mands, maps, and multiple moves. They can also encode messages on statues to increase the difficulty of the game and teach students about deciphering codes. But don't get the idea that the game is only useful in scholastic situations. It's a package that will provide hours of computer fun at home as well.

In fact, the game's design is perfect for the solitary player or for young players who want to do it themselves. Most popular text games require verb-and-noun commands such as *Climb Tree* in order to move through the game paths. This can be confusing to a young player. Jara-Tava's designers simplified the process by creating a program that analyzes individual words, not two-word sequences. Game players can type in whole sentences because the program searches for keywords and strips out unknown ones. This lets players use more natural language in the game.

Since the game was designed with the junior high player in mind, older, more experienced players may not find it challenging enough. However, it succeeds quite well with the targeted age group.

Maps are important in solving this and any text game. The Jara-Tava manual gives students and first-time text game players a brief lesson on how to keep a map. Teachers can build on this for other map-making exercises for their students. The section gives leisure-time players new ideas for ways to use their maps, too. All can benefit from it.

The game itself offers several choices at every point of play. Since most people learn more by their mistakes than their successes, experiment with the game. Try all the options—build a glider, ride the sub, feed the crocodiles. You can save your game on disk and go back to correct any mistakes you make. You'll learn something new with everything you do. At the conclusion of the game, the screen will display how many steps it took for you to solve the game. You can play it over and over again, trying to beat your previous best score.

But there's more to it than just the game. Like other software packages from Satchel, there's a resource disk included with this one. This disk has a simple database, an easy-to-use word processor, a disk copying program, and the Tree of Knowledge guessing game.

The word processing program is designed for the junior high student who is beginning to do research papers and reports that need to be typed. It's a program that students can continue

Upgrade your Commodore system

Refurbished Hardware

MONITORS	DRIVES	OTHER
1701- $219	1541- $ 99	C64- $99
1702- $239	1541c- $109	64C- $119
1802- $259	1541-II-$139	128- $179
1802D-$279	1571- $169	1280-$329
1902- $299	1581- $179	1670-$49
1902A $319	1001SFD$139	1660-$29
1084- $329	1530 Datasette-$39	
1084S $349	Buscard-II- $59	
BOOKS$10-15	Iterfaces- $35-$75	
SOFT $5-20	512K Ram Expander$179	

Ask for anything, we might have it

J.P. PBM PRODUCTS BY MAIL
N.Sheridan Mall Postal Outlet,Box #68515
DOWNSVIEW, ONTARIO, M3L 1B0
Allow 4-6 weeks for delivery.
Catalogue disk on 64 format $2

New APROTEK modems

64/128/Amiga-2400 Baud- $119
User switch-$44 Convert-A-Com-$45

New CMD accessories

JIFFYDOS 64/128 "SYSTEM"- $85
JIFFYDOS 64sx/128D "SYSTEM"- $95
128 kernal-$65 64 kernal- $49
JIFFYDOS DRIVE ROMS- $45
Ramlink & Ramcard-II(0k) & Battery $369
Ramlink base-$239 Ramcard-II-$169
RL Battery-$29 1Meg-$69 4Meg-$219
NEW DRIVES! FD2000-$319 FD4000-$419
R.T.Clock-+$25 ED disks(10)- $109
Send CDN funds, USA 15%exchange
15 Day warranty on refurbished goods
TAX-Canada+7%GST,Ontario Res.+8%PST
SHIPPING-(-$25=$4,-$100=10%,-$200=8%
-$499=7.5%,$500+=6%), USA=15%

GALACTIC CONQUEST

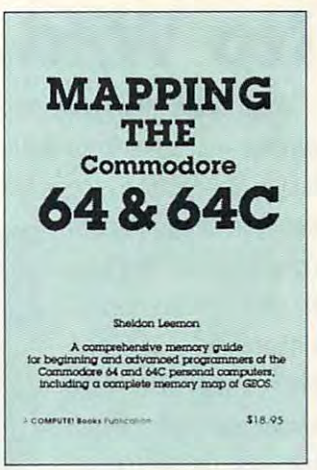
GALACTIC CONQUEST is the best conquest game for the C64! Command hundreds of star ships as you conquer other worlds and extend your empire. Watch out for black holes, photon storms, stars that go nova and General Badguy. 1-6 players. Comes with Mario's Sister Giana, Sanxion, Krazy-Kar and 5 other arcade quality games. Send your return address and $12, which includes shipping, to:

powerdisk, 6813 Lotus Way, West Jordan, UT 84084

Research works.

American Heart Association

STILL AVAILABLE



The classic best-selling Commodore 64 reference guide. *Mapping the Commodore 64 and 64C* is a comprehensive memory guide for beginning and advanced programmers.

To order your copy send $18.95 plus $2.50 for shipping and handling (U.S., $4 to Canada and $6 other) to COMPUTE Books, c/o CCC, 2500 McClellan Ave. Pennsauken, NJ 08109. (Residents of NC, NJ, and NY please add appropriate tax; Canadian orders add 7% Goods and Services Tax.) All orders must be paid in U.S. funds drawn on a U.S. bank. Orders will be shipped via UPS Ground Service. Offer good while supplies last.

www.commodore.ca

COMMODORE 64/128

PUBLIC DOMAIN
SHAREWARE PROGRAMS

CALL OR WRITE FOR FREE DESCRIPTIVE CATALOG OF COMMODORE 64/128 PUBLIC DOMAIN & SHAREWARE SOFTWARE OR SEND $2.00 FOR DESCRIPTIVE CATALOG AND SAMPLE DISK. ADULT SOFTWARE LISTING AVAILABLE TO THOSE OF LEGAL ADULT AGE.

DISKS O'PLENTY INC.
8362 PINES BLVD., SUITE 270
PEMBROKE PINES, FL 33024
(305) 963-7750

Circle Reader Service Number 253

Original Print Shop Graphics
Borders and Fonts.
Western Heritage
Turn your Print Shop & computer into
a real old western printing press.
Make real wild west wanted posters.
Use the wildest western graphics ever.
C64/128 $24.95 + $4.00 S/H USA IBM
S/H Canada $5.00 others $6.00 WA res $1.92
Call now 509-276-6928

Write for Free brochure & tell us what you like.
Be the first to see exciting NEW products.

Horse Feathers Graphics
N. 27310 Short Rd., Deer Park, WA 99006
Request 5.25 or 3.5 for IBM

Circle Reader Service Number 234

TM

AMIGA & COMMODORE
CUSTOM CHIPS
and
REPLACEMENT PARTS

Lowest Prices Around

THE GRAPEVINE GROUP INC.
3 CHESTNUT STREET, SUFFERN, N.Y. 10901
ORDER LINE: 1-800-292-7445 / FAX: (914) 357-6243
INTERNATIONAL ORDER LINE: (914) 357-2424
Write or call for prices

Logo is the property of Commodore Business Machines, Inc.

Circle Reader Service Number 159

No Wild, No Wildlife.

Polar bears, musk-ox, grizzlies, caribou — more animals than you'd find in Yellowstone — can be found on the magnificent coastal plain of the Arctic Refuge in Alaska. Unfortunately, this portion of our last arctic wilderness has caught the eye of the oil industry. Right now Congress is considering proposals that would allow the oil companies to drill there, even though reports indicate there's less than a one-in-five chance oil would be found.

If we allowed drilling in the region, we would jeopardize the culture of the native Alaskans and untold wildlife, including a herd of 180,000 caribou. Our last arctic wilderness would be despoiled.

The Sierra Club works to save wildlife by saving the wilderness. We have a history of victories. And we believe, with your help, this arctic wilderness will remain an invaluable refuge.

SIERRA CLUB CENTENNIAL 1892-1992

For information on how you can help:
Sierra Club, Dept. AR
730 Polk Street
San Francisco, CA 94109
(415) 776-2211

REVIEWS

to use for simple reports as they enter high school. It's also useful for people who have never used word processing programs or have been intimidated by them in the past. Called Tell-a-Tale, the Jara-Tava word processor is a very simple-to-learn program that lets you write and then save your work to a disk. You can also center titles, change cases of words and letters, work with existing files, and print out reports. The program will not do more elaborate functions like footnotes and headers, but it's sufficient for most word processing needs.

The database is useful for storing word lists and simple groups of information. The word lists can then be imported into the word processor to make spelling lists or to use in essays. Satchel has already begun five databases for the user. The names are Pirates, Islands, Volcanoes, Whales, and Sharks. You can build on this basic base by adding additional files. Each file may be up to 29 characters. Files may be deleted; however, the erase function has been restricted so no more than one file can be erased at a time. This safeguard keeps you from accidentally wiping out your entire database.

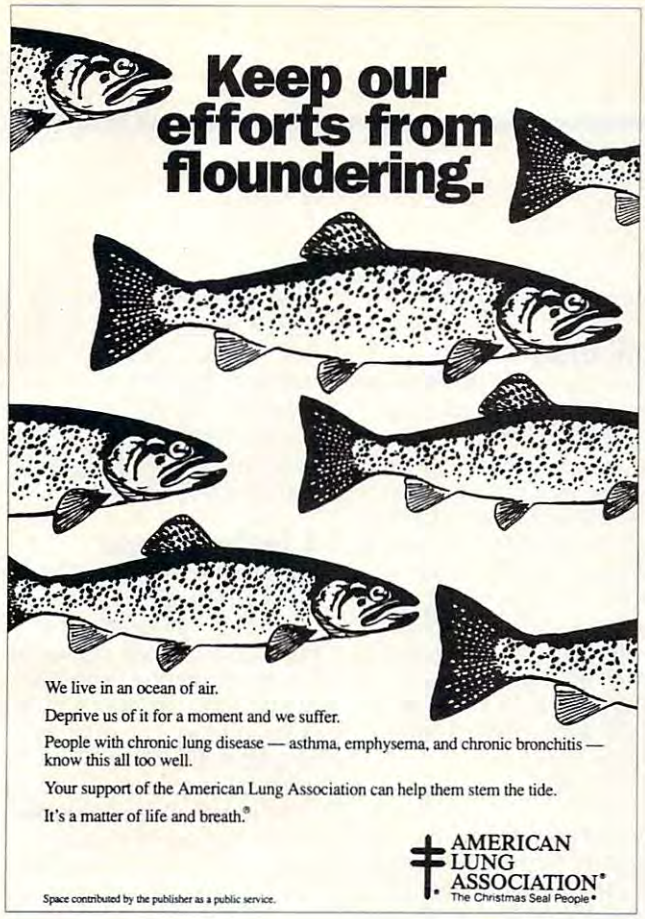
The Tree of Knowledge game pits the player against the computer's ability to guess. There are five trees on the disk that you can select: Animals, Pirates, Whales, Sharks, and Snakes. New information can be added to the existing trees to make a more complex guessing game. These can be saved and replayed again and again.

The resource disk takes the Jara-Tava package far beyond mere game software. In my opinion, this one disk is worth the modest price of the package all by itself.

And there's still more. Take a look at the extensive, spiral-bound instruction manual. Tucked in the center of the manual is a 68-page section that is filled with activities related to the themes found in the Jara-Tava game. There are word games, crossword puzzles, word searches, drawing activities, and group games. There are ideas for crafts, too. You can build your own model volcano, make beanbags shaped like whales, or do any of a variety of activities. All the instructions are included. As an added bonus, Satchel has given permission for teachers to copy any or all of the manual for use in their own classrooms.

All in all, Jara-Tava is an outstanding package that does more than merely entertain players. It stimulates and ed-

www.commodore.ca



NEW! *If you own a CMD device, you NEED the Compression Kit*

THE COMPRESSION KIT

$39.95

A disk & file backup system featuring fast data compression for the commodore 64/128

- Put those old unreliable disk copiers away and move up to the Compression Kit!
- Fully supports ALL of these drives, 1541 1571/1581/RAMLink/RAMDrive/CMD Hard Drive/CMD Floppy Drive!!
- Includes the Filemaster, a file copier that puts all others to shame!!!

LAST CHANCE! Order now for your free bonuses!

- *FREE kit customizing!*
- *FREE 6 monthly Mad Man update letters!*
- *FREE $5.00 in MadBUCKS!*
- *FREE Mad Man newsletter!*
- *FREE shipping on advance orders!*

Please enclose check or money order for $39.95 to:

Mad Man Software
1400 East College Drive
Cheyenne, Wy. 82007

For order info call.....1(800)34-MADMAN
For general info call...1(307)632-1178
For fax inquires.....1(307)637-4883

Be sure to enclose a return address. No P.O.Box numbers please.

Circle Reader Service Number 260

ucates them. That's not a bad return for such a modest investment.

MARTI PAULIN

Satchel Software
Distributed by Free Spirit Software
720 Sycamore St.
Columbus, IN 47201
(812) 376-9964
$39.95

Circle Reader Service Number 415

FLYER

Flyer is a deceptively simple but maddening little arcade game for the 64. The idea is to guide a paper airplane through the rooms of a house, avoiding furniture and other obstacles.

Helping you in your fight against gravity and wind resistance are a number of air vents that provide lift and a series of rollers that give your glider extra speed and maneuverability. As your glider passes over a vent, push up on a joystick to gain altitude. Maintain a light touch, though. If you climb too high, you'll smack into the ceiling and crash.

As your plane glides from left to right across the screen, aim for the diamond-shaped rollers in the middle of the room. When you fly through one, push your stick hard to the right to pick up speed. Control is rather limited with this flyer, but you can lose altitude quickly by pulling back on the stick.

As in any house, furniture is a major obstacle for paper airplanes. Beds, lamps, stereos, and bookcases seem to suck the planes into them. When you crash, you start again in the first room which is filled with nothing but air vents and rollers. Since I crash so frequently, I'm glad that author Cameron Kaiser lets me keep the action moving. To restart, simply press the fire button.

The music playing in the background is a great rendition of "The Blue Danube." It puts the 64's SID chip to good use, but that tune just about drives me crazy! The volume control takes care of that, however.

That melodic but cursed background music is Flyer's only sound effect, but it's really not that bad. I just get annoyed when I can't master a game.

It took me quite some time to develop just the right touch with Flyer, guiding the plane through the house. Getting through the first room filled with rollers and vents was a breeze—pardon the pun—but I thought I'd never make it past that bed in the next room. I'd gain a little altitude, pick up some speed, fly over a vent, pull back to clear the bed, and then swish! Back to the beginning.

Flyer's graphics are pretty simple: Everything's in black, white, and gray. The rooms fill only a narrow portion of the 64's monitor. Each one is only about two inches high. That's why you have to be careful about not flying into the ceiling. I think a little more creativity could have been shown here to expand the playing screen, and the gray rooms could use a bit of color to give the game more visual appeal.

The documentation is clear and concise. It consists of a two-sided sheet of instructions and hints that's well written and easy to understand.

All in all, Flyer is a simple game, and that could be its biggest drawback. If you're the type who gets discouraged easily, you'll probably get bored with Flyer rather quickly. On the other hand, if you're the type who refuses to let a computer beat you, you'll probably get addicted to flying this little electronic paper airplane.

CHRISTIAN FLEMING

Computer Workshops
3612 Birdie Dr.
La Mesa, CA 91941
$9.95

Circle Reader Service Number 416

www.commodore.ca

FEEDBACK

Where to find chips and whether excessive poking can be hazardous to their health.

Character ROM Chip

Can you possibly tell me where I can get the 9011225-01 chip for my 64? I have been looking since 1991 but haven't been able to locate one in my country.

DAVID SANIEL SUAREZ LOPEZ
VERACRUZ, VER.
MEXICO

The chip you want is the Character ROM chip, and you can order it from The Grapevine Group, 3 Chestnut Street, Suffern, New York 10901. The latest price is $9.50 plus $8.50 shipping costs to Mexico. Ask for part number C1225. You can order the chip by mail or by calling (914) 357-2424. Readers in the U.S. can order by calling (800) 292-7445. Ask for the free catalogue of Commodore and Amiga chips, too.

Poked to Death?

Question: After about a year of sustained use, the SID (Sound Interface Device) chip in my Commodore 64 has stopped functioning. Can this be caused by misusing the chip? For instance, is there such a thing as excessive poking?

DONALD DRAPER
RICHMOND, VA

The SID chip is designed to be poked. Such activity is considered normal use and will not damage it. In general, nothing any program does will ever damage any of a computer's internal hardware. Like all other electronic components, SID chips occasionally fail. The only cure is to replace the chip. Replacing the chip can be either simple or difficult, depending on whether the one in your computer is socketed or soldered. The SID chip, which has the numerical designation 6581, is located near the center of the circuit board in both the 64 and 128.

Math Errors

When using my 64 for math homework, I keep running into some problems. If I raise a variable containing a negative number to a fractional exponent, the computer returns an *ILLEGAL QUANTITY ERROR*. It doesn't happen with constants. For example, if I have the computer print –8 to the power of .5, it works fine. But if I make X equal –8 and then try to print X to the power of .5, it doesn't. Why is this?

TARQ WILLIAMS
LAKE GENEVA, WI

*Computers follow a rule called order of operations or operator precedence, which tells them which functions or operations to perform before others. For example, PRINT 3 + 2 * 7 will give you a result of 17, not 35, because multiplication has a higher precedence than addition. The result of 2 * 7 is calculated before the 3 is added in.*

The up-arrow (power) function has a higher precedence than the negation (–) function, as you'll see if you PRINT –4 ↑ 2. The 64 prints –16 as the answer. But squaring –4 should result in a positive 16, not a negative one. What happens is that the result of 4 to the power of 2 is calculated; then the minus sign is appended.

Although PRINT –8 ↑ .5 seems to work, you'll get an error message if you try PRINT (–8) ↑ .5. So it's not a matter of variables versus constants; it's strictly a problem with raising a negative number to a fractional power.

Raising to the .5 power is the same as finding the square root of a number. The square root of –8 would have to be a number that multiplied by itself yielded –8. But whenever you square a real number, the result is positive, so there's no such thing as a square root of a negative number, at least among the real numbers. Mathematicians use imaginary numbers to handle square roots of negative numbers, but your 64 isn't built to handle imaginary numbers.

A Teacher's Thanks

I would like to thank Gazette for providing me with a source of programs that I have incorporated into an integrated computer-use package for the teachers of my school board. Our educational system, like many, is facing financial cutbacks, with little or no money available for computers or software. Your programs filled that need. We have numerous 64s in our system, and now we are able to make much greater use of them.

I selected programs from Gazette that provided word processing, spreadsheet, database, graphics, and keyboarding skills. Other programs supplied language arts, programming suggestions, science, social studies, and telecommunications resources.

With the current wave of upgrading, many educators felt that the 64 had nothing to offer. In fact, it has much to offer if it is utilized to the fullest possible extent. The computers are already in the system, and the Gazette and well-written public domain programs offer a viable way to provide for integrated programming for our students. Thank you.

CAROL A. NAUSS
CHESTER, NS
CANADA

Send your questions and comments to Gazette Feedback, COMPUTE Publications, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. ❐

www.commodore.ca

8 BIT
PO BOX 542
LINDENHURST NY 11757-0542

WE NOW CARRY
Hard Drives & 3.5 inch Drives AT LOWER PRICES THAN THE MANUFACTURERS!
1.6 Megabyte 3.5"..... $ 215.00
100 Megabyte HDD. $ 750.00
Hardware Items Require Additional Shipping Fees ! Call Before Ordering!

MINDSCAPE POWERPLAYERS JOYSTICK

WOW ONLY *$ 5.00*

6 PAC SETS
PD & Shareware Sets
A BIG HIT AT ONLY $ 5.00
1: ASST: *StarTrek+*
3: EDUCATIONAL
4: GAMES: *Tetris +*
5: DEMOS/MOVIES
6: PRODUCTIVITY
7: GEOS CLIP ART
8: RECIPES SET
9: UTILITIES SET
A: CHRISTMAS
B: ASST: *SuperMario*
C: MUSIC SET
D: ART GALLERY
E: GEOS FILES
F: F. G. M.
G: GAMES: *Mario 3 +*
H: HACKER PAC
I: PSA CLIPART
J: Telecommunications

KEYBOARD SEELS
DON'T LET YOUR COMPUTER SUFFER A MELTDOWN
Protects your keyboard even while you type !
C64 or Vic 20.....#VS64
Comm. 64C.....#VS64C
Comm. 128.....#VS128
Save your Commodore !
ONLY $ 19.00

QUICK GUNNE
Joystick / Flyingstick
4 seperate fire buttons to assure your comfort! (Trigger, Thumb, and both left & right base.) Hand Contoured Stick And 4 suction cups on the bottom of the base. for complete control !
For serious gamers!
ONLY $ 15.00

COMMERCIAL SOFTWARE CLOSEOUTS
Original Packages ***ONLY $ 5.00 each !***
PUFFY'S SAGA, PARADROID, BLOCKOUT, DIE HARD CLUBHOUSE SPORTS
WE ARE ALWAYS ADDING NEW TITLES TO OUR COMMERCIAL SOFTWARE STOCK ! CALL TO SEE WHAT'S NEW THIS MONTH !

SIX PAC # 2 $ 10.00
ADULT IMAGES
You must be over 18 To receive this 6PAC ! Signature Required !
Call to request a more descriptive 6 PAC list !

SHIPPING $2.00 For First Item + $1.00 each additional item
***U.S. Funds Only! *SORRY NO C.O.D.'s OR CREDIT CARD ORDERS**
FOR A FREE COPY OF OUR CATALOG, CALL:
(516)-957-1110 MONDAY - FRIDAY 10 am to 5 pm EST

Circle Reader Service Number 162

New

Big Blue Reader 128/64 - 4.1

Transfers word processing, text, ASCII, and binary files between C64/128 and IBM PC compatible 360K 5.25" and 720K 3.5" disks.
New Version 4.1 features: Transfers ASCII, PET ASCII and Screen Code files including: WordWriter, PocketWriter, SpeedScript, PaperClip, WriteStuff, GEOS, EasyScript, Fleet System and most others.
Supports drives # 8-30. New Backup (C128) and Format (1571/1581) programs. Reads MS-DOS sub-directories, uses joystick, and more.
Includes C128 & C64 programs. Requires 1571 or 1581 Disk Drive.

Big Blue Reader 128/64 - 4.1 only $44.95
Version 4.1 upgrade, send original BBR disk plus $18.

Bible Search 3.2

1. The entire Old & New Testament text on 4-1541/71 disks.
2. An Exhaustive English Concordance on 2-1541/71 disks. Indexes every word in the entire Bible; 700,000+ references.
3. Incredible five (5) second look-up time, per/word, per/disk.
4. Instant, automatic spell checking of more than 12,800 words.
5. Wildcard and boolean AND, OR & NOT search options.
6. Search the entire Bible in 5 seconds with 1581 or HD (v 3.52).
7. Money back guaranteed!

KJV $49.95 | NIV $59.95 | KJV & NIV $90
Includes: C64 & C128 programs; screen, printer and disk output; users guide, disk case. Available on 7-1541/71, or 4-1581 disks.
☞ Any questions? Call or write for more information.
Also available! Amiga, Bible Search

Order by check, money order, or COD. US funds only.
☞ FREE Bookrate shipping in US. *No Credit Card orders.*
Canada & Mexico add $4 S/H, Overseas add $10 S/H ($5 BBR)
SOGWAP Software ☎ (219)724-3900
115 Bellmont Road; Decatur, Indiana 46733

SAVE TIME AND MONEY

Yes, save time and money! Subscribe to the *Gazette Disk* and get all the exciting, fun-filled Gazette programs for your Commodore 64 or 128—already on disk!

Subscribe today, and month after month you'll get all the latest, most challenging, and fascinating programs published in the corresponding issue of *COMPUTE.*

New on the *Gazette Disk!* In addition to the programs that appear in the magazine, you'll also get outstanding bonus programs. These programs, which are often too large to offer as type-ins, are available only on disk—they appear nowhere else.

As another *Gazette Disk* extra, check out "Gazette Gallery," where each month we present the very best in original 64 and 128 artwork.

So don't waste another moment. Subscribe today to *COMPUTE's Gazette Disk* and get 12 issues for only $49.95. You save almost 60% off the single-issue price. Clip or photocopy and mail completed coupon today.

Individual issues of the disk are available for $9.95 (plus $2.00 shipping and handling) by writing to COMPUTE, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408.

YES! Start my one-year subscription to *COMPUTE's Gazette Disk* right away for only $49.95.*

☐ Payment enclosed (check or money order)
☐ Charge ☐ MasterCard ☐ Visa

Acct. No. _____ Exp. Date _____
Signature _____ (Required)
Name _____
Address _____
City _____
State/Province _____ ZIP/Postal Code _____

Mail to COMPUTE's Gazette Disk, P.O. Box 3250, Harlan, IA 51593-2430
* Residents of NC and NY, please add appropriate sales tax for your area. Canadian orders, add 7% goods and services tax.

www.commodore.ca

PD PICKS

Steve Vander Ark

A NEW COLUMN, VERSION 2

Explore the exciting world of public domain and shareware programming in this new Gazette column.

Yep, version 2. This is the second time I've written this column. If you feel as though you've just walked into the middle of a movie, let me explain. This is a new column that deals with public domain programs and shareware. I wrote the first version a few weeks ago, but when I reread the introduction, I just shook my head. It was boring.

Oh, it was OK. I might use it as part of an article somewhere along the line. It defines shareware and a few other related terms, chatters about how nice it is to be writing this new column, and warns everyone—in no uncertain terms—to pay their shareware fees. It ends with a flourish about how shareware is on the cutting edge of Commodore programming today.

I'm talking bold, new, and exciting programs that push the limits of Commodore's 8-bit wonder! I've got to be spitting a little flame. I don't want you to read this column once and then next time decide to save it until you've read the part again about how to type in the programs. I want you to turn to this column *first!*

I'll be covering programs that I hope will provide some of the old spark that made the 64 so exciting—and made its owners so gung-ho, so (let's face it) nuts about their machines. That spark is what keeps me coming back to this great little machine.

I've been rummaging in some of the stranger corners of QuantumLink's libraries, tracking down programs to throw at you. Feel free to download them. I've provided filenames and uploader names for easy downloading. If you're not on Q-Link and you can't find these files on local bulletin boards or at your user group, you'll find the programs mentioned here on the Gazette Disk. Now, let's take a look at this month's programs—a couple of fast and furious, arcade-style shoot-'em-ups.

Astra

By Chris Batchelor
QuantumLink filename: ASTRA3.SDA, uploaded by Chris-EMM.

OK, for you 128 users out there, here's an 80-column program that will cost you hours of sleep. The way I see it, Chris Batchelor, the sadist who created this arcade torture, must lie awake nights himself, chortling like the Wicked Witch of the West as he imagines poor joystick jockeys like me with crippled thumbs and glazed eyes, trying desperately to fight off these endless waves of death. After playing this fast-paced shoot-'em-up, I *know* I need a continuous fire button on my joystick, anything to save my left hand from being twisted into a permanent claw.

Astra starts innocently enough. It seems so easy to pour merciless fire into those little bugs that swoop into those little chutes. But then there are more and more of them. Before long, bugs are hurtling down in droves, piling up like spilled gummy bears. There just aren't enough blasts per second to clear them all out. Before long, they get you. And then you play it again, and again, and again.

You'll love this game, especially if you get a rush out of annihilating all those little bugs like I do. It works its horrors in 80 columns, which means that you won't be able to complain at all about the graphics. As far as speed goes, well, just try to keep up with it. I can't honestly say how great it is a higher levels (I never survive that long).

This is the third incarnation of this game. The fine-tuning has made it a real corker. So flex that thumb a bit, slam back Mountain Dews until your eyes bug out, and face the endless hordes in Astra.

Odin

By Frank Lindsey
QuantumLink filename: ODIN, uploaded by Mondain.

OK, all of you 64 users who've been reading this and growling nasty things about those 128 users and their fancy graphics, here's a game that will make a red-eyed, thumb-happy zombie out of you, too.

Odin is one of those games that put you in a spaceship at the bottom of the screen, armed with an endless supply of energy bolts or whatever. As usual, the details are unimportant. What is important is that all those crazed blobs plummeting toward you will turn your spaceship into pixel dust if you don't keep pounding that fire button. There's no continual fire here (the one major flaw in an otherwise outstanding game), so plan on some actual finger or thumb pain as you try to clear a path in the weaving mess.

Odin does Astra one better by hurling a nifty variety of nasties down the screen. They're all animated with blinking lights and flapping wings, making them nice to look at for that split second before you obliterate them or vice versa. Once you get past the first level, they fire back, lobbing little bombs your way.

Once again, I have to admit that I can't vouch for the higher levels. I count myself lucky to live past level 2.

Launch yourself into either of these games. Have fun and let me know how you make out! ❐

www.commodore.ca

NEW LOWER PRICES

RAMLink	
RAMLink with 0 MB RAMCard	$199.95
RAMLink with 1 MB RAMCard	$229.95
RAMLink with 4 MB RAMCard	$329.95
Real-Time-Clock for RAMCard (Optional)	$20.00
RAMLink Battery Back-up (Optional)	$24.95
1 MB & 4 MB SIMM Modules	CALL
Parallel Cable (RAMLink to HD)	$14.95
RAMDrive	
RAMDrive 1 MB	$249.95
RAMDrive 2 MB	$299.95
HD-Series Hard Disk Drives	
HD-40, 40 MB SCSI Hard Drive	$450.00
HD-85, 85 MB SCSI Hard Drive	$525.00
HD-100, 100 MB SCSI Hard Drive	$595.00
HD-200, 200 MB SCSI Hard Drive	$695.00
FD-Series 3.5", Floppy Disk Drives	
FD-2000 (800K and 1.6 MB Formats)	$179.95
FD-4000 (800K, 1.6 MB and 3.2 MB Formats)	$249.95
FD Real-Time-Clock Option	$20.00
Box of 10, High Density Disks (1.6MB)	$14.95
Box of 10, Enhanced Density Disks (3.2 MB)	$60.00
Single ED-Disk. (3.2 MB)	$8.00
JiffyDOS (Specify Computer / drive model & serial number)	
C64-System (Computer & drive)	$49.95
SX-64 System (Computer & Internal 1541)	$49.95
C-128 System (Computer & drive)	$59.95
128-D System (Computer & Internal 1571)	$59.95
Additional Drive ROM's	$24.95
Software Products	
geoMakeBoot (Makes bootable copies of GEOS 64/128)	$12.95
gateWay/64 or 128 (GEOS Desktop Replacement)	$29.95
geoCanvas (Alternative GEOS Paint Program)	$29.95
Collette Utilities (Handy GEOS Utilities)	$19.95
Perfect Print LQ for GEOS (Font Coll.1&2, 49 Fonts)	$49.95
Font Collection 3 (17 Fonts and 5 Borders)	$19.95
Border Font Collection 1 (24 Border Fonts)	$19.95
JiffyMON - ML Monitor for JiffyDOS/64	$19.95
Miscellaneous CMD Products	
SwiftLink, RS-232 Interface (300 to 38,400 baud)	$39.95
SwiftLink Cable (DB9 to DB25)	$9.95
SID Symphony Stereo Cartridge w/ Player	$39.95

All prices and specifications subject to change without notice

High Performance SCSI Hard Drive for the C64 & C128

HD Series Hard Drives are available in capacities up to 200 MB, are fully partitionable, and can emulate 1541, 1571, & 1581 disks while Native partitions utilize MSDOS-style subdirectories. HD's connect easily to the serial bus or parallel via RAMLink. Includes built-in JiffyDOS, SWAP feature and Real-Time-Clock. HD Series Drives offer superior compatibility with most commercial software including BBS, Productivity and GEOS. And with new pricing, HD Series drives offer the lowest cost / MB of any C64/128 storage device.

Power Backed Expandable RAM Disk and Interface

The fastest possible form of storage, RAMLink provides instant access to files and retains data while your computer is turned off. Easy to use and expandable up to 16 MB, RAMLink utilizes the same powerful operating system found in the HD. RAMLink also offers built-in JiffyDOS, SWAP feature, reset button, enable/disable switch, pass-thru port and RAM port for REU/GEORAM use. Ideal for those requiring maximum speed, expandability and compatibility with all types of software and hardware including GEOS.

High Capacity 1.6 and 3.2 MB 3.5" Floppy Disk Drives

The FD-2000 and FD-4000 disk drives utilize today's latest 3.5 inch technology. FD-2000's support 800K (1581 style) and 1.6 MB (High Density) formats, while the FD-4000's offer support for the 3.2 MB (Enhanced Density) format as well. Fast and reliable, they support 1541, 1571 and 1581 style partitions, Native Mode partitioning and can actually read and write 1581 disks. FD drives feature built-in JiffyDOS, SWAP button and optional RTC. High capacity, speed and compatibility make the FD the right drive for every application.

Speeds up disk access by as much as 1500% while maintaining 100% compatibility with commercial software

- Speeds up Loading, Saveing, Verifying, Formatting and Reading / Writing of PRG, SEQ, USR and REL files
- Built-in DOS Wedge plus 17 additional features including file copier, text dump, printer toggle, and redefinable function keys
- ROM upgrade installs easily into most computers and disk drives. Supports C-64, 64C, SX-64, C-128, 128-D, 1541, 1541C, 1541-II, 1571, 1581 and more. 128 system supports both 64 and 128 modes and upgraded Kernal routines.

Shipping and Handling Charges:
Hard Drives: UPS $15.00; 2nd-day $25.00; AK, HI, Canada $35.00
RAMLink, RAMDrive, FD: UPS $9.00; 2nd-day $16.00; AK, HI, Canada $20.00
GW, PPLQ, JDOS, SID, SL: UPS $5.50, 2 day $10.00; AK, HI, Canada $15.00
GBoot, Col. Util, GCan: 1st Class Mail $2.00; Canada $5.00
All Foreign Orders: Call

Payment: MC, Visa, Money Order or Bank Check. COD shipments add $5.00 COD's may require advanced deposit. Personal checks are held for 3 wks.

Creative Micro Designs, Inc.
P.O. Box 646, E. Longmeadow, MA 01028

Orders: (800) 638-3263
Info: (413) 525-0023
BBS: (413) 525-0148

Office Hours: 9 AM to 5 PM, EST, Monday thru Friday.

Circle Reader Service Number 139

COMPUTE's *SpeedScript* Disk

ONLY $11.95

A powerful word processing package for Commodore 64 and 128 owners

A Great Deal for Commodore Users!

- *SpeedScript* for the 64
- *SpeedScript 128*—80-column version
- Spelling checkers
- Mail merge
- Date-and-time stamp
- 80-column preview for the 64
- Turbo save and load
- Plus more than a dozen other *SpeedScript* support utilities all on one disk (including full documentation)

YES! Send me _____ copies of COMPUTE's *SpeedScript* Disk.

I've enclosed $11.95 plus $2.00 postage and handling. (Outside U.S. and Canada add $1.00 for surface mail or $3.00 for airmail.)

ORDER NOW!

_____ Amount
_____ Sales Tax*
_____ Total

Name _____

Address _____

City _____ State _____ ZIP _____

Mail personal check or money order to

Commodore *SpeedScript* Disk
324 W. Wendover Ave., Ste. 200
Greensboro, NC 27408

Residents of North Carolina and New York, add appropriate tax for your area. Canadian orders, add 7% good and services tax.

Please allow 4–6 weeks for delivery. Program available only on 5¼-inch disks.

www.commodore.ca

MACHINE LANGUAGE

Jim Butterfield

FILE END CHECK

BASIC's INPUT# statement has limitations that can cause a program crash during a file read. The problem surfaces when two conditions are met. First, the program wants to read the whole file, using INPUT# to get the data and test the system variable ST (status) to detect the end of the file. The second condition occurs when the file ends with more than one Return character.

A quick pair of programs will show this effect. First, write a file as follows.

In order to read a file successfully, you have to know what's at its end.

```
100 OPEN 1,8,2,"0:BADFILE,S,W"
110 PRINT#1,"JINGLE"
120 PRINT#1,"JANGLE"
130 PRINT#1
140 CLOSE 1
```

Line 130 creates the problem by writing a blank line at the end of the file. In other words, there will be more than one Return character at the end. Now for the doomed reading program.

```
100 OPEN 1,8,2,"0:BADFILE"
110 INPUT#1,A$
120 PRINT A$
130 IF ST=0 GOTO 110
140 CLOSE 1
```

The program will read "regular" files without trouble. But on our bad file, the program will read *JINGLE* and *JANGLE* and then lock up.

Why does this happen? It's a conflict of two system rules. Rule 1: The INPUT# command always reads to the next Return character. If it finds a blank line, it immediately goes back for another read. Rule 2: If the file handler is asked to deliver data beyond the end of the file, it will supply a Return character. Combine these rules, and you'll see that if the last line of a file is blank, the INPUT# statement will continue to read blank lines—and it'll do so forever!

Our first project is to write a program that will scan a file quickly and find out what's at the end—a single Return, the normal condition; no Return, unusual but not fatal; or more than one Return, possibly a crash. So our program detects the danger. Another time, we'll add to the program so that it will fix the problem.

The BASIC part of our program will ask for the name of the data file and open it as logical file number 1. Then it calls the following machine language program at address 8704, hexadecimal 2200.

First, connect the input stream to logical file 1.

```
2200 LDX #$01
     JSR $FFC6
```

Our plan is to store the last character of the file at address $2101 and the previous character in $2100. As a precaution, we'll prepare to store 0 in this last address.

```
     LDA #$00
```

As we go around our loop, the A register will contain the last character received from the file. Store this, and read another character.

```
2207 STA $2100
```

To read a character from a file, we may use a subroutine call to either $FFCF (INPUT) or $FFE4 (GET). The result is the same either way.

```
     JSR $FFE4
```

The received character is in A. We may test for end-of-file by looking at our system status variable ST. That variable is located at hex address 90. In Commodore machines prior to the VIC-20, it's located at address $96.

```
     LDY $90
```

If ST has a value of 0, the file read is proceeding normally, and we have not reached the file's end. In this instance, BEQ takes us back around the loop.

```
     BEQ $2207
```

If we didn't take the BEQ branch, we may assume that we're at the end of the file. The final character, still in the A register, is stored at $2101.

```
     STA $2101
```

The last instruction in our program jumps to $FFCC, CLRCHN, which restores the input stream to its default path (screen/keyboard).

```
     JMP $FFCC
```

It's a small program, a fast program—and it will leave the last two bytes of the file in addresses $2100 and $2101 and 8448 and 8449 respectively. BASIC should now close the file and test these bytes. Here's the program in the format of a BASIC loader.

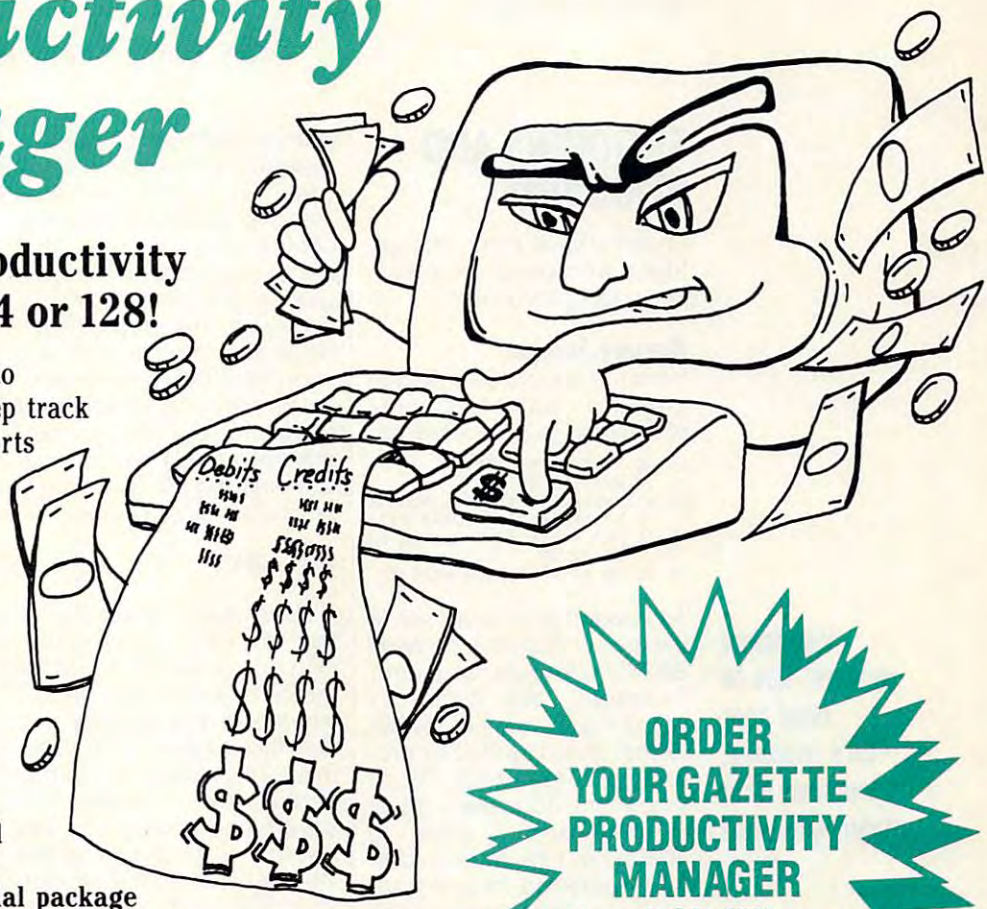
```
CJ 100 PRINT"FILE END CHECKER
       {SPACE}- JIM BUTTERFIEL
       D"
XR 110 DATA 162,1,32,198,255,1
       69,0,141,0,33,32,228,25
       5
GS 120 DATA 164,144,240,246,14
       1,1,33,76,204,255
PC 160 DATA 72,32,204,255,162,
       2,32,201,255,174,0,33
JF 200 FOR J=8704 TO 8726
EJ 210 READ X:T=T+X
BP 220 POKE J,X
AE 230 NEXT J
XS 240 IF T<>3010 THEN STOP
XF 300 INPUT "NAME OF FILE";F$
JQ 310 OPEN 15,8,15
FJ 320 OPEN 1,8,2,F$
GB 330 INPUT#15,E,E$:IF E<>0 T
       HEN PRINT E$:STOP
QH 340 SYS 8704
SB 350 CLOSE 1
SD 360 CLOSE 15
GC 370 IF PEEK(8449)<>13 THEN
       {SPACE}PRINT"FILE DOES
       {SPACE}NOT END WITH <RE
       TURN>.": END
SE 380 IF PEEK(8448)<>13 THEN
       {SPACE}PRINT"FILE ENDS
       {SPACE}WITH A SINGLE <R
       ETURN>.": END
XS 390 PRINT"FILE ENDS WITH MU
       LTIPLE <RETURN> CHARS."
```


www.commodore.ca

The Gazette Productivity Manager

Harness the productivity power of your 64 or 128!

Turn your Commodore into a powerful workhorse, keep track of finances, generate reports in a snap, manage your money in minutes—all with the *Gazette Productivity Manager!* Look at all your 64/128 *Productivity Manager* disk contains.



GemCalc 64 & 128—A complete, powerful, user-friendly spreadsheet with **all the features you'd expect in an expensive commercial package** (separate 64 and 128 versions are included). Most commands can be performed with a *single* keypress!

Memo Card—Unleashes the power of a full-blown database without the fuss! **Nothing's easier**—it's a truly simple computerized address file. Just type in your data on any one of the index cards. Need to edit? Just use the standard Commodore editing keys. Finished? Just save the data to floppy. What could be easier?

Financial Planner—Answers all of those questions concerning interest, investments, and money management that financial analysts charge big bucks for! You can plan for your children's education and know exactly how much it will cost and how much you need to save every month to reach your goal. Or, decide whether to buy or lease a new car. Use the compound interest and savings function to arrive at accurate estimates of how your money will work for you. **Compute the answer at the click of a key!**

DON'T MISS OUT ON THIS POWERFUL WORKHORSE!

ORDER YOUR GAZETTE PRODUCTIVITY MANAGER TODAY!

(MasterCard and Visa accepted on orders with subtotal over $20).

☐ **YES! Please send me** ___ *Productivity Manager* **disk(s) ($14.95 each).**

_____ **Subtotal**

_____ **Sales Tax (Residents of NC and NY please add appropriate sales tax for your area. Canadian orders, add 7% goods and services tax.)**

_____ **Shipping and Handling ($2.00 U.S. and Canada, $3.00 surface mail, $5.00 airmail per disk.)**

_____ **Total Enclosed**

__ **Check or Money Order** __ **MasterCard** __ **VISA**

Credit Card No. _____

Signature _____ (Required)

Daytime Telephone No. _____

Name _____

Address _____

City _____

State/Province _____ ZIP/Postal Code _____

Send your order to Gazette Productivity Manager, 324 W. Wendover Ave., Ste. 200, Greensboro, NC 27408.

www.commodore.ca

PROGRAMMER'S PAGE

Randy Thompson

SNOOPERS AND REMOVERS

Readers have come through again with some great tips. Let's get right to them.

Use these readers' tips to read your 64's memory, remove REM statements, and more.

Memory Snooper

Here's a simple BASIC program that searches an area of memory for text messages.

```
SD 10 S=41118:E=41865
PF 20 FOR I=S TO E
HS 30 C=PEEK(I):IF C>31 AND C<
      123 THEN PRINT CHR$(C);
EX 40 GET K$:IF K$=CHR$(13) TH
      EN PRINT
MP 50 IF K$<>"<" THEN NEXT I
```

As listed, this program scans the area of ROM that contains BASIC keywords and error messages. You might try searching the area of memory that contains BASIC programs: 2049–40959. To do this, in line 10 make S equal to 2049 and E equal to 40959. I find this program useful in searching for and reading E-mail that I have neglected to read completely before logging off QuantumLink.

You can make the text easier to read as it prints to the screen by pressing Return. This forces the program to print a carriage return. To stop the program before it finishes searching memory, press the back arrow key.

BRIAN KISSINGER
EVANSVILLE, IN

Function Keys 128

When programming in BASIC on the 128, the GET statement doesn't return the Commodore 64 character codes for function keys (133–140) unless you execute a POKE 828,183 first, thus disabling the keys' preprogrammed definitions. (POKE 828,173 returns the 128's function keys to normal.)

Rather than disabling the 128's function key definitions, you can use them to simulate a string of keypresses that your program recognizes. For example, I recently wrote a game that lets me press G at any time to access a game-control menu. From that menu, I can press L to load a game or S to save a game, after which the program displays the prompt *Are you sure (Y/N)?* before continuing. To simplify the selection of the game-save option, I programmed the f1 key to simulate pressing the G, S, and Y keys with this command:

```
KEY1,"GSY"
```

Now when I press the f1 key while the game is running, the character codes for the G, S, and Y keys are put into the keyboard buffer and read by the game's GET statement. This calls up the game-control menu, selects the save-game option, and answers Y in response to the *Are you sure (Y/N)?* prompt. This gives me three keypresses in one!

RICHARD R. HARVEL
FORT WORTH, TX

REMover

The following program removes all REM statements from 64 BASIC programs. To use this handy utility, load and run the program shown below. Then load the BASIC program containing the unwanted REM statements, and type *SYS 49152*.

```
SH 100 REMOVER
AJ 110 FOR I=49152 TO 49392:RE
       AD D:POKE I,D:C=C+D:NEX
       T I
JF 120 IF C<>33534 THEN PRINT
       {SPACE}"ERROR IN DATA S
       TATEMENTS"
CA 130 DATA 24,165,43,105,2,13
       3,253,165,44,105,0,133
JP 140 DATA 254,32,204,192,176
       ,60,24,165,253,105,2
MK 150 DATA 133,253,165,254,10
       5,0,133,254,160,0,140,2
       40,192,177,253
XK 160 DATA 240,8,201,143,240,
       37,200,76,33,192
FX 170 DATA 152,24,105,3,32,21
       9,192,32,204,192,176,18
GS 180 DATA 24,165,253,105,2,1
       33,253,165,254,105,0,13
       3
GD 190 DATA 254,160,0,76,33,19
       2,76,51,165,192,0,240
PP 200 DATA 1,136,152,32,219,1
       92,160,0,177,253,240,4
KK 210 DATA 200,76,92,192,152,
       141,239,192,173,240,192
       ,201
BK 220 DATA 0,208,22,24,173,23
       9,192,105,5,141,239,192
GB 230 DATA 56,165,253,233,5,1
       33,253,165,254,233,0
PX 240 DATA 133,254,24,165,253
       ,72,109,239,192,133,251
       ,165,254
GH 250 DATA 72,105,0,133,252,1
       60,0,177,251,145,253,32
PA 260 DATA 191,192,32,204,192
       ,176,3,76,151,192,104
AH 270 DATA 133,254,104,133,25
       3,56,165,45,237,239,192
       ,133,45,165,46
GR 280 DATA 233,0,133,46,160,0
       ,76,48,192,230
BB 290 DATA 251,208,2,230,252,
       230,253,208,2,230,254,9
       6
MQ 300 DATA 24,165,254,197,46,
       208,7,165,253,197,45
DC 310 DATA 208,1,56,96,141,23
       9,192,24,165,253,109,23
       9,192
GF 320 DATA 133,253,165,254,10
       5,0,133,254,096,0,0,0,0
```

Besides making a program smaller, removing REM statements can make a program run faster because the computer no longer has to skip over those descriptive but nonfunctional lines of code.

At first glance, line 100 may appear to be missing a REM statement before the program's name. Of course, when the program runs, BASIC will interpret the first three letters of the word as REM and pass on to the next line. This means you can test the program on itself.

Be careful not to run this utility on programs that have GOTO or GOSUB commands that jump to lines that begin with a remark. Those lines will also be deleted.

VINCE TAGLE
GRANADA HILLS, CA

"Programmer's Page" is interested in your programming tips and tricks. Send all submissions to Programmer's Page, COMPUTE's Gazette, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. We pay $25–$50 for each tip we use. ❐

www.commodore.ca

EASY TO USE!

