per second) range. That's fast for a human typist, but the daisywheel is the tortoise of the printer world.

The printing element of a daisywheel is a flat metal wheel that has approximately 90 spokes. It's about three inches in diameter, and gets its name from the fact that it looks something like a daisy. At the end of each spoke or "petal" is a bossed letter, number, or punctuation mark. As the wheel spins, the characters are pressed against a ribbon, which transfers ink onto the paper. You can buy additional printwheels if you want to change to a different style of type or a different font. Since its basic printing element is a fixed alphanumeric character, the daisywheel cannot print graphics.

If you're looking for quality type, and you don't need speed or

Cwww.commodore.ca

graphics-printing capabilities, then a daisywheel may suit your requirements. Blue Chip, Brother, and Silver Reed each sell Commodore-ready units. The Silver Reed EXP 420 and the Brother HR-10/C offer a choice of pitches in the 10–15 cpi (characters per inch) range. Their top speed is 12 cps, while the Blue Chip D 20/10 is a little faster, at 20 cps.

#### Paper Handling

The method used for feeding paper in and out of a printer varies between models. Friction-feed printers move paper around the platen somewhat the way a typewriter does, while tractor-feed printers engage the holes at the edge of fanfold paper. Tractor feeds are usually more reliable when it comes to handling long printouts on continuous or fanfold paper. Many printers offer both methods, but tractors are often sold as options.

Some models, such as the Seikosha SP-1000VC, have an automatic loading feature for single sheets of paper: When the paper is inserted behind the platen, the printer automatically advances it to the proper starting position. This feature can speed up long printing jobs. The NX-1000C from Star Micronics America comes in two Commodore-ready models. Each employs a unique paper-parking feature that allows users to feed single-sheet paper into the printer without removing tractor-fed paper.

#### **Dot-Matrix Printers**

If the daisywheel is the tortoise of the printer world, then the dotmatrix printer is the hare. This versatile machine offers speed plus the ability to produce complex graphic printouts. Instead of printing with preformed characters, dot-matrix printers use a row of vertical pins that strike the paper through an inked ribbon.

Dot-matrix printers generally fall into one of three printhead configurations: 9-pin, 18-pin, or 24-pin. Printers with 24 pins offer letterquality type, as opposed to the nearletter-quality (NLQ) mode found on 9-pin printers. Their ability to print out letter-quality correspondence at 100 cps makes 24-pin printers popular in an office environment. Their relatively high cost, however, has limited consumer interest.



The Okidata 180 is compatible with every major personal computer.

Printheads with nine pins are the standard with the Commodoreready models. A vertical column of nine pins prints across a page in both directions in draft mode, at speeds ranging from 100 to 180 cps. This process is considerably slower in NLQ mode.

An early drawback to dotmatrix printers was print quality. The printheads formed characters in a 5  $\times$  7 or 8  $\times$  8 matrix. There was often considerable space between the dots, making the letters look porous and ill-defined. Upgrades in printer electronics and printheads, however, have improved print quality tremendously.

Most printers now have several print modes. Draft mode is usually the fastest, but produces a rougher, fainter type. NLQ, or correspondence mode, takes longer to print, but it produces a more polished print quality.

NLQ is achieved in a variety of ways. Spaces between the horizontal dots of a letter can be filled in by printing the same column of dots twice while the printhead is traveling at half-speed across the page. This is sometimes called *emphasized type*. Spaces between vertical dots can be eliminated by making a second pass over the line after moving the printhead or paper half a dot vertically.

NLQ printing uses these multistrike techniques and special letter shapes to improve print quality. Unfortunately, improvements in one area often force a decline elsewhere. A tradeoff for improved print quality is a reduction in printing speed, by 50–300 percent. Most NLQ printing is done at speeds of 25–30 cps.

Until recently, changing from draft to NLQ mode required changing the printer's DIP switches. This often meant turning the printer around or opening an inside panel to access the switches. Then you had to check the manual for the proper sequence, since DIP switches were seldom marked. Most printers today simplify this chore by providing front panel buttons that allow instant access to frequently used print functions. You can switch from emphasized to double width to italics at the touch of a finger.

Some high-end printers allow the user to change fonts by plugging in ROM cartridges, but multiple fonts are also available on some printers in the Commodore price range. The Star NX-1000C Multi Font printer has four onboard fonts that are selected from the front control panel.

#### A Splash of Color

Another Commodore-compatible version of Star's Multi Font is the NX-1000C Rainbow. In addition to the multiple internal fonts, the Rainbow provides seven-color printing capabilities, and prints at 144 cps in draft mode and 36 cps in NLQ mode at 12 cpi. It prints black, red, yellow, blue, orange, green, and violet.

> COMPUTEI's Gazette June 1988 13 WWW.COMMODORE.CA

"We believe [the NX-1000C Rainbow] will be a significant factor in the Commodore market," says Brian Kennedy, product manager at Star Micronics. "It's going to be the lowest-priced color impact printer on the market."

The Rainbow can be used as a conventional printer for word processing and similar functions when color is not wanted or needed. "If you want to use it in the monochrome, or black-only mode, that's no problem," Kennedy says. "When you print out a hardcopy, just omit the color commands."

#### **Barriers to Color**

Printer manufacturers expect color to play an important role in the future of all printers. Several obstacles presently stand in the way. The first is the lack of color copiers. While they are available, the cost is prohibitive. A color printout may look great for a business presentation or meeting, but without the ability to make color copies, its value is greatly diminished.

Another obstacle is the lack of software support for color printers. Most printing packages simply do not support color printers. To circumvent this problem, Kennedy says the Rainbow recognizes embedded color commands. For example, if it sees ((C1)) in a letter or memo, the Rainbow recognizes that code and changes accordingly to color number 1.

"If you're typing a report and want a heading in a different color, type in ((C3)) followed by the heading," Kennedy says. "Then type in ((C2)) to change back to blue or black. You can embed these commands in any standard word processing or software package."

Kennedy notes that the average life of the color ribbons on a dot-matrix printer should be a couple of hundred pages. It can be considerably shorter on other types of color printers.

#### **Thermal-Transfer Printers**

Another Commodore-ready color printer is Okidata's Okimate 20. It uses a different print technology called the *thermal-transfer* process. Instead of using pins to strike an ink-coated ribbon, the Okimate 20 briefly heats the pins. The heat transfers to a ribbon coated with a



The Star Micronics NX-1000C Multi Font includes four onboard fonts that are selected from the front control panel.

waxlike ink that melts, forming a character on the paper.

The thermal-transfer process has several advantages over the dot-matrix and daisywheel method. One is quietness. The Okimate 20 makes a slight whirring sound, and is practically silent compared to impact printers.

A third obstacle to the expanded use of color in printers is the high price tag—but not so with thermal-transfer printers. The Okimate, with a plug-in Commodore interface, has a suggested retail price of \$268, while the dot-matrix



The Okimate 20 offers vibrant color and graphics capabilities.

Rainbow (which includes the multiple fonts) lists for \$379. There are a few other color printers in the \$500-\$700 range, but then prices jump quickly to \$6,000 and \$7,000.

"There's a big gap there," says Star's Rick Lamb. "Virtually all the large players are starting to add color to their line of printers, although very few are serial thermaltransfers such as the Okimate 20."

Another advantage to the color thermal-transfer process is its vibrant color. Dot-matrix printers put color to paper with ink, which lacks the high-gloss factor that wax achieves.

Unfortunately, thermal-transfer printers gobble up ribbons rather quickly, and they also require a very smooth paper for best results. A black ribbon may last for 75 pages of text, but expect only 10–15 pages when printing color graphics.

#### More Features in the Future

A few years ago, a basic dot-matrix printer cost about \$500 and offered little in the way of extras. Now you can find models for half that price that are loaded with advanced printing features. There have been modest price increases recently on Japanese-made printers because of the dollar/yen exchange rate, but there are still many exceptional printers available at attractive prices for Commodore users.

"The number-1 thing to remain competitive," says Star's Brian Kennedy, "is to introduce

# ALOTTO MPRESSME,

Second 1

Hews &

BRIAN DOUGHERTY Software Designer/CEO Berkeley Softworks

Pluantum "esses"

nd Q-Link, the dynamic telecommunications service for Commodore® owners, does just that!

As the developer of GEOS, the graphics environment operating system for Commodore 64s and 128s, I know how good Q-Link is. Personally and professionally. Here at my company, we recommend Q-Link to all our customers. We use it ourselves, too, for online customer service ... so you can get help when you need it. We've also found it's a very efficient way to provide upgrades and patches and to announce new GEOS-compatible products.

With just your Commodore, a modem and Q-Link software, a new world of personal computing options opens up: thousands of programs you can download and keep; advanced graphics (thanks to GEOS); an exclusive help line to experts at Commodore; online educational courses taught by real teachers; fun; games; friendship, you-name-it. Q-Link lets you realize the full potential of Commodore computing—right at your fingertips.

Do I use Q-Link? Absolutely! And what's really impressive is that when you join Q-Link, you get a modem and Q-Link Software free! To my mind that's a tough offer to turn down. But don't take my word for it. Find out for yourself. Call ...

1-800-782-2278 ext. 1524 Call today to get your free modem and software.



8619 Westwood Center Drive Vienna, VA 22180

www.commoder

new price/performance machines."

As manufacturers battle for a greater share of the printer market, printer buyers are reaping the advantages. And most manufacturers say this trend will continue.

As the prices of 24-pin machines come down, Kennedy believes they are going to force 9-pin machines out of the marketplace. "I think that over the next two or three years, 24-wire printers are going to come down so much in price that only the real down and dirty printers—in terms of price—are going to be 9-wires," he says. Epson and NEC already have

Epson and NEC already have introduced 24-pin printers selling for \$499. Breaking the \$500 price barrier was a major step, and Kennedy expects to see them selling for \$399 in a couple of years. In order to compete, 9-pin printers will have to sell for \$299 and less. The 24-pin printers will be the standard for home users, and 9-pins will be bargain-basement items.

#### Looking to Lasers

On the other side of the coin, laser printers have come down in price so quickly that they are overtaking the high-end 24-pin market. Lasers print spectacular graphics and produce text at near-typeset quality. They are quiet and fast. Instead of being rated at characters per second, lasers are rated at pages per minute. Most of today's models crank out eight to ten pages per minute.

The street price for a Hewlett-Packard LaserJet Plus is around \$1,500. That's only a couple of hundred dollars more than a 300–400 cps 24-pin printer. When people consider what an extra \$200 can buy, most will lean toward the laser.

It may be a few years before the average 64 owner buys a laser printer, but the marketing battles in the high-end business environment ultimately filter down to benefit the home-computer user. Most industry representatives say these advances in technology and reductions in price will be passed on to the Commodore market.

"We have plans to support the Commodore for years because of its installed base," says Okidata's Rick Lamb. "There's still one heck of a lot of them out there."



Super Graphix - an enhanced printer interface including NLQ, an 8K buffer, reset button, a utility disk with 27 fonts and more.

Super Graphix jr - an economical printer interface with NLQ.

FontMaster II - a powerful wordprocessor for the C64 with 30 fonts ready to use, 65 commands, font creator and more.

FontMaster 128 - a super wordprocessor for the 128 including 56 fonts ready to use, a 102,00 word spell checker and much more.

All Hardware is FCC Certifed All Interfaces include a Lifetime Warranty C64 and 128 are reg.TM of Commodore Business Machines, Inc. 2804 Arnold Rd. Salina, KS. 67401 (913) 827-0685

#### COMPUTE! Publications SUBSCRIPTIONS

Magazines & Disks 1-800-727-6937

#### COMPUTE! Publications

#### Back Issues/Disk Orders

Individual back copies of *magazines* and *disks* are available by mail only while quantities last. Please clip or photocopy and mail completed coupon to:

COMPUTE!
Single Copy Sales
P.O. Box 5188
Greensboro, NC 27403

ty:	COLUMN PHILE	1000	111
ate:		Zip:	aly.
	Innus	Manufac	
Quantity	Issue (Month/Year)	Magazine or Disk Name	Price*
1.2.4	<b>Morethan</b>	112. 100 1	
	10 m failus		
			2.22
_			
-	1		
-			inch.
SEL LO			6G
-			-
-			
	and the second	JB TOTAL: 8¼% Tax:	
		d 5% Tax:	
		TOTAL:	

#### Cwww.commodore.ca

# Get Results

#### with proven software and books from Abacus.



Super Pascal-Get the fastest and complete Pascal for your computer. Super Pascal is a full implementation of standard Pascal. Extensive editor features search, replace, etc. Even add machine language routines with the builtin assembler. Fast graphics library. C-64 version has high-speed DOS for faster access. More than just a compiler-Super Pascal is a complete system that gives you programming results. C-64 \$59.95 C-128 \$59.95



BASIC Compiler --- Now anyone can make their BASIC programs run faster! Easily converts your programs into fast machine language or speed code. Even speed up programs written in Simon's Basic, Video Basic etc. If your program walks or crawls, give it speed to RUN! C64 \$39.95 C128 \$59.95



GEOS<sup>™</sup> Tricks & Tips-A new book with something for everyone. Contains over 50 tricks and tips that you can use everyday. Converts any word processor file into geoWrite format; edit existing GEOS fonts or create your own; Write in machine language or explore the internals of GEOS. \$16.95

EOS

Please note our new address and phone numbers

New!



Dept. G1 • 5370 52nd Street SE • Grand Rapids, MI 49508 Phone 616/698-0330 • Telex 709-101 • Telefax 616/698-0325 Call or write today for your free catalog or the name of your nearest dealer. Or you can order direct using your Visa, American Express or MasterCard. Add \$4.00 per order for shipping and handling. Foreign orders add \$12.00 per item. 30-day money back guarantee on software. Dealer inquiries welcome-over 2400 dealers nationwide.



Cadpak-The professional design tool. Enter simple or intricate drawings with the keyboard, lightpen or 1531 mouse. With the flexible object editor you can create libraries of furniture, electronics, etc. as intricate as screen resolution permits. Zoom in to do detailed work. Produce exact scaled output to most printers in inches, feet, etc. Get design results fast with Cadpak and your

C-128 \$59.95



Super C-You can now develop software or just learn C on your computer. Easy-to-use and takes full advantage of this versatile language. Produces 6502 machine code and is many times faster than BASIC. Includes full-screen editor (search, replace and block operations), compiler, linker and handbook. Libraries for graphics and advanced math are included. Whether you want to learn C, or program in a serious C environment for your Commodore, Super C is the one to buy. C-64 \$59.95 C-128 \$59.95



# A Buyer's Guide to Commodore-Ready Printers

Mickey McLean

There is a good selection of printers designed to work specifically with the Commodore 64 and 128—with no separate interface required. This buyer's guide represents a comprehensive list and description of all those available. Included are categories describing speed, pitch, buffer, paper feed, graphics capability, warranty, and price. Be sure to see the previous article, "Commodore-Ready Printers: A New Generation," for more details.

#### **Explanations of Terms**

The following list contains definitions of terms used in the buyer's guide.

**Compatibility.** Because of Commodore's unique serial-data communications format, printers with standard serial or parallel connections will not work with a 64 or 128 without first being connected to a separate interface. All printers in this buyer's guide work directly with Commodore computers and do not require a separate interface. As noted in the buyer's guide, some of these printers are compatible with other formats as well.

Printer type. There are three types of print technology available for Commodore computers: daisywheel, dot matrix, and thermal transfer. Daisywheel printers form characters by striking the paper through an inked ribbon with a small wheel whose spokes have letters and numbers at their tips. Dotmatrix printers also use impact, but employ a printhead that contains either tiny wires or pins that form characters or graphics. A printer with thermal-transfer capabilities uses heat to melt a waxlike ink onto the paper.

**Speed.** In this category, users can determine how fast a printer prints. Most printers offer users a range of speeds measured in characters per second (cps). The slower modes can provide near-letter-quality printing (like a typewriter), whereas the faster modes produce rougher or fainter type in what is usually referred to as draft mode. Some printer speeds vary depending on the type of font used such as pica or elite.

**Pitch.** The pitch determines how many characters can fit on a line and is measured in either characters per inch (cpi) or characters per line (cpl). If larger- or smaller-than-normal characters are being printed, the pitch can vary.

**Buffer.** This is amount of text the printer can store while it is operating, allowing the computer to perform other work. Add-on buffers can be purchased to increase the printer's memory capacity.

**Paper feed.** The two basic feed types are friction and tractor. Friction-feed printers grip the paper and move it around the platen like a typewriter, while tractor-feed printers grab the holes at the edge of the paper with teeth at either side of the platen. Many printer manufacturers offer single-sheet feeders and additional tractors as optional equipment.

Graphics capability. Because of the limited number of characters on a daisywheel, printers with daisywheel technology cannot usually produce Commodore graphics characters. Dot-matrix and thermaltransfer printers do not have these limitations and therefore have the capability to print graphics.

#### Manufacturer Names and Addresses

**Blue Chip Electronics** 7505 W. Boston Ave. Chandler, AZ 85226 **Brother International** 8 Corporate Pl. Piscataway, NJ 08854 **Commodore Business Machines** 1200 Wilson Dr. West Chester, PA 19380 Okidata 532 Fellowship Rd. Mt. Laurel, NJ 08054 Seikosha America 1111 Macarthur Blvd. Mahwah, NJ 07430 Silver Reed America 19600 S. Vermont Ave. Torrance, CA 90502 Star Micronics

200 Park Ave., Suite 2310 Pan Am Bldg. New York, NY 10166

C-www.commodore.ca

Name	Manufacturer	Compatibility	Printer type	Speed (cps)	Pitch (cpi)	Buffer	Paper feed	Graphics Capability	Warranty	Price	Comments
D12/10	Blue Chip Electronics	Commodore interface included	Daisywheel	12	10	2K	Friction, tractor optional	No	6 months	\$269	Comes with Fleetwriter III word processor
D 20/10	Blue Chip Electronics	Built-in Commodore and Centronics interfaces	Daisywheel	20	10	2К	Friction, tractor optional	No	6 months	\$279	Comes with Fleetwriter III word processor
M 120 NLQ	Blue Chip Electronics	Commodore interface included, optional IBM/compatible cable	Dot matrix	25-120	10	2К	Friction and tractor	Yes	6 months	\$299	Comes with Fleetwriter III word processor
HR-10/C	Brother International	Commodore serial, parallel	Daisywheel	12	10-15	2К	Friction and tractor	No	1 year for parts, 90 days for labor	\$349	Optional keyboard converts printer into electric typewriter
MPS 1250	Commodore Business Machines	Commodore serial, Centronics parallel	Dot matrix	24-120	5-12	available	Friction and tractor	Yes	90 days	\$299.95	
Okidata 180	Okidata	Commodore serial, Centronics parallel	Dot matrix	30-180	17	2K	Friction and pin, tractor optional	Yes	1 year	\$329	
Okimate 20	Okidata	Serial, parallel (Commodore interface with Plug 'N Print Kit)	Thermal transfer	40-80	17	8K	Friction and tractor	Yes	90 days	\$268	Color printing capabilities
1200 VC	Seikosha America	Commodore standard	Dot matrix	25-120	10-15	2.3K	Friction and tractor	Yes	2 years	\$299	Fonts chosen from front panel
SP-1000 VC	Selkosha America	Commodore standard	Dot matrix	20-100	10-15	1.5K	Friction and tractor	Yes	2 years	\$270	Includes linefeed and margin setting
SP-180 VC	Seikosha America	Commodore standard	Dot matrix	20-100	10-15	1.5K	Friction and tractor	Yes	2 years	\$249	
EXP 420	Silver Reed America	Built-in Commodore interface	Daisywheel	12	10-15	1 line	Friction; tractor and sheet feed optional	No	90 days	\$299	
NX-10C	Star Micronics	Commodore serial	Dot matrix	30-120	5-17	1 line	Friction and tractor	Yes	1 year	\$349	
NX-1000C Multi-Font	Star Micronics	Commodore serial	Dot matrix	36-144	12	1 line	Friction, tractor, and single-sheet feed; optional automatic sheet feeder	Yes	1 year	\$299	
NX-1000C Rainbow	Star Micronics	Commodore serial	Dot matrix	36-144	12	1 line	Friction, tractor, and single sheet feed; optional automatic sheet feeder	Yes	1 year	\$379	Color printing capabilities

#### ESTERN EUROPEAN TOUR"

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

We start out in London by flying over the Parliament building. Look closely and you can see the faces of Big Ben.

Our next view offers a glimpse of the majestic Tower Bridge and Tower of London at dawn. Other British highlights include Buckingham Palace, Westminster Abbey and Stonehenge.

Check back with us next month as we fly to Paris, France.



COMPUTEI's Gazette June 1988 19

#### "Find Red Square" Contest!

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

## DON'T SETTLE FOR LES



#### **TUSSEY'S SPECIAL PACKAGES**

#### Educational Software too! All Games stocked for quick ship!!! GAME GALLERY

ACCESS	
Echelon	C20 05
Leader Board Leader Board Tourn. Disk	\$24.95
ACCOLADE Apollo 18	
Apollo 18	\$19.95
Comics	\$19.95
4th & Inches	\$22.95
Hard Ball	\$22.95
Killed Until Dead	\$12.95
Miniputt	\$24.95
Test Drive	\$24.95
ACTIONSOFT	
ACTIONSOFT	
Last Ninja	\$24.95
Thunder Chopper	\$24.95
Up Periscope	\$19.95
ACTIVISION	
Air Rally	\$24.95
Aliens	\$22.95
with all Librarys	\$39.95
Maniac Mansion	\$27.95
Music Studio	\$27.05
Shanobai	\$24.95
AVALON HILL	
NBA	\$29.95
Shanghai	
Lode Runner	\$24.95
Moebius	\$27.95
Moebius Superbike Challenge	\$19.95
Ultima V	\$39.95
CINEMAWARE	-16: 14: 19: 19: 19:
Defender of the Crown	\$22.05
King of Chicago	622.95
SDI	\$32.93
SDI	\$27.95
The Three Stooges	.921.90
COSMI	
COSMI Del Con 5	.\$17.95
DATA EAST	
Commando	\$17.95
Karate Champ	
Kid Niki	
Speed Buggy	\$19.95
DATASOFT	area Milesi
Alt Reality/Dunceon	
Bismark	.\$24.95
Dark Lord	519.95
Force 7	\$19.95
Hunt For Hed October	\$32.95
Tobruk	.\$27.95
Tomahawk Video Title Shop	.\$24.95
	325.95

GET 1 FREE!	
Buy any two Electronic Arts Titl Between April 1, 1988 and June 1988 and get a third title	es" 30,
ABSOLUTELY FREE!	
* "Classic" Titles Do Not Qualif	7

ELECTRONIC A	RTS"
Bard's Tale	
Bard's Tale II	
Chessmaster 2000	
Demon Stalkers	\$24.95
Dragon's Lair	
Dungeon Runners	\$19.95
EOS(Earth Orbit Stat'n)	
Instant Music	\$24.95
Legacy of the Ancients	
Marble Madness	
Master Ninja	\$24.95
Monopoly	\$22.95
Outrageous Pages	
PHM Pegasus	\$24.95
Roadwars	\$24.95
Rockford	\$24.95
Scrabble	\$27.95
Skate or Die	\$24.95
Sky Fox II	\$24.95
Starfleet I	\$29.95
Strike Fleet	\$29.95
World Tour Golf	\$27.95
Yeager AFT	
	Antonio 19655

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

FIREBIRD	
Elite	\$22.95
Guild of Thieves	\$24.95
Knight ORC	\$29.95
Star Glider	\$24,95
The Sentry	\$27.95
GAMESTAL	yx.
Championship Baseball	
Championship Football	\$27.95
GBA Basketball 2 on 2	
Top Fuel Eliminator	\$19.95
INFOCOM	
Beyond Zork	\$34.95
Hitchhiker's Guide	\$22.95
LANCE HAFNER for	the heat
in sports strategy simulation	
3 in 1 Football	\$29.95
Daskathall the Des Came	820 OE

Full Count Baseball	\$29.95
MICROLEAGUE Baseball Wrestling	
MICRO PRO	DSE
Airborne Rangers F-15 Strike Eagle Gunship	\$21.95
Kennedy Approach NATO Commander Pirates	\$17.95
Silent Service	

inal Four Basketball

MINDSCAPE           Gauntiet         \$29 95           Indiana Jones         \$22 95           Indoor Sports         \$22 95           Indioro Sports         \$22 95           Indiana Jones         \$22 95           Indiana Jones         \$22 95           Paperboy         \$24 95           Superstar Hockey         \$24 95           Undium         \$19 95           SIMON & SHUSTER         Star Trek: Promethian Adv           Star Trek: Rebel Universe         \$22 95           SPECTRUM HOLOBYTE         Falcon           Falcon         \$22 95           SOFTWARE SIMULATIONS         Football           Football         \$24 95           SISI         S24 95           Pure Stat College BB         \$32 95           SSI         S24 95           Pure Stat College BB         \$32 95           SSI         S24 95           Phantasie I, II (each)         \$24 95           Fernal Dagger         \$27 95           Sings of Zifin         \$24 95           Falcon         \$22 95           B-24         \$24 95           B-24         \$24 95           Sings of Zifin         \$24 95	and the second second second second	
Indoor Sports         \$22.95           Infiltrator II         \$21.95           Paperboy         \$24.95           Parfect Score SAT prep         \$44.95           Superstar Hockey         \$22.495           Uchi Mata         \$19.95           Uridium         \$19.95           Uridium         \$19.95           STMON & SHUSTER           Star Trek: Rebel Universe         \$22.95           SPECTRUM HOLOBYTE           Falcon         \$22.95           SOFTWARE SIMULATIONS           Football         \$24.95           Sun Trek: Promethian Adv         \$24.95           Intrigue         \$22.95           SOFTWARE SIMULATIONS           Football         \$24.95           Pure Stat Baseball         \$22.95           Pure Stat College BB         \$32.95           Star         \$24.95           Pure Stat College BB         \$24.95           Pure Stat College BB         \$22.95           Shard of Darkness         \$27.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Wiza	MINDSCAPE	\$29.95
Indoor Sports         \$22.95           Infiltrator II         \$21.95           Paperboy         \$24.95           Parfect Score SAT prep         \$44.95           Superstar Hockey         \$22.495           Uchi Mata         \$19.95           Uridium         \$19.95           Uridium         \$19.95           STMON & SHUSTER           Star Trek: Rebel Universe         \$22.95           SPECTRUM HOLOBYTE           Falcon         \$22.95           SOFTWARE SIMULATIONS           Football         \$24.95           Sun Trek: Promethian Adv         \$24.95           Intrigue         \$22.95           SOFTWARE SIMULATIONS           Football         \$24.95           Pure Stat Baseball         \$22.95           Pure Stat College BB         \$32.95           Star         \$24.95           Pure Stat College BB         \$24.95           Pure Stat College BB         \$22.95           Shard of Darkness         \$27.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Wiza	Indiana Jones	\$22.95
Initirator II         \$21.95           Paperboy         \$24.95           Paperboy         \$24.95           Perfect Score SAT prep         \$44.95           Superstar Hockey         \$24.95           Uchi Mata         \$19.95           SIMON & SHUSTER         \$19.95           Star Trek: Robel Universe         \$24.95           Star Trek: Robel Universe         \$24.95           SPECTRUM HOLOBYTE         Falcon         \$22.95           Pringue         \$22.95           Port 109         \$27.95           SofTWARE SIMULATIONS         \$24.95           Pure Stat Baseball         \$22.95           Pure Stat Baseball         \$22.95           Pure Stat College BB         \$32.95           Star Trek: Robel Universe         \$24.95           Pure Stat Baseball         \$24.95           Pure Stat Baseball         \$22.95           Pure Stat College BB         \$32.95           Realms of Darkness         \$27.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Shard of Nicademus         \$27.95           Shard of Nicademus         \$27.95      <	Indoor Sports	\$22.95
Paperboy	Infiltrator II	\$21.95
Superstar Hockey         \$24.95           Uchi Mata         \$19.95           Undium         \$19.95           SIMON & SHUSTER         Star Trek: Promethian Adv           Star Trek: Rebel Universe         \$24.95           SPECTRUM HOLOBYTE         Falcon           Falcon         \$22.95           SPECTRUM HOLOBYTE         Falcon           Sobroton         \$22.95           SOFTWARE SIMULATIONS         Sobrotall           Football         \$24.95           Pure Stat Baseball         \$29.95           SSI         B-24           Secondall         \$24.95           Pure Stat Baseball         \$29.95           SSI         B-24           B-24         \$24.95           Pure Stat College BB         \$32.95           SSI         B-24           B-24         \$24.95           Phantasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Randwar Europa         \$29.95           Wragame Const Set         \$22.95           Wragame Const Set         \$22.95           Witzards Crown         \$24.95           SUBLOGIC         Flight Simulator II         \$22.95	Paperboy	\$24.95
Superstar Hockey         \$24.95           Uchi Mata         \$19.95           Undium         \$19.95           SIMON & SHUSTER         Star Trek: Promethian Adv           Star Trek: Rebel Universe         \$24.95           SPECTRUM HOLOBYTE         Falcon           Falcon         \$22.95           SPECTRUM HOLOBYTE         Falcon           Sobroton         \$22.95           SOFTWARE SIMULATIONS         Sobrotall           Football         \$24.95           Pure Stat Baseball         \$29.95           SSI         B-24           Secondall         \$24.95           Pure Stat Baseball         \$29.95           SSI         B-24           B-24         \$24.95           Pure Stat College BB         \$32.95           SSI         B-24           B-24         \$24.95           Phantasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Randwar Europa         \$29.95           Wragame Const Set         \$22.95           Wragame Const Set         \$22.95           Witzards Crown         \$24.95           SUBLOGIC         Flight Simulator II         \$22.95	Perfect Score:SAT prep	\$44.95
Uridium         \$19.95           SIMON & SHUSTER           Star Trek: Promethina Adv.         \$24.95           Typing Tutor IV         \$29.95           SPECTRUM HOLOBYTE           Falcon         \$22.95           Intrigue         \$22.95           SOFTWARE SIMULATIONS           SOFTWARE SIMULATIONS           Football         \$24.95           Pure Stat Baseball         \$29.95           Pure Stat Baseball         \$22.95           Pure Stat College BB         \$32.95           Flans of Darkness         \$27.95           SSI         B-24         \$24.95           Pure Stat College BB         \$32.95           Phantaise I, III (each)         \$24.95           Realms of Darkness         \$27.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Shard of Spring         \$24.95           Wizards Crown         \$24.95           SUBLOGIC         Flight Simulator II         \$32.95           Stat S2.95         Stat S2.95         \$24.95	Superstar Hockey	\$24.95
SIMON & SHUSTER           Star Trek: Promethian Adv. \$24.95           Star Trek: Rebel Universe\$24.95           Stpring Tutor IV         \$29.95           SPECTRUM HOLOBYTE           Falcon         \$22.95           SPECTRUM HOLOBYTE           Falcon         \$22.95           SOFT09         \$27.95           Soko Ban         \$17.95           Soko Ban         \$24.95           Pure Stat Baseball         \$24.95           Pure Stat College BB         \$32.95           SSI         \$24.95           B-24         \$24.95           Pure Stat College BB         \$32.95           SSI         \$24.95           B-24         \$24.95           Pure Stat College BB         \$32.95           SSI         \$24.95           B-24         \$24.95           Phantasie I, III (each)         \$24.95           Readwar Europa         \$29.95           Shard of Spring         \$24.95           Wargame Const Set         \$22.95           Witaerds Crown         \$24.95           SUBLOGIC         Flight Simulator II         \$32.95           Sut         \$22.95         \$24.95	Uchi Mata	\$19.95
Star Trek: Promethian Adv         \$24.95           Star Trek: Rebel Universe         \$24.95           Star Trek: Rebel Universe         \$24.95           SPECTRUM HOLOBYTE         Falcon           Falcon         \$22.95           PT 109         \$22.95           PT 109         \$27.95           Soko Ban         \$17.95           Soko Ban         \$24.95           Pure Stat Baseball         \$22.95           Pure Stat College BB         \$22.95           SSI         B-24           B-24         \$24.95           Pure Stat College BB         \$22.95           SSI         B-24           B-24         \$24.95           Plantasie I, III (each)         \$24.95           Rings of Zilfin         \$24.95           Shard of Soring         \$24.95           Wargame Const Set         \$22.95           Wizards Crown         \$24.95           SubLOGIC         Fight Simulator II           Fight Simulator II         \$32.95	Uridium	\$19.95
Star Trek: Rebel Universe         \$24.95           Typing Tutor IV         \$29.95           SPECTRUM HOLOBYTE         Falcon         \$22.95           Falcon         \$22.95           Intrigue         \$22.95           Sofo Ban         \$17.95           SOFTWARE SIMULATIONS         \$24.95           Pure Stat Baseball         \$24.95           Pure Stat Baseball         \$22.95           Pure Stat College BB         \$32.95           Eternal Dagger         \$27.95           Phantasie I, III (each)         \$24.95           Phantasie I, III (each)         \$24.95           Shard of Darkness         \$27.95           Shard of Spring         \$24.95           Wargame Const Set         \$22.95           Witards Crown         \$24.95           Start of Nicademus         \$27.95           Shard of Spring         \$24.95           Witards Crown         \$24.95           SUBLOGIC         Flight Simulator II         \$32.95           Jet         \$22.95	SIMON & SHUSTER	
Typing Tutor IV         \$29.95           SPECTRUM HOLOBYTE           Falcon         \$22.95           Intrigue         \$22.95           Shore         \$22.95           Soft         \$22.95           Soft         \$22.95           Soft         \$22.95           Soft         \$22.95           Soft         \$27.95           Pure Stat Baseball         \$29.95           B-24         \$24.95           Pure Stat College BB         \$32.95           SI         B-24         \$24.95           Pitatasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Rangs of Zlifin         \$24.95           Shard of Spring         \$24.95           Wrath of Nicademus         \$27.95           Wargame Const Set         \$22.95           Wrath of Nicademus         \$27.95           SubLOGIC         Flight Simulator II         \$32.95           SubLOGIC         Flight Simulator II         \$32.95	Star Trek: Promethian Adv .	\$24.95
SPECTRUM HOLOBYTE           Falcon         \$22 95           Intrigue         \$22 95           Intrigue         \$22 95           Soko Ban         \$17.95           Soko Ban         \$24.95           SOFTWARE SIMULATIONS         Football           Football         \$24.95           Pure Stat Baseball         \$22.95           SSI         B-24           B-24         \$24.95           Plantasie I, III (each)         \$24.95           Readwar Europa         \$22.95           Shard of Soring         \$24.95           Wargame Const Set         \$22.95           Wizards Crown         \$24.95           SUBLOGIC         Fight Simulator II           Fight Simulator II         \$32.95	Star Trek: Rebel Universe	\$24.95
Falcon         \$22 95           Intrigue         \$22 95           Intrigue         \$22 95           Soko Ban         \$17 95           SOFTWARE SIMULATIONS         Footbail           Footbail         \$24 95           Pure Stat Basebail         \$29 95           Pure Stat College BB         \$32 95           Eternal Dagger         \$27 95           Phantasie I, III (each)         \$24 95           Readwar Europa         \$29 95           Shard of Spring         \$24 95           Wargame Const Set         \$22 95           Witzerds Crown         \$24 95           SUBLOGIC         Flight Simulator II           Fligt Simulator II         \$32 95	Typing Tutor IV	\$29.95
Intrigue         \$22.95           PT 109         \$27.95           PT 109         \$27.95           Soko Ban         \$17.95           SOFTWARE SIMULATIONS         Football           Football         \$24.95           Pure Stat Baseball         \$29.95           B-24         \$24.95           Eternal Dagger         \$27.95           Phantasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Rodwar Europa         \$29.95           Shard of Spring         \$24.95           Wrath of Nicademus         \$27.95           Wrath of Nicademus         \$27.95           With of Nicademus         \$27.95           SublucGIC         Flight Simulator II           S24.95         \$24.95	SPECTRUM HOLOB	YTE
PT 109         \$27.95           Soko Ban         \$17.95           SOFTWARE SIMULATIONS         Football           Football         \$24.95           Pure Stat Baseball         \$22.95           SSI         \$24.95           B-24         \$24.95           Eternal Dagger         \$27.95           Realms of Darkness         \$27.95           Rings of Zilfin         \$24.95           Shard of Spring         \$24.95           Wargame Const Set         \$22.95           Wizards Crown         \$24.95           SUBLOGIC         Flight Simulator II           Flight Simulator II         \$32.95		
Soko Ban       \$17.95         SOFTWARE SIMULATIONS       \$24.95         Pure Stat Baseball       \$29.95         Pure Stat College BB       \$32.95         SSII       B-24       \$24.95         B-24       \$24.95         Pings of Zaros       \$27.95         Phantasie I, III (each)       \$24.95         Realms of Darkness       \$27.95         Shard of Spring       \$24.95         Shard of Spring       \$24.95         Wargame Const Set       \$22.95         Witards Crown       \$24.95         SUBLOGIC       Flight Simulator II         Flight Simulator III       \$32.95		
SOFTWARE SIMULATIONS Football \$24.95 Pure Stat Baseball \$29.95 Pure Stat College BB \$32.95 SSI B-24.\$24.95 Eternal Dagger \$27.95 Phantasie I, III (each) \$24.95 Realms of Darkness \$27.95 Realms of Darkness \$27.95 Shard of Spring \$24.95 Wrath of Nicademus \$22.95 Wrath of Nicademus \$27.95 SUBLOGIC Flight Simulator II.\$22.95 Jet \$22.95		
Football         \$24.95           Pure Stat Baseball         \$29.95           SSI         \$29.55           B-24         \$24.95           Eternal Dagger         \$27.95           Phantasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Rings of Zilfin         \$24.95           Shard of Spring         \$24.95           Wargame Const Set         \$22.95           Wizards Crown         \$24.95           SUBLOGIC         Fight Simulator II           Fight Simulator II         \$32.95	Soko Ban	\$17.95
Pure Stat Baseball         \$29.95           Pure Stat College BB         \$32.95           SSI         B-24         \$24.95           B-24         \$24.95           Eternal Dagger         \$27.95           Phantasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Readwar Europa         \$29.95           Shard of Spring         \$24.95           Wargame Const Set         \$22.95           Witards Crown         \$24.95           SUBLOGIC         Flight Simulator II           Flight Simulator II         \$32.95           Jat         \$22.95	SOFTWARE SIMULAT	TIONS
Pure Stat Baseball         \$29.95           Pure Stat College BB         \$32.95           SSI         B-24         \$24.95           B-24         \$24.95           Eternal Dagger         \$27.95           Phantasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Readwar Europa         \$29.95           Shard of Spring         \$24.95           Wargame Const Set         \$22.95           Witards Crown         \$24.95           SUBLOGIC         Flight Simulator II           Flight Simulator II         \$32.95           Jat         \$22.95	Football	\$24.95
Pure Stat College BB         \$32.95           SSI         B-24         \$24.95           Eternal Dagger         \$27.95           Phantasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Rodwar Europa         \$29.95           Shard of Spring         \$24.95           Wrath of Nicademus         \$27.95           Wizards Crown         \$24.95           Wizards Crown         \$24.95           SUBLOGIC         Flight Simulator II           Flight Simulator II         \$32.95	Pure Stat Baseball	\$29.95
SSI         \$24.95           B-24         \$24.95           Eternal Dagger         \$27.95           Phantasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Rings of Zilfin         \$24.95           Shard of Spring         \$24.95           Wargame Const Set         \$22.95           Witards Crown         \$24.95           SUBLOGIC         Flight Simulator II           Flight Simulator II         \$32.95	Pure Stat College BB	\$32.95
Eternal Dagger \$27.95 Phantasie I, III (each) \$24.95 Realms of Darkness \$27.95 Rings of Zilfin \$24.95 Roadwar Europa \$29.95 Wargame Const Set \$22.95 Wrath of Nicademus \$27.95 Wizards Crown \$24.95 SUBLOGIC Flight Simulator II \$32.95 Jet \$22.95	SSI	
Eternal Dagger	B-24	\$24.95
Phantasie I, III (each)         \$24.95           Realms of Darkness         \$27.95           Rings of Zilfin         \$24.95           Roadwar Europa         \$29.95           Shard of Spring         \$24.95           Wargame Const Set         \$22.95           With of Nicademus         \$27.95           SUBLOGIC         Flight Simulator II           Flight Simulator II         \$32.95	Eternal Daoger	\$27.95
Rings of Zilfin         \$24.95           Roadwar Europa         \$29.95           Shard of Spring         \$24.95           Wargame Const Set         \$22.95           Wrath of Nicademus         \$27.95           Wizards Crown         \$24.95           SUBLOGIC         Flight Simulator II           Flight Simulator II         \$32.95           Jet         \$22.95	Phantasie I, III (each)	\$24.95
Roadwar Europa     \$29.95       Shard of Spring     \$24.95       Wargame Const Set     \$22.95       Warth of Nicademus     \$27.95       Wizards Crown     \$24.95       SUBLOGIC     Flight Simulator II       Flight Simulator II     \$32.95       Jet     \$22.95	Realms of Darkness	\$27.95
Shard of Spring	Rings of Zilfin	\$24.95
Wargame Const Set \$22.95 Wrath of Nicademus \$27.95 Wizards Crown \$24.95 SUBLOGIC Flight Simulator II\$32.95 Jet \$29.95	Roadwar Europa	\$29.95
Wrath of Nicademus     \$27.95       Wizards Crown     \$24.95       SUBLOGIC     Flight Simulator II       Flight Simulator II     \$32.95       Jet     \$29.95	Shard of Spring	\$24.95
Vizards Crown \$24.95 SUBLOGIC Flight Simulator II \$32.95 Jet \$29.95	Wargame Const Set	\$22.95
SUBLOGIC Flight Simulator II \$32.95 Jet \$29.95		
Flight Simulator II\$32.95 Jet \$29.95	Wizards Crown	\$24.95
Jet\$29.95	SUBLOGIC	
Jet	Flight Simulator II	\$32.95
Stealth Mission\$37.95	Jet	\$29.95
	Stealth Mission	\$37.95

#### 64C BUSINESS ANI

\$24.95

\$29.95

64C DATABASES	
Bank Street Filer	\$34.95
Data Manager II	
64C INTEGRATED F	KGS
Vizastar 64 4K	\$39.95
64C SPREADSHEET	S
Swiftcalc 64 w/sideways	\$19.95
Sideways	
64C WORD PROCES	SORS
Bank Street Writer	
Font Master II	\$34.95
Paperclip w/spellpack	\$49.95
Paperclip III	\$39.95
Pocket Writer Dictionary	
Wordpro 3+/64	
Word Writer 64 w/speller	\$34.95

PRODUCTIVITY		
FINANCIAL & ACCT		
Timeworks Electr. Checkbk	\$19.95	
Timeworks Money Mgr	\$19.95	
CMS Acct Pkg/64		
MISC. HARDWARE		
Estes pwr supply for C-64	\$54.95	
Naverone 3 Slot expander .	\$27.95	
UTILITIES		
Thinking Cap	\$32.95	
Toy Shop		
Copy II 64/128		

Toy Shop	\$42.95
Copy II 64/128	\$24.00
CSM 1541 align	\$34.95
Fast Load	
Bobs Term Pro	\$32.95

#### COMMODORE 128 SOFTWARE

WORDPROCESSOR	
Fleet System 4\$56.	.95
Font Master 128 \$44	95
Paperclip II\$54	.95
Paperclip III\$39	
Superscript 128\$59	
Term Paper Writer\$34	
Vizawrite 128SCA	
Wordwriter 128 w/spell\$34	
SPREADSHEETS	
Swiftcalc 128 w/sdways \$49	.95
DATA BASES	
Data Manager 128 \$34	.95
Perfect Filer \$49	.95
Superbase 128\$64	.95
MISC. 128 SOFTWAR	
Accountant Inc\$59	.95
Bobs Term Pro 128\$47	.95
CMS Acct Pkg/128 \$124	.95
Mach 128\$39	.95
Partner 128\$54	.95
Personal Acct. 128\$34	.95
Sylvia Porter's Personal	05
Finance Planner\$54	
Vizastar 128SCA	ALL



Batteries Included	
Paperclip Publisher	\$39.95
Berkeley Softworks	
GEO Publish	\$44.95
Broderbund	
Graphics Library I,II or III	\$16.95
Print Shop	\$25.95
Electronics Arts	
Outrageous Pages	\$39.95
Springboard	
Certificate Maker	\$32.95
Clip Art	\$19.95
Newsroom	\$34.95
Timeworks	
Desktop Publisher	\$39.95
Unison World	
Printmaster Plus	\$29.95





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



#### reviews

#### Super Snapshot 3.0 and Slideshow Creator

The 64 utility-cartridge war has intensified markedly in the past year. I recently counted at least ten "fast load plus" cartridges on the market. Several, including Super Snapshot, are in their third incarnations. Though one of the most technologically advanced, even a quality product like Super Snapshot needs something special going for it in a crowded market. And this "something special" is a gem of a companion: Slideshow Creator.

Dependent entirely on the cartridge for slide preparation, Slideshow's Projector program does not require Super Snapshot to run. Essentially, Slideshow Creator enables you to turn DOODLE! and/or Koala Paint images into a series of "slides," either in a stand-alone show, or as part of your own BASIC or machine language program. (Demos are included illustrating *all* possibilities.) All applications should be easily understood by intermediate programmers.

One of Super Snapshot's many fine features is its screen copy (dump) capability, which permits any screen (minus sprites—we are promised these in version 4.0) to be captured on disk as a *DOODLE!* or *Koala* file, among other formats. Screen dumps can also be sent in three sizes, and in normal or reverse format to a variety of printers.

Once saved, screens can be modified by their respective programs. Slideshow allows for sequencing any set of DOODLE! or Koala images, specifying their timing, and entry/exit mode (wipes). It also offers a scrolling text overlay option.

Scrolling text (which can be quite long) is either of two sizes, in any of ten fonts, and may be placed anywhere on the screen. (It can appear either in front of or behind the graphic, in a variety of user-specifiable colors.) The show itself can be set either to run once and stop or to repeat infinitely. To display a large number of slides, up to four disk drives of any type may be chained together.

Slideshow Creator is a versatile program. It's highly appropriate for window displays and for both business and educational presentations. This ability alone is nearly reason enough to purchase a Super Snapshot cartridge (the combination costs less than \$70).

Super Snapshot has many other features going for it as well. With a 32K ROM and an 8K RAM, it—uniquely among utility cartridges—permits plugin ROM upgrades. Company policy is to upgrade cartridge ROM for \$20 plus \$3 shipping and handling; all you do is send in your old cartridge. (The original Snapshot 64 is not upgradable). It replaces the ROM (you can do it yourself as easily), and includes the current "parameters" disk and documentation, which is quite good.

Super Snapshot is one of the most technologically advanced cartridges for the 64—and it has a gem of a companion: Slideshow Creator.

Users familiar with version 2.0 should be aware that 3.0 is a significant upgrade. Among the many new features are turbo save and a faster turbo load. (Now, 60 blocks load in 6 seconds instead of 8.5, and we are promised further improvement in version 4.0.) Version 3.0 includes turbo routines unique to the 1571 drive. (The manual shows how to use these even on the 64). Also, there is sprite collision disabling (several varieties), and an Extended Life function that locks in your attained level in a game. Should a game "death" occur, upon restart, the game resumes at the previously attained level. This is one of several reasons for the on-board 8K RAM. Indeed, dedicated hacker/ gamers can freeze a program at any point, enter the machine language monitor, modify code, and return to the running program with memory otherwise uncorrupted. This is a capability unique to Super Snapshot.

One of the features I particularly like is the easily programmable function keys. Cartridges typically offer preprogrammed keys, but this is the only one I've seen that allows you to modify them. And who doesn't want to change one or two? Particularly well-designed is function key loading from an on-screen disk directory, accessible via another function key. (I only wish that a DSAVE command made saving from a directory as simple.)

The cartridge contains so many useful features, I cannot begin to name them all. Two, however, merit special mention: the accessible—through the ML monitor—and user-friendly trackand-sector editor, and the turbo file and disk copy utility. The file copier permits fast copying of selected files from any model disk drive to any other, including the 1581. (Turbo and copy utilities for the 1581 are rare.) The disk copier purportedly copies disks between like drives only. I could not test this copier; my review ROM lacked this feature.

A parameters disk—the latest one from Kracker Jax—is included with Super Snapshot for those relatively few programs the cartridge cannot back up by itself. (According to the publisher, Software Support International, no cartridge can back up all programs.) The disk includes both a nibbler for programs that require one (Kracker Jax identifies them) and a set of disk-based Turbo\*25 utilities that permit you to reformat your backups—on the 1541 only—and to load very fast, with or without Super Snapshot.

Every reviewer has a wish-list of desirable features, and I am no exception. I miss a set of BASIC aid utilities, a reset button available during system crash, and an OLD command to recover a lost BASIC program. On the other hand, a complete disk wedge is always available, even at snapshot time. This wedge, turbo load and/or save, and the programmed function keys may be turned on or off at any time. I would also appreciate a turbo Scratch and Validate to go with the fast Format, Load, and Save (maybe in 4.0?).

There's a lot of power in these two packages. Both are well-designed and packed with useful features. Software Support International (formerly Com-





#### THE FINAL CARTRIDGE III C64 AND C128

THE FINAL

Easy to use WINDOWS and FULL DOWN MENUS allow you to select with either mouse, joystick or keyboard more than 60 new COMMANDS and FUNCTIONS. Various PRINTER-INTER-EACES, a BASIC TOOL-KIT

Comfortable ML MONITOR including 1541 drive access and sprite editing, a NOTEPAD/WORDPROCESSOR with proportional characters, 2 DISK LOADERS with speeds, up to 15 times faster and a state of the art FREEZER. Transform your CARTRIDGEILP Commodore into a complete new - AMIGA LOOK SUS-

ALIKE - system







#### THE FINAL CARTRIDGE III

The high-resolution bit mapped windows are selected from a menu bar. An unlimited number of windows can be open on the screen at the time. The windows can be freely moved on the screen.

The following windows are already implemented in ROM:

#### PREFERENCE WINDOW

Selects: mouse port, joystick port, mouse speed, screen colours, pointer clours, keyboard click, keyboard repeat.

#### CALCULATOR

Complete simulation of a LCDcalculator. Input either with mouse, joystick or keyboard. The numeric key-pad of the C128 can be used in 084-mode. NOTE PAD

Easy to use wordprocessor with proportional characters enables you to store and print small notes, letters, etc.

#### DIRECTORY WINDOWS

Enables you to open directories from different disks and drives, sort and print directories. DISK WINDOWS Load, Run, Rename, Validate, Scratch, Initialize

Fast format disks TAPE WINDOW Activates fast and normal modes. PRINTER WINDOWS Select different printers, such as Commodore serial, Centronics, RS 232, Colour printers. REQUESTER WINDOWS

DISC BASED USER WINDOWS CLOCH

Real Time Clock, with Alarm



W A

#### THE FINAL CARTRIDGE III

Innovative hardware, combined with smart software, allow you to freeze and continue every well-known C64-program.

#### Freezer options include:

CENTRONICS/SERIAL/RS 232 SCREENDUMPS

- Full A4 printing
   Variable printsize
   Colour printing
   Sprite printing
   Reverse printing
   Colour changes.

#### GAMEKILLER

• Kills sprite to sprite • and/or sprite to background collision • Can be started at any point in your game. AUTO FIRE

 Transforms a normal joystick to an advanced auto fire engine.

#### JOYSTICK PORT CHANGER

Never blow up your computer again by changing joystick ports while the C64 is running.

#### BACK UPS

😕 Disk to disk 🥮 Tape to disk 🕮 Disk to tape Back up files are packed and reloadable without the Final Cartridge III
 60K in 15 sec. (disk)
 Exits to Monitor or Basic.

#### ML MONITOR

Comfortable ML monitor. Does not reside in memory. Functions include:

Scrolling up and down 

 64K ROM/RAM access
 Sprite editor
 Character editor
 Drive monitor
 Fast loading and saving

Printer driver.





- TC GOSUB 288 GOSUB 29888

#### THE FINAL **CARTRIDGE III**

Almost all commands and functions that are not activated by windows can be selected from a menu bar, which appears on top of the screen after pressing the fire button, either in Basic or from the freezer. The following Basic Toolkit and keyboard extra's are included:

 Renumber 
 Auto
 Delete
 Old
 Help
 Kill
 Find
 Replace
 24K extra
 RAM for Basic
 Append
 DAppend
 Days
 DOS
 Monitor
 Drive monitor . Sprite editing . Centronics grammed functionkeys O Packer/Cruncher Hex to decimal conversion O Pokes. syscalls and variables may all have Hexadecimal values 👄 Trace, Dump, Order,

AMIGA LOOK-A-LIKE SCREENS Plus backup power and unmatched Toolkit!

When reviewing FINAL CARTRIDGE III, Comodore Computing International said, "This product is so versatile, so easy to use, it deserves the highest commendation. If you want probably the best utility around check out **FINAL CARTRIDGE III**."

#### ONLY \$59.99

#### Add \$3 Shipping & Handling



#### Mem

#### TOTAL BACK UP POWER TAKES E No the ACTION REPLAY IV THE UITIMATE UTILITIES/BACK-UP CARTRIDGE FOR THE 64/128

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

1111

11111

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

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

0

Sprite Monitor: View the Sprite set from the frozen program - save the Sprite - transfer Sprites from one game to another. Wipe out Sprites, view the animation on screen. Create custom programs 🛄 Sprite Killer: Effective on most programs – make yourself invincible. Disable Sprite/Sprite/Backround collisions

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

#### UNIQUE FEATURES:

#### WARP 25 Loads 50K in under 5 seconds!!

Tee it true action replay features 'Warp 25' the world's fas disk serial furbe. A typical backup will relead in under 5

accords. biocords. Signer reliable © Kamember this is not a system where files have to be converted — with action replay you simply are devely into Way 25 stats. — reliad in second. © Backing all your existing programs to lead is unbetweaks speed! © Becking ASE has no hour frank frank also load commercial disks directly at 25 times speed. Tak is unless the Action Replay!! Tak is unless the Action Replay!!

#### ] Plus unique Code **Cracker Monitor**

Press any program and enter a full machine ends monitor
 Prail Monitor Federare - Desausable Hex Pend, Jong Compare, Rogiaso, Two Way Sercil, Full Dak Load Sews Persone Support set. In the all usual notice romanado gias a few others. Because of Action Regards on Board Bath the Prose program can be looked all in its RETIRITIT - In the Stream state. That and the Stream Section Section Section 2018 (Section 2018) produce the Desk Section Section 2018 (Section 2018) produces . Or Restart the program Set any point No corruption: On An advected must for the program Racker -make changes and see your result is instantig!

#### PLUS SUPPORT UTILITIES

#### Action Replay **Graphics Support Disk**

D help take advantage of action replay's unlarge power to freeze any acress and seen it into your forwardle graphics packade we have propared a static of graphic support facilities. • Screen Viewer View dorotent in a "slide show" sequence -uloguais control simple to use. • Message Maker Add coroling monages to your saved dorotent with insule. vory usay to use

promages to your saved screens with music, very easy to use. **Propyris** A full sprite editor, modify (save/kas feature, full edit facilities. **B toos Less** Explored sectors of any saved screen to full sme including Border - Buyerb fun and very useful.

ONLY \$14.99

#### Action Replay Parameter Support Disk

Action Regiaty can backing any memory resident program plus the majority of multilooking disks. To further enhance your adding to backing the small number of truty growpraws who have a number of useful minutes and type to help, these includes a data hibber trutch sector editor; special file copiec plus a number of others. A must for the declassist models:

ONLY \$14.99

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

# (ORD) BRKS

Compactor:

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

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

Utility Commands: A host of additional commands: - Autonum, Append, Old, Delete, Linesave, Printor-

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

Unstoppable Reset: Reset button to Rectrieve System and Reset even so called Unstoppable

Fully Compatible: Works with 1541/C, 1581, 1571 and Datacassette with 064,128, 128D (in 64 Mode)

Compatible: With Fast DOS and Turbo Rom Systems Disk Utilities: Fast Format, Directory, List, Run and many other key commands are operated by Function

lister

Programs

Kevs

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

LS1 Logic Processor: This is where Action Replay IV gets it's power. A special custom LS1 chip designed to process the logic necessary for this unmatched Freeze/ Restart power. No other cartridge has this power!

#### 1-800-782-9110

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

#### FAX: (702) 454 7700 (After 7.30 pm) TELEX: 6503441417 MCIVW TECHNICAL/OTHER ENQUIRIES (702) 454 7700

30pm to 7 30pm (Pasific Time) and Sat - Sun

#### 256K SUPEROM EXPANDER TOOLKIT IV Now you can select from any of 8 32K EPROMs instantly.

3 sockets to accept upto a 32K EPROM in each. On board operating system - no programs to load

Program your own EPROMs using our EPROM programmer

No need to have loads of cartridges - just

make a selection from the Superom menu

- Directory of utilities on power up
- Pully menu driven on power up

Select any slot under software controls.

Unique EPROM generator feature will take your own programs - basic or m/c and turn them into autostart EPROMs. (EPROM burner required)

Accepts 2764/27128/27256 EPROMs On board unstoppable reset.



#### ULTRA CRUNCHER

. The ultimate cartridge based program compactor.

Compact by upto 30%!

More programs per disk.

3 compacting programs on one cartridge

] Fast loading/saving routines - works with Disk Demon

🛄 Can even further compact AR III files!

250 block file copy function Full DOS support including fast format

#### ONLY \$24.99 COMPLETE



#### DUPLIKATOR.

Copies whole disk in one pass — only one drive required! Makes backup copies in eight seconds!! Duplikator is the fastest, most efficient and

easiest to use disk copying system ever conceived.

Comes complete with 256K on board ram and it's own operating system - no software to load

Makes multiple copies from one original Full disk verification during backup process

Copies standard software as well as errors 21.29 and upto 40 tracks. Full disk error check in eight seconds. Full disk verify against ram in fifteen

seconds Seconds. A must for clubs, user groups etc. How else can you copy over 250 disks an hour for less than \$200.

Comes complete with on/off switch and reset button

] Pitted in minutes - no soldering usually required. ONLY \$159.99



#### TURBO (F MUMMIN ROMI

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

Loads/Saves most programs at 5-6 times normal speed. Improved DOS support including 10 sec format.

Programmed function keys:- load. directory, old. etc. \_ Return to normal kernal at flick of a

ewitch PCOPY - 250 block file conter

FLOAD - special I/O loader

Plus lots more.

Fitted in minutes - no soldering usually required. (On some 64's the old ROM may have he desoldered)



#### EPROMMER 64TM

A top quality, easy to use EPROM programmer for the 64/128.

🔲 Fully menu driven software/hardware package makes programming/reading/verifying/ copying EPROM's simplicity itself.

Will program 2716, 2732 2764, 27128 and 27256 chips. 12.5, 21 or 25 volts.

Fits into user port for maximum com patibility with cartridges/Superom Board etc. Pull feature system - all functions covered including device check/verify. We believe Eprommer 64 is the most com

prehensive, most friendly and best value for money programmer available for the 64/128. ldeal companion for Superom Board. Cartridge development System, our kernal expanders or indeed any ERPOM base project.

Comes complete with instructions - plus the cartridge handbook.

ONLY \$69.99 COMPLETE



disk hacker. Toolkit IV has more features than most

DISK DOCTOR V2 - Read and write any track and sector including extra and renumbered tracks. Repair damaged sectors. Look underneath read ermore

HEADER/GAP EDITOR - Decodes and displays ALL header information including off bytes and header gap. Rewrite the entire header and header gap. Renumber sectors. Also edit any sector tail dap.

DISK LOOK - Sort directory Recover lost files. Display file start/end addresses Disassemble any file program directly from the disk to SCREEN or PRINTER including undocumented opcodes. Edit Bam. Much. much. more



ONLY \$39.99 COMPLETE SOFTWARE ONLY \$19.99

#### BURST NIBBLER PARAMETER DISK

Burst Nibbler is the most powerful Nibbler around — but even the best can be better. This disk contains dozena of particularies specially written for the protection soluces impossible to Nibble. These are many Vinux' and Bapticok' and include study needinary updated to include any new tiles. This disk is in means a needestry — the standard Burst Nibbler will copy 98% of software as is — if you want to go to the limits, this is a product for you!



#### EXTERNAL 3.5" **DISK DRIVE**

 Slimine extra low profile unit — only 6" long!
 Top quality NEC drive mechanism. Throughport allows dasychaming other drives. A superby styled case finathed in a miga colours. Phily compatible. I meg unformatice capacity. Good length cable for positioning on unformatted capacit your desk etc. • 0.

ONLY \$169.99



#### FILE COMPACTOR - Can compact machine programs by up to 50%. Saves disk space. Compacted programs run as normal.

BAST DISK COPY - Copy an entire disk in 2 minutes or less using single 1541.

EAST FILE COPY - Selective file copy. Works at up to 6 times normal speed.

FORMATTER - 10 second format an entire disk or format any individual track or half track 0 to 41. Redefine any of 30 parameters to create or recreate unique disk formats.

ERROR EDIT - Quickly find and recreate all read errors including extra and renumbered tracks or sectors and half tracks from 0 to 41. Even recreates data under errors and allows you to redefine any necessary parameters.

#### ONLY \$14.99 DEEP SCAN BURST NIBBLER™

The most powerful disk nitbler available anywhere, at any prices [Bord Nibbler in advalue] a two part tystem -a notware package and a parallel cable to connect the 1941/ 1570/1571 kol 40.128 (stade type) ] What (yives Burst Nibbler Ba power? Cirriventional nitblens: have to decode the data from the disk before it can invanfer it using the serial bus - when non standard data is encountered they are beat. Burst Nibble transfers data as area (GK kode via the parallel cable without the need to decode it so you got a perfect cory to the original . Will inble upot 41 tracks. Other a when does in under 2 minutes. Built instruc-tions. Begin updates - no soldering usually required. PHol on incudes - no soldering usually required. Hull on's pracks. No need to bury parallel cable if you have Professional DOS etc.] Cable has throughbus attainsing for other add.

CABLE ONLY \$19.99



#### 512K RAM EXTENSION A500

Available with/without calendar clock opti Simply page internally into a AOO side. Switch in/out with switch supplied. Pitted in minutes - no soldering etc.
 With observation/clock observations into find automatically booted. Battery backed to retain time/date.

ONLY \$119.99 for standard \$13K card or ONLY \$139.99 for wrsten with clock/cal.

#### MIDIMASTER

 Full Midi Interface for A500/2000/ 1000 (Please state model).

- Compatible with most leading Midi packages (inc. D/Music).
- 🔴 Midi In Midi Out x 3 -
- Midi Thru.
- Fully Opto Isolated
- No need to p / more Full Midi standard
- ONLY \$49.99

DATEL COMPUTERS 3430 E. TROPICANA AVE., **UNIT #67** LAS VECAS NV 89151 WWW.commodore.ca



Add \$4.00 Shipping/ Handling CHECKS/ MONEY ORDER/ CODS ACCEPTED.





puter Mart) is an aggressive company that believes in its products and is ready to offer both user-support and up-tothe-minute technology. It adds up to a winning combination.

-Art Hunkins

Software Support International 2700 NE Andresen Rd. Vancouver, WA 98661 Super Snapshot 3.0 \$54.95 Slideshow Creator \$14.95

Kung-Fu Master

Data East is becoming a major source of games centering on Eastern martial arts. After my initial disappointment with the action and graphics found in two other Data East products—*Karate Champ* and *Kid Niki*—I was beginning to think that there was nothing of interest to be found in this genre.

It was with pleasant surprise that I discovered Kung-Fu Master.

In this newest offering from Data East, you'll find realistic action, cunningly designed enemies that include stylized dragons and snakes, dwarfs, henchmen, guardians, killer bees, and jars and exploding globes raining from the sky. You would be well advised to

#### MAIL TO: COMPUTE!'S GAZETTE SUBSCRIBER SERVICE

P.O. Box 10958, Des Moines, IA 50340-0958

Change of Address: Please advise as early as possible. Attach label with your old address and write in new address below.

New Subscriber: Fill in your name and address below. Use separate sheet for gift orders.

PLACE LABEL HERE
Renewal: Attach label. One year \$24.00 Two years \$45.00 (Foreign subscribers please add \$6.00 per year for postage)
NAME
STREET
CITY/STATE/ZIP
Please bill me Payment enclosed
For other subscription questions or problems, please write a note and send entire form to the above address, OR CALL TOLL-FREE:
1-(800) 727-6937

buy a high-quality joystick. You'll need it because the action is so frantic you'll find yourself trying to wrench the joystick in four directions at once. (You can also play with keyboard joystick emulation.)

When the game begins, you'll see a demonstration game. Press any key to see the options screen. You have the option of playing against an opponent (actually you'll just trade off control of the central character) or of playing alone.

Next, select your level of play. There are five floors in the wizard's temple, where you have come to rescue a maiden, and the five levels of difficulty correspond to these floors. The level of difficulty represents the number of enemies coming after you.

The third option is whether to play the game with the selected options or to return to change the options already mentioned. Once again, press RETURN to continue. When you are on the level you want, you can begin play after a

Buy a high-quality joystick. You'll need it because the action is so frantic.

loss by pressing RETURN four times. You'll probably lose often at first, so this procedure will quickly become a part of the game's rhythm.

In the first frame of the first level, jars and globes fall from the sky. They can be destroyed in midair. If they reach the ground, they burst to reveal dragons and snakes. Some globes float a moment and then explode into clouds of deadly shards.

You cannot kill the snakes, but they can kill you, so you should leap over them. Attacking a dragon is very dangerous. They breathe flames, which you must avoid. Squat and kick for best results. Move quickly, because the dragons disappear after the flames go out.

Henchmen approach you individually and in groups. They appear to be unarmed, but they can destroy you if they get their hands on you. Shrug off their life-draining grip by rapidly turning from side to side. It will save your life, but you'll earn no points for such a maneuver. You can keep tabs on your strength, and the enemy's strength as well, by watching the bar displays at the top of the screen.

To earn points, you must kick or punch the enemy. This concept is deceptively simple. The fact is that, just as in real martial arts, you must develop a sense of space around yourself. When a henchman (or any one of the dozen or \$19.95

so other threatening obstacles) enters that space, you must react instantly. If the enemy is too close or too far away, your aggression will have no effect.



You can select kicking or punching by pressing the space bar. You can kick or punch on any of three levels: standing, squatting, or leaping. For example, you can leap over or squat-kick dwarfs. If one grabs your legs, switch the joystick rapidly from side to side until the dwarf falls off the surface of the earth.

Generally, you'll earn more points for defeating someone with a punch or a jumping kick than with a standing or squatting kick. Points, however, will be a secondary consideration to survival until you become very good at this game.

Guardians are the most resilient characters in this game, and they are armed. Somehow you have to avoid being stabbed by flying knives or destroyed by bats as you kick or punch the guardian repeatedly.

You must battle your way to the stairs at the end of the corridor before the timer counts from 2000 to 0. The stairs lead you to the next floor, where you will be given additional time and energy. You begin with three lives, but you can earn extra ones for each 40,000 points scored. To earn points rapidly, concentrate on killing dragons, floating globes, and bats.

The pause feature is most welcome— especially in a game so frenzied as this one. Another impressive feature is the ability to move in both directions. Many action games allow you to move right to left or left to right, but steadfastly refuse to move in the opposite direction (*Kid Niki* and *Bazooka Bill* are two examples). *Kung-Fu Master* can move away from or toward the objective, which makes the game just a little more realistic.

If you want fast, unrelenting action (and particularly if you have been disappointed by other oriental combat offerings), *Kung-Fu Master* is the martial arts game you've been waiting for.

-Robert Bixby

Data East 470 Needles Dr. San Jose, CA 95112 \$19.95

#### **G**www.commodore.ca

#### **Tetris**

It arrived during the first week of the Olympics. It was a simple-looking game in a red-and-yellow box. I looked it over excitedly thinking, "Aha! Here's a chance for at least someone to get even with the Soviets!"

So I thought.

Coutesy of Spectrum Holobyte, *Tetris* is the first game to arrive in the United States from the U.S.S.R. This intriguing and deceptive game was invented by a young Soviet researcher currently working at the Computer Centre (Academy Soft) of the U.S.S.R. Academy of Scientists in Moscow. The original programmer was an 18-yearold student of Computer Informatics at Moscow University. It was developed through the joint efforts of Academy Soft (Moscow), Andromeda Software (London), and Spectrum HoloByte (U.S.A.).

The concept is relatively straightforward. You're presented with an attractive picture overlaid by a tall black window in the center of the screen. This window is a "pit" into which descend six shapes composed of four tiny squares. The six shapes include a bar, a T-shape, an L-shape, a rectangle, and two zigzags. Your objective is to maneuver these shapes, rotating and aligning them, to create a solid row of multicolored blocks across the bottom of the pit. When such a row is created, it disappears from the screen and you accumulate points. Misaligned pieces, however, stack up until they reach the top of the pit, and then the game is over.

As rows disappear, the rate at which pieces fall increases. At faster speeds, you score more points per row. Being quick at *Tetris* means faster scoring, boosting your point value per row, and keeping the pit clear for room to maneuver.

Tetris is played solely with a joystick. The instructions are short, consisting of only two pages of large print. In just a few minutes, you'll get the idea of how to play. Developing strategy takes a few more sessions. Mastering Tetris is another story altogether.

Choose your level of play at the outset from nine available levels. I've found that, in terms of effective scoring, starting at a medium level is actually more advantageous than starting at the lowest. While one shape is falling, the next shape to descend is previewed in a corner of the screen. Seeing this next shape is extremely helpful in planning where to put the piece currently tumbling down the pit.

Musical accompaniment while you play is optional, and the program will automatically rank your score for up to 15 games. Unfortunately, the game will not save scores from session to session. Is Tetris fun? I found it addictive on the order of Pac Man. There's a strong pull to try to stay in the game longer, a competitive desire to build up your score. Yet Tetris is mentally more challenging than Pac Man. You're trying to beat time, but that's not all. Fitting those puzzle pieces together takes as much mental dexterity as physical. The game is both fascinating and unpredictable. I've played over 15 games in a row and have never noticed the shapes falling in a discernible pattern.

There's less tension in *Tetris* than in arcade-style games and less mental exertion than in adventure games. That makes it all the easier to while away a couple hours juggling the little tiles of color.

Is Tetris fun? Yes, addictive on the order of Pac Man—yet mentally more challenging.

I have only one real criticism of Tetris: Why weren't the details of the onscreen presentation done better? This is the second game from Spectrum I've seen that has not used the 64 to its potential. The outside package is misleading. It features four screen shots taken from IBM PCs. (Tetris is also available for the IBM PC, Amiga, and Atari ST.) The 64 version has only one background scene—and it isn't of the variety shown on the box. And while the drawing is quite beautiful and well-executed, it uses none of the 64's vibrant colors. Also, the musical background could be more sophisticated. Here again, the 64 is not used to its potential.

Other features listed on the package aren't available on the 64 version. Different starting heights and different statistic and help screens appear in versions for other machines, but it's not clear why they're excluded from the 64 version. It may be due to lack of memory, why couldn't disk space be used to store different screens which could be retrieved at random intervals, perhaps linked to the level of play?

This, of course, is the fine detailing which would simply make a good program more complete and impressive. The game itself is well-designed, challenging, and fun. That, more than anything, is what matters.

> That and my next score. —David and Robin Minnick

Spectrum Holobyte 2061 Challenger Dr. Suite 325 Alameda, CA 94501 \$24.95

#### Skyfox II: The Cygnus Conflict

Legends and apocryphal stories abound in computer lore. One very popular story is that the Apple II became a success because of *VisiCalc*, the first computer spreadsheet. Maybe, but I've often felt great numbers were sold because of a game called *Skyfox*.

Whatever the truth may be, *Skyfox* was eventually released for other computers, and now Electronic Arts has chosen the 64 for the debut of *Skyfox II*. A product of Dynamix—the wonderful folks who brought you *Arctic Fox—Skyfox II* is worthy of the name, owing only a little to its predecessor.



You may remember that the original game took place in the air above a far planet and that your targets in the various missions were aircraft, tanks, or both. Convincing explosions, good sound effects, and the impression of rapid flight were features that made the original a standout. These features have been carried into the new release—in spades.

Your mission now encompasses the preservation of an entire galaxy against the invading Xenomorphs, but all action will occur in the blackness of space. After selecting one of ten missions and the skill level at which you wish to fight, you'll find yourself sitting in the cockpit of a highly advanced—well, for lack of a better name—space plane.

On your windscreen, a digital countdown begins. At 0, a metal door slides open, and you are rocketed into space, powered by nuclear batteries. Your armament includes neutron disruptors (lasers), photon pulse bombs, and antimatter mines.

The control console, reading from left to right, displays the number of photons, a target identifier, number of mines, a scan monitor, shield and damage indicators, and the energy level. Just below this, a long bar indicates the range of radar scanning. It will also alert you as to enemy craft in your neighborhood.

On the windscreen, a circle and an arrow form a Heads Up Display. The

COMPUTEI's Gazette June 1988 27

arrow points the direction to the nearest target and changes color depending on the target's range. When using the neutron disruptors, the circle functions as a gunsight and must be centered on the target.

The scan monitor shows your ship and its relative attitude. Enemy craft are white dots, and the nearest space station is a flashing red dot. You'll need to know this when it's time for repairs or reloading of weapons, because there is little future in trying to dock with an enemy ship.

> The name of the game is speed . . . .

Once you've docked with a Federation space station, you'll want to use the Repair command to fix damaged systems. A schematic of your space plane appears on the screen with damaged sections indicated by a yellow or red color. Repair is as simple as moving the cursor (now a screwdriver) to the damaged section and pressing the fire button. This process takes time, and attacks are still taking place. You'll want to be ready to go as soon as you can,



THEY TALK THE TALK ..

· Copies 99% of all memory resident software.

- Disable feature for true transparency.
- Extremely compatible Turbo Dos fast loader—1541/71/81.
- Rom based scrolling M/L monitor will NOT corrupt memory.
- Turbo 25—Formats for up to 25 times faster loads.
- Fast data copier, single or dual: 1541/71 and 1581/81.
- Sector editor allows fast examination and modification.
- Free KRACKER JAX parameters for those tough cracks.
- · Ten-day money back satisfaction guarantee.

perhaps with only partial repairs.

As with the original, the name of the game is speed. This time, instead of soft and friendly clouds rushing by, you'll find yourself in a field of meteors. No matter what direction you choose, the meteors are always rushing toward you (perhaps because you're going faster than they are). I think the field must be a couple of million miles across.

At any rate, they must be avoided or blasted out of the way, for too many hits will eventually destroy your shields. Subsequent hits will lead to a fiery death. Personally, I think the meteors are overdone, a case of too much of a good thing. By avoiding them, however, you'll become very aware of the smoothness of screen scrolling as you whip your craft around in what really feels like 3-D space.

When your mission ends, you'll see a graphic depicting your ship as either crashed or returned home to cheering crowds. If you wish, you can see the evaluation of your mission. You are presented with a list of accomplished objectives, enemy craft and bases destroyed, and a final point score for the entire mission. Then it's on to the next mission.

In selecting a mission, you highlight the one you wish to try. You have the option of seeing a description of the mission. Take it, or go back and try another.

You also have the option, at this point, of checking out the specifications of the Skyfox II. There is little point to this, since you can't do anything about them, but leafing through the specs does give you three beautiful views of your space plane. They are worth looking at more than once.

The graphics of Skyfox II are excellent, the sound good, and the documentation average. Fortunately, there is not a great deal of the latter. Because some missions require navigation, a star map of the Cygnus system is included, but for reasons not made clear, it's printed in dark blue on darker blue. Luckily, the same map can be called up on the Heads Up Display, where it is much easier to read.

It is also worth noting that Skyfox II requires so much memory that it will probably not run until you've disconnected your printer, second disk drive, and any other peripherals except your monitor.

Summing up, I think the original Skyfox is difficult to beat, but Skyfox II certainly matches it in speed and slambang action.

-Ervin Bobo

**Electronic Arts** 1820 Gateway Dr. San Mateo, CA 94406 \$29.95

By now you've probably seen all the ads for all the different "Super Cartridges" on the market. And they can talk all day, but let's get real: no cartridge is going to back up 100% of anything, no cartridge is going to turn your C-64 into an Amiga, and no fancy screens or hyperbolic claims are going to give a cartridge any more power than it really has. That's why SUPER SNAPSHOT is still the best multi-

function cartridge on the market. It is a product that is the result of a long process of refinement. Our policy of constant upgrading ensures you that you'll always own a state of the art device. SUPER SNAPSHOT will never be "finalized"because it's built to evolve.



HERE'S WHAT SUPER SNAPSHOT V3 CAN DO FOR YOU!

- · Files run without the cartridge in place.
  - · Pre-programmed or user definable function keys.
  - Dos wedge supports multiple drives-8, 9, 10, 11.
  - High Res and multicolor screen dumps to printer or disk tile.
    Fast File copier, single or dual: 1541/71/81.

  - Sprite killer and exclusive extended life feature.
  - Fast load and save routines are used throughout.
  - Super Snapshot V1 and V2 owners may upgrade for \$20.00. Call us.

Mail your order to: Software Support Int.-D13

Our great Slideshow Creator available for only \$14.95.

 Attention C-128 owners. An optional switch is available which allows you to disable the C-64 mode without removing the cartridge. Only \$5.00 additional.

So while other companies spend their time making their packages better, we'll just keep on making our products better. Because we know the difference between TALKING THE TALK—AND WALKING THE WALK. SUPER SNAPSHOT V3: ONLY \$59.95!



ORDERING is simple: we accept money orders, certified checks, personal checks on prior approval, VISA, MC, Discover and COD. Please add \$3.00 shipping and handling per order, \$2.00 additional for COD orders. Orders outside of North America please add \$7.50 per cartridge for shipping. Defective items will be replaced at no charge. In-stock orders are processed within 24 hrs. Returns are not accepted without authorization #. Washington Residents please add 7.3% sales tax

2700 NE Andresen Road / Vancouver, WA 98661 Or call our toll-free order line at 1-800-356-1179 9am-5pm Pacific time, Monday-Friday. After h orders accepted at (206) 695-9648 7 days a wee Technical support available. Call (206) 695-9648 9am-5pm Pacific time, Monday-Friday.



In Canada order from: Marshview Software, PO Box 1212, Sackville NB E0A-3C0 only \$69.95 CDN. DEALERS — WE HAVE THE SUPPORT YOU'RE LOOKING FOR!

# Do You Believe in Magic?

We Do.

Plug in the Excelerator Plus compatible drive to your Commodore 64 or 64C and you'll believe too. That's because an advanced technology breakthrough has enabled us to create a drive that's quieter, smaller, faster, and more reliable than the 1541 and 1541C. 100% compatible. Dependable. Guaranteed. It's Magic. It's the Excelerator Plus compatible disk drive.

istributed by —	M.C.S. 800-433-7756	Computer Direct 312-382-5050
	S.C.I. 800-548-9669	Tennex 800-348-2778
	Montgomery Grant 800-345-7059	E.C.I. 800-356-5178



EXCELERATOR\*PLUS

Oceanic America P.O. Box 70587, Eugene, OR 97401 503-741-1222 / Fax 503-741-1535

Commodore is a registered trademark of Commodore Electronics LTD



#### Leonard Morris

Puzzle lovers of all ages will find this Commodore 128 game both challenging and entertaining. There are four game variations and nine skill levels so every member of the family can enjoy playing. A joystick is required.

"Square Logix," is a quartet of logic games that will exercise your problem-solving ability and amuse you. Each of the four games offers its own special logic test and, since each one has nine difficulty levels, players from the beginner to the advanced puzzler can share in the fun. You may start playing Square Logix just for the challenge, but Square Logix quickly can become addicting.

Each of the games in Square Logix involves shifting blocks in a  $6 \times 6$  grid until they form a specified predetermined pattern. The number of blocks you'll need to move to solve a puzzle is three times the level number selected. At level 1, for example, three blocks need to be moved; at level 2, six blocks; and so on. It's a good idea to start at level 1 to get a feel for each of the four games and then advance to the more difficult levels.

#### **Getting Started**

Square Logix consists of three programs: Two are written in machine language and one in BASIC. To enter Program 1 (SQRS.OP), you'll need to use "128 MLX," the machine language entry program found elsewhere in this issue. When you run 128 MLX, you'll be asked for the starting and ending



"Square Logix," a four-in-one game, offers a challenge for every member of the family.

addresses of the data you'll be entering. Here are the values to use for SQRS.OP:

Starting address: 0B00 Ending address: 0BE7

Follow the 128 MLX instructions carefully and be sure to save a copy of the data with the filename SQRS .OP before you leave 128 MLX.

