



Dedicated to bringing technology and support to 64 and 128 owners

See us at the Commodore-Amiga Users Fair Booths 15 & 16.  
World premiere of RAMLink with Lectures and Demos  
Sat. & Sun. September 15 and 16 at the Valley Forge PA Convention Center

★★★★ New Products ★★★★★

**SD Series SCSI Hard Drives.** Add-on drives for the CMD HD or any other SCSI interfaced computer such as the Amiga™, Macintosh™ or IBM™. SD series drives come mounted in our sturdy steel case and include an external power supply and connecting cable. SD drives also come equipped with an extra SCSI port to allow chaining of additional SCSI devices.

SD-20 - \$449.95 SD-40 \$549.95 SD-100 \$899.95 SD-200 \$1299.95

!!! Attention Lt. Kernal Owners !!!

**Lt. Konnector** - Increase the performance and compatibility of your LTK by using it as an add on drive for the CMD HD. The Lt. Konnector allows you to connect the two drives for greater capacity. Avoid losing your investment in the LTK!

Lt. Konnector - \$19.95 (\$14.95 with purchase of any HD or SD hard drive)

- Supports CMD HD Series Hard Drives and RAMLink.
- 1581 support. Simplified partition selection.
- Quick printer output toggle. No more complicated command sequences.
- Adjustable sector interleave. Increase performance on hard-to-speedup software.

## JiffyDOS™ Version 6.0

The Ultimate Disk Drive Speed Enhancement System

JiffyDOS 64 System - \$59.95 JiffyDOS 128 System - \$69.95

Each system includes computer Kernal ROM(s) and one drive ROM.

Please specify computer and drive model numbers and serial numbers when ordering.

Additional Drive ROMS - \$29.95 each.

- Ultra-fast multi-line serial technology. Enables JiffyDOS to outperform Cartridges, Burst ROMs, Turbo ROMs, and Parallel Systems - without any of the disadvantages.
- Speeds up all disk operations. Load, Save, Format, Scratch, Validate, access PRG, SEQ, REL, USA & direct-access files up to 15 times faster!
- 100% Compatibility Guarantee - Guaranteed to work with all Software and Hardware
- Uses no ports or extra cabling. ROMs install internally for speed and compatibility.
- Easy Installation. No experience or special tools required for most systems.
- Supports C64, 64C, SX64, C128, C128D, 1541, 1541C, 1541-II, 1571, 1581
- Can be completely switched out. Returns you to a 100% stock configuration
- Built-in DOS Wedge. Plus 17 additional commands and convenience features.

- Built-in two drive file copier. Supports all file types and drive types.
- REU support. Fully supports Commodore REUs (RAM Expansion Units) under RAMDOS.
- Enhanced text screen dump. Auto-recognition of uppercase/graphics & lowercase.
- Redefinable 64-mode function keys. Easily redefine the keys to suit your specific needs.

### Ordering Information and Shipping Charges

|                           |   |
|---------------------------|---|
| HD and SD Hard Drives:    | Continental US: \$25.00 per drive (UPS ground), \$35.00 (2nd-Day), \$45.00 (Next-Day).<br>Canada: \$30.00 (Airmail) Foreign: \$35.00. COD to U.S. only, requires \$50.00 advance deposit by M.O. and \$4.00 add'l charge. Nonrefundable if refused. |
| JiffyDOS & Lt. Konnector: | Add \$4.50 per order (UPS ground), \$8.50 (2nd-Day Air), plus \$4.00 for APO, FPO, AK, HI, and Canada, or \$14.50 for overseas orders. No additional shipping if ordered with any hard drive.   |
| Tax:                      | MA residents add 5% sales tax.  |
| Terms:                    | We accept VISA, MasterCard, Money Orders, C.O.D., and personal checks (allow 3 weeks for personal checks to clear).   |

Note: Prices and specifications subject to change without notice. Geos is a trademark of Berkeley Software, CP/M is a trademark of Digital Research, Commodore 64 and Commodore 128 are registered trademarks of Commodore International, Amiga is a trademark of Commodore-Amiga, Macintosh is a trademark of Apple Computer, IBM is a trademark of International Business Machines, Lt. Kernal is a trademark of Xetec Inc. and Fiscal Information Inc. Copyright Creative Micro Designs, 8-8-90.

**Creative Micro Designs, Inc., 50 Industrial Dr., P.O. Box 646, East Longmeadow, MA 01028**  
ORDERS ONLY: 800-638-3263 (US and Canada) Phone: 413-525-0023 FAX: 413-525-0147 BBS: 413-525-0148



## CMD Hard Drives

- Compatible with GEOS™, CP/M™, BBS programs and most commercial software.
- FAST - with JiffyDOS, the HD can access PRG, SEQ, REL & USA files *FASTER* over the serial bus than the parallel interfaced Lt. Kernal.
- 3 1/2" SCSI technology allows for quiet reliable operation in a compact case about the same size as a 1581 drive.
- High-performance intelligent peripheral equipped with 2 MHz processor, 64K RAM, 16K ROM, two serial ports, parallel port, auxiliary port and SCSI port.
- Built-in Commodore compatible DOS responds to all 1541, 1571 and 1581 commands, including Block, Memory and Burst commands.
- Up to 254 partitions in sizes ranging from 256 blocks to 65,280 blocks each.
- Partitions can emulate 1541, 1571, 1581 drives for compatibility.
- Built-in real time clock automatically time and date stamps all files.
- Can be interfaced with Amiga, IBM - compatible and Macintosh computers, allowing you to take it with you when you upgrade.
- Serial bus interface supports Standard Serial as well as high-performance Fast Serial and JiffyDOS protocols. Parallel interface for connection to RAMLink.
- Connects easily to the serial bus without risky hardware hacks. Leaves expansion port open for use with cartridges, REU's and RAMLink.
- Easy-to-use utilities included which allow backing up and copying files or whole partitions to and from 1541, 1571, or 1581 floppy disks.
- Supports an unlimited number of true MS-DOS style subdirectories which may share all available blocks within a partition.
- 30 user buffers allow having up to 10 Relative files open at once. Any file type (including Relative files) may be over 65,000 blocks long.
- Pre-installed Q-Link software provides easy access and faster downloading to America's most popular 64/128 online service.
- External power supply avoids overheating and wear on computer power supply.
- Includes standard 25 pin SCSI port and all utilities needed to easily expand the system (up to 4 Gigabytes).
- Front panel controls for device number swapping, write protect, drive reset and partition selection.



HD-20 \$599.95 • HD-100 \$1149.95  
HD-40 \$799.95 • HD-200 \$1499.95

The CMD HD offers compatibility with many popular programs including:

### BBS

Image CNET 64/128  
Color 64 Omni 128  
Vision DragonFire 128  
DMBS & many more

### Productivity

Word Writer 4.0 The Write Stuff 64/128  
Paperclip III Vizastar  
Superbase DataManager  
CMS Accounting & many more

### And many more...

Recognized by Berkeley Software for GEOS compatibility. Capable of booting GEOS and all applications. Operates nearly as fast as a RAM Expander.

The CMD Hard Drive is compatible with many other types of software such as: Languages, Desk Top Publishing, Assemblers, Compilers, Games, Graphics, Bible search programs, etc.



# FEEDBACK

## QUESTIONS FROM OUR READERS

### Muddled Math

The June table of contents lists *Mudfrog Math* as a program for the 64, but the lead-in for the article says it's for the 128. The article itself says nothing about which machine the program is for. When I run the menu from the *Gazette Disk* with my 64, the program isn't listed, but the program appears when I list the directory. When I try to load it using the program name, I get an error message. What's the problem? Is the table of contents or the lead-in wrong? Is the disk screwed up?

IVAN BORTNER  
BOILING SPRINGS, PA

*Sorry, Ivan, we goofed when we compiled the table of contents. Mudfrog Math is for the 128 as stated in the lead-in, and since the program is written in BASIC 7.0, it will not run on the 64. I guess our name is mud!*

### Ham Aid

Here's an idea for a new column. It's a cross between *This Old House* and *On the Road*. It could be called *This Old Computer*. People would come up with ideas and you'd send an expert to give them a hand.

To start it off, I'd like to see some programs that help amateur radio hobbists—perhaps a calculator that gives you the number of turns and wire gauge needed for a radio-frequency coil. Maybe your expert could whip up a program that would help me receive teletype or ASCII signals over my shortwave radio.

TERRY M. SUTLIFF  
ORANGEVILLE, PA

*We have experts like you mentioned, Terry. They're called our readers. We'll be glad to pass on any tips they can provide.*

### Secret Color Memory on the 128

I have written a short and simple sketch program for my Commodore 128 running in graphic mode 4 (multicolor bitmap mode). I am having

trouble saving the picture after I draw it. When I BSAVE locations 7168–16384, it stores the picture and colors 0, 1, and 2, but not color 3. I know there must be a place where it is stored, because several colors for color 3 show up on the monitor. Can you help?

MATTHEW BOARDMAN  
CHESTER BASIN, N.S., CANADA

*In multicolor bitmap graphics, the information for color 3 is stored in color memory at 55296. On a 64, that's the end of the story. However, the 128 has two separate banks of color memory—one for the hi-res multicolor bitmap color 3 and the other for normal screen memory. In the simple sketch program that follows, locations 216 and 1 are manipulated to get at the bitmap color memory. The command POKE 216,255 turns off the screen interrupt that generates the split-screen display, while POKE 216,0 turns it back on. Memory location 1 contains a data direction bit that indicates read or write.*

*The program that follows is for the Commodore 128 and requires a joystick plugged into port 2. Use the number keys 0–3 to select a pen. Move the joystick to draw. Press + or – to change the pen color. Press C to clear the screen. Select color 0 or hold down the fire button to erase. Press L for load and S for save.*

*The program creates two files, distinguishable by their filename extension, for each picture saved. The 37-block file with the extension .BIT contains the bitmap and colors 0, 1, and 2. The 5-block file with the extension .COL contains the color 3 information.*

```
EX 100 REM SIMPLE 128 SKETCH P
      ROGRAM{2 SPACES}1/89 FE
      EDBACK
DC 110 GRAPHIC 4,1
JG 120 DIM C(3),DX(8),DY(8):C(
      0)=12:C(1)=7:C(2)=2:C(3
      )=15
HQ 130 DY(1)=-1:DX(2)=-1:DY(8)
      =-1
```

```
CP 140 DX(6)=-1:DX(7)=-1:DX(8)
      =-1
HJ 150 DY(4)=1:DY(5)=1:DY(6)=1
JB 160 DX(2)=1:DX(3)=1:DX(4)=1
QG 170 REM S = SPEED OF THE PE
      N
HE 180 S=3:FOR I=0 TO 8:DX(I)=
      DX(I)*S:DY(I)=DY(I)*S:N
      EXT
CS 190 MX=160:MY=160:CN=1
AP 200 X=MX/2:Y=MY/2:FOR I=0 T
      O 3:COLOR I,C(I):NEXT
AK 210 GRAPHIC 4,0:PRINT"{CLR}
      ":FOR I=1 TO 20:PRINT:N
      EXT
SH 220 PRINT"0,1,2,3 TO SELECT
      PEN"
RA 230 PRINT"+ -{5 SPACES}CHAN
      GE PEN COLOR"
FQ 240 PRINT"L LOAD{2 SPACES}C
      CLEAR"
QP 250 PRINT"S SAVE{2 SPACES}E
      EXIT";
DM 260 REM MAIN LOOP
AF 270 T=JOY(2):IF T>0 THEN 31
      0
GC 280 REM GET KEY PRESS WHEN
      {SPACE}JOYSTICK IS STIL
      L
GX 290 GETA$:IF A$<>" " THEN 38
      0
JH 300 GOTO 270
RC 310 X2=X:Y2=Y
KB 320 F=T>127:T=T+F*128:F=1+F
RA 330 X=X+DX(T):Y=Y+DY(T)
HH 340 IF X>MX OR X<0 THEN X=
      X2
EQ 350 IF Y>MY OR Y<0 THEN Y=
      Y2
RH 360 DRAW CN*F,X,Y TO X2,Y2
EQ 370 GOTO270
DA 380 A=VAL(A$):IF A$="0" OR
      {SPACE}>A>0 THEN CN=A:GO
      TO 270
HG 390 IF A$<>"+" THEN 430
CB 400 REM INCREASE PEN COLOR
DG 410 C(CN)=C(CN)+1:IF C(CN)>
      16 THEN C(CN)=1
JS 420 COLOR CN,C(CN):GOTO270
MS 430 IF A$<>"-" THEN 470
FF 440 REM DECREASE PEN COLOR
XQ 450 C(CN)=C(CN)-1:IF C(CN)<
      1 THEN C(CN)=16
JK 460 COLOR CN,C(CN):GOTO270
XA 470 IF A$="E" THEN GRAPHIC
      {SPACE}CLR:PRINT"{CLR}"
      :END
MD 480 IF A$="C" THEN GRAPHIC
      {SPACE}4,1:GOTO 210
MH 490 IF A$<>"S" THEN 600
CJ 500 REM SAVE FILE
HJ 510 GRAPHIC 0,0
EG 520 F$="":PRINT"{CLR}":INPU
      T"SAVE NAME";F$
JK 530 IF F$="" THEN 210
DS 540 F1$=F$+".BIT"
```

**LET'S FACE IT - MAIL ORDER HOUSES ARE NOT ALL THE SAME!**  
**SOFTWARE SUPPORT INTERNATIONAL**  
**CONVENIENCE - FAST SERVICE - RELIABILITY - SUPPORT**



**Maverick V5 -- Next Generation Software For The Next Generation Hacker**

The magazines and dealers will tell you that in the Commodore world, nothing copies protected software better than Maverick. But that's just the beginning of what Maverick can do for you.

Maverick is the most powerful and full featured complete archival utility system money can buy. There are so many features and

modules and utilities included that they can't be listed here. And our latest release, Version 5, is so far ahead of everything else that there simply is no competition, period. Bold talk? Try it for yourself -- learn first hand why Maverick is #1.

CO2475 • \$39.95

**1581 Toolkit V2 -- The Best Reason Yet To Own A 1581 Drive**

Owning a 1581 drive and not having the 1581 Toolkit V2 is like owning a sports car and not having gas in the tank. The 1581 Toolkit gives you all the utilities you need to take total control of your drive! In addition, features like REU support for fast one pass

disk copies, 64K video RAM support, and hyperfast read/write routines make this a "must have" package for any 1581 owner! Includes the famous book "The 1581 DOS Reference Guide," a \$14.95 value!  
 CO1084 • \$34.95



**The 1750 Clone -- Half A Megabyte Of Instant Power**

Get a staggering 512K of RAM for your Commodore with our 1750 Clone! Designed to address the severe shortage of 1750 REU's, our 1750 Clone is made from authentic Commodore components and is indistinguishable from a 1750 to all your software!

You've got one of the finest computers ever built. But today's generation of advanced software wants more memory. Give your Commodore the room it needs to get serious. Step up to a full 512K of computing power with the 1750 Clone.  
 CO1260 • \$199.95

**Commodore Heavy Duty Power Supplies**

Technicians will tell you that the majority of C-64 hardware problems can be traced directly back to an inadequate power supply. It's a classic problem -- and we've got a great solution!

Picture a heavy duty Commodore 128 power supply with a

C-64 connector! These Commodore brand power supplies are fused, repairable, and are the only REAL heavy duty power supplies on the market! Don't wait for your present power supply to fail (and possibly fry your precious computer in the process). Get your genuine Commodore Heavy Duty Power Supply today!  
 CO1262 • \$39.95



**DRIVE REPAIR**

**Commodore 1541 or 1571 Disk Drive Repair Videos**

Imagine having a technician actually show you, step by step, everything you've ever wanted to know about the inner workings of your Commodore 1541 or 1571 disk drive! Learn how to fix logic board problems, remove foreign objects from the drive, adjust drive speed and head

alignment and much more! Even see firsthand exactly how to install RAMBoard in your drive! Don't waste your time and money with the repair shop -- our video expert will show you how to do it yourself!  
 1541 Video: CO2567 • \$29.95  
 1571 Video: CO2745 • \$29.95

**Free\* -- The Software Support International Fall 1990 Catalog -- Our Best Yet!**

Just pick up the phone, call our TOLL FREE number, and we'll rush you a FREE copy of our huge brand new Fall 1990 Catalog!

It's jammed with hundreds of Commodore products, from hardware to software to accessories. The detailed descriptions and technical spec listings will provide you with all the information you need to

make the right choices for your specific needs. And the prices are among the lowest in the entire industry! How has Software Support International has grown over the last five years to become the most trusted mail order resource the Commodore user has? Just call our FREE phone number and ask for your FREE catalog -- and find out for yourself! \*Overseas please send \$2.00 to cover S&H charges.



**SOFTWARE SUPPORT**  
**TOLL FREE LINE FOR USA & CANADA**  
**800-356-1179**  
 Monday - Friday 9AM/5PM Pacific Time  
 NEW - Saturday 7AM/3PM Pacific Time

**INTERNATIONAL ORDERS**  
 206-695-1393  
 Same Hours As Above

**NOW ACCEPTING FAX ORDERS**  
 206-695-0059  
 24-Hours A Day!

**TECHNICAL SUPPORT LINE**  
 206-695-9648  
 Monday - Friday 9AM/5PM Pacific Time

AMIGA  
 COMMODORE  
 AND IBM

PLEASE CALL OR WRITE FOR OUR **FREE CATALOG!**

**If You Prefer, You May Mail Your Order To:**  
**Software Support International**  
 2700 NE Andresen Road, Suite A-10, Vancouver, WA 98661

**METHODS OF PAYMENTS** • We accept money orders, certified checks, Visa, M/C, and Discover. Previous customers may also pay by COD or personal check. All monies MUST be paid in US funds.

**SHIPPING & HANDLING CHARGES** • USA (48 states), PPO, APO, US Possessions: Please add \$3.50 per order. US shipping is usually by UPS ground. Fast UPS 2nd Day Air is available (US 48 states only) by adding \$2.00 per pound (1st lb.) and \$1.00 per pound (each additional lb.) more. Alaska & Hawaii: Shipping is by UPS 2nd Day Air. Please add \$8.50 per order. Canada: Software - \$4.00 for the first piece & \$1.00 for each additional piece per shipment. Canadian Hardware/Overweight orders & Foreign Countries: S&H varies per order - please call or write.

**COD CHARGES** • COD available to previous customers only in all 50 US states. Please add \$3.50 in addition to your S&H charges.

**OTHER POLICIES** • Washington State residents must add 7.6% to their order for state sales tax. Defective items are replaced at no charge, but must be returned to us postpaid within 30 days of invoice date. All in stock orders are processed within 24 hours. US (48 state) software orders over \$100.00 will be shipped 2nd Day Air at no additional charge above the normal \$3.50 S&H fee. All prices, policies, and specifications are subject to change without notice. All sales are final unless authorized by management.



**We Accept VISA, M/C, & Discover**



# FEEDBACK

continued from page G-12

```

HH 550 F2$=F$+" .COL":GRAPHIC 4
,0
RS 560 BSAVE (F1$),B0,P7168 TO
P16384
BF 570 BANK 0:POKE 216,255:POK
E 1,PEEK(1) AND 254:BAN
K15
HR 580 BSAVE (F2$),B15,P55296
{SPACE}TO P56320
AG 590 POKE 216,0:POKE 1,PEEK (
1) OR 1:GOTO210
BP 600 IF A$<>"L" THEN 270
KK 610 REM LOAD FILE
KB 620 GRAPHIC 0,0
QA 630 F$="":PRINT"{CLR}":INPU
T"FILENAME FOR LOAD ($
{SPACE}FOR DIR)":F$
JA 640 IF F$="" THEN 210
CB 650 IF F$="$" THEN GRAPHIC
{SPACE}0,0:DIRECTORY:GE
TKEY$GOTO630
FE 660 GRAPHIC 4,0
KP 670 BANK0:POKE 216,255:POKE
1,PEEK(1) AND 254
RJ 680 F1$=F$+" .BIT"
DK 690 F2$=F$+" .COL"
QE 700 BANK15:BLOAD (F2$),D0,P
55296
GH 710 BLOAD (F1$),D0,P7168
DS 720 GOTO210

```

## Plus/4 Software Sources

For readers who want sources of Plus/4 software, send me a self-addressed, stamped envelope. I will send them a list of suppliers plus information about a newly formed user group called the Plus/4 Forum. I just joined, and Forum will send new members a disk of public domain programs.

RONALD J. HARDCASTLE  
533 STEVENS AVE.  
ELY, NV 89301

## Speed Wanted

I recently learned that internally installed chips with speeds of 4 MHz or more can be purchased for the Apple computer, but they are not yet available for the 64. This is a terrible injustice!

I am willing to spend \$150-\$225 to get an internal 4 MHz-10 MHz speed-up chip for my 64. I would expect it could be installed with a switch to run at normal speed so my present software would remain usable.

Please, do whatever you can to make these faster chips available for the Commodore. Thousands of us are ready and willing to make the investment to keep our Commodore computers running strong.

JOHN H. COLVIN  
LOUISVILLE, KY

*See the review of the 4-MHz Turbo Master CPU from Schnedler Systems elsewhere in this issue. Faster chips alone won't boost the 64's speed, but this plug-in card may do just what you want.*

*Do you have a question, comment, or problem? Have you discovered something that could help other Commodore users? We want to hear from you. Write to Gazette Feedback, COMPUTE, 324 West Wendover Avenue, Greensboro, North Carolina 27408. We regret that, due to the volume of mail received, we cannot respond individually to programming questions. □*

FACTORY AUTHORIZED  
**COMMODORE REPAIR CENTER**

# 1-800-772-7289

(708) 879-2888 IN ILLINOIS

|  |                                |
|--|--------------------------------|
| C64 Repair (PCB ONLY) . 42.95            | C128D Repair . . . . . CALL    |
| C-128 Repair (PCB ONLY) . 64.95          | Amiga Repair . . . . . CALL    |
| 1541 Permanent Alignment . . . . . 29.95 | Printers . . . . . CALL        |
| 1541 Repair . . . . . 79.95              | Monitors . . . . . CALL        |
| 1571 Repair . . . . . 79.95              | Other Equipment . . . . . CALL |

CALL BEFORE SHIPPING FOR AUTHORIZATION NUMBER

(Have Serial and Card Numbers ready)

**PARTS AND LABOR INCLUDED**

**FREE RETURN SHIPPING**

(A.P.O. F.P.O. AIR ADD \$10.00)

**24-48 HR. TURNAROUND**

(Subject to Parts Availability)

**30 DAY WARRANTY ON ALL REPAIRS**

## COMMODORE PARTS

CALL (708) 879-2350

|                             |        |
|-----------------------------|--------|
| C-64 Power Supply . . . . . | 34.95* |
| C128 Power Supply . . . . . | 59.95* |
| Other Parts . . . . .       | CALL   |

\*Plus \$3.00 Shipping/Handling

## TEKTONICS PLUS, INC.

150 HOUSTON STREET  
BATAVIA, IL 60510



Circle Reader Service Number 205



## AMIGA—COMMODORE



### REPLACEMENT CHIPS, PARTS AND UPGRADES

#### • Save time and money •

Fixing your computer (and 1541 Drive) can be as simple as ABC.

A Purchase our Commodore Diagnostician @ \$6.95 prepaid

B Locate the problem chip

C Plug in a new chip (Most are not soldered)

|                                 |         |                                    |         |
|---------------------------------|---------|------------------------------------|---------|
| 6526 CIA . . . . .              | \$12.25 | 8562 Video . . . . .               | \$19.95 |
| 6567 VIA . . . . .              | \$14.95 | 251715 Memory control . . . . .    | \$23.95 |
| 6510 CPU . . . . .              | \$12.25 | 251913 ROM . . . . .               | \$21.95 |
| 6581 SID . . . . .              | \$12.25 | 1571 Upgrade ROM . . . . .         | \$10.95 |
| play/82S100 . . . . .           | \$12.95 | C128 Upgrade set . . . . .         | \$29.95 |
| A11 901 ROMS . . . . .          | \$10.95 | 8563 CRT control . . . . .         | \$19.95 |
| 8580 SID . . . . .              | \$13.95 | WD1772 (Winchester) . . . . .      | \$14.95 |
| 8500 CPU . . . . .              | \$13.95 | All 1541/1571 disk parts . . . . . | CALL    |
| Print Heads (802/803) . . . . . | CALL    | C-64 Service Manual . . . . .      | \$19.95 |

#### COMMODORE REPAIRABLE POWER SUPPLY @ \$24.95

Heavy duty exact replacement for Commodore 64 computers • Excellent for "packet radio" • 1 year warranty • external fuse • 1.8 amp output • U.L. approved • Runs cool • High quality European craftsmanship • Includes schematic • Over 52% of "64" failures are due to power supply malfunctions.

Introductory price of \$24.95 (plus U.P.S.)

#### COMMODORE DIAGNOSTICIAN II (REFERENCE AID #6)

Saves you money and downtime by promptly locating blown or faulty chips on all Commodore computers (and 1541 drives) by sophisticated cross reference grid methods. This revised 'diagnostician' takes into account the newly released boards and new combination chips. (A schematic is included but not needed). Over 20,000 sold worldwide. See fantastic full page review in last year's Computer Shopper Magazine. \$6.95 postpaid.

#### • IMPORTANT CATALOG ANNOUNCEMENT •

Call for your new 25 page catalog of specialty items for Amiga, Commodore and IBM. This free catalog contains: low cost replacement chips, upgrades, 34 diagnostic products, tutorial VHS tapes, interfaces, heavy duty power supplies (for A500 and A2000) and other worldwide products you won't find anywhere else. Dealers, use your letterhead.



## THE GRAPEVINE GROUP, INC.



Fax 914-354-6696

3 Chestnut St.  
Suffern, NY 10901

914-354-4448

We Ship Worldwide

1-800-292-7745

Prices Subject to Change

Circle Reader Service Number 166

# NOW, YOUR OWN Aerobic Trainer only \$39<sup>95</sup> a month!

**Lifecycle**  
Aerobic Trainer

Special \$130  
LIMITED TIME SAVINGS  
to our Readers:

- Convenient—never miss another workout
- Motivating program readouts—shows total calories burned, miles ridden (NEW)
- Exclusive Hill Profile interval training works FAST



- Virtually identical to the health club model
- Use while watching TV or reading
- 3 programs—12 levels—over 1 million rides
- Unparalleled 3-year warranty\*
- Computerized variable resistance
- Self-powered for use anywhere, easy to move

## 30-Day unconditional no-risk trial

Now you can own a genuine Lifecycle<sup>®</sup> aerobic trainer for only \$39.95 a month with no-cost financing—0% APR—and no down payment.\*

If you've worked out in a health club, you've probably used the Lifecycle<sup>®</sup> aerobic trainer. It's the most popular piece of club equipment because it's fun, motivating and it works—FAST!

A recent 12 week study found that *only 12 minutes, 3 times a week* on the exclusive Lifecycle<sup>®</sup> Hill Profile program provided more significant aerobic improvement than a 24 minute ride, 3 times a week on an ordinary exercise bike—with the same amount of work! That's why thousands of busy people are successfully using their own Lifecycle<sup>®</sup> trainers to LOOK BETTER, FEEL BETTER AND LIVE LONGER!

**NO-RISK TRIAL**—Use it in your home for a **full 30 days**. If you aren't satisfied for any reason, we'll pick it up at our expense and give you a full refund or credit.

### SPECIAL FREE OFFER—SAVE \$130

Order now and get FREE air shipping. Call 800-877-3867, Dept. 614. You must mention this magazine to receive this FREE shipping and handling offer worth \$130.

### REMEMBER, YOU MUST ORDER BY NOVEMBER 30, 1990 TO GET THE SPECIAL SAVINGS!

\*A copy of the Lifecycle 3-year limited warranty will be shipped with the Lifecycle<sup>®</sup> trainer, or a free copy can be obtained by writing "Lifecycle Consumer Warranty," Life Fitness, Inc., 9601 Jeronimo Road, Irvine, CA 92718. No down payment, 0% APR, \$39.95/mo. for 40 mos. = \$1598 (U.S.), plus sales tax for CA and IL residents only. Financing and FREE shipping and handling in U.S. only. Offer subject to credit approval and ends November 30, 1990.

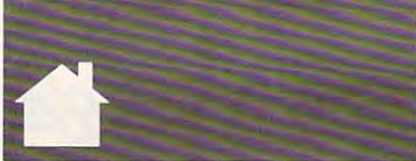
**CALL TOLL-FREE  
800-877-3867**

to order  
or for the name  
of a convenient  
retail dealer.

CALL (800) 877-3867 OR WRITE: LIFE FITNESS, INC.,  
9601 JERONIMO ROAD, IRVINE, CA 92718  
 YES! Please rush me further information on the  
Lifecycle<sup>®</sup> aerobic trainer and the FREE  
shipping offer.

**Life Fitness**  
A Bally Company

Name \_\_\_\_\_ Apt. \_\_\_\_\_  
Address \_\_\_\_\_ State \_\_\_\_\_  
City \_\_\_\_\_ Zip \_\_\_\_\_  
Daytime Telephone # \_\_\_\_\_



# MACHINE LANGUAGE

J I M B U T T E R F I E L D

**T**he BIT command doesn't seem to fit in with the other 6502-based commands. It does a test that seems both complex and puzzling, and it has only two addressing modes: absolute and zero page.

BIT was designed to allow a program to quickly examine input/output (I/O) registers. Load a mask into the A register, matching the bit you want to test; execute the BIT instruction, addressing the I/O register you want to look at; then use the Z bit to tell you if you have a match.

No special addressing modes were added because designers felt that there'd be only a few I/O chips, each of which could be tested directly.

The BIT command automatically tests the two highest order bits of the selected address. No mask is necessary. The highest bit (bit 7) is copied to the N flag; a subsequent BMI will branch if this bit is set. And the second-highest bit (bit 6) is copied to the V (overflow) flag; a BVS will take the branch if this bit is set.

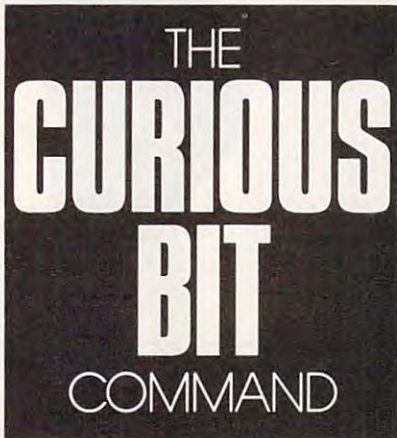
Bit 7 is tested because it's often used as the most important signal bit in a group. Interrupt registers often give it special status. Bit 7 is also used as a sign bit; turning on when the byte drops below 0.

Computer designers often put important connections at the two high bits so that they'll be easy to test with BIT. For example, the two most important input lines of the serial bus (serial in and clock in) are positioned in the two highest bits of the 6526 CIA #2 chip at address 56576 (\$DD00). We could monitor these with the BIT command without having to alter any data register—including the A register.

The formal description of the BIT command goes like this: The BIT instruction sets the N flag to the value of bit 7 of the memory being tested, the V flag to the value of bit 6 of the memory being tested, and the Z flag to the result of an AND operation between the A register and memory. (Z is set if the result is 0; otherwise it's

cleared.) We've looked at the N and V flags, but what's this AND situation?

Suppose we want to test the lowest bit (bit 0). We'd write LDA #\$01 followed by a BIT instruction with an address. The contents of the address will be ANDed with the value \$01; if its lowest bit is set, the result of the AND will be \$01 and the Z flag will be clear. Otherwise, if the lowest bit of the address is clear, the result of the AND will be \$00 and the Z flag will be set. Neither the contents of the A register nor the memory address will be changed; the AND operation is there solely for generating the right result in the Z flag. If the bit is set, the Z flag will be clear, and vice versa.



That was an example using one bit, but testing multiple bits is nearly as simple. Remember that *all* the matching bits in the memory address must be 0 in order for the Z flag to be set. If *any* of these bits are set, the Z flag will be cleared.

This example monitors register 653 (\$028D), which on the 64 signals whether any or all of three keys are being held down: SHIFT (value 1), Commodore (2), and CTRL (4). If more than one of these keys is being pressed, this location will contain the total of the numbers shown.

Here is a program that waits until *only* the Commodore key is pressed.

```
033C LDA #02
033E BIT $028D
0340 BEQ $033E
0342 RTS
```

Now, suppose I need to print an asterisk and a space character. The BIT instruction can be used to combine these into a single routine:

```
200E: A9 2A 2C A9 20 4C D2 FF
```

A subroutine at address \$2011, which is within the above memory range, might be seen as

```
2011 A9 20 LDA #20 ;space
character
2013 4C D2 FF JMP $FFD2 ;CHROUT
routine
```

It prints a space. The JMP instruction goes to a subroutine that will return directly to the routine that called \$2011. Let's look again as a program calls the routine at \$200E.

```
200E A9 2A LDA #2A ;asterisk
character
2010 2C A9 20 BIT $20A9 ;no
character
2013 4C D2 FF JMP $FFD2 ;CHROUT
routine
```

The BIT instruction does nothing; it changes no registers, and the status bits will not be used. Address \$20A9 is meaningless; there's really nothing of interest there. But note how that BIT opcode, \$2C, has managed to hide the instruction A9 20, which is located at address \$2011. This trick is used quite often in Commodore ROM code.

Let's put the above code into a BASIC driver and see it in action.

```
100 DATA162,0,32,14,32,32,17,32,232,224,
10,208
110 DATA245,96,169,42,44,169,32,76,210,255
120 FOR J=8192 TO 8213
130 READ X:T=T+X
140 POKE J,X:NEXT
150 IF T<>2333 THEN STOP
160 SYS 8192
```

The program prints a line of spaces and asterisks. Disassemble it and see how BIT works. □

# DYNAMICALLY MODIFIABLE BULLETIN BOARD SYSTEM

## The Bulletin Board Of The 90's

- Full Commodore™ color graphics & ASCII
- Fully compatible with CMD's HD series & Xetec's Lt. Kemal hard drives.
- Fully supports JiffyDos operating environment & various other burst ROM's
- 300-2400 baud, Supports 1650, 1660, 1670, Avatec & ALL Hayes compatibles!
- C64, 64C, SX64, C128, C128D (64 mode), 1700 series RAM expanders, ALL 1541's & compatibles, 1571, 1581, SFD 1001
- Menu driven, user-friendly BBS
- On-line game modules available
- NOT Copy Protected, make as many back-ups as you need.
- 2- 24 hour BBS main support numbers
- 1 Voice support number
- Various info lines throughout North America
- INCLUDED: CLEAR AND CONCISE MANUAL IN A SLEEK BINDER

D.M.B.B.S. Series V

**\$6995**

Includes BASIC Source Code.

update from Version 4.0 \$39.95

Add \$5. s/h \$8. outside U.S.  
MD Res. add 5% sales tax

20% Discount on D.M.B.B.S. In  
Exchange for any PAID FOR & Reg.  
C= 64/128 BBS prog.

**30 Day Money Back  
Guarantee!!!**

Dealer Pricing  
Available

Mail Check or  
Money Order to: ARTISoft,  
P.O. Box 96, Glen Burnie, MD 21060

Or Call (Orders Only!)  
**(301) 553-0301**



A division of Dynamic Technologies, Inc.

WE  
OFFER  
CMD HD's  
AT DISCOUNT  
PRICES TO  
REGISTERED  
D.M.B.B.S.  
OWNERS.

Inquiries: (301) 553-0201

24 Hr. BBS: (301) 553-0001

"Your best source for computer equipment & access."

Circle Reader Service Number 204

# ATTENTION

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

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

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

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

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

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

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

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

I desire the BASIC programming course (Volume 1)

FOLLOW-UP course on file handling (Volume 2)

The computer that the course is needed for:

COMMODORE 64/64C  COMMODORE 128/128D

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

**Brantford Educational Services**

222 Portage Road  
P.O. Box 1327  
Lewiston, New York 14092

6 Pioneer Place  
or Brantford, Ontario  
N3R 7G7

Fax: (519) 756-6534

## JASON-RANHEIM CARTRIDGE MATERIALS FOR YOUR COMMODORE 64 or 128

*Quality Products  
from the World Leader!*

- Promenade C1 EPROM Programmer
- Game Type Cartridges
- Bank Switching Cartridges
- RAM/ROM Combination Cartridges
- Capture Archival Cartridge System
- Cases, EPROMS, Erasers, Etc.

**Call or write for complete information!**

Call Toll Free  
from California  
Tech Support

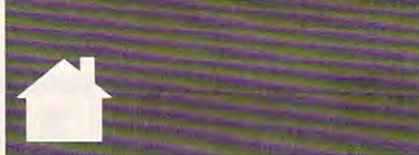
800-421-7731  
916-878-0785  
916-878-0785



**JASON-RANHEIM**

3105 Gayle Lane  
Auburn, CA USA 95603

Circle Reader Service Number 186



# D'IVERSIONS

F R E D D ' I G N A Z I O

**H**ave you ever noticed how computers, keyboards, cameras, car phones, and CDs keep getting smaller? And how different devices are coming together—VCRs and cameras, CD players and boom boxes, computers and fax machines? Welcome to desktop fusion!

We are in an age of rampant miniaturization of everything electronic. For example, IBM scientists recently published a photo showing how they had lined up xenon atoms on a nickel surface to spell the company's name. Scientists hope that one day they'll be able to build ultrasmall computers that are just a few atoms wide.

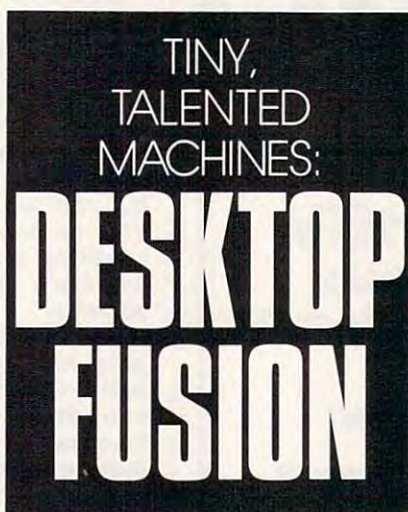
The process of miniaturization extends into the world of mechanical engineering as well. A new generation of *nanotechnologists* are attempting to shrink gears, electric motors, and pumps to microscopic size. They've achieved some remarkable successes.

Since more components can be squeezed into a smaller space, engineers could have let old machines continue to get smaller. Instead, they've begun combining older machines into new multifunction fusion machines that use the same space as older, single-purpose machines. But the fusion machines can do many more things and cost less than the combined price of the older machines. In fact, these new machines may be an entirely new species!

Take a look at computers. I bought one of the first Compaq portable computers years ago because I had to go to England to teach a summer-long course on robotics. Compaq called its machine a portable, but it was more like an old-fashioned, cast-iron sewing machine. By the time I had packed the portable into its case and strapped it around one shoulder and the portable Epson printer around the other shoulder, I resembled a guide on an expedition to climb Mount Everest. I had to walk slowly and stand perfectly straight. I didn't dare lean to one side for fear that I'd topple over and risk getting crushed by one of my "portable" machines.

Now companies are making computers many times more powerful than my old Compaq, and these machines weigh only a sixth as much. Some even fit into your pocket.

Take video cameras. Back in the 1970s along came the porta-pack—a camera and a VCR all in two boxes that you could carry on your shoulders. This was supposedly the dawn of the portable-video era. But the problem was that the porta-pack cameras were even heavier than my Compaq. Only big, husky people could become video whizzes in the early years.



Then the Japanese got into the act. Now the new Sony and JVC cameras combine the quality and functionality of a broadcast studio in a package the size of a kitten.

I once dreamed of my computer being like the sun, and I saw a constellation of other devices—video cameras, keyboards, CDs, VCRs, TVs, fax machines, telephones—swirling around the computer. In my dream, the devices came closer and closer until there was a blinding explosion.

The computer had swallowed all the other machines. It could now do what all the other machines did. It could take pictures and make phone calls. It could make copies and send faxes. It could record TV programs

and play stereo music.

But if it could do all these things, maybe it was no longer a computer. Maybe it was something more. If so, what was it? A Smart TV? A Teleputer? A MusiCopiCalcutron?

We've all seen those computer screens that supposedly represent the ideal graphic environment of the future. You know, the ones with little pictures of file folders, stacks of electronic paper, and cute little trash cans.

The metaphor for computers of the future is supposed to be the desktop. We are told this makes computers user-friendly. Noncomputer types are more comfortable and less anxious. Their computer screen looks like a tiny copy of the office with its filing cabinets, folders, and trash cans.

This is all very cute. And it does make computers more understandable. But it may also be inaccurate. It may be preparing us for a world of the past, not the future. The new fusion machines do not have to sit on a desktop. They are so portable they can be carried anywhere.

Already, the computer is not necessarily the machine that sits on a desktop. Camcorders are really highly sophisticated video computers. Musical keyboards are incredibly complicated audio computers. Portable scanners, modems, cellular telephones, CD players, and TVs are all computers, too.

As fusion machines get smaller, they blast off from the desktop and soar like tiny spacecraft into the rest of our lives. We're carrying them in our pockets, briefcases, and purses. We wear them in our ears, hang them on our shoulders. They're merging with cosmetic jewelry and becoming part of people's lifestyles. They are colored in pastels and stripes and are enveloped in fabrics such as denim and corduroy—like designer clothes.

In a world of tiny fusion machines, office furniture seems to be a clunky metaphor. Maybe it's time to turn to architects, biologists, dancers, and fashion designers for metaphors more timely, creative, and humane. □



## VBook™

Your spreadsheet or data base doesn't really understand your personal checking!

Check out these features:

- ✓ 17 types of checking transactions
- ✓ Handles overdraft protection
- ✓ Remembers payees for fast entry
- ✓ Full screen editing and selective queries
- ✓ 8 types of reports plus check printing
- ✓ C64/40 col. and C128/80 col. programs
- ✓ Supports 1541/1571/1581 drives
- ✓ Schedules periodic transactions
- ✓ Custom transaction categories
- ✓ Monthly balancing
- ✓ Optional password protection
- ✓ Utilities with partition tools for sub-directories on 1581 drives
- ✓ Calculator, and more...

Computer Craftware • 17966 Arbolada Way • Tustin, CA 92680  
(714)953-8177 • \$34.95 + \$2.50 S&H (CA res. add 6%)

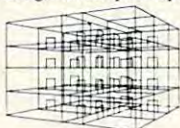
Circle Reader Service Number 190

## 3-D GRAPHICS DESIGN

★ Voted Best Graphics Program

—Run Magazine 1988

For Commodore 64/128 in 64 mode  
View Designs in Multiple Perspectives



Professional-Educational-Home Applications  
Architects, Engineers, Designers,  
Programmers, Students

CAD-3D! enter me into the fastest growing field in graphic technology. At a special introductory price \$53.95. Add \$4.00 for shipping and handling, for C.O.D. add an additional \$4.00. (California residents please include 6% sales tax.)

### ih Software

2269 CHESTNUT STREET  
SUITE 162  
SAN FRANCISCO, CA 94123

ORDER LINE • (415) 923-1081

FAX • (415) 923-1084

Dealers/Distributors inquiries welcomed.

Circle Reader Service Number 192

## WE COULDN'T TEACH IT TO SOLDER!

BUT IT DOES JUST ABOUT ANYTHING ELSE - ITS WIDELY USED BY REPAIR TECHS  
PLUG IT IN AND FIND THE BAD CHIP

MW-203B C64 DOCTOR - \$150  
MW-205 C128 DOCTOR - \$150  
MW-207 1541 DOCTOR - \$1 WITH  
PURCHASE OF TWO OTHERS

UPDATE YOUR OLD MW-203  
\$25 FOR NEW ROM FOR E BOARD

DOING DATA ACQUISITION OR PROCESS  
CONTROL? USE THE MW-611B WITH 16  
ANALOG INS AND 16 DISCRETE OUTS -  
ONE ANALOG OUTPUT - EPROM SOCKET  
AND PROTOTYPING AREA \$165  
CALL OR WRITE FOR FREE INFORMATION

### ELECTRONIC INNOVATIONS CORP EIC

3107 W HAMPDEN AVE

ENGLEWOOD CO 80110

303-789-0424

\$1 SALE

\$1 SALE

Circle Reader Service Number 135

## FREWARE FOR THE COMMODORE GAMES, GAMES, GAMES!

- (6097) IN THE MALL / 1 - 14 arcade games. Try your skill on these gems.
- (6098) ON THE BOARDS / 1 - 11 board games. Yahtzee, Battleship & more
- (6099) IN THE MALL / 2 - 14 arcade games. Moondog, Sking, & more.
- (6100) IN THE PITS / 1 - 7 car games. Dragster, Dodge Cars & more.
- (6101) LADY LUCK / 1 - 9 casino games. Roulette, Craps, BJ, Poker.
- (6102) ADVENTURE / 1 - 4 adventure games; Scary, Africa, Advent etc.