Gazette Index

Everything's included!
Features, games, reviews, education/home applications, programming, bugswatter, feedback, and columns!

A superb interface includes pull-down menus, help screens, and keyboard, joystick, or mouse control. Features include super-fast searching and sorting capabilities. An options screen allows you to choose text colors, drive number, and input device. And there's **full documentation on disk.**

Choose from three modes of operation—*browse* for quick scanning, *view* for detailed information and descriptions, and *edit* for adding items from upcoming issues—and print to any printer. There's even a turbo-load option for maximum disk-access speed.

ORDER YOUR GAZETTE INDEX TODAY!
(MasterCard and Visa accepted on orders with subtotal over $20.)

To order, send $7.95 per disk, the quantity of disks ordered, check or money order,* your name and complete street address:

Gazette Index
324 West Wendover Avenue
Suite 200
Greensboro, NC 27408

*Please add $2 shipping & handling ($5 foreign) for each disk (residents of NC, NJ, NY please add applicable sales tax; Canadian orders, add 7% goods and services tax).

All payments must be in U.S. funds. Please allow 4 weeks for delivery.

KeyDOS ROM Version 2 is here!

The KeyDOS ROM is a chip for the empty socket inside your C128 that adds more than 40 powerful features. KeyDOS is available instantly as soon as you switch on your 128!

KeyDOS is loaded with useful tools to simplify file access on multiple drive systems without typing file names—all major DOS functions included. Select multiple files for copying, viewing, printing, renaming or scratching. ASCII/CBM/Screen code converter. Full support for 1581 subdirectories. Built-in RAMDOS for REUs up to 2MB. New GEOS SupeRBoot. Alarm clock. Disk editor. Powerful debugger.

Only $32.50. Satisfaction Guaranteed! Write for more information.
Enhance your system with the speed and convenience that KeyDOS provides!

Antigrav Toolkit, PO Box 1074, Cambridge, MA 02142
Shipping outside of US, Canada and Mexico add $3

Circle Reader Service Number 244

Dual Top V3.0
Lace II

NEW GEOS SOFTWARE
THE LANDMARK SERIES

GeoTet
GeoSolitaire
Checkerboard

Dual Top - The PREMIER Desk Top replacement. Provides full four drive support, RAM drive priority system, one click access to major file functions, comprehensive error reports, full set of keyboard shortcuts, multiple user options plus many more features. 40 and 80 col modes.
Lace II - Display GeoPaint, IPaint, and Basic8 pictures. Full color. 128 - 80 column mode only.
GeoTet - Relax and enjoy a game of logic and skill. Full color 40 and 80 column modes.
GeoSolitaire - Try your hand at America's favorite card game. Full color, 40 and 80 columns.
Checkerboard - Play and old fashoined games of checkers with a friend. Full color, 40 columns.

To order the Landmarks Series of GEOS applications
Send a check or money order for $24.95 + $3.00 S/H to: New Horizon Software
C/O The Landmark Series, 2253 N Kansas Ave, Springfield MO 65803

Circle Reader Service Number 135

REU users: Battery Back any 17xx, or GEORAM, with the **BBU**. Use with GEOS (V1.3 up), RAMDOS or other programs that use REUs. Great for BBS. No heavy power supply needed.
GEOS users: BBGRam, Battery backed RAM for GEOS 2.0. A fast, reliable alternative to mechanical drives. Supports all drive types, multiple partitions and alternate DESKTOPs.

PERFORMANCE PERIPHERALS, Inc.

5 Upper Loudon Road, Loudonville, NY 12211.
US orders, literature: 800-925-9774. Tech support, orders, FAX: 518-436-0485.
BBU $59, BBGRam 512K $89, BBGRam 1M $119, BBGRam 2M $159.
US S&H $6. US COD $4. Canada & Mexico S&H $10. Other countries S&H $19.
30 day money back guarantee. 90 day warrantee. Master Card / VISA welcome.

Circle Reader Service Number 153

I Paint™ - *'the MOST POWER for the BUCK'*

- 'power that only AMIGA owners have enjoyed until now'
- 'rates an A- ... pushes the C-128 to the edge of the graphics envelope'
- RUN Oct. 1991

I= Interlace!
I= Incredible!

I Paint lets you create on a 640 by 400 pixel screen-- that's AT LEAST DOUBLE the size used by any other graphics software! I Paint's Interlace screen offers the unique ability to blend colors for 65,536 APPARENT COLORS!

Supports 24 pin, COLOR, & LASER Printers, & RAM Expansion!

NEW! **I Port™** I Paint Import/Export Manager
Import GIF, MAC, GEOS, Basic8, Doodle, Print Shop!
Export I Paint to GIF!
Easily define custom GIF palette templates!

I Paint™ : $ 39.95 ppd.
Requires Mouse and C=128D (or C=128 w/64k video RAM upgrade)
I Port™ : $19.95
SAVE! both $49.95

Living Proof, Ltd
Dept. G-2
PO Box 80714
Minneapolis, MN
55408-8714

Check or money order only. MN residents add 6-1/2% sales tax. Allow 2 - 4 weeks for delivery.

Circle Reader Service Number 146

Fast Action Arcade Style Game for the Commodore 64/128+1541

Risers And Sliders
R&S

$24.95 plus $3 Shipping and Handling in the U.S.A.
S/H in Canada $5 and $10 for all others.
— American Currency Only —

Send Check or Money Order to:

MicroStorm Software®
Box 1086, Sidney, MT 59270

Circle Reader Service Number 289

www.commodore.ca

BEGINNER BASIC

Larry Cotton

USER PORT CLOCK (PART 2)

Here's how to activate your 64's user port at any time of day.

The 64 is blessed with four ports to connect with the outside world. Two of them are quite well known: joystick ports 1 and 2, which are located on the right side of the computer next to the power switch. As we learned some time back, those ports can be used for output as well as for normal joystick input.

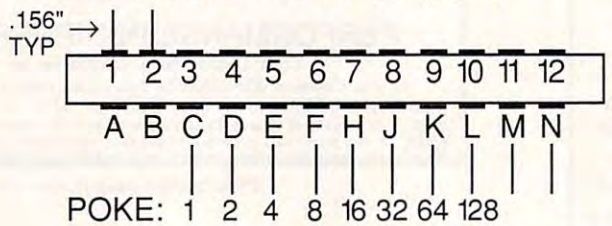
The other two ports may not be quite as familiar to you. Facing the computer as you normally do, the port at the extreme right rear is the cartridge port. It normally accepts game and other types of cartridges, such as the common fastload cartridge. The port on the extreme left rear is the user port, to which I referred last month. When you want to make a connection to the outside world, that's the one to think of first. This port is easy to program in BASIC. I'll show you how to turn on and off each of its pins.

In fact, the programming is easier than wiring the hardware. As I warned you last month, I won't go into a lot of detail about user-port connections. If you decide on a project, you'll need a card-edge connector with .156-inch terminal-to-terminal spacings, available at Radio Shack or Mouser Electronics. You should also have a basic knowledge of digital electronics or know someone who does.

Please remember two things: that all ports are connected to the innards of your computer and that their outputs are rather feeble and sensitive to abuse. Avoid static electric charges like the plague, and always connect ports to low-voltage circuits by means of properly matched opto-isolators, transistors, and/or relays.

The figure below shows the user port as you face the rear of the computer. The pins which we can control easily are those on the bottom row lettered C through L (skipping G and I).

USER PORTS LOOKING AT REAR OF COMPUTER (GROUNDS AT PINS 1, 12, A, N)



Here's a very simple program that looks at the keyboard to see if C, D, E, or F is pressed.

```
10 P=56577: REM USER PORT
20 POKEP+2,255: REM ALL PINS
   OUTPUT
30 POKEP,0: REM ALL PINS OFF
40 GETA$: IFA$="" THEN40
50 IFA$="C"THEN POKEP,1
60 IFA$="D"THEN POKEP,2
70 IFA$="E"THEN POKEP,4
80 IFA$="F"THEN POKEP,8
90 GOTO40
```

Line 20 sets up the user port so that all subsequent POKEs are interpreted as outputs, line 30 turns all pins off, and line 40 waits for a key to be pressed.

When you run this, pressing C, for instance, turns pin C on. (In the jargon of electronics, the voltage on pin C goes high or jumps from 0 to +5 volts DC.) This voltage is enough to power a Light Emitting Diode (LED) or trigger a sensitive transistor or relay, which must be connected between the controlled pin and a ground (pin 1, 12, A, or N).

Now let's finish last month's program. Add lines 10–30 from the above program, change line 420, and add lines 430–470.

```
420 PRINT"[CLR][DOWN]USER
    PORT PIN C ON.
430 PRINT"[DOWN]PRESS ANY
    KEY TO TURN OFF.
440 POKEP,1
450 GETA$:IFA$="" "THEN450
460 POKEP,0
470 PRINT"[DOWN]USER PORT
    PIN C OFF.
```

Now when you run the program, enter the times as you did last month. When the "alarm" goes off, pin C in the user port is turned on. Poking other values to P in line 440 activates other pins as follows.

Poking	Turns On
1	C
2	D
4	E
8	F
16	H
32	J
64	K
128	L

Combinations of pins can be activated by adding the values in the left column corresponding to the pins you want to turn on. For instance, to turn on pins C and H, poke 17 (1 + 16) to P (56577). To turn on pins J, K, and L, poke 224.

I've just about run out of space for this month, but I'll mention some of the program's highlights.

www.commodore.ca

The subroutine in lines 290–410 gathers user input in hours, minutes, and seconds to set the clock and the alarm. Line 90 pokes values based on this user-supplied information to three clock registers 56329–56331. Line 130 forms a variable B which is calculated from these values. B is the number of seconds from midnight to when the clock's alarm is set—when the user port is to be activated. For example, B would have a value of 25,200 for 7:00 a.m. Line 160 starts the clock by poking a 0 to the tenths-of-seconds register 56328.

The clock is updated and printed to the screen in a loop in lines 170–280. The same registers we poked are continually peeked in line 170, from which printable values are derived in lines 180–220. A in line 230 is the actual time of day in seconds from midnight. Line 240 continually compares A to B. When they're equal, the alarm goes off; control zips to line 420 which turns on pin C in the user port. Here's the entire listing in case you missed last month's column. Remember, always set the user port to activate within 24 hours of starting the clock.

```
BM 10  P=56577:REM USER P
       ORT
BF 20  POKEP+2,255:REM AL
       L PINS OUTPUT
CC 30  POKEP,0:REM ALL PI
       NS LOW
DS 40  PRINTCHR$(147):POK
       E53281,14:POKE646,
       6
KR 50  PRINT"SET CLOCK AT
       :{DOWN}"
PK 60  R=8:GOSUB290:K=432
       00:REM 43200 SECON
       DS IN 12 HOURS
GX 70  IFI$="PM"THENX=K
ER 80  FORI=1TO3:H=INT(T(
       I)/10):L=T(I)-10*H
       :T(I)=16*H+L:NEXT
MC 90  C=56331:POKEC,T(1)
       :POKEC-1,T(2):POKE
       C-2,T(3)
FA 100 PRINT"{DOWN}ACTIV
       ATE USER PORT AT:
       {DOWN}"
FD 110 R=18:GOSUB290
HS 120 IFI$="PM"THENY=K
JB 130 B=Y+T(1)*3600+T(2
       )*60+T(3)
SK 140 PRINT"{DOWN}PRESS
        ANY KEY TO START
        CLOCK.{DOWN}
RE 150 GETA$:IFA$=""THEN
       150
SB 160 POKEC-3,0
PH 170 H=PEEK(C):M=PEEK(
       C-1):S=PEEK(C-2):
       T=PEEK(C-3)
XG 180 C1$=CHR$((16ANDH)
       /16+48)+CHR$((15A
       NDH)+48)
XM 190 H=VAL(C1$)*3600
GJ 200 IFC1$="00"THENC1$
       ="12"
HD 210 C2$=CHR$((240ANDM
       )/16+48)+CHR$((15
       ANDM)+48):M=VAL(C
       2$)*60
FD 220 C3$=CHR$((240ANDS
       )/16+48)+CHR$((15
       ANDS)+48):S=VAL(C
       3$)
HA 230 A=X+H+M+S:IFA=2*K
       THENPOKEC,0:POKEC
       -3,0:X=0
SG 240 IFA=BTHEN420
BJ 250 IFA<KTHENJ$="AM":
       GOTO270
XX 260 J$="PM"
MD 270 PRINT"{WHT}TIME I
       S "C1$+":"+C2$+":
       "+C3$+":"T;J$+"
       {UP}"
HG 280 GOTO170
DE 290 H$="":INPUT"HOURS
       ";H$:IFH$<"0"ORH$
       >"9"THENPRINT"
       {2 UP}":GOTO290
KE 300 T(1)=VAL(H$):IFT(
       1)<0ORT(1)>12THEN
       PRINT"{2 UP}":GOT
       O290
RA 310 IFT(1)=12THENT(1)
       =0
HP 320 M$="":INPUT"
       {DOWN}MINUTES";M$
       :IFM$<"0"ORM$>"9"
       THENPRINT"{3 UP}"
       :GOTO320
PG 330 T(2)=VAL(M$):IFT(
       2)<0ORT(2)>59THEN
       PRINT"{3 UP}":GOT
       O320
CE 340 S$="":INPUT"
       {DOWN}SECONDS";S$
       :IFS$<"0"ORS$>"9"
       THENPRINT"{3 UP}"
       :GOTO340
GG 350 T(3)=VAL(S$):IFT(
       3)<0ORT(3)>59THEN
       PRINT"{3 UP}":GOT
       O340
DC 360 PRINT"{DOWN}AM OR
        PM (PRESS A OR P
       )"
HD 370 GETI$:IFI$<>"A"TH
       ENIFI$<>"P"THEN37
       0
EE 380 IFI$="A"THENI$="A
       M":GOTO400
FH 390 I$="PM"
JD 400 POKE214,R:PRINT:P
       OKE211,24:PRINTI$
EX 410 RETURN
AQ 420 PRINT"{CLR}{DOWN}
       USER PORT PIN C O
       N."
XK 430 PRINT"{DOWN}PRESS
        ANY KEY TO TURN
       {SPACE}OFF.
GS 440 POKEP,1:REM TURNS
        ON PIN C
MD 450 GETA$:IFA$=""THEN
       450
HF 460 POKEP,0
HB 470 PRINT"{DOWN}USER
       {SPACE}PORT PIN C
        OFF."
```

ATTENTION WRITERS, PROGRAMMERS

Gazette is looking for utilities, applications, games, educational programs, and tutorial articles. If you've created a program that you think other readers might enjoy or find useful, send it and the documentation on disk to

Gazette Submissions
Reviewer
COMPUTE Publications
324 W. Wendover,
Ste. 200
Greensboro, NC 27408

Please enclose an SASE if you want your materials returned.

Send New Product Announcements and/or Press Releases on your Commodore 64/128 products to:
Tom Netsel c/o
COMPUTE

www.commodore.ca

D'IVERSIONS

Fred D'Ignazio

TODDLER'S CHOICE

For a recent Public Broadcasting Service show, "Learning Matters," we videotaped my segment, Technology Corner, in my family's study. We reviewed the newest multimedia CD-ROM titles for toddlers, including Just Grandma and Me (Brøderbund); Mother Goose (Sierra On-Line); Silly, Noisy House (Voyager); and Millie's Math House (Edmark). Our reviewers were my three-year-old daughter Laura and her one-year-old buddy Alex.

A 64 can be an ideal first computer for toddlers—as well as a great teaching tool.

At the end of the segment, the show's producer, John Merrow, noted that the equipment and software we used was "expensive and possibly out of reach" for many families. He wanted to know if there was another toddler we could interview who had a more down-to-earth computer setup.

I thought of Tommy Kurek, Laura's next-door neighbor, and we called Tommy's parents and scheduled a visit.

Tommy's computer, it turned out, was a perfect toddler configuration: a second-hand Commodore 64. Most of the software titles and extra equipment were purchased at yard sales or flea markets. The price of Tommy's entire setup was well under $400—the price of a single CD-ROM drive.

The computer station was on a small table in the corner of the family living room surrounded by books, Tommy's toys, and two or three lounging cats. When the family did their computing, Tommy sat in his chair, and his mom and dad sat on each side of him on the floor. This made them all about the same size.

To begin the interview, we asked Tommy's daddy, Keith, if Tommy had suffered from not having the latest multimedia computer equipment.

"I don't think so," said Keith. "Tommy just turned three. While he was still two, using the Commodore 64, he learned how to write his own name, his friend Laura's name, my name, his mommy's name (Leanne), and the names of all four family cats.

"Also, while he was two, Tommy used the computer to learn how to count to 39, count objects on the computer screen and press the correct number on the keyboard, and recognize and find every number from 0 to 9 and every letter in the alphabet."

"Do you have any advice for fellow parents who have toddlers?" we asked Keith.

"Tell them to find or buy a Commodore 64," said Keith. "If the parents buy an expensive computer, they'll be so worried about its safety they'll never be relaxed around it with their two-year-old, and they'll be afraid to turn their child loose on the computer. The great thing about this computer is it's 100 percent Tommy's computer. He can do anything he wants, and the Commodore can take it.

"The other good thing about the 64," Keith continued, "is that lots of Tommy's educational programs come on cartridges. When we go visit Grandma on weekends, we just throw the computer into the car along with a couple of Tommy's favorite cartridges. At Grandma's we plug into her television set, and Tommy is busy for hours working on his number, shape, and letter games. When it comes time to go home, it takes about ten seconds to unplug the computer and toss it back into the car."

We asked Tommy to pick out his favorite 64 programs to recommend to other toddlers who are just starting to computey. Here's his list:

- KinderComp (Spinnaker Software). A set of shape-, number-, and letter-recognition programs perfectly suited for your toddler computer whiz.
- Astro Grover (CTW-Sesame Street). Same as above, featuring the lovable Sesame Street muppet Grover.
- Ernie's Magic Shapes (CTW-Sesame Street). Shape-recognition program featuring Ernie.
- Big Bird's Special Delivery (CTW-Sesame Street). More early learning programs featuring Big Bird. All three programs (Grover, Ernie, and Big Bird) can be found in a single package entitled The Sesame Street Learning Library.
- Kids on Keys (Spinnaker Software). Helps with keyboard recognition.
- Alphabet Zoo (Spinnaker Software). Letter recognition.
- Learning with Leeper (Sierra On-Line). Fun, educational games hosted by cute little onscreen characters such as Leeper.
- Design-a-Saurus (Britannica Software). Dinosaur recognition and naming program. (Tommy is a dinosaur nut. He carries a Tyrannosaurus Rex doll to bed with him instead of a blanket.)
- Dinosaurs Are Forever (Polarware). More reptiles for young dinosaur enthusiasts.
- Kermit's Electronic Story Maker (Simon & Schuster). You and your children can cook up your own online picture books.

The cost of these programs? "At worst, under a hundred dollars," Keith says. "The important thing is to watch for yard sales where you can pick up children's software for just a couple of dollars. Also, sign onto local bulletin boards where you can pick up lots of freeware educational programs. Join a 64 user group, and you're sure to run into other young parents who are eager to share with you and your kids." ❐

www.commodore.ca

ULTIMATE ML MONITOR

By Ted Green and Ed Balchick

Examining and debugging troublesome machine language (ML) routines or trying to see how well machine code actually works is usually a struggle. ML programs run so quickly that it's difficult to determine exactly what happens and when it happens without altering the program. A standard monitor's breakpoint returns are not much help because the display is corrupted and the program halts.

Now, with the Ultimate ML Monitor, you can execute any piece of ML code in slow motion or single step through it one command at a time! A special user interface lets you interact directly with the ML program. You can view and control the actual operation of the program in text or hires mode as it runs; examine and modify the program, data, or register values; and allow the Kernal serial bus to access routines while in the single-step mode. These and many other features, such as full implementation of 6502 quasi-opcodes, make the Ultimate ML Monitor a powerful programming utility that you'll wonder how you did without.

Getting Started

Ultimate ML Monitor consists of three programs: two small programs that make up the loader system and the main program. These three files must all be saved to the same disk, but the program that you wish to monitor can be on any disk, even another drive.

The setup portion of the loader system is written in BASIC. To avoid typing errors, use The Automatic Proofreader to enter the program. See "Typing Aids" elsewhere in this section. When you finish typing this portion in, save it to disk with the filename ULTIMON.B.

Next, the smart portion of the loader system is written in machine language, and you will need MLX, our machine language entry program. Again, see "Typing Aids." When MLX prompts, respond with the following values.

Starting address: CC13
Ending address: CFFE

After you type in the loader program, be sure to save a copy to disk with the filename ULTIMON.L.

The monitor portion of the program is written entirely in machine language for speed and compactness. You must enter this program with MLX. When MLX prompts you, respond with the following values.

Starting address: 8000
Ending address: 8EBF

Be sure to save a copy to disk with the filename ULTIMON.O.

Loading the Program

Ultimate is very easy to use. Load and run Ultimon.B as you would any BASIC program. Before you run it, however, you should have the program available that contains the ML code that you wish to examine. This program should be copied onto the same disk as the Ultimate system if you are using a single drive. If you are using Ultimate with a two-drive system, have each disk in a drive before running Ultimate.

As for what kind of program to look at, the possibilities are almost limitless. You aren't limited to looking at a pure ML program, the kind you load with the ,8,1 extension and start with a SYS command that you often forget. Ultimate will examine an ML program that loads like BASIC or even a BASIC program that reads the ML from data statements and pokes them to memory and then calls them with a SYS command.

In the latter two cases, Ultimate can catch the ML portion just as BASIC tries to execute it (if you start in single step). This means that for BASIC programs in general, all of the BASIC is actually run by the interpreter. However, once you are in the ML routine, you cannot go back to the BASIC program.

When you have selected the program that you wish to examine, load the drive(s) and run Ultimon.B. The screen will clear and display the following prompt.

ADDRESS TO LOAD MONITOR:

The address must be entered as a decimal value. The Ultimate program can be put at any unused area from 2048 ($0800) up to and including 36864 ($9000). It can also be put at 49152 ($C000). If you try to place it above 49152, you will get an error message. Placing the monitor in the RAM under ROM (BASIC or Kernal) is possible, but not recommended, except for advanced users. The most important factor in choosing the load address is determining where there will be 4K of memory that won't be used by the program to be monitored.

Don't forget about BASIC variables. If they are a problem, protect 4K for Ultimate first. Ultimate will protect itself from any memory access commands while in any mode except full speed. This protective feature will cause the monitored program not to execute those commands, possibly causing an infinite loop in the monitored program. If this happens, it's best to start over and choose a new load address.

You'll then be prompted for a program to monitor and a drive number from which to load. If you enter the same drive as the current drive, you must copy your program to the disk with the Ultimate system on it because there is no time to switch disks.

You'll then be asked whether you want to run the program in single-step mode or at full speed. Enter *S* for single step or *F* for full speed. You'll usually want to start in single-step mode for most small programs or anytime you want complete control over the whole monitored program. Full-speed mode is a good choice when you want to monitor a large program, and the piece of code that you're interested in is executed sometime after the program begins.

If you select full speed, hitting the Restore key at anytime will break into the program in the single-step mode (unless the program changes the NMI vector at $0318 while in full speed). When the single-step mode is activated, the status line will be displayed at the bottom of the screen.

Using the Program

Once you enter the single-step mode of Ultimate, the main program interface is the interactive status line. Note that all numbers on the status line are shown in hex. The main features of the status line are the following: PC (which shows the contents of the emulated program counter of the program you are examining) and A, X, Y, and SR (which are the current contents of the emulated accumulator and the X,

www.commodore.ca

Y, and status [flag] registers).

To the left of PC is the space for the full-speed Kernal routine indicator, an asterisk (*). More about that later.

The most important feature of the status line is the command display field. This contains the opcode mnemonic of the current instruction and the operand field. The operand field can be toggled between two different types of displays for some commands. The secondary mode is like a standard disassembler listing of the command.

The main display mode is what gives Ultimate its powerful debugging features. It has the ability to convert the addressing mode into the actual memory location used by the CPU and to display it on the status line. For example, if locations 0E = 75, 0F = 10, and Y = AF, then the command above would display as LDA $1124. You can toggle between these two modes at anytime with the asterisk key, even view the two modes of the same command without stepping. There are some commands that will show an address (branches, RTS, JSR, and so on) that look identical. The command field also indicates the address of the destination if a branch is taken. An RTS will display the actual address of the command after the JSR, not the address 1 that it pulls off the stack. There are some other features used in the status display, but these will be discussed in the appropriate key description below.

Key Functions

A single keystroke activates many of Ultimate's key features.

F7

Pressing f7 executes the next program instruction and displays the results on the status line.

S

Press S to enter slow motion program emulation from single-step mode. The approximate execution speed of this mode varies greatly, but generally takes about 150 times longer than real execution speed. If there are a lot of Kernal routines, the Kernal mode can speed up the program considerably.

←

The back arrow exits the monitor and runs the monitored program in full speed (real execution). Ultimate may be corrupted if set at a bad address. This key is good for running through a large piece of code to get to a particular point. It also sets up the Restore key to go to single-step mode.

Restore

Restore triggers Ultimate from full-speed mode, breaks into the program, and enters single-step mode at the current command.

*

The asterisk toggles the operand field display between disassembly mode and address-calculation mode.

f1

This function key toggles the status line on and off without running the program. It's used to view the current video display area under the status line. Single step (f7) and slow motion (S) are the only valid keys while the status line is off.

H

Hunt allows you to enter an address that is the actual computed address operand of a command. The program runs in slow motion until it finds a command that uses that address. This is useful for seeing when a particular memory location is accessed in a program. If the hunt is successful and the status line displays the command line and PC, you can toggle the display mode (*) or look at the source code listing. Hunt can also be exited at anytime with the @ (At) key.

R

The R key will let the program run until an address is reached. Enter the PC of any command in the code and then the program will run in slow motion until the command is ready to be executed. This means that when the single-step mode display comes on, the command before the one you selected will be on the display line. That is because when a command is shown, it has already been executed and the new PC has been calculated. This is useful to get the program to the beginning of a specific subroutine or section of code that you are interested in without having to try to stop it by hand at the right spot. This mode can be canceled at anytime by pressing the @ (At) key.

J

Use the J key to run through a subroutine in slow motion until the corresponding RTS is encountered. This means that all nested subroutines will be executed and normally the program will display the RTS command when it returns to single-step mode. Since this command triggers off the emulated stack level, the program could also drop back into single-step mode if two values are pulled from the stack or the stack pointer is incremented by 2 before an RTS is encountered. This is useful in allowing you to see if the routine pulls its return address off the stack so it can jump somewhere else. It's safe to enter J-mode anytime after a JSR. If it's used outside of a subroutine, it may never drop back into single-step mode on its own, but you can exit at anytime with the @ (At) key.

P

P sets the emulated PC to a new address; the beginning of a program; or the end of a loop, subroutine, or wherever. The new address is entered in the PC space on the status line. After the address has been entered, the value will reverse to show that you have to make a decision. You must either press Return or f3. Return resets the emulated stack pointer to the top of the stack, $FF. This is useful when restarting the monitored program so that stack doesn't wrap around. Pressing f3 will not change the current stack pointer. This is useful for going to the beginning of a loop or jumping over some code where you may need the values that are on the program's stack. Nothing changes but the location of where the monitor reads the next command.

D

Dump has the same usage as Hunt except that all occurrences of the desired address usage (PC) are sent to the printer. This will not stop until the @ (At) key is pressed to cancel the mode.

K

This key toggles Kernal mode, the desired execution mode of calls to Kernal

www.commodore.ca

subroutines listed in the Kernal jump table ($FF81–$FFF3). The default mode is step-by-step emulation (in single-step or slow mode). The special mode is full-speed execution, which is designated by an asterisk to the left of PC on the status line.

This mode is useful for speeding up programs with heavy Kernal usage where you are only concerned with the routine's net effect on the program. It also allows serial bus I/O routines such as disk access even in single-step mode. Most Kernal routines that use the serial bus cannot be successfully single stepped. Note that if the Kernal LOAD is used, the monitor program could be corrupted because the self-protection feature is temporarily disabled.

If the Kernal mode is off, single-step mode will still let you choose how to execute each Kernal call. When you get to a Kernal call, the address of the routine will reverse. Return will execute the routine in full speed, and f3 will take it out of reverse mode and allow you to continue to single step through the routine.

If you press Return, the routine will execute, and the next command shown will be the RTS of the routine. Also, the PC will show the address of the routine itself and will be reversed to show that you just executed that Kernal routine. The RTS shows where the program is returning to. If Kernal mode is on, then all Kernal routines will be executed in full speed with results as mentioned above.

F

Fill lets you change the contents of any memory location. Note that the monitor will not protect itself, so use caution when altering any monitor parameters given in the article.

M

Memory will let you examine the contents of a memory location. For areas that have layers of memory such as $D000 (character ROM and I/O device RAM), the memory configuration used by the monitored program determines where the value comes from. To view a different area, alter the offset value, START + $0055, with the Fill command. START is equal to the address you loaded the monitor to at the beginning of the session. If you do this, you must change it back before you continue, or the monitored program may crash.

A, X, or Y

Enter a new value into a CPU register. After a value is entered, it will reverse to show that you have to make a decision. Return will modify the emulated status register like an LDA command, while f3 will leave the flags unchanged. These features may be useful for altering loop indexes or putting a keycode into A to be checked when letting the program go to the routine that handles the key.

W

W redisplays the status line in the current screen configuration. This is useful in single-step mode when stepping through code that alters VIC parameters and the screen changes so you can't see the status line anymore. Pressing W will recover it without stepping.

C

C cycles the color of the status line text for text mode and hi-res mode status line displays independently. All 16 colors are available. A separate color can be locked in for each mode and will stay the same even if you toggle between monitor and full-speed modes. You won't have to change it after switching modes.

In hi-res mode, the foreground and background colors are changed. Since the background color changes only after all 16 foreground colors have changed, it may take a while to get the desired color combination. If you know the color codes that you want for the foreground and background, you can put the proper value into START + $052D. (See F key above.) The value should be in the following format: High nybble equals background; low nybble equals foreground. See any 64 reference book for more details. To actually implement the color after changing the memory value, hit f1 twice.

V

V toggles multicolor mode. This key will have effects in both text and hi-res modes. You may find it useful to turn off multicolor mode to read the status line clearly and then turn it back on.

G

G toggles hi-res display between text mode and hi-res mode. This is for seeing the status line should the display mode change while single stepping (like W key). Note that the proper mode will be selected automatically when changing between single-step, slow, and full-speed modes.

Del

The Delete key has two functions. It reprints the current status line with the command after using M or F keys, and cancels data-entry modes of any keys requiring hex input, such as H or P.

@

The @ (At) key cancels any slow-motion mode (from S, J, R, H, or D) back to single-step mode.

Operational Notes

Not only are the regular 56 commands of the 6502 interpreted, but also the 14 quasi-opcodes as defined by Raeto Collin West in "Programming the 64" by COMPUTE books. Most of these opcodes have reproducible results, although many don't seem to lend themselves to most programming tasks.

The new mnemonics that you may encounter while experimenting are ASO, RLA, LSE, RRA, AXS, LAX, DCM, INS, ALR, ARR, OAL, SAX, SKB, and SKW. While there isn't enough space to discuss quasi-ops at length, most of them essentially decode in a way that is similar to the LDA-type commands. SKB branches over (skips) one byte, and SKW skips two.

These codes are included here when most other monitors ignore them because some software may use them to hide codes.

Another debugging feature is that Ultimate stops automatically at a BRK or any invalid commands. BRK commands can be continued normally, but invalid opcodes will display three back arrows (←←←) and the hex value of the invalid opcode that has been encountered. At this point, reset the PC to a new piece of code to continue.

Ultimate executes quasi-ops like it ex-

www.commodore.ca

ecutes all other commands. They are executed by the 6502 after any addresses are decoded.

The program works by emulating major features of the 6502 and 64. The real stack and CPU registers are copied to a protected area of memory within the monitor, and all memory activity is monitored in protected mode so that the monitored program behaves as if it were running in real mode. Also, window space is maintained and protected for the text screen line, color memory line, and one hi-res line so that the status line may be displayed while any program access to the real memory area is sent to the window. All of this windowing is generally transparent to the user and the monitored program.

For example, an access to the first location of the status line LDA $07C0, in default area, is shown as such, although the real load comes from the screen window maintained by the monitor. If a command tries to access the monitor's protected memory, the command will not be executed. In single-step mode the operand field will be reversed to alert you of this condition.

Advanced Uses

The Ultimon.O program is a standalone program. It contains the routine that actually performs the absolute address conversions necessary to relocate the program to the new address. This makes it very useful to load and run after another program has already been loaded.

During the first call, Ultimon.O modifies itself so that later calls to the start address enter the monitor mode. This feature may be useful when a program that you wish to monitor is so large that it would overwrite Ultimate. Usually programs using some hi-res graphics are like this. The solution would be to load the monitor over a 4K section of a bitmap that may not be needed while you are trying to figure out some portion of the program. The loading could be performed by replacing a small piece of code with a JSR to the following routine (WEDGE). Then, the wedge routine would have to be piggybacked onto another piece of the monitored program.

```
SETLFS  = $FFBA
SETNAM  = $FFBD
LOAD    = $FFD5
DEVICE  = $BA

WEDGE   LDA #1
        LDX #<NAME+1 ;lo byte
        LDY #>NAME+1 ;hi byte! JSR SET-
        NAM

NAME    LDA #69 ;decimal
        LDX DEVICE
        LDY #0 ;relocate
        JSR SETLFS

        LDA #0 ;load
        TAX
        LDY #>BEGIN! JSR LOAD
        JMP BEGIN
```

This loader will load, relocate, and kick start into single-step mode any ML program as long as Ultimon.O is saved as filename E, BEGIN = safe area (bitmap). Just find free memory for WEDGE and insert JSR WEDGE into code. Another technique is to load Ultimate ML Monitor with a standard monitor that can perform a relocatable load to any address. Then run Ultimate so that it initializes itself to the new address. The initialization routine ends with an RTS. Now Ultimate is ready to use or can be resaved from the new address with a length of 4K. To call it, just use JSR or SYS to go to the new address.

ULTIMON.B

```
HG 5 REM COPYRIGHT 1993 - COMP
     UTE PUBLICATIONS - ALL RI
     GHTS RESERVED
MP 10 IFATHENSYS52243
KD 20 D=PEEK(186):A=-1:LOAD"UL
     TIMON.L",D,1
```

ULTIMON.L

```
CC13:A9 93 20 D2 FF A9 00 8D CB
CC1B:21 D0 8D 3E CD A9 06 8D BD
CC23:20 D0 A9 0D 8D 86 02 A2 34
CC2B:02 38 A9 13 ED 3E CD A8 E6
CC33:18 20 F0 FF 38 A9 26 ED A1
CC3B:3E CD CD 3E CD 90 22 A8 A2
CC43:A2 00 BD FA CC 20 D2 FF 22
CC4B:E8 EC 3E CD 90 F4 B9 FA FF
CC53:CC 20 D2 FF C8 C0 26 90 DB
CC5B:F5 20 EF CC EE 3E CD D0 9F
CC63:C6 A2 04 A0 13 18 20 F0 BD
CC6B:FF A2 01 BD 20 CD 20 D2 F4
CC73:FF CA 10 F7 A9 00 8D 3E E7
CC7B:CD A9 01 8D 86 02 A2 06 E6
CC83:38 A9 14 ED 3E CD A8 18 97
CC8B:20 F0 FF 38 A9 0E ED 3E 94
CC93:CD CD 3E CD B0 0A A2 09 28
CC9B:A0 00 20 F0 FF 4C F0 CD 79
CCA3:A8 84 02 A2 00 BD 22 CD 26
CCAB:20 D2 FF E8 EC 3E CD 90 25
CCB3:F4 B9 22 CD 20 D2 FF C8 6C
CCBB:C0 0E 90 F5 A2 08 38 A9 F9
CCC3:14 ED 3E CD A8 18 20 F0 5E
CCCB:FF A4 02 A2 00 BD 30 CD 1E
CCD3:20 D2 FF E8 EC 3E CD 90 4D
CCDB:F4 B9 30 CD 20 D2 FF C8 56
CCE3:C0 0E 90 F5 20 EF CC EE 1C
CCEB:3E CD D0 92 A2 D0 A0 00 F4
CCF3:C8 D0 FD E8 D0 F8 60 20 BF
CCFB:54 48 45 20 55 4C 54 49 4A
CD03:4D 41 54 45 20 4D 41 43 70
CD0B:48 49 4E 45 20 4C 41 4E 3E
CD13:47 55 41 47 45 20 4D 4F D8
CD1B:4E 49 54 4F 52 59 42 45 71
CD23:2E 20 4A 2E 20 42 41 4C E2
CD2B:43 48 49 43 4B 20 20 54 47
CD33:2E 20 4A 2E 20 47 52 45 22
CD3B:45 4E 20 00 20 60 A5 A9 88
CD43:00 85 7A A9 02 85 7B 20 67
CD4B:79 00 20 F3 BC 4C 9B BC F1
CD53:A9 0D 4C D2 FF 55 4C 54 FF
CD5B:49 4D 4F 4E 2E 4F 9F 41 EC
CD63:44 44 52 45 53 53 20 46 3F
CD6B:4F 52 20 4D 4F 4E 49 54 B6
CD73:4F 52 20 00 9F 4E 41 4D 55
CD7B:45 20 4F 46 20 50 52 4F 46
CD83:47 52 41 4D 20 54 4F 20 65
CD8B:42 45 20 4D 4F 4E 49 54 0D
CD93:4F 52 45 44 0D 00 9F 4E 4E
CD9B:55 4D 42 45 52 20 4F 46 C9
CDA3:20 44 52 49 56 45 20 00 47
CDAB:9F 53 49 4E 47 4C 45 20 10
CDB3:53 54 45 50 20 4F 52 20 BE
CDBB:46 55 4C 4C 20 53 50 45 52
CDC3:45 44 20 00 05 45 52 52 4B
CDCB:4F 52 20 21 21 20 45 4D 1B
CDD3:55 4C 41 54 4F 52 20 57 F5
CDDB:49 4C 4C 20 4F 56 45 52 6B
CDE3:57 52 49 54 45 20 4C 4F C0
CDEB:41 44 45 52 00 A9 C0 20 4F
CDF3:90 FF A5 BA 8D 33 CF 20 31
CDFB:CC FF 20 53 CD 20 53 CD 9A
CE03:A9 61 A0 CD 20 1E AB 20 AF
CE0B:3F CD A4 64 C0 C0 90 0E CE
CE13:A6 65 F0 0A A9 C7 A0 CD 97
CE1B:20 1E AB 4C F0 CD A2 00 8E
CE23:8E 18 03 8C 19 03 20 53 9F
CE2B:CD A9 77 A0 CD 20 1E AB E9
CE33:A9 00 85 C6 20 60 A5 A0 31
CE3B:00 B9 00 02 F0 06 99 0B 45
CE43:01 C8 D0 F5 8C 34 CF 20 02
CE4B:53 CD A9 99 A0 CD 20 1E 6F
CE53:AB 20 3F CD A5 65 8D 32 A3
CE5B:CF 20 53 CD A9 0F AE 32 49
CE63:CF A0 0F 20 BA FF A9 00 1E
CE6B:20 BD FF 20 C0 FF 20 1E EE
CE73:CF 20 C0 FF A9 00 85 02 73
CE7B:A2 0F 20 C6 FF 20 CF FF BE
CE83:C9 2C F0 07 05 02 85 02 DC
CE8B:4C 80 CE A0 FF C8 20 CF 86
CE93:FF 99 00 02 C9 2C D0 F5 4E
CE9B:A9 00 99 00 02 A9 01 8D 87
CEA3:86 02 A9 00 A0 02 20 1E A5
CEAB:AB A5 02 C9 30 D0 0F A2 EA
CEB3:45 20 C6 FF 20 CF FF 85 9A
CEBB:FB 20 CF FF 85 FC A9 45 12
```


www.commodore.ca

```
CEC3:20 C3 FF A9 0F 20 C3 FF 7D
CECB:20 CC FF A5 02 C9 30 F0 8F
CED3:03 4C 29 CE 20 53 CD A9 AB
CEDB:AB A0 CD 20 1E AB 20 E4 F7
CEE3:FF AA F0 FA C9 53 F0 04 7B
CEEB:C9 46 D0 F2 85 02 A0 CA 89
CEF3:B9 34 CF 99 33 03 88 D0 96
CEFB:F7 A9 09 A2 58 A0 CD 20 4C
CF03:BD FF A9 45 AE 33 CF A0 8D
CF0B:00 20 BA FF A2 00 AC 19 91
CF13:03 8A 20 D5 FF 20 44 FE 40
CF1B:4C 34 03 A9 45 AE 32 CF 02
CF23:A0 45 20 BA FF AD 34 CF 03
CF2B:A2 0B A0 01 4C BD FF 00 5C
CF33:00 00 38 A5 FB E9 FE A5 5F
CF3B:FC E9 03 B0 0D A9 88 8D EC
CF43:08 03 A9 CF 8D 09 03 4C BC
CF4B:57 CF A9 87 8D 08 03 A9 74
CF53:03 8D 09 03 20 1E CF A9 EB
CF5B:00 20 D5 FF 86 2D 84 2E DD
CF63:A5 FB F0 04 C9 01 F0 09 70
CF6B:A5 FC C9 08 D0 7B A0 03 8F
CF73:2C A0 02 B1 FB 85 14 C8 93
CF7B:B1 FB 85 15 20 60 A6 20 E4
CF83:A3 A8 4C AE A7 20 73 00 38
CF8B:C9 9E F0 42 C9 97 D0 38 80
CF93:A5 7B 48 A5 7A 48 E6 7A 85
CF9B:D0 02 E6 7B 20 EB B7 38 11
CFA3:A5 14 E9 87 A5 15 E9 03 29
CFAB:90 18 38 A5 14 E9 FE A5 E6
CFB3:15 E9 03 B0 0D A9 88 8D 71
CFBB:08 03 A9 CF 8D 09 03 4C 35
CFC3:C5 CF 68 85 7A 68 85 7B 9B
CFCB:20 79 00 4C E7 A7 A9 E4 B4
CFD3:8D 08 03 A9 A7 8D 09 03 BF
CFDB:20 73 00 20 8A AD 20 9B 51
CFE3:BC A5 64 85 FC A5 65 85 FE
CFEB:FB 46 02 B0 03 6C FB 00 28
CFF3:A5 FC 48 A5 FB 48 A9 20 7D
CFFB:48 6C 18 03 00 00 00 00 0E
```