Program 2 (SQRS.SPR), is also written in machine language, so you'll need to enter it with 128 MLX, too. Again, when you run 128 MLX, you'll be asked for the starting and ending addresses of the data you'll be entering. Here are the values to use for SQRS.SPR:

Starting address: 0E00 Ending address: 0F7F As with Program 1, follow the 128 MLX instructions carefully and be sure to save a copy of the data with the filename SQRS.SPR before leaving 128 MLX.

Since Program 3 (SQUARE) is written entirely in BASIC, simply type it in and save a copy on the same disk as SQRS.OP and SQRS .SPR. Now, make sure your 128 is set up for 40 columns and your joystick is plugged into port 1. Type RUN to get started.

#### Four Games

When you first run Square Logix, you'll see the main screen with the four game variations displayed. After choosing which of the games you want to play, you'll be given the chance to select a difficulty level of 1–9.

After choosing the difficulty level, you'll see the game screen, with the puzzle block in the upper left corner, a timer on the right side of the display, and a running total of the number of turns you've taken just below the timer. From the game screen, you can press Q to quit or \* to see a solution to the puzzle (we'll discuss the solution option a little later).

When you successfully complete a game, the difficulty level and the game's number will be displayed at the bottom of the screen, and a colorful display will highlight the entire display. You'll then be prompted to press the fire button to start another game.

🕻 www.commodore.ca

#### 30 COMPUTE!'s Gazette June 1988

## **The Thrill of Victory!**

NEW! Through Exclusive Arrangement with (Balli You look up at the clock ... eight HAT TRICKTM and MINI-GOLFTM seconds to play ... the score's tied. by CAPCOM put the thrill and You streak towards the goal, excitement of competitive sports in weaving and bobbing. your Commodore. Vibrant graphics You fake inside...the goalie make these games so real that you lunges...slapshot...score...the

crowd goes wild!

green. You need par

in a puff of sand.

It rolls gently breaking

towards the hole...then

to keep it even.

drops. You've won!

can feel the pressure of intense athletic competition. The outcome of You're in a bunker just off the these CAPCOM Sports Series challenges depends upon your quick reflexes and brilliant strategy. You swing...the ball floats out

CAPCOM's HAT TRICK™ and MINI-GOLF™-games so real you can hear the roar of the crowd!

RIG

CAPCOM U.S.A., Inc. 1283-C Mountain View/Alviso Road Sunnyvale, CA 94089 408-745-7081

Commodore is a registered trademark of Commodore Electronics Ltd., Hat-Trick and Mini-Golf are under license fro Gwww.commodore.ca Let's take a look at each of Square Logix's four games.

Game 1: Shifts. This is the easiest of the four games and the best one with which to start. As the name suggests, you use the joystick to shift columns and rows of blocks until you produce the winning pattern. An arrow inside the array indicates the direction in which the row or column will be shifted. Any block that's shifted off the array will wrap around to its opposite end.

To shift blocks, press the fire button. The arrow can be moved horizontally or vertically by moving the joystick in the corresponding direction. Don't forget that the whole row or column moves, not just one block.

Game 2: Shuffle. This is played in much the same way as Shifts, except that the pattern you must match has a definite order, identified by letters and numbers on the blocks. This makes Shuffle somewhat more difficult than Shifts.

Game 3: Rotate 1. This game is more challenging. You must generate the desired pattern by rotating a group of four blocks—indicated on the screen by a large outlined square—either clockwise or counterclockwise. The direction of rotation is controlled by holding the fire button down and moving the joystick right for clockwise or left for counterclockwise.

To move the outlined group either horizontally or vertically, move the joystick in that direction. It may take several games of play to unlock the secret of Rotate 1, but when you do, you'll be ready for Rotate 2.

Game 4: Rotate 2. This is the the most difficult game of the four. This variation uses the same logic as Rotate 1, but a group of nine blocks, instead of four, is rotated.

#### The Solution

If you decide you need a little help to solve the game you're playing, you'll need to use the asterisk (\*) key. Pressing this allows you to see the solution to the game. The computer displays only the solution, however; it doesn't actually solve the game for you. After the computer shows you the solution, you can continue your game by pressing any key.

See program listings on page 69.

# Arcade Volleyball

Rhett Anderson & David Hensley, Jr.

"Arcade Volleyball" is a two-player arcade-style game with colorful graphics and realistic sound effects. You control two highjumping, if short, expert volleyball players. It won't be long before you're executing top-notched serves, sets, and spikes.

Arcade Volleyball is written entirely in machine language, so you'll need to use "MLX," the machine language entry program found elsewhere in this issue, to enter it. Arcade Volleyball is compact, requiring less than 4K of memory. When MLX asks for a starting address and ending address, respond with the values indicated:

Starting address: 0801 Ending address: 1688

Be sure to save a copy to disk or tape after you've finished typing.

#### The Big Serve

When you're ready to play, plug in two joysticks. Although Arcade Volleyball is a machine language program, it can be loaded, saved, and run just like a BASIC program. To start the game, load the program and type RUN.

In the center of the court, you'll

see the volleyball net. One player controls the side to the left of the net; the other player controls the side to the right. Above the court, you'll see the status line. Here you'll find a two-digit score for each player. The player with joystick 1 controls the yellow and green jumping heads on the left side of the screen; the player with joystick 2 controls the purple and red heads on the right.

For the first point, it's a redhead's serve. Position him under the floating volleyball and press the fire button to serve. You have three chances to get the ball over the net. If you fail, you'll lose the serve. How do you play volleyball without hands? Use your head, of course. You and an opponent each control two mutant heads in this fast-paced and rather unusual version of America's favorite beach sport. An optional practice mode is included. For the Commodore 64. Joystick(s) required.

The joystick controls are easy to learn. You can run either left or right by moving the joystick in the appropriate direction. To jump, press the fire button. The players in Arcade Volleyball are gifted; they can move left and right while in the air. You control both of your players at the same time—there's no need to switch back and forth. In time, you'll grow accustomed to the synchronized movement.

#### Use Your Head

You can hit the ball while you're on the ground or in the air. If you hit the ball while you're standing on the ground, the ball will neither lose nor gain speed. If you jump to hit the ball, the ball will speed up. You are free to bounce the ball off the ceiling and the wall behind you. If you hit the ball with the left side of your head, the ball will tend to go to the left. If you hit the ball with the right side of your head, it will go right. If you hit the ball with the top of your head, the ball will continue on with the same horizontal velocity. As in real volleyball, you can receive points only during your serve. However, Arcade Volleyball differs from real volleyball in several ways. First, the court

is entirely surrounded by walls; there is no need to worry about hitting the ball out of bounds. Also, the same head

can legally hit the ball several times in a row, as long as the three-hitper-team limit is not exceeded. Remember, the serve does not need to travel over the net on the first hit. Finally, the first player with 15 points wins the game—there is no need to win by 2 points as in real volleyball. When a player reaches 15 points, the game pauses. Press a key to start another game.

#### Over, Into, and Under the Net

When you play Arcade Volleyball, your prime concern is to get the ball over the net. If the ball hits the top of the net, it may either continue over the net or bounce back to your side. Either way, the ball's velocity decreases. If the ball goes over the net, hits the opponent's wall, and bounces back to your side, you'll have three more chances to get the ball over the net.

If the ball hits the side of the net, it rebounds at full velocity. Don't lose your composure, though. You may still have a chance to score.

If the ball hits the floor on your side of the court, you'll lose your serve—or a point, if your opponent was serving. You must also be sure to keep the ball from going under the net. This is considered to be the same as hitting the floor.



It's heads up in this fast-moving volleyball game for one or two players.

#### Warm-Up

If you'd like to warm up with a computer opponent, you can make a special one-player version of Arcade Volleyball. To do so, follow these steps:

- · Load the program
- Type POKE 2065,1
- Save the program with a new name
- Type RUN

You won't find the computer opponent especially challenging, but the one-player mode is a good way to learn how to serve and return the ball.

#### **Playing Tips**

The key to the game is learning the angles. Watch the ball carefully as you play. If you jump to hit the ball, it will speed up and the angles will change. The players' horizontal movement is limited—try to anticipate which head the ball will come to. Be sure to use the walls and nets to your advantage. Careful use of these obstacles is the best way to confuse your opponent.

See program listing on page 75.

#### SAME! **ORDER HOUSES** THE ARE NOT E Δ CE MAIL PORT

Hands On Software, Inc. is now distributing its own products. "What does that mean to me," you say! Well, for one thing, we have expanded our product line to include games and utilities from other publishers, accessories, Commodore authorized service, and even a selection of pre-owned titles. The technical staff here is second to none, and is well-known to thousands of Commodore users. We are committed to your satisfaction-and are prepared to prove it!

		SORIES
541/71 Serial or Power Cable -64 Color Monitor Cord -64 Reparatolle Power Supply IS-232 Interface IW 350 Printer Interface prospand 64 prospand 64 Printer Stand/Wire ommodore 1351 Mouse Aouse Mat 1/71/64/128 Dust Cover Isk Notcher—Square Gut .55° Disk Drive Cleaner .5° Disk Drive Cleaner	39 95 36 95 49 95 27 95 15 95 37 95 8 95 8 95 each 8 95 4 95 5 95	10 Cnt. Disk Storage         1.95           50 Cnt. Disk Storage         8.99           100 Cnt. Disk Storage w/Lock         12.95           3.5" Disk Labels—25 Cnt.         1.00           5.25" Disk Labels—96 Cnt.         1.00           5.25" DS/DD Diskettes—Black         44           5.25" DS/DD Diskettes—12 Colors         77           Write Protects—100 Cnt. Black         1.00           Sik Sitk—Joystick         6.93           Quick Shot II—Joystick         6.93           Tac 2—Joystick         10.95           Tac 3—Joystick         10.95

#### Abacus Software

and the state of t	
Basic Compiler 64	24.97
Basic Compiler 128	36.97
Cad Pak 64	
Cad Pak 128	
Chart Pak 64	
Chart Pak 128	
Geos Inside & Out Book	12.97
Geos Disk	

#### ACCESS

Echelon	.24.9
B & Tourn & Exec. 1	. 12.9
Mach 128	. 30.9
Tenth Frame	. 24.9
Norld Class Leader Board	. 24.9
W/CL/BFam/Cour1 or 2 .	12.9

#### ACCOLADE-

Ace of Aces	18.97
Apollo 18	18.97
Bubble	18.97
Card Sharks	18.97
Fourth & Inches	18.97
Hardball	18.97
Killed Until Dead	18.97
Miniputt	18.97
Plasmatron	9.97
Power at Sea	
Project Space Station	
Test Drive	18.97
The Train	18.97

#### ACTIONSOFT

hunder Chopper	18	91
In Periscone	18	9

#### ACTIVISION

Aliens						2	ł.	97
Gee Bee Air Rally						. 18	3.	97
Labyrinth								
Last Ninja						2	I.	97
Maniac Mansion								
Might & Magic						.2	4.	97
Portal						.2	4,	97
Shanghai						. 11	3	97

#### Softworks

Desk Pak I							10.98
Font Pak I							10.98
Geos 64							.36.97
Geos 128							42.97
Geocalc 64							30.97
Geocalc 128							.42.97
Geodex 64							10.98
Geodex 128							42.97

#### Softworks

COLUTIONED	
Geotile 64	.30.97
Geofile 128	42.97
Geoprint Cable	24.97
Geoprogrammer 64	42.97
Geoprogrammer 128	Call
Geopublish 64	42.97
Geopublish 128	Call
Geospell	18.97
Geowriter's Workshop 64	.30.97
Geowriter's Workshop 128	.42.97

#### Broderbund Software

Carmen Sandiego USA	
Carmen Sandiego World	.21.97
Cauldron 1 & 2	
Magnetron	17.16
Print Shop	27.97
Print Shop Companion	21.97
P/S Graphics 1 or 2 or 3	17.67
P/S Holiday Graphics	15.97
Superbike Challenge	13.92

#### CAPCOM

Ghosts & Gobl Side Arms 1942					18.97
	M	L			
Breakthru					.20.40
Commando					.13.92
KID NIKI				1	.20.40
Speed Buggy					. 18.46

#### DATA SOFT

Alternate Reality: City	.18.97
Alternate Reality: Dungeon	.28.81
Road Wars	Call
Tobruk	Call
Video Title Companion 1 or 2	.12.97
Video Title Shop	18.97

#### Dictionary Disk Digital Superpak 2 Pocket Filer 2 Pocket Planner 2 9.97 60.97 36.97 36.97 36.97 Pocket Writer 2

FILL OF A	
and the second	
ELECTRONIC ARTS-	
	200
Alien Fires	Call
Amnesia	.27.36
Bard's Tale 1 or 2	27.36
Battle Droids	Call
Chessmaster 2000	

Battle Droids	
Chessmaster 2000	.24.97
Chuck Yeager's AFS	.24.06
Death Lord	Call
Delta Patrol	.14.16
Demon Stalker	.18.97

and the second second	
ELECTRONIC ARTS	
Dragon's Lair	.17.46
Earth Orbit Station	.22.06
Hunt For Red October	.22.78
Instant Music	.20.76
Legacy of the Ancients	20.76
Marble Madness	
Master Ninja	Call
Mavis Beacon Typing	Call
Monopoly	27.40
Outrageous Pages	.33.96
Paper Clip 3	. 33.96
Paperclip Publisher	
Pegasus	. 22.06
Pegasus Scenerio 1	Call
Rockford	
Sanxion	
Scrupples	
Skate or Die	
Skyfox II	
Strike Fleet	
Twilights Ransom	
World Tour Golf	. 20.76

5 A

#### EPYX

and the second se	
California Games	.24.97
Champ. Wrestling Create A Calendar	.24.97
Create A Calendar	.18.97
Death Sword	Call
Destroyer	.24.97
Four X Four Racing	Call
The Games: Winter Edition	Call
Graphics Scrap 1 or 2 or 3	
Home Video Producer	
Impossible Mission II	Call
L.A. Crackdown	
Omnicron Conspiracy	.24.97
Sporting News Baseball	
Spy vs. Spy 3	15.97
Street Sports: Baseball	
Street Sports: Basketball	.24.97
Street Sports: Soccer	Call
Sub Battle Simulator	. 24.97
Summer Games II	13.92
Winter Games	. 13.92
World Games	24.97



uild of Thieves.						.24	.97
night Orc						.15	.97
evs +						.15	.97
tar Glider						.24	.97
alking Teacher						.21	.97
he Pawn							
he Sentry						.24	,97
ranker						24	97

GKRST

#### 411/84

Champ. Baseball Champ. Basketball GFL Football 21.97 21.97 21.97 18.97 Two on Two Basketball

#### MICRO PROSE

F-15 Strike Eagle Gunship Pirates Project Stealth Fighter Red Storm Rising Silent Service	24.97
m	
Bad Street Brawler Bop & Rumble Bop & Wrestle Crossword Magic Defender of the Crown Deja Vu Gauntiet Harrior Combat Simulator Head Over Heels High Roller Impact Indy Jones/Temple of Doom Infitrator Indy Jones/Temple of Doom Infitrator Into the Eagle's Nest King of Chicago Mutants Paperboy Road Runner SuperStar Kel Hockey SuperStar Ice Hockey SuperStar Ice Hockey SuperStar Soccer Taipan Three Stooges Warp Speed 64/128 40/80 Wirball	18.97 18.97 20.97 21.97 21.97 21.97 Call 12.97 Call 18.97 Call 18.97 Call 18.97 Call 18.97 Call 18.97 Call 18.97 Call 12.97 Call 21.97 Call 12.97 Call 21.97 Call 12.97 Call 21.

#### ORIGIN

Autoduel									.33.36
Moebius									.26.88
Ogre									.20.40
Ultima I									
Ultima 3									.26.88
Ultima 4									. 39.84
Ultima 5									Cal

#### Professional Software Inc. Fleet Filer 64/128 .24.97

18.97

Fleet System	11. +	30.97
Fleet System	111 128	42.97
Fleet System		

#### SPRINGBOARD

Certificate Maker	26.88
Certificate Maker Libr. 1	20.40
Newsroom	33.36
N/R Clipart 1 or 3	20.40
N/R Clipart 2	26.88
P/S Graphic Expander	23.64

CE	Commodore	Authorized
Service b	y Russell &	Associates

Repairs: Commodore	Service:
C-64 Keyboard	C-128 Rom Upgrade 42.50
C-128 Keyboard	1571 Rom Upgrade 19.95
1541 Align	C-128 64K Ram Video 19.95
1541 Repair (w/align) 65.00	(great for Basic 8)
1571 Align	Repairs: Amiga
1571 Repair (w/align) 89.95	Amiga 500
1702 Monitors	Amiga 1000
1902 Monitors	Amiga 2000
Commodore Printers 85.00	A1010 Align 54.95
	A1010 Repair

All C-64's & C-128's **must** have Power Supply included. Thirty-day warranty on all repairs. Buy a Power Supply from Software Support International and get a 60-day warranty. Please include a detailed description of your problem and try to isolate if possible.

Russell and Associates reserves the right to refuse any repair. Repair jobs will be charged \$3.00 per piece for return shipping/handling.

SUDLOGIC	
Flight Simulator II	
Flight Sim Scenery 1-6 14.16 ea.	
Jet	
Stealth Mission	
	Flight Simulator II         33.97           Flight Sim Scenery 1-6         14.16 ea.           Flight Sim Scenery 7         17.46           Jet         27.36

#### TIMEWORKS

Data Manager 2	. 17.16
Data Manager 128	
Desktop Publisher	
General Ledger	
Partner 64	
Partner 128	
Swiftcalc/Sideways 64	17.16
Swiftcalc/Sideways 128	
Sylvia Porter F/P 64	
Sylvia Porter F/P 128	46.32
Word Writer 3	
Word Writer 128	

#### UNSON WORD INCORPORATED

Art Gallery 1 or 2	15.97
Art Gallery American Hist.	Call
Art Gallery Fantasy	15.54
Printmaster Plus	. 21.97

#### MISCELLANEOUS

asic 8	.29.95
asic 8 Guide/Beginners	.19.95
ob's Pro Term 64	.30.97
ob's Pro Term 128	24.97
/W Business Form Shop	
SM Drive Align Kit	30.14
SM Protection Manual I SM Protection Manual II	26.15
SM Protection Manual II	21 03
ark Castle (3-60)	24 07
oodle ont Master II	30 01
ont Master 128	36.97
es Mon 64 (cart)	9.95
side Commodore DOS	10 04
K Lasser Money Manager	46 3
Arlin Assembler 64	30.9
All Assembler 128	42 97
Aicrolawyer	
Acroleague WWF Wrestling	24.9
ersonal Newsletter	Cal
trider's Classical Music-	
All 10 disks in Filer	49.9
trip Poker	18.9
oker Data Disks	
1 or 2 or 3	.12.9
uperbase 64	48.9
uperbase 128	.48.9
uperbase the Book	10.5
Super Sunday	. 23.6
Superscript 64	. 30.9
Superscript 128	42.9

#### MANY OTHER TITLES AVAILABLE - CALL FOR PRICES!
Here they are! The products that have made us one of the most respected companies in the mail order business. Our utilities have become a staple in the libraries of thousands upon thousands of Commodore users worldwide. Original ideas and workmanship throughout, (a rarity nowadays!) our products are guaranteed to please. If you enjoy dealing with people who genuinely have your best interest at heart, look no further. Our products are created with you in mind. We offer programs that are protection free and most can be transferred to the 1581 disk drive. Also, we offer the best technical support in the business. Les and Dan are available five days a week to help with problems. If you see a program that interests you on this page, and you need more detailed information to make an educated decision, just write or call for our free catalog. Remember: Our Business is SOFTWARE SUPPORT!

#### C-128 Helper

Helper is an exciting new type of Software for the C-128 Computer with 80 column monitor.

- Screen Based Databasing
- User Definable
- Editor allows modifications · Demo included that serves as a Basic 7.0 Ele
- reference manual
- Screen dumps to printer 1581 version available

ONLY

#### Graphic

Top quality graphics are hard please you.

- 10 Volumes available
- Themes followed in most
- Printmaster'\*/Printshop'
- Easily transferred to 1581

#### **ONLY \$14.95**

#### Elite

- Elite V3 copies the "imposs
- Copies V2.0 of a population (64 only), writer
- · Leaves the Backup protect Why pay for Backups of title

#### ONLY

#### Elite

- Our Elite Series is second capabilities
- · Elite 4 created to copy title
- · Special MAX Copier includ
- · Update policy included
- · Free Bonus-The Shotgun

ONLY S

#### Super

The greatest disk library cata Commodore 64

- · Catalogs up to 640 Disks v Twice as many with 2 drive
- · Load, save, edit, change a
- · Prints a variety of reports a
- · Lightning fast and easy to

#### ONLY S

#### ALL NEW

#### Renegade THE CURE FOR RANDOM EXCESS

Random chance. Buy enough utilities, and every so often you'll get a good one, right? Well, that's one way to do it. One very expensive way. We've got a better idea! We've had the hottest archival programmers in the industry develop a new series of utilities of startling

power. They took the best ideas from the past and re-created them, using state of the art techniques combined with a conceptual grasp of the future of computing. The results of this special project are now available in a single, devastating package. A next-generation

FEATURES INCLUDE:

- package called RENEGADE.
- Single or Dual High Speed Data Copier Single or Dual State of the Art Nibbler
- Directory Editor: Organize your Disks
   GCR Editor: For the Experienced Hacker
- Geos™ Modual: PARAMETERS and TOOLS
- · 200 Parm: Oldies as well as our Latest
- Parameter Updates Released Every Two Months
- Copier Updates Released Every Four Months Compatible with C-64/128 with 1541/71 Drives

- Single or Dual Ultra Fast File Copier
   Capable of Archiving RapidLok Protection
   Scrolling M/L Monitor with Drive Mon
- Error Scanner with Unique Sector Editor
- Byte Pattern Scanner: High Speed Searches
   Upgradable Sub Menu: New tools in the works
- · New Parameter updates only \$9.95 each
- Major RENEGADE upgrades only \$9.95 each
- · Technical support available: absolutely

Remember the first programs that came out when the C-64 was still a fairly new machine? Have you seen the newest software lately? You'd think they were running on a different computer. RENEGADE represents the same quantum leap forward in the utilities arena So if you're tired of relying on random chance to provide you with good utilities, get RENEGADE—next generation software, available today!

**ONLY \$34.95** 

res as a Basic 7.0 Electronic			
\$24.95	Graphic Label Wizard This is the ultimate label utility. • Databasing with graphics included • Supports Commodore as well as Epson compatible printers • Printmaster'* Printshop'* Software Solutions'*	Kracker Jax THE REVOLUTIONARY ARCHIVAL SYSTEMI Kracker Jax is the powerful parameter-based copying system that has taken the country by storm! What IS a parameter? It's a custom program that allows your 1541 or 1571 disk drive to strip ALL copy protection from your expensive software, leaving you with UNPROTECTED, TOTALLY BROKEN BACKUPS that can even be copied with a simple fast copier! We declare Kracker Jax to be the best system of its kind on the market today! A bold claim? Maybe.	
Art Disks rd to find. These will definitely	Satisfaction guaranteed!     ONLY \$24.95		
Side A compatible <b>5 per Volume</b>		But don't take our word for it—if you want the REAL story on how good Kracker Jax is, just ask one of our customers. Don't worry. You won't have any problem finding one.	
V3.0 sible,'' uular 64/128 planner, filer	C-128 Cannon The total copy/utilities package created just for C128 owners. • Nibblers—Single or Dual • Fast Copiers—Single or Dual • File Copiers—Single or Dual	Vols 1-2-3-4 Only \$9.95 ea. Vols 5-6-7 Still Only \$19.95 ea.	
ction free. les you already own? 7 <b>\$6.95</b>	Scanners—Error and Density     Scanners—Error and Density     Scanners—Error and Density     Scanners—Error and Density     Directory editing     Noree Kracker Jax Parms     Status 1541/71/81 Drives Supported—Single or Dual	Hacker's Utility Kit State of the art tools for the computerist ready to take control of his software library! Whole disk scanners • GCR Editor	
V4.0 nd to none for its copying les protected to the MAX!	ONLY \$34.95	<ul> <li>Fast Data/Nibble copiers</li> <li>File tracer</li> <li>Byte Pattern Finder</li> <li>Much, Much More—\$19.95</li> </ul>	
n I \$14.95	Kracker Jax Revealed I & II Our knowledge of protection schemes has made us famous. Now find out how we do what we do best. Our books are your key to REAL knowledge. OTHERS ONLY CIVE SUBSACE INFO	Sysres'* Enhanced The best—and we mean Best Basic enhancement system for the C-64. • Adds over 25 major commands to Basic • Extended Super DOS-Wedge	
er Cat taloger ever produced for the	GIVE SURFACE INFO—we dig deep—much deeper. We can show you exactly how today's copy protection prevents you from backing up your software.	Scrolling through Basic     Renumber, Trace, Search, and many other features too     numerous to mention     1541/71 fast loader included	
w/5000 titles per catalog ves any entry and even labels	Revealed Book I with Reset Button \$23.50	M/L monitor from Basic     Transferable to 1581 Disk     ONLY \$39.95	
\$24.95	Revealed II with Hesmon Cartridge \$23.50	The best money you'll ever spend on your Commodore!	



ORDERING is simple: we accept money orders, certified checks, personal checks only on prior approval, VISA, MC, Discover and COD. Please add \$3.00 shipping and handling per order. \$2.00 additional for COD orders. Orders outside of North America please call for shipping charges. Defective items will be replaced at no charge. In stock orders are processed within 24 hrs. Returns are not accepted without authorization #. Washington Residents please add 7.3% sales tax. Software orders over \$100.00 will be shipped UPS 2nd Day Air at no additional charge. U.S. orders only. All prices subject to change

> Program Submissions invited Need more info? Call or write for our free catalog

Mail your order to: Software Support Int.-D13 2700 NE Andresen Road / Vancouver, WA 98661

free order line a 1179, 9am-5pm Pacific time 00-356-1179, Samopin - Long onday-Friday, ter hours orders accepted at 6) 695-9648 / days a week. Chnical support available. Call 6) 695-9648, 9am-5pm Pacific time,



WAWAWA COMINION OF CONCERCES

DEALERS — WE HAVE THE SUPPORT YOU'RE LOOKING FOR!

## UTILITIES UNLIMITED, Inc.

12305 N.E. 152nd Street Brush Prairie, Washington 98606 Orders taken 24 hrs. a day: seven days a week.

If you wish to place your order by phone. please call 206-254-6530. Add \$3.00 shipping & handling; \$2.00 for COD on all orders. Visa, M/C accepted. Dealer Inquiries Invited.

WORLD'S BIGGEST **PROVIDER OF** C64/128UTILITIES

**Software Submissions Invited** We are looking for HACKER STUFF: print utilities, parameters, telecommunications, and the unusual.

We now have over 1,000 parameters in stock!

#### **SUPER PARAMETERS 500 PAK**

At a time when many programmers are cutting back on writing parameters, we are going full steam! After getting several requests for parameters on many of the "oldies but goodies" WE DID JUST THATI ANOTHER 1st: 500 MORE SUPER PARAMETERS in one pack. This FANTASTIC 5-DISK SET is a value of over \$100 for less than 1/2. \$39.95

#### SUPER PARAMETERS 100 PAKS: 1 thru 5

... YOU GET 100 OF THE BEST PARAMETERS, ANYWHERE. Professionally done, easy to use, reliable, fast and full of performance. This package can

remove all protection. Includes titles from \$14.95a all major software publishers for the C64/128.

ALL PARAMETERS ARE TOP QUALITY-NO FILLER OR JUNK

#### The 'Original' Parameter Cross-Reference

Ever ask, "Is there a parameter for this program? And where do I get it?" ASK NO MOREI The answers are all in this book. \$19.95@ Over 5,000 listings.

If anything can copy everything, this may be it! Introducing SUPERCARD

Well folks, here it finally is. THE BEST! There is just not anything better than Supercard. Even our competitor has stated that to back up the newest protection schemes, a high powered software/hardware package is needed. Supercard is the product of 2 years and \$300,000 in total investment. Supercard is installed easily into your 1541 or 1541c. in just minutes with no soldering required. This package makes backups of programs that no other utility can touch. With the Supercard installed in your 1541 these programs are no threat. This small card (approximately 2" square) plugs in fast and easy with only a screwdriver-and it is software upgradable to cover new schemes. (Call for 1571 version informa-tion and price.)

#### SUPERCARD has done 100% of everything we tested.

.95 C. Games or S. Figher or A. Ranger? For dual drives add \$35.00 Guarantee: If you're not satisfied with Supercard for any reason, you may return it in working and saleable condition within 10 days for a full refund, minus shipping and handling charges.

#### THE FINAL CARTRIDGE III versus super snap shot

The Cartridge war heat up. Well folks, here's the real storyll! In their latest ad, our competition claims they are getting better reviews. Well, that's partly true ..., but mostly false. First of all, they are comparing reviews written about the old Final Cartridge and not the current version III. We at Utilities Unlimited Inc. are so sure that you would choose The Final Cartridge over that other one we make the following offers:

#### 1. 100% no-questions-asked 10-day refund Guarantee.

2. For those of you who bought the super snap shot believing that you were buying the best, then saw the Final Cartridge III. we offer you \$30.00 for your super snap shot, as a trade in for the BEST . . . The Final Cartridge III.

Every Final Cartridge III now includes many features not found in super snap shot. as well as our newest 64/128 nibbler and 100 Super Parameters.

(NOW WICLOCK) Still only \$54.95

HES MON cartridges (limited supply) ..... \$ 4.95

1541 Mash (for drive alignment) ..... \$14.95

64 BBS: for 1 or 2 drives ...... \$19.95

64 MODEM prg.: w/wargames auto dialer . . . . . \$14.95

N-CODER & D-CODER: together for only ..... \$14.95

GRAPHIC LABEL MAKER: the original ..... \$12.95

D-COMPILER: for the famous BLITZI ..... \$14.95

HEAVY DUTY REPAIRABLE 64 POWER SUPPLIES ... \$39.95

DISK NOTCHERS: double disk capacity ..... \$ 4.95

SECURITY KEYS: lost your dongle? (Golf & bowling) \$ 3.95

Used super snap shot (limited supply) ..... \$29.95

The Original Geos Standardizer ..... \$ 9.95

SUPER NIBBLER: 64/128 ..... \$14.95 SUPER CARTRIDGE ..... \$44.95

Too many 64 repairs are due to faulty old supplies-

#### SIMILAR PRODUCTS MAY APPEAR ELSEWHERE LATER; JUST REMEMBER YOU SAW THEM HERE FIRST!!

#### PARAMETERS CONSTRUCTION SET

The company that has THE MOST PARAMETERS is about to do something UNBELIEVABLE. We are giving you more of our secrets. Using this UNIQUE program, it will take your data and automatically WRITE PARAMETERS FOR YOU: it will also CUSTOMIZE the disk with your name. It will impress you as well as your friends. The "PARAMETER CONSTRUC-TION SET" is like nothing you've ever seen. In fact you can even READ PARAMETERS that you may have already written; then by using your construction set rewrite it with your new CUSTOMIZED MENU.

\$34.95

SCANNER.

#### THE 128 SUPERCHIP-A, B or C (Another firstl)

A There is an empty socket inside your 128 just waiting for our SUPER CHIP to give you 32k worth of great BUILT-IN UTILITIES, all at just the TOUCH OF A FINGER. You get built-in features: FILE COPIER, NIBBLER, TRACK & SECTOR EDITOR, SCREEN DUMP, and even a 300/1200 baud TERMINAL PROGRAM that's 1650, 1670 and Hayes compatible. Best of all, it doesn't use up any memory. To use, simply touch a function key, and it responds to your command.

**B** Has super 81 utilities – a complete utility package for the 1581. Copy whole disks from 1541 or 1571 format to 1581. Many options include 1581 disk editor, drive monitor, Ram writer and will also perform many CP/M & MS-DOS utility functions.

C "C" is for combo and that's what you get. A super combination of both chips A and B in one chip, switchable at a great savings to you. ALL CHIPS INCLUDE 100 PARAMETERS FREE!

Chips A or B: \$29.95@

V-MAX, RAPID LOCK

Chip C: \$44.95@

DIGITAL SOLUTIONS



#### LOCK PICK-THE BOOKS-for the C64 and C128 Lock Pik 64/128 was put together by our crack team, as a tool for those who have a desire to see the INTERNAL WORKINGS of a parameter. The books give you STEP-BY-STEP INSTRUCTIONS on breaking protection for backup of 100 popular program titles. Uses HESMON and SUPEREDIT. Instructions are so clear and precise that anyone can use it. **\*OUR BOOK TWO IS NOW AVAILABLE**\* BOOK 1: Includes Hesmon and a disk with many utilities such as: KERNAL SAVE, 1/O SAVE, DISK LOG FILE and lots more, all with instructions on disk. A long-time favorite. BOOK 2: 100 NEW EXAMPLES, Hesmon on disk and cartridge plus more utilities to include: A GENERAL OVERVIEW ON HOW TO MAKE PARAMETERS and a DISK

OR BUY BOTH FOR ONLY \$49.95 \$29.95 each Now with FREE Hesmon Cartridge.



For product support, call between 10 a.m. to 4 p.m. Pacific Time.

don't wait!



Gwww.commodore.ca

#### 8K Memory Is Enough!

## d'iversions

Fred D'Ignazio Contributing Editor

A reader wrote me recently to confess that he once remarked "8K of RAM was all the memory anyone would ever need."

Don't laugh! Many of us oldtimers are guilty of making the same statement.

I remember when I was getting my first computer . . . I told the dealer that I needed 64K of memory because I was a writer and would be writing long chapters for books. The dealer finally gave me what I wanted, but he warned me that I was being extravagant. "You know, 16K would work just fine for your documents now,—and 32K would last you forever."

#### Attack of the Terabytes

Last week a friend of mine, Dr. Gerri Sinclair, sent me some E-mail. "I am so frustrated," she wrote. "Now that computers are starting to plug into CD-ROM 'libraries' and are processing digital sounds, photographs, and full-motion video, a million bytes of memory just doesn't cut the mustard!"

I wrote back to Gerri asking what she thought *would* cut the mustard. Her reply: "Sixteen million bytes, minimum, for main storage, and another 80–160 megabytes on hard disk. And this is just the start. Soon we'll need gigabytes and terabytes, and even that might not be enough."

Terabytes? It sounds like an invasion of Japanese snapping turtles.

#### Have Mercy!

Computers make us lazy. Didn't you know? After all, they're supposed to be labor-saving devices. And the labor they're supposed to save is *mental* labor. So when we use computers, we think less, and we get lazy.

Simple, eh? Except it's not true.

Anyone who uses computers intensively will stare blearily at you and swear that computers aren't making them work less. In fact, they're working harder—much harder.

It's true. Think about it. Human bosses are just that—human. They work a full day; then they quit and go home. Even when they're at the office, they're not hanging over you every minute, tapping their fingers, waiting for you to keep working. But computers-oh my! Once you turn them on, their little crystal clocks rev up to a million beats a second, and they're ready for you to work. You can put in a solid eighthour day, and the computer won't even be winded. It's ready for more work. So you take the computer home and try to appease it by working another four hours.

Does this satisfy the beast? Not by a long shot. It sits there with its little cursor blinking, like a perky puppy waiting for more play.

Every day we push ourselves a little harder, trying to keep up with our computers. But it's a losing battle. So, computer manufacturers, hear my cry: Please make a computer that, after a lengthy session, flashes "Good work! I can see you'd like to keep going, but I'm pooped! How about a break? After all, tomorrow's another day."

#### **Desktop Foods**

By now, we've all heard of desktop publishing. It's so popular that it has spawned a lot of other terms, all beginning with the word *desktop*. There are desktop presentations, desktop communications, and even desktop videos.

Have you wondered where this desktop mania will end? Can you imagine the computer designers who spend all their waking moments "on the desktop," who see the world as a giant desktop, and who are forever dreaming up new desktop applications?

We're already doing our work at the desktop. Maybe in the near future the desktop can go with us and become a part of all our daily activities. For example, imagine what "desktop eating" would be like. When we get hungry, we'll just click on a little icon of a refrigerator. The refrigerator door will open, and we'll click on pictures of soda pop, candy bars, and sandwiches, to "select" our snack. Then the pictures will pop open and display the number of calories consumed, and the vitamins (if any) we're getting. Productivity consultants will recommend desktop eating to corporate management because it will replace costly coffee breaks and lunch hours, since workers will be able to do their eating at the desktop.

#### Beware of Computer Mouth!

During a busy day at the desktop, we have all experienced that awful sensation known as "computer mouth"-a sour taste that arises from trying to find a pesky program bug or from struggling to make our printer ignore the formatting glitches. When computer mouth strikes, you should hightail it to the restroom and whip out a toothbrush. But, if you have "desktop toothbrushing" installed as a DA (Desk Accessory), you just click on the little icon of the toothbrush. Instantly you see a picture of a little person (that's you) actively brushing, and smiling a great big smile with gleaming, pearly whites.

And at the end of a long, grueling day on the desktop, what could be nicer than taking your computer home, resting it on your lap in the living room, and taking in some desktop movies? Demi Moore may not look the same, but it sure beats renting a video or going to the theater. After all, when you're hungry, you just press RESTORE and order up a round of desktop Cokes and a tub of desktop popcorn.

COMPUTEI's Gazette June 1988 37

### Piracy: The Readers Speak Out



Todd Heimarck Contributing Editor

On the subject of software piracy in this column ("The Software Police," March 1988), many GAZETTE readers responded very passionately on both sides of the issue. Herewith, their comments.

#### To Pirate ...

When I read your article on piracy, I almost died of laughter. I have over 300 games and around 100 more other programs. Five of them I bought; the rest are pirated. The pirated programs include GEOS, Print Shop, Newsroom, Project Stealth Fighter, Elite, and Fast Hack'em. I'm just a high school student, and I cannot afford to buy a \$40 program. I have to dig deep in my pocket just to pitch out \$3 for your magazine. I have over \$2,000 in software; it's crazy to spend that much on software. You say I could always get public domain software. What a joke; PD programs are not worth a dime. They're the programs kids write and put up on a BBS. If they were any good, they would write to a software company or a magazine.

Because of copy-protection, I have wanted to learn how to crack. I have become a much better programmer. I've mastered BASIC, ML, and Pascal. If I had decided to follow the "law," I never would have been interested in programming.

-DL, Nebraska

I have a complete 128 system and about \$2,500 worth of software. I have purchased four or five titles. For us hourly workers, there's just no other way to be able to enjoy computing at all.

-Anonymous, Alabama

Being a software pirate myself, I felt compelled to write. You're absolutely right, of course; piracy is thievery. Since most pirates are like me, honest enough to return a lost wallet, why do we do it? I have a few theories. First, I think a lot of us use it as a means to exercise the larcenous part of our nature, a chance to do something wrong, to thumb one's nose at a faceless authority. Second, it's a challenge. It's a game with few rules, fewer reliable guidelines, and only one way of winning: obtaining a working copy. There's a definite kick to seeing a copy fire up for the first time. Third, it's an ego trip. Witness the bragging opening graphics on many of the cracked games going around. Finally, having a huge software library is usually regarded as quite a status symbol. Note that I didn't mention that it's an easy way to obtain programs. Most avid pirates have hundreds of disks, more than they can ever use.

Maybe the only answer is to forbid copying for any reason. I believe the typical pirate uses one of the many nibblers and parameter copiers to make his copies. Banning nibblers would certainly cut down on your ad revenue. One of the better nibblers was advertised on the same page as your article.

-Anonymous, Ohio

To think that people will pay money when they can get something for nothing is way off. Face it, it's easy and it's free. If software companies can't come up with good copy-protection, that's their problem. Morals are a thing of convenience and are best abandoned altogether.

-CE, Texas

#### ... Or Not to Pirate?

It is unfortunate that most home computer users are not aware of the bargains in excellent commercial software available to them. Programs that cost tens of thousands of dollars to produce are available for a few dollars, because of the large market for them. If piracy could be eliminated, the increased market

would reduce the cost even more. —BW, Michigan

I am writing to say that the article is the most sensible statement I've read on the subject. I salute you for calling piracy exactly what it isstealing—and, more importantly, for saying in print that it is immoral, not just illegal. This is an ethical issue, and it is right in front of many youngsters. How can we expect them to understand piracy is wrong when we don't tell them so, or (worse) when our example doesn't show them so? How many of us adults use pirated software (myself included)? To say nobody is hurt is foolish. There is no such thing as a free lunch. Somebody has to pay, sometime, somehow. Thanks for saying what you did.

-JDJ, Pennsylvania

I have the ability to copy virtually any type of software, including some of the most highly protected. I back up my own programs, which I believe we all have a right to do. I don't believe copiers and protection strippers should be used to furnish everyone in town with a copy, however. Piracy not only grates against my moral attitude but, as you pointed out, it is illegal.

-RF, Kansas

I would like to clarify one point you made. Making a copy is not per se an infringement of copyright. The copyright law of 1976, which went into effect in 1978, unintentionally made it illegal to load a program into a computer, because the definition of copying included the copying of software from disk to memory. The law was amended in 1980. In addition to making it legal to load (copy) a legally obtained program into your computer, the amendment allows the making of an archival copy (as you noted). It also allows the revising of software, if it is necessary to do so to use it on

#### 🕻 www.commodore.ca

your computer.

I agree with all you say. If someone has the intelligence and ability to write a worthwhile program, he or she is entitled to make a profit from it. The better the program, the more the profit should be.

#### -EPV, Illinois

About five or six years ago, I bought my first computer, a VIC-20. I soon realized that I could make copies of cassette games with a dual cassette stereo. So I did, and gave all my best games to friends and sold them to kids from school, charging \$3 and a blank tape. Then I went even further. I actually ran an ad in the local newspaper that offered two or three VIC games on one cassette for \$5-\$10. I made over \$900 in three days! To a 15-year-old, that's a lot of money. Now the tables are turned. I am a programmer, developing real estate applications for a small company. I get paid each week for the programs I write. I can imagine what it would be like to have a percentage of my pay taken away because of pirates. Now I realize what harm I was doing.

-MX, Florida

#### Software Companies: The Real Pirates?

I do not agree with piracy. However, I do have a copy program for protected software and I am planning to update (Electronic Arts is driving me crazy). Why do I want to copy software if I'm against piracy? You mentioned it in your article: archival purposes. I've got three kids who are real sticky-fingered threats to software, but I'm not about to ban them from the computer. They range from 4 to 13 years old. What I want are backup copies.

#### -DC, Texas

You seemed to miss an important point about copying—why it's done. Clearly, software is copied illegally so that one can avoid paying for it. And you forgot to mention that the term "piracy" can also apply to software pricing. If every program were \$9.95, then almost nobody would be copying programs illegally (except really poor people, who probably don't have computers in the first place).

-JBM, North Carolina

I purchased my 64 several years ago, along with a few games my children requested. This introduced me to the use of disk errors as protection. My disk drive was unmercifully beaten to a premature death by this form of protection. This forced me to learn how to crack games, to remove the errors and lengthen my drive's life. I wrote letters to all the major software companies, explaining that their protection schemes were beating my drive to death. I got one response. They said they couldn't help my problem and that their foremost concern was to protect their programs. I got fed up with the fact that software companies don't care about users and started to learn more and more. I put up a BBS that turned out to be one of the biggest and best in the country. I am now a major pirate and will continue to be one with the same conscience that the software companies have about knocking equipment out of alignment and costing us money in repairs. I would not be a pirate today if it were not for the software companies and their irresponsible attitude toward the users. I can honestly say there are no programs reviewed in GAZETTE I don't already have.

-RAF, New Jersey

Recently, I downloaded a 128 database. It seemed like a very good program. The drawback was that it would only handle 20 records. I was able to run it, test it, and judge if I wanted it. If I decided to buy the database, there was an address. For \$49.95, I could purchase the fullscale program with no limits on records, plus manuals, plus updates, plus support. Software publishers should consider selling a test disk at cost and then waiting for orders.

-RH, Illinois

Your holier-than-thou attitude concerning piracy irritates me more than pirating does you. I have not pirated in the past because it might be illegal and I once thought it was immoral. However, now I have my doubts as to whether pirating from a pirate is immoral. The pirates I'm talking about are the software companies who sell software with bugs or the ones who misrepresent their products in advertising and packaging. And those reviews in your magazine—if you told the truth about some of these products, you would not have the advertisers; therefore, you couldn't bring us those "hard-hitting" reviews.

-JJT, West Virginia

What about the poor user who wastes hundreds of dollars on software that doesn't live up to the hype of the ads? Software that crashes with one keypress, word processors with fewer features than a typewriter, and databases that make you long for  $3 \times 5$  index cards—that's what makes people copy software. I know several people who have pirated software. They always bought the program if they enjoyed it. If not, the disk was promptly formatted.

-JS, Maryland

#### On the Chin

What kind of hypocrites are you? Why do you criticize the pirates when you sell them the tools to ply their trade?

-CES, Vermont

If you want to stop piracy, the only way to do it is to stop selling nibblers. To stop selling nibblers, you have to stop advertising them like the greedy, money-sucking scum you are! Sure, there's always a need for backup copies, but can't the rich software companies afford to pack two of the same disk in a software package? I'm sick and tired of hearing only one side of this controversy—the side spoken by the huge monopolies. If you have any guts, you'll print this letter.

-AE, New Jersey

#### **Reprint Piracy?**

I thought the March "Horizons" column was very well written and made some good points about the illegality and immorality of copying software. I liked it so much, I was going to make some photocopies and pass them along; maybe even copy it onto a local BBS. Then the irony hit me. If I copied your article, even though my motives were pure, wouldn't that also be piracy? —KL, Alabama

Written permission for reprinting is required. We may charge a reprint fee, although we often do not.

## simple answers to common questions

Each month, COMPUTE's Gazette tackles some questions commonly asked by Commodore users. If you have a question you'd like to see answered here, send it to this column, c/o COMPUTE's Gazette, P.O. Box 5406, Greensboro, NC 27403.

Q. I have a Commodore 128 and have recently begun using its CP/M capabilities. In the documentation for various programs, I have repeatedly come across the term overlay. I am baffled by this term. What is an overlay, and how do you find them within programs? For example, my terminal program says to use the phone library overlay to change the numbers. There is no file that comes up when the DIR command is used that says anything about being an overlay file. I am stumped.

A. Neglecting to define a term which may be unfamiliar to the reader is a common pitfall in explanatory writing; we know, because it happens to us all the time. In this case, the author of your terminal program's manual assumed you were familiar with a term that was quite common a few years ago but is seen less often now.

Until very recently, programmers were severely cramped by the amounts of random access memory (RAM) available in personal computers. RAM is the part of the computer where a program is temporarily stored when loaded from disk or tape. As long as the computer remains powered up, RAM retains the information loaded into it. The more RAM available in a computer, the larger the programs it can run. In addition, most programs that let you create or process information—such as word processors, spreadsheets, database managers, and so on-also use RAM as a temporary workspace to hold your information until you save it on disk or tape.

Because RAM is so useful, the power of a computer is often defined in terms of how much RAM it has. The more RAM, the more power.

CP/M (Control Program/Microcomputers) is an operating system that's been around since the late 1970s. (An operating system is a master control program that's always active while the computer is switched on; it takes care of numerous housekeeping tasks that allow the computer to run other programs for you.) Because CP/M was designed in the 1970s, its power is limited by the hardware that was available then. To be specific, it was designed to run on the Z80 microprocessor chip, which can't directly access more than 64K of RAM at a time (1K = 1024 bytes, roughly)equivalent to 1024 characters).

The Commodore 128, in addition to having a microprocessor chip that's compatible with the Commodore 64, also has a Z80 chip. That's why this multipurpose computer can run CP/M and programs written for CP/M. But even though the Commodore 128 contains 128K of RAM, its Z80 chip is still limited to directly addressing only 64K of that memory, just like any other Z80.

Although 64K was considered a lot of memory in the late 1970s, it just isn't enough to run some large programs. For instance, your terminal program evidently needs more than 64K. To get around this limitation, the programmer resorted to a technique that was common in the days when computers had only 64K or less memory: *overlays*. Overlays allow a program to be much larger than the amount of memory available in the computer.

An overlay is a section of a program that normally isn't loaded into memory along with the main part of the program. Instead, it's loaded into memory only when needed. The main program is written to fit in memory with a little room to spare. Whenever necessary, it then loads the overlay into this spare memory to perform a certain function. A program may have several overlays waiting on disk. As each overlay loads, it replaces the previous one in memory.

Overlays usually perform some auxiliary function that isn't central to the main program. That way, you don't have to wait for them to load from disk any more often than necessary. In some cases, though, a large overlay may also replace the main program in memory, requiring you to rerun the main program after using the overlay.

Overlays are less common now that personal computers routinely come with anywhere from 512K of RAM to four megabytes (one megabyte equals 1024K). Still, overlays will probably be around as long as programmers keep writing memory-hungry programs.

Generally, a program automatically loads the appropriate overlay when you select the function it performs. Some programs, however, require you to load the overlay yourself. It sounds like your terminal program expects this. There should be an overlay file on the disk, and it should be a program file, most likely shorter than the terminal program.

Check your manual again for any instructions on loading overlays or any explanation of the files on the disk. If you draw another blank, it's possible the overlay was inadvertently left off the disk or the instructions were omitted from the manual. Your best bet would be to contact the software publisher.

#### geoPaint Super Chart

## the geos column

#### E. William Huffman

To get the most from geoPaint, you need a chart showing the maximum possible sizes for a document, a normal-edit window, a pixel-edit window, and an album page. This month's column shows you how to construct just such a chart.

*GeoPaint* is undoubtedly one of the most-used GEOS applications, but it's sometimes difficult to get your bearings when creating a document. What size, for example, is the pixel-edit window when compared with an entire document page? When you fill the normal-edit window with a pattern, how much of a page will be used? The geoPaint reference chart described in this column will help solve all these problems. Making a chart like this is also an excellent way to get acquainted with some of geoPaint's editing features.

#### Making the Chart

First, boot *GEOS* and load *geoPaint*, telling the program you're going to create a new file with the name SCALES. Now, take just a moment to look at the accompanying reference chart. The chart has an outline with pixel scales along its top border and down the left side. Inside this area are scaled representations of a normal editing window, an album page, and a pixel editing window.

Start things off by outlining the document. You may want to experiment with both normal- and pixeledit modes for drawing the outline. Be sure your pencil is drawing at the extreme edge of the normal-edit window to get a true size for the page. Because single pixel-width lines are very thin, you might try using a double pixel line, but for accuracy, measure to the outer one. The GEOS Manual explains moving windows around to make all outside edges available. Next, draw a short line of three pixels at ten pixel intervals along the left and the top edges. You'll need to do this in pixel-edit mode. Use the ruler or tape measure to check the scale markings or count. Make slightly longer marks every 50 pixels and still longer ones every 100. Examine the accompanying chart for guidelines. If you're ambitious, you might want to place scales along the right and bottom edges of the document, too.

With the text-edit feature, place the appropriate numbers along the top and left sides of the chart. When you've finished this step, save this file (you may find a chart with just these measurements on it useful). Now, bring SCALES back to the screen and rename it CHART. Next, we'll add the normal-





edit window, the album page, and the pixel-edit window to the chart.

#### Adding the Windows

Discovering the largest possible album can be time consuming. You need to make long horizontal and vertical scales and to experiment by placing them on an album page. Experimentation determined that the maximum size of the page is 250  $\times$ 85 pixels, but it's impossible to place a graphic of this size in the album because of limitations in the selection process. The practical limit for album pictures is about 216  $\times$  65 pixels.

Now draw the normal-edit window using a rectangle of 262  $\times$ 143 pixels. Please note that, although you can fill this window with a graphic, if you do, you won't be able to rotate it. Text or any graphic larger than 125-pixels long horizontally probably can't be rotated to a vertical position because of the selection limitation and the more narrow window dimension.

You may find the caption "LEFT EDGE LEFT WINDOWS" a challenge to create. It's rotated in two segments and requires several moves before everything is aligned correctly. Each move is in eightpixel jumps, so this can be a timeconsuming process.

After you've created the document, including all captions, print a hard copy and save the file to disk. Now you can visualize exactly what portion of your picture is displayed in the editing windows, an album page, or the entire document. Larger drawings are no problem, except for album pages. Segments drawn in pixel- or normal-edit modes can be rearranged to make larger pictures.

#### The Grid

Bring the SCALES file into geoPaint and rename it GRID (leave SCALES on the files disk for future use, however). Now extend all the ten-pixel marks across the document both horizontally and vertically. Save the completed document to the files disk and print it. Next, make several copies on a copy machine to use in making large pictures.

Layout and trace a drawing onto a copy of the grid. Then load GRID into geoPaint, and, with the editing pencil, make marks at all intersections in pixel-edit mode. You'll need to make identification marks near key intersections so they can be seen in the pixel-edit window. With enough intersections marked, proceed to outlining the small portion of your drawing in the pixel window and watch your creation come to life in the small window to the left of the status box. When you're satisfied, erase all the unwanted grid pixels and move to an adjacent area to continue your artwork. When you've finished, you'll have mastered an important new technique.

A complicated graphic can be laid out on a hard copy of your GRID or, if you don't relish erasing all those grid lines, on a hard copy of SCALES. When the master layout is finished, simply load the appropriate geoPaint file and use corresponding reference points on the master to position graphics and text on the screen. Be sure to rename the new document and to erase all the unwanted grid or reference lines, numbers, and so on, before saving and printing.

Modifications and Corrections

## dug-swatter

• "Easy Load" (February) has a slight bug that prevents it from working correctly. It adds graphics characters to the end of the program names in the disk's directory instead of appending ,8: or ,8,1. This problem makes the converted files nearly impossible to load. First, to correct the bug in Easy Load, change lines 180 and 190 as follows:

- KB 180 IFCHOICE=1THENOPEN15,8,15, "R: "+A\$+" {SHIFT-SPACE} {D}8 @=:"+A\$:CLOSE15
- RG 190 IFCHOICE=2THENOPEN15,8,15, "R: "+A\$+" {SHIFT-SPACE} {D}8 {D}1=:"+A\$:CLOSE15

Then, to correct the filenames with graphics characters in them, type in and run the following program:

QQ	10	PRINT" {CLR} {RVS} {5 SPACES} E
		ASY LOAD DIRECTORY CORRECTO
		R{6 SPACES}"
DE	20	- HANA - C HANA - C HANA
		{3 SPACES }PLACE THE DISK TO

- BE CORRECTED IN"
- MM 30 PRINT: PRINTTAB(11) "DRIVE 0 (SPACE) OF UNIT 8."

- QR 40 PRINT" [3 DOWN] "TAB (6) "[RVS] PRESS ANY KEY TO CONTINUE (SPACE)"
- RX 50 GETK\$: IFK\$=""THEN 50
- FE 60 OPEN1,8,0,"\$0":OPEN15,8,15: PRINT"{CLR}" FP 70 GET#1, A\$, A\$: REM LOCATION BY
- TES
- RQ 80 GET#1,A\$,A\$:REM LINK BYTES KG 90 S=ST:IFS<>0THENCLOSE1:GOTO1 50:REM CHECK FOR END OF FIL
- KE 100 GET#1,LO\$,HI\$:C\$="":REM LO W BYTE,HI BYTE OF THE LINE NUMBER
- FH 110 LO=ASC(LO\$+CHR\$(0)):HI=ASC (HI\$+CHR\$(Ø)):LN=LO+HI\*256
- :LN\$=MID\$(STR\$(LN),2) DR 120 PRINTLN\$+" ";:REM PRINT TH E LINE NUMBER
- BB 130 GET#1,B\$:IF B\$="" THEN PRI NT CHR\$(13);:GOTO170:REM F ILENAME
- ED 140 PRINT B\$;:C\$=C\$+B\$:GOTO130 BM 150 INPUT#15, EN, EM\$, ET, ES:CLOS E15: IFEN<>ØTHENPRINTEN; EM\$
- ;ET;ES MX 160 END
- PE 170 I=1:J=LEN(C\$)
- EA 180 IF (MID\$ (C\$, I, 1) <> CHR\$ (34))
- AND (I <> J) THENI = I +1: GOTO180 JA 190 IF(MID\$(C\$, J, 1) <> CHR\$(34))

- AND (I <> J) THENJ=J-1:GOTO190
- DS 200 IF I=J THEN80
- XS 210 J=J-4: IFMID\$(C\$, J, 4)=" {D} 8@"THEN240
- DC 220 J=J-1:IFMID\$(C\$,J,5)=" {D} 8{D}1"THEN250
- ME 230 GOTO80

mp.	230	001000
GR	240	I=I+1:D\$=MID\$(C\$, I, J-I):PR
		INT#15,"RØ:"+D\$+"
		{SHIFT-SPACE} {D}8@="+D\$+"
		[SPACE] {D}80":GOTO80
AK	250	I=I+1:D\$=MID\$(C\$, I, J-I):PR

INT#15,"RØ:"+D\$+" {SHIFT-SPACE} {D}8 {D}1="+D\$ +" {D}8 {D}1":GOT080

You will be prompted to place the disk containing the corrupted filenames into drive 0 of unit 8 (a 1541 as it comes from the factory is drive 0 of unit 8). Place the disk to be corrected into the drive and press any key. All the filenames that were corrupted by Easy Load will be corrected. Filenames that weren't corrupted by Easy Load are not affected by the correction program, so don't worry if you place the wrong disk in the drive.

So you can code circles around the pros. eh? Well, here's your chance to prove it. It's the GEOS Programming Contest. And all it takes to win is a Commodore and your skill at programming under GEOS to win in any four categories and walk away with all kinds of prizes.

Including a check for \$1,000. Just send us the GEOS-based program applications from Berkeley Softworks

- Commodore peripherals: 1670 1200 Baud Modem, 1351 Mouse and 1764 or 1750 RAM **Expansion Module**
- · Six month subscription to Q-Link, the telecommunications service and Q-Link's Public Domain Software Library from Quantum Computer Services
- · Twelve month subscription to Compute!'s

6. Judging will be performed by the staff of Compute!'s Gazette Magazine. The decisions of the judges are final in all respects. This includes decisions regarding creativity, similarity among entries and general suitability.

Entries become the property of Berkeley C Entries become the property of Derkeey • Softworks, which reserves the right to adapt, use or publish all entries received. Entries may become part of a "shareware" library to be distributed by Berkeley Softworks, Compute!'s Gazette and by Berkeley Softworks, Compute!'s Gazette and Quantum Computer Services. As part of each

## The GEOS Programming Contest.

vou're most proud of - on disk-by August 31, 1988. There are four categories.

each with an Applications1 and Desk Accessories2 winner. Which means that there are eight first prizes. Eight second prizes. And eight thirds.

And each prize consists of lots more prizes.

## We may not be the only ones writing checks.

And that's only where the bucks start. Because if your program makes it into a GEOS Shareware Library, all kinds of satisfied users may be writing you checks.

So boot up and get down to pumping out your most professional GEOS program. Then send it in with the information required below. Who knows? We could be sending a check right back to you.

1. Applications are identified by the GEOS Application File Type, are entered from and exit to the deskTop and conform to the GEOS user interface.

2. Desk Accessories are defined as programs which are less complex than applications, are identified by the GEOS Desk Accessory File Type, may be entered and pop-up within any application and upon exiting return the application to its prior state.

#### Categories

ENTERTAINMENT - Includes entertainment and games. For example, a Chess game (Applications Division) or a trivia game (Desk Accessories Division). EDUCATION - Primarily educational and instructional. For example, a world geography program (Applications Division) or a flash card program (Desk Accessories Division).

PRODUCTIVITY - Designs that improve personal productivity. Examples include an "outline processor" (Applications Division) or a scientific or financial calculator (Desk Accessories Division).

OPEN PROGRAMMING - Open design category that includes programs not covered in other categories. Examples include disk utilities, printer and input drivers and telecommunications programs.

## Over \$25,000 in cash and prizes!

**Eight First Prizes!** 

- \$1,000 cash
- Announcement in Compute!'s Gazette Magazine
- Complete library of C64 or C128 GEOS

Gazette magazine

- **Eight Second Prizes!**  Announcement in Compute!'s Gazette Magazine
- Complete library of C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem and your choice of a 1764 or 1750 RAM Expansion Module or 1351 Mouse
- Three month subscription to Q-Link, the telecommunications service and Q-Link's Public Domain Software Library from Quantum Computer Services
- · Twelve month subscription to Compute!'s Gazette magazine
- **Eight Third Prizes!**
- Announcement in Compute!'s Gazette Magazine
- Your choice of any five C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem and your choice of a 1764 or 1750 RAM Expansion Module or 1351 Mouse
- · Three month subscription to Q-Link, the telecommunications service and Q-Link's Public Domain Software Library from Quantum Computer Services
- · Twelve month subscription to Compute!'s Gazette magazine

#### **Official Rules**

Employees of Berkeley Softworks, Quantum **L**. Computer Services, Laser Direct, Computel's Gazette Magazine, their advertising and promotional agencies and their immediate families are not eligible to enter the contest.

2. Each entry must be your original work, previously unpublished in any form. All those programs accepted will be required to affirm this in writing

Contestants may enter multiple categories, but may only submit one entry per category per 5. division (e.g. one entry in the Entertainment category Applications Division, and one entry in the Entertainment Desk Accessories Division). Regardless of the number of categories you enter, you will only be eligible to win one prize.

Deadline for entries is August 31, 1988. Mail entries to Compute!'s Gazette, P.O. Box 5406, Greensboro, NC, 27403 4.

Attn: GEOS Programming Contest.

Acceptance of an entry shall not create any Э. implication that the entry has been received and reviewed by Berkeley Softworks or has been used in any way in product development.

Berkeley

The brightest minds are working with Berkeley.

ottworks

submission, contestants should include *in* the program their name, address and a "user fee" amount for satisfied users to send a discretionary payment.

8. Entries may be written in any programming anguage but must be a GEOS based program supporting the GEOS file structure and be executable from the GEOS deskTop or a GEOS application. Whichever language is chosen, the code must be a self-standing program that can be run by someone who does not own the language. We must be able to legally distribute the program without incurring licensing fees or any other obligations to the maker of the language.

9. Entries must be submitted on 5.25" floppy disks in 1541/1571 format. The following should be clearly marked on both the printout and the disk:

A. Contestant's name, address and phone number. B. Category and division for the entry. Intended use for the program.

Entries must be accompanied by a • description which explains how to use the program and what it does.

11. This contest is void where prohibited by law. All federal, state and local taxes are the sole responsibility of the winners.

#### **General Conditions**

- Entries will be judged on creativity, originality, interface consistency with other GEOS programs and error-free
- consistency with other GEOS programs and error-free quality of the code.
  Make sure your mailer will protect your disk from damage. Affix sufficient first class postage. Mail your printout, disk and official entry blank to the above address in time to reach Compute!'s Gazette Magazine before the August 31, 1988, deadline.
  Winners will be announced by October, 1988.

## Sponsored by Berkeley Softworks and Compute!'s Gazette.

Name	Lange and the works
Phone	(Produced entry)
Address	
C'1	
City	Constitution of the second
State	Zip
Age	
SIGNED FORM: I warrant that the progr inal work and that the work cration elsewhere, nor has form. If my work is accept decision as to the selection is final and without recours is final and without recours by entering this contest, in Berkeley Softworks and in a shareware library, I will	RY MUST INCLUDE THIS am presently entitled is my own orig it been previously published in any et by yoa, Lunderstand that your of winners and awarding of prizes so on my part, Lunderstand that my entry becomes the property of the event my program is included in be required to sign a standard release or 18, your parent or legal guardian

www.commodore.ca

Signature

# Ramdisk 64

#### Bruce Thompson

This short machine language utility creates a ramdisk in the 64's "hidden" memory, allowing you to load and save programs instantaneously—and it provides over 20K of storage.

BASIC programmers rarely tap the great expanses of memory in the Commodore 64. For instance, both BASIC and Kernal ROM (Read Only Memory) have an 8K chunk of RAM (Random Access Memory) beneath them. "Ramdisk 64" lets you use this RAM (along with the 4K block of free memory at location 49152) for temporary storage of BASIC programs. No longer will loads and saves depend on the speed of your tape or disk drive. With Ramdisk 64, you'll have instant access to as many programs as you can fit in 20K of RAM.

#### Installing the Ramdisk

Since Ramdisk 64 is written in machine language, you'll need to enter it with "MLX," the machine language entry program printed elsewhere in this issue. When you load and run MLX, respond to the address prompts with the following values:

#### Starting address: 0801 Ending address: 0A50

After you've typed in the program, save a copy to disk or tape before leaving MLX. Even though it's written in machine language, Ramdisk 64 loads and runs like a normal BASIC program. Thus, to install the ramdisk, simply load the program, type RUN, and press RE-TURN. When the cursor reappears, type NEW and press RETURN. The ramdisk is now active and ready for use.

#### **RAM Power**

The ramdisk you've installed operates much like a disk or tape drive. It assumes a device number of 2 (a disk drive is normally device 8; a tape drive is device 1). So, to save a BASIC program to the ramdisk, use the command SAVE"*filename*",2 where *filename* is any string of 16 or fewer characters.

Once you've stored a number of programs in the ramdisk, enter LOAD''\$'',2 to produce a twocolumn directory of all the files currently in the ramdisk. This directory *does not* destroy the program that's in memory. At the end of the directory, you'll see a BYTES FREE message telling you how much memory is left in the ramdisk for additional programs. If you attempt to save a program that is longer than the space that remains, the save aborts with an OUT OF MEMORY error, and your BASIC program remains intact.

When you wish to reload a file from the ramdisk into the BASIC work area, type LOAD"filename",2 and press RETURN. If there is an appropriately named file in the ramdisk, it loads into memory (much as it would from tape or disk). To conserve memory, the program is erased from the ramdisk. For this reason, when you're finished working on a program vou've taken from the ramdisk, be sure to resave it (either to the ramdisk, or to tape or disk) before loading another program. If you wish to delete a file from the ramdisk, just load it into memory.

Ramdisk 64 shares traits of both the disk and tape drive. For instance, if you're using tape for program storage, entering LOAD"C" will load the first program on the tape whose filename starts with the letter C. This technique works just fine with Ramdisk 64 (for example, LOAD"C", 2 loads the first program

in the ramdisk that begins with the letter *C*.)

With disk, this process is known as *pattern matching* and requires an asterisk (\*). The ramdisk also recognizes this convention when loading files. For example, just as with disk, LOAD''file\*'',2 loads the first file that begins with the letters file. In contrast, LOAD''\*'',2 always loads the first entry in the ramdisk directory. With disk, this is true only when no other program has been loaded yet. If a program has been loaded, LOAD ''\*'',8 fetches the most recently accessed program.

As a convenience, Ramdisk 64 allows you to save multiple versions of a program using the same filename. This prevents you from accidently overwriting a program in the ramdisk. To recall a version of a program, simply load the program repeatedly until your most recent copy is in memory. Be sure to save other versions to disk or to the ramdisk if you wish to keep them.

#### **How It Works**

The Ramdisk 64 driver routine resides at the bottom of the BASIC text area. This allows utilities like "MetaBASIC" to operate undisturbed.

When it is run, Ramdisk 64 immediately protects itself from BASIC by adjusting the start-of-BASIC pointers upwards. Next, it stores the current ERROR handler vector at 768, redirects the vector to its own error handler, and exits to BASIC.

Henceforth, whenever a BASIC error occurs, the program checks for an ILLEGAL DEVICE NUMBER error. If this error took place, it assumes the user is attempting to access the ramdisk. The program then looks for a correct filename and loads or saves the specified program to the ramdisk workspace. Ramdisk storage extents from location \$A000 to \$FFFF, excluding the area from \$D000 to \$DFFF.

On the 64, certain device numbers other than 2 will trigger the ILLEGAL DEVICE NUMBER error (0, 3, and so on). These can also be used for ramdisk access. For example, both LOAD''\$'',0 and LOAD''\$'',3 produce a ramdisk directory listing.

See program listing on page 77.

#### Cwww.commodore.ca

# **Big Screen Converter**

#### Robert Bixby

This companion program to "Big Screen," (a powerful  $640 \times 400$ -pixel drawing program for the 64, published in the March 1988 issue) makes ordinary DOODLE! files—and BASIC 7.0 graphics screens—compatible with Big Screen.

"Big Screen," published in the March 1988 issue of COMPUTE!'s Gazette, lets you create hi-res drawings on a virtual graphics screen that is  $640 \times 400$  pixels—four times the usual screen size. With "Big Screen Converter," you can load graphics created with DOODLE! into Big Screen and handle them as you would other Big Screen files. Thus you'll be able to perform the kind of detail work allowed by Big Screen on your DOODLE! files.

Big Screen Converter is written in machine language for maximum speed. To enter it, you must use "MLX," the machine language entry program found elsewhere in this issue. When you run MLX, you are asked for the starting and ending addresses of the data you'll be entering. Here are the values to use with Big Screen Converter:

#### Starting address: 0801 Ending address: 0B70

Follow the MLX instructions carefully, and be sure to save a copy of the Big Screen Converter data before exiting MLX. Although written in machine language, Big Screen Converter can be loaded and run just like a BASIC program.

#### Converting DOODLE! Files

To convert a file, first load and run Big Screen Converter. The program asks you for a filename. Place a disk containing a *DOODLE!* file in your disk drive. Type the name of the *DOODLE!* file and press RETURN. Remember to add the DD prefix which precedes all *DOODLE!* filenames. (For example, if you save a hi-res picture as LANDSCAPE with *DOODLE!*, the file will appear in the directory as DDLANDSCAPE.) Be sure that you type a valid filename—if the program is unable to find your file, you'll have to load the program and run it again to ensure an accurate conversion.

Once you've entered the DOO-DLE! filename, Big Screen Converter switches to the hi-res screen and begins the conversion process. You'll actually see the first part of the picture load and expand until the limits of the normal hi-res screen have been reached ( $320 \times 200$  pixels). The screen border color flashes red and white during the conversion. When the process ends, the text screen reappears.

At this point, follow the instructions in the March GAZETTE to load and run Big Screen. Your DOODLE! file will be displayed on the graphics screen in an enlarged form—four times bigger than before. Using Big Screen's various modes and commands, you can now work on this expanded image. When you've finished, be sure to save a copy of it to disk.

#### **Converting 128 Graphics**

Big Screen Converter handles not only DOODLE! files; it also converts graphics screens saved from BASIC 7.0. Hi-res screens on the 128 are generally saved with the command BSAVE. For instance, the following statement saves the contents of the hi-res screen at 7168 to disk as the file "HR PICTURE":

#### BSAVE "HR PICTURE", B0, P7168 TO P16384

Once it is saved, you can convert HR PICTURE to Big Screen format by first switching to 64 mode. Next, load and run Big Screen Converter. At the filename prompt, enter "HR PICTURE". When the conversion is complete, load and run Big Screen and save a copy of the enlarged image to disk.

#### How It Works

After you've specified a filename (DOODLE! or BASIC 7.0 graphics screen), Big Screen Converter reads a byte of graphics data from the file and expands it to encompass four bytes. These four bytes are displayed on the 64's graphics screen beginning at 8192 before another byte is read from the disk. The normal graphics screen represents the first quadrant of Big Screen's 640 imes400-pixel canvas. The rest of the converted graphics data (the three remaining quadrants) is stored in 8000-byte areas beginning at 16384, 24576, and 32768. Big Screen Converter itself occupies a little more than 800 bytes of memory in the BASIC text area. See program listing on page 75.

(Fwww.commodore.ca



22292 N. Pepper Rd, Barrington, IL. 60010 Call (312) 382-5050 To Order! \*Illinois residents add \$5% wales tax. All orders must be in U.S. Dollars. We thip to all points in the U.S., CANADA, PUERTO RICO, & APO-FPO. Please call for charges outside continental U.S. or C.O.D. MALL ORDERS enclose cashier check, money order, or personal check, Allow 14 days fellway, 2 to 7 days for phone orders and 1 days spress mail. Prices and a validability subject to change without notice. Shipping and handling charges are not refundable. (Monitors only shipped in continential U.S.) COMPTUTER DIRECT will match any valid nationally advertised delivered price on the exect same product with a comparable payment method (excluding any applicable takis taxis). A physical copy order of the current valid lower priced ad must be supplied with the order, or within 15 days of date of parchase. VISA — MASTERCARD — C.O.D.







## Lyco Computer

## Marketing & Consultants

#### Order processed within 24 hours

Order Early — Commodore Price Increases Possible





#### THOMSON (2) 4120 Commodore Ready Monitor

- Color Composite for 64 Mode Operation
   Color RGB for C128
- Mode Operation Plus Switchable in
- Green Monochrome
   Cables Included
- \$225<sup>95</sup>



1 - 800 - 233 - 8760

COMMOL	OKE
HA	RDWARE
1541 II Disk Drive	\$175.95
1581 Disk Drive	\$189.95
Indus GT C-64 Drive	\$169.95
1802C Monitor	\$189.95
64 C Computer	\$169.95
128D Computer/Drive	\$449.95
C-1351 Mouse	\$32.95
1700 RAM	\$109.95
C-1750 RAM	\$CALL
1764 RAM C64	\$117.95
1084 Monitor	\$279.95
128 Computer	\$219.95
Excel 2001 C128 Drive	\$199.95
Excel FSD-2 + C64 Drive	\$149.95

#### Attention Educational Institutions:

If you are not currently using our educational service program, please call our representatives for details.

#### PC COMPATIBLE HARDWARE

BCM 12G Gr. Monitor	\$64.95
BCM 12A Am. Monitor	\$69.95
BCC CG Color Card	\$94.99
AST	\$CALL
Laser Compact XT	\$475.95
Laser Compact XTE 640K .	\$549.95
Laser Desktop Turbo XT 25	6K.\$569.95
Laser Desktop Turbo XT 64	OK . \$599.95
Laser EGA + 4 Card	\$129.95
Kraft PC Joystick Card	
Zucker CGA ColorCard	\$89.95
ATI Graphics Solution	
ATI EGA Wonder	\$199.95
Thomson GB 200	\$249.9
Blue Chip Popular	
Blue Chip 286AT	



#### HARD DRIVES

ST 125 20 meg 3.5 Hard Drive \$289.95 DTC Controller Kit for PC/XT ..... \$39.95 ST 125 20 meg Internal Card w/Controller \$349.95 Add 510.00 for Western Dioital



G-www.commodore.ca

#### ACCE

5-1/4

Maxell:

SSDD

DSDD

Bonus:

Disk Notche

D

C64 128

**Modem Value** 

Avatex 1200e Hayes Compatible Modern

Direct Connect Cable to Your C64/128

Free Quantum Link Software

Only \$89.95

#### Lyco Means Total Service



#### Call Lyco



## Order Now

Here's How

sales staff at our toll free number to inquire about our diverse product line and weekly specials.

First and foremost our philosophy is to keep abreast of the changing market so that we can provide you with not only factory-fresh merchandise but also the newest models offered by the manufacturers at the absolute best possible prices. And we offer the widest selection of computer hardware, software and accessories.

Feel free to call Lyco if you want to know more about a particular item. I can't stress enough that our toll-free number is not just for orders. Many companies have a toll-free number for ordering, but if you just want to ask a question about a product, you have to make a toll call. Not at Lyco. Our trained sales staff is knowledgeable about all the products we stock and is happy to answer any questions you may have. We will do our best to make sure that the product you select will fit your application. We also have Saturday hours - one more reason to call us for all your computer needs.

Once you've placed your order with Lyco, we don't forget about you. Our friendly, professional customer service representatives will find answers to your questions



about the status of an order, warranties, product availability, or prices.

#### Lyco Computer stocks a multimillion dollar inventory of factory-fresh merchandise. Chances

are we have exactly what you want right in our warehouse. And that means you'll get it fast. In fact, orders are normally shipped within 24 hours. Free shipping on prepaid cash orders over \$50, and there is no deposit required on



C.O.D. orders. Air freight or UPS Blue/Red Label shipping is available, too. And all products carry the full manufacturers' warranties.

I can't see why anyone would shop anywhere else. Selection from our huge in-stock inventory, best price, service that can't be beat - we've got it all here at Lyco Computer.

TO ORDER, CALL TOLL-FREE: 1-800-233-8760 New PA Wats: 1-800-233-8760 Outside Continental US Call: 1-717-494-1030

Hours: 9AM to 8PM, Mon. - Thurs. 9AM to 6PM, Friday — 10AM to 6PM, Saturday

For Customer Service, call 1-717-494-1670, 9AM to 5PM, Mon. - Fri. Or write: Lyco Computer, Inc. P.O. Box 5088, Jersey Shore, PA 17740

C.O.D. Risk-Free Policy: e full manufacturers' warranties • no sales tax outside PA • prices show 4% cash discount; add 4% for credit cards • APO, FPO, international: add 5\$ pitol 3% for priority • 4-week clearance on personal checks • we check for credit card theft • sorry, compatibility not guaranteed • return authorization required • due to new product guarantee, return restrictions apply • price/availability subject to change • prepaid orders under \$50 in Continental US, add \$3.00





## Mark "Mac" Bowser, Sales Manager

I would personally like to thank all of our past customers for helping to make Lyco Computer one of the largest mail order companies and a leader in the industry. Also, I would like to extend my personal invitation to all computer enthusiasts who have not experienced the services that we provide. Please call our trained

SSDD DSDD SKC: DSDD DSHD Generic DSI 222 Verbatim: SSDD DSDD Disc 3.5 Storage Maxell SSDD DSDD QVS-10 51/4 .. \$3.95 QVS-75 51/4 ... \$14,95 Bonus: QVS-40 31/2 ... \$11.95 SSDD DSDD Verbatim: SSDD Generic DSDD Ribbons SKC: SSDD Color Ribbons DSDD Available Generic SSI Generic DSI Save up to 50% off brand prices! Call for your make and model! Jo Printer Interfaces \$35.95 Xetec Supergraphics ... \$55.95 Xetec Gold .. \$89.95 \$29.95 Tac 3 Cardco GWhiz ... \$32.95 Tac 2 Cardco Super G ..... \$44.95 Tac 5 \$49.95 Tac 1 + IBN Xtra Long PC Cable .... SCALL Economy .... Slik Stick ..... Great Black Max ... Boss .. Bargains 3-Way ..... Bathandle ... New Winner 909 M-3 Mouse Wico IBM/AF Lipstick Plus · Works with Geos Kraft KC III A 1351 Compatible Kraft PC Joy Card Call for Kraft Maze M Introductory Price! Dus Pan 1081/10 Mouse Pads 64C provides clean, dust-free sur-128D Epson LX800 face for your mouse

Xetec Jr.

PPI .....

MW 350

9x11 .... \$10.95

1000 sheet la 150 sheet ive 150 sheet wi 1000 sh. Gr. 1000 mailing 200 sheet O Transparent

Seikosha Sp

P

P





## Free shipp

No-mar backing to protect

Mouse

Cleaner

\$9.95

your desk surface

#### SORIES-

skettes

	\$5.	95
	12.	
	. \$7.	95
	. \$8.	95
	1	
	\$5.	95
	. \$6.	95
	-	~
	. 30.	9:
	\$13.	95
	. \$4	9
	-	~
	. 30	ar
	\$11,	50
	\$11.	50
	\$17.	95
		1
	\$10.	.95
	\$13	9
		~
	312	.9:
	518	9
	\$9	9
	610	0
*****	513	100
······································	\$9	.7
	\$12	.9

#### sticks

	h ·
Sapl	1
74/12	
11/	
V	
	\$9.95
	\$10.95
	\$12.95
AP	\$26.95
	\$5.95
	\$6.95
	\$10.95
	\$11.99
	\$24.95
	\$29.95
	\$14.95
PC	\$16.95
lick	
	\$27.95
ster	\$8.95
-	

#### covers

1	\$9.95
	\$9.95
	\$9.95
	\$9.95
Series	\$9.95

#### inter aper

ser \$16.95	
y, 20lb \$6.95	
te, 20lb \$6.95	5
par 14" \$18.95	5
abels \$8.95	5
1 20 \$8.95	5
abels \$4.95	5

powerstri	p		. \$9.95
PP101-6			
indicator			\$19.95
PP104-6	outlet	with	
EMI/RFI			\$28.95
PP106-6	outlet	with	
PP102-6	outlet		\$16.95

Surge

Suppressors

## Maintenance

51/4 Drive Cleaner CMP142 51/4 Drive Cleaner with program 3.5 Drive Cleaner CMP 154	. \$15.95
Switch Boxes	
Cent '25' AB Cent '36' AB	. \$39.95
RS232 ABC Cent ABC RS232 ABCD Cent ABCD	\$49.95 \$49.95
Video Tape	

## SKC TI Video each ..... 3 pack ..... 10 pack ....

#### Close

Factor Special Call for A

Quantum Link	SSAVE
Computer Cover-up	in an early
(dustcovers)	SSAVE
Novation modems	\$SAVE
Anchor moderns	
Certron	\$SAVE
Teknika Monitors	\$SAVE
Panasonic Monitors	\$SAVE
Dennison Diskettes	
Juki 6300	SSAVE
Contraction of the local sectors in the local secto	
Great savings on Ep Cardco, Eastern Hot Tech Expressions, T works, Spinaker, Scarborough, Contin and much more!!	yx, ise, High Tme- hental,

Mach 5 ..... Mach - 128

10th Frame .