Call or write for free catalog of  
1,000's of programs for your PC!

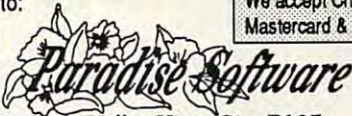
- (6103) SCHOOLHOUSE / 1 - 21 educational games. math, election etc.
- (6104) THE SPORTING LIFE - Golf, Mini Golf, Baseball, Boxing & Trap.
- (6118) PUB/BOARD GAMES - Darts, Bowl, Pool, Checkers, and more.
- (6119) ON THE BOARDS / 2 - 12 board and card games.
- (6120) ON THE BOARDS / 3 - 17 more board and card game.
- (6121) ON THE BOARDS / 4 - 18 board and card games.
- (6122) ON THE BOARDS / 5 - 20 card and board games including TRIVIA.
- (6123) ADVENTURE ROAD / 2 - 10 text/graphic games; SLEUTH, etc.
- (6124) ADVENTURE ROAD / 3 - 8 text/graphic games including HACKER.
- (6125) ADVENTURE ROAD / 4 - 10 text/graphic games including HAUNTED HOUSE.
- (6126) ADVENTURE ROAD / 5 - 9 text/graphic games.
- (6142) IN THE MALL / 3 - 12 more arcade game.
- (6143) IN THE MALL / 4 - 6 arcade games; ROCKFALL and GODZILLA.
- (6144) IN THE MALL / 5 - 20 arcade games; TREASURE HUNT and ET.
- (6146) IN THE MALL / 7 - 11 arcade games; SHOOTING GALLERY.
- (6202) LADY LUCK / 2 - 10 games; ONE ARMED BANDIT, and 21.
- (6203) LADY LUCK / 3 - 17 games; DODGE CITY POKER and KENO.
- (6204) THE FINAL FRONTIER / 1 - 10 space games; METEOR SHOWER.

To order, please check the desired disk and include \$2.99 for each ordered. Order by November 30, 1990 and receive free S/H (a \$4 value). Nevada residents add 6% sales tax. Buy 5 disks and get a 6th one free.

Please send order, payment, name and address

to:

We accept Check, MO,  
Mastercard & Visa.



3111 S. Valley View, Ste. B105

Las Vegas, NV 89102-8317

(702) 253-1940, Fax (702) 253-1677

Circle Reader Service Number 137

## VIDEO BYTE II the only FULL COLOR! video digitizer for the C-64, C-128

Introducing the world's first FULL COLOR! video digitizer for the Commodore C-64, 64-C, C-128 & 128-D computer. VIDEO BYTE can give you digitized video from you V.C.R., LASER DISK, B/W or COLOR CAMERA or OFF THE AIR or CABLE VIDEO (thanks to a fast! 2.2 sec. scan time). New version 3.0 software features full RE-DISPLAY with MULTI CAPTURE MODE, MENU SELECT PRINTING, EXPANDED COLORIZING FEATURES, SAVE TO DISK feature and much more!

**FULL COLORIZING!** Is possible, due to a unique SELECT and INSERT color process, where you can select one of 15 COLORS and insert that color into one of 4 GRAY SCALES. This process will give you over 32,000 different color combinations to use in your video pictures. **SAVES as KOALAS!** Video Byte II allows you to save all your pictures to disk as FULL COLOR KOALAS. After which (using Koala or suitable program) you can go in and redraw or color your V.B. pic's. **LOAD and RE-DISPLAY!** Video Byte II allows you to load and re-display all Video Byte pictures from inside Video Byte's menu. **MENU DRIVEN!** Video Byte II comes with easy to use menu driven UTILITY DISK with V3.0 digitizer program. (64 MODE ONLY). **COMPACT!** Video Byte II's hardware is compact! In fact no bigger than your average cartridge! Video Byte comes with it's own cable. **INTEGRATED!** Video Byte II is designed to be used with or without EXPLODE! V5.0 color cartridge. **Explode! V5.0's menu will return you to VIDEO BYTE II's menu. EXPLODE! V5 is the PERFECT COMPANION!** Video Byte II users are automatically sent FREE SOFTWARE updates along with new documentation, when it becomes available. **PRINT!** Video Byte II will printout pictures in BLACK and WHITE GRAY SCALE to most printers. However when used with Explode! V5.0 your printout's can be done IN FULL COLOR 8 by 11's SIDEWAYS on the RAINBOW NX-1000, RAINBOW NX-1000C, JX-80, Seikosha 3000 AI.

(OKIDATA 10/20's (print larger 6" by 9") USER SLIDE SHOW program w/auto or manual display is standard with VIDEO BYTE program. And can be backed up!)

Why DRAW a car, airplane, person or for that matter... anything when you can BYTE it... VIDEO BYTE it instead!

Circle Reader Service Number 215

ONLY  
\$79<sup>95</sup>

ONLY  
\$44<sup>95</sup>

All units come w/90 day WARRANTY. All orders add \$3 for UPS BLUE LABEL S/H. UPS BLUE available only in 48 states. FOREIGN ORDERS are US FUNDS +\$6.35 S/H. ORDER BOTH EXPLODE! V5 & VIDEO BYTE II together and receive FREE!! UPS S/H. \*\*\*Note all SALES are FINAL, 90 DAY WARRANTY covers PARTS & LABOR ONLY. All SOFT GROUP UTILITY DISKS COME w/built-in CATALOG of PRODUCTS.

WORKS WITH P.A.L. ALSO ★ IN 64 MODE ONLY

TO ORDER CALL 1-708-851-6667

IL RESIDENTS ADD 6% SALES TAX

PLUS \$3.00 S/H. NO C.O.D.'S. FOREIGN ORDERS U.S. FUNDS ONLY \$6.35 S/H. Personal Checks 10 Days to Clear



THE SOFT GROUP, P.O. BOX 111, MONTGOMERY, IL 60538

www.commodore.ca



# BEGINNER BASIC

L A R R Y C O T T O N

**S**prites are colorful shapes that are easily defined and controlled from BASIC on the 64 and 128. They can pop up anywhere on the screen and often manifest themselves in games as spaceships, aliens, or the like.

Sprites can be set up and manipulated independently of other items on the screen, such as text or character graphics (the figures on the front of the computer keys). In fact, they work very nicely with these, as illustrated by this month's exercise.

This month, I'll show you how straightforward programming sprites can be. We'll begin writing a short program which uses only one sprite, bearing in mind that the same techniques can be applied to display as many as eight sprites on the screen at once. Although this program isn't a game per se, you'll immediately see how to expand on your ability to program sprites in games or in other programs by using the simple BASIC commands that we've learned over the last few months. So, let's begin.

In addition to sprites, our program uses the 64's musical capabilities. We covered music in the July and August 1989 issues (also in the November and December issues), so you may want to refresh your memory by reviewing these columns.

We begin the program by clearing the sound (SID) chip's internal memory registers.

```
10 S=54272:FOR T=S TO S+24:POKE T,0:NEXT
```

Next, we'll set up the SID chip's

square wave and musical envelope (attack, decay, sustain, and release) for voice 1, and turn up the volume to the maximum setting.

```
20 POKE S+3,8:POKE S+5,12:POKE S+6,29:POKE S+24,15
```

Now, we'll clear the screen, color it and the border white, and draw a black musical treble-clef staff.

```
30 PRINT CHR$(147)CHR$(144):POKE 53280,1:POKE 53281,1
40 FOR T=1 TO 8:PRINT "{18 SPACES}{3 @}":NEXT
```

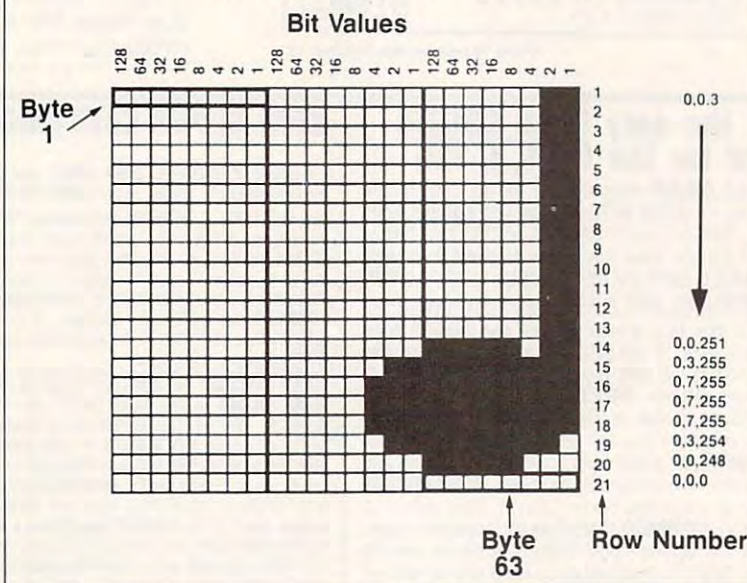
a group of 39 or so that begin at location 53248. When you program sprites, always start by defining that first memory register. The *Programmer's Reference Guide* calls it variable V, so we'll stick with that.

```
100 V=53248
```

Next, we'll define another variable, N, which will ultimately represent the vertical position of the sprite on the screen.

```
110 N=125
```

MUSICAL NOTE ON A SPRITE GRID



As you may recall, the 64's screen is composed of 64,000 individually addressable dots—called *pixels*—in a 320 × 200 (horizontal × vertical) matrix. The sprite can be located anywhere on the screen, although those near the borders may make the sprite invisible. The value 125 is the number of pixels the sprite will be offset from the top of the screen. We'll locate it horizontally in a moment.

Now comes the only tricky part, so pay close attention. We must define the

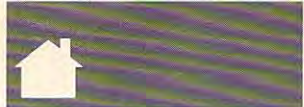
shape of the sprite, which in this program will be the symbol for a musical quarter note, which you can move up and down on the musical staff with the joystick. Naturally, appropriate sounds will emanate from your computer, corresponding to the position of the note on the staff. In other words, you'll be able to play a tune with the joystick.

Our ultimate goal is to generate 63 pieces of data that represent the sprite's shape, which we can POKE into certain memory registers in the computer. To create this data, it's

```
50 PRINT "{2 @}UI{35 @}"
60 PRINT "{2 @}BB{35 @}"
70 PRINT "{@}U+K{35 @}"
80 PRINT "{@}B+I{35 @}"
90 PRINT "{@}J+K{35 @}"
92 PRINT " JK{15 SPACES}{3 @}"
94 FOR T=1 TO 7:PRINT "{18 SPACES}{3 @}":NEXT
```

The program may be run at this point, so try it. The staff, which is composed of some graphics characters, will form the background for our sprite, which we'll create next.

Sprites are controlled by 12 non-consecutive memory registers, within



# BEGINNER BASIC

helpful to draw a grid such as the one shown in the accompanying figure. Then you must fill in the blocks according to the shape you want displayed on the screen. Last, add up the numbers above the blocks in the grid. Sound difficult? It's not.

Think of the grid as 21 rows of 24 tiny squares. Each row is divided into three groups of eight squares. Each group of eight squares represents one POKEable value (a byte). The first row, then, contains the first three bytes of the 63 pieces of data we need. The bytes in the grid are numbered as follows:

|   |   |   |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |

and so on, for 21 rows (21 rows times 3 bytes per row equals 63 bytes).

Note that the top of the grid is numbered, representing the corresponding bit value within each respective byte. Wherever a black square appears, the number above it—or bit value—should be added within that byte. For instance, bytes 1 and 2 are 0; no squares are blackened. Byte 3 contains only two blackened squares, under the numbers 1 and 2. Adding 1 and 2 yields 3, which, coincidentally, is the third piece of data for the sprite. In fact, for this sprite, the first 13 rows of the grid contain the numbers 0, 0, and 3. The maximum value a byte can hold, remember, is 255—the sum of 128, 64, 32, 16, 8, 4, 2, and 1. So, we READ and POKE the byte values in the sprite grid, as shown below.

```
120 FOR J=12288 TO 12350:READ
D:POKE J,D:NEXT
```

```
130 DATA0,0,3,0,0,3,0,0,3,0,0,3,0,0,3,
0,0,3,0,0,3,0,0,3,0,0,3,0,0,3
```

```
140 DATA0,0,3,0,0,251,0,3,255,0,7,255,0,7,
255,0,7,255,0,3,254,0,0,248,0,0,0
```

It has become customary to put the data for sprite 1 in memory locations 12288–12350, so we'll use them. If you're using less than four sprites, you might want to use locations 832–894 for sprite 1. Later, we'll tell the computer where to find the data.

We'll program the various sprite memory registers in a slightly different order from that used in the *Programmer's Reference Guide*. While the order isn't critical, it's more logical to assign the color and other parame-

ters before turning on the sprite.

First, we'll select the color for the sprite. Any color will do, so let's make it green. The color value for green is POKEd into register 53287 (use  $V+39$  since we defined register 53248 as  $V$  in line 100).

## 150 POKE $V+39,5$

Next, we'll tell the computer where to look for the sprite data.

## 160 POKE 2040,192

If you put the data at 832–894, you'd POKE 2040,13 instead. The *Programmer's Reference Guide* goes into some detail about how to calculate this pointer value (13); we'll discuss it some more in a forthcoming column.

Memory register 53248 ( $V$ ) happens to control the horizontal position of the sprite on the screen. We want it precisely 160 pixels from the left edge.

## 170 POKE $V,160$

Then we locate it vertically, using register 53249 and  $N$ , which was defined in line 110.

## 180 POKE $V+1,N$

Last but not least, we turn on the sprite using  $V+21$ . POKeing a 1 into this location turns on sprite 1.

## 190 POKE $V+21,1$

If you've been entering the program line by line, you're about to be rewarded. Run the program. If you haven't made any typing errors, the sprite, in the shape of a green quarter note, should now pop onto the screen, superimposed on a musical staff. Its position on the staff, the second space from the top, corresponds to a piano's C above middle C. At this point, be sure to save what you've typed in. In the next issue, we'll continue with this program and add some more features.

Next month, we'll move the note around with the joystick and play the notes which correspond to the sprite's position on the staff as we move it. We'll also go into more depth on positioning sprites, creating multiple sprites, and moving sprites at various speeds. □

# SOFTWARE CLOSEOUTS

## For Commodore 64 & 128:

|   |         |
|---|---------|
| Adventure Creator, by Spinnaker (C) . . .   | \$ 9.50 |
| America's Cup, by Electronic Arts . . .     | \$12.50 |
| Argos Expedition, by CBS . . .              | \$ 9.50 |
| Artist, by Valueware . . .                  | \$ 5.00 |
| Assembler, by Commodore . . .               | \$ 5.00 |
| Beyond Castle Wolfenstein, by Muse . . .    | \$ 7.50 |
| Border Zone, by Infocom . . .               | \$ 9.50 |
| Boston Computer Diet, by Scarborough . . .  | \$12.50 |
| Bumper Sticker Maker, by Intracorp . . .    | \$19.50 |
| Button & Badge Maker, by Intracorp . . .    | \$19.50 |
| Castle Wolfenstein, by Muse . . .           | \$ 7.50 |
| Congo Bongo, by Sega (C) . . .              | \$ 7.50 |
| Deadline, by Infocom . . .                  | \$ 5.00 |
| Death Sword, by EPYX . . .                  | \$14.50 |
| Educator, by Valueware . . .                | \$ 3.75 |
| Electronic Address Book, by Batt. Inc. . .  | \$ 7.50 |
| Entertainer, by Valueware . . .             | \$ 3.75 |
| Go, by Hayden . . .                         | \$ 5.00 |
| Home Cataloger, by Continental/Arrays . . . | \$ 9.50 |
| Home Manager, by Valueware . . .            | \$ 6.50 |
| Kickman, by Commodore (C) . . .             | \$ 2.50 |
| Logic Levels, by Fisher-Price (C) . . .     | \$ 9.50 |
| Math IV, by Commodore . . .                 | \$ 4.50 |
| Musician, by Valueware . . .                | \$ 4.50 |
| One Man & His Droid, by Mastertronic . . .  | \$ 7.50 |
| Partner 128, by Timeworks (C/128) . . .     | \$17.50 |
| Pet Emulator, by Commodore . . .            | \$ 9.50 |
| Phantasie III, by SSI . . .                 | \$12.50 |
| Practicalc 64, by CSA . . .                 | \$ 7.50 |
| Practicalc + file, by Practicorp . . .      | \$17.50 |
| President Elect, by SSI . . .               | \$ 9.50 |
| Printed Word, by Valueware . . .            | \$ 2.75 |
| Pro-Golf, by Mastertronic . . .             | \$ 7.50 |
| Programming Kit 3, by Timeworks . . .       | \$ 9.50 |
| Questron II, by SSI . . .                   | \$14.50 |
| Roadwar 2000, by SSI . . .                  | \$14.50 |
| Shiloh: Grant's Trail, by SSI . . .         | \$14.50 |
| Skill Builders, by Real Software . . .      | \$ 5.00 |
| Sons of Liberty, by SSI . . .               | \$12.50 |
| Spider Eater, by Koala . . .                | \$ 3.00 |
| Starcross, by Infocom . . .                 | \$ 5.00 |
| Story Machine, by Spinnaker (C) . . .       | \$ 7.50 |
| Suspended, by Infocom . . .                 | \$ 5.00 |
| The Tool, by Homeware . . .                 | \$ 2.75 |
| Toy Bizzare, by Activision . . .            | \$ 5.00 |
| Wargame Construction Set, by SSI . . .      | \$12.50 |
| Warship, by SSI . . .                       | \$12.50 |
| Zenji, by Activision . . .                  | \$ 5.00 |
| 3 for All Games, by BCI . . .               | \$ 3.75 |
| Memorex Diskettes, box of 10. SSDD . . .    | \$ 2.50 |

**IMPORTANT NOTE:** (C) indicates that the item is on Cartridge format. All other items are distributed on 5.25" diskette. All products are the original factory packages, no seconds or damaged goods. Name brands only!!  
NOT Public Domain!!

TO ORDER, SEND CHECK OR MONEY ORDER TO:

### CONSULT

P.O. BOX 5160, SAN LUIS OBISPO, CA 93403-5160  
Include \$4.00 for Shipping Charges to U.S. Addresses.  
\$6.00 for Canada, and \$8.00 for International.

CA Orders must add 6.25% Sales Tax.  
CREDIT CARD ORDERS CALL TOLL FREE

**1-800-676-6616**  
ORDERS ONLY, PLEASE!!

All other information, including requests for our FREE CATALOG, which includes 100's of additional closeout products. Call (805) 544-6616, or write to the above address.

Circle Reader Service Number 128



# PROGRAMMER'S PAGE

R A N D Y T H O M P S O N

**T**his month you'll find some special effects, a joystick routine, and corrections for two previous programs.

## Screen Fader

The following program fades out all of the text on the screen. Because the program relies on the computer's operating system to fill color memory, this routine will not work on some older 64s.

```
XS 10 POKE 53280,0:POKE 53281,
      0:POKE 646,1:POKE 648,24
      0
HX 20 FOR A=1 TO 6:READ C:POKE
      646,C:PRINT CHR$(147):N
      EXT
KM 30 POKE 648,4:POKE 646,1:PR
      INT CHR$(147)
CR 40 DATA 1,7,15,12,11,0
```

The color sequence used to fade the characters can be changed by altering the data in line 40. Each value (0-15) corresponds to one of the standard Commodore colors.

You may also change line 20 so that it reads the color values from memory instead of from DATA statements. For example, replace line 20's READ C:POKE 646,C instructions with POKE 646,PEEK(828+A), and the fade colors will be obtained from memory starting at location 828. This way, you don't have to use RESTORE before calling this routine for the second or third time.

CLINT KAWASAKI  
ALTUS, OK

## Earthquake

This short routine makes all of the characters on the screen shake back and forth.

```
ED 10 PRINT CHR$(147)TAB(14)"
      {DOWN}S H A K E!"
PH 20 FOR X=1 TO 10:FOR I=0 TO
      5:POKE 53270,(PEEK(5327
      0)AND248)+I:NEXT
QJ 30 POKE 53270,200:NEXT
```

You can use this code to produce explosion or earthquake effects.

JOHN SVOBODA  
SWARTZ CREEK, MI

## Improved 64 Joystick Handling

When I first started programming on the 64, I was irritated by the fact that using a joystick could scramble the keyboard and vice versa. So, I've devised a way to get around this problem.

The following BASIC program creates a short machine language subroutine that returns the value of a joystick in either port while filtering out

```
MX 100 JJ=49152:JH=INT(JJ/256)
      :JL=JJ-JH*256:POKE 785,
      JL:POKE 786,JH
MQ 110 FOR K=JJ TO JJ+67:READ
      {SPACE}Y:POKE K,Y:NEXT
SR 120 DATA 120,70,97,176,21,1
      69,127,141
AX 130 DATA 0,220,173,1,220,20
      1,255,240
BH 140 DATA 4,169,31,208,13,17
      3,0,220
EC 150 DATA 16,8,169,255,141,0
      ,220,173
MD 160 DATA 1,220,41,31,73,15,
      208,4
MK 170 DATA 133,97,240,23,133,
      98,169,136
QB 180 DATA 133,97,169,0,133,9
      9,133,100
XA 190 DATA 133,101,133,102,19
      8,97,6,98
SH 200 DATA 16,250,88,96
```

This program stores the joystick routine's machine language in memory at 49152. If this address is inconvenient, change the value assigned to JJ in line 100.

TIM MACINTA  
FLINTSTONE, MD

## Printer Spooler

Ted Grondski wrote to point out an error in his printer spooler program that was published in June's column. Line 180 should be changed to read

```
180 POKE A+219,H:POKE
      A+78,H+1
```

This correction is necessary if you wish to change the program's starting address.

## Alpha Lock

Rev. Kenneth Cherry of Spring Grove, Pennsylvania, found an error in my May *Alpha Lock* program. The first value in line 300 should be a 20, not a 13. Without this change, the DEL key thinks it's a RETURN key whenever the alpha lock is activated.

*"The Programmer's Page" is interested in your programming tips and tricks. Send all submissions to The Programmer's Page, COMPUTE's Gazette, P.O. Box 5406, Greensboro, North Carolina 27403. We'll pay \$25-\$50 for each tip we publish.* □

READERS' TIPS ON  
**QUAKES,  
FADERS,  
SPOOLERS  
AND MORE**

any interference with the keyboard.

After running this program, you can read a joystick by issuing the command *joy=USR(port)*, where *port* is the desired joystick port (1 or 2) and the current value of that port is returned in the *joy* variable. This subroutine automatically inverts port bits 0-3 so that it returns the values recommended on page 344 of the *Commodore 64 Programmer's Reference Guide*. That is, the value of *joy* AND 15 equals 0 if there's no joystick movement, 1 for up, 2 for down, 4 for left, 5 for up and left, 6 for down and left, 8 for right, 9 for up and right, and 10 for down and right. If *joy* AND 16 equals 0, the fire button is being pressed.

**Repairable C-64 Power Supply** **\$24.95**

Heavy-duty—suitable for most peripheral "Add-ons" • Conservatively rated 1.8 amps • Large heat sink runs cool • Complete schematic included (spare parts kit available) • 13 month warranty on entire unit • U.L. approved • External Fuse • Super price of \$24.95 (plus UPS) • Sold world wide in various voltages and plug configurations • Dealer pricing available

\*Over 50% of '64' failures were due to power supply "runaway" (Prices subject to change.)



**THE GRAPEVINE GROUP, INC.**  
3 Chestnut Street  
Suffern, NY 10901



(914)354-4448 • 1-800-292-7445 • FAX 914-354-6696

Circle Reader Service Number 165

**DON'T MISS THIS INTRODUCTORY OFFER**

Screen-Pro is a complete graphic screen and animation production system for the C-64/128!

Create FAST menus, displays, Intros, windows, instructions, game backgrounds, cartoons, video titles, slide shows, and easily use them in your OWN PROGRAMS!

**SCREEN-PRO**  
Up to 34 screen animations!  
Full color & mode support!  
Powerful cut, paste, copy!  
Draw in any direction fast!  
Load and save screens to disk. No need to program!  
DOS & directory support!  
Plus much, much more!

Whether you're a beginner or an expert, whether this is your first program or your last, we're so sure that you'll agree Screen-Pro is the best program of its kind we'll give you a FREE action game just to try it!

2 Disk Set & Full Documentation only \$24.95 postage paid

Satisfaction Guaranteed! Send check or money order payable to:

**AccuTone Productions 36 Myers Ct. Medford, OR 97501**

Circle Reader Service Number 149

**C\* BASE BBS SYSTEMS**

If you are looking for the fastest, most efficient BBS with the most features for the C64, your wait is NOW OVER! And now CBASE has a C128 version as well. C\*BASE supports nearly all hardware additions including SFDs, popularly advertised harddrives, 1581s (Supports partitioning), and ram expanders! Both systems come with BASIC source code, extensive documentation, and free modules such as Empire and Murder Motel! An extensive network of support lines allows easy access to updates and more modules also! To order send check or m.o. & your Name, Alias, Address, Voice#, BBS#, BBS name, and Equip. List.

For More Information Contact **\$50.00 64 CBASE** (301) 761-9773 VOICE  
Gunther Birznieks **\$70.00 128CBASE** (301) 761-0306 64 BBS  
6390 Apt. B Smithy Square (703) 751-2729 128BBS  
Glen Burnie, MD 21061 (703) 620-8897 128BBS

Circle Reader Service Number 138

GET MORE FEATURES FOR **BIBLE STUDY**

**LANDMARK The Computer Reference Bible** offers:

- Complete Old and New Testaments in King James Version or New International Version. Individual verse (marginal) references, words of Christ in color, complete NIV footnotes and a Concordance.
- Searching for up to 12 partial words, wildcard characters, words or phrases at once. Search not only the Bible, but also your own files, or even the results of a search, to narrow your search down further.
- Creating of your own files, using the built in text editor to copy Scripture, text or search results into your file. You can also convert your files for use with most wordprocessors, like Paperclip and GEOS to add graphics or different type styles.
- Compiling your own Personal Bible containing all your notes, comments, outlining of text in color and keep it organized. Make new references, add to the existing references, or reference your own files!
- Compatibility with all disk drives for the C64/128 including 1541, 1571, 1581, SFD1001, and hard disk drives. Also will take advantage of cartridge or hardware speedup products like FAST LOAD or Jiffy DOS to improve performance of the program. Entire Bible with references fits onto eight 1581 disks. C64 v1.2 and C128 v2.0 on same program disk!

**KJV \$89.95 NIV \$99.95 /Both \$155.00**  
plus \$4.00/\$6.50 shipping in cont. USA

CALL OR WRITE FOR FREE BROCHURE  
**P.A.V.Y. Software P.O. Box 1584**  
**Ballwin, MO 63022 (314) 527-4505**  
MC/VISA accepted. Foreign orders write for shipping

Circle Reader Service Number 191

**GEORAM Compatible**

**Make your Commodore a Speed Demon**



**TURBO MASTER CPU™**  
**4.09 MHz Accelerator Cartridge for C64**

- Four times faster processing speed combined with five times faster disk Load and Save.
- Software actually runs four times as fast. Basic, word-processor scrolling and search, spreadsheets, assemblers, graphics, GEOS etc. Compatible with most software.
- Jiffy DOS compatibility option available (by Creative Micro Designs). HD Compatible.
- Why upgrade when you can enjoy dazzling performance from your C64 now?
- Only \$199. Shipping Included, 10-day satisfaction guarantee.

**Data acquisition and control interfaces C64 & C128**



80-line Simplified Digital I/O Board with ROM cartridge socket  
Model SS100 Plus \$139. Additional \$129.



Original Ultimate Interface  
Universally applicable dual 6522 versatile interface adapter board.  
Model 64IF22 \$169. Additional \$149.

16-Channel, 8-bit analog-to-digital conversion module.  
Requires model 64IF22. Model 64IF/ADC0816 \$69.

Interface boards include extensive documentation and program disk. Manuals available separately for examination. Call or write for detailed brochure.

**Resources for Serious Programmers.**

- Symbol Master Multi-Pass Symbolic Disassembler. C64 & C128. \$49.95
- PTD6510 super-powerful Symbolic Debugger. C64. \$49.95
- MAE64 6502/65C02 Macro Editor/Assembler. \$29.95
- C64 Source Code Book. Kernal and Basic ROMs. \$29.95

"We engineer miracles."

**SCHNEDLER SYSTEMS**

Dept. G 8, 25 Eastwood Road, P.O. Box 5964  
Asheville, North Carolina 28813 Telephone: (704) 274-4646

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

[www.commodore.ca](http://www.commodore.ca)



# AUTO PROOFREADER

P H I L I P I . N E L S O N

*The Automatic Proofreader* helps you type in program listings for the 128 and 64 and prevents nearly every kind of typing mistake.

Type in the *Proofreader* exactly as listed. Because the program can't check itself, type carefully to avoid mistakes. Don't omit any lines, even if they contain unusual commands. After you've finished, save a copy before running it.

Next, type RUN and press Return. When the program displays the message *Proofreader Active*, you're ready to type in a BASIC program.

Every time you finish typing a line and press Return, the *Proofreader* displays a two-letter checksum in the upper left corner of the screen. Compare this result with the two-letter checksum printed to the left of the line in the program listing. If the let-

ters match, it's almost certain the line was typed correctly. If not, check for your mistake and correct the line.

The *Proofreader* ignores spaces not enclosed in quotation marks, so you can omit or add spaces between keywords and still see a matching checksum. However, spaces inside quotes are significant, so the program pays attention to them.

The *Proofreader* does not accept keyword abbreviations (for example, ? instead of PRINT). If you use abbreviations, you can check the line later by LISTing it, moving the cursor back to the line, and pressing Return.

If you're using the *Proofreader* on the 128, do not perform any GRAPHIC commands while the *Proofreader* is active. When you perform a command like GRAPHIC 1, the computer moves everything at the start of

BASIC program space—including the *Proofreader*—to another memory area, causing it to crash. The same thing happens if you run any program with a GRAPHIC command while the *Proofreader* is in memory.

Though the *Proofreader* doesn't interfere with other BASIC operations, it's a good idea to disable it before running another program. The simplest way to disable it is to turn the computer off then on. A gentler method is to SYS to the computer's built-in reset routine (65341 for the 128, 64738 for the 64). These reset routines erase any program in memory, so be sure to save the program you're typing in before entering the SYS command.

When using the *Proofreader* with another utility, disable both programs before running a BASIC program.  see program listing on page 39

## BIG BLUE READER

*Reads & Writes IBM MS-DOS Disks*

Big Blue Reader transfers word processing, text, ASCII, and binary files between Commodore and IBM MS-DOS diskettes. 1571 or 1581 Disk Drive is required. Does not work with 1541. Fast, easy to use, menu driven program for novices and experts. Transfers MS-DOS files on 360K 5.25" & 720K 3.5" disks. Big Blue Reader 128 V3.1 supports: C128 CP/M files, 17xx REU, 40/80 column, reading MS-DOS sub-directories, and much more. Big Blue Reader 64 V2 available separately only \$29.95 BBR 128 V3.1 upgrade available. Send original BBR disk and \$18

**BIG BLUE READER 128/64 only \$44.95**

## BIBLE SEARCH V3.1

*Fastest Complete Bible on 7 Disks!*

A fast, easy-to-use tool for general Bible study and in-depth Bible research. Finds any word or verse in seconds! Complete Old and New Testament text and Concordance on seven 1541/71 disks. Includes C64 & C128 programs; printer and disk output; versatile search options; and more. Satisfaction, Money Back Guaranteed! Please specify 1541, 1571 or 1581 disks.

Whole Bible Version KJV \$69, NIV \$79. (Both only \$125)  
New Testament Version KJV \$25, NIV \$29.

NEW Bible Search Gospel Demo for C64/128 or Amiga only \$3 "an enormously quick and responsive program", Gazette Aug '89 "try it with any drive—you'll be amazed", Twin Cities #25

**SOGWAP Software – Ph:(219)724-3900**

115 Belmont Road; Decatur IN 46733  
Order by check, money order, or COD. US Funds only.  
Free shipping in US and Canada. No credit card orders.  
Foreign orders add \$5 (\$12 for whole Bible).

Circle Reader Service Number 159

## SOFTWARE SALE! 3/\$25 or \$9 ea.

VIC-20—Star trek-Cosmic crunch-Tutankhamen  
Raid on ft. Knox-Sky is falling—Demon attack-  
Omega race-Mole attack-Buck Rogers-Swarm-  
Gorf-Serpentine-Terraguard-Atlantis-&MORE  
COM 64—Pro golf tour-Entrepreneur-&MORE  
Add \$3 Frt to: HACKER CAT— 8301 SE Division  
Portland,Or 97266 ————— 1-503-774-4402

Circle Reader Service Number 146

## ONLY ON DISK

There's something new on the *Gazette Disk!* In addition to the type-in programs found in each issue of the magazine, we're putting more features and programs each month on the *Gazette Disk*. Check out the original 64 and 128 artwork on display in "Gazette Gallery," and look for our bonus programs as well. These programs and their instructions appear only on disk. Here are descriptions of this month's bonus programs.

**geoGammon** Douglas S. Curtis

Take on the computer in this modern game of strategy and chance for GEOS and GEOS 128, versions 1.3 and higher. This beautiful one-player version of backgammon will challenge your board skills for hours.

**64-Shell** Bill Chin

Add a personal touch to your 64 with this slick interrupt-driven, pull-down menu utility. You can create custom menus that launch your favorite programs or issue DOS commands. These menus also work with other programs, like *MetaBasic*.

**Multi-Color Lister** Robert Cook

This handy utility adds eye-catching color to your BASIC listings. It modifies BASIC's LIST routine to make individual elements of your program distinguishable. BASIC keywords, variables, and character strings are each displayed in a unique color, making your editing and debugging work easier.



# PROGRAMS

M A R I U S Z J A K U B O W S K I

The year is 2141 A.D. Ravaged by pollution, the planet Earth is now all but uninhabitable. For the past 50 years, scientists have desperately scoured the heavens for another planet to colonize. So far, they've had little success—until now. In a miraculous turn of events, a suitable planet has just been located in Section Pi. This oasis in the cosmic void is seen as man's last hope for survival.

After a careful survey of this planet, vestiges of a supreme alien culture are uncovered. Though the aliens were long ago destroyed by their own weapons, their robotic defense system remains intact and active. To make matters worse, this system is enclosed in eight tunnels below the surface of the planet. If our species is to survive, you must pilot a specially equipped fighter to the planet and destroy the robotic defense system.

## Getting Started

*Section Pi* is written entirely in machine language. To type it in, you'll need *MLX*, a machine language entry program. See "Typing Aids" elsewhere in this section. The *MLX* prompts, and the values you should enter, are as follows:

Starting address: \$1D4D

Ending address: \$3284

When you've finished typing, be sure to save the program to disk.

To play a game, plug a joystick into port 2 and type `LOAD "filename".8,1`, where *filename* is the name you used when you saved the program. After the program has loaded, enter the command `SYS 7501`. When the title screen appears, press the fire button to begin play.

## Playing the Game

The object of *Section Pi* is to blast your way through eight levels, or *stages*, of robotic attack. You begin the mission with four fighter craft. You must avoid or destroy the alien robot ships that you encounter, as well

as any debris that obstructs your path. Contact with either results in the loss of a ship. The game ends when you've lost all your fighters or you've completed the eighth stage.

The stage number, high score, and current score are displayed at the top of the screen. The number of ships remaining is shown below the stage number. For every 10,000 points you score, you're awarded an extra fighter. On the first stage, you receive 100 points for each robotic craft you de-

# SECTION PI

GET OUT YOUR  
PLASMA GUN AND  
START BLASTING IN  
THIS FAST-ACTION  
ARCADE-STYLE  
GAME FOR THE 64.  
JOYSTICK REQUIRED.

stroy. With each successive stage, you earn 50 additional points per robot. Each piece of the tunnel you vaporize is worth 10 points. The *level guardians*, or oversized alien robots, that appear at the end of each stage are worth three times the current point value of the smaller robots.

The robots that are found deep in the tunnels are built to withstand greater pressure and more severe temperatures. As a result, these robots require more shots before they're destroyed. You'll notice that these deep-level robots move more quickly, too.

## Words to Live By

There are several playing strategies you might like to try. When you come upon the level guardians, don't be discouraged. They'll attack your fighter in a chainlike formation that spans the entire width of a tunnel. To fly through them, destroy the robot on the outside of the formation first; then you can maneuver your craft through the remaining guardians.

At the higher stages, the robots require more hits to be destroyed. Again, to survive an attack, you must single out and destroy one robot in the formation and then fly through the vacated space.

When one of your ships has been destroyed, a new one will appear. For a brief moment, this ship is invincible. Be sure to use this time to take out as many robots as possible.