ULTIMON.O

```
8000:EA EA EA A5 03 48 20 B9 1C
8008:E3 BA CA 9A 68 85 03 18 24
8010:69 0D 48 A9 43 48 60 20 C8
8018:2F 83 29 EF 8D 49 8D BA 1D
8020:8E B2 82 20 3E 83 A9 C0 7B
8028:8D 18 03 A9 82 8D 19 03 70
8030:A9 81 8D 71 86 A2 00 BD AB
8038:00 01 9D 4A 8D E8 D0 F7 7B
8040:8E 73 86 CA 9A A9 7B 8D E2
8048:E0 83 20 34 8A 20 13 83 60
8050:20 C1 82 78 A9 00 85 01 03
8058:A0 00 8C 61 84 8C 03 86 34
8060:8C 96 83 8C BB 83 8C D9 65
8068:82 8C 49 84 20 D0 82 A8 31
8070:BE ED 8A 8E E0 83 BC EF 05
8078:8B B9 C8 8C 8D 86 80 B9 D0
8080:C9 8C 8D 87 80 20 FF FF 38
8088:20 3E 83 A9 00 F0 33 58 B6
8090:10 08 AD B2 82 CD DC 82 04
8098:B0 25 A9 DF 8D 00 DC AD 42
80A0:01 DC C9 BF F0 11 A9 00 AD
80A8:F0 05 CE A7 80 F0 05 20 A9
80B0:55 83 F0 0B 4C 53 80 A9 66
80B8:0D 20 A8 FF 20 AE FF 20 39
80C0:C1 82 20 CE 83 20 85 85 61
80C8:20 36 87 F0 F5 C9 03 F0 35
80D0:3D C9 04 D0 13 AD 86 85 52
80D8:49 01 8D 86 85 F0 E0 20 AA
80E0:92 86 30 E4 54 47 45 42 AD
80E8:C9 0D D0 04 A9 40 D0 13 6F
80F0:AE 86 85 D0 D3 C9 22 D0 83
80F8:18 AC B2 82 C8 C8 8C DC 0F
8100:82 A9 80 8D 8C 80 AD 86 DF
8108:85 D0 03 20 92 86 4C 53 FE
8110:80 C9 11 D0 0B 8A 48 20 28
8118:D9 86 68 AA A9 01 D0 E3 38
8120:C9 29 D0 2B A2 04 20 90 15
8128:84 A2 04 20 DE 86 AD DC E1
8130:82 8D D1 82 AD DD 82 8D B1
8138:D2 82 A2 04 20 A3 83 20 90
8140:48 83 D0 05 A9 FF 8D B2 CD
8148:82 20 06 83 4C 53 80 C9 08
8150:1F D0 0B AD 16 D0 49 10 E9
8158:8D 16 D0 4C C8 80 C9 31 93
8160:D0 0B AD 01 84 49 01 8D 2D
8168:01 84 4C C2 80 C9 09 D0 D0
8170:09 20 92 86 20 E9 84 4C B8
8178:C5 80 C9 1D D0 0B 20 D9 56
8180:86 A9 40 8D 67 83 4C EC E0
8188:80 C9 15 D0 16 20 D9 86 59
8190:A9 8D 8D DB 82 A9 3D 20 90
8198:21 87 20 EB 86 20 DB 82 BF
81A0:4C C8 80 C9 24 D0 1D 20 67
81A8:D9 86 A9 AD 8D DB 82 A9 D4
81B0:3D 20 21 87 AD 55 80 85 40
81B8:01 20 DB 82 20 BE 84 20 0D
81C0:43 83 D0 B3 C9 0A D0 24 D7
81C8:A2 16 20 EB 86 8D 46 8D E9
81D0:48 CA CA 20 A6 83 20 48 D1
81D8:83 D0 0D AD 49 8D 48 28 87
81E0:68 08 68 8D 49 8D D0 01 23
81E8:68 4C C2 80 C9 17 D0 0B EA
81F0:A2 1B 20 EB 86 8D 47 8D 55
81F8:4C D0 81 C9 19 D0 0B A2 E7
8200:20 20 EB 86 8D 48 8D 4C F7
8208:D0 81 C9 1A D0 0B AD 11 CF
8210:D0 49 20 8D 11 D0 4C 71 82
8218:81 C9 14 D0 1D AD E8 8C DD
8220:D0 09 EE 2D 85 AD 2D 85 43
8228:4C 31 82 EE EF 84 AD EF BB
8230:84 8D 62 85 20 63 85 4C 65
8238:C8 80 C9 25 D0 16 AD EE 76
8240:89 49 01 8D EE 89 4A 90 18
8248:03 A9 2A 2C A9 20 8D 9F C9
8250:8A 4C C2 80 C9 12 D0 32 78
8258:20 D9 86 A9 80 8D 67 83 DB
8260:A9 04 20 B1 FF 20 BE ED 46
8268:A0 00 20 84 82 AD DD 82 13
8270:20 BE 84 AD DC 82 20 BE 90
8278:84 C8 20 84 82 4C EC 80 DD
8280:20 A8 FF C8 B9 C7 8A 10 5E
8288:F7 60 C9 39 D0 A9 20 92 6E
8290:86 AD 55 80 85 01 A2 00 6C
8298:BD 4A 8D 9D 00 01 E8 D0 41
82A0:F7 A9 17 8D 18 03 8D 16 C5
82A8:03 A9 80 8D 19 03 8D 17 89
82B0:03 A2 00 9A AD D2 82 48 8F
82B8:AD D1 82 48 20 20 83 08 6E
82C0:40 20 E9 84 A9 00 8D 8C 68
82C8:80 8D 86 85 8D 67 83 60 0C
82D0:B9 FF FF 99 D7 82 60 EA C0
82D8:EA EA 60 EA EA EA 60 A9 36
82E0:40 8D 61 84 20 C1 82 F0 DB
82E8:08 A9 03 2C A9 02 2C A9 D6
82F0:01 8D F9 82 18 20 13 83 2C
82F8:69 00 8D D1 82 AD D2 82 74
8300:69 00 8D D2 82 60 AD D2 5E
8308:82 8D D9 82 AD D1 82 8D 5E
8310:D8 82 60 AD D2 82 8D 44 0B
8318:8D AD D1 82 8D 45 8D 60 B0
8320:AD 49 8D 48 AC 48 8D AE D6
8328:47 8D AD 46 8D 28 60 08 26
8330:8D 46 8D 8E 47 8D 8C 48 FB
8338:8D 68 8D 49 8D 60 A5 01 A0
8340:8D 55 80 A9 36 85 01 60 38
8348:20 36 87 C9 01 F0 04 C9 18
8350:05 D0 F5 4A 60 A2 00 AD AC
8358:8C 80 4A B0 0E A0 07 AD C8
8360:61 84 C9 80 D0 2A A2 00 EE
8368:F0 26 24 A8 AD DC 82 D9 40
8370:D1 82 D0 1D AD DD 82 D9 B0
8378:D2 82 D0 15 E8 10 13 AD 50
8380:44 8D 20 BE 84 AD 45 8D EF
8388:20 BE 84 A9 20 20 A8 FF 4D
8390:E8 60 A9 00 60 A0 00 A2 81
8398:04 20 9C 83 20 9F 83 98 94
83A0:4C BC 83 20 A6 83 20 A9 9C
83A8:83 BD 9F 8A 49 80 4C 21 83
83B0:87 20 B7 83 20 B7 83 20 B9
83B8:BA 83 A9 00 1D 9F 8A 4C FB
83C0:21 87 B9 D8 8A 20 21 87 9D
83C8:C8 E0 13 D0 F5 60 A0 05 53
83D0:B9 44 8D BE 3E 8D 20 BE 8A
83D8:84 88 10 F4 20 95 83 A2 96
83E0:00 BD ED 8B 8D DC 82 BD 70
83E8:EE 8B 8D DD 82 A2 FD A9 1E
83F0:08 0E DD 82 2E DC 82 2A 77
83F8:90 F7 9D AB 89 E8 D0 EF 36
8400:A9 00 D0 08 20 5C 84 A2 96
8408:0E 4C B4 83 AC E0 83 BE A8
8410:EF 8B E0 03 B0 32 AC 95 7D
8418:87 D0 04 E0 02 F0 E5 C0 08
8420:02 F0 E1 A2 0C 20 99 84 65
8428:B9 36 8D A8 20 C2 83 38 23
8430:A9 10 ED F9 82 AA 4A 90 53
8438:05 A9 00 20 BE 84 A9 00 8B
8440:20 BE 84 A2 0D 4C B1 83 44
8448:A9 00 C9 6C D0 B6 A2 0C D8
8450:20 99 84 A0 00 20 C2 83 F3
8458:A2 0E D0 DD A2 0C A0 24 D8
8460:A9 00 30 4B F0 27 4A B0 62
8468:0B 4A B0 32 20 81 84 AD 80
8470:D7 82 D0 07 88 20 81 84 DC
8478:AD 3F 84 20 BE 84 4C 93 EE
8480:84 A9 20 20 21 87 D0 13 18
8488:A2 09 20 90 84 20 93 84 82
8490:20 99 84 20 99 84 20 99 5B
8498:84 A9 20 4C 21 87 20 81 FF
84A0:84 AD D2 82 20 BE 84 AD 8C
84A8:D1 82 20 BE 84 D0 EA 20 88
84B0:81 84 AD D9 82 20 BE 84 85
84B8:AD D8 82 4C AA 84 48 4A 26
84C0:4A 4A 4A 20 C9 84 68 29 27
84C8:0F 78 F8 18 69 90 2C 67 65
84D0:83 30 05 90 03 69 00 2C 3B
84D8:69 40 D8 58 2C 67 83 10 5D
84E0:03 4C A8 FF 9D 9F 8A E8 FC
84E8:60 A9 DB 8D 67 85 A9 01 86
84F0:8D 62 85 A9 FF 8D E8 8C 39
84F8:8D E9 8C AD 11 D0 29 20 ED
8500:F0 3C 20 6C 85 8D 67 85 14
8508:29 C0 8D E9 8C AD 18 D0 44
8510:29 08 0A 0A 0D E9 8C 09 C5
8518:1E 8D E9 8C 8D D1 86 AA 07
8520:E8 8E EB 8C A9 00 8D E8 DA
8528:8C 8D D0 86 A9 10 8D 62 6A
8530:85 A9 9A 8D D3 86 A9 8E 2F
8538:8D D4 86 20 C2 86 20 6C EE
```


www.commodore.ca

```
8540:85 8D E1 8C 8D E3 8C 8D 19
8548:95 85 8D 54 85 8D B7 86 CE
8550:A0 27 B9 C0 07 99 4A 8E 7A
8558:B9 C0 DB 99 72 8E 88 10 74
8560:F1 A9 00 A0 27 99 C0 DB D5
8568:88 10 FA 60 AD 18 D0 29 B9
8570:F0 4A 4A 09 03 8D 83 85 3B
8578:AD 00 DD 6A 6A 6A 29 C0 CC
8580:49 C0 09 00 60 A9 00 D0 FB
8588:10 AD E8 8C F0 0C A0 27 0D
8590:B9 9F 8A 99 C0 07 88 10 8E
8598:F7 60 8A 48 AD E8 8C 8D 45
85A0:D9 85 AD E9 8C 8D DA 85 24
85A8:78 AD 18 D0 4A 29 01 09 6D
85B0:1A 8D BD 85 A5 01 29 FB BB
85B8:85 01 A0 00 A9 00 8D D7 1B
85C0:85 B9 9F 8A 0A 2E D7 85 D7
85C8:0A 2E D7 85 0A 8D D6 85 71
85D0:2E D7 85 A2 07 BD FF FF F2
85D8:9D FF FF CA 10 F7 AD D9 F4
85E0:85 69 08 8D D9 85 90 03 EB
85E8:EE DA 85 C8 C0 28 D0 CC 74
85F0:A5 01 09 04 85 01 58 68 B9
85F8:AA 60 A0 FF 8C 03 86 EE F1
8600:03 86 A9 00 0A 0A A8 20 4F
8608:84 86 B0 0A AD 03 86 C9 FF
8610:06 90 EC 4C EF 87 C8 C8 9E
8618:20 84 86 B0 EF AD 03 86 F4
8620:C9 04 F0 3A B0 40 0A A8 18
8628:0A AA 38 AD D8 82 48 FD 26
8630:E0 8C 8D D8 82 AD D9 82 11
8638:48 FD E1 8C 8D D9 82 18 DE
8640:AD D8 82 79 00 8D 8D D8 6C
8648:82 AD D9 82 79 01 8D 8D DD
8650:D9 82 20 EF 87 68 8D D9 C0
8658:82 68 8D D8 82 60 A9 80 69
8660:8D BB 83 4C F4 82 20 26 70
8668:86 AD 49 8D 29 04 D0 13 34
8670:A9 00 A0 00 8D 0D DC 8C 4D
8678:1A D0 AD 19 D0 8D 19 D0 CD
8680:AD 0D DC 60 38 AD D8 82 F5
8688:F9 E0 8C AD D9 82 F9 E1 E5
8690:8C 60 AD E8 8C D0 19 A9 C3
8698:9A 8D D0 86 A9 8E 8D D1 4D
86A0:86 AD E8 8C 8D D3 86 AD B8
86A8:E9 8C 8D D4 86 20 C2 86 8D
86B0:A0 27 B9 4A 8E 99 C0 07 17
86B8:B9 72 8E 99 C0 DB 88 10 41
86C0:F1 60 A0 00 20 CF 86 EE 2F
86C8:D1 86 EE D4 86 A0 3F B9 7A
86D0:FF FF 99 FF FF 88 D0 F7 CC
86D8:60 20 88 84 A2 09 20 F7 E8
86E0:86 8D DD 82 20 F7 86 8D F3
86E8:DC 82 60 20 EF 86 60 8E FB
86F0:F6 86 20 96 84 A2 00 20 57
86F8:07 87 0A 0A 0A 0A 8D 05 E5
8700:87 20 07 87 09 00 60 A9 E6
8708:2A 20 21 87 CA 20 36 87 9B
8710:F0 1B A0 0F D9 0E 8D F0 76
8718:05 88 10 F8 30 EF B9 1E 30
8720:8D 9D 9F 8A 98 48 20 85 A5
8728:85 68 A8 E8 60 68 68 68 95
8730:68 68 68 4C C2 80 78 8A F2
8738:48 A5 C6 48 A0 0A A2 FF A4
8740:CA D0 FD 88 D0 F8 A9 FF EE
8748:8D 02 DC A9 00 8D 03 DC ED
8750:20 9F FF A5 C5 C9 40 D0 58
8758:05 8D 6C 87 F0 DE CD 6C 5E
8760:87 F0 D9 8D 6C 87 68 85 5B
8768:C6 68 AA A9 40 58 60 AD B6
8770:D7 82 48 8D 55 88 4A 4A 99
8778:29 07 8D 95 87 A8 B9 2E 69
8780:8D 8D F9 82 68 29 E3 09 D9
8788:0C 8D D7 82 A0 01 20 D0 3E
8790:82 8D 3F 84 A9 00 60 AD 30
8798:95 87 C9 03 F0 14 4A B0 DA
87A0:06 20 B3 87 4C AA 87 20 E5
87A8:BA 87 AD D9 82 69 00 8D 91
87B0:D9 82 60 AD 48 8D A0 07 F4
87B8:D0 05 AD 47 8D A0 0F 18 C0
87C0:6D D8 82 8D D8 82 8C 3B 0B
87C8:8D 60 C8 8C D1 87 A0 01 87
87D0:B5 00 99 D8 82 CA 88 10 DB
87D8:F7 60 20 6F 87 C9 02 D0 2F
87E0:1C A0 01 8C 61 84 88 20 5D
87E8:D0 82 A9 EA 8D D9 82 08 C5
87F0:20 20 83 20 D7 82 20 2F C2
87F8:83 28 4C F4 82 6A 6A 90 CF
8800:1D A0 02 20 D0 82 8D 3A EF
8808:84 20 97 87 A9 80 8D 61 9A
8810:84 AD 8C 80 D0 03 4C FA 8E
8818:85 A0 02 4C FC 85 2A 90 FB
8820:0A 4A 4A 90 E7 20 BA 87 D7
8828:4C 0C 88 AC D8 82 4A 4A ED
8830:90 0B A2 00 20 CA 87 20 FB
8838:A1 87 4C 0C 88 AE 47 8D 61
8840:20 CA 87 30 C7 20 6F 87 2D
8848:F0 97 C9 02 D0 0B CE F9 5B
8850:82 08 20 20 83 EA 4C F6 02
8858:87 4A 4A 90 15 4A 90 A1 A6
8860:AD D7 82 C9 AE F0 04 C9 36
8868:AF D0 96 A9 06 8D 95 87 0C
8870:D0 8F 4A 90 97 AD D7 82 C5
8878:29 DE C9 8E D0 A7 20 B3 11
8880:87 4C 0C 88 AD D7 82 8D D1
8888:55 88 C9 78 D0 07 A9 7F 9C
8890:A0 00 20 74 86 C9 58 D0 1A
8898:03 20 70 86 A9 01 8D F9 10
88A0:82 D0 AE AD D7 82 8D F7 B3
88A8:88 A0 01 20 D0 82 30 15 4E
88B0:18 20 13 83 6D D8 82 8D D1
88B8:D8 82 AD D2 82 69 00 8D 01
88C0:D9 82 4C DF 88 49 FF 18 68
88C8:69 01 8D D8 82 38 20 13 56
88D0:83 ED D8 82 8D D8 82 AD E4
88D8:D2 82 E9 00 8D D9 82 18 22
88E0:AD D8 82 69 02 8D D8 82 60
88E8:90 03 EE D9 82 A9 81 8D C9
88F0:61 84 AD 49 8D 48 28 F0 EC
88F8:03 4C EC 82 AD D8 82 8D C7
8900:D1 82 AD D9 82 8D D2 82 62
8908:60 20 EF 82 AC B2 82 AD 5C
8910:49 8D AE E0 83 E0 6F B0 3E
8918:0E E0 6C F0 03 AD 46 8D EF
8920:99 4A 8D CE B2 82 60 D0 62
8928:0E C8 48 28 B9 4A 8D 08 1A
8930:8D 46 8D 68 4C 3B 89 C8 FE
8938:B9 4A 8D 8D 49 8D 8C B2 91
8940:82 60 AD E0 83 C9 9C F0 DD
8948:09 AD 47 8D 8D B2 82 4C 95
8950:EF 82 AD 49 8D 48 28 AE D2
8958:B2 82 08 8E 47 8D 68 8D 1E
8960:49 8D 4C EF 82 AD E0 83 14
8968:C9 54 D0 1B AC B2 82 88 FE
8970:18 AD D1 82 69 02 99 4A 2E
8978:8D C8 AD D2 82 69 00 99 BA
8980:4A 8D 88 88 8C B2 82 20 0A
8988:13 83 A0 01 20 D0 82 AA 1E
8990:C8 20 D0 82 8E D1 82 8E A1
8998:3F 84 8D D2 82 8D 3A 84 8E
89A0:AC D7 82 C0 6C D0 1D 8C C9
89A8:49 84 A0 4C 8C D7 82 E8 0C
89B0:8E B9 89 8D BA 89 A0 01 C1
89B8:AD FF FF 99 D1 82 CE B9 2C
89C0:89 88 10 F4 20 06 83 A9 D5
89C8:80 8D 61 84 A0 1C 20 84 2E
89D0:86 90 11 C8 C8 20 84 86 50
89D8:B0 0A 20 55 83 D0 06 20 AB
89E0:C1 82 F0 09 60 2C 67 83 2A
89E8:10 03 EE A7 80 A9 00 D0 98
89F0:1A AD 8C 80 0D 86 85 D0 74
89F8:EB A9 80 8D BB 83 20 CE 50
8A00:83 A9 00 8D BB 83 20 48 8E
8A08:83 D0 D9 AD 8C 80 0D 86 30
8A10:85 D0 03 20 92 86 20 20 8D
8A18:83 20 D7 82 20 2F 83 AD 8C
8A20:8C 80 0D 86 85 D0 03 20 3B
8A28:E9 84 A9 7E 8D E0 83 A9 11
8A30:80 8D 96 83 20 13 83 AC F4
8A38:B2 82 AE E0 83 E0 7E F0 B8
8A40:07 C8 B9 4A 8D 8D 49 8D A9
8A48:C8 B9 4A 8D 8D D1 82 C8 D3
8A50:B9 4A 8D 8D D2 82 8C B2 CB
8A58:82 E0 7E D0 08 EE D1 82 E5
8A60:D0 03 EE D2 82 20 06 83 CD
8A68:A9 02 8D 61 84 60 AC B2 4C
8A70:82 20 13 83 20 EC 82 99 BC
8A78:4A 8D 88 AD D1 82 99 4A 18
8A80:8D 88 AD 49 8D 09 14 99 1B
8A88:4A 8D 88 8C B2 82 AD FE F9
8A90:FF 8D D1 82 AD FF FF 8D 66
8A98:D2 82 20 C1 82 F0 C6 20 5D
8AA0:10 03 3D 20 20 20 20 20 0A
8AA8:20 20 20 20 20 20 20 20 BD
8AB0:20 20 20 01 3D 20 20 20 BC
8AB8:18 3D 20 20 20 19 3D 20 2F
8AC0:20 20 13 12 3D 20 20 48 64
8AC8:55 4E 54 49 4E 47 20 46 51
8AD0:4F 52 20 24 FF 3A 0D FF 6B
8AD8:28 20 20 2C 18 29 28 20 A6
8AE0:20 29 2C 19 20 20 20 20 49
8AE8:20 20 2C 18 20 1E 66 AB 0F
8AF0:B1 AE 66 06 B1 6C 66 06 C9
8AF8:B1 A8 66 06 B1 1B 66 AB B0
8B00:B1 AE 66 06 B1 27 66 63 23
8B08:B1 A8 66 06 B1 54 03 AB DF
8B10:B4 12 03 75 B4 72 03 75 A8
8B18:B4 12 03 75 B4 15 03 AB 71
8B20:B4 AE 03 75 B4 84 03 63 16
8B28:B4 A8 03 75 B4 7B 45 AB 45
8B30:B7 AE 45 60 B7 69 45 60 CB
8B38:C9 51 45 60 B7 21 45 AB AF
8B40:B7 AE 45 60 B7 2D 45 63 ED
8B48:B7 A8 45 60 B7 7E 00 AB 77
8B50:BA AE 00 78 BA 6F 00 78 04
8B58:CC 51 00 78 BA 24 00 AB C3
8B60:BA AE 00 78 BA 8A 00 63 6B
8B68:BA A8 00 78 BA AE 8D AE E8
8B70:BD 93 8D 90 BD 42 AB 9F F3
8B78:AB 93 8D 90 BD 09 8D AB DD
8B80:AB 93 8D 90 D8 A5 8D A2 28
8B88:AB AB 8D AB AB 5D 57 5A A8
8B90:C0 5D 57 5A C0 99 57 96 A1
8B98:CF 5D 57 5A C0 0C 57 AB 10
8BA0:C0 5D 57 5A C0 30 57 9C 12
8BA8:AB 5D 57 5A D5 39 33 AE 26
8BB0:C3 39 33 3C C3 4E 33 3F 1F
8BB8:D2 39 33 3C C3 18 33 AB 42
8BC0:C3 AE 33 3C C3 2A 33 63 20
8BC8:C3 A8 33 3C C3 36 81 AE BE
```


www.commodore.ca

```
8BD0:C6 36 81 48 C6 4B 81 63 57
8BD8:AB 36 81 48 C6 0F 81 AB 29
8BE0:C6 AE 81 48 C6 87 81 63 76
8BE8:C6 A8 81 48 C6 09 06 00 A8
8BF0:0B 88 00 0C D8 02 10 C6 26
8BF8:06 10 E6 06 11 62 06 12 84
8C00:68 00 13 52 06 13 8A 06 6C
8C08:14 18 06 14 96 10 15 86 D8
8C10:06 15 A6 06 1B 06 08 1B C2
8C18:08 08 1B 12 08 1B 2C 08 C8
8C20:1B 60 00 1C 30 02 1C 32 94
8C28:02 21 46 02 21 70 08 21 6F
8C30:72 08 2B E4 00 4B 86 02 74
8C38:4B B0 08 4B B2 08 53 60 95
8C40:04 54 E4 04 61 02 00 61 C1
8C48:30 02 61 32 02 64 E4 02 B6
8C50:73 E0 08 7C 82 00 82 02 3F
8C58:0A 82 20 0A 83 02 0A 83 77
8C60:20 0A 93 D8 02 93 E4 02 36
8C68:95 12 0E 95 26 0E 98 86 0D
8C70:00 99 46 08 99 48 08 99 D0
8C78:52 08 9D 02 00 9D 30 02 69
8C80:9D 32 02 A0 70 08 A0 72 96
8C88:08 A4 F0 0C A6 02 08 A6 A1
8C90:26 0C A6 42 08 9A EF 12 55
8C98:FF FE 14 9A C5 16 0C DF 1C
8CA0:00 93 03 00 64 CB 00 94 E5
8CA8:83 00 0E 27 00 60 71 00 1C
8CB0:20 DB 00 4B A7 00 0B 25 FD
8CB8:00 0C A5 00 78 59 00 98 4B
8CC0:71 00 60 71 02 0E 27 02 4E
8CC8:DA 87 45 88 65 89 A3 88 83
8CD0:84 88 09 89 42 89 34 8A 33
8CD8:6E 8A E9 82 DF 82 EC 82 96
8CE0:C0 07 E8 07 C0 DB E8 DB CC
8CE8:00 00 40 00 00 01 00 02 10
8CF0:00 80 DA 8F 0D DC 0E DC 53
8CF8:1A D0 1B D0 81 FF FA FF C5
8D00:4A 8E 72 8E 9A 8E 4A 8D 4C
8D08:00 00 71 86 73 86 23 38 ED
8D10:3B 08 0B 10 13 18 1B 20 7C
8D18:0A 1C 14 12 0E 15 30 31 39
8D20:32 33 34 35 36 37 38 39 33
8D28:01 02 03 04 05 06 02 02 2B
8D30:02 03 02 02 03 03 00 0C 9D
8D38:0C 0C 06 0F 06 0E 04 06 84
8D40:16 1B 20 26 A5 FE 48 A5 F2
8D48:FD 48 A5 FC 48 A5 FB 48 12
8D50:A5 23 48 A5 22 48 A5 25 0D
8D58:48 A5 24 48 A5 27 48 A5 0A
8D60:26 48 A5 02 48 A5 04 48 9E
8D68:A5 28 48 A9 00 85 FD A6 BC
8D70:03 86 FE A9 9E 85 FB A9 D5
8D78:17 8D 18 03 8D 16 03 18 98
8D80:8A 8D 19 03 8D 16 03 69 CB
8D88:0A 85 FC A9 ED 85 22 18 26
8D90:8A 69 0A 85 23 A9 EF 85 0A
8D98:24 18 8A 69 0B 85 25 A9 16
8DA0:2E 85 26 18 8A 69 0D 85 14
8DA8:27 38 A5 FB E5 FD A5 FC 49
8DB0:E5 FE 90 5F A0 00 B1 FD EC
8DB8:85 28 A8 B1 22 A8 B1 24 0C
8DC0:C9 04 90 14 C9 05 B0 04 DC
8DC8:A9 03 D0 20 C9 07 90 03 24
8DD0:A9 01 2C A9 02 AA D0 14 91
8DD8:AA A5 28 29 1C 4A 4A 85 6E
8DE0:28 A8 B1 26 C0 02 D0 04 86
8DE8:E0 02 F0 E4 85 04 C9 03 34
8DF0:D0 14 A0 02 B1 FD C9 80 47
8DF8:90 0C C9 90 B0 08 38 E9 A1
```

```
8E00:80 18 65 03 91 FD 18 A5 9A
8E08:FD 65 04 85 FD 90 9A E6 A4
8E10:FE B0 96 A9 8B 85 FD 18 CC
8E18:A5 03 69 0E 85 FE A2 19 5D
8E20:8A 0A A8 B1 FD 85 FB C8 FB
8E28:B1 FD 18 65 03 85 FC A0 BF
8E30:00 B1 FB 38 E9 80 18 65 A3
8E38:03 91 FB CA 10 E2 A0 16 CA
8E40:B9 74 8E 99 00 80 88 10 E5
8E48:F7 68 85 28 68 85 04 68 78
8E50:85 02 68 85 26 68 85 27 1B
8E58:68 85 24 68 85 25 68 85 2D
8E60:22 68 85 23 68 85 FB 68 45
8E68:85 FC 68 85 FD 68 85 FE 88
8E70:68 85 03 60 EA EA EA 08 6A
8E78:48 8A 48 BA FE 04 01 D0 EB
8E80:03 FE 05 01 68 AA 68 EA 39
8E88:EA EA EA 2C 00 AA 02 37 DB
8E90:05 9D 06 F1 0C F3 0C 01 C0
8E98:0D 03 0D 05 0D 07 0D 0B 98
8EA0:0D 0D 0D C9 0C CB 0C CD 3B
8EA8:0C CF 0C D1 0C D3 0C D5 FB
8EB0:0C D7 0C D9 0C DB 0C DD AE
8EB8:0C DF 0C 42 0E 45 0E 00 1B
```

Ed Balchick is an electrical engineer from Pittsburgh, Pennsylvania, who enjoys programming in machine language and in C. Ted Green is an unemployed painter from Cleveland, Ohio, who also enjoys programming. They both enjoy modifying other people's games so they (Ed and Ted) can win them.

RASCALS

By Bob Broderick

Just before dozing off during another boring haul of galactic space animals in your freighter, you notice a red light on the control panel. Uh-oh! That warning light means there's been a power failure in the cargo hold, and all of the animals have escaped from their electric holding cells. They are a wild and dangerous bunch, but you've got to get them corralled. Without a moment's hesitation, you suit up and set out to recapture those intergalactic rascals!

Rascals combines arcade action with strategy in a fast-paced game for the 64 that is written entirely in machine language. To enter it, you'll have to use MLX, our machine language entry program. See "Typing Aids" elsewhere in this section. When MLX prompts for starting and ending addresses, respond with the following.

Starting address: 0801
Ending address: 10B8

Be sure to save a copy of the program before you exit MLX. Although Rascals is written in machine language, it loads and runs like a BASIC program.

Playing the Game

As the brave freighter captain, you control the figure in the lower right-hand corner of the screen. Use keys I, J, L, and K to move it up, left, right, and down, respectively. The object is to trap all the moving creatures on the screen. To do this, you must push crates that are scattered around the screen to form a corral, surrounding a rascal. The rascal mustn't be able to move in any direction, including diagonally, or it will escape. You can move as many crates at one time as you like.

Warning! This is a serious game. You have one life and can lose it by coming in contact with a rascal. If all the rascals have been boxed in, you've won the game. After each game, type *Y* to play again or *N* to end.

A Few Questions

However, before you can begin play, you must answer the questions on the opening screen. The first question will ask you how many rascals you want loose in the hold. Enter a number from 1 to 7. Remember, the fewer rascals there are, the faster they'll go!

The next question regards the number of crates available to you. A higher number will give you more boxes, making the game easier. A setting of 1 will give you the least amount of crates.

The third question regulates the speed at which the rascals move. A setting of 1 is the fastest, while 9 is the slowest. Finally, you will need to confirm your answers to begin play.

A timer at the top of the screen counts the number of moves the rascals have made, so you can compete against your best efforts. Enjoy—and get those rascals!

RASCALS

```
0801:0C 08 0A 00 9E 20 32 30 64
0809:36 34 00 00 00 00 FF A2 E3
0811:00 BD 49 08 9D EB 1F E8 FD
0819:D0 F7 EE 14 08 EE 17 08 E0
0821:AD 17 08 C9 29 D0 E8 A9 73
0829:38 A2 31 A0 39 8D 07 08 44
0831:8E 08 08 8C 09 08 E8 8E 1D
0839:0A 08 4C 00 20 00 00 00 DA
```

www.commodore.ca

```
0841:00 00 00 00 00 00 00 6F C0
0849:A9 07 8D 86 02 8D 21 D0 63
0851:A9 93 20 D2 FF A9 00 8D 80
0859:21 D0 60 00 FF A9 00 8D 6E
0861:21 D0 A9 0E 8D 20 D0 78 53
0869:A5 01 29 FB 85 01 A2 00 E6
0871:BD 00 D8 9D 00 38 BD 00 B1
0879:D9 9D 00 39 BD 00 DA 9D B2
0881:00 3A BD 00 DB 9D 00 3B 68
0889:BD E1 27 9D 00 3C BD 00 1C
0891:DD 9D 00 3D BD 00 DE 9D 15
0899:00 3E CA D0 D3 A5 01 09 DF
08A1:04 85 01 58 A2 00 BD AA F5
08A9:21 9D 54 28 E8 D0 F7 20 59
08B1:72 24 20 5E 20 20 CB 21 28
08B9:4C 52 20 78 A9 01 8D 1A 96
08C1:D0 8D 12 D0 A9 7F 8D 0D 60
08C9:DC A9 1B 8D 11 D0 A9 83 91
08D1:A2 20 8D 14 03 8E 15 03 AD
08D9:AD D9 25 8D A9 21 58 60 97
08E1:EE 19 D0 CE A9 21 D0 09 33
08E9:AD D9 25 8D A9 21 20 9A 71
08F1:20 AD 0D DC 4C 31 EA AE 98
08F9:9E 21 BD AA 21 38 E9 29 EA
0901:85 FC BD AB 21 E9 00 85 BD
0909:FD A0 00 A2 00 20 6F 21 EC
0911:A0 28 20 6F 21 A0 50 20 C4
0919:6F 21 E0 00 D0 06 EE 6A 2E
0921:21 4C 15 21 8E 6C 21 AD A1
0929:1B D4 CD 6C 21 B0 F8 AA E6
0931:BD A0 21 AA A0 29 B1 FC 23
0939:48 A9 20 91 FC 8A A8 B1 0C
0941:FC 8D 6B 21 68 91 FC 48 80
0949:AE 9E 21 8C 6C 21 A5 FC 77
0951:18 6D 6C 21 9D AA 21 A5 E9
0959:FD 69 00 9D AB 21 A5 FD C9
0961:18 69 D4 85 FD 68 91 FC 7E
0969:AD 6B 21 C9 87 D0 03 EE 62
0971:BA 21 EE 9E 21 EE 9E 21 14
0979:EE 6E 21 AD 6E 21 CD D7 09
0981:25 F0 01 60 AD 6A 21 CD AF
0989:D7 25 D0 03 EE 6D 21 A9 34
0991:00 8D 9E 21 8D 6E 21 8D E2
0999:6A 21 8D 9F 21 A2 30 EE B7
09A1:97 04 AD 97 04 C9 3A D0 3C
09A9:1D 8E 97 04 EE 96 04 AD A8
09B1:96 04 C9 3A D0 10 8E 96 67
09B9:04 EE 95 04 AD 95 04 C9 12
09C1:3A D0 03 8E 95 04 60 00 EB
09C9:00 00 00 00 20 90 21 B0 12
09D1:03 20 8A 21 C8 20 90 21 D9
09D9:B0 03 20 8A 21 C8 20 90 AE
09E1:21 B0 03 20 8A 21 60 98 45
09E9:9D A0 21 E8 60 B1 FC C9 33
09F1:87 F0 04 C9 20 D0 02 18 81
09F9:60 38 60 00 00 00 00 00 56
0A01:00 00 00 00 00 00 00 ED 03
0A09:04 0D 05 2A 05 6B 05 D3 59
0A11:05 11 06 A1 06 BE 07 00 FF
0A19:A9 00 8D BA 21 4C 72 23 A1
0A21:A9 00 8D 6D 21 4C 48 23 80
0A29:AD BA 21 D0 EB AD 6D 21 06
0A31:D0 EE 20 E4 FF F0 F1 C9 2D
0A39:49 D0 03 4C F6 21 C9 4A 65
0A41:D0 03 4C FA 23 C9 4B D0 5F
0A49:03 4C BE 23 C9 4C D0 D8 F5
0A51:4C 34 24 AD B8 21 38 E9 9C
0A59:28 85 FE AD B9 21 E9 00 C3
0A61:85 FF A9 A8 8D BA 23 A0 36
0A69:00 B1 FE 30 22 A9 87 91 25
0A71:FE A9 20 A0 28 91 FE A5 A8
0A79:FE 8D B8 21 A5 FF 8D B9 9B
0A81:21 18 69 D4 85 FF A0 00 14
0A89:A9 04 91 FE 4C CB 21 C9 33
0A91:89 D0 03 4C CB 21 C9 88 C2
0A99:F0 06 4C 72 23 4C CB 21 5B
0AA1:AD BA 23 10 03 4C C9 22 9F
0AA9:A2 01 A5 FE 18 6D BA 23 03
0AB1:85 FE A5 FF 69 00 85 FF 53
0AB9:A0 00 B1 FE C9 20 F0 0C 01
0AC1:C9 89 F0 CB C9 88 D0 D5 DF
0AC9:E8 4C 4D 22 A5 FE 85 39 9E
0AD1:A5 FF 18 69 D4 85 3A A9 2D
0AD9:0F A0 00 91 39 A5 FE 38 4D
0AE1:ED BA 23 85 FE A5 FF E9 D0
0AE9:00 85 FF A0 00 B1 FE AC DA
0AF1:BA 23 91 FE CA D0 E6 A9 5F
0AF9:20 A0 00 91 FE AD B8 21 A0
0B01:18 6D BA 23 8D B8 21 AD 47
0B09:B9 21 69 00 8D B9 21 A5 AC
0B11:FF 18 69 D4 85 FF A9 04 2B
0B19:AC BA 23 91 FE 4C CB 21 93
0B21:4C 32 22 4C CB 21 38 E9 30
0B29:80 8D BA 23 A2 02 A5 FE D3
0B31:38 ED BA 23 85 FE A5 FF DB
0B39:E9 00 85 FF A0 00 B1 FE 5C
0B41:C9 20 F0 0C C9 89 F0 D8 52
0B49:C9 88 D0 D7 E8 4C D1 22 3C
0B51:A5 FE 85 39 A5 FF 18 69 05
0B59:D4 85 3A A9 0F 91 39 AC FA
0B61:BA 23 B1 FE A0 00 91 FE EA
0B69:CA F0 11 A5 FE 18 6D BA 8B
0B71:23 85 FE A5 FF 69 00 85 DF
0B79:FF 4C 02 23 A9 20 AC BA F6
0B81:23 91 FE AD B8 21 38 ED F0
0B89:BA 23 8D B8 21 AD B9 21 57
0B91:E9 00 8D B9 21 A5 FF 18 A1
0B99:69 D4 85 FF A9 04 A0 00 E8
0BA1:91 FE 4C CB 21 20 5E 23 EF
0BA9:A2 08 BD 4B 28 9D D0 04 DC
0BB1:A9 01 9D DA D8 CA D0 F2 C4
0BB9:4C 75 23 A2 00 BD 31 28 63
0BC1:F0 0C 9D D0 04 A9 01 9D 7A
0BC9:D0 D8 E8 4C 60 23 60 20 D0
0BD1:5E 23 78 A9 31 A2 EA 8D 01
0BD9:14 03 8E 15 03 A9 78 8D 1B
0BE1:19 D0 A9 F0 8D 1A D0 A9 1D
0BE9:FF 8D 0D DC A2 00 BD 54 B7
0BF1:28 9D AA 21 CA D0 F7 58 CC
0BF9:A2 00 20 E4 FF CA D0 FA 7B
0C01:20 E4 FF F0 FB C9 4E F0 06
0C09:0B C9 59 D0 F3 EA A9 00 EF
0C11:8D 21 D0 60 4C E2 FC 00 40
0C19:4C 32 22 AD B8 21 85 FE 57
0C21:AD B9 21 85 FF A0 28 8C 5A
0C29:BA 23 B1 FE 30 EA A9 87 95
0C31:91 FE A9 20 A0 00 91 FE 30
0C39:A5 FE 18 69 28 8D B8 21 87
0C41:A5 FF 69 00 8D B9 21 A5 94
0C49:FF 18 69 D4 85 FF A0 28 77
0C51:A9 04 91 FE 4C CB 21 AD E2
0C59:B8 21 38 E9 01 85 FE AD 85
0C61:B9 21 E9 00 85 FF A0 00 49
0C69:A9 81 8D BA 23 B1 FE 30 22
0C71:5B A9 87 91 FE A9 20 C8 53
0C79:91 FE A5 FE 8D B8 21 A5 F5
0C81:FF 8D B9 21 18 69 D4 85 DB
0C89:FF 88 A9 04 91 FE 4C CB 26
0C91:21 AD B8 21 85 FE AD B9 0C
0C99:21 85 FF A0 01 8C BA 23 80
0CA1:B1 FE 30 28 A9 87 91 FE 68
0CA9:A9 20 88 91 FE A5 FE 8D E2
0CB1:B8 21 A5 FF 8D B9 21 EE A7
0CB9:B8 21 D0 03 EE B9 21 18 79
0CC1:69 D4 85 FF C8 A9 04 91 FA
0CC9:FE 4C CB 21 4C 32 22 20 8F
0CD1:61 25 20 DF 24 20 2A 25 01
0CD9:20 8D 24 A2 00 BD 41 27 B4
0CE1:F0 07 9D 00 04 E8 4C 80 C4
0CE9:24 60 AC D7 25 A2 80 8E 82
0CF1:ED 04 8E ED D8 88 F0 39 B6
0CF9:E8 8E 0D 05 8E 0D D9 88 01
0D01:F0 2F E8 8E 2A 05 8E 2A 12
0D09:D9 88 F0 25 E8 8E 6B 05 FF
0D11:8E 6B D9 88 F0 1B E8 8E 65
0D19:D3 05 8E D3 D9 88 F0 11 51
0D21:E8 8E 11 06 8E 11 DA 88 CC
0D29:F0 07 E8 8E A1 06 8E A1 67
0D31:DA A2 87 8E BE 07 A9 14 B4
0D39:8D BE DB 60 A9 FF 8D 0F C2
0D41:D4 A9 0F 8D 86 02 8D 21 63
0D49:D0 A9 93 20 D2 FF A9 0C A0
0D51:8D 21 D0 A9 81 8D 12 D4 6A
0D59:A9 00 A2 04 85 FC 86 FD 08
0D61:A2 09 AD 1B D4 CD D8 25 2B
0D69:90 13 E6 FC D0 02 E6 FD 97
0D71:A5 FC C9 E7 D0 EA A5 FD D0
0D79:C9 07 D0 E4 60 A9 88 A0 FD
0D81:00 91 FC 4C 0D 25 00 A2 04
0D89:28 A9 89 9D 9F 04 9D BF 35
0D91:07 CA D0 F7 A2 27 A0 04 72
0D99:86 FC 84 FD A2 17 A9 89 F4
0DA1:8D BF 07 A0 00 91 FC C8 66
0DA9:91 FC CA F0 10 A5 FC 18 5D
0DB1:69 28 85 FC A5 FD 69 00 03
0DB9:85 FD 4C 41 25 60 A9 93 45
0DC1:20 EB 1F A9 1E 8D 18 D0 8D
0DC9:A2 00 BD DA 25 9D 00 04 3E
0DD1:BD 41 26 9D 67 04 E8 D0 A7
0DD9:F1 A9 38 8D D3 25 20 C3 6E
0DE1:25 8D B7 04 38 E9 30 8D 80
0DE9:D7 25 A9 B6 8D DF 04 A9 77
0DF1:3A 8D D3 25 20 C3 25 8D 41
0DF9:DF 04 38 E9 0B 8D D8 25 10
0E01:A9 B5 8D 07 05 20 C3 25 D6
0E09:8D 07 05 18 E9 2F 8D D9 D0
0E11:25 A9 A0 8D 2F 05 20 E4 C9
0E19:FF F0 FB C9 4E F0 9F 60 63
0E21:20 E4 FF CA D0 FA 20 E4 CA
0E29:FF F0 FB C9 31 90 F7 C9 23
0E31:38 B0 F3 60 00 02 00 88 AA
0E39:88 88 88 88 88 88 88 88 55
0E41:88 88 88 88 88 88 88 88 5D
0E49:88 88 88 88 88 88 88 88 65
0E51:88 88 88 88 88 88 88 88 6D
0E59:88 88 88 88 88 88 88 88 75
0E61:20 80 20 20 20 20 20 52 C7
0E69:20 20 20 41 20 20 20 53 CA
0E71:20 20 20 43 20 20 20 41 E0
0E79:20 20 20 4C 20 20 20 53 8B
0E81:20 20 20 20 80 20 88 88 D9
0E89:20 20 20 20 20 20 20 20 A5
0E91:20 20 20 42 19 20 42 0F CA
0E99:02 20 42 12 0F 04 05 12 CC
0EA1:09 03 0B 20 20 20 20 20 48
0EA9:20 20 20 20 20 20 88 88 FE
0EB1:88 88 88 88 88 88 88 88 CD
0EB9:88 88 88 88 88 88 88 88 D5
0EC1:88 88 88 88 88 88 88 88 DD
0EC9:88 88 88 88 88 88 88 88 E5
```


www.commodore.ca

```
0ED1:88 88 88 88 88 88 88 20 85
0ED9:20 20 20 20 20 20 20 20 F5
0EE1:23 20 0F 06 20 52 01 13 39
0EE9:03 01 0C 13 3F 20 B7 20 84
0EF1:20 28 31 2D 37 29 20 20 DF
0EF9:20 20 20 20 20 20 20 20 16
0F01:20 20 20 20 20 20 20 43 42
0F09:12 01 14 05 20 44 05 0E 6D
0F11:13 09 14 19 3F 20 36 20 16
0F19:20 28 31 2D 39 29 20 20 19
0F21:20 20 20 20 20 20 20 20 3F
0F29:20 20 20 20 20 20 20 52 79
0F31:01 13 03 01 0C 13 20 53 45
0F39:10 05 05 04 3F 20 35 20 86
0F41:20 28 31 2D 39 29 20 20 41
0F49:20 20 20 20 20 20 20 20 67
0F51:20 20 20 20 20 20 20 41 90
0F59:02 0F 16 05 20 43 0F 12 8D
0F61:12 05 03 14 3F 20 20 20 46
0F69:20 28 59 2F 4E 29 20 20 37
0F71:20 20 20 20 20 20 20 20 8F
0F79:4B 05 19 13 3A 20 49 2D E4
0F81:55 10 20 20 20 4A 2D 52 2B
0F89:09 07 08 14 20 20 20 4B 3D
0F91:2D 44 0F 17 0E 20 20 20 FB
0F99:4C 2D 4C 05 06 14 89 89 20
0FA1:89 89 89 89 89 89 89 89 BF
0FA9:89 89 89 89 89 89 89 89 C7
0FB1:89 89 89 89 89 89 89 89 CF
0FB9:89 89 89 89 89 89 89 89 D7
0FC1:89 89 89 89 89 89 89 20 76
0FC9:70 40 6E 70 40 6E 70 40 E1
0FD1:40 72 40 6E 70 40 6E 6E 6B
0FD9:20 70 40 40 40 40 40 40 F3
0FE1:40 40 40 40 40 40 40 40 FF
0FE9:40 40 40 40 40 89 89 20 9F
0FF1:6B 72 7D 6B 40 73 6D 40 B3
0FF9:6E 5D 20 20 6B 40 73 5D 4D
1001:20 6D 40 6E 20 02 19 20 D6
1009:42 0F 02 20 42 12 0F 04 CC
1011:05 12 09 03 0B 89 89 20 3B
1019:7D 6D 40 7D 20 6D 40 40 AA
1021:7D 6D 40 71 7D 20 6D 71 33
1029:40 40 40 7D 20 54 09 0D CA
1031:05 3A 20 30 30 30 20 20 0C
1039:20 20 20 20 20 00 18 3C E4
1041:5A 66 3C 66 3C 18 18 3C C4
1049:7E 5A 7E 56 6A 7E 66 7E 0D
1051:5A 7E 66 7E 3C 18 18 3C A1
1059:76 D5 F7 66 3C 18 18 3C 3E
1061:24 3C 18 0C 18 0C 0E 4A BD
1069:4E 7E 7C 7C 24 24 3E 3A 10
1071:3E 18 18 3C 64 46 3C 24 56
1079:3C 3C 5A 3C 66 66 1F 23 04
1081:7D 7D 7D 7E 7C 00 1F 23 9C
1089:7D 7D 7D 7E 7C 00 D9 CF C6
1091:D5 A0 C4 C9 C5 C4 AE A0 39
1099:D0 CC C1 D9 A0 C1 C7 C1 88
10A1:C9 CE BF A0 D9 AF CE 00 87
10A9:D9 CF D5 A0 D7 CF CE A1 AC
10B1:A1 00 00 00 00 00 00 00 A2
```

Bob Broderick is a student at California High School and has been programming for about five years. He wrote Rascals because he wanted a small arcade-style game that he could play with relative ease and few rules. He lives in San Ramon, California.

SCUD

By William F. Snow

There has been a lot of discussion over the past few years about how little people know about world geography. For example, do you know the names of all of the countries in the Americas? Can you at least venture a guess as to how many there are in North, Central, and South America? Give up? There are 35! Despite its military-sounding name, Scud will help you learn the names and capitals of these 35 countries.

Entering the Program

Scud is an entertaining and fun way to learn something about the countries of the Americas. It's written entirely in BASIC. To help avoid typing errors, enter it with The Automatic Proofreader. See "Typing Aids" elsewhere in this section. Be sure to save a copy of the program before you try to run it.

Playing Scud isn't difficult. Plug a joystick into port 2 and then load and run Scud. The opening screen will give brief instructions for playing the game. After a short pause, you will be presented with the name of a country and asked to choose the capital from a list of three. If you choose incorrectly, you are given the correct answer in a special bulletin.

Defend the City

If you choose correctly, the city will be displayed, sirens will wail, and missiles will be launched at the city. It will then be your responsibility to use your Scud missiles to try to shoot down any enemy rockets before they reach the city. Use the joystick to aim your Scud. A total of three missiles will be launched from different positions during each attack. If you shoot down all three, you will have saved the city.

Modifications

Scud was written to help teach the names and capitals of the countries of the Americas. Since Scud is written entirely in BASIC, it should be very easy to modify the game so that the capitals of any other group of countries or states could be taught. The names of the countries, followed by their capitals, are in data statements in lines 1200–1300.

In order to modify the game, change this data to whatever group you wish to work with. Then, the following code should be changed to reflect the number of countries or states you have entered into the data statements: the dimension statements in line 40; the FOR in line 80; the number of countries in lines 150, 160, 170 (the scramble routine); and the end-of-game routine in line 200.

Scud is fun to play and will quickly teach the names and capitals of the countries of the Americas to anyone who wants to learn them.