Triple Pack .

Wid. Cl. Leade

deo 🖌	Print Shop
ipe	Print Shop Company
ibe V	Cauldron
Read Participation in	Superbike Challeng
20 VHS	Magnetron
Tape:	Electronic Arts:
Tape.	Marble Madness
\$3.99	Yeager's AFT
\$10.95	Demon Stalkers
\$35.95	Dragon's Lair
	Skate or Die
	Strike Fleet
eouts! 🔬	Epyx:
AN AN	Destroyer
a second	Fastload
y Fresh	Sub Battle
Pricing	Winter Games
vailability	California Games .
ale March 1	Str. Sports Basketb
SSAVE	Summer Games II
er-up	World Games
SSAVE	Boulderdash Con S
ms \$SAVE	Rad Warrior
SAVE	Firebird:
SSAVE	Elite
SSAVE	Guild of Thieves
nitors SSAVE	Pawn
ettes \$SAVE \$SAVE	Tracker
SOAVE	Starglider
on Epyx,	Sentry
rn House, High	Microleague:
ions, Time-	Microleag. Basebal
(er,	General Manager .
Continental,	Stat Disk
rell	Microleag. Wrestlin
	'87 Team Disk
ODORE A	Microprose:
CECHE	Airborne Ranger
States and States	F-15 Strike Eagle
\$25.95	Gunship Kennedy Approach
\$19.95	Silent Service
\$19.95	Solo Flight
\$28.95	Top Gunner
\$11.95	Pirates
er Brd \$22.95	Stealth Fighter
1 513. III 922.33	oround righter him

COMMOD	ORE	1
Famous Courses #1	\$11.95	
Famous Courses #2 Leader Board Pack	\$11.95	1
Action Soft:	a second	1
Up Periscope		1
Thunderchopper	\$18.95	1
Champion. Basketball .	\$19.95	1
Music Studio Leather Goddesses	\$19.95	1
Top Fuel Eliminator	\$15.95	
Beyond Zork GFL Football	\$25.95	1
Gee Bee Air Rally	\$16.95	
Last Ninja Might & Majic	\$19.95	
Nord & Bert	\$19.95	
Aliens Maniac Mansion		1
Batteries Included:		
Paperclip III Outrageous Pages	\$31.95	
Berkeley Softworks:	\$31.95	
Geofile C64	\$29.95	
Geo Calc C64 Geos 64	\$29.95	
Geos 128	\$39.95	
Geowrite	\$29.95	
Geopublish C64	\$39.95	
Berkeley TriPak	\$29.95	
Broderbund: Bank St. Writer	\$27.95	
Carmen San Diego	\$19.95	
Graphic Lib. I, II, III Print Shop	\$13.95 \$25.49	
Print Shop Compan	\$22.95	
Cauldron	\$16.95 \$11.95	
Magnetron	\$14.95	
Electronic Arts: Marble Madness	\$20.95	
Yeager's AFT Demon Stalkers	\$22.95	
Demon Stalkers Dragon's Lair	\$20.95 \$16.95	
Skate or Die Strike Fleet	\$20.95	
Four		
Destroyer	\$22.95	
Fastload		
Winter Games	\$11 95	
California Games Str. Sports Basketball .	\$22.95	
Summer Games II	311.95	
World Games Boulderdash Con Set	\$22.95 \$13.95	
Rad Warrior		
Firebird:	\$10 DE	
Elite Guild of Thieves	\$18.95	
Pawn	\$22.95	
Tracker Starglider	\$18.95	
Sentry	\$22.95	
Microleague: Microleag. Baseball	\$22.95	
General Manager	\$16.95	
Stat Disk Microleag. Wrestling		
'87 Team Disk		
Microprose: Airborne Ranger	\$22.05	
F-15 Strike Eagle	\$19.95	
Gunship Kennedy Approach	\$19.95	
Silent Service	\$19.95	
Solo Flight	\$13.95	

COMMOD	ORE
Origin:	-
Autoduel	\$28.95
Ultima III	
Ultima IV	\$33.95
Moebius	\$22.95
Software Simulations:	
Pure Stat Baseball Football	
Pure Stat College	\$17.95
Basketball	\$22.95
Springboard:	
Newsroom	
Certificate Maker	\$29.95
Clip Art Vol. #1 Clip Art Vol. #2	\$23.95
Clip Art Vol. #3	\$17.95
Graphics Expander	\$21.95
Strategic Simulations:	
Gettysburg	\$33.95
Phantasie II Phantasie III	\$22.95
Road War 2000	
Wizards Crown	\$22.95
Wargame Constr	
Battlecruiser Eternal Dagger	\$33.95
Shiloh	\$22.95
Questron II	\$22.95
Phantasie	\$22.95
Sons of Liberty	\$19.95
Sublogic:	
Flight Simulator II	
Jet Simulator Night Mission Pinball	
Scenery Disk 1-6	\$12.95
Stealth Mission	\$31.95
-	
Partner C64	
Partner 128	
Swift Calc 128 Wordwriter 128	
Wordwriter 3 64	\$22.95
Silvia Porter Vol. 1-64 .	
Unison World:	
Art Gallery 1 or 2	\$14.95
Print Master	\$17.95
Art Gallery Fantasy	- 1907 - 500000
	. /
Constant and the second	
Access: World Class Lead. Bd	CALL.
Activision:	SUALL
Champ. Basketball	\$25.95
Championship Golf	\$22.95
GFL Football	\$25.95
Gee Bee Air Rally	\$22.95
Electronic Arts:	
Gridiron	\$26.95
Oneon One Weaver Baseball	\$33.95
Return to Atlantis	SCALL
Ерух:	
Apshai Trilogy	\$11.95
Winter Games	
World Games Destroyer	\$22.95
Firebird:	JEL.JJ
Guild of Thieves	\$25.95
Pawn	\$25.95
Starglider	\$25.95
Microprose:	
Silent Service	\$22.95
Sublogic:	-
Flight Simulator II Scenery Disk	\$31.49 \$CALL
Unison World:	SUALL
Print Master	\$25.95
ha Callendary	

SOFTWARE -

		-
)		
5	Fonts & Borders \$17.95 Art Gallery Fantasy \$25.95	
5	IBM	
5	Access:	
5	Wid. Cl. Leader Board . \$27.95	
5	10th Frame \$27.95 Activision:	
5	Champ. Baseball	
5	Zork Trilogy \$39.95	
5	Leather Goddesses \$22.95 Beyond Zork \$27.95	
5	Broderbund: Ancient Art of War \$25.95	
5	Print Shop \$32.95	
5	Print Shop Compan \$31.95 Graphic Lib. I or II \$19.95	
5	Ancient Art of War at Sea \$25.95	
5	Carmen San Diego World \$22.95	
5	Superbike Challenge \$11.95	
5	Search and Destroy \$9.95 Electronic Arts:	
5	Weaver Baseball \$25.95 Starflight \$32.95	
	Yeager's AFT \$26.95	
9 5	Epyx: Apshai Trilogy\$11.95	
5	Create A Calendar \$15.95	
5	St. Sports Basketball \$22.95	
5	Sub Battle Simulator \$22.95 Winter Games \$11.95	
5	World Games \$22.95	
5 5	Rad Warrior \$13.95 Spy vs. Spy III \$13.95	
5 L	Firebird: Starglider \$25.95	
	Guild of Thieves \$25.95	
5	Microleague: Microleag. Basebali \$22.95	
5	General Manager \$16.95 Stat Disk \$13.95	
1	Microprose:	
	Conflict in Vietnam \$22.95 Crusade in Europe \$22.95	
L	Decision in Desert \$22.95 F-15 Strike Eagle \$22.95	
5	Silent Service \$22.95	
5	Gunship \$27.95 Pirates \$22.95	
5	Origin: Ultima I \$22.95	
5	Ultima III \$22.95	
5	Ultima IV \$33.95 Moebius	
5	Ogre \$16.95 Strategic Simulations:	
	Wizards Crown \$22.95	
5	Kampfgruppe \$33.95 Phantasie \$22.95	
5	Phantasie III \$22.95 Rings of Zilfin \$22.95	
	Shiloh \$22.95	
5	Sublogic: Jet Simulator \$31.49	
5	Flight Simulator \$34.95	
5	Timeworks: Swiftcalc \$39.95	
9	Wordwriter \$34.95 Unison World:	
r	Art Gallery 2 \$14.95	
15	News Master \$49.95 Print Master (+) \$29.95	
5	Fonts & Borders \$17.95	

#### ng on Prepaid cash orders over \$ 50 in the Continental U.S.

Art Gallery 1 or 2 ...

\$14.95

..... \$22.95

.... \$22.95

#### **&www.comm**odore.ca

#### Price Guarantee

nonononononononononon

Since 1981, we have led the industry by continuing to offer the lowest national prices while providing quality service. Many companies have come and gone trying to imitate our quality and service. If by some oversight we do not have the lowest prices advertised on the products you desire, then we would appreciate the opportunity to rectify this oversight.

#### **Great Performance Great Price**



#### Monitors

anananana

Thomson:	
230 Amber TTL/12"	\$79.95
4120 CGA	\$219.95
4160 CGA	\$254.95
4460 EGA	\$349.95
4375 UltraScan	\$389.95
GB 200 Super Card	\$184.95
4570	\$CALL

**Ouantities** Limited

Blue Chip:	
BCM 12" Green TTL	\$64.95
BCM 12" Amber TTL	\$69.95
NEC:	
Multisync II	\$599.95
Cause #210 aures NEC	Multinum

ave \$210 over NEC Multisync with Thomson 4375 UltraScan \$389.95

Magnavox:		Avatex:
BM7652	\$84.95	1200e
BM7622	\$84.95	1200i PC Card
7BM-613	\$79.95	1200hc Modem
7BM-623	\$79.95	2400
CM8502	Constant and the second s	2400i PC Card
CM8505	\$209.95	Hayes:
CM8562	\$239.95	Smartmodem 300
CM8762	\$249.95	Smartmodem 1200
8CM-515	\$269.95	Smartmodern 2400

#### 1200e \$69.95 1200i PC Card ...... \$69.95 1200hc Modern ...... .. \$89.95 2400 ... \$179.95 2400i PC Card ...... \$169.95 Haves: Smartmodem 300 ..... \$149.95 Smartmodem 1200 ...... \$285.95

3212

-

HON

\$425.95

Modems

New for '88 144 cps Draft 36 cps NLQ **EZ** Operation Front Panel Control NX-1000 \$179 95 NEW! NX1000 Rainbow Color Printer \$225.95

NX-1000 .

NR-10

NR-15 ..

Laser 8

120 D

180 D

MSP-10

MSP-40

MSP-15

MSP-50

MSP-45

MSP-55

Premiere 35

Tribute 224

NB-15 24 Pin .

NX-1000 Color ...

NX-15 .....

NB24-10 24 Pin ...

NB24-15 24 Pin ..

SEI	XOS
	Sn 1
00 cps Draft	Spi
0 cps NLQ	
irect Connect	ARALL
or Commodore	
	and the second s

Commodore Ready

Seikosha price increases possible - please order early.

20 . D

. fo

## ER

. \$179.95

. \$225.95

.. \$309.95

\$339.95

\$439.95

\$699.95

... \$425.95

., \$579.95

.. SCALL

\$149.95

\$169.95

\$259.95

\$289.95

\$324.95

\$389.95

\$425.95

\$489.95

\$464.95

\$624.95

#### SEIKOSHA

SP 180Ai	\$129.95
SP 180VC	\$129.95
SP 1000VC	\$139.95
SP 1000AP	\$169.95
SP 1200VC	\$155.95
SP 1200Ai	\$165.95
SP 1200AS RS232	\$165.95
SL 80Ai	\$299.95
MP1300Ai	\$269.95
MP5300Ai	\$399.95
MP5420FA	
SP Series Ribbon	\$7.95
SK3000 Ai	\$339.95
SK3005 Ai	
SPB 10	SCALL
SL 130Ai	

## Toshiba

321SL	\$489.95
341 SL	\$659.95
P351 Model II	\$899.95
351 SX 400 cps \$	1019.95

Cir	<b>6</b>	36
26	: GIR	

NX-1000C ..... \$179.95

TIZEN

Tribute 124 ..... \$469.95

## EPSON

LAOUV	
FX86E	\$279.95
FX286E	\$424.95
EX800	\$399.95
LQ500	\$309.95
LQ1000 w/Tractor	\$549.95
LQ2500	\$819.95
GQ3500	\$LOW
LQ850	\$489.95
LQ1050	\$659.95
	and the second second

#### OKIDATA

Okimate 20	\$119
Okimate 20 w/cart	\$179.95
120	\$189.95
180	\$219.95
182	\$209.95
182 +	\$225.95
183	\$249.95
192 +	\$309.95
193+	\$449.95
292 w/interface	\$449.95
293 w/interface	\$585.95
294 w/interface	\$819.95
393	\$955.95

### Panasonic

\$129<sup>95</sup>

1080i Model II	\$179.95
1091i Model II	\$199.95
1092i	\$319.95
1592	\$409.95
1595	\$459.95
3131	\$299.95
3151	\$479.95
KXP 4450 Laser	SCALL
1524 24 Pin	\$559.95
Fax Partner	\$589.95

#### DIABLO

D25	\$499.95
635	\$779.95
BROT	HED
M1109	\$195.95
M1409	\$299.95
M1509	\$335.95
M1709	\$475.95
Twinwriter 6 Dot & D	aisy . \$899.95
M1724L	\$599.95
HR20	\$339.95
HR40	\$569.95
HB60	\$709 95

#### Join the thousands who shop Lyco and Save

Cwww.commodore.ca

# Pointer

#### Charles Prince

This clever utility allows you to use a joystick-controlled, mouselike pointer in your own BASIC programs. A demo is included to help you get the most from this program. For the 64 with joystick.

"Pointer" is a short machine language utility that displays an onscreen arrow you can maneuver around your 64's display with a joystick. With Pointer installed, you can program your joystick to create "point-and-shoot" applications like those used in the popular *GEOS* operating system. "Finder," Program 2, demonstrates how to locate the arrow's position on the screen so you can use Pointer to its best advantage.

Pointer is written in machine language, so you'll need to enter it with "MLX," the machine language entry program found elsewhere in this issue. When you run MLX, you'll be asked for the starting and ending addresses of the data you'll be entering. Here are the values to use for Pointer:

Starting address: CF00 Ending address: CFF7

Follow the MLX instructions carefully and be sure to save a copy of the Pointer data before you leave MLX.

#### Using Pointer in Your Own Programs

There are two ways to use Pointer in a program. First, you can wait for the fire button to be pushed. This can be done in two ways:

100 WAIT 56320,16,16

or

100 IF (PEEK(56320)AND16)=16 THEN 100

Both options will freeze execution of the BASIC program until the fire button is pressed. The program then continues normally.

The second method involves reading the location of the pointer. This is accomplished with three simple formulas:

X = INT(((PEEK(53262) - 255\*(PEEK(53264) = 128)) - 24)/8)Y = INT((PEEK(53263) - 49)/8) SL = 40\*Y + X

In these formulas, *X* is the column where the pointer is currently located (in the range 0–39), *Y* is its row (in the range 0–24), and *SL* is the specific cell of the screen that the pointer occupies (between 0 at the top left corner and 999 at the lower right).

Once these steps have been taken, your BASIC program can do whatever is required when the user has pointed at something and pressed the fire button. For example, the joystick could be used to pick options from a menu on the screen. In this case, one space on the screen should be designated as the activating space for each option. When the user points to this space, the BASIC program transfers control to the appropriate subroutine to execute the chosen option.

(A Macintosh-style interface can be created by combining Pointer with "Looking Glass," a program published in COMPUTE!'s June 1986 issue that adds windowing capabilities to the Commodore 64. When the two programs are used in concert, your BASIC programs take on a whole new look, with windows and pull-down menus. Pointer was written to be completely compatible with Looking Glass.)

#### **Customizing Pointer**

There are several ways to customize Pointer for your preferences. You can change the color of the pointer simply by typing

POKE 53294,n

where n is the number of the desired color. Values for colors are the following:

0 = Black	8 = Orange
1 = White	9 = Brown
2 = Red	10 = Light Red
3 = Cyan	11 = Dark Gray
4 = Purple	12 - Medium Gray
5 = Green	13 = Light Green
6 = Blue	14 = Light Blue
7 = Yellow	15 = Light Gray

To change what the pointer looks like, you can use any sprite. (Please note, however, that sprites that are eight pixels by eight pixels or smaller work best. If you use anything larger, you won't be able to select anything in the bottommost row or the rightmost column.) Either you can place the data for the new sprite in locations 704-766erasing the data for the original sprite—or you can store the data for the new sprite somewhere else (such as the cassette buffer) and change the data pointer by entering POKE 2047, b, where b is the number of the block in which you stored the data.

If the picture for the new sprite has a size other than four pixels by four pixels, you'll need to change two registers in the routine with the following POKES:

POKE 53101,251-YW POKE 53146,88-XW

YW is the height of the sprite, and XW is its width (both measured in pixels). For example, for a sprite with a width of six pixels and a height of eight pixels, you'd enter: POKE 53101,243 POKE 53146,82





## In our GEOS application contest

You already know GEOS. And if you know BASIC, then you can write applications to run under GEOS using our new and exciting BeckerBASIC for the C-64.

Now Abacus is sponsoring a contest to find the most talented authors among you. We're looking for the best GEOS applications written using our powerful BeckerBASIC. With more than 270+ new commands and functions, BeckerBASIC makes writing GEOS applications a snap. There's commands for hires graphics, pulldown menus, dialog boxes and much more.

To learn more about BeckerBASIC or our contest write or call Abacus. Or better yet, pick up a copy of BeckerBASIC at one of our thousands of dealers and start writing those GEOS applications now.

#### Here's the contest rules:

- 1. Write your entries using BeckerBASIC to run under GEOS. Entries must be submitted on a diskette.
- You can submit multiple entries provided that all entries fit on a single diskette.
- Entries must be accompanied by the official entry form you'll find inside the BeckerBASIC package. Xerox or reproductions of the entry form are not acceptable.
- You must make sure that your entry is received by Abacus no later than August 31, 1988.
- 5. We'll announce the winning entries by October 31, 1988.

Complete rules are on the official entry form inside the BeckerBASIC package.

Card No Exp. date YESI I'm intestesting in writing GEOS applications. Please sen me information about BeckerBASIC and your contest.	Payment:	VISA	MC	AMEX	Check	MoneyOrder
me information about BeckerBASIC and your contest.	Card No	1	31.8		Exp.	date
Address			100			REAL PARTY OF
City State Zip					State	Zin

#### List of prizes

Grand Prize	\$1000 CASH (1 winner)
2nd Prize	Choice of Abacus books and
	software (2 awards) \$500 value
3rd Prize	Choice of Abacus books and
	software (2 awards) \$400 value
4th Prize	Choice of Abacus books and
	software (2 awards) \$300 value
5th Prize	Our complete C-64 Library
	Set-\$227 value (100 awards)



BeckerBASIC gives you over 270 commands



Create Hi-res drawings on the GEOS screen



**Pulldown Menu Construction Set** 



#### Finder

Finder, Program 2, is designed to demonstrate how to use Pointer and to help you determine where things are on the screen. Since Finder is written entirely in BASIC, simply type it in, save a copy to disk, and type RUN.

You'll see the pointer on the screen and, in the upper left corner, the *x* and *y* coordinates followed by the screen position. To find the position of a point on the screen, use the joystick to move to any location, press the space bar to erase the position information, and press the fire button on the joystick. Pressing Q at any time will return you to BASIC.

#### **Program Notes**

When using Pointer, there are a few restrictions to note:

- Your BASIC program cannot use sprite number 7, since that is the one used by the machine language routine for the pointer.
- The BASIC program cannot store anything in locations 704–766, except to change the appearance of the pointer.
- Anything that is stored in locations 52992–53232 will affect the machine language routine already there and probably result in a crash.
- If your BASIC program uses WAIT 56320,16,16 to test for the fire button, you won't be able to use the RUN/STOP key during that wait.

Pointer works by wedging itself into the computer's hardware interrupt. The hardware interrupt is that part of the operating system that performs various housekeeping functions 60 times per second. By changing the interrupt vector (locations 788-789) to point at the new routine, the computer reads the joystick and moves the pointer accordingly every 1/60 second, regardless of what else is going on. This gives BASIC programmers more memory to work with, since they no longer need to include routines in their programs to read the joystick, check to see if the sprite has gone off the screen, and so on. Pointer, running in the background, takes care of all these details.

See program listings on page 74.

# Graphics Wedge Phillip A. Gilley

View any hi-res picture on your screen with this powerful machine language graphics utility for the Commodore 64. Six different formats are supported.

One of the most impressive features of the Commodore 64 is its bitmapped graphics. Beautiful pictures can be created with a variety of graphics programs, including DOO-DLE!, KoalaPainter, and Cadpak.

Unfortunately, it can be difficult to display the pictures you've made. To display a picture file created with KoalaPainter, for instance, you must load and run the Koala-Painter program and then load the picture. From within KoalaPainter, you can load only KoalaPainter pictures. To load a picture of another format, you must leave Koala-Painter and run the appropriate program. "Graphics Wedge" is the solution to this problem.

Graphics Wedge is a short machine language program that allows you to view picture files quickly and easily—even pictures created by different graphics programs. Graphics Wedge can display files created with Blazing Paddles, Cadpak, DOODLE!, KoalaPainter, Micro Illustrator, and the Screen Magik area of The Print Shop—the only time you'll need to load a graphics program is when you draw your pictures.

Graphics Wedge is especially handy for those who have many public domain pictures, but don't have the graphics programs needed to display them.

#### **Getting Started**

Since Graphics Wedge is written in machine language, you'll need to enter it with the "MLX" machine language entry program found elsewhere in this issue. When you run MLX, you'll be asked for the starting and ending addresses of the

data you'll be entering. For Graphics Wedge, use the following values: Starting address: 0801 Ending address: 0B28

Follow the MLX instructions carefully, and be sure to save a copy of the Graphics Wedge data before you leave MLX.

#### Easy Display

To use Graphics Wedge, load and run it just like a BASIC program. Graphics Wedge places itself in a safe area of memory and returns you to the READY prompt.

Viewing picture files is easy. First, type LOAD "filename", 8, 1 (tape users should type LOAD "filename", 1, 1). The picture loads into memory. Now type a period and press RETURN. You'll see a list of the file formats that Graphics Wedge supports. Press the letter that corresponds to the format of the picture. The picture will appear on the screen.

While the picture is being displayed, you can change the border and background color. The f1 and f2 keys cycle through the border colors (f1 cycles forward; f2 cycles backward). The f3 and f4 keys cycle through the background colors. (Note: Changing the background color while in multicolor mode can produce strange results.) When you are finished viewing the picture, press a key.

You can now load and display another file. If you're not sure what format a picture is in, try one. If it fails, load the picture again and try another format.

See program listing on page 77.

## YOU CAN DEMAND IT FROM OTHERS- BUT YOU CAN EXPECT IT FROM APROTEK

## The <u>Great</u> Communicator

#### THE DIRECT-CONNECT HAYES® AND COMMODORE® 1670 COMPATIBLE 1200 BAUD MODEM FOR ONLY \$89.95

Everything from Electronic Mail (E-mail) to stock quotes and huge databases of every imaginable type is now on line to the small computer owner. You can even send and receive messages anywhere in the world. All you need is a telephone and a modern which allows your computer to communicate with others.

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

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

You will also notice a few very cheap 1200s on the market at "too good to be true prices." They are. The reason is that they are not truly Hayes and/or Commodore 1670 compatible therefore not usable in all situations and with all serivces. The Aprotek Minimodem-C<sup>™</sup> is both Hayes and Commodore 1670 compatible <u>and</u> 300/1200 baud. Why not get a modem that will satisfy your present AND future needs by going directly to an inexpensive Aprotek Minimodem-C<sup>™</sup> especially when we have it on sale?

What do you get for \$89.95? Everything! You don't need to worry about cables, compatibility or anything else! We don't just sell hardware, we sell solutions. The Aprotek Minimodem-C<sup>™</sup> plugs directly into your Commodore C-64, C-64C or C-128 USER port. It is unique in that it has two separate (switchable) emulation modes (Hayes and Commodore 1670) to make it compatible with ALL available software. The Aprotek Minimodem-C<sup>™</sup> is a full feature, 1200 Baud modem with Auto Answer, Auto Dial, Touch-Tone or rotary dialing, has the full complement of status indicators on the top panel and has abuilt-in speaker. Just plugi tinto your computer and standard phone jack with the attached cable. Minimodem<sup>™</sup> is supplied with "Multiterm" 64 and 128.

Also included is a free trial offer subscription to Compuserve, a very useful user database with local access numbers and about every feature imaginable.

Do you have more than one computer or do you plan to get another computer? You can "have your cake and eat it too."

Simply order our Universal RS-232 Interface (#5232) or the new Com-Modem<sup>™</sup> adapter (#5100) along with the standard Aprotek Minimodem-H<sup>™</sup> which you can use with any computer that has a RS-232 serial port as well as with your Commodore. The Universal RS-232 interface can also be used to connect your Commodore to any other RS-232 device. Aprotek Minimodem-C<sup>™</sup> is tiny. Only 434" long, 234" wide and 34" high. The smallest yet best featured modem on the market. Order yours today!

#### **NO RISK POLICY**

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

NOW FOR THE BEST PART, THE PRICE!

Order #	# Item	Qty	Price	Shipping	Total
6212 N	INIMODEM-C (Commodore)		89.95		The second second
6214 N	INIMODEM-H (RS-232)	1	99.95	and a start	
6216 N	INIMODEM-AM (Amiga)		99.95		
	(Specify)			1.00	8.7.1.5

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

Aprospand-64<sup>™</sup> Gives your Commodore 64 or 128 full expandability! This superbly designed expansion module plugs into the expansion port and gives you four switchable (singly or in any combination) expansion connectors—plus fuse protection—plus a reset button! Before you buy an expander, be sure that it has a fuse to protect your computer and that you can activate your cartridges in **any** combination allowed by the cartridges.



ONLY \$29.95 + S&H

#### UNIVERSAL RS-232 INTERFACE

with Commodore USER Port expansion. ONLY \$39.95 + S&H Now you can connect and communicate with any of the popular RS-232 peripherals using your Commodore USER Port. This superb expander opens a whole new world to your Commodore computer's capabilities. You can now connect to printers, modems and any other RS-232 device. If you already have something that connects



to the USER Port, don't worry because the port is duplicated on the outside edge of the interface. Simply plug it in and turn on the device you want to communicate with. Comes complete with sample driver program listings. Compatible with all Commodore home computers with a USER port. 1-year warranty. Order #5232.

www.commodore.ca

Order #5064

NEW! "COM-MODEM" ADAPTER — Use any Hayes<sup>®</sup> compatible modem with DB-25 connector through your USER port. You can make it emulate a 1670 too, or turn it off entirely. Can be used with our other USER port equipment such as "USER EXTENDER" (#5250) or "UNIVERSAL RS-232 INTERFACE" (#5232).





Editing characters is easy with this powerful, feature-packed program.

# **Excelfont 80** Super Character Editor for the 128

#### Daihung Do

With this well-designed and powerful utility, you can easily create your own custom 80-column character sets for the 128, using an amazing maximum of 15 pixel rows for each character. An 80-column monitor and disk drive are required.

The Commodore 128's 80-column video is a remarkable improvement over the 64's 40-column display, but unfortunately, the 80-column screen doesn't have its own character set—it borrows the 64's. The 64's characters, though fine in 40 columns, don't do justice to the 128's 80-column resolution. "Excelfont 80" solves this problem by allowing you to creatively design any number of attractive character sets to suit your preferences.

One special feature of Excelfont 80 is that it allows you to edit the full 15 rows of the 80-column set. Imagine a large 15-row character set for titling and a smaller one for normal text. With Excelfont 80, you can create just the right look for any program on which you're working. Although Excelfont 80 is partially written in machine language, you don't need to know machine language in order to use it.

#### **Getting Started**

Excelfont consists of six programs. Three of these programs are written in BASIC, and three in machine language. Program 1, EXCEL.LDR, loads the other programs into memory and sets up the screen. Since Program 1 is written in BASIC, simply type it in and save a copy to disk with the name EXCEL.LDR.

Program 2 does most of the work, scanning the keyboard and calling the correct machine language routines. Program 2 is written in BASIC, so type it in and save a copy to disk with the filename EXCEL .BAS.

Program 3 is the main machine language program, the one that actually manipulates characters and accesses the 80-column video chip. Enter this program with "128 MLX," the machine language entry program found elsewhere in this issue. When you run 128 MLX, you'll be asked for the starting and ending addresses of the data you're entering. For Program 3, use the following:

Starting address: 0C00 Ending address: 0FCF

When you've finished entering the Program 3 data, save it with the filename EXCEL.OBJ. Be sure to use this name, because Program 1 looks for a file with this name on disk.

Program 4 is also a machine language program, so again, use 128 MLX to enter it. Respond to the prompts with the values indicated: Starting address: 1300

Ending address: 135F

When you've finished entering the Program 4 data, save it with the filename EXCEL.OBJ1. It's important that you use the name EXCEL .OBJ1, because this is the filename that Program 1 uses to load this file.

Program 5 is a BASIC program that merges the two character sets into one. Simply type it in and save a copy to disk with the filename EXCEL.UTL.

Program 6 is a machine language program that enables you to

Cwww.commodore.ca

load and install a character set for use in your own programs. Use 128 MLX to type in this program. When you run 128 MLX, you'll be asked for the beginning and ending addresses of the data you're entering. The values for Program 6 are as follows:

#### Starting address: 0C00 Ending address: 0C2F

When you've finished entering the data, be sure to save a copy with the filename EXCEL.OBJ2. Be sure to save the data with this filename because this is the name Program 5 will expect.

#### Up and Running

In order for Excelfont 80 to work, all six files must be on the same disk in the disk drive, and your 128 must be in 80-column mode. When everything is set, type

#### RUN"EXCEL.LDR"

followed by RETURN, to run the program.

This program loads the other three programs into memory and executes Program 2, EXCEL.BAS. (The last two programs, Programs 5 and 6, are used separately.) On the main screen you'll see a characterediting window with an enlarged version of the character currently being edited, a window that displays the entire character set, a help window, a status window, and a prompt window.

When you first start the program, you'll be asked whether you want to edit the uppercase/graphics (character set 0) or the lower-/uppercase character set (character set 1). Excelfont 80 allows you to edit one character set at a time. Later, the two separate character sets can be merged into one. The second prompt asks for the number of character rows you'll be using for the character. This question affects the number of rows that are reversed, mirrored, or flipped when the appropriate options-to be discussed later-are selected.

You'll notice that there are two cursors on the screen: One is in the character-editing window, and the other one is in the character-selecting window. To move the cursor in the character-editing window, use a joystick in port 2. To move the cursor in the character-selecting window, use the cursor keys. When you press the fire button, the corre-

sponding pixel under the cursor is set or cleared, depending on its previous state: If it was set, then it will be cleared, and vice versa. To continuously set or clear pixels, hold down the fire button and move the cursor around. You'll notice that the corresponding character in the character-selecting window is altered with each change you make to the expanded character in the character-editing window. When you move the character-selecting cursor, the pattern in the characterediting window changes to the character that is under the cursor in the selecting window.

#### **Editing Characters**

Excelfont has several features that allow you to edit and manipulate the character in the editing window or even the whole character set. Here's a brief description of each one.

HELP. Pressing this key displays a Help menu in the Help window. Press HELP again to see the next Help menu. There are a total of three of them, so pressing HELP three times returns you to the first menu.

R. Rotates your character clockwise. This feature only rotates the upper  $8 \times 8$  grid. It will operate regardless of the number of character rows. This feature is handy if, for example, you want to make a ship point in a different direction, or if you want to create a sideways character set. If you want to rotate the bottom  $8 \times 8$  grid, just scroll the character eight times vertically to move the bottom eight rows to the top, rotate the character, and then scroll it back so that the character is back where it started, except for the rotated bottom rows.

SHIFT-R. This command is like R, but it rotates your character counterclockwise instead of clockwise.

**CONTROL-9**. Reverses the character. All pixels that have been set are cleared and all cleared pixels are set. If you press this twice, you'll have the same character you started with.

**F**. Flips the character vertically. This is the same as pressing R twice, but it saves a keystroke.

M. This command mirrors your character horizontally. This feature allows you to make mirrored character sets. Pressing this key twice returns to the character with which you started.

SHIFT-CLEAR/HOME. Clears the character so you can begin afresh. Be careful with this option, however; you may have to edit the whole character over if you press this accidentally.

N. Restores the ROM character image. If you've made a mistake trying to enhance a ROM character, press this to get it back. Please note that this restores the ROM character, not your previous character.

E. Pressing this key enlarges (or expands) the character vertically. This feature is particularly useful if you're making a 15-row character set. It makes two rows for every one row that was in the original pattern. Be careful not to press this twice, because it will ruin your character, leaving you no way to get it back. This feature destroys the last eight rows of the original character.

C. This command is the opposite of E, above. It shrinks the character. If you press E and then this key, you'll have your original character pattern.

**Commodore-9**. Copies the first two rows, reverses them, and then writes them to the bottom two rows, effectively making a reverse character set for your new character set. This feature can be quite a timesaver.

T. Use this command to try your new character set. If you specified any number of character rows except 8 or 16, you'll be prompted to enter the number of displayed character rows, 8 or 16. You're asked this because Excelfont can only display either an 8- or a 16row character set. After you've answered the prompt, the main screen is replaced by a nearly blank one. You can type and try out your font as much as you wish. Press the ALT key to return to the main screen.

**O**. Stashes your character in a buffer so you can recall it later. If you're about to make a big change in your character, stash it here first in case you make a mistake.

**SHIFT-O**. Recalls the character from the buffer. If you press this key before you've saved something to the buffer with the above feature, you'll get a random pattern.

SHIFT-N. Restores the ROM character set. Please note that this will erase your whole character set, replacing it with the one in ROM.

You'll be asked if you really want to do this before the ROM character set is restored.

**Q**. Allows you to quit the character set and edit another one.

**HOME**. Homes the editing cursor to the top of the characterediting window.

Cursor keys. Allow you to move the character-selecting cursor.

**Joystick** (in port 2). Allows you to move the editing cursor.

Joystick fire button. Sets or clears pixels in the editing window.

Y. Scrolls up in the cursor's column.

G. Scrolls left in the cursor's column.

H. Scrolls right in the cursor's column.

**B**. Scrolls down in the cursor's column.

8. Scrolls the whole character up.

4. Scrolls the whole character left.

6. Scrolls the whole character right.

2. Scrolls the whole character down. Scrolling affects the entire column or row. The number of rows it affects will always be either 8 or 16.

D. Displays the disk directory. S. Saves the character set. Note that the character set is saved with a starting address of 8192 and an ending address of 12288. You can merge character sets after they have been saved by using EXCEL.UTL, Program 5.

L. Loads a saved character set. The loaded character set must have been created and saved from Excelfont in order for it to load correctly. When you load a character set, the one that was in memory will be replaced by the new one, so save the old one if you'll need it later. If you attempt to load a character set created with another character editor, the results are unpredictable.

**@**. Allows you to enter a DOS command through the command channel. See your disk drive manual for more information. It's possible to scratch and rename files, and format, initialize, and validate disks with this option.

W. This command toggles wrapping on the scrolling features.

P. Toggles between whole and part rows. If you're in whole mode, mirroring, reversing, or flipping af-

fects the character up to the row that you entered as the maximum number of displayed character rows (specified when you first ran the program). If you're in part mode, the mirroring, reversing, and flipping only affect the rows from the top of the character to the row that the cursor is on.

#### **Program Notes**

Excelfont's machine language routines do most of the program's work, such as manipulating characters, accessing the 80-column video chip, and moving memory. The BASIC program is essentially a shell. It reads the keyboard, calls the appropriate routines, prints the screen, loads and saves files, and performs screen tricks with the help of the ML program.

You may be interested in the way the program manages to make the screen fade in and fade out. This effect is created by decrementing (to fade out) or incrementing (to fade in) VDC registers 22 and 23. To change a register, use the following command in bank 15:

#### SYS 52684, value, registernumber

Register 22 controls a character's horizontal size. Bits 0–3 control how many horizontal pixels of a character are displayed. This affects all the characters on the screen, so by decrementing this value slowly, you can make the screen fade out. By incrementing the register after you've changed the screen, you create a fade-in effect.

Register 23 controls the character's vertical size. The fading effect that you want determines which register to change. If you want characters to slowly disappear by losing columns, use register 22. If you want them to fade in or out vertically, use register 23.

The curtain effects are created by incrementing or decrementing register 34 or 35. Register 34 controls the left-most blanked column; register 35, the right-most blanked column. The left-most visible column on many monitors is 0, and the right-most column is 96. You may have noticed that there are three different curtain effects you can create. A curtain can move from the left side of the screen to the right, or vice versa; or a curtain can come in from both sides to meet in the center. You don't have to use a curtain effect; you can blank out the screen while you're setting up another one so that it will pop into view. Note that when you blank a screen or column, it turns black because the electron gun in your monitor is turned off.

#### Installing a Character Set

To use a character set in your program, you need Programs 5 and 6, EXCEL.UTL and EXCEL.OBJ2, respectively.

If you plan to use just one character set, decide which one-that is, either uppercase/graphics or lowercase/uppercase. If you want the leftover character set to be the default ROM character set, boot up Excelfont and select which ROM character set you want to use and save it to disk. Then follow the instructions below as if you were using two character sets. If you want to use only one, saving disk space and loading time, have your program allocate graphics memory, because that's where the character set will be temporarily stored. Then BLOAD the character set into memory at address 8192. After this, BLOAD Program 6 into memory and SYS 3072. Your character set is installed. You can automate this process by adding the following line to the beginning of your program:

#### 10 BLOAD"EXCEL.OBJ2":GRAPHICS 1,1:BLOAD "YOUR CHARACTER SET FILENAME":SYS 3072: GRAPHICS CLR

If you plan to use two character sets, merge them with Program 5; then use the BASIC line above at the beginning of your program to install the character set. Please note, if you reset the computer, or press RUN/STOP-RESTORE, the character set will be erased. If you want the default ROM character set back, just SYS 65378, but be sure that you're in BANK 15.

Excelfont allows you to utilize as many as 15 rows for each character set. To use these large characters in your program, incorporate the following line in your program:

100 WR = 52684:BANK 15:FAST:SYS WR,15,4:SYS WR,6,5:SYS WR,12,6: SYS WR,15,7:SYS WR,15,9:SYS WR,16,23:WINDOW 0,0,79,12

See program listings on page 72.

Cwww.commodore.ca

# **Eight Thousand Dragons**

#### Paul Carlson

Fractal graphics invade your home with this short but stunning graphics program. "Eight Thousand Dragons" is the fastest fractal program you can find for your Commodore 64.

In the last few years, the word *fractal* has nearly become a household word with personal computer users. A fractal is a curve or surface which has a fractional dimension. While fractals are very important to mathematicians, most people appreciate fractals because of the spectacular graphic effects they make possible. For instance, the *Star Trek II* "Genesis" sequence was fractal-generated.

"Eight Thousand Dragons" lets you view fractal "dragons," one by one, on your 64's hi-res screen. More than eight thousand dragons are possible.

#### Typing It In

Eight Thousand Dragons is a very short program—just over 400 bytes, in fact. Since it's written in machine language, type it in with "MLX," the machine language entry program found elsewhere in this issue. When MLX asks you for a starting and ending address, respond with the values indicated:

Starting address: 0801 Ending address: 0998

Enter the data for Eight Thousand Dragons. When you've finished, be sure to save a copy to tape or disk.

Although Eight Thousand Dragons is written entirely in machine language for speed (each dragon is drawn in less than 10 seconds), the program loads and runs







Three examples of the beautiful fractals that are automatically created by "Eight Thousand Dragons."

just like a BASIC program. To start the program, type LOAD "DRAG-ONS",8 (for disk) or LOAD"DRAG-ONS",1 (for tape). Use the filename you specified when you saved the program from within MLX. After the program has loaded, type RUN.

The first fractal you'll see is the classic fractal dragon. Press a key to see the next dragon. After the first, the parameters for the dragons are generated randomly, and more than eight thousand different screens are possible. Press Q at any time to quit.

#### The Fire-Breathing Engine

To achieve the speed of Eight Thousand Dragons, I used a technique I call *incremental bitmap addressing*. The complete calculation for the bitmap address is done only for the first point plotted. For successive plots, only the change in bitmap address is computed. This is a fast and easy calculation with dragon curves because each point is immediately adjacent to the previous one.

The program is also self-modifying, which means that it changes itself as it runs.

As listed, the program plots orange dragons on a black background. If you'd like different colors, load the program, then type the following lines:

POKE 2442,background color number POKE 2443,foreground color number RUN

The color numbers correspond to those listed in the user's guide that came with your 64.

See program listing on page 72.

#### My Dear Aunt Sally



#### Larry Cotton

Over the last couple of months we've written a four-function math program to see how RND works. In the process, I hope you've also discovered more about the BASIC language itself.

In order to concentrate on RND, I deliberately glossed over the math programming. This month, we'll take a closer look at computer math.

#### The Old Days

In the mid-seventies, I bought an exciting machine—a calculator the size of two videocassettes which could instantly do calculations that machines a year earlier had taken several noisy minutes to do. It was made by APF (who, incidentally, later made an early personal computer called The Imagination Machine). This \$80 wonder could do only four things—add, subtract, multiply, and divide.

For several years, calculators that did more than that cost as much as a Commodore 64 does now. Things have changed; we now have wonderful computing machines which can do complex mathematical equations in less time than in takes to press and release a key.

All BASIC math operations, simple or complex, can be accomplished in both BASIC modes—immediate and program. In the immediate mode, the computer works just a like a calculator except that we must type the word *PRINT* (or use a question mark) before the expression and press the RETURN key after it. Here's an example:

?4+5

If you type this and press RE-TURN, you'll see the number 9 displayed. This also works with the other three simple math functions:

PRINT 18 - 9 PRINT 3 \* 3 PRINT 18 / 2 The asterisk means multiply and the slash means divide. The answer to all these problems, is, of course, 9. Here are the same problems in program mode:

10 PRINT 4+5 20 PRINT 18-9 30 PRINT 3\*3 40 PRINT 18/2

If you enter this and run it, you'll see four 9's. The computer performs its calculations and prints only the answers—not the problems.

But suppose you did want to see the problems on the screen as well as the answers. The way to do this is simple: Put the problems (along with the equals sign) inside quotation marks. The computer prints whatever's inside quotation marks.

10 PRINT "4 + 5 =" 4+5 20 PRINT "18 - 9 =" 18-9 30 PRINT "3 \* 3 =" 3\*3 40 PRINT "18 / 2 =" 18/2

All of this has been presented before in various ways, so it should look familiar. Another (and probably the most common) way to perform math functions is to use letters (variables) to represent numbers. Again, in the immediate mode:

A=4: B=5: PRINT A+B A=18: B=9: PRINT A-B A=3: B=3: PRINT A\*B A=18: B=2: PRINT A/B

Using variables is a powerful way to do math, but before looking closely at variables, let's try a few more examples which use only numbers.

#### Adding and Subtracting

Math performed with computers is the same math done with calculators, or, for that matter, with pencil and paper. Certain conventions have been adopted which are universal. For instance, in most problems, the math operations are performed from left to right. What would you expect the answer to this problem to be?

#### PRINT 10-5+4

The answer is 9. And 9 also would be the answer if the numbers were rearranged:

#### PRINT 4-5+10

Adding and subtracting are *commutative*, that is, they can be done in any order. Just be sure that the signs stay with the numbers. To illustrate further:

#### PRINT -5+4+10

Again, the answer is 9. The negative sign stays with the 5.

#### Multiplying and Dividing

Multiplication and division are trickier. In problems which contain only these two operations, the computer will again do the math from left to right. Since this is so, these two lines will *not* produce the same answer:

PRINT 12/6\*3 PRINT 6/12\*3

In the first line, the computer first divides the 12 by 6 to get 2, and then it multiplies the 2 by 3 to get 6. In the second line the computer first divides the 6 by 12 (.5) and then multiplies that by 3 to yield 1.5. Division is *not* commutative.

#### My Dear Aunt Sally

When math problems include combinations of adding, subtracting, multiplying, and division, we mustn't forget *My Dear Aunt Sally* a memory aid which uses the first letters of the words in the phrase— *MDAS*—to help you remember to Multiply, Divide, Add, Subtract in that order.

Since the internals of the computer are already preprogrammed to think that way, it's up to the programmer to remember that. Here's a problem which demonstrates how My Dear Aunt Sally goes about her work:

#### PRINT 5+3\*6-2

Before you type this, try to guess what the answer would be. Now type the line in and press RETURN. The answer is 21. Why? My Dear Aunt Sally says that the computer will do multiplication and division (there's no division here) to get 5+18-2 and then addition and subtraction to get 23-2 (and finally 21).

Don't take My Dear Aunt Sally too literally—multiplication does not take precedence over division, nor does addition take precedence over subtraction. But both multiplication and division do take precedence over either addition or subtraction. Consider this example:

#### PRINT 10/5\*3-1+2

In this case, the division is performed first, followed by the multiplication, the subtraction, and finally the addition.

Most computers and calculators do math in this order without your having to worry about it. Notable exceptions are the Hewlett Packard calculators which use the postfix method of computation. Postfix or RPN (Reverse Polish Notation) calculators perform the operations in the order that they are entered. Calculators that use the infix method of computation need a set of rules, such as My Dear Aunt Sally, to determine the order in which to perform the calculations. Calculators that use the My Dear Aunt Sally rules are called algebraic calculators.

#### **Gaining Control**

To cause the computer to preempt My Dear Aunt Sally requires extra effort:

#### PRINT (5+3)\*6-2

When parentheses appear in a problem, My Dear Aunt Sally quietly takes a back seat. Parentheses say "Do this first!" In other words, if 5 and 3 *must* be added together before being multiplied by 6, we must enclose these numbers in parentheses. The answer to the above problem is 46.

#### The Laws of Averages

Now let's look at a practical use for combining math operations—averaging. The average of two or more numbers is calculated by adding the numbers together and then dividing the total by the number of numbers. Let's say we want the average of 4 and 6. Suppose we typed:

#### PRINT 4+6/2

My Dear Aunt Sally will step in and try to multiply and divide first. Finding nothing to multiply, she'll divide the 6 by the 2 to get 3. Then she'll add the 3 to the 4 to get 7. This is definitely *not* the average of 4 and 6. To get the correct answer you must use parentheses:

#### PRINT (4+6)/2

Since parentheses take precedence, the numbers 4 and 6 will be added and their sum divided by 2 (the number of numbers to average) to get a correct average of 5.

To carry this further, let's write a simple program that averages a series of numbers which are typed into the computer. Let's write this program in a logical order and then add the frills.

To gather user data requires the use of INPUT. Let's start with line 100 and write the lower line numbers later:

#### 100 INPUT "FIRST NUMBER";A

Here's where the variables which represent numbers come into play again. Variables consist of one or two letters such as *AB* or *HY*, or a combination of one letter and one digit, such as *A*4 or *T*6. In the line above, *A* is the variable.

When the user types a number at the INPUT prompt and presses RETURN, that number immediately goes into the computer's memory and will from then on (at least in this program) be identified as *A*. We've seen this concept many times before. OK, let's get the next number:

#### 110 INPUT "SECOND NUMBER";B

Experienced BASIC programmers will immediately recognize that this is not the most efficient way to write an averaging program, but since the thrust here is to learn math concepts, we'll continue. The second memory space we've set aside is called *B*. Let's add a couple more lines:

#### 120 INPUT "THIRD NUMBER";C 130 INPUT "FOURTH NUMBER";D

These four user-input numbers which are now identified as *A*, *B*, *C*, and *D*, must be added together and their sum divided by 4. As in our previous example, the letters which now represent numbers must be enclosed in parentheses so they will be added *before* they're divided by 4:

#### 140 PRINT "AVERAGE IS" (A+B+ C+D)/4

That's the core of the program; it's runnable. But let's neaten it up a bit by adding a lower line number to clear the screen and move the cursor down a little:

#### 90 PRINT "{CLR}{3 DOWN}"

When the program is listed, line 90 will automatically place itself in front of the previously written lines, and the program will, of course, run in line-number order.

You may want the lines as printed on the screen to be separated and spaced away from the left border. If so, go back to each line (except the first) and add a cursor down and a space just inside each first quotation mark, such as:

#### 100 INPUT "{DOWN}{SPACE}FIRST NUMBER";A

There is a distinction between your doing math on computers and having computers do the math for you. The latter sounds much more interesting, so let's all begin to think of it this way. Next month, we'll investigate more ways computers can do math for you.

COMPUTE!'s Gazette is looking for utilities, games, applications educational programs, and tutorial articles. If you've created a program that you think other readers might enjoy or find useful, send it, on tape or disk to:

#### Submissions Reviewer COMPUTE! Publications P.O. Box 5406 Greensboro, NC 27403

Please enclose an SASE if you wish to have the materials returned. Articles are reviewed within four weeks of submission.

#### Where To Locate

## machine language programming

Jim Butterfield Contributing Editor

Unlike BASIC programmers, machine language programmers have to worry about where their programs are placed in memory.

In this column, I often put machine language demonstration programs at decimal 8192 (\$2000). This is an excellent place for programs, but since it is so universally used, other items (programs, variables, arrays, or strings) might write over this part of memory.

#### The Cassette Buffer

For quick test programs, the cassette buffer is ideal. A machine language program is unlikely to be disturbed in this area. Memory area \$33C-\$3E8 (decimal 828-1000) is quite safe. The 128 is an exception—the cassette buffer is at \$B00-\$BFF (decimal 2816-3071).

If you assemble (or POKE) a program here, it needs no special handling. If you load a program into this area, you must be careful about pointers. I'll discuss this in more depth later.

#### Free Space on the 128

The Commodore 64 has a block of memory not used by the system at \$C000-\$CFFF (decimal 49152-53247). This whopping 4K area is a favorite place to put machine language programs. Feel free to use it, but watch out for other utility programs which like to nest in the same space.

The Commodore 128 has a lot of free space at low addresses. The \$1300-\$17FF block can also be considered spare. Other chunks can be claimed if you know your system. For example, the RS-232 code uses the \$C00-\$DFF area. If you know that you won't be communicating with an RS-232 device, help yourself. Other areas become available if you don't use sprites, if you have few programmed keys, or if you never use DOS commands such as SCRATCH or DLOAD. If you plan to load a machine language program to any of these areas, check the "Pointers" section of this article.

#### Asking for Memory

One way to get memory is to ask BASIC to give up some of its working space. This workspace holds BASIC code and variables, arrays, and strings. On the 128, it holds code only.

It's best to do this before BASIC starts creating variables; otherwise, you may be asking for space that's already in use. After such an allocation, a CLR (clear) command allows the BASIC program to adjust to its new space.

Usurping memory space from the top of BASIC is the least complicated method. Most machines have a "top of BASIC" pointer. On the 64, this pointer is located at \$37. Move this pointer down (then type CLR) and BASIC will give up the space.

The 128 has a special situation. Since variables, arrays, and strings are kept in Bank 1, you may help yourself to the space above BASIC without worrying about changing pointers. To simplify programming, you'll want your program to stay below \$4000.

Memory space taken from the top of BASIC gives you a fairly permanent area for a program. Even if you load other BASIC programs, you'll keep the space you have taken unless you give it back. Only a complete reset changes everything back to its original state.

Space can be taken from the bottom of the BASIC area, but this is more complex. There are sometimes valid reasons for doing this on the 128, but it's best to avoid if possible.

If you plan to load a machine language program into an allocated area, check "Pointers," below. A nearly ideal way to site a machine language program is to tack it onto the end of a BASIC program. The two parts—BASIC and machine language—can be loaded and saved as a unit—there's no need to worry about pointers.

Here's how to do it: After the ML program is placed somewhere above the end of the BASIC program, move up the pointer that marks the end of BASIC. On most machines, that's the Start-of-Variables pointer (\$2D and \$2E on the 64). On the 128, there's a special End-of-BASIC pointer at \$1210. Once everything is in place and the pointer has been moved, type CLR and then save the program. From this point on, a single load brings in the two parts, BASIC and ML. Once the programs have been united, you must not change the BASIC program.

This system becomes difficult if the start-of-BASIC pointer has been changed. The program will be relocated as it loads (into the wrong place).

#### Pointers

If you load a machine language program using a BASIC direct command, you'll create a minor problem that may crash your system.

The LOAD command changes BASIC pointers around. That's OK when you load a BASIC program; the pointers do the right thing. But it's wrong when you load ML. To correct the problem, type NEW immediately following the LOAD command. If you have a 128, you can type BLOAD instead of LOAD and the pointers will be undisturbed.

If you arrange for a program to load the machine language segment, the pointers will *not* be disturbed. Unless your computer has a BLOAD command, you'll have to learn some new coding tricks to make it all work, but at least you won't need to worry about pointers.

Cwww.commodore.ca

## A Guide to Commodore **User Groups**

Part 2

#### Mickey McLean

This annual GAZETTE feature provides an up-to-date list of user groups across the U.S., throughout Canada, and around the world. Last month, Part 1 listed user groups in states A through M (Alabama-Montana). This month, our list includes user groups in the remaining states (Nebraska-Wyoming) and from outside the U.S. (including APO addresses). Groups are listed in order according to zip code.

If your group does not appear in this list and you wish to be included, send your club name, address, and, if appropriate, your bulletin board service telephone number to:

User Group Update **COMPUTE!** Publications P.O. Box 5406 Greensboro, NC 27403

Your group will then be listed in our monthly "User Group Update" column.

When writing to a user group for information, please remember to include with your request a stamped, self-addressed envelope.

#### NEBRASKA

Pathfinder Commodore User Group, P.O. Box 683, Fremont, NE 68025 Greater Omaha Commodore Users Group, P.O.

- Box 241155, Omaha, NE 68124 Mid-Nebraska Users of Commodore (MUC),
- 1920 N. Huston Ave., Grand Island, NE 68803
- Platte Valley Computer Users Group (PVCUG), 1625 North St., Gering, NE 69341

#### NEVADA

- SOG Commodore User Group, c/o Video Tonite, 1111 N. Nellis, Las Vegas, NV 89110
   Silver State Computer Users Group, P.O. Box 81075, Las Vegas, NV 89180

#### NEW HAMPSHIRE

- Manchester Commodore Users Group, P.O. Box 402, Merrimack, NH 03054
- **Commodore Help And Information Network** (CHAIN Gang), P.O. Box 1155, Laconia, NH 03247
- Commodore Users Group, 53 Page Rd., Bow, NH 03301
- Monadnock Users Group (MUG) for Commodore Owners, 135 Liberty Ln., Keene, NH 03431

#### NEW JERSEY

Data Exchange-Beneficial Users Group 64/128 (DE-BUG 64/128), 213 Burns Way, Fanwood, NJ 07023

- Info-64, P.O. Box BC, Paterson, NJ 07509
- Hillsdale Commodore 64 Users Club, 32 Esplanade Lake Dr., Hillsdale, NJ 07642
- Gold Crown Commodore Club, 517 Center Pl., Teaneck, NJ 07666
- Commodore 64 Beginners Group, 680 Leigh Terrace, Westwood, NJ 07675
- Garden State Commodore User's Group Inc., 89 Stratford Rd., Tinton Falls, NJ 07724
- L & L Commodore 64 User Group, 1 Longstreet Rd., Manalapan, NJ 07726
- Commodore User Group of Central New Jersey, 112 Old Bridge Rd., Matawan, NJ 07747
- South Jersey C-64 Users Group, 507 N. Dudley Ave., Ventnor, NJ 08406
- Bordentown Area Commodore Users Group, P.O. Box 381, Bordentown, NJ 08505
- Commodore Computer Collection Club, 72 Pine Dr., Roosevelt, NJ 08555
- Commodore Users Group of Ocean County, 981 Cedar Grove Rd., Toms River, NJ 08753
- Commodore E. Brunswick Users Group (CE-BUG), 9 Kings Rd., E. Brunswick, NJ 08816
- Somerset Users Group, 49 Marcy St., Somerset, NJ 08873

#### NEW MEXICO

- New Mexico Commodore User's Group, P.O. Box 37127, Albuquerque, NM 87176
- 64-X, 501 Camino Sin Nombre, Santa Fe, NM 87501

Los Alamos Commodore Users Group, 4125-D Sycamore Dr., Los Alamos, NM 87544

- Taos Area Commodore User's Group, P.O. Box 5089, Taos, NM 87571
- The Southern New Mexico Commodore User's Group, P.O. Box 4437, Uni. Park Brch., Las Cruces, NM 88003

#### NEW YORK

- Kids Computer News, 2714 University Ave., #1B, Kingsbridge Heights, NY 10468-3424
- Bronx Users Group (BUG-64), P.O. Box 523, Bronx, NY 10475 Folklife Terminal Club, Box 555-R, Co-op City
- Station, Bronx, NY 10475 For Your Computer Only, 35 Belleview Ave.,
- Ossining, NY 10562 St. Francis College Microcomputer Users'
- Group, Microcomputer Center, 180 Remsen St., Brooklyn, NY 11201
- The Computer Freaks, 84 Sterling Pl., Brooklyn, NY 11217
- Brooklyn Commodore User's Group, 1735 E. 13th St., Apt.7N, Brooklyn, NY 11229-1950 Commodore Users Group of Greater New York, 190-25 Woodhull Ave., Hollis, NY 11423

- Commodore Long Island Club, Inc., 2949 Roxbury Rd., Oceanside, NY 11572
- Elite Commodore Users Group, 151 DuBois Ave., Sea Cliff, NY 11579
- Brentwood 64/128 Computer Club, Pub. Lib., 2nd Ave. & 4th St., Brentwood, NY 11717
- MI-Comm User Group, 26 Azalea Rd., Levittown, NY 11756
- Amiga-64 User Group, P.O. Box 280, Lindenhurst, NY 11757
- Club 64, 174 Maple Ave., Patchogue, NY 11772
- LIVICS Commodore Users Group, 15 Hastings Dr., Stony Brook, NY 11790
- Ridge C-64 Users Group, 94 Ridge Rd., Ridge, NY 11961
- Mohawk Valley Computer User Group, R.D. #2, Box 177, Johnstown, NY 12095
- Tri City Commodore User's Group (TCCUG), P.O. Box 12742, Albany, NY 12212-2742
- Hudson Valley Commodore Club, P.O. Box 2190, Kingston, NY 12401
- Orange County Commodore Users Group (OC-CUG), 7 Cottage Ave., Newburgh, NY 12550
- Commodore 64 User Group of Orange County, 74 Cardinal Dr., Poughkeepsie, NY 12601 Frontier Computer Users, R.F.D. #1, Box 352A, Chazy, NY 12921 (BBS# 518-846-8803)
- Malone Commodore User Group (MALCUG), 27 Bentley Ave., Malone, NY 12953 (BBS# 518-483-1035)

- Morrisonville Commodore Users Group, 61 E. Main St., Morrisonville, NY 12962
- Oswego Commodore User Group, 424 Mahar Hall, State University College, Oswego, NY 13126
- Central New York Commodore Users Group (CNYCUG), 6887 Peck Rd., Syracuse, NY 13209
- The Commodore Computer Club of Syracuse, P.O. Box 2232, Syracuse, NY 13220
- Utica Commodore User Group, 1801 Storrs Ave., Utica, NY 13501
- Commodore Users Group of Massena (COMA), 7 Water St., Massena, NY 13662 Leatherstocking Computer User's Club, P.O. Box
- 1284, Oneonta, NY 13820 Triple Cities Commodore Society, 1713 Castle
- Gardens Rd., Vestal, NY 13850 Commodore Buffalo User Group (COMBUG),
- P.O. Box 1005, Tonawanda, NY 14151-1005 The Rainbow International C-64 Users' Group, 3
- Expressway Village, Niagara Falls, NY 1430-The Niagara Falls Commodore Club, 2405 Wil-
- low Ave., Niagara Falls, NY 14305 The Lost Boys (TLB), 20 Mountain Rise, Fairport,
- NY 14450 Geneva Commodore Users Group, 84 Pleasant
- St., Geneva, NY 14456 Commodore Users Group of Rochester (CU-
- GOR), P.O. Box 23463, Rochester, NY 14692 Finger Lakes Area Komputer Experts (FLAKES),
- 86 West Lake Rd., Hammondsport, NY 14840 NORTH CAROLINA

- Foothills User Group, 1012 Jesse Tr., Mount Airy, NC 27030
- Sanlee Commodore Club, 5822 Blue Jay Dr., Sanford, NC 27330
- Triad Commodore Users Group, P.O. Box 10833, Greensboro, NC 27404 (BBS# 919-288-0372) Carolina Commodore Computer Club, P.O. Box
- 2664, Raleigh, NC 27602-2664 Lincolnton Commodore Users Group, Rt. 3, Box
- 351, Lincolnton, NC 28092 Salisbury Compute, Rt. 1, Box 349B, Salisbury,
- NC 28144
- Cleveland/Gaston Commodore User's Group (CGCUG), 2048 McBrayer Springs Rd., Shelby, NC 28150
- Wilmington Commodore Users Group, 2104 Wisteria Dr., Wilmington, NC 28401
- Down East Commodore Users Group, P.O. Box 1255, Havelock, NC 28532
- Greater Onslow Commodore User Group, P.O. Box 7171, 910 Winchester Rd., Jacksonville, NC 28540
- Unifour Commodore Users Group, P.O. Box 9324, Hickory, NC 28603-9324
- Asheville-Buncombe User Group (A-BUG), P.O. Box 15578, Asheville, NC 28813

#### NORTH DAKOTA

Central Dakota Commodore Club, P.O. Box 1584, Bismarck, ND 58502-1584

#### OHIO

- The Commodore User Group, Inc. (TCUG), P.O. Box 63, Brice, OH 43109
- Central Ohio Commodore Users Group, P.O. Box 28229, Columbus, OH 43228-0229
- Marion Ohio Commodore User Group (MO-CUG), 775 Wolfinger Rd., Marion, OH 43302 South Toledo Commodore Computer Club, P.O.
- Box 6086, Toledo, OH 43614 Commodore Computer Club of Toledo (CCCT),
- P.O. Box 8909, Toledo, OH 43623 Basic Bits Commodore Group, P.O. Box 447, N.
- Ridgeville, OH 44039 Northeast Ohio Commodore User Group, P.O.
- Box 718, Mentor, OH 44061-0015 C128 Network, 321 Kensington, Vermilion, OH
- 44089 **Commodore Preference Users Connection (CPU**
- Connection), P.O. Box 42032, Brook Park, OH 44142
- Cuyahoga Falls Commodore Club, P.O. Box 3025, Cuyahoga Falls, OH 44223
- Akron Area Commodore User Group (AACUG), P.O. Box 685, Akron, OH 44309
- TRUMCUG, P.O. Box 8632, Warren, OH 44484 C-128/64 Amateur Computer Club, P.O. Box 1180, Youngstown, OH 44501
- Commodore Users Group, 29425 Bettler Rd., Box 175, Dennison, OH 44621
- COMPUTE!'s Gazette June 1988 64

- Canton/Akron/Massillon Users Group (CA-MUG), P.O. Box 2423, North Canton, OH 44720 Mid-Ohio Commodore User's Club, R.D. #2, Box
- 10A, Cassell Rd., Butler, OH 44822 Commodore Erie Bay Users Group (CEBUG), P.O. Box 1461, Sandusky, OH 44870
- Cincinnati Commodore Computer Club, Box 450, Owensville, OH 45160
- Southwestern Ohio Commodore Users Group (SWOCUG), P.O. Box 46644, Cincinnati, OH 45246
- Dayton Area Commodore Users Group (DA-CUG), 2040 Turnbull Rd., Dayton, OH 45431

PMUG, P.O. Box 31744, Dayton, OH 45431 Hancock User's Group (HUG), P.O. Box 1651, Findlay OH 45839-1651

#### **OKLAHOMA**

- Commodore User's Group of Lawton, P.O. Box 3392, Lawton, OK 73502
- Commodore Users of Bartlesville, 1704 S. Osage, Bartlesville, OK 74003
- Stillwater Computer Society, 3124 N. Lincoln, Stillwater, OK 74075
- Tulsa Area Commodore Users Group (TACUG), P.O. Box 691842, Tulsa, OK 74169-1842
- Muskogee Commodore Users Group (MCUG), 2429 Georgia, Muskogee, OK 74403

#### OREGON

- Commodore East County (CEC), 2424 S.E. Evans Ave., Troutdale, OR 97060-2328
- United States Commodore Users Group, P.O. Box 2310, Roseburg, OR 97470
- Caveman Commodore Computer Club (CCCC), 5863 Lower River Rd., Grants Pass, OR 97526
- PENNSYLVANIA
- Beaver County Area Commodore User's Group (BCACUG), P.O. Box 412, New Brighton, PA 15066
- A-K 64 User Group, 1762 Fairmont St., New Kensington, PA 15068
- Bettis Commodore Users Group, 592 Arbor Lane, Pittsburgh, PA 15236
- Pittsburgh Commodore Group (PCG), P.O. Box 16126, Green Tree, PA 15242

Westmoreland Computer Users Club (Commodore Section), P.O. Box 3051, Greensburg, PA 15601

- Butler Commodore 64 User Group, P.O. Box 2408, Butler, PA 16001
- Castle Commodore Computer Club, P.O. Box 961, New Castle, PA 16103
- North Coast Commodore Users Group Erie, P.O. Box 6117, Erie, PA 16512-6117
- PCUC, C. Rhoads, Milton Hershey School-Ridgeway, P.O. Box 830, Hershey, PA 17033-0830
- Blue Juniata Commodore Users Group, 18 Ridge Rd., Lewistown, PA 17044
- Huntingdon County Hackers, P.O. Box 132, Mill Creek, PA 17060
- Southern York County Commodore Users Group, 5E Lark Circle, York, PA 17404 White Rose Commodore Users Group, 760 Fire-

side Rd., York, PA 17404

- West Branch Commodore Users Group, P.O. Box 995, Williamsport, PA 17703
- CenPUG for Commodore, R.D. #4, Box 99A,
- Jersey Shore, PA 17740 Susquehanna Valley User Group, P.O. Box 90, Hummels Wharf, PA 17831
- Lehigh Valley Commodore User Group, 2228 Baker Drive, Allentown, PA 18102 Ingersol Rand Computer Users Group (IRCUG),
- R.D. #1, Box 173, Sayre, PA 18840 Lower Bucks Users Group, P.O. Box 397, Croy-
- don, PA 19020-0959
- Environmental Protection Agency (EPA) Commodore Users Group, Edward H. Cohen, 1712 Aidenn Lair Rd., Dresher, PA 19025 (Note: Open to all federal government employees and their families.)
- Horsham Amiga/64, 20-A Lumber Jack Circle, Horsham, PA 19044
- Commodore Users Group, Philadelphia Area Computer Society, P.O. Box 57096, Philadelphia, PA 19111-7096
- Main Line Commodore Users Group (MLCUG), 1046 General Allen Lane, West Chester, PA

- Worldwide Commodore Users Group (International Headquarters), P.O. Box 337, Blue Bell, PA 19422
- Upper Buxmont CBM Users Group, 1206 Cowpath Rd., Hatfield, PA 19440
- Plymouth-Whitemarsh Commodore Users Group, 4029 Woodruff Rd., Lafayette Hill, PA 19444
- Commodore Colony, 303 Old Airport Rd., Douglassville, PA 19518
- Commodore Users of Berks (CUB), 810 Sledge Ave., West Lawn, PA 19609

#### **RHODE ISLAND** No listings

#### SOUTH CAROLINA

Commodore Computer Club of Columbia, P.O. Box 5691, Columbia, SC 29250

BIBS, S.P.O. S89, Charleston, SC 29424

#### SOUTH DAKOTA

- Aberdeen Commodore Club, 115 Church Dr., Aberdeen, SD 57401
- Port 64, P.O. Box 1191, Rapid City, SD 57709 (BBS# 605-348-9443)

#### TENNESSEE

Springs, TN 37330

Pittsburg, TN 37380-1313

8642)

38115

TEXAS

75069

75083

2484)

TX 78130

UTAH

CHIP, 4952, Shihmen Dr., Antioch, TN 37013 Commodore Association of the Southeast

(CASE), P.O. Box 2745, Clarksville, TN 37042-

Nashville Commodore User Group, P.O. Box

Commodore Computer Club, P.O. Box 96, Estill

Howard S. Bacon, KC4CIQ, 213 Holly Ave., South

Memphis-East Commodore Organization

Commodore PC-10/MS-DOS Users Group, 3318

Raleigh-Bartlett Hackers CUG, James Patrick, 3457 Gatewood Dr., Memphis, TN 38134

Memphis Commodore Users Club, P.O. Box

Old Hickory Commodore Users Group, 542 Lam-buth Blvd., Jackson, TN 38301

PD Users of Texas, 135 Maytrail, McKinney, TX

Society of Computer Owners and PET Enthusi-

128 Users of Dallas/Ft. Worth, P.O. Box 28277, Dallas, TX 75228-0277 (BBS# 214-328-7261)

Longview Computer Users Group, P.O. Box

Mid-Cities Commodore Club, P.O. Box 1578,

Commodore Languages and Operations Group

(C/LOG), Rt. 1, Box 158, Groesbeck, TX 76642

gomery Park Blvd., No. 616, Conroe, TX 77304

East Texas Commodore User Group, 2200 Mont-

Commodore Houston User Group (CHUG), P.O. Box 612, Tomball, TX 77375 (BBS# 713-470-

The Willis Commodore Users Group, 8 Forest

Tri-County Commodore Users Association (T-

Commodore Users of San Antonio, P.O. Box

Commodore User Group of Austin, P.O. Box 49138, Austin, TX 78765

Top of Texas Commodore (TOTCOM), Box 2851,

Commodore Users of Texas (CUT), 7007 Mem-

Cache Valley Commodore Users Group, 315 W.

Moab Commodore User's Group, 860 S. Antiquity

Payson Area Commodore Users Group (PAC),

Southern Utah Commodore Hobbyists, 528 N.

C www.commodore.ca

CCUA), 557 Lakeview Circle, New Braunfels,

asts (SCOPE), P.O. Box 3095, Richardson, TX

Keystone Ave., Memphis, TN 38128

34095, Bartlett, TN 38134-0095

9284, Longview, TX 75608

Bedford, TX 76095

Trails, Willis, TX 77378

Pampa, TX 79066-2851

phis Ave., Lubbock, TX 79413

400 S., Smithfield, UT 84335

P.O. Box 525, Salem, UT 84653

Blue Sky Dr., Cedar City, UT 84720

Ln., Moab, UT 84532

380732, San Antonio, TX 78280

(MECO), 6870 Sauterne Cove, Memphis, TN

121282, Nashville, TN 37212 (BBS# 615-833-

#### VERMONT

Champlain Valley Commodore Users Group, 6 Mayfair St., South Burlington, VT 05403

#### VIRGINIA

Arlington Victims Commodore Computer Club, 9206 Annhurst St., Fairfax, VA 22031

- Capitol Area Commodore Enthusiasts (CACE). 607 Abbotts Lane, Falls Church, VA 22046 Washington Area Commodore User Group, P.O.
- Box 684, Springfield, VA 22150-0684 Dale City Commodore Users Group, Inc., P.O.
- Box 2265, Dale City, VA 22193-0265
- Fredericksburg Commodore Club, P.O. Box 8438, Fredericksburg, VA 22404-8438 Shenandoah Valley Commodore Users Group,
- Mountain Falls Rte., Box 77FF, Winchester, VA 22601
- The Richmond Area Commodore Enthusiasts (TRACE), 2920 Pinehurst Rd., Richmond, VA 23228
- South Richmond Commodore User Group, 11101 Cranbeck Ct., Richmond, VA 23235
- Peninsula Commodore Users Group, P.O. Box L, Hampton, VA 23666
- Portsmouth Commodore Users Group (PCUG), P.O. Box 6561, Portsmouth, VA 23703
- Southside Virginia Commodore Users Group, 315 Lakeview Ave., Colonial Heights, VA 23834
- Commodore Users of Franklin, 1201 N. High St., Franklin, VA 23851
- Henry County Commodore Computer Club, Rt. 9, Box 61, Martinsville, VA 24112
- Lynchburg User Group, Rt. 2, Box 180, Lynchburg, VA 24501

#### WASHINGTON

- 64 E/T, 127-182 Pl. SW, Bothell, WA 98012 The Covington Commodore Connection, 26243
- 172 SE, Kent, WA 98042
- NW Commodore User Group, 2565 Dexter N, #203, Seattle, WA 98109
- PSACE, 1313 5th Ave. W, Seattle, WA 98119-3410 UW Commodore User Group, P.O. Box 75029, Seattle, WA 98125
- Arlington Commodore Users' Group, 4416-126th Place NE, Marysville, WA 98270
- Club 64, 6735 Tracyton Blvd. NW, Bremerton, WA 98310
- World Wide User Group, P.O. Box 98682, Tacoma, WA 98498
- Commodore Users of Grays Harbor, 1111 Ford-ney, Aberdeen, WA 98520
- Lewis County Commodore Users Group, 803 Euclid Way, Centralia, WA 98531
- Longview Commodore Users Group, 626 26th Ave., Longview, WA 98632
- North Forty Commodore User Group, 2903 Florida St., Longview, WA 98632
- Tri-City Commodore Computer Club (TC CUBED), P.O. Box 224, Richland, WA 99352
- Blue Mountain Commodore Users, 550 S. 2nd Ave., Walla Walla, WA 99362-3149

#### WEST VIRGINIA

Bluefield User Group 20/64 (BUG), P.O. Box 1190, Bluefield, WV 24701

- Kanawha Valley Commodore Computer Club, P.O. Box 252, Dunbar, WV 25064
- Commodore Home User's Group (CHUG), 81 Lynwood Ave., Wheeling, WV 26003
- Mid-Ohio Valley Commodore Club, Inc. (MOVCC), P.O. Box 2222, Parkersburg, WV 26101-2222
- Northern West Virginia C-64 Club, 228 Grand St., Morgantown, WV 26505

#### WISCONSIN

- Wisconsin Association of Vic/Commodore Enthusiasts (WAVE), 840 Park Manor Ct., Cedarburg, WI 53012
- Lakeshore Commodore Computer Club, 1738 N. 27th Pl., Sheboygan, WI 53081 Commodore Hobbyists Involved In Personal
- Systems (CHIPS), P.O. Box 1006, West Bend, WI 53095
- 715 Commodore Users Group, 1052 S. Fork Dr., River Falls, WI 54022
- Kewaunee & Brown County Computer Club (KB Triple C), E4125 Krok, Kewaunee, WI 54216
- COMM-BAY64, P.O. Box 1152, Green Bay, WI 54305

- Price County Computer User Group, Rt. 2, Box 532, Phillips, WI 54555
- Western Wisconsin La Crosse Area Commodore Users Group, 1545 Loomis St., La Crosse, WI 54603
- Menomonie Area Commodore Users Group, 510 12th St., Menomonie, WI 54701
- Eau Claire Area CBM 64 User Group, 1527 W. Mead St., Eau Claire, WI 54703
- Fond du Lac Area Commodore Users Club, P.O. Box 1432, Fond du Lac, WI 54936-1432

WYOMING

Cheyenne Association of Computer Enthusiasts (CACE), P.O. Box 1733, Cheyenne, WY 82003 Outside the U.S.

#### APO

- Commodore Computer Users Group Heidelberg, Robert H. Jacquot, P.O. Box 232, Gen. Del., APO NY 09102, Tel. 06223-5614 (West Germany)
- Stuttgart Local Users Group, c/o Don Rimestad, HHC VII Corps, Box 228, APO NY 09107-0007 (West Germany)
- Commodore Base User's Group (C-BUG), Attn: Computer Club Recreation Center/SSRR, RAF Chicksands, APO NY 09193 (Shefford Beds., England SG17 5PZ)
- U.S. Naval Station Guantanamo Bay Cuba Com-puter Users Group, 0SC Mark Merkling, FTG Box 605, FPO New York, NY 09593

#### AUSTRALIA

- Commodore Computer Users Group (QLD) Inc., P.O. Box 274, Springwood Qld. 4127, Brisbane, Australia
- Commodore Computer Users Group (Townsville), 9 Bryant St., Cranbrook, Townsville 4814, Old., Australia
- Commodore User Group (ACT), P.O. Box 599, Belconnen, ACT, Australia 2616
- Hedland Commodore Computer Group, David Warren, P.O. Box 2551, South Hedland 6722, Western Australia
- Melbourne Commodore Computer Club Inc., P.O. Box 177, Box Hill, Victoria 3128, Australia
- South Australian Commodore Computer Users Group, P.O. Box 427, North Adelaide, SA 5006, Australia

#### BELGIUM

L'Amiral Club C=64 & Amiga, c/o Alain Trinteler, P.O. Box 41, B-1090, Brussels, Belgium

#### BRAZIL

- Brasilian General Computers by Piagesoft, Flavio Joao Piagentini, Rua Heitor de Moraes 856-Pacaembu, Sao Paulo-SP-Cep01237-Brasil
- Commodore Grupos de Usuarios, Carlos A. Silva, Rua Gen. Roca 176, Apt. 501, 20521 Rio de Janeiro RI, Brasil
- Commodore Users Group Porto Alegre, Ferreira de Abreu 91/3, 90040 Porto Alegre RS, Brasil Curitiba Commodore Club, R. Ver. Garcia R.
- Velho 33, Apto. 41-Barro Cabral, 80030 Curitiba-PR-Brasil

#### CANADA

#### **British Columbia**

- Castlegar Commodore Computer Club, R.R. 1, Site 37, Comp. 7, Castlegar, British Columbia, Canada V1N 3H7
- Chilliwack Commodore Computer Club, P.O. Box 413, Sardis, British Columbia, Canada V2R 1A7
- Commodore 64 Soft Swap, 4635 210 St., Langley, British Columbia, Canada V3A-2L3
- C64 International Users Group, 1544 West 59th Ave., Vancouver, British Columbia, Canada V6P 172
- Juan de Fuca C64/128 Users' Group, P.O. Box 7188, Depot 4, Victoria, British Columbia, Canada V9B 4Z3
- Port Coquitlam Computer Club, 1752 Renton Way, Port Coquitlam, British Columbia, Canada V38 2R7
- Powell River Commodore User Group (PRCUG), 4858 Fernwood Ave., Powell River, British Columbia, Canada V8A 3L8
- Prince George Commodore User's Association (PGCUA), 1491-17th Ave., Prince George, B.C. Canada V2L 3Z2

Universal Commodore Users Group, 1518 Myrtle, Victoria, British Columbia, Canada V8R 228

#### Manitoba

Commodore Concepts Users Group (CCUG), Box 783, Steinbach, Manitoba, Canada ROA 2A0

#### New Brunswick

- The FORCE, P.O. Box 2203 MPO, Saint John, New Brunswick, Canada E2L 3V1
- Moncton Users Group, Box 2984, STN A, Monc-ton, New Brunswick, Canada E1C 8T8

#### Ontario

- Barrie User Group, P.O. Box 22224, Barrie, Ontario, Canada L4M 5R3
- Brampton User's Group (BUG), P.O. Box 384, Brampton, Ontario, Canada L6V 2L3 Hamilton Commodore Users' Group, 201 Millen
- Rd., Stoney Creek, Ontario, Canada L8E 2G6 Midland Commodore Users Group, c/o W. E. McKibbon, R.R. #3, Penetang, Ontario, Canada
- LOK 1PO Ottawa Home Computing Club, P.O. Box 4164, Station C, Ottawa, Ontario, Canada K1Y 4P3
- Sarnia Commodore User Group, 1276 Giffel Rd., Sarnia, Ontario, Canada N7S 3K7
- The Sault Commodore Computer Club, 7 Chaumier Pl., Sault Ste. Marie, Ontario, Canada P6A 6P3
- 3-D Commodore 64 User Group, c/o Jonathan St. Clair, 10 Queen St., Branchton, Ontario, Canada N0B 1L0
- Ultima 64 Computer Club, c/o Centre des Jeunes, 20 Ste.-Anne St., Sudbury, Ontario, Canada P3C 5N4

#### Quebec

Yukon

COLOMBIA

South America

DENMARK

can Republic

ENGLAND

NG8 4HW

FINLAND

INDIA

ITALY

Rome, Italy

00101 Helsinki, Finland

lore 560 010, India

COSTA RICA

- CICN Commodore Group, P.O. Box 564, Sept-Iles, P. Quebec, Canada G4R 4X7
- Club Commodore Champlain, P.O. Box 522, Boucherville, Quebec, Canada J4B 6Y2
- C-64 Users Group of Canada, Snowdon, P.O. Box 1205, Montreal, Quebec, Canada H3X 3Y3 (BBS# 514-739-3446)
- L'Association de Micro Informatique de l'Estrie (L'AMIE), P.O. Box 1627, Sherbrooke, Quebec, Canada J1H 5M4

64s North of 60, P.O. Box 5438, Whitehorse, Yukon, Canada YIA 5H4

Club Commodore Colombia, c/o Jorge Bonilla,

ComSoft Commodore User Group, D.F. Carde-

Club Commodore de Tibas, Marvin Vega, P.O.