## Section Pi

```

1D4D:A2 00 0E DC 86 FB 86 0B
1D55:FD A9 D0 85 FC A9 38 85 EF
1D5D:FE A9 33 85 01 A2 08 A0 83
1D65:00 B1 FB 91 FD C8 D0 F9 53
1D6D:E6 FC E6 FE CA D0 F2 A9 50
1D75:37 85 01 A9 1E 8D 18 D0 8F
1D7D:4C 37 1E A9 FB CD 12 D0 16
1D85:10 FB A6 02 CA 10 02 A2 F8
1D8D:07 86 02 AD 16 D0 29 F7 46
1D95:09 10 05 02 8D BC 2F E0 B7
1D9D:07 F0 03 4C E5 1D A2 00 B2
1DA5:A9 04 8D BB 1D 8D BE 1D DC
1DAD:A9 51 8D BA 1D A9 50 8D 2C
1DB5:BD 1D A0 00 B9 51 04 99 DE
1DBD:50 04 C8 C0 27 90 F5 18 C5
1DC5:AD BA 1D 7D 4F 2D 8D BA 06
1DCD:1D 8D BD 1D AD BB 1D 69 83
1DD5:00 8D BB 1D 8D BE 1D CE 2D
1DDD:BD 1D CA 10 D5 20 D3 2C 9B
1DE5:A9 FB CD 12 D0 30 FB 60 6E
1DED:AD 12 D0 C9 FB D0 F9 60 B1
1DF5:A9 01 8D 19 D0 A2 FB AC 3E
1DFD:BC 2F AD 12 D0 C9 FB 90 6F
1E05:15 A2 07 20 65 2B CA 10 D4
1E0D:FA AD 1F D0 8D E5 2F 20 A5
1E15:5D 2D A2 42 A0 C8 8E 12 1B
1E1D:D0 8C 16 D0 20 6A 2C 20 D7
1E25:5C 2B AD 0D DC 29 01 F0 5F
1E2D:06 20 47 2A 20 6B 25 4C 45
1E35:BC FE 20 45 20 20 EF 22 6B
1E3D:A2 2E BD DC 2D 9D 00 D0 8C
1E45:CA 10 F7 A9 0B 8D 86 02 22
1E4D:A9 93 20 D2 FF A2 18 BD EC
1E55:13 2E 9D 00 D4 CA 10 F7 44
1E5D:E8 86 02 A9 7F 8D 0D DC B3
1E65:A9 F5 8D 14 03 A9 1D 8D 6D
1E6D:15 03 A2 5F BD 7C 2D 9D 17
1E75:F8 38 CA 10 F7 A9 28 20 6D

```







# PROGRAMS

|         |                         |         |                         |         |                         |
|---------|-------------------------|---------|-------------------------|---------|-------------------------|
| 259D:2F | BD 9B 2E 8D CB 25 AD D8 | 27FD:1B | D4 8D 6B 28 8D 6C 28 EF | 2A5D:8D | 04 D4 AE CC 2F E0 3C 20 |
| 25A5:CB | 25 F0 13 C9 01 F0 12 B4 | 2805:A9 | 08 8D EB 27 A2 06 A0 0D | 2A65:B0 | 12 E8 E8 E8 8E CC 2F 8C |
| 25AD:C9 | 02 F0 11 C9 03 F0 10 D8 | 280D:03 | 8A 48 20 C7 28 98 A2 3F | 2A6D:8E | 08 D4 E0 3C 90 05 A9 8B |
| 25B5:C9 | 04 F0 0F 4C 06 21 4C FD | 2815:FF | 20 CA 29 20 CA 29 20 F7 | 2A75:80 | 8D 0B D4 60 48 A9 81 15 |
| 25BD:69 | 26 4C FF 26 4C EE 27 37 | 281D:CA | 29 AD 6B 28 2D EB 27 7E | 2A7D:8D | 0B D4 A9 28 8D CC 2F D0 |
| 25C5:4C | 6D 28 4C F3 28 00 A2 3E | 2825:DO | 04 98 20 CA 29 68 AA 6A | 2A85:A9 | 00 8D C9 2F AE 02 D0 06 |
| 25CD:06 | AD 1B D4 C9 40 B0 04 EB | 282D:AD | 6C 28 2D EB 27 D0 15 F9 | 2A8D:AC | 03 D0 AD 10 D0 29 02 06 |
| 25D5:A0 | 00 F0 12 C9 80 B0 04 65 | 2835:DE | 01 D0 BD 01 D0 C9 46 50 | 2A95:F0 | 05 A9 01 8D C9 2F 68 43 |
| 25DD:A0 | 0B D0 0A C9 C0 B0 04 AC | 283D:B0 | 21 AD 6C 28 0D EB 27 1F | 2A9D:48 | C9 01 F0 17 A9 00 8D A4 |
| 25E5:A0 | 16 D0 02 A0 21 AD 1B 40 | 2845:8D | 6C 28 0E 16 FE 01 D0 09 | 2AA5:C9 | 2F AE 04 D0 AC 05 D0 D4 |
| 25ED:D4 | 4A 4A 4A 18 79 0A 26 04 | 284D:BD | 01 D0 C9 E4 90 0C A9 9E | 2AAD:AD | 10 D0 29 04 F0 05 A9 21 |
| 25F5:9D | 00 D0 C8 E8 E0 10 90 31 | 2855:FF | 38 ED EB 27 2D 6C 28 1F | 2AB5:01 | 8D C9 2F 8A 18 65 02 9B |
| 25FD:ED | AD 10 D0 29 07 19 0A 5B | 285D:8D | 6C 28 0E EB 27 E8 E8 2C | 2ABD:8D | C8 2F AD C9 2F 69 00 A9 |
| 2605:26 | 8D 10 D0 60 00 3C 00 52 | 2865:C8 | C0 08 90 A4 60 00 00 FA | 2AC5:8D | C9 2F AD C8 2F 38 E9 71 |
| 260D:5F | 00 82 00 A5 00 BE 00 04 | 286D:AD | B7 2F D0 11 20 1B 2A DE | 2ACD:20 | 8D C8 2F AD C9 2F 49 7E |
| 2615:32 | 3C 32 5F 32 82 32 A5 6B | 2875:2D | 36 26 8D B7 2F AD 1B F1 | 2AD5:00 | 4A AD C8 2F 6A 4A 01    |
| 261D:32 | BE F8 00 E6 46 E6 8C FB | 287D:D4 | 29 18 8D 6B 28 A9 08 B5 | 2ADD:8D | C8 2F 98 38 E9 2A 4A A2 |
| 2625:E6 | D2 E6 23 E6 80 00 3C 1E | 2885:8D | EB 27 A2 06 A0 03 AD 0D | 2AE5:4A | 4A 8D CA 2F A9 00 85 F5 |
| 262D:00 | E6 E6 E6 32 E6 32 3C 4C | 288D:01 | D0 DD 01 D0 90 06 FE 32 | 2AED:FB | A9 04 85 FC AE CA 2F EA |
| 2635:C0 | A9 54 A2 06 9D 00 D0 78 | 2895:01 | D0 4C 9D 28 DE 01 D0 8D | 2AF5:18 | A5 FB 69 28 85 FB A5 CA |
| 263D:AD | 1B D4 4A 4A 4A 7D 00 DC | 289D:0A | 48 20 C7 28 98 A2 FF AE | 2AFD:FC | 69 00 85 FC CA D0 F0 29 |
| 2645:ED | E8 E8 E0 10 90 EE AD AD | 28A5:2A | CA 29 20 CA 29 AD 6B A1 | 2B05:18 | A5 FB 6D C8 2F 85 FB 31 |
| 264D:1B | D4 4A 4A 69 50 A2 06 22 | 28AD:28 | 2D EB 27 F0 07 98 20 42 | 2B0D:A5 | FC 69 00 85 FC 38 A5 D8 |
| 2655:9D | 01 D0 69 1E E8 E8 E0 A8 | 28B5:CA | 29 20 CA 29 68 AA 0E B4 | 2B15:FB | E9 29 85 FB A5 FC E9 BB |
| 265D:10 | 00 F5 AD 10 D0 08 F8 3E | 28BD:EB | 27 E8 E8 C8 C0 08 90 63 | 2B1D:00 | 85 FC A0 00 A2 00 AD B6 |
| 2665:8D | 10 D0 60 AD B7 2F D0 18 | 28C5:C6 | 60 AD EB 27 2D B6 2F 90 | 2B25:C0 | 2F 91 FB BD 54 2B 18 47 |
| 266D:09 | 20 CC 25 20 1B 2A 8D 81 | 28CD:F0 | 23 AD 10 D0 2D EB 27 50 | 2B2D:65 | FB 85 FB A5 FC 69 00 99 |
| 2675:B7 | 2F AD E6 2F 0A 8C CE A1 | 28D5:D0 | 1B BD 00 D0 C9 20 B0 AB | 2B35:85 | FC E8 E0 80 90 E8 A9 B6 |
| 267D:E6 | 2F 60 A9 08 8D D0 2F F6 | 28DD:14 | 98 AA AD C7 23 48 AD 97 | 2B3D:10 | 8D D9 2F 8C DA 2F 20 7B |
| 2685:AD | B4 2F AA CA B0 F7 26 C9 | 28E5:EB | 27 8D C7 23 38 20 EA 49 | 2B45:40 | 24 68 C9 01 D0 04 8C 4E |
| 268D:8D | E6 2F AA CA 00 03 BD B0 | 28ED:23 | 68 8D C7 23 60 AD B7 C5 | 2B4D:EA | 2F 60 8C EB 2F 60 01 97 |
| 2695:07 | D0 CD 01 D0 F0 0B B0 74 | 28F5:2F | D0 4A AE BA 2F E8 E8 93 | 2B55:01 | 26 01 01 26 01 01 AD CA |
| 269D:06 | FE 07 D0 4C A7 26 DE C6 | 28FD:8E | BA 2F 8E C1 2F A9 46 77 | 2B5D:C7 | 2F F0 03 CE C7 2F 60 06 |
| 26A5:07 | D0 A9 00 8D F5 26 8D FC | 2905:A2 | 06 9D 01 D0 A9 18 18 63 | 2B65:AD | EA 2F D0 0A AD 15 D0 42 |
| 26AD:F6 | 26 AD 10 D0 2D D0 2F C1 | 290D:7D | 01 D0 E8 E8 E0 10 90 82 | 2B6D:29 | FD 8D 15 D0 D0 28 EE E3 |
| 26B5:F0 | 05 A9 01 8D F5 26 AD 3F | 2915:F1 | A9 96 A2 06 9D 00 D0 3F | 2B75:02 | D0 00 08 AD 10 D0 09 F3 |
| 26BD:10 | D0 29 01 F0 05 A9 01 6B | 291D:A9 | 0A 18 7D 00 D0 E8 E8 9F | 2B7D:02 | 8D 10 D0 AD 10 D0 29 BF |
| 26C5:8D | F6 26 8A 48 38 BD 06 A8 | 2925:E0 | 10 90 F1 AD 10 D0 09 75 | 2B85:02 | F0 14 AD 02 D0 C9 50 AD |
| 26CD:D0 | ED 00 D0 AD F5 26 ED 8A | 292D:F8 | 8D 10 D0 A9 F8 8D ED A8 | 2B8D:90 | 0D A9 00 8D EA 2F AD C8 |
| 26D5:F6 | 26 B0 09 98 A2 01 20 3F | 2935:27 | 8D 17 D0 8D 1D D0 20 11 | 2B95:15 | D0 29 FD 8D 15 D0 AD BF |
| 26DD:CA | 29 4C E8 26 98 A2 FF CA | 293D:1B | 2A 8D B7 2F A9 08 8D 92 | 2B9D:EB | 2F D0 08 AD 15 D0 29 CD |
| 26E5:20 | CA 29 68 AA 0E D0 2F FE | 2945:EB | 27 A2 06 A0 03 AD ED 66 | 2BA5:FB | 8D 15 D0 EE 04 D0 D0 07 |
| 26ED:E8 | E8 C8 E0 0A 90 A0 60 44 | 294D:27 | D0 FE 27 D0 25 FE 01 88 | 2BAD:08 | AD 10 D0 09 04 8D 10 06 |
| 26F5:00 | 00 03 02 02 02 01 DD    | 2955:D0 | FE 01 D0 AD B4 2F C9 65 | 2BB5:D0 | AD 10 D0 29 04 F0 14 3E |
| 26FD:01 | 01 AD B7 2F D0 1E 20 55 | 295D:07 | 90 06 FE 01 D0 FE 01 52 | 2BBD:AD | 04 D0 C9 50 90 0D A9 2B |
| 2705:CC | 25 20 1B 2A 8D B7 2F DE | 2965:D0 | BD 01 D0 C9 D0 90 2E 9D | 2BC5:00 | 8D EB 2F AD 15 D0 29 7C |
| 270D:AD | 1B D4 8D EC 27 8D ED 79 | 296D:AD | ED 27 D0 EB 27 8D ED CC | 2BCD:FB | 8D 15 D0 60 AD C7 2F AD |
| 2715:27 | AE B4 2F E0 05 B0 02 AA | 2975:27 | D0 23 DE 01 D0 DE 01 EB | 2BD5:F0 | 01 60 AC 01 D0 A2 01 4D |
| 271D:29 | 38 8D 6B 28 A9 08 8D FB | 297D:D0 | AD B4 2F C9 03 90 03 AB | 2BDD:A9 | 00 8D 69 2C AD EA 2F 6E |
| 2725:EB | 27 A2 06 A0 03 AD EB 40 | 2985:DE | 01 D0 BF 01 D0 C9 46 A2 | 2BE5:D0 | 38 AD 10 D0 29 FD 8D 1E |
| 272D:27 | 2D EC 27 F0 34 8A 48 20 | 298D:80 | 0C A9 FF 38 ED EB 27 E8 | 2BED:10 | D0 29 01 F0 03 8E 69 CF |
| 2735:98 | A2 01 20 CA 29 AD EB DC | 2995:2D | ED 27 8D ED 27 8A 48 21 | 2BF5:2C | 18 AD 00 D0 69 0F 8D F5 |
| 273D:27 | 2D 6B 28 F0 04 98 20 43 | 299D:AD | B4 2F AA CA BD C2 29 80 | 2BFD:02 | D0 AD 69 2C 69 0F 8D CD |
| 2745:CA | 29 68 AA AD 10 D0 2D 77 | 29A5:AA | 98 20 CA 29 AD B4 2F BC | 2C05:08 | AD 10 D0 09 02 8D 10 57 |
| 274D:EB | 27 F0 13 BD 00 D0 C9 04 | 29AD:C9 | 07 90 04 98 20 CA 29 FC | 2C0D:D0 | 8C 03 D0 AD 15 D0 09 CA |
| 2755:36 | 90 0C A9 FF 38 ED EB A7 | 29B5:68 | AA 0E EB 27 E8 E8 C8 DE | 2C15:02 | 8D 15 D0 8D EA 2F 4C 44 |
| 275D:27 | 2D EC 27 8D EC 27 4C 55 | 29BD:C0 | 08 90 8A 60 FF 01 FF 32 | 2C1D:59 | 2C AD EB 2F D0 44 AD 94 |
| 2765:95 | 27 8A 48 98 A2 FF 20 8D | 29C5:FF | 01 FF FF FF 8C CE 2F 57 | 2C25:10 | D0 29 FB 8D 10 D0 29 16 |
| 276D:CA | 29 AD EB 27 2D 6B 28 CC | 29CD:BE | CD 2F 8D CF 2F 8A A8 92 | 2C2D:01 | F0 03 8E 69 2C 18 AD 65 |
| 2775:F0 | 04 98 20 CA 29 68 AA C8 | 29D5:AD | CF 2F 0A AA C0 01 D0 A4 | 2C35:00 | D0 69 0F 8D 04 D0 AD AB |
| 277D:AD | 10 D0 2D EB 27 D0 10 41 | 29DD:0E | FE 00 D0 D0 20 20 0D 58 | 2C3D:69 | 2C 69 00 F0 08 AD 10 95 |
| 2785:BD | 00 D0 C9 21 B0 09 AD F4 | 29E5:2A | 4D 10 D0 8D 10 D0 C0 BE | 2C45:D0 | 09 04 8D 10 D0 8C 05 83 |
| 278D:EC | 27 D0 EB 27 8D EC 27 EC | 29ED:FF | D0 13 DE 00 D0 BD 00 83 | 2C4D:D0 | AD 15 D0 09 04 8D 15 B1 |
| 2795:AD | EB 27 2D ED 27 F0 23 7E | 29F5:D0 | C9 FF D0 09 20 0D 2A 3D | 2C55:D0 | 8D EB 2F A9 0A 8D C7 42 |
| 279D:DE | 01 D0 AD B4 2F C9 07 8D | 29FD:4D | 10 D0 8D 10 D0 AD CF DC | 2C5D:2F | A9 28 8D CB 2F A9 11 15 |
| 27A5:90 | 03 DE 01 D0 BD 01 D0 39 | 2A05:2F | AC CE 2E AE CD 2F 60 54 | 2C65:8D | 04 D4 60 0D AD 00 CD B9 |
| 27AD:C9 | 46 B0 2C A9 FF 38 ED F6 | 2A0D:A2 | 00 A9 01 EC CF 2F F0 ED | 2C6D:29 | 0F AA BD 3C 2E A8 BD F8 |
| 27B5:EB | 27 2D ED 27 8D ED 27 BA | 2A15:04 | E8 0A 9D F7 60 A2 04 7E | 2C75:2C | 2E AA E0 01 D0 1B AD 02 |
| 27BD:4C | DD 27 FE 01 D0 AD B4 D9 | 2A1D:AD | C1 2F 9D D4 2F AD B5 EC | 2C7D:10 | D0 29 01 F0 07 AD 00 46 |
| 27C5:2F | C9 07 90 03 FE 01 D0 EE | 2A25:2F | 9D FB 07 CA 10 F1 E8 CB | 2C85:D0 | C9 36 B0 0D EE 00 D0 7F |
| 27CD:BD | 01 D0 C9 E4 90 09 AD 1B | 2A2D:8E | FA 2F A2 E6 8E FF 2F 30 | 2C8D:D0 | 08 AD 10 D0 09 01 8D 41 |
| 27D5:ED | 27 0D EB 27 8D ED 27 B7 | 2A35:AD | 15 D0 0F 8E 8D 15 D0 49 | 2C95:10 | D0 E0 FF D0 1B AD 10 A4 |
| 27DD:0E | EB 27 E8 E8 C8 C0 08 95 | 2A3D:8D | B6 2F AD C3 2F 20 2A 0C | 2C9D:D0 | 29 01 D0 07 AD 00 D0 95 |
| 27E5:B0 | 03 4C 2B 27 60 00 00 44 | 2A45:25 | 60 AE CB 2F E0 06 90 70 | 2CA5:C9 | 21 90 0D CE 00 D0 10 36 |
| 27ED:00 | AD B7 2F D0 12 20 1B BB | 2A4D:12 | CA CA 8E CB 2F 8E F3    | 2CAD:08 | AD 10 D0 29 FE 8D 10 F4 |
| 27F5:2A | 20 36 26 8D B7 2F AD E1 | 2A55:01 | D4 E0 06 B0 05 A9 40 09 | 2CB5:D0 | C0 FF D0 0A AD 01 D0 8D |



# PROGRAMS

2CBD:C9 46 90 03 CE 01 D0 C0 AB  
 2CC5:01 D0 0A AD 01 D0 C9 E6 B4  
 2CCD:B0 03 EE 01 D0 60 CE F7 CA  
 2CD5:2F D0 2C AD BE 2F CD C0 69  
 2CDD:2F F0 19 AD 1B D4 C9 A0 68  
 2CE5:B0 12 AD C0 2F 8D BE 2F 39  
 2CED:AD 1B D4 4A 4A 69 28 8D F8  
 2CF5:F7 2F D0 0B AD BF 2F 8D 39  
 2CFD:BE 2F A9 78 8D F7 2F A9 92  
 2D05:04 8D 32 2D A9 77 8D 31 55  
 2D0D:2D A0 0D 18 B9 4F 2D 6D 1C  
 2D15:31 2D 8D 31 2D A9 00 6D 95  
 2D1D:32 2D 8D 32 2D AE C0 2F 85  
 2D25:AD 1B D4 D9 41 2D B0 03 78  
 2D2D:AE BE 2F 8E 77 04 18 88 E1  
 2D35:10 D9 A2 22 8E 77 04 E8 C7  
 2D3D:8E E7 07 60 FA FA C8 64 79  
 2D45:32 14 14 14 14 1E 3C 6E 81  
 2D4D:D2 FA 28 28 28 28 28 B1  
 2D55:A0 78 C8 28 28 28 28 14  
 2D5D:CE BD 2F D0 19 A9 04 8D 86  
 2D65:BD 2F A2 07 18 BD 40 39 A0  
 2D6D:4A 08 4A 28 90 02 09 40 99  
 2D75:9D 40 39 CA 10 EE 60 7E FD  
 2D7D:30 18 7E 18 30 7E 00 C0 C2  
 2D85:00 00 00 00 00 00 00 EB  
 2D8D:18 18 30 30 00 60 00 84  
 2D95:00 00 55 AA FF AA 55 55 EF  
 2D9D:AA FF AA 55 00 00 14 0C  
 2DA5:69 69 7D 7D 69 69 14 10 BF  
 2DAD:64 B9 64 14 19 6E 19 16 41  
 2DB5:5A 6B BF FE E9 A5 94 14 23  
 2DBD:69 BE BE BE BE 69 14 00 04  
 2DC5:00 50 50 00 00 00 00 3E  
 2DCD:50 00 00 00 00 05 00 64  
 2DD5:00 40 10 04 01 00 00 28 B2  
 2DDD:96 00 00 00 00 00 00 83  
 2DE5:00 00 00 00 00 00 00 40  
 2DED:1B 00 00 00 01 D8 00 1E 5F  
 2DF5:00 00 00 FF 00 00 00 50  
 2DFD:00 06 0E 03 03 06 0E 26  
 2E05:0E 0E 0E 0E 0E C2 C0 7D  
 2E0D:C0 C3 C3 C3 C3 0A 0A BA  
 2E15:05 05 10 33 CA 0A 0A 05 02  
 2E1D:05 80 00 F8 0A FF 05 05 0B  
 2E25:80 00 00 00 00 8F 00 E0  
 2E2D:00 00 00 00 01 01 01 97  
 2E35:FF FF FF 00 00 00 00 91  
 2E3D:00 00 00 00 01 FF 00 00 A1  
 2E45:01 FF 00 00 01 FF 00 13 3D  
 2E4D:92 9A 20 53 54 41 47 45 4E  
 2E55:20 9F 31 20 20 20 20 B3  
 2E5D:20 20 9A 48 49 9F 20 20 D2  
 2E65:20 20 20 20 20 20 20 C1  
 2E6D:20 20 9A 31 55 50 9F 20 93  
 2E75:20 20 20 20 20 20 20 D1  
 2E7D:9B 5F 5F 5F 20 20 20 43  
 2E85:20 20 20 20 20 12 9A 40  
 2E8D:20 53 45 43 54 49 4E 60  
 2E95:20 50 49 20 92 FF 02 02 DB  
 2E9D:03 02 01 02 02 02 01 59  
 2EA5:03 02 01 00 02 02 01 41  
 2EAD:02 02 02 02 02 01 03 09  
 2EB5:01 01 04 05 01 01 02 02 B5  
 2EBD:02 02 02 03 02 00 02 1E  
 2EC5:01 03 01 02 01 01 03 01 B6  
 2ECD:01 02 02 02 03 03 01 04 B5  
 2ED5:02 05 03 01 03 01 01 03 06  
 2EDD:03 01 00 01 03 02 02 02 32  
 2EE5:02 02 01 03 02 02 02 32  
 2EED:02 01 01 04 02 02 05 EC  
 2EF5:02 02 02 03 00 02 02 52  
 2EFD:03 03 01 01 02 02 01 03 B9  
 2F05:01 01 02 02 02 02 01 A1  
 2F0D:03 01 01 01 02 02 01 78  
 2F15:04 05 00 02 00 01 03 03 E3

2F1D:02 02 02 02 02 02 03 7C  
 2F25:01 02 02 03 00 01 02 03 FF  
 2F2D:03 01 01 01 04 02 05 02 B1  
 2F35:02 00 00 01 00 01 02 AC  
 2F3D:02 02 02 03 01 00 02 97  
 2F45:02 02 03 00 00 01 04 8F  
 2F4D:05 00 01 02 01 04 02 8C  
 2F55:02 02 02 04 05 00 02 00 E1  
 2F5D:01 02 02 02 02 02 04 39  
 2F65:05 01 C3 07 00 B4 03 0A 52  
 2F6D:02 D8 03 24 24 28 02 01 6C  
 2F75:00 00 01 01 09 08 0F 0C 9D  
 2F7D:29 48 25 C4 06 0C 0B 0E F7  
 2F85:24 50 24 C1 0B 0E 0B 04 58  
 2F8D:28 40 22 C5 09 08 0F 0C 43  
 2F95:29 48 23 C3 06 0E 0B 0E C7  
 2F9D:20 50 24 C4 09 0A 0F 05 84  
 2FA5:29 48 24 C5 09 08 0F 0C 1E  
 2FAD:2A 50 25 C2 01 74 50 01 81  
 2FB5:C3 07 00 B4 03 0A 02 D8 20  
 2FBD:03 24 24 28 02 01 0E 00 DD  
 2FC5:01 01 00 00 00 00 00 3E 23  
 2FCD:00 00 00 00 00 00 00 2C  
 2FD5:00 00 00 00 00 00 00 34  
 2FDD:00 00 00 00 00 00 00 3C  
 2FE5:00 00 00 00 00 00 00 44  
 2FED:00 00 00 00 00 00 00 4C  
 2FF5:00 00 00 00 00 00 00 63  
 2FFD:20 20 20 00 00 00 00 78  
 3005:00 3B 00 00 E6 C0 00 3B A9  
 300D:00 00 00 00 00 00 00 6D  
 3015:00 00 00 00 00 00 0E C0 52  
 301D:00 39 B0 00 0E C0 00 00 55  
 3025:00 00 00 00 00 00 00 85  
 302D:00 00 00 3B 00 00 E6 C0 CF  
 3035:00 3B 00 00 00 00 00 64  
 303D:00 00 63 E6 F9 B0 E6 F9 D2  
 3045:B0 39 BE 6C 39 BE 6C 0E 96  
 304D:6F 9B 0E 6F 9B 39 BE 6C B0  
 3055:39 BE 6C E6 F9 B0 E6 F9 58  
 305D:B0 E6 F9 B0 E6 F9 B0 E6 81  
 3065:F9 B0 39 BE 6C 39 BE 6C 34  
 306D:0E 6F 9B 0E 6F 9B 39 BE 20  
 3075:6C 39 BE 6C E6 F9 B0 E6 60  
 307D:F9 B0 63 0F FF 00 15 55 E3  
 3085:50 2A AA A8 0F FF FF 00 F0  
 308D:E6 00 00 98 00 03 6E C0 94  
 3095:0E 79 B0 35 A0 EC EE C9 25  
 309D:3B A9 85 26 EE C9 3B 35 63  
 30A5:A0 EC 0E 79 B0 03 6E C0 1A  
 30AD:00 98 00 00 E6 00 0F FF 89  
 30B5:FF 2A AA A8 15 55 50 0F 2E  
 30BD:FF 00 63 00 00 00 00 8A  
 30C5:00 03 FF C0 0E AA B0 39 A8  
 30CD:55 6C 39 AA 6C E6 FF 9B 60  
 30D5:E6 C3 9B E6 3C 9B E6 EB 86  
 30DD:9B E6 D7 9B E6 EB 9B E6 7F  
 30E5:3C 9B E6 C3 9B E6 FF 9B 78  
 30ED:39 AA 6C 39 55 6C 0E AA D9  
 30F5:B0 03 FF C0 00 00 00 00 7B  
 30FD:00 00 63 00 00 00 00 4C  
 3105:03 B0 00 0E BC 00 3E 6F C7  
 310D:C3 F9 9E BE B6 ED 69 7B 4B  
 3115:3E 96 BC F3 EB CF BC 3C 67  
 311D:3E 7B C3 ED BC 3C 3E F3 1C  
 3125:EB CF 3E 96 BC ED 69 7B 8E  
 312D:9E BE B6 6F C3 F9 BC 00 DB  
 3135:3E B0 00 0E C0 00 03 00 CF  
 313D:00 00 63 30 03 00 EF 0E 15  
 3145:F0 BF CF BC E6 BE 6C FB EB  
 314D:BB BF 3E EF BB 0F 9B FC 92  
 3155:03 EE B0 03 FF EC 0E EB F6  
 315D:BF 2F BE 6F 3E 6F BF 0F 78  
 3165:BF BF 0E FB BC 09 BE 6C 1C  
 316D:3E EF BC 3B FE F0 E6 F9 B9  
 3175:B0 EF FE EC 30 EF F0 00 FD

317D:FE C0 63 00 00 00 00 00 FB  
 3185:00 00 00 B0 00 00 C0 00 74  
 318D:80 00 02 B0 03 00 C0 38 4D  
 3195:00 00 20 20 0F 30 38 24 CB  
 319D:00 30 08 00 00 30 00 03 D0  
 31A5:00 00 00 00 38 30 00 20 AA  
 31AD:00 00 00 00 0C 00 0C 28 B0  
 31B5:00 00 1B 00 00 0C 00 00 AB  
 31BD:00 00 63 00 00 00 0C 03 A7  
 31C5:00 30 0D 80 03 C3 C0 00 86  
 31CD:F0 00 03 BC 30 00 F0 2C 64  
 31D5:30 00 D8 2C 38 EC D8 2E  
 31DD:30 AC E7 00 30 2F 30 0C 2B  
 31E5:3C 2C C0 00 18 00 00 EC 37  
 31ED:00 0C 00 30 3B 00 0C F7 40  
 31F5:00 00 E6 80 00 3B 00 00 2A  
 31FD:00 00 63 C0 0C 0C 00 3B A4  
 3205:00 03 07 C0 00 F2 00 00 E2  
 320D:B0 F0 03 EC EC 30 DF 6B 88  
 3215:EC E3 9C E7 0C F8 9A 6C E0  
 321D:0F E8 DB 00 3F 9B 2C 0C 8B  
 3225:EC EB 30 00 DC 00 03 2C 1A  
 322D:00 3B F0 00 EA C0 30 3A 73  
 3235:C0 0C E5 C0 00 36 00 00 9E  
 323D:00 00 63 00 0C 03 30 3B 1C  
 3245:0C 30 DB C3 0C EE F0 C3 35  
 324D:C3 E0 33 60 A8 3E 5B 9F CC  
 3255:ED 60 5E EB A3 9B A6 D7 04  
 325D:BF F8 E6 CC 3F 26 EF C3 BF  
 3265:A7 9B 00 EC EC 33 BC 3C 3D  
 326D:00 C9 FC CF E5 F0 3B E6 31  
 3275:AC 26 EA F0 FB 3E C0 0C 8C  
 327D:03 00 63 55 00 00 00 25

## TYPING AIDS

*MLX*, the 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. These labor-saving utilities are on each *Gazette Disk* and printed in issues of *Gazette* through June 1990.

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

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



# PROGRAMS

R. B. COOK

If you enjoy a good game of solitaire from time to time, then try your hand at *Line-Up*. This intriguing game of numbers will keep you entertained for hours.

In *Line-Up*, a deck consisting of 50 cards (five colored sets numbered 0-9) is randomly laid out in five rows. The object is to rearrange the cards so that they're in ascending numerical order in rows of the same color.

## Getting Started

*Line-Up* is written entirely in BASIC. To prevent typing errors, use *The Automatic Proofreader* to type it in. See "Typing Aids" elsewhere in this section. When you've finished typing, be sure to save a copy of the program.

To play a round, simply load and run the program. After a brief pause, the cards are shuffled and dealt for the first game.

## Playing the Game

*Line-Up*'s numbered cards are grouped into five different colors—red, blue, green, purple, and cyan. There are also 5 blank yellow cards. At the start of a game, the cards are dealt in five rows of 11 cards each. Your goal is to arrange the cards in each row by color while at the same time placing them in ascending numeric order, beginning with 0. You do this by repeatedly swapping a blank card with a numeric card.

Your current position is marked by a large, target-shaped cursor that appears on one of the blank cards. To move the cursor to the next available blank card, press the space bar. You can move to any one of the five blank cards unless it follows a 9 card or another blank card.

When you're ready to move a card, press Return. The blank card will change positions with the numeric card that's the same color as and one number higher than the card just to the left of the blank. For example, if the card to the left of the blank card is a red 4, then the blank card will be exchanged with the red 5. Using this process, you can eventually move the

cards into the correct order.

If you attempt to swap a card at the beginning of a row, you'll be asked to select a color with which to start the row. Press R (red), G (green), B (blue), P (purple), or C (cyan). After you've chosen the color, the 0 card in that color is exchanged with the blank card.

**LINE-UP**

LOOKING FOR A  
NICE, QUIET GAME  
OF SOLITAIRE? *LINE-UP*  
FOR THE 64 MAY BE  
JUST WHAT THE  
DOCTOR ORDERED.

When no more swaps are possible, the program reshuffles the remaining cards. You have five deals to place the cards in order before the game ends.

## Line-Up

```
HQ 10 REM COPYRIGHT 1990 COMPU
TE! PUBLICATIONS, INC. -
ALL RIGHTS RESERVED
AE 20 GOSUB 680:GOSUB 620:GOSUB 4
70
DQ 30 PL=0:FORL=RWTO4:FORK=CLT
010
KJ 40 IFLO (L,K) <50 THEN 110
DG 50 IFK>0 THEN IFRIGHT$(STR$(L
O(L,K-1)),1) = "9" OR LO(L,K
-1) > 49 THEN 110
QA 60 PL=1:T=K*24+27:IFT>255TH
ENT=T-256
EQ 70 POKESX,T:POKESM,-(K>9):P
OKESY,L*24+116:POKEVL,0:
POKEVL,15:POKESP,1
AH 80 POKE198,0:WAIT198,1:GETG
$
FG 90 IFG$=CHR$(13) THEN GOSUB 29
0:MV=MV+1
ED 100 POKESP,0
EA 110 NEXT:NEXT:IFPL THEN 30
PQ 120 NC=0:LC=0:FORL=0 TO 4:FOR
K=0 TO 10
```

```
MD 130 IFK>0 THEN IFLO (L,K-1) + 1 <
> LO (L,K) THEN 150
PK 140 IFVAL (RIGHT$(STR$(LO (L,
K)),1)) = K AND LO (L,K) < 50 T
HEN 160
MD 150 TB (L) = K:FORJ=K TO 10:DK (N
C) = LO (L,J):NC=NC+1:NEXT
:K=10
QE 160 NEXT:NEXT:IFNC=50 OR DL=5T
HEN 180
XA 170 GOSUB 470:GOTO 30
BK 180 SC=0:FORL=0 TO 4
BF 190 IFLO (L,0) / 10 > INT (LO (L,0
) / 10) THEN 220
HC 200 T=5-VAL (LEFT$(STR$(LO (L
,0)),2))
QS 210 SC=SC+TB (L) * T * 10 - (TB (L)
=10) * 100
HS 220 NEXT
BS 230 SC=SC-MV*5-DL*100:IFSC<
0 THEN SC=0
KC 240 IFSC>HSTHENHS=SC
FQ 250 PRINT "{HOME}{4 DOWN}" CL
S:PRINTTAB (8) "{UP}{YEL}
SCORE {WHT}" SCTAB (22 - (HS
<1000)) "{YEL}HIGH{WHT}"
HS
KM 260 FORL=0 TO 5:GOSUB 440:GOSU
B 450:NEXT
PB 270 PRINTTAB (8) "{DOWN}PRESS
ANY KEY TO REPLAY"
DD 280 POKE198,0:WAIT198,1:SH=
0:DL=0:MV=0:GOSUB 620:GO
SUB 470:GOTO 30
ER 290 IFK>0 THEN T=LO (L,K-1) + 1:
GOTO 340
MS 300 PRINT "{HOME}{6 DOWN}" CL
S:PRINTTAB (14) "{UP}
{YEL}WHICH COLOR?{UP}":
GOSUB 450
QR 310 POKE198,0:WAIT198,1:GET
G$
JM 320 FORJ=1 TO 5:IFG$<>MID$( "R
BGPC",J,1) THEN NEXT:GOSU
B 420:GOTO 310
EX 330 T=J*10-10:PRINTCL$
JC 340 POKESP,0:FORJ=0 TO 4:FORH
=0 TO 10
EH 350 IFLO (J,H) <> T THEN NEXT:NE
XT
PK 360 PRINTLEFT$(CD$(9+L*3)TA
B(K*3+3)CC$(LO (J,H))TH$
CD$(LO (J,H))BH$
BF 370 PRINTLEFT$(CD$(9+J*3)TA
B(H*3+3)) "{YEL}" TH$CD$(5
0)BH$:GOSUB 400
PD 380 T=LO (L,K):LO (L,K) = LO (J,
H):LO (J,H) = T
PX 390 RETURN
PR 400 POKEAT,10:POKESR,73:POK
EWV,17:POKEHF,50:POKELF
,0
EA 410 FORI=1 TO 333:NEXT:POKEWV
,16:RETURN
PX 420 POKEHF,5:POKEAT,0:POKES
```



# PROGRAMS

|        |  |         |  |         |   |
|--------|--|---------|--|---------|---|
| PR 430 | R, 240: POKEWV, 33<br>FORI=1TO500: NEXT: POKEWV<br>, 32: RETURN  | XR 750  | DIM CD\$(54), CC\$(54), DK(54),<br>LO(4, 10), TB(4)  | SQ 1020 | DATA 0, 252, 230, 230, 252,<br>238, 230, 0, 0, 126, 224, 1,<br>24, 14, 238, 124, 0              |
| DC 440 | POKESR, 240: POKEHF, 50: PO<br>KELF, 35: GOTO460   | FH 760  | LF=54272: HF=54273: WV=54<br>276: AT=54277: SR=54278: V<br>L=54296: POKEVL, 15   | EC 1030 | DATA 0, 254, 56, 56, 56, 56,<br>56, 0, 0, 230, 230, 230, 23<br>0, 230, 124, 0                   |
| MB 450 | POKESR, 225: POKEHF, 33: PO<br>KELF, 33  | FE 770  | SP=53269: SX=53248: SY=53<br>249: SM=53264   | DJ 1040 | DATA 0, 230, 230, 230, 230<br>124, 56, 0, 0, 227, 227, 23<br>5, 255, 247, 227, 0                |
| XC 460 | POKEAT, 0: POKEWV, 17: FORI<br>=1TO99: NEXT: POKEWV, 16: R<br>ETURN  | AQ 780  | FORL=0TO9  | GJ 1050 | DATA 0, 198, 238, 124, 124,<br>238, 198, 0, 0, 230, 230, 1<br>24, 56, 56, 56, 0                 |
| RP 470 | DL=DL+1: R=RND(-TI)  | JR 790  | READT\$: CD\$(L)=T\$: CD\$(L+<br>10)=T\$: CD\$(L+20)=T\$: CD\$(<br>L+30)=T\$: CD\$(L+40)=T\$:<br>NEXT  | HF 1060 | DATA 0, 254, 28, 56, 112, 2<br>24, 254, 0, 0, 15, 63, 63, 63,<br>63, 63, 63                     |
| JX 480 | PRINT"{HOME}" {6 DOWN}"TA<br>B(10)" {YEL} SHUFFLING TH<br>E CARDS {UP}": GOSUB450  | FF 800  | FORL=0TO40STEP10: READT\$<br>: FORK=0TO10: CC\$(L+K)=T\$<br>: NEXT: NEXT   | SF 1070 | DATA 0, 240, 252, 252, 252,<br>252, 252, 252, 63, 63, 63,<br>63, 63, 63, 15, 0                  |
| CC 490 | PRINTCD\$TAB(13)" {YEL} DE<br>AL NUMBER{WHT}"DL;   | MP 810  | FORL=50TO54: CC\$(L)=""<br>{YEL}": CD\$(L)="{RVS}<br>{OFF}": NEXT  | CX 1080 | DATA 252, 252, 252, 252, 2<br>52, 252, 240, 0, 215, 125, 2<br>53, 245, 215, 95, 127, 85         |
| PJ 500 | IFSH=0THENNC=54: FORL=0T<br>O54: DK(L)=L: NEXT: FORL=0<br>TO4: TB(L)=0: NEXT: GOTO53<br>0  | BK 820  | TH\$="{@}{3 LEFT}{DOWN}<br>=": BH\$="{>}{3 LEFT}{DOWN}<br>]*{2 UP}": EC\$="{<br>{3 SPACES}{3 LEFT}<br>{DOWN}{3 SPACES}<br>{3 LEFT}{DOWN}<br>{3 SPACES}{2 UP}": | BB 1090 | DATA 0, 0, 0, 0, 0, 0, 0, 2<br>47, 215, 247, 247, 247, 247<br>, 247, 213                        |
| JG 510 | FORL=0TO4: PRINTLEFT\$(CD<br>\$, 9+L*3)TAB(TB(L)*3+3);   | CF 830  | CD\$="{HOME}" {24 DOWN}": C<br>L\$="{OFF}" {35 SPACES}":   | ES 1100 | DATA 102, 102, 102, 0, 0, 0<br>, 0, 0, 215, 125, 253, 215, 2<br>53, 253, 125, 215               |
| GB 520 | FORK=TB(L)TO10: PRINTECS<br>;: NEXT: NEXT  | BH 840  | FORL=832TO895: READK: POK<br>EL, K: NEXT   | AC 1110 | DATA 245, 221, 125, 125, 8<br>5, 253, 253, 253, 85, 127, 1<br>27, 87, 253, 253, 125, 215        |
| XM 530 | FORL=0TO99   | FX 850  | FORL=14336TO14847: READK<br>: POKEL, K: NEXT   | PD 1120 | DATA 215, 125, 127, 87, 12<br>5, 125, 125, 215, 85, 125, 2<br>53, 247, 223, 223, 223, 223       |
| AG 540 | R1=INT(RND(1)*NC): R2=IN<br>T(RND(1)*NC)   | MR 860  | RETURN   | BB 1130 | DATA 215, 125, 125, 215, 1<br>25, 125, 125, 215, 215, 125<br>, 125, 125, 213, 253, 125, 2<br>15 |
| RQ 550 | T=DK(R1): DK(R1)=DK(R2):<br>DK(R2)=T   | DF 870  | DATA +, !, <, #, \$, %, &, ', (,<br>)  | CP 1140 | DATA 255, 255, 255, 255, 2<br>55, 255, 255, 0, 215, 125, 1<br>25, 117, 93, 125, 125, 215        |
| EE 560 | NEXT   | HC 880  | DATA "{3}", "{7}", "{6}",<br>"{5}", "{4}"  | CR 1150 | DATA 175, 175, 175, 175, 1<br>75, 175, 175, 170, 255, 255,<br>255, 170, 170, 255, 255, 2<br>55  |
| BA 570 | T=0: FORL=0TO4: PRINTLEFT<br>\$(CD\$, 9+L*3)TAB(TB(L)*3<br>+3);  | XB 890  | DATA 0, 7, 240, 0, 12, 24, 0,<br>9, 200, 0, 11, 104, 0, 10, 40,<br>0   | BC 1160 | DATA 170, 235, 235, 235, 2<br>35, 235, 235, 170, 171, 170<br>, 174, 174, 174, 174, 174, 1<br>74 |
| QE 580 | FORK=TB(L)TO10: PRINTCC\$(<br>DK(T)) TH\$CD\$(DK(T)) BH\$<br>;: LO(L, K)=DK(T)   | HG 900  | DATA 10, 40, 0, 11, 104, 0, 9<br>, 200, 0, 12, 24, 0, 7, 240, 0,<br>0  | XK 1170 | DATA 0, 124, 230, 238, 246<br>, 230, 124, 0, 0, 56, 248, 56<br>, 56, 56, 254, 0                 |
| AQ 590 | T=T+1: NEXT: NEXT  | CK 910  | DATA 0, 0, 0, 0, 0, 0, 0, 0, 0,<br>0, 0, 0, 0, 0, 0  | KQ 1180 | DATA 0, 124, 206, 28, 112,<br>224, 254, 0, 0, 124, 206, 28<br>, 14, 206, 124, 0                 |
| MD 600 | SH=1: PRINT"{HOME}"<br>{6 DOWN}"TAB(10)" {YEL}P<br>RESS {WHT}RETURN {YEL}T<br>O SWAP"  | XA 920  | DATA 0, 0, 0, 0, 0, 0, 0, 0, 0,<br>0, 0, 0, 0, 188   | JD 1190 | DATA 0, 30, 62, 110, 255, 1<br>4, 14, 0, 0, 254, 224, 252, 1<br>4, 206, 124, 0                  |
| PQ 610 | RETURN   | DR 930  | DATA 0, 255, 255, 255, 255,<br>255, 255, 255, 0, 124, 230, 2<br>54, 230, 230, 230, 0   | HP 1200 | DATA 0, 124, 224, 252, 230<br>, 230, 124, 0, 0, 254, 206, 2<br>8, 56, 56, 56, 0                 |
| GD 620 | POKE53280, 0: POKES3281, 0   | KQ 940  | DATA 0, 252, 230, 252, 230,<br>230, 252, 0, 0, 124, 230, 224<br>, 224, 230, 124, 0   | MX 1210 | DATA 0, 124, 230, 124, 230<br>, 230, 124, 0, 0, 124, 206, 2<br>06, 126, 14, 124, 0              |
| SK 630 | PRINT"{CLR}" {8}"TAB(9)" [<br>-@E@E@E@E@E@E@E@E@E@E<br>@E"]  | KE 950  | DATA 0, 248, 236, 230, 230,<br>236, 248, 0, 0, 254, 224, 248<br>, 224, 224, 254, 0   | KS 1220 | DATA 170, 175, 175, 171, 1<br>75, 175, 175, 170, 174, 174<br>, 174, 174, 174, 174, 174, 2<br>35 |
| GM 640 | PRINTTAB(9)"=, >, >=>=:<br>>=>=>=: >=<="   | FM 960  | DATA 0, 254, 224, 248, 224,<br>224, 224, 0, 0, 124, 224, 238<br>, 230, 230, 124, 0   | CF 1230 | DATA 171, 174, 174, 174, 1<br>71, 175, 175, 175, 63, 63, 6<br>3, 63, 63, 63, 63, 63             |
| GS 650 | PRINTTAB(9)"*{↑}*{↑}*{↑}<br>{↑}*{↑}*{↑}*{↑}*{↑}"   | PH 970  | DATA 0, 230, 230, 254, 230,<br>230, 230, 0, 0, 124, 56, 56, 5<br>6, 56, 124, 0   | QE 1240 | DATA 252, 252, 252, 252, 2<br>52, 252, 252, 252, 0, 62, 10<br>3, 14, 28, 0, 28, 0               |
| CK 660 | PRINT" {DOWN} {OFF}"TAB(5<br>)" {WHT}R{RED}ED<br>{2 SPACES} {WHT}B{BLU}LU<br>E{2 SPACES} {WHT}G{GRN}R<br>EEN{2 SPACES} {WHT}P<br>{PUR}URPLE{2 SPACES}<br>{WHT}C{CYN}YAN" | JJ 980  | DATA 0, 62, 28, 28, 28, 220,<br>120, 0, 0, 236, 248, 240, 248<br>, 236, 230, 0   |         |   |
| QB 670 | RETURN   | RC 990  | DATA 0, 224, 224, 224, 224,<br>224, 254, 0, 0, 227, 247, 255<br>, 235, 227, 227, 0   |         |   |
| HJ 680 | POKE56334, 0: POKEL, 51  | KC 1000 | DATA 0, 230, 246, 254, 238<br>, 230, 230, 0, 0, 124, 230, 2<br>30, 230, 230, 124, 0  |         |   |
| RG 690 | POKE781, 9: POKES782, 1: POK<br>E88, 0: POKES89, 64: POKES90,<br>0: POKES91, 216   | RA 1010 | DATA 0, 252, 230, 230, 252<br>, 224, 224, 0, 0, 124, 230, 2<br>30, 230, 124, 14, 0   |         |   |
| EP 700 | SYS41964: POKEL, 55: POKES<br>6334, 1: POKES3272, 30   |         |  |         |   |
| SK 710 | POKE53272, (PEEK(53272))A<br>ND240)OR14  |         |  |         |   |
| KG 720 | POKE53270, PEEK(53270)OR<br>16   |         |  |         |   |
| XG 730 | POKE2040, 13: POKES3287, 9<br>: POKES3269, 0   |         |  |         |   |
| HH 740 | POKE53276, 0: POKES3283, 9<br>: POKES3285, 1: POKES3277,<br>1: POKES3271, 1  |         |  |         |   |



# PROGRAMS

H U B E R T C R O S S

**Y**our 64's Sound Interface Device (SID) chip is a very capable instrument. It can play up to three sounds at once, each with its own envelope. It can also filter the voices and combine them synthetically for enhanced effects.

Now, *Sound Master* offers you even greater control over the SID chip. With this sound-effects editor, you can completely program the first 160 jiffies of each sound. (A jiffy is 1/60 second.) For instance, you can start a sound with a sawtooth waveform on voice 1, change it to a noise waveform 10 jiffies later, turn on the filter 5 jiffies later, and finally turn on voice 2. While all this is going on, you can also continuously change each voice's frequency and pulse width or the filter frequency and resonance.

When you've finished designing, *Sound Master* saves your sounds to disk or creates an interrupt-driven sound routine you can add to your own programs. For greater flexibility, *Sound Master* lets you place this routine anywhere in memory and include up to 32 separate sounds with it.

## Getting Started

This article assumes that you have some familiarity with the SID chip. If you need further information on programming sound on the 64, *Mapping the 64* (by Sheldon Leemon) and *All About the Commodore 64, Volume 2* (by Craig Chamberlain), from COMPUTE Books, and *The Commodore 64 Programmer's Reference Guide* are excellent places to start. If you don't have any experience with the SID chip, you may also want to read Larry Cotton's "BASIC for Beginners" column in the July and August 1989 issues of *Gazette*.