SCUD

```
BH 10  REM COPYRIGHT 1993 - COM
       PUTE PUBLICATIONS - ALL
       {SPACE}RIGHTS RESERVED
QD 20  REM BY WM. F. SNOW
GG 30  GOSUB1020
XJ 40  CLR:DIM Q$(35),A$(35),CO
       $(35),CA$(35),Y(35):V=53
       248:SN=54272:POKESN+24,1
       5
GS 50  POKE53280,7:POKE53281,7:
       POKEV+31,0
QD 60  POKESN+4,0:PRINT"{CLR}
       {8 DOWN}"SPC(14)"{BLU}PL
       EASE WAIT":PRINT"
       {3 DOWN}{3 SPACES}OUR SP
       IES ARE";
CD 70  PRINT" CHECKING ON THE E
       NEMY"
DE 80  FOR QA=1TO35:READQ$(QA),
       A$(QA):NEXT
BE 90  FOR S=12288 TO 12351:REA
       DSP:POKES,SP:NEXT
AB 100 FORS=12352TO 12415:READ
       SP:POKES,SP:NEXT
QD 110 FORS=12416 TO 12479:REA
       D SP:POKES,SP:NEXT
BM 120 FORS=12480TO12543:READS
       P:POKES,SP:NEXT
AK 130 FORS=12544 TO 12607:REA
       D SP:POKES,SP:NEXT
JE 140 FORS=12608 TO 12671:REA
       DSP:POKES,SP:NEXT
FM 150 FOR I=1 TO 35
KC 160 X=INT(RND(.)*35)+1
FC 170 FOR CK=1 TO35:IF X=Y(CK
       )THEN160
SM 180 NEXTCK:Y(I)=X
BD 190 CO$(X)=Q$(I):CA$(X)=A$(
       I):NEXTI
GS 200 SC=0:FORI=1TO4:POKEV+I,
       0:NEXT:POKEV+21,0:P=P+1
       :IF P>35THENP=35:GOTO11
       40
AS 210 POKE53280,13:POKE53281,
       1
MD 220 JR=INT(RND(.)*10)+2
RC 230 PRINT"{CLR}{10 DOWN}
       {4 SPACES}SCUDS HAVE BE
```


www.commodore.ca

```
      EN LAUNCHED AT THE
PB 240 PRINTSPC(9)"CAPITAL OF
       {SPACE}{BLK}"CO$(P)
SF 250 PRINT:PRINTSPC(12)"
       {BLU}SHOULD YOU GO TO"
BK 260 Q=INT(RND(.)*10)+1:IF Q
       =P THEN260
GJ 270 R=INT(RND(.)*10)+1:IF R
       =P OR R=Q THEN270
RF 280 POKE2040,192:POKEV+29,1
       :POKEV+40,1
MP 290 S=INT(RND(.)*3)+1:ON S
       {SPACE}GOTO300,340,380
JD 300 PRINT:PRINTSPC(9)"{BLK}
       A){BLU}"CA$(P):PRINT:PR
       INTSPC(9)"{BLK}B){BLU}"
       CA$(Q)
HD 310 PRINT:PRINTSPC(9)"{BLK}
       C){BLU}"CA$(R):PRINTSPC
       (9)"{3 DOWN}{CYN}HIT Q
       {SPACE}TO END GAME"
MX 320 GOSUB680:IF B$="A"THEN4
       20
SB 330 GOSUB820:GOTO200
GC 340 PRINT:PRINTSPC(9)"{BLK}
       A){BLU}"CA$(Q):PRINT:PR
       INTSPC(9)"{BLK}B){BLU}"
       CA$(P)
HG 350 PRINT:PRINTSPC(9)"{BLK}
       C){BLU}"CA$(R):PRINTSPC
       (9)"{3 DOWN}{CYN}HIT Q
       {SPACE}TO END GAME"
XP 360 GOSUB680:IF B$="B"THEN4
       20
SG 370 GOSUB820:GOTO200
FG 380 PRINT:PRINTSPC(9)"{BLK}
       A){BLU}"CA$(R):PRINT:PR
       INTSPC(9)"{BLK}B){BLU}"
       CA$(Q)
KG 390 PRINT:PRINTSPC(9)"{BLK}
       C){BLU}"CA$(P):PRINTSPC
       (9)"{3 DOWN}{CYN}HIT Q
       {SPACE}TO END GAME"
QE 400 GOSUB680:IF B$="C"THEN4
       20
PE 410 GOSUB820:GOTO200
AK 420 PRINT"{CLR}":POKE53280,
       13:POKE53281,13
JG 430 PRINT"{HOME}{18 DOWN}"S
       PC(8)"{BLK}B":PRINTSPC(
       7)"{PUR}NP{2 SPACES}
       {RVS} {OFF}"
ME 440 PRINT"{3 SPACES}{BLK}
       {H}{A}IOP* OP":PRINT"
       {4 SPACES}{PUR}OP{T}
       {RVS} {OFF}{N}BP{@}NP"
CR 450 PRINT"{3 SPACES}{BLK}O
       {SPACE}{N} {RVS} {OFF}
       {N}B{PUR}M M{N}":GOSUB1
       120
HX 460 POKEV+21,3:XA=75:YA=200
       :POKE2041,194:POKEV+39,
       11:POKEV+40,6
AB 470 SC=SC+1:IFSC>3 THEN GOS
       UB970:GOTO200
HC 480 PS=INT(RND(.)*3)+1:ON P
       S GOTO490,720,770
SQ 490 POKE2040,192:POKEV+39,1
       1:X=60:XX=255:FORA=1TO2
       5:XX=XX-3:POKEV,XX
XX 500 POKEV+1,X:GOSUB570
QA 510 POKEV+2,XA:POKEV+3,YA:N
       EXT
EH 520 POKEV+30,0
SX 530 POKE2040,193:FORA=1TO50
       :XX=XX-3:X=X+3:POKEV,XX
       :POKEV+1,X:GOSUB570
KE 540 IFFB=0ANDPEEK(V+30)AND2
       =2THEN GOSUB630:GOTO470
BF 550 POKEV+2,XA:POKEV+3,YA:I
       F(PEEK(V+31)AND1)=1THEN
       910
RR 560 NEXT:GOTO200
MP 570 JY=PEEK(56320)AND15:FB=
       PEEK(56320)AND16:REM RE
       AD STICK AND BUTTON
FA 580 IFJY=7THENXA=XA+JR:IF X
       A>255THEN XA=255
BB 590 IFJY=11THENXA=XA-JR:IFX
       A<1 THEN XA=1
JD 600 IFJY=13THENYA=YA+JR:IF
       {SPACE}YA>250 THEN YA=2
       50
SS 610 IFJY=14THENYA=YA-JR:IF
       {SPACE}YA<1 THEN YA=1
XR 620 RETURN
MQ 630 POKE2040,195:POKEV+39,2
       :GOSUB1100:POKEV+23,1:P
       OKEV+29,1
DM 640 FOREC=1TO8:POKEV+39,EC:
       FORDE=1TO70:NEXT:NEXT:P
       OKEV,0:POKEV+1,0
MS 650 POKEV+31,0:POKEV+23,0:R
       ETURN
GS 660 GET B$:IF B$="" THEN660
QB 670 RETURN
MM 680 GET B$:IFB$=""THEN680
KB 690 IF B$="A"ORB$="C"ORB$="
       B"THENRETURN
SA 700 IF B$="Q"THEN1140
XC 710 GOTO680
XF 720 POKE2040,196:POKEV+39,1
       1:POKEV,60:FORVS=0TO200
       STEP5:GOSUB570
EG 730 POKEV+1,VS:POKEV+30,0:P
       OKEV+2,XA
EG 740 POKEV+3,YA:IFFB=0ANDPEE
       K(V+30)AND2=2THENGOSUB6
       30:GOTO470
JR 750 IF (PEEK(V+31)AND1)=1 T
       HEN910
GS 760 NEXT:GOTO200
DG 770 POKE2040,197:POKEV+39,1
       1:POKEV,255:POKEV+1,220
DC 780 FORX=255TO0STEP-3:GOSUB
       570:POKEV,X:POKEV+30,0
HJ 790 POKEV+2,XA:POKEV+3,YA:I
       FFB=0ANDPEEK(V+30)AND2=
       2THENGOSUB630:GOTO470
BM 800 IF (PEEK(V+31)AND1)=1 T
       HEN910
BR 810 NEXT:GOTO200
AP 820 PRINT"{CLR}{4 DOWN}
       {6 RIGHT}{RED}OM {H}
       {N}{2 SPACES}{H}
       {2 SPACES}{H}{2 SPACES}
       O{Y} {Y}P{2 Y} B {N}M
       {2 SPACES}{H}"
DB 830 PRINT"{6 RIGHT}LN {H}
       {N}{2 SPACES}{H}
       {2 SPACES}{H}{2 SPACES}
       L{P}{2 SPACES}{N}
       {3 SPACES}B {N} M {H}"
KR 840 PRINT"{6 RIGHT}{H}M {H}
       {N}{2 SPACES}{H}
       {2 SPACES}{H}{2 SPACES}
       {H}{3 SPACES}{N}
       {3 SPACES}B {N}
       {2 SPACES}M{H}"
FB 850 PRINT"{6 RIGHT}LN M{P}N
       {2 SPACES}L{P} L{P} L
       {P}{2 SPACES}{N}
       {3 SPACES}B {N}
       {3 SPACES}{H}"
MA 860 PRINT "{3 DOWN}{BLK}"SP
       C(4)CA$(P):PRINT"{BLU}
       {SPACE}THE CAPITAL OF
       {BLK}":PRINTSPC(4)CO$(P
       )
CQ 870 PRINT"{BLU}{2 SPACES}HA
       S BEEN DESTROYED ";
RP 880 PRINT"BY SCUD MISSLES.
       {3 SPACES}THE PERSON WH
       O COULD HAVE SAVED THE
       {SPACE}CITYDID";
BA 890 PRINT" NOT HAVE ENOUGH
       {SPACE}INFORMATION TO G
       ET{2 SPACES}TO THE RIGH
       T CITY IN TIME."
XS 900 PRINT"{3 DOWN}{8 RIGHT}
       {6}HIT ANY KEY TO CONTI
       NUE{BLU}":GOSUB660:RETU
       RN
MP 910 POKEV+21,0:PRINT"{HOME}
       {20 DOWN}"SPC(4)"{RED}M
       {F}{5 SPACES}N N":GOSU
       B1100
AR 920 PRINTSPC(4)"N M
       {4 SPACES}N NNM N"
QP 930 PRINTSPC(3)"TM M{Q}IBBN
       {+}P{2 £}Q":POKESN+4,0
MC 940 FORDE=1 TO500:NEXT:FORC
       L=1704TO1903:POKECL,32:
       NEXT
FJ 950 PRINTSPC(3)"{UP}{BLK}
       {D}{O} {K}{£}{2 I}R{R}
       L{£}@{+}{7}":FORDE=1T
       O1000:NEXT
QF 960 POKEV,0:POKEV+1,0:POKEV
       +31,0:GOTO200
PC 970 POKEV+21,0
RH 980 PRINT"{CLR}{5 DOWN}
       {4 RIGHT}{BLK}THANK YOU
       !!":PRINT:PRINT"{BLU}YO
       UR KNOWLEDGE AND MARKSM
       ANSHIP";
AM 990 PRINT" HAVE{4 SPACES}SA
       VED{BLK}":PRINT:PRINTCA
       $(P):PRINT:PRINT"{BLU}T
       HE CAPITAL OF{BLK}"
HR 1000 PRINT:PRINT CO$(P):PRI
```


www.commodore.ca

```
        NT"{BLU}"
DB 1010 PRINT"{5 DOWN}{WHT}HIT
         ANY KEY TO CONTINUE
        {BLU}":GOSUB660:SS=SS+
        1:RETURN
JA 1020 POKE53280,10:POKE53281
        ,10
PG 1030 PRINT"{CLR}{3 DOWN}
        {BLK}"SPC(12)"N{2 T}
        {2 SPACES}N{2 T}
        {2 SPACES}{G} {M}
        {2 SPACES}OM":PRINTSPC
        (12)"M{@}{3 SPACES}{G}
        {4 SPACES}{G} {M}
        {2 SPACES}{G}{M}"
QA 1040 PRINTSPC(14)"M
        {2 SPACES}{G}
        {4 SPACES}{G} {M}
        {2 SPACES}{G}{M}":PRIN
        TSPC(12)"{2 @}N
        {2 SPACES}M{2 @}
        {2 SPACES}M{@}N
        {2 SPACES}LN"
JD 1050 PRINT"{3 DOWN}{BLU}
        {3 SPACES}THE ENEMY IS
         LAUNCHING SCUD MISSIL
        ES AT NATIONAL CAPITAL
        S";
KM 1060 PRINT" IN THE AMERICAS
        .{3 SPACES}YOUR JOB IS
         TO GET TO THE CAPITAL
         UNDER ATTACK";
KG 1070 PRINT" AND DESTROY THE
         MISSILES. USE A
        {2 SPACES}JOYSTICK IN
        {SPACE}PORT TWO,";
RP 1080 PRINT" BUT BE CAREFUL,
        {3 SPACES}EQUIPMENT IN
         DIFFERENT CITIES DOES
         NOT ";
DF 1090 PRINT" ALWAYS RESPOND
        {SPACE}WITH THE SAME S
        PEED.":GOSUB900:RETURN
KG 1100 POKESN+4,129:POKESN+5,
        92:POKESN+1,1:POKESN,1
        00:FORF=1TO999:NEXT:PO
        KESN+4,0
CE 1110 RETURN
PD 1120 POKESN+14,5:POKESN+18,
        16:POKESN+3,1:POKESN+6
        ,240:POKESN+4,65
CJ 1130 POKESN,240:POKESN+1,20
        :POKEV+30,0:RETURN
QD 1140 PRINT"{CLR}{5 DOWN}
        {7 RIGHT}YOU SAVED "SS
        " OUT OF THE "P
SG 1150 PRINT:PRINT"{8 RIGHT}C
        ITIES THAT WERE ATTACK
        ED"
AA 1160 PRINT"{5 DOWN}
        {5 RIGHT}WOULD YOU LIK
        E TO TRY AGAIN (Y/N)":
        GOSUB660
FA 1170 IF B$="N"THEN END
AX 1180 IFB$="Y"THEN RUN 40
CR 1190 GOTO1140
SJ 1200 DATAANTIGUA & BARBUDA,
        ST. JOHNS,BAHAMAS,NASS
        AU,BELIZE,BELMOPAN
EK 1210 DATACANADA,OTTAWA,COST
        A RICA,SAN JOSE,CUBA,H
        AVANA,DOMINICA,ROSEAU
PB 1220 DATADOMINICAN REPUBLIC
        ,SANTO DOMINGO,EL SALV
        ADOR,SAN SALVADOR,GREN
        ADA
FS 1230 DATAST. GEORGE'S,GUATE
        MALA,GUATEMALA,HAITI,P
        ORT-AU-PRINCE,HONDURAS
XC 1240 DATATEGUCIGALPA,JAMAIC
        A,KINGSTON,MEXICO,MEXI
        CO CITY,NICARAGUA,MANA
        GUA
KG 1250 DATAPANAMA,PANAMA CITY
        ,SAINT LUCIA,CASTRIES,
        SAINT VINCENT & THE GR
        ENADINES
HJ 1260 DATAKINGSTOWN,TRINIDAD
         & TOBAGO,PORT OF SPAI
        N,UNITED STATES,WASHIN
        GTON D.C.
BP 1270 DATAARGENTINA,BUENOS A
        IRES,BOLIVIA,LA PAZ,BR
        AZIL,BRASILIA,CHILE,SA
        NTIAGO
MX 1280 DATACOLOMBIA,BOGOTA,EC
        UADOR,QUITO,GUYANA,GEO
        RGETOWN,PARAGUAY,ASUNC
        ION
KE 1290 DATAPERU,LIMA,SURINAME
        ,PARAMARIBO,URUGUAY,MO
        NTIVIDEO,VENEZUELA,CAR
        ACAS
FS 1300 DATABARBADOS,BRIDGETOW
        N,ST. KITTS & NEVIS,BA
        SSETERRE
FE 1310 DATA000,000,000,000,00
        0,000,000,000,000,000,
        000,000,000,000,000,00
        0,000
GG 1320 DATA001,000,000,003,00
        0,000,007,000,024,015,
        000,104,127,000,143,25
        5,000
EB 1330 DATA143,255,000,104,12
        7,000,024,015,000,000,
        007,000,000,003,000,00
        0,001
SG 1340 DATA000,000,000,000,00
        0,000,000,000,000,000,
        000,000,000,000,000,00
        0,000
CJ 1350 DATA000,000,000,000,00
        0,000,000,000,000,000,
        000,000,000,000,004,00
        0,000
FR 1360 DATA006,000,000,007,00
        0,000,007,128,000,007,
        192,000,007,224,000,00
        7,240
PX 1370 DATA000,007,248,000,00
        7,252,000,015,254,000,
        028,000,000,120,000,00
        0,144
RF 1380 DATA000,000,144,000,00
        0,224,000,000,000,000,
        000,000,000,000,000,00
        0,000
KK 1390 DATA000,000,000,000,00
        0,000,000,000,000,000,
        000,008,000,000,008,00
        0,000
GK 1400 DATA008,000,000,008,00
        0,000,255,128,000,008,
        000,000,008,000,000,00
        8,000
AC 1410 DATA000,008,000,000,00
        0,000,000,000,000,000,
        000,000,000,000,000,00
        0,000
MA 1420 DATA000,000,000,000,00
        0,000,032,000,008,032,
        032,004,032,000,000,03
        2,000
KF 1430 DATA001,002,000,000,13
        2,000,000,072,000,128,
        048,000,064,120,002,09
        2,252
FH 1440 DATA248,128,120,002,00
        0,048,000,000,072,000,
        000,132,000,001,002,00
        0,000
CS 1450 DATA016,000,000,016,00
        0,008,016,032,016,016,
        032,000,000,000,000,00
        0,000
BK 1460 DATA000,003,255,128,00
        1,215,000,000,214,000,
        000,124,000,000,056,00
        0,000
RR 1470 DATA040,000,000,040,00
        0,000,040,000,000,040,
        000,000,040,000,000,04
        0,000
EC 1480 DATA000,040,000,000,04
        0,000,000,040,000,000,
        056,000,000,016,000,00
        0,016
QP 1490 DATA000,000,016,000,00
        0,000,000,000,000,000,
        000,000,000,000,000,00
        0,000
BA 1500 DATA000,000,000,000,00
        0,000,000,000,000,000,
        000,000,000,000,000,00
        0,000
FK 1510 DATA003,000,000,007,00
        0,000,025,015,255,241,
        000,000,025,000,000,00
        7,000
JE 1520 DATA000,003,000,000,00
        0,000,000,000,000,000,
        000,000,000,000,000,00
        0,000
PD 1530 DATA000,000,000,000,00
        0,000,000,000,000,000
```

William Snow, a teacher for more than 27 years, is vice president of the McHenry County Commodore Computer Club in McHenry, Illinois.

www.commodore.ca

CRYPTARITHM SOLVER

By David Pankhurst

When I first bought my Commodore, I used it often to solve math problems. I liked the brute-force approach the computer allowed. I'd just have a series of FOR-NEXT loops go through the possible answers until a solution would appear.

That was fine most of the time, but eventually I came across a type of math problem the computer couldn't help me with, the cryptarithm. You've no doubt seen this type of problem before.

```
  HELP
+ THE
---------
YOUNG
```

Each letter represents a different digit, 0–9. In this example, there are ten different letters, so all ten digits are used. The words *HELP* and *THE* each make numbers that, when added together, match the result in *YOUNG*. There are no restrictions, except that 0 can't be the first digit in any number.

Clearly, this isn't a simple loop problem. Let's say the *H* above was assigned 1; the *E*, 2; the *L*, 3; and so on throughout the puzzle. A sample addition could then be tried, and the result checked.

So how many times does this need to be done? To completely check the puzzle, *H* has to be tried out for each of the 9 digits (leaving out 0), *E* by each of the remaining 9, the *L* by the remaining 8, and so on. This gives approximately 9 × 9 × 8 × 7 × 6 × 5 × 4 × 3 × 2 × 1 choices, or 3,265,920 different combinations. That's a lot of loops in BASIC! If the 64 managed one calculation per second, it would take more than 35 days to complete.

To the Rescue

Enter machine language. Cryptarithm Solver brings ML brute force to these puzzles. In a matter of hours, it can solve most cryptarithms. A puzzle is first broken up into combinations, and the computer tries different substitutions for each letter.

If the result is correct (totals on both sides of the equal sign match) the puzzle is solved. The program then goes on to see if there are other solutions.

Typing It In

Cryptarithm Solver is written in BASIC, but it pokes machine language routines into memory to speed calculations. To help avoid typing errors, enter the program with The Automatic Proofreader; see "Typing Aids" elsewhere in this section. Be sure to save a copy of the program before you try to run it.

Solving Equations

When you run Cryptarithm Solver, the program will prompt you for a puzzle. To solve the above problem, enter it in the following format. (You may use lowercase letters.)

```
HELP+THE=YOUNG
```

After you press Return, the program displays a constantly changing sum in the bottom of the screen. This is a window into the processing of the program. The display is the test result produced by each combination. Usually, the result is wrong, and the next combination is then tried. However, when the result is true, the solution is displayed, along with the time it took to find. Processing then continues with the next combination.

No Key Words

You need to watch out for one thing when you're preparing input for Cryptarithm Solver. If you typed *SEND + MORE = MONEY*, the program would display an error message informing you that the words contained an embedded BASIC function or command. This is because the BASIC commands END, OR, and ON are embedded in the formula, and the computer tries to encode these as commands. To avoid this problem, insert spaces between the letters. *S E N D + M O R E = M O N E Y* would work fine.

Cryptarithm Solver works well with all sorts of mathematical operations, not just addition. One example is the following multiplication.

```
ABCDE*9=FGHIJ
```

Entering it this way fixes the 9; only letters are changed in the puzzle. By the way, there are two solutions to this puzzle. As with other computer math operations, be sure to enter an asterisk for multiplication.

Cryptarithm Solver works at ML speeds, but even that isn't fast enough for instantaneous results. Depending on the formula, the program can perform as many as 60 tests a second, so it would still take half a day to solve some puzzles.

Even Faster

One way to shorten the time is to put the result first on the line. As an example, look at *MONEY=SEND+MORE*. Cryptarithm Solver starts by assigning 1 to *M;* usually, that is the correct digit for the first place in the sum. So, you can save testing for the other eight digits, and this can mean solving most puzzles in less than an hour. The examples here ranged from 40 seconds to three hours, using these tips.

Other Languages

Cryptarithm Solver is not restricted to English. It also works in French.

```
ELEVE+LECON=DEVOIR
```

This translates loosely to become *STUDENT+LESSONS=HOMEWORK*. If we entered the words into Cryptarithm Solver as *ELEVE+LECON=DEVOIR*, the *D* (which logically is 1), would be assigned 7, and it would have to go through the whole cycle to solve. By reversing the order, *D* is assigned 1 immediately, and the solution is that much quicker. It took me 64 minutes. (I'll give you this one. The answer is 69656 + 96078 = 165734.)

When the program finds a solution, leave it running to search for other answers. When all reasonable solutions have been tried, however, you'll want to stop it. To quit, hold down the Q key. You'll be asked if you wish to continue. Press Y to continue or N to stop. To slow the action, hold down the Ctrl key. But be warned; the solutions take much longer.

I hope you enjoy Cryptarithm Solver, yet one more way the brute-force methods of computing can yield practical results and eliminate all that difficult thinking for us humans. To end, here are two more puzzles:

```
PETER+PETER+PETER+PETER=REPEAT
```


www.commodore.ca

MARS+VENUS+SATURN+URANUS=NEPTUNE

CRYPTARITHM SOLVER

```
PH 100 REM COPYRIGHT 1993 - CO
       MPUTE PUBLICATIONS INTL
        LTD - ALL RIGHTS RESER
       VED
RH 105 POKE 53280,0:POKE 53281
       ,0:PRINT"{CLR}{YEL}{H}
       {N}"
XK 110 PRINT"{8 SPACES}CRYPTAR
       ITHMS{2 SPACES}SOLVER
AQ 120 PRINT"{11 SPACES}BY D.P
       ANKHURST
BX 130 PRINT
RE 140 INPUT "CODE STRING";X$
XB 150 DIM L(20):L=0:GOSUB350:
       PP=P:Y$="1023456789"
EM 160 FOR I=1 TO LEN(Y$):POKE
        C-1+I,ASC(MID$(Y$,I,1)
       ):NEXT:POKE CM,LEN(Y$)-
       1
AR 170 FOR I=1 TO LEN(X$):POKE
        511+I,ASC(MID$(X$,I,1)
       ):NEXT:POKE I,0:SYS 491
       55
SD 174 FOR J=1 TO I-1:IF PEEK(
       511+J)THEN 178
AM 176 PRINT"{RVS} EMBEDDED BA
       SIC FUNCTION OR COMMAND
        {OFF}":END
GE 178 NEXT:Y=1
JX 180 IF PEEK(511+Y)<>0 THEN
       {SPACE}Y=Y+1:GOTO 180
QQ 190 FOR K=1 TO Y-1:C=PEEK(5
       11+K):C$=CHR$(C):IF C$<
       "A" OR C$>"Z" THEN250
PX 200 IF L=0 THEN230
CR 210 Y=-1:FOR I=0 TO L-1:IF
       {SPACE}L(I)=C THEN Y=I
CG 220 NEXT:IF Y<>-1 THEN240
PA 230 L(L)=C:Y=L:L=L+1
SA 240 POKE PP,K:POKE PP+1,Y:P
       P=PP+2
HC 250 NEXT:POKE PC,PP-P:FOR I
       =0 TO L-1:POKE X+I,I:NE
       XT:POKE MX,L-1
DC 260 PRINT"{CLR}";:F=0
CS 270 PRINT"{HOME}{24 DOWN} "
       X$;:SYS 49152
MS 280 POKE 198,0:Y=PEEK(781)
EB 290 IF Y=255 AND F=0 THEN P
       RINT:PRINT"{UP}{RVS} SO
       RRY-NO MATCH {OFF}":GOT
       O340
SC 300 IF Y=255 THEN PRINT:PRI
       NT"{UP}{RVS} END OF LIS
       TS {OFF}":GOTO340
PP 310 IF Y<>1 THEN330
DK 320 F=F+1:PRINT"{2 SPACES}"
       INT(TI/6)/10"SECONDS";:
       PRINT:PRINT" "X$;:SYS 4
       9158:GOTO280
QH 330 IF Y=0 THEN PRINT"
       {2 SPACES}CONTINUE?";:W
       AIT 198,255:GET Y$:IF Y
       $="Y"THEN270
EF 340 PRINT:PRINT" FINISHED A
       T"INT(TI/6)/10 "SECONDS
       ":END
DD 350 TI$="000000":DS=1984:IF
        PEEK(44)<>18 THEN GOSU
       B 400
RC 360 DX=50432:NX=DX+1:MX=NX+
       1:X=MX+1:T=X+80:CM=T+80
       :C=CM+1:PC=C+80:P=PC+1:
       R=P+80
DR 370 RETURN
RS 400 RESTORE:FOR I=0 TO-1 ST
       EP-1:READ Y$:I=VAL(Y$)=
       -1:NEXT:X= 49152:DATA -
       1
HQ 410 READ Y:IF Y<>-2 THEN PO
       KE X,Y:X=X+1:GOTO 410
KA 420 RETURN
HP 430 DATA{2 SPACES}24,144, 3
       0, 76,{2 SPACES}9,192,
       {SPACE}56
AQ 440 DATA 176, 24,165,122, 7
       2,165,123
FC 450 DATA{2 SPACES}72,169,
       {2 SPACES}2,133,123,169
       ,{2 SPACES}0
SH 460 DATA 133,122, 32,124,16
       5,104,133
SE 470 DATA 123,104,133,122, 9
       6,173,{2 SPACES}2
FK 480 DATA 197,141,{2 SPACES}
       0,197,165,122, 72
XH 490 DATA 165,123, 72,176,
       {2 SPACES}6, 32, 63
KR 500 DATA 192, 76, 56,192, 3
       2,137,192
ER 510 DATA 104,133,123,104,13
       3,122, 96
FB 520 DATA 174,244,197,142, 6
       9,198,206
JD 530 DATA{2 SPACES}69,198,17
       4, 69,198,188,245
KM 540 DATA 197,190,{2 SPACES}
       3,197,189,164,197
JE 550 DATA 206, 69,198,174, 6
       9,198, 48
PA 560 DATA{2 SPACES}15,188,24
       5,197,153,192,
       {2 SPACES}7
HF 570 DATA 153,255,{2 SPACES}
       1,174, 69,198, 76
SC 580 DATA{2 SPACES}69,192,16
       9,255,162,{2 SPACES}1,1
       33
HB 590 DATA 122,134,123, 32,11
       5,{2 SPACES}0, 32
RS 600 DATA 158,173,165, 97,24
       0,{2 SPACES}3,162
HQ 610 DATA{3 SPACES}1, 96,165
       ,197,201, 62,208
JJ 620 DATA{3 SPACES}3,162,
       {2 SPACES}0, 96,173,141
       ,{2 SPACES}2
HD 630 DATA 201,{2 SPACES}4,20
       8, 17,169,{2 SPACES}5,1
       60
DS 640 DATA 255,162,255,202,20
       8,253,136
KC 650 DATA 208,248,170,202,13
       8,208,241
XM 660 DATA 174,{2 SPACES}0,19
       7,188,{2 SPACES}3,197,2
       00
HQ 670 DATA 140,{2 SPACES}1,19
       7,174,163,197,169
AD 680 DATA{3 SPACES}0,157, 83
       ,197,202, 16,250
JS 690 DATA 174,{2 SPACES}0,19
       7,169,255,202, 48
AX 700 DATA{3 SPACES}9,188,
       {2 SPACES}3,197,153, 83
       ,197
JM 710 DATA 202, 16,247,173,
       {2 SPACES}1,197,205
HB 720 DATA 163,197,240,
       {2 SPACES}2,176, 48,172
KQ 730 DATA{3 SPACES}1,197,185
       , 83,197,208, 12
RP 740 DATA 174,{2 SPACES}0,19
       7,173,{2 SPACES}1,197,1
       57
QQ 750 DATA{3 SPACES}3,197, 76
       ,235,192,238,{2 SPACES}
       1
RX 760 DATA 197, 76,199,192,17
       3,{2 SPACES}0,197
QF 770 DATA 205,{2 SPACES}2,19
       7,208,{2 SPACES}3, 76,
       {SPACE}63
RF 780 DATA 192,238,{2 SPACES}
       0,197,169,{2 SPACES}0,1
       41
HM 790 DATA{3 SPACES}1,197, 76
       ,171,192,206,{2 SPACES}
       0
EM 800 DATA 197, 16,155,162,25
       5, 96
XK 810 DATA -2
```

David Pankhurst, the author of the Calc II spreadsheet, lives in Montreal, Quebec, Canada.

FLASHER 64

By Henry Sopko

Focus attention to where you want it on-screen with Flasher 64. You can make words or graphic characters flash, scroll the screen while they flash, and have as many characters flashing as you want.

Flasher 64 is a short machine language program. To enter it, use MLX, our machine language entry program. See "Typing Aids" elsewhere in this section. When MLX prompts, respond with the following addresses.

Starting address: CC00
Ending address: CDF7

www.commodore.ca

Be sure to save a copy of the program before you exit MLX.

With just two commands, you can make a word or a graphic character flash anywhere on the screen. As with the 128 in 80 columns, you can use the command CHR$(15) to turn on the flashing and use CHR$(143) to turn it off. All characters can be made to flash with the exception of characters 254 and 255. These two characters are used in a special way in the program. However, they can be used in the nonflashing mode.

You can also use your own custom characters as long as the screen memory stays at $0400 (default). Flasher 64 commands can be entered in both direct and program modes. Since Flasher runs in the background using the IRQ routine, your BASIC or machine language programs will continue to execute as normal without slowing down.

How It Works

A second screen was necessary to accomplish this flashing technique. The second screen, located at $C800, is filled with the byte value of $FF. Then, when the command CHR$(15) is used, the character(s) are redirected to the second screen. The command CHR$(143) or a carriage return will cancel the printing of the character(s) to the second screen and resume printing them to the main screen. While this is happening, the IRQ routine is scanning for characters on the second screen. Any character other than 255 will be printed to the main screen located at $0400 (1024).

Two phases are required to make characters flash. The first phase puts the characters on the screen, while the second fills them with blank spaces giving the effect of flashing characters.

Also, it was necessary to copy the BASIC ROM and the Kernal ROM to the underlying RAM to support the scrolling of the flashing characters. A few changes were made to the Kernal so that the two screens would be in sync with each other when the screen is scrolled.

To use Flasher 64 in your program, you must first execute the program with SYS 52224. Do this only at the beginning of your program. After you have issued this SYS command, use the commands CHR$(15) and CHR$(143) to turn on and off the flashing sequence.

For example, after you've entered the SYS command, enter the following line in immediate mode.

```
PRINTCHR$(15)"FLASH ON"CHR$(143)
" FLASH OFF"
```

It's also possible to turn off all or just part of a flashing word. Simply send the character 255 to the second screen in the area that you wish to have the flashing stopped. In order to send the character 255, you must first use the PRINTCHR$(15) and then in quotes press the Ctrl-Rvs keys simultaneously. While you're still in quote mode, hold down the Commodore logo key along with the B key. This produces a character value of 255.

A Demonstration

For a demonstration of how these commands are used, enter the demo program and study its commands. The demo is written in BASIC. To help you avoid typing errors, enter it with The Automatic Proofreader. Again, see "Typing Aids." Since the demo loads and runs Flasher 64, make sure both programs are on the same disk. After you've studied the demo, you should easily be able to use Flasher 64 in your own programs.

Some cartridges may interfere with Flasher 64. To use the program with Super SnapShot v5, use the cartridge's >Q command to quit the wedge since Flasher 64 changes the IBSOUT vectors to point to its own routine. This problem occurs only in the direct mode.

FLASHER 64

```
CC00:20 B6 CD A2 75 86 01 20 23
CC08:96 CC A9 20 78 A2 C6 A0 D3
CC10:CC 8E 14 03 8C 15 03 58 7D
CC18:A2 00 86 92 A2 26 A0 CC B8
CC20:8E 26 03 8C 27 03 8E 94 AA
CC28:CC AE 95 CC F0 06 20 7B AE
CC30:CC 20 60 CC C9 93 F0 22 B1
CC38:C9 0F D0 03 20 60 CC C9 AA
CC40:8F D0 03 20 7B CC C9 0D E7
CC48:D0 0A AE 88 02 E0 08 90 5F
CC50:03 20 7B CC AE 94 CC 4C 5D
CC58:CA F1 20 96 CC 4C 38 CC 16
CC60:8D 91 CC A5 D2 8D 92 CC D7
CC68:18 69 C4 85 D2 A9 C8 8D B5
CC70:88 02 A9 01 8D 95 CC AD 1E
CC78:91 CC 60 8D 91 CC AD 92 A0
CC80:CC 85 D2 A9 04 8D 88 02 40
CC88:A9 00 8D 95 CC AD 91 CC 0F
CC90:60 00 00 00 00 00 8E 91 09
CC98:CC 8C 92 CC A2 00 A9 FF 43
CCA0:A2 00 A0 C8 86 FB 84 FC 56
CCA8:A0 00 91 FB C8 C0 00 D0 9E
CCB0:F9 E8 E0 04 F0 05 E6 FC 44
CCB8:4C AA CC A9 FE 8D E8 CB 23
CCC0:A9 93 AE 91 CC 60 08 48 43
CCC8:8A 48 98 48 E6 02 A6 02 DF
CCD0:E0 14 F0 03 4C 21 CD A2 53
CCD8:00 86 02 A2 00 A0 C8 86 19
CCE0:FB 84 FC A2 00 A0 04 86 74
CCE8:FD 84 FE A0 00 B1 FB C9 15
CCF0:FE F0 28 C9 FF D0 08 C8 04
CCF8:C0 00 F0 18 4C ED CC A6 EC
CD00:92 E0 01 F0 0A 91 FD C8 A7
CD08:C0 00 F0 08 4C ED CC A9 FF
CD10:20 4C 05 CD E6 FC E6 FE 44
CD18:4C ED CC A5 92 49 01 85 8A
CD20:92 68 A8 68 AA 68 28 4C 4E
CD28:31 EA A9 C8 A0 28 8D 46 DF
CD30:CD 8C 45 CD A9 C8 A0 00 0D
CD38:8D 4D CD 8C 4C CD A2 00 4F
CD40:A0 00 84 FE B9 00 00 C9 44
CD48:FE F0 28 99 00 00 C8 C0 90
CD50:28 D0 F1 18 AD 45 CD 69 7B
CD58:28 B0 25 8D 45 CD 18 AD F0
CD60:4C CD 69 28 B0 27 8D 4C CE
CD68:CD A0 00 A6 FE E6 FE E0 EF
CD70:1A D0 D1 A0 00 A9 FF 99 D1
CD78:C0 CB C8 C0 28 D0 F8 60 63
CD80:8D 45 CD EE 46 CD E6 FE 13
CD88:A0 00 4C 5E CD 8D 4C CD EE
CD90:EE 4D CD E6 FE A0 00 4C E5
CD98:44 CD 78 8E 91 CC A2 04 CA
CDA0:8E 88 02 AE 91 CC 4C C8 F1
CDA8:E9 8E 91 CC 20 2A CD AE CF
CDB0:91 CC 58 4C FF E9 A0 00 01
CDB8:84 02 A2 A0 84 FB 86 FC 93
CDC0:A2 00 B1 FB 91 FB C8 D0 82
CDC8:F9 E8 E0 20 F0 05 E6 FC 20
CDD0:4C C2 CD E6 02 A5 02 C9 DF
CDD8:02 F0 07 A2 E0 86 FC 4C 24
CDE0:C0 CD A2 9A A0 CD 8E 0F B6
CDE8:E9 8C 10 E9 A2 A9 A0 CD 08
CDF0:8E 14 E9 8C 15 E9 60 00 EF
```

FLASHER DEMO

```
HG 5 REM COPYRIGHT 1993 - COMP
     UTE PUBLICATIONS - ALL RI
     GHTS RESERVED
DR 10 REM FLASHER 64 DEMO
KG 20 POKE53280,0:POKE53281,0
KQ 30 IFL=0THENL=1:LOAD"FLASHE
     R 64.ML",8,1
DE 40 SYS52224:REM TURN ON FLA
     SHER 64
EH 50 :
CD 60 PRINTCHR$(147);:REM CLEA
     RS SCREENS
AH 70 PRINT"{11 SPACES}{RVS}
     {YEL}DEMO OF FLASHER 64"
FM 80 PRINT
KC 90 PRINT"{WHT}USE THE COMMA
     ND: {RED}PRINTCHR$(15)
     {2 SPACES}TO TURN ON FLA
     SHING"
KR 100 PRINT"{RVS}{CYN}EG:
```


www.commodore.ca

```
      {OFF}{2 SPACES}PRINTCHR
      $(15)"CHR$(34)"FLASHER
      {SPACE}NOW ON"CHR$(34)
PR 110 PRINTCHR$(15)"FLASHER N
      OW ON":REM COMMAND TO T
      URN ON FLASHING
KE 120 FORD=1TO6000:NEXT
QA 130 PRINT:PRINT"{WHT}USE TH
      E COMMAND: {RED}PRINTCH
      R$(143){2 SPACES}TO TUR
      N OFF FLASHING."
DH 140 PRINT"{RVS}{CYN}EG:
      {OFF}{2 SPACES}PRINTCHR
      $(15)"CHR$(34)"FLASH ON
      "CHR$(34)"CHR$(143)"CHR
      $(34);
BS 150 PRINT" FLASH OFF"CHR$(3
      4)"
EF 160 PRINTCHR$(15)"FLASH ON"
      CHR$(143)" FLASH OFF"
KS 170 FORD=1TO6000:NEXT:REM D
      ELAY LOOP
KB 180 PRINT:PRINT"{WHT}USE TH
      E COMMAND: {RED}PRINTCH
      R$(15)"CHR$(34)"{RVS}
      {7 B}"CHR$(34);
AP 190 PRINT"TO TURN OFF A FLA
      SHING WORD."
CP 200 PRINT:PRINT"{RVS}{CYN}E
      G:{OFF}{2 SPACES}PRINTC
      HR$(15)"CHR$(34)"FLASH
      {SPACE}ON"CHR$(34):PRIN
      T
RB 210 PRINTCHR$(15)"FLASH ON"
CS 220 FORD=1TO3000:NEXT:REM D
      ELAY LOOP
CM 230 PRINT:PRINT"{CYN}{RVS}E
      G:{OFF}{2 SPACES}PRINTC
      HR$(15)"CHR$(34)"{RVS}
      {7 B}"CHR$(34);
KJ 240 PRINT"TO TURN OFF A FLA
      SHING WORD."
CE 250 REM IFPEEK(146)<>1THEN1
      40:PEEK THIS LOCATION F
      OR ON OR OFF CYCLE
EK 260 REM IF PEEK(146)=1 THEN
       CHARACTERS ARE ON SCRE
      EN
EK 270 REM IF PEEK(146)=0 THEN
       CHARACTERS ARE OFF SCR
      EEN
BD 280 :
CG 290 IFPEEK(146)<>1THEN250:R
      EM ↑
BE 300 PRINT"{4 UP}";:REM MOVE
       UP TO WORD
MH 310 PRINTCHR$(15)"{RVS}
      {8 B}"
MK 320 FORD=1TO6000:NEXT:REM D
      ELAY LOOP
QX 330 PRINT:PRINT:PRINT
CG 340 PRINT"SCROLL FLASHING C
      HARACTERS OFF SCREEN"
HK 350 FORX=1TO24:FORD=1TO25:N
      EXTD:PRINT:NEXTX
GF 360 PRINT"{WHT}**********"
      CHR$(15)" {PUR}{RVS}THA
      TS ALL FOLKS!{OFF} "CHR
      $(143)"{WHT}**********
      {CYN}"
```

Henry Sopko lives in Hamilton, Ontario, Canada.

TYPE-SIM

By Donald G. Klich

This program was designed to let you use your 64 or 128 as a typewriter for filling in the blanks on preprinted forms, addressing envelopes, typing labels, and other such tasks. Preprinted forms are usually designed with vertical spacing of six lines to the inch, the same as most printers. Therefore Type-Sim allows you to set your printer on the first entry line and move down the form as necessary. With Type-Sim you can set a left or right margin to orient your entries.

Typing It In

The program is written in BASIC 2.0 and will run on either the 64 or 128. Use The Automatic Proofreader to avoid typing errors. See "Typing Aids" elsewhere in this section. Be sure to save your program before using it. To take advantage of Type-Sim's upper- and lowercase printing, be sure your printer is in the ASCII conversion mode or an equivalent mode.

Operation Menu

When you run Type-Sim, you'll see a menu that offers four data-entry operations (options) and an exit option. Option 1 allows you to set up a form in the printer so that your text will print in the desired location. You must first supply a column position, perhaps along the edge of the form, where you can test-print an *X*. When the *X* prints, the computer sends a backspace and a reverse linefeed. You should adjust the form to make sure the printing is in the desired location. You can repeat the option by pressing the space bar. When the form is correctly positioned, press Return to go back to the menu.

Option 2 allows you to select whether the following entries will be left (L) or right (R) justified. For instance, a business address would be left oriented while entries on an income tax form would be right oriented. See the next option for setting margin settings.

Option 3 is where you enter your text. Before you start, however, you must indicate the left or right margin setting from which your entries will print. The program will pack data to the right of a left margin or immediately to the left of a right margin.

After you've entered the margin setting for this particular entry and pressed Return, you'll be prompted to enter the phrase or line of text to be printed. Press Return to print. If you need linefeeds to move the print head, you'll have that option after you print each entry. To return to the menu, press the up-arrow (↑) key.

Option 4 permits you to select any additional linefeeds you may require to move down the form.

Option 5 exits the program.

TYPE-SIM

```
HH 10 REM COPYRIGHT 1993 COMPU
      TE PUBLICATIONS INTL LTD
       - ALL RIGHTS RESERVED
GS 20 REM TYPEWRITER SIMULATOR
GB 30 POKE53281,0:POKE53280,0:
      OPEN1,4:PRINT"{CLR}"SPC(
      8)"{2 DOWN}{BLU}UCCCCCCC
      CCCCCCCCCCCCCCI"
XH 40 PRINT"{BLU}{8 SPACES}B
      {1}TYPEWRITER SIMULATOR
      {BLU}B":PRINTSPC(8)"JCCC
      CCCCCCCCCCCCCCCCCK"
AK 50 PRINT"{DOWN}{CYN}
      {10 SPACES}MENU OF OPERA
      TIONS:"
AF 60 PRINT"{DOWN}{7 SPACES}
      {RVS}{YEL}1{OFF}{WHT} SE
      T UP FORM IN PRINTER"
RB 70 PRINT"{7 SPACES}{RVS}
      {YEL}2{OFF}{WHT} SET UP
      {SPACE}L-R POINTER"
DA 80 PRINT"{7 SPACES}{RVS}
      {YEL}3{OFF}{WHT} INPUT T
      YPING ROUTINE"
RR 90 PRINT"{7 SPACES}{RVS}
      {YEL}4{OFF}{WHT} EXTRA L
      INE FEEDS"
JH 100 PRINT"{7 SPACES}{RVS}
       {YEL}5{OFF}{WHT} QUIT P
       ROGRAM"
FP 110 GOSUB440:ONVAL(A$)GOTO1
       20,190,250,410,430:GOTO
       110
SA 120 PRINT"{3 DOWN}{GRN}TO A
       LIGN THE FORM, ENTER TH
       E HORIZONTAL"
BX 130 PRINT"COLUMN WHERE A RE
       PEATED {1}X{GRN} CAN BE
        PRINTED"
SC 140 PRINT"{DOWN}USE SPACE T
       O REPEAT THE {1}X{GRN}
       {SPACE}AND RETURN TO EX
```

www.commodore.ca

```
        IT";
FD 150  PRINT".{2 SPACES}ENTER
        {SPACE}COLUMN NUMBER:";
        :INPUTN
PR 160  PRINT#1,SPC(N)"X":PRINT
        #1,CHR$(27);CHR$(106);C
        HR$(0):PRINT#1,CHR$(27)
        ;"@";
EH 170  GOSUB440:IFA$=CHR$(32)T
        HEN160
CX 180  IFA$=CHR$(13)THEN50
FG 190  PRINT"{2 DOWN}{GRN}ENTE
        R AN {YEL}L{GRN} IF YOU
         ARE PLANNING TO"
QK 200  PRINT"ORIENT YOUR ENTRI
        ES TO THE LEFT":PRINT
HK 210  PRINT"ENTER AN {YEL}R
        {GRN} IF YOU ARE PLANNI
        NG TO"
FG 220  PRINT"ORIENT YPUR ENTRI
        ES TO THE RIGHT":PRINT"
        L/R?{2 SPACES}";:GOSUB4
        40:M$=A$
CQ 230  PRINTM$:IFM$<>"L"ANDM$<
        >"R"THEN190
GD 240  GOTO50
PA 250  PRINTCHR$(14)
GP 260  IFM$<>"L"ANDM$<>"R"THEN
        PRINT"{2 DOWN}{1}
        {4 SPACES}L OR R LOCATO
        R ?":PRINTCHR$(142):GOT
        O190
FR 270  PRINT"{CLR}{GRN}
        {2 DOWN}{5 SPACES}ENTER
         AN UP ARROW ({YEL}↑
        {GRN}) TO QUIT"
EK 280  LO$="LEFT":IFM$="R"THEN
        LO$="RIGHT"
SA 290  A$="":PRINT"{GRN} ENTER
         THE PRINT POSITION FOR
         YOUR ";LO$;:INPUT" MAR
        GIN";A$
DS 300  IFA$=CHR$(94)THENPRINT"
        {CLR}"CHR$(142):GOTO50
QG 310  IFVAL(A$)>80ORA$=""THEN
        250
PM 320  P=VAL(A$):A$="":PRINT"
        {5 SPACES}ENTER PHRASE
        {SPACE}TO BE PRINTED
        {WHT}":INPUTA$
HQ 330  IFA$=CHR$(94)THENPRINT"
        {CLR}"CHR$(142):GOTO50
XK 340  IFM$="L"THENN=P:IFN+LEN
        (A$)>80THENPRINT"NO
        {SHIFT-SPACE}ROOM
        {SHIFT-SPACE}TO
        {SHIFT-SPACE}PRINT":GOT
        O290
DM 350  IFM$="R"THENN=P-LEN(A$)
        +1:IFN<0THENPRINT"NO
        {SHIFT-SPACE}ROOM
        {SHIFT-SPACE}TO
        {SHIFT-SPACE}PRINT":GOT
        O290
PR 360  PRINT#1,SPC(N);A$:PRINT
        #1,CHR$(27);CHR$(106);C
        HR$(0):PRINT#1,CHR$(27)
        ;"@";
HX 370  PRINT"{GRN}{5 SPACES}LI
        NE FEED? Y/N{3 SPACES}"
        ;:GOSUB440:PRINTA$
DJ 380  IFA$=CHR$(94)THENPRINT"
        {CLR}"CHR$(142):GOTO50
DF 390  IFA$="Y"THENPRINT#1,"":
        GOTO250
HQ 400  GOTO250
PD 410  PRINT"{GRN}{2 DOWN}
        {5 SPACES}ENTER NUMBER
        {SPACE}OF LINE FEEDS";:
        INPUTA$:IFVAL(A$)=0THEN
        50
FC 420  FORI=1TOVAL(A$):PRINT#1
        :NEXT:GOTO50
SM 430  CLOSE1:END
RJ 440  A$="":GETA$:IFA$=""THEN
        440
FC 450  RETURN
```

Donald Klich is a frequent contributor. His most recent program, CrossRef 128, appeared in the May 1993 issue. He lives in Mount Prospect, Illinois. ❐

TYPING AIDS

MLX, our machine language entry program for the 64 and 128, and The Automatic Proofreader are utilities that help you type in Gazette programs without making mistakes. To make room for more programs, we no longer include these labor-saving utilities in every issue, but they can be found on each Gazette Disk and are printed in all issues of *Gazette* through June 1990.

If you don't have access to a back issue or to one of our disks, write to us, and we'll send you free printed copies of both of these handy programs for you to type in. We'll also include instructions on how to type in Gazette programs. Please enclose a self-addressed, stamped envelope. Send a self-addressed disk mailer with appropriate postage to receive these programs on disk.

Write to Typing Aids, COMPUTE's Gazette, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408.

ONLY ON DISK

In addition to the type-in programs found in each issue of the magazine, Gazette Disk offers bonus programs. Here's a special program that you'll find only on this month's disk.

Mergee
By Robert Quinn
Kooringall, Waga Waga
NSW, Australia

This month's bonus program is a tough, thinking-person's game for the 64 that can be played from the keyboard or joystick. The game begins with a playing field that's filled with single-digit numbers, random boxes, squares, and open spaces. The object of Mergee is to move the numbers around so that they merge with other numbers and disappear from play. Only like digits can merge, however, and when all of the numbers are gone, the game is over. The rules are simple, but there are a few surprises waiting for you that'll make Mergee almost as frustrating to play as it is entertaining.

Public Domain Programs

Don't forget that Gazette Disk now contains the best of public domain programs and shareware. For a complete rundown of the programs on this disk, see Steve Vander Ark's "Share This" column, which makes its debut in this issue of Gazette.

You can have these programs and all of the type-in programs found in this issue—ready to load and run—by ordering the July Gazette Disk. The price is $9.95 plus $2.00 shipping and handling. Send your order to Gazette Disk, COMPUTE Publications, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. You can order by credit card by calling (919) 275-9809, extension 283.

www.commodore.ca

SONY DESKTOP LIBRARY

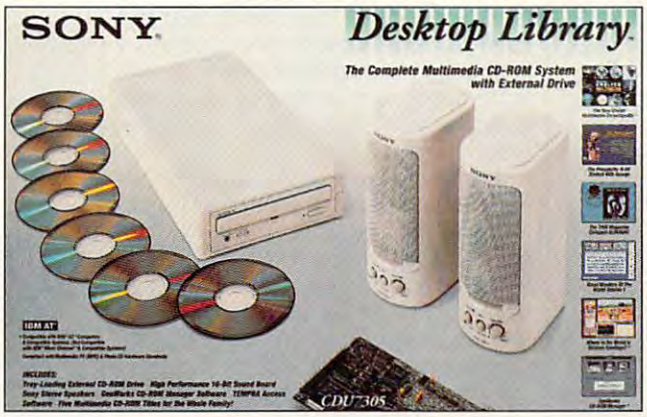
Here's your chance to enter the world of multimedia. With the Sony Desktop Library, you get everything you need: a CD-ROM drive, a sound card, and a collection of real multimedia software. This next-generation product goes beyond early CD-ROM products, giving consumers more of what they want and need: plenty of software and an easy-to-use front end to the CD-ROM titles and hardware.

My evaluation package had an external drive. Two other packages are available (at a reduced price, too) with internal drives. The data-retrieval speed of 150K per second was right in line with multimedia standards.

Right now these multimedia products ship with a Spectrum 16 sound card. It's Ad Lib, Sound Blaster, and Real Sound compatible. Software that supports the card in native mode sounds superb, even better than Sound Blaster emulation. A nice set of desktop speakers provides an alternative to running wires to your stereo.

Six full-blown multimedia software titles will get you started. There's so much material, it'll take several weeks before you'll have enough time for more than a brief sampling.

In addition to solid, reliable hardware, the Sony Desktop Library includes the GeoWorks CD-ROM Manager as part of the package. It's a front end to all of the CD-ROM software that's included. All you do to run a program is click on its icon. The package includes even more than front-end software, though—it's a graphical environment. Many of the GeoWorks niceties that make DOS easier are there as a bonus.



With the Sony Desktop Library you get all sorts of stuff, including a CD-ROM drive, CD-ROM titles, and speakers.

With Dashboard for Windows 1.0, a new Windows utility from Hewlett-Packard, you can drive your computer more effectively.

You can create icons for other CD-ROM titles as your library grows. That way, you'll always have the same easy interface when you access your CD-ROM titles.

I wasn't sure I could run CD-ROM programs from DOS until I called Sony. I didn't find any mention of running from DOS in the Sony literature, but I'm not a good manual reader, so I could have missed it. After talking to the company, I was able to install an icon and a group in Windows. I ended up spending more time running GeoWorks from Windows than DOS and had no problems.

The bundled software varied in quality, but my two favorites were Where in the World Is Carmen Sandiego? and The New Grolier Multimedia Encyclopedia. My kids loved them, too. If you have children, the accompanying software will provide entertainment and edification for them as well.

Some of the programs did the unthinkable and copied a large portion of themselves to my hard drive. Thinking I had plenty of available space, I tried installing an application and was taken aback when I discovered the intrusion.

The GeoWorks installation was a two-stage process requiring a Ctrl-Alt-Delete boot between stages. I wish it had done what many other installations do and rebooted itself, followed by automatic spawning of the second half of the procedure.

In spite of several small complaints, I think highly of the package. If you're seriously thinking about getting a CD-ROM drive, take a good look at this package. It may be just what you need. And Sony, one of the leaders in CD-ROM technology, will probably be in the business for a long time.

RICHARD C. LEINECKER

Sony
(800) 352-7669
$1,069.95 (external package)
Circle Reader Service Number 434

DASHBOARD FOR WINDOWS 1.0

It's compact, neat, convenient, and fast. In fact, I like Dashboard so well that I regularly use it in place of Windows' own standard Program Manager.

Like the dashboard in today's high-tech cars, this Windows utility presents an impressive collection of highly visible gauges and easily accessible controls. The resource gauge, for example, resembles an analog fuel gauge and allows you to monitor your Windows system resources. The memory meter below it looks like an odometer and lets you monitor available system memory. If you run too low on resources or memory, a gas-pump icon blinks to alert you.