MIDTJYDSK Computer Klub (M.C.K.), Jegstrup-

RD-C-64 Users Group, David Braverman, Centro

**Rolls Royce International Computer Users** 

Commodore Micro Amateurs, P.O. Box 852, SF-

User's Club of PTT, c/o Matti Pohtola, Teletutki-

Commodore Users Group, c/o S. Ram Gopal, 1 B,

Commodore 64 Computer Users Group of Rome,

c/o Pluchinotta Via di S. Agnese 22, 00198

C-www.commodore.ca

19th D Main Rd., Rajajinagar First Block, Banga-

katu 2 F, 00210 Helsinki 21, Finland

muslaitoksen, Mikrotietokonekerho, Kiviaidan-

Group, Tom Lomax, 17 Greystoke Drive, Bilbor-ough, Nottingham, Nottinghamshire, England

Ed. de Bonao, Ave. Jose Marti, Bonao, Domini-

Box 516, Tibas, San Jose, Costa Rica

vej 86, 8800 Viborg, Denmark

DOMINICAN REPUBLIC

36621, Bogota, Colombia, South America

Avenida Caracas No. 52-79 Of. 401, P.O. Box

nas, Apartado Aereo 9872, Cali, Colombia,

Software Computer Club, Box N-39, 13060 Valdengo (VC) Italy

JAPAN

Commodore Fan Club, Koji Sugimura, 2-1-10-1107 Higashi-Taishi Yao Osaka, Japan 581

#### MALAYSIA

Commodore Users Exchange (CUE), No. 1 Jalan SS 18/2B, 47500 Subang Jaya, Selangor, Malaysia MEXICO

Bose Commodore Users Group, Lic. Oscar E. Saenz Salinas, Av. Francisco I. Madero con, Oriente 3 #1001, Cd. Rio Bravo, Tam., Mexico

- Club Commodore de Juarez, Calle del Manantial #1448, Ciudad Juarez, Chihuahua, Mexico 32500
- Club Commodore del Sureste, Carlos M. Diaz Escoffie, Col. G. Gineres 25 X 14 192 A, 97070 Merida Yucatan, Mexico
- Club Herra\*Tec C64, Alain Bojmal, Vicente Suarez 25, 06100 Mexico, D.F.
- Commodore Users of Puerto Vallarta, APDO 86 CP 48300, Puerto Vallarta, Jalisco, Mexico Golden Chips Users Group, Ibsen 67 #2, Mexico
- D.F., Mexico 11560
- Grupo Commodore del Suereste, Barcazas #115, Fracc: Jose Colomo, 86100 Villahermosa, Tabasco, Mexico

#### THE NETHERLANDS

Comiac-Software User Group, Jarrod Bernadina, Kortenaerstraat 12, 2712 KJ Zietermeer, The Netherlands

#### NETHERLANDS ANTILLES

Commodore 64 User Group, Ludwin Statie, Cara-casbaaiweg #94, Curacao, Netherlands Antilles NEW ZEALAND

Hokitika Commodore Computer Users Group, 185 Sewell St., Hokitika, New Zealand N.Z. Commodore User's Group (Wellington) Inc., P.O. Box 2828, Wellington, New Zealand

#### PAKISTAN

Computer Users of Pakistan, 882/14, Federal B' Area, Karachi-38, Pakistan

#### PUERTO RICO

East Commodore User's Club, c/o Nelson Jimenez Marquez, Jardines Judelly Edif. 4, Apt. 36, Las Piedras, Puerto Rico

#### SAUDI ARABIA

Commodore League of Riyadh (CLR), P.O. Box 16216, Riyadh 11464, Saudi Arabia

#### **REPUBLIC OF SINGAPORE**

The Commodore User Club, Bedok Central P.O. Box 693, Singapore 9146, Republic of Singapore

#### SPAIN

Costa Blanca Computer Club, c/o Ed Kelly, Montebello 25, La Nucia-Alicante, Spain 03530

#### SWEDEN

Commodore-Klubben, Lars Persson, Box 18158, 200 32 Malmo, Sweden Computer Club Sweden, Hans Engstrom, P.O.

Box 7040, S-103 86 Stockholm, Sweden

#### SWITZERLAND

Computer Anwender Club, Postfach 29, 8042 Zurich, Switzerland

#### WEST GERMANY

International Commodore Owners Network (ICON), 55 Westfallen Strasse, Apt. 2, 6200 Wiesbaden, West Germany

#### WEST INDIES

Commodore Computer Club, Jim Lynch, P.O. Box 318, St. Johns, Antigua, West Indies (G)

# Jericho

#### Robert Bixby

"Jericho" adds a new twist to the venerable line of breakout games. There are no walls here-you have to keep the ball on the screen no matter which way it bounces. For the 64. Joystick required.

Bad news! Jericho, the super moth, has broken into your competitor's kilt factory. You've got to pitch in and help. But you know there's only one thing to do-keep that moth in the warehouse until he's eaten every scrap of cloth.

"Jericho" is a variation of the popular breakout-style game, where you try to keep a ball bouncing inbounds until all the bricks on the screen are gone. In Jericho, the ball is a moth, and the bricks are colorful pieces of cloth.

#### Getting Started

Jericho is written in machine language. Type it in with "MLX," the machine language entry program found elsewhere in this issue. When MLX prompts you for starting and ending addresses, respond with the following values:

Starting address: 0801 Ending address: 0E78

Enter the data for Jericho. Be sure to save a copy to tape or disk before exiting MLX.

When you're ready to play Jericho, load and run the program. Although Jericho is written in machine language, it can be loaded, saved, and run like a BASIC program.

#### First Game

Plug a joystick into port 2. When you type RUN, you'll see the game's demo mode, which is very much like the game itself. In the center of the screen is the cloth that is used to make the kilts. Jericho the moth flaps around, soaring from place to place, until he bumps into cloth. He then eats a section and moves on.



Try to make the moth eat as much of the colorful kilt as possible in this clever takeoff on the classic Breakout game.

Since moths are so flighty, Jericho is as likely to fly right out the window as he is to stay in the building. In the demo mode, all four edges of the screen are walled off. This keeps Jericho in.

Press the fire button to begin the game. The walls disappear. You now have control of two large paddles. These paddles can be moved around all sides of the screen. Use them to bounce Jericho back into the kilt factory whenever he strays.

Joystick control is easy. Press the stick forward to move the paddles clockwise and pull back to move them counterclockwise.

Sooner or later, no matter how careful you are, Jericho will slip away. Press the fire button to bring him back. This can be done ten times. When Jericho escapes for the final time, press RETURN to begin a new game.

Your current score and number of lives are displayed in the upper left corner of the screen.

See program listing on page 78.

🕻 www.commodore.ca

# **3-D Bar Grapher** for the 128

#### Jon Atkinson

Transform ordinary numbers into bold, multicolored threedimensional graphs with this useful application for the 128. You can keep track of your expenses, earnings, or just about anything else you might imagine. A color monitor is suggested.

Before the computer age, plotting graphs was a time-consuming chore that had to be done by hand. With "3-D Bar Grapher," however, graphing spreadsheets is fun and easy. Using multicolor and 3dimensional charts, 3-D Grapher enables you to see where your money is going, to gauge how your investments are doing, to plot as many as 20 years of statistics incorporating as many as 20 different items, and much more. You can save graphs to disk, or by using a printer and a screen dump program (such as The Print Shop by Brøderbund), you can make a printout.

#### **Getting Started**

Since 3-D Bar Grapher is written entirely in BASIC, simply set your 128 for 40 columns, type the program in, save a copy to disk, and type RUN. 3-D Bar Grapher begins by asking you the first of several questions. Pressing RETURN at a prompt enters the default response. This is useful if you're trying the program for the first time, or if you're not sure what to enter. The first two prompts involve looking at previously saved graphs. For now, choose N for these prompts. (We'll discuss saving graphs later on.).

Now you begin to input the actual values for your 3-D graph. First, enter the title of the graph. This can be as long as 40 characters and is displayed at the top of your graph. The next prompt asks what you want displayed at the sides of your graph. This is called the *value representation* and is a label for the graph's height or the *z* dimension. Common values are dollars, millions, or number of units sold.

Next, 3-D Bar Grapher asks for the beginning and ending year. The year span must be in the range 0–20. For example, for a graph for this decade, enter 80 for the beginning year and 88 for the ending year. These values are displayed on the x length of the graph. If the same year is chosen for starting and ending values, the computer asks for the beginning and ending month, a number in the range 1–12. The ending month is normally calculated 12 months ahead, but can be changed by entering the number of the ending month (for example, 8 for August). Next you're asked for the number, within the range 1-20, of items to graph. In graphing a home budget, for example, you might have monthly payments on a house or a car, travel expenses, medical bills, entertainment expenses, and miscellaneous, for a total of five items. These values are represented on the y length of the graph.



Just one example of the colorful 3-D graphs you can create with this versatile program.

The next two prompts ask for the graphing range. The minimum and maximum values are 0 and 99,999, respectively. If one million or any other number greater than 99,999 is needed, all you have to do is enter the value as millions or billions and use 0–100 for the graphing range.

#### Impact Colors

Now the three multicolors have to be entered using values in the range 1–15. The defaults are 15—light blue, 4—cyan, and 7—dark blue. To make your graph more pleasing to the eye and to strengthen the 3-D illusion, three shades of a single color are recommended.

**Recommended Color Combinations** 

shade	color 1	color 2	color 3
blue	15	4	7
red	9	11	10
gray	13	16	12
green	14	6	2

🕻 www.commodore.ca

After the colors have been chosen, each value must be entered at a prompt. The total number of values can be calculated by multiplying the number of years or months by the number of items. There are no default values for this part of the program. If you press RETURN without entering any data, the program assumes you've entered a 0. When you've finished with the values, item keys may be entered. These are optional, but they make a more readable and attractive chart. For an expense graph, for example, you might have the following keys' values: ITEM 1 = HOUSE, ITEM 2 = CAR, ITEM 3 = TRAVEL, and ITEM 4 = MEDICAL. You can also place a comment in the key area.

You can have a border drawn around the screen after the graph has been completed by answering yes to the next prompt. The border can give a printout a more polished look. Finally, you're asked if fast mode is to be turned on. Fast mode cuts the drawing time of the graph in half, but the screen will be blanked during the process. It's important to run the program in slow mode until you're sure you've eliminated any typing errors, because you can't see error messages while in fast mode.

#### **Finished Product**

Now the graph will be drawn on a 3-D chart, starting with the ending year or month in the top corner. The starting year or month is located near the bottom of the screen and the ending year or month further up, near mid-screen. The bar's length, width, and height depend on the number of items, the number of years or months, and the value of that particular cell.

After the graph has been completely plotted, press any key to return to text mode. Here you have three options: Save the graph, plot another graph, or exit to BASIC. If you choose Y to save the graph, you're prompted for the filename of the graph. Note that each graph takes a space of 33 blocks on the disk, so be sure to have enough room on a disk before attempting to save anything. After you've saved the graph, you return to the beginning of the program to construct another graph.

#### Loading Graphs

The first prompt in 3-D Bar Grapher loads graphs from disk. After selecting this option, you can display a directory before entering a filename and your color choices. The graph is then displayed until any key is pressed. Unfortunately, you can't add to the data from an old graph. If you have a graph with expenses from January to May, for example, when June comes along, you won't be able to add the June data. The only solution is to reenter all your old data and then the new information.

Each graph resides in memory locations 8192–16383, so hi-res dumps can be made with *The Print Shop*. Load your graph using *get screen* from the Screen Magic section of *The Print Shop*. *See program listing on page 70.* 



## **Square Logix**

See instructions in article on page 30 before typing in.

#### Program 1: SQRS.OP

ØBØØ:AØ									
0000.20	AØ	E6	E6	E6	AØ	AØ	E8	BD	
ØBØ8:AØ	AØ	E8	AØ	E8	AØ	AØ	E8	B1	
ØB10:A0	AØ	E8	E8	AØ	AØ	AØ	E8	FB	
ØB18:AØ		AØ	E8	AØ	AØ	E8	AØ	43	
ØB2Ø:AØ		E8	AØ	E8	E8	E8	AØ	45	
ØB28:AØ	AØ	DC	AØ	AØ	AØ	E6	AØ	52	
ØB30:E6	AØ	DC	AØ	E6	AØ	E6	AØ	AF	
ØB38:E6	AØ	E6	AØ	E6	AØ	E6	AØ	F8	
ØB40:E6	AØ	E6	AØ	E6	AØ	E6	AØ	Ø1	
	AØ	AØ	AØ	DC	AØ	AØ	AØ	63	
ØB50:A0		E6	E6	E6	AØ	DC	AØ	3E	
	AØ	E6	AØ	E6	AØ	E6	E6	5F	
ØB60:E6 ØB68:E6	AØ	E8	E6	DC	AØ	DC	AØ	61	
	AØ	DC	AØ	AØ	AØ	DC	AØ	Al	
	AØ	AØ AØ	AØ	E6 E6	E6 AØ	E6	AØ AØ	7C	
	AØ	EG	AØ AØ	E6	AØ	E6 DC	AØ	4D 2D	
	AØ	E6	AØ	E6	AØ	E6	AØ	49	
	AØ	EG	AØ	EG	AØ	EG	AØ	51	
	AØ	AØ	AØ	AØ	AØ	E6	AØ	5E	
	AØ	E6	E8	E6	AØ	AØ	E6	7C	1
	AØ	E6	E8	E6	AØ	E6	AØ	EE	
	AØ		AØ		AØ	E6	E8	78	
	AØ	E6	E8	DC	AØ	E6	AØ	AD	
ØBCØ:E6	E8	E6	AØ	E6	E8	E6	AØ	B4	
ØBC8:20	20	20	20	20	20	20	20	DE	
ØBDØ:20	20	20	20	20	02	19	20	60	
ØBD8:ØC	Ø5	ØF	ØE	Ø1	12	Ø4	20	71	
ØBEØ:ØD	ØF	12	12	09	13	20	20	99	
-	-	-							
Program	m 2	:: S	QR!	S.SP	R				
ØEØØ:00	00	00	ØØ	00	00	ØØ	00	10	
ØEØ8:00	00	02	ØØ	00	Ø7	00	ØØ	80	
ØE10:ØF	80	ØØ	1F	CØ	ØØ	37	60	9A	
ØE18:00	67	30	00	07	00	00	07	53	
ØE20:00	00	07	ØØ	ØØ	07	ØØ	ØØ	39	
ØE28:07	ØØ	ØØ	07	ØØ	ØØ	Ø7	ØØ	46	
ØE30:00	Ø7	ØØ	ØØ	07	ØØ	00	07	4D	1
ØE38:00	00	00	00	00	00	00	ØØ	E /	1.1
								54	
ØE40:00		ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	5C	
ØE48:00	ØØ	ØØ	00 00	00 00	00 00	00 00	00 00	5C 64	1
ØE48:ØØ ØE50:Ø6	00 00	00 00	00 00 03	00 00 00	00 00 00	00 00 01	00 00 80	5C 64 22	
ØE48:00 ØE50:06 ØE58:00	00 00 00	00 00 00	00 00 03 00	00 00 00 00	00 00 00 60	00 00 01 0F	00 00 80 FF	5C 64 22 2C	
ØE48:00 ØE50:06 ØE58:00 ØE60:FØ	00 00 00 0F	00 00 C0 FF	00 00 03 00 F8	00 00 00 00 0F	00 00 00 60 FF	00 00 01 0F F0	00 00 80 FF 00	5C 64 22 2C A2	
ØE48:00 ØE50:06 ØE58:00 ØE60:FØ ØE68:00	00 00 00 0F 60	00 00 C0 FF 00	00 00 03 00 F8 00	00 00 00 07 07 07	00 00 00 60 FF 00	00 00 01 0F F0 01	00 00 80 FF 00 80	5C 64 22 2C A2 25	1
ØE48:00 ØE50:06 ØE58:00 ØE60:FØ ØE68:00 ØE70:00	00 00 07 07 60 03	00 00 C0 FF 00 00	00 00 03 00 F8 00 00	00 00 00 07 07 06	00 00 60 FF 00 00	00 00 01 0F F0 01 00	00 00 80 FF 00 80 00	5C 64 22 2C A2 25 7D	1
ØE48:00 ØE50:06 ØE58:00 ØE60:F0 ØE68:00 ØE70:00 ØE78:00	00 00 0F 60 03 00	00 00 C0 FF 00 00 00	00 00 03 00 F8 00 00 00	00 00 00 07 07 00 07 00 06 00	00 00 60 FF 00 00	00 01 0F 01 00 00 00	00 80 FF 00 80 00 00	5C 64 22 2C A2 25 7D 94	1
0 E 48:00 0 E 50:06 0 E 58:00 0 E 60:F0 0 E 68:00 0 E 70:00 0 E 78:00 0 E 80:00	00 00 0F 60 03 00 00	00 00 FF 00 00 00 00	00 03 00 F8 00 00 00	00 00 00 07 07 00 06 00 00	00 00 60 FF 00 00 00	00 01 0F 01 00 00 00	00 80 FF 80 80 00 00	5C 64 22 2C A2 25 7D 94 9C	
0 E 48:00 0 E 50:06 0 E 58:00 0 E 60:F0 0 E 68:00 0 E 70:00 0 E 78:00 0 E 80:00 0 E 88:00	00 00 0F 60 03 00 00 00	00 00 C0 FF 00 00 00 00 00 07	00 03 00 F8 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00	00 01 0F F0 01 00 00 00 00	00 80 FF 00 80 00 00 00 00	5C 64 22 2C A2 25 7D 94 9C A1	
0 E 48:00 0 E 50:06 0 E 58:00 0 E 60:F0 0 E 68:00 0 E 70:00 0 E 78:00 0 E 80:00 0 E 88:00 0 E 88:00 0 E 90:07	00 00 0F 60 03 00 00 00 00	00 00 FF 00 00 00 00 00 07 00	00 03 00 F8 00 00 00 00 00 00 07	00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 07 00	00 01 0F 00 00 00 00 00 00	00 80 FF 80 80 00 00 00 00 00 00	5C 64 22 2C A2 25 7D 94 9C A1 AE	
0E48:00 0E50:06 0E58:00 0E68:00 0E70:00 0E78:00 0E88:00 0E88:00 0E88:00 0E98:00 0E98:00	00 00 00 00 00 00 00 00 00 00 00	00 00 FF 00 00 00 00 00 00 00	00 03 00 F8 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 F0 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 07 00	00 80 FF 80 80 00 00 00 00 00 07	5C 64 22 2C A2 25 7D 94 9C A1 AE B5	
0 E 4 8 : 00 0 E 5 8 : 00 0 E 5 8 : 00 0 E 6 8 : 00 0 E 6 8 : 00 0 E 7 8 : 00 0 E 8 8 : 00 0 E 8 8 : 00 0 E 9 0 : 07 0 E 9 8 : 00 0 E 9 0 : 07	00 00 0F 60 03 00 00 00 00 00 07 00	00 00 FF 00 00 00 00 00 00 00	00 03 00 F8 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00	00 80 FF 80 80 00 00 00 00 00 07	5C 64 22 2C A2 25 7D 94 9C A1 AE	
0E48:00 0E50:06 0E58:00 0E68:00 0E70:00 0E78:00 0E88:00 0E88:00 0E88:00 0E98:00 0E98:00	00 00 00 00 00 00 00 00 00 00 00	00 00 FF 00 00 00 00 00 00 00 00 00 00 0	00 03 00 F8 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 F0 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00 00 00 00 00	00 80 FF 80 80 80 80 80 80 80 80 80 80 80 80 80	5C 64 22 2C A2 25 7D 94 9C A1 AE B5 A4	
0E48:00 0E50:06 0E58:00 0E68:00 0E78:00 0E78:00 0E80:00 0E88:00 0E88:00 0E98:00 0E98:00 0E98:00 0E88:00 0E88:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 FF 00 00 00 00 00 47 00	00 03 00 F8 00 00 00 00 00 00 00 00 10 1F	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 F0 00 00 00 00 00 00 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00 00 00 00 00	00 80 FF 00 80 00 00 00 00 00 00 00 00 00 00 00	5C 64 22 2C A2 25 7D 94 9C A1 AE 5 A4 ØF	1
ØE 48:00           ØE 58:00           ØE 58:00           ØE 68:00           ØE 68:00           ØE 78:00           ØE 88:00           ØE 98:00           ØE 98:00           ØE 88:00           ØE 98:00           ØE 88:00           ØE 98:00           ØE 88:00           ØE 88:00           ØE 88:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 FF 00 00 00 00 00 47 00 47 00	00 00 00 F8 00 00 00 00 00 00 00 00 00 10 10 10 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 F0 00 00 00 00 00 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00 00 00 00 00	00 80 FF 80 80 80 80 80 80 80 80 80 80 80 80 80	5C 64 22 2C A2 25 7D 94 9C A1 AE B5 A4 ØF 9E	
ØE 48:00           ØE 58:00           ØE 58:00           ØE 60:00           ØE 68:00           ØE 78:00           ØE 80:00	00 00 07 00 00 00 00 00 00 00 00 00 00 0	00 C0 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 00 03 00 F8 00 00 00 00 00 00 1F 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00 00 00 00 00	00 80 FF 00 80 00 00 00 00 00 00 00 00 00 00 00	5C 64 22 A2 57D 9C A1 B5 A4 9E DC E4	1
ØE 48:00           ØE 50:00           ØE 58:00           ØE 60:00           ØE 68:00           ØE 70:00           ØE 80:00           ØE 00:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 C0 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 F8 00 00 00 00 00 00 00 00 00 10 15 00 00 00 00 00 00 00 00 00 00 00 00 00	88 88 88 88 88 88 88 88 88 88 88 88 88	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00 00 00 00 00	00 80 FF 00 80 00 00 00 00 00 00 80 00 80 00 80 00 0	5C 64 22 2C A2 25 7D 94 9C A1 AE B5 A4 ØF 9E D4 C E4 FD	1
ØE 48:00           ØE 50:06           ØE 58:00           ØE 68:00           ØE 78:00           ØE 78:00           ØE 80:00           ØE 80:00           ØE 80:00           ØE 80:00           ØE 80:00           ØE 80:00           ØE 90:07           ØE 90:07           ØE 90:07           ØE 90:07           ØE 90:00           ØE 90:00           ØE 90:00           ØE 80:00           ØE 00:00           ØE 00:00           ØE 00:00           ØE 00:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 C0 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 F8 00 00 00 00 00 00 00 00 00 10 10 10 00 0	88 88 88 88 88 88 88 88 88 88 88 88 88	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00 00 00 00 00	00 80 FF 00 80 00 00 00 00 00 00 00 00 80 00 80 00 80 00 80 00 80 00 80 00 80 8	5C 64 22 2C A2 25 7D 94 9C A1 B5 A4 ØF 9E D4 DC E4 FD F4	1
ØE 4 8:00           ØE 50:00           ØE 50:00           ØE 60:F0           ØE 60:F0           ØE 70:00           ØE 70:00           ØE 80:00           ØE 90:07           ØE 90:07           ØE 98:00           ØE 80:00           ØE 90:07           ØE 90:00           ØE 90:00           ØE 90:00           ØE 90:00           ØE 90:00           ØE 90:00	00 00 0F 00 00 00 00 00 00 00 00 00 00 0	00 C0 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 00 0F 00 00 00 00 00 00 00 00 00 00 0	00 80 FF 80 80 80 80 80 80 80 80 80 80 80 80 80	5C 64 22 2C A2 25 7D 94 9C A1 B5 A4 ØF 9E D4 DC E4 FD F4 41	1
ØE 48:00           ØE 58:00           ØE 58:00           ØE 60:F0           ØE 68:00           ØE 70:00           ØE 88:00           ØE 98:00           ØE 98:00           ØE 88:00           ØE 98:00           ØE 88:00           ØE 88:00           ØE 88:00           ØE 88:00           ØE 88:00           ØE 80:00	00 00 07 00 00 00 00 00 00 00 00 00 00 0	00 00 CFF 00 00 00 00 00 00 00 00 00 00 00 00 0	00 00 00 F8 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 00 0F 00 00 00 00 00 00 00 00 00 00 0	00 80 FF 80 80 80 80 80 80 80 80 80 80 80 80 80	5C 64 22 2C A2 25 7D 94 9C A1 AE B5 A4 ØF 9E D4 C C 4 4 4 1 6 A	1
ØE 48:00           ØE 58:00           ØE 58:00           ØE 68:00           ØE 78:00           ØE 78:00           ØE 80:00           ØE 78:00           ØE 80:00           ØE 90:00           ØE 80:00           ØE 90:00           ØE 80:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 CFF 00 00 00 00 00 00 00 00 00 00 00 00 0	00 00 00 F8 00 00 00 00 00 00 00 00 00 10 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 00 01 07 00 00 00 00 00 00 00 00 00 00 00 00	00 80 FF 80 80 80 80 80 80 80 80 80 80 80 80 80	5C 64 22 2C A2 25 7D 94 9C A2 95 A4 85 A4 0F 9E D4 C E4 D4 C E4 A3 F	1
ØE 48:00           ØE 58:00           ØE 58:00           ØE 68:00           ØE 68:00           ØE 78:00           ØE 88:00           ØE 88:00           ØE 88:00           ØE 90:07           ØE 98:00           ØE 88:00           ØE 90:07           ØE 98:00           ØE 88:00           ØE 80:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 CFF 00 00 00 00 00 00 00 00 00 00 00 00 0	00 00 00 F8 00 00 00 00 00 00 00 00 10 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00 00 00 00 00	00 80 FF 80 80 80 80 80 80 80 80 80 80 80 80 80	5C 64 22 2C 25 7D 94 9C A1 AE B5 A4 B5 A4 B5 A4 DC E4 FD 41 C 6A 3F 15	1
ØE 48:00         ØE 50:00         ØE 58:00         ØE 68:00         ØE 78:00         ØE 88:00         ØE 98:00         ØE 88:00         ØE 98:00         ØE 88:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 CFF 00 00 00 00 00 00 00 00 00 00 00 00 0	00 00 00 F8 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00 00 00 00 00	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 2C 2C 2C 2C 2C 2C 7D 94 9C A1 85 A4 ØF 9E D4 C 2C 2C 7D 94 9C A2 25 7D 94 9C A2 25 7D 94 9C A2 25 7D 94 9C 4 25 7D 94 9C 26 20 20 20 20 20 20 20 20 20 20 20 20 20	1
ØE 48:00           ØE 50:00           ØE 50:00           ØE 60:F0           ØE 60:F0           ØE 70:00           ØE 70:00           ØE 80:00           ØE 90:07           ØE 98:00           ØE 88:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 F8 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 01 0F 00 00 00 00 00 00 00 00 00 00 00 00	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C	1
ØE 48:00         ØE 58:00         ØE 68:00         ØE 68:00         ØE 70:00         ØE 80:00         ØE 70:00         ØE 80:00         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:00         ØE 90:07         ØE 90:00         ØF 00:00         ØF 00:00         ØF 00:00         ØF 00:00         ØF 00:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 01 07 00 00 00 00 00 00 00 00 00 00 00 00	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C	1
ØE 48:00           ØE 58:00           ØE 58:00           ØE 68:00           ØE 70:00           ØE 70:00           ØE 80:00           ØE 70:00           ØE 80:00           ØE 90:07           ØE 90:00           ØF 90:00           ØF 90:00 <t< td=""><td>00 00 00 00 00 00 00 00 00 00 00 00 00</td><td>00 00 00 00 00 00 00 00 00 00 00 00 00</td><td>00 00 70 00 00 00 00 00 00 00 00 00 00 0</td><td>00 00 00 00 00 00 00 00 00 00 00 00 00</td><td>00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00</td><td>00 00 01 F0 00 00 00 00 00 00 00 00 00 00 00 00</td><td>00 80 80 80 80 80 80 80 80 80 80 80 80 8</td><td>5C 64 22 2C 2C 7D 94 9C 1 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 70 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C</td><td>1</td></t<>	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 70 00 00 00 00 00 00 00 00 00 00 0	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 00 01 F0 00 00 00 00 00 00 00 00 00 00 00 00	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 2C 2C 7D 94 9C 1 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 44 85 70 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C	1
ØE 48:00         ØE 58:00         ØE 68:00         ØE 68:00         ØE 70:00         ØE 80:00         ØE 70:00         ØE 80:00         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:00         ØE 90:07         ØE 90:00         ØF 00:00         ØF 00:00         ØF 00:00         ØF 00:00         ØF 00:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 01 07 00 00 00 00 00 00 00 00 00 00 00 00	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C	1
ØE 48:00         ØE 58:00         ØE 58:00         ØE 68:00         ØE 78:00         ØE 78:00         ØE 80:00         ØF 80:00         ØF 80:00         ØF 40:00         ØF 80:00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 78 00 00 00 00 00 00 00 00 00 00 00 00 00	00000000000000000000000000000000000000	00 00 60 FF 00 00 00 00 00 00 00 00 00 00 00 00	00 00 07 00 00 00 00 00 00 00 00 00 00 0	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 2C 2C 7D 9C 4 9C 4 9C 4 9C 4 9C 4 9C 4 9C 4 9C	1
ØE 48:00         ØE 58:00         ØE 58:00         ØE 68:00         ØE 78:00         ØE 78:00         ØE 88:00         ØE 88:00         ØE 88:00         ØE 88:00         ØE 98:00         ØE 88:00         ØE 98:00         ØE 88:00         ØE 98:00         ØE 98:00         ØF 98:02         ØF 18:80         ØF 20:02	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 7 8 00 00 00 00 00 00 00 00 00 00 00 00 0	000 000 000 000 000 000 000 000 000 00	00 00 60 F0 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 F0 00 00 00 00 00 00 00 00 00 0	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 22 22 25 7D 94 25 7D 94 25 7D 94 25 7D 94 25 7D 94 25 7D 94 25 7D 94 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 26 27 26 26 26 26 26 26 26 26 26 26 26 26 26	1
ØE 48:00         ØE 50:00         ØE 60:F0         ØE 60:F0         ØE 70:00         ØE 80:00         ØE 70:00         ØE 80:00         ØE 80:00         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:00         ØF 00:F8:00         ØF 00:F8:00         ØF 10:00         ØF 10:00         ØF 20:02         ØF 10:00         ØF 20:02         ØF 20:02 <tr< th=""><th>00 00 00 00 00 00 00 00 00 00 00 00 00</th><th>000 CFF000007000700000000000000000000000</th><th>000 000 F80000 0000 0000 0000 0000 0000</th><th>00 00 00 00 00 00 00 00 00 00 00 00 00</th><th>00 00 66 F 00 00 00 00 00 00 00 00 00 00 00 00 0</th><th>00 00 01 F0 00 00 00 00 00 00 00 00 00 00 00 00</th><th>00 80 80 80 80 80 80 80 80 80 80 80 80 8</th><th>5C 64 22 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C</th><th>1</th></tr<>	00 00 00 00 00 00 00 00 00 00 00 00 00	000 CFF000007000700000000000000000000000	000 000 F80000 0000 0000 0000 0000 0000	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 66 F 00 00 00 00 00 00 00 00 00 00 00 00 0	00 00 01 F0 00 00 00 00 00 00 00 00 00 00 00 00	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C	1
ØE 48:00         ØE 58:00         ØE 68:00         ØE 68:00         ØE 70:00         ØE 70:00         ØE 70:00         ØE 80:00         ØE 90:00         ØE 90:00         ØE 90:00         ØE 90:00         ØE 90:00         ØE 80:00         ØE 90:00         ØE 80:00         ØE 90:00         ØF 90:02         ØF 10:00         ØF 20:02         ØF 20:02         ØF 20:02         ØF 20:02         ØF 40:00         ØF 40:00         ØF 40:00         ØF 40:00	00 00 00 00 00 00 00 00 00 00 00 00 00	000 CCFF0000 0007000 4000000 F000 F000 F0000 F0000 F0000 F0000 F0000 F0000 F0000 F0000 F000 F000 F000 F000 F000 F000 F000 F000 F000 F000 F000 F000 F000 F000 F000 F00 F0	000 003 0000 0000 0000 0000 0000 0000	000000F000007000200000F000000F00000F188	00000000000000000000000000000000000000	00 00 01 00 00 00 00 00 00 00 00 00 00 0	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22C 22C 22C 22C 22C 22C 22C 22C 22C 22	1
ØE 48:00         ØE 50:00         ØE 60:F0         ØE 60:F0         ØE 70:00         ØE 80:00         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:00         ØE 91:00         ØE 91:00         ØE 91:00         ØE 91:00         ØE 91:00         ØE 92:00         ØF 00:FF	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 CFF0 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00000000000000000000000000000000000000	00 00 00 6 6 F 00 00 00 00 00 00 00 00 00 00 00 00 0	00 00 01 00 00 00 00 00 00 00 00 00 00 0	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 2A 25 7D 9C 1A E5 A4 9D 2C 2A 25 7D 9C 1A E5 A4 9D 2C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 2A 25 7D 2A 25 7D 2A 25 7D 2A 25 7D 2A 25 7D 2A 20 2 7D 2A 20 2 7D 2A 20 2 7D 2A 20 2 7D 2A 20 2 7D 2 7D 2 7D 2 7D 2 7D 2 7D 2 7D 2	1
ØE 48:00         ØE 58:00         ØE 58:00         ØE 68:00         ØE 70:00         ØE 88:00         ØE 98:00         ØE 98:00         ØE 88:00         ØE 98:00         ØE 88:00         ØE 98:00         ØE 88:00         ØF 88:00         ØF 98:00         ØF 18:80         ØF 38:02         ØF 48:0A         ØF 58:20         ØF 58:20	00000000000000000000000000000000000000	000 CF0000 000 000 000 000 000 000 000 0	000 003 000 000 000 000 000 000 000 000	000000F0000000000000000000000000000000	00 00 00 6 6 F 00 00 00 00 00 00 00 00 00 00 00 00 0	000 01 000 000 000 000 000 000 000 000	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 22 22 22 22 25 70 94 22 22 22 22 22 22 22 22 22 22 22 22 22	1
ØE 48:00         ØE 50:00         ØE 60:F0         ØE 60:F0         ØE 70:00         ØE 80:00         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:07         ØE 90:00         ØE 91:00         ØE 91:00         ØE 91:00         ØE 91:00         ØE 91:00         ØE 92:00         ØF 00:FF	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 CFF0 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00	00000000000000000000000000000000000000	00 00 00 6 6 F 00 00 00 00 00 00 00 00 00 00 00 00 0	00 00 01 00 00 00 00 00 00 00 00 00 00 0	00 80 80 80 80 80 80 80 80 80 80 80 80 8	5C 64 22 2A 25 7D 9C 1A E5 A4 5 A4 5 9D 2C 2A 25 7D 9C 1A E5 A4 5 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 9C 2A 25 7D 24 7D 20 2C 2A 25 7D 24 7D 20 2C 2A 25 7D 24 7D 20 2C 2A 25 7D 24 7D 20 2C 2A 25 7D 24 7D 20 2C 2 7D 24 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2C 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7D 20 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1

		:08 :0A									
		gran									
100	0 1	REN E!	1 CC	PY	RIG	HT ION	s,	8 C INC	0MP	UT A	
B	A 2	PRI RIC	SHT	{C1 198	LR} 88 ( RIN	{ 3 COM TTA	SPA PUT B(1	D CES E! 1)".	PUB		
QC BI		BLC	1 **	SQI	RS.	SPR	",B	Ø,P VA	358 RIB	4 LE	
QI	7 5	=Ø: :J3	G1= =Ø:	Ø:H	i=Ø:	: J= <=Ø	Ø:J :L=	:D1 1=0 0:L: :O=0	: J2:	=Ø 1:	
XF	6	Ø:C :U1 WZ= =Ø: {GR	Y=Ø =-1 Ø:X YY= N}{	: P= :UL =Ø: Ø: Z CYN	=Ø:I J=Ø: XU= Z=Ø: J { E	R1 = :V= :0:: :ZZ: 3LU	-1: Ø:W XX = =Ø:0 }{R	SD=0 =0:V 0:Y) COS ED} ID\$	0:T: W=( =0: ="{{	=Ø 3 : Y 8 }	C
SM	17	Р\$= Т=Ø	TO5	VS } :RE	000	1996 C (T)	2 { 01	FF } ' EXT: (999	II:	=4	C
AF	8	999 FOR OKE	),K T=Ø 532	(99 TO3 91+	9) :PC	KE!	5321 PRI		.,1:	P	C
QA	9	WZ= 3=4	:AX	=Ø: =17	YX=	Ø:	J1=	1:J2 2:C0	2=1: DLOF	J R4	D
RS	: 10	?W AB	(9)	OWØ	vs)	{BI	U }	, 1 : H		TT	S
ЕН	11	PR {O	FF}	" { {3	RVS	} <b>{</b> ]	3) (I	+1F1 RVS}	SHU		
AX	12	OT {R PR "{ F{	ATE VS} INT 3 S	1 { ROT "{2 PAC }{4	OFF ATE SF ES } SF	) { 2 2 ACH {RV ACH	2 SI (DOW ES) (S) (S)	PACE NN }" (BLK (8) A (RVS	S} }"P BCD	ş	C K
AK	: 13	{3 {8 PR {0 {8 {8} PR	SP 3 00 1NT 3 S FF LK	ACE 0" 2 PAC 4 00{	S } { SP SPA GRN	RVS ACE {RV CES }00	<pre>S}{E S}{E S}{E S}{E S}{E S}{E S}{E S}{E</pre>	GRN GHIJ (OFF	} "P	\$	MEPH
EG	14	{G PR "{	RN}	000 "{2 PAC	"SP	ACH	S)   	CYN	}"P		в
вн	15	{3 {C PR "{	SP YN } INT 3 S	ACE 000 "{2 PAC	S } { SP ES }	RVS ACE	s) { E s } { s } {	BLK]	}"P	-	C S
FS	16	{0 {3 PR "{	FF} SP INT 3 S	{4 ACE "{2 PAC	SPA S}" SP ES}	CES PS' ACE	<pre> [] [] [] [] [] [] [] [] [] [] [] [] []</pre>	RED	)"P	\$	н
ER	17	{3 PR {3	SP	ACE "{2 ACE	S}" SP S}{	PS' ACE RVS	s}4	23"	)		n S
QJ	18	PR {2	INT SP	"{D ACE	OWN S}{	} {E RVS	BLK	ACES	1		G
KK	19	2 ME GA GO RE	{OF 3{0 ME SUB M *	F } { OFF 4": 26 ** {	4 S }{3 J1= 2 S	PAC SE 1:U	PACH UU=1 (ES)	{RV ES } { 15:5	RVS RVS LOW	A	D
		50	CIII	UNI	4 0	PAC		***		- 1	

#### **BEFORE TYPING ...**

Before typing in programs, please refer to "How to Type In COMPUTE!'s GAZETTE Programs," elsewhere in this issue.

e	isen	vhere in this issue.
GP	20	
		"{BLU}PICK GAME 1 2 {SPACE}3 4";:GOSUB23:WZ=
31		<pre>{SPACE}3 4";:GOSUB23:WZ= Ø:Gl=J1:GOSUB35</pre>
XS	21	B=G1-2:AX=15:J1=1:J3=9:Z
		=7-G1:ZZ=Z+1:UU=17:GOSUB
JX	22	26:SLOW WINDOWØ,16,39,16,1:PRINT
0.		"(BLU)LEVEL OF PLAY (BLK)
		1 2 3 4 5 6 7 8 9 ";
115		:GOSUB26:GOSUB23:LV=J1:F AST:GOTO27
CF	23	
		LSEIFJV=7THENJ1=J1-1-(J1
RJ	24	=J2):GOSUB26:GOTO23 IFJV=3THENJ1=J1+1+(J1=J3
	- 1	):GOSUB26:GOTO23:ELSEIFJ
		V>127THENSOUND1,400,1:RE
DD	25	TURN GOTO23
DG	26	XU=AX+2*J1:SOUND1, J1*100
		0,10:WINDOW0.UU.39.UU.1:
		PRINTTAB(XU)"{RED} ";:RE TURN
DS	27	J=RND(-TI):M1=Ø:IFG1<3TH
SD	28	ENZZ=6
50	20	REM ***{2 SPACES}RANDOML Y MIX BLOCKS{2 SPACES}**
DY	29	*
DX	29	DO:M1=M1+1:J=INT (RND(1)* Z?Z):K=INT (RND(1)*ZZ):GOS
		UB33:SOUND2,8000,1:ONG1G
		OSUB30,30,31,31:LOOPUNTI
		LM1=LV*3:J=2:K=2:WZ=1:GO SUB35:TI\$="000000":GOTO5
		Ø
CG	30	X=INT (RND(1)*4+1):GOSUB3 2:GOSUB71:RETURN
кх	31	X=INT (RND (1) *2):X(M1)=-(
	-	X=Ø):GOSUB33:GOSUB82:RET
МК	32	URN X (M1)=X+2+(X>2)*4:RETURN
EE	33	J(M1) = J:K(M1) = K:RETURN
PM	34	REM ***{2 SPACES}PRINT B LOCKS TO SCREEN
		LOCKS TO SCREEN {2 SPACES}***
нн	35	FAST:WINDOW0,0,39,24,WZ:
		AA=0:FORY=0T05:FORX=0T05
BE	36	:IFWZ=1THEN42 AA=AA+1:IFG1<>2THENAAS="
DL	20	":GOTO39
CQ	37	IFAA<27THENAA\$=CHR\$ (64+A
		A):GOTO39:ELSEIFAA<36THE NAA\$=CHR\$(22+AA)
SE	38	IFAA=36THENA\$ (X,Y)="
		{RVS}{BLK}{2 SPACES}{M}
		{DOWN}{3 LEFT}{2 SPACES} {M}{DOWN}{3 LEFT}{2 P}@"
		:GOTO41
HM	39	ZZS=" {M} {DOWN} {3 LEFT}
		{2 SPACES} {M} {DOWN}
SX	40	<pre>{3 LEFT} \$2 P}@{OFF}" A\$ (X,Y)="{RVS}"+C\$ (INT ((</pre>
-		AA-1)/6)+1)+AAS+ZZS
GX	41	B\$ (X,Y) =A\$ (X,Y) : NEXTX,Y: SLOW: RETURN
EQ	42	SYSII,0,Y*3,X*3:PRINTAS(
		X,Y);:SOUND1,10000,1:NEX
DJ	43	TX,Y WINDOW18,0,20,24:PRINT"
		{OFF}{BLK} (*) {RVS}
		<pre>{2 SPACES}{RIGHT} {2 SPACES}{RIGHT}</pre>
		{2 SPACES } (RIGHT } {2 SPACES }"; :FORT=1T05:P

{2 SPACES}";:FORT=1T05:P

COMPUTE!'s Gazette June 1988 69

C-www.commodore.ca

1			RINT" {*} {2 SPACES}		
			{RIGHT} {2 SPACES} {RIGHT}	RB	76
	GQ	44	<pre>{2 SPACES}";:NEXT WINDOW0,18,21,22:PRINT"</pre>	RD	1
	02		{RVS} {*} {2 RIGHT} {OFF}		
			<pre>{*}{2 RIGHT}{*}{2 RIGHT}</pre>	-	
			<pre>{*}{2 RIGHT} {*}{2 RIGHT} {*}{2 RIGHT}M{RVS}</pre>	AE	71
			{2 SPACES}":FORT=1TO2:PR		
l			INT" {RVS} {21 SPACES}":NE	KJ	78
l	~		XT:WINDOWØ,0,39,24 IFG1=3THENOX=24:OY=52:SD		
I	GK	45	=5:ELSEIFG1=4THENOX=36:0	вк	7
I			Y=64:SD=6		0.13
l	HQ	46	SLOW:RETURN REM *** MARKERS ***		~
I	GG BQ	47 48	REM *** MARKERS *** MOVSPRX, J*24+24, K*24+50:	CR	80
1	DQ	10	POKE53269,2 (X-1): SOUND1	JR	8
I			,4000,1:RETURN	SD	8
I	GR	49	SPRITESD, 1, 1, 0, 1, 1:MOVSP RSD, J*24+OX, K*24+OY:SOUN	JP	8
I			D1, (J+K*5+1)*1000,1:RETU	JI	
1			RN		
	BE	50	SLOW:GOSUB101:IFG1<3THEN X=1:GOSUB47:GOTO52:ELSEG		
I			OSUB49:GOTO52	EA	8
	ВJ	51	M1=M1+1:J(M1)=J:K(M1)=K:		
			IFG1<3THENX (M1) = $X + 2 + (X > 2)$	EJ	8
	AS	52	)*4:ELSEX(M1)=-(X=0) GOSUB116:IFV=1THEN96		
	QH	53	GETKS: IFKS="O"THENFORI=1	1	
			TO8:SPRITEI, Ø:NEXT:PRINT	CB	8
			"{CLR}":COLORØ,1:COLOR5, 14:COLOR4,14:END:ELSEIFK	RC	8
			S="*"THENGOSUB118		
	JD	54	REM *** JOYSTICK CONTROL		
	JF	55	S *** JV=JOY(1):IFJV=ØTHEN52:E	SH	8
1	01	55	LSEIFG1>2THEN58		
	BC	56	IFJV=1THENX=1:GOT062:ELS	мн	8
Ì	( PR		EIFJV=3THENX=2:GOTO64:EL SEIFJV=5THENX=3:GOTO66:E	1 mil	0
			LSEIFJV=7THENX=4:GOTO68:	16	
			ELSEIFJV=128THENGOSUB71:	EB	0
	HG	57	GOSUB80:GOTO51 GOTO52		-
1	FG	58	IFJV=1THENK=K-1-(K=Ø):GO		
	10.1		TO61:ELSEIFJV=3THENJ=J+1	KK	9
1			+ (J=Z):GOTO61:ELSEIFJV=5 THENK=K+1+ (K=Z):GOTO61:E	CD	9
Ì	11		LSEIFJV=7THENJ=J-1-(J=0)		-
	1	-	:GOTO61	QQ	9
Ì	нк	59	IFG1>2AND (JV=131ORJV=135 )THENYX=YX+1:GOSUB81:GOS	SE	9
			UB80:GOTO51	BQ	9
	RG	60			
	PS EA	61 62		RK	9
	DA	02	1:IFU1>ØTHENK=K-1-(K=Ø)		
	FM	63			
	GE	64	R1=R1+1:U1=-1:L1=-\$1:D1=- 1:IFR1>ØTHENJ=J+1+(J=5)	AE	9
ł	PP	65	GOTO69	46	
ŝ	CD	66	D1=D1+1:L1=-1:U1=-1:R1=-	1.1	
	BP	67	1: IFD1>ØTHENK=K+1+(K=5) GOTO69	1	
	BJ	68	L1=L1+1:U1=-1:R1=-1:D1=-	EF	9
			1: IFL1>ØTHENJ=J-1-(J=Ø)		
1	DC XH	69 7Ø	GOSUB48:GOTO55 REM *** SHIFT AND ROTATE	XJ	9
			ROUTINES ***		
	CD	71		FD	1
	KJ	72	$AS=AS(J, \emptyset):FORT=\emptysetTO4:AS(J,T)=AS(J,T+1):NEXT:AS(J$	EQ	1
	1 th		,5)=A\$: IFWZ=ØTHENRETURN	100	-
	QC	73	FORT=5TOØSTEP-1:SYSII,Ø,		
			T*3, J*3: PRINTA\$(J,T):NEX T:RETURN	RP	1
	JS	74	A\$=A\$ (5,K) :FORT=5TO1STEP	N.	-
	1.5		-1:A\$(T,K)=A\$(T-1,K):NEX		
			T:A\$ (0,K) =A\$: IFWZ=0THENR ETURN	CR	1
1	GB	75			
	70 C	OMP	PUTE!'s Gazette June 1988		
		and a second			

	3: PRINTAS (T,K): NEXT: RETU RN	GP	104
6	A\$=A\$(J,5):FORT=5TO1STEP		1.05
	-1:A\$ (J,T) =A\$ (J,T-1):NEX T:A\$ (J,0)=A\$:IFWZ=0THENR	AP	105
	ETURN	OA	106
7	FORT=ØTO5:SYSII,Ø,T*3,J* 3:PRINTA\$(J,T):NEXT:RETU		
8	RN A\$=A\$(Ø,K):FORT=ØTO4:A\$(	FE	107
0	T,K) =A\$ (T+1,K):NEXT:A\$ (5	FS	108
9	<pre>,K)=A\$:IFWZ=ØTHENRETURN FORT=5TOØSTEP-1:SYSII,Ø,</pre>		
	K*3, T*3: PRINTA\$ (T, K): NEX T: RETURN	SF	109
ø	SOUND1, (X+1)*2000, 1:GOSU	кн	110
1	B92:GOSUB115:RETURN IFJV=135THENX=1:ELSEX=Ø	FK	111
2	L=J+1:O=K+1:IFG1=4THEN86 :ELSEIFX=1THEN84	AA	112
3	A\$=A\$(J,K):A\$(J,K)=A\$(J,	KP	113
	0):A\$(J,0)=A\$(L,0):A\$(L, 0)=A\$(L,K):A\$(L,K)=A\$:G0		
	T085		
34	AS=AS(J,K):AS(J,K)=AS(L, K):AS(L,K):AS(L,K):AS(L,K):AS(L,C):		
	0)=A\$(J,0):A\$(J,0)=A\$	КК	
35	IFWZ=ØTHENRETURN:ELSEFOR H=KTOK+B:FORG=JTOJ+B:SYS	KJ	115
	<pre>II,0,H*3,G*3:PRINTA\$(G,H):NEXTG,H:RETURN</pre>	RB	116
86	M=J+2:P=K+2:IFX=1THEN89		
37	AS=AS(J,K):AS(J,K)=AS(J, O):AS(J,O)=AS(J,P):AS(J,O)	HQ	117
	P) = AS(L, P) : AS(L, P) = AS(M, P)		
88	A\$ (M, P) = A\$ (M, O) : A\$ (M, O) =	FE	118
	A\$ (M,K):A\$ (M,K)=A\$ (L,K): A\$ (L,K)=A\$:GOTO85	XH	119
39		DD	120
	K) = AS(M, O) : AS(M, O) = AS(M, O)	RB	120
90	P) A\$ (M, P) = A\$ (L, P) : A\$ (L, P) =	- 23	
	A\$ (J,P):A\$ (J,P)=A\$ (J,O): A\$ (J,O)=A\$:GOTO85	GP	121
91	REM *** CHECK FOR WIN **	BS	122
92	* V=1:FORXX=ØTO5:FORYY=ØTO	MB	123 124
93	5 IFA\$ (XX,YY) <>B\$ (XX,YY) TH	DC	125
	ENV=0:YY=5:XX=5:GOTO94	65	125
94 95	NEXTYY,XX:RETURN REM *** YES, COMPLETED.	вк	126
96	{SPACE}NEW GAME *** WINDOWØ,22,39,24,1:PRINT		
0	"{WHT}YOU HAVE COMPLETE	BJ	127
	{SPACE}GAME"G1"AT LEVEL" LV"	1	
97	PRINT"{4 SPACES}{RVS} {2 SPACES}PRESS	BH MG	128 129
	{2 SPACES}FIRE{2 SPACES}	no	125
	BUTTON {2 SPACES}TO {2 SPACES}START {OFF}";:	2	
98	A=0: JV=JOY(1):IFJV>127THENGO	1	-D
	TOB	f	or i
99	A=A+1+(A=5)*6:COLORØ,C(A ):W=W+1+(W>2ØØ)*2ØØ:SOUN	A	rticle
10	D1,W*300+300,2:GOTO98 0 REM *** PRINT TITLE AND	HE	10
	PATTERN ***	1	
10	=1THENPRINT" {RVS } {BLK }	MQ	20
	{SPACE}S H I F T S {2 DOWN}"		
10	2 IFG1=2THENPRINT"{RVS}		
	{BLK} SHUFFLE {2 DOWN}"	ХВ	30
10	3 IFG1=3THENPRINT"{RVS} {BLK} R O T A T E 1	FX	40
	{2 DOWN}" . SD=5		

{2 DOWN}":SD=5

PRINT"PATTERN TO MATCH" :WINDOW26, 5, 39, 24: IFG1= 2THEN107 FORR=1TO6: PRINTC\$ (R) " {RVS} "P\$:NEXT: GOTO111 AK=0:FORAA=1T06:PRINT:F ORBB=ØTO5:AK=AK+1 IFAK<27THENPRINT" {RVS} " C\$ (AA) CHR\$ (64+AK) ; : GOTO 110:ELSEIFAK=36THENPRIN T" {RVS} {BLK} ";:GOTO110 PRINT" [RVS] "CS (AA) CHRS ( 22+AK); NEXTBB, AA: GOTO111 WINDOW0,0,39,24 REM \*\*\* COMPUTER SOLVES \*\*\* SYSII,0,22,0:PRINT" {OFF} {RED} HIT {RVS}Q {OFF} TO QUIT. {RVS}\* {OFF} FOR COMPUTER SOLU TION, {PUR}THEN PRESS A NY KEY TO RESUME YOUR G AME." WINDOWØ, Ø, 39, 24 SYSII, Ø, 17, 24: PRINT" {OFF}{BLK}TURN #"YX+1" {2 SPACES}":RETURN SYSII,0,13,26: PRINT" {3} TIMER" PRINTTAB (25) "{RVS} {BLU} "LEFT\$ (TI\$,2) ":"MID\$ (TI \$,3,2)":"RIGHT\$(TI\$,2): RETURN IFG1>2THEN125 WW=1:W=M1:DO:X=X(W):GOS UB121:W=W-1:LOOPUNTILW< 1: GETKEYY\$:FAST WW = -1: W = 1: DO: X = X(W) + 2 + (X(W)>2)\*4:GOSUB121:W=W+ 1:LOOPUNTILW>M1:SLOW:RE TURN J = J(W) : K = K(W) : SD = X - 1GOSUB48: IFWW>ØTHENGOSUB 124 GOSUB71:RETURN SLEEP1:SOUND2,4000,1:RE TURN WW=1:FORW=M1TO1STEP-1:X =X (W): GOSUB127: NEXT: GET KEYY\$:FAST WW = -1:FORW = 1TOM1: X = -(X(W) = Ø): GOSUB127: NEXT: SLO W:RETURN J=J (W) : K=K (W) : SD=G1+2:G OSUB49: IFWW>ØTHENGOSUB1 24 GOSUB82:RETURN DATA16,6,4,7,3,10 **Bar Grapher** the 128 on page 67. REM COPYRIGHT 1988 COMPU TE! PUBLICATIONS, INC. -

IFG1=4THENPRIN1" {RVS} (BLK) ROTATE 2 [2 DOWN]":SD=6

- ALL RIGHTS RESERVED PRINT" {CLR} {3 SPACES} COP YRIGHT 1988 COMPUTE! PUB , INC.": PRINTTAB(11) "AL L RIGHTS RESERVED" : SLEEP 2
- DIMV1(441), V(21, 21): GRAP HIC3,1
- FX 40 GRAPHIC0, 1:COLOR0, 16:COL OR4,7:PRINT"{BLK}
|     |     | <pre>{12 SPACES}3-D BAR GRAPH ER"</pre>   |
|-----|-----|---|
| HE  | 50  | PRINT"{2 DOWN}{BLK}{RVS}  |
|     | 50  | LOAD A GRAPH FROM DISK?   |
|     |     | {SPACE} (Y/N) "   |
| DQ  | 60  | INPUT" [2 SPACES] N   |
|     |     | {3 LEFT}";LG\$:IFLG\$="Y"T  |
|     |     | HEN670  |
| GG  | 70  | PRINT" (RVS VIEW PREVIOUS   |
| -   | 0.0 | GRAPH IN MEMORY? (Y/N)"   |
| ED  | 80  | INPUT"{2 SPACES}N<br>{3 LEFT}";V\$:IFV\$="Y"THE   |
|     |     | NGOSUB710   |
| QA  | 90  | PRINT" {RVS}ENTER TITLE O   |
|     |     | F CPAPH /A AA CUAPACEEDC  |
|     |     | ) "   |
| MR  | 100 |   |
|     |     | NPRINT:TS="":GOTO100  |
| SP  | 110 |   |
|     |     | (SPACE) REPRESENTATION (  |
| EB  | 120 | Ø-15 CHARS.)"<br>INPUTR\$: IFLEN(R\$)>15THE   |
| LD  | 120 | NPRINT"{2 UP}":R\$="":GO  |
|     |     | T0120   |
| CS  | 130 |   |
|     |     | NG YEAR {21 SPACES }2 DIG   |
|     |     | IT REPRESENTATION)  |
| GF  | 140 |   |
| -   |     | "{2 UP}":GOTO140  |
| JF  | 150 |   |
| FH  | 160 | YEAR (0-20 YEAR SPAN)<br>INPUT" (5 SPACES)  |
| r n | 100 | {5 LEFT}";EY:IFEY <sythe< td=""></sythe<>   |
|     |     | NEY=EY+100  |
| DA  | 170 | IFEY>SY+20THENPRINT"  |
|     |     | {2 UP}":GOTO160   |
| BQ  | 180 |   |
| KP  | 190 |   |
|     |     | OF ITEMS TO GRAPH (1-2  |
| ~~  | 200 |   |
| CS  | 200 | INPUT" (5 SPACES)<br>{5 LEFT} {2 SPACES}5   |
|     |     | {3 LEFT}";IT:IFIT <lorit< td=""></lorit<>   |
|     |     | >20THENPRINT"{2 UP}":GO   |
|     |     | T0200   |
| PP  | 210 |   |
|     |     | Ø-99999)"   |
| RH  | 220 |   |
|     |     | {5 LEFT}{2 SPACES}Ø   |
|     |     | <pre>{5 SPACES}{8 LEFT}";S:I FS&gt;99999THENPRINT"</pre>  |
|     |     | {2 UP}":GOTO220   |
| DX  | 230 |   |
|     |     | (0-99999)"  |
| DD  | 240 | INPUTE: IFE <= SORE >99999T   |
|     |     | HENPRINT" {2 UP}":GOTO24  |
|     |     | Ø   |
| XA  | 250 |   |
| RD  | 260 | PRINT" {RVS} ENTER VALUES<br>":TM\$="YEAR": IFFL=1THEN  |
|     |     | TMS="YEAR": IFFL=ITHEN<br>TMS="MONTH"   |
| MP  | 270 | and the second |
|     |     | =1TOIT  |
| MQ  | 280 |   |
|     |     | UTV(A,B): IFV(A,B) <sorv(< td=""></sorv(<>  |
|     |     | A, B) > ETHENPRINT" {2 UP}"   |
| -   |     | : GOTO 280  |
| GG  | 290 |   |
| HJ  | 300 | PRINT" {RVS} ENTER KEY (Ø<br>-40 CHARACTERS)"   |
| KC  | 310 |   |
|     |     | NPRINT:K\$="":GOTO300   |
| CC  | 320 | BD\$="":INPUT"{RVS}BORDE  |
|     |     | R? (Y/N) {OFF} {2 SPACES}   |
| -   | -   | N{3 LEFT}";BD\$   |
| QX  | 330 |   |
|     |     | {OFF} {2 SPACES}N<br>{3 LEFT}";F\$:IFF\$="Y"TH  |
|     |     | (3 LEFT)";F\$:IFF\$="Y"TH<br>ENFAST   |
| DQ  | 340 |   |
| 24  | 540 | 9/(EY-SY+1-FL)):SI=INT(   |
|     |     | 49/IT)  |
| RK  | 350 |   |
|     |     |   |