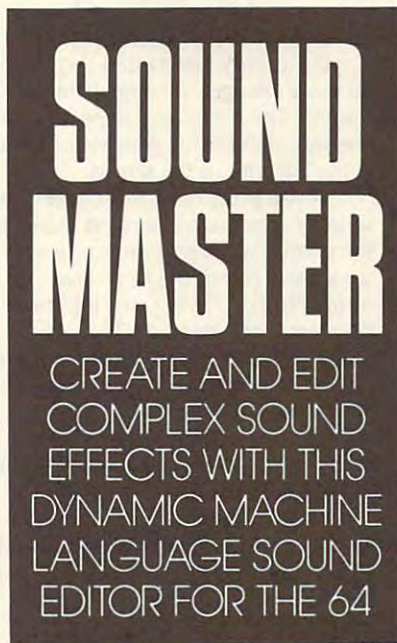
To use *Sound Master*, first type it in using *MLX*, a machine language entry program. See "Typing Aids" elsewhere in this section. Load and run *MLX*. When *MLX* prompts you, respond with the values given below.

Starting address: 0801  
Ending address: 1F38

When you've finished typing in the program, be sure to save a copy to disk.

To get started, plug a joystick into port 2 and then type LOAD "*filename*",8, where *filename* is the name that you used when you saved the program. To activate *Sound Master*, type RUN and press Return. The program's main screen will appear with the following menu options.

(L)oad File  
(S)ave File  
(E)dit File  
(C)lear Sound  
(Q)uit to BASIC  
(M)L Routine



The first two options, Load and Save, allow you to store and recall the sound files that you've created. When you press L or S, *Sound Master* prompts you for a filename. Enter the name of the sound file you wish to load or save. If you're loading a file, *Sound Master* searches the disk in drive 8 for the file you've requested. If you're saving, it stores the file on the disk in drive 8. In either case, a disk error will cause the program to

prompt you with the message *Disk Error: Try again? (Y/N)*. If you respond by pressing Y, *Sound Master* tries the load or save again; otherwise, it returns you to the menu.

## Editing Sounds

Pressing E from the main menu places you in the sound editor. The editor's main screen contains a list of the available edit screens and the number keys used to access them (see the following table).

### Available Edit Screens

- 1 Voice 1 Frequency
- 2 Voice 2 Frequency
- 3 Voice 3 Frequency
- 4 Voice 1 Pulse Width
- 5 Voice 2 Pulse Width
- 6 Voice 3 Pulse Width
- 7 Filter Frequency
- 8 Filter Resonance
- 9 Sound Points

To begin editing, press 1, 2, or 3 to set the frequency for a specific voice. If you've already loaded a sound file, you'll see a line drawn across the bottom of the screen, indicating how the sound changes over the 160-jiffy time interval. If you're programming a new sound, the frequency will be undefined. The first point at the left side of the screen represents the first jiffy of your sound; the point on the far right represents the 160th jiffy.

In addition to the frequency line, you'll also see a pointer on the screen. Press the joystick left or right to move the pointer over the range of the sound interval. To raise or lower the frequency, press the joystick up or down, respectively.

The frequency line always follows the pointer as you move it about the screen. You can anchor it at a particular point by pressing the fire button. After you've defined a few points, press the space bar to hear the new sound. (If you haven't loaded another sound or haven't set some of the other parameters, you may not hear anything.)



# PROGRAMS

If you change your mind about a point you've set, press the S key until the pointer is on the point that you want to change. Then press M to move it using the joystick, or press the Del key to remove it entirely.

## Editor Commands

### Screens 1-8

| Keypress  | Function            |
|-----------|---------------------|
| S         | Select point        |
| M         | Move point          |
| Del       | Delete point        |
| Run/Stop  | Exit to main menu   |
| Space bar | Play sound          |
| 1-9       | Display screens 1-9 |
| Fire      | Add point to line   |

### Screen 9

| Keypress  | Function                      |
|-----------|-------------------------------|
| Crsr keys | Move around windows           |
| +/-       | Increment/decrement parameter |
| I         | Copy to buffer                |
| O         | Restore from buffer           |
| S         | Select sound point            |
| Space bar | Play sound                    |
| Run/Stop  | Exit to main menu             |
| 1-8       | Display screens 1-8           |
| Shift-    |                               |
| Clr/Home  | Clear parameter windows       |
| Fire      | Pick up/place points          |

You don't have to define a voice's frequency for every jiffy of the time interval; it can begin and end at any time. You can even leave the frequency undefined for the entire interval.

The other edit screens, selected with keys 4-8, allow you to set a voice's pulse width or the filter frequency and resonance for all three voices. Each of these edit screens is similar to the one just described, and each has a joystick and keyboard interface for setting the parameters.

## Creating Your Own Sounds

Edit screen 9, Sound Points, lets you define the remaining sound parameters for each voice. Again, the joystick and keyboard are your interface for entering points, only this time, there are four parameter windows associated with each point and additional keystrokes for fine-tuning each voice.

To set a sound point, use the cursor keys to move around the parameter windows; then use the + and - keys to change the parameter values. When the parameters are set to your

liking, press the joystick left or right to position the point along the time interval and press the fire button to set it.

If you want to see the contents of an existing point, select it with the S key and then press the fire button. This deletes or picks up the point and copies its contents to the parameter windows. You can restore the point by pressing the fire button again without moving the joystick.

To save the contents of the parameter windows to a temporary buffer—the Into buffer—press I. Press O to restore the values to the windows or press Shift-Clr/Home to clear them.

To test your sound at any time, press the space bar. A sound note appears at the left edge of the screen (time = 0 jiffies) and moves toward the right border (time = 159 jiffies). The note may disappear before it reaches the right border if the program determines that there are no more changes in the sound. (This doesn't mean that the sound has finished playing, it only means that there are no more changes to be made to the sound.) The note won't appear at all if the only changes for your sound occur at the left edge of the screen.

If you press the space bar several times in rapid succession, as many as three notes will begin moving across the screen. (Until the first three sounds finish playing, any additional keypresses are ignored.) This is because *Sound Master* can handle up to three different sounds at once. If you're careful while creating your sounds, you'll be able to activate all three voices at the same time without conflicts.

When you set a parameter for a sound point and then play the sound, that parameter is sent to the SID chip even if it's the same value sent by a previous point. To pass a parameter through a point without changing it, set it to the blank or no-change position. For most sound points, you'll probably leave most of the parameters blank. For example, say you'd set the voice 1 gate, wave, attack, decay, sustain, and release values at the beginning of a sound and later turn off the gate to start the release cycle of the sound. The best way to accomplish this is to set only the gate parameter in the second sound point. The remaining parameters don't need to be

changed and should be left blank. If you follow this advice you'll also save a lot of memory when you create a sound routine.

When you're ready to exit the sound editor, press Run/Stop. Pressing this key at any time during the editing process will return you to the main menu.

## More Menu Options

The next two menu options, Clear Sound and Quit to BASIC, allow you to clear the current sound from memory and exit the program, respectively. Be careful with these commands because a single keystroke could wipe out hours of hard work.

The last menu option, ML Routine, allows you to combine several sounds into a stand-alone sound routine. Before you begin, be sure that you have saved on disk all of the sounds that you want to use and know what their filenames are. Once you've done that, press M at the main menu.

*Sound Master* prints the number of the sound that you're loading (you can place up to 32 in one sound-routine file) and asks for the first filename. Enter the name of the sound file and press Return. After the file loads, the program asks ADD MORE SOUNDS?. Press Y to add more sounds to the file or N to continue.

When you've finished selecting sound files, *Sound Master* prompts you for the starting address of the sound routine. Enter a value in the range 512-53248. Next, type the filename for the sound-routine file and press Return. The program will save the file and return you to the main menu.

To play the sounds from a sound-routine file, load it from disk with a command similar to LOAD "filename",8,1. Next, activate the sound routine with SYS start, where start is the starting address of the sound routine. To begin playing a sound, POKE 2,n, where n is the sound number (1-32). As we mentioned earlier, you can have up to three sounds active at the same time; any sounds activated after the first three are ignored.

The sound routine is short and should work with most other programs. However, it won't work with programs that use locations 2 and 3 or locations 886-1023. Also, programs



# PROGRAMS

that redirect the IRQ interrupt vector may not work with *Sound Master*.

## Sound Master

|                                 |                                 |                                    |
|---------------------------------|---------------------------------|------------------------------------|
| 0801:0A 08 00 00 9E 32 30 36 6C | 0A39:00 DC 85 03 46 03 B0 03 08 | 0C99:04 A2 00 86 FD 20 6A 0D 17    |
| 0809:31 00 00 00 A9 22 8D FE A1 | 0A41:20 7B 0A 46 03 B0 03 20 EA | 0CA1:85 57 78 20 8D 0A 58 4C F4    |
| 0811:FF A9 08 8D FF FF D0 22 29 | 0A49:78 0A 46 03 B0 03 20 6A 51 | 0CA9:9E 0B E4 06 F0 2C A5 F7 4C    |
| 0819:68 85 01 68 A8 68 AA 68 0A | 0A51:04 46 03 B0 03 20 67 0A D8 | 0CB1:85 F9 A5 F8 85 FA A5 F9 AC    |
| 0821:40 48 8A 48 98 48 A5 01 6B | 0A59:46 03 66 8E A5 28 30 50 85 | 0CB9:18 69 20 85 F9 90 02 E6 91    |
| 0829:48 A9 08 48 A9 19 48 08 97 | 0A61:20 8D 0A 4C B1 0A A9 01 F8 | 0CC1:FA A0 1F B1 F9 91 F7 88 0D    |
| 0831:48 48 48 A9 37 85 01 4C 39 | 0A69:2C A9 FF 18 65 57 C9 A0 3C | 0CC9:10 F9 A5 F7 18 69 20 85 C8    |
| 0839:23 0A 78 A9 23 8D 14 03 81 | 0A71:B0 04 85 57 46 28 60 A9 42 | 0CD1:F7 90 02 E6 F8 E8 E4 06 F3    |
| 0841:A9 0A 8D 15 03 58 20 74 D9 | 0A79:01 2C A9 FF 18 65 5C C9 27 | 0CD9:D0 DC C6 06 60 A0 1F B1 40    |
| 0849:10 20 96 12 20 4E 10 20 D7 | 0A81:68 90 08 C9 C8 B0 04 85 22 | 0CE1:F7 99 DC 9D 88 D0 F8 20 6B    |
| 0851:B8 14 20 E2 1D A9 87 20 B3 | 0A89:5C 46 28 60 A2 00 8A 0A 9C | 0CE9:AB 0C 20 C1 0D 4C 0F 0D BF    |
| 0859:17 11 A9 C7 20 17 11 A2 0D | 0A91:A8 B5 57 69 0B 0A 99 00 9C | 0CF1:20 42 0D B0 E8 A6 06 E0 26    |
| 0861:04 BD F7 08 9D F8 8B 9D E7 | 0A99:D0 AD 10 D0 3D 01 1C 90 47 | 0CF9:40 B0 32 A0 1F B9 DC 9D E5    |
| 0869:F8 CB A9 01 9D 27 D0 A9 03 | 0AA1:03 1D F9 1B 8D 10 D0 B5 73 | 0D01:91 F7 88 D0 F8 A5 57 91 9E    |
| 0871:55 1F 0E CA 10 EB A9 FC 4A | 0AA9:5C 18 69 32 99 01 D0 60 15 | 0D09:F7 E6 06 A9 02 2C A9 00 48    |
| 0879:A0 08 20 1E AB A9 45 CD 1E | 0AB1:4C FC 1D A2 00 8E EE 0A 1B | 0D11:85 8F A5 61 48 A9 A0 20 E6    |
| 0881:36 1F F0 06 8D 36 1F 20 96 | 0AB9:BD BA 0E 8D 7B 13 BD A6 40 | 0D19:2F 0D A9 E0 20 2F 0D 68 91    |
| 0889:4C 19 20 E4 FF C9 4C D0 E8 | 0AC1:0E 8D DC 0A BD AB 0E 8D C2 | 0D21:85 61 AD 00 DC 29 10 F0 A8    |
| 0891:06 20 E3 18 4C 77 08 C9 C4 | 0AC9:DA 0A BD B0 EE 8D E5 0A 0D | 0D29:F9 A9 80 85 8E 60 85 61 75    |
| 0899:4D D0 09 20 DD 19 20 4C 87 | 0AD1:BD B5 0E 8D EA 0A A9 20 BF | 0D31:A5 57 85 22 85 24 A9 58 2F    |
| 08A1:19 4C 77 08 C9 53 D0 06 04 | 0AD9:A2 01 A0 09 20 6C 13 20 1D | 0D39:85 23 85 25 E6 25 4C 57 9D    |
| 08A9:20 27 19 4C 77 08 C9 45 30 | 0AE1:24 13 C8 C0 1F D0 F5 E8 03 | 0D41:11 A9 27 85 F7 A9 73 85 5E    |
| 08B1:D0 12 20 68 18 20 55 09 2E | 0AE9:E0 B0 D0 EE A2 00 BD A6 71 | 0D49:F8 A5 06 F0 1A A2 00 A0 15    |
| 08B9:20 ED 17 20 75 12 20 81 EF | 0AF1:0E 85 62 8D A1 13 BD AB 14 | 0D51:00 B1 F7 C5 57 F0 11 A5 79    |
| 08C1:FF 4C 60 08 C9 43 D0 24 92 | 0AF9:0E 85 63 BD 22 1C BC 30 E9 | 0D59:F7 18 69 20 85 F7 90 02 D3    |
| 08C9:A9 D8 A0 08 20 4B 1B D0 AE | 0B01:1C 20 8F 13 AE EE 0A 60 F5 | 0D61:E6 F8 E8 E4 06 D0 E8 18 F5    |
| 08D1:A5 20 4C 19 4C 77 08 D0 35 | 0B09:A6 72 F0 FB E0 09 F0 F7 F1 | 0D69:60 A9 80 85 F8 8A A0 05 AE    |
| 08D9:41 52 45 20 59 4F 55 20 9C | 0B11:AD 27 7B 48 24 6F 30 08 03 | 0D71:0A 26 F8 88 D0 6A 69 27 2E    |
| 08E1:55 55 52 45 3F 20 28 59 B3 | 0B19:CE 27 7B 20 08 10 A6 72 12 | 0D79:85 F7 A5 F8 08 69 73 85 F8 B5 |
| 08E9:2F 4E 29 00 C9 51 D0 9A 1A | 0B21:AD 27 7B 9D 27 7B 8A 18 75 | 0D81:A0 00 B1 F7 60 78 A5 57 29    |
| 08F1:20 DF 17 4C 44 E5 1C 1D C0 | 0B29:69 7B 8D 35 0B A0 00 B9 6C | 0D89:48 A6 06 CA 30 10 8E 9B 59    |
| 08F9:1E 1E 1E 93 11 20 12 4C 17 | 0B31:30 7B 99 30 7B C8 D0 F7 0D | 0D91:0D 20 6A 0D 85 57 20 0C 2E    |
| 0901:92 4F 41 44 20 46 49 4C 95 | 0B39:68 8D 27 7B 4C 08 10 BD E3 | 0D99:0D A2 00 4C 8C D0 68 85 96    |
| 0909:45 0D 20 12 53 92 41 56 E3 | 0B41:27 7B 8D 27 7B 8A 18 69 8D | 0DA1:57 58 60 20 F6 0D 20 2A E1    |
| 0911:45 20 46 49 4C 45 0D 20 DC | 0B49:7B 8D 51 0B 0A 00 B9 30 04 | 0DA9:0E A5 B4 0A 0A 69 0F 85 05    |
| 0919:12 45 92 44 49 54 20 53 4B | 0B51:7B 99 30 7B C8 D0 F7 38 FA | 0DB1:58 A5 B5 0A 0A 0A 85 5D 99    |
| 0921:4F 55 4E 44 0D 20 12 43 8E | 0B59:66 6F 60 A9 5B 85 5C 78 47 | 0DB9:A2 01 78 20 8F 0A 58 0C 2C    |
| 0929:92 4C 45 41 52 20 53 4F 5D | 0B61:20 8D 0A 58 A2 01 20 B6 C1 | 0DC1:A5 FE 48 A5 A3 48 A2 0C 61    |
| 0931:55 4E 44 0D 20 12 51 92 59 | 0B69:A0 E8 E0 05 D0 F8 A9 1F 08 | 0DC9:86 A3 A0 02 84 FE 20 F6 9B    |
| 0939:55 49 54 20 54 4F 20 42 37 | 0B71:8D 15 D0 A9 80 8D 8A 02 99 | 0DD1:0D 20 2A 0E C6 FE 10 F6 E9    |
| 0941:41 53 49 43 0D 20 12 4D 80 | 0B79:20 C1 0D A2 0E A0 09 A9 8A | 0DD9:C6 A3 A5 A3 C9 04 B0 EA D9    |
| 0949:92 4C 20 52 4F 55 54 49 A2 | 0B81:33 20 24 13 A0 16 A9 34 D3 | 0DE1:A0 00 8A FE 20 F6 0D 20 E3    |
| 0951:4E 45 0D 00 20 01 14 20 CA | 0B89:20 24 13 A0 23 A9 35 20 6F | 0DE9:2A 0E C6 A3 10 F6 68 85 62    |
| 0959:41 12 20 A2 1D A9 07 8D E9 | 0B91:24 13 A9 04 85 A3 A9 00 02 | 0DF1:A3 68 05 FE 60 A5 A3 C9 43    |
| 0961:20 D0 A9 00 8D 21 D0 20 9F | 0B99:85 FE 20 A4 00 24 8E 30 C6 | 0DF9:04 B0 0D A9 14 85 B4 A5 44    |
| 0969:B4 0A A9 00 A0 30 9D D0 98 | 0BA1:05 78 20 F1 0C 58 20 8C 0A | 0E01:A3 AA 18 69 04 85 B5 60 35    |
| 0971:9D 88 10 FA 85 72 20 68 C4 | 0BA9:09 F0 F2 C9 03 F0 24 C9 69 | 0E09:A5 FE 0A 65 FE 8D 1D 0E C5    |
| 0979:18 38 66 F0 4C 86 09 8A 82 | 0BB1:20 0D 21 20 BA 0B 4C 9E 6B | 0E11:0A 8D 1F 0E 0A 65 FE 69 A7    |
| 0981:60 C9 03 F0 FB 20 8C 09 28 | 0BB9:0B A9 77 8D C1 17 8D 37 44 | 0E19:09 85 B4 A9 00 69 00 65 57    |
| 0989:4C 82 09 20 E4 FF AA C9 CB | 0BC1:1F A9 1F 8D C2 17 8D 57 73 | 0E21:A3 AA A5 A3 69 0B 85 B5 E0    |
| 0991:3A B0 EC C9 31 90 E8 E9 AE | 0BC9:1F 20 F7 14 A9 01 8D 9B BF | 0E29:60 A5 B4 85 62 A5 B5 85 68    |
| 0999:30 C5 72 F0 E2 85 71 68 0B | 0BD1:1E 85 02 60 A4 FE A6 A3 B0 | 0E31:63 BD DD 9D 30 02 A9 18 F8    |
| 09A1:68 20 86 0D A9 00 8D 15 0F | 0BD9:C9 91 D0 05 CA E0 0D 90 28 | 0E39:29 7F A8 B9 4E 0E 20 02 67    |
| 09A9:D0 A6 72 E0 09 F0 06 20 62 | 0BE1:1B C9 11 D0 05 E8 E0 0D C1 | 0E41:13 B9 67 0E 20 02 13 B9 0C    |
| 09B1:09 0B 4C BF 09 20 B4 0A CC | 0BE9:90 12 C9 1D D0 05 C8 C0 C4 | 0E49:80 0E 4C 02 13 32 32 32 CA    |
| 09B9:20 41 12 20 89 14 20 C3 11 | 0BF1:03 90 09 C9 9D D0 0F 88 42 | 0E51:32 32 32 32 32 32 32 32 6D    |
| 09C1:13 A6 71 86 72 E0 09 F0 B7 | 0BF9:C0 03 B0 A1 84 FE 86 A3 32 | 0E59:32 32 32 32 32 32 32 2D 70    |
| 09C9:03 20 40 0B 20 41 12 A6 EE | 0C01:20 A4 0D 4C 9E 0B C9 2D 9A | 0E61:37 2A 29 29 31 20 32 32 FB    |
| 09D1:71 20 E4 09 20 89 14 A5 C6 | 0C09:D0 1F 20 F6 0D A4 A3 BD C4 | 0E69:32 32 32 32 32 32 32 32 85    |
| 09D9:71 C9 09 F0 03 4C BF 0E 1E | 0C11:DD 9D 10 0C 38 E9 01 D9 87 | 0E71:33 33 33 33 33 33 32 29 65    |
| 09E1:4C 5C 0B 48 8D 10 0A 8D E6 | 0C19:29 16 B0 2A A9 00 F0 26 59 | 0E79:2C 21 2E 37 32 23 20 32 BD    |
| 09E9:7B 13 8E 00 0A A2 0C 86 C9 | 0C21:B9 99 0E 38 E9 01 4C 47 F4 | 0E81:33 34 35 36 37 38 39 3A 95    |
| 09F1:63 A0 27 A9 20 20 6C 13 CA | 0C29:0C C9 2B D0 24 20 F6 0D C8 | 0E89:3B 32 33 34 35 36 37 24 8E    |
| 09F9:20 24 13 88 10 F7 A2 00 B5 | 0C31:AA A3 BD DD 9D 10 0C 18 77 | 0E91:20 26 30 28 23 20 37 20 F7    |
| 0A01:BD 19 0A 85 62 BD 26 1C 46 | 0C39:69 01 D9 99 0E 90 07 A9 85 | 0E99:92 92 92 98 92 96 90 90 20    |
| 0A09:BC 34 1C 20 AF 13 68 60 09 | 0C41:0D F0 03 B9 29 16 9D DD 4C | 0EA1:90 90 92 92 92 92 90 01 61    |
| 0A11:22 55 66 22 55 66 44 44 8B | 0C49:9D 29 7F 20 2A 0E 4C 9E 2D | 0EA9:0E 1B 00 04 0E 0E 0E 1F B7    |
| 0A19:77 0C 0C 0C 0B 0B 0C D4    | 0C51:0B C9 49 D0 0E A2 1E BD 8C | 0EB1:18 0D 1A 27 0A 08 18 18 8B    |
| 0A21:0C 0E A2 02 BD 7B 03 95 AA | 0C59:DD 9D 9D FC 9D CA 10 F7 7B | 0EB9:18 33 44 22 55 66 A9 50 41    |
| 0A29:57 20 8F 0A E8 E0 05 D0 29 | 0C61:4C 9E 0B C9 4F D0 0E A2 C1 | 0EC1:A2 98 AC 27 7B F0 06 B9 C2    |
| 0A31:F3 EE 27 D0 EE 28 D0 AD 54 | 0C69:1E BD FC 9D D0 DD 9D CA E3 | 0EC9:30 7B BE 85 7B 85 57 86 34    |
|                                 | 0C71:10 F7 20 C1 0D C9 93 D0 37 | 0ED1:5C 20 42 10 20 65 0F A9 CB    |
|                                 | 0C79:10 A2 1E A9 00 9D DD 9D 70 | 0ED9:1D 8D 15 D0 20 8C 09 C9 A6    |
|                                 | 0C81:CA 10 FA 20 C1 0D 4C 9E DD | 0EE1:03 D0 03 4C 09 0B C9 20 01    |
|                                 | 0C89:0B C9 53 D0 1A A5 06 F0 75 | 0EE9:D0 09 20 09 0B 20 BA 90 9E    |
|                                 | 0C91:16 E6 FD A6 FD E4 06 90 B8 | 0EF1:4C D9 20 09 4D D0 06 20 E3    |



# PROGRAMS

G A Z E T T E COMMODORE 64/128


|         |                         |         |                         |         |                         |
|---------|-------------------------|---------|-------------------------|---------|-------------------------|
| 0EF9:DF | 0F 4C 24 0F C9 14 D0 2E | 1159:86 | 66 86 67 A0 FF B5 24 34 | 13B9:FF | 20 02 13 30 03 E8 D0 89 |
| 0F01:05 | 20 DF 0F A9 53 C9 53 18 | 1161:38 | F5 22 B0 09 48 98 95 9C | 13C1:F5 | 60 AD 00 DD C9 95 D0 C2 |
| 0F09:D0 | 19 E6 2A A4 2A CC 27 E3 | 1169:66 | 68 49 FF 69 01 95 64 E0 | 13C9:06 | 20 53 14 4C D6 13 20 AA |
| 0F11:7B | 90 04 A0 00 84 2A B9 BB | 1171:CA | 10 EB A5 65 C5 64 90 70 | 13D1:57 | 14 A9 B0 2C A9 F0 8D 60 |
| 0F19:30 | 7B 85 57 B9 85 7B 85 B4 | 1179:36 | 85 69 E6 69 4A 85 9A CD | 13D9:F0 | 13 A9 D0 8D ED 13 A5 6F |
| 0F21:5C | 46 28 A5 E8 30 2C 78 64 | 1181:24 | 67 10 03 20 E8 11 20 A8 | 13E1:01 | 48 A9 00 85 01 A2 0F 54 |
| 0F29:AC | 27 7B C0 54 B0 23 B9 48 | 1189:FB | 11 C6 69 D0 01 60 E6 8F | 13E9:A0 | 00 B9 40 D0 99 40 B0 B9 |
| 0F31:30 | 7B 88 30 07 D9 30 7B D5 | 1191:23 | A5 9A 18 65 64 85 9A E5 | 13F1:C8 | D0 F7 EE ED 13 EE F0 29 |
| 0F39:D0 | F8 F0 16 EE 27 7B AC 35 | 1199:08 | 38 E5 65 B0 04 28 90 57 | 13F9:13 | CA D0 EE E8 85 01 60 21 |
| 0F41:27 | 7B A5 57 99 30 7B A5 26 | 11A1:E6 | 24 28 85 9A A5 22 18 65 | 1401:A9 | B1 A2 00 9D 00 88 9D 5A |
| 0F49:5C | 99 85 7B 20 0B 10 20 D1 | 11A9:65 | 66 85 22 4C 88 11 A5 37 | 1409:00 | 89 9D 00 8A 9D E8 8A 6E |
| 0F51:23 | 0D 58 A5 28 10 03 4C 7D | 11B1:64 | 85 69 E6 69 4A 85 9A 1D | 1411:9D | 00 C8 9D 00 C9 9D 00 5D |
| 0F59:DD | 0E A9 80 85 28 20 65 99 | 11B9:24 | 66 10 03 20 E8 11 20 A0 | 1419:CA | 9D E8 CA E8 D0 E5 A9 D7 |
| 0F61:0F | 4C DD 0E AC 27 7B A5 55 | 11C1:FB | 11 C6 69 D0 01 60 E6 C7 | 1421:A0 | 8D 33 14 A9 E0 8D 36 C6 |
| 0F69:57 | 99 30 7B A5 5C 99 85 AE | 11C9:22 | A5 9A 18 65 65 85 9A A1 | 1429:14 | A2 20 A0 00 A9 00 78 31 |
| 0F71:7B | 20 0B 10 A9 00 85 29 39 | 11D1:08 | 38 E5 64 B0 04 28 90 7F | 1431:99 | 00 A0 99 00 E0 C8 D0 B9 |
| 0F79:A6 | 29 EC 27 7B B0 56 BC 4D | 11D9:E6 | 24 28 85 9A A5 23 18 9F | 1439:F0 | EE 33 14 EE 36 14 CA 04 |
| 0F81:DA | 7B CC 27 7B D0 04 A5 C4 | 11E1:65 | 67 85 23 4C C0 11 A2 9D | 1441:D0 | EE E0 57 14 78 A9 22 FE |
| 0F89:6F | 10 45 B9 30 7B 85 22 44 | 11E9:01 | B5 24 95 22 B5 66 49 D5 | 1449:8D | FE FF A9 08 8D FF FF 09 |
| 0F91:B9 | 85 7B 85 23 BC DB 7B F4 | 11F1:FF | 18 69 01 95 66 CA 10 43 | 1451:58 | 60 A9 B0 D0 02 A9 F0 D0 |
| 0F99:CC | 27 7B D0 10 A5 6F 30 8A | 11F9:F0 | 60 A5 22 A8 29 03 AA 1E | 1459:80 | 70 14 A9 D0 80 77 14 41 |
| 0FA1:0C | E6 29 A6 29 EC 27 7B D5 | 1201:BD | F5 1B 8D 33 12 49 FF 32 | 1461:A5 | 01 48 A9 00 85 01 A9 02 |
| 0FA9:B0 | 2B BC DB 7B B9 30 7B DE | 1209:A6 | 8F 3D 3D 12 8D 35 12 23 | 1469:0F | 85 04 A0 00 B9 40 B0 1D |
| 0FB1:85 | 24 B9 85 7B 85 25 A9 11 | 1211:78 | A5 01 48 A9 00 85 01 D8 | 1471:AA | BD 1B 9E 99 40 D0 C8 E3 |
| 0FB9:02 | 85 8F A2 02 B5 22 C9 4B | 1219:A6 | 23 BD 70 85 18 79 30 C7 | 1479:D0 | F3 EE 70 14 EE 77 14 4B |
| 0FC1:A0 | B0 0D B5 23 C9 C8 B0 DB | 1221:84 | 85 F7 BD 38 86 79 D0 63 | 1481:C0 | 04 D0 E9 68 85 01 60 82 |
| 0FC9:07 | CA CA 10 F0 20 57 11 40 | 1229:84 | 65 61 85 F8 A0 00 B1 69 | 1489:20 | 80 13 8D A2 14 49 40 55 |
| 0FD1:E6 | 29 4C 79 0F 78 20 8D F6 | 1231:F7 | 29 00 09 00 91 F7 68 CA | 1491:8D | A5 14 78 A5 01 48 A9 5F |
| 0FD9:0A | 58 20 41 12 60 AC 27 BD | 1239:85 | 01 58 60 00 55 AA FF 1C | 1499:00 | 85 01 A2 20 A0 00 B9 AA |
| 0FE1:7B | 88 30 F9 B9 30 7B C5 D0 | 1241:AD | 00 DD C9 95 F0 0E C9 EA | 14A1:00 | A0 99 00 E0 C8 D0 F7 E8 |
| 0FE9:57 | D0 F6 B9 85 7B C5 5C 64 | 1249:94 | F0 1F A9 A0 85 61 20 70 | 14A9:EE | A2 14 EE A5 14 CA D0 47 |
| 0FF1:D0 | EF C8 B9 30 7B 99 2F FA | 1251:D3 | 13 4C 78 12 A9 E0 C5 F3 | 14B1:EE | 68 85 01 4C 46 14 A0 70 |
| 0FF9:7B | B9 85 7B 99 84 7B CC 4F | 1259:61 | F0 05 85 61 4C D6 13 60 | 14B9:0B | B9 DD 14 99 71 9D B9 5A |
| 1001:27 | 7B D0 EE CE 27 7B 20 C6 | 1261:A9 | A0 85 61 20 7B 12 4C A8 | 14C1:EB | 14 99 D1 9D 88 10 F1 55 |
| 1009:42 | 10 A9 80 85 6F A2 00 BA | 1269:D3 | 13 A9 E0 85 61 20 78 E9 | 14C9:A0 | 53 B9 89 9D 4A 99 7D AD |
| 1011:86 | 04 F0 1F BC DA 7B B9 87 | 1271:12 | 4C D6 13 A2 04 2C A2 DD | 14D1:9D | B9 29 9D 6A 99 1D 9D C7 |
| 1019:30 | 7B BC DB 7B D9 30 7B A4 | 1279:05 | 2C A2 06 BD E1 1B 8D 19 | 14D9:88 | E0 FF E0 1E 18 8B 7E 35 |
| 1021:90 | 10 F0 19 BD DA 7B 48 D5 | 1281:11 | D0 BD E4 1B 8D 16 D0 74 | 14E1:FA | 06 AC F3 E6 8F F8 2E 73 |
| 1029:98 | 9D DA 7B 68 9D DB 7B FC | 1289:BD | E7 1B 8D 18 D0 BD EA 2D | 14E9:86 | 8E 96 F9 A8 B3 BD C8 1E |
| 1031:66 | 04 E8 EC 27 7B D0 DC 17 | 1291:1B | 8D 00 D0 A9 30 8D 1C    | 14F1:D4 | E1 EE FD 00 80 AD C1 D7 |
| 1039:A5 | 04 30 D2 60 46 6F 10 6B | 1299:F7 | 12 A9 84 8D F8 12 A0 D0 | 14F9:17 | 8D F5 14 AD C2 17 8D 45 |
| 1041:F1 | A2 00 8A 9D DA 7B E8 E3 | 12A1:27 | A9 F8 18 69 08 20 F0 01 | 1501:F6 | 14 A2 01 A9 30 85 F7 21 |
| 1049:E0 | 55 D0 F7 60 A2 00 A9 EF | 12A9:12 | 88 10 F7 A0 1F A9 00 4F | 1509:8A | 18 69 7B 85 F8 A9 85 4C |
| 1051:00 | 85 04 A0 03 8A 39 F1 04 | 12B1:20 | F0 12 88 10 FA A0 07 A1 | 1511:85 | F9 8A 18 69 7B 85 FA 8E |
| 1059:1B | F0 04 38 F9 70 10 05 FD | 12B9:A9 | 01 20 F0 12 88 10 FA D3 | 1519:A9 | DA 85 FB 8A 18 69 7B 42 |
| 1061:04 | 85 04 E8 10 EF A5 04 7D | 12C1:A9 | C7 A2 18 A0 07 18 69 3D | 1521:85 | FA A9 00 48 68 DD 27 49 |
| 1069:9D | 1B 9E E8 D0 E1 60 40 90 | 12C9:38 | 18 69 01 20 F6 12 88 D6 | 1529:7B | 90 1B E8 E0 09 90 D4 48 |
| 1071:10 | 04 01 A2 00 BD 9B 10 23 | 12D1:10 | F7 CA 10 EF A9 FE A2 1D | 1531:A2 | 00 F0 06 8A 48 20 6A 9B |
| 1079:49 | FF 20 85 10 20 85 10 B6 | 12D9:05 | A0 03 18 69 01 18 69 73 | 1539:0D | 20 D6 15 68 AA E8 E4 C2 |
| 1081:E8 | 10 F2 60 A0 04 38 26 2A | 12E1:01 | 20 ED 12 88 10 F7 CA AC | 1541:06 | 90 F1 4C 11 17 A8 C8 94 |
| 1089:04 | 0A 26 04 88 D0 F7 48 F2 | 12E9:10 | EF A9 1E 20 F0 12 20 32 | 1549:98 | 48 B1 FB 48 88 B1 FB 8B |
| 1091:A5 | 04 8D 00 8C EE 94 10 90 | 12F1:F3 | 12 20 F6 12 8D 30 84 B3 | 1551:A8 | B1 F7 8D 7E 15 20 C0 5D |
| 1099:68 | 00 00 00 00 00 07 57 6B | 12F9:EE | F7 12 D0 03 EE F8 12 BA | 1559:17 | BD A4 16 20 C0 17 A9 50 |
| 10A1:55 | 00 07 44 47 00 07 46 20 | 1301:60 | 48 8E 1F 13 8C 21 13 4D | 1561:C7 | 38 F1 F9 A8 B9 1D 9D 5F |
| 10A9:47 | 00 07 46 44 00 05 57 36 | 1309:A6 | 63 A4 62 20 24 13 E6 B4 | 1569:8D | 8C 15 20 C0 17 B9 7D 75 |
| 10B1:55 | 00 07 22 22 00 05 76 39 | 1311:62 | A5 62 C9 28 90 06 A9 F3 | 1571:9D | 8D 93 15 20 C0 17 68 2C |
| 10B9:75 | 00 04 44 47 00 05 77 15 | 1319:00 | 85 62 E6 63 A2 00 A0 A1 | 1579:A8 | B1 F7 38 E9 00 85 6E AF |
| 10C1:75 | 00 07 57 44 00 07 55 78 | 1321:00 | 68 60 48 8E 67 13 8C B6 | 1581:A9 | C7 38 F1 F9 A8 B9 1D 9B |
| 10C9:73 | 00 07 57 65 00 07 22 55 | 1329:69 | 13 29 F7 38 E9 20 0A 99 | 1589:9D | 38 E9 00 85 6B B9 7D 98 |
| 10D1:22 | 00 05 55 57 00 05 55 13 | 1331:0A | 0A 26 F8 85 F7 A5 F8 83 | 1591:9D | E9 00 85 6C 8A 48 08 83 |
| 10D9:72 | 00 05 57 75 00 05 57 56 | 1339:29 | 01 18 69 8C 85 F8 98 D2 | 1599:00 | 0D A9 00 38 E5 6B 85 4A |
| 10E1:22 | 00 07 55 57 00 06 22 32 | 1341:0A | 0A A8 8A 0A 0A AA E3    | 15A1:6B | A9 00 E5 6C 85 60 20 BC |
| 10E9:27 | 00 07 17 47 00 07 13 4B | 1349:B9 | 30 84 18 7D 70 85 85 A8 | 15A9:B5 | 16 28 B0 0D A9 00 38 8B |
| 10F1:17 | 00 05 57 11 00 07 47 91 | 1351:F9 | 20 80 13 79 D0 84 7D 53 | 15B1:E5 | 26 85 26 A9 00 E5 27 AB |
| 10F9:17 | 00 07 47 57 00 07 13 6D | 1359:38 | 86 85 FA A0 07 B1 F7 1A | 15B9:85 | 27 68 AA AD 7E 15 20 D9 |
| 1101:22 | 00 07 57 57 00 07 57 AA | 1361:91 | F9 88 10 F9 A2 00 A0 DB | 15C1:C0 | 17 BD AC 16 20 C0 17 5E |
| 1109:17 | 00 00 20 20 00 00 00 B9 | 1369:00 | 68 60 48 BD F0 EC 85 4B | 15C9:A5 | 26 20 C0 17 A5 27 20 1E |
| 1111:22 | 00 07 45 57 00 8D 22 71 | 1371:F7 | A9 D8 18 7D 09 1C 85 68 | 15D1:C0 | 17 4C 26 15 A0 00 B1 EA |
| 1119:11 | 8D 2D 11 A2 00 8A 9D A5 | 1379:F8 | A9 00 91 F7 68 60 88 C9 | 15D9:F7 | 8D E4 15 C8 B1 F7 10 5E |
| 1121:00 | FF E8 D0 FA A0 00 BD 85 | 1381:AD | 00 DD C9 95 D0 03 A9 76 | 15E1:3D | 48 A9 00 20 C0 17 B9 DD |
| 1129:3F | 11 99 00 FF C8 C8 C8 DF | 1389:A0 | 2C A9 0E 28 60 8D 98 C4 | 15E9:47 | 16 20 C0 17 B9 66 16 CF |
| 1131:E8 | 8A 29 07 D0 F1 98 18 97 | 1391:13 | 8C 99 13 A2 00 BD 00 59 | 15F1:20 | C0 17 68 38 F9 28 16 D5 |
| 1139:69 | 28 A8 D0 EA 60 30 78 ED | 1399:FF | F0 12 C9 0D D0 08 A0 37 | 15F9:BE | 85 16 E0 FF D0 06 AA AF |
| 1141:FC | 30 30 30 00 00 00 20 98 | 13A1:00 | 84 62 E6 63 D0 03 20 28 | 1601:BD | 25 16 D0 16 BA F0 13 75 |
| 1149:60 | FF FF 60 20 00 10 10 D2 | 13A9:02 | 13 E8 D0 E9 60 8D B8 64 | 1609:BE | 85 16 D0 08 B9 66 16 CF |
| 1151:10 | 10 10 70 F0 60 A2 01 D7 | 13B1:13 | 8C B9 13 A2 00 BD 00 7D | 1611:49 | FF 4C 1C 16 10 04 0A 30 |