In Dashboard's printer manager, you choose from available printers by clicking on a printer's icon button; a light at the bottom of the button shows the default printer or, if you have a fax board, the fax software to which you "print." To print or fax a file with ease, just drag and drop it from Windows' File Manager to the appropriate icon.

Forget double-clicking when you use the Quick Launch buttons. A single click launches your most-used apps, identified by icons and, with enough room, the names of the programs. To launch less-used apps, click on one of the group buttons in the Pro-

www.commodore.ca

ORIGIN® FX™

The screen saver for high-powered PCs.

Finally, there's a screen saver that shows off the blazing speed, stunning graphics and spectacular sound* in your PC. *ORIGIN FX* delivers 256-color, high-res images** running under *Windows* – with 27 entertaining modules created by ORIGIN's award-winning computer artists.

Special Bonus:

If you own *Strike Commander, Wing Commander II* or *Serpent Isle*, *ORIGIN FX* will play their cinematic sequences as separate modules when the games are installed on your hard drive. And that's just the beginning– many future ORIGIN games will support this feature as well!

Available at a software retailer near you or call 1-800-245-4525 for MC/Visa/Discover orders.

©1993 ORIGIN Systems, Inc. FX, Serpent Isle and Strike Commander are trademarks of ORIGIN Systems, Inc. ORIGIN and Wing Commander are registered trademarks of ORIGIN Systems, Inc. Electronic Arts is a registered trademark of Electronic Arts. Windows is a trademark of Microsoft Corp. *Ad Lib, Sound Blaster or Roland MT-32/LAPC-1 or 100% compatible required for music. **Requires that Windows be configured in 256-color mode with SVGA graphics.

Circle Reader Service Number 163

REVIEWS

gram menu bar; when the group window pops up, click on the app you want.

You also have buttons for the System menu (like the one in Windows), the Task menu (to switch, run, and close programs), and the Layout menu (to create, edit, or load Dashboard layouts). The Dashboard panel also has a help button, a customize button, a minimize button, a maximize button, and a button that lets you hide or show the Program menu.

The Dashboard clock (digital or analog and available in several versions) lets you set the date, the time, and alarms. And Dashboard's mini program windows visually represent what you have on a particular screen. If you dislike the clutter on a screen with a program running, an uncluttered screen to the left or the right can be just a click away.

Don't let its compactness fool you: Dashboard is highly customizable and offers much more depth of utility than meets the eye. If you enjoy using wallpaper to add variety to Windows computing, you'll love the way Dashboard takes no more room than necessary. Most important, however, Dashboard steers you through Windows with minimal clutter and maximum speed and efficiency.

MIKE HUDNALL

Hewlett-Packard
(800) 554-1305
$99

Circle Reader Service Number 435

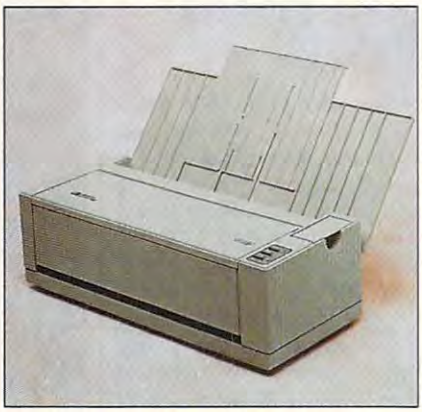
SMITH CORONA CORONAJET 200J

With laser-quality output, 20 resident fonts, and a compact form factor only slightly larger than a loaf of bread, the Smith Corona Coronajet 200j ink-jet printer is going to be as popular as . . . well, sliced bread.

If you add its optional automatic sheet feeder, the 200j takes up only about as much desktop space as a loaf of bread spread crossways on an average-sized manila folder. This should be welcome news to people who would want to use it at home or in a small business (the target market for this printer), who often need all the extra space they can get.

You can make each of the 20 resident fonts bold, italic, or underlined, including Courier, Times Nordic, and Letter Gothic. For even more variety, you can use the 14 optional font cards. The 200j prints in portrait and landscape modes, and its easily installed ink-jet cartridge is replaceable.

Smith Corona claims laser-resolution-quality printing—300 × 300 dpi for text and graphics—and my experience confirms the claim. Everything I printed was crisp and dark—I just had to be careful not to smear freshly printed pages by touching them before



The Coronajet 200j packs laser-quality printing power into a little package.

they were dry. The printer proved equally adept at printing spreadsheets, documents in XyWrite and Microsoft Word, OnTime calendar sheets, and BMP files in black-and-white from Windows' Paintbrush program. It handled multiple fonts and a variety of files with no hesitation.

The 200j owner's manual proved essentially adequate, with clear setup instructions and a helpful troubleshooting section but, unfortunately, no index. The automatic sheet feeder comes with its own skimpy booklet, which is helpful but confusingly organized, with entries in multiple languages for each section.

To be honest, after I inserted the 200j's print cartridge, I barely glanced at the manuals unless it was to consult the troubleshooting section. It's easy enough simply to open the box, connect the printer to your computer, set your software to the common HP DeskJet Plus emulation, and go to work. To install the 70-sheet-capacity feeder, you simply push the 200j on top of it until it locks into place.

The 200j doesn't present you with a host of LEDs and switches to set, though its front panel does conceal more than 50 easily accessible switches to make adjustments for different fonts, manual or automatic paper loading, and other commands. The graphs that show how to set the switches proved somewhat confusing, so I was relieved that the only change I needed to make came when I added the automatic sheet feeder. The 200j's pow-

www.commodore.ca

er switch is on the back of the printer, a location I found mildly inconvenient.

Besides its size, printing quality, and ease of use, the 200j also impressed me with its quiet operation. If my dot-matrix printer provides no smearing problems, it does provide plenty of noise pollution. Compared to it, the 200j—rated at less than 45 dB—was virtually inaudible, even in my cramped 10- × 10-foot home office. I can't imagine anyone being bothered by its noise level.

The only real problems I encountered using the 200j involved loading paper. It wouldn't accept envelopes loaded longways, a necessity for the HP DeskJet Plus emulation in Nvelope Plus. It also gave trouble when I tried loading it with recycled office paper—the backs of old press releases, errant printouts, and the like—sometimes feeding two sheets at once at odd intervals. Using fresh paper, though, I had no trouble using the 200j.

At worst, the problems I had using the Smith Corona Coronajet 200j were minor quirks. Anything this small that prints this well without making any appreciable noise deserves an unreserved recommendation.

EDDIE HUFFMAN

Smith Corona
(800) 448-1018
(203) 972-1471
Coronajet 200j—$499
Optional sheet feeder—$89

Circle Reader Service Number 436

DEC 433DX LP

Deciding which computer system to buy can be difficult. In most cases, once a business commits itself to a specific product, it must stick with it. That's one reason DEC (Digital Equipment Corporation) has targeted businesses for its new family of PCs. The upgradable DEC 433DX LP, based on Intel's 33-MHz 486DX processor, can be used for demanding desktop business as well as for technical applications.

How difficult is it to set up the DEC 433DX? The system comes with DOS 5.0 and Windows installed. First, I checked the user's guide for anything unusual. Then, I plugged in the appropriate cables and power cord and turned on the system.

The easy-to-understand Getting Started handbook provides all the necessary information, as well as helpful illustrations for inexperienced users. You also get the DEC 300/400 LP Series User's Guide, the MS-DOS 5.0 User's Guide and Reference, and an operations manual for QAPlus, an advanced system diagnostics software package.

I ran a variety of applications to check the system's compatibility, including Microsoft Word, Excel, PowerPoint for Windows, Picture Wizard, the Windows and DOS versions of Express Publisher, a couple of DOS shareware programs, and several other commercial programs. I found no incompatibilities.

To remove the system cover, I had to unlock the safety lock on the back of the unit with the key provided. The cover is easy to remove. I found it hard to reach the system battery, but it seldom needs replacement, fortunately.

This 33-MHz system includes a DEC two-button mouse, one parallel and two serial ports, two floppy and two hard drive controllers, a Super VGA video adapter integrated with the system board, and three open expansion slots.

Vents along one side of the unit should be adequate to keep the system's power supply from overheating. You'll probably find the fan noise barely noticeable.

Easy access to reset and on/off buttons is essential. You can find both of these buttons on the front of the DEC 433DX.

You can get a 66-MHz upgrade for the DEC 433DX, and it's easily installed thanks to DEC's ZIF (Zero Insertion Force) slot. The 486DX includes a coprocessor in the CPU chip, but DEC accommodates a separate coprocessor to aid the computer in CAD-CAM operations.

It's easy to access the unit's 4MB of SIMM RAM chips. The standard amount of DRAM can be increased to 64MB using the four SIMM sockets. The DEC 433DX requires SIMMs with an access time of 70 ns or faster.

The price of the DEC 433DX doesn't include a monitor. Several are available, including monochrome or color VGA ranging from the basic 640 × 480 to a multisync 1024 × 768 noninterlaced model.

No surprises come with the DEC 433DX keyboard. It features a standard layout with soft-click keys and function keys along the top.

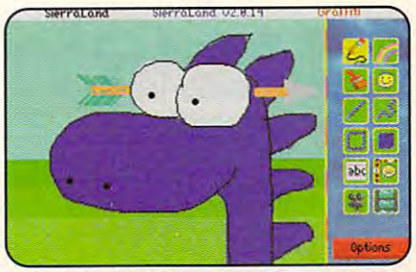
The one-year on-site warranty is comparable to those found with a lot of other systems and is better than some. The company offers a toll-free customer and technical support hot line and a consulting center.

I found the DEC 433DX to be a solid, dependable, easy-to-use system. Businesses looking for an upgradable, modular (80 percent of the components are common to the other DEC PC family members), and network-ready system would be advised to check this one out.

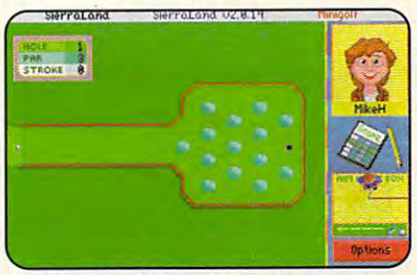
JOYCE SIDES

Looking For Fun Recreation?

Play your old favorites like Bridge and Chess plus, exciting news ones like Boogers.™



Like to Draw? Well, we've got a game called Graffiti™ that you're gonna love!



Alone or with friends, MiniGolf™ is a whimsical collection of traps and greens.

Have We Got A Place For You!

See Our Ad On The Back Cover.

The Sierra Network®
PART OF THE SIERRA FAMILY

TM designates a trademark of The Sierra Network ©1993 The Sierra Network
Offer #310

www.commodore.ca

Need a network at home?
See page 91

Want to speed up Windows?
See page 55

Don't like mice?
See page 251

What do you do when your computer won't boot?
See page 1

Need help organizing your hard drive?
See page 35

What is TrueType and what does it mean for you?
See page 104

COMPUTE MAGAZINE's POWER TIPS
has the answers to these and hundreds of other tips.

To order your copy send $16.95 plus $2.50 for shipping and handling (U.S., $4 Canada and $6 other) to COMPUTE Books, c/o CCC, 2500 McClellan Ave. Pennsauken, NJ 08109. (Residents of NC, NJ, and NY please add appropriate tax; Canadian orders add 7% GST.) All orders must be paid in U.S. funds drawn on a U.S. bank. VISA and MasterCard orders accepted; be sure to include your card number, expiration date, and signature. Offer good while supplies last.

REVIEWS

DEC
(800) DIG-ITAL
$2,199
Circle Reader Service Number 437

AUTOCAD RELEASE 12

AutoCAD Release 12 is an upgrade wish list for casual users, as well as for hardcore programming hackers and third-party developers. While more powerful and advanced than any other CAD program, previous versions of this premier drawing program foundered in the aspects of speed and ease of use. They required regenerations for all but the slightest size changes, and operators had to memorize and enter archaic commands for even the simplest tasks. As a teacher with more than 20 students, I had to program a command sequence in the early evening and let it run overnight because the equipment and software were so antiquated.

With Release 12, the program's new speed and flexibility take full advantage of 32-bit computing capability, evolving networks, and advanced plotting technology. The difference from previous versions is immediately apparent. AutoCAD has emerged from dweebware into the trendy—and time-saving—arena of graphical user interfaces, with pull-down cascading menus, cursor menus, programmable dialog boxes, TIFF and EPSI raster image inputs and outputs, and internal rendering capability.

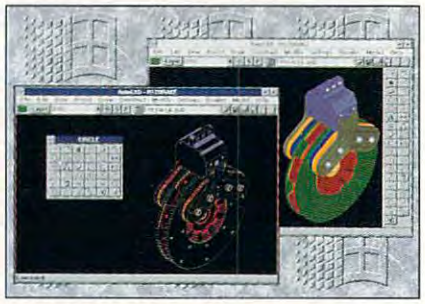
Eminently user-friendly, Release 12's pull-down menus also remember your last input choice. Expert users who type commands at the prompt line will find all suboptions of the commands on the side menu, which can be turned off to provide a wider screen. The 3-D capabilities of cameras and lighting angles that distinguish CAD from paper-and-pencil drawings now appear within AutoCAD inside the pull-down Render menu, so you no longer need to enter AutoShade.

The 25 new dialog boxes replace cumbersome line commands in starting and opening drawings (no more hunting around the hard drive), plotting (with a brand-new paper-saving preview option), and customizing.

You can enter the command and quickly change any of the settings without having to scroll through needless text questions. And you can correct mistakes if you catch them before pressing the OK button, or you can simply cancel and start again.

Programmable dialog boxes constitute a veritable revolution for AutoCAD users, allowing a new dialog box to be defined by the programmer rather than by the limitations of the program. The Dialog Control Language (DCL) is incorporated with LISP.

Release 12 brings plotting into the nineties. The plot dialog box allows multiple plotter configurations for both



AutoCAD Release 12 boasts 174 enhancements over the previous version.

plotters and printers. The plot preview function displays the plot image in partial or full format, superimposing the paper extent over the image. Zoom and Pan ensure that your plot is correct prior to sending it to your output device. I found one error in which a plot set to ⅛ inch = 1 foot 0 inches did not plot to the correct scale and had to be reset to 1 = 96, but Autodesk has apparently compiled a new plotter driver to counteract this oversight.

With the program's ability to output raster files from EPS, FITS, TIFF, GIF, and TGA formats; image resolution as high as 1024 × 768; up to 256 colors; and programmable layers, linetypes, and line widths, perhaps Autodesk should be targeting the desktop publishing crowd. RASTERIN.EXP, a Release 12 AutoLISP Xload function, pulls in the raster image similar to a block.

Even network users have a productivity feature, with the ACAD-P option allowing them to plot from outside AutoCAD without requiring an additional license.

Taking a cue from the Macintosh, Release 12 now lets you alter the verb/noun technique in up to 14 commands using the Pickfirst variable. No more choosing commands and selecting objects—you simply click and drag! And a new Grips feature, the Dgrips dialog box, lets you stretch, move, copy, rotate, and mirror entities as edit functions without going into a command. Entities can be arcs, lines, circles, blocks, plines, or text. The grip, basically an attachment, is a small colored square that appears at definition points of an entity, changing color as it becomes hot (activated). The grips also let the operator grab the end-

www.commodore.ca

point, center, midpoint, and quadrant of an entity without using OSNAP (Object Snap.)

Long, slow regen or hide commands are a thing of the past with the introduction of algorithms that accelerate graphics from 50 percent to 500 percent. In fact, a performance enhancement practically eliminates regenerations for zooms and pans!

Graphics acceleration for Zoom with the old 16-bit display space is finally gone, and in its place a 32-bit vector space now provides an extremely efficient Zoom. I did a Zoom Extent followed by a Zoom Vmax to force a drawing out as far as possible without a drawing regen, and even a Zoom 5000000x (yes, six 0s) did not entail a regen—undreamt of in previous releases. The dynamic range of the Zoom command is increased from 50 : 1 up to 5,000,000 : 1 before a regen is issued.

Advanced users and third-party developers will appreciate Release 12's new organizing tools. A means of creating a "tree structure," oct-tree spatial index divides drawing entities into logical groups or sort order.

Release 12 achieves graphic acceleration for faster entity selection and redraws (spatial index) through the new variables of Treedepth and Treestat. Treedepth fine-tunes the oct-tree index. Treestat files report values in both the model and paper space branches of the spatial index.

The AutoCAD Sequel Extension (ASE) enables operators to pass information directly from AutoCAD to a database system without requiring shells. Since nongraphical information can be stored outside the drawing and linked with entities inside a drawing, you can reduce a drawing's size without losing useful data.

New conversion functions convert text strings into decimal values, and a geometry calculator allows you to calculate geometry using command line expression and interaction with existing AutoCAD entities. (For instant insider access to undocumented advantages, you may want to check out the new Release 12 edition of *1,000 AutoCAD Tips and Tricks*, a book I edited published by Ventana Press.)

I don't have enough space to include all 174 enhancements in the new AutoCAD Release 12, but you obviously get your money's worth when you upgrade to this version.

BRIAN MATTHEWS

Autodesk
(800) 964-6432
$37.50

Circle Reader Service Number 438

GOBLIIINS

Imagine the Three Stooges cast in a graphic adventure, and you've got Gobliiins, a puzzle quest with a delightfully twisted sense of humor.

Developed by European publisher Coktel Vision, the game is typical of those by the new wave of innovative French designers, including Delphine

Pair your brain with the three Gobliiins' half a brain for a successful quest.

(Out of This World) and Sensible Software (Mega Lo Mania). Graphic artist Pierre Gilhodes created the game's distinctive look, from the lush 256-color backdrops to the title characters' often hilarious animation.

The game consists of 22 full-screen, interactive puzzles strung together in storybook fashion. The tale involves a king who's suddenly gone stark, raving mad—the victim of an evil wizard's voodoo doll. To the rescue come Hooter, Dwayne, and BoBo, three well-meaning goblins with only half a brain among them. You provide the missing link, directing the goblins on their perilous journey to find a cure for the ailing king.

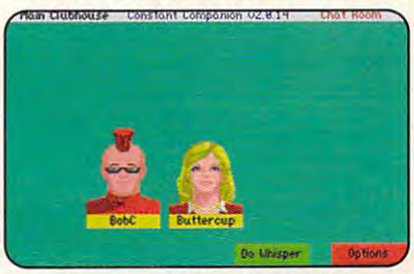
Because each goblin performs only one special task, they must work together to solve puzzles. Hooter, the magician, casts spells on objects, often with unpredictable results. Dwayne is the technician, able to pick up and use one object at a time. BoBo is the warrior, whose only talents are the abilities to climb and punch things. Use the keyboard or mouse to select the goblin you wish to control.

Game mechanics are kept simple, focusing attention on your powers of observation and deductive reasoning. To advance through a screen, you must find and manipulate a series of items, often in a specific sequence, utilizing each of the goblins. The ultimate goal of one puzzle might be to secure an object to be used in the next, more difficult screen. Experimenting is an essential and entertaining aspect of the game, yet you should be careful not to dally with the wrong items. Negative actions such as falls, frights, or losing important items result in the loss of energy. Although no time limits are im-

Looking For Good Conversation?

Meet your friends and make new ones in the conference rooms in SierraLand.™

Talk with other wizards and warriors at The Tavern in MedievaLand.™



Meet the most interesting people in a safe, Cyberspace environment.

Have We Got A Place For You!

See Our Ad On The Back Cover.

The Sierra Network®
PART OF THE SIERRA FAMILY

TM designates a trademark of The Sierra Network ©1993 The Sierra Network
Offer #310

www.commodore.ca

Experience the New
PENTHOUSE ONLINE™
• State-of-the-Art VGA/SVGA, 2400/9600 bps Service!
• Near real-time picture display
• Photo E-Mail
• National Discount Shopping Services
• No 9600 baud surcharge!
• PetPoints™ Awards Program
• Low monthly and connect fees!

Exciting news! Penthouse introduces an online service that's easier—and more fun—to use. Called PENTHOUSE ONLINE, this new service features 9600 bps capability and "real-time" graphics—almost instantaneous online viewing of photos and E-Mail with picture-attach capability. Send a message...and a photo...at the same time!

Log on and access Chat, E-Mail, Penthouse Letters, Penthouse Photos...plus special Navigation and Help areas. New areas are being added continuously. Navigate anywhere using a mouse or Tab key.

The Penthouse photos you'll find on PENTHOUSE ONLINE are the same high quality seen every month in Penthouse. Our unique speed-view system lets you browse in 256-color VGA, then download the photos you wish to keep. That's right. View BEFORE you download.

There's more! Keep up to date on national and world events, the financial markets, entertainment news and more....Thinking about travel? See our DISCOUNT TRAVEL SERVICE area...And don't miss our DISCOUNT MERCHANDISE MART! Thousands of nationally advertised products—all at discounts, all with a "double the price-difference" guarantee.

All this for just $5.95 a month basic fee, plus 20 cents a minute for most areas. And NO 9600 BPS SURCHARGE!

As a member of PENTHOUSE ONLINE, you receive valuable PetPoints for every dollar you spend. Redeem PetPoints for Penthouse ball caps, T-shirts, can coolers, key rings , and more. Or use them to purchase sought-after Penthouse books and videos. Or trade points for free online time. It's your choice!

Plus, we've arranged with a major modem manufacturer, USRobotics, to offer a deluxe, 9600 bps data/fax modem, with custom Penthouse Key insignia, for under $300.

To order your membership kit call 1-800-289-7368 or circle the reader service number below.

Circle Reader Service Number 103

REVIEWS

posed, when all energy has been depleted, the game ends. Energy power-ups are available midway through your quest; passwords are also awarded upon completion of each screen.

The game's few faults are only minor quibbles. Although many puzzle solutions require multiple-character input, only one goblin can be active at once. A multitasking feature for assignments would speed up many tedious chores and lend the game a welcome sense of urgency. Another possibility might be puzzles solved only through simultaneous character actions. Harsh, sporadic sound effects belie the game's warm and fuzzy demeanor. More expressive voice samples and background effects are needed to fully convey goblin gibberish. Finally, unlike the clever introductory screen, the game's victory screen is quite anticlimactic.

Most puzzles are surprisingly intricate and might prove too difficult for younger players. Unlike the ones in Sierra's similar Castle of Dr. Brain, the puzzles here rely less on logic than on arbitrary cause and effect. A multitude of red herrings ensures plenty of wrong guesses, often with hilarious, game-ending outcomes. The trick is to think with slightly bent logic, placing yourself in the goofy shoes of these three little knuckleheads.

Brainteasing fun with a sly comic flare, Gobliiins could be one of the year's sleeper hits.

SCOTT A. MAY

Sierra On-Line
(800) 326-6654
$39.95

Circle Reader Service Number 439

QUANTUM HARDCARD EZ 240

Need more hard drive space? Got an extra slot in your PC? Don't want to get involved in major PC surgery? If you answered yes to all these questions, you're in luck.

Quantum offers a quick and easy way to add 42MB, 85MB, 127MB, or even 240MB to your PC. All you need is a Hardcard EZ 42, Hardcard EZ 85, Hardcard EZ 127, or Hardcard EZ 240. Each is essentially a hard drive on a PC card, so installation should take ten minutes or less. And Quantum guarantees that any Hardcard EZ will work with your 286, 386, or 486 system, or you'll receive a full refund.

These days, you don't have to pay a performance penalty for the convenience of a hard drive on a card. Average seek time is rated at 19 ms for the EZ 42, 17 ms for the EZ 85 and EZ 127, and 16 ms for the EZ 240. That's in line with the faster internal hard drives. The Hardcard prices are also in line with those of standard hard drives: $269 for the EZ 42, $319 for the EZ 85, $419 for the EZ 127, and $689 for the EZ 240.

It's easier to install the Quantum Hardcard EZ 240 than a conventional hard drive.

Unfortunately, I wasn't able to use the EZ 240 with an older ZEOS 386 computer. The manual explains that the Hardcard EZ drives may not work in systems with older SCSI adapter boards (in many cases, you can resolve the problem by changing the SCSI adapter's memory address), some 16-bit VGA adapters (you may have to switch from 16-bit to 8-bit transfers), and NEC's version of DOS 3.3 (Quantum includes a work-around). The ZEOS's early SCSI adapter, it turns out, is incompatible with the EZ 240 (that's where Quantum's money-back guarantee would have come in handy), but the Hardcard worked fine in the two other systems I tried.

The Hardcard EZs from Quantum are fast, inexpensive, easy to install, and guaranteed to work. With their field-tested life of 250,000 hours before failure, you'd be hard-pressed to find a better hard drive.

DAVID ENGLISH

Quantum
(800) 624-5545
$689

Circle Reader Service Number 440

WYSE DECISION 486SI

Wyse Technology knows how to make a quality product. The company's designers take the time, and spare little expense, to add conveniences and features not often found on other systems. But these extras and conveniences come with a price—namely, a higher price tag for Wyse computers.

I tried a Wyse Decision 486si, which includes an Intel 486DX/33 CPU with 4MB of RAM, a 200MB IDE hard drive and a VGA color monitor. The sys-

www.commodore.ca

tem I tried, which costs about $2,159, also came with two floppy drives and 256K of external cache and a local-bus video with 1MB RAM. Wyse describes this unit as a high-performance graphics workstation, since its video is much faster than standard VGA and it's easily upgradable.

Using its own local-bus video, Hyper 16 VGA, Wyse can boast the fastest high-resolution graphics performance available, with more than 300-percent improvement over conventional VGA systems. And indeed, I did find the graphics to be fast and of high quality.

The CPU in this system is Intel's latest 80486, the easily upgradable 486si. In addition, the memory is expandable to 64MB. And since many of the system's features are integrated on the motherboard, all six ISA bus slots are available. The system includes up to five mass-storage bays that support both 5¼- and 3½-inch floppy drives.

Other conveniences include the placement of the on-off switch on the front of the system, as well as a front-panel door that covers all the floppy disk drive bays. This door helps keep dust out of the drives, as well as giving a sleeker appearance to the unit. The keyboard is a 102-key enhanced PC-style keyboard, and its quality is higher than that of many keyboards I've seen.

Setup of the system is simple and fast. Everything you need is included, and all the ports are clearly marked. The setup manual is one of the best I've seen. Its illustrations and explanations are easy to follow. The only DOS manual included is The MS-DOS Version 5.0 User's Guide and Reference, Concise Edition. And, although it gives an excellent introduction to computers and MS-DOS, it's not a complete DOS manual. It would've been better for Wyse to have included the full MS-DOS manual, too. The system also comes with Windows 3.1 and a mouse.

I put the system through its paces using Windows 3.1 and running Word for Windows, Quattro Pro for Windows, and PageMaker 4 employing the standard VGA display. In addition, I tried some graphic-adventure games and flight simulation programs. I was satisfied with the Decision 486si's performance and was especially impressed with the general quality of the system.

But, as mentioned above, this quality comes with a higher price tag. If you're willing to pay for it, you'll probably be quite happy with this system. If you need a high-performance, top-of-the-line graphics workstation, I can certainly recommend the Wyse Decision 486si.

STEPHEN LEVY

Wyse Technology
(800) 438-9973
$2,159
Circle Reader Service Number 441

PACIFIC ISLANDS

War gamers who like to get their hands dirty on the front line rather than view a battlefield as icons scattered around a strategic map will get a real bang out of Pacific Islands. It's a tactical level tank simulation from the makers of the popular Team Yankee. In Pacific Islands, you control up to 16 tanks as you try to retake the islands of the Yama Yama atoll. The action is hot, realistic, and as addictive as a war game can get.

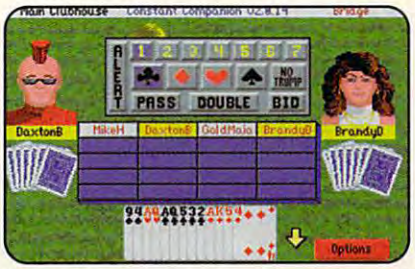
In Pacific Islands, the makers of Team Yankee offer more excitement.

You start your campaign by buying the tanks and equipment you need for your mission. Four types of tanks are available: the M1 Abrams, the M113, the M2 Bradley, and the ITV. To arm these iron-clad vehicles, you can choose from heat shells, SABOT shells, TOW missiles, and smoke shells. If you like to get into the action fast, though, you can skip over all of the purchasing screens, and choose the default setup, which instantly supplies you with vehicles and equipment, subtracting the cost from your cash.

Once equipped, it's off to the briefing room, where a map of the battle area and an accompanying notebook appraise you of your mission's details. The notebook outlines your objectives, while their approximate locations are marked on the map. Occasionally, military intelligence has helpful clues about what surprises might greet you in the pending confrontation. In addition, before entering the fray, you can request artillery support and smoke bombing for specific locations at given times.

When the battle commences, you control four platoons of four tanks each. ReadySoft recommends using a mouse to play. Although you have 16 vehicles under your control, each platoon receives commands as a group, so you don't have to command each tank individually. Plus, you can select several screen views for each platoon,

Looking For Stiff Competition?



For strategy, there's no game like Bridge, and we have players from master level to beginner.

Fly an aerial ballet in the famous WWI flight simulation, Red Baron.®

Join others on a quest through a live volcano in The Shadow of Yserbius.™

Have We Got A Place For You!

See Our Ad On The Back Cover.

The Sierra Network®
PART OF THE SIERRA FAMILY

TM designates a trademark of The Sierra Network ©1993 The Sierra Network
Offer #310

www.commodore.ca

the most important of which are the 3-D view, which offers a first-person perspective from the tank, and the map view, which shows an overhead shot of the area. You can zoom in and out in either view, which is especially helpful on the map screen. Using the zoom, you can look at the entire map, focus on individual vehicles, or view the area at several different intermediate magnifications.

You also can have all four platoon views onscreen simultaneously, each platoon showing a different map or area of the battlefield. Or if you'd like, a single platoon's screen quadrant can be magnified to full-screen size, a view from which tank controls are more accessible. These controls include a weapons firing panel, turret-rotation compass, laser range finder, infrared view, zoom, and more.

On the map screen, you can access even more tank and screen controls. You can set a platoon's formation, speed, and direction; and you can zoom in or out on the map display. Targeting enemy units on this map is a breeze: You just mark the unit with the map cross hairs and then return to the 3-D view, where the compass icon will swivel your turret toward the marked target. You also use the map cursor to set your platoon's next destination by clicking on the map. You can set your targets and mark your destinations at any zoom setting.

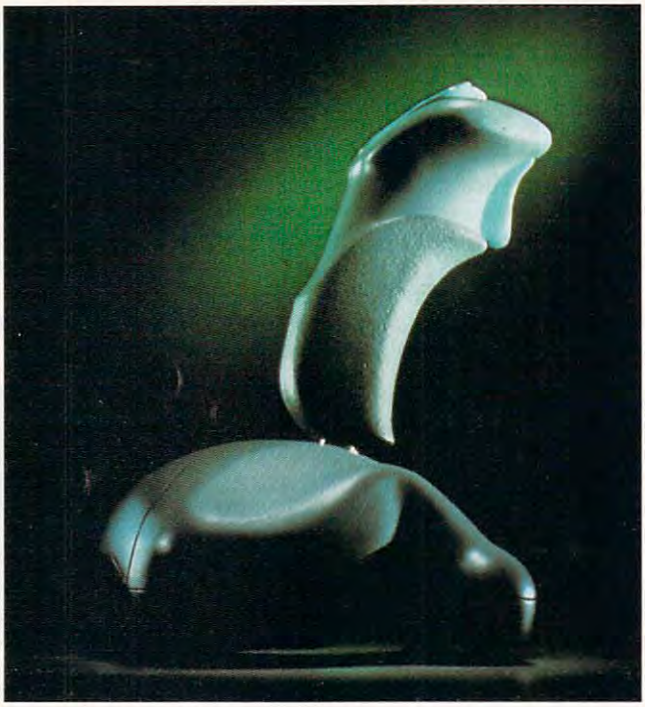
All in all, with its well-rendered 3-D graphics, realistic battle scenarios, easy-to-master controls, and blistering hot action, Pacific Islands is a delight. I highly recommend it.

CLAYTON WALNUM

ReadySoft
(416) 731-4175
$49.95
Circle Reader Service Number 442

SUNCOM FX 2000

Ergonomics and aesthetics can make strange bedfellows, especially when applied to joysticks. What's pleasing to the touch is often peculiar to the eye, and vice versa. Suncom's FX 2000 is one such duck, a flight control stick resembling an errant prop from a Roger Corman sci-fi flick. First impressions, however, can be deceiving. Despite its odd, anamorphic shape, Suncom's latest offering is a marvel of user-friendly, functional design.



You'll want the solid Suncom FX 2000 handy when you're playing games, though you may want it hidden otherwise.

The pistol-grip controller is 8 inches high and 4½ inches wide at the base, with a cord that's 5 feet, 9 inches long. Symmetrical design allows identical handling and performance capabilities for both left- and right-handed players. Twin fire controls—front trigger finger and top-mounted thumb button—can be manually switched between A and B settings, as designated by the software. The V-shaped top button is particularly well suited for ambidextrous play. Both buttons can be set to autofire by controls concealed in the base or to fire on demand with a top-mounted switch. Sliding *x*- and *y*-axis trimmers are located on the bottom, recessed to prevent accidental adjustments. Finally, a throttle wheel is located at the front of the unit—a handy option utilized by a growing number of flight simulators.

The stick performs best when firmly anchored, via built-in suction cups, to a table or desktop. The stability of this arrangement depends on surface texture, cup moisture, and how vigorously the device is handled. If the seal is too dry, the rubber cups will not maintain the suction. The little-known Murphy's Law of Joystick Suction dictates that if a seal can break, it will, and at the worst possible moment. Few things are more frustrating than having the front end of the stick pop off the desk in the midst of an intense aerial battle. Try using a small, damp sponge to lightly moisten the cups before securing them to the table, and pause the simulation and reapply pressure to the base before the action heats up.

If you prefer to hold the stick, you're in for a pleasant surprise. Unlike square-based controllers, the FX 2000 features smooth, rounded curves, molded on the top and bottom to fit your grip. Another unique feature is the ability to lift and lock the joystick handle at a 45-degree angle to the left or right. In theory, this dramatic shift creates a more natural line between your wrist and forearm. The results are less fatigue and potential pain, allowing you to play longer and, hopefully, score higher. Although awkward at first, prolonged tests in both positions favored this new twist on an old technology.

The controller tested well in such diverse and demanding environments as Aces of the Pacific, Chuck Yeager's Air Combat, Wing Commander, and Falcon 3.0. The pistol grip's short-throw and stiff, tactile feel account for its quick and steady response—a pleasant change from commonly loose and sloppy analog sticks. Primarily intended for flight simulations, the

www.commodore.ca

Advertisers Index

Reader Service Number/Advertiser	Page
259 21ST Century Entertainment	A-3
162 8-Bit	G-15
169 Access Software	42,43
AICS	31
142 Amazing Sources	117
268 Amish Outlaw Shareware Company	117
157 AMTEX Software Corp.	77
244 Antigrav Toolkit	G-21
298 Bare Bones Software	A-23
151 Bear Technologies	A-23
152 Bear Technologies	G-10
Best Personalized Books	113
120 Better Concepts	A-11
288 BIX	23
173 Blue Valley Software	114
218 Body Cello	109
Brantford Educational Services	G-9
304 Cal Ad Software	117
181 Caloke Industries	G-10
156 CH Products	35
149 Chips & Bits	81
166 Citizen American Corp.	19
139 CMD/Creative Micro Designs	G-17
Columbia House	11
128 ComPro Software Systems	109
150 CompSult	114
108 CompuServe	33
Computer Business Services	112
254 Computer Friends, Inc.	116
Computers For Tracts, Inc.	A-11
206 Comtrad	82
205 Covox, Inc	25
125 Creative Labs	3
123 Creative Pixels Ltd.	A-11
113 Creative Pixels Ltd.	G-10
226 Crosley Software	114
161 Delphi	15
131 DemoSource	113
188 Digispeech	41
180 Digital Directory Assistance	111
187 Digital Expressions Research	A-19
167 Disks O'Plenty	A-19
253 Disks O'Plenty	G-12
208 Disk-Count Software	103
D&K Enterprises	113
182 Eagle Tree Software	A-9
FGM Connection	G-9
285 Finetastic Computers	A-9
115 Free Spirit Software	99
Gateway 2000	IFC,1
159 Grapevine Group	G-12
177 Grapevine Group	A-29
Hope Career Center	112
234 Horse Feathers Graphics	G-12
207 IBM	5
300 ID Software	63
231 Jackson Marking Products Co., Inc	112
140 JemmaSoft	115
JP PBM Production	G-11
170 Keystone Software	G-10
197 KF-PD Software	G-9
Kid Secure of America	112
178 LACE	117
117 Legacy Software	112
136 Legendary Design Tech.	A-19
137 Legendary Design Tech.	A-28
146 Living Proof, Ltd.	G-19
260 Mad Man Software	G-13
280 Mallard Software	69
194 MegageM	A-19
200 MicroMagic Productions	116
174 MicroProse	39
289 MicroStorm Software	G-19
249 MSI/Micro Systems International	A-7
191 Needham's Electronics, Inc.	110
124 Neuralink	A-19
135 New Horizions Software	G-21
NRI/McGraw Hill	73
141 Odyssey OnLine	114
Oldsmobile	29
163 Origin	90
134 Panasonic	9
164 Parsons Technology	21
106 Parth Galen	A-28
273 Passport Designs	13
186 Patch Panel Software	116
250 PC Enterprises	116
Pendragon Software	109
103 Penthouse OnLine	94
107 Penthouse Modem	110
153 Performance Peripherals	G-21
185 Poor Person Software	A-19
168 Power Shareware	A-28
PowerDisk	G-11
119 Professor Jones	111
256 Profit Group, The	111
Pure Entertainment	101
198 Puzzle Factory, The	A-23
257 Ramco Computer Supplies	109
Safe Computers	116
212 SafeSoft Systems Inc.	116
112 School of Computer Training	112
116 SeXXy Software	114
171 Shareware Central	116
261 Sierra OnLine	47
148 Sierra OnLine	91,93,95,BC
109 Smart Luck Software	116
196 SMC Software Publishers	A-19
121 SMC Software Publishers	114
126 SoftShoppe	114
194 Software Studio, The	A-19
297 Software Support International	A-29
190 Software Support International	G-7
210 Software Support International	116
Software Toolworks	37
SOGWAP Software	A-9
SOGWAP Software	G-15
118 Star Graphics	101
203 Star Micronics	27
130 Starware Publishing Corp.	115
179 SubLogic	44,45
147 Thrustmaster	115
202 TLAS	A-23
242 Tycom	G-10
301 US Robotics	IBC
122 Virgin	71
132 Virgin	86,87
155 Virtual Reality Labs	107
172 Wedgwood Computer	109
Windows 900	110
Classfieds	118,119
Product Mart	109,110,111,112,113,114,115,116,117
104 COMPUTE Books	92,A-15,A-23,G-11

COMPUTE Editor 900 Line	100
COMPUTE Free Windows Offer	51
COMPUTE Library Cases	101
COMPUTE Ultima Power Disk	55
Gazette Disk Subscription	G-15
Gazette Index	G-21
Gazette Productivity Manager	G-19
Gazette Single Disk Order	G-40
Gazette Specialty Disks	G-2
Gazette SpeedScript	G-17
SharePak Disk Subscription	59

CREDITS

Cover: photo by Mark Wagoner, computer from Gateway 2000; **page 4:** Juan Alvarez/Image Bank; **page 8:** John Mattos; **page 18:** Mark Wagoner; **page 20:** Mark Wagoner; **page 28:** Mark Wagoner; **page 30:** Mark Wagoner; **page 32:** Mark Wagoner; **page 34:** Mark Wagoner; **page 60:** Bill Bruning; **pages 66–67:** Mark Wagoner; **page 72:** courtesy of Paper Direct; **pages 74–75:** Mark Wagoner; **pages 78–79:** Mark Wagoner; **page 83:** Uniphoto/Pictor.

IMPORTANT NOTICE FOR COMPUTE DISK SUBSCRIBERS

COMPUTE offers two different disk products for PC readers; the *SharePak* disk and *PC Disk*. *SharePak* is monthly and has a subscription price of $59.95 for 5 1/4-inch disks and $64.95 for 3 1/2-inch disks. A subscription to *SharePak* does not include a subscription to the magazine. *PC Disk* appears in odd-numbered months and has a subscription price of $49.95, which includes a subscription to the PC edition of *COMPUTE*. You can subscribe to either disk or to both, but a subscription to one does not include a subscription to the other.

www.commodore.ca

stick also performs reasonably well with driving, sports, and arcade games. Its only drawback is its size, which may prove too bulky for smaller hands.

Though not the ultimate flight control stick, as touted by Suncom, the FX 2000 succeeds on three key points: response, comfort, and price. That's enough to send most armchair pilots soaring with delight.

SCOTT A. MAY

Suncom Technologies
(708) 647-4040
$39.99

Circle Reader Service Number 443

INSIGHT

A blue-tinted closeup of a human eye shows through a jagged tear on the white cover of the Insight box, just above the full program title: Insight to Greater Personal and Professional Success—A Kahler Process Model. What have we here? New Age software? Palm reading by your PC? Something mystical . . . yet practical?

None of the above, actually, though you'd be forgiven for making any of those guesses after a casual glance at Insight's packaging. Unless you're already familiar with the Kahler Process Model, it's hard to tell that Insight is actually a detailed personality inventory, or psychological profile, presented in software form.

Using Insight means answering a series of questions that allows the program to issue reports with details on topics such as Your Personality Structure, Your Success Factors, and Your Distress Warning Signals. It's based on the Kahler Process Model (KPM), developed by Dr. Taibi Kahler in the mid 1970s. The package and documentation include endorsements from businesspeople from around the country as well as from Dr. Terence McGuire, a longtime psychiatric consultant for NASA who has used the KPM in selecting astronauts.

According to Insight's documentation—which focuses on background information and details of the profiles, since Insight is about as easy to use as computer programs get—Kahler's model classifies you as one of six personality types, none good or bad. The program goes out of its way to establish itself as a tool for self-discovery and self-improvement, not something that will "teach you to manipulate others or use this information in harmful ways." Scoundrels needn't apply.

If you're looking for a psychological quick fix, Insight's not for you, either. Although you can copy it onto your hard drive in a few minutes via a standard batch file, once you start Insight, you have a lot of reading to do. You move through the program using nothing but your cursor keys, with a long, colorful series of introductory screens offering background on the KPM, profiles of Kahler and other KPM developers, and amateurish graphic portraits of those people. The picture of the KPM that emerges from Insight's long introductory screens is one that spices basic psychological models with a pinch of humanistic philosophy: "We believe that people are OK, although their behavior is sometimes negative."

When you finally make it to the inventory, you're asked a series of 22 questions with six possible answers each. You can choose up to five answers that fit you, ranking them in order of importance. A short example is "I prefer: people, ideas, values, fun things, excitement, privacy." It takes 15–30 minutes to complete the inventory, after which the program issues a copy of Your Personal Insight Summary. It's presented onscreen with detailed descriptions of each basic personality type—Reactor, Workaholic, Persister, Dreamer, Rebel, or Promoter—along with other information to accompany suggestions of how you can maximize your success and contentment and minimize your stress. You can also get a printout of your inventory results with a couple of simple keystrokes.

As the bit about "professional success" in Insight's full title tells you, it's designed with businesspeople in mind. Though some of the blurbs on the box come from people who used Insight to help them communicate better with family members, many of the questions and subsequent suggestions relate to business situations. (I work alone at home, so I had some difficulty answering the questions about my colleagues.)

Whatever you do, don't rush through the Insight inventory with plans to answer more thoroughly another time: The Insight package comes with a Profiles disk that limits you to two personality profiles. Additional Profiles disks have to be ordered at a cost of $69.95 apiece. (You are given a chance to back out before the program completes a profile.)

I won't reveal the results of my profile, though I will say it seemed reasonably accurate, with information that looks helpful but not really surprising. If you'd like more, well, insight into your own personality, however, or if you're looking for suggestions on improving your life at home or at work, Insight wouldn't be a bad place to start. It comes with good credentials, it thoroughly explains every conclusion and recommendation, and it's an easy-to-use program.

EDDIE HUFFMAN

Three-Sixty Pacific
(408) 879-9144
$99.95

Circle Reader Service Number 444

GRANDMASTER CHESS

Capstone makes big claims for Grandmaster Chess, calling it the most powerful chess program in the world. It backs up that claim by inviting comparison to other programs, including a unique guarantee on the front of the box: If another chess program defeats Grandmaster Chess using identical computers under tournament conditions, you get your money back.

It takes approximately ten minutes to install the program, and installation includes options to support advanced video and sound features. You can choose from three chess sets: standard, human, or monster. The board can be viewed in either a two- or a three-dimensional position. The entire display fits on one screen and includes the board, move lists, options buttons, and menu buttons while in two-dimensional mode. You can choose to play with black or white pieces, and the board can be rotated accordingly.

New chess players will find the program less than

www.commodore.ca

Free Spirit Software CD-ROM

(800) 638-5757 Orders Only

AMERICAN EXPRESS · MasterCard · VISA

International Orders: (812) 376-4186 FAX Orders: (812) 376-9970

Chestnut CD-ROMS

your choice $15 each

Bibles & Religion - New & Old Testaments, study guides, covers Judaism, Christianity, Islam
Clipart Goliath - Thousands of images for all uses, in PCX & TIFF format! For DTP programs
Colossal Cookbook - More recipes than "Joy of Cooking", Plus nutirtion guides, more!
Deathstar Arcade Battles - Exciting VGA space wars, shoot-em-ups, sports, & more
Dictionaries & Language - Dictionaries, thesaurus, word proc, style/spell checkers, foreign languages
HAM Radio v3.0 - Packet radio, satellite, freq lists, service, mods, SSTV, FCC regs, exams, more!
Our Solar System - Exciting NASA photos & planetarium programs, star/planet locators
Shareware Overload! - 600MB, all kinds of applications, ZIPPED! Lots of Windows progs, & games
Sound Sensations! - Sound Effects, voices, music, utils, for AdLib & SounBlaster, & other cards
TechnoTools - C/C++, Basic, dBase, networking, Unix, OS/2, Windows, assembly, Pascal, more!

NEW! Chesnut CD-ROM Titles

Encyclopedia of Sound - Over 250 soud files by the Music Factory in WAV format
World Travelor - Photos by Michael McGrath & Paul Elmendorf in PCX & GIF format

Need more descriptions? Call for our latest catalog.

CD-ROM Hardware

CD-ROM Drives

Mitsumi CD-ROM HH Internal	199.00
Texel DM3024 (drive only)	399.00
Toshiba XM-3401B (drive only)	499.00

CD-ROM Bundles

	8bit Int	16bit Int
Creative Labs		
Discovery Kit	429.00	499.00
Edutainment Kit	499.00	579.00
Business MM Upgrade Kit	579.00	639.00
MediaVision Fusion CD16	499.00 (Internal)	

Miscellaneous

3.5" 1.44MB FDD	49.00
5.25" 1.2MB FDD	49.00
Caddies	**5.00**
CD Cleaner	12.00
CD Lens Cleaner	18.00

SCSI Controllers

Future Domain 16 bit kit	159.00
Future Domain 8 bit kit	69.00
Trantor 8 bit	65.00

Sound Boards

Diamond SonicSound Pro	339.00
Diamond SonicSound	239.00
Pro Movie Spectrum 16	179.00
Sound Blaster Deluxe	99.00
Sound Blaster Pro Deluxe	129.00
Soundblaster 16 asp	219.00

Speakers

Labtec Amplified Speakers	25.00
Altec Lansing ACS 100	149.00
Altec Lansing ACS 150	119.00

Video

Diamond Stealth 24	179.00
Diamond Viper 1MB	349.00
Diamond Viper 2MB	449.00
ProMovie Spectrum	299.00
Video Blaster	369.00
VGA Card, Truecolor: 640x480x16.7M, 800x600x65K, 1280x1024x16	119.00

NEW!

CD ROM Multimedia

for the CD enthusiast
PC Compatible
CD-ROM Hardware & Information on latest CD-ROM software releases

sample issue:

$3.00

CD-ROM Software

ProCD, Inc. ProPhone, Nat'l Edition, 1992 39.00
The National Telephone Directory on 3 CD-ROMs equals nearly 10,000 books (approx. 100 trees), and contains: Residential listings, East; Residential listings, West; and, Business listings, National. Look-up by Name, Business Heading, or Standard Industrial Classification (SIC Code). The powerful ProPhone software will allow you to limit your search by address, city, state, area code, or zip code. Output selected listings to a printer, or disk file.

ProCD, Inc. ProPhone, Nat'l Edition, 1993 129.00
The 1993 version, adds several significant new features: entering a telephone number to obtain a name and address; entering an address to see every listing on that particular street; entering a zip code to identify every listing; entering a name, or, a name in combination with any other field; or, selecting a directory category, by business headings, or, SIC codes. ProPhone will allow users to: print an unlimited number of mailing labels, at no additional charge; output an unlimited number of listings to a disk file, at no additional charge; limit searches to business, residential, or both categories; atomatically

DeLorme Global Explorer 99.00
The most detailed world atlas ever. Amazing detail as you zoom in and out. Indexed references to more than 120,000 places. Fascinating descriptions of 20,000 historical, cultural, and geographical features. Country profiles with up-to-date social, economic & cultural statistics.

Monster Disc Inc. Monster Disc (2 CD Set) 45.00
All programs were written / updated between January 1, 1992 - Feb 1, 1993. 1300MB on 2 CD's. No Duplicates or multiple versions. Compressed with PKZIP v2.04g. Files.BBS format included for PCBoard / QBBS / RA / RBBS / SBBS / TAG / TELEGARD / WILDCAT! Advanced file viewer. TAG / VIEW / EXTRACT Archives. 140 page booklet containing all files and descriptions.