<ul> <li>(EY-SY1-FEL)*5L: 05.4 (EY-SY1-FEL)*5L: 1-FEL)*5C: 14*(EY-SY1-FEL)*5L: 1-FEL)*5C: 14*(EY-SY1-FEL)*5L: 1-FELSED*10079, 127-91+17*51, 02</li></ul>						
<ul> <li>1-FL)*5L:18+(EY-SY-1-FL) %5L:079,18709/117*51,8217 %5L:079,18709/117*51,8217 %5L:079,187294</li> <li>HJ 369 FORA-18+(EY-SY-1-FL)*5L:D TO 624 (EY-SY-1-FL)*5L:D Y5L:079,182:94 Y5L:070,182:94 Y5L:070,182:94 Y5L:070,182:94 Y5L:070,182:94 Y5L:070,182:94 Y5L:070,182:94 Y5L:070,182:94 Y5L:070,182:94 Y5L:070,182:95 Y5</li></ul>			(EY-SY+1-FL)*SL,82+(EY-	115		1,Y-SP+1:X2=X2+SK:Y2=Y2
)*5LTO 79.18TO 79+17*51.2         X3-X2:Y3-Y2:Y5=Y4:WEYTA           *5TO 79.22:H=0         K3 68 05.000 K2:H=0 K2:K2:K2:K2:K2:K2:K2:K2:K2:K2:K2:K2:K2:K						
8+TT*SIT079+TT*SI, 82+TT         GR 588 ELOWICOLORA, 1. PORS288, 9           HJ 369 FORA=184 (EY-SY1-FL)*SL         GR 578 SR FINC (2) FORA=184 (EY-SY1-FL)*SL           1*31, 184*B+TT*SIBBB41         (RVS) SAVE GRAPH TO DISK           1*37, 184*B+TT*SIBBB41         (GVF) (LEFT)";           1*37, 184*B+T*SIBB41         (GVF) (LEFT)";           1*38         SK+INT(49/LT):*-1810=79           1*39         (GVF) (LEFT)";           1*1605800         (GVF) (LEFT)";           1*155578 (INT(A)) +***:NET         (GVF) (GVF) (HENRINT*YES           1*15578 (INT(A)) +***:NET						
HJ 368 FORA=18+ (EX-SY1-FL)*SL T 6024 (EX-SY1-FL)*SL P8:DRAW3,79-(EX-SY1-FL) 1*SL 18+4*B+TT*SIB=8+1 (FX)53AE (GRAPH TO DISK (FX)53AE (GRAPH TO DISK (FX)674 (FX)53AE (GRAPH TO DISK (FX)674 (FX)			8+IT*SIT079+IT*SI,82+IT	QR	580	SLOW:COLOR4, 1: POKE208,0
T022+(EX-SY1-FL)*SLSTE P31000000000000000000000000000000000000	нт	360				
P8:DRAW3.79-(EY-SY1-FL)         (RVS)34VE (RAPH TO DISK           1*SI,18+48*1*T*SIBB-1         (RVS)64VE (RAPH TO DISK           JG 370 SP-INT(49/(EY-SY1-FL))         (PF)(LEFT)*;           1*194 (SYS-SY1-FL):SIEFOR         (PF)*(SEEP1:GOT           A=7079STEPSPIDRAW3,A,Y         S           B38 SK-INT(49/IT)*I*18:D=70         (PS)(OFP)*SIEP1:GOT           A=7079STEPSPIDRAW3,A,YA,Y         S           B38 SK-INT(49/IT)*I*18:D=70         (PS)(OFP)*SIEP1:GOT           A=7079STEPSPIDRAW3,A,YA,YA         S           B38 SK-INT(49/IT)*I*18:D=70         (PS)(OFP)*SIEP1:GOT           AD 399 SF-SF31*GINT(A)(A)A,YTOA,Y         S           AD 394 SF-S1*16CASCAR_DOTOP11*         (PS)(OFP)*SIEP2:           MA 395 SF-S1*16CASCAR_DOTOP300         (PS)(SOTOP300           AN 394 SF-S1*16CASCAR_DOTOP300         (PS)(SOTOP300           AA 395 SF-S1*16CASCAR_DOTOP300         (PS)(SOTOP300           MA 396 SF-S1*16CASCAR_DOTOP300         (PS)(SOTOP300           AS 400 SOEMBAR         (PS)(SOTOP300           AA 397 SF-S1*16CASCAR_DOTOP300         (PS)(SOTOP300           MA 410 IFCCEN (NS)/2:COLOR         (PS)(PS)(SOTOP300           A 420 NEAT         (PS)(PS)(PS)(PS)(PS)(PS)(PS)(PS)(PS)(PS)	no	500		DJ	590	
1*8xT       (OFF)[[LEF1]":         3/G 370 SP=INT(49/(EV=SY1-EL))       (F606 GETKEYES         3/G 370 SP=INT(49/(EV=SY1-EL))       (F856)         1/F104 (EV=SY1-EL)       (F85)         1/F104 (EV=SY1-EL)       (F86)         1/F104 (EV=SY1-EL)       (F86) <t< td=""><td>1</td><td></td><td>P8:DRAW3,79-(EY-SY+1-FL</td><td></td><td>350</td><td></td></t<>	1		P8:DRAW3,79-(EY-SY+1-FL		350	
<ul> <li>1NEXT</li> <li>170 370 SP-17N(149/(EV-SY11-FL)*SL:D0</li> <li>170-194(EV-SY11-FL)*SL:D0</li> <li>170-194(EV-SY11-FL)*SL:D0</li> <li>170-194(EV-SY11-FL)*SL:D0</li> <li>170-194(EV-SY11-FL)*SL:D0-79</li> <li>170-194(EV-SY11-FL)*SL:D0-79</li> <li>170-194(EV-SY11-FL)*SL:D0-79</li> <li>171-105-58:D0-107-911"</li> <li>171-105-58:D0-107-911"</li> <li>171-105-184(S):1725-578</li> <li>171-1105-194(S):1725-578</li> <li>171-1105-194(S):1725-578</li> <li>171-1105-11-124-184</li> <li>172-114-124-114-11</li></ul>				1.75		
JG 376 SP=INT (49/(EY-SY1-FL)) 179+(EY-SY1-FL)*SL:FOR A D70795TEP5PIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOA,Y-631Y=Y-SPIDRN3,J,Y104 TOCOR3,2170RA=0T057EPSE TOPI6383:SLOW:GOT0980 TOCOR3,2170RA=0T057EPSE TOPI6383:SLOW:GOT0980 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOT0048 TOTI6383 TOTI638 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI638 TOTI638 TOTI6383 TOTI638 TOTI6383 TOTI6383 TOTI6383 TOTI6383 TOTI638 TOTI6383 T	1			CH	600	
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	JG	370				
A = DT0795TEPEP:DRNN3,A,Y T0A,Y+63;Y=Y=SPLEXT B 380 SK=INT(49/IT);Y=18:D=79 iL=Y:M=JF0A=DT079+IT) SK5TEPSK1DRN3,A,YT0A,Y 641 GT0680 AD 390 SE=Z/3:Y=16:D=56:0=-1:C OCA3,2:PCA=DT079+IT MS=STR8(INT(A))+X="":N MS=STR8(INT(A))+X=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT(A))+X=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+ MS=STR8(INT)+						{RVS} {OFF}":SLEEP1:GOT
TOA, Y+63:Y=Y=SPINET         [RV 33         [RV 33:Y=Y=SPINET]           RD 368         SK=INT (49/IT) Y=18:D=79 I.L=YIMOJFORA=DTO79:IT*         CF 633         [FB="0""HENEDD           AD 396         SEE=SPISY=16:05-56:0-1:C OLOR3,2:FORA=0TOSTEPSE INIS=STR8(IVT(A))+4"=YIN         KF 646         GOTO868           AD 396         SE=SPISY=16:05-56:0-1:C OLOR3,2:FORA=0TOSTEPSE INIS=STR8(IVT(A))+1"=YIN         KF 646         GOSUB886 GOSUB823           MS=STR8(IVT(A))+1"=YIN         KF 646         GOSUB886 GOSUB823         BF 668           MS=STR8(IVT(A))+1"=YIN         KF 646         GOSUB886 GOSUB823           MS=STR8(IVT(A))+1:CHAR3,X         KF 648         DD 666           Y,NIS         KF 648         DOPORDAL, GOSUB826           FF 408         CHAR3,33,Y,N23:Y=Y-1:F         KF 658           KA 649         CHAR3,33,Y,N23:Y=Y-1:F         C768           KA 649         CHAR3,5C,1,75,1         C768           AP 420         NEXT         KA 659         GG 438           GG 439         SC-1,75,1         CARAFIC3:SICALORS,6:GETK           CH44         CHOCAR,3:Y=REIFORA=TOCLE         KT 733         M22:SICARAS,27,2,"MONTH           SC 466         CHAR3,27,2,2,"YINONTH         WT21:SIEPSTINEDAD           SC 4766         CHAR3,7,27,2,"WONTH         WT21:SIEPSTINEDAD				BC	620	
RD 389 SK=INT (49/IT):Y=18:D=79 iL=Y:M=D:FORA=DT079+IT       O48         CP 638 IFBS="0""HENEND SKSTEPSK:DRAW3,A,YTOA,Y +641Y=Y45K:NEXT       CP 638 IFBS="0""HENEND D0CR3,2:FORA=DT05STEPSE TOP1638:SISLOW:GOT0968 :N18=STR8(INT(A))+W=":N MS=STR8(INT(A))+W=":N HS 648 GOT068886 GOSUB882 NS=FX:SISLOW:GOT0968 :N18=STR8(INT(A))+W=":N HS 648 GODENB1(SG):IFDS <pht FRIGHTS(NMS,LEN(MS)-1) iX=8=LEN(N18)-1:CHAR3,X Y,N18       HF 648 ODENB1(SG):IFDS<pht ENGSUB818:COSUB878:IFSSTBLOA D0CR3,2:FORA=TOESTEPSE COSUB886:GOSUB878:IFSSTBLOA D0EN1,1:GS):IFDS<pht ENGSUB818:COSUB878:IFSSTBLOA D0EN1,1:GS):IFDS<pht ENGSUB818:COSUB878:IFSSTBLOA D0EN1,2:GS):IFDS<pht ENGSUB878:IFSSTBLOA D0EN1,2:GS):IFDS<pht ENGSUB878:IFSSTBLOA D0EN1,2:GS):IFDS<pht ENGSUB878:IFSSTBLOA D0EN1,2:GS):IFDS<pht ENGSUB878:IFSSTBLOA D0EN1,2:GS,IFSSTBLOA D0EN1,2:GS,IFSSTBLOA D0EN1,2:GS,IFSSTBLOA D0EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GS,IFSSTBLOA D1EN1,2:GSTBLOA D1EN1,2:GSTBLOA D1EN1,2:GSTBLOA D1EN1,2:GSTBLOA D1EN1,2:GSTBLOA D1EN1,2:GSTBLOA D1EN1,2:GSTBLOA D1EN1,2:GSTBLOA D1EN1,2:GSTBLOA D1EN1,2:GSTBLOA D</pht </pht </pht </pht </pht </pht </pht </pht 				00	020	
SKSTEPSK:DRAM3,A,YTOA,Y         KP 648 GOTO668           AD 396 SE=Z/81Y=16:0=50(Q=-1:C) OLOR3,2:FORA=GTOSEFSE HIS=STES(INT(A))+"=":N MS=STES(INT(A))+"=":N MS=STES(INT(A))+"=":N MS=STES(INT(A))+"=":N HK 676 GOSUB886:COSUB828 HK 676 GOSUB876:FAST:BLOA D (SGS) B8, P8192:SLOW T0:ELSECLOSE1 FX 600 GRAPHIC3:FORS:B1(GTO B4 68 COLOR3,1:FAST:BLOA D (SGS) B8, P8192:SLOW COLOR3,8:FAST:BLOA D (SGS) B8, P8192:SLOW G GAPHIC3:FORS:B1(GTO A25)10=R           AP 428 NEXT G 436 SCC(107,8:FAST:BLOA N (R\$):R2S-MID\$(RS,A,1): CHAR3,P2,YR2S,1:CHAR3,R1,1: CHAR3,P2,YR2S,1:CHAR3,R1,1: Y22:CLAR3,27,22,"MONTH BAF8"         A726 INPUT"(RVS)STARTING MON H7 (1-12)(OFF) (START) HC 100 (S3,18:12S=STR5(IT): CHAR3,27,22,"SCCHAR3,27,22,"Y EX-160 G 430 SCC (46-LEN (KS))/2:COLOR 3,1:CHAR3,27,22,"TE MS"         A726 MACHARAPAPRMAYJUNJ ULAUGSPCOTNOVDEC":Y1S= MC 516 X2=66:Y2=81+SP:X3=X2:Y3 MC 516 X2=66:Y2=81+SP:X3=Y2:Y3 MC 516 X2=66:Y2=81+SP:X3=Y2:Y3=M2 MC 516 X2=81+SP:X3=Y2=Y4:FC MC 516 X2=66:Y2=81+S	RD	380			-	040
				Card 8-11		
AD 399 SE=E/81Y=16:0=59:Q=-1:C OLD 669 FAST:BSAVE(GG), BG, PB19 27091638:SLOW:GGD)989 HNIS=STRS(INT(A))+Y=":N MS=STRS(INT(A))+Y=":N HR 670 GOSUB880:GOSUB820 HR 670 GOSUB880:GOSUB820 HR 670 GOSUB880:GOSUB820 HR 680 DOPEN41, GGS):HBCSCB1:GOTOG 71:ELSCLOSE3:GOTOG 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 71:ELSCLOSE1:ESCLOSE 7						
<pre>HK 5-8 CFG COSUBS3 - GOSUBS2 - FAST: BLOA MS-STRS (INT(A)) + Y=":N HK 678 COSUBS1 : IDS &lt;&gt; 0 TH HK 1GHTS (NMS, LEN (NMS) -1) IX=0-LEN (N15) -1:CHAR3,X J, X,N15 FF 408 CHAR3,33,Y,N25;Y=V-1:IF KC 0 GRAPHIC3: FOXS2 B1 (SCDS I TAST: BLOA D (SGS), B0, P0192:SLOW D (GRAPHIC3: FOXS2 B1 (SCDS I SCD (SGS), B0, P0192:SLOW D (GRAPHIC3: FOXS2 B1 (SCDC) R4 410 FOCCEN (N25) THENR=LEN (N Z6 430 SCC (A - LEN (TS)) / 2:COLOR A P 420 NEXT GG 438 SCC (A - LEN (TS)) / 2:COLOR A, 5:CHAR3,SC,1,TS,1 DC 440 COLOR3, B:Y=8:FORA=1TOLE M (RS): R25=MIDS (RS,A,L): CHAR3,P, Y, R25, I:CHAR3,R +3; Y, R25, I:CHAR3,R,L): CHAR3,P, Y, R25, I:CHAR3,R +3; Y, R25, I:CHAR3,R,L): CHAR3,P, Y, R25, I:CHAR3,R +3; Y, R25, I:CHAR3,R +3; Y, R25, I:CHAR3,R +3; Y, R25, I:CHAR3,R +2; Z, 2; YI:SCHAR3,27,22, "MONTH S':GOT0480 F7 460 Y1S=STRS (SY):Y2S=STRS (E Y):FEY&gt;99THENY2S=STRS (E Y):FEY&gt;99THENY2S=STRS (E Y):FEY&gt;99THENY2S=STRS (IT): CHAR3,7,17, T', ":CHAR3,16 ; EY-100) KQ 476 CHAR3,2C, 22, YIS:CHAR3,3 1,17, Y2S:CHAR3,27,22, "MONTH S'' CUP) I:GOT0748 F7 40 FNIN" (RVS)ENDING MONTH P 496 SCC (40-LEN (KS)) / 2:COLOR 3,11:CHAR3,SC, 24, KS:COL OX3,03,0,6,159,199:COLOR3, E STRS (SY):Y2S=STRS (IT): CHAR3,7,17, T', ":CHAR3,16 ; EY-100) KC 488 COLOR3,18:12S=STRS (IT): CHAR3,7,17, T', ":CHAR3,16 ; Z2; Y2:SCHAR3,2,2,2, YIS:CHAR3,21,12 FY 490 SCC (40-LEN (KS)) / 2:COLOR 3,11:CHAR3,SC, 24, KS:COL OX3,03,0,0,159,199:COLOR3,12 GE 506 IFDDS="""THENCOLOR3,8:B OX3,03,0,0,159,199:COLOR3,12 GE 507 IZY2X=01:SES250 KR 530 J=X:K=Y1DR3M1,H, ITOH,Y+ SR:SC=VI=SES20 KR 530 J=X:K=Y1DR3M1,H, ITOH,Y+ SR:SC=SES24 KR 530 J=X:K=Y1DR3M1,H, ITOH,Y+ SR:SC=SES254 KR 530 J=X:K=Y1DR3M1,H, ITOH,Y+ SR:SC=SES254 KR 530 J=X:K=Y1DR3M1,H, ITOH,Y+ SR:SC=CLORS KR 530 J=X:K=Y1DR3M1,H, ITOH,Y+ SR:SC=SES250 F750 MR3M3,H, MOX+SP=-1,X=SP+1 BA 560 RA</pre>	AD	390		DD	66Ø	FAST:BSAVE (SG\$), BØ, P819
MS=STRS(INT(A)):N2S="="         HF 688 DOPEN#1, (SGS):IDS           HF 688 DOPEN#1, (SGS):IDS         FDSS-STF           FF 408 CARA3, 33, (N2S:Y=Y-1:IF XCOTHEMP=X:O=X         ENGOSUBB10:CLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 70:ELSECLOSE1:GOTOG 71:ELSECLOSE1:GOTOG 71:ELSECLOSE1:GOTOG 72:ELSECLOSE1:GOTOG 73:ELSECLOSE1:GOTOG 73:ELSECLOSE1:GOTOG 74:ELSECLOSE1:ELSECLOSE1:GOTOG 74:ELSECLOSE1:ELSESIEDS 74:ELSEFNINT*(EL				-	670	
<pre>+RIGHTS(NMS,LEN(NMS)-1) :X=4-LEN(NBS)-1:CHAR3,X ;Y,N1S FF 406 CHAR3,33,Y,N2S:Y=Y-1:IF X (A for the present of the present</pre>			M\$=STR\$ (INT (A)) :N2\$="="			
<pre>Y,N15 FF 466 CHAR3,33,Y,N25;Y=Y-1:IF X<othenp=x:0=x 10="" 466="" a="" cic23="" cic23<="" f7="" td="" x="" x<othenp="X:0=X"><td></td><td></td><td>+RIGHTS (NMS, LEN (NMS) -1)</td><td></td><td>1</td><td>ENGOSUB810:CLOSE1:GOTO6</td></othenp=x:0=x></pre>			+RIGHTS (NMS, LEN (NMS) -1)		1	ENGOSUB810:CLOSE1:GOTO6
FF 468 CHAR3, 33, Y, Y25; Y=Y-1: IF       D(SG5), B6, P61 92: SLOW         XC 768 GRAPHIC3: POCE208, 3: GETK         HA 416 IFQCLEN (N2S) THENR=LEN (N         A7 428 NEXT         A4 16 IFQCLEN (N2S) THENR=LEN (N         A9 428 NEXT         G 436 SC=(46-LEN (T5))/2: COLOR         A7 428 NEXT         G 436 SC=(46-LEN (T5))/2: COLOR         A8 (75): R25-R105 (R5, A, 1):         CHAR3, P, Y, R25, LICHAR3, R, 1):         CHAR3, P, Y, R25, LICHAR3, R, 1):         CHAR3, P, Y, R25, LICHAR3, R, 1):         CHAR3, Y, Y25; Y25-STR5 (C         Y: IFEFYS99THENY25=STR5 (E         Y: IFEFYS99THENY25=STR5 (C         Y: IFEFYS99THENY25=STR5 (C):         CHAR3, 7, 12, "1": CHAR3, 7, 22, "ITE         MS"         FJ 468 CUAR3, 3, 7, 22, "ITE         MS"         FJ 468 CUAR3, S, 22, YISCHAR3, 3, 7, 22, "ITE         MS"         SU 766 FL=1:RETURN         SU 766 GFL=1:RETURN         SU 766 GFL=1:RETURN         SU 767 GFL=1:RETURN         SU 768 GRAPHICB (SUP) (SUP)         GS 586 IEADESESE         G 586 GFL				W.N.	697	70:ELSECLOSE1
XCOTHENP=X:O=X         JC 706 GRAPHIC3:POKE208,0:GETK EYS:GOTO40           HA 416 IFQCLEN(N2\$)THENR=LEN(N 2\$):Q=R         JC 706 GRAPHIC3:POKE208,0:GETK EYS:GOTO40           AP 420 NEXT         FV           AF 460 COLOR3, 81:F28=MIDS (RS,A,1): CHAR3,717,22,"ISCCHAR3,31,17         FV           AF 460 Y18=STRS(SY):Y28=STRS(EY): Y1 FEY>09THENY28=STRS(TY): EY 100COLOR3,81:F28=STRS(TY): CHAR3,7,17,"1":CHAR3,16         FV           AF 460 Y18=STRS(SY):Y28=STRS(TY): CHAR3,7,17,"1":CHAR3,16         FV           AF 460 Y18=STRS(SY):Y28=STRS(TY): CHAR3,7,17,"1":CHAR3,16         FV           AF 460 Y18=STRS(SY):Y28=STRS(TY): CHAR3,7,17,"1":CHAR3,16         FV           AF 460 Y18=STRS(SY):Y28=STRS(SY):Y28=MIDS(SKS,MAR)         FV           Y2,Y215CCHAR3,7,22,"TY         FV         FV           CK 480 COLOR3,81:TEYS         FV	FF	400		MA	0.90	D (SG\$), BØ, P8192: SLOW
$ \begin{array}{llllllllllllllllllllllllllllllllllll$			X <othenp=x:o=x< td=""><td>JC</td><td>700</td><td>GRAPHIC3: POKE208, 0:GETK</td></othenp=x:o=x<>	JC	700	GRAPHIC3: POKE208, 0:GETK
AP 428 NEXT       4,1:PORE288,8:GTKYTB9:         GG 430 SC= (46-LEN (T\$))/2:COLOR       3,5:CHAR3,SC,1,T\$,1         DC 440 COLOR3,8:Y=8:PORA=1TOLE       AR 728 INPUT"(RVS)STARTING MON         NG (R5):R2S=HDS(R5,A,1):       CHAR3,P,Y,R2S,1:Y=Y+1:NEXT         PS 450 COLOR3,9:IFFL=1THENCHAR       3,21,22,YIS:CHAR3,31,17         ,22,YIS:CHAR3,27,22,"WONTH       S":GOTO488         S":GOTO486       Y):IFEY>99THENY2\$=STR\$(E         Y):IFEY>99THENY2\$=STR\$(E       "(2 UP)":GOTO748         Y):IFEY>99THENY2\$=STR\$(I):       CHAR3,70,22,YIS:CHAR3,37,22,"ITE         MS"       W2:IVESCHAR3,7,22,"ITE         MS"       MS"         PJ 496 SC= (46-LEN(K\$))/2:COLOR       S0         AS 16 JEDS="W"THENCOLOR3,8:B       ST? (Y/N)"         GE 506 IFBDS="W"THENCOLOR3,8:B       ST? (Y/N)"         G2 506 IFBDS="W"THENCOLOR3,8:B       ST? (Y/N)"         S16 Z2=86:Y2=81+SF:X3=X2:Y3       ST? (Y/N)"         RV 516 X2=86:Y2=81+SF:X3=X2:Y3       ST? (Y/N)"         RV 536 JELSE520       ST         KR 536 JELSES20       KR 536 JELSES20         KR 536 JELSES20       ST         S11CHAPAL       S16 INPUT"COLOR 3{2 SPACES}         S16 THENF30:ELSES20       S16 INPUT"COLOR 3{2 SPACES}         S176 DRAM1,X,YTOX-SF+2,Y+SF-       S16 INPUT"COLOR 3{2 SPACES} </td <td>HA</td> <td>410</td> <td></td> <td>-</td> <td>71.0</td> <td>A REAL PROPERTY OF A REAP</td>	HA	410		-	71.0	A REAL PROPERTY OF A REAP
GG 430 SC=(40-LEN(TS))/2:COLOR 3,5:CHAR3,SC,1,T\$,1       GRAPHICB:COLOR8,16:COLO 8,4;4;0:COLOR8,18:X=8:FORA=1TOLE N(R\$):R2\$=MID\$(R\$,A,1): CHAR3,P,Y,R2\$,1:Y=Y=1:NEXT +33,Y,R2\$,1:Y=Y=1:NEXT +33,Y,R2\$,1:Y=Y=1:NEXT *:COTO480       AF 7:RETURN R4,7:RETURN AF 460 Y1\$=STR\$(R\$,A,1): Y2\$:COTO480         SF 450 COLOR3,9:IFFL=1THENCHAR 3,21,22,Y1\$:CHAR3,31,17 Y2\$:COTO480       XH 730 M2=(M1+12)-13:IFM2=0THE NM2=12         AF 460 Y1\$=STR\$(SY):Y2\$=STR\$(E Y):IFEY>99THENY2\$=STR\$(E Y):IFEY>99THENY2\$=STR\$(IT): CHAR3,7,17,"1":CHAR3,16 ,22,I2\$:CHAR3,7,22,"YTE HAS"       YH 730 M2=(M1+12)-13:IFM2=0THE NM2=12         CK 480 COLOR3,18:I2\$=STR\$(IT): CHAR3,7,17,"1":CHAR3,16 ,22,I2\$:CHAR3,7,22,"TTE MS"       GB 750 M\$="JANEBMARPRARPMAYJUNJ ULAUGSEPOCTNOVDEC'*11\$= MID\$(M\$,M3*3-2,3):SY=0:E Y=(12-M1)-(12-M3)+11:IFE Y=(12-M1)-(12-M3)+	AP	420		PG	110	
DC       446       COLOR3,8:Y=8:FORA=1TOLE N(R\$):R2\$=MID\$(R\$,A,1): CHAR3,P,Y,R2\$,1:CHAR3,R; +33,Y,R2\$,1:FPL=1THENCHAR *33,Y,R2\$,1:FFL=1THENCHAR *33,Y,R2\$,1:FFL=1THENCHAR *3,21,22,Y1\$:CHAR3,31,17 .Y2\$:CHAR3,27,22,"MONTH *32,22;CHAR3,27,22,"MONTH *32,22;CHAR3,27,22,"MONTH *4560       XH 736       M2=(M+12)-13:IFM2=GTHE MM2=12         P5       4560       CHAR3,28,27,22,"MONTH Y:IFEYS9THENY2\$=STR\$(E Y):IFEYS9THENY2\$=STR\$(E Y):IFEYS9THENY2\$=STR\$(IT): CHAR3,7,17,1":CHAR3,16 .22,12\$;CHAR3,7,22,"TE MS"       P746       PRINT"{RVS}ENDING MONTH M2=12         P4       GOLOR3,10:I2\$=STR\$(IT): CHAR3,7,17,1":CHAR3,16 .22,12\$;CHAR3,7,22,"TE MS"       B7       76       MS*302-2,3):SY=0:E MID\$(M\$,M*3^2-2,3):SY=0:E MID\$(M\$,M*3^2-2,3):SY=0:E MID\$(M\$,M*3^2-2,3):SY=0:E Y=(12-M1)-(12-M3)+1:IFE Y<=0766			$SC = (4\emptyset - LEN(T\$))/2:COLOR$			
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	-	110			70.0	
<pre>CHAR3, P, Y, R25, 1: CHAR3, R</pre>	u	440	N(R\$):R2S=MIDS(RS.A.1):	AL	120	
PS       450       COLOR3,9: IFEL=ITHENCHAR 3,21,22,Y1\$:CHAR3,31,17, Y2\$:CHAR3,27,22,"MONTH S":GOT0480       "[2 UP]":GOT0720         AF       460       Y1\$=STR\$(SY):Y2\$=STR\$(E Y):IFEY>93THENY2\$=STR\$(E Y):IFEY>93THENY2\$=STR\$(I): CHAR3,20,22,Y1\$:CHAR3,3 1,17,Y2\$:CHAR3,7,22,"YT EARS"       BP       740       PRINT" (RV\$) ENDING MONTH ? (1-2) {OFF} {2 SPACES}         KQ       470       CHAR3,20,22,Y1\$:CHAR3,7       BP       740       PRINT" (RV\$) ENDING MONTH ? (1-2) {OFF} {2 SPACES}         KQ       470       CHAR3,20,22,Y1\$:CHAR3,77,22,"YT EARS"       BP       746       PRINT" (RV\$) ENDING MONTH ? (1-2) {OFF} {2 SPACES}         CK       480       COLOR3,10:I2\$=STR\$(IT): CHAR3,71,7,"1":CHAR3,16 ,22,12\$:CHAR3,7,22,"TTE MS"       BP       750       M\$="JANFEBMARAPEMAYJUNJ ULAUGS EPOCTNOVDEC":Y1\$= MD\$ (M\$,M3*3-2,3):Y2\$="H D\$ 490       SC=(40-LEN(K\$))/2:COLOR 3,11:CHAR3,5C,24,K\$:COL OR3,C3       SQ       766       FLINT" (DOWN] {RV\$}NEED T OS 260       SQ       766       FLINT" (DOWN] {RV\$}NEED T OS 260       SQ       760       FNINT" (DOWN) {RV\$}NEED T OS 260       SQ       760       FNINT" (DOWN) {RV\$}NEED T OS 260       SQ       760       FLINT" (DOWN) {RV\$}NEED T OS 260       SQ       760       FNINT" (DOWN) {RV\$}NEED T OS 260       SQ       760       FNINT" (DOWN) {RV\$}NEED T OS 260       SQ       SQ       760       FNINT" (DOWN) {RV\$}NEED T OS 260       SQ       SPACES}Y (S) FNINT" {DOWN} {RV\$}NEED T OS 260       SW <td></td> <td></td> <td></td> <td></td> <td></td> <td>{2 SPACES}1{3 LEFT}";M1</td>						{2 SPACES}1{3 LEFT}";M1
<pre>3,21,22,Y1\$:CHAR3,31,17 ,Z2\$:CHAR3,27,22,"MONTH S":GOT0486 AF 466 Y1\$=STR\$(SY):Y2\$=STR\$(E Y):IFEY&gt;99THENY2\$=STR\$(E Y):IFEY&gt;99THENY2\$=STR\$(E Y):IFEY&gt;99THENY2\$=STR\$(E Y):IFEY&gt;99THENY2\$=STR\$(I): CHAR3,7,17,"1":CHAR3,16 ,22,I2\$:CHAR3,7,22,"ITE M5" CK 466 COLOR3,16:I2\$=STR\$(IT): CHAR3,7,17,"1":CHAR3,16 ,22,I2\$:CHAR3,7,22,"ITE M5" PJ 496 SC=(46-LEN(K\$))/2:COLOR3, C3 GE 506 IFED\$="Y"THENCOLOR3,8:B OX3,6,6,159,199:COLOR3, C3 CS 506 JFD\$="Y"THENCOLOR3,8:B OX3,6,6,159,199:COLOR3, C3 CS 506 JFD\$="Y"THENCOLOR3,8:B OX3,6,6,159,199:COLOR3, C3 CS 506 JFD\$="Y"THENCOLOR3,8:B OX3,6,6,159,199:COLOR3, C3 CS 506 JFD\$="Y"THENCOLOR3,8:B OX3,6,6,159,199:COLOR3, C3 CS 506 JFD\$="Y"THENCOLOR3,8:B OX3,6,6,159,199:COLOR3, C3 CS 506 JFD\$="Y"THENCOLOR3,8:B OX3,6,6,159,199:COLOR3, C3 CS 506 JFD\$="Y"THENCOLOR3,8:B OX3,6,7,159,199:COLOR3, C3 CS 506 JFD\$="Y"THENCOLOR3,210; SE SE</pre>						
, ½25;CHAR3,27,22,"MONTH S":GOTO488       NN2=12         AF 466       Y15=STR5(SY):Y25=STR5( Y15:JFEY>99THENY2\$=STR5( Y15:JFEY>99THENY2\$=STR5( Y15:JFEY>99THENY2\$=STR5( Y15:JFEY>99THENY2\$=STR5( Y17:JFEY>99THENY2\$=STR5( Y17:JFEY>99THENY2\$=STR5( Y17:JFEY>99THENY2\$=STR5( Y17:JFEY>99THENY2\$=STR5(IT): CHAR3,70,27,22,"ITE MS"       NN2=12 BP 749 PRINT"{RVS}ENDING MONTH Y15:JEEY Y15:JEEY>91 496 SC=(40-LEN(K\$))/2:COLOR 3,11:CHAR3,SC,24,K\$:COL OR3,C3       OB 758 M\$="JANFEBMARAPPMAYJUNJ ULAUGSEPOCTNOVDEC' Y15= MID\$(M\$,M1*3-2,3):Y2\$=M ID\$(M\$,M3*3-2,3):Y2\$=M ID\$(M\$,M3*3-2,3):SY=0:E Y2 (12-41)-(12-43)+1:IFE Y2 (12-40)-(12-43)+1:IFE Y2 (12-40)-(12-43)+1:IFE Y2 (12-40)-(12-40)+1:IFE Y2 (12-10)-(12-40)+1:IFE Y2 (12-10)-(12-40)+1:IFE Y2 (12-10)-(12-40)+1:IFE Y2 (12-10)-(12-40)+1:IFE Y2 (12-10)-(12-40)+1:IFE Y2 (12-10)-(12-40)+1:IFE Y2 (12-10)-(12-40)+1:IFE S2 (12-40)-(12-40)+1:IFE S2 (12-40)-1:IFE S2 (12-40)-1:IFE S2 (12-40)-1:IFE	PS	450		хн	730	the second se
AF 460 Y1\$=STR\$(SY):Y2\$=STR\$(E       ? (1-12){0F}{2 SPACES}         Y):FFY>99THENY2\$=STR\$(E       ? (1-12){0F}{2 SPACES}         KQ 470 CHAR3,20,22,Y1\$:CHAR3,3       .:FM 34ClORM312THENPRINT         KQ 470 CHAR3,20,22,Y1\$:CHAR3,27,22,"Y       Washing and the second						NM2=12
<pre>Y):IFEY&gt;99THENY2\$=STR\$( EY -100) KQ 470 CHAR3,20,22,Y1\$:CHAR3,3 1,17,Y2\$:CHAR3,27,22,"Y EARS" CK 480 COLOR3,10:I2\$=STR\$(IT): CHAR3,7,17,"L":CHAR3,16 ,22,I2\$:CHAR3,7,22,"ITE MS" PJ 490 SC=(40-LEN(K\$))/2:COLOR 3,11:CHAR3,SC,24,K\$:COL OR3,C3 GE 500 IFBD\$="Y""HENCOLOR3,8:B OX3,0,0,159,199:COLOR3, C3 CS 100 X2=00:Y2=01+SF:X3=X2:Y3 =Y2:Y4=81+SK:Y5=Y4:FOR =Y2:Y4=81+SK:Y5=Y4:FOR EXTC:FORB=ITOIT:X=X2=SP :Y=Y2:F=(E-S)/64:G=0:H= X+SK=1:I=Y:FKN=1 FX 530 J=X:X=Y2:SA KR 530 J=X:X=Y2:NRW1,H,ITOH,Y+ SC 540 DRAW3,X,YTOX+SF-1,Y4:SF I:Y=Y2:F=(E-S)/64:G=0:H= X+SK:=Y:PRW1,H,TOH,Y+ D0 540 DRAW3,X,YTOX+SF=1,Y2:Y4:G=0:H SC:FORB=ITOIT:Y1(C)=Y(A,C):N SC:FORB=ITOIT:Y1(C)=Y(A,C):N SC:FORB=ITOIT:Y2:F=(E-S)/64:G=0:H= X+SK=1:I=Y+SK=1 SC:FORB=ITOIT:Y2:F=(E-S)/64:G=0:H= X+SK:=X2+SK-2:Y=Y4:G=0:H SC:FORB=ITOIT:Y4:G=0:H SC:FORB=ITOIT:Y4:FX=Y2=F (E-S)/64:G=0:H= X+SK:=Y2:FX:FX=Y2:F4:FX=1 SC:FORB=ITOIT:Y5:FX=1 SC:FORB=ITOIT:Y5:FX=1 SC:FORB=ITO</pre>				BP	740	
$ \begin{array}{c} \mbox{EY} - 160 \\ \mbox{KQ} 476 \ CHAR3, 20, 22, Y1$: CHAR3, 3 \\ 1, 17, Y2$: CHAR3, 27, 22, "T \\ EARS" \\ \mbox{CK} 486 \ COLOR3, 10: I2$= STR$(IT): \\ CHAR3, 7, 17, "I": CHAR3, 16 \\ , 22, 12$: CHAR3, 7, 22, "ITE \\ MS" \\ \mbox{PJ} 496 \ SC = (40-LEN(K$))/2: COLOR \\ 3, 11: CHAR3, SC, 24, K$: COL \\ OR3, C3 \\ \mbox{GE} 566 \ IFBD$= "Y"THENCOLOR3, 8: B \\ OX3, 0, 0, 159, 199: COLOR3, 8: B \\ OX3, 0, 0, 159, 199: COLOR3, 8: B \\ C3 \\ \mbox{CG} 566 \ IFBD$= "Y"THENCOLOR3, 8: B \\ OX3, 0, 0, 159, 199: COLOR3, 8: C \\ C3 \\ \mbox{CG} 1656 \ IFBD$= "Y"THENCOLOR3, 8: B \\ OX3, 0, 0, 159, 199: COLOR3, 8: B \\ OX3, 0, 0, 159, 199: COLOR3, 8: B \\ C4 \\ \mbox{CG} 165 \ SC = 286: Y2 = 81 + SK: Y5 = Y \\ \mbox{CG} 16 \ SC = 86: Y2 = 81 + SK: Y5 = Y \\ \mbox{CG} 170 \ IT: V1 (C) = V(A, C): N \\ \mbox{EXTC: FORB = 1TOIT: X = X2 - SP \\ \mbox{I'} Y = Y - 1: G = G+F: IFG5 = V1 (B \\ \mbox{I'} Y = Y - 1: G = G+F: IFG5 = V1 (F) \\ I$	AF.	460		-3.7		
1,17,Y2\$:CHAR3,27,22,"Y EARS"       QB 756 M\$= "JANFEBMARAPRMAYJUNJ ULAUGSEPOCTNOVDEC":Y1\$= MID\$(M\$,M1*3-2,3):Y2\$=M ID\$(M\$,M1*3-2,3):Y2\$=M ID\$(M\$,M3*1,F00,M3						:IFM3 <lorm3>12THENPRINT</lorm3>
EARS" ULAUGSEPOCTNOUDEC":Y1\$= MID\$(M\$,M1*3-2,3):Y2\$=M ID\$(M\$,M1*1]:CHAR3,SC,24,K\$:COL ID\$(M\$,M1*1]:CHAR3,SC,24,K\$:C	KQ	470		OR	750	
CK 486 COLOR3, 10:I2\$=STR\$(IT): CHAR3, 7, 17, "I":CHAR3, 16 , 22, I2\$:CHAR3, 7, 22, "ITE MS"       MID\$(M\$,M1*3-2,3):Y2\$=M ID\$(M\$,M3*3-2,3):SY=0:E Y=(12-M1)-(12-M3)+1:IFE Y=(12-M1)-(				QD	150	
<pre>, 22, 12\$: CHAR3, 7, 22, "ITE MS" PJ 490 SC=(40-LEN(K\$))/2: COLOR 3, 11: CHAR3, SC, 24, K\$: COL OR3, C3 GE 500 IFBD\$ = "Y "THENCOLOR3, 8:B OX3, 0, 0, 159, 199: COLOR3, C3 MC 510 X2=80: Y2=81+SP: X3=X2: Y3 = Y2: Y4=81+SK: Y5=Y4: FORA = EY-SY1-FLTOISTEP-1:FO RC=1TOIT: V1 (C)=V(A,C):N EXTC: FORB=1TOIT: X=X2-SP :Y=Y2:F=(E-S)/64:G=0:H= X+SK-1:I=Y+SK-1 RQ 520 DRAW3, X, YTOX+SK-1, Y+SK- 1:Y=X-1:G=G+F: IFG&gt;=V1(B )THEN530:ELSE520 KR 530 J=X:K=Y:DRAW1, H, ITOH, Y+ SK:X=X2+SK-2: Y=Y4:G=0:H = X: F=' 2:Y=X-1:G=G+F: IFG&gt;=V1(B )THEN550:ELSE540 CP 550 DRAW3, X, YTOX-SP+2, Y+SP- 2:Y=X-1:G=G+F: IFG&gt;=V1(B )THEN550:ELSE540 CP 550 DRAW3, X, YTOX-SP+2, Y+SP- 1:OX+SP-1, Y-SP+1 BA 560 DRAW3, X, YTOX+SP-1, Y-SP+ 1:OX+SP-1, Y-SP+1 CP 570 DRAW3, X, YTOX+SP-1, Y-SP+ 1:DRAW1, J, KTOL, MTOX+SP- 32(Y=Y+1:EGG+1: IFG&gt; SC 570 DRAW2, X, YTOX+SP-1, Y-SP+ 1:DRAW1, J, KTOL, MTOX+SP- 32(Y=Y+1:EGG+1: IFG) SC 570 DRAW2, X, YTOX+SP-1, Y-SP+ 1:DRAW1, J, KTOL, MTOX+SP- 32(S-THEN570:ELSE560 GP 570 DRAW2, X, YTOX+SP-1, Y-S</pre>	CK	480	COLOR3, 10: 12\$=STR\$(IT):	1		MID\$ (M\$,M1*3-2,3):Y2\$=M
$ \begin{array}{c} \text{MS"} & \text{Y} <= \texttt{@THENEY} = \texttt{EY} + 12 \\ \text{SQ} & \texttt{GG} & \texttt{SC} = (\texttt{4} \texttt{@} - \texttt{Len}(\texttt{K} \texttt{S})) / \texttt{2}:\texttt{COLOR} \\ \text{GR} & \texttt{GS} & \texttt{SG} & \texttt{SC} = (\texttt{4} \texttt{@} - \texttt{Len}(\texttt{K} \texttt{S})) / \texttt{2}:\texttt{COLOR} \\ \text{GR} & \texttt{GS} & \texttt{SG} & \texttt{SC} = \texttt{A} \texttt{M} \\ \text{GF} & \texttt{SG} \\ \text{GF} & \texttt{SG} & S$				132		
PJ 490 SC=(40-LEN(K\$))/2:COLOR 3,11:CHAR3,SC,24,K\$:COL OR3,C3       SQ 760 FL=1:RETURN SJ 770 PRINT" [DOWN] {RVS}NEED T O SEE THE DIRECTORY FIR ST? (Y/N)"         GE 500 IFBD\$="Y"HENCOLOR3,8:B OX3,0,0,159,199:COLOR3, C3       SQ 760 FL=1:RETURN SJ 770 PRINT" [DOWN] {RVS}NEED T O SEE THE DIRECTORY FIR ST? (Y/N)"         MC 510 X2=80:Y2=81+SP:X3=X2:Y3 =Y2:Y4=81+SK:Y5=Y4:FORA =EY-SY+1-FLT0ISTEP-1:FO RC=1T0IT:V1(C)=V(A,C):N EXTC:FORB=1T0IT:X=X2-SP tY=Y2:F=(E-S)/64:G=0:H= X+SK-1:I=Y+SK-1 1:Y=Y-1:G=G+F:IFG>=V1(B DTHEN530:ELSE520       SN 800 GETKEYA\$:PRINT"{CLR}":RETURN KR 530 J=X:K=Y:DRAW1,H,ITOH,Y+ SK:X=X2+SK-2:Y=Y4:G=0:H =X:I=Y         PQ 540 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B DTHEN550:ELSE540       SN 840 INPUT"COLOR 1{2 SPACES} I5{4 LEFT}";C1:IFC1 <ior C1&gt;I6THENPRINT"{2 UP}": GOT0830         PD 546 DRAW2,X,YTOX+SP-1,Y-SP+ ITOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=1:IFC3       MJ 840 INPUT"COLOR 2{2 SPACES} A {3 LEFT}";C3:IFC3<iorc 3&gt;16THENPRINT"{2 UP}":G 3&gt;16THENPRINT"{2 UP}":G</iorc </ior 						
OR3,C3       O SEE THE DIRECTORY FIR ST? (Y/N)"         GE 500 IFBD\$="Y"THENCOLOR3,8:B OX3,0,0,159,199:COLOR3, C3       O SEE THE DIRECTORY FIR ST? (Y/N)"         MC 510 X2=80:Y2=81+SP:X3=X2:Y3 =Y2:Y4=81+SK:Y5=Y4:FORA =EY-SY+1-FLTO1STEP-1:FO RC=1T0IT:V1(C)=V(A,C):N EXTC:FORB=1T0IT:X=X2-SP :Y=Y2:F=(E-S)/64:G=0:H= X+SK-1:I=Y+SK-1 I:Y=Y1-1:G=G+F:IFG>=V1(B )THEN530:ELSE520       O SEE THE DIRECTORY FIR ST? (Y/N)"         RQ 520 DRAW3,X,YTOX+SK-1,Y+SK- 1:Y=Y1:G=G+F:IFG>=V1(B )THEN530:ELSE520       FH 790 DIRECTORY:IFD\$         KR 530 J=X:K=Y:DRAW1,H,ITOH,Y+ SK:X=X2+SK-2:Y=Y4:G=0:H =X:I=Y       DR 810 PRINT"{DOWN}"D\$\$:GETKEY A\$:PRINT"{CLR}":R ETURN         DQ 540 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B )THEN550:ELSE540       H8 800 INPUT"COLOR 1(2 SPACES) I5{4 LEFT}";C1:IFC1<10R C1>16HENPRINT"{2 UP}":G OTO830         DQ 540 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B )THEN550:ELSE540       MJ 840 INPUT"COLOR 2(2 SPACES) I5{4 LEFT}";C2:IFC2<10RC C2>16THENPRINT"{2 UP}":G OTO830         DA 560 DRAW2,X,YTOX+SP-1,Y-SP+ ITOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+F:IFG> SK-1THEN570:ELSE560       QK 850 INPUT"COLOR 3(2 SPACES) 7{3 LEFT}";C3:IFC3<10RC 3>16THENPRINT"{2 UP}":G OT0850         GF 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP-       MR 860 RETURN	PJ	490	SC=(40-LEN(K\$))/2:COLOR			FL=1:RETURN
GE 500 IFBD\$="Y"THENCOLOR3,8:B OX3,0,0,159,199:COLOR3, C3       ST? (Y/N)"         MC 510 X2=80:Y2=81+SP:X3=X2:Y3 =Y2:Y4=81+SK:Y5=Y4:FORA EEY-SY+1-FLTO1STEP-1:FO RC=1TOIT:V1(C)=V(A,C):N EXTC:FORB=1TOIT:X=X2-SP :Y=Y2:F=(E-S)/64:G=0:H= X+SK-1:I=Y+SK-1       QQ 780 INPUT"{2 SPACES}Y (3 LEFT}";D\$:IFD\$="N"TH ENN70:ELSEPRINT"{CLR}" ENRETURN:ELSEIFD\$         RQ 520 DRAW3,X,YTOX+SK-1,Y+SK- 1:Y=Y-1:G=G+F:IFG>=V1(B ST? (Y/N)"       BN 800 GETKEYA\$:PRINT"{CLR}":R ETURN         RR 530 J=X:K=Y:DRAW1,H,ITOH,Y+ SK:X=X2+SK-2:Y=Y4:G=0:H =X:I=Y       DR 810 PRINT"{DOWN}"DS\$:GETKEY A\$:PRINT"{CLR}":RETURN XH 820 PRINT"{CUR}":RETURN XH 820 PRINT"{CLR}":RETURN XH 820 PRINT"{COLOR 1{2 SPACES}} 15{4 LEFT}";C2:IFC2<1ORC C1>16THENPRINT"{2 UP}":G OTO830         CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 1TOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THENS70:ELSE560       MJ 840 INPUT"COLOR 3{2 SPACES} 7{3 LEFT}";C3:IFC3<1ORC 3>16THENPRINT"{2 UP}":G OT0850         GP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP-       SQ 870 COLOR0,1:COLOR4,T1:COLO				SJ	770	
OX3,0,0,159,199:COLOR3, C3       QQ 780 INPUT"{2 SPACES}Y {3 LEFT}";D\$:IFD\$="N"TH ENRETURN:ELSEIFD\$<"Y"T ENRETURN:ELSEIFD\$<"Y"T ENRETURN:ELSEIFD\$<"Y"T ENRETURN:ELSEIFD\$<"Y"T ENRETURN:ELSEIFD\$<"Y"T ENRETURN:ELSEIFD\$<"Y"T ENRETURN:ELSEIFD\$<"Y"T ENRETURN:ELSEIFD\$         MC 510 X2=80:Y2=81+SP:X3=X2:Y3 =Y2:Y4=81+SK:Y5=Y4:FORA =EY_SY1-FLTOISTEP-1:FO RC=ITOIT:Y1(C)=V(A,C):N EXTC:FORB=ITOIT:X=X2-SP :Y=Y2:F=(E-S)/64:G=0:H= X+SK-1:I=Y+SK-1 I:Y=Y-1:G=G+F:IFG>=V1(B )THEN530:ELSE520       QQ 780 INPUT"{00W}"DS\$:GETKEY BN 800 GETKEYA\$:PRINT"{CLR}":R ETURN         RQ 520 DRAW3,X,YTOX+SK-1,Y+SK- 1:Y=Y-1:G=G+F:IFG>=V1(B )THEN530:ELSE520       DR 810 PRINT"{DOWN}"DS\$:GETKEY A\$:PRINT"{DOWN}"DS\$:GETKEY BN 800 GETKEYA\$:PRINT"{CLR}":RETURN XH 820 PRINT"{DOWN}"DS\$:GETKEY BN 800 GETKEYA\$:PRINT"{CLR}":RETURN XH 820 PRINT"{DOWN}"DS\$:GETKEY BN 800 GETKEYA\$:PINT"{CLR}":RETURN XH 820 PRINT"{DOWN}"DS\$:GETKEY BN 800 GETKEYA\$:PINT"{CLR}":RETURN XH 820 PRINT"{DOWN}"DS\$:GETKEY BN 800 GETKEYA\$:PINT"{CLR}":RETURN XH 820 PRINT"{DOWN}"DS\$:GETKEY BN 800 GETKEYA\$:PINT"{CLR}":RETURN XH 820 PRINT"{DOWN}"DS\$:GETKEY A\$:PINT"{CLR}":RETURN XH 820 PRINT"{COLOR 1{2 SPACES}} 15{4 LEFT}";C1:IFC1<1OR C1>16THENPRINT"{2 UP}":G OTO840 CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1;Y=SP+1 ITOX+SP-1,Y=SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN570:ELSE560 GP 570 DRAW2,X,YTOX+SP-1,Y=SP+ 1:DRAW1,J,KTOL,MTOX+SP- 20 870 COLOR0,1:COLOR4,T1:COLOR	GE	500				
MC 510 X2=80:Y2=81+SP:X3=X2:Y3 =Y2:Y4=81+SK:Y5=Y4:FORA =EY-SY41-FLTO15TEP-1:FO RC=1TOIT:V1(C)=V(A,C):N EXTC:FORB=1TOIT:X=X2-SP :Y=Y2:F=(E-S)/64:G=0:H= X+SK-1:I=Y+SK-1       ENRETURN:ELSEIFD\$<>"Y"T HEN770:ELSEPRINT"{CLR}" FH 790 DIRECTORY:IFDS<>0THENGO SUB810:GOTO790         RQ 520 DRAW3,X,YTOX+SK-1,Y+SK- 1:Y=Y-1:G=G+F:IFG>=V1(B )THEN530:ELSE520       BM 800 GETKEYA\$:PRINT"{CLR}":R ETURN         RX 530 J=X:K=Y:DRAW1,H,ITOH,Y+ SK:X=X2+SK-2:Y=Y4:G=0:H =X:I=Y       DR 810 PRINT"{DOWN}"DS\$:GETKEY A\$:PRINT"{CLR}":RETURN XH 820 PRINT"{CLR}":RETURN XH 820 PRINT"{CLR}":RETURN YH 820 PRINT"{CLR}":RETURN XH 820 PRINT"{CLR}":RETURN XH 820 PRINT"{CLR}":RETURN XH 820 PRINT"{CLR}":RETURN YH 840 INPUT"COLOR 3{CLP SC} YH 850 PRINT"{CLR}":RETURN YH 860 RET			OX3,0,0,159,199:COLOR3,	QQ	780	INPUT" {2 SPACES }Y
=Y2:Y4=81+SK:Y5=Y4:FORA =EY-SY+1-FLTOISTEP-1:FO RC=1TOIT:V1(C)=V(A,C):N EXTC:FORB=1TOIT:X=X2-SP :Y=Y2:F=(E-S)/64:G=Ø:H= X+SK-1:I=Y+SK-1       HEN77Ø:ELSEPRINT"{CLR}" SUB81Ø:GOTO79Ø         RQ 52Ø DRAW3,X,YTOX+SK-1,Y+SK- 1:Y=Y-1:G=G+F:IFG>=V1(B )THEN53Ø:ELSE52Ø       BM 80Ø GETKEYAS;PRINT"{CLR}":RETURN AS:PRINT"{CLR}":RETURN XH 82Ø PRINT"{CDN}"DS\$:GETKEY AS:PRINT"{CLR}":RETURN XH 82Ø PRINT"{CLR}":RETURN XH 82Ø PRINT"{CLR}":RETURN XS:GETKEY SS:GETKEY SS:GETKEY SS:GETKEY: SS:COLORS"         DQ 54Ø DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B )THEN55Ø:ELSE54Ø       HB 83Ø INPUT"COLOR 1{2 SPACES} SS 4 LEFT}";C1:IFC1<10R C1>16THENPRINT"{2 UP}": GOTO83Ø         CP 55Ø DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 DA 56Ø DRAW2,X,YTOX+SP-1,Y-SP+ 1:X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN57Ø:ELSE56Ø       MJ 84Ø INPUT"COLOR 3{2 SPACES} 7{3 LEFT}";C3:IFC3<10RC 3>16THENPRINT"{2 UP}":G OTO85Ø         GP 57Ø DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP-       WR 86Ø RETURN SQ 87Ø COLORØ,1:COLOR4,T1:COLO	NO	51.0		1		
=EY-SY+1-FLT0ISTEP-1:F0 RC=1T0IT:V1(C)=V(A,C):N EXTC:FORB=1T0IT:X=X2-SP :Y=Y2:F=(E-S)/64:G=Ø:H= X+SK-1:I=Y+SK-1       FH 79Ø DIRECTORY:IFDS<>ØTHENGO SUB81Ø:GOT079Ø         RQ 52Ø DRAW3,X,YTOX+SK-1,Y+SK- 1:Y=Y-1:G=G+F:IFG>=V1(B )THEN53Ø:ELSE52Ø       BM 80Ø GETKEYA\$:PRINT"{CLR}":RETURN A\$:PRINT"{DOWN}"DS\$:GETKEY A\$:PRINT"{CLR}":RETURN XH 82Ø PRINT"{CUR}":RETURN XH 82Ø PRINT"{CUR}":CLR}":RETURN XH 82Ø PRINT"{CUR}":CLR}":RETURN XH 82Ø PRINT"{CUR}":CLR}":RETURN XH 82Ø PRINT"{CUR}":CLR}":RETURN C1>16THENPRINT"{2 UP}": G0T083Ø         Q54Ø DRAW1,X,YTOX-SP+2,Y+SP- X:G=Ø:L=X+SP-1:M=Y-SP+1 NTOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN57Ø:ELSE56Ø       MJ 84Ø INPUT"COLOR 3{2 SPACES} 7{3 LEFT}";C3:IFC3 <iorc 3&gt;16THENPRINT"{2 UP}":G OT085Ø         GP 57Ø DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP-       MR 86Ø RETURN SQ 87Ø COLORØ,1:COLOR4,T1:COLO</iorc 	MC	210				
EXTC:FORB=1TOIT:X=X2-SP :Y=Y2:F=(E-S)/64:G=Ø:H= X+SK-1:I=Y+SK-1 DR 8109 PRINT"{DWN}"DS\$:GETKEY A\$:PRINT"{DWN}"DS\$:GETKEY A\$:PRINT"{DWN}"DS\$:GETKEY A\$:PRINT"{DWN}"DS\$:GETKEY A\$:PRINT"{DWN}"DS\$:GETKEY A\$:PRINT"{CLR}":RETURN X+SK-1:I=Y+1:G=G+F:IFG>=V1(B )THEN550:ELSE520 S40 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B )THEN550:ELSE540 CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 DA 560 DRAW2,X,YTOX+SP-1,Y-SP+ 1TOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> S50 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- S0 870 COLOR0,1:COLOR4,T1:COLO			=EY-SY+1-FLTO1STEP-1:FO	FH	790	DIRECTORY: IFDS <> ØTHENGO
:Y=Y2:F=(E-S)/64:G=Ø:H= X+SK-1:I=Y+SK-1 RQ 520 DRAW3,X,YTOX+SK-1,Y+SK- 1:Y=Y-1:G=G+F:IFG>=V1(B )THEN530:ELSE520 KR 530 J=X:K=Y:DRAW1,H,ITOH,Y+ SK:X=X2+SK-2:Y=Y4:G=Ø:H =X:I=Y DQ 540 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B )THEN550:ELSE540 CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 BA 560 DRAW2,X,YTOX+SP-1,Y-SP+ 1:X=X+1:Y=Y+1:G=G+1:IFG> SF 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- 2:Y=Y-1:G=C+1:Y=SP+1 CP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- 2:Y=Y-1:G=C+1:Y=SP+1 CP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- 2:Y=Y-1:G=C+1:Y=SP+1 CP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- 2:Y=Y-1:G=C+1:Y=SP+1 CP 570 DRAW2,X,YTOX+SP-1,Y-SP+ CP 570 DRAW2,X				BM	800	
X+SK-1:I=Y+SK-1       DR 810 PRINT"{DWN}"DS\$:GETKEY A\$:PRINT"{CLR}":RETURN         RQ 520 DRAW3,X,YTOX+SK-1,Y+SK- 1:Y=Y-1:G=G+F:IFG>=V1(B 3]=X:K=Y:DRAW1,H,ITOH,Y+ SK:X=X2+SK-2:Y=Y4:G=0:H =X:I=Y       DR 810 PRINT"{DWN}"DS\$:GETKEY A\$:PRINT"{CLR}":RETURN         DQ 540 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B 3]THEN550:ELSE550       DR 810 PRINT"{DWN}"DS\$:GETKEY A\$:PRINT"{CLR}":RETURN         DQ 540 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B 3]THEN550:ELSE550       DR 810 PRINT"{DWN}"DS\$:GETKEY A\$:PRINT"{CLR}":RETURN         DW 340 INPUT"COLOR 1{2 SPACES}       SGT0830         CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 1TOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN570:ELSE560       MJ 840 INPUT"COLOR 3{2 SPACES} 7{3 LEFT}";C3:IFC3<1ORC 3>16THENPRINT"{2 UP}":G OT0850         GP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP-       MR 860 RETURN SQ 870 COLOR0,1:COLOR4,T1:COLO				DM	000	
1:Y=Y-1:G=G+F:IFG>=V1(B )THEN53Ø:ELSE52Ø       XH 82Ø PRINT"{RVS}ENTER THREE {SPACE}COLORS"         KR 53Ø J=X:K=Y:DRAW1,H,ITOH,Y+ SK:X=X2+SK-2:Y=Y4:G=0:H =X:I=Y       PB 83Ø INPUT"COLOR 1{2 SPACES} IS{4 LEFT}";Cl:IFCl<1OR Cl>16THENPRINT"{2 UP}": GOTO83Ø         DQ 54Ø DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B )THEN55Ø:ELSE54Ø       MJ 84Ø INPUT"COLOR 2{2 SPACES} 4{3 LEFT}";C2:IFC2<1ORC 2>16THENPRINT"{2 UP}":G COTO84Ø         CP 55Ø DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 ITOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN57Ø:ELSE56Ø       QK 85Ø INPUT"COLOR 3{2 SPACES} 7{3 LEFT}";C3:IFC3<1ORC 3>16THENPRINT"{2 UP}":G OTO85Ø         GP 57Ø DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP-       MR 86Ø RETURN SQ 87Ø COLORØ,1:COLOR4,T1:COLO			X+SK-1:I=Y+SK-1	DR	810	PRINT" {DOWN} "DS\$:GETKEY
)THEN530:ELSE520 KR 530 J=X:K=Y:DRAW1,H,ITOH,Y+ SK:X=X2+SK-2:Y=Y4:G=0:H =X:I=Y DQ 540 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B )THEN550:ELSE540 CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 BA 560 DRAW2,X,YTOX+SP-1,Y-SP+ 1TOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> GP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- 32 (SPACE)COLORS" PB 830 INPUT"COLOR 1{2 SPACES} 15{4 LEFT}";Cl:IFCl(OR Cl)ST BA 540 DRAW2,X,YTOX-SP+2,Y+SP- COLOR 3{2 SPACE} CP 550 DRAW2,X,YTOX+SP-1,Y-SP+ CP 570 DRAW2,X,YTOX+SP-1	RQ	520		YH	820	
KR 530 J=X:K=Y:DRAW1,H,ITOH,Y+ SK:X=X2+SK-2:Y=Y4:G=0:H =X:I=Y       PB 830 INPUT"COLOR 1{2 SPACES} 15{4 LEFT}";Cl:IFCl <or Cl&gt;16THENPRINT"{2 UP}": COTO830         DQ 540 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG&gt;=V1(B )THEN550:ELSE540       MJ 840 INPUT"COLOR 2{2 SPACES} 4{3 LEFT}";C2:IFC2<iorc 2&gt;16THENPRINT"{2 UP}":G OTO840         CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 1TOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG&gt; =SK-1THEN570:ELSE560       QK 850 INPUT"COLOR 3{2 SPACES} 7{3 LEFT}";C3:IFC3<iorc 3&gt;16THENPRINT"{2 UP}":G OTO850         GP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP-       SQ 870 COLOR0,1:COLOR4,T1:COLO</iorc </iorc </or 			The second se	An	020	
=X:I=Y DQ 54Ø DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B )THEN55Ø:ELSE54Ø CP 55Ø DRAW3,H,ITOH,Y+1:X=J:Y= K:G=Ø:L=X+SP-1:M=Y-SP+1 BA 56Ø DRAW2,X,YTOX+SP-1,Y-SP+ ITOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN57Ø:ELSE56Ø GP 57Ø DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- SQ 87Ø COLORØ,1:COLOR4,T1:COLO	KR	530	J=X:K=Y:DRAW1,H,ITOH,Y+	PB	830	INPUT"COLOR 1{2 SPACES}
DQ 540 DRAW1,X,YTOX-SP+2,Y+SP- 2:Y=Y-1:G=G+F:IFG>=V1(B )THEN550:ELSE540 CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 BA 560 DRAW2,X,YTOX+SP-1,Y-SP+ 1TOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN570:ELSE560 GP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- SQ 870 COLOR0,1:COLOR4,T1:COLO						
2:Y=Y-1:G=G+F:IFG>=V1(B )THEN550:ELSE540 CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1 BA 560 DRAW2,X,YTOX+SP-1,Y-SP+ ITOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN570:ELSE560 GP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- SQ 870 COLOR0,1:COLOR4,T1:COLO	DO	540	A REAL PROPERTY AND A REAL			
CP 550 DRAW3,H,ITOH,Y+1:X=J:Y= K:G=0:L=X+SP-1:M=Y-SP+1       2>16THENPRINT"{2 UP}":G OTO840         BA 560 DRAW2,X,YTOX+SP-1,Y-SP+ ITOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN570:ELSE560       QK 850 INPUT"COLOR 3{2 SPACES} 7{3 LEFT}";C3:IFC3 <lorc 3&gt;16THENPRINT"{2 UP}":G OTO850         GP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP-       NR 860 RETURN SQ 870 COLOR0,1:COLOR4,T1:COLO</lorc 			2:Y=Y-1:G=G+F:IFG>=V1(B	MJ	840	INPUT"COLOR 2{2 SPACES}
K:G=0:L=X+SP-1:M=Y-SP+1       OT0840         BA 560 DRAW2,X,YTOX+SP-1,Y-SP+       QK 850 INPUT"COLOR 3{2 SPACES}         ITOX+SP-1,Y-SP+2TOX,Y+1       7{3 LEFT}";C3:IFC3 <iorc< td="">         :X=X+1:Y=Y+1:G=G+1:IFG&gt;       3&gt;16THENPRINT"{2 UP}":G         =SK-1THEN570:ELSE560       OT0850         GP 570 DRAW2,X,YTOX+SP-1,Y-SP+       MR 860 RETURN         1:DRAW1,J,KTOL,MTOX+SP-       SQ 870 COLOR0,1:COLOR4,T1:COLO</iorc<>	CD	550				
BA 56Ø DRAW2,X,YTOX+SP-1,Y-SP+ 1TOX+SP-1,Y-SP+2TOX,Y+1 :X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN570:ELSE560 GP 57Ø DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- SQ 87Ø COLORØ,1:COLOR4,T1:COLO       QK 85Ø INPUT"COLOR 3{2 SPACES} 7{3 LEFT}";C3:IFC3<1ORC 3>16THENPRINT"{2 UP}":G 0T0850 MR 860 RETURN SQ 870 COLORØ,1:COLOR4,T1:COLO	CP	550				OT084Ø
:X=X+1:Y=Y+1:G=G+1:IFG> =SK-1THEN570:ELSE560 GP 570 DRAW2,X,YTOX+SP-1,Y-SP+ 1:DRAW1,J,KTOL,MTOX+SP- SQ 870 COLOR0,1:COLOR4,T1:COLO	BA	560	DRAW2, X, YTOX+SP-1, Y-SP+	QK	850	
=SK-1THEN570:ELSE560 OT0850 GP 570 DRAW2,X,YTOX+SP-1,Y-SP+ l:DRAW1,J,KTOL,MTOX+SP- SQ 870 COLOR0,1:COLOR4,T1:COLO				1.		
1:DRAW1, J, KTOL, MTOX+SP-   SQ 870 COLOR0, 1:COLOR4, T1:COLO			=SK-1THEN570:ELSE560			OT0850
	GP	570				
			TEDRAWI, J, KTOL, MTOX+SP-	50	870	COLORØ, 1:COLOR4, T1:COLO

		1,Y-SP+1:X2=X2+SK:Y2=Y2 +SK:Y4=Y4+SK:NEXTB:X2=X
		3-SP:Y2=Y3+SP:Y4=Y5+SP:
		X3=X2:Y3=Y2:Y5=Y4:NEXTA
QR	580	SLOW:COLOR4, 1: POKE208,0 :GETKEYA\$:GRAPHIC0, 1:CO
		LORØ, 16:COLOR4, 7
DJ	59Ø	PRINT"{2 DOWN}{BLK}
		(RVS) SAVE GRAPH TO DISK
		(Y/N/Q)?{OFF} {RVS} {OFF}{LEFT}";
CH	600	GETKEYB\$
MS	610	IFB\$="Y"THENPRINT"YES
		<pre>{RVS} {OFF}":SLEEP1:GOT 0650</pre>
BS	620	IFB\$="N"THENPRINT"NO
		{RVS} {OFF}":SLEEP1:GOT
CP	630	O4Ø IFB\$="Q"THENEND
KP	640	GOTO 600
QX	65Ø	GOSUB88Ø
DD	660	FAST:BSAVE (SG\$), BØ, P819
нк	670	2TOP16383:SLOW:GOTO900 GOSUB880:GOSUB820
HF	680	DOPEN#1, (SG\$): IFDS <> ØTH
		ENGOSUB810:CLOSE1:GOTO6 70:ELSECLOSE1
KA	690	T1=1:GOSUB870:FAST:BLOA
		D(SG\$), BØ, P8192: SLOW
JC	700	GRAPHIC3: POKE208, 0:GETK
PG	710	EYB\$:GOTO4Ø GRAPHIC3:COLORØ,1:COLOR
		4,1:POKE208,0:GETKEYBS:
		GRAPHICØ:COLORØ, 16:COLO
AE	720	R4,7:RETURN INPUT"{RVS}STARTING MON
		TH? (1-12) {OFF}
		{2 SPACES}1{3 LEFT}";M1
		:IFM1 <lorm1>12THENPRINT "{2 UP}":GOTO720</lorm1>
хн	730	M2= (M1+12)-13: IFM2=ØTHE
		NM2=12
BP	740	PRINT" {RVS} ENDING MONTH ? (1-12) {OFF} {2 SPACES}
		"M2;:INPUT" {5 LEFT} ";M3
		:IFM3<10RM3>12THENPRINT
OB	750	"{2 UP}":GOTO74Ø M\$="JANFEBMARAPRMAYJUNJ
	1. 2. 2.	ULAUGSEPOCTNOVDEC":Y1\$=
		MID\$ (M\$, M1*3-2,3): Y2\$=M
		ID\$ (M\$, M3*3-2, 3): SY=0:E Y= (12-M1) - (12-M3) +1: IFE
		Y<=ØTHENEY=EY+12
	760 770	FL=1:RETURN
SJ	110	PRINT" {DOWN} {RVS}NEED T O SEE THE DIRECTORY FIR
		ST? (Y/N)"
QQ	780	INPUT"{2 SPACES}Y {3 LEFT}";D\$:IFD\$="N"TH
		ENRETURN: ELSE IFD\$ <> "Y"T
		HEN770:ELSEPRINT"{CLR}"
FH	790	DIRECTORY: IFDS <> 0THENGO
BM	800	SUB810:GOTO790 GETKEYAS:PRINT"{CLR}":R
		ETURN
DR	810	PRINT" {DOWN} "DS\$: GETKEY
хн	820	A\$: PRINT" {CLR}": RETURN PRINT" {RVS} ENTER THREE
		{SPACE}COLORS"
PB	830	INPUT"COLOR 1{2 SPACES}
		15{4 LEFT}";C1:IFC1<1OR C1>16THENPRINT"{2 UP}":
	-	GOTO 83Ø
MJ	840	INPUT"COLOR 2{2 SPACES}
		4{3 LEFT}";C2:IFC2<1ORC 2>16THENPRINT"{2 UP}":G
~		OT084Ø
QK	850	INPUT"COLOR 3{2 SPACES} 7{3 LEFT}";C3:IFC3<10RC
		3>16THENPRINT"{2 UP}":G
	-	OT085Ø
MR	860	RETURN

	R1,C1:COLOR2,C2:COLOR3,
	C3:GRAPHIC3, 1:RETURN
EP 880	GOSUB770: PRINT" {RVS}ENT
	ER NAME OF GRAPH (1-16
	{SPACE}CHRS) "
GM 890	INPUTSGS: IFLEN (SGS) <10R
	LEN (SG\$)>16THENPRINT"
	{2 UP}":GOTO890:ELSERET
	URN
KG 900	IFDS <> 0THENGOSUB810:GOT

0650:ELSE40

### **Eight Thousand** Dragons

### See instructions in article on page 59 before typing in.

								(married
Ø801:0B	08	Ø1	ØØ	9E	32	30	36	ØD
0809:31	00	00	00	AD	8A	09	8D	E8
Ø811:20	DØ	A9	Ø1	A2	Ø8	9D	B1	CC
0819:09	ØA	CA	DØ	F9	A9	FF	8D	9A
Ø821:ØF		A9	80	8D	12	D4	8D	17
	D4							
Ø829:18	D4	AØ	ØØ	AD	8B	Ø9	ØA	46
Ø831:ØA	ØA	ØA	ØD	8A	Ø9	99	ØØ	86
0839:04	99	ØØ	Ø5	99	ØØ	Ø6	99	74
0841:00	07	C8	DØ	F1	A9	ØØ	A2	12
Ø849:ØF	9D	93	Ø9	CA	DØ	FA	A9	84
0851:18	8D	18	DØ	AD	11	DØ	09	3D
0859:20	8D	11	DØ	A9	ØØ	85	FB	60
Ø861:A2	20	86	FC	AØ	00	91	FB	8F
Ø869:C8		FB		FC		DØ	F4	A9
	DØ	100	E6		CA	- CT (Tr)		
Ø871:A9	ØØ	AØ	ØE	99	A3	Ø9	88	41
Ø879:CØ	FF	DØ	F8	A9	60	85	FD	6B
Ø881:A9	84	85	FE	A9	64	85	FB	ØE
Ø889:A9	34	85	FC	AØ	ØØ	A9	80	D4
0891:91	FB	AØ	ØØ	A2	00	18	BD	80
0899:95	09	7D	A3	09	7D	A4	09	31
Ø8A1:29	ØI	DØ	04	88	4C	AA	08	B3
A DESCRIPTION OF THE PARTY OF					E8	98	29	D9
Ø8A9:C8	E8	EØ	ØE	DØ		and the second	22	1000
Ø8B1:07	A8	B9	8C	09	8D	CØ	08	77
Ø8B9:B9	8D	09	8D	C1	Ø8	4C	FF	CA
Ø8C1:FF	E6	FD	A5	FD	29	07	AA	F2
Ø8C9:DØ	ØD	A5	FB	18	69	08	85	F5
Ø8D1:FB	A5	FC	69	ØØ	85	FC	4C	DB
Ø8D9:42	09	E6	FE	A5	FD	29	07	98
Ø8E1:AA	A5	FE	29	07	DØ	10	E6	A5
Ø8E9:FC	AS	FB	18	69	39	85	FB	1A
		Contra Co				17 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Ø8F1:9Ø	02	E6	FC	4C	42	09	E6	DB
Ø8F9:FB	FØ	F7	4C	42	Ø9	C6	FD	C9
Ø901:A5	FD	29	07	AA	C9	07	DØ	56
0909:38	A5	FB	38	E9	Ø8	85	FB	1A
Ø911:A5	FC	E9	ØØ	85	FC	4C	42	6D
0919:09	C6	FE	A5	FD	29	07	AA	E8
Ø921:A5	FE	29	07	C9	07	DØ	10	77
Ø929:C6	FC	A5	FB	38	E9	39	85	B3
Ø931:FB	BØ	ØE	C6	FC	4C	42	Ø9	42
	100 M 100							
Ø939:A5	FB	38	E9	Øl	85	FB	90	69
Ø941:F2	AØ	ØØ	B1	FB	1D	B2	Ø9	D2
0949:91	FB	EE	B1	09	A2	ØE	BD	C8
Ø951:A3	09	C9	02	DØ	ØB	A9	00	D6
Ø959:9D	A3	09	FE	A2	09	CA	DØ	D3
Ø961:EE	AD	A3	09	DØ	03	4C	93	1A
0969:08	20	E4	FF	C9	00	FØ	F9	4E
Ø971:C9	51	FØ	12	AØ	02	AD	18	7F
			99					15
Ø979:D4	29	01		94	09	C8	CØ	
Ø981:ØF	DØ	F3	4C	5D	08	4C	18	4E
Ø989:E5	øø	Ø8	C2	Ø8	DB	Ø8	FF	7B
0991:08	1A	Ø9	00	00	00	ØØ	00	4F

### **Excelfont 80**

See instructions in article on page 56 before typing in.

### Program 1: EXCELLDR

- HE 10 REM COPYRIGHT 1988 COMPU TE! PUBLICATIONS, INC. -ALL RIGHTS RESERVED
- 72 COMPUTE!'s Gazette June 1988

	ST: POKE 2606, 8: POKE	2607,2	LE {2 SPACES ] B {PUR ] B"SP
	4: GRA PH IC5, 1: SYS 52	684,8,	C(64)"B"
	12:SYS52684,24,20: 84,96,34:COLOR6,15		270 PRINT"(6)B SIZE (5 SPACES)B (PUR)B"SPC(
XF	30 PRINT" {WHT} {5 DOWN	}"TAB(	64)"B"
	10) "{A}CCCCCCCCCCCCC	CCCCCC JJ	280 PRINT" (6)B CHRSET
	000000000000000000000000000000000000000		<pre>{3 SPACES]B {PUR}B"SPC( 64)"B"{53 SPACES}"</pre>
FQ	40 FORI=. TO2: PRINTTAE		290 PRINT"(6) (Z)CCCCCCCCC
- *	"TAB (69) "B":NEXT	-	(X) [PUR] {Z}CCCCCCCCCCCC
CQ	50 PRINTTAB (10) "B"TAE	(34)"E	
QS	XCELFONT 80"TAB (69 60 PRINTTAB (10) "B"TAB	(69)"B	CCCCCCC {X} ";
		SP	300 POKE2606,8: POKE2607,24:
DD	70 PRINTTAB (10) "B"TAE		SYS4864:RETURN
103	C) 1988 COMPUTE! I NC. "TAB (69) "B"	Pro	gram 2: EXCELBAS.
XG	80 PRINTTAB (10) "B"TAN	(30)"A BS	10 TRAP1020:BANK15:MAS="
	LL RIGHTS RESERVED	"TAB (6	{UP}{RIGHT}{DOWN}{LEFT}D
RQ	9) "B" 90 PRINTTAB(10) "B"TAB	(69)"B	SLYGHB8462WPRR{RVS}FM {CLR}N)OON{HOME}QTEC{A}"
	"		:SYS24812, 9, , CHR\$ (1)
KR	100 FORI=. TO2: PRINTTA		20 FORI=. TO48: SYS3072, 34, I:
MO	B"TAB(69)"B":NEXT 110 PRINTTAB(10)"{Z}		SYS3072,35,96-I:NEXT
MQ	ccccccccccccccccc		30 SYS3072,12,0:SYS3072,13, 0:SYS3072,20,16:POKE2606
121	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	CCCCCCC	.Ø: POKE2607,16:COLOR6,1:
	CCCCC {X} ":SYS 526		SLEEP1
KA	120 CHAR1, 33, 16, "LOAN {2 SPACES}ML"		40 FORI=.TO48:SYS3072,34,48 -I:SYS3072,35,48+I:NEXT
1.00	EXCEL.OBJ" : BLOAD		50 FORI=1T08: READX (I), Y(I):
	OBJ1"		NEXT
JR	130 CHAR1, 33, 16, "SET" {2 SPACES}UP"	GOSUB1 KR	60 IFPA<>.THENSYS3114,PA/25 6,PAAND255,7:SYS3114,CA/
	50		256, CAAND255, 141
JA	140 CHAR1, 28, 16, "{WH	r}LOADI JC	70 WINDOW14,20,77,23,1:PRIN
125	NG MAIN PROGRAM.	":CLR	TCHR\$(142)"{WHT}(U)PPERC
FH	:RUN"EXCEL.BAS" 150 POKE2606,.:POKE2	607.16:	ASE OR (L) OWERCASE?":GET KEYAS:IFAS="U"THENCC=.:I
	PRINT" {CLR} "		=208:ELSEIFA\$="L"THENCC=
MR	160 PRINTTAB (34) "{B}	and the second se	1:I=216:ELSE70
05	CELFONT 80" 170 PRINT"{CYN}{3 SP		<pre>8Ø INPUT"# OF EDITING ROWS( 1-16)";R:R=R-1:IFR&lt;.ORR&gt;</pre>
20	{B}12345678"CHR\$	(130)"	15THEN 80
	{2 SPACES} {YEL} {		90 WINDOW1, 20, 10, 23: CHAR1, 7
			,3,CHR\$(153)+STR\$(CC) 100 IFR<10THENA\$=" ":ELSEA\$
193	CCCCCCCCCCCC {s}	" ER	=""
EB	180 FORI=1TO4:PRINT"		110 A\$=A\$+STR\$(R):CHAR1,5,2
1	TR\$(I)"{M}"SPC(8 {YEL} <u>B</u> "SPC(64)" <u>B</u>		,A\$ 120 BANK14:SYS3890,I:BANK15
BC	190 PRINT"{CYN} 5 M	"SPC(8)	:SYS3784
	"{G} {YEL}{Z}CCC		130 CX=.:CY=.:SYS3254,48,0:
	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		SYS3289:X=.:Y=.:PA=4259
	CCCCCCCC {X}"		:SYS3114,16,174,181:CA= 4270:SYS3114,16,163,59:
AJ	200 PRINT" (CYN) 6 4M}		AH=48:AL=.:W=1
	"{G} {WHT} {A}CCC	the second se	140 SYS3158, AH, AL: SYS3289
1	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		150 WINDOW14,20,77,23,1 160 J=JOY(2):IFJ=.THENB=.:G
1	CCCCCCCC{s}"		OTO 260
MC	210 FORI=7T09: PRINT"		170 IFJ>127THEN230
	TR\$(I)"{M}"SPC(8 {WHT}B"SPC(64)"B		180 B=. 190 SYS3114, PA/256, PAAND255
DM	220 FORI=10T016:PRIN	T"{CYN}	,15:X=X+X (J):Y=Y+Y (J)
	{LEFT}"STR\$(I)"{	M}"SPC( ED	200 IF (X<.) OR (X>7) THENX=X-X
	8)"{G} {WHT} <u>B</u> "SP ":NEXT		(J) 210 IF (V/ ) OP (V) 15) THENVEY-
JR	230 PRINT"{CYN} {3 SP		210 IF (Y<.) OR (Y>15) THENY=Y- Y(J)
-	{8 T}{2 SPACES}{	WHT } Z MP	220 PA=Y*80+X+4259:SYS3114,
	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		PA/256, PAAND255, 59: GOTO
	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		260 230 J=JAND15:IFB=1THEN250
JR	240 PRINT" \$63 \$A3CCCC		240 B=1:SYS3125, (PA-4096)/2
	\$\$\$ {PUR} \$A}CCCC		56, (PA-4096) AND 255: RREG
	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		<pre>,,S:IFS&gt;32THENS=.:ELSES =1</pre>
	CCCCCCC{s}"		250 SYS3220,8-X,Y,S:SYS3158
KG	250 PRINT" (6)B WRAP		,AH,AL:SYS3254,AH,AL:SY
	{2 SPACES}ON <u>B</u> { PC(64)"B"	PURIE"S	S3289:IFJ=.THEN260:ELSE GOTO190
SB		CES WHO KK	260 GETA\$:A=INSTR(MA\$,A\$):I

PD 20 GRAPHIC1,1:GRAPHIC0,1:FA SB 260 PRINT" (6)B(3 SPACES)WHO KK

	10	TRAP1020:BANK15:MAS="
		{UP} {RIGHT} {DOWN} {LEFT}D
		SLYGHB8462WPRR [RVS] FM
		{CLR}N)OON (HOME)QTEC (A)"
	20	:SYS24812,,9,,,CHR\$(1) FORI=.TO48:SYS3072,34,I:
	20	SYS3072,35,96-I:NEXT
	30	CVC3072.12.0:SYS3072.13.
	30	Ø:SYS 3072,20,16:POKE 2606
		.Ø: POKE2607,16:COLOR6,1:
		SLEEPI
	40	FORI =. TO48: SYS3072, 34, 48
		-I:SYS3072,35,48+I:NEXT
	50	FORI=1TO8:READX(I),Y(I):
		NEXT
	60	IFPA<>.THENSYS3114, PA/25
		6, PAAND255, 7:SYS3114, CA/
		256, CAAND255, 141
	70	WINDOW14,20,77,23,1:PRIN
		TCHR\$(142)"{WHT}(U)PPERC
		ASE OR (L) OWERCASE?": GET
		KEYAS: IFAS="U"THENCC=.:I
		=208:ELSEIFA\$="L"THENCC=
		1:I=216:ELSE70
	80	INPUT"# OF EDITING ROWS (
		1-16)";R:R=R-1:IFR<.ORR>
	0.7	15THEN80
	9Ø	WINDOW1,20,10,23:CHAR1,7 ,3,CHR\$(153)+STR\$(CC)
	10	
	101	=""
	11	
		,A\$
	12	
		:SYS3784
	13	
		SYS3289:X=.:Y=.:PA=4259
		:SYS3114,16,174,181:CA=
		4270:SYS3114,16,163,59:
		AH=48:AL=.:W=1
	14	
	15	Ø WINDOW14,20,77,23,1
	16	
	1 -	0T0260
	17	All the second sec
201	18	
	19	,15:X=X+X (J):Y=Y+Y (J)
	20	
	20	(J)
1	21	
		Y (J)
•	22	Ø PA=Y*8Ø+X+4259:SYS3114,
		PA/256, PAAND255, 59: GOTO
		260
	23	
	24	
		56, (PA-4096) AND 255: RREG
		,,S:IFS>32THENS=.:ELSES
		=1
1	25	
		,AH,AL:SYS3254,AH,AL:SY
		S3289: IFJ=. THEN260: ELSE
	20	GOTO190
	26	Ø GETA\$:A=INSTR(MA\$,A\$):I

		and the second
BS	274	FA=.THEN160
JR		
0		0,420,430,440,450,460,4
13/3		70,480,490,500,520,540.
a la ca		550,560,570,580,600,610
100		,630,640,650,660,670,68
		0,690,780
SQ DE	290	A=A-28:0NAGOTO790,800
DE	500	A=A*2-1:CX=CX+X(A):CY=C Y+Y(A):SYS3114,CA/256,C
35		AAND255,141
PG	310	IF (CX<.) OR (CX>63) THENCX
1000		=CX-X (A)
QB	320	IF (CY<.) OR (CY>3) THENCY=
		CY-Y(A)
JM	330	CA=CY*80+CX+4270:SYS312
1 die		5, (CA-4096)/256, (CA-409 6)AND255:RREG, C:AD=122
		88+C*16:AL=ADAND255:AH=
1		AD/256
AQ	340	
		YS3114,CA/256,CAAND255,
		181:GOTO160
RJ	350	POKE2606,8:POKE2607,24: PRINT"{WHT}{2 HOME}
1		{CLR}":FORI=8TO.STEP-1:
		SYS3072,23,1:FORD=.TO99
		:NEXT:NEXT:SYS3072,12,8
1000		:SYS3072,13,0:SYS3072,2
		0,24:SYS3072,23,8:DIREC
-	260	TORY
PD	360	PRINT" {RVS}PRESS ANY K EY TO CONTINUE":GETKEYA
		\$:FORI=8TO.STEP-1:SYS30
		72,23, I:FORD=.TO99:NEXT
and a		:NEXT:SYS3072,34,96:FOR
	1	D=.TO99:NEXT
JP	370	SYS3072,12,0:SYS3072,13
		,0:SYS3072,20,16:POKE26
		06,0:POKE2607,16:SYS307 2,34,.:FORI=.TO8:FORD=.
		T099:NEXT:SYS3072,23,I:
		NEXT: GOTO160
KS	380	SYS3744:WINDOW14,20,77,
		23,1: INPUT" {WHT} SAVE FI
		LENAME";F\$:IFF\$=""THEN1 50
SQ	390	BSAVE (F\$), P8192TOP12288
	550	:GOTO150
PG	400	WINDOW14, 20, 77, 23, 1: INP
		UT" {WHT } LOAD FILENAME";
		F\$: IFF\$=""THEN150
77	410	BLOAD (F\$), P8192: SYS3784
		:SYS 3254, AH, AL:SYS 3289: GOT0150
BE	420	SYS3568, W, X: GOTO140
SJ	430	SYS3443, W, Y: GOTO140
PP	440	SYS3419, W, Y: GOTO140
XM	450	SYS3590, W, X: GOT0140
RR	460	SYS3670, W, R: GOTO140
MJ	470	SYS3612,W:GOTO140 SYS3641,W:GOTO140
RR	490	SYS3711, W, R: GOTO140
CB	500	W=XOR (W, 1):WINDOW1, 20,1
1	1388	0,23:IFW=1THENW\$="\$6} 0
		N":ELSEW\$="{6}OFF"
PP	510	CHAR1, 6, ., W\$: GOTO160
PB	520	<pre>P=XOR(P,1):WINDOW1,20,1 0,23:IFP=1THENP\$="{6}PA</pre>
		RT ":ELSEPS="{6}WHOLE"
нх	530	CHAR1, 3, 1, P\$: GOTO160
DG	540	SYS3486:GOTO140
PB	550	SYS3527: GOTO140
QP	560	GOSUB590:SYS3406,T:GOTO
0	570	140
GQ	570	GOSUB590:SYS3196:SYS338 9,T:GOTO140
DJ	580	GOSUB590:SYS3196:SYS346
	15 MAT	7, T: GOTO140
QB	590	IFP=1THENT=Y:RETURN:ELS
		ET=R:RETURN

DB		
SQ	610	WINDOW14,20,77,23,1:PRI NT"ARE YOU SURE?":GETKE
128		YAS: IFAS="N"ORAS <> "Y"TH
		EN150
AC	620	BANK14:SYS3890,208+CC*8
TIME		:BANK15:SYS3784:SYS3254
RX	630	,AH,AL:GOTO140 GOSUB590:SYS3196:SYS382
		Ø, T: SYS 3208: GOTO140
ER	640	SYS3949:GOTO160
JJ BP	65Ø 66Ø	SYS3961:GOTO14Ø RA= (208+CC*8)*256+(C*8)
51	000	:BANK14:FORI=.TO7:POKE2
		816+I, PEEK (RA+I): NEXT:F
Sec.		ORI=8T015: POKE2816+I,.:
FC	670	NEXT:BANK15: GOTO140
EG	010	SYS3114, PA/256, PAAND255 ,15:X=.:Y=.:PA=4259:SYS
		3114, PA/256, PAAND255, 59
-		:GOTO16Ø
SQ	680	WINDOW14,20,77,23,1:PRI
1914		NT" {WHT } QUIT CHARACTER {SPACE} SET": PRINT"ARE Y
		OU SURE?":GETKEYAS: IFAS
		="N"ORA\$ <> "Y"THEN150:EL
		SEGOTO6Ø
GA	690	IFR=70RR=15THENV=R:GOTO 710
AF	700	WINDOW14,20,77,23,1:INP
		UT"{WHT}# CHARACTER ROW
		S USED FOR ACTUAL DISPL
		AY(8/16)";V:V=V-1:IFV<>
20	710	7ANDV <>15THEN 700 FORI=8TO.STEP-1:SYS 3072
Q5	110	,23, I:FORD=.TO99:NEXT:N
		EXT: SYS3072, 34, 96
EP	720	IFV=15THENSYS3072,4,15:
		SYS3072,5,6:SYS3072,6,1
		2:SYS3072,7,15:SYS3072, 9,15:WINDOW0,0,79,11:SY
		S3072,11,15:ELSEPRINT"
		{2 HOME}"
AQ	730	POKE2606,8:POKE2607,24:
		PRINTCHR\$(11)"{WHT}
		{CLR}";:SYS3072,12,8:SY S3072,13,0:SYS3072,20,2
		4
AC	740	PRINTCHR\$ (142) TAB (34) "S
		AMPLE FONT": PRINTTAB (18
		) "{DOWN} {CYN} PRESS ALT {SPACE} TO RETURN TO MAI
		N SCREEN {WHT} "CHR\$ (14)
AF	750	SYS3072,34,.:FORI=.TOV:
		FORD=. T099: NEXT: SYS 3072
		,23, I:NEXT:SYS3973:FORI =120T0113STEP-1:SYS3072
		,22, I:FORD=.TO99:NEXT:N
		EXT:FORD=.TO99:NEXT
MH	760	IFV=15THENSYS3072,4,32:
		SYS3072,5,224:SYS3072,6
		,25:SYS3072,7,29:SYS307 2,9,231:SYS3072,23,232:
		SYS3072,11,7
PR	770	SYS3072,12,0:SYS3072,13
UNCOS		,0:SYS3072,20,16:POKE26
		Ø6,0:POKE2607,16:PRINTC
		HR\$(142):WINDOW14,20,77 ,23,1:FORI=113T0120:FOR
		D=.T099:NEXT:SYS3072,22
		, I:NEXT:GOTO160
KM	780	SYS3997:GOTO140
GD XE	790 800	SYS4019:GOTO140
AD	000	WINDOW14,8,77,17,1:H=H+ 1:IFH=4THENH=1
CQ	810	ONHGOTO820,910,970
PF	820	PRINT" (WHT) (B) CHARACTER
1000		EDIT FEATURES"SPC(11)"
CO	830	<pre>{B}MISC. FEATURES" PRINT"{3 SPACES}R</pre>
		{3 SPACES} - ROTATE CLOC
		KWISE"SPC(12)"T

		{3 SPACES} - TYPE/TRY FO
MK	840	NT" PRINT"SHFT-R - ROTATE C
	010	OUNTERCLOCKWISE
		{2 SPACES CMMD-9 - REV
XG	850	{SPACE}1ST TO 2ND HALF" PRINT"CTRL-R - REVERSE"
no	050	SPC(21) "O{3 SPACES}- RE
~ ~		STORE CHAR"
SJ	860	PRINT"{3 SPACES}F {3 SPACES}- FLIP"SPC(21
		) "SHFT-O - STASH CHAR"
QA	87Ø	PRINT" [3 SPACES ] M
		{3 SPACES} - MIRROR"SPC( 19)"SHFT-N - RESTORE RO
		M CHAR SET" PRINT"{3 SPACES}E
XE	880	PRINT"{3 SPACES}E
		{3 SPACES} - EXPAND CHAR "SPC(17)"Q{3 SPACES} - Q
		UIT CHAR SET"
DS	890	PRINT"{3 SPACES}C {3 SPACES}- COMPACT CHA
		R":PRINT"SH-CLR - CLEAR
		CHARACTER"
XG	900	PRINT"{3 SPACES}N {3 SPACES}- RESTORE ROM
		CHAR";:GOTO160
FS	910	PRINTSPC(23)"{WHT}{B}SC
FP	920	ROLLING FEATURES" PRINTSPC(7)"SCRL UP"SPC
-		(32) "SCRL COL UP"
BS	93Ø	PRINTSPC(10)" \$6\$8"SPC(4
		<pre>Ø) "Y":PRINT"{DOWN} {WHT} SCRL"SPC(11) "SCRL"</pre>
		SPC(22) "SCRL"SPC(11) "SC
		RL"
RA	940	PRINT" LEFT {6}4"SPC(7) "6 {WHT}RIGHT"SPC(21)"R
		OW {2 SPACES } \$6 \$ G "SPC (7)
~	05.0	"H {WHT}ROW"
CM	950	PRINTSPC(42)"LEFT"SPC(1 1)"RIGHT":PRINTSPC(10)"
		\$6} {DOWN}2"SPC(40)"B"
XC	960	PRINTSPC(6) "{WHT} SCRL D OWN"SPC(30) "SCRL COL DO
		WN";:GOTO160
QF	97Ø	PRINT" {WHT } {B}DISK COMM
		ANDS"SPC(21)"{B}TOGGLES
EK	98Ø	PRINT" {3 SPACES }D
		{3 SPACES}- DIRECTORY"S
		PC(16)"W{3 SPACES}- WRA P ON/OFF"
HA	990	PRINT" [3 SPACES]S
		{3 SPACES}- SAVE CHAR S ET"SPC(12)"P{3 SPACES}-
		PART/WHOLE CHAR EDIT"
CH	1000	PRINT"{3 SPACES}L
		<pre>{3 SPACES} - LOAD CHAR {SPACE}SET":PRINT"</pre>
		{3 SPACES }@{3 SPACES}-
		DOS COMMAND": PRINT"
		<pre>{B}{DOWN}CURSOR FEATUR ES"</pre>
RA	1010	PRINT" HOME {2 SPACES}-
		HOME CHAR EDIT CURSOR
		": PRINT"CURSOR": PRINT" KEYS {2 SPACES }- MOVE
		{SPACE}CHAR SELECT CUR
	1 000	SOR";:GOTO160
RJ XG	1020	
		SUME160
ХН	1040	<pre>DATA.,-1,1,-1,1,.,1,1, .,1,-1,1,-1,.,-1,-1</pre>
		.,1,-1,1,-1,.,-1,-1
Pro	ogra	m 3: EXCEL.OBJ.
		44 D6 20 44 D6 14 ED E2

ØCØØ:8D	ØØ	D6	2C	ØØ	D6	10	FB	F3
ØCØ8:8E	Ø1	D6	60	8D	00	D6	2C	CE
ØC10:00	D6	10	FB	AE	Ø1	D6	60	27
ØC18:8E	30	ØB	AA	A9	12	20	00	65