# PROGRAMS

|         |    |    |    |    |    |    |    |    |         |    |    |    |    |    |    |    |    |         |    |    |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|----|----|---------|----|----|----|----|----|----|----|----|---------|----|----|----|----|----|----|----|----|
| 1619:0A | 0A | 0A | 20 | C0 | 17 | C8 | C0 | C4 | 1879:7B | E8 | E0 | 09 | D0 | F5 | 20 | D7 | C4 | 1AD9:84 | B7 | A9 | 08 | AA | A8 | 20 | BA | E6 |
| 1621:20 | 90 | BA | 60 | 10 | 20 | 40 | 80 | E0 | 1881:18 | 85 | 06 | A9 | 7C | 8D | 9D | 18 | E7 | 1AE1:FF | 20 | C0 | FF | B0 | 07 | A2 | 08 | 25 |
| 1629:90 | 90 | 90 | 96 | 90 | 92 | 80 | 80 | 8D | 1889:A9 | 7C | 8D | A3 | 18 | A9 | 7C | 8D | 87 | 1AE9:20 | C9 | FF | 90 | 05 | 20 | 2C | 1B | C5 |
| 1631:80 | 80 | 90 | 90 | 90 | 90 | 92 | 80 | 45 | 1891:A9 | 18 | A2 | 01 | A0 | FF | C8 | 20 | B7 | 1AF1:F0 | D1 | A9 | D4 | 8D | FE | 1A | A9 | DB |
| 1639:80 | 80 | 80 | 90 | 90 | 90 | 90 | 92 | 59 | 1899:D7 | 18 | 99 | 30 | 7B | 20 | D7 | 18 | 16 | 1AF9:1D | 8D | FF | 1A | AD | 00 | FF | EE | 1E |
| 1641:80 | 80 | 80 | 80 | 90 | 90 | 90 | 18 | E5 | 18A1:99 | 85 | 7B | 20 | D7 | 18 | 99 | DA | 9E | 1B01:FE | 1A | D0 | 03 | EE | FF | 1A | 20 | 53 |
| 1649:18 | 18 | 18 | 04 | 04 | 05 | 05 | 06 | 0F | 18A9:7B | 98 | DD | 27 | 7B | D0 | E7 | EE | C9 | 1B09:D2 | FF | AD | FE | 1A | CD | C1 | 17 | F0 |
| 1651:06 | 04 | 04 | 17 | 0B | 0B | 0C | 0C | 1C | 18B1:9D | 18 | EE | A3 | 18 | EE | A9 | 18 | B6 | 1B11:AD | FF | 1A | ED | C2 | 17 | 90 | E4 | B8 |
| 1659:0D | 0D | 0B | 0B | 17 | 12 | 12 | 13 | 99 | 18B9:E8 | E0 | 09 | D0 | D7 | A2 | 00 | E4 | F2 | 1B19:A9 | 08 | 20 | C3 | FF | 20 | A2 | 19 | 45 |
| 1661:13 | 14 | 14 | 12 | 12 | 17 | EF | DF | 6C | 18C1:06 | F0 | 12 | 20 | 6A | 0D | A0 | 00 | 3E | 1B21:D0 | A1 | 20 | A2 | 1D | 20 | 4C | 19 | 71 |
| 1669:BF | 7F | FE | 0F | 0F | F0 | F0 | F0 | 71 | 18C9:20 | D7 | 18 | 91 | F7 | C8 | C0 | 20 | A0 | 1B29:4C | 0B | 19 | 20 | CC | FF | A9 | 6C | 93 |
| 1671:FB | FD | FE | FE | 0F | 0F | F0 | F0 | 90 | 18D1:D0 | F6 | E8 | D0 | EA | 60 | AD | 00 | 86 | 1B31:A0 | 1B | 20 | 4B | 1B | F0 | 08 | 68 | 4C |
| 1679:F0 | FB | FD | FD | FE | 0F | 0F | F0 | FF | 18D9:8D | EE | D8 | 18 | D0 | 03 | EE | D9 | 73 | 1B39:68 | 20 | A2 | 1D | 4C | 4C | 19 | 60 | F7 |
| 1681:06 | F0 | FB | FD | FB | 00 | 00 | 00 | B0 | 18E1:18 | 60 | 20 | 61 | 19 | F0 | 23 | A2 | C5 | 1B41:A9 | 8B | A0 | 1B | 20 | 4B | 1B | F0 | 4A |
| 1689:00 | 00 | FF | 80 | 40 | 80 | 40 | 00 | 42 | 18E9:08 | A0 | 01 | 20 | BA | FF | A9 | 00 | 91 | 1B49:EE | 60 | 20 | 1E | AB | 20 | E4 | FF | 9C |
| 1691:00 | 00 | 00 | FF | 80 | 40 | 80 | 40 | 04 | 18F1:A2 | 00 | A0 | 8D | 20 | D5 | FF | B0 | 69 | 1B51:C9 | 59 | F0 | 06 | C9 | 4E | D0 | F5 | 60 |
| 1699:00 | 00 | 00 | 00 | FF | 80 | 40 | 80 | C8 | 18F9:0E | 20 | A2 | 19 | D0 | 09 | 20 | 68 | 72 | 1B59:C9 | 59 | 60 | A9 | 0D | 4C | 16 | E7 | 1F |
| 16A1:40 | 00 | 00 | 00 | 80 | 87 | 8E | 9D | CA | 1901:18 | 20 | BA | 0B | 4C | 0B | 19 | 20 | 30 | 1B61:2C | 50 | 2C | 57 | 93 | 53 | 4F | 55 | 9A |
| 16A9:A4 | AB | B4 | B2 | 99 | A0 | A7 | 9B | 0F | 1909:4C | 19 | A9 | 18 | A0 | 19 | 20 | 1E | 26 | 1B69:4E | 44 | 00 | 0D | 44 | 49 | 53 | 4B | E1 |
| 16B1:A2 | A9 | AE | B0 | A9 | 00 | 85 | 26 | F8 | 1911:AB | 20 | E4 | FF | F0 | FB | 60 | 0D | 03 | 1B71:20 | 45 | 52 | 4F | 52 | 3A | 20 | D0 | 0D |
| 16B9:85 | 27 | 85 | 6D | A5 | 6E | F0 | 10 | D2 | 1919:50 | 52 | 45 | 53 | 53 | 20 | 41 | 4E | D1 | 1B79:54 | 52 | 59 | 20 | 41 | 47 | 41 | 49 | 8E |
| 16C1:4A | 18 | 65 | 6B | 85 | 6B | 90 | 02 | 79 | 1921:59 | 20 | 4B | 45 | 59 | 00 | 20 | 61 | 32 | 1B81:4E | 3F | 20 | 28 | 59 | 2F | 4E | 29 | 82 |
| 16C9:E6 | 6C | A5 | 6B | 05 | 6C | D0 | 01 | 6C | 1929:19 | F0 | DF | A2 | 08 | A0 | 01 | 20 | 2F | 1B89:0D | 00 | 0D | 45 | 58 | 49 | 54 | 3F | 0C |
| 16D1:60 | A0 | 08 | 24 | 6C | 30 | 07 | 88 | 54 | 1931:BA | FF | A9 | 00 | 85 | F7 | A9 | 8D | E2 | 1B91:20 | 28 | 59 | 2F | 4E | 29 | 0D | 00 | 31 |
| 16D9:06 | 6B | 26 | 6C | 10 | F9 | 24 | 6E | 8E | 1939:85 | F8 | A9 | F7 | AE | 5D | 18 | AC | E8 | 1B99:0D | 41 | 44 | 44 | 20 | 4D | 4F | 52 | 9A |
| 16E1:30 | 05 | C8 | 06 | 6E | 10 | F7 | 46 | CA | 1941:5E | 18 | 20 | D8 | FF | 20 | A2 | 19 | 19 | 1BA1:45 | 20 | 53 | 4F | 55 | 4E | 44 | 53 | 1A |
| 16E9:6C | 66 | 6B | 46 | 6E | 66 | 6D | 98 | 38 | 1949:4C | 0B | 19 | A9 | 00 | 8D | 5D | 18 | 2B | 1BA9:3F | 20 | 28 | 59 | 2F | 4E | 29 | 0D | 34 |
| 16F1:30 | 1D | A5 | 6B | 38 | E5 | 6D | AA | C7 | 1951:A9 | 8D | 8D | 5E | 18 | A2 | 09 | A9 | 5A | 1BB1:00 | 0D | 51 | 41 | 56 | 45 | 20 | 41 | F2 |
| 16F9:A5 | 6C | E5 | 6E | 90 | 04 | 86 | 6B | C4 | 1959:00 | 20 | 5C | 18 | CA | D0 | FA | 60 | 90 | 1BB9:42 | 4F | 52 | 54 | 45 | 44 | 0D | 00 | C9 |
| 1701:85 | 6C | 26 | 26 | 26 | 27 | B0 | 07 | 6A | 1961:A9 | 93 | 2C | A9 | 0D | 20 | 16 | E7 | 6A | 1BC1:93 | 53 | 41 | 56 | 45 | 20 | 4D | 4C | B5 |
| 1709:06 | 6B | 26 | 6C | 88 | 10 | E3 | 60 | 4D | 1969:A9 | 97 | A0 | 19 | 20 | 1E | AB | A0 | 6D | 1BC9:20 | 52 | 4F | 55 | 54 | 49 | 4E | 45 | 8D |
| 1711:AD | C1 | 17 | 38 | ED | F5 | 14 | 8D | E9 | 1971:00 | 20 | CF | FF | C9 | 0D | F0 | 08 | 12 | 1BD1:0D | 00 | 0D | 53 | 54 | 41 | 52 | 54 | 06 |
| 1719:48 | 17 | 85 | FB | AD | C2 | 17 | ED | 36 | 1979:99 | 09 | 9D | C8 | C0 | 10 | D0 | F1 | D4 | 1BD9:20 | 41 | 44 | 44 | 52 | 45 | 53 | 53 | DE |
| 1721:06 | 14 | 8D | 4F | 17 | 85 | FC | D0 | 10 | 1981:20 | 5C | 1B | 98 | F0 | 0F | AE | 09 | F1 | 1BE1:3F | 20 | 05 | 16 | 1B | 3B | 3B | C8 | 26 |
| 1729:99 | A5 | FB | C9 | 08 | B0 | 03 | 4C | B6 | 1989:9D | E0 | 2B | F0 | 08 | A2 | 09 | A0 | 53 | 1BE9:D8 | D8 | 15 | 29 | 29 | 97 | 95 | 4F | 5F |
| 1731:BE | 17 | A5 | FB | 18 | 69 | 04 | 85 | EC | 1991:9D | 20 | BD | FF | 98 | 60 | 46 | 49 | 6E | 1BF1:C0 | 30 | 0C | 03 | 3F | CF | F3 | FC | 64 |
| 1739:FB | 90 | 02 | E6 | FC | 46 | FC | A5 | D8 | 1999:4C | 45 | 4E | 41 | 4D | 45 | 3F | 20 | 3F | 1BF9:01 | 02 | 04 | 08 | 10 | 20 | 40 | 80 | 34 |
| 1741:FB | 6A | 29 | FC | 85 | FB | A9 | 00 | 6C | 19A1:00 | 20 | 5C | 1B | A9 | 00 | 85 | 04 | 75 | 1C01:FE | FD | FB | 07 | EF | DF | BF | F7 | 35 |
| 1749:38 | E5 | FB | 85 | 05 | A9 | 00 | E5 | 99 | 19A9:20 | BD | FF | A9 | 0F | A2 | 08 | A8 | B1 | 1C09:00 | 00 | 00 | 00 | 00 | 00 | 00 | 01 | 42 |
| 1751:FC | 85 | 04 | A9 | 00 | 38 | E5 | 05 | 2C | 19B1:20 | BA | FF | 20 | C0 | FF | A2 | 0F | FE | 1C11:01 | 01 | 01 | 01 | 01 | 02 | 02 | 02 | 50 |
| 1759:8D | 66 | 17 | A8 | F0 | 02 | E6 | 04 | B6 | 19B9:20 | C6 | FF | 20 | E4 | FF | A6 | 04 | 28 | 1C19:02 | 02 | 02 | 02 | 03 | 03 | 03 | 03 | 60 |
| 1761:AD | F5 | 14 | 38 | E9 | 00 | 85 | F7 | 3C | 19C1:9D | 1B | 9F | E6 | 04 | 20 | D2 | FF | 32 | 1C21:03 | 3E | F8 | 48 | 48 | 48 | 47 | 5B | 5B |
| 1769:AD | F6 | 14 | E9 | 00 | 85 | F8 | A5 | FA | 19C9:20 | B7 | FF | 0F | EE | 20 | CC | FF | 9A | 1C29:6F | 83 | 99 | AF | C5 | D8 | EB | 1C | AD |
| 1771:F7 | 18 | 65 | FB | 85 | F9 | A5 | FC | 66 | 19D1:20 | 5C | 1B | AD | 1B | 9F | 0D | 1C | F6 | 1C31:1C | 1D | 1D | 1D | 1C | 1C | 1C | 1C | D9 |
| 1779:65 | FC | 85 | FA | 38 | 66 | 05 | B1 | 11 | 19D9:9F | C9 | 30 | 60 | A9 | 77 | 8D | C1 | 62 | 1C39:1C | 1C | 1C | 1C | 1C | 2A | 2C | 23 | D0 |
| 1781:F7 | D1 | F9 | 90 | 19 | F0 | 17 | A2 | C5 | 19E1:17 | A9 | 1F | 8D | C2 | 17 | A9 | FF | 8C | 1C41:37 | 37 | BC | 0D | 33 | 3C | 2F | 32 | 66 |
| 1789:04 | B1 | F7 | 48 | B1 | F9 | 91 | F7 | 3A | 19E9:8D | E4 | 1B | EE | E4 | 1B | AD | E4 | 42 | 1C49:26 | 22 | 2B | 20 | 33 | 20 | 24 | 2C | 12 |
| 1791:68 | 91 | F9 | C8 | CA | D0 | F2 | 46 | E9 | 19F1:1B | C9 | 20 | 90 | 08 | B0 | 65 | 20 | 1F | 1C51:23 | 2B | 2E | 23 | 29 | 22 | B1 | 0D | 20 |
| 1799:05 | 98 | D0 | E3 | F0 | 06 | C8 | C8 | 22 | 19F9:4C | 19 | 20 | 2C | 1B | A9 | 65 | A0 | 4A | 1C59:34 | 3C | 2F | 32 | 26 | 22 | 23 | 20 | E3 |
| 17A1:C8 | C8 | D0 | DB | E6 | FC | E6 | FA | C2 | 1A01:1B | 20 | 1E | AB | A9 | 00 | AE | E4 | D8 | 1C61:34 | 20 | 24 | 2C | 23 | 2B | 2E | 23 | 48 |
| 17A9:C6 | 04 | D0 | D3 | A5 | FC | D0 | 82 | D8 | 1A09:1B | E8 | 20 | CD | BD | 20 | 5C | 1B | 28 | 1C69:29 | 22 | B1 | 0D | 35 | 3C | 2F | 32 | F0 |
| 17B1:A5 | FB | C9 | 08 | 90 | 03 | 4C | 33 | C7 | 1A11:4C | 1A | 1A | 20 | 4C | 19 | 20 | 2C | 6A | 1C71:26 | 22 | 23 | 20 | 35 | 20 | 24 | 2C | 4A |
| 17B9:17 | A5 | 05 | 10 | F9 | A9 | FC | 8D | 7C | 1A19:1B | 20 | 64 | 19 | F0 | 35 | A2 | 08 | AA | 1C79:23 | 2B | 2E | 23 | 29 | 22 | B1 | 0D | 48 |
| 17C1:77 | 1F | EE | C1 | 17 | D0 | 0A | EE | 6C | 1A21:A0 | 01 | 20 | BA | FF | A9 | 00 | A2 | DE | 1C81:36 | 3C | 2F | 32 | 26 | 22 | 23 | 20 | 0D |
| 17C9:C2 | 17 | AD | C2 | 17 | C9 | 73 | B0 | 78 | 1A29:00 | A0 | 8D | 20 | D5 | FF | B0 | C7 | 11 | 1C89:33 | 20 | 2A | 2E | 28 | 37 | 23 | 20 | 10 |
| 17D1:01 | 60 | 20 | 4C | 19 | 20 | A2 | 1D | 0D | 1A31:20 | A2 | 19 | D0 | C2 | AE | E4 | 1B | 04 | 1C91:30 | 26 | 32 | 2D | A5 | 0D | 37 | 3C | 90 |
| 17D9:20 | DF | 17 | 4C | 35 | A4 | 08 | 78 | 7C | 1A39:AD | C1 | 17 | 9D | 37 | 1F | AD | C2 | C5 | 1C99:2F | 32 | 26 | 22 | 23 | 20 | 34 | 20 | FE |
| 17E1:A9 | 31 | 8D | 14 | 03 | A9 | EA | 8D | 46 | 1A41:17 | 9D | 57 | 1F | 20 | 68 | 18 | 20 | 38 | 1CA1:2A | 2E | 28 | 37 | 23 | 20 | 30 | 26 | 13 |
| 17E9:15 | 03 | 28 | 60 | A9 | 00 | 8D | 5D | 34 | 1A49:F7 | 14 | AE | E4 | 1B | E8 | 8E | 9B | D7 | 1CA9:32 | 2D | A5 | 0D | 38 | 3C | 2F | 32 | 0F |
| 17F1:18 | A9 | 8D | 8D | 5E | 18 | A2 | 01 | BA | 1A51:1E | 86 | 02 | A9 | 99 | A0 | 1B | 20 | B6 | 1CB1:26 | 22 | 23 | 20 | 35 | 20 | 2A | 2E | 98 |
| 17F9:BD | 27 | 7B | 20 | 5C | 18 | E8 | E0 | 38 | 1A59:4B | 1B | F0 | 8F | A9 | C1 | A0 | 1B | C1 | 1CB9:28 | 37 | 23 | 20 | 30 | 26 | 32 | 2D | E5 |
| 1801:09 | D0 | F5 | A5 | 06 | 20 | 5C | 18 | 84 | 1       |    |    |    |    |    |    |    |    |         |    |    |    |    |    |    |    |    |



# PROGRAMS

```

1D39:32 26 22 23 20 35 3D 3D 1A
1D41:3D 3D 3D 3D 3D BD 00 20 E5
1D49:20 2F 32 26 22 23 0D 3E FD
1D51:21 2D 23 3D 3D 3D BD 0D 07
1D59:30 21 2F 23 3D 3D 3D BD 23
1D61:0D 21 2D 2D 21 22 27 3D FF
1D69:BD 0D 32 23 22 21 31 3D 73
1D71:3D BD 0D 37 2E 37 2D 21 98
1D79:26 29 BD 0D 2C 23 28 23 FA
1D81:21 37 23 BD 0D 2C 26 29 E8
1D89:3E 3D 3D 3D BD 0D 37 31 6F
1D91:29 22 3D 3D 3D BD 0D 24 83
1D99:26 28 2D 23 2C 3D BD 0D A7
1DA1:00 A2 D6 A0 1D 8A 18 69 16
1DA9:26 8D 08 1D 98 69 00 8D 3F
1DB1:DD 1D 8A 18 69 60 8D AF 8C
1DB9:1E 98 69 01 8D B0 1E 8A 5C
1DC1:18 69 80 8D B5 1E 98 69 0C
1DC9:01 8D B6 1E 8E D4 1D 8C 2F
1DD1:D5 1D 60 D6 1D 78 A9 FC D2
1DD9:8D 14 03 A9 1D 8D 15 03 27
1DE1:58 A2 7F A9 00 9D 80 03 F5
1DE9:CA 10 FA A9 0F 8D 98 03 6A
1DF1:A2 02 A9 FC 9D 7D 03 CA B6
1DF9:10 FA 60 A2 0E BD 9D 03 D6
1E01:85 03 BD 9E 03 A0 04 4A 4F
1E09:66 03 88 D0 FA 9D 83 03 AF
1E11:A5 03 9D 82 03 8A 38 E9 59
1E19:07 AA 10 E1 AD 97 03 29 9E
1E21:0F 85 03 AD B3 03 29 F0 6E
1E29:05 03 8D 97 03 AD B4 03 0F
1E31:4A 4A 4A 4A 4A 8D 95 03 C9

```

```

1E39:AD B5 03 8D 96 03 A2 18 11
1E41:BD 80 03 9D 00 D4 CA 10 AF
1E49:F7 A2 0E BD 80 03 18 7D 85
1E51:99 03 9D 80 03 BD 81 03 EB
1E59:7D 9A 03 9D 81 03 BD 9D 66
1E61:03 18 7D 9B 03 9D 9D 03 5B
1E69:BD 9E 03 7D 9C 03 9D 9E 2F
1E71:03 8A 38 E9 07 AA 10 D3 4E
1E79:AD B4 03 18 6D AE 03 8D 55
1E81:B4 03 AD B5 03 6D AF 03 1A
1E89:8D B5 03 AD B3 03 18 6D 7C
1E91:B1 03 8D B3 03 A6 02 F0 FB
1E99:25 E0 00 F0 02 B0 1F A0 61
1EA1:02 B9 7D 03 C9 FC F0 05 56
1EA9:88 10 F6 30 11 BD 36 1F 1B
1EB1:99 77 03 BD 56 1F 99 7A B1
1EB9:03 A9 00 99 7D 03 A2 02 BA
1EC1:8E 76 03 AE 76 03 BD 7D E6
1EC9:03 C9 FC F0 5C BD 77 03 74
1ED1:85 02 BD 7A 03 85 03 AE 93
1ED9:76 03 A0 00 B1 02 C9 FC 4C
1EE1:F0 3A DD 7D 03 D0 2F C8 3B
1EE9:B1 02 08 29 7F AA C8 B1 FC
1EF1:02 28 10 0C 9D 80 03 C8 B9
1EF9:B1 02 9D 81 03 18 90 09 FD
1F01:3D 80 03 C8 11 02 9D 80 37
1F09:03 A5 02 18 69 04 85 02 5C
1F11:90 C5 E6 03 B0 C1 BD 7D 9B
1F19:03 18 69 01 9D 7D 03 A5 AA
1F21:02 9D 77 03 A5 03 9D 7A D5
1F29:03 CE 76 03 10 95 A9 00 C5
1F31:85 02 4C 31 EA 00 00 00 A6

```

## TYPING AIDS

*MLX*, the 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. These labor-saving utilities are on each *Gazette Disk* and printed in issues of *Gazette* through June 1990.

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

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

M I C H A E L S E D L E Z K Y

**A**n evil syndicate has stolen the security numbers for the national defense system and stashed them in their underground vaults. Your job, if you choose to accept it, is to unlock the vaults and recover the stolen numbers. Since the air surrounding the vaults is laced with cyanide gas, you'll need the assistance of a Mobile Datalink Robot—special model MDR007—for the job.

*Codebusters* is a one-player guessing game that requires deductive reasoning skills and a good memory. In this game, you must use your robot to decode the four security panels that control the lock for each vault. A destruct-timer and a pesty security robot add to the suspense.

### Getting Started

*Codebusters* is written entirely in machine language. To type it in, you'll need *MLX*, a machine language entry program. See "Typing Aids" elsewhere in this section. When *MLX* prompts you, respond with the values given below.

Starting address: 0801  
Ending address: 17D0

After you have finished typing in the program, be sure to save a copy of it

# CODE- BUSTERS

HERE'S A  
CHALLENGING  
MEMORY GAME FOR  
THE 64 THAT  
YOUNGSTERS WILL  
REALLY ENJOY.  
JOYSTICK REQUIRED.

before exiting *MLX*.

Although written in machine language, *Codebusters* loads and runs like a BASIC program. When you're ready to play, plug your joystick into port 2; then load the program and type RUN.

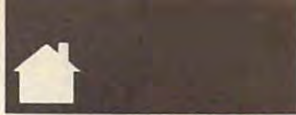
A title screen will appear. To proceed, press the fire button.

### Open the Vault

As the game begins, you find yourself in front of a vault where the missing security numbers are located. Before you are the four separate security panels which must be decoded before the vault doors will open. To decode each panel, you must determine its five-digit access code. To assist you in decoding the panels is a Mobile Datalink Robot, initially located offscreen to the left.

To control the robot, as well as to issue any other commands, use the command line window at the bottom of the screen. To scan through the command line selections, move the joystick up or down. Press the fire button to execute the command shown.

To activate your robot, select the Robot Movement Control command. When you press the fire button, the message *Motor Controls Engaged* will appear on the command line; you can now move the robot. To position the robot in front of one of the four panels' connectors (the connectors are at your robot's eye level, just to the left of each panel), move the joystick left or right. Once the robot is aligned



# PROGRAMS

with a connector, disengage the motor-controls command by pressing the fire button. Then, select the Analyzer Hook Up command to connect the robot to the panel.

You're now ready to attempt to decipher the panel's access code. Choose the Enter Code Selection command to select a number using your joystick. A hyphen will appear under the rightmost digit in the access code. To increase or decrease the value of this digit, move the joystick up or down, respectively. To locate the hyphen under another digit, move the joystick left or right. When you've finished entering the five-digit number, press the fire button to activate the command line. Then select the Transmit Data to Panel command to relay your guess to the panel.

The Decode Analyzer evaluates your response and reports back to you with a color code for each digit. If the color is green, then the digit is correct. If it's red, then the correct number is higher. Yellow indicates that the correct digit is lower. When you've correctly identified all five digits, you'll receive 500 points. Toggle the Analyzer Hook Up command to unplug the MDR007 and then move on to the next panel. When you've activated all four panels, the vault doors will open, revealing the stolen security numbers. The value of the security numbers are then added to your score. To advance to the next vault and begin the entire process anew, press the fire button.

## Security Alert!

Failing to identify the access codes for the four panels within 50 guesses or within nine minutes ends the game. If, however, you're successful, you can continue on to the next vault. Each time you open a vault, you'll receive 10 bonus guesses. Your current score (middle of the screen), the nine-minute timer (lower left), your high score (upper left), your best time to open a vault (upper right), and the number of guesses remaining (lower right) are all displayed.

Figuring out the access codes is not the only problem you'll encounter in *Codebusters*. Periodically, a security robot will appear and try to unplug the MDR007 from a panel. A red warning light will flash on your on-screen control panel for four seconds before the guard appears. If the guard

is successful in disconnecting your robot, you'll lose five decoding attempts. To prevent this from happening, unplug the MDR007 from the panel yourself. This keeps you from losing any attempts, but it also causes the five-digit number that's currently showing on the decoder to be erased. Therefore, be sure to memorize the code before you disconnect your robot.

If you find that the guard robot comes around too often, you can decrease the frequency of its appearance by POKEing a number between 140 and 255 in location 3319 (the current value is 140). To do this, just load the program, POKE the given value, and then run the program. You can also change the color of your robot in a similar manner; just POKE a given color value (0-15) into location 3378.

## Codebusters

```

0801:0C 08 01 00 9E 20 32 38 4B
0809:31 38 00 00 00 21 21 2B B1
0811:2B 2B 2B 25 00 00 00 39
0819:00 00 00 00 20 20 20 03 ED
0821:0F 04 05 02 15 13 14 05 9C
0829:12 13 20 20 20 28 03 29 DD
0831:20 31 39 39 30 20 03 0F 6F
0839:0D 10 15 14 05 21 15 01 8F
0841:54 00 07 15 00 07 6A 80 1F
0849:07 9F C0 07 EA A0 07 EA 20
0851:A4 05 E6 A4 07 D6 97 01 DF
0859:6F 57 07 EE 97 03 EE A4 12
0861:03 AA A4 00 AA 80 00 FF 89
0869:C0 02 66 60 00 FF C0 02 B0
0871:66 60 00 FF C0 00 FF C0 93
0879:00 3F C0 00 08 00 47 00 28
0881:05 50 00 15 34 00 AA 74 E4
0889:00 FD B4 02 AA F4 06 AA AF
0891:F4 06 A6 D4 35 A5 F4 35 1F
0899:7E 50 35 AE F4 06 AE F0 9C
08A1:06 AA B0 00 AA 80 00 FF CC
08A9:C0 02 66 60 00 FF C0 02 F0
08B1:66 60 00 FF C0 00 FF C0 D3
08B9:00 3F C0 00 08 00 47 00 68
08C1:04 00 00 37 00 00 77 40 76
08C9:00 B7 80 02 B7 A0 02 F7 34
08D1:E0 06 D5 E4 05 F7 D4 0E 9C
08D9:5D 6C 0E F7 EC 0E FF EC 81
08E1:02 BF A0 00 AE 80 00 FF 6E
08E9:C0 02 66 60 00 FF C0 02 31
08F1:66 60 00 FF C0 00 FF C0 14
08F9:00 3F C0 00 08 00 47 00 A8
0901:04 00 00 37 00 00 77 40 B7
0909:00 B7 80 02 B7 A0 02 F7 75
0911:E0 06 D5 E4 05 F7 D4 0E DD
0919:59 6C 0E F7 EC 0E FF EC C0
0921:02 BF A0 00 AE 80 00 FF AF
0929:C0 01 99 90 00 FF C0 01 9A
0931:99 90 00 FF C0 00 FF C0 FA
0939:00 3F C0 00 04 00 47 FF C9
0941:FF FF FF FF FF D5 55 57 AC
0949:D5 7D 57 D5 7D 57 D5 AA 8D
0951:57 D5 69 57 D6 AA 97 DA 92
0959:7D A7 D6 AA 97 D5 69 57 D7

```

```

0961:D5 AA 57 D5 7D 57 D5 7D C3
0969:57 D5 7D 57 D5 7D 57 D5 EA
0971:7D 57 D5 55 57 FF FF FF E2
0979:FF FF FF FF FF FF F3 FF 73
0981:FF FF FF FF FF D5 41 57 C4
0989:D5 C3 57 D5 C3 57 D6 82 6B
0991:97 D5 82 57 DA 82 A7 E9 C4
0999:C3 6B DA 82 A7 D5 82 57 DC
09A1:D6 82 97 D5 C3 57 D5 C3 FA
09A9:57 D5 C3 57 D5 C3 57 D5 0D
09B1:C3 57 D5 41 57 FF FF FF 05
09B9:FF FF FF FF FF F3 FF B3
09C1:FF FF FF FF FF D5 00 57 82
09C9:D7 00 D7 D7 00 D7 DA 00 55
09D1:A7 D6 00 97 EA 00 AB E7 7D
09D9:00 DB EA 00 AB D6 00 97 90
09E1:DA 00 A7 D7 00 D7 D7 00 E2
09E9:D7 D7 00 D7 D7 00 D7 D7 A1
09F1:00 D7 D5 00 57 FF FF FF 6F
09F9:FF FF FF FF FF FF F3 FF F3
0A01:FF FF FF FF FF F4 00 17 7F
0A09:DC 00 37 DC 00 37 E8 00 EE
0A11:2B D8 00 27 E8 00 2B DC DD
0A19:00 37 E8 00 2B D8 00 27 FB
0A21:E8 00 2B DC 00 37 DC 00 73
0A29:37 DC 00 37 DC 00 37 DC B5
0A31:00 37 D4 00 17 FF FF FF 66
0A39:FF FF FF FF FF FF F3 FF 35
0A41:FF FF FF FF FF C0 00 03 5B
0A49:C0 00 03 C0 00 03 C0 00 B7
0A51:03 C0 00 03 C0 00 03 C0 14
0A59:00 03 C0 00 03 C0 00 03 64
0A61:C0 00 03 C0 00 03 C0 00 CF
0A69:03 C0 00 03 C0 00 03 C0 2C
0A71:00 03 C0 00 03 FF FF FF 76
0A79:FF FF FF FF FF FF F3 00 75
0A81:00 00 00 00 00 00 00 00 95
0A89:02 22 00 20 20 20 00 88 33
0A91:00 08 20 80 80 80 80 00 6A
0A99:A8 00 22 AA 20 02 AA 00 4F
0AA1:03 AB 00 00 EC 00 00 FC 86
0AA9:00 00 30 00 00 30 00 00 84
0AB1:10 00 01 55 00 01 55 00 F1
0AB9:00 00 00 00 00 00 55 FF 68
0AC1:FF FF FF FF FF F0 4D FF B7
0AC9:F5 55 5F F5 55 5F F5 55 E2
0AD1:5F F6 AA 9F F6 AA 9F F6 3B
0AD9:AA 9F F6 AA 9F F6 AA 9F 82
0AE1:F6 AA 9F F6 AA 9F F6 AA EB
0AE9:9F F5 55 5F F5 55 5F F5 A5
0AF1:55 5F F5 55 5F FF FF FF 97
0AF9:FF FF FF FF FF FF 00 0E
0B01:00 A9 93 20 D2 FF A9 0A E9
0B09:8D 20 0D A9 00 8D 21 0E EB
0B11:A2 18 A9 00 9D 00 D4 CA 15
0B19:10 F8 A9 0A 8D 18 D4 A9 6B
0B21:C8 8D 05 D4 8D 06 D4 A9 C4
0B29:21 8D 05 D4 A2 10 BD 2E FF
0B31:08 9D 13 06 BD 1D 08 9D 85
0B39:C3 05 AD FF CF 9D C3 D9 7E
0B41:9D 13 DA CA 10 E8 EE FF F4
0B49:CF AD FF CF 8D 00 D4 A9 0F
0B51:FF 29 0F 8D 01 D4 CE EF 55
0B59:CF D0 08 AD 20 D0 49 08 46
0B61:8D 20 D0 AD 00 1A 29 10 11
0B69:D0 C2 A2 10 BD 1C 0D 9D FB
0B71:00 D0 BD 2B 0D 9D 20 D0 16
0B79:CA 10 F1 A2 07 BD 0E 08 B4
0B81:9D F8 07 CA 10 F7 A9 04 26
0B89:8D 17 D0 8D 1D D0 A9 FF 9E
0B91:8D 15 D0 8D 1C D0 A9 FF 1E
0B99:8D 0E D4 8D 0F D4 A9 80 0D
0BA1:8D 12 D4 A0 27 A9 A0 99 62
0BA9:00 04 99 28 04 99 90 05 23
0BB1:99 B8 05 99 E0 05 99 08 53
0BB9:06 99 30 06 99 58 06 99 73

```



# PROGRAMS

|         |    |    |    |    |    |    |    |    |         |    |    |    |    |    |    |    |    |         |         |    |    |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|----|----|---------|----|----|----|----|----|----|----|----|---------|---------|----|----|----|----|----|----|----|----|
| 0BC1:98 | 07 | 99 | C0 | 07 | A9 | 64 | 99 | 66 | 0E21:4C | 91 | 0D | 20 | 96 | 11 | 4C | 91 | 8E | 1081:40 | 8D      | 04 | D4 | 60 | FF | 08 | FF | 06 |    |
| 0BC9:68 | 05 | A9 | 78 | 99 | 50 | 04 | A9 | D1 | 0E29:0D | A9 | 00 | 8D | CC | CF | A9 | 0E | 16 | 1089:07 | 10      | 99 | F9 | FF | 0F | FF | 07 | 47 |    |
| 0BD1:0C | 99 | 90 | D9 | 99 | B8 | D9 | 99 | 01 | 0E31:8D | FE | CF | AD | 04 | CF | D0 | 11 | BA | 1091:10 | 72      | 28 | FF | 03 | FF | 07 | 80 | 02 |    |
| 0BD9:E0 | D9 | A9 | 00 | 99 | 00 | D8 | 99 | 24 | 0E39:AD | 00 | DC | C9 | 7F | D0 | EA | CE | 48 | 1099:F1 | F9      | FF | 09 | FF | 07 | 10 | A2 | A0 |    |
| 0BE1:28 | D8 | 99 | 50 | D8 | 99 | 68 | D9 | 52 | 0E41:CC | CF | D0 | EF | CE | FE | CF | D0 | B3 | 10A1:AD | FA      | FF | 0F | FF | 0A | 40 | C1 | F0 | 68 |
| 0BE9:99 | 08 | DA | 99 | 30 | DA | 99 | 58 | 3C | 0E49:EA | 60 | D0 | EF | CE | CF | D0 | 66 | AD | B2      | 10A9:AD | FA | CF | D0 | 01 | 60 | A2 | 06 | 3B |
| 0BF1:DA | 99 | 98 | DB | 99 | C0 | DB | 80 | C1 | 0E51:E6 | CF | D0 | 49 | 60 | A9 | 01 | 8D | BC | 10B1:A9 | 64      | 8D | F9 | CF | A9 | 06 | 8D | CF |    |
| 0BF9:04 | D4 | 88 | 10 | A8 | A0 | 05 | A9 | D4 | 0E59:BA | CF | 20 | 6C | 0F | 20 | 60 | 13 | 5E | 10B9:18 | D4      | BD | 8D | 10 | 9D | 00 | D4 | 77 |    |
| 0C01:A0 | 99 | 89 | 05 | A9 | 0C | 99 | 89 | 8B | 0E61:A2 | 1A | BD | CB | 14 | 09 | 80 | 9D | 2D | 10C1:CA | 10      | F7 | A2 | 04 | 8E | C5 | CF | 2A |    |
| 0C09:D9 | 88 | 10 | F3 | A9 | AD | 8D | 42 | D2 | 0E69:C7 | 07 | CA | 10 | F5 | AD | 04 | DC | C8 | 10C9:AD | 04      | CF | F0 | 03 | 4C | 0C | 11 | 3D |    |
| 0C11:05 | 8D | 49 | 05 | 8D | 50 | 05 | 8D | CD | 0E71:29 | 10 | D0 | EC | EE | AB | CD | AD | 7E | 10D1:AE | C5      | CF | A9 | AD | 9D | 18 | 07 | 6A |    |
| 0C19:58 | 05 | A9 | 00 | 8D | 42 | D9 | 8D | 8A | 0E79:AB | CD | C9 | 0A | D0 | 03 | CE | AB | 94 | 10D9:CE | FE      | CF | D0 | EB | CE | F9 | CF | 86 |    |
| 0C21:49 | D9 | 8D | 50 | D9 | 8D | 58 | D9 | 9A | 0E81:CD | A9 | 22 | 8D | F8 | 07 | CE | FF | 8D | 10E1:D0 | E6      | AD | E6 | CF | F0 | 01 | 60 | EC |    |
| 0C29:A0 | 10 | A9 | AD | 99 | B3 | 06 | 99 | E6 | 0E89:CF | D0 | F6 | CE | D0 | D0 | D0 | F1 | 64 | 10E9:A9 | 19      | 8D | F9 | CF | A9 | 10 | 8D | 49 |    |
| 0C31:03 | 07 | B9 | 3A | 0D | 99 | DB | 06 | F3 | 0E91:AD | 07 | CF | D0 | FB | 68 | 68 | 20 | BF | 10F1:04 | D4      | AD | 04 | CF | F0 | 03 | 4C | D3 |    |
| 0C39:A9 | A0 | 99 | 2B | 07 | B9 | 1D | 08 | 95 | 0E99:C5 | 16 | 4C | 6B | 0B | A9 | 0B | 8D | 01 | 10F9:0C | 11      | EE | FF | CE | AD | 00 | DC | 4C |    |
| 0C41:09 | 80 | 99 | 01 | 04 | A9 | A0 | 99 | E2 | 0EA1:11 | D0 | A2 | 06 | BD | 94 | 10 | 9D | 2D | 1101:8D | FD      | CF | C9 | 7F | F0 | EB | 29 | C0 |    |
| 0C49:53 | 07 | A9 | 00 | 99 | B3 | DA | 99 | EC | 0EA9:00 | D4 | CA | 10 | F7 | A9 | 0F | 8D | 67 | 1109:10 | D0      | 11 | AE | C5 | CF | A9 | A0 | D5 |    |
| 0C51:DB | DA | 99 | 03 | DB | 99 | 2B | DB | E8 | 0EB1:18 | D4 | A9 | 81 | 8D | 04 | D4 | A9 | 2C | 1111:9D | 18      | 07 | 20 | 4E | 14 | A9 | 0A | 0B |    |
| 0C59:99 | 53 | DB | 88 | 10 | CC | A0 | 07 | 13 | 0EB9:01 | 8D | 27 | D0 | A9 | 02 | 8D | F5 | 12 | 1119:8D | 18      | D4 | 60 | AD | 04 | CF | F0 | B6 |    |
| 0C61:8C | C1 | CF | A9 | A0 | 99 | A9 | 06 | 89 | 0EC1:CF | A9 | 00 | 8D | FA | CF | 8D | FE | 3A | 1121:03 | 4C      | 0C | 11 | AD | FD | CF | 29 | 98 |    |
| 0C69:99 | D1 | 06 | 99 | F9 | 06 | 99 | C6 | FE | 0EC9:CF | AD | 27 | D0 | 49 | 01 | 8D | 27 | BB | 1129:02 | D0      | 1A | DE | F4 | CF | F0 | 05 | BD |    |
| 0C71:06 | 99 | C7 | 06 | 99 | EE | 06 | 99 | 7A | 0ED1:D0 | AD | FE | CF | 8D | 01 | D4 | 29 | E1 | 1131:A9 | 09      | 9D | F4 | CF | A9 | 11 | 8D | 42 |    |
| 0C79:EF | 06 | 99 | 16 | 07 | 99 | 17 | 07 | 73 | 0ED9:07 | 09 | C8 | 8D | 16 | D0 | AD | 00 | FC | 1139:04 | D4      | BD | F4 | CF | A9 | 8D | 9D | 3B |    |
| 0C81:99 | 49 | 07 | A9 | 00 | 99 | A9 | DA | C8 | 0EE1:D0 | 49 | 07 | 8D | 00 | D0 | AD | 02 | 13 | 1141:F0 | 06      | 4C | C9 | 10 | AD | FD | CF | 86 |    |
| 0C89:99 | D1 | DA | 99 | F9 | DA | 88 | 10 | 34 | 0EE9:D0 | 49 | 07 | 8D | 02 | D0 | CE | FE | 6A | 1149:29 | 01      | D0 | 12 | FE | F4 | CF | BD | A4 |    |
| 0C91:D2 | AD | 00 | 0B | F0 | 03 | 4C | BE | 1A | 0EF1:CE | F0 | D6 | A9 | 1B | 8D | 11 | D0 | A1 | 1151:F4 | CF      | C9 | 0A | D0 | DF | A9 | 00 | 15 |    |
| 0C99:0C | A9 | 01 | 8D | AA | CD | 8D | 00 | C2 | 0EF9:CE | D9 | CF | D0 | CC | CE | F5 | CF | 60 | 1159:9D | F4      | CF | 4C | 36 | 11 | AD | FD | 95 |    |
| 0CAL:0B | A9 | 00 | 8D | 3C | 03 | 8D | 3D | C8 | 0F01:D0 | C7 | AD | 15 | D0 | 49 | 01 | 8D | BB | 1161:CF | 29      | 04 | D0 | 12 | AE | C5 | CF | E9 |    |
| 0CA9:03 | 8D | 3E | 03 | 8D | 3F | 03 | 8D | 9B | 0F09:15 | D0 | A2 | 1A | BD | E7 | 14 | 09 | 9A | 1169:A9 | A0      | 9D | 18 | 07 | CA | 10 | 01 | 42 |    |
| 0CB1:40 | 03 | 8D | 41 | 03 | A9 | 05 | 8D | C6 | 0F11:80 | 9D | C7 | 07 | CA | 10 | F5 | A9 | 6C | 1171:E8 | 8E      | C5 | CF | 4C | C9 | 10 | AD | B8 |    |
| 0CB9:C1 | CF | 8D | AB | CD | A2 | FF | A9 | B5 | 0F19:80 | 8D | 04 | D4 | A9 | 00 | 8D | 0B | 1C | 1179:FD | CF      | 29 | 08 | F0 | 03 | 4C | C9 | 2A |    |
| 0CC1:00 | 9D | 00 | CF | CA | D0 | F8 | A2 | 6C | 0F21:D4 | 8D | 3C | 03 | 8D | 3D | 03 | 8D | B9 | 1181:10 | AE      | C5 | CF | A9 | A0 | 9D | 18 | 30 |    |
| 0CC9:13 | AD | 1B | D4 | 29 | 0F | C9 | 0A | AA | 0F29:3E | 03 | 8D | 3F | 03 | 8D | 40 | 03 | 9E | 1189:07 | E8      | E0 | 05 | D0 | 01 | CA | 8E | 84 |    |
| 0CD1:B0 | F7 | 9D | D0 | CF | 09 | 30 | CA | CE | 0F31:8D | 41 | 03 | 8D | 00 | 0B | A9 | C8 | E7 | 1191:C5 | CF      | 4C | C9 | 10 | AD | FA | CF | AD |    |
| 0CD9:10 | EF | A2 | 03 | AD | 1B | D4 | 29 | F7 | 0F39:8D | 16 | D0 | AD | 00 | DC | 29 | 10 | 6E | 1199:D0 | 01      | 60 | 20 | 4F | 12 | A2 | 06 | 80 |    |
| 0CE1:0F | C9 | 0A | B0 | F7 | 9D | BD | CF | C1 | 0F41:D0 | F9 | 68 | 68 | 20 | C5 | 16 | A9 | C7 | 11A1:BD | A2      | 10 | 9D | 00 | D4 | CA | 10 | 20 |    |
| 0CE9:09 | 30 | 9D | 12 | 05 | A9 | 07 | 9D | E1 | 0F49:00 | 8D | 15 | D0 | 4C | 11 | 0B | AD | E4 | 11A9:F7 | A9      | 01 | 8D | 18 | D4 | A9 | 41 | D3 |    |
| 0CF1:12 | D9 | CA | 10 | E7 | A9 | 8C | 8D | 70 | 0F51:FF | CF | 29 | 07 | AA | BD | 05 | 15 | 64 | 11B1:8D | 04      | D4 | A9 | FF | 8D | FE | CF | D4 |    |
| 0CF9:E4 | CF | 8D | 08 | CF | 18 | 69 | 02 | 5E | 0F59:AA | A0 | 00 | BD | 5F | 14 | F0 | 0A | 08 | 11B9:AD | FE      | CF | 8D | 2D | BD | 8D | 30 | 69 |    |
| 0D01:8D | C3 | CF | A9 | 1E | 8D | C4 | CF | E7 | 0F61:09 | 80 | 99 | C7 | 07 | C8 | E8 | 4C | 4D | 11C1:DB | 8D      | 33 | DB | 8D | 36 | BD | 8D | E3 |    |
| 0D09:8D | AD | CE | 8D | 00 | CF | A9 | 3C | D6 | 0F69:5C | 0F | 60 | AD | C0 | CF | F0 | 09 | 90 | 11C9:39 | DB      | CE | F9 | CF | AD | F9 | CF | F1 |    |
| 0D11:8D | E7 | CF | 8D | 1B | D0 | 4C | 4C | BF | 0F71:20 | A5 | 0F | CE | C0 | CF | 4C | 6C | 22 | 11D1:8D | 00      | D4 | 8D | 02 | D4 | D0 | F2 | 26 |    |
| 0D19:00 | 01 | 73 | 01 | 73 | 35 | 5C | 70 | 12 | 0F79:0F | AD | BF | CF | F0 | 09 | 20 | B4 | 20 | 11D9:AD | E6      | CF | D0 | 05 | CE | FE | CF | C4 |    |
| 0D21:5C | AA | 5C | E7 | 5C | 20 | 53 | 00 | 28 | 0F81:0F | CE | BF | CF | 4C | 7A | 0F | AD | E7 | 11E1:D0 | D6      | A9 | 40 | 8D | 04 | D4 | A9 | 2B |    |
| 0D29:00 | 40 | 00 | 0B | 00 | 00 | 00 | 06 | 0A | 0F89:BE | CF | F0 | 09 | 20 | C3 | 0F | CE | A6 | 11E9:05 | 8D      | ED | CF | A9 | 04 | 8D | EE | 14 |    |
| 0D31:00 | 01 | 02 | 00 | 00 | 00 | 00 | 00 | CB | 0F91:BE | CF | 4C | 88 | 0F | AD | BD | CF | 8F | 11F1:CF | AC      | EF | CF | B9 | 52 | 15 | AE | 0C |    |
| 0D39:00 | A0 | 84 | 85 | 83 | 8F | 84 | 85 | 4D | 0F99:F0 | 09 | 20 | D2 | 0F | CE | BD | CF | A2 | 11F9:B9 | D0      | CF | AE | EE | CF | DD | F4 | 79 |    |
| 0D41:A0 | 81 | 8E | 81 | 8C | 99 | 9A | 85 | 7B | 0FA1:4C | 96 | F0 | 06 | EE | 41 | 03 | AD | A3 | 1201:CF | F0      | 11 | B0 | 21 | AE | EE | CF | E7 |    |
| 0D49:92 | A0 | 00 | 20 | 1D | 16 | 20 | 46 | 9E | 0FA9:41 | 03 | C9 | 0A | D0 | 44 | A9 | 00 | ED | 1209:BD | 29      | 15 | AA | A9 | 07 | 9D | 20 | 75 |    |
| 0D51:13 | 20 | 19 | 14 | 20 | 4F | 12 | 20 | E3 | 0FB1:8D | 41 | 03 | EE | 40 | 03 | AD | 40 | DF | 1211:DB | 4C      | 33 | 12 | CE | ED | CF | AE | 3A |    |
| 0D59:A8 | 0F | A9 | 40 | 8D | 0D | CF | A9 | AE | 0FB9:03 | C9 | 0A | D0 | 35 | A9 | 00 | 8D | F7 | 1219:EE | CF      | BD | 29 | 15 | AA | A9 | 05 | 9E |    |
| 0D61:05 | 8D | 0E | CF | 20 | AA | 16 | A2 | 9A | 0FC1:40 | 03 | EE | 3F | 03 | AD | 3F | 03 | E2 | 1221:9D | 2D      | DB | 4C | 33 | 12 | AE | EE | CD |    |
| 0D69:0A | 8E | 0C | CF | AD | DB | 0D | D0 | 72 | 0FC9:C9 | 0A | D0 | 26 | A9 | 00 | 8D | 3F | 73 | 1229:CF | BD      | 29 | 15 | AA | A9 | 02 | 9D | B8 |    |
| 0D71:1C | A9 | 00 | 9D | C6 | DA | 9D | EE | A9 | 0FD1:03 | EE | 3E | 03 | AD | 3E | 03 | C9 | 5B | 1231:2D | DB      | 88 | CE | EE | CF | 10 | C0 | 78 |    |
| 0D79:DA | 9D | 16 | DB | 9D | 49 | DB | 9D | 50 | 0FD9:0A | D0 | 17 | A9 | 00 | 8D | 3E | 03 | 64 | 1239:AD | ED      | CF | D0 | 03 | 20 | 97 | 12 | 90 |    |
| 0D81:AL | CE | CA | 10 | EC | A9 | 07 | 8D | 24 | 0FE1:EE | 3D | 03 | AD | 3D | 03 | C9 | 0A | 95 | 1241:A9 | 00      | 8D | 04 | D4 | A9 | 0F | 8D | 25 |    |
| 0D89:A3 | CE | 8D | DB | 0D | 20 | 8B | 17 | AF | 0FE9:D0 | 08 | A9 | 00 | 8D | 3D | 03 | EE | FD | 1249:18 | D4      | 20 | 4E | 14 | 60 | CE | AA | 02 |    |
| 0D91:20 | 2A | 0E | 20 | 50 | F0 | 20 | 4B | 54 | 0FF1:3C | 03 | A2 | 05 | BD | 07 | 10 | 9D | 5B | 1251:CD | 10      | 11 | A9 | 09 | 8D | AA | CD | BE |    |
| 0D99:0E | AD | 04 | CF | F0 | 10 | A9 | 00 | BE | 0FF9:3D | 06 | BD | 3C | 03 | 09 | 80 | 9D | EE | 1259:CE | AB      | CD | D0 | 05 | A9 | 07 | 8D | 01 |    |
| 0DA1:8D | 04 | CF | 20 | 26 | 10 | A2 | 04 | 3A | 1001:43 | 06 | CA | 10 | EF | 60 | 93 | 83 | 4A | 1261:0E | CF      | 30 | 22 | A9 | 30 | 8D | 69 | 3B |    |
| 0DA9:20 | 4F | 12 | CA | 10 | FA | AD | 00 | 5E | 1009:8F | 92 | 85 | A0 | A2 | 0B | BD | 11 | 1E | 1269:07 | AD      | AB | CD | 09 | 30 | 8D | 6A | 5D |    |
| 0DB1:DC | 8D | FD | CF |    |    |    |    |    |         |    |    |    |    |    |    |    |    |         |         |    |    |    |    |    |    |    |    |