Business

American Business Ph Bk	29.00
Business Backgrounds	35.00
Business Master	19.00
North American Fax Book	45.00
Q & A	59.00

Clipart & Graphics

Animals in Motion	39.00
Apollo (Space Series:)	39.00
Audubon Birds	29.00
Audubon Mammals	29.00
Clipart Galore	35.00
Clipart Goliath	15.00
Clipart Heaven	29.00
Clipmaster Pro	30.00
Complete Audubon	59.00
Empire Clip Art	29.00
Encyclopedia of Clip Art	25.00
Fontmaster V1	15.00
Fontmaster V2	19.00
Fonts for the Pro Publisher	29.00
Fresh Arte	35.00
Full Bloom	35.00
GIFs Galore	15.00
Hot Stuff 1	19.00
Hot Stuff 2	25.00
Impressionism	35.00
Inprint Library	59.00
Island Designs	35.00
Jets & Props	49.00
Just Fonts	25.00
Kodak Photo CD	29.00
Lovely Ladies II	33.00
Majestic Places	35.00
Money, Money, Money	35.00
Mother Earth II	33.00
Mother of All Clip Art	15.00
Pixel Garden	33.00
Pop & Politics	59.00
Publique Arte	39.00
Publishers Dream Disk	39.00
Publishers Paradise	29.00
Publish it 2.0 (DOS)	29.00
Publish it 3.0 (Win)	59.00
Seals of Government	45.00
So Much Screenware	29.00
Swimwear & More	29.00
Swimwear 1993	25.00
Tempra Access	25.00
Too Many Typefonts	15.00
VGA Spectrum 1	15.00
VGA Spectrum 2	25.00
Vision of Saturn	19.00
Wild Places	35.00
Women of Venus	33.00
World of Flight	39.00
World of Trains	39.00
World View	35.00

Educational

A Plus Grade Builder	39.00
About Cows	29.00
Amanda Stories	49.00
Amazing Universe	69.00
American Indians	39.00
Animals, The	29.00
Annabel's Dream	69.00
Arthur Teacher Trouble	27.00
Barney Bear School	35.00
Barney Bear Space	35.00
Bible Lands & Stories	49.00
Career Opportunities	35.00
Carmen San Diego	29.00
Civil War	39.00
Dinosaur Adventures	49.00
Distant Suns	99.00
Ecoquest	49.00
Education Master	19.00
European Monarchs	35.00
Learn Speak Spanish	79.00
Line & Shape Eater	35.00
Lyric Language French	49.00
Lyric Language Spanish	49.00
Mavis Teach Typing	25.00
Nat Geog Mammals	29.00
Our House	49.00
Our Solar System	15.00
SLS English	69.00
SLS French	69.00
SLS German	69.00
SLS Japanese	69.00
SLS Spanish	69.00
Stickybear Preschool	37.00
Twelve Roads To Gettysburg	59.00
US Civics	39.00
US History	30.00
US Presidents	39.00
US Wars: Korea	39.00
US Wars: WWII	39.00
Vocabulearn French	49.00
Vocabulearn Spanish	49.00

Entertainment

Aegis Guardian Fleet	69.00
Air Warrior	57.00
Arcade	39.00
Battle Chess	25.00
Beyond Wall Stars	39.00
CD Game Pack II	29.00
Chessmaster 3000	25.00
Conan	29.00
Conquest of Longbow	49.00
Deadzone Jr	69.00
Deathstar Arcade	15.00
Fantasy Fiefdom	69.00
Future Wars	49.00
Game Master	19.00
Goferwinkle's Adventures	45.00
Guy Spy	39.00
House of Games	69.00
Iron Helix	25.00
Jones in Fast Lane	69.00
Jutland	25.00
King's Quest 5	25.00
Klotski	25.00
Laura Bow II	49.00
Loom	59.00
Manhole	29.00
Mantis	69.00
Mud Puddle	29.00
Pacific Islands	39.00
PC Sig Games	49.00
Rodney Fun House	99.00
Rotor	49.00
Secret \ Luftwaffe	19.00
Secret Monkey Island	35.00
Seventh Guest	79.00
Sherlock Cons 1	35.00
Sherlock Cons 2	49.00
Sherlock Cons Det III	49.00
Software Jukebox	25.00
Space Adventure	29.00
Space Quest IV	49.00
Spirit of Excalibur	15.00
Sprite	69.00
Star Child	69.00
Stellar 7	69.00
Whale of a Tale	69.00
Who Killed Sam Rupert	69.00
Willy Beamish	69.00
Wing CMDR 2\OPS	59.00
Wing CMDR 2\Ult Undrgrnd	39.00
Wolfpack	30.00
Wrath of Demon	39.00

Literature

Aesops Fables	39.00
Beauty & Beast	49.00
Complete Bookshop	49.00
Creation Stories	69.00
Desktop Bookshelf	57.00
Don Quixote	39.00
Elec Home Lib	29.00
Goldilocks & 3 Bears	25.00
Grandma & Me	39.00
Great Literature	29.00
Heather Hits Home Run	25.00
Library of Future	29.00
Magazine Rack	49.00
Masterpiece Library	69.00
Mixed Up M Goose	15.00
Moving G Me Stomach Ache	69.00
Murmurs of Earth	49.00
Peter & Wolf	19.00
Peter Rabbit	45.00
Putt Putt Parade	39.00
Readers Library	19.00
Shakespeare	69.00
Sherlock Literary	25.00
Sleeping Beauty	69.00
Storytime V1	25.00
Storytime V2	25.00
Storytime V3	49.00
Tale of Peter Rabbit	25.00
Thomas' Snow Suit	45.00
World Greatest Books	59.00

Miscellaneous

CD Caddies	29.00
Classic Collection	35.00
Jewel Cases	15.00
MPC Wizard	49.00
Nautilus Mini Subscription	19.00
PC Medic	29.00
Prescript. Drugs	29.00

Music & Sound

Composer Quest	59.00
Encyclopedia of Sound	25.00
Grammys	49.00
M/M Beethoven	59.00
M/M Jazz	35.00
Mozart	69.00
Sound Sensations	25.00
Sound Wav	33.00
Sounds for Windows	30.00
Soundworks	35.00
Vivaldi	25.00

Programming

C Source Users Lib	69.00
CICA Microsoft Win	39.00
Garbo	25.00
OS\2 Hobbes	55.00
Programmers ROM	55.00
Simtel 20	49.00
Source C CD	19.00
Technotools	35.00
X11R5\GNU	25.00

Reference

Aircraft Encyclopedia	15.00
Bible Library	39.00
Bibles & Religion	29.00
Cinemania	39.00
Colossal Cookbook	49.00
Book of Lists	79.00
Bus.\Econ Atlas Intl	29.00
Compton Upgrade & Switch	69.00
Consumer Information	29.00
Crossword Cracker	35.00
Desert Storm\Col Cmm	25.00
Dict & Lang	29.00
Dict Living World	49.00
Elec Cookbook NB	25.00
Encyc M\M 5.0, S.T.	39.00
Encyc Win 1.0, S.T.	59.00
Food Analyst	25.00
Guiness 1992	19.00
Guiness 1993	59.00
KGB-CIA Factbook	33.00
Langs of World	39.00
Lesko Information USA	69.00
M S Bookshelf	69.00
Masterpiece Library	35.00
Mayo Clinic	29.00
McMillan Dictnry for Children	49.00
Mega Movie Guide	49.00
Microsoft Encarta	299.00
Middle East Diary	39.00
Monarch Notes	69.00
Officer Bookcase	39.00
Oxford English Dict	119.00
Global Explorer	99.00
Plant Doctor	39.00
Pro Phone 1992	39.00
Pro Phone 1993	129.00
Reference Lib, S.T.	25.00
Roger Ebert	69.00
Terrorist Group Pro	69.00
Time Almanac	35.00
Time Desert Storm	15.00
Time Table History	29.00
Total Baseball	25.00
USA State Factbook	19.00
Vietnam Vets	29.00
Vital Signs	25.00
World Atlas	15.00
World Factbook	15.00

Shareware

All American M\M	15.00
Amsoft World of Ham Radio	39.00
Baker's Dozen	15.00
California Collection	19.00
Daytime Express	15.00
Gigabyte Gold	25.00
Ham Call	39.00
Ham Radio	39.00
Libris Britannica	29.00
Lion Share	15.00
Monster Disc	69.00
Night Owl 8	15.00
Orig Shwre '92	49.00
PC SIG 12	29.00
Phoenix 3.0	119.00
Power Pak Gold	39.00
Premier Shrwre	19.00
RBBS in a Box	39.00
Shareware '93	15.00
Shareware Galore	119.00
Shareware Online	59.00
Shareware Tiger	49.00
Shrwre Overload	49.00
Shwre Extravaganza	45.00
Shwre Studio	19.00
So Much Shwre 1	59.00
So Much Shwre 2	33.00
Software Vault	39.00
Top 2000+ Shwre	69.00
Ultimate Shwre Coll	69.00
Win Shwre Gold	35.00
Window Master	39.00
Windoware	49.00
Windows 1993	49.00
World Vision	299.00

Travel

Calf Golf Guide	69.00
California Travel	39.00
Great Cities V1	119.00
Great Cities V2	99.00
National Parks	39.00
Street Atlas USA	39.00
US Atlas w Automap	39.00
World Traveller	129.00

Adults (over 21 ONLY)

Adult Ref Library	25.00
Animation Fantasies 1	39.00
Animation Fantasies 2	39.00
Asian Ladies	29.00
Busty Babes	29.00
CD Movies	29.00
Digital Dreams	55.00
Dirty Talk	39.00
Ecstasy	39.00
Ency of Exotic Animations	69.00
Erotic Encounters	25.00
Giffy Gold	29.00
Hot Pix 2	33.00
Hot Pix 3	39.00
Hot Pix 4	33.00
Moving Fantasies	15.00
PC Pix 1	29.00
PC Pix 2	20.00
PC Pix 3	33.00
Physical Therapy	33.00
Priv Pict I	15.00
Private Collec 1	45.00
Private Collec 2	33.00
Rimfire Pacific	29.00
Seventh Heaven	59.00
Smutware	15.00
Stareware	29.00
Storm I	19.00
Storm II	19.00
Storm III	30.00
Visual Fantasies	39.00
Volcano	29.00

Proof of age required

Order with Check, Money Order, VISA, MasterCard, American Express, or COD. Order by phone, mail, or fax. Note: there is no surcharge for credit card orders. For the contiguous U. S., CD-ROM software shipping is $5.00 per order (not title); or $9.50 if COD. Alaska, Hawaii, Puerto Rico, Mexico and Canada add $8.00 per CD-ROM software order for shipping. Costs for shipping hardware, or, orders to foreign countries not mentioned, are quoted at time of order. Indiana residents please add 5% sales tax. Not responsible for typographical errors. Please research your product purchases as all sales are final. All products are covered by manufacturer's warranty. Prices and availability are subject to change without notice.

Free Spirit Software, Inc. - 720 Sycamore Street - Columbus, IN 47201 - Questions? Phone (812) 376-9457

Circle Reader Service Number 115

www.commodore.ca

SPEAK UP!

WE at COMPUTE strive to provide you with the latest and most useful home, business and entertainment computer news and information. Now we're opening the **COMPUTE EDITOR LINE**–a direct link to our editorial staff that lets you truly participate in the shaping of COMPUTE Magazine.

Using this program, you can comment on articles and features in COMPUTE. After hearing the introduction, you'll be asked to leave a message for the editor. Your message will be reviewed and may be published in a future issue.

Here's how it works:

1. Call the **COMPUTE EDITOR LINE**: **1-900-884-8681**. The charge is only $0.95 per min.
2. Select the month of the issue you want to talk about.
3. Enter the extension number printed at the end of the feature or pictorial spread you want to discuss. If you don't have the extension number, just listen to the menu selections, and they will lead you to the proper extension for each item.
4. Listen to the comment or information corresponding to the feature or pictorial you selected.
5. Then, at the tone, leave your desired message!
6. If you would like to make another selection, press "*" to return to the main menu.

PET INC, Box 166, Hllywd., CA 90078. Must be 18 or older. Touch Tone phones only.

REVIEWS

adequate for teaching the game. Included with the documentation is a brief flier, published by the United States Chess Federation (USCF), that explains the rules of chess. But nothing within the program teaches the beginner about piece movement.

Grandmaster Chess will suit experienced players better than novices.

The chess player with some experience will find the program both entertaining and helpful. When you push the hint button, the computer displays its analysis, which includes point values for each possible move and its continued line of play, and then animates the best possible move. You may also turn on or off the computer's opening library of moves, which includes approximately 12,000 positions in 4500 standard openings. When you press the book button, all legal moves are listed, and those in the opening book are rated and ranked.

The intermediate club player will also find the program a solid chess partner. You can choose from a variety of playing strengths and styles for the computer, and you can select time controls, from 5-minute speed chess matches (best played with the computer's opening library turned off) to 120-minute tournament matches. The program includes a rating estimate that approximates your USCF ranking, and games can be saved, imported, or printed. It's easy to edit the board and to set the computer to quickly solve puzzle positions. When set at Grandmaster tournament level, the program is quite formidable. If you defeat the Grandmaster, the program prints a certificate.

While Grandmaster Chess is powerful and entertaining, it does have flaws. It wouldn't run as a DOS application under Windows, crashing every time I attempted it. In fact, the program crashed on one occasion while running under DOS. The hand cursor also tended to stamp itself on various parts of the screen regularly. Although the program includes synthesized speech, it's limited to a few trite expressions such as "Gotcha" and "Bad move." I found the speech feature little more than annoying.

The program does have several strong, unique features. Its options buttons make play fast and easy. It's very nice to be able to turn the computer's opening book on or off, as well as to change its strength and play variability. The program plays chess well at a variety of levels, and it's particularly nice for the player with limited experience.

Grandmaster Chess would make a good addition to any software library, but I'd advise waiting until a Windows version becomes available.

JIM SMITH

IntraCorp
(800) 468-7226
$59.95

Circle Reader Service Number 445

AIR FORCE COMMANDER

As Coalition forces demonstrated during the Persian Gulf War, achieving air superiority can be an important first step toward reaching your military objectives. With Air Force Commander, you'll get the chance to direct the operations of your own air force with the ultimate objective of doing just that—achieving air superiority in several simulated military conflicts.

Air Force Commander is a strategic game of modern air warfare set in the Middle East. The game features 14 scenarios of varying difficulty and complexity involving the United States and several Middle Eastern countries, including Iran, Iraq, Syria, Jordan, Israel, Saudi Arabia, Sudan, Kuwait, Qatar, Lebanon, Egypt, and the United Arab Emirates. Some of these scenarios are loosely based on historical conflicts such as the Iran-Iraq War of 1973, the Yom Kippur War, and the Persian Gulf War, while others are based solely on hypothetical situations.

As the name implies, Air Force Commander puts you in control of an entire air force, not just a single fighter plane or bomber. Thus, your view of the action is from a radar map in a war room rather than from the sky. Here, all aircraft are represented by vertical dotted lines that travel across the map in accelerated realtime. The length of each line indicates the altitude of the plane it represents—the longer the line, the higher the plane.

Although you can direct your fighter squadrons to intercept specific enemy aircraft, your fighters are used more efficiently if you simply set up patrols

www.commodore.ca

Revitalize Your Body!

Healthscope 93

Get your Healthscope from world renowned astrologer, **Joanna Martine Woolfolk**, best selling author of **The Only Astrology Book You'll Ever Need** (Scarborough House).

CALL

1-900-773-7002

($2 first min./$1 ea. addl. min.)

And discover the best celestial strategies to revitalize your body. Learn to intensify and preserve your longevity by using the secrets of the zodiac.

18 or over. Touch-tone phone only. Sponsored by Pure Ent., Box 166, Hollywood, CA 90078.

around the areas you wish to protect. In addition, bombers are available for high-altitude bombing and ground strike missions against specific targets in enemy territory. To extend your radar coverage, it's important to provide air cover for your bombers as well as for AWACs planes performing circular sweeps.

Squadrons can be placed on autolaunch so that after a mission they'll automatically return to base, refuel, and head back out. It's important, however, to monitor the efficiency of your squadrons and rest and repair them as necessary to make sure they perform at peak efficiency.

While the real objective of Air Force Commander is to achieve air superiority, the game can also be won by turning public opinion in the opposing country against the war. You do this by attacking its power stations and sources of food and water.

As for Air Force Commander's sound capabilities, the digitized voice (with a Sound Blaster) is a nice touch, but the loud explosions that accompany air combat and bombing raids are more of a distraction than an enhancement to the action.

The various maps are nicely drawn and seem to be fairly accurate, but in general the graphics remind you that you're playing a computer game rather than participating in a realistic simulation. Air Force Commander is an enjoyable game, but not one that's likely to win any awards.

BOB GUERRA

Impressions Software
(203) 676-9002
$59.95

Circle Reader Service Number 446

BEST DATA SMART ONE 9624 FP TRAVELER FAX/MODEM

Even though you could phone in your lunch order just as easily as you could fax it, advancing technology creates heightened expectations. You want a fax machine.

The thing is that you already have a printer and you're not really looking for a similar-sized plastic box to take up more space in your crowded office. Or maybe you and your laptop do quite a bit of traveling, and you're in the market for a fax machine that allows you to send and receive pages from airport lobbies and hotel rooms. In either case, the Best Data Smart One 9624 FP Traveler Fax/Modem could get that kebab cooking by noon without your

"Want to Play a Game?"

Entertainment software for IBM PCs or compatible, running Windows 3.0 or higher

Q will challenge your mind! Find hidden aliens using information that you collect by probing into their field. Q is a game the whole family will enjoy!

Only 19.99 plus Shipping and Handling
Allow 7 to 10 days for delivery following receipt of your order.

1-800-831-7611

Star Graphics™
The Game Crafters™

Circle Reader Service Number 118

COMPUTE LIBRARY CASES

Store your issues of COMPUTE in our new Custom Bound Library Cases made of blue simulated leather embossed with a white COMPUTE logo on the spine. It's built to last, and it will keep 12 issues in mint condition indefinitely. Each case has a gold transfer for recording the date. Send your check or money order ($8.95 each, 3 for $24.95, 6 for $45.95) postpaid USA orders only. Foreign orders add $1.50 additional for postage and handling per case.

TO: COMPUTE Magazine
Jesse Jones Industries
499 E. Erie Ave., Phila., PA 19134

CREDIT CARD HOLDERS
(orders over $15)
CALL TOLL FREE: 1-800-825-6690.

Or mail your order, clearly showing your account number and signature. PA. residents add 7% sales tax.

SATISFACTION GUARANTEED

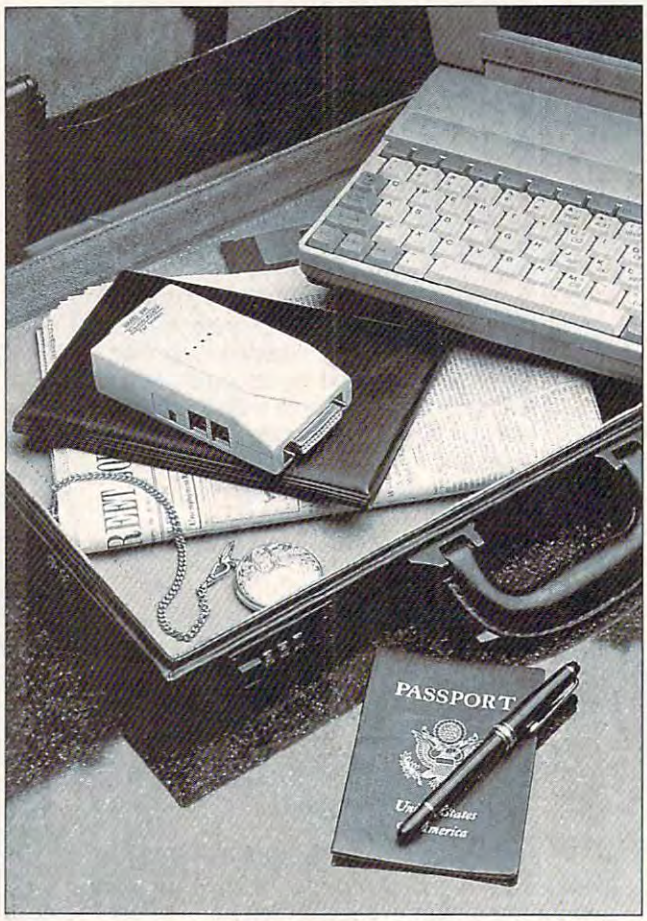
www.commodore.ca

ever having to pick up the receiver.

The 9624 FP takes up only about as much space as a walkabout cassette player trailing a cord or three. You hook it up to your computer directly through a 25-pin port or via cable through a 9-pin port and then plug in a phone line and a power cord (or, if you prefer, you can power up the 9624 FP with a nine-volt battery). Red indicator lights tell you whether the battery's low, if the modem's operating at 2400 bps or faster, whether a connection has been established, and if the modem is ready for communications to begin. Unlike some portable fax/data modems, the 9624 FP connects directly to the phone line rather than strapping onto the receiver, so don't buy it expecting to use it easily from public phones or in office buildings with odd-sized plugs for their phone systems. Also, the modem has a slightly clunky feel because of loose nuts and a power-cord receptacle that gives slightly when you plug the cord in. Those are essentially cosmetic concerns, however, and they have no bearing on the performance of the 9624 FP.

Anyone who has ever removed a desktop PC's cover to install a fax/data modem board will appreciate the convenience of the 9624 FP's external connections. Best Data has even adapted for use by the general public a Velcro strip used by the company's employees to attach the 9624 FP directly to a monitor, out of the way. I had the modem hooked up and its accompanying software installed within about ten minutes of opening the box. The user's manual provided relatively clear instructions, though without illustrations, an index, or the kind of literary spark that can make phrases like *retractable locking screws* come alive.

The software accompanying the 9624 FP—WinFax Lite and Quick Link II—makes communications an intuitive breeze. Both programs allow you to send and receive faxes, as well as view them onscreen or print them on your printer. If you run Windows, I'd advise sticking with WinFax Lite, though. Quick Link II gets the job done, but it has an interface on a level with an average shareware program, and when you're viewing a fax that you're sending or you've received, it offers no helpful onscreen guidelines telling you how to move around the page or pages. I used both programs for successful fax communications, however, and their inclusion with a portable modem that can transmit at 9600 bps makes the 9624 FP a bargain at $199 suggested retail. (WinFax Lite isn't available as a stand-alone product, but WinFax Pro retails at $119.)



The Best Data Smart One 9624 FP Traveler Fax/Modem is even smaller than its name, making faxing easy and convenient.

The bargain looks even better when you consider the error correction and data compression technologies built into the 9624 FP. It incorporates V.42bis and MNP 2–5 technologies, which are imposing-looking monikers for the intelligence that makes the modem fast and its transmissions clean. Using data compression, V.42bis allows for a transmission throughput up to four times the bps rate of the modem itself, which allows the 2400-bps 9624 FP to send in your lunch order at 9600 bps. (*V.42* covers the error correction, while *bis* covers the data compression.) MNP 2–5 is a subset of V.42, and, in a nutshell, it means the 9624 FP can communicate with other MNP modems, a standard protocol.

If you're simply looking for a way to get that memo you needed yesterday here today, at least, don't let all those weird letter and number combinations confuse you. The Best Data Smart One 9624 FP Traveler Fax/Modem packs a lot of power into a small package, fulfilling your fax needs without crowding you at all.

EDDIE HUFFMAN

Best Data Products
(800) 632-2378
(818) 773-9600
$149

Circle Reader Service Number 447

MUTANOID MATH CHALLENGE

Legacy's Mutanoid Math Challenge brings the charm and nonsense of a Saturday morning cartoon to academia's most abstract subject and packages it with enough weird and wacky characters to keep the kids calculating until dinnertime.

Although the game is rated for kids 7–adult, it has only three skill levels: grades 2–3, 4–5, and 6–8. Its 60 quirky animations, fast-

www.commodore.ca

DISK-COUNT SOFTWARE

Lowest deliverd prices with great customer service.

800-448-6658

PRODUCT INFO & OTHER BUSINESS:
908-396-8880

MASTER CARD, VISA, DISCOVER, AND AMERICAN EXPRESS ACCEPTED WITH NO SURCHARGE.
SHIPPING IS ONLY $4.00 PER ORDER, NOT PER ITEM

A Train	39
Construction Set	22
Aces Over Europe	44.95
Aces of the Pacific	39.95
Mission Disk	25
AD&D Collect Ed 2	42.95
AD&D Starter Kit	42.95
AD&D Unlimited	31.95
Adlbou&JuniorVol1	34.95
Air Bucks	34.95
Air Duel	33.95
Air Warrior SVGA	35.95
AlgeBlaster Plus	30
Algebra Made Easy	25
Aliens Ate Babysitter	32
Alone in The Dark	35.95
Alphabet Blocks	29.95
Amazon	38.95
Ambush	37.95
American Civil War	25
Ancient Art War Sky	35
Ancient Empires	30
Animation Studio	75
Armored Fist	37.95
Ashes of Empire	45.95
A.T.A.C.	35
Automap	44
Automap Windows	57
Automap Europe	74
B-17 Flying Fortres	39
Bane Cosmic Forge	36
Barbie Design	16
Barbie Fashion	25
Barbie Adventure	25
Battlechess 4000 VGA	30
Battlechess 4000 SVGA	36
Battlefield	37.95
Battle Toads	24.95
Battles of Destiny	35.95
Beat the House	29.95
Betrayal at Krondor*	35.95
Betty Crock. Cookbook	
Bill Elliott NASCAR	30
Birds of Prey	
Blueforce	39.95
Body Illustrated	47.95
Bodyworks	42
Bridgemaster	30
Bug Bunny WrkShp	31
Buzz Aldrin	39.95
Campaign	34.95
Capitalist Pig	38.95
Car and Driver	37.95
Carrier Strike	39
Carriers at War	37.95
Castle 2	35.95
Castle of Dr. Brain	30
Ceasar	35.95
Challnge 5 Realms	33.95
Champions	35.95
Chemistry Works	38
Chessmaster 3000	29.95
Chessmstr 3000 Win	35
Children Writ & Publ	39
Civilization	37
Civilization MPE	45
Classic Adventure	36
Coaster	25
Comanche	42.95
Mission Disk	25.95
Combat Classics	31.95
Comic Book Creator	17
Cohort 2	19.95
Conquered Kingdom	35.95
Conquest of Japan	35
Contraption Zak	25.95
Creepers	29.95
Crusader Drk Savnt	39.95
Cuckoo Zoo	31.95
Cyber Space	34.95
Demonsgate	32.95
Dagger of Amon Ra	39
Dark Half	39
Darklands	38
Darkseed	39
Dark Sun	47.95
Daughter of Serpnt	31.95
Dlx Paint Animation	85
Dlx Paint II Enhncd	85
Deja Vu 1 & 2	31.95
Design Yr Own Hm	39
Design Your Railrd	35
Designasaurus II	23
Diet Pro DOS/Win	25/36
Dinosaur Adventure	34
Dog Fight	37.95
Dr Jam Wind.	59.95
Dr. Quandry	31
Dragon	
Dragon's Lair I	25
2 or Singe Castle	37
Dragon Lair III	39.95
Dune 2	36
Dungeon Master	29.95
Dynamix Bundle	42
Eagle Eye Mystery	31.95
Eco-Quest 1 or 2	29.95
El Fish	35
Empire Deluxe	35
Entr Pak Win (ea)	28
Eric the Unready	35.95
Eye of Beholder	20.95
Eye of Beholder 2	38
Eye of Beholder 3	42
F 15 III	44
F 15 III Limited	49.95
F117a Stealth Fight	41
Facts in Action	31
Falcon 3.0	45
Oper Fight Tiger	25
Family Tree Maker	42
Farm Creativity Kit	18
Fatty Bear Birthday	31.95
Femme Fatale	26
F. F. Data Disk	21
Fields Of Glory	33.95
Flight Simul A.T.P.	37
Flight Simul (M.S.)	41
Air Trfc Cntrlr	34.95
Arcft/Scen Dsgn	28
Aircraft Adv Factry	25
# 685	17
# 701	17
Airport Facty Loc	17
California	37
F S Pro	24
Great Britian	37
Hawaii	19
Instant Facft Loc.	19
Instrumnt Pilot Scen	
Japan Scenery	19.95
Pilots Pwer Tls	24.95
East/West U.S.ea	59
Rescue Air 911	17
Scenery St A or B	37
Scenery Enhn Ed	25
Sound & Graphic	25
Tahiti	19
Western Europe	19
Follow the Reader	29.95
w/ Sound Source	40
Four Crystal Trazer	
Free D C	37
Front Page Sports	39.95
G-Force	19.95
Gambit	31.95
Game Maker	69.95
Games:Summer Chlg	35
Games:Winter Chlg	35
Gateway	35
Gemfire	31
Global Conquest	35
Gobblins 1 or 2*	22
Gods	25
Grand Slam Brdge II	31
Grandmaster Chess	36
Great Naval Battle	43.95
Super Ships	20.95
Greens	35
Gunship 2000	36
Scenario Disk	24
Guy Spy	29
Hardball 3	35
Data Disk ea.	17.95
Harpoon Designer	32
Harpoon Signature	49.95
Harrier Assault	34.95
Headline Harry	37
Health & Diet Pro	26
Heaven & Earth	30
Heimdall	19.95
Heros of 357th	
Hole in 1 Golf Dlx	25
Hong Kong Mahjong	32
Hoyle Bk Game 2	22
Hoyle Bk Game 1/3	30
Humans	25
Inca *	29.95
Incredible Machine	29.95
Indiana Jones 4	37
Inspector Gadget	35.95
Island of Dr. Brain	29.95
Jack Nicklaus Signt	39.95
Jeopardy Silver	25
Jeopardy Super	25
Jetfighter 2	39
Adv. Mission Disk	19
Bundle Price	49
John Madden 2	31.95
Jump Jet	38.95
KGB	19
Kid Cuts	35.95
Kid Desk	25
Kid Pictures	19.95
Kid Pix	35.95
Kid Pix Companion	25
Kid Works 2	35.95
Kings Ransom	34.95
Kings Quest 1 VGA	37
King's Quest 6	45
Knowledge Advent	42
L A Law	31.95
Land Of Lore	34.95
Laffer Utility	22
Leather God Phb 2	24
Legacy Necromancr	19.95
Legend of Kyrandia	35
Legends of Valour	38
Legion's of Krella	37
Leisur Suit Larry 5	39.95
Lemmings	29
Oh No More Addon	22
Lemm.-Oh No More	31
Lemmings 2	35.95
Liberty or Death	35
Life and Death 2	32
Line in the Sand	25
Links	25
Links 386 Pro	39
Course Disk ea	16
386 Courses ea	19
Lord of Rings 2	37
Lost File Sherlck H	41.95
Lost Treas Infocom	42
Lost Treasures 2	29
Lost Tribe	25
Lost Vikings	29.95
Lure of Temptress	32
Magic Candle 3	37.95
Mantis	39
Mario is Missing	35.95
Missing City Disk	17
Mario Teaches Type	25
Math Blaster Mystry	29.95
Math Blaster Plus	29.95
Math Blaster Wind	36
Math Copter	25
Math Rabbit	25
Math Zone	31
Mavis Beacon Type	29.95
Mavis Beacon Wind	35.95
McGee 3 Pack	32
Mega Lo Mania	29.95
Mental Math Games	37
Mercenaries	37.95
MetroGnome Music	31
Michael Jordon Flight	42
Mickey ABC's, Color or 1-2-3's	19.95
Mickey's Crossword	19
Mickey Jigsaw Pzl	31
Mickey Word Advent	25
Micro Cookbook 4.0	32
Microleagu 4 BaseB	32
Microleague FB Dlx	32
Microleague Soccer	25
Microsoft Golf	39
Midnight Rescue	35
Might and Magic 3	38
Might & Magic 4	40
Mike Ditka Ultimt FB	37
Millie Math House	31
Mixed-Up Fairy Tale	30
Mixed-Up Mother Gs	30
Monkey Island 1 or 2	23
Monopoly Deluxe	34
Moonbase	25
Mystery at Museum	35
New Math Rabbit	29.95
N.Y. Times X-Word	32
NFL Challenge Prem	59
NFL F.B. Konami	30
NFL Video Pro	45.95
Nigel's World	31
No Greater Glory	20.95
Nobunagas Ambition	37
Number Maze	36
Omar Sharif Bridge	37
Operation Neptune	35
Orbits	29.95
Oregon Trail	28
Deluxe	34.95
Origin FX	25
Once Upon Time	30
Out of This World	36
Outnumbered	30
Pacific Islands 2	29.95
Pacific Wars	47
Paladin 2	35
Paperboy 2	27
Patriot	42.95
PC Globe	39
PC USA	31
PC Study Bible	42
Peppers Adventure	29.95
Perfect General	36
Data Disk	22
Phonics Plus	25
Pirtate's Gold	38.95
Playroom w/ Sound	31
Police Quest 3	39.95
Populous 2	37
Pool Shark	19.95
Power Hits Kids	31
Movies	25
Sports	25
Sci-Fi	32
Battletech-Mech	32
Powermonger	32
Print Shop Deluxe	45
Graphic Coll. (ea)	30
Print Shop, New	36
Graphics (ea)	22
Print Sp Companion	31
Privateer	47.95
Pro League Baseball	35
Prophecy*	22
Prophecy of Shadow	38
Protostar	39.95
Putt Putt Parade	32
Putt Putt Fun Pack	26
Quest for Glory 1	22
Quest for Glory 3	39
Rags to Riches	35.95
Railroad Tycoon	19.95
ReachForThe Skies	19.95
Reader Rabbit	35.95
Reader Rabbit 2	35.95
Ready for Letters	35.95
Read 'n Roll VGA	31
Reading Adv in Oz	36
Red Baron	39
Mission Disk	17
Realms	19.95
Return O the Phntm	33.95
Rex Nebular	37
Riders of Rohan	31
Ring World	34.95
Risk for Windows	29.95
Risky Woods	25
Road & Track Pres	35
Road to Final Four	37
Robosports Wind	34.95
Rodney Fun Screen	31
Rock & Bach Studio	35
Romance 3 King 2	39
Rome	29.95
Rule Engagment 2	38
Sargon V	36
Science Adventure	42
Scooter Magic Castle	32
Scrabble Deluxe	30
Sea Rogue	19
Seal Team	37.95
Second Front	20.95
Scrt Weapon Luftwf	39.95
Tour of Duty ea.	20
Sesame St. Lrn Clas	31
Sesame St. Publish	25
Sesame St. Vol.1or2	17
Seven Cities of Gold	38
Shadow President	39.95
Shadow Prophecy	30
Shadowgate	27
Shadowlands	29.95
Shanghai II	31
Siege	38
Dogs at War	20.95
Sierra Action Five	25
Sierra Award Winner	47
Sierra Family Fun	32
Sierra Starter Bndl	39.95
Silent Service 2	19.95
Sim Ant	34.95
Sim City	30
Sim Ant French	35
Sim City Windows	34.95
Sim Earth	39.95
Sim Life Dos/Wind	35.95
Simpsons	31
Snap Dragon	32
Snoopy Game Club	29
Solitaire Window	29.95
Solitaires Journey	35
Space Ace 2:Borf	36
Space Adventure	42
Space Hulk	37.95
Space Quest 4	37
Space Quest 5	39.95
Spaceward Ho	35.95
Spear of Destiny	39.95
Special Forces	29
Spectre	35.95
Speed Reader	31
Spellbound	31
Spellcasting 301	35
Spell Craft	35
Spell-it Plus	30
SpellJammer	37.95
Sports Adventure	33
Sprout!	39
Star Control 2	35.95
Star Legions	37.95
Star Trek 25th Aniv.	37
StarTrek AudioClip	34.95
Next Generation	38.95
Star Trek Screen Sav	37
Stickybr Math Tutor	30
Stickybr Pre-School	30
Stickybr Read Tutor	30
Stickybr Spell Tutor	30
Storm Across Europe	38
Storybook Weaver	29.95
Strike Commander	47.95
Strip Poker 3	32
Data Disk (ea)	17
Studyware for ACT GMAT,GRE,SAT	30
Studyware Biology, Calc.,Chem.,Econ., Physics, Statistic	25
Studyware LSAT	37
Stunt Island	37
Summer Challenge	34
Super Tetris	31
Take a break X-Word	29
Pinball *	28.95
Task Force 1942	37.95
T.M.N.Turtle Arcade	25
T.M.N.Turtle Advntr	32
Tengens Arcade Hit	25
Terminator 2029	39.95
Trmntr 2 Cybrchess	35
Tetris Classic	31
Tetris Trio	30
The Legacy	33.95
The Lost Vikings	29.95
Time Riders America	35
Time Treks	36
Time Quest	37
Tom Landry Football	30
Tony LaRussa Base.	17
Tony LaRussa II	37.95
Expansion Disk	15
Top Class Sieries ea	16
Traders	19.95
Treasure Cove	35
Treasure Math Storm	35
Treasure Mountain	35
Treehouse	35
Tristan Pinball	32
Trolls	25.95
Trump Castle 3	29.95
Turbo Science	30
Turtle Tools	69
Ultima 7	47.95
Forge of Virtue	17
Ultima 7 Part 2	47.95
Ultima Trilogy 1	37.95
Ultima Trilogy 2	47.95
Ultima Underworld	47.95
Part 2	47.95
Ultrabots	37.95
Uninvited Windows	31.95
U.S. Atlas DOS	31
Utopia	29.95
V for Victory 1/2 ea	42.95
Vegas Games Win	19.95
Veil of Darkness	37.95
Virtual Realty St 2	59.95
Wacky Funster	19.95
Waxworks	35.95
Wayne Gretzky 3	35
Western Front	22.95
When2Worlds War	35.95
What's My Angle	30
Wheel Fortune Vana	25
Where Carm SanDiego	34.95
America's Past	30
Europe	30
Time	30
USA	30
USA Deluxe	44.95
World Deluxe	44.95
Wild Science Arcad	35.95
Wilson ProStaffgolf	25.95
Ween:The Prfcy	34.95
Willy Beamish	25
Wing Comandr 2	47.95
Wizardry Trilogy	31.95
Word Muncher	30
Word Torture	
Ital. Germ. Span	25
Wordtris	29
World Atlas DOS	39
World Circuit	34.95
Writer Rabbit	30
X Wing	39.95
Your Prsnl Train SAT	30
Zodiac Signs	39.95
Zoo Keeper	36
Zug's Spelling Adv	22
Adv of Eco Island	22
Dinosaur World	22
Race Thru Space	22

Mice & Trackball

Appoint MousePen	70
Microsoft Mouse	85
Mouseman Serial	69
Trackman Serial	79

Modems & Fax

MaxFax 9624 Fx/Md	99
Practical Peripherals	
PM 14.4 Int.	129
PM 14.4 Ext.	175
Sportster 9600 Int.	129
Sportstr 14.4 v.42bs	309
Zoom External	62
Zoom Internal	59

Scanners

Scanmaker II	859
Scanman 32	133
Scanman 256	259

C D ROM

Aesops Fables	33
Aircraft Encyclopda	45
Aloha Hawaii	45
Amer Bus. Phnbk.	39
Amer Hert Pict Dict	75
Arthur Teacher Trbl	41
Audubon Mammals	37
Autodesk Explorer	119
Barney Bear Goes to School	26
into Space	26
Batik Designs	45
Battlechess	49
Beauty & Beast	49
Beethoven Ninth	59
Berlitz Think & Talk	
French	105
Spanish	105
Bible Library	49
Bibles & Religon	30
Bookshelf	129
Britanica Family Chc	75
Business Master	32
Buzz Aldrin Race	59
Carmen World Dlxe	65
Career Opportunities	42
Cautious Condor	45
C D Game Pack	55
C D Speedway	57
Challenge 5 Realms	
Christmas Carol	33
CIA World Fact	39
CIA World Fact M/M	42
Clipart Goliath	30
Conan Cimerion	36
Corel Draw Upgd	139
Crossword Cracker	32
Curse of Enchantia	25.95
Deathstar Arcade	30
Dictionaries & Lang	30
Don Quixote	33
Education Master	32
Electronic Cookbook	75
Elect. Home Library	49
Elctrn Traveler:Calf	33
Encarta Encyclpd	249.95
European Monarchs	49
Family Doctor	59
Font Master	39
Food Analyst	49
Fresh Arte	49
Front Page News	29
G Force	19.95
Game Master	32
Game Pack 2	39
Gettysburg:MM Hist	43
Gofer Winkles Adv	33
Golden Immortal	28
Great Cities Vol 1	49
Guinness Book Rec	59
Guy Spy	32
Ham Call	49
Inspector Gadget	37.95
Interactive Old Test	52
Interactive Storytime	45
Intl Bus & Econ Atlas	39
Intro Games Fr/Sp	79
Jazz:Multimedia Hist	69
Jets & Props	55
Jones in Fast Lane	37
Just Grandma & Me	36
Jutland	54.95
Kings Quest 5	42
Land Of Lore	34.95
Languages of World	99
Learn to Speak Span	59
Leisure Suit Larry	42
Libry of Art:Renaisn	65
Libry of Art:Overview	65
Library of Future	99
Loom	39
Lovely Ladies II	49
MacMillian Child Dict	49
Manhole	49
Magazine Rack	45
Mantis	45.95
Marketing Master	39
Mavis Beacon	39
Mixed Up Mothr Gse	37
Monarch Notes	75
Monkey Island	39
M S DOS Archives	35
MM Music: Mozart	33
MM Music: Vivaldi	33
North Amer Fax Bk	55
North Amer Indians	57
Officers Bookcase	50
Our Solar System	29
PC Game Room	49
Peter & Wolf	45
Pool Shark	19.95
Presdnt:It Strt Geo	105
Programmers ROM	59
Publish it!	69
Reference Library	59
Rotor/Airball/Time	35
San Diego Zoo	49
Secret Weapons	59
Seventh Guest	59
Sherlock Holme	39
Sherl Holmes 2	42
Sleeping Beauty	37
Sound Works	35
Space Quest 4	37
Space Series-Apollo	49
Spirit of Excalibur	37
Stellar 7	37
Strange Bedfellows	39
Star Child	33
Star Trek Enhanced	49
Street Atlas	99
Talking Classic Tale	75
Talkng Jungle Safari	75
Time Mag Almanac	49
Time Table Science	59
Too Many Typefonts	35
Ultima 1-6	49
Ultimate Shareware	59
U S Atlas	42
US Atlas w/Automap	49
US History	39
US Presidents	49
USA State Fact Bk	45
USA Wars:Civil War	49
USA Wars:Korea	49
USA Wars:Vietnam	49
USA Wars: WW II	49
Voyage Planet I-3ea.	69
White Horse Child	33
Who Killed Sam Rup	25
Willy Beamish	37
Win CD	32
Wing Comm & Miss	45
Wing Com/Ultima 6	45
Wing Comm 2	57
W C 2/Ulti. Undrwld	57
World Atlas	42
Adults Only-Must be	21
Animation Fantasy	65
PC Pix Vol 1 or 2	65
Private Collection	65
Priv. Pictures 1 or 2	65
Seedy Vol 1-7 ea.	65
Storm 1 or 2	65
Visual Fantasy	65
Volcano	65
Caddies 7.95ea. 3/$	19

Skins & Pads

Dust Covers	15
Grounded Wrist Strap	9
Keyboard Skins	15
Static Pads	
Large- System	15
Wrist Pads	8
Stax (Dust Repellent)	5
Statx Complete	
Cleaning System	15

Sound Cards

Ad Lib Microchannel	69
Ad Lib Gold 1000	179
ATI Stereo F/X	109
VGA StreoF/X 1MB	369
Covox Snd Mster II	145
Gravis Ultra Sound	129
Logitech Soundmn	179
Media Vision	
Audio Port	139
CDPC / XL	1199.95
Pro Audio Spec +	139
M.M. Upgrade Kit	765
Pro Audio Spec 16	194
Pro 16 Multimedia	
Upgrade Kit	955
Thunderboard	95
Thunder & Lightng	229
Sound Blaster	99
Snd Blast Pro MCA	259
Sound Blaster Pro	189
S B Pro 16	239
S B Multimedia Kit	560
S B MM Starter Kit	459
S B CDROM Intrnl	360
Sound Machine Incl.	
SB,Speaker,Joystick	95
Roland SCC-1 GS	375
Sound Canvas	559
Roland MA-12C ea	105
SPEAKERS Shielded	28
w/ 3 band Equilizer	45
Altec Lansing 200	219
ACS 300 w/subwof	299

MIDI Interface

Midiator 101 Serial	95
PC Midi Card	79
MQX-32	179
MPU-IPC	135
Cakewalk Apprentic	145
The Miracle	325

MIDI Software

Ballade	129
Band in a Box	69
Cadenza	129
Cakewalk	95
Cakewalk Pro	169
Cakewalk Window	240
Encore	379
Piano Works	95
Play it by Ear	69
Master Tracks Pro	249
Midisoft Studio	159
Music Bytes Vol 1	65
Music Mentor	79
Music Printer Plus	419
Music Time	169
Musicator	375
Quick Score Deluxe	99
Rhythm Ace	69
Songwright 5	65
Trax for Windows	60

Joysticks

CH Flightstick	37
CH Game Card 3	31
CH Mach 3	31
CH Virtual Pilot	65
CH Virtual Pilot Pro	84
Eliminator Game Cd	26
Gravis Analog Pro	39
Gravis Joystick	32
Gravis PC GamePad	21
Kraft KC3 Joystick	18
Kraft Thunderstick	28
Maxx Flight Yoke	69
Maxx Pedal	39
Mouse Yoke	29.95
Quickshot Game Cd	14
Quickshot Warrior	18
Thrustmaster Flight	69
Thrustmaster Pro	109
Weapons Control	79
Thrustmaster Pedal	109

Hours: M-F 9AM to 8PM Sat 10AM to 3PM
Store Hours: M-F 9AM to 6PM Sat 10AM to 3PM
Store: 1060 Randolph Ave. Rahway N.J. 07065

TERMS AND CONDITIONS

Master Card,Visa American Express & Discover Accepted. No Surcharge on Credit Cards. By mail: P.O. Box 3, Carteret, N.J. 07008. All Sales Are Final. NO REFUNDS! Exchange on defective merchandise with the same item only. No exceptions. All Products are new. We do not guarentee compatability. Shipping charges: 48 contiguous states, $4 per order. Alaska, Hawaii, and Puerto Rico $10 1st pc., $1 ea. add. APO/FPO and P.O. Boxes $6 1st pc. $1 ea. add. Canada $8 1st pc. $1 ea.add. Heavier items extra. Foreign orders call for shipping charges. N.J. Residents add sales tax. Call for current price and availability. GOVERMENT AND SCHOOL P.O.'s WELCOMED. *Quantities are limited on this item. For your protection, we will only ship to the address the credit card company has on file. 20% restocking fee on all refused items.

www.commodore.ca

paced action, and out-of-this-world cast will keep newcomers to math engrossed in the computative environmental challenge the game presents.

After loading the program, kids enter the year 2020, when Earth has exhausted its landfills and begun to send its solid waste into outer space. Smart-mouthed aliens who don't want the useless junk threaten revenge by dumping glop on the planet. Prime minister Monitron, a kind of futuristic Monty Hall, persuades the aliens to settle their dispute in a contest of math abilities. The games take place in the Cubix Cantina, which Legacy calls "the restaurant of choice for solar slimeballs."

The program features a single-page quick-start guide that lets kids or teachers get into the game immediately. The 58-page player's guide is imaginatively illustrated, and notes on installation, instruction, game tips, and troubleshooting are presented in a story-telling fashion that sticks with the theme of the game and won't turn off those kids who take the time to read them. Legacy recently added support for sound boards, and the new musical accompaniment greatly enhances the PC speaker sound found in the previous version.

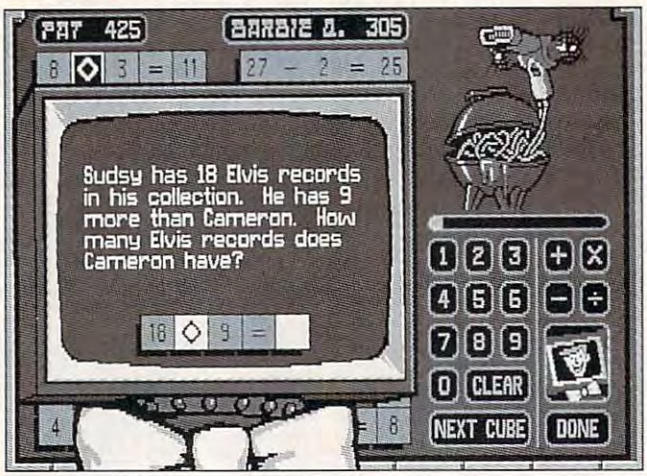
The game is copy-protected by documentation. To get past Vectra, the security guard, players must match a number Vectra gives them to a planet name printed on the corresponding page in the manual. Up to 40 players can play, and multiplayer competitions make it ideal for classroom activities as well as group play at home.

Parents, teachers, or kids themselves can customize levels of difficulty to make the game easier, eliminating multiplication tables, division, or cube equations. Kids select their Mutanoid challengers from a cast of ooky-looking characters with appropriately juvenile names like Barbie Q., I.M. Tall, and Lotta B. Hinds. The game board presents problems in crossword-style grids, where players fill in elements of the equations, and as word problems. Kids enter the answers by selecting numbers on an on-screen calculator pad. From time to time, green mutant "gelatoid" creatures zip across the screen, and a player who can direct them to diamond squares earns extra points. Scores are kept in a Hall of Fame, so kids can check to see how their scores compare with those of the Mutanoid (the computer) or other players.