COMPUTEI's Gazette June 1988 73

ØC20:0C A9	13	AE	30	ØB	20	00	E3	ØEC8:A9 20 85 FB A9 00 AA 85 5A
ØC28:0C 60	20		ØC	98	AA	A9	A5	ØEDØ:FA A9 30 20 18 0C A0 00 0F
ØC30:1F 20	00		60	20	18	ØC	60	ØED8:B1 FA AA A9 1F 20 00 0C 02
A REAL PROPERTY OF A REAL PROPER		J				11-17-24	240347	ØEEØ:C8 DØ F5 E6 FB A5 FB C9 FA
ØC38:A9 1F	20		ØC	8A	A8	60	ED	
ØC40:A2 ØF	A9	00	9D	00	ØB	CA	70	
ØC48:10 FA	60	A2	ØF	A9	ØØ	9D	1A	ØEFØ:30 8D 3A ØB A9 38 8D 3B Ø5
ØC50:10 ØB	CA	10	FA	60	20	18	3F	ØEF8:0B A9 00 8D 39 0B AD 3A 69
ØC58:0C A0	00		1F	BE	00	ØB	38	ØFØØ:0B AE 39 ØB 20 B6 ØC AD C8
ØC60:20 00	ØC		CØ	10	DØ	F5	74	ØFØ8:36 ØB 20 4E ØD AD 3B ØB 8D
ØC68:60 20	18	10000	AØ	00	A9	1F	F3	ØF10:AE 39 ØB 20 56 ØC 18 AD F7
ØC70:BE 10	ØB	20	00	ØC	C8	CØ	Dl	
ØC78:10 DØ			A2	ØF	BD	00	5E	ØF20:0E EE 3B ØB EE 3A ØB AD 3D
ØC80:0B 9D	10	ØB	CA	10	F7	60	lF	ØF28:3B ØB C9 40 DØ 01 60 4C 7B
ØC88:A2 ØF	BD	10	ØB	9D	ØØ	ØB	48	ØF30:FE ØE 85 FB A9 20 85 FD 98
0C90:CA 10	F7	60	8E	31	ØB	AA	11	ØF38:A9 ØØ 85 FA 85 FC AØ ØØ EC
ØC98:38 A9		2A	CA	DØ	FC	AE	1C	ØF40:B1 FA 91 FC C8 C0 08 D0 22
ØCAØ: 31 ØE		00	DØ	09	49	FF	69	ØF48:F7 18 98 65 FA 85 FA 90 46
		9D	00	ØB	60	10	A4	ØF50:02 E6 FB A9 00 91 FC C8 4C
ØCA8:3D ØØ		1000						
ØCBØ:ØØ ØE		00	ØB	60	20	18	71	
ØCB8:0C AS	1F	AØ	ØØ	20	ØC	ØC	D3	ØF60:85 FC 90 02 E6 FD A5 FD 2B
ØCCØ:8A 99	ØØ	ØB	A9	1F	C8	CØ	51	ØF68:C9 30 D0 D2 60 A2 0F BD 28
ØCC8:10 D0	F2	60	48	8A	48	20	9E	ØF70:00 0B 9D 20 0B CA 10 F7 A2
ØCDØ:40 ØC	68	AA	68	20	56	ØC	40	ØF78:60 A2 ØF BD 20 ØB 9D 00 95
ØCD8:60 A9	A3	8D	39	ØB	A9	ØØ	22	ØF80:0B CA 10 F7 60 20 6F CD 88
ØCEØ:8D 3A		8D	3B	ØB	8D	3D	E6	ØF88:20 E4 FF DØ ØA A5 D3 29 B4
ØCE8:ØB AC		ØB	B9	00	ØB	8D	3B	ØF90:08 FØ F5 20 9F CD 60 20 C4
ØCFØ:3C ØE		3C	ØB	90	05	AØ	B4	
ØCF8:AØ 40		ØC	AØ	20	AD	3A	30	ØFAØ:ØF BD ØØ ØB 99 10 ØB 88 12
ØDØØ:ØB AB	: 39	ØB	20	2A	ØC	AC	91	ØFA8:99 10 ØB 88 CA 10 F2 20 1E
ØDØ8:3D ØE	CØ	07	FØ	ØE	EE	3D	E6	ØFBØ:88 ØC 60 20 4B ØC A2 07 FA
ØD10:0B EH	: 39	ØB	DØ	Ø3	EE	3A	ED	ØFB8:AØ ØE B9 ØØ ØB 9D 10 ØB DB
ØD18:08 40		ØC	18	AD	39	ØB	DE	ØFCØ:88 88 CA 10 F5 20 88 0C EC
ØD20:69 49		39	ØB	AD	3A	ØB	15	ØFC8:60 00 00 00 00 00 00 00 17
ØD28:69 Ø		3A	ØB	EE	3B	ØB	El	
								Program 4: EXCEL.OBJ1.
ØD3Ø:AØ ØØ		3D	ØB	AC	3B	ØB	80	Trogram 4. LACLLODJI.
ØD38:CØ 10		AD	60	<b>A8</b>	A2	ØØ	96	1300:A9 00 8D 36 0B 8D 38 0B 1A
ØD40:B9 00	ØB	9D	10	ØB	E.B	88	79	1308:8D 3C 0B AE 36 0B BD 54 FD
ØD48:10 F6	20	88	ØC	60	A8	<b>B9</b>	Al	
ØD50:00 ØE	49	FF	99	00	ØB	88	Cl	1310:13 8D 39 0B BD 58 13 8D FD
ØD58:10 F5		C9	ØØ	DØ	04	5E	4A	1318:3A ØB A2 3F 8E 38 ØB AD 7F
ØD60:00 ØE		18	7E	00	ØB	BØ	85	1320:3A ØB AE 39 ØB AC 3C ØB 1E
ØD68:01 60		80	10	ØØ	ØB	9D	F4	1328:20 2A 0C 18 AD 3A 0B 69 C1
								1330:10 AE 39 ØB AØ 8D 20 2A 87
ØD70:00 ØE		C9	00	DØ	Ø4	1E	5F	1338:0C EE 3C 0B EE 39 0B D0 9B
ØD78:00 ØE		18	3E	ØØ	ØB	BØ	9B	
ØD80:01 60		18 Ø1	3E 1D	00 00	ØB ØB	BØ 9D	9B 15	1340:03 EE 3A ØB CE 38 ØB 10 19
	A9							1340:03 EE 3A 0B CE 38 0B 10 19 1348:D6 EE 36 0B AE 36 0B E0 52
ØD80:01 60 ØD88:00 ØE	A9 60	Ø1 AA	1D AØ	00 08	ØB 7E	9D ØØ	15 3E	1340:03 EE 3A 0B CE 38 0B 10 19 1348:D6 EE 36 0B AE 36 0B E0 52 1350:04 90 B8 60 AE FE 4E 9E 66
ØD80:01 60 ØD88:00 ØE ØD90:0B 3E	A9 60 10	Ø1 AA ØB	1D AØ 88	00 08 D0	ØB 7E F7	9D ØØ CA	15 3E B4	1340:03 EE 3A 0B CE 38 0B 10 19 1348:D6 EE 36 0B AE 36 0B E0 52
ØD80:01 60 ØD88:00 ØF ØD90:0B 3F ØD98:10 F2	A9 60 10 20	Ø1 AA ØB 88	1D AØ 88 ØC	00 08 D0 60	ØB 7E F7 20	9D ØØ CA 4B	15 3E B4 71	1340:03 EE 3A 0B CE 38 0B 10 19 1348:D6 EE 36 0B AE 36 0B E0 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 00 01 01 00 00 00 00 AE
0D80:01 60 0D88:00 0E 0D90:0B 3E 0D98:10 F2 0DA0:0C AS	A9 60 10 20 01	Ø1 AA ØB 88 8D	1D AØ 88 ØC 38	00 08 D0 60 08	ØB 7E F7 20 A2	9D ØØ CA 4B ØØ	15 3E B4 71 57	1340:03 EE 3A 0B CE 38 0B 10 19 1348:D6 EE 36 0B AE 36 0B E0 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 00 01 01 00 00 00 00 AE
ØD80:01 60 ØD88:00 00 ØD90:08 30 ØD98:10 F2 ØDA0:0C A9 ØDA8:A0 07	A9 60 10 20 01 AD	Ø1 AA ØB 88 8D 38	1D AØ 88 ØC 38 ØB	00 08 D0 60 08 5E	ØB 7E F7 20 A2 ØØ	9D ØØ CA 4B ØØ ØB	15 3E B4 71 57 EA	1340:03 EE 3A 0B CE 38 0B 10 19 1348:D6 EE 36 0B AE 36 0B E0 52 1350:04 90 B8 60 AE FE 4E 9E 66
ØD80:01 60 ØD88:00 00 ØD90:08 30 ØD98:10 F2 ØDA0:0C A9 ØDA8:A0 07 ØDB0:90 00	A9 60 10 20 01 AD 19	Ø1 AA ØB 88 8D 38 10	1D AØ 88 ØC 38 ØB ØB	00 08 D0 60 08 5E 99	ØB 7E F7 20 A2 ØØ 10	9D ØØ CA 4B ØØ ØB ØB	15 3E B4 71 57 EA A2	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ 01 01 00 00 00 00 AE Program 5: EXCEL.UTL.
ØD80:01 60 ØD88:00 00 ØD90:08 30 ØD98:10 F2 ØDA0:0C A2 ØDA8:A0 07 ØDB0:90 06 ØDB8:88 10	A9 60 10 20 01 AD 19 EF	Ø1 AA ØB 88 8D 38 10 ØE	1D AØ 88 ØC 38 ØB 38 38	00 08 00 60 08 5E 99 08	ØB 7E F7 20 A2 ØØ 10 E8	9D ØØ CA 4B ØØ ØB ØB EØ	15 3E B4 71 57 EA A2 9A	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ 01 01 00 00 00 00 AE <b>Program 5: EXCEL.UTL.</b> XC 10 GRAPHIC5,1:COLOR6,1:PRIN
ØD80:01 60 ØD88:00 00 ØD90:08 30 ØD98:10 F: ØDA0:0C A3 ØDA8:A0 07 ØDB0:90 06 ØDB8:88 10 ØDC0:08 08	A9 60 10 20 01 AD 19 EF E5	Ø1 AA ØB 88 80 38 10 ØE 20	1D AØ 88 ØC 38 ØB 38 88	00 08 00 60 08 55 99 08 08 00	ØB 7E F7 20 A2 ØØ 10	9D ØØ CA 4B ØØ ØB ØB EØ 2Ø	15 3E B4 71 57 EA A2	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 Ø0 ØØ ØØ ØØ AE Program 5: EXCEL.UTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=.
ØD80:01 60 ØD88:00 0 ØD90:0B 3 ØD90:0C 49 ØDA0:0C 49 ØDA0:0C 49 ØD8:A0 07 ØDB0:90 06 ØDB8:88 10 ØDC0:08 00 ØDC8:4B 00	A9 60 10 20 01 AD 19 EF E5 A9	Ø1 AA ØB 88 80 38 10 ØE 20	1D AØ 88 ØC 38 ØB 38 38	00 08 00 60 08 5E 99 08	ØB 7E F7 20 A2 00 10 E8 60 08	9D ØØ CA 4B ØØ ØB ØB EØ 20 A2	15 3E B4 71 57 EA A2 9A	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ 01 01 00 00 00 00 AE <b>Program 5: EXCEL.UTL.</b> XC 10 GRAPHIC5,1:COLOR6,1:PRIN
ØD80:01 60 ØD88:00 00 ØD90:08 30 ØD98:10 F: ØDA0:0C A3 ØDA8:A0 07 ØDB0:90 06 ØDB8:88 10 ØDC0:08 08	A9 60 10 20 01 AD 19 EF E5 A9	Ø1 AA ØB 88 80 38 10 ØE 20	1D AØ 88 ØC 38 ØB 38 88 88 80	00 08 00 60 08 55 99 08 08 00	ØB 7E F7 20 A2 00 10 E8 60	9D ØØ CA 4B ØØ ØB ØB EØ 20 A2	15 3E B4 71 57 EA A2 9A 27	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ 01 01 00 00 00 00 AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 "
ØD80:01 60 ØD88:00 0 ØD90:0B 3 ØD90:0C 49 ØDA0:0C 49 ØDA0:0C 49 ØD8:A0 07 ØDB0:90 06 ØDB8:88 10 ØDC0:08 00 ØDC8:4B 00	A9 60 10 20 01 AD 19 EF E5 A9 07	Ø1 AA ØB 88 8D 38 10 ØE 20 80	1D AØ 88 ØC 38 ØB 38 88 80 38	00 08 00 60 08 55 99 08 05 38	ØB 7E F7 20 A2 00 10 E8 60 08	9D ØØ CA 4B ØØ ØB ØB EØ 20 A2 ØØ	15 3E B4 71 57 EA A2 9A 27 CE	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB E0 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 00 01 01 00 00 00 00 AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON
ØD80:01 60 ØD88:00 01 ØD90:08 31 ØD90:08 31 ØD8:10 73 ØDA0:0C A5 ØDA8:A0 07 ØDB0:90 06 ØDB8:88 10 ØDC0:08 06 ØDC8:48 00 ØDD8:08 90	A9 60 10 20 01 AD 19 EF E5 A9 07 06	01 AA 0B 88 80 38 10 0E 20 80 AD 19	1D AØ 88 ØC 38 ØB 38 88 88 80 38 10	00 08 00 08 08 55 99 08 05 38 08 08 08	ØB 7E F7 20 A2 ØØ 10 E8 60 ØB 1E 99	9D ØØ CA 4B ØØ ØB EØ 20 A2 ØØ 10	15 3E B4 71 57 EA A2 9A 27 CE F8 DE	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ 01 01 00 00 00 00 AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 "
ØD80:01 60 ØD88:00 01 ØD90:0B 31 ØD90:0B 31 ØD90:0C 45 ØDA0:0C 45 ØDB0:90 06 ØDB8:88 10 ØDC0:08 48 ØDC8:48 00 ØDD0:00 40 ØDD8:08 88	A9 60 10 20 01 AD EF E5 07 06 10	01 AA 0B 88 80 38 10 0E 20 80 AD 19 EF	1D AØ 88 ØC 38 ØB 38 88 80 38 80 38 10 4E	00 08 00 08 08 08 08 08 08 08 08 08 08 0	ØB 7E F7 20 A2 00 10 E8 60 08 1E 99 08	9D ØØ CA 4B ØØ ØB EØ 2Ø A2 ØØ 1Ø E8	15 3E B4 71 57 EA A2 9A 27 CE F8 DE F5	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB E0 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)"
ØD80:01 60 ØD80:00 90 ØD90:08 30 ØD90:08 30 ØD80:0C 45 ØDA0:0C 45 ØDB0:90 06 ØDB0:90 06 ØDB0:80 90 ØDC8:48 00 ØDD0:00 40 ØDD0:08 88 ØDE0:08 80 ØDE0:08 80 ØDE0:00 80 ØD0 ØD0 ØD0 ØD0 ØD0 ØD0 ØD0 ØD	A9 60 10 20 01 AD 19 EF E5 807 06 10 00	01 AA 08 88 80 38 10 0E 20 80 AD 19 EF E5	1D AØ 88 ØC 38 ØB 38 88 80 38 80 38 10 4E 20	00 08 00 08 08 08 08 08 08 08 08 08 08 0	ØB 7E F7 20 A2 00 10 E8 60 08 12 99 08 00 00	9D ØØ CA 4B ØØ ØB EØ 20 A2 ØØ 10 E8 60	15 3E 84 71 57 EA 27 CE F8 DE F5 8B	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1) COMBINE CH
ØD80:01 60 ØD88:00 01 ØD90:08 31 ØD98:10 F3 ØDA0:0C A3 ØDB0:90 06 ØDB3:88 10 ØDC8:48 00 ØDC8:48 90 ØDC8:48 90 ØDC8:08 90 ØDC8:08 90 ØDC8:08 80 ØDC8:08 80 ØDC8:08 80 ØDC8:08 80 ØDC8:08 80	A9 60 10 20 01 AD 19 EF E5 A9 07 06 10 08	Ø1 AA ØB 88 80 38 10 ØE 20 80 AD 19 EF 82 82 80	1D AØ 88 ØB 38 80 38 80 38 80 38 10 4E 20 31	00 08 00 08 08 08 08 08 08 08 08 08 08 0	ØB 7E F7 20 A2 00 10 E8 60 86 00 E8 60 81 E 99 80 20	9D ØØ CA 4B ØØ B ØØ 20 A2 ØØ 10 E8 60 9E	15 3E B4 71 57 EA A2 9A 27 CE F8 DE F5 8B BC	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(2
ØD80:01 60 ØD80:00 90 ØD90:00 31 ØD90:00 32 ØDA0:0C A2 ØDA0:0C A2 ØDB0:90 06 ØDB8:88 10 ØDC0:00 82 ØDC0:00 80 ØDD0:00 A0 ØDD0:00 80 ØDD0:00 80 ØDE8:E0 10 ØDF0:80 34 ØDF8:00 A1	A9 60 10 20 01 AD 19 EF E5 A9 07 06 10 08 30	Ø1 AA ØB 88 38 10 20 80 40 20 80 19 EF 88 80 19 EF 88 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 88 80 38 80 38 10 4E 20 31 AE	00 08 00 08 08 08 08 08 08 08 08 08 08 0	ØB 7E 77 20 42 00 10 E8 60 08 12 99 80 20 08	9D ØØ CA 4B ØØ ØB EØ 20 A2 ØØ 10 E8 60 9E 20	15 3E B4 71 57 EA A2 9A 27 CE F8 DE F5 8B C2C	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 Ø0 ØØ ØØ ØØ AE <b>Program 5: EXCELUTL</b> XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY"
ØD80:01 60 ØD80:00 90 ØD90:08 30 ØD90:08 30 ØD8:10 72 ØDA0:0C A2 ØDA0:0C A2 ØDB0:90 06 ØDB0:90 06 ØDB0:00 80 ØDC0:00 A0 ØDD0:00 A0 ØDD8:08 80 ØDE8:00 A0 ØDF0:80 A0 ØDF0:80 A0 ØDF0:80 A0 ØDF0:80 A0	A9 60 10 20 01 AD 20 19 EF E5 07 06 10 08 08 30 20	Ø1 AA ØB 88 38 10 20 80 20 80 19 EF 58 E 08 C7	1D AØ 88 ØC 38 ØB 38 80 38 80 38 80 38 10 4E 20 31 AE ØD	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E F7 20 A2 00 10 E8 60 08 12 99 90 08 00 20 08 80	9D 00 CA 4B 00 08 08 20 20 20 20 20 9E 20 30	15 3E 84 71 57 EA 27 CE F8 DE F5 8B CC C2	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 Ø0 ØØ ØØ ØØ AE <b>Program 5: EXCELUTL</b> XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN
ØD 80:01         60           ØD 80:00         81           ØD 90:00         31           ØD 90:00         32           ØD 80:00         42           ØE 80:00         42           ØE 80:00         43           ØE 80:00         43	A9 60 10 20 01 AD 20 19 EF 20 07 06 10 07 06 10 08 30 20 31	Ø1 AA ØB 88 80 38 10 ØE 20 80 AD 20 80 AD 9 EF 80 80 20 80 20 80 20 80 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 38 80 38 80 38 80 38 10 4E 20 31 AE 0D 20	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E F7 20 00 10 E8 60 00 E8 60 00 E8 60 00 20 00 80 00 00	9D 00 CA 4B 00 08 08 20 20 20 20 10 20 20 20 30 20 30 AD	15 3E 84 71 57 EA 27 CE F8 DE F5 8B 2C 22 67	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB E0 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 Ø0 Ø1 Ø1 Ø0 Ø0 Ø0 Ø0 AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30
ØD 80:01       60         ØD 80:00       80         ØD 90:00       31         ØD 90:00       32         ØD 80:00       30         ØE 80:00       30         ØE 10:30       30	A9 60 10 20 01 20 19 EF E5 60 10 07 06 100 08 30 20 31 AE	01 AA 08 88 80 38 10 02 20 80 AD 19 EF E5 82 08 C7 08 31	1D AØ 88 ØC 38 ØB 38 80 38 80 38 80 38 80 38 42 0 31 AE 0D 20 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E F7 20 A2 00 10 E8 60 08 1E 99 08 00 20 08 8D 00 73	9D 00 CA 4B 00 08 08 20 20 20 20 20 20 20 30 20 30 00	15 3E 84 71 57 EA 27 CE 8 DE 58 BC CC 67 BC	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1) COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>27HEN30 FS 40 ONAGOTO50,70
ØD80:01 60 ØD80:00 90 ØD90:00 31 ØD90:0C 45 ØDA0:0C 45 ØDA0:0C 45 ØDA0:0C 45 ØDB0:90 60 ØDB0:00 80 ØDC0:00 80 ØDC0:00 80 ØDD0:00 80 ØDD0:00 80 ØDE0:00 80 ØDE0:00 40 ØDF0:8D 30 ØDF0:8D 40 ØDF0:8D 40 ØDF0:8	A9 600 2000 2000 2000 2000 2000 2000 2000	01 AA 08 88 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 38 80 38 80 38 80 38 80 38 80 38 42 0 31 AE 0D 20 88 80 83 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E F7 20 00 10 E8 60 00 10 E8 60 00 10 E8 60 00 12 99 00 00 20 00 00 73 07	9D 00 CA 4B 00 8 00 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 EA 9A 2CE 8B CC 2C 6C 9 8 9 8 9 7 1 57 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB E0 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 Ø0 Ø1 Ø1 Ø0 Ø0 Ø0 Ø0 AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30
ØD 80:01       60         ØD 80:00       80         ØD 90:00       31         ØD 90:00       32         ØD 80:00       30         ØE 80:00       30         ØE 10:30       30	A9 600 2000 2000 2000 2000 2000 2000 2000	01 AA 08 88 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 38 80 38 80 38 80 38 80 38 80 38 42 0 31 AE 0D 20 88 80 83 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E F7 20 A2 00 10 E8 60 08 1E 99 08 00 20 08 8D 00 73	9D 00 CA 4B 00 08 08 20 20 20 20 20 20 20 30 20 30 00	15 3E 84 71 57 EA 27 CE 8 DE 58 BC CC 67 BC	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1) COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>27HEN30 FS 40 ONAGOTO50,70
ØD80:01 60 ØD80:00 90 ØD90:00 31 ØD90:0C 45 ØDA0:0C 45 ØDA0:0C 45 ØDA0:0C 45 ØDB0:90 60 ØDB0:00 80 ØDC0:00 80 ØDC0:00 80 ØDD0:00 80 ØDD0:00 80 ØDE0:00 80 ØDE0:00 40 ØDF0:8D 30 ØDF0:8D 40 ØDF0:8D 40 ØDF0:8	A99 600 200 001 200 001 200 200 200 200 200 2	01 AA 08 88 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 38 80 38 80 38 80 38 80 38 80 38 42 0 31 AE 0D 20 88 80 83 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E F7 20 00 10 E8 60 00 10 E8 60 00 10 E8 60 00 12 99 00 00 20 00 00 73 07	9D 00 CA 4B 00 8 00 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 EA 9A 2CE 8B CC 2C 6C 9 8 9 8 9 7 1 57 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE <b>Program 5: EXCELUTL</b> XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1) COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30 FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFO NT CHARACTER SET {WHT}1
ØD 80:01       60         ØD 80:00       81         ØD 90:00       31         ØD 81:00       72         ØD A0:00       70         ØD A0:00       70         ØD A0:00       70         ØD B0:00       70         ØD B0:00       70         ØD C0:00       70         ØD D0:00       70         ØD	A9         A9           600         100           200         01           200         01           100         19           101         19           102         100           103         100           104         100           105         100           100         200           200         31           100         08           200         200           200         300           200         300           200         300           200         300           200         300           200         300           200         300           300         300           300         300	01 AA 08 88 80 80 20 80 AD 9 EF 20 80 AD 9 EF 5 80 80 C7 08 31 60 C0	1D AØ 88 ØC 38 ØB 38 80 38 80 38 80 38 80 38 80 38 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E F7 20 00 10 E8 60 00 20 00 00 00 73 00 00 00 00 00 00 00 00 00 00 00 00 00	9D 00 CA 4B 00 08 08 08 20 20 20 20 20 20 20 20 20 20 20 20 20	15 3E B4 71 57 A 27 CE F8 B BC CC 67 BC E9 12 23	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE <b>Program 5: EXCELUTL</b> XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30 FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFO NT CHARACTER SET {WHT}1 {PUR} FILENAME";F1\$:INPU
ØD 80:01       60         ØD 80:00       81         ØD 90:00       31         ØD 80:00       72         ØD 80:00       70         ØE	A9         A9           600         C           1000         O           1100         O <t< td=""><td>01 AA 08 88 80 38 10 20 80 40 20 80 40 20 80 40 20 80 80 80 80 80 80 80 80 80 80 80 80 80</td><td>1D AØ 88 ØC 38 ØB 38 88 80 38 88 80 38 4E 20 80 80 80 80 80 80 80 80 80 80 80 80 80</td><td>00 00 00 00 00 00 00 00 00 00 00 00 00</td><td>ØB 7E F7 20 00 10 E8 60 00 E8 60 00 20 00 00 73 00 01 10</td><td>9D ØØ CA 4B ØØ ØB EØ 20 20 20 20 20 20 20 20 20 20 20 20 20</td><td>15 3E 84 71 57 A 27 CE F8 BC 2C2 67 BC 22 67 C2 3 AD</td><td>1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE <b>Program 5: EXCELUTL</b> XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142) CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(27)" {CG 30 GETA\$:A=VAL(A\$):IFA&lt;&gt;1AN DA&lt;&gt;2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON NT CHARACTER SET {WHT}1 {PUR}FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT</td></t<>	01 AA 08 88 80 38 10 20 80 40 20 80 40 20 80 40 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 38 88 80 38 88 80 38 4E 20 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E F7 20 00 10 E8 60 00 E8 60 00 20 00 00 73 00 01 10	9D ØØ CA 4B ØØ ØB EØ 20 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 A 27 CE F8 BC 2C2 67 BC 22 67 C2 3 AD	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE <b>Program 5: EXCELUTL</b> XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142) CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(27)" {CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON NT CHARACTER SET {WHT}1 {PUR}FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT
ØD 80:01       60         ØD 80:00       81         ØD 90:00       81         ØD 90:00       82         ØD 80:00       82         ØE	A9         A9           600         100           100         01           110         01           110         100           110         01           110         00	01 AA 0B 88 80 20 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 38 80 38 80 38 4E 20 31 4E 20 80 ØB 80 80 80 80 80 80 80 80 80 80 80 80 80	00 08 00 08 08 08 08 08 08 08 08 08 08 0	ØB 7E F7 20 A2 00 10 E8 60 B 80 00 20 00 80 07 3 07 00 01 10 00 01 10 00 00 00 00 00 00 00	9D 000 CA 4B 000 000 200 200 200 200 200 200 200 20	15 3E 84 71 57 27 CE8 8B 27 CE8 8B 27 CE8 8B 20 267 BC9 23 AD 05	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE <b>Program 5: EXCELUTL</b> XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1) COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30 FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON NT CHARACTER SET {WHT}1 {PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       73         ØD A0:0C       A2         ØD B0:90       66         ØD F0:90       A1         ØE 90:90       66         ØE 18:20       C7         ØE 28:90       66         ØE 28:90       66         ØE 40:00       66         ØE 40:00       66	A9         A9           600         100           200         200           200         10           200         10           200         10           200         10           200         10           200         10           200         10           200         10           200         200           200         200           200         200           200         200           200         200           200         200           200         200           200         200           200         200           200         200           200         200	01 AA 0B 88 80 20 20 80 20 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 38 88 38 88 38 38 80 4 20 31 4 20 31 4 20 8 80 0 20 8 80 20 8 82 28 28 28 28 28 28 28 28 20 28 20 20 20 20 20 20 20 20 20 20 20 20 20	00 08 00 08 08 08 08 08 08 08 08 08 08 0	ØB 7E F7 20 A2 00 10 E8 60 B 80 00 20 00 80 00 73 00 00 10 00 00 10 00 00 00 00 00 00 00	9D 00 CA 4B 00 08 08 20 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 A2 9A 27 CE8 BC 22 67 BC 22 3 AD 05 03	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1) COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET {WHT}1 {PUR}FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN AME";F2\$:INPUT"{DOWN}{6}
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       73         ØD 80:00       74         ØD 80:00       76         ØE 20:00       76         ØE 20:00       76         ØE 20:00       76         ØE 20:00       76         ØE	A99 600 200 200 200 200 200 200 200 200 200	01 AA 08 88 30 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 38 88 38 88 38 88 38 80 4 20 31 4 20 88 00 20 88 00 20 88 80 20 80 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	00 08 00 06 08 06 08 08 08 08 08 08 08 08 08 08 08 08 08	ØB 7E F7 20 00 E8 60 00 20 00 00 73 00 73 00 00 73 00 01 00 00 00 00 00 00 00 00 00 00 00	9D ØØ CA 4B ØØ B EØØ 20 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 EA A2 9A 27 F8 DE F5 8BC 2CC C2 67 BC 22 23 AD 5 03 24	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1) COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30 FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON NT CHARACTER SET {WHT}1 {PUR} FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN AME";F2\$:INPUT"{DOWN}{6} MERGED CHARACTER SET FIL
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       72         ØD A0:00       70         ØD B0:90       90         ØD B0:90       90         ØD C0:00       80         ØD D0:00       80         ØD F0:00       80         ØE 20:00       80         ØE 20:00       90         ØE	A99 600 200 001 100 100 100 100 100 100 100 1	01 AA 08 88 38 10 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 90 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 88 80 38 80 38 80 38 80 38 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E F7 20 00 10 80 00 20 80 00 20 80 00 73 30 F 00 01 10 80 00 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 20 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	9D ØØ CA 4B ØØ ØB Ø B ØØ 20 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 57 57 27 57 27 27 80 27 27 80 20 20 20 20 20 20 20 20 20 20 20 20 20	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1) COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2) DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET {WHT}1 {PUR}FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN AME";F2\$:INPUT"{DOWN}{6}
ØD 80:01       60         ØD 80:00       81         ØD 90:00       81         ØD 80:00       72         ØD A0:00       70         ØD B0:90       90         ØD B0:90       90         ØD C0:00       70         ØD B0:00       70         ØE 20:00       70         ØE	A9         A9           600         200           200         200           200         01           100         01           100         01           100         01           100         01           100         01           100         00      00         00	01 AA 08 88 20 20 80 10 EF 20 80 20 80 10 EF 58 80 81 60 00 81 00 80 81 00 81 00 81 80 81 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 88 80 38 80 88 80 38 80 42 8 38 80 28 20 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E 77 20 00 00 80 00 00 00 00 00 00 00 00 00 00	9D ØØ CA 4B ØØ ØB EØØ 20 20 ØØ 20 20 Ø0 10 E8 60 9E 20 20 00 12 80 9D 22 80 00 12 80 9D 20 00 20 80 80 80 80 80 80 80 80 80 80 80 80 80	15 3E 84 71 57 57 27 EA 29A 27 EB 20 27 EB 20 27 BC 23 AD 05 034 11 F6	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30 FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET {WHT}1 {PUR} FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN AME";F2\$:INPUT"{DOWN}{6} MERGED CHARACTER SET FIL ENAME";F3\$
ØD 80:01       60         ØD 80:00       81         ØD 90:00       31         ØD 90:00       31         ØD 80:00       42         ØD 80:00       42         ØD 80:00       43         ØD 80:00       44         ØD 80:00       45         ØE 30:00       45         ØE 30:00       45         ØE 50:01       28         ØE 50:01       28         ØE 50:00       45         ØE 50:00       45         ØE 50:00       45         ØE 60:00       45	A9         A9           600         600           200         200           100         901           100         19           100         19           100         19           100         19           100         100           100         000           100         000           200         200           200	01 AA 08 88 20 20 80 10 EF 58 E 5 80 80 20 00 80 01 80 80 00 80 80 80 80 81 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 888 ØB 388 880 388 880 388 880 388 420 31 46 20 31 46 20 31 880 20 88 80 20 88 80 20 88 80 20 88 80 20 88 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E 77 20 00 00 20 00 00 00 00 00 00 00 00 00	9D ØØ CAA 4B ØØ B EØ 20 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 27 E 8 8 27 E 8 8 B 27 C E 8 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B C 23 C 23 C 23 C 23 C 23 C 23 C 23 C	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ ØI ØI ØO ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142) CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(27)" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON NT CHARACTER SET {WHT}1 {PUR} FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN AME";F2\$:INPUT"{DOWN}{6} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F
ØD 80:01       60         ØD 80:00       81         ØD 90:00       81         ØD 80:00       72         ØD A0:00       70         ØD B0:90       90         ØD B0:90       90         ØD C0:00       70         ØD B0:00       70         ØE 20:00       70         ØE	A9         A9           600         600           200         200           100         901           100         19           100         19           100         19           100         19           100         100           100         000           100         000           200         200           200	01 AA 08 88 20 20 80 10 EF 20 80 20 80 10 EF 58 80 81 60 00 81 00 80 81 00 81 00 81 80 81 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 38 ØB 88 80 38 80 88 80 38 80 42 8 38 80 28 20 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E 77 20 00 00 80 00 00 00 00 00 00 00 00 00 00	9D ØØ CAA 4B ØØ B EØ 20 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 57 27 EA 29A 27 EB 20 27 EB 20 27 BC 23 AD 05 034 11 F6	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB E0 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5, 1:COLOR6, 1: PRIN TCHR\$ (142) CHR\$ (5); IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC (32) "{B} EXCELFON T UTILITY": PRINTSPC (27) " {DOWN} {YEL}1 COMBINE CH ARACTER SETS": PRINTSPC (27) " {DOWN} {YEL}1 COMBINE CH ARACTER SET {WH}1 FILENAME"; FIS XD 60 BLOAD (FIS), P8192: BLOAD (F 2\$), P12288: BSAVE (F3\$), P8
ØD 80:01       60         ØD 80:00       81         ØD 90:00       31         ØD 90:00       31         ØD 80:00       42         ØD 80:00       42         ØD 80:00       43         ØD 80:00       44         ØD 80:00       45         ØE 30:00       45         ØE 30:00       45         ØE 50:01       28         ØE 50:01       28         ØE 50:00       45         ØE 50:00       45         ØE 50:00       45         ØE 60:00       45	A99 600 200 400 400 400 400 400 400 400 400 4	01 AA 08 88 20 20 80 10 EF 58 E 5 80 80 20 00 80 01 80 80 00 80 80 80 80 81 80 80 80 80 80 80 80 80 80 80 80 80 80	1D AØ 88 ØC 88 ØB 88 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E 77 20 00 00 20 00 00 00 00 00 00 00 00 00	9D ØØ CAA 4B ØØ B B ØØ 20 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 27 E 8 8 27 E 8 8 B 27 C E 8 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B 27 C E 8 B C 23 C 23 C 23 C 23 C 23 C 23 C 23 C	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SET {WHT}1 {PUR} FILENAME";F1\$; INPU T"{PUR}EXCELFONT CHARACTER ER SET {WHT}2{PUR} FILEN AME";F2\$: INPUT"{DOWN}{6} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOTO10
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       73         ØD A0:0C       A2         ØD A0:0C       A3         ØD B0:90       06         ØD B0:90       06         ØD C0:08       B0         ØD C0:08       B2         ØD D0:00       A2         ØD D0:00       A2         ØD D0:00       A2         ØD D0:00       B3         ØD F0:00       B3         ØD F0:00       B3         ØD F0:00       B3         ØD F8:00       A1         ØE 40:00       B4         ØE 18:20       C7         ØE 28:90       B4         ØE 30:00       B4         ØE 40:00       B4         ØE 40:00       B4         ØE 50:01       28         ØE 50:01       28         ØE 60:08       A2         ØE	A9         A9           600         600           200         200           200         01           100         19           100         19           100         100           100         100           100         200           100	01 AA 08 88 38 10 20 20 AD 20 20 AD 20 20 80 20 00 20 2	1D AØ 88 ØC 88 ØB 88 80 80 80 80 80 80 80 80 80 80 80 80	00 00 00 00 00 00 00 00 00 00 00 00 00	ØB 7E 77 20 00 10 86 00 10 80 00 20 80 00 20 80 00 20 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 00 10 80 80 10 80 80 10 80 80 80 80 80 80 80 80 80 80 80 80 80	9D ØØ CAA 4B ØØ B B ØØ 20 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 84 71 57 EA A2 9A 757 EA A2 9A 757 EA 2C F8 BC C2 67 BC 23 AD 85 03 24 11 F6 BA	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET [WHT]1 {PUR} FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2 {PUR} FILEN AME";F2\$:INPUT"{DOWN}{6} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOT010 SC 70 DIRECTORY:PRINT"{DOWN}
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       72         ØD A0:00       72         ØD B0:90       90         ØD C0:00       80         ØD C0:00       80         ØD D0:00       80         ØD F0:00       90         ØE 20:00       90         ØE 20:00       90         ØE	A9         A9         A60         200         ADD	01 AA 08 88 20 20 80 20 20 80 80 80 20 80 80 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D A00 880 880 880 880 880 880 880 880 880	008006085998038888031005900060888888310050000000000000000000000000000	ØB 7E 77202 2020 2020 2020 2020 2020 2020	9D 000 4B 00B 00B 00B 00B 00B 00B 00B 00B	15 3E 47 77 57 57 57 57 57 57 57 57 57 57 57 57	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET [WHT]1 {PUR} FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET [WHT]2 {PUR} FILEN AME";F2\$:INPUT"{DOWN}{6} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOT010 SC 70 DIRECTORY:PRINT"{DOWN} {RVS}{WHT}PRESS ANY KEY
ØD 80:01       60         ØD 80:00       81         ØD 90:00       81         ØD 81:0       72         ØD A0:0C       A2         ØD A0:0C       A3         ØD A0:0C       A2         ØD A0:0C       A3         ØD B0:00       A0         ØD A0:0C       A3         ØD B0:00       A0         ØE A0:00       A0         ØE 50:01       20         ØE 50:01       20         ØE 50:00       F0         ØE	A9       A9         A9       60         200       200         200       19         400       19         500       19         500       19         500       19         500       19         500       19         500       19         500       19         500       10         500       10         500       10         500       20	Ø1 AA ØB 88 20 20 80 80 20 80 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D A0 88 0 88 0 88 0 88 0 88 0 88 0 88 0	0080060859980388880300500000000000000000000000	ØB 7E77202 100 860 80 99 80 073 90 80 073 90 10 80 80 80 01 80 80 80 80 80 80 80 80 80 80 80 80 80	9D 000 4B 008 008 008 008 008 008 008 008 008 00	15 3E 47 57 57 27 58 27 58 27 58 27 58 27 58 27 57 27 58 27 57 27 58 27 57 27 57 27 58 27 57 27 57 27 58 27 57 27 57 27 57 27 57 27 57 27 57 27 57 27 57 27 57 27 57 27 57 27 57 27 57 27 57 27 57 27 57 57 57 57 57 57 57 57 57 57 57 57 57	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET [WHT]1 {PUR} FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2 {PUR} FILEN AME";F2\$:INPUT"{DOWN}{6} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOT010 SC 70 DIRECTORY:PRINT"{DOWN}
ØD 80:01       60         ØD 80:00       81         ØD 90:00       81         ØD 90:00       81         ØD 80:00       82         ØE	A9         A9           600         600           200         200           200         19           200         19           200         19           200         19           200         19           200         19           200         19           200         00           200         00           200         300           200         300           200         300           200         300           200         300           200         300           200         300           200         300           200         300           200         300           200         300           200         200           200         200           200         200	01 AA 08 88 20 20 80 80 20 80 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D A00 880 880 880 880 880 880 880 880 880	00800000000000000000000000000000000000	ØB 7E 77 20 20 00 10 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 20 80 00 80 00 20 80 20 80 80 20 80 80 20 80 80 80 80 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	9D 00 4B 00 8 00 8 00 8 00 8 00 8 00 8 00	15 3E 47 57 57 42 9A 27 57 57 8B 27 77 77 77 77 77 77 77 77 77 77 77 77	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET [WHT]1 {PUR} FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET [WHT]2 {PUR} FILEN AME";F2\$:INPUT"{DOWN}{6} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOT010 SC 70 DIRECTORY:PRINT"{DOWN} {RVS}{WHT}PRESS ANY KEY
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       73         ØD A0:0C       A2         ØD C0:08       B0         ØD C0:08       B2         ØD D0:00       A2         ØD D0:00       B3         ØD F0:00       A2         ØE 20:00       B3         ØE 20:00       B3         ØE 40:00       B3         ØE 50:01       28         ØE 60:08       A2         ØE	A9       A9         60       60         100       00         0	01 AA 08 88 38 200 200 AD 9 EF5 88 80 200 200 200 80 200 80 200 80 200 80 200 80 200 80 80 200 80 80 80 80 80 80 80 80 80 80 80 80 8	1D A00 880 880 880 880 880 880 880 880 880	008006085998C88888100500000000000000000000000000000	ØB 7E 77200 800 800 800 800 800 800 800 800 800	9D 000 4B 000 202 000 100 200 200 200 200 200 200	15 3E 84 71 57 EA 29 75 F8 BC 20 75 8 BC 20 75 8 BC 20 75 8 BC 20 75 8 BC 20 75 8 BC 20 75 7 8 8 8 20 7 7 7 7 7 7 8 8 8 7 1 20 7 7 7 7 8 8 8 8 7 1 20 7 7 7 7 8 8 8 8 7 1 20 7 7 7 8 8 8 8 8 8 20 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30 FS 40 ONAGOT50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET {WHT}1 {PUR}FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN AME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOT010 SC 70 DIRECTORY:PRINT"{DOWN} {RVS}{WHT}PRESS ANY KEY {SPACE}TO CONTINUE":GETK
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       72         ØD A0:0C       A2         ØD B0:90       06         ØD B0:90       07         ØD B0:90       07         ØD B0:90       07         ØE 40:00       07         ØE 50:01       28         ØE 50:01       28         ØE 50:00       07         ØE 80:00       07         ØE 80:00       07         ØE	A9         A9           600         600           200         200           200	Ø1 AA Ø8 88 20 80 80 20 80 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D A0 880 880 880 880 880 880 880 880 880	0080060859980888885100506088800088888510050000000000	ØB 7E77222 00010866 000000000000000000000000000000	9D 00 4B 00 20 20 20 20 20 20 20 20 20 20 20 20	15 3E 47 77 EA 27 F8 BC 27 F8 F8 F8 F8 F8 F8 F8 F8 F8 F8 F8 F8 F8	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ ØI ØI ØO ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHICS, 1:COLOR6, 1: PRIN TCHR\$ (142) CHR\$ (5); : IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC (32) "{B} EXCELFON T UTILITY": PRINTSPC (27) " {DOWN}{YEL}1 COMBINE CH ARACTER SETS": PRINTSPC (27) " {DOWN}{YEL}1 COMBINE CH ARACTER SETS ": PRINTSPC (27) " {DOWN}{YEL}1 COMBINE CH ARACTER SETS : PRINTSPC (27) " {DOWN}{YEL}1 COMBINE CH ARACTER SETS : PRINTSPC (27) " {DOWN}{YEL}1 COMBINE CH ARACTER SETS : PRINTSPC (27) " {DOWN}{YEL}1 COMBINE CH ARACTER SET : PRINTSPC (27) " {DOWN}{YEL}1 COMN}{SC 70 DIRECTORY: PRINT"{DOWN} {RVS}{WHT}PRESS ANY KEY {SPACE}TO CONTINUE": GETK EYA\$: GOTO10
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 90:00       31         ØD 80:00       42         ØD 80:00       60         ØE	A9       A9         A9       600         Comparison       200         ADD       01         ADD       01         ADD       01         ADD       00	01 AA 08 88 20 20 80 20 20 80 20 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D A00 880 880 880 880 880 880 880 880 880	0080060859980388883109524209006088800086088888310952420000000000000000000000000000000000	ØB 7E 77202 2020 2020 2020 2020 2020 2020	9D00CA40000000000000000000000000000000000	15 3E 47 77 5EA 42 9A 75 7 5EA 42 9A 75 7 5 8 8 7 7 7 8 8 7 7 7 8 8 7 7 7 8 8 7 7 7 8 8 7 7 7 8 8 7 7 7 8 8 7 7 7 7 8 8 7 7 7 7 8 8 7 7 7 7 8 8 8 7 7 7 7 8 8 7 7 7 7 8 8 8 7 7 7 8 8 8 7 7 7 8 8 8 7 7 7 8 8 8 8 7 7 7 8 8 8 8 7 7 8	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30 FS 40 ONAGOT50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET {WHT}1 {PUR}FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN AME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOT010 SC 70 DIRECTORY:PRINT"{DOWN} {RVS}{WHT}PRESS ANY KEY {SPACE}TO CONTINUE":GETK
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 90:00       31         ØD 80:00       72         ØD A0:00       73         ØD B0:90       90         ØE 50:01       20         ØE 50:00       90         ØE 80:00       90         ØE 80:00       90         ØE 80:00       90         ØE	A9       A9         A9       600         200       200         200       19         400       19         500       19         500       19         500       19         500       19         500       19         500       19         500       19         500       19         500       100         500       200         500       200         500       200         500       200         500       200         500       200         500       200         500       200         500       200         500       200         500       200         500       500         500       500         500       500	Ø1 AA Ø8 88 20 20 80 80 20 80 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	1D A00 800 800 800 800 800 800 800 800 800	0080060859080888030050000000000000000000000000	ØB 7E77202 2020 100 800 200 800 8	9D00CAB0000000000000000000000000000000000	15 3E 47 5 5 4 2 7 5 7 5 8 8 5 8 5 8 5 8 5 8 5 7 2 7 5 8 8 5 7 2 7 5 8 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 7 7 7 7	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB E0 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ ØI ØI ØO ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SETS":PRINTSPC(27)" {DOWN}{YEL}1 COMBINE CH ARACTER SET {WHT}1 {PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR}EXCELFON MERGED CHARACTER SET FIL ENAME";F2\$:INPUT {DOWN}{6} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOTO10 SC 70 DIRECTORY:PRINT"{DOWN} {RVS}{WHT}PRESS ANY KEY {SPACE}TO CONTINUE":GETK EYA\$:GOTO10 Program 6: EXCELOBJ2.
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       73         ØD A0:0C       A2         ØD B0:90       66         ØE 80:90       66         ØE	A9         A9           600         600           100         200           101         100           102         001           103         000           100	Ø1 AA Ø8 88 38 00 28 AD 9 EF5 80 80 28 00 28 80 80 80 80 80 80 80 80 80 80 80 80 80	1D A00 880 880 880 880 880 880 880 880 880	008006085998C88888100500000000000000000000000000000	ØB 7E 7722000 100 100 100 000 000 000 000 000 00	9D00CAB 4B00BE0022000128002000 100020001280020000000000	15 3E 47 77 EA 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 F5 BCC 20 F5 F5 F5 F5 F5 F5 F5 F5 F5 F5 F5 F5 F5	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30 FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET {WHT}1 {PUR}FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN AME";F2\$:INPUT"{DOWN}{63} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOTO10 SC 70 DIRECTORY:PRINT"{DOWN} {RVS}{WHT}PRESS ANY KEY {SPACE}TO CONTINUE":GETK EYA\$:GOTO10 Program 6: EXCEL.OBJ2. 0C00:A0 00 8D 00 FF A2 12 A9 72
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       73         ØD A0:0C       A2         ØD B0:90       66         ØD B0:90       66         ØD C0:08       B2         ØD C0:08       B3         ØD C0:08       B3         ØD D0:00       A2         ØD D0:00       A2         ØD D0:00       A2         ØD D0:00       A2         ØD F0:00       A2         ØE A0:00       B3         ØE A0:00       B3         ØE A0:00       B3         ØE A0:00       B3         ØE A0:00       G2         ØE	A9         A9           600         600           100         200           100         100           100	Ø1 AA Ø8 88 B 88 B 88 B 88 B 20 8 AD 9 EF5 88 B 7 81 0 6 0 0 9 1 80 0 80 20 8 AD 9 EF5 88 B 7 80 8 80 8 80 8 80 8 80 80 80 80 80 80 8	1D A08 80 80 80 80 80 80 80 80 80 80 80 80 8	0080060859080888881005000000000000000000000000	ØB 7E 772222 000100 1000 0000 0000 0000 0000	9D00CAB0000000000000000000000000000000000	15 3E 84 71 57 EA 29A 757 EA 29A 757 EA 29A 757 EA 20E 58 BC 202 67C 23D 67 24 11 66 EA 24 11 66 EA 27 73D 27 27 27 27 27 27 27 27 27 27 27 27 27	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN3Ø FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET [WHT]1 {PUR} FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET [WHT]2 {PUR} FILEN AME";F2\$:INPUT"{DOWN}{6} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOTO10 SC 70 DIRECTORY:PRINT"{DOWN} {RVS}{WHT}PRESS ANY KEY {SPACE}TO CONTINUE":GETK EYA\$:GOTO10 Program 6: EXCEL.OBJ2. ØCØ0:A0 Ø0 8D Ø0 FF A2 12 A9 72 ØC08:20 85 FB 20 CC CD E8 A9 2C
ØD 80:01       60         ØD 80:00       90         ØD 90:00       31         ØD 81:00       73         ØD A0:0C       A2         ØD B0:90       66         ØE 80:90       66         ØE	A9         A9           600         600           100         200           100         100           100	Ø1 AA Ø8 88 38 00 28 AD 9 EF5 80 80 28 00 28 80 80 80 80 80 80 80 80 80 80 80 80 80	1D A08 80 80 80 80 80 80 80 80 80 80 80 80 8	008006085998C88888100500000000000000000000000000000	ØB 7E 772222 000100 1000 0000 0000 0000 0000	9D00CAB 4B00BE0022000128002000 100020001280020000000000	15 3E 47 77 EA 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 BCC 20 F5 F5 BCC 20 F5 F5 F5 F5 F5 F5 F5 F5 F5 F5 F5 F5 F5	1340:03 EE 3A ØB CE 38 ØB 10 19 1348:D6 EE 36 ØB AE 36 ØB EØ 52 1350:04 90 B8 60 AE FE 4E 9E 66 1358:00 ØØ Ø1 Ø1 ØØ ØØ ØØ ØØ AE Program 5: EXCELUTL. XC 10 GRAPHIC5,1:COLOR6,1:PRIN TCHR\$(142)CHR\$(5);:IFT=. THENT=1:BLOAD"EXCEL.OBJ2 " HA 20 PRINTSPC(32)"{B}EXCELFON T UTILITY":PRINTSPC(27)" {DOWN}{YEL}1)COMBINE CH ARACTER SETS":PRINTSPC(2 7)"2)DIRECTORY" CG 30 GETA\$:A=VAL(A\$):IFA<>1AN DA<>2THEN30 FS 40 ONAGOTO50,70 QE 50 INPUT"{DOWN}{PUR}EXCELFON T CHARACTER SET {WHT}1 {PUR}FILENAME";F1\$:INPU T"{PUR}EXCELFONT CHARACT ER SET {WHT}2{PUR} FILEN AME";F2\$:INPUT"{DOWN}{63} MERGED CHARACTER SET FIL ENAME";F3\$ XD 60 BLOAD(F1\$),P8192:BLOAD(F 2\$),P12288:BSAVE(F3\$),P8 192TOP16383:GOTO10 SC 70 DIRECTORY:PRINT"{DOWN} {RVS}{WHT}PRESS ANY KEY {SPACE}TO CONTINUE":GETK EYA\$:GOTO10 Program 6: EXCEL.OBJ2. 0C00:A0 00 8D 00 FF A2 12 A9 72

JE.					00	ð	85		FA		35		C		0		9.6		EC	
F					FI		91		FC		28		:0		8		Ø		22	
JF					11		98		65		A		35		A		90		46	
JF					E		FB		A9		30		1		C		:8		4C 7F	
JF.					10		DØ 90		F9 Ø2		18 26		98 7D		5		C		7 E 2 B	
F					F(		DØ		D2		50		12		IF		BD		28	
JE					ØI		90		20		<b>JB</b>		CA		Ø		7		A 2	
JF					A		ØF		BD		20		JB		D		00		95	
JE					CI		10		F7		60		20		F		D		88	
JF	ST (77				E		FF		DØ		JA		15		3		29		B4	
JF					F		F5		20		9F		D		Ø		20		C4	
F	98	:	D	2	FI		40		85	(	ØF	1	12	0	17	7	AØ	1	B 3	
JE	AØ	:	Ø		BI		00	1	ØB		99	]	LØ	6	B	8	38	1	12	
JF.					1		ØB		88		CA		LØ		2		20		1 E	
F					Ø		60		20		4B		JC		12		37		FA	
F					ØI		B9		ØØ		<b>JB</b>		D		ø		JB		DB	
JE					8		CA		10		F 5		20				JC		EC	
F	C 8	:	61	Ø	Ø	Ø	00		00	1	30		30	6	Ø		30	10	17	
r	0	gı	ra	ın	n	4	: E	X	C	EL	.0	DB	IJ1							
31	ØØ	:	AS	9	Ø	3	8D	1	36	8	<b>B</b> B	8	D	3	8	0	B	1	LA	
21	10	20	-		30	2	ØB		AE		36	0	B	B	D	5	54	E	PD	
31	10	:	13	3	80	)	39		<b>ØB</b>		BD	5	8	1	3	8	D	E	D	
31	18	:	37	A	ØE	3	A2		3F		BE		88		В		D		7F	
3:	20	:	37	1	ØE	3	AE		39		JB		C		С		B		LE	
32	28	:	26	8	27	A	ØC		18		D		BA		B		;9		21	
.3:	3Ø	:	10	8	AI	E	39				Ø		D		Ø		A		87	
3:	38	:	Ø	2	EI	E	30				EE		39		B		Ø		9B	
.3	40	:	Ø	3	EI	E	3A		ØВ				8		B		Ø		19	
	40			D	E1		36		<b>JB</b>				86						52	
3	50	:	Ø	4	90		B8		60		AE		Έ				E		66	
3	58	•	01	0	Ø	0	Ø1	-	Ø1	6	30	6	90	0	Ø	6	10	1	AE	
r	0	g	ra	an	n	5	: 1	x	C	EL	.ι	Л	L.							
														-			-			
C	1	0	1	GR	A	Ph	IIC	55	1		CC		OH	0	1		P	RI	IN	
				TC	H	KS	(	14	2)	C	HI	21	()	1	1	1	E	1		
				11	E	N I	!=]		ы	10	AI	0	EA	C	EI	••	0	в.	52	
IA	2	a				10	SI	00	1	22		1.1	-		~			-		
in	-	v					L													
							}													
							EF								N.1	5	PI	-	(2	
G	2	α					: 2									-		1 7		
0	5	2		02	2		TH	11	MI	a	11	19		-	E P		-	11	114	
S	4	α					TC				a									
E		ø		TN	DI		"		04	IN	11	D		1	EN		FI		20	
-	~	U					IAI													
							E													
							IR													
			1	ER		SF	T	ĩ	WH	IT	12	1	PI	R	1	F	TI	L.F	INS	
			1	AM	E		F	is	: 1	N	PI	IT	"1	D	04	IN	1	26	1	
							D													
							";				m	- 1	DI		51	**				
D	6	α					) (E				PS	11	92		Br	0	AT	2	F	
-	0	-	-	2.9	)		12	22	89		Re	A	VF	1	F	10	1		20	
				10	2	TC	P]	6	30	12		10	TO	1	a	9	1	, 1	0	
											- U	JU	T U		0					

#### n 6: EXCEL.OBJ2.

0C00:A0	ØØ	8D	ØØ	FF	A2	12	A9	72
ØCØ8:2Ø	85	FB	20	CC	CD	E8	A9	2C
ØC10:00	85	FA	20	CC	CD	AØ	00	C9

ØC18:B1 FA 20 CA CD C8 D0 F8 A4 0C20:E6 FB A5 FB C9 40 D0 F0 01 ØC28:60 00 00 00 00 00 00 00 70

#### BEFORE TYPING . . .

Before typing in programs, please refer to "How to Type In COMPUTEI's GAZETTE Programs," elsewhere in this issue.

### Pointer

> See instructions in article on page 52 before typing in.

#### Program 1: Pointer

CF00:78 A9 40 8D 14 03 A9 CF F6 CF08:8D 15 03 58 A2 3F BD B2 D9 CF10:CF 9D C0 02 CA 10 F7 A9 67 CF18:64 8D ØE DØ 8D ØF DØ A9 10 CF20:01 8D 2E DØ A9 80 8D 15 F5 18 DØ 29 FØ 4A 97 CF28:DØ AD 4A CF30:18 69 03 85 FC A9 FF 85 93 CF38:FB AØ ØØ A9 ØB 91 FB 60 8F CF40:AD 00 DC A0 00 A2 00 4A 31 CF48:BØ Ø3 CE ØF DØ 4A BØ Ø3 DF CF50:EE ØF 4A BØ Ø3 CE ØE 27 DØ CF58:DØ 4A BØ Ø3 EE ØE DØ AD 38 CF60:0F D0 C9 31 D0 03 EE ØF 87 CF68:DØ AD ØF DØ C9 F7 DØ Ø3 90 CF70:CE ØF DØ AD 10 DØ 29 80 C6 CF78:DØ 1C AD ØE DØ C9 17 DØ CA C9 CF80:03 EE ØE DØ AD ØE DØ 30 CF88:00 DØ 24 AD 10 DØ 09 80 12 CF90:8D 10 DØ 4C AF CF AD ØE FF CF98:DØ C9 54 DØ Ø3 CE ØE DØ EA CFAØ:AD ØE DØ C9 FF DØ Ø8 52 AD 4C 30 CFA8:10 DØ 29 7F 8D 10 00 CFB0:31 EA FØ ØØ ØØ EØ ØØ aa 45 CFB8:90 00 ØØ 08 ØØ ØØ ØØ ØØ 21 CFC0:00 00 00 00 00 00 00 aa 60 ØØ CFC8:00 00 00 00 00 00 00 68 CFDØ:00 00 00 00 00 00 00 ØØ 70 CFD8:00 00 00 00 00 00 00 00 78 CFE0:00 00 00 00 00 00 00 00 80 CFE8:00 00 00 00 00 00 00 00 88 CFF0:00 00 00 00 00 00 00 00 90

#### Program 2: Finder

GF	10	REM	COPYRIGH	T 1988	COMPU
		TE!	PUBLICAT	IONS,	INC
		ALL	RIGHTS	RESERV	ED.

- HR 20 IFA<>1THENA=1:LOAD"POINT ER",8,1
- PA 30 SYS52992
- GA 40 DIMC(39)
- PD 50 PRINT" {CLR} ";: GOSUB160
- QR 60 FORI=0T039:C(I)=PEEK(102 4+1):NEXT
- HS 70 WAIT56320,16,16
- JM 80 X%=((PEEK(53262)-255\*(PE EK(53264)=128))-24)/8
- CR 90 Y%= (PEEK (53263)-49) /8:SL =40 \*Y 8+X 8
- FA 100 PRINT" [HOME] {RVS}X=";X% ;"Y=";Y%;"SL=";SL
- MP 110 GETAS: IFAS=""THEN110
- XK 120 IFA\$="Q"THENPRINT"{CLR} :END
- DE 130 IFA\$ <> " "THEN110
- KX 140 FORI=ØTO39:POKE1024+I,C
- (I):NEXT
- MX 150 GOTO70
- HH 160 PRINT" {CLR} {9 DOWN} "TAB (13) "COPYRIGHT 1988"
- BB 170 PRINTTAB(7) "{DOWN} COMPU TE! PUBLICATIONS, INC."

### Cwww.commodore.ca

RH 180 PRINTTAB(10)"{DOWN}ALL {SPACE}RIGHTS RESERVED.

FC 190 RETURN

### Big Screen Converter

See instructions in article on page 45 before typing in.

Ø801:0B			0					
	08	FF	FF	9E	32	30	39	EF
0809:39	00	31						
			08	FF	FF	8F	14	8F
Ø811:14	14	14	14	14	14	14	14	21
0819:31	39	38	38	20	43	4F	4D	94
0821:50	55	54			10 A 20			
			45	21	20	50	55	ØD
0829:42	2E	2C	20	49	4E	43	ØØ	77
0831:00	00	A9	00	85	C6	8D		
							F5	CE
@839:08	8D	F6	Ø8	20	3E	ØA	20	3E
Ø841:5C	ØA	20	F4	ØA	A2	17	AØ	FE
0849:00								
	18	20	FØ	FF	A9	øø	AA	C3
Ø851:A8	BD	C6	ØA	FØ	09	20	D2	5D
Ø859:FF	E8	4C	52	Ø8	AØ	00	20	35
Ø861:CF	FF	99	9E	07	C8	C9	ØD	72
Ø869:DØ	F5	CØ	02	DØ	Ø1	60	A9	8C
0871:14	20	D2	FF	88	98	A2	9E	78
				Contraction of the				
Ø879:AØ	07	20	BD	FF	A9	08	A2	D4
0881:08	AØ	00	20	BA	FF	20	CØ	96
Ø889:FF	A2	AØ	AØ	00	86	FC	84	F8
								100 101
Ø891:FB	A2	08	20	C6	FF	20	DB	9D
0899:08	20	A9	ØA	20	80	ØA	20	C2
Ø8A1:CF	FF	20	F7	Ø8				and the second sec
					EE	6E	ØB	01
Ø8A9:DØ	Ø3	EE	6F	ØB	AD	6F	ØB	BØ
Ø8B1:C9	1F	90	EB	AD	6E	ØB	C9	46
Ø8B9:40								
	BØ	12	20	B7	FF	29	40	AA
Ø8C1:FØ	DD	A9	Ø8	20	C3	FF	20	A7
Ø8C9:CC	FF	4C	5C	ØA	20	CF	FF	FF
Ø8D1:2Ø	B7	FF	29	40	FØ	F6	4C	72
Ø8D9:C3	08	20	CF	FF	EE	F5	08	7E
Ø8E1:DØ	Ø3	EE	F6	08	AD	F6	08	55
								1996
Ø8E9:C9	Ø4	90	EE	AD	F5	08	C9	FF
Ø8F1:02	90	E7	60	ØØ	ØØ	A2	00	6F
Ø8F9:AØ	00	8C	D7	ØA	8C	D8	ØA	A7
Ø901:8D	CE	ØA	AD	CE	ØA	3D	CF	92
Ø909:0A	FØ	09	BD	D9	ØA	ØD	D7	42
Ø911:ØA	8D	D7	ØA	E8	EØ			
						04	90	8A
Ø919:EA	AD	CE	ØA	3D	CF	ØA	FØ	B4
0921:09	BD	D9	ØA	ØD	D8	ØA	8D	70
Ø929:D8	ØA	E8	EØ	Ø8	90	EA		
	ØA							
	12020						A2	50
0931:00	AØ	00	AD	D7	ØA	91	19	69
		00	AD	D7	ØA	91	19	69
0939:20	El	ØØ ØA	AD 91	D7 19	ØA AD	91 D8	19 ØA	69 69
Ø939:2Ø Ø941:91	El 1B	00 0A 20	AD 91 E8	D7 19 ØA	ØA AD 91	91 D8 1B	19 ØA 20	69 69 62
0939:20	El	ØØ ØA	AD 91	D7 19	ØA AD	91 D8	19 ØA	69 69
Ø939:20 Ø941:91 Ø949:E1	El 1B ØA	00 0A 20 20	AD 91 E8 E8	D7 19 ØA ØA	ØA AD 91 EE	91 D8 1B EF	19 ØA 20 ØA	69 69 62 57
Ø939:20 Ø941:91 Ø949:E1 Ø951:AD	El 1B ØA EF	00 0A 20 20 0A	AD 91 E8 E8 C9	D7 19 ØA ØA Ø4	ØA AD 91 EE BØ	91 D8 1B EF Ø1	19 ØA 20 ØA 60	69 69 62 57 59
Ø939:20 Ø941:91 Ø949:E1 Ø951:AD Ø959:A9	E1 1B ØA EF ØØ	00 0A 20 20 0A 8D	AD 91 E8 E8 C9 EF	D7 19 ØA ØA Ø4 ØA	ØA AD 91 EE BØ EE	91 D8 1B EF Ø1 FØ	19 ØA 20 ØA 60 ØA	69 69 62 57 59 E8
Ø939:20 Ø941:91 Ø949:E1 Ø951:AD	El 1B ØA EF	00 0A 20 20 0A 8D 0A	AD 91 E8 E8 C9 EF 8D	D7 19 ØA ØA Ø4	ØA AD 91 EE BØ	91 D8 1B EF Ø1	19 ØA 20 ØA 60	69 69 62 57 59
Ø939:20 Ø941:91 Ø949:E1 Ø951:AD Ø959:A9	E1 1B ØA EF ØØ	00 0A 20 20 0A 8D 0A	AD 91 E8 E8 C9 EF 8D	D7 19 ØA ØA ØA 20	ØA AD 91 EE BØ EE DØ	91 D8 1B EF Ø1 FØ C9	19 ØA 20 ØA 60 ØA 02	69 62 57 59 E8 7A
Ø939:2Ø Ø941:91 Ø949:E1 Ø951:AD Ø959:A9 Ø961:AD Ø969:FØ	E1 1B ØA EF ØØ FØ 25	00 0A 20 20 0A 8D 0A 8D 0A	AD 91 E8 E8 C9 EF 8D F2	D7 19 ØA ØA ØA 20 ØA	ØA AD 91 EE BØ EE DØ C9	91 D8 1B EF Ø1 FØ C9 ØC	19 ØA 20 ØA 60 ØA 02 D0	69 69 62 57 59 E8 7A 82
Ø939:2Ø Ø941:91 Ø949:E1 Ø951:AD Ø959:A9 Ø961:AD Ø969:FØ Ø971:Ø3	E1 1B ØA EF ØØ FØ 25 4C	00 0A 20 0A 8D 0A 8D 24	AD 91 E8 E8 C9 EF 8D F2 ØB	D7 19 ØA ØA ØA 20 ØA A5	ØA AD 91 EE BØ EE DØ C9 19	91 D8 1B EF Ø1 FØ C9 ØC 18	19 ØA 20 ØA 60 ØA 02 D0 69	69 62 57 59 E8 7A 82 78
Ø939:2Ø Ø941:91 Ø949:E1 Ø951:AD Ø959:A9 Ø961:AD Ø969:FØ Ø971:03 Ø979:38	E1 1B ØA EF ØØ FØ 25 4C 85	00 0A 20 20 0A 8D 0A 8D 24 19	AD 91 E8 E8 C9 EF 8D F2	D7 19 ØA ØA ØA 20 ØA A5 Ø2	ØA AD 91 EE BØ EE DØ C9 19 E6	91 D8 1B EF Ø1 FØ C9 ØC 18 1A	19 ØA 20 ØA 60 ØA 02 D0	69 69 62 57 59 E8 7A 82
Ø939:2Ø Ø941:91 Ø949:E1 Ø951:AD Ø959:A9 Ø961:AD Ø969:FØ Ø971:Ø3	E1 1B ØA EF ØØ FØ 25 4C	00 0A 20 0A 8D 0A 8D 24	AD 91 E8 E8 C9 EF 8D F2 ØB	D7 19 ØA ØA ØA 20 ØA A5	ØA AD 91 EE BØ EE DØ C9 19	91 D8 1B EF Ø1 FØ C9 ØC 18	19 ØA 20 ØA 60 ØA 02 D0 69	69 69 62 57 59 E8 7A 82 78 FB
Ø939:20 Ø941:91 Ø949:E1 Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A	E1 1B ØA EF ØØ FØ 25 4C 85 A5	00 0A 20 0A 8D 0A 8D 0A AD 24 19 1B	AD 91 E8 E8 C9 EF 8D F2 ØB 90 18	D7 19 ØA ØA ØA 20 ØA A5 Ø2 69	ØA AD 91 EE BØ EE DØ C9 19 E6 38	91 D8 1B EF Ø1 FØ C9 ØC 18 1A 85	19 ØA 20 ØA 60 ØA 02 D0 69 E6 1B	69 69 62 57 59 E8 78 78 FB 41
Ø939:20 Ø941:91 Ø949:E1 Ø951:AD Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A	E1 1B ØA EF ØØ FØ 25 4C 85 A5 Ø2	00 0A 20 0A 8D 0A 8D 0A 24 19 1B E6	AD 91 E8 E8 C9 EF 8D F2 ØB 90 18 10	D7 19 ØA ØA ØA 20 ØA A5 Ø2 69 E6	ØA AD 91 EE BØ EE DØ C9 19 E6 38 1C	91 D8 EF Ø1 FØ C9 ØC 18 1A 85 60	19 ØA 20 ØA 60 ØA 02 D0 69 E6 1B A9	69 69 62 57 59 E8 78 78 FB 41 15
Ø939:20 Ø941:91 Ø951:AD Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00	E1 1B ØA EF ØØ FØ 25 4C 85 A5 Ø2 8D	00 0A 20 0A 8D 0A 8D 0A 24 19 1B E6 F0	AD 91 E8 C9 EF 8D F2 ØB 90 18 1C ØA	D7 19 ØA ØA ØA 20 ØA A5 Ø2 69 E6 AD	ØA AD 91 EE BØ EE DØ C9 19 E6 38 1C F2	91 D8 EF Ø1 FØ ØC 18 85 60 ØA	19 ØA 20 ØA 60 ØA 02 D0 69 E6 18 A9 C9	69 62 57 59 E8 7A 82 78 FB 41 15 DC
Ø939:20 Ø941:91 Ø949:E1 Ø951:AD Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A	E1 1B ØA EF ØØ FØ 25 4C 85 A5 Ø2	00 0A 20 0A 8D 0A 8D 0A 24 19 1B E6	AD 91 E8 E8 C9 EF 8D F2 ØB 90 18 10	D7 19 ØA ØA ØA 20 ØA A5 Ø2 69 E6	ØA AD 91 EE BØ EE DØ C9 19 E6 38 1C	91 D8 EF Ø1 FØ C9 ØC 18 1A 85 60	19 ØA 20 ØA 60 ØA 02 D0 69 E6 1B A9	69 69 62 57 59 E8 78 78 FB 41 15
Ø939:20 Ø941:91 Ø949:E1 Ø951:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00	E1 1B ØA EF ØØ FØ 25 4C 85 8D DØ	00 0A 20 20 0A 8D 0A AD 24 19 1B E6 F0 06	AD 91 E8 E8 C9 EF 8D F2 ØB 90 18 1C 0A 20	D7 19 ØA ØA ØA 20 ØA A5 69 E6 AD 49	ØA AD 91 EE BØ EE DØ 29 19 E6 38 1C F2 ØB	91 D8 EF Ø1 FØ C9 ØC 18 1A 85 60 4C	19 ØA 20 ØA 60 ØA 02 D0 69 E6 18 A9 C9 BC	69 62 57 59 E8 7A 82 78 FB 41 15 DC 74
Ø939:20 Ø941:91 Ø949:E1 Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00	E1 1B ØA EF ØØ FØ 25 4C 85 A5 8D DØ A5	00 0A 20 0A 8D 0A 20 8D 0A 24 19 18 6 F0 19	AD 91 E8 C9 EF 8D F2 ØB 90 18 C0 A 20 38	D7 19 ØA ØA ØA 20 ØA 20 ØA 50 20 85 82 69 E6 AD 49	ØA AD 91 EE BØ EE DØ C9 19 638 C9 19 638 1C F2 ØB	91 D8 1B EF Ø1 FØ 0C 18 85 60 4C 85	19 ØA 20 ØA 60 ØA 02 D0 69 E6 18 A9 C9 BC9	69 69 62 57 59 E8 7A 82 78 FB 41 5 DC 74 9C
Ø939:20 Ø941:91 Ø951:AD Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø9A1:09	E1 1B ØA EF ØØ FØ 25 4C 85 8D 05 8D 05 02	00 0A 20 20 0A 8D 0A 24 19 1B E6 F0 06 19 C6	AD 91 E8 E8 C9 EF 8D F2 ØB 90 18 10 0A 20 38 1A	D7 19 ØA ØA 20 ØA 20 A5 69 E6 AD 9 C6	ØA AD 91 EE BØ EE DØ 19 E6 38 1C F2 88 1A	91 D8 EF Ø1 FØ 0C 9 ØC 18 85 60 ØA 85 A5	19 ØA 20 ØA 60 ØA 02 D0 69 E6 18 20 00 20 00 20 00 20 00 20 00 20 00 20 00 20 00 0	69 62 57 59 E8 7A 82 78 FB 41 15 DC 74 9C 14
Ø939:20 Ø941:91 Ø949:E1 Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00	E1 1B ØA EF ØØ FØ 25 4C 85 A5 8D DØ A5	00 0A 20 0A 8D 0A 20 8D 0A 24 19 18 6 F0 19	AD 91 E8 C9 EF 8D F2 ØB 90 18 C0 A 20 38	D7 19 ØA ØA ØA 20 ØA 20 ØA 50 20 85 69 E6 AD 49	ØA AD 91 EE BØ EE DØ C9 19 638 C9 19 638 C9 19 638 20 838	91 D8 1B EF Ø1 FØ 0C 18 85 60 4C 85	19 ØA 20 ØA 60 ØA 02 D0 69 E6 18 A9 C9 BC9	69 69 62 57 59 E8 7A 82 78 FB 41 5 DC 74 9C
<pre>Ø939:20 Ø941:91 Ø951:AD Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø941:09 Ø943:B0</pre>	E1 18 64 50 54 54 50 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 20 00 80 80 80 80 80 80 80 80 80 80 80 80	AD 91 E8 C9 EF 8D F2 ØB 90 18 10 20 38 1A 85	D7 19 ØA ØA ØA ØA ØA Ø2 ØA A5 Ø2 69 E6 AD E9 C6 1B	ØA AD 91 EE BØ EE DØ C9 19 E6 38 1C F2 ØB 38 1A BØ	91 D8 EF Ø1 FØ Ø2 85 60 40 85 85 85 85 82	19 ØA 20 ØA 60 ØA 60 02 D0 69 E6 18 A9 C9 19 18 C6	69 69 62 57 59 E8 78 FB 10C 74 9C 14 20
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø999:0C Ø941:09 Ø949:B0 Ø98:38 Ø989:1C</pre>	E1 1B ØA EF ØØ FØ 25 4C 85 80 00 A5 02 E9 C6	00 20 20 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	AD 91 E8 C9 EF 8D F2 ØB 90 18 C9 8D F2 ØB 90 18 C9 8D F2 8D 7 8D 7 8D 7 8D 7 8D 7 8 8 8 8 8 8 8	D7 19 ØA ØA ØA ØA 20 ØA A5 69 E6 AD E9 C6 1B F1	ØA AD 91 EE BØ EE DØ C9 19 E6 38 1C F2 ØB 38 A BØ ØA	91 D8 EF Ø1 FØ ØC 18 85 60 4C 85 60 A 2 AD	19 ØA 20 ØA 60 ØA 00 60 E6 18 A9 C9 BC 19 18 C6 F1	69 69 62 57 59 E8 78 FB 10 74 20 914 20 03
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø969:F0 Ø961:A0 Ø971:03 Ø971:03 Ø971:03 Ø971:03 Ø991:10 Ø989:90 Ø991:00 Ø991:00 Ø991:38 Ø991:138 Ø999:1C</pre>	E1 1B ØA EF ØØ 25 4C 85 8D 00 A5 8D 00 A5 8C 02 80 00 80 00 80 80 80 80 80 80 80 80 80	00 20 20 0A 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 2	AD 91 E8 C9 E7 80 90 87 20 80 18 20 38 1A 85 E8 80	D7 19 ØA ØA ØA 20 ØA 20 A5 02 69 E6 AD E9 C6 1B F1 Ø1	ØA AD 91 EE BØ EE DØ 19 E6 38 1C F2 ØB 38 1A BØ 46 Ø	91 D8 BF C9 ØC 85 60 A 4C 85 Ø2 AD A9	19 ØA 20 ØA 60 ØA 00 69 E6 1B A9 C9 BC 19 1B C6 F1 ØØ	69 69 62 57 59 EBA 78 78 FB 41 5 74 91 40 85
Ø939:20 Ø941:91 Ø949:E1 Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø9A1:09 Ø9A9:B0 Ø9B1:38 Ø9B9:1C	E1 1B ØA EF ØØ FØ 25 4C 85 80 00 A5 02 E9 C6	00 20 20 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	AD 91 E8 C9 EF 8D F2 ØB 90 18 C9 8D F2 ØB 90 18 C9 8D F2 8D 7 8D 7 8D 7 8D 7 8D 7 8 8 8 8 8 8 8	D7 19 ØA ØA ØA ØA 20 ØA A5 69 E6 AD E9 C6 1B F1	ØA AD 91 EE BØ EE DØ C9 19 E6 38 1C F2 ØB 38 A BØ ØA	91 D8 EF Ø1 FØ ØC 18 85 60 4C 85 60 A 2 AD	19 ØA 20 ØA 60 ØA 00 60 E6 18 A9 C9 BC 19 18 C6 F1	69 69 62 57 59 E8 78 FB 10 74 20 914 20 03
Ø939:20 Ø941:91 Ø949:E1 Ø959:A9 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø9A1:09 Ø9A9:B0 Ø9B1:38 Ø9B9:1C	E1 1B ØA EF ØØ 25 4C 85 8D 08 25 8D 08 25 25 8D 08 25 25 8D 25 25 25 25 25 25 25 25 25 25 25 25 25	00 00 20 00 00 00 00 00 00 00	AD 91 E8 C9 E7 80 90 82 80 90 18 20 38 14 85 E8 B0 E8 E8 20 85 E8 E8 20 85 E8 20 85 20 20 20 20 20 20 20 20 20 20 20 20 20	D7 19 ØA ØA ØA 20 ØA 20 A5 02 69 E6 AD E9 C6 1B F1 Ø1 F3	ØA AD 91 EE BØ EE DØ 19 E6 8 1C F2 ØB 38 1A BØ 4 6 Ø A	91 D8 BF G9 C9 C9 C9 C9 C9 C9 C9 C9 C9 C9 C9 C9 C9	19 ØA 20 ØA 60 02 00 69 E6 18 02 00 69 E6 19 18 C6 F1 80 F3	69 69 62 57 59 E8 78 78 78 78 78 78 78 78 78 74 15 74 90 42 03 85 66
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø969:F0 Ø961:AD Ø969:F0 Ø971:03 Ø977:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø9A1:09 Ø9A9:B0 Ø9B1:38 Ø999:10 Ø9C1:0A</pre>	E1 1B ØA EF ØØ FØ 25C 4C5 8D 00 A5 02 E9 C9 F1 C9	00 0A 20 0A 8D 0A 20 0A 8D 8D 20 0A 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	AD 91 E8 E8 C9 EF 8D EF 8D 20 8 EE 80 18 20 38 18 5 EE 80 EE 80 EE 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	D7 19 ØA ØA ØA ØA Ø2 ØA A5 69 E6 AD 9 E6 E1 F1 F3 25	ØA AD 91 EE BØ EE DØ C9 19 E6 38 1C F2 ØB 38 1A ØA 60 A5	91 D8 EF Ø1 FØ 0C 9 ØC 18 85 60 4C 85 85 80 4C 85 80 4C 85 80 80 80 80 80 80 80 80 80 80 80 80 80	19 ØA 20 ØA 60 02 00 69 E6 18 29 E6 19 18 C6 F1 80 F3 18	69 69 62 57 59 82 78 78 78 78 78 78 78 78 10C 74 914 20 35 66 84
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø999:0C Ø991:08 Ø991:18A Ø989:1C Ø9C1:0A Ø9C1:0A Ø9D1:0A</pre>	E1 1B ØA EF ØØ FØ 25 4C 85 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	00 0A 20 0A 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	AD 91 E8 E8 E7 80 EF 80 EF 80 20 80 18 20 85 E8 80 20 85 E8 80 20 85 E8 80 20 85 20 80 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	D7 19 ØA ØA ØA 20 ØA 49 69 EAD 80 25 90	ØA AD 91 EE BØ EE DØ 19 E6 38 C9 19 E6 38 12 ØB 38 A 60 8 8 0 A 5 0 2	91 D8 EF 01 F0 C9 0C 18 85 60 4C 85 60 4C 85 80 4C 85 80 4C 85 80 80 80 80 80 80 80 80 80 80 80 80 80	19 ØA 20 ØA 60 ØA 60 69 E6 18 C9 E6 19 10 E6 F1 80 F3 18 1A	69 69 62 57 5 5 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø969:F0 Ø971:03 Ø971:03 Ø971:03 Ø989:90 Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø991:38 Ø999:10 Ø901:0A Ø901:0A Ø901:0A</pre>	E1 1B ØA EF ØØ FØ 25C 4C5 8D 00 A5 02 E9 C9 F1 C9	00 0A 20 0A 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	AD 91 E8 E8 C9 EF 8D EF 8D 20 8 EE 80 18 20 38 18 5 EE 80 EE 80 EE 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 20 80 80 80 80 80 80 80 80 80 80 80 80 80	D7 19 ØA ØA ØA ØA Ø2 ØA A5 69 E6 AD 9 E6 E1 F1 F3 25	ØA AD 91 EE BØ EE DØ 91 E6 38 12 ØB 38 12 ØB 38 A 0 ØA 5 85	91 D8 EF Ø1 FØ 0C 9 ØC 18 85 60 4C 85 85 80 4C 85 80 4C 85 80 80 80 80 80 80 80 80 80 80 80 80 80	19 ØA 20 ØA 60 00 69 E6 18 20 00 69 E6 18 20 20 00 69 E6 18 20 20 00 69 E6 18 20 20 20 20 20 20 20 20 20 20 20 20 20	69 69 57 58 78 278 78 278 78 278 78 15 74 20 03 85 66 84 87 77
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø999:0C Ø991:08 Ø991:18A Ø989:1C Ø9C1:0A Ø9C1:0A Ø9D1:0A</pre>	E1 1B ØA EF ØØ FØ 25 4C 85 80 80 A52 80 0 A52 E6 60 F1 C9 1A	00 0A 20 0A 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	AD 91 E8 E8 C9 EF 8D EF 8D 20 8 EF 8D 18 20 8 18 20 8 EE 8 5 20 8 18 20 8 5 20 8 5 20 8 5 20 8 5 20 8 5 20 8 5 20 8 5 20 20 8 5 20 8 5 20 20 20 20 20 20 20 20 20 20 20 20 20	D7 19 ØA ØA ØA 20 ØA 20 69 E6D 20 E6D F3 25 90 1E	ØA AD 91 EE BØ EE DØ 19 E6 38 C9 19 E6 38 12 ØB 38 A 60 8 8 0 A 5 0 2	91 D8 EF 01 F0 00 00 18 85 00 40 50 00 40 50 00 40 50 00 40 50 00 18 18 18 18 18 18 18 18 18 18 18 18 18	19 ØA 20 ØA 60 ØA 60 69 E6 18 C9 E6 19 10 E6 F1 80 F3 18 1A	69 69 62 57 5 5 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø969:F0 Ø971:03 Ø971:03 Ø971:03 Ø971:03 Ø991:1A Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø991:38 Ø999:1C Ø9C1:0A Ø9C9:8D Ø9D1:0A Ø9D1:0A Ø9D1:A5 Ø9E9:1B</pre>	E1 1B ØA EF ØØ FØ 5 4C 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	00 0A 20 0A 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	AD 91 E8 E8 C9 EF 8D EF 8D 20 8 E7 8D 20 8 E8 20 8 18 20 8 18 20 8 18 20 8 20 8 18 20 8 20	D7 19 ØA ØA ØA ØA ØA ØA ØA ØA ØA ØA ØA ØA ØA	ØA AD 91 EE BØ C99 E6 C99 E6 38 16 83 10 83 10 83 10 85 10 85	91 D8 EF F0 C9 0C 18 A5 60 A 4C 5 60 A 2 A 2 A 2 A 2 A 2 A 2 4 5 60 A 2 4 2 5 0 2 A 2 4 5 60 A 2 4 5 5 8 4 4 5 60 A 2 4 5 5 8 5 8 5 7 4 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5	19 ØA 20 ØA 60 02 06 60 60 60 60 60 60 60 60 60 60 60 60	69 69 57 58 78 82 78 82 78 15 DC 74 92 41 15 DC 74 03 85 66 84 87 87 84
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø9A1:09 Ø9A1:09 Ø9A1:09 Ø9A1:09 Ø9A1:09 Ø9A1:04 Ø9D1:04 Ø9D1:04 Ø9D1:05 Ø9D1:05 Ø9D1:05 Ø9D1:05</pre>	E1 1B ØA EF ØØ FØ5 4C5 8D Ø A5 8D Ø A5 25C 69 F19 C0 8 18 10 18 10 10 10 10 10 10 10 10 10 10 10 10 10	00 00 20 00 00 20 2	AD 91 E8 E8 29 EF 80 20 80 20 85 E8 20 80 20 85 E8 20 80 20 20 20 20 20 20 20 20 20 20 20 20 20	D7 19 ØA ØA ØA ØA ØA ØA ØA ØA ØA ØA ØA ØA ØA	ØA AD 91 EE BØ C9 196 38 10 53 10 60 45 10 69	91 D8 EF 07 07 08 08 08 08 08 08 08 08 08 08 08 08 08	19 ØA 20 ØA 60 09 60 60 60 60 60 60 60 60 60 60 60 60 60	69 69 57 57 59 E8 78 82 78 FB 41 15 DC 4 20 0 3 566 B4 87 C 74 41 20 0 3 562 20 78 57 78 57 78 78 78 78 78 78 78 78 78 78 78 70 74 78 70 78 70 70 70 70 70 70 70 70 70 70 70 70 70
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø959:F0 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø9A9:00 Ø9A9:00 Ø9A9:80 Ø9B1:38 Ø9B9:1C Ø9C1:0A Ø9C9:8D Ø9D1:0A Ø9D9:69 Ø9E1:A5 Ø9E9:1B Ø9F1:E6 Ø9F9:1C</pre>	E1 BA EF ØØ FØ 54C 855 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	00 0A 20 0 20 2	AD 918889980 8099820 8099820 8099820 8099820 809080 809080 809080 8000000	D7 19 ØA ØA ØA Ø2 ØA Ø2 ØA 66 AD 9 E66 AD 9 E7 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8	ØA AD 91 EE BØE EØ 29 E6 38 C 29 E6 38 C 29 88 20 20 20 20 20 20 20 20 20 20 20 20 20	91 D8 EF F0 C9 0C 18 A5 60 A 4C 5 60 A 2 A 2 A 2 A 2 A 2 A 2 4 5 60 A 2 4 2 5 0 2 A 2 4 5 60 A 2 4 5 5 8 4 4 5 60 A 2 4 5 5 8 5 8 5 7 4 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5	19 ØA 20 ØA 60 02 06 60 60 60 60 60 60 60 60 60 60 60 60	69 69 57 58 78 82 78 82 78 15 DC 74 92 41 15 DC 74 03 85 66 84 87 87 84
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø9A1:09 Ø9A1:09 Ø9A1:09 Ø9A1:09 Ø9A1:09 Ø9A1:04 Ø9D1:04 Ø9D1:04 Ø9D1:05 Ø9D1:05 Ø9D1:05 Ø9D1:05</pre>	E1 BA EF ØØ FØ 54C 855 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	00 00 20 00 00 20 2	AD 91 E8 E8 29 EF 80 20 80 20 85 E8 20 80 20 85 E8 20 80 20 20 20 20 20 20 20 20 20 20 20 20 20	D7 19 ØA ØA ØA Ø2 ØA Ø2 ØA 66 AD 9 E66 AD 9 E7 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8	ØA AD 91 EE BØE EØ 29 E6 38 C 29 E6 38 C 29 88 20 20 20 20 20 20 20 20 20 20 20 20 20	91 D8 EF 07 07 07 07 08 07 07 07 07 07 07 07 07 07 07 07 07 07	19 ØA 20 00 00 20 00 00 20 2	69 69 57 57 59 E8 78 FB 41 15 DC 4 12 0 0 3 B5 66 B4 87 78 84 D 55 55 50 55 75 78 50 78 50 78 78 78 78 78 78 78 78 78 78 78 78 78
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø959:F0 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø901:0A Ø901:0A Ø901:05 Ø900000000000000000000000000000000000</pre>	E1 1B ØA EF ØØ F05 4C5 8D 05 8D 05 8D 05 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D 8D	00 00 20 00 00 20 2	AD 91 88 89 80 80 80 80 80 80 80 80 80 80 80 80 80	D7 19 ØA ØA ØA Ø2 ØA 90 66 A0 90 66 A0 90 66 F1 F1 50 80 80 80 80 80 80 80 80 80 80 80 80 80	ØA AD 91 EE BØ ED 09 19 E6 38 16 38 16 838 40 45 85 86 85 19 19	91 D8 EF 02 C 02 18 56 04 25 04 20 20 20 20 20 20 20 20 20 20 20 20 20	19 ØA 20 60 60 20 20 20 20 20 20 20 20 20 20 20 20 20	69 69 57 58 78 82 78 85 74 15 DC 74 914 20 03 85 66 84 87 C7 84 D 50 EC
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø959:F0 Ø961:AD Ø969:F0 Ø971:03 Ø971:03 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø901:0A Ø909:69 Ø991:AS Ø999:10 Ø991:EB Ø971:EB Ø971:EB Ø971:EB</pre>	E1 BA EF ØØ F05 24 25 24 25 24 25 25 25 25 25 25 25 25 25 25	00 00 200 00 200 200 200 200 200 200 20	AD 9188809528098180238 10023818558852999180238 10023818558858585858585858585858585858585858	D7 19 ØA Ø2 ØA 40 20 A5 20 66 6 60 18 17 19 85 80 18 18 80 18 18 18 18 18 18 18 18 18 18 18 18 18	ØA AD 91 EE BØE EDØ 99 E6 38 C 99 E6 38 C 9 38 AØ 8 BØA 8 6 8 A 92 E 9 9 2 5 8 8 8 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8	91 D8 EF1 ØFC9 ØC8 B5 Ø4C5 A02 A09 E6 A09 E6 B0 B0 B0 B0 B0 B0 B0 B0 B0 B0	19 ØA 20 60 00 20 00 00 20 00 00 20 00 00 20 00 00	69 69 57 58 78 78 78 78 78 78 78 78 74 15 74 74 20 03 85 66 88 77 82 78 82 78 84 115 74 82 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 78 78 78 78 78 78 78 78 78 78 78 78
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø959:F0 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø901:00 Ø000 Ø000 Ø000 Ø000 Ø000 Ø000 Ø000</pre>	E1 BA EFØØØ F25 485 800 A52 800 C91 18 100 18 100 18 100 18 100 100	00 00 20 20 00 20 20 20 20 20 20 20 20 2	AD 91 88 89 80 80 80 80 80 80 80 80 80 80 80 80 80	D7 19 ØA Ø2 ØA 40 20 A5 20 66 66 20 10 10 10 10 20 20 20 20 20 20 20 20 20 20 20 20 20	ØA AD 91 EE BØE EØ 91 E6 38 12 88 10 80 40 45 85 16 93 129 80 40 45 85 16 93 10 80 80 80 80 80 80 80 80 80 80 80 80 80	91 D8 EF1 Ø10 BFC9 Ø18 A50 A20 A20 B1E5 B16 B16 B16 B16 B16 B16 B16 B16	19 ØA 20 06 07 06 09 06 09 06 09 06 09 06 09 06 09 06 09 06 00 06 00 06 00 06 00 06 00 06 00 00	69 69 57 559 E8 78 82 78 82 78 84 15 DC 74 9C 41 20 03 85 66 84 10 50 C7 84 10 55 78 85 85 85 85 85 85 85 85 85 85 85 85 85
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø959:F0 Ø961:AD Ø969:F0 Ø971:03 Ø971:03 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø901:0A Ø909:69 Ø991:AS Ø999:10 Ø991:EB Ø971:EB Ø971:EB Ø971:EB</pre>	E1 BA EF ØØ F05 24 25 24 25 24 25 25 25 25 25 25 25 25 25 25	00 00 200 00 200 200 200 200 200 200 20	AD 9188809528098180238 10023818558852999180238 10023818558858585858585858585858585858585858	D7 19 ØA Ø2 ØA 40 20 A5 20 66 66 20 10 10 10 10 20 20 20 20 20 20 20 20 20 20 20 20 20	ØA AD 91 EE BØE EDØ 99 E6 38 C 99 E6 38 C 9 38 AØ 8 BØA 8 6 8 A 92 E 9 9 2 5 8 8 8 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8	91 D8 EF1 ØFC9 ØC8 B5 Ø4C5 A02 A09 E6 A09 E6 B0 B0 B0 B0 B0 B0 B0 B0 B0 B0	19 ØA 20 60 00 20 00 00 20 00 00 20 00 00 20 00 00	69 69 57 58 78 78 78 78 78 78 78 78 74 15 74 74 20 03 85 66 88 77 82 78 82 78 84 115 74 82 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 85 78 78 78 78 78 78 78 78 78 78 78 78 78
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø959:F0 Ø961:AD Ø969:F0 Ø971:03 Ø977:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø901:03 Ø991:00 Ø901:04 Ø909:80 Ø901:04 Ø909:80 Ø901:05 Ø900000000000000000000000000000000000</pre>	E1 BA EFØØØ F25 400 800 800 800 F25 C09 100 F25 C09 100 F25 C09 100 F25 C09 100 F25 C09 F25 F25 F25 F25 F25 F25 F25 F25 F25 F25	00 00 00 00 00 00 00 00 00 00	AD 918880 28872 89872 89872 88872 88872 88872 88872 88872 88872 88872 88872 88872 8772 8777 8777 8777 8777 8777 87777 87777 87777 87777 87777 87777 87777 877777 877777 8777777	D790A00000000000000000000000000000000000	ØA AD 1 EB EB EB CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 E 88 CO 99 CO 90 CO 99 CO 90 C 20 CO 90 C 20 CO 90 C 20 CO 90 C 20 C C 20 CO 20 C C 20 C C CO CO 20 C C CO CO CO CO CO CO CO CO CO CO CO CO	91 8 8 9 1 8 9 1 8 9 1 8 9 1 8 5 1 8 5 8 5 1 8 5 1 8 5 1 8 5 1 8 5 1 8 5 1 8 5 1 8 5 1 8 5 8 5	19 ØA 20 06 06 06 20 20 20 20 20 20 20 20 20 20 20 20 20	69 69 57 57 59 E8 78 FB 41 15 DC 4 12 0 3 B 5 66 B4 87 C 74 20 3 B5 56 2 C 7 4 12 0 5 7 8 57 59 8 2 78 78 78 78 78 78 78 78 78 78 78 78 78
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø959:F0 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø9A9:00 Ø9A9:00 Ø9A9:00 Ø9A9:00 Ø9B1:38 Ø9B9:1C Ø9C1:0A Ø9C9:8D Ø9D1:0A Ø9C9:8D Ø9F1:E6 Ø9F9:1C ØA01:19 ØA09:C0 ØA1:11A ØA19:B0 ØA21:1E</pre>	E1 BAF ØF25C5 485520 B0 529629 FC0 18 C0 18 C0 18 C0 18 C0 18 C0 10 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0	00 00 00 00 00 00 00 00 00 00	AD18889918CA9882889910000000000000000000000000000000	D790A0440200000000000000000000000000000000	ØA AD EEØ EEØ 299 E68 ECØ 99 E68 E2B 20 29 E68 E2B 20 29 E68 E68 E68 E68 E68 E68 E68 E68 E68 E68	91 86 86 86 86 86 86 86 86 86 86 86 86 86	19 00 00 00 00 00 00 00 00 00 00 00 00 00	69 69 57 57 59 E8 78 FB 41 15 DC4 914 20 03 B5 66 B4 87 78 84 D 50 C 74 98 562 85 78 85 85 78 85 85 78 85 85 85 78 85 85 85 85 85 85 85 78 85 85 85 85 85 85 85 85 85 85 85 85 85
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø959:F0 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø991:00 Ø901:0A Ø901:0A Ø901:0A Ø901:0A Ø901:0A Ø901:0A Ø901:0 Ø900:0 Ø9000:0 Ø9000:0 Ø9000:0 Ø9000:0 Ø9000:0 Ø90000000000</pre>	E1 BAF EFØ FØ FØ 50 80 80 80 80 80 80 80 80 80 80 80 80 80	00 00 20 2	AD1888918CA988689918CA988689998CCA586000000000000000000000000000000000000	D790A00000000000000000000000000000000000	ØA D1 E8 BEE099968805189806845258999001660000000000000000000000000000000	91 81 86 86 86 86 85 86 80 80 80 80 80 80 80 80 80 80 80 80 80	19 A 0 20 A 0 20 0 20 0 20 0 20 0 20 0 20	69 69 57 58 78 78 78 78 78 78 74 15 74 74 74 74 74 74 74 74 74 74 74 74 74
<pre>Ø939:20 Ø941:91 Ø959:A9 Ø951:AD Ø959:F0 Ø961:AD Ø969:F0 Ø971:03 Ø979:38 Ø981:1A Ø989:90 Ø991:00 Ø9A9:00 Ø9A9:00 Ø9A9:00 Ø9A9:00 Ø9B1:38 Ø9B9:1C Ø9C1:0A Ø9C9:8D Ø9D1:0A Ø9C9:8D Ø9F1:E6 Ø9F9:1C ØA01:19 ØA09:C0 ØA1:11A ØA19:B0 ØA21:1E</pre>	E1 BAF ØF25C5 485520 B0 529629 FC0 18 C0 18 C0 18 C0 18 C0 18 C0 10 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0	00 00 00 00 00 00 00 00 00 00	AD18889918CA9882889910000000000000000000000000000000	D790A0440200000000000000000000000000000000	ØA AD EEØ EEØ 299 E68 ECØ 99 E68 E2B 20 29 E68 E2B 20 29 E68 E68 E68 E68 E68 E68 E68 E68 E68 E68	91 86 86 86 86 86 86 86 86 86 86 86 86 86	19 00 00 00 00 00 00 00 00 00 00 00 00 00	69 69 57 57 59 E8 78 FB 41 15 DC4 914 20 03 B5 66 B4 87 78 84 D 50 C 74 98 562 85 78 85 85 78 85 85 78 85 85 85 78 85 85 85 85 85 85 85 78 85 85 85 85 85 85 85 85 85 85 85 85 85