# PROGRAMS

```

12E1:CF 8D BD CF 09 30 8D 12 3C
12E9:05 AD AB CD 8D BE CF 09 5E
12F1:30 8D 13 05 8D B0 CF A2 B5
12F9:06 BD 86 10 9D 00 D4 CA C3
1301:10 F7 A9 03 8D 18 D4 A2 AB
1309:03 EE AE CF AD AE CF 8D 94
1311:00 D4 A9 21 8D 04 D4 AD 87
1319:B1 CF 8D 01 D4 CE B1 CF E2
1321:D0 E7 A9 20 8D 04 D4 A9 B0
1329:01 8D E8 CF CE B0 CF D0 F6
1331:D8 A9 96 8D B0 CF EE FE 7B
1339:07 CA 10 CD A9 80 8D 04 E2
1341:D4 EE AA CD 60 A9 00 8D F6
1349:F0 CF 8D F1 CF 8D F2 CF 17
1351:8D F3 CF 8D CD CF A9 BA C9
1359:8D D4 06 20 BF 13 60 AD F6
1361:F3 CF CD A3 CE 90 17 F0 41
1369:01 60 AD F2 CF CD A2 CE D6
1371:90 CF F0 01 60 AD F1 CF 7E
1379:CD A1 CE 90 01 60 AD F1 A8
1381:CF 8D A1 CE AD F2 CF 8D 7A
1389:A4 CE AA CD 60 A9 00 8D F6
1391:A2 09 BD 2E 15 09 80 9D 51
1399:44 04 CA 10 F5 60 42 00 B3
13A1:A0 05 BD A4 CE DD 3C 03 C4
13A9:F0 03 90 06 60 E8 88 10 43
13B1:F1 60 A2 05 BD 3C 03 9D 10
13B9:A4 CE CA 10 F7 60 AD E8 C5
13C1:CF F0 01 60 EE F1 CF AD BE
13C9:F1 CF C9 0A D0 31 A9 00 55
13D1:8D F1 CF EE F2 CF CE 0D A5
13D9:CF AD F2 CF C9 06 D0 1F D5
13E1:A9 00 8D F2 CF EE F3 CF AF
13E9:CE 0C CF AD F3 CF C9 09 CA
13F1:D0 0D A9 00 8D F1 CF 8D 5A
13F9:F2 CF A9 01 8D E6 CF AD 28
1401:F1 CF 09 B0 8D D6 06 AD C3
1409:F2 CF 09 B0 8D D5 06 AD 48
1411:F3 CF 09 B0 8D D3 06 60 7B
1419:A9 06 8D 2D DB 8D 30 DB 6D
1421:8D 33 DB 8D 36 DB 8D 39 A6
1429:DB 4C 3E 14 A9 0E 8D 2D 29
1431:DB 8D 30 DB 8D 33 DB 8D EC
1439:36 DB 8D 39 DB A2 04 A9 D3
1441:00 9D F4 CF A9 B0 9D F0 A8
1449:06 CA 10 F3 60 4C 2A 0E FE
1451:A0 19 B9 38 15 09 80 99 32
1459:C7 07 88 10 F5 60 20 20 CA
1461:12 0F 02 0F 14 20 0D 0F D1
1469:16 05 0D 05 0E 14 20 03 D3
1471:0F 0E 14 12 0F 0C 20 20 51
1479:00 20 20 20 20 20 01 0E 41
1481:01 0C 19 1A 05 12 20 08 AA
1489:0F 0F 0B 20 15 10 20 20 A9
1491:20 20 20 00 20 20 05 9C
1499:0E 14 05 12 20 03 0F 04 BE
14A1:05 20 13 05 0C 05 03 14 95
14A9:09 0F 0E 20 20 20 07 F
14B1:20 14 12 01 0E 13 0D 09 21
14B9:14 20 04 01 14 01 20 14 7D
14C1:0F 20 10 01 0E 05 0C 20 48
14C9:20 00 10 12 05 13 20 DF
14D1:02 15 14 14 0F 0E 20 20 15
14D9:14 0F 20 03 0F 0E 14 09 E5
14E1:0E 15 05 20 20 20 20 DA
14E9:20 20 20 20 20 20 07 01 C0
14F1:0D 05 20 0F 16 05 12 20 DF
14F9:20 20 20 20 20 20 20 22
1501:20 20 20 20 0B 36 51 73
1509:6C 87 8C A2 35 70 AA E7 AF
1511:1E 1F 20 56 57 58 8E 8F 44
1519:90 CE CF D0 00 00 00 01 47
1521:01 01 02 02 02 03 03 03 91
1529:00 03 06 09 0C 0E 05 17 1F
1531:20 12 05 03 0F 12 04 20 A9
1539:20 0D 0F 14 0F 12 20 03 DD

```

```

1541:0F 0E 14 12 0F 0C 13 20 09
1549:05 0E 07 01 07 05 04 20 DE
1551:20 04 09 0E 13 AD FA CF A3
1559:F0 01 60 20 51 14 A9 07 7F
1561:8D 18 D4 A2 06 BD 9F 15 98
1569:9D 00 D4 CA 10 F7 A9 11 6E
1571:8D 04 D4 20 2A 0E AD E6 CB
1579:CF F0 01 60 A9 03 8D 01 63
1581:D4 20 98 15 20 A6 15 AD F5
1589:00 DC 29 10 D0 E8 20 2A A5
1591:0E A9 10 8D 04 D4 60 AD E9
1599:00 DC 8D 18 16 60 FF 03 63
15A1:FF 01 40 73 F9 CE 19 16 9E
15A9:F0 01 60 AD 18 16 29 7F 5E
15B1:49 7F D0 0B CE 1A 16 D0 07
15B9:05 A9 23 8D F8 07 60 AD 60
15C1:00 D0 8D 17 16 AD 18 16 F0
15C9:29 04 D0 24 A9 22 8D F8 CF
15D1:07 A9 07 8D 01 D4 A9 0A 5C
15D9:8D 1A 16 CE 17 16 EE 17 07
15E1:16 D0 03 EE 17 16 CE 17 60
15E9:16 AD 17 16 8D 00 D0 60 3D
15F1:AD 18 16 29 08 F0 01 60 B4
15F9:A9 21 8D F8 07 A9 07 8D FC
1601:01 D4 A9 0A 8D 1A 16 EE A8
1609:17 16 D0 03 CE 17 16 AD 3D
1611:17 16 8D 00 D0 60 00 0B
1619:00 00 01 01 78 AD 14 03 18
1621:8D 00 CD AD 15 03 8D 01 79
1629:CD A9 D9 8D 14 03 A9 16 D0
1631:8D 15 03 A9 03 8D 0C D4 9F
1639:A9 17 8D D0 D4 A9 41 8D DF
1641:0B D4 A9 0F 8D 18 D4 58 1D
1649:60 AD 07 CF D0 01 60 AD E7
1651:10 CF F0 0B CE 11 CF D0 73
1659:05 A9 00 8D 10 CF 60 CE 9A
1661:03 CF AD 03 CF 29 01 F0 FE
1669:01 60 AD 28 D0 49 0B 8D B5
1671:28 D0 AD 01 CF 29 01 D0 A1
1679:0D EE 02 D0 AD 02 D0 C9 16
1681:FF F0 0B 4C B0 16 CE 02 8D
1689:D0 F0 03 4C B0 16 AD F9 B2
1691:07 49 03 8D F9 07 AD 01 15
1699:CF 49 01 8D 01 CF CE 07 E4
16A1:CF D0 0B AD 08 CF 8D 00 C0
16A9:CF A9 05 8D 0F CF 60 AD C7
16B1:FC CF D0 01 60 AD 02 D0 09
16B9:CD 00 D0 F0 01 60 A9 01 D3
16C1:8D 04 CF 60 78 AD 00 CD FD
16C9:8D 14 03 AD 01 CD 8D 15 6C
16D1:03 58 A9 00 8D 0B D4 60 6D
16D9:AD 0A CF F0 19 A9 05 8D 6F
16E1:27 D0 CE 0B CF D0 0F A9 E9
16E9:00 8D 0A CF A9 01 8D 27 4B
16F1:D0 A9 10 8D 04 D4 20 4A C9
16F9:16 AD 04 DC 6D FF CE 29 1D
1701:0F 8D FF CE A2 03 BD E9 8D
1709:CF F0 08 BD 29 D0 49 05 5C
1711:9D 29 D0 CA 19 F0 AD E6 A5
1719:CF F0 03 4C 31 EA CE AD 11
1721:CE D0 15 A0 05 AD 0F CF 64
1729:49 08 8D 0F CF 99 4A DB F5
1731:88 10 FA A9 1E 8D AD CE F2
1739:AD E7 CF 8D 07 D4 49 FF 29
1741:29 07 8D 08 D4 8D 09 D4 BB
1749:09 03 8D 0A D4 CE E7 CF 90
1751:F0 1A AD 0C CF F0 12 CE 39
1759:CA CF D0 0D A9 14 8D C4 46
1761:CF AD F8 07 49 07 8D F8 EC
1769:07 4C 31 EA A9 3C 8D E7 44
1771:CF CE 00 CF D0 0B A9 02 40
1779:8D 0F CF 8D 07 CF 8D 10 A7
1781:CF 20 BF 13 20 8B 17 4C 72
1789:31 EA A2 10 BD DC 0D 9D 79
1791:1A 04 09 80 10 F5 AD 27
1799:A3 CE 09 B0 8D 24 04 AD 2C

```

```

17A1:A2 CE 09 B0 8D 26 04 AD BB
17A9:A1 CE 09 B0 8D 27 04 A9 43
17B1:BA 8D 25 04 20 9F 13 A2 CD
17B9:11 BD ED 0D 9D 00 04 CA 2E
17C1:10 F7 A2 05 BD A4 CE 09 C1
17C9:B0 9D 0B 04 CA 10 F5 60 3C

```

## The Automatic Proofreader

See article on page 24.

```

10 VE=PEEK(772)+256*PEEK(773):
LO=43:HI=44:PRINT"{CLR}
{WHT}AUTOMATIC PROOFREADER
{SPACE}FOR ";
20 IF VE=42364 THEN PRINT "64"
30 IF VE=17165 THEN LO=45:HI=4
6:GRAPHIC CLR:PRINT"128"
40 SA=(PEEK(LO)+256*PEEK(HI))+
6:FOR J=SA TO SA+166:READ B
:POKE J,B:CH=CH+B:NEXT
50 IF CH<>20570 THEN PRINT "*E
RROR* CHECK TYPING IN DATA
{SPACE}STATEMENTS":END
60 FOR J=1 TO 5:READ RF,LF,HF:
RS=SA+RF:HB=INT(RS/256):LB=
RS-(256*HB)
70 CH=CH+RF+LF+HF:POKE SA+LF,L
B:POKE SA+HF,HB:NEXT
80 IF CH<>22054 THEN PRINT "*E
RROR* RELOAD PROGRAM AND CH
ECK FINAL LINE":END
90 IF VE=17165 THEN POKE SA+14
,22:POKE SA+18,23:POKESA+29
,24:POKESA+139,224
100 POKE SA+149,PEEK(772):POKE
SA+150,PEEK(773):PRINT"
{CLR}PROOFREADER ACTIVE"
110 SYS SA:POKE HI,PEEK(HI)+1:
POKE (PEEK(LO)+256*PEEK(HI)
)-1,0:NEW
120 DATA120,169,73,141,4,3,169
,3,141,5,3,88,96,165,20,133
,167
130 DATA165,21,133,168,169,0,1
41,0,255,162,31,181,199,157
,227
140 DATA3,202,16,248,169,19,32
,210,255,169,18,32,210,255,
160
150 DATA0,132,180,132,176,136,
230,180,200,185,0,2,240,46,
201
160 DATA34,208,8,72,165,176,73
,255,133,176,104,72,201,32,
208
170 DATA7,165,176,208,3,104,20
8,226,104,166,180,24,165,16
7
180 DATA121,0,2,133,167,165,16
8,105,0,133,168,202,208,239
,240
190 DATA202,165,167,69,168,72,
41,15,168,185,211,3,32,210,
255
200 DATA104,74,74,74,74,168,18
5,211,3,32,210,255,162,31,1
89
210 DATA227,3,149,199,202,16,2
48,169,146,32,210,255,76,86
,137
220 DATA65,66,67,68,69,70,71,7
2,74,75,77,80,81,82,83,88
230 DATA 13,2,7,167,31,32,151,
116,117,151,128,129,167,136
,137

```



# HOW TO TYPE IN

Each month, Gazette publishes programs for the Commodore 128 and 64. Each program is clearly marked by title and version. Be sure to type in the correct version for your machine. All 64 programs run on the 128 in 64 mode. Be sure to read the instructions in the corresponding article. This can save time and eliminate any questions which might arise after you begin typing.

We regularly publish two programs designed to make typing easier: *The Automatic Proofreader*, for BASIC programs, and *MLX*, for entering machine language programs.

When entering a BASIC program, be especially careful with DATA statements, as they are extremely sensitive to errors. A mistyped number in a DATA statement can cause your machine to "lock up" (you'll have no control over the computer). If this happens, the only recourse is to turn your computer off and then on, erasing what was in memory. This could cause you to lose valuable data, so be sure to *save a program before you run it*. If your computer crashes, you can always reload the program and look for the error.

## Special Characters

Most of the programs listed in each issue contain special control characters. To facilitate typing in any programs from Gazette, use the following listing conventions.

The most common type of control characters in our listings appear as words within braces: {DOWN} means to press the cursor-down key; {5 Spaces} means to press the space bar five times.

To indicate that a key should be shifted (hold down the Shift key while pressing another key), the character is underlined. For example, A means hold down the Shift key and press A. You may see strange characters on your screen, but that's to be expected. If you find a number followed by an underlined key enclosed in braces (for example, {8 A}), type the key as many times as indicated (in our example, enter eight shifted A's).

If a key is enclosed in special brackets, [ ] , hold down the Commodore key (at the lower left corner of the keyboard) and press the indicated character.

Rarely, you'll see a single letter of the alphabet enclosed in braces. This

can be entered on the Commodore 64 by pressing the Ctrl key while typing the letter in braces. For example, {A} means to press Ctrl-A.

## The Quote Mode

Although you can move the cursor around the screen with the Crsr keys, often a programmer will want to move the cursor under program control. This is seen in examples such as {LEFT} and {HOME} in the program listings. The only way the computer can tell the difference between direct and programmed cursor control is the *quote mode*.

Once you press the quote key, you're in quote mode. This mode can be confusing if you mistype a character and cursor left to change it. You'll see a graphics symbol for cursor left. In this case, you can use the Del key to back up and edit the line. Type another quotation mark and you're out of quote mode. If things really get confusing, you can exit quote mode simply by pressing Return. Then cursor up to the mistyped line and fix it. If the mistake involves cursor movement, however, you must press the quote key to reenter quote mode. □

| When You Read: | Press:         | See: |
|----------------|----------------|------|
| {CLR}          | SHIFT CLR/HOME |      |
| {HOME}         | CLR/HOME       |      |
| {UP}           | SHIFT ↑ CRSR ↓ |      |
| {DOWN}         | ↑ CRSR ↓       |      |
| {LEFT}         | SHIFT ← CRSR → |      |
| {RIGHT}        | ← CRSR →       |      |
| {RVS}          | CTRL 9         |      |
| {OFF}          | CTRL 0         |      |
| {BLK}          | CTRL 1         |      |
| {WHT}          | CTRL 2         |      |
| {RED}          | CTRL 3         |      |
| {CYN}          | CTRL 4         |      |

| When You Read: | Press:   | See: |
|----------------|----------|------|
| {PUR}          | CTRL 5   |      |
| {GRN}          | CTRL 6   |      |
| {BLU}          | CTRL 7   |      |
| {YEL}          | CTRL 8   |      |
| {F1}           | f1       |      |
| {F2}           | SHIFT f1 |      |
| {F3}           | f3       |      |
| {F4}           | SHIFT f3 |      |
| {F5}           | f5       |      |
| {F6}           | SHIFT f5 |      |
| {F7}           | f7       |      |
| {F8}           | SHIFT f7 |      |

| When You Read:               | Press:      | See: |
|------------------------------|-------------|------|
| ←                            | ←           |      |
| ↑                            | SHIFT ↑     |      |
| <b>For Commodore 64 Only</b> |             |      |
| [ 1 ]                        | COMMODORE 1 |      |
| [ 2 ]                        | COMMODORE 2 |      |
| [ 3 ]                        | COMMODORE 3 |      |
| [ 4 ]                        | COMMODORE 4 |      |
| [ 5 ]                        | COMMODORE 5 |      |
| [ 6 ]                        | COMMODORE 6 |      |
| [ 7 ]                        | COMMODORE 7 |      |
| [ 8 ]                        | COMMODORE 8 |      |



# REVIEWS

## SWITCH BETWEEN PROGRAMS • AUTOMATE APPLICATIONS ZAP GRAMMAR ERRORS • CHALLENGE FIGHTER BOMBERS

### TAKE CHARGE!

**H**ow many of us run our computers, and how many are run by them? If you're tired of trying to make the computer do what you want it to do, or if you've finally given in and started doing things its way, *Take Charge!* from Departmental Technologies could be the utility package that puts you back in the driver's seat.

*Take Charge!* offers a broad array of disk and file utilities that you can use from the command line or from the program's menu system. It also provides a collection of small applications. You can have it use your modem to dial any number you type onscreen at the DOS prompt. It can switch in seconds between applications of any size and provide instant access to other utilities.

The big news is that *Take Charge!* uses only 20K of RAM. Since it's so small and it task-switches so effectively, you don't have to consider your word processor, desktop publisher, database, spreadsheet, and telecommunications programs as separate entities anymore. Simply assign them hot keys and treat them as if they were components of the world's greatest integrated system. This high efficiency deserves to be applauded, particularly in the face of the ever more gargantuan programs developers are foisting on the public, programs that soak up RAM like mad sponge monsters.

Access *Take Charge!*'s broad array of disk and file utilities from the command line or from the program's menu system. The program provides a collection of small applications. Use the online calendar feature to make appointments through the end of 2099. You can write or edit straight-ASCII text files with its friendly text editor. You can also access powerful disk and file utilities that even let you do such things as edit file attributes or

optimize disks. (These commands might be better placed in your DOS directory. You'll find yourself using them often.)

You can lock your keyboard for while you're away, dial a number from the command line or a database, or cut and paste unlimited amounts of text between applications. I'd go on, but I'm out of breath.

Most of us have to make appointments, get to meetings, or (for those among us who program computers) be reminded to eat at the proper times. The alarm provided with *Take Charge!* is the answer for people who want to be punctual but never seem to get away from their desks on time. When the alarm goes off, it announces the appointed time with a chirp and displays a message on the top line of the screen. The chirp and message repeat every few seconds.



Switch among applications with ease.

I discovered one possible bug: You can set the alarm to ring at 00:00, but it won't ring at midnight. So if your carriage is going to turn into a pumpkin, you'd better set the alarm for 23:59 or 00:01. Otherwise, *Take Charge!* is very intelligent about rejecting inappropriate input, such as impossible times and dates.

The manual is old, and you may discover some out-of-date information. The menu program, for instance, is called TCMENU rather than MENU, as the book says. An ad-

dendum clarifies most of the confusing references. If you still run into problems, you'll find technical support knowledgeable and fairly patient. The text editor doesn't automatically wrap text, which can present a problem. If you type a single line of several hundred characters, the cursor will follow you across the screen and miles out to the right, clear past Jesse Helms. You can turn on word wrap, but it still acts peculiarly. You wouldn't want to write the great American novel on it, but as a text editor and batch-file writer, it's highly functional.

All hard disk optimizers seem extremely slow to me, but *Take Charge!*'s seems even slower. It doesn't provide all of the options and detailed information about the disk that you'd receive from *PC Tools Deluxe*.

Another module allows you to edit your directory. With it, you can simply type in a new volume name, for example, or change a file's attributes. This is almost too much power for the casual user. Don't enter this module (its name is DE) unless you know what you're doing. A Departmental Technologies spokesman said that most companies purchasing *Take Charge!* in bulk for their employees insist that this feature be removed.

*Take Charge!* also features a telecommunications package. The module doesn't allow scripting, though you can write ten 70-character macros and save them as a file. Since you can load other macro files very easily, you could access a virtual infinity of macros. A 70-character macro could probably do as much work as most scripts. You can also send all interaction to a log file or save a screen shot.

Departmental Technologies is proudest of *Take Charge!*'s ability to switch among programs. Even if you don't like any of the programs that come with it (and I feel certain several will endear themselves to you), the



# REVIEWS

ability to switch among programs so rapidly—and with so little overhead—makes *Take Charge!* a program to be reckoned with. It's worth looking for.

ROBERT BIXBY

IBM PC and compatibles; 320K; DOS 2.0 or higher; hard disk—\$99.95

DEPARTMENTAL TECHNOLOGIES  
Box 645  
Andover, NJ 07821  
(201) 786-6878

## CRIME WAVE

Though the design and concept of the packaging are almost identical, *Crime Wave* by Access is not a sequel to last year's major Access release, *Mean Streets*. *Crime Wave* is pure arcade-style action.

The *Crime Wave* world of 1995 is not a pretty place. Crime syndicates have taken over the inner cities and turned them into crumbling wastelands. Onto this landscape you strut



Rescue the president's daughter.

as Lucas McCabe, a one-man sea wall to face the cresting wave of crime. Archvillain King Pin has snatched the President's daughter and is holding her, and the country, hostage. Only McCabe has the high-tech weapons and savvy to attempt a rescue in the heart of the city.

A comic book-style storyboard introduces the plot and characters before the action starts. Real actors and actresses were used to create the excellent digitized sequences. Titillating scenes of Brittany, resplendent in her red miniskirt, offer boys plenty of incentive to fight their way to the next sequence. The fact that most arcade games are played by teenage males

was not lost on designer Bryan Brandenburg.

The onscreen graphics in *Crime Wave* are really outstanding. In VGA mode the foregrounds and backgrounds are almost TV quality. When played in VGA, *Crime Wave* not only makes Nintendo graphics look substandard, it even outshines the new 16-bit home videogame systems and most stand-up arcade games. The graphics are still very good in EGA, but I found that the dull-red, slow-moving shots from the bad guys tended to get lost in the background and were hard to spot out of the corner of my eye.

Several levels of difficulty are included, so even if you're a novice, you'll be able to play for an hour or so the first time out before losing all your lives. It will take significantly longer than that to get all the way through this large game. Including the story segments, it takes up almost 3MB on your hard disk. You can use a special version (including only the arcade sequences) that will only take up 1.2MB.

Access's Real Sound technology makes realistic sound possible in *Crime Wave* without the need for additional hardware. While Real Sound has impressed me in the past, I thought it could have been put to better use in this game.

Those who shun onscreen violence will find *Crime Wave* particularly offensive. Burning body parts of blasted bad guys literally rain down in some segments. And joystick junkies will have to learn to drive the keyboard because a joystick option was not included. The game's copy protection involves looking up information in the manual.

*Crime Wave* is another example of a game that probably couldn't be played on today's videogame systems. It's big, it's action-packed, and it's graphically sophisticated. It will wash you away.

RICHARD SHEFFIELD

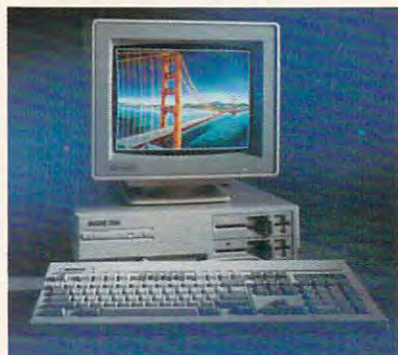
IBM PC and compatibles; 640K; EGA, MCGA, VGA, or Tandy 16-color; hard disk; clock speed of at least 8 MHz—\$59.95

ACCESS SOFTWARE  
545 W. 500 South  
Suite 130  
Bountiful, UT 84010  
(801) 298-9077

## MAXAR 286L

A powerhouse doesn't have to look like one. Take the Maxar 286L computer. It provides the power of a state-of-the-art 80286 system, but it's packaged in a compact, aesthetic design that doesn't overwhelm your desk.

The 286L case is a trim 16-inch square standing less than 4 inches tall. Capable of running at either 8 or 12 MHz, the machine boasts 1MB of zero-wait-state RAM on the motherboard. Other standard features include an Award Software ROM BIOS; a 1.2MB, 5¼-inch floppy disk drive and controller; and three AT- and three XT-compatible expansion slots (mounted horizontally to save space).



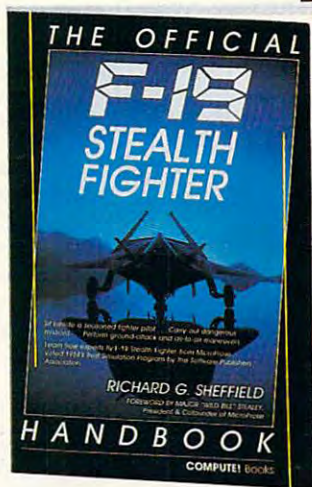
Good things come in a small package.

Also standard are one parallel port, two serial ports, an 80287 math coprocessor socket, a battery-backed clock/calendar, a 101-key keyboard, GW-BASIC, and MS-DOS. The basic system retails for \$1,375. (The system I tested was customized with two half-height 1.2MB floppy drives, a 40MB hard drive, and a 12-inch monochrome monitor.)

While many companies hide power switches in hard-to-reach locations, the Maxar sports a push-button power switch on the front panel so you don't have to stand on your ear to turn it off and on. This switch also controls a power receptacle on the back of the unit (perfect for powering a monitor). A recessed design for this switch prevents accidental power outages from wayward fingers, coffee cups, software boxes, books, or other jungle hazards of the cluttered desk. Other items of interest on the front



# WHATEVER YOUR HOME COMPUTING NEEDS, COMPUTE IS YOUR HOME COMPUTING RESOURCE



**The Official F-19 Stealth Fighter Handbook**  
by Richard G. Sheffield  
Foreword by Major "Wild Bill" Stealey,  
president and cofounder of MicroProse  
**\$14.95** 192pp

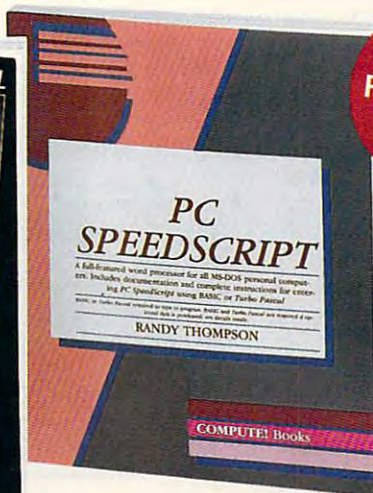
Learn the ins and outs of flying MicroProse's new F-19 Stealth Fighter flight simulator. Study the practical hints and tips for flying the simulator and performing ground-attack and air-to-air tactics. Then read all the background information in the book to learn to fly the real F-19. In the final section of the book, you'll find yourself looking over the shoulder of an expert F-19 Stealth Fighter game player as he carries out several dangerous missions.

**Easy 1-2-3 for Small Business**  
by Sandra Cook Jerome, C.P.A.  
**\$18.95** 320pp

This hands-on guide is perfect for small-business owners who need financial reports and information quickly. It is more than just another tutorial on Lotus 1-2-3; it's a guide to building practical spreadsheets. You get complete instructions for creating more than a dozen spreadsheets, including income statements, job costing, tax planning, balance sheets, and accounts-receivable aging. You'll even learn to write a business plan. Although written specifically for Lotus 1-2-3 releases 2.2 and 3, the spreadsheets in Easy 1-2-3 for Small Business are also compatible with release 2.01.

**COMPUTE!'s Guide to Nintendo Games**  
by Steven A. Schwartz  
**\$9.95** 272pp

A valuable buyer's guide, this book is packed with tips for better play and reviews of available game cartridges for the Nintendo Entertainment System. Each game description includes a screen shot; basic information such as type of game, number of players, and controller type; and ratings for the essential elements such as sound and graphics quality, violence, difficulty, and overall play value.



**WORD PROCESSING PACKAGE**

**PC SpeedScript**  
by Randy Thompson, associate editor  
at COMPUTE! Publications  
**\$24.95** 224pp

SpeedScript, a full-featured word processor and the most popular program ever published by COMPUTE!, is now available for IBM, Tandy, and compatible personal computers. From letters and reports to novels and term papers, PC SpeedScript handles all your word processing needs. This 5¼-inch disk contains the ready-to-run PC SpeedScript program and the Turbo Pascal source code. You do not need BASIC or Turbo Pascal to run the programs. The package includes a 224-page book with complete documentation and source code listings.

**Quick & Easy Guide to Using MS-DOS, Second Edition**  
by Bonnie Derman and  
Strawberry Software  
**\$14.95** 224pp

The second edition of this easy-to-use guidebook covers all versions of MS-DOS through version 4. Commands and directions are logically arranged for quick reference. Topics include directories, files, disk commands, screen and printer output, and more. It's the only MS-DOS book that employs a truly task-oriented approach.

**PFS: First Choice Business Solutions**  
by Elna Tymes with Charles Prael  
**\$18.95** 256pp

This book is a must for all PFS: First Choice business users. Automate office chores with a complete range of business models: inventory, forecasting, commission records, presentations, telecommunications, P & L analysis, and so much more. PFS: First Choice software from Software Publishing is not included.

**YES!** COMPUTE is my home computing resource. Please send me the titles checked below. I've included \$2.00 shipping and handling for orders under \$20.00.

- COMPUTE!'s Guide to Nintendo Games (2214) \$9.95
- Easy 1-2-3 for Small Business (2052) \$18.95
- PC SpeedScript (1668) \$24.95
- PFS: First Choice Business Solutions (2087) \$14.95
- Quick & Easy Guide to Using MS-DOS, Second Edition (2184) \$14.95
- The Official F-19 Stealth Fighter Handbook (2176) \$14.95

\_\_\_\_\_ **Subtotal**  
\_\_\_\_\_ **Sales Tax** (Residents of NC, NY, and NJ add appropriate sales tax for your area)  
\_\_\_\_\_ **Shipping and Handling** (\$2 U.S. and Canada). No charge for shipping and handling if subtotal is over \$20.00.  
\_\_\_\_\_ **Total enclosed**

**All orders shipped within 48 hours.**

Check or money order     MasterCard     VISA

Signature \_\_\_\_\_ (Required)

Acct. No. \_\_\_\_\_ Exp. Date \_\_\_\_\_

Name \_\_\_\_\_

Street Address \_\_\_\_\_ (No P.O. Boxes please)

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Daytime Telephone No. \_\_\_\_\_

This offer expires January 31, 1991. All orders must be paid in U.S. funds drawn on a U.S. bank. Orders will be shipped via UPS Ground Service. All orders will be shipped via UPS Ground Service within 48 hours of receipt of order.

**MAIL TO** Compute Books  
c/o CCC  
2500 McClellan Avenue  
Pennsauken, NJ 08109

OCT 90CA

panel are a reset button (recessed and just below the power switch) and indicator lights for power and turbo processor speed.

Maxar's clear and informative manual provides numerous drawings to simplify system setup. A section also demonstrates how to install extra floppy drives, hard drives, and expansion boards. MS-DOS installation and several of the more useful DOS commands are clearly explained, all without overwhelming you with extraneous details.

*QAPLUS*, a quality-assurance diagnostic program, comes bundled with the Maxar. It checks everything from CPU, disk, and video speeds to interrupt controllers. It also checks RAM, the keyboard, the printer, communication ports, and floppy and hard disk drives.

In a world crowded with PC clones, the Maxar 286L is a solid performer that incorporates features usually found in higher-priced systems. If you're looking for a powerful 80286-based computer in a small, attractive package, consider the Maxar 286L.

TOM NETSEL

Maxar 286L standard configuration with 1MB of RAM, 1.2MB floppy disk drive, 80287 math coprocessor socket—\$895

HYOSUNG COMPUTER AND INFORMATION SYSTEMS  
710 Lakeway  
Suite 285  
Sunnyvale, CA 94086  
(408) 733-0810

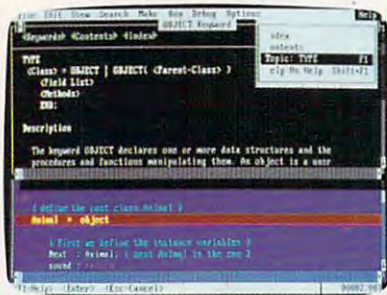
## QUICKPASCAL

You might call *QuickPascal* an extended subset of Borland's *Turbo Pascal* 5.0. The language itself is quite similar, with the following exceptions: Borland-style graphics calls are not officially supported, there are no overlays, and *QuickPascal* contains a set of object-oriented extensions that have no analog in *Turbo* 5.0.

*QuickPascal* also has a goodly number of features that *Turbo* ought to have, such as support for C-style strings and some new text-mode functions that ease the creation of snappy text screens. Its unit-level recreation even includes a totally undocumented

GRAPH unit for quite a few of *Turbo Pascal*'s graphic calls, but not for font or BGI calls.

The Quick environment has evolved from its brethren *QuickC* and *QuickBASIC* products. The incredible online help system Microsoft pioneered with *QuickBASIC* 4.0 is even better in *QuickPascal*, the tutorials are better than *QuickC*'s, and the editor has been given multiple windows with the usual great mouse support. However, the reference material is unacceptable. In fact, there is almost no reference material. You can't even buy it as an option.



**QuickPascal's online help is unbeatable.**

The online help contains an ample supply of sample programs, and the code from the samples can be dropped into your own programs fairly easily.

Error handling is built into the environment. The good news is that when the compiler encounters an error, it puts up a dialog box you can use to obtain an explanation of the error message and advice on what to do about it. This is exactly the way online error handling should work.

The bad news is one serious omission: If you run the command line version of the compiler, you can't get error-message documentation. Neither runtime errors nor compile-time errors are covered in the printed manual. Nor is there a good listing of the units and library routines, documentation of an assembly language interface, or full reference material anywhere. Want to know whether text-mode screen-handling coordinates use a screen origin of (0,0) or (1,1)? You'll have to figure it out for yourself. You won't find it written anywhere in any of the documentation, online or otherwise.

*QuickPascal* is not compatible with ISO-standard Pascal, nor is it

compatible with Microsoft's older Pascal compilers or *CodeView*. For the time being, you must use its integrated debugger (which is quite good). The generated code and compile speed are very close to those of *Turbo Pascal*.

Is *QuickPascal* worth the money? If you want the brilliant Microsoft graphics library, Windows-style fonts, unbeatable online help, and high text-mode compatibility with Borland's *Turbo Pascal*, look no further. Bear in mind that *QuickPascal* isn't compatible with *CodeView*, the MS LINK format, Windows, OS/2, or *Microsoft Pascal*.

If, however, you need overlays, adequate reference documentation, advanced debugger support, better fonts, an open architecture, and graphics or unit compatibility with the Borland interface, you might want to consider your alternatives.

TOM CAMPBELL

IBM PC and compatibles; 512K; DOS 2.1 or higher; two floppy disk drives or one floppy disk drive and a hard disk; mouse optional—\$99

MICROSOFT  
One Microsoft Way  
Redmond, WA 98052-6399  
(800) 426-9400

## AVAGIO

Outstanding desktop publishing results with average output devices? *Avagio* can do it, and at a great price, too. Even on your nine-pin printer, you can produce remarkably high-quality brochures, newsletters, business cards—the list goes on.

*Avagio* gives you extraordinary control of graphics and a very sharp and accurate onscreen display, closing the gap between what you see and what you get. Finally, the program simply prints better on dot-matrix printers than any other program I've ever seen.

Besides this powerful display and print technology, *Avagio* offers a complete list of editing features, the ability to import text files in several popular word processing formats or ASCII, support for several graphics formats, and 150 of its own high-quality clip-art images.

*Avagio's* menus have even more interesting dishes to serve up. Kerning lets you easily adjust the space between characters, such as the gap between a lowercase *l* and a lowercase *y*. Using text frames, you can flow text around graphics. While there's no option for wrapping text around uneven graphic edges, you can create text frames that allow graphics to overlap columns. Because you can sequentially link one frame (a box that contains text or graphics) to the next, you can work some pretty fancy dance steps around the edges of most graphics. But they're as complex to perform as they are impressive to see.



Say good-bye to printout jaggies.

Scale characters to 500 points (that's seven inches to you and me), and *Avagio* won't hesitate. Not even high-end programs like *PageMaker* let you change the fill of a character, but *Avagio* lets you treat any letter or group of letters as graphic elements.

When it comes to traditional graphics, you have the same kind of tools for editing fill patterns, line styles, and line widths. You'll think you're working with a full-fledged graphics program instead of a page-layout program.

The Mingle options, probably the flashiest of *Avagio's* graphics tools, let you control how one element affects the appearance of another when they intersect on the page. You can make some shapes opaque and others translucent like tissue paper. Still others turn images into negatives.

As long as your ribbon is new, you'll get sharp output that very closely resembles what you see on your screen. This is especially important when you work with very detailed graphics, when you want to line up page elements precisely, and when you want to kern text.

If you do much printing on dot-

matrix printers, you'll also notice something else missing: jaggies. *Avagio's* features translate smoothly to the page, even in draft mode. Of course, the program also supports laser and ink-jet printers, and the quality just gets better.

You pay for quality in speed, though. Printing at draft quality is slow, but you shouldn't expect lightning-fast output from a nine-pin dot-matrix printer anyway. At standard and high-quality printing, the slowness is even more exaggerated.

Packed with features, *Avagio* still isn't any harder to learn than most other desktop publishing packages. If you've used *PageMaker*, you'll be amazed at the similarities, which should lower the learning curve considerably. Greenhorns shouldn't find this program any harder to learn than any other electronic page-layout program. A better tutorial would improve this package, though. So would an index for the manual.

While it doesn't demand much from your printer, the program does eat up a lot of disk space—nearly seven megabytes. Manual and tutorial aside, *Avagio* is the best page-layout package for the PC right now. You can have your dot-matrix printer and desktop publish, too.

HEIDI E. H. AYCOCK

IBM PC and compatibles with 640K, a graphics card, a hard disk, a mouse, and a printer—\$299.95

UNISON WORLD  
1321 Harbor Bay Pkwy.  
Alameda, CA 94501  
(415) 748-6670  
(800) 444-7553

## DESKMATE Q & A WRITE

For some people, using a sophisticated \$500 word processor for day-to-day writing is like using a sledgehammer to drive a nail into the wall—it gets the job done, but the extra power can make the job more complicated.

If that description fits you, check out *DeskMate Q & A Write*, an inexpensive word processor that doesn't sacrifice power for ease of use.

The *DeskMate* graphical user interface (GUI) makes *D/Q & A*, already known as one of the easiest-to-use word processors, even better.

Although it runs under a GUI, *D/Q & A* isn't a WYSIWYG (What You See Is What You Get) word processor. It displays boldface and underlining onscreen, but it doesn't show graphics or multiple fonts while you edit. There is a page-preview mode, however, so you can see exactly how your document will appear before you print it.



The friendly *DeskMate* interface and *Q & A Write's* power make word processing easier and much more enjoyable.

Almost all the commands in *D/Q & A* are available from six menus at the top of the screen, and there are keyboard equivalents for most functions.

The program has some surprisingly advanced page-layout capabilities for an entry-level word processor: lines, boxes, multiple fonts, headers and footers, and more.

You can import graphics in *DeskMate Draw*, *Lotus 1-2-3*, *Symphony*, *PFS:Graph*, and BASIC BSAVE formats. You can also use the command \*SPREADSHEET\* to directly import all or part of a *Lotus*-compatible spreadsheet file.

*D/Q & A* has a spelling checker, but unless you already own *DeskMate's* dictionary, you'll need to order it with the manual's coupon. *D/Q & A* also lets you access Tandy's add-on *DeskMate Thesaurus* from its Tools menu.