The game employs somewhat unconventional key assignments: To quit, you hit F8 instead of Esc, for example. But kids don't seem to mind. The game does have mouse support.

Legacy's arcade-game approach to instruction, complete with sound and animation, brings routine drill-and-practice exercises alive. Mutanoid Math Challenge will entertain any kid who plays it individually, but its contest approach to teaching makes it perfect for groups. Kids love competition, and this game's support for multiple players makes it one of those educational games that can turn a computer into an activity center in a classroom or family den.

CAROL ELLISON



Mutanoid Math Challenge makes learning math concepts fun, and it's ideal for use either at home or in the classroom.

Legacy Software
(800) LEARN-92
$49.95

Circle Reader Service Number 448

SPACE ACE II: BORF'S REVENGE

Step into the world of Saturday-morning superheroes with Space Ace II: Borf's Revenge, a nonstop arcade battle of good versus evil.

In the previous episode, the villainous Borf unleashed the terrible Infanto Ray—a weapon capable of turning anyone into a helpless infant with a single blast. The big, blue fiend had hoped to turn the Earth into one big day care center. But Space Ace turned the tables and saved the day, zapping Borf into a harmless peewee.

As the new game begins, Borf's tenacious Goon squad has restored its pint-sized leader to his larger-than-life evilness. An enraged Borf then kidnaps Ace's girlfriend, Kimberly, and attempts a getaway. You must race to her defense, battling a relentless series of monsters, robots, and other deadly threats.

The game's look and feel is inspired by Don Bluth, a former Disney animator who pioneered the first laser disc coin-op game, Dragon's Lair. The theater-quality cartoon graphics and digitized sound are nearly seamless on a hard drive. This type of game begs for a CD-ROM treatment.

Though beautifully drawn and smoothly animated, the design suffers from serious structural flaws. Simply put, the story doesn't flow, it lunges forward at breakneck speed. Transitions between scenes are usually clipped, and often missing entirely. The results are disjointed and confusing, with no sense of plot progression.

Another problem is a complete lack of strategy. Player input is limited to simple knee-jerk reactions—pressing one of five keys in response to the onscreen action. The game's linear story line allows absolutely no digression from the prescribed course of action. False moves are rewarded not with an alternate direction, but with instant death. Even the fastest, cruelest arcade games offer more

www.commodore.ca

THE MORE YOU LEARN...
THE MORE YOU SAVE!

LEARN
HOW SCIENCE AND ART ARE COMBINING TO CHANGE THE FACE OF THE FUTURE...

...AND SAVE $24.03!

LEARN
HOW TO MAKE YOUR HOME COMPUTING MORE PRODUCTIVE THAN EVER...

...AND SAVE $22.43!

LEARN
THE SECRETS THAT WILL ALLOW YOU TO LIVE A LONGER, HEALTHIER MORE ACTIVE LIFE...

...AND SAVE $17.43!

Step into the future — today! Now you can subscribe to the world's most fascinating magazines at prices that are truly out of this world! Thanks to this extraordinary offer, you can enjoy savings up to 63% off the newsstand price.

OMNI.
Innovation embodied. And then, transcended. No magazine has an editorial package quite like OMNI. From scientific breakthroughs to masterwork fiction, OMNI is the road which takes you one step beyond. Ph. D's. U.F.O.'s. REM's and DNA. Month after month, year after year, OMNI Magazine takes today and pushes it well into tomorrow.

COMPUTE.
Issue after issue, Compute makes using your home computer more productive. Learn the applications that are revolutionizing home computing. Apply our performance tips and get much more from the system you already own. The hottest hardware. The freshest software. An all-new, bigger, brighter Compute.

LONGEVITY.
The ultimate guide to health, well-being, and a longer, more-vigorous life. At no point in man's history have there been so many dramatic advances in the science of life extension and in the number of years we can stay healthy, active, and young. Even more exciting is the fact that it's never too late (or too early!) to begin. Longevity magazine will show you how.

YES! I'D LIKE TO LEARN MORE!

Send me a one year subscription (12 issues) to

☐ **OMNI Magazine**— now just $17.97, a 57% savings off the regular newsstand price!

☐ **COMPUTE Magazine**— now just $12.97, a 63% savings off the regular newsstand price!

☐ **LONGEVITY Magazine** — now just $17.97, a 49% savings off the regular newsstand price!

Name_____

Address _____

City_____ State _____ Zip_____

☐ Payment Encl. ☐ Bill Me ☐ MasterCard ☐ VISA

Account # _____ Exp. Date_____

Signature_____

Please allow 6-8 weeks for delivery of first issue. Regular subscription price for 12 issues of OMNI, $24; LONGEVITY, $24; COMPUTE, $19.94. Canadian orders add $10 plus 7% GST. All other foreign orders add $10. Payment acceptable in U.S. funds only.

HKGR2

MAIL THIS COUPON TO:
General Media International, P.O. Box 3226, Harlan, IA 51593

www.commodore.ca

than one path to success or failure. This game is a bullet train with no stops and only one destination. Fail to switch tracks at the precise moment and the whole thing derails.

Average games last under a minute for experienced players and mere seconds for arcade rookies. Having only three tries to complete the adventure adds to your frustration; luckily, a save option lets you start the game at the beginning of the last unfinished scene. Unfortunately, once invoked, this save feature is automatic: If you fail once or twice and then succeed, the game overwrites your last position, leaving you stranded with severely limited resources. Contrary to the old maxim, if at first you don't succeed, give up before trying again. As if admitting to this unforgiving difficulty, the manual offers fairly explicit hints for each of the game's 27 scenes.

More satisfying examples of this genre include Interplay's Out of This World, Dynamix's Adventures of Willie Beamish, and even ReadySoft's own Guy Spy series. In addition to a solid mix of arcade action and logic puzzles, each of those games takes time to tell a viable story, using such "camera" techniques as panning, noninteractive segues, and long tracking shots.

Technically brilliant, Space Ace II: Borf's Revenge successfully emulates a studio-quality animated adventure. As an interactive game, however, most of the fun seems to have been left on the cutting room floor.

SCOTT A. MAY

$59.95 READYSOFT
(416) 731-4175

Circle Reader Service Number 449

COFFEE BREAK GAMBLING

As new game designs begin to stretch the limits of time and space—your time and hard drive space, that is—Villa Crespo heads in the opposite direction with its Coffee Break Series. These compact, budget-priced games deliver instantly accessible quality entertainment that's playable from floppy or hard disk.

Villa Crespo is best known for casino-style gambling simulations, so it's not surprising that the top picks in this burgeoning series are games of strategy and chance. Dr. Wong's Jacks & Video Poker is an abridged version of one of the company's biggest-selling titles. Where the original offers five variations of video poker, the condensed version contains only Jacks or Better, by far the most popular style.

Features include an adjustable bankroll, online tutorial and advice, hand analysis, and calculated returns. The only feature sorely missing from the original is simultaneous two-player tournament mode. Bells and whistles include somewhat garish—albeit realistic—low-resolution graphics and digitized sound effects.

Dr. Thorp's Mini Blackjack is the abbreviated version of another full-fledged simulation. Up to six players can compete against the dealer, utilizing such standard casino options as double down, split, surrender, push, and insurance. Advanced features include two levels of house rules, each fully adjustable and surprisingly detailed. In addition to online strategy tables and a basic blackjack tutorial, the game also teaches three methods of card counting.

Casino Craps is a delightful re-creation of the fast-paced dice game. High-resolution graphics and much-improved mouse controls embellish this dynamic one-player simulation. Extensive onscreen help thoroughly explains the nuances of odds and wagers, field bets, hard numbers, and center-table bets. Highlights include three levels of statistical analysis and player histories. Animated onscreen characters and digitized sound samples give this game a distinctive personality. Casino Craps is easily one of the best in the series.

Last, but far from least, is Amarillo Slim's 7 Card Stud, a condensed version of Villa Crespo's outstanding poker simulation. Better than a heated match in a smoke-filled back room, the game pits one player against 2–7 computer opponents. Online help screens and tutorial advice guide greenhorns through the rules and strategies of building a winning hand. Choose from the 15 available players, each with a digitized voice and unique style of play, who are divided among the game's three skill levels. You can also customize the house rules—maximum bets, raise limits, blind bets, and so on—to make every session unique. More than any game in the series, this one beckons players to seek out the full-blown version, Dealer's Choice, featuring 28 poker variations.

Short and sweet, the Coffee Break Series from Villa Crespo proves that bigger isn't necessarily better.

SCOTT A. MAY

Villa Crespo Software
(708) 433-0500
$12.95 each

Circle Reader Service Number 450

THE OPERATION: FIGHTING TIGER

The apple doesn't fall far from the tree, as they say, and The Operation: Fighting Tiger expansion kit for Falcon 3.0 from Spectrum HoloByte is an enhancement of its rich, dense parent game. Falcon plus OFT equals fighter-plane heaven. This is the only way to fly.

Disk 1 of OFT patches the parent program all the way up to the current version (3.01); this should make happy all those who expected Falcon 3.0 to fly in full trim right out of the box and weren't prepared for the open-house gamma test—with a consequent stream of fixes and tweaks—that was the sad reality. OFT adds three huge and varied (and alliterative) new theaters of operations—Korea, Kashmir, and the Kurile Islands—which should please pilots who found that the game's scope didn't match its size.

And OFT improves the game engine with a wide variety of pleasant new wrinkles: new commands to issue to wing men, the ability to set difficulty levels for campaigns, an overcast sky (which looks great), more night flying, and too many lesser refinements to mention. It's also more stable and reliable, and hence more satisfying—and not just in the new theaters. The original theaters, which are not overwritten by OFT, enjoy all the benefits of the new features. And, of course, all the best features of the original game—from the masterful terrain to the involving campaigns—are in full force here. (Indeed, the campaigns here seem tougher, if anything.)

OFT is a bit more demanding of memory—now requiring a touch over 616,000 bytes (and another 3MB on your hard drive, for a total of 14MB)—and even that extra 2K RAM meant I had to jigger my four-meg system a bit in order to load a mouse driver *and* get the digitized voice in radio broadcasts.

And, unfortunately, OFT also inherited a touch of the original sim's . . . shall we say, *unfinished* quality? The installation program in the initial release couldn't find the correctly named FALCON3 directory on my C drive and, once I identified the directory for it, wouldn't install the files. (That's about the worst possible place for a bug to appear. Imagine buying a toaster oven and finding the power cord cut in half.) Mercifully, Spectrum has been quick off the line with a fix, and a new installation program—followed by a full-blown upgrade of the upgrade (to 3.01.1)—was issued in October.

www.commodore.ca

However, my criticism isn't of OFT so much as of Falcon 3.0. I do wish it'd been closer to this condition when it was originally released. In a sense, this set of data disks isn't so much an add-on as the final upgrade. I suppose that in a competitive market exploiting new technology, the phenomenon of games like Falcon and Darklands growing up in public shouldn't be such a surprise. But we wouldn't settle for it in any other type of consumer product, and I don't see why we should here. (Other developers—notably Sir-Tech with Crusaders of the Dark Savant—have opted to keep long-awaited games under wraps until they were ready.)

I don't mean to minimize the achievement here, however. This is a brilliant piece of work, and I can't imagine any devoted Falcon 3.0 flyer not loving it. Some things are worth waiting for. This is one of them.

PETER OLAFSON

Spectrum HoloByte
(800) 695-GAME
$39.95

Circle Reader Service Number 451

PRACTICAL FAXME

First, there was Long Distance Xerography; then came the first desktop fax, the Telecopier I. Soon after, improvements in fax technology developed to the point where today we have automatic, plain-paper fax machines and computer software and hardware that can turn your system into a fax machine. Recently, Practical Peripherals introduced the new Practical FaxMe cartridge. This device turns any Hewlett-Packard LaserJet series II or III printer with at least 1MB of expansion memory into a plain-paper fax machine for receiving faxes.

Unlike adding a fax board to a computer, the FaxMe is easy to install. You simply insert the cartridge into the slot of the LaserJet and attach the phone connector—and you're all set. If you do nothing else, as long as your printer is on and the phone line is connected, the FaxMe changes your LaserJet printer into a plain-paper fax receiver.

Most people, though, won't want to simply turn their printer into a fax machine; they'll also want to use the LaserJet for its original purpose. Don't worry, you still can. The FaxMe cartridge is designed with a full range of settings and options, the most important being the three operations modes: fax receiving only, printer only, and automatic switching. You can also set the FaxMe with the date, day of the week, time, speed, and other usual settings you'd expect to set on a fax machine. As when you make changes to the settings on the LaserJet, setting or changing the settings of the FaxMe involves pushing a series of buttons on the printer's control panel in the correct order.

I tested the FaxMe on the LaserJet II and IIP by sending faxes that varied in length and density of type and graphics. All faxes were received in acceptable quality on plain paper. I also sent the same faxes to my office's regular fax machine, which uses standard rolled fax paper. As you'd expect, plain-paper faxes are much easier to handle, not to mention more convenient. There wasn't much difference in the quality of the graphics on the LaserJet/FaxMe combo compared to the regular fax machine with rolled paper. The text, though—including the entire TrueType Wingdings font—printed more clearly with the FaxMe.

Who needs the FaxMe? It doesn't replace a regular fax machine or a fax board in a computer, since it doesn't send faxes. The FaxMe is priced lower than most plain-paper fax machines, though. Therefore, if you have a LaserJet with enough memory and only need a fax-receiving device, this may

Data Ranch
A Division of Virtual Reality Laboratories, Inc.

FORMBUSTER
Means never having to use a typewriter to fill out a form...

FORMBUSTER
Means never having to look for the same information over and over again.

FORMBUSTER
Means never having to cringe when another form comes in.

FORMBUSTER
Means having extra time for fun!

Forms, forms, and more forms, coming from insurance companies, hospitals, schools and universities, escrow companies, banks... coming in the mail and through your fax. Are you still using typewriters to fill them out, or worse, filling them out by hand? Well, NO MORE!

INTRODUCING FORMBUSTER.

If you have a fax board for your PC it's a simple three-step process:

1. Fax any form into FormBuster on your PC.
2. Using FormBuster's built-in database, click and paste your information into the form.
3. Fax back your completed form.

Retail Price $49.95

It's that easy... really!
1-800-829-VRLI
For information call 805/545-8515 or FAX 805/781-2259
2341 Ganador Ct., San Luis Obispo, CA 93401
Data Ranch is a division of Virtual Reality Laboratories, Inc.

Available at your local reseller or at Egghead and COMPUSA

Circle Reader Service Number 155

www.commodore.ca

be just what you need. You also might find the built-in battery an important option to consider. Once you've set the cartridge, you don't have to keep resetting it.

The FaxMe operates as advertised and comes with a lifetime limited warranty. But it's not for everyone. Those who need to both receive and send faxes might want to consider another option. But if you only intend to receive faxes or if you're considering replacing your fax machine because you're tired of rolled-up faxes, you might consider the Practical FaxMe cartridge as an effective alternative.

STEPHEN LEVY

Practical Peripherals
(800) 442-4774
$259

Circle Reader Service Number 452

MIXED-UP FAIRY TALES

Have you seen this child? Not if the child's been playing Mixed-Up Fairy Tales, a new educational adventure game from Sierra On-Line. It teaches children to disappear with threatening-looking strangers.

Of course, in Mixed-Up Fairy Tales the stranger is a benign, bespectacled dragon called Bookwyrm who appears to the child in a library, materializing from a book. Bookwyrm encourages the child to follow him to a magical land where water tastes like grape soda and every action plays against a synthesized soundtrack provided by Bach and Mozart. And while Bookwyrm may be a stranger in the beginning, his land has characters as familiar as Snow White and the seven dwarves, Jack (of beanstalk fame), and Cinderella.

All is not well in Bookwyrm's fairy tale sphere, though. An aptly named little hairball called Bookend has—you guessed it—mixed up all the fairy tales. It's the child's job to put them together again. Thanks to the well-designed, mouse-oriented interface of Mixed-Up Fairy Tales, doing so becomes an entertaining, educational challenge loaded with enough difficulties to be interesting but not enough to become frustrating.

The package comes with a concise, helpful manual; a book with bowdlerized versions of the real fairy tales; and a Mixed-Up Fairy Tales coloring book complete with crayons. The disks come with a self-explanatory installation program, which takes even novice computer users by the hand and walks them painlessly through the process. My biggest problem was finding enough memory to run the program—you need about 535K RAM free to load Mixed-Up Fairy Tales.

Another problem I encountered was a virus Norton AntiVirus discovered in the sound drivers for Mixed-Up Fairy Tales. Repeated attempts to call Sierra's technical-support line yielded only busy signals. Later, Norton AntiVirus reported the same virus in a sound driver for an unrelated program, making me wonder whether the virus report was accurate. I still don't know, since I never was able to get through to Sierra and find out.

Mixed-Up Fairy Tales is intended for children ages 7 and up. There's a fair amount of reading required, but no typing. Every action comes as the result of a simple mouse click (or a much less intuitive keyboard command; you really need a mouse). Whether you're looking at an object, moving to a new screen, or talking to a fairy-tale character, manipulating your character quickly becomes second nature.

If the classical music never sounds quite as good as in the concert hall—at best it's a synthesized approximation, at worst a bad imitation of funeral-home organ music—Mixed-Up Fairy Tales comes with a better-than-average soundtrack and a good mix of sound effects. You can hear water streaming down a waterfall and listen to Cinderella disappear in her pumpkin coach in a dizzying flourish, although a frog's hops sound more like a series of barely audible violin squawks. The better your sound capabilities, the better the sound, of course.

After a brief introduction from each character you encounter, you must guess which of five fairy tales the character belongs to. It takes two or three actions to help each character complete his or her story, all of which end with a reassuring "And they lived happily ever after." The fairy tale territory looks like a pleasant enough place to run out the clock, although visually it leaves a few things to be desired. I played the 256-color VGA version, which features a nice array of backdrops but rather choppy characters. The land bears an unsurprising resemblance to Sierra's companion game, Mixed-Up Mother Goose.

As with Mixed-Up Mother Goose, most of the action in Mixed-Up Fairy Tales takes place at a gentle pace, but there are a couple of moments of high drama. At one point you get to chase Bookend cross-country to retrieve an object, and another time you get to watch the giant crash to the ground from Jack's beanstalk, leaving a giant-shaped hole in the ground.

Don't worry about a child disappearing into the game, though: It's actually a nice place to get lost in, and an educational way for modern technology to bring to life some vintage stories.

EDDIE HUFFMAN

Sierra On-Line
(800) 326-6654
$49.95

Circle Reader Service Number 453 ❐

SPEAK UP!

Is there a hardware or software product you'd like to see reviewed in COMPUTE? Let us know by calling **(900) 884-8681, extension. 7010103.** The call will cost 95 cents per minute, you must be 18 or older, and you must use a touch-tone phone. Sponsored by Pure Entertainment, P.O. Box 186, Hollywood, California 90078.

www.commodore.ca

COMPUTE's Product Mart

is a special advertising section designed to benefit you, the PC direct marketer, by letting you advertise directly to the readers that buy. We offer:

- **Marketing Assistance**
  Each ad receives a complementary reader service number that generates a targeted sales lead mailing list.
- **Qualified Readers**
  Our readers search the Product Mart for quality hardware, software, and peripheral products they can *buy*.
- **Guaranteed Audience**
  Our rate base is guaranteed at 275,000 per issue, with an actual monthly circulation of over 300,000.
- **Cost Effectiveness**
  Ad sizes range from 1/9 (2 1/8 × 3) to 2/3 page, and you can request frequency rates of up to 12 times per year. B/W, 2/color and 4/color availability.

Space closing: The 15th of the third month preceding issue date (e.g. May issue closes February 15th). Space limited to a first-reserved, first-served basis.

For ad specifications or more information call

Lucille Dennis
(707) 451-8209
Fax (707) 451-4269

Call now to reserve your space!

Ready . . . for our extensive selection of software at low, reasonable rates

Set . . . for thousands of titles for your IBM, Amiga, Atari, Mac, CD Rom & Genesis?

Go . . . Call now for a free listing

1-800-433-2938

Wedgwood Rental
5316 Woodway Drive
Fort Worth, Texas 76133

Circle Reader Service Number 172

COLOR RIBBONS & PAPER

COLORS: BLACK, RED, BLUE, GREEN, BROWN, PURPLE, YELLOW

Ribbons Price/Each	Black	Color	T-Shirt
Brother 1109	$5.50	$6.50	$7.50
Citizen GSX140, 4-CLR	$4.00	$12.50	$15.00
Epson MX-80	$3.25	$5.00	$6.75
Epson 3250	$6.50	$10.00	
Okidata 182/192	$5.00	$7.50	
Panasonic 1180/1124	$5.00	$7.50	
Panasonic KXP 2123 4-CLR	$6.50	$15.00	$20.00
Star NX1000 4-CLR	$3.50	$6.25	$10.00
Star NX1020 4-CLR	$6.00	$10.50	$15.00
Star NX2420 4-CLR	$6.00	$12.00	$15.00

COLOR PAPER: 200 SHTS/ BRIGHT PK. $10.90
PASTEL PK. $7.90 BANNER PAPER 45 FT. RL. $8.95
CERTIFICATE PAPER: $9.95 PK.

CUSTOM T-SHIRT, DESIGN YOUR OWN

- HEAT TRANSER RIBBONS
- TRANSFER PAPER FOR DOT MATRIX AND INK JET PRINTERS
- HEAT TRANSFER LASER TONER

Min. Orders $25.00, Min. S&H $6.00, Prices subject to change!

RAMCO COMPUTER SUPPLIES
P.O. Box 475, Manteno, IL 800-522-6922 or 815-468-8081

Circle Reader Service Number 257

PENDRAGON Software Library

Public Domain/Shareware for IBM & Compatibles
ASP Member

No Viruses * Latest Versions

Over 2500 Programs

FREE 80 page Catalog

We also carry **CD-ROM** discs

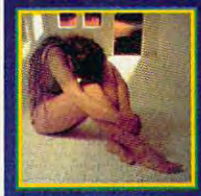
75 MeadowbrookRd
E.Greenwich, RI 02818
(401)884-6825 for inquiries

1-800-828-DISK

BodyCello ADULTS ONLY

Floppy & CD-ROM Products

Donatelli Glamour Portfolios CD-ROM
Over 100 color & B&W photos featuring nude & partially nude women.
#3-403 $99.95



La Femme Venus CD-ROM
Over 75 images portraying woman's natural nude beauty.
#3-47 $79.95

DISK SETS
Each set includes 25 color pictures, picture viewer FREE w/first order, use #888
Shipped on 1.4 meg. floppy disk.

- #3-10 Sampler, 25 Models..$39.95
- #3-13 Exotica color $39.95
- #3-19 Boris Vallejo $39.95
- #3-17 Down Unders $39.95
- #3-15 From Behind $39.95
- #3-16 Big Ones.....$39.95

FREE color uncensored catalog w/purchase or send $2.00 to: BodyCello P.O. Box 910531, Sorrento Valley CA 92191

• Order: 1-800-922-3556 • Info: 619-578-6969
• FAX: 619-536-2397 • Include $4.75 for s/h
• foreign add $15 s/h • CA. residents add sales tax
Dealer Inquires Welcome

1-800-922-3556

MUST BE OVER 18 TO ORDER

Circle Reader Service Number 218

SHAREWARE

for IBM COMPATIBLE

ALL single items $1.25
Same Price for 3.5" or 5.25"
Shipping & Handling: $2/order
VISA / MASTERCARD

REGULAR ITEMS $1.25

FP_207	SUPERB Virus scanning/cleaning.
SCAN102	McAffee's Latest Virus scanner.
	We will ship most recent version available!
WOLF3D	Super 3D view game. The best! (VGA)
GALACTIX	Real Arcade Space-war Action (VGA)
KEENDRMS	He's back in KEEN DREAMS (EGA)
MAZEWARS	Virtual Reality maze. (VGA+MOUSE)
MAHJONGG	New Version! 6 differnt setups! (EGA)
ANCIENTS	Deathwatch 3-D D&D. Create your party of four. Fantastic! VGA+MOUSE Req.
MEGATRON	1/2 person robot battles VGA, hrd drv

BARGAIN BUNDLES !

BASH1	NEW! MonsterBash 1.0 by Apogee! The greatest, most animated, largest Ever! EGA & 80286 or better, req'd.	$2
CATABS13	Catacombs Abyss - Like WOLF-3D Great Effects. (EGA,Fast PC)	$2
APOGEE2	KEEN1, AGENT, DARKAKGES	$3
EDUKID2	Sch.Mom, Funnels, StateCap, more	$3

FREE CATALOG !

ComPro Software
P.O. BOX 4426
Star City, WV 26504
1-800-PC-DISCS

Circle Reader Service Number 129

www.commodore.ca

File Edit Search Dial 1-900-454-4370 69¢ per minute

WINDOWS 900

The #1 Shareware Source For . . .

- Business
- Programming
- Utilities
- Fonts
- Games
- Graphics

LARGE XXX ADULT AREA!
Must be 18 or over to call...

Use Your High Speed Modem & Call

900-454-4370

2400bps -- 9600bps V.32/bis V.42/bis 8,N,1

69¢ per minute

NO CREDIT CARDS
NO MEMBERSHIP
NO LONG DISTANCE CHARGES
FAST, EASY ACCESS

Callers under 18 years of age MUST have parent's permission

Device Programmers

Connects to PC parallel printer port

48 PIN ZIF

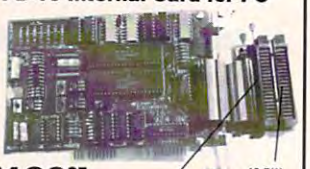
$449.95 EMP-20

SA-20 8 Gang Eprom

20 X 4 Line LCD Display

$750.00 20 Key Keypad

PB-10 Internal Card for PC



$139.95 2 ft. Cable 40 PIN ZIF

- Easy to use software, on-line help, full sceen editor
- **Made in USA**
- 1 & 2 Year Warranty
- Technical Support by phone
- 30 day Money Back Guarantee
- FREE software upgrades available via BBS
- Demo SW via **BBS (EM20DEMO.EXE) (PB10DEMO.EXE)**
- **E(e)proms** 2716 - 8 megabit, 16 bit 27210-27240, 27C400 & 27C800,
- **Flash** 28F256–28F020, (29C256–29C010 (EMP-20 only))
- **Micros** 8741A, 42A, 42AH, 48, 49, 48H, 49H, 55, 87C51, 87C51FX, 87C751,752
- **GAL, PLD** from NS, Lattice, AMD-**16V8, 20V8, 22V10** (EMP-20 only)

FOR MORE INFORMATION CALL

NEEDHAM'S ELECTRONICS, INC.

4539 Orange Grove Ave.
Sacramento, CA 95841
(Monday-Friday, 8 am-5 pm PST)

MasterCard VISA
C.O.D.

(916) 924-8037
BBS (916) 972-8042
FAX (916) 972-9960

Circle Reader Service Number 191

EXCLUSIVE MODEM OFFER

ORDER YOUR LIMITED-EDITION PENTHOUSE ONLINE 9600 DATA/FAX MODEM TODAY AND SAVE!

Penthouse magazine has teamed up with U.S. Robotics to offer a top-grade 9600-bps data/fax modem for only $279 (internal board) or $299 (external). These high-speed V.32-compatible modems feature V.42/MNP 2–4 error control, V.42bis/MNP 5 data compression, and throughput of up to 38.4. The external model (shown) has a custom, limited-edition black case with the famous Penthouse Key symbol.

Features include autodial and -answer, frequently called number storage, nonvolatile RAM (stores all modem settings), summary of current modem setting display, speaker with volume control, onscreen call progress reporting, five-year parts and service warranty, an extensive owner's manual, and a quick-reference card. The internal modem comes on a 10-inch board that fits all IBM PC bus-compatible computers, and can be addressed on COM ports 1–4.

Plus, you will also receive the BLAST® FAX PC™ fax software, which lets you send or receive faxes from your computer. Compatible with all G3 machines, BLAST® FAX PC™ allows transmission scheduling, hot-key faxing from within applications, background operation, and much, much more.

Circle Reader Service Number 107

www.commodore.ca

FREE CD-ROM DISC

Free CD-ROM Disc!

Mega Demo and Test contains 350 megs of PC Shareware & PD software. Including Special CD-ROM Benchmark & Test Utilities written by our programming staff, and NOT available on any other CD-ROM Discs. Our Special Test Utilities measure throughput as well as access times in a reliable and consistent manner for a meaningfull real-world benchmark for CD drives. The Disc and Interface Software are fully functional (even for BBS use) and not crippled in any way. When purchased seperately Mega Demo & Test is $14.00 plus $6.00 for S&H - However for a Limited Time Only this Demo and Test CD-ROM Disc is Free with any CD Disc purchase.

These are the Only Shareware & PD CD-ROM Discs with both a DOS, and a Windows 3.1 "Hypertext" Retrieval Interface. Plus All CD Discs are BBS Ready, and Include files.bbs plus our BBS Door with a "Remote User" Mouseable Pull-Down Menu Interface.

fao Gold™

Best of the Best

For Adults Only
"Wife Proof Labels"
Over 600 MegaBytes
Many Not On FAO 123
256 color SVGA Gif's
With No BBS Logos!
Plus Animated
Fli's, Gl's, & Dl's,
Includes Games, &
ASCII Fantasy Text
Retail Price $79.00 ea.

Now, for a Limited Time Only!
The Best of the Best!

$39.00 ea.

fao™

Volumes 1, 2, and 3

For Adults Only
"Wife Proof Labels"
256 color SVGA Gif's,
Plus Animated
Fli's, Gl's, & Dl's,
Includes Games, &
ASCII Fantasy Text.
3 Disc Set 1,892 Megs
With Over 16,180 Files!
Retail Price
all/3 $199.00

Now, for a Limited Time Only!
full set all 3 for only!

$69.00 set

Mega CD-ROM² ™

PC Shareware Spectacular

650 Megs
7,000 Virus Free Files
65% different or newer
files than Mega CD-ROM1

Mega WinOS/2^A ™

Windows and OS/2 Shareware

600 Plus Megs of Windows & OS/2
Shareware With Over 4,860 Files!
Plus MegaWin Windows 3.1 Interface
Retail Price $79.00 for Each Disc

Mega A/V¹ ™

PC Audio / Visual

Over 600 Megabytes
of PC Graphics & Sounds
256 Color .Gif's, Animated .Fli's, plus
.Mod, .Rol, .Wav, & .Voc Sound Files
Our Newest Release!

Now, for a limited time only!
$29.00 each
or get all 3 of these fantastic MEGA CD-ROM Discs for only!

$69.00

SONY Caddies $4.75 with any Non Demo CD purchase!

The prices listed above do not include shipping and handling.
Special shipping and shipping to foreign countries is available.

For More Information or Questions Call (602) 577-9696

PROFIT PRESS, 2956 N. Campbell Ave., Tucson, AZ 85719
Information (602) 577-9696 FAX (602) 577-9624
Profit Press BBS (602) 299-0693 FAO BBS (602) 577-6969

VISA MasterCard

ORDERS ONLY! Call Toll Free
1-800-843-7990

Circle Reader Service Number 256

BASEBALL · BASKETBALL · LOTTERY

FOOTBALL

PROF. JONES INC.

Over 64% Spread Wins Overall

Artificial Intelligence Now Available

Grid Master	$ 99.95
Pro Series	199.95
Bookie Buster	149.95
Collegiate	199.95
Bulletin Board	150.00
Football Special (Includes all items)	499.95
Shipping	*4.50*

This year Prof Jones has added a sophisticated Neural Network to the Football software that produces a higher win percentage than ever before. Get it now!!

Call to Order, or for a FREE Catalog!

1-800-553-2256

PROF. JONES, INC. • 1940 W. State St., Boise, Idaho 83702

THOROUGHBRED · GREYHOUND · STANDARDBRED

Circle Reader Service Number 119

PhoneDisc®

Brand CD-ROM's

The best quality, best software, best price.

Locate lost family, friends and sweethearts. Find new suppliers. Begin a job search. Plan a trip. Verify credit applications. Locate debtors. Plan sales routes. Check for trademarks. And much more!

PhoneDisc® USA

Search residences by name. Search businesses by name, SIC code, business type, address or phone number. Narrow business or residence searches by state, city, street or ZIP.

PhoneDisc® USA Business **Only $99**
9.5 million U.S. Business listings. Just one disc

PhoneDisc® USA Residential **Only $99**
75 million U.S. residential listings. Just two discs

Buy both and save **Only $159**

PhoneDisc® Reverse

Extend your search power! Same powerful search software as above plus telephone and address searching of residences too. 85 million businesses and residences. Just 5 discs **Only $499**

Buy just your geographic region **Only $129**

Winner: IIA Best CD-ROM. OPA Achievement in Business. Accurate listings from Database America.

Call To Order:
1-800-284-8353

Digital Directory Assistance
5161 River Rd Bld-6
Bethesda, MD 20816

Circle Reader Service Number 240

www.commodore.ca

Build A Lifetime Income From Your Home With A Computer!

Here's What You Receive

Quit spending money on your computer and let it earn money for you. This is a proven turnkey business an individual or couple can run. If you purchase our software and business program, we will give you the computer and printer. If you already own a computer, you may receive a discount. Begin part-time and still retain the security of your present position. We will provide free, home office training. Financing available.

Learn how other couples, and individuals like yourself, are building a lifetime income!

To receive free cassettes and color literature, call toll-free:

1-800-343-8014, ext. 303

(in Indiana: 317-758-4415) *Or Write:*

Computer Business Services, Inc., CBSI Plaza, Ste. 303, Sheridan, Indiana 46069

Use your laser printer to make

SIGNS AND RUBBER STAMPS

for your own use or a profitable sideline business

Self-Inking and traditional knob handle stamps can be made for less than $1. Retail prices will start in the $10+ range.

Informational signs, nameplates, control panels, name badges, and hundreds of other signage items can be made for pennies per square inch.

FANCY SIGN

JACKSON MARKING PRODUCTS CO., INC.
Brownsville Rd., D-200, Mt. Vernon, IL 62864
Phone: 800-851-4945 Fax: 618-242-7732

Circle Reader Service Number 231

LEARN COMPUTERS!

Home study. Learn the personal computer for a better career and an easier home life. Exciting, easy to follow. **Free booklet.**

CALL 800-223-4542

THE SCHOOL OF COMPUTER TRAINING

6065 Rosewell Road
Dept. KH6802, Atlanta, GA 30328

Circle Reader Service Number 112

MAJOR HOME BUSINESS OPPORTUNITY OFFERING

• Home • Office • Part Time • Full Time • Spare Time

The Hope Career Centers, Helping Others Pursue Education, is more than a scholarship search company. No other company offers a state-of-the-art unique business and career opportunity that provides education scholarships, financial assistance, career planning, information to college bound students, corporate reimbursement programs, displaced workers, undergraduates, veterans, disadvantaged citizens, and individuals wanting career change.

Interested buyers are offered a turn-key inspirational program for serving their community with unique benefits to include manuals, detailed marketing plans, guides, instructions, art-work, and free unlimited consultations for an easy-to-follow program that's not expensive.

"A career planning business that includes so many services," says the company's president, Manning Mann.

For over seven years the Hope Center has been admired for integrity and having a more acceptable and superior program. Guaranteed not to be mediocre.

$495.00 PERIOD!!!
MAKING IT BIG STAYING SMALL

FREE Information & Details CALL: **303-934-1018**

HOPE CAREER CENTER

HOPE

2735 South Newton Street, Denver, CO 80236

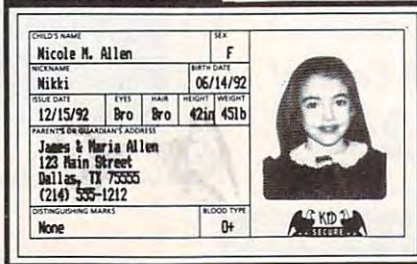
KID SECURE OF AMERICA

This extraordinary program provides a sense of "security" by providing a complete identification of a child should an emergency occur.

- A Business You Can Be Proud Of
- Full or Part Time
- Continued Dealer Support
- Turnkey Package - Computer, printer, software, ID system supplies and training just $6995.00

CALL TODAY for FREE INFORMATION

214-248-9100
3216 Commander Dr.
Suite 101 • Dept 27
Carrollton, TX 75006



Have FUN while learning with...

Legacy Software's

MUTANOID MATH CHALLENGE

Arithmetic practice
Over 200 word problems
Critical thinking skills

MUTANOID WORD CHALLENGE

Spelling/vocabulary practice
65,000 word on-disk dictionary
Critical thinking skills

MS-DOS or Macintosh
Ages 7 and up • $49.95 each
Call for FREE demo disk 1-800-532-7692

Circle Reader Service Number 147

www.commodore.ca

Make Money With Your Computer

Imagine owning a lifetime license for a patented product that will please adults, delight and educate children, and return high profits on a minimal investment. That's the surefire success formula that Best Personalized Books offers to distributors who are building strong, easy to run, highly profitable businesses.

With a small investment, you can build a highly profitable business at home. Create personalized children's books with your computer.

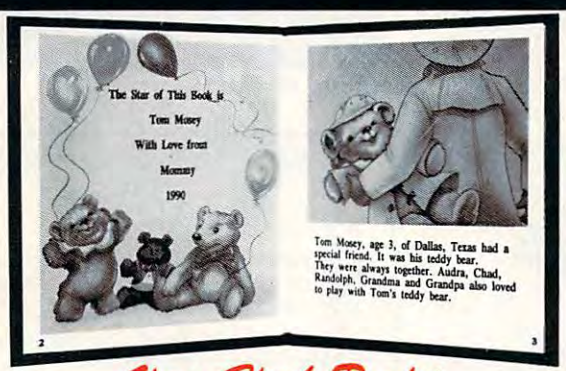
Charmingly illustrated by top artists, Best Personalized Books become instant favorites because the child is the star of each story and friends and relatives join in on every adventure. An extensive array of titles appeals to a wide range of ages and tastes, and includes well-written stories on religious and ethnic themes that reinforce family values. There's never a renewal fee, and new titles are available for just $5 per software update.

Because no computer experience is necessary, creating Best Personalized Books is a snap. A comprehensive training manual shows you how to personalize a book in just minutes. And with Best's strong marketing program, you'll find selling options are limitless. You can work at home, on location at malls, wholesale clubs, craft fairs, flea markets, or home parties, or in conjunction with local business or fundraising groups.

Strong dealer support is a Best priority, as is the commitment to helping you make even bigger profits with other popular personalized items including audio cassettes, party invitations, holiday letters, birth announcements, calendars, and stationery for teens and adults.

FOR A FREE KIT, CONTACT:
Best Personalized Books Inc.
475 Best Personalized Plaza
4350 Sigma Drive, Dallas, TX 75244
(214) 385-3800

PERSONALIZED CHILDREN'S BOOKS



Very High Profit

- With our process and a computer you can instantly produce the highest quality personalized children's books and stationery on the market today.
- All books are hardbound with full color illustrations and laser quality printing. Ideally suited for home based business, malls, department stores, fairs or mail order.
- Very simple to operate and highly profitable.
- Only a limited number of dealerships available.

For a complete information packet call today.

(214) 248-9100

D&K ENTERPRISES, INC. • 3216 COMMANDER DRIVE SUITE 101 • DEPT 27 • CARROLLTON, TEXAS 75006

Voice Mail Cash Machine

Press 1 for sales, 2 for service, 3 for live operator

Make thousands of dollars effortlessly by installing a *BigmOuth* voice package in your 286/386. Use it to answer your home-office phone, rent pocket-pagers, advertise products, or operate a pay-per-call service using major credit cards, passwords or a nationwide 900 #.

To get started, order our **$25 PC Opportunity Toolkit.** It contains all the information you need & its cost is applied to all future purchases.

A Few Home-Based Ventures Featured In Our $25 Toolkit!

- **BigmOuth** voice/fax/pager rentals $295. (Demo $25)
- **QuickLine** write programs in QBasic $1745. (Demo $25)
- **ClientCaller** outbound prospector $1450. (Demo $25)
- **KinderChek** latchkey child monitor $2250. (Demo $25)
- **Rise'n'Shine** wake-up & reminder service $1995. (Demo $25)
- **TollBridge** sell long distance time $1995. (Demo $25)

DemoSource℠
The Voice Application Superstore

TRY our demoline! 818 718-9560

8345 Reseda Bl, Ste 202
Northridge, CA 91324 USA

To order, call 24 hours:
800.283.4759

Trademarks belong to their publishers

Circle Reader Service Number 111

www.commodore.ca

SeXXy Software
SeXXy DISKS

SeXXcapades . . . The GAME
The First Adult Game with TRUE SOUND and 256 Color VGA Graphics

The game everyone has been waiting for. For that evening you won't forget with a loved one or group of very close friends. Fulfill your sexual desires. Find our how your partner would really like to make love. I Over 80 Color VGA Scenes • Real Voices Guide the Action • Foreplay Option • Play with 2-8 Close Friends

$79 – Special Offer: $69 with purchase of any CC disk. / VGA and hard disk required - shipped on high density disks.

CONNOISSEUR COLLECTION ALL NEW! In 256 Color VGA!!

SeXXy Disk #CC1 • ★ YOU BE THE STAR ★ The FIRST CUSTOMIZABLE movie allows you to write the dialog and the title. ONLY AVAILABLE FROM US!

SeXXy Disk #CC2 • THE FIRST SOUND MOVIE! The first computer movie with SOUND. See the incredible 256 color VGA graphics while hearing the actual dialog. OURS EXCLUSIVELY!

SeXXy Disk #CC3 • THE BEST MOVIE! The best computer movie available. Only for the serious collector. 256 stunning VGA colors.

SeXXy Disk #CC4 • VOLUPTUOUS MOVIE with Sound! See and hear a symphony of exceptionally proportioned women.

SeXXy Disk #CC5 • ODDITIES MOVIE with Sound! See men of incredible proportions and women with unique abilities - UNBELIEVABLE!

Prices: 1 Movie $29. 3 Movies $65. 5 Movies $94

NEW!! Exclusively imported from Europe!! 256 Color VGA Games

SG4 PORNTRIS - Adult version of the popular game. You reveal a hidden movie while controlling blocks falling down your screen. Multiple levels. MUST SEE!

SG5 PORNPIPE - Adult version of Pipe for Windows (Windows not required) - Multiple movies revealed as the game progresses. HOURS OF FUN!

SG6 MOZAIK - Adult jigsaw puzzles with over 45 celebrity pictures - you reassemble the most exciting women on earth

Price: $35 each or all 3 for $89

ORIGINAL SeXXy DISKS - 6 disk set with movies, pictures, games *$32*

ADD $3 S/H • 3.5" Or FOREIGN ORDERS ADD $2/DISK • IN PA ADD TAX • MUST STATE AGE OVER 21 YEARS.

VISA/MC Orders Only: 800-243-1515 Ext. 600FG / 24HRS / 7 DAYS

Or CK/MO to: SeXXy Software, P.O. Box 220, Dept. 600FG, Hatfield, PA 19440

SeXXy Software
SeXXy CD-ROMS

SeXXcapades . . . The MOVIE
First 600MB Movie for the PC

The most incredible NEW CD-ROM Product! The FIRST complete 600 MB MOVIE with SOUND for the IBM PC The movie features a group of friends playing our SeXXcapades game. The action is hot and incredible! You will see unbelievable uses of a mouse and joystick. This beautiful 256 color VGA movie fills 3/4 of the screen. You will need at least a 386SX computer. you can pause & Scan as on a VCR. OURS EXCLUSIVELY.

Price: $129 or $99 with any other CD-ROM purchase. SeXXcapades game **50% OFF** with movie purchase

SeXXy CD-ROMS

SeXXy CD #1 the premiere adult XXX collection – 680 MB of action with: 5268 VGA pictures, 87 movies, 674 stories, games DARE TO COMPARE!

SeXXy CD #2 an exclusive collection containing over 900 Super VGA pictures (1024 x 768 x 256) and over 400 VGA pictures (640 x 480 x 256) These are pictures that cannot be found anywhere else! The women and the quality are stunning

SeXXy CD #3 another collection of over 650 MB of the hottest pictures available. Over 5,000 VGA pictures, movies and utilities that will have you spending days just trying to see it all!

MENU DRIVEN VIEWING - NO DUPLICATION / PRICE: $99 each ($89 with any CC disk or SeXXcapades) / **SUPER CD BUNDLE** - TAKE ALL 3 XXX CD-ROMS FOR **$199**

MIX & MATCH CD-ROMS

First 3: $99 each or 3 for $199;
Then: $69 each or 3 for $149

ADULT TITLES
MY PRIVATE COLLECTION I & II
PC PIX I, II & III
EROTIC ENCOUNTERS
BUSTY BABES
ANIMATION FANTASIES I & II
STORM III • ECSTASY • ADULT PALETTE

COMMERCIAL TITLES
National Geographic Multimedia Mammals
Automap and Atlas
Phoenix Shareware – 4700+ programs - menu driven
Sherlock Holmes Consulting Detective
Magnum Sight and Sound - sounds, pictures, utilities
Chessmaster 3000 – chess with sound
So Much Screenware – 500 Mb of brilliant pictures, viewers
So Much Shareware – Over 1 GB of business graphics, games
Windows CD – 1500 files, fonts, icons etc.
Grollers Multimedia Encyclopedia - counts as 2 CD-ROMS

350ms Internal Drive Kit - $249 (with 3 CD purchase).

Circle Reader Service Number 116

Where Adults Come To Play!

ODYSSEY

- Local Numbers Covering 700 U.S. Cities!
- CB-Style Group and Private Chat!
- 1000's Of Shareware Programs!
- Business and Personal Services!
- Travel & Flight Scheduling with OAG!
- Giant Message Forums & Classifieds!
- Live Multiplayer Games!
- Matchmaker Dating Database!
- Designed For Adult Users!

For Signup, More Information, Or A Local Number Near You Call

818-358-6968

By Modem, 8/N/1-3/12/2400 Baud

Circle Reader Service Number 141

25,000 SHAREWARE PROGRAMS ON 4 CD-ROMs

$89 2 sets for $150

LATEST '93 EDITION -
30 DAY MONEY BACK GUARANTEE

More programs than ever before!!! **Windows** Applications... **Games**... **Programming Tools**... **DataBase** Accessories... **Educational** Aids... **DeskTop Publishing**... even **OS/2**... **Word Processors**... **Utilities** for Printers, Files, Keyboard, Screen, **Clipart, Spreadsheets**.. **Communications**... **Photographs**... **CAD**... **Music**... in short - programs for any application you can imagine!

Unique LISTER PROGRAM allows you to easily access **ANY PROGRAM, IN ANY CATEGORY**, in just seconds - load it onto your HD, and when you're finished, either keep it on the HD, or do the housekeeping to keep your HD uncluttered with programs you may use only infrequently.

OVER 4 GIGABYTES - 25,000 PROGRAMS - THE BEST SHAREWARE AND MOST VALUABLE DATA YOU'LL EVER FIND!! NO CLUBS to join... no monthly downloading fees... it's all there for you to try... to compare... to experiment with! ALL available within seconds!!! YOU CAN'T FIND A WIDER SELECTION - OR A LOWER COST PER PROGRAM ANYWHERE ELSE! LATEST '93 EDITION

ORDER YOURS TODAY RUSH $89 + $5 S/H, CASH, CHECK, MONEY ORDER! CODs OK!

DEALERS WANTED

CROSLEY SOFTWARE
BOX 276, ALBURG, VT 05440
Fax: (514) 345-8303 Tel: (514) 739-9328

Circle Reader Service Number 226

FREE
IBM & MAC SOFTWARE
CATALOG

32 Pages! ASP Member

SOFTSHOPPE, INC.
P.O. Box 247
ARTESIA, CA 90701
Tel: (310) 802-1333
FAX: (310) 802-1494

Toll-Free—24 Hrs.
1-800-851-8089

Circle Reader Service Number 126

CLOSEOUTS
For IBM/MS-DOS:

MICROPROSE $16.50 EACH
GUNSHIP, PUNISHER, SWORD OF THE SAMURAI, FLAMES OF FREEDOM, X-MEN 2, COVERT ACTION, AMAZING SPIDERMAN, TWILIGHT 2000, LIGHTSPEED

SIERRA DEALS $20 EACH
KING'S QUEST 1, HEART OF CHINA, RISE OF THE DRAGON, KINGS QUEST 4 OR LARRY 1.

SIERRA DEALS $15 EACH
MANHUNTER 1 OR 2, MIXED UP MOTHER GOOSE, FIREHAWK, HOYLES BOOK OF GAMES 2.

LAND, SEA & AIR BUNDLE!! ONLY $19.50
Includes: Pirates!, Airborne Ranger & Gunship. 5.25" only.

LEISURE SUIT LARRY BUNDLE ONLY $25
Includes: Larry 1, 2 & 3!!!

MARVEL TRILOGY ONLY $19.50
Includes: Dr. Doom's Revenge, Amazing Spiderman & X-Men.

CHEAP DEALS $5 EACH
Outrun, Space Harrier, Starquake, My Grand Piano, Ball Game, Calendars & Stationary, Tracker, Street Fighting Man, Crossbow, Magic Johnson Basketball, Gambler, Human Biology, Mind Dance -or- U.S. Geography.
BATTLECHESS 2 $19.50
WIZARDRY 5 $14.50

ADULTS ONLY FUN
Sex Vixens from Space $14.50
Sex Olympics $16.50

CREDIT CARD ORDERS $25 MINIMUM.
1-800-676-6616
Orders Only, please!!