ØA39:A9 ØA41:1C ØA49:EF ØA51:8D ØA59:85 ØA69:09 ØA71:18 ØA79:00 ØA81:01 ØA89:09 ØA91:29 ØA91:29 ØA81:11 ØAA9:A9 ØA81:21 ØAA9:C ØA29:18 ØAC1:EØ ØAC9:4C ØAC9:4C ØAC9:4C ØAC9:10 ØAF1:00 ØAF1:00 ØAF1:00 ØAF1:00 ØB1:F8 ØB01:F8 ØB1:A5 ØB21:C6 ØB29:85 ØB31:18 ØB51:82 ØB51:82 ØB51:82 ØB51:82 ØB51:85 ØB61:18	85 85 85 85 85 85 85 85 85 85	85A 80A 60DD 809 809 809 800 800 800 800 800 800 800	18 A900 B0 B0 B0 B0 B0 B0 B0 B0 B0 B0 B0 B0 B	600 00 00 00 00 00 00 00 00 00 00 00 00	A95 80 00 00 10 00 80 00 10 00 80 00 10 00 80 10 00 80 10 00 80 10 00 80 10 00 80 10 00 80 10 00 80 10 00 80 10 00 10 00 10 00 80 10 00 0	209 1919295 10002000089 100025 10002000089 100000000000000000000000000000000	85 80 80 80 80 80 80 80 80 80 80 80 80 80	06780577112879380888888888888929255042510182055523
Arca	de	• 1	/0	lle	ył	Da	11	
See inst	ruct	ions	in	arti				e
32 befor 0 801:0C 0 809:36 0 811:00 0 811:00 0 811:00 0 811:00 0 821:00 0 821:00 0 829:81 0 839:99 0 841:00 0 859:18 0 859:18 0 859:18 0 859:18 0 859:18 0 859:00 0 859:00 0 891:60 0 889:70 0 889:70 0 889:70 0 889:80 0 899:80 0 999:80 0 999:	Ø8 32	ØAØØFCDAØD 850 860 87 80 80 80 80 80 80 80 80 80 80 80 80 80	000 800 800 800 800 800 800 800 800 800	9600110699A9860878A0001527708007807807807807807807807807807807807	20 40 00 98 00 80 40 40 20 80 40 80 80 80 80 80 80 80 80 80 80 80 80 80	322 929 25 82 82 82 82 82 82 82 82 82 82 82 82 82	308 F50 BDA 808 808 808 808 808 808 808 808 808 80	64F305A1809B82364887C4377158861AA8926188057F099776

Ø939:40 39 BD 61 0C 9D CØ 38 18 0941:BD A1 0C 9D 00 39 BD El 38 0949:0C 9D 80 39 BD A1 ØA 90 92 Ø951:CØ 39 BD E1 ØA 9D ØØ 3A E8 Ø959:BD 21 ØB 9D 4Ø 3A BD 61 95 0961:0B 9D 80 3A CA 10 C1 A9 D7 Ø969:32 8D 7A ØA 8D 78 ØA 8D D7 0971:7B ØA 8D 79 ØA AØ 00 20 FF 0979:56 08 20 2E Ø8 A9 78 8D 05 Ø981:79 ØA A9 1E 8D 7B ØA AØ F8 Ø989:02 20 56 08 20 2E 08 A9 63 79 Ø991:78 8D ØA A9 6E 8D 7B BØ 0999:0A A0 01 20 56 08 20 2E 3C Ø9A1:08 A9 78 8D 79 ØA A9 28 79 Ø9A9:8D 7B ØA AØ Ø4 20 56 Ø8 02 Ø9B1:20 2E 08 A9 78 8D 79 ØA F1 Ø9B9:A9 64 8D 7B ØA AØ 03 20 10 Ø9C1:56 Ø8 20 2E Ø8 20 86 08 BD 09C9:A9 01 8D 2B DØ A9 04 8D 18 Ø9D1:27 DØ A9 Ø2 8D 28 DØ A9 59 Ø9D9:07 8D 29 DØ A9 Ø5 8D 2A AB 09E1:DØ A9 00 8D 21 DØ 8D 20 27 09E9:D0 A9 93 20 D2 FF A9 8E BB 09F1:20 D2 FF A9 08 20 D2 FF C9 Ø9F9:A9 56 8D F3 Ø5 8D 18 06 02 ØAØ1:8D 43 Ø6 8D 6B Ø6 8D 93 68 ØAØ9:06 A9 AØ 8D BB Ø6 8D E3 6C ØA11:06 8D ØB Ø7 8D 33 Ø7 8D 32 ØA19:5B Ø7 A9 64 8D 5A 07 8D 89 ØA21:5C Ø7 A9 79 8D CB Ø5 20 **B7** ØA29:D6 10 20 FA 15 A9 0C A0 68 ØA31:FA 88 99 00 D8 99 FA D8 14 ØA39:99 F4 D9 99 EE DA DØ F1 A2 ØA41:A9 1F 20 D2 FF A9 01 8D 59 ØA49:F3 D9 8D 1B DA 8D 43 DA 9F ØA51:8D 6B DA 8D 93 DA AD 7C 1B ØA59:16 C9 41 DØ F9 A2 ØØ AØ 1B ØA61:0B 18 20 F0 FF A2 00 BD 5C ØA69:67 16 FØ Ø7 20 D2 FF E8 7A ØA71:4C 68 ØA EA 4C 84 ØD ØØ 44 ØA79:00 00 00 00 00 00 00 00 8D ØA81:00 00 00 00 00 00 ØØ ØØ 95 ØA89:00 00 00 00 00 00 aa ØØ 9D ØA91:01 02 04 08 10 20 40 80 A9 ØA99:FE FD FB F7 EF DF BF 7F A9 ØAA1:00 00 00 00 00 00 00 87 6D ØAA9:00 03 D7 C0 0D E7 70 10 8A ØAB1:EF 78 1B 6E E8 37 9E CC 54 ØAB9:2E 7D DØ 1D BD DC 3B DD E5 ØAC1:DC 35 E3 8C 16 7C 54 17 39 ØAC9:9F D8 ØB E3 9Ø Ø2 7C 60 69 ØAD1:00 BB 80 00 00 00 00 00 E4 ØAD9:00 00 00 00 00 00 00 00 ED ØAE1:00 00 00 00 00 00 00 BB B1 ØAE9:80 02 7C 60 ØB E3 90 17 74 ØAF1:9F D8 16 7C 54 35 E3 8C 62 ØAF9:3B DD DC 1D BD DC 2E 7D CB ØBØ1:DØ 37 9E CC 6E E8 18 1C 6E ØBØ9:EF 78 ØD E7 7Ø Ø3 D7 CØ 55 ØB11:00 B7 00 00 ØØ 00 00 00 15 ØB19:00 00 00 00 00 00 00 00 aa 2F 0B21:00 00 00 00 00 00 00 ED 25 ØB29:00 Ø3 CØ ØE E7 19 EB BØ 1E ØB31:F7 38 76 D8 33 79 EC 17 ØF ØB39:ØB BE 74 3B BD B8 C9 3B BB ØB41:DC 31 C7 AC 2A 3E 68 1B ØC ØB49:F9 E8 Ø9 C7 DØ Ø6 3E 40 8F ØB51:01 DD 00 ØØ aa 00 ØØ ØØ 5F ab 59: aa aa aa aa aa aa aa aa 6F ØB61:00 00 00 00 00 00 01 DD 57 ØB69:00 Ø6 3E 40 09 C7 D0 1B FØ ØB71:F9 E8 2A 3E 68 31 C7 AC 2C ØB79:3B BB DC 3B BD B8 ØB BE 11 79 ØB81:74 33 EC 17 76 D8 1E FE ØB89:F7 38 ØE E7 BØ Ø3 EB CØ 14 ØB91:00 ED 00 00 00 00 00 00 23 0899:00 00 00 00 00 00 00 00 00 AF ØBA1:00 00 00 00 00 00 ØØ 7F 37 ØBA9:EØ Ø1 FF F8 Ø7 ØF CØ E1 F8 ØBB1:FE FC ØE ØF FC ØE 8F 8C Ø5 ØBB9:1E CF F4 3F FF F4 3F C7 7F ØBC1:8C ØC 1F FC Ø7 FF F8 Ø3 Ø2 ØBC9:FF FØ Ø1 FF EØ ØØ FF 80 C3 ØBD1:00 1E 00 00 1C 00 00 ØE 5E ØBD9:00 00 0E 00 00 FF 00 8C 3E

COMPUTEI's Gazette June 1988 75

ØBE1:00         Ø0         Ø0         Ø0         Ø0         Ø0         Ø7         F7           ØBE9:E0         Ø1         FF         F8         Ø7         E1         F8         ØF         Ø1           ØBF9:1E         CF         F4         3F         FF         F4         3F         C7         BF           ØCØ1:8C         ØC         1F         FC         Ø7         FF         80         Ø3         43           ØCØ9:FF         FØ         Ø1         FF         E0         Ø0         F3         Ø0         Ø6         35         F7           ØC11:00         3F         Ø0         Ø1         FF         F8         Ø7         E1         19           ØC29:F8         ØF         FE         FC         ØE         ØF         FF         F4         BE           ØC31:8F         8C         1E         CF         F4         3F         FF         F4         8E           ØC41:F8         Ø3         FF         F0         Ø1         FF         80         ØF         F5         30           ØC41:F8         Ø3         ØF         ØF         ØF         ØF         ØF         ØF	ØE89:07       8D       FA       07       AD       FA       07       AD       FF       08       AP       CF         ØE91:FB       07       AD       FB       07       RD       FP       07       AD       AB         ØEA1:6C       ØF       FØ       08       AP       E6       8D       FA       55         ØEA1:6C       ØF       FØ       08       AP       E6       8D       FA       55         ØEA1:6C       ØF       FØ       08       AP       E6       8D       FA       55         ØEA1:6C       ØF       FØ       ØA       OØ       ØØ       FE       ØØ       ØØ       FE       ØØ       ØØ       ØØ       ØØ       ØØ       ØØ       ØØ       ØØ       FE       ØØ       ØØ	1131:9D       28       Ø4       CA       10       FA       60       Ø6       86         1139:EA       A9       8F       8D       18       D4       A9       10       7D         1141:8D       Ø5       D4       8D       12       D4       A9       15       8D       24         1151:A9       10       8D       12       D4       A9       15       8D       24         1151:A9       10       8D       04       D4       A9       15       8D       24         1161:BD       8D       07       D4       A9       18       8D       01       D4       A9       20         1161:BD       8D       04       D4       A9       10       8D       12       81         117:P:FD       CA       D0       FB       60       60       A9       04       20         1189:A9       10       8D       06       D4       A9       30       11       10       78         119:A9       04       8D       06       D4       A9       10       78         119:A9       10       71       B8       07       10
ØD61:ØE 4C C5 ØE AD B1 ØE 29 A8         ØD69:Ø8 DØ 1Ø EE B3 ØE A9 Ø1 D6         ØD71:8D BC ØE A9 Ø1 8D BA ØE 9F         ØD79:4C C5 ØE A9 Ø0 8D BC ØE 45         ØD89:ØD 2Ø FA ØE 20 12 Ø8 20 21 99         ØD91:9C 14 2Ø 83 ØF 2Ø BD 11 CØ         ØD91:9C 14 2Ø 83 ØF 2Ø BD 11 CØ         ØD91:9C 14 2Ø 83 ØF 2Ø BD 11 CØ         ØD91:9C 14 2Ø 83 ØF 2Ø BD 11 CØ         ØD91:9C 14 2Ø 83 ØF 2Ø BD 11 CØ         ØD91:9C 14 2Ø 83 ØF 2Ø BD 11 CØ         ØD99:2Ø 4B 12 2Ø BD ØF 2Ø 23 68         ØDA1:1Ø 2Ø DB ØD 2Ø 86 Ø8 2Ø 63         ØDA9:A5 15 AD 66 16 FØ D4 A9 BF         ØDB9:Ø1 8D D8 15 8D A2 15 A9 EE         ØDC1:ØØ 8D AF ØE 2Ø 73 11 CE D5         ØDC9:AF ØE AD AF ØE DØ F5 A9 39         ØDD1:ØØ 85 C6 A5 C6 FØ FC 4C CØ         ØDD9:92 Ø8 AD B3 ØE 8D 78 ØA D7         ØDE9:ØA A9 ØØ 8D 7A ØA 8D 78 DB         ØDF1:ØA AØ ØØ 2Ø 56 Ø8 2Ø 20 C         ØEØ1:7B ØA AØ Ø1 2Ø 56 Ø8 2Ø 20 CØ         ØEØ1:7B ØA AØ Ø1 2Ø 56 Ø8 2Ø 20 CØ         ØE11:A9 9B 38 ED 7Ø ØF 8D 79 23         ØE19:ØA A9 ØØ 8D 7A ØA 8D 78 ØD         ØE21:ØA AØ Ø2 266 68 20 27 C         ØE29:Ø8 AD B7 ØE 18 69 20 8D CØ         ØE29:Ø8 AD B7 ØE 18 69 20 8D CØ         ØE29:Ø8 AD B7 ØE 18 69 20 8D CØ         ØE29:Ø8 AD B7 ØE 18 6D BC ØE 8D D98         ØE29:Ø8 AD B7 ØE 18 6D BCØ	1009:8D BC 0F 20 39 11 A9 00 64 1011:38 ED B9 0F 8D B9 0F A9 0C 1019:00 ED BA 0F 8D BA 0F 4C BE 1021:55 10 AD BB 0F 8D 7A 0A 0F	12B1:FF00000000000000000012B9:00000000000000000000000012C1:0000000000000000000000000012C1:FFFFFFFFFFFFFFFFFFFFFFFF12D1:FFFFFFFFFFFFFFFFFFFFFF12D1:FF6000000000000000000000000012E1:00 </td

### C-www.commodore.ca

#### BEFORE TYPING ....

Before typing in programs, please refer to "How to Type In COMPUTEI's GAZETTE Programs," elsewhere in this issue.

13D9:BC ØF 18 69 ØA 38 ED B3 7C 13E1:0E AA EØ 00 90 4A EØ 14 59 13E9:BØ 46 A9 ØØ 38 ED B5 ØF 23 13F1:8D B5 ØF A9 ØØ ED B6 ØF FC 13F9:8D B6 ØF AD **B9** ØF 18 70 09 1401:36 12 8D B9 0F AD BA ØF C9 1409:7D 21 12 8D BA ØF AE 6B 2E 1411:0F AD B5 0F 38 FD 9E 12 DC 1419:8D B5 ØF AD B6 ØF FD C7 E7 1421:12 8D B6 ØF EE A4 15 4041.40 40 an 41 an an an an an A9 5B 1429:00 8D A3 15 20 7F 11 60 FB 1431:AD B6 ØF 30 65 AD **B**8 ØF 25 1439:18 6D 6F ØF 29 F8 C9 90 F8 1441:DØ 58 AD BC ØF 38 E9 16 AC 1449:38 ED B3 ØE AA EØ aa 90 C9 38 1451:49 EØ 14 BØ 45 A9 ØØ EC 1459:ED B5 ØF 8D **B5** ØF A9 ØØ DD 1461:ED B6 ØF 8D B6 ØF AD **B9** EF 1469:ØF 18 7D 36 12 8D B9 ØF 7B 1471:AD BA ØF 7D 21 12 8D BA FF 1479: ØF AE 6B ØF AD B5 ØF 38 CD 1481:FD 9E 12 8D B5 ØF AD **B6** 67 1489:0F FD C7 12 8D B6 ØF EE 27 1491:A4 15 A9 00 8D A3 15 20 CB 1499:7F 11 60 AD B6 ØF 30 2E 2D 14A1:AD B8 ØF 29 FC C9 4C DØ BB 14A9:25 AD BC ØF C9 44 90 1E F6 14B1:C9 4C BØ 1A 4E B6 ØF 6E 63 14B9:B5 ØF 20 7F 11 A9 ØØ 38 E3 14C1:ED B5 ØF 8D B5 ØF A9 00 46 14C9:ED B6 ØF 8D B6 ØF 60 ØØ 04 14D1:AD Ø8 DC 29 1F 69 14 CD 95 14D9:BC ØF 90 4D AD BC ØF 38 C1 14E1:E9 Ø6 CD B7 ØE FØ 1F BØ D8 14E9:10 CE B7 ØE A9 Ø1 8D BE DØ 14F1:0E A9 00 8D C0 0E 4C 07 42 14F9:15 EE B7 ØE A9 Ø1 8D BE 6B 1501:0E A9 Ø1 8D CØ ØE AD **B8** E7 1509:0F C9 7C 90 1B AD BA D9 ØF 1511:29 80 8D BB ØE AD BC ØF ØD 1519:38 ED B7 ØE 29 8Ø 4D BB 54 1521:0E DØ Ø5 A9 Ø1 8D 6D ØF E9 AD BC ØF 1529:60 38 E9 16 CD DA 1531:B7 ØE BØ C5 90 B3 01 AD 30 1539:D8 15 CD A2 15 DØ Ø3 20 ØB 1541:D9 15 AD A2 15 8D D8 15 23 1549:A9 00 8D B9 0F 8D BA ØF **C**8 1551:8D B5 ØF 8D B6 ØF 20 C6 63 1559:15 AD 11 Ø8 FØ 16 A9 08 57 1561:8D B7 ØE A9 ØØ 8D 6D ØF BC 1569:8D 6C ØF 8D B6 ØE 8D BB F4 1571:0F 8D B7 0F A9 00 8D A3 7A 1579:15 8D A4 15 AD A2 15 FØ 8A 1581:10 A9 Ø1 8D 37 15 A9 8C Ø5 1589:8D B8 ØF A9 7D 8D BC ØF CF 1591:60 A9 Ø1 8D 37 15 A9 8C 3D 1599:8D B8 ØF A9 14 8D BC ØF 94 ØØ AD A3 15A1:60 01 00 15 C9 2C 15A9:04 FØ Ø8 AD A4 15 C9 04 FE 15B1:FØ ØA 6Ø A9 Ø1 8D A2 15 16 15B9:20 38 15 60 A9 00 8D A2 B5 15C1:15 20 38 15 60 A9 00 8D ØE 15C9:D7 20 73 11 CE D7 15 E8 15 15D1:AD D7 15 DØ F5 60 00 Ø1 AA 15D9:AD A2 15 DØ ØE EE 5E 16 32 15E1:20 FA 15 AD 5E 16 C9 ØF 46 15E9:FØ 75 60 EE 5F 16 20 FA 73 15F1:15 C9 ØF FØ AD 5F 16 67 33 15F9:60 A9 05 20 D2 FF A2 ØØ 3D 1601:A0 01 18 20 F0 FF AD 5E 04 1609:16 C9 ØA 90 32 A9 31 20 B7 1611:D2 FF AD 5E 16 38 E9 ØA Bl 30 20 D2 FF 1619:18 69 A2 00 8F

1621:AØ 24 18 20 FØ FF AD 5F

1629:16 C9 ØA 90 22 A9 31 20 57

ED

1631:D2	FF	AD	5F	16	38	E9	ØA	El	
1639:18	69	30	20	D2	FF	60	A9	D4	
1641:30	20	D2	FF	AD	5E	16	69	64	
1649:30	20	D2	FF	4C	1F	16	A9	A4	
1651:30	20	D2	FF	AD	5F	16	69	78	
1659:30	20	D2	FF	60	ØØ	00	A9	AC	
1661:01	8D	66	16	60	00	41	52	77	
1669:43	41	44	45	20	56	4F	4C	A9	
1671:4C	45	59	42	41	4C	4C	00	38	
1679:47	4F	20	41	4D	49	47	41	94	
1681:21	00	00	00	00	00	00	00	3E	
a mar a start							100 A		

### Ramdisk 64

See	e instru	ictions	in	articl	е	on	page
	before						

Ø801:0C	08	2E	04	9E	32	30	36	73
0809:38	3A	00	12	08	38	04	80	8E
0811:00	00	00	AØ	08	A9	4C	99	44
Ø819:2B	00	A9	ØB	99	2C	00	88	AA
0821:88	10	F2	AD	00	03	AC	01	19
0829:03	8D	4C	08	8C	4D	08	A9	7B
0831:45	AØ	08	8D	ØØ	03	8C	01	ØC
0839:03	A9	00	8D	00	AØ	8D	Ø1	AC
Ø841:AØ	4C	74	A4	A5	3A	C9	FF	37
Ø849:FØ	06	4C	FF	FF	4C	83	09	1E
Ø851:EØ	09	DØ	F6	A4	B7	DØ	04	47
Ø859:A2	Ø8	DØ	EE	AD	00	02	C9	01
0861:93	FØ	EA	C9	94	DØ	E3	20	41
Ø869:8F	F6	20	31	09	38	A5	2D	B7
Ø871:E5	2B	85	02	A5	2E	E5	2C	ED
0879:85	Ø3	AØ	00	A5	05	C9	DØ	C6
Ø881:BØ	Ø1	C8	18	A5	04	65	02	CE
Ø889:A5	05	65	Ø3	BØ	05	D9	F5	CD
0891:08	90	Ø8	20	31	Ø9	A2	10	CF
Ø899:4C	<b>4</b> B	Ø8	A5	B7	C9	11	90	95
Ø8A1:02	A9	10	<b>A8</b>	A9	00	FØ	02	DA
Ø8A9:B1	BB	C8	C8	91	04	88	88	5D
Ø8B1:88	10	F5	A4	B7	C8	C8	C8	4E
Ø8B9:98	18	65	04	85	08	A5	05	A5
Ø8C1:69	00	85	09	A9	4C	85	06	57
Ø8C9:A9	ØB	85	07	A5	04	85	ØA	E4
Ø8D1:A5 Ø8D9:ØØ	05	85	ØB	20	45	09	AØ	20
Ø8E1:A5	A5 Ø9	Ø8 85	85 Ø5	Ø4 91	91 ØA	ØA C8	C8 A9	EF F7
Ø8E9:00	91	04	88	10	FB	20	31	49
Ø8F1:09	4C	74	A4	FF	EF	93	20	79
Ø8F9:20	20	20	20	20	20	20	20	ØA
0901:20	20	20	20	20	20	12	52	29
0909:41	4D	44	49	53	4B	36	34	94
0911:92	20	20	20	20	ØD	ØD	00	C9
0919:20	42	59	54	45	53	20	46	3A
Ø921:52	45	45	2E	00	ØØ	00	AØ	D9
0929:00	00	ØØ	00	00	00	00	00	3B
Ø931:AØ	09	B9	02	00	AA	<b>B9</b>	25	70
0939:09	99	02	00	8A	99	25	09	84
0941:88	10	EF	6Ø	20	74	09	AØ	25
0949:00	A6	Ø2	DØ	07	C6	03	10	BB
0951:03	4C	7A	09	C6	02	Bl	06	7F
0959:91	Ø8	A2	Ø2	F6	Ø6	DØ	ØC	28
Ø961:F6	07	B5	07	C9	DØ	DØ	Ø4	ØF
Ø969:A9	EØ	95	07	CA	CA	10	EC	3A
Ø971:4C	4A	09	78	C6	01	C6	01	AD
Ø979:6Ø Ø981:34	EG	01	E6	01	58	60	4C	7A
Ø989:A4	ØA B7	20 C0	D2	F5 DØ	20	31	09	FC
Ø991:B1	BB	C9	Ø1 24	DØ	F1 E9	AØ	00	93 56
Ø999:B9	F7	Ø8	FØ	06	20	D2	FF	EC
Ø9A1:C8	DØ	F5	A9	00	AØ	AØ	85	EE
Ø9A9:06	84	07	20	74	09	AØ	Ø1	CC
Ø9B1:B1	06	99	ØA	00	88	10	F8	2D
Ø989:A5	ØB	FØ	3A	AØ	Ø1	A9	22	Al
Ø9C1:DØ	08	B1	06	DØ	04	A9	22	EØ
Ø9C9:AØ	FF	20	7A	Ø9	20	D2	FF	46
Ø9D1:20	74	09	C8	DØ	EC	20	7A	B3
Ø9D9:09	38	20	FØ	FF	CØ	14	BØ	6D
Ø9E1:09	AØ	14	18	20	FØ	FF	4C	B5
Ø9E9:FØ	Ø9	A9	ØD	20	D2	FF	A5	AE
Ø9F1:ØA	A4	ØB	4C	8A	09	20	7A	7C
Ø9F9:09	AØ	ØC	A9	ØD	2C	A9	20	61
ØAØ1:20	D2	FF	88	DØ	F8	38	A9	E6
ØA09:FF	E5	Ø6	AA	Ø8	A5	Ø7	C9	вØ

ØA11:DØ	90	05	28	A9	FF	30	Ø3	85	
ØA19:28	A9	EF	E5	07	20	CD	BD	1A	
ØA21:AØ	00	<b>B9</b>	19	09	20	D2	FF	BC	
ØA29:C8	CØ	ØC	DØ	F5	20	31	09	FB	
ØA31:4C	74	A4	20	74	09	A9	ØØ	3A	
ØA39:AØ	AØ	85	06	84	07	AØ	01	59	
ØA41:B1	06	99	ØA	00	88	10	F8	BE	
ØA49:A5	ØB	DØ	Ø3	4C	ØØ	ØØ	00	9F	

### **Graphics Wedge**

See instructions in article on page 54 before typing in.

	Ø801:0D	Ø8	ØA	ØØ	9E	28	32	30	05
	0809:36	33	29	ØØ	ØØ	00	A2	08	73
	Ø811:AØ	56	84	FB	86	FC	A2	C9	8E
	Ø819:AØ	34				1.2.2.			
			84	FD	86	FE	A2	Ø2	6E
	Ø821:AØ	ØØ	<b>B1</b>	FB	91	FD	C8	DØ	5E
	Ø829:F9	E6	FC	E6	FE	CA	DØ	F2	<b>B5</b>
	Ø831:B1	FB	91	FD	C8	CØ	CC	DØ	DE
	Ø839:F7	AE	Ø8	03	AC	09	03	8E	40
	0841:40	C9	8C	41					
					C9	A2	34	AØ	6B
	Ø849:C9	8E	Ø8	Ø3	8C	Ø9	Ø3	20	C1
	0851:44	A6	4C	7B	E3	C9	FF	DØ	85
	0859:07	AD	00	02	C9	2E	FØ	Ø3	64
	Ø861:4C	FF	FF	20	73	ØØ	A9	73	FB
	Ø869:AØ	CB	20	1E	AB	20	E4	FF	4A
	Ø871:FØ	FB							
			C9	42	DØ	03	4C	7E	FF
	Ø879:C9	C9	43	DØ	Ø3	4C	BE	C9	E6
	Ø881:C9	44	DØ	Ø3	4C	D7	C9	C9	FØ
	Ø889:4B	DØ	Ø3	4C	FC	C9	C9	4D	88
	Ø891:DØ	Ø3	4C	2D	CA	C9	50	DØ	16
	0899:03	4C	8C	CA	4C	7B	E3	A2	37
ļ	Ø8A1:CØ	AØ	00	84	FB	86			
							FC	A2	19
ļ	Ø8A9:8Ø	AØ	ØØ	20	53	CB	A2	C4	F7
ļ	Ø8B1:AØ	ØØ	84	FB	86	FC	A2	D8	A8
ļ	Ø8B9:AØ	ØØ	20	53	CB	A2	Ø1	AØ	DE
	Ø8C1:Ø8	20	3C	CB	A5	Ø1	29	FE	A4
I	Ø8C9:85	01	AD	80	BF	8D	21	DØ	El
ļ	Ø8D1:AD	7F	BF	8D	20	DØ	AS	Øl	F9
	Ø8D9:09	Ø1	85	Ø1	4C	E2		A2	
ļ							CA		95
	Ø8E1:CØ	AØ	00	84	FB	86	FC	A2	59
	Ø8E9:8Ø	AØ	ØØ	20	53	CB	A2	Ø1	74
	Ø8F1:AØ	Ø8	20	2D	CB	4C	DE	C9	42
	Ø8F9:A2	02	AØ	78	20	2D	CB	20	E4
I	Ø901:E4	FF	C9	00	FØ	F9	C9	85	47
I									
l	Ø9Ø9:DØ	06	EE	20	DØ	4C	DE	C9	24
l	Ø911:C9	89	DØ	Ø6	CE	20	DØ	4C	C9
	Ø919:DE	C9	4C	11	CB	A2	7F	AØ	30
I	0921:40	84	FB	86	FC	A2	40	AØ	EF
l	0929:00	20	53	CB	A2	83	AØ	28	F6
l	0931:84	FB	86	FC	A2	D8	AØ	øø	DE
İ									
	0939:20	53	CB	A2	02	AØ	08	20	96
I	Ø941:3C	CB	AD	10	87	8D	21	DØ	AØ
	Ø949:8D	20	DØ	4C	E2	CA	A2	18	A8
	Ø951:AØ	FØ	84	FB	86	FC	A2	5C	ØA
ł	Ø959:AØ	ØØ	20	53	CB	A2	10	AØ	B6
	Ø961:D8	84	FB	86	FC	A2	DB	AØ	AD
I									
	0969:00	20	53	CB	A2	20	AØ	CØ	42
	0971:84	FB	86	FC	A2	60	AØ	ØØ	3D
ļ	Ø979:84	FD	86	FE	A2	Ø2	AØ	78	E4
ļ	0981:20	3C	CB	AD	DC	18	8D	21	8A
	Ø989:DØ	AD	DD	18	8D	20	DØ	A2	DD
	Ø991:1F	AØ	00	B1	FB	91	FD	C8	61
	Ø999:DØ	F9	EG	FC	EG	FE		DØ	DB
ļ							CA		Contraction of the local sectors of the local secto
ļ	Ø9A1:F2	B1	FB	91	FD	C8	CØ	40	07
	Ø9A9:DØ	F7		E2		A2		AØ	
	Ø9B1:8Ø	20	2D	CB	A9	10	A2	60	Al
	Ø9B9:AØ	ØØ	84	FD	86	FE	A2	Ø3	Ø5
ļ	Ø9C1:AØ	00	91	FD	C8	DØ	FB	E6	9E
ļ	Ø9C9:FE	CA	DØ	F6	91	FD	C8	CØ	6E
	Ø9D1:E8	DØ	F9	20	E4	FF	C9	ØØ	88
	Ø9D9:FØ								
		F9	C9	85	DØ	06	EE	20	11
	Ø9E1:DØ	4C	B2	CA	C9	89	DØ	06	8E
	Ø9E9:CE	20	DØ	4C	B2	CA	C9	86	25
	Ø9F1:DØ	05	A9	Ø1	4C	95	CA	C9	ØB
	Ø9F9:8A	DØ	05	A9	10	4C	95	CA	68
	ØAØ1:4C	11	CB	20	E4	FF	C9	ØØ	B5
ļ	ØAØ9:FØ	F9	C9	85	DØ	06		20	42
					1000		EE		
ļ	ØA11:DØ	4C	E2	CA	C9	89	DØ	06	C5
	ØA19:CE	20	DØ	4C	E2	CA	C9	86	D7
	ØA21:DØ	Ø6	EE	21	DØ	4C	E2	CA	57
					Gaze	1000		100	

COMPUTE!'s Gazette June 1988 77

ØA29:C9       8A       DØ       06       CE       21       DØ       4C       28         ØA31:E2       CA       A9       93       20       D2       FF       A9       CB         ØA39:8D       11       DØ       AC       TB       E3       BE       ØØ       DA       A1       DØ       A9       1B       7C         ØA49:8D       11       DØ       AC       TB       E3       BE       ØØ       DD       E8       ØØ       PD       E8       CB       E7       GØ       GA       A3       A3       A4       A4       A4       A5       A3       A1       ØA       A4       A4       A5       A3       A1       ØA       A4       A4	Ø969:FD AC BF Ø2 A9 51 91 FB 6F         Ø971:A5 FB 8D BC Ø2 A5 FC 8D Ø1         Ø979:BD 02 60 A9 ØØ 8D AC Ø2 11         Ø981:4C 28 Ø9 A9 ØØ 8D AC Ø2 11         Ø981:65 C9 20 DØ Ø1 60 AD AB 3A         Ø999:02 49 FF 8D AB 02 B1 FB 9C         Ø981:20 DØ Ø5 C9 20 DØ Ø1 60 AD AF 77         Ø981:20 DØ Ø5 C9 20 DØ Ø1 60 B1 FB C9 89         Ø981:20 DØ Ø5 C9 20 DØ Ø1 60 AF 77         Ø981:20 DØ Ø5 C9 20 DØ Ø1 60 81 FB C9 89         Ø981:20 DØ Ø5 C9 20 DØ Ø1 AC AF         Ø901:85 90 Ø7 AD 1B DA C 92 60 C3 35         Ø991:80 DA C 29 10 FF DD AA 22 AF         Ø991:80 DA C 92 70 BØ Ø1 88 C7 23         Ø991:80 DA C 92 70 BØ Ø1 88 C7 23         Ø991:80 DA C 97 CBØ Ø1 88 C7 23         Ø991:80 DA C 97 CBØ Ø1 88 C7 23         Ø991:80 DA C 97 CBØ Ø1 88 C7 23         Ø991:80 DA C 97 CBØ Ø1 88 C7 34         Ø991:80 DA C 97 CBØ Ø1 88 C7 34         Ø991:80 DA C 99 A5 FB C9 28 BØ 67         Ø40:1205 DØ F3 CE 43 ØB AD DF         Ø40:1205 DØ F3 CE 43 ØB AD FF         Ø40:1205 DØ F3 CE 75 C9 DE         Ø41:80 AD BD 42 90 FF Ø3 34         Ø41:80 AD BD 42 90 FF Ø3 34         Ø41:80 AD BD 42 90 FF Ø3 34         Ø43:20 AD 32 0D 42 90 F3         Ø43:20 AD 42 90 F3 88 A5 FC 29 DE         Ø43:30 34 C F8 Ø9 66 A5 FS C9 27 E5         Ø43:50 AD BD 42 9	GC11:4F       64       8D       13       0D       AD       CT       5C         GC19:6D       14       0D       AD       DF       67       7D       15       C3         GC21:0D       AG       26       A2       02       B9       28       64       22         GC29:3D       16       GD       DD       CG       67       AC       84         GC31:3D       CG       67       AD       16       GD       P9       28       44         GC49:44       85       FE       A2       66       20       DC       68       PD         GC51:107       85       FE       A2       66       AD       AT       PD       BD       CG       67       PD       CG       FD       PD       CG       FC       FC
Ø8E9:ØB       8D       26       Ø4       AØ       ØØ       A9       Ø1       41         Ø8F1:99       ØØ       D8       C8       CØ       28       9Ø       F8       37         Ø8F9:A9       ØØ       D8       C8       CØ       28       9Ø       F8       37         Ø8F9:A9       ØØ       A8       99       ØØ       D4       C8       DØ       43         Ø9Ø1:FA       6Ø       AC       BF       Ø2       8C       27       ØE       D8         Ø9Ø9:AD       BC       Ø2       85       FB       85       FD       AD       59         Ø91:BD       Ø2       85       FC       85       FE       B1       F8       84         Ø919:C9       AØ       DØ       Ø7       A9       EØ       91       FB       B2	ØB91:BE       ØB       ØD       ØØ       D4       18       69       ØA       5F         ØB99:8D       Ø7       D4       8E       Ø1       D4       90       Ø1       39         ØBA1:E8       8E       Ø8       D4       AD       BD       ØB       C9       62         ØBA1:E8       8E       Ø8       A9       1Ø       8D       ØA       D4       22         ØBA1:8D       ØB       D4       6Ø       ØB       C9       61       D4       22         ØBA1:8D       ØB       D4       6Ø       ØØ       C9       51       DØ       8C         ØBB1:8D       ØB       D4       6Ø       ØØ       C9       51       DØ       8C         ØBC1:Ø2       A9       2Ø       6Ø       ØØ       ØØ       02       02       4B         ØBC1:Ø2       A9       2Ø       6Ø       A5       FB       3Ø       A2       ØØ       52         ØBD1:A9       3Ø       9D       AE       ØA       EØ       2E       B       ØB       2E       97         ØBD1:A9       FB       9Ø       Ø2       E6       FC	ØE39:6Ø         AØ         ØØ         A9         AØ         99         28         Ø4         Ø8           ØE41:99         D4         Ø7         A9         2Ø         99         3C         Ø4         BE           ØE41:99         D4         Ø7         A9         2Ø         99         3C         Ø4         BE           ØE49:99         CØ         Ø7         C8         CØ         14         9Ø         EB         33           ØE51:A9         28         85         FB         A9         Ø4         85         FC         22           ØE59:A9         E7         85         FD         A9         Ø7         85         FE         48           ØE61:A2         ØØ         AØ         ØØ         2Ø         DC         ØB         A9         17           ØE69:2Ø         81         FB         81         FD         C8         CØ         17         39

### Jump On The TENEX Express

No Gimmicks, No Hidden Charges, No Nonsense, Just Low Prices and Great Service!



SOFTWARE	DISCOUNT	ERS
OF AMERIC		(S.D. of A. /
For Orders Only – 1-800-22	• rree sinpping u	
PA Orders - 1-800-223-778-	4 • No Surcharge f	or VISA/MasterCard
Customer Service 412-361-		ot charged until we ship
Commodore 64/128 Ba	argain Basement—Dozens of T	itles For Less Than \$10!
The list of the guide	Mail Order Monsters \$9.88 Grover's Animal Adv. \$6.88         Mind Mirror       \$9.88 Pals Around Town       \$6.88         Movie Maker       \$9.88 INFOCOM       \$6.88         M.U.L.E.       \$9.88 Hitchhiker's Guide       \$9.88         Murder Party       \$9.88 Infocomics       Call         Music Const. Set       \$9.88 Zork 1       \$9.88	THUNDER MOUNTAIN
Every bit as outrageous and funny as the novel.	Pinball Const. Set	Top Gun <sup>M</sup> puts you in the fighter pilots seat of a technologically advanced F-14
Hitchhiker's Guide to the Galaxy Our Discount Price \$9.88	Touchdown Football     \$9.88     Captain Zap     \$6.88       Ultimate Wizard     \$9.88     Energy Warrior     \$6.88       EPYX     Energy Warrior     \$6.88       Gateway to Apshai     \$6.88     Feud     \$6.88       Pistop 1 or 2     \$6.88     Feud     \$6.88       P.S. Graphics Scrapbook     Knight Games     \$6.88	Tomcat. Top Gun™ Our Discount Price \$6.88
ACCOLADE     High Rollers     \$9.88       Dambusters     \$9.88     \$100,000 Pyramid     \$9.88       Fight Night     \$9.88     \$100,000 Pyramid     \$9.88       Killed Until Dead     \$9.88     Choplifter/David's       Law of the West     \$9.88     Midnight Magic     \$9.88       P51-5 Trading Company\$9.88     Karateka     \$9.88       ACTIVISION     Loderunner     \$9.88	#2: Off the Wall         \$9.88         State V-8         \$4.88           #3: School         \$9.88         Ninja         \$4.88           ACTIVISION *         GH@STBUSTERS	Wheel of Fortune\$8.88     Eliminator\$6.88       Wheel of Fortune 2\$9.88     Equinox\$6.88       SIMON & SCHUSTER     Great Escape\$6.88       Great Int?l. Paper Airplane     Gun Runner\$6.88       Construction Set\$9.88     Implosion\$9.88       SPECTRUM HOLOBYTE     Leviathan\$6.88       Gato\$9.88     SpliNNAKER
Cross Country     CDA       Road Race     \$9.88     America Cooks Series:       Ghostbusters     \$9.88     American     \$9.88       Hacker 1 or 2     \$9.88     Ea.     \$9.88       Ititle Computer People\$9.88     French     \$9.88       Transformers     \$9.88     Italian     \$9.88       ARTWORX     Mexican     \$9.88       Beach Blanket     DATA EAST	GH2STBUSTERS	Alf in the Color Cave \$4.88 Bubble Busters \$4.88 Cosmic Combat \$4.88 Fraction Fever \$4.88 Cold Record Race \$4.88 Letter Scrambler \$4.88 Dots The State \$4.88 Cold Record Race \$4.88 Letter Scrambler \$4.88 Rambox First Blood
Beach Blanket     DATA EAST       Volleyball     \$9.88       Equestrian Show     \$9.88       Jumper     \$9.88       Highland Games.     \$9.88       Police Cadet     \$9.88       String     \$9.88       File     \$59.88       Police Cadet     \$9.88       File     \$6.88       AVANTAGE     Planner	COMPUTER GAME IS HERE	Ranch         \$4.88         Story         Part II         \$6.88           Story Machine         \$4.88         Stot Car Racer.         \$6.88           *all above titles on cart.         Tal-Pan         \$9.88           TELARIUM         Top Gun         \$6.688           Amazon         \$9.88         Winter Challenge         \$9.88           Dragorworld         \$9.88         Wizball         \$9.88           Varencheit 451         \$9.88         VALUE         \$9.88
Deceptor         \$9.88         Writer         \$6.88           Desert Fox         \$9.88         ELECTRONIC ARTS           Plasmatron         \$9.88         Adv. Const. Set         \$9.88           Power         \$9.88         Age of Adventure         \$9.88           Project Space Station \$9.88         America's Cup Sailing\$9.88         Sigma 7         \$9.88           Sp vs. Sp v & Sp 1 & 2         \$9.88         Archon 2: Adept         \$9.88           BOX OFFICE         Financial Cookbook         \$9.88         Financial Cookbook	Ghostbusters Our Discount Price \$9.88 FISHER PRICE Pro Golf	Nine Princes in Amber     \$9,88     Artist     \$4,88       Perry Mason: Case of Mandarin Murder     \$9,88     Educator     \$4,88       Bendezvous w/Rama     \$9,88     Home Banker     \$4,88       THUNDER MOUNTAIN     \$6,88     Yall programs on disk
Alf	Number Tumblers     \$4.88     Speed King     \$6.88       Sea Speller     \$4.88     Squash     \$6.88       *all above titles on cart.     Storm     \$6.88 <u>GAMESTAR</u> Vegas Poker &     On Court Tennis     \$4.88       Star League Baseball     Water Polo     \$6.88       On Field Football     \$9.88     Ming Commander	Dig Dug
Your mission: Design the space station and build it by using the shuttle. The future of NASA is in your hands.	HES         SEGA           Microsoft Multiplan .\$9.88 Congo Bongo (R)\$6.88         HI-TECH EXPRESSIONS         Super Zaxxon (R)\$6.88           Award Ware\$9.88         SSI         Card Ware\$9.88         SSI           Card Ware\$9.88         Fomputer Baseball\$9.88         Party Ware\$9.88         Fifty Mission Crush\$9.88           Print Power\$9.88         Fifty Mission Crush\$9.88         HLIFECH EXPRESSIONS         Ouestron\$9.88	The greatest challenge lies ahead-and downwards.
Project Space Station Our Discount Price \$9.88	Sesame St. Print Kit . \$9.88 Wings of War \$9.88 Sesame Street Series: SHARE DATA Astro-Grover \$6.88 Concentration \$9.88 Big Bird's Special Family Feud\$9.88 Delivery \$6.88 Jeopardy \$9.88 Ernie's Big Splash \$6.88 Jeopardy Jr \$9.88	Zork1 Our Discount Price \$9.88
P.O. BOX	111327—DEPT. CG—BLAWNO	(, PA 15238

\*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in stock items! Personal & Company checks, allow 3 weeks clearance. No CADI'st Shipping: Continental U.S.A.-Orders under \$100 add \$3; free shipping on orders over \$100. AK, HI, FPO, APO-add \$5 on all orders. Canada & Puerto Rico-add \$10 on all orders. Sorry, no other International orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE—412:361-5291 (1)Status of order or back order (2)H any merchandise purchased within 60 days from S.D.of A. is defective, please call for a return authorization number. We will not process a return without a return auth. #1 Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 15% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased at return directly to the manufacturer. Customer service will not accept collect calls or calls on S.D.of A.'s 800# order linest ORDER LINE HOURS: Mon.-fri. 9 AM-5:30 PM, SAT 10 AM-4 PM EASTERN TIME. Because this ad had to be written 2-3 mos. before it was published, prices & availability are subject to change! New titles are arriving daily! Please call for more information.

SOFT	WARE	DISC	OUNTI		mas.
OF A	MERIC		ee shipping or	ر٥.٢	0. of A.
For Orders	Only - 1-800-2	25-7638 ov	er \$100 in co	ntinental USA	S
	- 1-800-223-778			or VISA/Maste	
	ervice 412-361-			charged until	
State Constant			ai cara is not	charged until	rwe snip
ABACUS BOOKS	World History\$12	Fractions: Mult. & Div.\$19	Champ. Wrestling\$14	F-15 Strike Eagle\$23	Gettysburg \$37
Anatomy of the 1541\$14	ARTWORX	Multiplication &	Coil Cop\$14	Gunship\$23	Kampfgruppe \$37
Anatomy of the C64 \$14	Bridge 5.0\$19	Division \$19	Create A Calendar \$19	Kennedy Approach\$16	Panzer Strike!\$29
1571 Internals \$14	Cycle Knight\$14	CINEMAWARE	Destroyer \$24	Pirates\$25	Phantasie 1, 2 or 3 \$25 Ea.
GEOS Inside & Out\$13	International Hockey \$14	Defender of the Crown\$23	Fast Load (R)	Project Stealth Fighter \$25	President Elect 1988 \$16
GEOS Tricks & Tips\$13	Linkword French \$16	The Three Stooges\$23		Red Storm Rising Call	Questron 2 \$25
ABACUS SOFTWARE	Linkword German\$16	Warp Speed\$33	The Games:	Silent Service\$23	Realms of Darkness\$25
Assembler Monitor \$25	Linkword Russian\$16	CMS	Winter Edition \$24	Top Gunner\$16	Rings of Zilfin\$25
Basic	Linkword Spanish\$16	General Acct. 128\$119	Omicron Conspiracy\$24	MINDSCAPE	Roadwar 2000 \$25
	Strip Poker\$21	Inventory 128\$49	Rad Warrior\$14	Bad Street Brawler\$19	Roadway Europa \$25
*Becker Basic\$33	Data Disk #1 Female \$14	DATA EAST	Spiderbot\$14	Bop & Wrestle \$19	Shard of Spring \$25
Cad Pak\$25	Data Disk #2 Male \$14	Breakthru\$19	Spy vs. Spy 3:	Color Me: The Computer	Shiloh: Grant's Trial \$25
Cad Pak 128\$39	Data Disk #3 Female \$14	Commando\$14	Arctic Antics\$14	Coloring Kit\$23	Sons of Liberty \$23
Chart Pak\$25	AVALON HILL	Ikari Warriors\$19	Street Sports:	*Deeper Dungeons\$16	War Game Const. Set . \$19
Chart Pak 128 \$25	Gulf Strike\$19	KarnovCall	Baseball\$24	De Ja Vu\$23	War in S. Pacific\$37
Cobol\$25	NBA Basketball\$25		Basketball\$24	Gauntlet\$23	Warship\$37
Cobol 128\$25	NBA '85-86 Season Disk\$14	Kid Niki	Sub Battle Simulator \$24	High Roller\$19	Wizard's Crown\$25
PPM\$25	Spitfire '40\$23		Summer Games \$14	Indoor Sports\$19	SUBLOGIC
PPM 128	Super Sunday\$21	Speed Buggy\$19	Summer Games 2 \$14	Infiltrator 1 or 2 \$19 Ea.	Flight Simulator 2 \$32
	SBS 1985 Team Disk\$14	Tag Team Wrestling\$14	Temple Apshai Trilogy . \$14	Into the Eagle's Nest \$19	F.S. Scenery Disks Call
Super C	SBS 1986 Team Disk \$14 SBS Gen. Mgr. Disk \$19	Victory Road\$19 DATASOFT	Winter Games\$14 World Games\$24	Living Daylights \$19 MISL Soccer \$23	Jet\$26
Super Pascal\$39 Super Pascal 128\$39	BATTERIES INCLUDED	Alternate Reality: The City\$19	FIREBIRD Elite	Paperboy	Stealth Mission\$32 THREE SIXTY
TAS	Consultant 64 & 128\$39	The Dungeon \$26	Guild of Thieves\$25	Road Runner\$23	Dark Castle\$23
	Outrageous Pages\$33	Dark Lord \$14	Knight Orc\$25	Super Star	TIMEWORKS
*Requires GEOS!	Paperclip Publisher\$33 Paperclip 3\$33	Global Commander \$19 Hunt for Red October \$32	Starglider \$25	Ice Hockey \$23	Accts. Payable\$33 Accts Receivable\$33
ACCESS	BAUDVILLE	Tomahawk\$21	The Pawn\$25	Super Star Soccer\$23	Data Manager 2\$14
Echelon w/Lip Stik\$29	Blazing Paddles\$23	Video Title Shop w/	GAMESTAR	Uchi Mata Judo\$19	Data Manager 128\$33
Famous Course Disk #1	Rainy Day Games\$19	Graphics Companion \$21	Champ. Baseball\$19	*Requires Gauntlet!	Evelyn Wood Reader \$14
for World Class L.B \$14	Video Vegas\$19	DAVIDSON	Champ. Basketball\$23	<u>MISC</u>	General Ledger \$33
Famous Course Disk #2	BERKELEY SOFTWORKS	Algeblaster\$32	GFL Ch. Football \$23	Bob's Term Pro\$29	Partner 64 (R)\$25
for World Class L.B \$14	Geos 128\$44	Math Blaster\$32	Star Rank Boxing 2 \$19	Bob's Term Pro 128\$39	Partner 128 (R)\$33
Famous Course Disk #3	Geo-Calc 128\$44	Speed Reader 2\$32	Top Fuel Eliminator \$19	C.P. Copy 2\$21	Swiftcalc/Sideways (D) . \$19
for World Class L.B \$14	Geo-File 128\$44	Spell It\$32	HAYDEN	Doodle\$25	Swiftcalc/Sideways 128 \$33
Leader Board (Original)	Geo-Write Workshop 128\$44	Word Attack\$32	Sargon 3\$14	Final Cartridge 3\$47	Sylvia Porter's Personal
3 Pack\$14	Geos 64\$39	DESIGNWARE	SAT Complete\$25	Font Master 2\$29	Fin. Planner 64\$25
Lip Stik Plus\$17	*Geo-Calc	Body Transparent \$19	INFOCOM	Font Master 128\$35	Sylvia Porter's Personal
Tenth Frame\$25		European Nations \$19	Beyond Zork 128\$29	Superbase 64\$39	Fin. Planner 128\$33
Triple Pack: BH1, BH2,	*Geos Font Pak 2\$19	Mission Algebra \$19	Border Zone\$23	Superbase 128 \$44	Word Writer 3\$25
Raid Over Moscow .\$14	*Geo-Programmer\$44	Spellicopter \$19	Leather Goddesses\$23	Superscript 64 \$29	Word Writer 128\$33
World Class	*Geo-Publish \$44	States & Traits\$19	Nord & Bert Couldn't Make	Superscript 128 \$39	UNICORN
Leader Board\$25	*Geo-Spell \$19		Head or Tail of It\$23	ORIGIN	Decimal Dungeon \$19
ACCOLADE	*Geo-Write Workshop . \$33	DIGITAL SOLUTIONS	Sherlock: The Riddle of the	Autoduel\$32	Fraction Action \$19
Ace of Aces\$19	*Requires Geos 64!	Pocket Filer 2 \$33	Crown Jewels\$23	Moebius\$25	Percentage Panic \$19
Apollo 18: Mission	BETTER WORKING	Pocket Planner 2\$33	Stationfall\$23	Ogre\$19	Race Car Rithmetic\$19
to the Moon\$19		Pocket Writer 2\$33	The Lurking Horror \$23	Ultima 1 or 3\$25 Ea.	Ten Little Robots\$19
Card Sharks	Business Form Shop\$25 BRODERBUND	*all 3 in 1 Super Pack.\$59 ELECTRONIC ARTS	Zork Trilogy \$29 INKWELL SYSTEMS	Ultima 4\$39 Ultima 5\$39	UNISON WORLD
Hardball	Carmen Sandiego: Europe\$25	Alien Fires\$19 American Civil War\$26	#170 Deluxe L.P\$69	PROFESSIONAL Fleet Filer\$19	Art Gallery 1 or 2 . \$16 Ea. Art Gallery: Fantasy \$16
Power at Sea\$19	USA	Arctic Fox\$23	#184C Light Pen\$44	Fleet System 2 Plus \$39	Print Master Plus\$23
Test Drive\$19		Bard's Tale 1 or 2 .\$26 Ea.	Flexidraw 5.5\$23	Fleet System 4 128 \$47	WEEKLY READER
The Train: Escape to	Print Shop\$26	Bard's Tale 1 or 2 Hints\$9 Ea.	Graphics Intregrator 2 \$19	SIMON & SCHUSTER	Stickybear Series:
Normandy	P.S. Companion\$23	Chessmaster 2000 \$26	INTRACORP		ABC's \$16
ACTION SOFT	P.S. Graphics Library #1, #2, or #3\$16 Ea.	Chuck Yaeger's AFT\$23 Demon Stalker\$21	Bumper Sticker Maker \$33 Business Card Maker\$33	Chem. Lab	Math 1 or 2\$16 Ea. Numbers\$16
Thunder Chopper\$19	P.S. Graphics Library	Dragon's Lair\$19	Button & Badge Maker \$33	Typing Tutor 4 \$25	Opposites \$16
Up Periscope!\$19	Holiday Edition\$16	Earth Orbit Station\$21	KONAMI/ACTION CITY	SIR TECH	Reading \$16
ACTIVISION	Toy Shop\$19	Halls of Montezuma \$26	Boot CampCall	Deep Space \$25	Spellgrabber\$16
Aliens\$23	CAPCOM	Instant Music \$21	Contra\$19	Wizardry: Proving	Typing\$16
Black Jack Academy 25	Ghosts & Goblins\$19	Legacy of Ancients\$21	Jackal\$19	Grounds\$25	ACCESSORIES
Gee Bee Air Rally \$19	Gunsmoke\$19	Marble Madness\$21	Rush 'n Attack/Yie	SOFTWARE SIMULATIONS	Animation Station\$49
Maniac Mansion \$23	Side Arms\$19	Master Ninja \$19	Ar Kung Fu\$19	Football\$19	Bonus SS, DD \$4.99 Bx.
Might & Magic \$25	Speed Rumbler\$19	Monopoly \$26	LOGICAL DESIGN	Pure Stat Baseball\$25	Bonus DS, DD \$5.99 Bx.
Music Studio \$23	CBS	Patton vs. Rommel\$21	Club Backgammon Call	Pure Stat College	Compuserve Starter Kit \$19
Postcards \$16	Success w/Algebra:	Pegasus\$21	Vegas Craps \$19	Basketball \$25	Contriver Mouse \$39
Rampage\$23	Binomial Multiplication	Rockford	Vegas Gambler\$19	*Data Disks AvailCall	Disk (Case (Holds 75)\$6.88
Shanghai\$19	& Factoring\$19		MICROLEAGUE	SPRINGBOARD	Disk Drive Cleaner \$6.88
The Last Ninja \$23 AMERICAN EDUCATIONAL	First Degree & Advanced	Scruples	Baseball \$25	Certificate Maker\$14 C.M. Library Vol. 1\$9.88	Epyx 500 XJ Joystick \$14 Icontroller
Biology	Linear Equations \$19 Graphing Linear	Skate or Die\$21 Star Fleet 1\$26	Box Score Stats\$16 General Manager\$19 1986 Team Data Dick \$14	Newsroom	Suncom TAC 5 J.S\$14 Wico Bat Handle\$17
Phonics (K-3) \$25 Science: Grades 3/4\$12	Functions\$19 Simultaneous &	Strike Fleet\$21 Twilights RansomCall	1986 Team Data Disk .\$14 1987 Team Data Disk .\$14	N.R. Clip Art Vol. 1 . \$9.88 N.R. Clip Art Vol. 2 . \$9.88 N.R. Clip Art Vol. 3 . \$9.88	Wico Boss\$12 XETEC Super Graphix .\$59
Science: Grades 5/6\$12	Quadratic Equations . \$19	World Tour Golf\$21	WWF Wrestling \$19	P.S. Graphics Expander \$23	Xetec Super Graphix
Science: Grades 7/8\$12	Success w/Math:	EPYX	MICROPROSE		Gold
US Geography \$12 US History \$12	Addition & Subt \$19 Decimals: Add. & Subt.\$19 Decimals: Mult. & Div.\$19	Boulder Dash Construction Kit \$14	Acrojet\$16 Airborne Ranger\$23	SSI Battle of Antietam\$32 B-24	XETEC Super Graphix Jr.\$39 *All programs on disk
World Geography\$12	Fractions: Add. & Subt.\$19	California Games\$24	Conflict in Vietnam\$25 Crusade in Europe\$25	B-24\$23 Eternal Dagger\$25	"All programs on disk unless otherwise noted!
and the second second second		V ANADAR DEPT C	-	12222	

### P.O. BOX 111327-DEPT. CG-BLAWNOX, PA 15238

\*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in stock items. Personal & Company checks, allow 3 weeks clearance. No C.O.D'st Shipping: Continental U.S.A.—Orders under \$100 add \$3; free shipping on orders over \$100. AK, HJ, FPO, APO—add \$50 on all orders. Carry, no other International orders accepted IPA residents add 6% sales tax on the total amount of order including shipping charges! UCSTOMER SERVICE HOURS: Mon-Fri. 9 AM-5:30 PM Eastern time. REASONS FOR CALLING CUSTOMER SERVICE—412-361-5291 (1) Status of order or back order (2) if any merchandise purchased within 60 days from S.D. of A. is defective, please call for a return authorization number. We will not process a return without a return auth, #I Defective mechandise will be replaced with the same merchandise only. Other returns subject to a 15% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on S.D. Of A's 8000 order linest ORDER LINE HOURS: Mon-Fri. 9 AM-5:30 PM, Sat. 10 AM-4 PM EASTERN TIME. Because this ad had to be written 2-3 mos, before it was published, prices & availability are subject to change! New titles are arriving daily! Please call for more information!



### C-www.commodore.ca

### Check THEIR Ad then CHECK OUR PRICE!



## How To Type In COMPUTE!'s Gazette Programs

Each month, COMPUTEI's Gazette publishes programs for the Commodore 128, 64, Plus/4, and 16. Each program is clearly marked by title and version. Be sure to type in the correct version for your machine. All 64 programs run on the 128 in 64 mode. Be sure to read the instructions in the corresponding article. This can save time and eliminate any questions which might arise after you begin typing.

We frequently publish two programs designed to make typing easier: The Automatic Proofreader, and MLX, designed for entering machine language programs.

When entering a BASIC program, be especially careful with DATA statements as they are extremely sensitive to errors. A mistyped number in a DATA statement can cause your machine to "lock up" (you'll have no control over the computer). If this happens, the only recourse is to turn your computer off then on, erasing what was in memory. So be sure to save a program before you run it. If your computer crashes, you can always reload the program and look for the error.

### **Special Characters**

Most of the programs listed in each issue contain special control characters. To facilitate typing in any programs from the GAZETTE, use the following listing conventions.

The most common type of control characters in our listings appear as words within braces: {DOWN} means to press the cursor down key; {5 SPACES} means to press the space bar five times.

To indicate that a key should be *shifted* (hold down the SHIFT key while pressing another key), the character is underlined. For example, <u>A</u> means hold down the SHIFT key and press A. You may see strange characters on your screen, but that's to be expected. If you find a number followed by an underlined key enclosed in braces (for example,  $\{8 \ \underline{A}\}$ ), type the key as many times as indicated (in our example, enter eight SHIFTed A's).

If a key is enclosed in special brackets, [3], hold down the Commodore key (at the lower left corner of the keyboard) and press the indicated character.

Rarely, you'll see a single letter of the alphabet enclosed in braces.

This can be entered on the Commodore 64 by pressing the CTRL key while typing the letter in braces. For example, {A} means to press CTRL-A.

### The Quote Mode

Although you can move the cursor around the screen with the CRSR keys, often a programmer will want to move the cursor under program control. This is seen in examples such as {LEFT}, and {HOME} in the program listings. The only way the computer can tell the difference between direct and programmed cursor control is *the quote mode*.

Once you press the quote key, you're in quote mode. This mode can be confusing if you mistype a character and cursor left to change it. You'll see a reverse video character (a graphics symbol for cursor left). In this case, you can use the DELete key to back up and edit the line. Type another quote and you're out of quote mode. If things really get confusing, you can exit quote mode simply by pressing RETURN. Then just cursor up to the mistyped line and fix it.

When You R	ead: Press:	See:	When You Read	l: Press:	See:	When You Read:	Press:	See
{CLR}	SHIFT CLR/HOME		{PUR}	CTRL 5		4	+	
{HOME}	CLR/HOME		{GRN}	CTRL 6	+	Î	SHIFT 1	] 📅
{UP}	SHIFT T CRSR		{BLU}	CTRL 7	+			
{DOWN}	↑ CRSR ↓		{YEL}	CTRL 8	T	For Commodore	64 Only	
{LEFT}	SHIFT - CRSR -		{ F1 }	f1		E 1 3	COMMODORE	1
{RIGHT}	← CRSR -	•	{ F2 }	SHIFT f1			COMMODORE	2
{RVS}	CTRL 9		{ F3 }	<u>f</u> 3		<b>E</b> 3 3	COMMODORE	3
{OFF}	CTRL 0		{ F4 }	SHIFT f3		E 4 3	COMMODORE	4 0
{BLK}	CTRL 1		{ F5 }	f5		E 5 3	COMMODORE	5
{WHT}	CTRL 2	E	{ F6 }	SHIFT f5		E 6 3	COMMODORE	6
{RED}	CTRL 3		{ F7 }	£7		873	COMMODORE	7
{CYN}	CTRL 4		{ F8 }	SHIFT f7		E 8 3	COMMODORE	8

### C+www.commodore.ca



## **The Automatic Proofreader**

### Philip I. Nelson

"The Automatic Proofreader" helps you type in program listings for the 128, 64, Plus/4, and 16 and prevents nearly every kind of typing mistake.

Type in the Proofreader exactly as listed. Since the program can't check itself, type carefully to avoid mistakes. Don't omit any lines, even if they contain unfamiliar commands. After finishing, save a copy or two on disk or tape before running it. This is important because the Proofreader erases the BASIC portion of itself when you run it, leaving only the machine language portion in memory.

Next, type RUN and press RE-TURN. After announcing which computer it's running on, the Proofreader displays the message "Proofreader Active". Now you're ready to type in a BASIC program.

Every time you finish typing a line and press RETURN, the Proofreader displays a two-letter checksum in the upper-left corner of the screen. Compare this result with the two-letter checksum printed to the left of the line in the program listing. If the letters match, it's almost certain the line was typed correctly. If the letters don't match, check for your mistake and correct the line.

The Proofreader ignores spaces not enclosed in quotes, so you can omit or add spaces between keywords and still see a matching checksum. However, since spaces inside quotes are almost always significant, the Proofreader pays attention to them. For example, 10 PRINT"THIS IS BASIC" will generate a different checksum than 10 PRINT"THIS ISBA SIC"

A common typing error is transposition-typing two successive characters in the wrong order, like PIRNT instead of PRINT or 64378 instead of 64738. The Proofreader is sensitive to the position of each character within the line and thus catches transposition errors.

The Proofreader does not accept keyword abbreviations (for example, ? instead of PRINT). If you prefer to use abbreviations, you can still check the line by LISTing it after typing it in, moving the cursor back to the line, and pressing RETURN. LISTing the line substitutes the full keyword for the abbreviation and allows the Proofreader to work properly. The same technique works for rechecking programs you've already typed in.

If you're using the Proofreader on the Commodore 128, Plus/4, or 16, do not perform any GRAPHIC commands while the Proofreader is active. When you perform a command like GRAPH-IC 1, the computer moves everything at the start of BASIC program space-including the Proofreader-to another memory area, causing the Proofreader to crash. The same thing happens if you run any program with a GRAPHIC command while the Proofreader is in memory.

Though the Proofreader doesn't interfere with other BASIC operations, it's a good idea to disable it before running another program. However, the Proofreader is purposely difficult to dislodge: It's not affected by tape or disk operations, or by pressing RUN/ STOP- RESTORE. The simplest way to disable it is to turn the computer off then on. A gentler method is to SYS to the computer's built-in reset routine (SYS 65341 for the 128, 64738 for the 64, and 65526 for the Plus/4 and 16). These reset routines erase any program in memory, so be sure to save the program you're typing in before entering the SYS command.

If you own a Commodore 64, you may already have wondered whether the Proofreader works with other programming utilities like "MetaBASIC." The answer is generally yes, if you're using a 64 and activate the Proofreader after installing the other utility. For example, first load and activate Meta-BASIC, then load and run the Proofreader.

When using the Proofreader with another utility, you should disable both programs before running a BASIC program. While the Proofreader seems unaffected by most utilities, there's no way to promise that it will work with any and every combination of utilities you might want to use. The more utilities activated, the more fragile the system becomes.

#### The New Automatic Proofreader

10 VEC=PEEK(772)+256\*PEEK(773) :LO=43:HI=44

- 20 PRINT "AUTOMATIC PROOFREADE R FOR ";:IF VEC=42364 THEN [SPACE]PRINT "C-64"
- 30 IF VEC=50556 THEN PRINT "VI C-20"
- 40 IF VEC=35158 THEN GRAPHIC C LR:PRINT "PLUS/4 & 16"
- 50 IF VEC=17165 THEN LO=45:HI= 46:GRAPHIC CLR:PRINT"128"
- 60 SA=(PEEK(LO)+256\*PEEK(HI))+ 6:ADR=SA
- 70 FOR J=0 TO 166:READ BYT:POK E ADR, BYT: ADR=ADR+1: CHK=CHK +BYT:NEXT
- 80 IF CHK<>20570 THEN PRINT "\* ERROR\* CHECK TYPING IN DATA STATEMENTS": END
- 90 FOR J=1 TO 5:READ RF, LF, HF: RS=SA+RF:HB=INT(RS/256):LB= RS-(256\*HB)
- 100 CHK=CHK+RF+LF+HF:POKE SA+L F, LB: POKE SA+HF, HB: NEXT
- 110 IF CHK<>22054 THEN PRINT " \*ERROR\* RELOAD PROGRAM AND {SPACE}CHECK FINAL LINE":EN D
- 120 POKE SA+149, PEEK(772): POKE SA+150, PEEK(773)
- 130 IF VEC=17165 THEN POKE SA+ 14,22:POKE SA+18,23:POKESA+ 29,224:POKESA+139,224
- 140 PRINT CHR\$(147); CHR\$(17);" PROOFREADER ACTIVE":SYS SA
- 150 POKE HI, PEEK(HI)+1: POKE (P EEK(LO)+256\*PEEK(HI))-1,Ø:N EW
- 160 DATA 120,169,73,141,4,3,16 9,3,141,5,3
- 170 DATA 88,96,165,20,133,167, 165,21,133,168,169
- 180 DATA 0,141,0,255,162,31,18 1,199,157,227,3
- 190 DATA 202,16,248,169,19,32, 210,255,169,18,32
- 200 DATA 210,255,160,0,132,180 ,132,176,136,230,180
- 210 DATA 200,185,0,2,240,46,20 1,34,208,8,72
- 220 DATA 165,176,73,255,133,17 6,104,72,201,32,208 230 DATA 7,165,176,208,3,104,2
- 08,226,104,166,180 240 DATA 24,165,167,121,0,2,13
- 3,167,165,168,105 250 DATA 0,133,168,202,208,239
- ,240,202,165,167,69 260 DATA 168,72,41,15,168,185,
- 211,3,32,210,255 270 DATA 104,74,74,74,74,168,1
- 85,211,3,32,210 280 DATA 255,162,31,189,227,3,
- 149,199,202,16,248
- 290 DATA 169,146,32,210,255,76 ,86,137,65,66,67
- 300 DATA 68,69,70,71,72,74,75, 77,80,81,82,83,88 310 DATA 13,2,7,167,31,32,151,
- 116,117,151,128,129,167,136 ,137



#### THE SUPER CHIPS Custom Operating System for the C128

Three 16K ROM chips that add several powerful features to Basic 7.0 including FIND, CHANGE ... THIS ... TO ... THAT, TYPE, UNNEW, COMBINE, MERGE, START, FILE, EDITOR and more! Simultaneous split screen directories of devices 8 & 9. Compatible with 1541/1571/1581 and virtually all software and peripherals.

Only \$4995!

Super Chips, Custom Operating System for the C128D - Two 32K ROM chips - Only \$4995!

Super Chip, Custom Operating System for the C64 - One 16K ROM chip - Only \$2995!

Super Chip, Custom Operating System for the 64 mode of the C128 - Only \$2995!

### SUPER AIDE

All-purpose utility program for the C64 provides:

- Bi-directional scrolling
- Auto Line Deletion
- Trace function
- Disassembler
- Lo-Res Screen Dump
- Number conversion (10, hex, binary)
- Append files
- Format short
- new/complete new
- Menu-driven
- Change THIS TO THAT search for all instances of specified string and replace with second specified string

Super Aide, the complete programmer's tool kit. Only \$29.95!