Not only is *D/Q & A* a very capable word processor, it's also a handy minidatabase. *Card File*, the built-in database, can handle up to 180 fields and 1000 records in each file. Use it to look up an address or phone number or to maintain a mailing list. >

Of course, it's the printed output that matters the most, and here *D/Q & A* won't let you down. You can print up to eight columns on a page, continuous or single-sheet forms, justified or ragged text, and mailing labels. The program will even automatically find the addresses at the top of a business-format letter and print them on an envelope.

The manual is complete and easy to understand, explaining all of the program's operations in a procedural manner.

If you don't have a mouse already, this program makes getting one worthwhile. While you can access any of *D/Q & A*'s functions with the keyboard, the mouse makes many operations, such as highlighting text, much easier.

For a fast, easy-to-use PC word processor that offers power at a reasonable price, don't look any farther than *DeskMate Q & A Write*.

DENNY ATKIN

IBM PC and compatibles with 512K and graphics adapter—\$199

SYMANTEC  
10201 Torre Ave.  
Cupertino, CA 95014  
(408) 253-9600

## BRUCE LEE LIVES

The computer game industry has paid homage to the memory of Bruce Lee by creating martial arts contests focusing on classic competition, fight-to-the-death scenarios, and action/adventure games. Not until *Bruce Lee Lives: The Fall of Hong Kong Palace*, however, has a program successfully incorporated all three of these elements.

Before setting forth on your quest to defeat Master Po and his narcotics empire, you must win at least two of three qualifying rounds. You'll face one of the local martial arts school's top students in a beautifully rendered courtyard scene.

Since the student is no pushover, you should consider a few practice sessions before taking him on. The bottom of this screen displays two diagrams of the keypad and joystick, showing all of the possible moves you can make. Keyboard control is intu-

itive and responsive. Most players will find the joystick a poor choice, since it's virtually impossible to consistently position the shaft in the diagonal locations. At a critical moment, you might find yourself unintentionally dodging a blow when one more punch might have finished off a culprit or, worse yet, running toward a killer that you should be avoiding.



Defeat Master Po's narcotics empire.

Be sure to take advantage of the game's macros, which let you record up to three sequential martial arts moves and map them to a single key-press or joystick movement. So once you've perfected a *kick-duck-punch* sequence, you can execute the entire sequence with one action.

After you've completed the training and qualifying sequences, you're ready to pursue the evil Master Po. You must complete four missions before the climactic confrontation with your archenemy in his Hong Kong Palace headquarters.

In the first mission, the Trap, Po distracts you with a telephone call, while a pair of his thugs break down your apartment door with more on their minds than walking off with your PC clone. One at a time, you have to outfight both attackers in order to finish the screen.

To combat these and other opponents, a host of moves are available to you. You can punch or jab; employ a variety of kicks; dodge blows by jumping, ducking, or moving backward; or run away to a safe corner.

In the second sequence, the Brawl, you must knock out the huge bouncer at the seedy bar that operates as a front for Po's money-laundering operation. The next scenario, the Cargo Ship, requires you to board the ship on which Po stores his cache of opium. Find the ship's fuel tanks and

attach a bomb to them by pressing the B key (this command is undocumented, by the way). Dispatch or avoid any guards you encounter, locate an alternate exit, and get clear of the ship within 30 seconds after the explosive is set.

*Bruce Lee Lives* will take even advanced arcaders hours to complete. Software Toolworks' Troy Heere offers some hints not found in the manual to help you get through the game a little faster.

First, you don't have to overwhelm all of the guards. Some you merely have to elude. If you must engage in combat, Heere recommends use of the jumping kick. "With a little practice, you can execute multiple jumping kicks consecutively, inflicting staggering blows on the opponent," he explains.

Another helpful tip is to get your hits in from as far away from your adversary as possible. "The opponent's strategy under this condition is generally to keep punching as long as you're too close to try anything else," Heere says.

The game's artificial intelligence adds to its challenge and excitement. "*Bruce Lee Lives* employs what I call a *learning engine*," Heere says. "It keeps track of the moves of both the computer and the human player and the effectiveness of one move versus another. It doesn't care who made what move, only whether it was effective in relation to the countermove. Because of this, the computer learns not only from its own successes and failures, but from the human's as well."

By blending elements from earlier martial arts contests and by adding sophisticated artificial intelligence, the creators of *Bruce Lee Lives* have freshened up what was becoming a very stale format. This is a game worthy of bearing the Dragon's name.

LEN POGGIALI

IBM PC and compatibles, 512K, CGA, EGA, VGA, or Tandy 16-color (requires 640K)—\$39.95

THE SOFTWARE TOOLWORKS  
Distributed by Electronic Arts  
1820 Gateway Dr.  
San Mateo, CA 94404  
(415) 571-7171  
(800) 245-4525

## IBM CURRENT

**P**ersonal Information Managers (PIMs) are supposed to manage all kinds of information in a manner that complements, rather than conflicts with, your way of doing things. The problem here is that everyone's method of managing information is different. To excel, therefore, a PIM must attempt to be all things to all people. While no program can totally achieve this lofty goal, IBM's *Current*, a new addition to the PIM lineup, comes close.



**Current can assign items to appropriate categories based on key phrases.**

*Current* runs under *Windows*, a graphical user interface that allows the program's screens to resemble familiar real-life objects. *Current's* appointment calendar, for example, resembles the standard daily calendar found on most desktops. Its address/phone book has alphabetical tabs down the side. Consequently, *Current* is extremely intuitive to learn and use.

Unfortunately, *Current* makes significant hardware demands—a full 640K complement of RAM and, installed with its runtime version of *Windows*, over 3.5 megabytes of disk space just for its own files.

Although it's possible to run *Current* without a mouse, you wouldn't want to. Keyboard alternatives to mouse operations, though functional, are unavoidably complex.

The first display you see when you install and run *Current* is the appointment calendar. Recording information on this calendar is simply a matter of entering an appointment at the appropriate date. You can adjust *Current's* default half-hour time intervals all the way down to five-minute increments. Once an appointment has been recorded, the program's true

power comes into play.

Each appointment you record is called an *item*. You can group items into categories and assign an individual item to as many categories as you like. You could, for example, create a category consisting of all items that mention the person with whom your appointment is scheduled, a second category with items referring to whatever project that appointment involves, and a third category based on the city where this appointment will take place.

A few mouse clicks allow you to organize and review all the items stored in any given category. Consequently, you can quickly check on whatever information you've recorded about the person, the project, or the place, depending on which category you choose. But there's a catch.

In order to reliably manage all your information in all its possible permutations, *Current* sacrifices adaptability. Although *Current* can display records in any one of six preformatted views, the output options for each view are limited. The report view, for example, is limited to first-level mathematical operations. Even though you can include a calculated field in a report—you could, for instance, total individual purchases to track a project budget—you can't perform calculations using the results of the first operations. Your budget report couldn't include a final calculation showing cost overruns or how much of the original budget remains unspent. This is hardly a major shortcoming, but you should check to make sure *Current* can satisfy your personal needs before adopting it as your PIM.

If you choose *Current* as your PIM, you'll be pleasantly surprised by some of its nifty extras: its alarm and its ability to dial any number in a current document with your modem, for example. *Current* is smart enough to assign the correct date to an appointment you schedule—for example, to *next Tuesday*. You can apply complex filters to any *Current* reports, extracting only selected items from even large categories. After a short while, you'll even figure out how to take advantage of one of the program's most useful features: its ability to automatically assign an item to the appropriate categories, based on certain key

phrases the item contains.

*Current* is, in short, one impressive program. And while it might not be all things to all people, it could be the perfect PIM for you. It's certainly worth investigating.

JACK NIMERSHEIM

IBM AT and compatibles, 640K, one floppy and one 20MB or larger hard drive, CGA, EGA, or VGA—\$395

IBM DESKTOP SOFTWARE  
472 Wheelers Farms Rd.  
Milford, CT 06460  
(800) 472-7699

## HYUNDAI SUPER-386C HYUNDAI SUPER-286N

**J**apan isn't the only Asian country hard at work in the electronics industry. Korea's Hyundai is offering its own versions of power, speed, and expandability in the Super-286N and the Super-386C. I had the opportunity to work with both of these machines, and each performed exceptionally well.



**The Super-286N offers value and quality.**

Each computer comes equipped with a 101-key keyboard, six expansion slots, one serial and one parallel port, a 200-watt power supply, MS-DOS version 3.3, and GW-BASIC, ready to be installed. The 386c is OS/2-compatible and can function as a UNIX workstation. With its VGA capabilities, it can also function as a graphics workstation for CAD/CAM and desktop publishing purposes.

Each of my review units came equipped with a 40MB hard drive and one 1.2MB 5¼-inch floppy drive. The 286 had a Hyundai HCM-1420 EGA color monitor, while the 386 unit came equipped with Hyundai's HCM-40 VGA color monitor. Colors seemed somewhat more vivid on the VGA unit when I placed the monitors side by side, but unless you own or plan to buy software that's designed specifically for VGA, I don't see the advantage of owning the more expensive VGA monitor and card.



Power, speed, and expandability are yours with Hyundai's Super-386c.

Setup and software installation on the two computers were simple, as was opening up the units to add a modem card. I also experienced no compatibility problems. My word processor, spreadsheet, database, and favorite games worked fine on both units. The 386 crunched spreadsheet numbers noticeably faster than the 286 and searched for strings in my word processor and database in the blink of an eye; but the 286 wasn't that much slower.

I would recommend both units for everyday home or small-business use, but if you're thinking of moving up to OS/2 or are in need of a UNIX or CAD/CAM workstation in the near future, then the 386c becomes a necessity. It's also the less likely of the two to become obsolete anytime soon. Both computers are excellent buys, but since the Super-386c has a full-fledged 386 processor, it's priced considerably higher than the 386SX-chip models currently on the market that perform many of the same tasks without putting a hole in your wallet.

If you're content with less power and the slower speed of a 286 computer, then the Hyundai Super-286N will provide you with the reliable PC you've been looking for. And besides,

if this is all you need, you'll save a great deal of money. With either of these computers, you can have power and performance to meet your future needs.

MICKY McLEAN

Super-286N with one 1.2MB floppy disk drive—\$1,145; with one floppy drive and a 40MB hard drive—\$1,745

Super-386c with one 1.2MB floppy disk drive—\$2,195; with one floppy drive and a 40MB hard drive—\$2,795; with one floppy drive and a 100MB hard drive—\$3,695

HYUNDAI ELECTRONICS AMERICA  
166 Baypointe Pkwy.  
San Jose, CA 95134  
(408) 473-9200  
(800) 727-6972

## Amiga

### REJUVENATOR

**W**ith the impending release of Kickstart/Workbench 2.0 and the Enhanced Chip Set (ECS), Amiga 1000 owners may worry about being left behind. Their fears are unfounded, however, as a number of third-party projects in the works will let the original Amiga take advantage of OS 2.0 and the ECS.

The first of these products to hit the market is Greg Tibbs' Rejuvenator board, marketed by Expert Services. After installing the Rejuvenator in my Amiga 1000, I felt as if I were using a new computer. The Rejuvenator adds the SuperAgnus chip, a full megabyte of chip RAM, support for the ECS Denise chip (which will add a number of new graphics modes under OS 2.0), a battery-backed clock, and a flickerFixer-compatible video slot. The 1000's internal RAM is converted into 512K of true fast memory, giving you a total of 1.5 megs.

If one meg of chip RAM isn't enough, you can replace the SuperAgnus chip with an Amiga 3000 Agnus and expand to two megs of chip RAM.

The Rejuvenator has a socket that will accept a 500/2000-style Kickstart ROM chip. Kickstart 2.0 has grown to 512K, so it won't fit into the

Amiga 1000's 256K of Kickstart RAM. Unlike competing boards, the Rejuvenator has a switch that will let you load older Kickstart versions from disk.

The Rejuvenator replaces the Kickstart RAM board inside your Amiga 1000 and requires no motherboard surgery. Just plug in the board, connect three jumper clips, and you're ready to go. You do have to line up about 150 pins with the proper sockets, though, so unless you're very experienced with hardware installation, I'd recommend you let the manufacturer install the board.

I've been using the Rejuvenator with both ECS chips for over a month and have encountered no compatibility problems. Although I've been running with Kickstart 1.3 in ROM, beta versions of 2.0 worked fine. My 1000 with two expansion cards is actually *less* crash-prone than before I installed the Rejuvenator. If you do encounter problems, Expert Services' technical support is excellent.

With the addition of a MicroWay flickerFixer board, which works flawlessly in the Rejuvenator, the Amiga 1000 acts just like a slower Amiga 3000. You don't get the 3000's faster speed, but you get to keep your keyboard garage.

DENNY ATKIN

Amiga 1000—\$499.95

EXPERT SERVICES  
5912 Centennial Cir.  
Florence, KY 41042  
(606) 371-9690

### TYPHOON THOMPSON

**G**ames like *Typhoon Thompson* don't come along often enough. It's one of those rare instances where the sum is far more than the individual parts. Although it comes a little closer to cute than I like, there's more than enough charm to offset any hint of saccharine. From the animation to the superlative gameplay, everything about it is exemplary.

The most immediately striking thing about *Typhoon Thompson* is the animation. It uses very small charac-

ters, no more than an inch high, but imbues them with such personality that they make other games look flat and soulless. The opening sequence has Typhoon, the intrepid hero, dropping from a flying saucer into the skimmer in which he glides around the open sea. Actually, he doesn't so much drop as get shoved out of the



Skim the waves to rescue the sea child in Broderbund's *Typhoon Thompson*.

spacecraft to reluctantly start his quest for a kidnapped sea child. To recover the child, he has to capture the water sprites who committed the dastardly deed. These sprites possess several types of flyers, vehicles that can cause harm in a number of ways. If you can destroy a flyer, you can then capture the sprite within.

Maneuvering the jet-sled around the ocean is one of the most exhilarating experiences I've ever had in a game. Response to the mouse is instantaneous, sending you flying just above the surface of the water, and even under it. This submarine capability is one of the details that makes the game so special. You see a water-distorted image of your craft when you dive, and the illusion is so convincing you'll find yourself holding your breath.

If you like fast-action arcade games with excellent graphics and dynamic sound, this is the game for you. But even people who aren't fans of arcade games will find *Typhoon Thompson* a delight. Don't miss it.

TOM MALCOM

Amiga—\$34.95

BRODERBUND  
17 Paul Dr.  
San Rafael, CA 94903  
(800) 521-6263

## BARNEY BEAR GOES TO SCHOOL

Commodore has had some recent success in the education market with the Amiga, but it still has a long way to go before it can compete with Apple and MS-DOS machines in the classroom. One of the obvious problems for the classroom Amiga—ever since the machine's debut—is the lack of software, especially at the preschool and elementary-school levels.

To help fill this void, Free Spirit, a committed 64/128 and Amiga software publisher, has debuted *Barney Bear Goes to School*. According to Free Spirit, this package is the first in a series built around the Barney Bear character. In exploring new territory



Your kids will learn counting, spelling, the alphabet, and more as they guide Barney Bear through his day.

(educational software), Free Spirit has done a laudable job: *Barney* is a delightful program with nice graphics and good use of color. It has solid educational value, although I question the package's target age range of 3-8 years. It seems that ages 3-5, maybe age 6, would be a more appropriate range.

The premise of *Barney* is simple: Guide Barney through his day by following the narrator's prompts. You first find him in bed in the morning. The narrator's voice tells you to touch his shoulder, wake him, and help him get dressed for school. You get to decide whether Barney eats breakfast, and then you're off to school.

At school, you point and click on various objects in the classroom. Pick an object and you branch into count-

ing, the alphabet, spelling, painting, or just listening to sounds. (If the program were truly intended for children ages 6-8, it should have been deeper here. Surely, most kids age 6-8 can count to 10 and spell *cat*.) Kids will probably have the most fun by selecting the easel. Here they can paint a variety of pictures with a nice palette of colors.

*Barney* is an excellent effort with a lot to recommend it, especially for preschoolers and kindergartners. Here's hoping that Free Spirit can deliver a bit more educational depth in the series' future titles.

LANCE ELKO

Amiga, 1MB—\$34.95

FREE SPIRIT SOFTWARE  
P.O. Box 128  
Kutztown, PA 19530  
(215) 683-5609

## THE HOUND OF SHADOW

Instead of the Sherlock Holmes mystery I was expecting when I opened *The Hound of Shadow's* package, I found a role-playing game based on H. P. Lovecraft's Cthulu horror-fiction works. Set in London in 1925, this isn't an adventure game in the traditional sense. It's much more of an atmospheric piece of interactive fiction, with puzzle-solving virtually eliminated in favor of character and event interaction. The approach is a good one, but in choosing to have certain events occur at certain times, the player is given no real control over them.

Too much time in *The Hound of Shadow* is spent waiting around for things to happen or being forced into arbitrary situations. Having missed an appointment with another character, I was snatched without warning from a location I was exploring and dumped into another scene. It's disconcerting and unfair to the player. Character and plot manipulation in a game of this type need to be much more subtle; I would much rather be guided than pushed.

The game's illustrations are ex-

traordinary, rendered in sepia shades and importing a wonderful feel for the period. The parser is among the better I've used, though I am absolutely appalled that the player isn't provided with any cursor movement or line-editing tools. If you make a typo, your only choice is to delete back to it.



Enter the strange world of H. P. Lovecraft's Cthulu mythos—if you dare.

Fans of Lovecraft and the horrors that sprang from his imagination will undoubtedly be enthralled with *The Hound of Shadow*, but if you're just expecting an enjoyable adventure, you'll be disappointed.

TOM MALCOM

Amiga—\$39.95

ELECTRONIC ARTS  
1820 Gateway Dr.  
San Mateo, CA 94404  
(415) 571-7171

## CANDO

When *HyperCard* took the Macintosh world by surprise three years ago, Amiga owners wished for a similar program to energize their machines. They looked for a powerful but simple "software erector set" that nonprogrammers could use to create custom applications with text, sound, graphics, animation, and interactivity.

*CanDo* from Inovatronics is the most ambitious attempt to date to fashion a *HyperCard*-style interactive authoring system for the Amiga, and it succeeds quite well on those terms. While in need of some polishing, it offers impressive programming power for the price.

*CanDo* documents or applica-

tions are called *decks*. Decks can be run under *CanDo* or, using a utility called the *Binder*, be made into independent programs that are freely distributable. If you plan to pass around your *CanDo* creation, you must include any graphics or sound files in the same directory that contains the deck.

Decks contain one or more *cards*, or screens of *CanDo* information. When you open a deck, you see the first card and the main control panel, which contains the most important tools for browsing through the deck. The main control panel has buttons for navigating from card to card, and it also gives you access to *CanDo*'s many layers of object-editing requesters. (All elements of a *CanDo* deck are called *objects*, from buttons and animations to the deck itself.)

These requesters contain a dazzling array of tools for customizing your decks. No other Amiga program offers anything like *CanDo*'s degree of control. You can create custom windows, file requesters, menus, embedded and editable text documents, buttons in several varieties, data fields, bitmapped graphics, brush animations, and sounds.

Most objects can be modified in several ways. For example, buttons (objects that you click on to initiate a specific action) can be practically any *CanDo* object, including IFF brushes and text in fields. The program offers a multitude of button styles with highlighting, outlining, shadows, and other special effects. Buttons also can be set to react to various mouse messages, such as clicking, double-clicking, dragging, and mouse button release—and each message can trigger a different button action. This opens up a can of worms for novice users who might not be sure how to trigger a button, so *CanDo* authors should be cautious about designing nonstandard buttons.

Behind the actions of any object is its script, or list of commands. By learning and using *CanDo*'s scripting language, you can gain even more control over the program and make your decks do some rather sophisticated tricks. Scripts can be attached to any object and trigger any action that can be accomplished through requester boxes and many actions that can't be.

*CanDo*'s command language gives you control over some aspects of

AmigaDOS, like file input and output, buffers, icons, and tooltypes. You can also use scripts to specify the properties of windows and other Intuition objects. With all the scripting tools provided, *CanDo* also makes a useful prototyping tool for programmers who want to design and test an application interface before doing actual programming in C or Assembler.

*CanDo* fully supports the *ARexx* language, with both incoming and outgoing messages. Your *CanDo* deck can communicate with other *ARexx*-compatible programs such as *Deluxe Video III*, *Digi-Paint 3*, *MicroFiche Filer*, and so on.



*CanDo* decks can include buttons, scrolling lists, and sampled sounds.

Documentation for a program as complex as *CanDo* is crucial; however, its manual earns a mixed review. It thoroughly discusses all aspects of the program (albeit in very tiny, hard-to-read type), but the two rather skimpy and poorly designed tutorials won't take you far; you'll learn more by examining the sample decks provided. An introductory section describing the nature of hypermedia, the uses for interactive programming, the structure of *CanDo*, and what the program is capable of doing is sorely needed.

Surprisingly, this generally well-thought-out program sports a few obvious shortcomings. There are no hooks for calling external commands and functions written in another programming language, an ability included in both *HyperCard* and Intuitive Technologies' *UltraCard*, an Amiga program very similar to *HyperCard*. *CanDo* doesn't support the standard ANIM format for animation, but only the animbrush format used in *Deluxe Paint III*. To import an ANIM, you'll have to first turn it into an animbrush outside *CanDo*. While text handling



in fields is good, there's no support for ColorFonts; that means no slick Kara Fonts in your decks unless you import them as brushes.

Memory management is a problem, too. I was able to crash *CanDo* on a one-meg machine by trying to import and play a 340K *DeluxePaint III* animation. Given the tight memory constraints for one-meg users, serious *CanDo* authors will want to spring for additional RAM. (You can, however, discard parts of the program you don't need, such as help files and *ARexx* objects, making for a leaner application that takes up less RAM and disk space.) And since *CanDo* doesn't have the sophisticated data-compression scheme that gives the Mac's *HyperCard* its speed, disk access for each new card makes the program crawl on a floppy-only system. Run *CanDo* from a hard disk to save your sanity.

Then there are the bugs and the interface's rough edges. Granted, many first-generation programs need some time to mature, but I was surprised at how many problems I had with *CanDo*'s own demo deck.

One card loaded a brush animation and sound, played them, and promptly froze the program, which then had to be rebooted. This and other problems indicate that creating a bug-free, well-designed, easy-to-use *CanDo* application is no piece of cake, even for programmers who supposedly know how.

*CanDo* isn't easy to learn or use—but few power programs are. Its heavy-duty arsenal of tools would be overkill for many applications. But if you're looking for a full-featured hypermedia tool or an authoring/prototyping system that gives you control over the Amiga OS but doesn't require expertise in C or Assembler—and you've got the hardware to run it properly and the patience to deal with the program's peculiarities—then *CanDo* is your best choice.

STEVEN ANZOVIN

Amiga; 1MB; 2 disk drives; additional RAM and hard disk highly recommended—\$149.95

INOVATRONICS  
8499 Greenville Ave.  
Suite 2098  
Dallas, TX 75231  
(214) 340-4991

## 64/128

### STRIKE ACES

Each year, the quiet of the South Dakota Badlands is suddenly shattered by the scream of jet engines as the Strategic Air Command begins its annual bombing and navigation competition. In this contest, the best fighter/bomber crews from around the world attempt to outscore each other in such areas as accuracy, time control, evasiveness, and terrain following.

In Accolade's *Strike Aces*, you become a participating pilot in the competition. Whereas the actual winners receive the coveted Curtis E. LeMay trophy, you experience the action and make the split-second decisions of a modern combat pilot. And if you are successful, you gain the satisfaction of a difficult job well done.

While the manual describes *Strike Aces* as "first and foremost a game," there is sufficient detail to keep us nonpilots challenged for a good while. After you enter your name (and thus enter the contest), your first decision is the type of aircraft you will fly. Choose from four modern fighter/bombers: the McDonnell Douglas F-4E Phantom, the General Dynamics F-111F Aardvark, the Panavia Tornador IDS, and the MiG-27 Flogger-D. Each plane has its own capabilities and flight characteristics.

To aid you in your choice, you have both online specifications and a detailed picture of each aircraft. In addition, you can view the aircraft in 3-D as seen from the perspective of a chase plane. Your choice will be reflected in an aircraft-specific cockpit display.

You next decide the type of aircraft you wish the enemy to fly: an F-14 Tomcat, F5E Tiger II, or MiG-29 Fulcrum. Each of these has its own idiosyncrasies, and you need to learn them if you are to evade these planes successfully.

If you are like most hard-core computer users who want to fly the thing and forget about reading the manual, *Strike Aces* has you covered. You can jump into the competition

and fly a mission, or go to free flight, where you can practice maneuvers, including bombing and landing. It is here that you discover the 3-D scrolling landscapes and the multiple views available from your cockpit. Furthermore, there are multiple views of your aircraft. See your plane from an observer plane, a track view (from behind your aircraft), a satellite view, a control tower view, and an enemy view (from a chase plane behind your enemy). You even have a view from a missile you just launched at a SAM site. All proceed in real time, and you can watch yourself from outside the aircraft should you fly into the ground at 600 knots.



*Strike Aces* tests your bombing skills in friendly competition, not warfare.

If, however, you do take the time to read the manual, you will find plenty of information on flight controls, munitions, mission strategy, and maneuvers. A military pilot will have years of training before he flies complex aircraft and missions, but an hour or so with *Strike Aces* should get your gear up and you on your way toward a successful mission.

The key to success is planning. So before you actually take to the air, familiarize yourself with your mission objectives. The briefing is in three parts: a text summary, a map showing your planned course, and information about the target. You cannot return to this screen once a mission is underway, so it is well worth the time you spend memorizing the pertinent details.

The missions progress from relatively easy (take off, fly to target, destroy it, fly back and land) to complex (evade enemy radar, planes, and missiles; attack multiple targets; and engage in midair refueling). You cannot

attempt more difficult missions until you have successfully completed the easier ones. There are four difficulty levels with two missions each. If you "Top Guns" make it through all four levels, go back and do it again in a different plane to prove it wasn't a fluke!

You have at your disposal 13 different types of munitions, from "smart" guided bombs to cannon and cluster bombs. Smart bombs are good for destroying bridges, and cluster bombs are handy for punching holes in runways. When you arm your aircraft, there are online specs for the weapons to assist in your choice. Only those weapons available to a given aircraft will be displayed. After you choose your munitions, use the joystick to position the weapon on the aircraft. It is updated on both bottom and head-on views of your plane.

After you complete a mission, you are debriefed. Here you compare the planned mission course with the actual course you flew. Additionally, you receive a report that describes your performance on that mission. If you were unsuccessful, (crashed, shot down, took out some friendlies), you can re-fly the mission. Alternatively, you can choose a new mission or select another pilot.

As a game, *Strike Aces* is sweaty-palm entertainment. As a flight simulator, it is a sweaty-palm education. The detailed pictures and multiple views of aircraft are magnificent. Sound effects, while limited, are well done. The roar of your engines even continues when the game/simulation pauses. You cannot save a mission in progress, presumably because you can't in real life either.

The decisions you make while playing *Strike Aces* mimic those of a combat pilot. There is just the right amount of complexity to keep you challenged while not miring you in details. It is not easy to offer a program that is both a game and a simulation of real world events, but *Accolade's Strike Aces* does a masterful job of being both.

DAVID MINNICK

Commodore 64 or 128, joystick—\$39.95

ACCOLADE  
550 S. Winchester Blvd.  
San Jose, CA 95128  
(408) 296-8400

## TURBO MASTER CPU

How many of us have become frustrated at the relatively slow operating speed of the 64? One-megahertz (MHz) computer operation sounded like something out of science fiction when the 64 was first released, but it was soon surpassed by virtually every other machine on the market.

Some of these increases in speed were illusory: A 4.77-MHz PC, for example, is actually grinding through code at only about twice the rate as a 1-MHz 64. The reason for this is that the PC takes more cycles to interpret and execute an instruction. This and a number of other drawbacks of the 8088 CPU led experts to pronounce it brain damaged when it first began to appear in computers.

Since processing in the 6502 family of microprocessors (including the 6510 and 65C02) is so efficient, not much has to be done for it to keep pace with the 8088. In order to make it as good as a 4.77-MHz 8088, simply double the 6502's speed. To make it as good as an 8-MHz 8088, quadruple its speed. And that's just what Steven Schnedler did. The Turbo Master CPU from Schnedler Systems is an accelerator for the 64 or 128 in 64 mode that speeds up the central processing unit (CPU) from 1.0225 MHz to 4.09 MHz.

Faster cousins of the 6502 have been around for a long time. The 4-MHz Apple IIC was released a couple of years ago. Other speed-up chips for the 64 have been available, too, but speeding up the 64 proved to be more of a challenge than simply speeding up the 6510. The problem is that while most computers are cooperative enterprises, willingly waiting an extra cycle or two for information to return from memory or slowing down for bus access, the 64 is a very tightly timed and integrated package. Signals not arriving at the exact moment they're expected can cause the entire operation to go awry. Doubling or quadrupling the speeds of these signals makes timing a nightmare.

The solution is to create a new 64 on a card, with new ROMs, new

RAM—new everything, in fact, except the timer chips, the keyboard, the SID, and a few other components. This raises the price to about the cost of a new 64. If you already have a 64, however, you can boost its capabilities simply by plugging in this card. Unlike other accelerator cards that have been sold, the Turbo Master CPU can work with the 128 (in 64 mode) without causing screen disturbances.

Not only can you improve CPU operation with the Turbo Master, you can also improve disk access (1541 or 1571 in 1541 mode only)—both saving and loading. (The unit doesn't



Boost your 64's speed to 4 MHz with the Turbo Master CPU accelerator.

work with tape drives.) In addition, Jiffy DOS has a chip that supports the Turbo Master CPU. It works with GEOS, but you have to install some special features to make it work, including a new mouse driver. It significantly speeds up GEOS operations, and *geoWrite* had no trouble keeping up with me. The drawing pad moves fluidly underneath the drawing window, with the disk drive chattering away as new parts of the VLIR file are opened and displayed. Until I tried Turbo Master, I hadn't realized how badly GEOS was hampered by the CPU.

Although it could not be tested for this review, a patch that Schnedler says he has developed will let GEORAM and Turbo Master work together, provided you have a cartridge slot extender that allows two cartridges to be turned on at the same time. It will also work with the 1764 RAM expansion unit (REU). Using either of these REUs requires a beefed-up power supply because you'll be operating what amounts to two computers and a ton of RAM.

# Just a handful of reasons to shop at The Software Labs

## PRINTING

**TYPESETTER PC (139) NEW!** Great single-page desktop publishing program. Mix graphics, text, fonts. Requires 512K, 9-pin Epson/IBM compatible graphics printer.

**MPM-PRINT (136) NEW!** Print all IBM characters displayed on your screen. Requires Epson/compatible dot-matrix printer.

**FORM DESIGNER (112)** Easy, powerful program creates professional quality forms on any printer.

**LETTERHEADS PLUS (132)** Design/print custom letterheads, envelopes, labels to Epson/IBM compatible printers.

**ON-SIDE (121)** Print sideways with custom fonts. Menu-driven.

**MR. LABEL (124)** Most versatile & powerful label printing program.

**IMAGEPRINT (128)** Remarkable letter quality printing on 9- and 24-pin dot matrix printers. Now includes 25 terrific fonts.

**BANNER MAKER (130)** Create signs and banners with multiple fonts and styles.

## WORD PROCESSING

**RUBICON DESKTOP PUBLISHER (854,855,856)** (3 disks) NEW! Shareware's first comprehensive desktop publishing program. Requires hard disk, LaserJet or Postscript printer, and a wordprocessor.

**INTEXT (866) NEW!** Word processing in 7 European languages. Call for other available languages. Requires 512K, CGA or Hercules card, dot matrix printer.

**HYPER-WORD (876-879)** (4 disks) NEW! Exciting hypertext word processor & free-form database with appointment calendar. Word processing of the future, TODAY! Requires 512K, hard disk.

**PRO-CR (880) NEW!** High-performance, trainable optical character recognition program at 200 words per minute. Requires EGA or VGA.

**PC-WRITE 3.03 (809-811)** (3 disks) Top rated with spell checker.

**WORDPERFECT CLIPART ( 843,844)** (2 disks) Over 180 great graphics.

**WVVIEW (1692) NEW!** Easily view WordPerfect 5.0 and 5.1 graphics. Includes WordPerfect clipart.

## MISCELLANEOUS

**HEADACHE-FREE (1840) NEW!** Helps determine type and source of your headaches and offers cures.

**LOTTO SPECTACULAR (2136) NEW!** 3 great lotto programs to improve your chances.

**SKYGLOBE (2613) NEW!** Best feature-packed astronomy program yet! Entertains and educates. Requires a graphics card.

**BY THE NUMBERS (2705) NEW!** Complete Numerological personality analysis. Requires 340K, 2 floppy drives or hard disk.

**ORACLE (2711) NEW!** Tarot card & I-Ching readings. Requires 340K, 2 floppy drives or a hard disk.

**ROOTS MASTER (2806) NEW!** Powerful, full-featured, easy-to-use genealogy program. Requires 512K.

**FONTED (4001,4002) NEW!** (2 disks) Design custom screen fonts & download them to your printer. Requires Epson 24-pin compatible printer, EGA or VGA.

**RESUME SHOP (8980) NEW!** Automatically creates job-winning resumes. Fully menu-driven.

## Limited Offer 3 FREE DISKS Limited Offer

\$2<sup>39</sup>

PER DISK  
10 or More

Great Public Domain  
and Shareware Programs for  
IBM and Compatibles  
Laboratory Certified Virus-free

\$2<sup>89</sup>

PER DISK  
Less Than 10



ALL NEW SELECTIONS



## GRAPHICS

**GRAPHIC WORKSHOP (1626) NEW!** Menu-driven program converts between the most popular graphic file formats. Requires graphics card.

**ORGI (1677) NEW!** Quickly, easily produce professional quality organization charts.

**PRINTMASTER GRAPHICS LIBRARY #4 (1688) NEW!** 400 great graphics. Requires PrintMaster.

**PRINT SHOP GRAPHICS LIBRARY #3 (1689) NEW!** 300 quality graphics. Requires Print Shop.

**PRINT SHOP GRAPHICS LIBRARY #4 (1690) NEW!** 400 terrific graphics. Requires Print Shop.

**PIXCAT (1691) NEW!** Cataloging program prints up to 56 PrintMaster, NewsMaster, Print Shop, & New Print Shop graphics per page. Requires Epson/compatible printer.

## EDUCATION

**COMPUTER TUTOR (302)** Complete interactive DOS and computer tutorial.

**WORDPERFECT 5.1 LEARNING SYSTEM (373,374)** (2 disks) NEW! Great step-by-step multi-featured tutorial. Requires 512K, graphics monitor.

**TEMPLATES of DOOM (366) NEW!** Learn to use spreadsheets via this challenging game.

**EASY DOS (305)** Two great programs make using DOS very easy.

**AMERICAN STATES (338,339)** (2 disks) Great U.S. States education.

## BUSINESS & FINANCE

**LEGAL GUIDE (1937) NEW!** FANTASTIC! Generates 270 custom Do-It-Yourself legal forms. Requires 448K, hard disk.

**MORTGAGE ADVISOR (8961) NEW!** Great mortgage payment and amortization schedule calculator.

**PONY EXPRESS (8970) NEW!** Gives you all the information the Post Office window clerk knows - without standing in line.

**ZIP CODE FINDER (1900)** Computerized Zip Code book. Ultra fast search.

**BUSINESS FORM LETTERS (1936)** 100 common business letters. Fill in the blanks.

**BUSINESS ACCOUNTING (1902)** Complete GL/AP/AR/Payroll.

## UTILITIES

**VIRUSCAN (403)** Best, easiest virus protection. Updated to catch new viruses.

**READ MY DISK! (447) NEW!** Amazing utility recovers data from any damaged hard or floppy disk. Requires 2 floppy disks or a hard drive.

**BACK & FORTH (455) NEW!** Load up to 20 programs at once and instantly switch between them without exiting. Features Cut-and-Paste. Requires a hard disk.

**LZEZE (456) NEW!** Fantastic utility compresses COM and EXE files and you run them directly. Saves loads of disk space.

**EPSON FX POWER PRINT (459) NEW!** Menu-driven printer setup program controls all functions of Epson-FX and compatible printers.

## GAMES

**WORDS\*WORDS (200) NEW!** Exciting word puzzle challenging enough for adults. More than 6,000 words!

**CRIBBAGE (288) NEW!** 2 great cribbage games feature auto-scoring, demo mode, scoring messages and more.

**EGA COLORING BOOK (9223) NEW!** Bring pictures to life with over 500 colors and patterns. Children 3 and up. Requires EGA or VGA.

**MEAN 18 GOLF COURSE DISK #1 (9250) NEW!** Great golf courses for Mean 18. Call for more courses. Requires Mean 18.

**VGA SHOOTING GALLERY (9235) NEW!** Recreates a carnival shooting gallery on your monitor. Challenging multiple rounds. Requires VGA and a mouse.

**SPELL GAMES (9236) NEW!** 2,000-word spelling battle in an Olympic Games setting. Requires CGA, EGA, or VGA.

**XTETRIS (9237) NEW!** Tetris with a twist. Shapes include single and double triangles and squares. Requires CGA, EGA, or VGA.

**PYRO II (9239) NEW!** You burn down buildings and must escape unharmed. Requires CGA, EGA, or VGA.

**CHOPPER COMMANDO (9240) NEW!** Exciting graphic arcade helicopter game features air-to-air combat and parachuting. Requires CGA, EGA, or VGA.

**HUGO'S HOUSE OF HORRORS (9241) NEW!** Best new game! Commercial quality adventure game with 3-dimensional animated graphics. Requires 360K, EGA or VGA, hard disk.

**KING YAHTZEE (9242) NEW!** Up to 4 players can play this classic.

**GO (9249) NEW!** Top quality! Popular strategy-board game is a national pastime in Japan.

**CURSES! (9245) NEW!** Humorous "insult generator" uses the words you input. Great fun! Requires 360K.

**JUST FOR LAUGHS (2847)** 7 great practical joke programs to stun your friends' computers.

**VGA ARCADE GAMES #1 (9211)** 4 great arcade-action games. Requires VGA.

**DOMINATE (282)** Great strategic-war game for up to 10 players. CGA or EGA.

**FORD SIMULATOR II (280,281)** (2 disks) Exciting new driving simulator from Ford Motor Co. Lots of options.

**LOST ADVENTURES of KROZ (9230) NEW!** Best, biggest in the award-winning arcade-adventure-strategy KROZ series.

**EGA/VGA PINBALL (9214)** Best pinball game! Up to 13 simultaneous balls and many special features. Needs EGA or VGA.

## PROGRAMMING

**ASIC (1451) NEW!** "Almost BASIC" programming language compiler with integrated full-screen editor. Edit, compile, execute your programs. Requires 400K, 2 floppy drives or hard disk.

**A86 and D86 (1403,1404)** (2 disks) Finest macro assembler & debugger. Fast!

**SURPAS (1455) NEW!** Fantastic, fully functional Turbo Pascal™ clone.

## DATABASE

**dBASE DATA MASTER (1000) NEW!** Completely manipulate dBASE III/IV databases, delete duplicates, convert to Lotus, much more. Requires 640K and hard disk.

**PC-FILE 5.0 (1026-1028)** (3 disks) Jim. Button's best. PC Mag Editors Choice. Requires DOS 3.0 or up, 512K, hard disk.

Call Toll Free for **800-359-9998**  
SAME DAY SHIPPING Orders Only & Free Catalog

CIRCLE DISK NOS. OR SEND ORDER ON SEPARATE SHEET OF PAPER  
Select 3 FREE DISKS at no extra charge when you pay for 5 or more disks

Name

Address

City/State/Zip

VISA/MC#  Exp. date

No. of disks  x \$2.89 ea. (Pay for ea. disk in multiple disk sets) =   
(\$2.39 ea. for 10 or more)

Checks, Money Orders, 3.5" disks - add \$1 ea. =

VISA/MC Accepted CA residents add 6.75% tax =

(Add \$4 for COD) Shipping and handling =

Check disk size: 5.25"  3.5"  Total =

**THE SOFTWARE LABS** CP10/90

3767 Overland Ave #112 Los Angeles, CA 90034 (213) 559-5456

One of the settings on the Turbo Master CPU provides you with an alternative ROM in which the DOS wedge is a permanent resident.

An additional advantage of buying the Turbo Master is that it provides the 65C02 opcodes. These include the useful codes BRA, for branch always; PHX, PHY, PLX, and PLY, for pushing and pulling values between the X and Y registers and the stack; and STZ, which can be used to store 0 in a memory location in a single operation. Schnedler also makes an assembler that can take full advantage of these new opcodes.

Quietly, with little fanfare, dedicated admirers of the unassuming little 64 are updating and upgrading its capabilities. Steven Schnedler is one of these admirers, and his company deserves your support.

ROBERT BIXBY

Commodore 64 and 128—\$199

SCHNEDLER SYSTEMS  
25 Eastwood Rd.  
Box 5964  
Asheville, NC 28813  
(704) 274-4646

## CURSE OF BABYLON

Most games imported from other countries prove themselves worthy of being shipped to America. *Curse of Babylon* is no exception.

This arcade adventure game puts you up against a bevy of monsters, from bats and dragons to demon cats and Medusalike creatures. *Curse of Babylon* was originally released for the NEC computer in Japan and is brought to America by Kyodai. In Japan, the game was simply called *Babylon* and was a big hit with computer gamers there.

In *Curse of Babylon*, you must rid the title city of monsters and release the wizards who have been captured by an evil man. You do this by jumping and fighting your way through more than 150 screens of action both above and below ground. Along the way, you'll find many weapons and magical items. You must determine

the best time to use these items, but look for better weapons as you move through the game.

You start out with a shield and knife, but you'll need more than these to succeed. To help you keep track of the objects you find, as well as other necessary information in the game, there is an options screen you can access by pressing RETURN. From this screen, you can select a magic article to be your current item, select one of seven bits of music the game offers, save a game, load a game, and examine statistics. Statistics include hit points (how much damage you can take), magic points (how much magic you can perform), strength, defensive power, weapon strength, and shield defensive power.



In *Curse of Babylon*, you face a bevy of monsters in waves of arcade action.

At the bottom of every screen is a strip of counters or indicators to help you. These include a crest counter (any crests that you locate help the wizards), a key counter, a healing-potion counter, a magic-item selector, a shield- and a weapon-status indicator, a current-hit-points indicator, and a current-magic-points indicator.

As you move through the screens, kill monsters and collect any objects that you discover. Occasionally, when you kill a monster, you'll find a potion or some other useful object. Red potions increase magic power. Blue potions are very important, as they restore hit points and magic points to their respective maximums—but only when your current life runs out of hit points.

There are seven magic items and six magic spells in the game. You'll know when to use them only through experimentation. By collecting keys to get into rooms and finding special

items and potions in rooms, you progress through the game. It's very easy to lose lives, however, if you don't remain alert.

Once a monster is removed from a screen, it will not return. You can use this feature or the pause key to catch your breath. I recommend that you save the game frequently in order to finish it. Potions and objects are in the same place every game, so you may want to remember where they're located.

The graphics in the introductory screens show off the 64 at its best. The game graphics, however, are a little on the dark side but are still fairly good. The impressive elements of *Curse of Babylon* are its ease of play and the tremendous amount of music. The manual is put together well, with easy-to-read language that describes the screens and your goal. Pictures of monsters from the game are printed throughout the manual.

Ultimately, *Curse of Babylon* is fun and takes several hours to finish, giving you more than your money's worth. And that's what's important.

RUSS CECOLA

Commodore 64 or 128—\$24.95

KYODAI  
Distributed by Brøderbund  
58 Mitchell Blvd.  
San Rafael, CA 94903  
(415) 492-3200

## HEAT WAVE

Accolade has a good reputation in the area of speed simulations. Leafing through its product catalog, you can choose to race a sleek supercar like a Ferrari F-40 through the California countryside or a Porsche on the Autobahn. You can drive a 1963 Corvette Sting Ray or another so-called muscle car, pilot a Blue Angel F/A-18 through the azure sky, straddle a cycle through the International Grand Prix motorcycle racing circuit, or hit the Grand Prix circuit for Formula One racing. Not wanting to exclude water vehicles from all this high-speed action, Accolade now offers *Heat Wave*, an off-shore superboat racing program.