COMPSULT
P.O. BOX 5160
SAN LUIS OBISPO, CA 93403

WE ALSO CARRY APPLE, MAC, C64/128, AMIGA, ATARI & MORE
To order, send check or money order to the above address. California orders must include 7.25% sales tax. All orders must include shipping charges of $5 for U.S.A., $8 for Canada, or $15 for International. For our complete catalog send $2 in U.S. postage stamps or cash. A catalog is sent FREE with any order. Be sure to specify your computer type & disk size when ordering. **For all inquiries & additional information, call (805) 544-6616.**

Circle Reader Service Number 150

FREE SOFTWARE

Choose from:

GAMES • KIDS
FONTS • CLIP ART
HOME & BUSINESS

Receive either 3/3.5" or 5/5.25" disks.
Pay a service charge of only $2.95 per collection. Credit card only.

Software of the Month Club®
SATISFACTION GUARANTEED SINCE 1985
619-931-8111 Ext 511

Circle Reader Service Number 121

THE MAGIC MIRROR . . . a toolbox for your mind. E. Kinnie, PhD., Clinical Psychologist. $39.95.

MAGIC MIRROR II . . . experiences for your mind. $39.95.

MERLIN . . . an apprenticeship. $29.95.

I CHING . . . ancient Chinese wisdom and prophecy. $29.95.

THE MAGIC MOUNTAIN . . . a journey into another reality. Not for children. Male and female versions. $39.95.

SCREEN SAVER . . . math art and fractals, lively and colorful. $19.95.

Blue Valley, 29 Shepard St., Walton, NY 13856

MasterCard/Visa 1-800-545-6172 (after 5 p.m.)

Call or write for free catalog.

Circle Reader Service Number 173

www.commodore.ca

We've Outdone Our Only Competition... Ourselves.

INTRODUCING THE MARK II WCS™

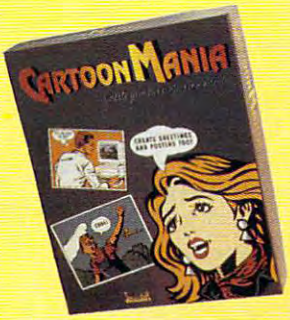
* Allows You to Program Both the WCS™ and Your Joystick

ThrustMaster®
Get Real

ThrustMaster® Inc. 10150 SW Nimbus Ave. Suite E-7 Tigard OR 97223 PHONE(503)639-3200 FAX(503)620-8094

Circle Reader Service Number 147

NEW! EXCITING!



CARTOON MANIA Gets Your Message Across

Creating posters, memos and flyers with cartoon graphics has never been easier. Cartoon Mania is an amazing new software that lets you create unique cartoons using hundreds of built-in clip arts. You start by choosing a background and then adding characters and objects to it. The clip arts of characters can change posture and facial expressions. They can jump, sit, run, cry, laugh and do dozens of other things. Change the size of characters and objects to create the proper perspective. Write the captions you want and then print it. Create posters, story books, birthday greetings, jokes and even memos. Order now and enjoy the benefits of Cartoon Mania immediately.

List Price $49.95
Introductory Price $34.95
Buy now and save $15.00
FL resident add 6% Sales tax
Add $3.50 for shipping & handling

Save $15

Call (904) 483-2934 or send check/money order to:

JemmaSoft 12505 Pine Glen Drive, Leesburg, FL. 34788

30 DAY MONEY BACK GUARANTEE

Circle Reader Service Number 140

STARWARE CD-ROM

Purchaser must state age over 21

So you're interested in Adult CD-ROMs - but with so many to choose from, how do you know which CDs are right for you?

Now, the Starware Adult Bundles make ordering easy. Each Bundle has been carefully selected to include only the BEST Adult CD-ROMs. So just pick the Bundle that best fits your computer expertise and interest.

To get you viewing pictures in a hurry, we have included our "Quick Start Instructions" with each Bundle. You are guaranteed the best CD-ROMs at an UNBEATABLE PRICE!

Bundle #1 ..... *"For Beginners"* ..... *$160 value* ..... *ONLY $118*
Instantly add thousands of GIF files and hundreds of movies to your computer erotica collection. Novice computer users will truly enjoy this hassle-free 2-disc set. These discs will work with any VGA computer and will always have an easy-to-use menu. **Includes Private Pictures and So Much Stareware.*

Bundle #2 ..... *"Super VGA Users"* ..... *$300 value* ..... *ONLY $198*
Super VGA users will be delighted with this special 3-disc set. This bundle is the largest adult collection of 1024x768 and 800x600 256 color GIF images. Computers equipped with 1 MB Super VGA adapters are highly recommended. **Includes Volcano, Smutware and PCPIX 2.*

Bundle #3 .... *"Lights, Camera, Action"* ..... *$300 value* ..... *ONLY $198*
Movie buffs will love these 3 CD-ROMs featuring the latest and greatest adult movies for your PC. Each disc has hundreds of the best multimedia, computer animation and video clip creations for mature computer users. 386- or 486-based computer is recommended. **Includes Ecstasy, Storm 3 and Animation Fantasies 2.*

Bundle #4 ..... *"Not for Cable TV"* ..... *$300 value* ..... *ONLY $198*
Depending on your taste in adult material, this is either the worst or the best collection of 3 adult CD-ROMs. If you are timid or only curious about adult material, *DO NOT* get this bundle. A "diverse" group of subject matter is explored on these discs. This bundle contains the most explicit GIF files and movies you'll find on CD-ROM. **Includes GBL (Gay, Bi, Lesbian), Busty Babes and Erotic Encounters.*

As our thanks for purchasing bundles 2, 3 or 4, we invite you to select either additional bundle for only $148.00

**Contents of Bundles are subject to change*

Always the Latest Titles

24 Hr. Hotline 800 354-5353

Voice 305 426-4552 FAX 305 426-9801 BBS 305 428-0012

Send Check/Money Order:
Starware Publishing Corp.
PO Box 4188, Dept. 68
Deerfield Beach, FL 33442

$4.50 Shipping & Handling
$7.00 2-day
$15.00 Next day
$22.00 Foreign Express

Florida residents add 6% sales tax

Circle Reader Service Number 130

www.commodore.ca

BEAT THE LOTTERY

Gail Howard's *ALL NEW* Smart Luck®
ADVANTAGE PLUS™

Use ADVANTAGE PLUS™ & you'll trash all your other lottery software. It's the most complete, fastest & easiest to use —in a class by itself. Nothing can begin to compare!

- **NO OTHER SOFTWARE HAS *MORE* SCIENTIFIC TOOLS FOR PICKING WINNERS** (for all 5, 6 & 7-number Lottos).
- Smart Picks™ feature selects best Lotto numbers from each chart instantly, automatically!
- **A MAJOR BREAKTHROUGH!** You can test past accuracy of SMART PICKed numbers with one key stroke!
- Includes ALL Data for ALL 49 state Lotto Games **FREE.**
- The ONLY Software with Documented Jackpot Winners. **36 Lotto Jackpot Winners Won $78.4 Million dollars with Gail Howard's Systems!**
- A $295.00 Value. Your introductory price for a limited time only: $79.95 + $3.00 S/H. IBM/Comp.

SMART LUCK® SOFTWARE
Dept. C-11, P.O. Box 1519 • White Plains, NY 10602
800-876-GAIL (4245) or **914-761-2333**

Circle Reader Service Number 109

REMOVE HARDWARE LOCKS

PROTECT YOUR INVESTMENT!
MAINTAIN PRODUCTIVITY!
Software utility that allows for the removal of hardware locks.

Available for most major CAD/CAM and PCB software programs

Easy - Simple - Guaranteed

Programs start at $99.00 U.S.
Visa and Mastercard Welcome
Call or Fax for more Information

SafeSoft Systems Inc. PH (204)669-4639
201 - 1111 Munroe Ave. FAX(204)668-3566
Winnipeg, Mb. Canada R2K 3Z5

Circle Reader Service Number 212

Magic Tricks on your PC!!!

The only program in the world that can perform Magic!!!

For the first time ever, your PC will amaze your friends with 5 stunning tricks: mind-reading, ESP, predictions, X-ray vision, and more. Easy to learn. Comes with instruction manual and props.

$22 + 3 s/h

Send check or money order to:
MicroMagic Productions
175 5th Avenue Suite 2625
New York, NY 10010
(212) 969-0220

Requires IBM PC or compatible with VGA, EGA or CGA. Also: 10-trick Professional version ($48 + 5 s/h) and 1-trick Demo disk ($3 + $3 s/h).

Circle Reader Service Number 200

LIQUIDATIONS CLOSEOUTS & BARGAINS

If you think you can't afford quality commercial software ... think again! Although we carry the top 100 software hits and a full line of accessories for your IBM compatible, we specialize in closeouts, liquidations and CD ROM software at rock bottom prices! Let us do the bargain hunting for you! Find out why thousands of computer users choose us as their one stop software supplier.
We publish one of the best catalogs in the industry. Call or write for your free copy!

For Example:

CD ROM Titles	Call
Dark Century	$10
Full Metal Planet	$12
Hockey L Sim	$12
Moneymate	$12
Dr Doom Rev.	$8
Elite Plus	$14
Leisure Larry 3.	$15
My Checkbook	$9
Skaterock	$5
Pete Rose	$11
Steel Thunder	$14
Thunder Strike	$10
Penthouse Jigsaw	$9
Spellcasting 101	$10
Will Builder	$15

SOFTWARE SUPPORT
Software Support International
2700 N.E. Andresen Rd.
Suite #A-10
Vancouver Wa 98661
(206) 695-1393

CALL TOLL FREE TODAY! **1-800-356-1179**
Major Credit Cards Accepted.
Above examples don't include S/H charges. Call or write for details.

Circle Reader Service Number 210

FREE CATALOGUE !

over 3100 Shareware Programs

CHECK OUT OUR
278 pg. CATALOGUE on DISK
over 3100 programs
in 83 categories!

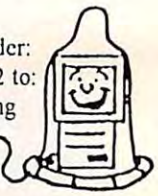
GET ACQUAINTED OFFER!
Virus Checker Software,
Catalogue of 2000+
additional Programs, PLUS
our 10 BEST SELLERS!
Offer #3 **$5.00 PPD**

SHAREWARE CENTRAL
P.O. Box 897, Wheatley, Ontario N0P 2P0
(Canada) **1-800-563-6647**
Fax (519) 825-3780 • Inquiries (519) 825-7480

Circle Reader Service Number 171

ARE YOU PRACTICING "*SAFE*" COMPUTING?

Protect your computer from viruses with the original *Computer Condom*. One size fits all monitors. Protect the one you love. A Must For Every Office! *Novelty Item Only.*



Send Cheque/Money Order:
$5.99 for 1 or $9.99 for 2 to:
Incl. Shipping & Handling

SAFE COMPUTERS
#8 - 1480 Gulf Road
Pt. Roberts, WA 98281 / U.S.A
SATISFACTION GUARANTEED!

IBM PC, PCjr XT, AT, & Tandy Users

Not everyone needs the fastest computer money can buy. Run Lotus 1-2-3, WordPerfect, dBase, and most other software without buying a new computer! We specialize in hardware products that allow older computers to run the latest software.

Call for information and free catalog!

You don't have to buy a new Computer to run the Latest Software!

(800) 922-7257

PC ENTERPRISES
2400 Belmar Blvd.
PO Box 292
Belmar, NJ 07719
Computer Upgrade Specialists Since 1984

Circle Reader Service Number 250

Save BIG $$ in printing costs

Re-ink your ribbon cartridges for less than 5¢ with the famous **MacInker™**
Over 215,000 sold

Beautiful printing and longer printhead life.
Average cartridge can be re-inked 60-100 times.
Universal cartridge model $79.45
Epson MacInker 48.00

Jet-Master **WATERPROOF INKS**
Recharge your ink-jet and bubble-jet cartridges (single & multicolor) with our re-usable
Jet-Master Kits ..... from **29.95**

ComputerFriends, Inc.
14250 NW Science Park Drive - Portland, OR 97229
Call **1-800-547-3303** Fax (503) 643-5379

Circle Reader Service Number 254

Stereo / 4-Op Support
Memory-Resident Pop-up Tool
ROL, CMF, MIDI File Formats
Program I/F Too
Instrument Editor

The Premier Music Playback Tool
Every sound board user needs Whistle.
Play music all day while you work.
Use your sound board. You paid for it.
No music experience required.

Patch Panel Software
11590 Seminole Blvd.
Largo, FL 34648
VISA 813-397-3530 MC

Circle Reader Service Number 186

www.commodore.ca

CALIFORNIA ADULT SOFTWARE

EROTIC COMPUTER GRAPHICS FOR YOUR IBM/COMPATIBLE PC

ADULT CD ROM TITLES : $99 EACH, 3 FOR $250
BUSTY BABES : 675 MB OF HEALTHY BREASTS !
GIFFY GOLD 1,000+ CALIFORNIA GIRL GIFS
EROTIC ENCOUNTERS 710 MB: LARGEST ADULT CD
ALTERNATIVE LIFESTYLES GAY,BI,LESBIAN, MORE.
ANIMATION FANTASIES 100'S OF MOVIE SHORTS
ASIAN LADIES BEAUTIFUL ORIENTAL WOMEN
ECTASY HOT PICS MOVIES, GIFS, STORIES.
PORKWARE !!! OVER 3,000 XXX GIFS !!!!
ALL CD'S MENU DRIVEN, VGA/SVGA, X, XXX RATED

FLOPPY DISKS :
SVGA/ VGA "GIF PHOTOGRAPHIC IMAGES ;
$25 PER TEN DISK SET ;
SET 1 ; BOMBSHELL BLONDES
SET 2 ; BEAUTIFUL BRUNETTES
SET 3 ; ORIENTAL GIRLS
SET 4 ; * COUPLES *
SET 5 ; * GIRLS ONLY *
SET 6 ; EXXXPLICIT ACTION
DOZENS OF FLOPPY TITLES: SEND $20 FOR 6 DISK SAMPLER

OTHER CD'S ALSO AVAILABLE, INCLUDING NON-ADULT. DEALER INQUIRIES WELCOME.

ALSO AVAILABLE ;
250 EROTIC ADULT STORIES ON DISKETTE. READ FROM YOUR MONITOR, OR PRINT AS DESIRED. AN EXTREME VALUE ; ONLY $40 !!!

CASH, CHECK, OR MONEY ORDER TO ;
CAL AD SOFTWARE
P.O. BOX 50204
LONG BEACH CA.
90815

Circle Reader Service Number 304

FREE
1st Year Update

NOW! A Directory Containing Thousands of Numbers for your Computer Modem

Our Dialing Directory Has Thousands Of BBS Numbers Ready For Your Communication Software

Employment BBS's - Government - Religious
Health - Legal - Technical - Information Sources
Shareware - Games - 800 Number BBS's
And MUCH MORE!

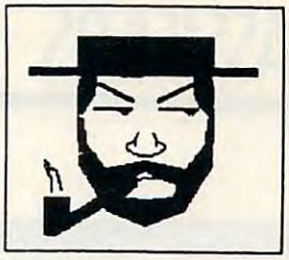
Many With NO Online Charges.
Don't Waste Your Time Calling Numbers From A List That May Not Work.

CALL TODAY
1-800-453-7392

ONLY $39.95
VISA / MASTERCARD / C.O.D.
Please Specify Disk Size
Available for a Variety of of Communication Software
Send Check or Money Order to:
Amazing Sources
4113 N. 7th Avenue
Phoenix, AZ 85013

Adult Oriented for an Additional $19.95

Circle Reader Service Number 142



The Amish Outlaw

Shareware Company
3705 Richmond Ave. SI NY 10312
Tel:(718)317-0198 Fax:(718)966-4766

10 Most Wanted

1. **Solar Winds** -a unique combination of fast paced arcade action and an outer-space role playing game, with 256 color VGA animated graphics. (JOYSTICK) (VGA) SB= (Sound Blaster)

2. **Major Stryker** - an excellent shoot'em up game from Apogee, Major Stryker's mission is to destroy the evil aliens and return home to the beautiful Yoshira. (VGA) (joystick optional) (SB)

3. **Zone 66** - an ultra high tech 32-bit arcade game for 386 &486 PC's. You pilot your fighter jet through a 360 degree scrolling combat zone that's jam packed with enemies & terrain. (VGA) (SB) (Joystick) (HD) (2 Meg RAM)

4. **Overkill** - an excellent shoot'em up game in which you destroy planet after planet gaining power as you progress through the game. (VGA)(JOYSTICK)

5. **Jill of the Jungle** - guide jill through 16 stunning 256 color graphic levels of fun and adventure. (CGA-VGA) (SB) (JOYSTICK)

6. **Wolfenstien 3D** - The standard by which all 3D games are judged. Voted game of the year in '92 by compute magazine.(VGA)(SB)

7. **Ancients** - graphic intensive D&D style game. Guide your band of warriors through a fantastic medieval world of danger and adventure. (VGA) (mouse required)

8. **Red Hooks Revenge** - Shiver me timbers, This game tests your knowledge of pirates and the Caribbean as you sail and fight your way through the Caribbean on your very own pirate ship as you race against 2 other pirates. (1- 3 players)(EGA-VGA) (SB) (MOUSE)

9. **Megatron** - enter the labyrinth combat zone and hunt down the adversary. (2 can play by modem) (VGA)(HD)(MOUSE)(2 disks)

10. **Catacombs of the Abyss** - Your a powerful wizard trying to destroy the Ultimate evil sorcerer. Battle mages skeleton warriors and zombies as you explore the catacombs. (EGA-VGA) (SB) (HD) (588k fee RAM)

$3.00 per disk for 1-9 disks, $2.50 per disk for 10 or more disks. 3.5" & 5.25" same price.
Add $3.00 for Shipping & handling

Call for FREE catalog
1-800-947-4346

Circle Reader Service Number 268

OMNI
TIME CAPSULES

Now the magazine of the future can be kept for the future. Store your issues of OMNI in a new Custom Bound Library Case made of black simulated leather. It's built to last, and it will keep 12 issues in mint condition indefinitely. The spine is embossed with the gold OMNI logo, and in each case there is a gold transfer for recording the date.

Send your check or money order ($8.95 each; 3 for $24.95; 6 for $45.95) postpaid USA orders only. Foreign orders add $1.50 additional for postage and handling per case.

To: OMNI MAGAZINE
Jesse Jones Industries, 499 E. Erie Ave.
Phila., PA 19134

CREDIT CARD HOLDERS (orders over $15)
CALL TOLL FREE 1-800-825-6690
Or mail your order, clearly showing your account number and signature.
Pa. residents add 7% sales tax.
SATISFACTION GUARANTEED

FREE!

Download the HOTTEST & SEXIEST Images from our ADULT On-Line Magazine - FREE!

LACE is an Adult On-Line Magazine that offers you:

- **ORIGINAL** Adult GIF Images not available on any other BBS!
- **GORGEOUS,** Sexy & Exotic Models both Amateur and Professional !
- **QUALITY** Adult GIF Images and VGA Movies produced by professionals !
- **HIGH SPEED** access available on ALL lines (14.4k down to 1200 baud).

Set your Modem to 8-N-1 and your terminal to ANSI Graphics and dial:

(818) 709 - 4275

Questions? Call our voice line at (818) 709-3795.

LACE

the on-line adult magazine

Must be 18 Years of Age or Older • Limited Offer

I'm Christy, the Systems Administrator and part time Glamour Model on LACE. Come & see my images & visit with me On-Line.

Circle Reader Service Number 178

www.commodore.ca

CLASSIFIEDS

ACCESSORIES

USED COMPUTERS

IBM, COMPAQ, & MAJOR BRANDS

Also IBM PCjr & CONVERTIBLE ACCESSORIES & SERVICE
- MEMORY EXPANSIONS
- DISK DRIVES - MONITORS
- KEYBOARDS - PARTS
- SOFTWARE

MANY MORE SPECIALTY ITEMS

FREE CATALOG

214 - 276 - 8072

COMPUTER RESET

PO. Box 461782
Dept C
Garland, TX 75046-1782
FAX & BBS 214 - 272 - 7920

Circle Reader Service Number 370

BOOKS/PUBLICATIONS

ECO-friendly Disk Magazine for PC. Interesting articles, humor, pictures, opinions. Easy to use. Requires VGA, DOS, ANSI, hard drive. Specify disk size. $3; E-Mag, PO Box 236, Snellville, Ga 30278

BUSINESS OPPORTUNITIES

EARN $1614 A DAY WITH YOUR OWN BBS.
The Premiere BBS Profits Video
reveals how - $99.95. To order call 800-453-8308. For FREE information call 602-893-3988 or write to: BBS Profits, 5037 E. Keresan, Phoenix, AZ 85044

WE'LL PAY YOU TO TYPE NAMES AND ADDRESSES FROM HOME. $500.00 PER 1000. Call 1-900-896-1666 ($1.49 min/18yrs.+) or Write: PASSE - XC793, 161 S. Lincolnway, N. Aurora, IL 60542.

HOME TRAVEL AGENCY

Find out about this proven concept that allows you to:
- Operate a Travel Agency from your home or existing business
- Join the exciting world of free and discount travel
- Secure financial freedom

• CALL FOR FREE INFORMATION
1-813-254-3699, ext. 74
HOME TRAVEL ASSOCIATES

Circle Reader Service Number 367

CABLE TV

WHY RENT WHEN YOU CAN OWN
Converters and Descramlers, Oak, Jerrold SA, Pioneer, All Brands, Toll Free 1-800-826-7623. 30 day Trial period.

CABLE TV

CABLE TV DESCRAMBLERS
1-800-233-9388
FREE CATALOG
GUARANTEED BEST PRICES · IMMEDIATE SHIPPING
APPLE ELECTRONICS
3389 Sheridan St. • Suite 257
Hollywood, FL 33021

Circle Reader Service Number 358

PRIME TIME
CABLE COMPANY
CABLE TV DESCRAMBLERS
Converters, Accessories • Lowest Prices
Call For FREE Catalog: **(800) 777-7731**

Circle Reader Service Number 359

FREE CATALOG! 1-800-345-8927
JERROLD HAMLIN OAK ETC.
CABLE TV DESCRAMBLERS
- Special Dealer Prices! • Compare Our Low Retail Prices!
- Orders From Stock Shipped Immediately!
- Guaranteed Warranties & Prices! • All Major Credit Cards

PACIFIC CABLE CO., INC.
7325½ Reseda, Dept 1111 Reseda, CA 91335
For catalog, orders & information 1-800-345-8927

Circle Reader Service Number 368

CABLE TV DESCRAMBLERS
Converters & Accessories
STOP RENTING!!
SAVE MONEY! OWN YOUR EQUIPMENT
All Major Brand Names • Lowest Prices!!
FREE 30 Day Trial • FREE CATALOG
Add-On Cable Co. 1-800-334-8475

Circle Reader Service Number 369

CABLE TV CONVERTERS
Why Pay A High Monthly Fee?
Save $100's A Year
- All Jerrold, Oak, Hamlin, Zenith, Scientific Atlanta, and more.
- 30 Day Money Back Guarantee
- Shipment within 24 hours
- Visa/MC and C.O.D.

No Illinois Orders Accepted

Purchaser agrees to comply with all state and federal laws regarding private ownership of cable TV equipment. Consult local cable operator.

L&L ELECTRONIC ENGINEERING
1430 Miner Street, Suite 522
Des Plaines, IL 60016
Free Catalog 1-800-542-9425
Information 1-708-540-1106

Circle Reader Service Number 366

POSITION WANTED

HOME TYPISTS,
PC users needed.
$35,000 potential. Details.
Call (1) 805 962-8000 Ext. B-30033

CABLE TV

FREE CATALOG
• CABLE T.V. BOXES - ALL TYPES •
• LOW PRICES • DEALER PRICES •
ACE PRODUCTS
1-800-234-0726

Circle Reader Service Number 360

COMPUTER KITS

PC-BUILD COMPUTER KITS, THE RECOGNIZED LEADER in build-it-yourself PC's. Rec'd by PC-Upgrade and Pop. Science. Used in schools and training programs nationwide. Free catalog 1-800-798-6363

COMPUTER REPAIR

AUTHORIZED COMPUTER REPAIRS: C64/128, 1541/1571, SX64, 128D & Amiga. Selling DTK-comp computers. Quick service-30 day warranty
MOM & POP's Computer Shop. 114 N. 16th, Bethany, MO 64424 (816) 425-4400

EDUCATION

B.S. & M.S.
In Computer Sciences
- In-depth degree programs with **all courses home study.**
- BS courses include MS/DOS, BASIC, PASCAL, C, Data File Processing, Data Structures & Operating systems.
- MS courses include Software Engineering, Artificial Intelligence and much more.

AMERICAN INSTITUTE COMPUTER SCIENCES

For free information call **1-800-767-2427**
2101-CC Magnolia Ave. S. • Suite 200 • Birmingham, AL 35205

Circle Reader Service Number 362

How To Get A High-Paying Job In
COMPUTER PROGRAMMING

Become more competitive in the job market with EDUCATION

Specialized Associate degree and diploma programs in computer programming, computer applications, systems analysis, and the RPG III, BASIC, COBOL, and C languages by

DISTANCE EDUCATION

Call or write for college catalog and booklet "How to Get a High-Paying Job in Computer Programming."

1-800-765-7247

C0793

PEOPLES COLLEGE OF INDEPENDENT STUDIES
233 Academy Drive • P.O. Box 421768
Kissimmee, FL 34742-1768
Member, D.L. Peoples Group • Accredited Member, NHSC

Circle Reader Service Number 361

www.commodore.ca

CLASSIFIEDS

MISCELLANEOUS

PUT YOUR FAVORITE PHOTOS ON YOUR COMPUTER
Will convert to BMP 16,256 or 24 bit color format for wallpaper or your favorite screen saver. Send photo and $9.95 check/mo payable to P.C. PICS, P.O. Box 518, New Lenox, IL 60451 NO PORNOGRAPHY!

SKELETON KEY

FITS MOST LOCKS
(boltlocks, doorlocks, & some padlocks)
Amaze Your Friends
With A Lock Picking Demonstration.
You get 3 sized tension keys, the slide pick & precise instructions. Note: this device is to be used for demonstration purposes only! **Satisfaction Guaranteed or Full Refund**; 2 Weeks Delivery. To get this exciting device, Send NOW only $9.95 + 2 S&H to:
Safe Marketing * 90 W. Montgomery Av No.366E * Rockville Md 20850

SOFTWARE

BUY/SELL USED SOFTWARE! LOWEST PRICES! FREE LIST. Specify 64/128, Amiga or IBM. Centsible Software, PO Box 930, St. Joseph, MI 49085. Phone: 616-428-9096 BBS: 616-429-7211

IBM - COMMODORE 64 & 128 - AMIGA. 1000's of PD/Shareware programs on 100's of disks. Free listing or $1 for large descriptive catalog (specify computer). DISKS O'PLENTY INC., 8362 Pines Blvd., Suite 270B, Pembroke Pines, FL 33024

USED SOFTWARE—FREE BROCHURE. Specify Amiga or C64/128. We also buy used software. Send list. Bare Bones Software, 940 4th Ave., #222, Huntington, WV 25701 or 1-800-638-1123.

Sports Scheduler

THE BEST MOST COMPLETE LEAGUE PLAY SCHEDULING SOFTWARE ON THE MARKET.

- Schedule any number of leagues, categories or divisions with 4 to 22 teams in each.
- The date, day, time, location, game number, & opponents are calculated for every game.
- Built in SCHEDULE EDITOR allows you to change the date/time/location/opponents of selected games. Add notes, search & replace, insert extra games, etc.
- Equal distribution of; opponents, time slots, byes (for odd number of teams) and home & visitor status.
- Games listed in chronological order by date & time - arranged in sets and round robins.
- Print both full division (all teams/games) and/or individual team schedules.
- Minutes to create/print/save a schedule.

IBM PC & Comp. $129.95 + $5.00 Shipping
Specify disk size - 3.5 or 5.25
SPORTS SOFTWARE ASSOCIATES
P.O. BOX 458, HINGHAM, MA 02043
(617) 749-7880

Circle Reader Service Number 363

Closing date for August classifieds is May 15.

Call/Fax your ad (516) 757-9562

This publication is available in microform from UMI.

U·M·I

800-521-0600 toll-free
313-761-4700 collect from Alaska and Michigan
800-343-5299 toll-free from Canada

SOFTWARE

The *ONLY* Lottery Systems With PROVEN JACKPOT WINNERS are those in Gail Howard's SMART LUCK® SOFTWARE Call Toll-Free 1-800-876-G-A-I-L. (See Her Ad in Product Mart.)

Circle Reader Service Number 353

UNIQUE SOFTWARE!
Outstanding IBM software selected specially for Home and Office use.
• 1000's of programs • ASP Member •
• Lowest Prices Anywhere! •
• Money-Back Guarantee! •
• FREE DETAILED CATALOG •
THE PC ARCADE
14 Moreland Ave. Oakville CT 06779

Circle Reader Service Number 355

ADULT-ORIENTED SOFTWARE
For IBM VGA, Color Mac, and Amiga.
Check out our huge collection of X-citing Adults Only Software.
Free lists (You must be over 18).
CLEARLIGHT SOFTWARE, Dept. CO
P.O. Box 1411, Milwaukee, WI 53201
(414) 962-2616

Circle Reader Service Number 357

****** VERA-BET™ ******
WORLD KNOWN LOTTERY SOFTWARE-PICK 5-7 & KENO. POWERFUL SEARCHES, SOPHISTICATED ANALYSIS, HITS, MISSES, LAST HIT, HOT NUMBERS & MUCH MORE! **NOW $99.95.** DAILY 3/4™-PICK 3 & 4. GAMES ALSO AVAILABLE WITH SAME FEATURES. **NOW $59.95.** REQUIRES IBM OR COMP. MFM SOFTWARE. DEPT. C, 9 MOUNTAIN RD. DANBURY, CT 05810, 203-792-3109.
****** VISA/MC ACCEPTED ******

Circle Reader Service Number 365

FREE SOFTWARE! Free World-Wide Electronic Mail
Erotic images, personals, more! Largest computer network in the world. No Fees! Local Access. Send Today! Guidebook $5.95 - Papin, P.O. Box 32115-C1, San Jose, CA 95152-2115 408-920-1690 Recording

FREE UNIQUE IBM SHAREWARE CATALOG!
Most popular programs–low as 99¢ per disk
Bright Futures Inc.
203-745-5322

IBM SHAREWARE. $2.75 PER DISK
No Minimum–Buy 8, Get 2 Free. ASP Member
Call today for your FREE Catalog!
Computer Creations, Inc. 1-800-765-6304

FREE! IBM PD & SHAREWARE DISK CATALOG
Low prices since 1988! ASP Approved Vendor. Finto Software, Dept. M. Rt. 2, Box 44, Rosebud, TX 76570 or Voice/FAX (817)583-2151. VISA/MC accepted.

64 & 128 - AMIGA - IBM. BUY/SELL SOFTWARE PLUS. P/D SOFTWARE FREE LISTING. SEND $2 FOR PD SAMPLE. DISK - GOING ON 10 YEARS. MID CONTINENT COMPUTERS, 2332 N. MACARTHUR, OKC, OK 73127 (405)946-2888

SOFTWARE

HAVE YOU WON THE LOTTERY? DO YOU OWN LOTTO PICKER™ WELL, WHAT DID YOU EXPECT!

LOTTO PICKER is your ticket to the riches! **LOTTO PICKER** works by discovering the hidden biases in every lottery game worldwide. Using this info to your advantage Lotto Picker will tell you exactly which numbers to play - no guess- work involved. Your Lotto Picker card will be loaded with combinations and number patterns most likely to be selected! Plays all Pick 3,4,6,7,10,11. Also plays games based on playing cards (MS-DOS only). FREE telephone support with each purchase. For MS-DOS, Apple II, and C64/128.
NEW LOW PRICE $29.95 (+$4.55 s/h). NY add tax.
SATISFACTION GUARANTEED OR YOUR MONEY BACK!
ORDER TODAY! 1-800-484-1062 s-code 0644 or 1-718-317-1961
GE RIDGE SERVICES, INC.,
848 Rensselaer Ave., Dept. CP
Staten Island, NY 10309

Circle Reader Service Number 354

IBM SHAREWARE
Free catalog or $2 for sample & catalog (refundable). Specify computer. CALOKE IND (B), Box 18477, Raytown, MO 64133

Circle Reader Service Number 350

BEST VALUE - IBM-APPLE SHAREWARE & PD
CHOOSE FROM OVER 1000 DISKS.
FREE CATALOG OR $2.00
FOR CATALOG/DEMO (SPECIFY COMPUTER)
MC/VIS ACCEPTED. NEXT DAY SHIPPING AVAILABLE
CHRISTELLA ENTERPRISE, P.O. BOX 82205
ROCHESTER, MI 48308-2205

Circle Reader Service Number 351

LATEST VIRUS DETECTION & ERADICATION PROGRAMS. Send only $3.00 S&H for all 9 programs PLUS disk based catalog describing thousands of IBM shareware programs. Please state disk size.
AMERICAN SOFTWARE, P.O. BOX 509, SUITE M22, ROSEVILLE, MI 48066-0509

Circle Reader Service Number 356

EDUCATION

LEARN COMPUTERS!
Home study. Become a personal computer expert at home and in business. **Free career literature.**
800-223-4542

Name_____
Address_____
City_____ State___ Zip_____

THE SCHOOL OF COMPUTER TRAINING
2245 Perimeter Park
Dept. KH680, Atlanta, Georgia 30341

Circle Reader Service Number 364

www.commodore.ca

NEWS BITS

Jill Champion

Bringing ethics to Justice, sending mice into space, packaging TSN for the masses, winning big money with software, and more

The Right Stuff

Product design gave Microsoft's BallPoint mouse the edge when it was chosen for NASA's shuttle mission last April. The BallPoint mouse was launched with the *Discovery* crew, attached to the Payload and General Support Computer that ran the shuttle's primary scientific project, the Atmospheric Laboratory for Science and Applications (ATLAS 2).

Historically, NASA has encountered problems working with computer mice in space, as zero gravity tends to send the user floating in the opposite direction of the mouse.

Microsoft's BallPoint mouse design, particularly its breakaway mounting, made it acceptable to the crew and safe for other equipment. "However," said Patrick O. Wilson, project engineer at Johnson Space Center, "the main advantage was that we didn't need to modify the mouse to keep the trackball from floating in zero-g."

Score Your Own Video

Binary Zoo, a Brøderbund affiliate, is sponsoring a Rock and Bach Studio Best Video Contest, in which contestants create their own music videos using Binary Zoo's new Rock and Bach Studio software program. Entries must be submitted on PC disks, and all entries must be created using Rock and Bach Studio tools.

The Best Video Production winner will receive $100 in Brøderbund software, the Best Music winner will receive $200 in software, and the Best Overall Video winner will receive $300 in products. Each winner will also receive his or her choice of a Binary Zoo product.

The deadline for entries is September 30, 1993. If you would like to have further information about the contest, contact Binary Zoo, P.O. Box 3210, Champlain, New York 12919; (514) 846-4059.

Game Modem

Best Data Products and The Sierra Network (TSN) recently announced a new bundled product, Game Modem, that includes TSN's multiplayer game software and Best Data Products' internal 2400-bps modem.

"Our goal is to work with TSN to position the modem as a standard game-playing peripheral, just like a joystick or sound card," says Tony Esfandiari, Best Data Products' executive vice president of strategic alliance. "At less than $50 for the modem and more than seven megabytes of game software in the package, Game Modem is already competitive with other products on the computer game shelf priced $10 to $15 more." Plus, the TSN Membership Kit that's included gives members three free hours of evening or weekend access to the entire interactive network and a $30 credit toward TSN membership and usage.

The Sierra Network is already low-priced at its flat-rate fee of $12.95 per month.

Look for Game Modem in the games software section of your favorite retailer.

Inoculate Your PC

Avoid viral infection for less. Virex for the PC, the popular antivirus software, is now available in a newly released version and at a newly suggested retail price that's been cut in half. Version 2.7 will retail for around $49.95; previous versions sold for $99.95.

"The price reduction reflects Datawatch's commitment to be the industry leader in antiviral solutions," says Andrew W. Mathews, general manager of Datawatch's Triangle Software Division, (3700-B Lyckan Parkway, Durham, North Carolina 27707; 919-490-1277, 919-490-6672 fax). Along with the price slash, Datawatch also offers *free* upgrades via BBS.

Display Your Best

Dust off that screen saver you've been working on. Berkeley Systems announced its After Dark Display Contest for 1993. This year's contest includes categories for both Windows and Macintosh environments and a category for computer artists.

A $10,000 grand prize will be awarded for Best Entry Overall. Other prizes include a Fujitsu 2.0 GB M2652SA hard drive, a Compaq Contura 3/25c Model 84 PC, and an Epson ES800C color scanner with interface kit.

Winning displays may be included in future releases of After Dark products, and all winners will receive an engraved Flying Toaster trophy.

The deadline for submissions is midnight, July 15, 1993. To obtain entry forms, contact Berkeley Systems at (510) 540-5535, (510) 540-5115 (fax).

You Can't Cheat on This One

Legend Entertainment, known for its sci-fi and adventure games, has a contract to develop an interactive ethics-training program for Justice Department employees.

In the game, Justice Department employees will learn to do well by doing good. They will choose career goals and then make choices that will bring them "career, happiness, and ethics points—or land them in trouble," according to Legend's president, Bob Bates.

The worst that can happen to employees who mess up? Jail time or (most reformative of all) having their unethical behavior exposed on TV. ❐

www.commodore.ca

ACCESS THE SAVINGS

12 ISSUES JUST $12.97. SAVE $22.43!

Name_____

Address_____

City_____ State_____ Zip_____

☐Payment Enclosed ☐Bill Me ☐Visa ☐Mastercard

Acct. #_____ Exp. date_____

Signature_____

COMPUTE

FOR FASTER SERVICE CREDIT CARD HOLDERS CALL TOLL FREE 1-800-727-6937

Please allow 6-8 weeks for delivery of first issue. Canadian orders send $24.58 (includes GST). All other foreign orders send $22.97. Payment acceptable in US funds only. Regular subscription price for 12 issues is $19.94.

JKLP7

www.commodore.ca

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 112 HARLAN, IA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTE

P.O. BOX 3244
HARLAN, IA 51593-2424

www.commodore.ca

USE THIS CARD TO REQUEST FREE INFORMATION ABOUT PRODUCTS ADVERTISED IN THIS ISSUE.

Clearly print or type your full name, address, and phone number. Circle numbers that correspond to the key numbers appearing on advertisements and in the Advertisers Index. Mail the postage-paid card today. Inquiries will be forwarded promptly to advertisers. Although every effort is made to ensure that only advertisers wishing to provide product information have reader service numbers, COMPUTE cannot be responsible if advertisers do not provide literature to readers.

CARDS VALID ONLY UNTIL EXPIRATION DATE.

This card is for product information only. Address editorial and customer service inquiries to COMPUTE, 324 W. Wendover Ave., Greensboro, NC 27408.

JOIN COMPUTE'S READER PANEL TODAY. Simply check "YES" to Question L (at right) and you'll be eligible to become one of a select group of readers who will participate in leading-edge market research.

COMPUTE'S FREE *PRODUCT INFORMATION SERVICE*

Name _____

Address _____

City _____ State/Province _____ ZIP _____

Country _____ Phone _____

A. What type computer(s) do you own? □ 486 PC (1) □ 386 PC (2) □ 386SX PC (3) □ 286 PC (4)
□ Other IBM/PC Compatible (5) □ Laptop/Notebook (6)

B. At home, do you use your computer mostly for □ Personal Finance (7) □ Work/Home Business (8)
□ Entertainment (9) □ All of the Above (10)

C. Would you classify yourself as a(n) □ Entrepreneur (11) □ Telecommuter (12) □ Moonlighter (13)
□ Corporate Employee who brings work home (14)

D. Which online service(s) do you use? □ CompuServe (15) □ GEnie (16) □ America Online (17) □ Prodigy (18)

E. What other computer magazines do you subscribe to? □ PC/Computing (19) □ MPC World (20)
□ Computer Gaming World (21) □ Home Office Computing (22) □ PC Magazine (23) □ PC World (24)

F. Which Graphical User Interface do you use? □ Windows (25) □ GeoWorks (26) □ Other (27) □ None (28)

G. Total time you spend reading COMPUTE? □ < 30 min (29) □ 30+ min (30) □ 60+ min (31) □ 90+ min (32)

H. Do you regularly purchase hardware/software as a result of ads in COMPUTE? □ Yes (33)

I. Do you own a □ CD-Rom Drive (34) □ Sound Card (35) □ Fax/Modem Board (36)

J. What is your total household income? □ <$30,000 (37) □ $30,000+ (38) □ $50,000+ (39) □ $75,000+ (40)

K. What is your age? □ 18–24 (41) □ 25–34 (42) □ 35–49 (43) □ 50+ (44)

L. Would you like to join COMPUTE's Reader Panel? □ Yes (45)

CIRCLE 101 for a one-year subscription to COMPUTE. You will be billed $12.97.

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210
211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230
231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290
291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310
311	312	313	314	315	316	317	318	319	320
321	322	323	324	325	326	327	328	329	330
331	332	333	334	335	336	337	338	339	340
341	342	343	344	345	346	347	348	349	350
351	352	353	354	355	356	357	358	359	360
361	362	363	364	365	366	367	368	369	370
371	372	373	374	375	376	377	378	379	380
381	382	383	384	385	386	387	388	389	390
391	392	393	394	395	396	397	398	399	400
401	402	403	404	405	406	407	408	409	410
411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430
431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470
471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490
491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510
511	512	513	514	515	516	517	518	519	520
521	522	523	524	525	526	527	528	529	530
531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550

5 Expiration date 8-1-93

www.commodore.ca

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 853 PITTSFIELD, MA

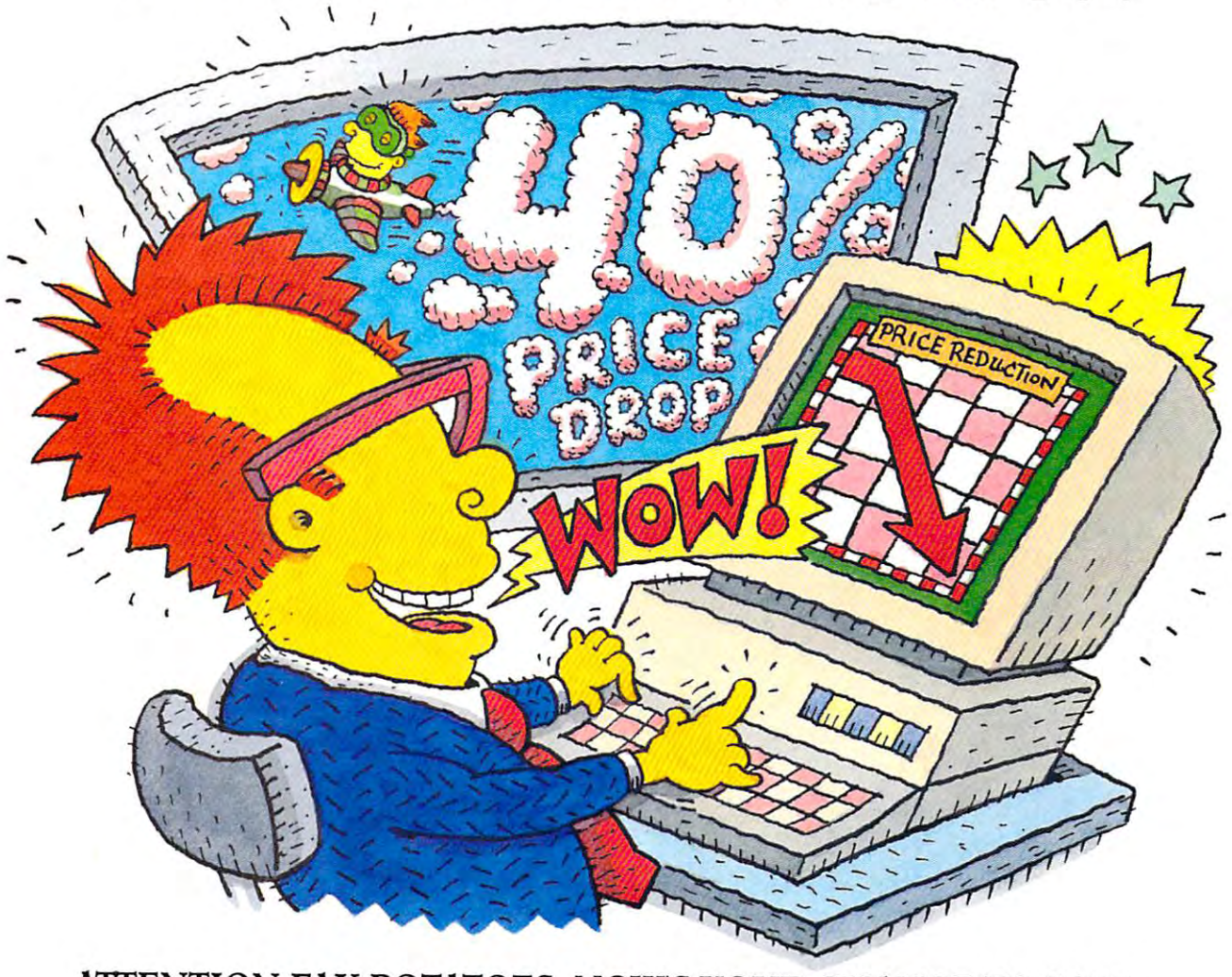
POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTE Magazine
Reader Service Management Department
P.O. Box 5145
Pittsfield, MA 01203-9654

USE THIS CARD FOR FREE PRODUCT INFORMATION

www.commodore.ca

40% OFF THE WORLD'S FASTEST FAX MODEMS!



ATTENTION FAX POTATOES, NOW'S YOUR CHANCE TO SAVE.

WAS $549, NOW $299

U.S. Robotics just dropped the price by 40% on the Sportster® and Mac&Fax fax/data modems.

Get Group III fax capabilities. Get 14,400 bps fax/data throughput. Get V.42 / V.42 *bis* error control and data compression. And get all this plus WINFAX™ or Fax STF™ fax software for the Mac bundled free with every Sportster modem you buy.

So fax, Potato, fax. It now costs 40% less.

U.S.Robotics®
The Intelligent Choice In Data Communications.

Circle Reader Service Number 301

CALL U.S. ROBOTICS FOR MORE INFORMATION: 1-800-DIAL-USR.
IN CANADA, PLEASE CALL 1-800-553-3560.

U.S. Robotics Inc. 8100 N. McCormick Blvd. Skokie, Illinois 60076. (708) 982-5010

Sportster is a registered trademark of U.S. Robotics, Inc. All brand or product names are trademarks or registered trademarks of their respective owners. Average price reduction for entire Sportster line. All prices MSRP.

SPORTSTER BUNDLED WITH WINFAX™

www.commodore.ca

Interaction, Relaxation, Competition, Cooperation, Recreation, Conversation, Education...

LarryLand™
Join Leisure Suit Larry and adults from all over in the world's first Cyberspace Casino.

Post Office
Receive E-mail in your own mailbox or send mail using SierraStamps.™

The Mall
Get the best prices on all kinds of stuff!

MedievaLand™
Team up with others to explore the dark caves within an active volcano.

SierraLand™
Dogfight other Aces in Red Baron,® splat 'em in PaintBall™ or just putt around in a game of MiniGolf.

ClubHouse
A friendly place to play Bridge, Backgammon, Cribbage, Chess and other great games.

Destination? ImagiNation!™

For Your FREE Invitation To ImagiNation, Including 3 Hours Of On-Line Time Call: 1-800-SIERRA-1, Or Fill Out And Return The Coupon Below.

Now there's a whole new way to have fun with your personal computer. It's called *ImagiNation: The CyberSpace Theme Park*™ and it's only on The Sierra Network.®

The Sierra Network is on-line games and more, including products for every taste and skill level. Games range from the multi-player version of the award-winning **Red Baron**® and the critically acclaimed fantasy game **The Shadow of Yserbius**,™ to more relaxing fare like Bridge and Chess. There's even multi-player games for children like **Graffiti**™ and **Boogers**.™ More than 20 great games so far ~ and more to come!

But what *really* makes The Sierra Network special is the sense of community that you get when you visit ImagiNation.™ Each night, thousands of friendly people gather there to play games, meet new friends, and generally have a good time together.

If you'd like to try The Sierra Network, all you need is a 386 or better computer, a VGA monitor, a 2400 baud modem, and a valid major credit card. Just send in the coupon, or give us a call. We'll give you everything you need to enter the land of ImagiNation, and your first 3 hours ~ **FREE**.*

ImagiNation on The Sierra Network. There's no place you've ever been that can compare to the fun and friendship of the world's first CyberSpace Theme Park.

The Sierra Network®
PART OF THE SIERRA FAMILY

Valuable Coupon

For your **FREE** Trial Membership Kit and **3 FREE** hours of on-line time, just call: **1-800-SIERRA-1**, or fill out this coupon, place it in an envelope, and send it to:
The Sierra Network, Offer #320, P.O. BOX 11, Oakhurst, CA 93644

☐ Yes, I have at least a 386 computer, a modem, and a valid major credit card. If I decide to use The Sierra Network after my 3 free trial hours are up, I will become a full member and be billed as little as $12.95 per month.*

Name _____

Address _____

City / State / ZIP _____

Day Phone _____ Evening Phone _____

Card Number: _____ Expiration Date _____

Credit Card: ☐ Visa ☐ MasterCard ☐ American Express ☐ Discover

* Subject to current rates, terms and conditions. See rate card in membership kit for details.
Offer good through December 31, 1993 ©1993 The Sierra Network Offer #310

Circle Reader Service Number 148

*Your credit card will not be charged unless you use more than 3 hours of on-line time. ™ designates a trademark of The Sierra Network. Red Baron is a registered trademark of Dynamix. Offer good until December 31, 1993 [illegible]

www.commodore.ca