 Auto Line Numbering Renumber

- ML Monitor
- List all variables to screen
- Hi-Res Screen Dump
- Restore newed Basic program
- Change Device number
- · Packed Line Editor
- Determine file load
- address
- And much, much more!

"... excellent, efficient program that can help you save both money and downtime." Compute!'s Gazette 1541/1571

### DRIVE ALIGNIVIENT

Dec., 1987

1541/1571 Drive Alignment reports the alignment condition of the disk drive as you perform adjustments. On screen help is available while the program is running. Includes features for speed adjustment. Complete instruction manual on aligning both 1541 and 1571 drives. Even includes instructions on how to load alignment program when nothing else will load! Works on the C64, SX64, C128 in either 64 or 128 mode, 1541, 1571 in either 1541 or 1571 mode! Autoboots to all modes. Second drive fully supported. Program disk, calibration disk and instruction manual only SUPER



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

- Copy whole disks from 1541 or 1571 format to 1581 partitions.
- Copy 1541 or 1571 files to 1581 disks
- Backup 1581 disks or files with 1 or 2 1581's
- Supplied on both 31/2" and 51/4" diskettes so that it will load on either the 1571 or 1581 drive.
- Perform numerous DOS functions such as rename a disk, rename a file, scratch or unscratch files, lock or unlock files, create auto-boot and much more!

Super 81 Utilities uses an option window to display all choices available at any given time. A full featured disk utilities system for the 1581 for only Super 81 Utilities is now available for the C64!

\$3995!

\$34951

RAMDOS is a complete RAM based "Disk" Operating System for the Commodore 1700 and 1750 RAM expansion modules which turns all or



part of the expansion memory into a lightning fast RAM-DISK. RAMDOS behaves similar to a much faster 1541 or 1571 floppy disk except that the data is held in expansion RAM and not on disk. Under RAMDOS, a 50K program can be loaded in ½ second. Programs and files can be transferred to and from disk with a single command. RAMDOS is

GAM

### EYE OF THE INCA

Four text adventures on one disk for the C64 and Apple II series computers. Eye of the Inca, Shipwrecked, Son of Ali Baba and Perils of Darkest Africa. Four perilous adventures for only \$1995!

### REVENGE OF THE MOON GODDESS

Four text adventures on one disk for the C64 and Apple II series computers. Revenge of the Moon Goddess, Frankenstein's Legacy, Night of the Walking Dead and The Sea Phantom. Four terrifying adventures for only \$1995!

### SEX VIXENS FROM SPACE

Three text adventures for the C64 and Apple II series for MATURE ADULTS ONLY. Sex Vixens from Space, Bite of the Sorority Vampires and Hatchet Honeymoon. Three sizzling adult adventures for only \$2995!

Order with check, money order, VISA, MasterCard, COD. Free shipping & handling on US, Canadian, APO, FPO orders. COD & Foreign orders add \$4.00





Order From: Free Spirit Software, Inc. 905 W. Hillgrove, Suite 6 LaGrange, IL 60525 (312) 352-7323 1-800-552-6777

For Technical Assistance call: (312)352-7335

In England contact Financial Systems Software 0905-61

available for only \$3995



### SUPER BIKE

Action-packed, fun-filled motor cycle arcade game for the C64. Race the clock in Motocross, Enduro, Supercross or Trials. Fly through the air on spectacular jumps. Bounce over woop-de-doos.

Avoid logs, trees, water holes, brick walls, other bikers, etc. as you vie for the gold cup.

Thrilling Super Bike action for only \$1495

### GALACTIC FRONTIER

Exciting space exploration game for the C64. Search for life forms among the 200 billion stars in our galaxy. Scientifically accurate. Awesome graphics! For the serious student of astronomy or the casual explorer who wants to boldly go where no man has gone before. Only \$2995!

### MLX Machine Language Entry Program For Commodore 64 and 128

Ottis R. Cowper

"MLX" is a labor-saving utility that allows almost fail-safe entry of machine language programs. Included are versions for the Commodore 64 and 128.

Type in and save some copies of whichever version of MLX is appropriate for your computer (you'll want to use it to enter future ML programs from COM-PUTEI's GAZETTE). Program 1 is for the Commodore 64, and Program 2 is for the 128 (128 MLX can also be used to enter Commodore 64 ML programs for use in 64 mode). When you're ready to enter an ML program, load and run MLX. It asks you for a starting addresses and an ending address. These addresses appear in the article accompanying the MLX-format program listing you're typing.

If you're unfamiliar with machine language, the addresses (and all other values you enter in MLX) may appear strange. Instead of the usual decimal numbers you're accustomed to, these numbers are in *hexadecimal*—a base 16 numbering system commonly used by ML programmers. Hexadecimal—hex for short—includes the numerals 0–9 and the letters A–F. But don't worry even if you know nothing about ML or hex, you should have no trouble using MLX.

After you enter the starting and ending addresses, you'll be offered the option of clearing the workspace. Choose this option if you're starting to enter a new listing. If you're continuing a listing that's partially typed from a previous session, don't choose this option.

A functions menu will appear. The first option in the menu is ENTER DATA. If you're just starting to type in a program, pick this. Press the E key, and type the first number in the first line of the program listing. If you've already typed in part of a program, type the line number where you left off typing at the end of the previous session (be sure to load the partially completed program before you resume entry). In any case, make sure the address you enter corresponds to the address of a line in the listing you are entering. Otherwise, you'll be unable to enter the data correctly. If you pressed E by mistake, you can return to the command menu by pressing RETURN alone when asked for the address. (You can get back to the menu from most options by pressing RETURN with no other input.)

### **Entering A Listing**

Once you're in Enter mode, MLX prints the address for each program line for you. You then type in all nine numbers on that line, beginning with the first two-digit number after the colon (:). Each line represents eight data bytes and a checksum. Although an MLXformat listing appears similar to the "hex dump" listings from a machine language monitor program, the extra checksum number on the end allows MLX to check your typing. (Commodore 128 users can enter the data from an MLX listing using the built-in monitor if the rightmost column of data is omitted, but we recommend against it. It's much easier to let MLX do the proofreading and error checking for you.)

When you enter a line, MLX recalculates the checksum from the eight bytes and the address and compares this value to the number from the ninth column. If the values match, you'll hear a bell tone, the data will be added to the workspace area, and the prompt for the next line of data will appear. But if MLX detects a typing error, you'll hear a low buzz and see an error message. The line will then be redisplayed for editing.

### **Invalid Characters Banned**

Only a few keys are active while you're entering data, so you may have to unlearn some habits. You *do not* type spaces between the columns; MLX automatically inserts these for you. You *do not* press RETURN after typing the last number in a line; MLX automatically enters and checks the line after you type the last digit.

Only the numerals 0-9 and the letters A-F can be typed in. If you press any other key (with some exceptions noted below), you'll hear a warning buzz. To simplify typing, 128 MLX redefines the function keys and + and keys on the numeric keypad so that you can enter data one-handed. (The 64 version incorporates the keypad modification from the March 1986 "Bug-Swatter" column, lines 485-487.) In either case, the keypad is active only while entering data. Addresses must be entered with the normal letter and number keys. The figures above show the keypad configurations for each version.

MLX checks for transposed characters. If you're supposed to type in A0 and instead enter 0A, MLX will catch your mistake. There is one error that

#### 64 MLX Keypad



### 128 MLX Keypad

A (F1)	B (F3)	C (F5)	D (F7)
7	8	9	E (+)
4	5	6	F (-)
1	2	3	E N T E
	0	•	T E R

can slip past MLX: Because of the checksum formula used, MLX won't notice if you accidentally type FF in place of 00, and vice versa. And there's a very slim chance that you could garble a line and still end up with a combination of characters that adds up to the proper checksum. However, these mistakes should not occur if you take reasonable care while entering data.

### **Editing Features**

To correct typing mistakes before finishing a line, use the INST/DEL key to delete the character to the left of the cursor. (The cursor-left key also deletes.) If you mess up a line really badly, press CLR/HOME to start the line over. The RETURN key is also active, but only before any data is typed on a line. Pressing RETURN at this point returns you to the command menu. After you type a character of data, MLX disables RETURN until the cursor returns to the start of a line. Remember, you can press CLR/HOME to quickly get to a line

Cwww.commodore.ca



### Customer Service 305-538-1364

### S & S Wholesalers, Inc.

226 Lincoln Road • Miami Beach, Florida 33139

### Dealer & Institutional Accts. 1-800-331-7054 SALES 1-800-233-6345



#### number prompt.

More editing features are available when correcting lines in which MLX has detected an error. To make corrections in a line that MLX has redisplayed for editing, compare the line on the screen with the one printed in the listing, then move the cursor to the mistake and type the correct key. The cursor left and right keys provide the normal cursor controls. (The INST/ DEL key now works as an alternative cursor-left key.) You cannot move left beyond the first character in the line. If you try to move beyond the rightmost character, you'll reenter the line. During editing, RETURN is active; pressing it tells MLX to recheck the line. You can press the CLR/HOME key to clear the entire line if you want to start from scratch, or if you want to get to a line number prompt to use RETURN to get back to the menu.

#### **Display Data**

The second menu choice, DISPLAY DATA, examines memory and shows the contents in the same format as the program listing (including the checksum). When you press D, MLX asks you for a starting address. Be sure that the starting address you give corresponds to a line number in the listing. Otherwise, the checksum display will be meaningless. MLX displays program lines until it reaches the end of the program, at which point the menu is redisplayed. You can pause the display by pressing the space bar. (MLX finishes printing the current line before halting.) Press space again to restart the display. To break out of the display and get back to the menu before the ending address is reached, press RETURN.

#### Other Menu Options

Two more menu selections let you save programs and load them back into the computer. These are SAVE FILE and LOAD FILE; their operation is quite straightforward. When you press S or L, MLX asks you for the filename. You'll then be asked to press either D or T to select disk or tape.

You'll notice the disk drive starting and stopping several times during a load or save (save only for the 128 version). Don't panic; this is normal behavior. MLX opens and reads from or writes to the file instead of using the usual LOAD and SAVE commands (128 MLX makes use of BLOAD). Disk users should also note that the drive prefix 0: is automatically added to the filename (line 750 in 64 MLX), so this should *not* be included when entering the name. This also precludes the use of @ for Save-with-Replace, so remember to give each version you save a different name. The 128 version makes up for this by giving you the option of scratching the existing file if you want to reuse a filename.

Remember that MLX saves the entire workspace area from the starting address to the ending address, so the save or load may take longer than you might expect if you've entered only a small amount of data from a long listing. When saving a partially completed listing, make sure to note the address where you stopped typing so you'll know where to resume entry when you reload.

MLX reports the standard disk or tape error messages if any problems are detected during the save or load. (Tape, users should bear in mind that Commodore computers are never able to detect errors during a save to tape.) MLX also has three special load error messages: INCORRECT STARTING ADDRESS, which means the file you're trying to load does not have the starting address you specified when you ran MLX; LOAD ENDED AT address, which means the file you're trying to load ends before the ending address you specified when you started MLX; and TRUNCATED AT ENDING AD-DRESS, which means the file you're trying to load extends beyond the ending address you specified when you started MLX. If you see one of these messages and feel certain that you've loaded the right file, exit and rerun MLX, being careful to enter the correct starting and ending addresses.

The 128 version also has a CATA-LOG DISK option so you can view the contents of the disk directory before saving or loading.

The QUIT menu option has the obvious effect—it stops MLX and enters BASIC. The RUN/STOP key is disabled, so the Q option lets you exit the program without turning off the computer. (Of course, RUN/STOP-RE-STORE also gets you out.) You'll be asked for verification; press Y to exit to BASIC, or any other key to return to the menu. After quitting, you can type RUN again and reenter MLX without losing your data, as long as you don't use the clear workspace option.

#### **The Finished Product**

When you've finished typing all the data for an ML program and saved your work, you're ready to see the results. The instructions for loading and using the finished product vary from program to program. Some ML programs are designed to be loaded and run like BASIC programs, so all you need to type is LOAD "filename", 8 for disk (DLOAD "filename" on the 128) or LOAD "filename" for tape, and then RUN. Such

programs will usually have a starting address of 0801 for the 64 or 1C01 for the 128. Other programs must be reloaded to specific addresses with a command such as LOAD "filename",8,1 for disk (BLOAD "filename" on the 128) or LOAD "filename",1,1 for tape, then started with a SYS to a particular memory address. On the Commodore 64, the most common starting address for such programs is 49152, which corresponds to MLX address C000. In either case, you should always refer to the article which accompanies the ML listing for information on loading and running the program.

#### An Ounce Of Prevention

By the time you finish typing in the data for a long ML program, you may have several hours invested in the project. Don't take chances-use our "Automatic Proofreader" to type the new MLX, and then test your copy thoroughly before first using it to enter any significant amount of data. Make sure all the menu options work as they should. Enter fragments of the program starting at several different addresses, then use the Display option to verify that the data has been entered correctly. And be sure to test the Save and Load options several times to ensure that you can recall your work from disk or tape. Don't let a simple typing error in the new MLX cost you several nights of hard work.

### Program 1: MLX For Commodore

SS	10	REM VERSION 1.1: LINES 8
	3315	30,950 MODIFIED, LINES 4
		85-487 ADDED
EK	100	POKE 56,50:CLR:DIM IN\$,
		I, J, A, B, A\$, B\$, A(7), N\$
DM	110	C4=48:C6=16:C7=7:Z2=2:Z
		4=254:25=255:26=256:27=
		127
CJ	120	FA=PEEK(45)+Z6*PEEK(46)
		:BS=PEEK(55)+Z6*PEEK(56
		):H\$="Ø123456789ABCDEF"
SB	130	R\$=CHR\$(13):L\$="{LEFT}"
		:S\$=" ":D\$=CHR\$(20):Z\$=
		CHR\$(Ø):T\$="[13 RIGHT]"
CQ	140	SD=54272:FOR I=SD TO SD
		+23:POKE I,Ø:NEXT:POKE
		[SPACE]SD+24,15:POKE 78
		8,52
FC	150	PRINT" [CLR] "CHR\$ (142) CH
		R\$(8):POKE 53280,15:POK
		E 53281,15
EJ	160	PRINT T\$" [RED] [RVS]
		[2 SPACES] [8 0]
		[2 SPACES]"SPC(28)"
		{2 SPACES } {OFF } {BLU } ML
		X II [RED] [RVS]
		[2 SPACES]"SPC(28)"
-	170	{12 SPACES}{BLU}"
FR	1/10	PRINT" [3 DOWN] [3 SPACES] COMPUTEI'S MA
		CHINE LANGUAGE EDITOR
		[3 DOWN]"
TD	180	The second se
UB	100	FRIMI (BERJOIARIING ADD

### C-www.commodore.ca



-					and the second	
Œw	ww	.CO	mr	noc	iore	.ca

KR	200	R WORKSPACE [Y/N][4]";A \$:IF LEFT\$(A\$,1)<>"Y"TH
PG	210	EN22Ø PRINT"{2 DOWN}{BLU}WORK
		ING"; :FORI=BS TO BS+ EA-SA+7:POKE I,Ø:NEXT:P RINT"DONE"
DR	22Ø	
		<pre>{SPACE }MENU {DOWN } [4]": PRINT T\$" {RVS } E {OFF }NTE</pre>
BD	230	R DATA" PRINT T\$"[RVS]D[OFF]ISP LAY DATA":PRINT T\$"
JS	24Ø	<pre>{RVS}L{OFF}OAD FILE" PRINT T\$"{RVS}S[OFF]AVE FILE":PRINT T\$"{RVS}Q</pre>
ЛН		[OFF]UIT[2 DOWN][BLK]"
нк		
FD	27Ø	=I:I=5 NEXT:ON A GOTO420,610,6
EJ	28Ø	90,700,280:GOSUB1060:GO TO250 PRINT"{RVS} QUIT ":INPU
		T"{DOWN}&4]ARE YOU SURE [Y/N]";A\$:IF LEFT\$(A\$,
EM	29Ø 3ØØ	1) <> "Y"THEN220 POKE SD+24,0:END INS=NS:AD=0:INPUTINS:IF
KF		LEN(IN\$) <> 4THENRETURN B\$=IN\$:GOSUB320:AD=A:B\$
PP	320	=MID\$(IN\$,3):GOSUB320:A D=AD*256+A:RETURN A=0:FOR J=1 TO 2:A\$=MID
	520	\$(B\$,J,1):B=ASC(A\$)-C4+ (A\$>"@")*C7:A=A*C6+B
	330	IF B<Ø OR B>15 THEN AD= Ø:A=-1:J=2
GX CH		NEXT:RETURN B=INT(A/C6):PRINT MID\$( H\$,B+1,1);:B=A-B*C6:PRI
		NT MID\$(H\$,B+1,1);:RETU RN
RR	36Ø	A=INT (AD/Z6):GOSUB350:A =AD-A*Z6:GOSUB350:PRINT ":";
BE		CK=INT(AD/Z6):CK=AD-Z4* CK+Z5*(CK>Z7):GOT0390
PX	380	CK=CK*Z2+Z5*(CK>Z7)+A
JC	39Ø 4ØØ	CK=CK+Z5*(CK>Z5):RETURN PRINT"{DOWN}STARTING AT
45	400	E43";:GOSUB300:IF INS<>
		N\$ THEN GOSUBIØ30:IF F [SPACE]THEN400
EX	410	RETURN
HD	420	[SPACE] ": GOSUB400: IF IN
	430	
SK	440	POKE198,0:GOSUB360:IF F THEN PRINT IN\$:PRINT" [UP][5 RIGHT]";
GC	450	FOR I=Ø TO 24 STEP 3:BS =S\$:FOR J=1 TO 2:IF F T
HA	460	HEN B\$=MID\$(IN\$,I+J,1) PRINT"{RVS}"B\$L\$;:IF I< 24THEN PRINT"{OFF}";
HD	470	GET AS: IF AS=NS THEN470
		IF (A\$>"/"ANDA\$<":")OR(A \$>"@"ANDA\$<"G")THEN54Ø A=-(A\$="M")-2*(A\$="")-
00		ATT ASE MILE/ ASE

10.000						1	Ter Part	
		RESS[4]";:GOSUB300:SA=A D:GOSUB1040:IF F THEN18			3*(A\$=".")-4*(A\$="/")-5 *(A\$="J")-6*(A\$="K")	нн	75Ø	PRINT"D[DOWN]":OPEN15,8 ,15,"IØ:":B=EA-SA:IN\$="
GF	190	Ø PRINT"{BLK} [2 SPACES]EN	FX	486	A=A-7*(A\$="L")-8*(A\$=": ")-9*(A\$="U")-10*(A\$="I	SQ	76Ø	Ø:"+IN\$:IF OP THEN81Ø OPEN 1,8,8,IN\$+",P,W":G
TTER.		DING ADDRESS [4]";:GOSUB 300:EA=AD:GOSUB1030:IF	C DOMO		")-11*(A\$="0")-12*(A\$=" P")	FJ	77Ø	OSUB860:IF A THEN220 AH=INT(SA/256):AL=SA-(A
KR	200	[SPACE]F THEN190 INPUT"[3 DOWN][BLK]CLEA	CM	487	A=A-13*(A\$=S\$):IF A THE N A\$=MID\$("ABCD123E456F	Dist		H*256):PRINT#1,CHR\$(AL) ;CHR\$(AH);
		R WORKSPACE [Y/N][4]";A \$:IF LEFT\$(A\$,1)<>"Y"TH	MP	490	Ø",A,1):GOTO 540 IF A\$=R\$ AND((I=Ø)AND(J	PE	78Ø	FOR I=Ø TO B:PRINT#1,CH R\$(PEEK(BS+I));:IF ST T
PG	210	EN22Ø PRINT"[2 DOWN][BLU]WORK	The second		=1)OR F)THEN PRINT B\$;: J=2:NEXT:I=24:GOTO55Ø	FC	79Ø	HEN800 NEXT:CLOSE1:CLOSE15:GOT
		ING"; :FORI=BS TO BS+ EA-SA+7:POKE I,0:NEXT:P	KC	500	IF A\$="{HOME}" THEN PRI NT B\$:J=2:NEXT:I=24:NEX	GS	800	0940 GOSUB1060:PRINT"{DOWN}
DR	220	RINT"DONE" PRINTTAB(10)"{2 DOWN}			T:F=Ø:GOTO44Ø			[BLK]ERROR DURING SAVE: [4]":GOSUB860:GOT0220
		<pre>{BLK}{RVS} MLX COMMAND {SPACE}MENU {DOWN} [4]":</pre>	1 Bay		IF (A\$=" {RIGHT}") ANDF TH ENPRINT B\$L\$;:GOTO540	MA	810	OPEN 1,8,8,IN\$+",P,R":G OSUB860:IF A THEN220
		PRINT T\$" [RVS]E [OFF]NTE R DATA"	GR	5210	IF A\$ $<>$ L\$ AND A\$ $<>$ D\$ OR ((I= $\emptyset$ ) AND(J=1)) THEN GOS UB1 $\emptyset$ 6 $\emptyset$ :GOTO47 $\emptyset$	GE	82Ø	GET#1,A\$,B\$:AD=ASC(A\$+Z \$)+256*ASC(B\$+Z\$):IF AD
BD	230	PRINT T\$" [RVS]D[OFF]ISP LAY DATA":PRINT T\$"	HG	53Ø	A\$=L\$+S\$+L\$:PRINT B\$L\$; ;J=2-J:IF J THEN PRINT	RX	83Ø	<> SA THEN F=1:GOTO850 FOR I=0 TO B:GET#1,A\$:P
JS	240	<pre>{RVS}L{OFF}OAD FILE" PRINT T\$"{RVS}S{OFF}AVE</pre>	00	EAG	{SPACE}L\$;:I=I-3			OKE BS+I, ASC(A\$+Z\$):IF( I<>B)AND ST THEN F=2:AD
		FILE":PRINT T\$" [RVS]Q [OFF]UIT[2 DOWN] [BLK]"			PRINT A\$;:NEXT J:PRINT [SPACE]S\$;	FA	840	=I:I=B NEXT:IF ST<>64 THEN F=3
		GET AS: IF AS=NS THEN250 A=0:FOR I=1 TO 5: IF AS=	PM	550	NEXT I:PRINT:PRINT"[UP] [5 RIGHT]";:INPUT#3,IN\$ :IF INS=N\$ THEN CLOSE3:			CLOSE1:CLOSE15:ON ABS(F >Ø)+1 GOTO960,970
		MID\$("EDLSQ",I,1)THEN A =I:I=5	00	FCA	GOTO220 FOR I=1 TO 25 STEP3:B\$=	SA	86Ø	INPUT#15,A,A\$:IF A THEN CLOSE1:CLOSE15:GOSUB10
FD	27Ø	NEXT:ON A GOTO420,610,6 90,700,280:GOSUB1060:GO	QC	500	MID\$(IN\$,I):GOSUB320:IF I<25 THEN GOSUB380:A(I			60:PRINT" [RVS]ERROR: "A
EJ	280	TO250 PRINT" [RVS] QUIT ":INPU	DF	570	/3)=A NEXT: IF A<>CK THEN GOSU	and the second se		RETURN POKE183, PEEK(FA+2):POKE
		T"{DOWN} 4]ARE YOU SURE [Y/N]"; A\$: IF LEFT\$ (A\$,	EA	570	B1060:PRINT" [BLK] [RVS] [SPACE]ERROR: REENTER L		000	187, PEEK(FA+3): POKE188, PEEK(FA+4): IFOP=ØTHEN92
		1) <> "Y"THEN220 POKE SD+24,0:END	нт	580	INE [4]":F=1:GOTO440 GOSUB1080:B=BS+AD-SA:FO		000	Ø SYS 63466:IF(PEEK(783)A
1		IN\$=N\$:AD=0:INPUTIN\$:IF LEN(IN\$)<>4THENRETURN		900	R I=Ø TO 7:POKE B+I,A(I):NEXT	nu	090	ND1)THEN GOSUB1060:PRIN T"{DOWN}{RVS} FILE NOT
KF	310	B\$=IN\$:GOSUB320:AD=A:B\$ =MID\$(IN\$,3):GOSUB320:A	QQ	59Ø	AD=AD+8:IF AD>EA THEN C LOSE3:PRINT"{DOWN}{BLU}	CS	900	[SPACE]FOUND ":GOTO690 AD=PEEK(829)+256*PEEK(8
PP	32Ø	D=AD*256+A:RETURN A=Ø:FOR J=1 TO 2:A\$=MID	19.110		** END OF ENTRY ** [BLK] [2 DOWN]":GOTO700	CB	500	30):IF AD<>SA THEN F=1: GOTO970
		\$(B\$,J,1):B=ASC(A\$)-C4+ (A\$>"@")*C7:A=A*C6+B			F=Ø:GOTO44Ø PRINT"[CLR][DOWN][RVS]	SC	91Ø	A=PEEK(831)+256*PEEK(83 2)-1:F=F-2*(A <ea)-3*(a></ea)-3*(a>
Test.		IF B<Ø OR B>15 THEN AD= Ø:A=-1:J=2			<pre>{SPACE}DISPLAY DATA ":G OSUB400:IF IN\$=N\$ THEN2</pre>	KM	920	EA):AD=A-AD:GOTO93Ø A=SA:B=EA+1:GOSUB1Ø1Ø:P
		NEXT:RETURN B=INT(A/C6):PRINT MID\$(	RJ	62Ø	20 PRINT" {DOWN } {BLU } PRESS:	and a second		OKE780,3:SYS 63338 A=BS:B=BS+(EA-SA)+1:GOS
		H\$,B+1,1);:B=A-B*C6:PRI NT MID\$(H\$,B+1,1);:RETU	TE		[RVS]SPACE[OFF] TO PAU SE, [RVS]RETURN[OFF] TO			UB1010:ON OP GOT0950:SY S 63591
RR	36Ø	RN A=INT(AD/Z6):GOSUB350:A	KS	630	BREAK [4] [DOWN]" GOSUB360:B=BS+AD-SA:FOR	AE	940	GOSUB1080:PRINT" [BLU] ** SAVE COMPLETED **":GOT
		=AD-A*Z6:GOSUB350:PRINT ":";	- Sel		I=BTO B+7:A=PEEK(I):GOS UB350:GOSUB380:PRINT S\$	XP	950	0220 POKE147,0:SYS 63562:IF
the second		CK=INT(AD/Z6):CK=AD-Z4* CK+Z5*(CK>Z7):GOTO39Ø	cc	640	; NEXT:PRINT"{RVS}";:A=CK	in the		<pre>{SPACE}ST&gt;Ø THEN97Ø GOSUB1Ø8Ø:PRINT"{BLU}**</pre>
JC	390	CK=CK*Z2+Z5*(CK>Z7)+A CK=CK+Z5*(CK>Z5):RETURN DRING************************************	КН	650	:GOSUB350:PRINT F=1:AD=AD+8:IF AD>EA TH			LOAD COMPLETED **":GOT 0220
45	400	PRINT" [DOWN] STARTING AT &4]";:GOSUB300:IF IN\$<>			ENPRINT" [DOWN ] [BLU] ** E ND OF DATA **":GOTO220	DP	970	GOSUB1060:PRINT"{BLK} [RVS]ERROR DURING LOAD:
PV	410	N\$ THEN GOSUB1030:IF F {SPACE}THEN400 RETURN			GET A\$:IF A\$=R\$ THEN GO SUB1080:GOTO220			{DOWN} [4]":ON F GOSUB98 0,990,1000:GOT0220
CONTRACTOR OF STREET,	and the second se	PRINT" [RVS] ENTER DATA	1.1.1		IF A\$=S\$ THEN F=F+1:GOS UB1080	PP	98Ø	PRINT"INCORRECT STARTIN G ADDRESS (";:GOSUB360:
TP	120	<pre>{SPACE}":GOSUB400:IF IN \$=N\$ THEN220 OPEN2 2:DBINT</pre>			ONFGOTO630,660,630 PRINT"{DOWN} {RVS} LOAD	GR	990	PRINT")":RETURN PRINT"LOAD ENDED AT ";:
		OPEN3,3:PRINT POKE198,0:GOSUB360:IF F			{SPACE}DATA ":OP=1:GOTO 710			AD=SA+AD:GOSUB360:PRINT D\$:RETURN
-		THEN PRINT INS:PRINT" {UP}[5 RIGHT]";	15.00		PRINT" [DOWN] [RVS] SAVE [SPACE] FILE ":0P=Ø	1 miles		PRINT "TRUNCATED AT END ING ADDRESS ": RETURN
GC	450	FOR I=0 TO 24 STEP 3:B\$ =S\$:FOR J=1 TO 2:IF F T	RX	710	INS=NS:INPUT" [DOWN] FILE NAME 43"; INS:IF INS=NS	RX	1010	AH=INT(A/256):AL=A-(AH *256):POKE193,AL:POKE1
HA	460	HEN B\$=MID\$(IN\$,I+J,1) PRINT"{RVS}"B\$L\$;:IF I<	PR	72Ø	<pre>[SPACE]THEN220 F=0:PRINT"[DOWN]{BLK} [PUS]T[OFF]ADF OF [MUS]</pre>	FF	1020	94, AH AH=INT(B/256):AL=B-(AH
		24THEN PRINT" [OFF]"; GET A\$:IF A\$=N\$ THEN47Ø	TIP	700	<pre>[RVS]T[OFF]APE OR [RVS] D[OFF]ISK: §4]";</pre>	The state		*256):POKE174,AL:POKE1 75,AH:RETURN
		IF (A\$>"/"ANDA\$<":")OR (A \$>"@"ANDA\$<"G")THEN54Ø			GET A\$: IF A\$="T"THEN PR INT"T[DOWN]":GOTO880			IF AD <sa ad="" or="">EA THEN 1050</sa>
05	405	A=-(A\$="M")-2*(A\$=",")-	HQ	740	IF A\$<>"D"THEN730	HA	1040	IF (AD>511 AND AD<40960



C.O.D. charges are \$3.00. In Continental USA Include \$3.00 for softwan on orders, please add 6% shipping, Mailmum \$6.00. All other foreign re additional amount to get your package to you quickly and safely. All ONDERING REFORMATION: Please specify system. For fast delivery sand coshier's sheek or money order. Personal and for hardware minimum Bio.O. MasterCard and Vais orders please instyles card 4, espineton data and signakine. Wi masteria highogia, mishanum Bio.O. Altor a sheped coshis the Content U.S. Are ethered that class invent U.S. mat includes testary warranty. Due to our low prices all sales are that. All defective returns must have a return authoritation hum and Car www.commodore.ca veign shipping charges ecceed the minimum amount, you will be charged th ober, Please call (414357-8181 to obtain an FA# or your return will not be ac

Statistics.	1 ( C - 1 )	A CONTRACT OF A	11.
Tes :		)OR(AD>49151 AND AD<53 248)THEN GOSUB1080:F=0	
Start.		:RETURN	
HC	1050		
ALC: NO		[SPACE]INVALID ADDRESS	
		{DOWN} {BLK}":F=1:RETU	
	1000	RN	
AR	1060	POKE SD+5,31:POKE SD+6 ,208:POKE SD,240:POKE	
		{SPACE }SD+1,4:POKE SD+	
L. The		4,33	
DX	1070		
		T01090	
PF	1086	POKE SD+5,8:POKE SD+6,	
1.1.121.13 1.1.121.13		240:POKE SD,0:POKE SD+ 1,90:POKE SD+4,17	
AC	1096	FOR S=1 TO 100:NEXT:PO	
		KE SD+4,Ø:POKE SD,Ø:PO	12
E -		KE SD+1,0:RETURN	8
1			
D		- 2	
CONTRACTOR OF THE OWNER OF THE		m 2: MLX For Commodore	P. C.
128	3		
20	100	TRAD 964 DOKE 4607 100	
AE	100	TRAP 960:POKE 4627,128: DIM NL\$,A(7)	
XP	110	Z2=2:Z4=254:Z5=255:Z6=2	
1127	The state	56:27=127:BS=256*PEEK(4	
		627):EA=6528Ø	
FB	120	BES=CHRS(7):RTS=CHRS(13)	
		):DL\$=CHR\$(20):SP\$=CHR\$ (32):LF\$=CHR\$(157)	
KE	130	DEF FNHB(A)=INT(A/256):	
		DEF FNLB(A)=A-FNHB(A)*2	
0155		56:DEF FNAD(A)=PEEK(A)+	
1		256*PEEK(A+1)	
JB	140	<pre>KEY 1, "A":KEY 3, "B":KEY 5, "C":KEY 7, "D":VOL 15</pre>	
		:IF RGR(Ø)=5 THEN FAST	
FJ	150	PRINT" {CLR }"CHR\$(142);C	
Entry I		HR\$(8):COLOR Ø,15:COLOR	
-		4,15:COLOR 6,15	
GQ	160	PRINT TAB(12)"[RED] [RVS][2 SPACES][9 0]	
516		[2 SPACES]"RT\$; TAB(12)"	
Plant in		[RVS][2 SPACES][OFF]	
P. T		[BLU] 128 MLX [RED]	
		[RVS][2 SPACES]"RT\$; TAB	
		(12)"{RVS}{13 SPACES} [BLU]"	
FE	170		
		[3 SPACES ] COMPUTEI'S MA	
<b>B</b> all		CHINE LANGUAGE EDITOR	
		{2 DOWN}"	
DK	180	PRINT" [BLK] STARTING ADD	
		RESSE43"; : GOSUB 260:IF [SPACE]AD THEN SA=AD:EL	
		SE 180	
FH	190	PRINT" [BLK] [2 SPACES]EN	
		DING ADDRESS 43"; : GOSUB	
		260:IF AD THEN EA=AD:E	
	200	LSE 190	
MF	200	PRINT" [DOWN] [BLK] CLEAR [SPACE] WORKSPACE [Y/N]?	
		E43":GETKEY AS:IF AS	
		Y" THEN 220	
QH	210	PRINT "{DOWN} {BLU} WORKIN	
		G";:BANK Ø:FOR A=BS {SPACE}TO BS+(EA-SA)+7:	
		POKE A, Ø:NEXT A:PRINT"D	
		ONE"	
DC	220	PRINT TAB(10)" [DOWN]	
		{BLK} [RVS] MLX COMMAND	
		<pre>{SPACE}MENU E43{DOWN}": PRINT TAB(13)"{RVS}E</pre>	
		{OFF}NTER DATA"RTS; TAB(	
		13)"[RVS]D[OFF]ISPLAY D	
		ATA"RT\$; TAB(13)"[RVS]L	
	0.00	(OFF)OAD FILE"	
HB	23Ø	PRINT TAB(13)"[RVS]S	
	-		-

			-
		{OFF}AVE FILE"RT\$; TAB(1 3)"{RVS}C{OFF}ATALOG DI	
		SK"RT\$; TAB(13)" [RVS]Q	
		[OFF]UIT[DOWN][BLK]"	
AP	240	GETKEY AS:A=INSTR("EDLS	10
		CQ", A\$):ON A GOTO 340,5	
		50,640,650,930,940:GOSU B 950:GOTO 240	
sx	250	PRINT"STARTING AT"; : GOS	
		UB 260:IF(AD<>0)OR(AS=N	
		L\$) THEN RETURN: ELSE 250	
BG	260	A\$=NL\$:INPUT A\$:IF LEN( A\$)=4 THEN AD=DEC(A\$)	
DD	270	IF AD=Ø THEN BEGIN: IF A	
		\$ <> NL\$ THEN 300:ELSE RE	2
		TURN: BEND	
MA	280	IF AD SA OR AD EA THEN	
PM	290	{SPACE}300 IF AD>511 AND AD<65280	
-1-1	290	[SPACE] THEN PRINT BES;:	
		RETURN	
5Q	300		1
		NVALID ADDRESS {DOWN}	
RD	310	{BLK}":AD=Ø:RETURN CK=FNHB(AD):CK=AD-Z4*CK	
w.	510	+25*(CK>27):GOTO 330	
DD	32Ø	CK=CK*Z2+Z5*(CK>Z7)+A	
AH	330	CK=CK+Z5*(CK>Z5):RETURN	
QD	340		
		<pre>{SPACE}DATA ":GOSUB 250 :IF A\$=NL\$ THEN 220</pre>	
TA	350	The second se	
		,3	
BR	360	GOSUB 310: PRINT HEX\$ (AD	
		)+":";:IF F THEN PRINT	
		[SPACE]L\$:PRINT"[UP]	
A	370	{5 RIGHT}"; FOR I=Ø TO 24 STEP 3:B\$	
		=SP\$:FOR J=1 TO 2:IF F	
		[SPACE] THEN B\$=MID\$(L\$,	
		I+J,1)	
S	380		
		<pre>[SPACE]I&lt;24 THEN PRINT" [OFF]";</pre>	
RC	390	GETKEY AS:IF (AS>"/" AN	
		D A\$<":") OR(A\$>"@" AND	
1	100Ett	AS<"G") THEN 470	
C	400	IF A\$="+" THEN A\$="E":G	
R	410	OTO 470 IF A\$="-" THEN A\$="F":G	
5	410	OTO 470	
B	420		
		D (J=1) OR F) THEN PRIN	
		T B\$;:J=2:NEXT:I=24:GOT	
RD	430	O 480 IF A\$="[HOME]" THEN PRI	
-		NT B\$:J=2:NEXT:I=24:NEX	
	1	T:F=Ø:GOTO 360	
(B	440		STORIAL STORY
		THEN PRINT B\$+LF\$;:GOT	
		O 470 IF A\$<>LF\$ AND A\$<>DL\$	
IP	450		
TP	450	(SPACE)OR ((I=0) AND LI	
TP	450	<pre>{SPACE OR ((I=0) AND (J =1)) THEN GOSUB 950:GOT</pre>	11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
		=1)) THEN GOSUB 950:GOT O 390	A COLORADO
	45Ø 46Ø	=1)) THEN GOSUB 950:GOT O 390 AS=LF\$+SP\$+LF\$:PRINT BS	ALL DATE OF
		=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P	In the second
?S	460	=1)) THEN GOSUB 950:GOT 0 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P RINT LF\$;:I=I-3	In serie on an o
25	460	=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P	The art office parts
PS 3B	460	<pre>=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P RINT LF\$;:I=I-3 PRINT A\$;:NEXT J:PRINT [SPACE]SP\$; NEXT I:PRINT:PRINT"[UP]</pre>	HE BALL ON ALL DELLES
PS 3B	46Ø 47Ø	<pre>=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P RINT LF\$;:I=I-3 PRINT A\$;:NEXT J:PRINT {SPACE}SP\$; NEXT I:PRINT:PRINT"{UP} {5 RIGHT}";:L\$="</pre>	二日 日本市 日本 日本 日本市 日本市 日本市
PS BB	46Ø 47Ø 48Ø	<pre>=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P RINT LF\$;:I=I-3 PRINT A\$;:NEXT J:PRINT {SPACE}SP\$; NEXT I:PRINT:PRINT"{UP} {5 RIGHT}";:L\$=" {27 SPACES}"</pre>	The state of the second second and
PS 3B HA	46Ø 47Ø 48Ø	<pre>=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P RINT LF\$;:I=I-3 PRINT A\$;:NEXT J:PRINT [SPACE]SP\$; NEXT I:PRINT:PRINT"[UP] [5 RIGHT]";:L\$=" [27 SPACES]" FOR I=1 TO 25 STEP 3:GE</pre>	The same of the second second
PS GB HA	46Ø 47Ø 48Ø	<pre>=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P RINT LF\$;:I=I-3 PRINT A\$;:NEXT J:PRINT [SPACE]SP\$; NEXT I:PRINT:PRINT"[UP] [5 RIGHT]";:L\$=" [27 SPACES]" FOR I=1 TO 25 STEP 3:GE T#3,A\$,B\$:IF A\$=SP\$ THE</pre>	HE REAL CARGE DESCRIPTION OF THE REAL PROPERTY OF
PS GB HA DP	46Ø 47Ø 48Ø 49Ø	<pre>=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P RINT LF\$;:I=I-3 PRINT A\$;:NEXT J:PRINT {SPACE}SP\$; NEXT I:PRINT:PRINT"{UP} {5 RIGHT}";:L\$=" {27 SPACES}" FOR I=1 TO 25 STEP 3:GE T#3,A\$,B\$:IF A\$=SP\$ THE N I=25:NEXT:CLOSE 3:GOT O 220</pre>	THE CASE OF CA
PS 3B HA DP	46Ø 47Ø 48Ø 49Ø	<pre>=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P RINT LF\$;:I=I-3 PRINT A\$;:NEXT J:PRINT {SPACE}SP\$; NEXT I:PRINT:PRINT"{UP} {5 RIGHT}";:L\$=" {27 SPACES}" FOR I=1 TO 25 STEP 3:GE T#3,A\$,B\$:IF A\$=SP\$ THE N I=25:NEXT:CLOSE 3:GOT O 220 A\$=A\$+B\$:A=DEC(A\$):MID\$</pre>	The sector of the sector of the sector of the sector of the
PS 3B HA OP	46Ø 47Ø 48Ø 49Ø	<pre>=1)) THEN GOSUB 950:GOT O 390 A\$=LF\$+SP\$+LF\$:PRINT B\$ +LF\$;:J=2-J:IF J THEN P RINT LF\$;:I=I-3 PRINT A\$;:NEXT J:PRINT {SPACE}SP\$; NEXT I:PRINT:PRINT"{UP} {5 RIGHT}";:L\$=" {27 SPACES}" FOR I=1 TO 25 STEP 3:GE T#3,A\$,B\$:IF A\$=SP\$ THE N I=25:NEXT:CLOSE 3:GOT O 220</pre>	The state of the second second second second second second

1		a sector in the sector was a set
AR	510	NEXT I: IF A <> CK THEN GO SUB 950: PRINT: PRINT"
		[RVS] ERROR: REENTER LI
DX	520	NE ":F=1:GOTO 360 PRINT BE\$:B=BS+AD-SA:FO
		R I=Ø TO 7:POKE B+I,A(I ):NEXT I
хв	530	F=Ø:AD=AD+8:IF AD<=EA T HEN 360
CA	540	CLOSE 3: PRINT " [ DOWN ]
		[BLU]** END OF ENTRY ** [BLK] [2 DOWN]":GOTO 650
MC	55Ø	[RVS] DISPLAY DATA ":GO
		SUB 250:IF AS=NLS THEN [SPACE]220
JF	56Ø	BANK Ø:PRINT" [DOWN] [BLU]PRESS: [RVS]SPACE
		[OFF] TO PAUSE, [RVS]RE TURN[OFF] TO BREAK[4]
		[DOWN]"
XA	570	UB 310:B=BS+AD-SA
DJ	580	
		2);SP\$;:GOSUB 320:NEXT [SPACE]I
хв	590	PRINT" [RVS]"; RIGHT\$ (HEX
GR	600	
		EN PRINT" [BLU] ** END OF DATA **":GOTO 220
EB	610	GET A\$:IF A\$=RT\$ THEN P RINT BE\$:GOTO 220
QK	620	
xs	630	ON F GOTO 570,610,570
RF	64Ø	PRINT BE\$" [DOWN] [RVS] L OAD DATA ":OP=1:GOTO 66
BP	65Ø	Ø
	660	AVE FILE ":OP=Ø
DI	000	MEE43";FS:IF FS=NLS THE N 220
RF	67Ø	PRINT" [DOWN] [BLK] [RVS]T
14.3		[OFF]APE OR [RVS]D[OFF] ISK: [4]";
SQ	680	N 850:ELSE IF A\$ <> "D" T
SP	690	HEN 68Ø PRINT"DISK{DOWN}":IF OP THEN 76Ø
EG	700	THEN 760 DOPEN#1, (F\$+", P"), W: IF
		[SPACE]DS THEN AS=DSS:G OTO 740
JH	710	
	-	RINT"SAVING ":FS:PRINT
MC	72Ø	PRINT#1, CHR\$(PEEK(A));:
		IF ST THEN AS="DISK WRI TE ERROR":GOTO 750
GC	73Ø	NEXT A: CLOSE 1: PRINT"
		[BLU]** SAVE COMPLETED {SPACE}WITHOUT ERRORS *
RA	740	*":GOTO 220 IF DS=63 THEN BEGIN:CLO
		SE 1: INPUT" {BLK } REPLACE EXISTING FILE [Y/N] §43
		";A\$:IF A\$="Y" THEN SCR
		ATCH(F\$):PRINT:GOTO 700 :ELSE PRINT"[BLK]":GOTO
-	750	660:BEND
JA	150	"[BLK] [RVS] ERROR DURIN
		G SAVE: [4]":PRINT A\$:G OTO 220
FD	760	DOPEN#1, (F\$+", P"):IF DS THEN A\$=DS\$:F=4:CLOSE
		(SPACE)1:GOTO 790
-		

### C-www.commodore.ca

### **Tevex Computer Software** 1-800-456-1162

C-64/128 software	List \$ Our \$	C-64/128 software	List \$ Our \$	
Adventure Constr.	\$15 \$12	Might & Magic	\$40 \$28	S
Airborne Ranger	\$35 \$24	NBA	\$40 \$28	A STREET
Aliens	\$35 \$24	Paperboy	\$35 \$24	
Auto Duel	\$50 \$34	Phantasie III	\$40 \$28	SFX SOL
B-24	\$35 \$24	Pirates	\$40 \$28	A nine voi
Bard's Tale I or II	\$40 \$28	Questron II	\$40 \$28	technolog
Beyond Zork	\$45 \$31	Realms of Darkness	\$40 \$28	basic soft
California Games	\$40 \$28	Russia	\$40 \$28	suitable in
Chuck Yeager AFT	\$35 \$24	Shiloh	\$40 \$28	Suitable II
Civil War	\$40 \$28	Skate or Die	\$30 \$21	SFX FUL
Defender - Crown	\$35 \$24	Starfleet I	\$40 \$28	A five octa
Dragon's Lair	\$25 \$18	Stealth Fighter	\$40 \$28	
Echelon	\$45 \$31	Strike Fleet	\$30 \$21	Sound Ex
Games: Winter ed	\$40 \$28	Test Drive	\$30 \$21	SFX FM
Gauntlet	\$35 \$24	Wargame Constr.	\$30 \$21	
Gunship	\$35 \$24	Wizardry I	\$40 \$28	The softw
Last Ninja	\$35 \$24	Wooden Ships	\$35 \$24	Nine char
Legacy Ancients	\$30 \$21	WC Leader Board	\$40 \$28	write, alter
Maniac Mansion	\$35 \$24	Wrestlemania	\$30 \$21	sounds w
	400 424	moonemania	400 421	
Same Day		Two Im and hour	land and	
Chinning		N Kong and N		S
Shipping		MIGGAGANT	100	
Just call us before 3	bac OC.	INALANT	UPS	
		Mindel -	0/1	SFX SOU
we'll ship your order				Record so
by UPS. Your pack	age is only			pitch, edit
days away with Tev		TEVE	X	samples a
		4205 First Ave	#100	Jampiose
Free 40 page cat	talog with	Tucker, GA 3	al second second	1 3 3 F 1 9 F
your first order.	We stock		The state of the s	TO THE ALL
		404-934-50	59	S
hundreds of C-64/1	120 games.	Established in	1984	1 contraction
The second s				

When ordering by mail send money order. Include phone number. SHIPPING: U.S. orders add \$3.00 for shipping and handling charge. Georgia residents add 4% sales tax.

3

COMMODORE

commodore

With GEOS Program

commodore

\$218

doce MPS-1200

WiPlug n' Print

0 10 10 -

SERVICE CENTER FOR COMMODORE
 ATARI COMPUTERS AT LOW PRICES

Commodore

STAR Star NX 1000 Star NX-10

NX 100

OKIDATA Okidata 120 Okidata 20

EPSON

LX-86 Printer FX-286E Printer

C= 128=

Cx 640

40

C64C Computer
1541 Disk Drive

•80 Col. Printer

Link Software

Game

COMMODORE

Cartridge

COMPLETE PACKAGE

•12" Computer Monitor

LANSAU E

\$20B

\$159

\$169

\$189 \$185

\$195

Cert

Cr 1084 Color \$ 2.59

Thompson RGBs 269

.GEOS And Quantum

ID FREE DISKS

CA1100 ---

C

SHE

۵.

0

0

5

Π

....

U



### FX SOUND EXPANDER

\$180.00

#### UND EXPANDER oice programmable synthesizer module using FM

gy to generate professional quality sounds. Includes tware and audio connector cable. MIDI compatible with interface.

#### LL SIZED KEYBOARD

\$145.50 tave synthesizer style key board which plugs into the xpander module

COMPOSER AND SOUND EDITOR \$ 45.50 ware to get the most out of the SFX Sound Expander! innel sequencer and voice editor programs allow you to er, store and playback music and to create custom which you can store for use in your music.



Blue Chip Keyboard +512K Expandable To 640K 66 Expansion Slots Optional 20 MB Hard Drive •All Hook-Up Cables & Adaptors •Package Of 10 Diskettes •12'' Monitor

Corp. All orders can b

er's Club. Corre D

### Www.commodore.ca

utherization humber

•640K •2 Drive/360K •8088/2 CPU •4.77

Drives

CO.D.'s accepted. No

•12" High Resolution Monitor •MS DOS 3.2 •2/360

10 MHZ

-	1000		-
PX	77Ø	GET#1,A\$,B\$:CLOSE 1:AD= ASC(A\$)+256*ASC(B\$):IF	
		{SPACE}AD > SA THEN F=1: GOTO 790	
КВ	780	PRINT"LOADING ";F\$:PRIN	1
		T:BLOAD(F\$), BØ, P(BS):AD	
		=SA+FNAD(174)-BS-1:F=-2	
RO	790	*(AD <ea)-3*(ad>EA) IF F THEN 800:ELSE PRIN</ea)-3*(ad>	
		T" [BLU] ** LOAD COMPLETE	
		D WITHOUT ERRORS **":GO	
FD	800	TO 220 GOSUB 950:PRINT"[BLK]	
ER	000	[RVS] ERROR DURING LOAD	
		: [4]":ON F GOSUB 810,8	
	01.0	20,830,840:GOTO220	
QJ	810	PRINT"INCORRECT STARTIN G ADDRESS (";HEX\$(AD);"	
		)":RETURN	
DP	82Ø	PRINT"LOAD ENDED AT ";H	
		EX\$(AD):RETURN	
EB	830	PRINT "TRUNCATED AT ENDI NG ADDRESS ("HEX\$(EA)")	
		":RETURN	
FP	840	PRINT DISK ERROR ";A\$:R	
		ETURN	
KS	85Ø	PRINT "TAPE": AD=POINTER( F\$): BANK 1:A=PEEK(AD):A	
		L=PEEK(AD+1):AH=PEEK(AD	
		+2)	
xx	860	BANK 15:SYS DEC("FF68")	
		<pre>,0,1:SYS DEC("FFBA"),1, 1,0:SYS DEC("FFBD"),A,A</pre>	
		L, AH:SYS DEC("FF90"),12	
	The set	8:IF OP THEN 890	
FG	87Ø		
		920:SYS DEC("E919"),3: PRINT"SAVING ";F\$	
AB	88Ø		
		UB 920:SYS DEC("EA18"):	
		PRINT" [DOWN] [BLU] ** TAP E SAVE COMPLETED **":GO	L
		TO 220	-
CP	89Ø	SYS DEC("E99A"):PRINT:I	Г
		F PEEK(2816)=5 THEN GOS UB 950:PRINT"{DOWN}	
		[BLK] [RVS] FILE NOT FOU	-
		ND ":GOTO 220	
GQ	900		
		":AD=FNAD(2817):IF AD<> SA THEN F=1:GOTO 800:EL	
		SE AD=FNAD(2819)-1:F=-2	
		*(AD <ea)-3*(ad>EA)</ea)-3*(ad>	
JD	910	A=BS:B=BS+(EA-SA)+1:GOS	
		UB 920:SYS DEC("E9FB"): IF ST>0 THEN 800:ELSE 7	
		90	
XB	920	POKE193, FNLB(A): POKE194	
		,FNHB(A):POKE 174,FNLB( B):POKE 175,FNHB(B):RET	
		URN	
CP	93Ø	CATALOG : PRINT " { DOWN }	
		[BLU] ** PRESS ANY KEY F	
		OR MENU **":GETKEY A\$:G OTO 220	
MM	940		
		E43"; RT\$; "ARE YOU SURE	
		<pre>{SPACE}[Y/N]?":GETKEY A \$:IF A\$&lt;&gt;"Y" THEN 220:E</pre>	
		LSE PRINT" [CLR] ": BANK 1	
		5:END	
	950		
AF	96Ø	IF ER=14 AND EL=260 THE N RESUME 300	
MK	97Ø		
		N RESUME NEXT	
KJ	980	IF ER=4 AND EL=780 THEN F=4:A\$=DS\$:RESUME 800	
DQ	99Ø	IF ER=30 THEN RESUME:EL	
		SE PRINT ERR\$(ER);" ERR	
1.8	in the second	OR IN LINE"; EL	IL
		The second se	

			COLO
GREE	NSBORO		COLOR
	PUTER		RIBBONS
CENT	ER		NIUUUIIa
AN AUTHORIZ	FD		Apple Imag Citizen 120
COMMODORE REPAIR			Commodor
72-HOUR TURNAR	OUND		Commodor
FOR MOST COMP	Children and Chi		Commodor
C64	\$55.00		Commodor
C128 1541			Okidata 82 Okidata 18
1541 and 1571	\$27.95		Panasonic
Perm-alig	s75.00		Seikosha S Star SG 10
A1000	\$45.00 hr.		Star NX10/
CBM PRINTERS	(plus parts) \$45.00 hr.		
	(plus parts)		BRIGHT PA
FOR OTHER PRICING	CALL!		PASTEL P
Please enclose \$7.50 for retu	urn shipping.		Yellow, T-SHIRT F
All repairs come with a 30 and we guarantee the entire	-day warranty		1-oniki i
work properly not just the rep	paired section.		5 1/4" D
POWER SUPPLIES ARE NO IN THE ABOVE PRICING AN	ND ARE PUR-		For ribbon: avail, Price
CHASED SEPARATELY. If you have any question	ons about our		order \$25. add'l. IL re
services, please call me at Thank you.	919-855-5792.		RENCO
1109 S. Chapman	St.		P.O. Bo
Greensboro, NC 27			1-800-
Man			
COM	MOD		TT C
COM	MOD	OR	RES
COM	IMOD		
COM	1	CBN	M 64 PC
COM	,	CBN	M 64 PC
	,	CBN	M 64 PC PAIRAI N-REPA
COM	RFACE	CBN REI NOI	M 64 PC PAIRAI N-REPA 7- 401 4
MW-350 PRINTER INTER 2K BUFFER \$49.9 10K BUFFER \$59.9	RFACE 5	CBN REI NOI MW CAI \$29.	A 64 PC PAIRAI N-REPA 7- 401 4 BLE FC 95
MW-350 PRINTER INTEL 2K BUFFER \$49.9 10K BUFFER \$49.9 SPECIAL 8K BUFFER UP \$8.95	RFACE 55 GRADE	CBN REI NOI MW CAI \$29. MW	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 
MW-350 PRINTER INTER 2K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O MW-350 1.9 ROM	RFACE 5 5 GRADE LDER	CBN REI NOI MW CAI \$29. MW	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 
MW-350 PRINTER INTER 2K BUFFER \$49.9 10K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O	RFACE 5 5 GRADE LDER	CBN REI NOI MW CAI \$29. MW	M 64 PC PAIRAI N-REPA 7- 401 4 BLE FC 95 7-232 RS R 64/128
MW-350 PRINTER INTER 2K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O MW-350 1.9 ROM	RFACE 5 5 GRADE LDER	CBN REI NOI MW CAI \$29. MW	M 64 PC PAIRAI N-REPA 7- 401 4 BLE FC 95 7-232 RS R 64/128
MW-350 PRINTER INTER 2K BUFFER \$49.9 10K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C	RFACE 55 GRADE LDER 8 \$169.00	CBN REI NOI MW CAI \$29. MW	M 64 PC PAIRAI N-REPA 7- 401 4 BLE FC 95 7-232 RS R 64/128
MW-350 PRINTER INTER 2K BUFFER \$49.9 10K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C C1541C	RFACE 55 56 57 57 57 57 57 57 57 57 57 57 57 57 57	CBN REI NOI MW CAI \$29. MW	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 232 RS R 64/128 MW-61
MW-350 PRINTER INTER 2K BUFFER \$49.9 10K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C C1541C 1581 3.5 DRIVE	RFACE 55 56 57 57 57 57 57 57 57 57 57 57 57 57 57	CBN REI NOI MW CAI \$29. MW	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 232 RS R 64/128 MW-61
MW-350 PRINTER INTER 2K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C C1541C 1581 3.5 DRIVE 1351 MOUSE C1660 MODEM	8FACE 55 56RADE LDER 8 \$169.00 \$175.00 \$CALL \$35.00 \$35.00	CBN REI NOI MW CAI \$29. MW	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 232 RS R 64/128 MW-61
MW-350 PRINTER INTER 2K BUFFER \$49.9 10K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C C1541C 1581 3.5 DRIVE 1351 MOUSE C1660 MODEM C1670 MODEM	8 5 5 5 5 5 5 5 5 5 5 5 5 5	CBN REH NOI MW CAI \$29. MW FOI	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 232 RS R 64/128 MW-61
MW-350 PRINTER INTER 2K BUFFER \$49.9: 10K BUFFER \$49.9: 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C C1541C 1581 3.5 DRIVE 1351 MOUSE C1660 MODEM C1670 MODEM 1764 RAM 1802C MONITOR	8FACE 55 GRADE LDER 8 \$169.00 \$175.00 \$CALL \$35.00 \$35.00 \$35.00 \$SAVE \$115.00	CBN REH NOI MW CAI \$29. MW FOI	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 232 RS R 64/128 MW-61 16 1 P SOFTW
MW-350 PRINTER INTER 2K BUFFER \$49.9: 10K BUFFER \$49.9: 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$895 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C C1541C 1581 3.5 DRIVE 1351 MOUSE C1660 MODEM C1670 MODEM 1764 RAM 1802C MONITOR C128	8 S S S S S S S S S S S S S	CBN REI NOI MW CAI \$29. MW FOF FOF 64	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 -232 RS R 64/128 MW-61 MW-61 16 1 P SOFTM APIONSH
MW-350 PRINTER INTEL 2K BUFFER \$49.9: 10K BUFFER \$49.9: 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$895 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C C1541C 1581 3.5 DRIVE 1351 MOUSE C1660 MODEM C1670 MODEM 1764 RAM 1802C MONITOR C128 C128D	8FACE 5 5 5 5 5 5 5 5 5 5 5 5 5	CBN REI NOI MW CAI \$29. MW FOI 64 64 CHAAB BASE GHOS	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 232 RS R 64/128 MW-61 16 1 P SOFTM MPIONSH BALL SSTBUSTE
MW-350 PRINTER INTEL 2K BUFFER \$49.9: 10K BUFFER \$49.9: 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.,95 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C C1541C 1581 3.5 DRIVE 1351 MOUSE C1660 MODEM C1670 MODEM C1670 MODEM 1764 RAM 1802C MONITOR C128 C128D 1571 DISK 1700 RAM "128K"	xFACE 55 GRADE LDER \$169.00 \$175.00 \$CALL \$35.00 \$35.00 \$35.00 \$SAVE \$115.00 \$189.95 \$CALL \$435.00 \$215.00 \$105.00	CBN REI NOI MW CAI \$29. MW FOI FOI 64 CHAM BASE ALIEN ROAL	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 -232 RS R 64/128 MW-61 MW-61 16 J P SOFTW MPIONSH BALL STBUSTE DRACE TON. AR
MW-350 PRINTER INTEL 2K BUFFER \$49.9 10K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP 58.95 ROM UPGRADE FOR O MW-350 1.9 ROM 56.50 <b>CBM 64/12</b> C64C C1541C 1581 3.5 DRIVE 1351 MOUSE C1660 MODEM C1670 MODEM 1764 RAM 1802C MONITOR C128 C128D 1571 DISK 1700 RAM "128K" 1750 RAM "512K"	8FACE 5 5 5 5 5 5 5 5 5 5 5 5 5	CBN REH NOI MW CAI \$29. MW FOI 64 CHAN BASE CHAN BASE CHAN BASE CHAN CHAN CAI CHAN CAI CHAN CAI SCOLON COLON COL	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 232 RS R 64/128 MW-61 MW-61 16 1 P SOFTW APIONSH BALL VS STBUSTED PRACE TON, AR OTHERS
MW-350 PRINTER INTER 2K BUFFER \$49.9; 10K BUFFER \$49.9; 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP \$8.95 ROM UPGRADE FOR O MW-350 1.9 ROM \$6.50 CBM 64/12 C64C C1541C 1581 3.5 DRIVE 1351 MOUSE C1660 MODEM C1670 MODEM 1764 RAM 1802C MONITOR C128 C128D 1571 DISK 1700 RAM "128K" 1750 RAM "512K"	8 S S S S S S S S S S S S S	CBN REH NOI MW CAI \$29. MW FOI 64 CHAN BASEA GHOS ROAL	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 232 RS R 64/128 MW-61 MW-61 16 1 P SOFTW APIONSH BALL STBUSTED PRACE TON, AR OTHERS
MW-350 PRINTER INTEL 2K BUFFER \$49.9 10K BUFFER \$49.9 10K BUFFER \$59.9 SPECIAL 8K BUFFER UP 58.95 ROM UPGRADE FOR O MW-350 1.9 ROM 56.50 <b>CBM 64/12</b> C64C C1541C 1581 3.5 DRIVE 1351 MOUSE C1660 MODEM C1670 MODEM 1764 RAM 1802C MONITOR C128 C128D 1571 DISK 1700 RAM "128K" 1750 RAM "512K"	8 S S S S S S S S S S S S S	CBN REH NOI MW CAI \$29. MW FOI 64 CHAN BASEA GHOS ROAL	M 64 PC PAIRAI N-REPA - 401 4 BLE FC 95 232 RS R 64/128 MW-61 MW-61 16 1 P SOFTW APIONSH BALL VS STBUSTED PRACE TON, AR OTHERS

### COLOR RIBBONS & PAPER

Ribbons	Price Each	Black	Color	Heat Transfe
Apple Images	writer I/II	3.75	4.50	6.50
Citizen 120 D	)	5.00	6.00	7.95
Commodore		4.15	4.75	5.75
Commodore	MPS 802	6.00	6.75	-
Commodore	MPS 803	4.95	5.95	7.00
Commodore	MPS 1000	3.95	4.95	6.75
Commodore	MPS 1200	5.00	6.00	7.95
Commodore	1525	6.00	-	-
Okidata 82/9		1.75	2.25	4.50
Okidata 182/		6.50	7.50	-
Panasonic KX	(-P 1090	6.75	7.75	-
Seikosha SP	800/1000	5.25	6.50	7.95
Star SG 10		1.75	2.25	4.50
Star NX10/NI	.10	5.00	6.00	7.95
Yellow, Blu	K-200 Sheet Je, Ivory. 9 1/ BONS (Heat 1	2 × 11	- \$1	0.90/pk
5 1/4" DS/	COLOR D DD Rainbow I	ISKETTES Pack. 10/	) pack — 1	\$12.50
avail. Price & order \$25.00	k paper not lis spec. subject ). Min. S & H add 6.25% to	to change \$3.50. A	dd \$2.2	ice. Min. 5 C.O.D.
P.O. Box	OMPUTER 475, Mante 22-6922 • ( 815-46	no, IL 6	0950 L	J.S.A.
	0.040			
	815-46	8-8081		

50 PRINTER INTERFACE 2K BUFFER \$49.95 10K BUFFER \$59.95 1L &K BUFFER \$59.95 LL &K BUFFER UPGRADE \$8.95 UPGRADE FOR OLDER MW-350 1.9 ROM	CBM 64 POWER SUPPLIES REPAIRABLE \$39.95 NON-REPAIRABLE \$2.9.95 MW- 401 40/80 COLUMN CABLE FOR THE CBM128 \$29.95 MW-232 RS 232 INTERFACE FOR 64/128 \$29.95
\$6.50	MW-611 UNIVERSAL I/O BOARD
CBM 64/128	FOR THE C64/C128
\$169.00 \$175.00 DRIVE \$CALL DUSE \$35.00 40DEM \$35.00 40DEM \$SAVE	16 ANALOG INPUTS 16 DISCRETE OUTPUTS 1 ANALOG OUTPUT 1 EPROM SOCKET PROTOTYPING AREA
AM \$115.00	64 SOFTWARE AMIGA
40NITOR \$189.95 \$CALL \$435.00	CHAMPIONSHIP BASEBALL \$14.95 ALIENS CHORT BUILTERS \$14.95 BRIDGE BOARD CALL CALL EXTRA DRIVER CALL
SK \$215.00	GHOSTBUSTERS \$14.95 EXTRA DRIVES CALL ROAD RACE \$14.95 MONITOR CALL
M "128K" \$105.00 M "512K" \$CALL	ELECTON. ARTS CALL AMIGA 500 CALL ALL OTHERS CALL MONITOR CALL
	Citors
	TRONIX SALES 1-800-288-8088 LL PRICES SUBJECT TO CHANGE

### C-www.commodore.ca



Dept. G6, 25 Eastwood Road, P.O. Box 5964 Asheville, North Carolina 28813 Telephone (704) 274-4646

C-www.commodore.ca



## Classified

#### SOFTWARE

FREE SOFTWARE for C-64, C-128, IBM & CPM send SASE for info (specify computer) to: PUBLIC DOMAIN USERS GROUP PO Box 1442-A2, Orange Park, FL 32067

FREE PUBLIC DOMAIN SOFTWARE - Request free catalog or send \$2 for sample disk and catalog (refundable). C64-128 CALOKE IND., Dept. JK, Box 18477, K.C., MO 64133

More than 200 great ML routines for 64 and 128, ready to add to your own programs, in COMPUTE! Books' MACHINE LANGUAGE ROUTINES FOR THE COMMODORE 64/128. Explanations, uses, commented source code, 585 pages, \$18.95. Check your local bookstore or call (800) 346-6767.

THOUSANDS OF PD PROGRAMS FOR C64/ 128! We have Games, Utilities, Music and much more! For information write: Lightspeed Software, POB 7037, Chesapeake, VA 23323

RENT 64/128 SOFTWARE! 100's of disks. Lowest prices. No deposit or fee. Free catalog. Centsible Software, PO Box 930, St. Joseph, MI 49085 (616) 982-0327

COMMODORE: TRY BEFORE YOU BUY. Best selling games, utilities, educational + classics and new releases. 100's of titles Visa/MC. Free brochure. RENT-A-DISC, Frederick Bldg. #345, Hunt'n, WV 25701 (304) 529-3232

C64/128 FINEST PUBLIC DOMAIN PROGRAMS Pretested quality programs \* Most \$1.50 \* On Disk \* YOU pick the programs that YOU want!!! Free diskfull of programs with first order! For a list + Description send SASE to: JLH Co, Dept. G, Box 67021, Topeka, KS 66667

C64/128 EDUCATIONAL P.D. SOFTWARE By grade level and subject, ie K-3 math, K-3 English, 4-6 math, etc. Catalog \$2 PSL Inc., Box 750 A, Old Bridge, NJ 08857

PUBLIC DOMAIN SOFTWARE FOR C64/128 100 programs only \$10 or 260 programs for \$25 or \$2 for catalog (refundable) MERIT, Box 114 A, Spotswood, NJ 08884

FREE SOFTWARE for C64. Send 1 stamp for Catalog. Games-Educ-Home-Business-Music Utilities, RVH Publications, 4291 Holland Road, #562-G, Virginia Beach, VA 23452

WordStar™\* V2.26 For C-128 \$39.95+\$4.50 p/h. Public Domain Software Copying Co. 33 Gold St., Ste. L3, New York, NY 10038 \*TMMicroPro® 800-221-7372

HAVE YOU EVER WANTED TO CLIMB EVEREST? Lead a team of 12 climbers to the summit in "Everest Assault", a strategic simulation of a Himalayan expedition. C64 or 128 disk \$9.95. High Country Software, 881 E. Thames, Highlands Ranch, CO 80126

SIMONS BASIC, MAGIC DESK, OR GENEOLOGY \$10 ea. Pilot, Constitution I.Q. game or Typing Professor \$8 ea. Big list \$1. Free shipping. Checks only to: Basic Fun Co., 3366 S. 2300 E., S.L.C., UT 84109

M BASICTM\* or FORTRAN 80TM\* \$39.95+\$4.50 p/h. Public Domain Software Copying Co. 33 Gold St., Ste. L3, New York, NY 10038 \*TMMicroSoft® 800-221-7372

SUN DEVIL DISK RENTAL FREE MEMBERSHIP Over 200 titles VISA/MC accepted. Send for free catalog. 2015 East 5th, Ste. #5, Tempe, AZ 85281 (602) 827-9749

IF YOU OWN A C64 YOU SHOULD HAVE THE NEW Programmer's Helper Disk. Indispensable for the practical C64 user. Free Details. CHEMTRON LABS, Box 152, Ronkonkoma, NY 11779

#### HARDWARE

C-64 REPAIR \$39.95 including parts/labor or LOW COST COMMODORE CHIPS: 6510/6526-\$9.95. PLA/82S100-\$12.95, AMIGA CHIPS and many others. HD power supply/C64-\$27.95. Kasara Inc., 33 Murray Hill Dr., Spring Valley, NY 10977, 1-800-248-2983, 914-356-3131.

12 volt C64 Power Supply \$42.95 ppd! Take it anywhere! Also 1541 12 volt mod's! DEVCOM, 336 Joya Loop, White Rock, NM 87544 (505) 672-9742

### COMPUTEI's Gazette Classified is a low-cost way to tell over 225,000 microcomputer owners about your product or service.

Rates: \$25 per line, minimum of four lines. Any or all of the first line set in capital letters at no charge. Add \$15 per line for boldface words, or \$50 for the entire ad set

in boldface (any number of lines.) Inquire about display rates. **Terms:** Prepayment is required. Check, money order, American Express, Visa, or MasterCard is accepted. Make checks payable to COMPUTE! Publications.

- Form: Ads are subject to publisher's approval and must be either typed or legibly printed. One line equals 40 letters and spaces between words. Please underline words to be set in boldface.
- **General Information:** Advertisers using post office box numbers in their ads must supply permanent address and telephone numbers. Orders will not be acknowledged. Ad will appear in next available issue after receipt.

**Closing:** 3rd of the third month preceding cover date (e.g., June issue closes March 3rd). Send order and remittance to: Kathleen Ingram, Classified Manager, COMPUTEI's Gazette, P.O. Box 5406, Greensboro, NC 27403. To place an ad by phone, call Kathleen Ingram at (919) 275-9809.

Notice: COMPUTE! Publications cannot be responsible for offers or claims of advertisers, but will attempt to screen out misleading or questionable copy.



### MISCELLANEOUS

Now Commodore Qualified Repairs! C64:\$45, 1541:\$50, SX64:\$65, C128:\$50, 1571:\$55. Buy Sell Trade New/Used - Fast Service! 30 day writy! Mom & Pop's Computer Shop, RR2, Box 119, Cainsville, MO 64632 (816) 872-6311

C-NET BULLETIN BOARD FOR THE 64 & 128. The most widely used and respected BBS available. 300/1200/2400 BPS, 1000 accounts, 40 message/file transfer SIGS, X-modem, Punter, a FAST ML EDITOR, on-line games, AND MUCH MORE! SOFTECH



COMPUTER SYSTEMS, INC. POST OFFICE BOX 23397 LEXINGTON, KY 40523 (606)/268-BAUD (TECH SUPPORT) (800)/992-SCSI (ORDERS ONLY) Call for our everyday low price on hardware! VISA/MasterCard/COD WELCOME

Authorized Comm Repair! All Models! C64:\$41, +/4:\$37.95. Parts available TOLTECH, 11368 Highway 145, Cortez, CO 81321. (303) 565-7633 VISA, MC, COD or MO.

> Use the handy Reader Service Card in the back of the magazine to receive additional information on our advertisers.

### SAVE OVER 35%



### PLUS 4" SOFTWARE

Turn your home computer into a household finance organizer, learning center, and entertainment center. The Plus 41\* Software Package contains three floppy diskettes compatable with the Commodore® Plus 4" computer. Due to special arrangements with the manufacturer, you save.

Software Package Contains: Fun and Games disk with more than 20 imaginative games for the whole family to enjoy, plus music and graphics selec-. tions. The second disk is Utilities/ Finance. It can help you organize and maintain files, lists and information. The Finance section is designed to help you organize your personal and home finances and investments. The third disk is Education. A fun way for students to learn more about math, language, geography, science, history and more.

Compute the Savings! You don't need a computer to figure out this is an exceptional value...one that everyone in the family will enjoy.





GET MORE PLEASURE FROM THE **BIBLE WITH** 

### LANDMARK

The Computer Reference Bible

Here's what LANDMARK will enable you to do:

- ✓ SEARCH THROUGH THE BIBLE---Find Phrases, words or sentences
- DEVELOP TOPICAL FILES --- Copy from The Bible text and search results then add your own comments and notes.
- COMPILE YOUR PERSONAL BIBLE --- Outline texts in color. Add Notes and comments. Create your own supplementary Study files.
- CREATE FILES ... Then convert them for use with wordprocessors like Paperclip and GEOS.
- ✓ MAKE SUPPLEMENTARY STUDY FILES.... and develop translation variations.

LANDMARK TCRB is only \$164.95

CALL OR WRITE TODAY FOR A FREE BROCHURE, WHICH SHOWS HOW VALUABLE LANDMARK CAN BE IN YOUR BIBLE STUDY

P.A.V.Y. Software P.O. Box 1584 Ballwin, MO 63022 (314) 527-4505 ALSO AVAILABLE AT YOUR LOCAL COMPUTER DEALER!



HD Boxed ..... \$3.21 ea. DS Bulk ...... \$ .99 m WE'VE GOT YOUR RIBBONS! Apple Dot Matrix, Imagewriter #T437 ..... \$3.75 Apple Daisywheel #T479.....\$3.15 Diablo HY Type II #T471 (M/S).....\$2.65 #T473 (Nylon).....\$3.25 Epson L0800 #T517 ..... \$4.15 Epson LQ1000 #T519.....\$5.15

Prices are per ribbon, minimum 12 ribbons © 1988 GENERAL RIBBON CORP.

### — ORDER NOW —

You get more for your money when you choose our high quality, trouble free, guaranteed ribbon!!

MINIMUM ORDER: \$25.00. S&H: Continental USA; \$4.00 first 100 or fewer disks; \$3.00, each succeeding 100 or fewer. \$2.00 Doz/Ribbons. Foreign Orders, APO/FPO re-quire add's hipping charge. MI Residents add 4% tax. COD, add \$4.00; payment with cash, certified check or money order. Prices subject to change.

100



### ADVERTISERS INDEX



* EXTEND	S EQUIP	MENT LIFE	
* Choice a	of Colors	Light Tan or Brown	100
COMPUTERS		PRINTERS	100
C-64/Plus 4/C-64C	8.00	Seikosha SP-1000	13.00
C-128		Comrex 220	
Datassette (C2N)	5.00	C'Itoh 8510	13.00
Amiga 1000		Juki 5510	13.00
(W/Amiga Mon. Stacked)	28.00	Imagewriter	13.00
Keyboard only		Epson JX 80 Epson FX 85/185	13.00
Atari 800XL, 130XE	10.00	Epson FX 85/185	13.00
Atari 520 ST	14.00	Okidata 92	13.00
IBM PC/XT	28.00	Citizen MSP 10	13.00
IBM 5051 Keyboord	8.00	C/DPS 1101	16.00
(Dimensions Require		Gemini 10 & Star 10's	13.00
for IBM Clones)	-	Gemini 15 & Star 15's	
Constant of the Constant of Constant of Constant		Atori 1027	13.00
DISK DRIVES		MONITORS	1
C-1541, C-1571		Atori SC 1224RGB	19 00
Amiga 3½" D/Drv	8.00	C-1702, BMC Color	
Amiga 5¼" D/Drv	9.00	C-1902/Amiga	
Indust GT, MSD SD-1 MSD SD-2	8.00	Amdek 500-700	19.00
		CM-141 (C-1802)	19 00
Enhancer 2000		C-1902A/Magnyx 40	
FSD-1		NEC (State Model)	19 00
Atari 1050	8.00	Magnavox 80 RGB	
PRINTERS		Princeton (State Model	
C-1525/MPS 801	10.00	Thompson CM 365-66	
C-1526/MPS 802	13.00	Taxan (State Model)	
C-MPS/803, C-1520		Sakata SC-100	
Panasonic 1090/91		Zenith (State Model)	
Okidata 120/192		VIDEO RECORDERS 1	
Okimate 10/20		State Make & Moo	
Epson MX/FX /RX80	13.00	Dimensions requir	
Epson LX80/C-1000	13.00	including clock cut	
		OLOR CHOICE - TAN or BROW	
check or money order plus \$1.	.50 per ite	m (\$4.50 max.) shipping and h	andling
Calif. Res. Include 6th + loc	al tax.	APO, 2.00/item, Foreign 3.00/	item
		BE MADE TO YOUR	
		OUR REQUIREMENTS	
FOR OUR LOW			
Crown	Cust	om Covers	197
24	OZI PAI	GE CIRCLE DEPT. A	

LAGUNA HILLS, CA 92653 (714) 472-6362

Cwww.commodore.ca

## TAKE THE LAW INTO YOUR OWN HANDS.

TS 11

What can you do about the drug problem in America? Play *L.A.* 



*Crackdown.* That's what. You're the veteran detective. Your assignment is to

You can bug the thugs and watch the warehouse, both at the same time. ment is to uncover a major ring bent on distributing an evil synthetic drug.

You've got the highest of hightech surveillance vans to work from. You've also got a rookie to work with. We're talking "rookie" rookie. Zero experience.

You'll need to architect his every move. Watch him photograph clues. Plant bugs. Tail suspects. And question everyone from seedy thugs and crooked chemists to slick international heavies.

You'll also need to draw on every strategy brain cell available.

Commodore 64/128, IBM & compatibles, Apple II & compatibles If you're not thinking every minute, you might just spend all evening waiting on a street corner for a suspect who's never coming.

L.A. Crackdown. If you think your nervous system can handle the surprise action and tricky men-

tal clues, there's only one thing you need to do. Move to L.A.

RY **EDYX** 

CAM 1

# PURE-STAT



From Software Simulations comes an incredibly sophisticated, realistic, and complete statistical baseball simulation for zero, one or two players. Game play, manager's functions, graphics, and a complete statistical library establish Pure-Stat Baseball<sup>™</sup> as the ultimate sports simulation program.

Suggested retail price



Optional Team and Create Your Own Team Disks Available. Available for C-64/128, Apple,

IBM-PC

#### **Game Play**

Pure-Stat Baseball's underlying statistical framework simulates the realities of baseball like never before. Within this framework the program considers each player's batting statistics against both LEFT- and RIGHT-handed pitchers, where available, and pitchers stats vs. both LEFT- and RIGHT-handed batters. Every player's fielding and base-running abilities are also considered (an important factor when attempting to steal a base, etc.)

Select the team you'd like to manage, then pick the team you want to play against. Every team from the 1985 season is accurately represented, along with eight classic teams from the past. Determine your starting lineup, designate a starting pitcher, and make player substitutions when necessary. You call the plays, offense and defense. In a one-player game, your computer opponent displays un-canny intelligence in reacting to your managing decisions.

#### Manager's Functions

Built-in manager's functions provide extra versatility. The Trading function gives you the opportunity to create the "what if" team(s) you've always dreamed about. With this function you can have Dwight Gooden playing with Mickey Mantel and Babe Ruth. Or, if you like, you can form your own draft leagues from existing teams and play against your friends for your own pennant and World Series.

The Stat-Keeper function compiles all of the players' statistics for you and calculates Batting Averages and pitchers' ERAs. You can track your own teams' performances and print the season statistics for your club or league.

#### Stadium Disk

An optional Stadium Disk is also available that lets you play in any of the twenty-six Major League stadiums.

#### Statistics

Pure-Stat Baseball<sup>™</sup> can maintain a complete statistical record of each team player's performance. You can print all of your players' year-to-date performance statistics at anytime throughout the season. All player stats and game Box Scores can be displayed on the screen or sent to an external printer for a hardcopy printout. The PRINT TEAM STATS function can be used at the end of the season to determine your Most Valuable Player, or to review your club's performance.

Pure-Stat Baseball<sup>TM</sup> also includes a unique Auto-Play option that lets the computer play a complete game in less than three minutes. A whole series of games can be played unattended, and an entire season of player and team statistics can be compiled over several days with all game stats printed out for your records.

Discover for yourself just how enjoyable a baseball simulation game can be. Pure-Stat Baseball,<sup>TM</sup> the first real baseball game on a computer.

### VISIT US IN CHICAGO AT THE CES, JUNE 4-7, 1988.



959 Main Street, Stratford, CT 06497 203/377-4339

### 🕻 www.commodore.ca