*Heat Wave* is fun and provides some diverting entertainment, but it's

# The Best...The Most...For Less!

## Top Quality User-Supported PC-Compatible Software

As Low As



### BUSINESS/ACCOUNTING/FINANCE

|                     |          |   |
|---------------------|----------|---|
| ACS In-Control      | 100, 101 | A system for sales prospecting, lead tracking, and billing (2 Disks)          |
| Billar              | 105      | A complete billing system for small businesses. Prints statements and reports |
| Business Contacts   | 112      | Helps you keep track of critical information about your contacts              |
| Business Forms      | 117      | 100 form letters for all purposes (employment forms, contracts, etc.)         |
| Easy Project        | 122      | A superb project manager software package (Gantt charts, critical path)       |
| Employee System     | 127      | Personality analysis that helps you reduce turnover                           |
| Finance Manager II  | 132      | A very powerful and complete G/L package for small business accounting        |
| FONE                | 137      | Times and records your time on the phone. Helps you save money!               |
| Form Master         | 142      | An easy-to-use business form generator. Create any form, easily!              |
| Job Cost            | 147      | Excellent job costing program. It's the one you've been waiting for!          |
| Legal Forms         | 149      | A do-it-yourself legal forms kit  |
| Managing People     | 151      | A complete management training course. Tests your skills and gives advice     |
| MarketCGA           | 152      | Tracks and charts the trends for all your stocks CGA                          |
| Medlin Accounting   | 157      | A complete accounting package with G/L, A/R, A/P, and Payroll                 |
| Merchant Accounting | 162, 183 | Designed for any businesses needing an inventory system (2 Disks)             |
| Painless Accounting | 168-170  | The most complete and easy-to-use accounting system (3 Disks) HD              |
| PC-Loans            | 181      | This program computes payments using most common loan methods                 |
| PC-Payroll          | 182, 183 | A complete, menu-driven payroll system (2 Disks) HD                           |
| Solve-It!           | 186      | Does all necessary financial calculations (IRR, PV, FV, annuities)            |
| Tickler             | 191      | Rated as the most powerful time-management software available! HD 512K        |
| Year Planner        | 199      | A super calendar and organizer program that can print wall calendars!         |

### DATABASE

|                   |          |  |
|-------------------|----------|--|
| dFLIPPER          | 215      | Great utility program for editing any dBASE or compatible file           |
| dLITE             | 219      | A dBASE multi-utility that includes pop-up access to 10 databases        |
| dPROG             | 223      | An amazing dBASE III autoprogrammer that writes the code for you!        |
| Doctor Data Label | 224      | A professional mail list manager system (requires HD or 2 floppy drives) |
| File Express      | 227, 229 | Great database package which combines power and ease of use (2 Disks)    |
| Idea Tree         | 232      | An incredible program that stores and organizes your ideas and thoughts  |
| Mass Appeal       | 236      | Excellent mail list program that prints mailing labels                   |
| PC-File 5.0       | 244-246  | The most powerful dBASE compatible database package! HD 512K (3 Disks)   |
| Wampum            | 249      | A powerful, menu-driven dBASE compatible program HD                      |

### SPREADSHEET

|                  |         |   |
|------------------|---------|---|
| As-Easy-As       | 255     | Fantastic Lotus 1-2-3 compatible spreadsheet program                |
| Lotus Macros     | 265     | Collection of powerful macros for 1-2-3 or compatible programs      |
| Lotus Templates  | 269     | Lots of useful templates for Lotus compatible programs              |
| PC-Calc+         | 275-277 | The most powerful spreadsheet package for under \$200! (3 Disks)    |
| Pivot            | 282     | Prints Lotus and As-Easy-As spreadsheets sideways                   |
| Power Worksheets | 286     | A set of powerful worksheets for Lotus 1-2-3 or compatible programs |
| QubeCalc         | 292     | An amazing 3-dimensional spreadsheet program                        |

### WORD PROCESSING

|                 |         |  |
|-----------------|---------|--|
| Galaxy          | 310     | The most easy-to-use word processing program available                   |
| PC-Outline      | 320     | An idea organizer and free-form database                                 |
| PC-Write 3.03   | 325-327 | Full-featured word processing with spell checking. Rated #1 (3 Disks)    |
| PC-Write Macros | 331     | Over 100 macros for PC-Write users                                       |
| Pro Scribe      | 337     | This program will improve the clarity and impact of your writing         |
| Thesaur         | 345     | Very useful when you are looking for the perfect word to make your point |
| Writer's Heaven | 348     | A PC-Write enhancement. Make the BEST even better!                       |

### WORDPERFECT 5.0

|                        |          |   |
|------------------------|----------|---|
| PC-Draft III           | 365, 366 | Create your own graphic images. Several examples included (2 Disks) |
| WP 5.0 Art/Graphics    | 375, 378 | A big collection of clipart images for WordPerfect (2 Disks)        |
| WP 5.0 Learning System | 380, 381 | Learn to use WordPerfect 5.0 quickly and easily (2 Disks)           |
| WP 5.0 Macros          | 385, 386 | Over 100 excellent macros for WordPerfect (2 Disks)                 |
| WP 5.0 Menu/Misc       | 390, 391 | A collection of menu systems and mouse drivers (2 Disks)            |
| WP 5.0 Tools           | 395, 396 | Several WordPerfect utilities (2 Disks)                             |

### UTILITIES

|                     |          |  |
|---------------------|----------|--|
| AutoMenu            | 405      | Puts all the programs on your hard drive into a selection menu. HD       |
| Bakar's Dozen       | 409      | 13 handy utilities that every computer system needs                      |
| Beat DOS Utilities  | 413      | A print spooler, a RAM disk, and much more!                              |
| CatDisk             | 417      | This menu-driven program catalogs and organizes your disks               |
| Hard Disk Utilities | 420      | A whole range of hard disk utilities and enhancements                    |
| HD Backup           | 424      | An easy-to-use program that backs up your hard drive on floppy disks. HD |
| HD Menu             | 425      | An easy-to-set-up menu for the programs on your hard drive. HD           |
| HomeBase            | 427, 428 | Desktop organizer that is better than Sidekick! (2 Disks)                |
| LogIt!              | 432      | Keeps an accurate record of who has used the computer and for how long   |
| MasterTools         | 436      | Disk multi-utility like Norton Utilities. You'll use this a lot!         |
| PC-Desktop          | 445      | Useful desktop accessories (clock, calendar, calculator, much more)      |
| QuickCache          | 455      | This disk caching utility will speed up your computer, dramatically!     |
| ScreenSaver         | 459      | Saves your monitor (any kind) from burn-in                               |
| SimCGA              | 463      | Lets a monochrome system run many CGA programs                           |
| Space Maker         | 466      | Let's you fit more data on any floppy or hard disk                       |
| Still River Shell   | 469      | Excellent DOS command shell. Makes using DOS easier and quicker!         |
| TrueView            | 472      | A superior DOS command shell with pull-down menus                        |
| Virus Killers       | 474      | Several virus detection and elimination programs                         |

### GRAPHICS

|                  |          |  |
|------------------|----------|--|
| Charts Unlimited | 505      | Allows quick and easy creation of virtually any kind of chart or diagram |
| Draft Choice     | 509      | Excellent menu-driven CAD program with optional mouse support            |
| EGA Fonts        | 513      | Over 50 fonts to give you excellent EGA text displays (rec. EGA)         |
| Finger Paint     | 521      | Use your keyboard (or a mouse) to draw great color pictures CGA          |
| Grasp            | 525      | A system for creating and running graphical demos and slideshows CGA     |
| Image 3-D        | 529      | Create, view, move, scale, and edit 3-D objects CGA 512K                 |
| Mind Chart       | 533, 534 | A screen graphics charting and design program (2 Disks)                  |
| Optika           | 538      | A graphic multi-utility which can convert to/from over 25 formats CGA    |
| PC-Key Draw      | 542-545  | Powerful CAD design program. Works with keyboard and mouse (4 Disks) HD  |
| VGA Paint        | 548      | A super-duper paint program—only for you lucky people with VGA           |

### PRINTING

|                      |          |   |
|----------------------|----------|---|
| Address-O-Matic      | 553      | Envelope printing utility   |
| Banner/Sign Makers   | 556      | Print your own banners and signs on your Epson compatible printer       |
| Bradford             | 559      | A super collection of beautiful dot-matrix fonts                        |
| Calendar Printer     | 562      | Design and print a calendar for any month or year                       |
| City Desk            | 565      | Create and print your own newsletters and flyers                        |
| Epson Utilities      | 569, 570 | Utilities and fonts to enhance your print quality (2 Disks)             |
| E-Z Forms            | 573      | A program that makes it easy to create and print office forms           |
| Formgen              | 576      | Quickly create and print any type of form or chart                      |
| ImagePrint           | 579      | Turns your 9-pin dot matrix printer into a letter-quality printer       |
| LaserJet Utilities   | 582, 583 | Fonts and utilities for HP/LaserJet compatible printers (2 Disks)       |
| Letterheads Plus     | 587      | Print custom letterheads with your Epson or IBM compatible printer      |
| Mr. Label            | 589      | Versatile address printing program                                      |
| On Side              | 591      | Prints spreadsheets (or anything) sideways                              |
| PrintMaster Graphics | 593, 594 | Large collection of clip-art for PrintMaster users (2 Disks)            |
| PrintShop Graphics   | 598, 597 | Collection of graphics that you can edit/print with PrintShop (2 Disks) |

### EDUCATION

|                     |          |   |
|---------------------|----------|---|
| Amys First Primer   | 605      | A collection of six fun learning games for kids 4-8 CGA                 |
| Computer/DOS Tutor  | 609      | Makes learning to use the computer easy—and fun!                        |
| DOS Learning System | 613      | Great DOS tutorial. Takes the frustration out of using a computer!      |
| Facto 5.0           | 617      | A graphic geography lesson of the United States CGA                     |
| Funnels and Buckets | 621      | Wow! They've found a way to make learning math fun for kids CGA         |
| Geography           | 625      | A quiz on the nations of the world and their capitals                   |
| Googol Math         | 629      | Math learning system with graphics and several levels of difficulty CGA |
| PC-FastType         | 637      | A really fun and useful interactive typing teacher CGA                  |
| Physics             | 641      | High school level physics instruction                                   |
| Play 'n' Learn      | 645      | A collection of six learning games for small children 2-5 years CGA     |
| Presidents          | 649, 650 | Both a learning tool and quiz on the U.S. presidents (2 Disks)          |
| School Mom          | 654      | Lessons on math, art, music, and spelling for children 2-12 years old   |
| Spanish I & II      | 658, 659 | Makes learning Spanish vocabulary easier and more productive (2 Disks)  |
| Speed Read          | 665      | Teaches you the principles and concepts of speed reading                |
| Teachers' Tools     | 669      | Tracks grades and attendance for classes up to 100 students             |
| Typing Teacher      | 673      | Helps you practice and improve! Tracks and displays your progress       |
| Vocabulary Builder  | 681-685  | 7500 practice words for the SAT. Improve your word power! (5 Disks)     |
| World               | 690      | A fascinating electronic globe/database of world geography CGA          |

### HOME/FAMILY

|                      |          |  |
|----------------------|----------|--|
| Computer Chef        | 706, 707 | A recipe database with several excellent dishes for you to try (2 Disks) |
| Diet Disk            | 709      | A complete weight-loss system with calorie look-up tables                |
| Express Check        | 713      | Checkbook program that handles several accounts and does reconciliation  |
| Family Tree          | 719      | Use this excellent genealogy program to trace your family roots          |
| Gardener's Assistant | 732      | Helps you to plan and cultivate your garden                              |
| Home Inventory       | 738      | Keeps a record of all your personal possessions                          |
| Home Manager         | 744      | Keeps track of your household budget                                     |
| Personal Finances    | 758      | Tracks your income and expenses. Helps you stick to a budget             |
| Shopper's Assistant  | 762      | A complete grocery shopping aid and coupon filer                         |
| Video Librarian      | 768      | Keeps track of your video collection                                     |

### MISCELLANEOUS APPLICATIONS

|                      |         |  |
|----------------------|---------|--|
| PC-Musician          | 789     | Compose, edit, and play back your musical creations                      |
| Tune Trivia          | 797     | Your computer will play popular tunes—can you name them?                 |
| Astrology            | 802     | Let this program tell you what lies ahead in your stars                  |
| Biorhythms           | 806     | Computes and displays/prints your personal chart for any time period     |
| Handwriting Analyst  | 824     | Does an in-depth personality analysis from any handwriting sample        |
| Lotto!               | 832     | See if your computer can help you win the lottery                        |
| Micro World Database | 834-838 | A database of worldwide information compiled by the CIA (5 Disks)        |
| PC-Bartender         | 842     | Learn to mix cocktails like a professional bartender                     |
| Rental Management    | 846     | Complete rental management system for landlords                          |
| Resume               | 850     | Helps you write a better, more effective resume                          |
| Stress Test          | 854     | Analyzes your level of stress and can give you warnings                  |
| Wisdom of the Ages   | 862-864 | Over 6000 of the greatest quotes from history's greatest minds (3 Disks) |
| Zip Code Finder      | 868     | Searches and finds any zip code—FAST!                                    |

### RELIGION/BIBLE

|                   |          |   |
|-------------------|----------|---|
| BIBLE Men         | 876      | A quiz on the people mentioned in the BIBLE             |
| BIBLE-Q           | 877      | A fun BIBLE quiz. Test your Biblical IQ                 |
| Church Membership | 885      | Helps a church keep track of all its members            |
| New Testament     | 888, 889 | The complete King James New Testament on disk (2 Disks) |
| Old Testament     | 891-896  | The complete King James Old Testament on disk (6 Disks) |

### GAMES

|                          |          |  |
|--------------------------|----------|--|
| Adventures 1             | 901      | Five great adventure games that you are sure to enjoy                    |
| Adventures 2             | 902      | Five more adventure games that will keep you intrigued for hours         |
| Arcade Baseball          | 905      | A game of baseball strategy and arcade fun! CGA                          |
| Arcade Games 1           | 907      | Two great PAC MAN games and much more! CGA                               |
| Arcade Games 2           | 908      | Several fun games featuring Q-BERT, the arcade favorite! CGA             |
| Arcade Games 3           | 909      | A version of the classic arcade hit, CENTIPEDE and more CGA              |
| Arcade Games 4           | 910      | Collection of space games including SPACE WAR and ASTEROIDS CGA          |
| Blackjack                | 913      | Two great versions of blackjack to test both skill and luck!             |
| Board Games 1            | 915      | Two fantastic versions of everybody's favorite, MONOPOLY                 |
| Board Games 2            | 916      | Includes both BACKGAMMON and CHECKERS CGA                                |
| Board Games 3            | 917      | You'll love this collection, which includes RISK and OTHELLO CGA         |
| Card Games               | 923      | Great versions of poker and blackjack, Video Poker/Ultimate 21           |
| Crime Lab                | 928      | A fun graphic murder mystery game. CGA                                   |
| Ed's Chess               | 935      | A great chess game with different levels. Beats ChessMaster 2000!        |
| Ford Simulator II        | 938, 939 | Choose your Ford and test your driving skill on the tracks (2 Disks) CGA |
| Las Vegas Creps          | 945      | Place your bet, roll the dice, play Las Vegas style                      |
| Maj Jongg                | 948      | Play the ancient "tiles" game on your computer CGA                       |
| Miramar Flight Simulator | 950      | See if you are "TOP GUN" material as you fly a fully armed F-18! CGA     |
| NINJA                    | 953      | You must battle evil Ninja warriors to the death! CGA                    |
| PC-Jigsaw                | 959      | You see a nice picture, then it's scrambled. Can you put it together?    |
| PC-Pro Golf              | 961      | You choose the club, angle, and strength of each shot. Real Fun! CGA     |
| Pinball                  | 965      | Five SUPER pinball games. Realistic sound and action CGA                 |
| Sans Graphics 1          | 971      | Games that work great on any system (no graphics required)               |
| Scrabble                 | 973      | Test your word power with this long-time popular game CGA                |
| Sharp Shooter            | 975      | Battle it out—tank vs. tank. CGA   |
| Star Trek                | 977      | A Star Trek strategy game and a Star Trek trivia game                    |
| Striker                  | 978      | You must maneuver your attack helicopter behind enemy lines CGA          |

### EGA GAMES (These games require EGA graphics cards)

|                      |     |  |
|----------------------|-----|--|
| Bass Tour            | 981 | An incredible fishing simulator with great graphics EGA              |
| Captain Comic        | 984 | Thrill to the commercial quality graphics of this FANTASTIC game EGA |
| EGA Arcade 1         | 986 | Excellent EGA version of ASTEROIDS. BREAKOUT is also included EGA    |
| EGA Coloring Book    | 990 | Kids really love to use this coloring program! EGA                   |
| EGA Cunniff Football | 990 | You call the plays and control the key players. Great fun! EGA       |
| EGA Games 1          | 992 | A collection of favorites including SCRABBLE and SOLITAIRE EGA       |
| EGA Golf             | 995 | A game of skill, strategy and reflex. Great graphics and realism EGA |
| EGA Risk             | 997 | Use your strategy and cunning as you set out to rule the world! EGA  |
| EGA Trek             | 999 | This is the ULTIMATE Star Trek adventure. You're the captain! EGA    |

CGA=Requires Color Computer HD=Requires Hard Drive 512K=Requires 512K RAM

| Disks Ordered | PRICES | Price Per Disk |
|---------------|--------|----------------|
| 1-9           |        | \$1.99         |
| 10-19         |        | 1.75           |
| 20-49         |        | 1.49           |
| 50-99         |        | 1.25           |
| 100+          |        | .99            |

If you need 3 1/2" disks add \$1 each. Count each disk in multiple disk sets. Add \$4 shipping per order. (Canada add \$6—Foreign add \$8)

**Direct Link Software**  
**P.O. Box 2302**  
**Muncie, IN 47307**  
**1-800-999-6883**  
 (Call today or use a separate sheet and mail in your order.)



Call Today 1-800-999-6883





# REVIEWS

not up to the standard set by Accolade's previous titles. It's not detailed enough to be a simulation, nor is it challenging enough to be an arcade game.



You can burn up the water from San Francisco to Miami in *Heat Wave*.

You choose from six course offerings: four offshore near Miami, one in the San Francisco Bay, and one on the Mississippi River. Next, select your boat from three deep-V-hulled boats and a catamaran. Each of these boats has unique characteristics that offer certain advantages depending on water conditions. Before you take off, you can add gasoline and up to three spare parts. Then it's on to practice, qualification time trials, and the race itself.

The joystick controls the boat's speed, direction, and trim. The space bar pauses the action. Status Key Indicators flash whenever something important happens. Press a corresponding key to see what's up. Navigation displays the current course map, and Time Sheet tells you how you're doing. Your time is recorded whenever you pass a marker buoy, as are any penalties you incur for such things as missing a marker, making repairs, or jumping the starting flag. Damage spells out what's gone wrong and provides a menu to allow you either to fix things or exit the race.

Your control panel bears the usual instruments and gauges: starter, fuel gauge, compass, clock, engine temperature, speedometer, and tachometer. The panel also informs you when your trim needs adjusting, and it allows you to activate the bilge pump.

All this has the potential for an exciting race program, something like *The Duel* on water. There's even a neat bobbing effect before the race starts. Good music and nice-looking

## Advertisers Index

| Reader Service Number/Advertiser   | Page     | Reader Service Number/Advertiser           | Page       |
|------------------------------------|----------|--|------------|
| 174 Access Software                | 13       | 212 Lyco Computer                          | 84, 85     |
| 175 Access Software                | P-3      | 158 Magnetic Images Co.                    | A-37       |
| 193 Access Software                | 63       | 153 Maxis                                  | 27         |
| 107 Accolade                       | 33       | 197 MGH Software                           | A-36       |
| 149 AccuTone Productions           | G-23     | 206 Mibro                                  | 107        |
| 139 Ad Lib, Inc.                   | IBC      | 147 MiccaSoft, Inc.                        | 54         |
| 164 AFN US Air Force               | 28       | 154 Migraph                                | A-19       |
| 204 Artisoft                       | G-17     | Montgomery Grant                           | A-15       |
| 148 Aurum                          | A-27     | Montgomery Grant                           | G-3        |
| 105 Avatar Consulting              | A-5      | NRI Schools                                | 56i, G-24i |
| Brantford Educational Services     | G-17     | 142 Octagon Technology                     | 81         |
| Broderbund                         | IFC, 1   | OMNI                                       | P-33       |
| Broderbund                         | P-43     | 170 Origin                                 | 5          |
| 131 Brown Wagh                     | 23       | 171 Origin                                 | 75         |
| 110 California Shareware           | A-17     | 169 Origin                                 | 86, 87     |
| 230 Casio                          | 47       | 137 Paradise Software                      | G-19       |
| 138 C*Base                         | G-23     | 180 Parsons                                | 55         |
| CheckFree                          | 43       | 191 P.A.V.Y.                               | G-23       |
| 128 Compsult                       | G-21     | 130 Poor Person Software                   | A-34       |
| 102 CompuServe                     | P-21     | 117 Postcraft                              | M-2        |
| 150 CompuStore                     | P-31     | 118 Postcraft                              | M-5        |
| Computer Book Club                 | 41       | 144 Practical Solutions                    | A-34       |
| 190 Computer Craftware             | G-19     | 104 Radio Shack                            | 50, 51     |
| 114 Computer Direct                | 110-111  | 213 Ramco                                  | 116        |
| 115 Computer Direct                | 112, 113 | 209 Saxman Systems                         | A-32       |
| 201 Computer Games +               | A-21     | 103 Schieffelin & Somerset Co.             | 7          |
| 173 Computer Insurance Agency, The | 117      | 134 Schnedler Systems                      | G-23       |
| 136 Computer Reset                 | 117      | 160 SDA                                    | 109        |
| 211 Computer Sports Network        | 83       | 161 SDA                                    | G-7        |
| 214 Covox                          | 22       | 195 Sexy Software                          | 117        |
| 157 Creative Micro Design          | G-11     | 194 Sierra                                 | BC         |
| Damark                             | P-23     | 207 Sierra                                 | 19         |
| 176 Data East                      | 20-21    | 120 Signs Etc. By D. Knox                  | A-36       |
| 196 Data East                      | P-13     | 215 Soft Group, The                        | G-19       |
| 184 Davidson                       | 11       | 172 Software Composers                     | 116        |
| 183 Davidson                       | 67       | 200 Software Excitement                    | A-23       |
| 203 Davidson                       | P-11     | 151 Software Labs                          | 101        |
| 125 Delphi                         | 106      | 152 Software Labs                          | P-45       |
| 133 Desk Top Advantage, The        | A-39     | 127 Software of the Month Club             | 116        |
| 124 Digital Dynamics               | A-32     | 112 Software Support International         | A-29       |
| 182 Digital Pub/257, The           | A-36     | 113 Software Support International         | A-43       |
| 208 DigiTek Software               | A-7      | 111 Software Support International         | G-13       |
| 107 Direct Link                    | 103      | 159 SOGWAP Software                        | G-24       |
| 143 E. G. Publishing               | 68       | 122 SP Software                            | 117        |
| 135 Electronic Innovations Corp.   | G-19     | 163 Spectrum Holobyte                      | 3          |
| Forbes Wagon Creek Ranch           | A-13     | 162 Spectrum Holobyte                      | 61         |
| 168 Gemini                         | A-25     | 167 Spectrum Holobyte                      | 39         |
| 177 GENie                          | 34, 35   | 126 Spirit Technology                      | A-36       |
| Gladstone                          | A-31     | SSI  | 9          |
| 198 Gold Hill                      | P-17     | SSI  | 31         |
| 165 Grapevine Group Inc., The      | G-23     | SSI  | P-37       |
| 145 Grapevine Group Inc., The      | A-39     | 121 Sterling Connection, The               | A-26       |
| 166 Grapevine Group Inc., The      | G-14     | 178 Tangent 270                            | A-33       |
| 181 Group M Productions            | A-36     | 205 Tektonics Plus, Inc.                   | G-14       |
| 146 Hacker Cat                     | G-24     | 132 The Other Guys                         | A-39       |
| 106 Hoffman LaRoche, Inc.          | 52, 53   | 202 Three-Sixty Pacific                    | P-7        |
| 192 IHT Software                   | G-19     | 155 Utilities Unlimited                    | A-37       |
| 109 Innerprise                     | 69       | 140 Virgin Mastertronic                    | 38, 39     |
| 108 Innerprise                     | A-3      | 141 Virgin Mastertronic                    | P-41       |
| 116 International Technologies     | A-37     | 123 Virtual Reality Labs, Inc.             | A-35       |
| 186 Jason-Ranheim                  | G-17     | Amiga Programmers                          | A-27       |
| 129 JK Software                    | 116      | Classified Ads                             | 118-119    |
| 187 Konami                         | 79       | COMPUTE! Books 116, 119, 73, 91, 117, P-47 |            |
| Life Fitness                       | G-15     | COMPUTE!'s SharePak                        | 25         |
| Longevity                          | P-9      |  |            |
| 189 Lucasfilm                      | 17       |  |            |



# REVIEWS

background graphics foreshadow a good race, and a run in the boat is fun enough—but the anticipated excitement never materializes.

While there are some indications that one type of boat handles better than another (the rate of gas consumption, for instance), there's no appreciable difference among the boats. Their cockpit dashboards are identical; the design is the same for all four boats. There's no real difference between Rookie and Experienced Racer, either. While the various course maps indicate that you pass under bridges, we've yet to actually do so. Bridges appear only in the distance. The courses even seem similar—possibly because there are no changes in the water conditions. Basically, there is little challenge once you've accustomed yourself to the program.

The manual refers to two keys not present on the 64: the Escape and Tab keys. While pressing any key works in place of the Escape key, we couldn't find any key to instantly kill the engines, the Tab key's function.

The *Heat Wave* package refers to designing a custom course, a feature that could attract many buyers. Note that this option is *not* supported in the 64 version. You can probably make your own course on other computers—there are *Heat Wave* versions for the IBM, Amiga, Atari ST, and Apple IIGS—but you can't do it on the 64. I wish package designers would keep the different versions of the product in mind when they start listing a game's features on the box.

*Heat Wave* has potential, and if you want to polish your basic boat-racing skills, it offers good practice. However, to live up to the hype of the packaging and to Accolade's reputation, these problems need to be addressed: correct the manual, vary the course conditions and play levels, put back the bridges, and let us design those custom courses. In other words, make the product do what it says it will. Then you'll have a terrific game.

DAVID AND ROBIN MINNICK

Commodore 64 or 128—\$29.95

ARTECH DIGITAL ENTERTAINMENTS  
Distributed by Accolade  
550 S. Winchester Blvd.  
San Jose, CA 95128  
(408) 985-1700

## MICRO LEAGUE WRESTLING

If you've seen World Wrestling Federation (WWF) wrestling at your local arena or on television, you know there are certain rules the wrestlers must follow: Always talk in gruff tones at no less than 90 decibels, and animate gestures as much as possible when an audience or TV camera is in view. And they are required to end each and every interview with a growl and a display of their muscle development.

Other than these few, modest guidelines, it appears that each punch, hold, and elbow swing that wrestlers execute—both in and out of the ring—are allowed and considered legal. These antics and more are now available for the 64. They are duplicated with incredible accuracy in *Micro League Wrestling* by Micro League Sports.

The Superstar of the WWF, Hulk Hogan, is featured in this game of rough-and-tumble action. His mission is to staunchly defend his title against such ruffians as Randy "The Macho King" Savage and Paul "Mr. Wonderful" Orndorff.

*Micro League Wrestling* features digitized video of actual wrestling action. Digitized pictures flash in rapid succession as the flamboyant world of the WWF unfolds on the computer screen. The effect accomplished by the changing pictures, combined with a little imagination from the user, creates the environment that is very close to watching a televised match.

As they do on television, the wrestlers strut, posture, and expound their virtues in prematch interviews with "Mean Gene" Okerlund. The printed dialogue of their remarks appears beneath their pictures as they gesture wildly and contort their faces in anger. When the match begins, announcers Vince McMahon and Jesse "The Body" Ventura offer their opposing commentary on the wrestlers' abilities and physical status.

The player who assumes the role of the Hulkster chooses from a menu of specialized moves and then enters a selection. The computer, in one-player mode, or a second player, acting as

Macho Man or Mr. Wonderful, also chooses and enters a move. The program determines which of the two has succeeded in making the best choice. It then promptly displays the digitized video, in graphic detail, of the selected Elbow Drop, Body Slam, Suplex, Eye Rake, Atomic Drop, and so on as it is being delivered to the recipient. Ouch!

Just as if it were a live match, the players have to contend with distractions. The Hulk's manager, the Lovely Miss Elizabeth, captures his attention for a brief moment, and he is clubbed from behind with a stool. Manager Bobby "The Brain" Heenan enters the ring when the referee isn't looking and delivers a blow with a lead pipe. To rally his dwindling power, the Hulkster calls to the audience for support and absorbs their cheers. Inspired by their enthusiasm, he rises to the occasion, and often to victory.

A Power Level Bar of each wrestler, as well as his Damage Points tally, are shown at the bottom of the screen. The wrestler who can pound his opponent into submission within the allotted time of the match is declared the World Champion and is given the massive championship belt to hold before the cheering crowd.

According to the documentation, there are supplemental disks, sold separately, containing other WWF Wrestling Stars to challenge the Hulk and the title. My kids, who are avid wrestling fans and who have played this game extensively, can't wait to find the additional disks.

For their sake, and for the sake of other youngsters, I was pleased to see a message on the opening screen that explains that the moves and actions of the wrestlers are performed by professional athletes and should not be attempted by others, except on the computer. This message has served its purpose successfully, at least in my household. Now if I can only get the kids to stop wearing those silly headbands and posing in front of the mirror in their underwear.

STEVE HEDRICK

Commodore 64 and 128—\$29.95

MICRO LEAGUE SPORTS  
ASSOCIATION  
2201 Drummond Plaza  
Newark, DE 19711-5711  
(302) 368-9990



## A HARD DRIVE IS A TERRIBLE THING TO WASTE.

For only \$6 per hour, you can download onto your hard disk from DELPHI's library of over 10,000 programs. Join now for \$9.95 and your first hour is free. There is no surcharge for downloading at 2400 baud and no premium for dialing locally via Tymnet. If you really have a big disk, choose the 20/20 Plan and enjoy 20 hours for \$20.

With your computer and modem dial 1-800-365-4636. Press Return twice. At Username: type JOINDELPHI and at Password: type SOFTWARE.

# DELPHI

POPULATING HARD DRIVES SINCE 1982

800-544-4005 • 617-491-3393

Circle Reader Service Number 125

## Macintosh

### GRAMMATIK MAC

Good writing doesn't come easy. It takes practice—a lot of it—to write effectively. Unfortunately, most of us don't have the time or the training to write well. We know our writing is merely adequate, but we don't know how to make it better.

*Grammatik Mac* helps you improve your writing. This full-featured program evaluates your prose for grammar, style, usage, and punctuation problems and then lets you edit and make corrections. It does nearly everything but put red marks on your paper.

The program checks for an array of grammatical and stylistic errors, displays each problem in context, and then lets you make immediate changes. You can accept *Grammatik Mac's* advice (usually good), substitute your own correction, ignore the problem, or mark it for later review.

Grammar may be its namesake, but *Grammatik Mac* flags everything from overly long sentences to transposed letters and archaic terminology. I thought its constant nagging about passive voice was particularly valuable, and I was thankful for its careful attention to subject-verb agreement. *Grammatik Mac* can check spelling as well, but your word processor's spelling checker is probably faster and its dictionary larger.

Once you've cleaned up the document, *Grammatik Mac* provides a blizzard of statistical facts about your writing. You'll see grade-level readability scores, sentence-length averages, passive-voice percentages, and more. The

statistics are really only useful in spotting general problems. Unfortunately, the program refuses to recognize carriage returns in both *Word 3.0* and *WriteNow* files, so it reported that my files contained only one paragraph!

You can customize *Grammatik Mac* to some extent by changing its writing style and adding to or dropping the grammatical rules it checks. Try out each style—general, business, technical, fiction, and informal—before deciding which one is best for you. I use general for most of my writing, though I change to fiction when I don't want my sentence fragments questioned. *Grammatik Mac* isn't as easily customized as the program's PC version, which includes an editor you can use to create new rules and modify existing ones. Look for a planned upgrade to *Grammatik Mac* that will closely follow the features and improvements in *Grammatik Windows*.

*Grammatik Mac's* interface is sometimes confusing, making the program more difficult to use. To change rule classes, for example, you use a strange Command-click combination instead of a standard click or double-click. If you don't click on the Save button at the opening screen, you can't save a modified file under a different name. And switching between *Grammatik Mac* and a word processor takes time, even with MultiFinder, for you still have to save the document in one program before using it in the other.

I find *Grammatik Mac* a useful writer's tool, but I don't take all of its advice. If I did, my writing would sound too formal and too dull. The hallmark of a good editor and proofreader is the ability to pinpoint problems and recommend changes. The hallmark of a good writer is to know when the recommendations work. *Grammatik Mac* looks over your shoulder and reminds you of the rules. You still get to decide which rules to break and which to bend.

GREGG KEIZER

Macintosh Plus, SE, SE/30, II, IIX, ILCX, ILCI, or Portable—\$99

REFERENCE SOFTWARE  
330 Townsend St.  
Suite 123  
San Francisco, CA 94107  
(415) 541-0222

### MISSION STARLIGHT

The doctor says I have to take a break from playing *Mission Starlight*. Just until the swelling in my finger goes down. It's nothing serious; I just pushed the fire button one time too many. But who could blame me? Casady and Greene has released a very addictive arcade game.

The game has two phases. First, you fly to a planet, killing enemy ships as you spiral down to the surface. Along the way, you dodge asteroids and pick up bonus orbs to earn extra ships and extra missiles. You can always use extra ships and extra missiles because it's so easy to lose them.

Once you get through the space gauntlet, you enter the second phase—a tougher battery of foes on the



SERVING THE PUBLIC FOR 40 YEARS AND GROWING

# MIBRO

company  
inc. YOUR AUDIO · VIDEO · PHOTO · COMPUTER DEPARTMENT STORE!!

**VISIT OUR RETAIL LOCATION AT**  
**64 WEST 36th STREET**  
**NEW YORK CITY, NEW YORK 10018**  
**FOR ORDERS ONLY CALL TOLL FREE**  
**1-800-451-9780**  
**N.Y. RESIDENTS (212) 695-7133**

## COMPUTER MADNESS



### A. "STRICTLY FOR THE STARTERS" COMPUTER OUTFIT

PACKAGE INCLUDES:

- COMPUTER • KEYBOARD • FLOPPY DRIVE • MONOCHROME MONITOR • DISKETTES • SOFTWARE BUNDLE

### B. "COMPLETE ALL IN ONE" COMPUTER OUTFIT

PACKAGE INCLUDES:

- COMPUTER • KEYBOARD • DUAL FLOPPY DRIVE • (5 1/4" - 3 1/2") • MONOCHROME MONITOR • MOUSE • DISKETTES • SOFTWARE BUNDLE

### C. "FOR THE SERIOUS NOVICE" COMPUTER OUTFIT

PACKAGE INCLUDES:

- COMPUTER • KEYBOARD • FLOPPY DRIVE • 20MB HARD DRIVE • MONOCHROME MONITOR • DISKETTES • SOFTWARE BUNDLE

### D. "PACKAGE FOR THE PROFESSIONAL" COMPUTER OUTFIT

PACKAGE INCLUDES:

- COMPUTER • KEYBOARD • DUAL FLOPPY DRIVE • (5 1/4" - 3 1/2") • 40MB HARD DRIVE • VGA COLOR MONITOR • MOUSE • DISKETTES • SOFTWARE BUNDLE

## IBM XT COMPATIBLE COMPUTERS

|                      | A.    | B.     | C.     | D.     |
|----------------------|-------|--------|--------|--------|
| COMMODORE S.E.       | \$648 | \$748  | \$898  | \$1498 |
| EPSON EQUITY I +     | \$498 | \$598  | \$748  | \$1498 |
| EPSON EQUITY Ie      | \$598 | \$698  | \$898  | \$1498 |
| HEADSTART LX-CD      | CALL  | CALL   | CALL   | CALL   |
| HYUNDAI 16TE         | \$498 | \$598  | \$798  | \$1498 |
| HYUNDAI 16TX         | \$498 | \$598  | \$798  | \$1498 |
| IBM XT               | \$798 | \$888  | \$998  | \$1498 |
| IBM PS II-30         | \$998 | \$1198 | \$1498 |        |
| LEADING EDGE Model D | \$498 | \$598  | \$898  | \$1498 |
| PREMIER 200          | \$598 | \$698  | \$898  | \$1498 |
| PANASONIC FX-1650    | \$498 | \$598  | \$898  | \$1498 |

## IBM AT (286) COMPATIBLE COMPUTERS

|                        | A.     | B.     | C.     | D.     |
|------------------------|--------|--------|--------|--------|
| AST BRAVO 286          | \$798  | \$898  | \$1098 | \$1598 |
| COMMODORE S.E. (286)   | CALL   | CALL   | CALL   | \$1698 |
| EPSON EQUITY II +      | \$898  | \$998  | \$1198 | \$1698 |
| EPSON EQUITY Iie       | \$998  | \$1098 | \$1298 | \$1798 |
| GOLDSTAR GS-230        | \$898  | \$998  | \$1298 | \$1898 |
| HEADSTART 300          |        | \$1198 |        | \$1498 |
| HEADSTART III          | \$1498 | \$1598 | \$1798 | \$1998 |
| HYUNDAI 286X           | \$798  | \$898  | \$1098 | \$1598 |
| HYUNDAI 286N           | \$798  | \$898  | \$1098 | \$1598 |
| IBM AT                 | \$1098 | \$1238 | \$1398 | \$1998 |
| IBM PS II-30/286       | \$1398 | \$1498 | \$1698 |        |
| IBM PS II-50Z          | CALL   | CALL   | CALL   | CALL   |
| LEADING EDGE Model D2  | \$898  | \$998  | \$1198 | \$1698 |
| MAXSTATION 286         |        | CALL   |        | CALL   |
| NEC POWERMATE 286      | \$998  | \$1098 | \$1398 | \$1798 |
| NEC POWERMATE 286 PLUS | \$1198 | \$1298 | \$1498 | \$1898 |
| PACKARD BELL F-1       | \$898  | \$998  | \$1298 | \$1798 |
| PANASONIC FX-1850      | \$898  | \$998  | \$1298 | \$1698 |
| SAMSUNG SD-630         | \$798  | \$898  | \$1098 | \$1598 |

## IBM AT (386) COMPATIBLE COMPUTERS

|                       | A.     | B.     | C.     | D.     |
|-----------------------|--------|--------|--------|--------|
| AST BRAVO 386-SX      | \$1698 | \$1798 | \$1998 | \$2298 |
| EPSON EQUITY 386-SX   | \$1398 | \$1498 | \$1648 | \$1898 |
| GOLDSTAR GS-320       | \$1498 | \$1598 | \$1798 | \$2498 |
| HEADSTART 500         |        | \$1598 |        | \$1898 |
| HYUNDAI 386-S         | \$1048 | \$1148 | \$1348 | \$1898 |
| HYUNDAI 386-C         | \$1398 | \$1498 | \$1698 | \$1998 |
| LEADING EDGE Model D3 | \$1498 | \$1598 | \$1798 | \$2198 |
| MAXSTATION 386        |        | \$1398 |        | \$1698 |
| NEC 386-SX            | \$1498 | \$1598 | \$1798 | \$1998 |
| PACKARD BELL 386-SX   | \$1298 | \$1398 | \$1698 | \$1998 |
| SAMSUNG SD-700        | \$1198 | \$1298 | \$1498 | \$1898 |

## PRINTERS



### PANASONIC

|          |       |
|----------|-------|
| KXP-1180 | \$169 |
| KXP-1191 | \$209 |
| KXP-1124 | \$279 |
| KXP-1624 | CALL  |
| KXP-4450 | CALL  |
| KXP-4420 | CALL  |

### EPSON

|         |       |
|---------|-------|
| LX-810  | \$179 |
| LQ-510  | \$319 |
| FX-850  | \$339 |
| FX-1050 | \$449 |
| LQ-850  | \$519 |
| LQ-950  | \$539 |
| LQ-2550 | \$939 |
| LQ-1010 | CALL  |

### STAR

|               |       |
|---------------|-------|
| NX-1000       | \$159 |
| NX-1000 color | \$209 |
| NX-1500       | \$309 |
| NX-2410       | \$299 |
| NX-2415       | \$389 |
| XR-1500       | \$439 |
| XR-1000       | \$329 |
| XB-2410       | \$439 |
| XB-2415       | \$579 |

### HEWLETT PACKARD

|               |      |
|---------------|------|
| Desk Jet      | CALL |
| Desk Jet IIP  | CALL |
| Laser Jet II  | CALL |
| Laser Jet III | CALL |

### MODEMS

|                |       |
|----------------|-------|
| 1200 Internal  | \$59  |
| 2400 Internal  | \$99  |
| 2400 External  | \$129 |
| 9600 Int./Ext. | CALL  |

## LAPTOPS



### TOSHIBA

|               |        |
|---------------|--------|
| T-1000        | \$598  |
| T-1000S.E.    | \$1098 |
| T-1000X.E.    | \$1698 |
| T-2000X.E.    | \$2198 |
| T-1200/20MB   | \$1598 |
| T-1600/20MB   | \$2398 |
| T-1600/40MB   | \$2638 |
| 3100S.X./40MB | \$3798 |
| 3200S.X./40MB | CALL   |
| 5200/40MB     | CALL   |
| 5200/100MB    | CALL   |
| 301 Printer   | CALL   |

### SHARP

|         |      |
|---------|------|
| PC-4741 | CALL |
| PC-5741 | CALL |
| PC-6220 | CALL |
| MZ-100  | CALL |
| MZ-200  | CALL |
| MZ-250  | CALL |

### MITSUBISHI

|          |        |
|----------|--------|
| 286/20MB | \$1698 |
| 286/40MB | \$2098 |

### PACKARD BELL

|             |        |
|-------------|--------|
| 286/LP-40VG | \$2298 |
|-------------|--------|

### LEADING EDGE

|             |        |
|-------------|--------|
| 386-SX/40MB | \$2298 |
|-------------|--------|

### TEXAS INSTRUMENT

|           |        |
|-----------|--------|
| LT-286-12 | \$2098 |
| TM-2000   | \$2698 |

### ATARI

|               |      |
|---------------|------|
| Portfolio     | CALL |
| Serial Port   | CALL |
| Parallel Port | CALL |

## APPLE

|                 |        |
|-----------------|--------|
| Apple IIC +     | \$498  |
| Apple IIGS      | \$848  |
| MAC SE/1        | \$1998 |
| MAC SE/40       | \$2598 |
| MAC SE/30       | \$2998 |
| Image Writer II | \$498  |

## FLOPPY DRIVES

### TOSHIBA

|                 |      |
|-----------------|------|
| 360K (5 1/4")   | \$69 |
| 1.2MB (5 1/4")  | \$79 |
| 720K (3 1/2")   | \$69 |
| 1.44MB (3 1/2") | \$79 |

## PERIPHERALS

|               |      |
|---------------|------|
| mono card     | \$49 |
| color card    | \$49 |
| EGA card      | \$79 |
| VGA card      | \$99 |
| multi-IO card | \$69 |
| serial card   | \$29 |
| parallel card | \$29 |
| game card     | \$29 |
| clock card    | \$29 |
| memory card   | \$69 |

## HARD DRIVES

### SEAGATE

|                 |       |
|-----------------|-------|
| ST-225 (20MB)   | \$199 |
| ST-125 (20MB)   | \$229 |
| ST-238 (30MB)   | \$209 |
| ST-138 (30MB)   | \$249 |
| ST-251 (40MB)   | \$249 |
| ST-251-I (40MB) | \$269 |
| ST-151 (40MB)   | \$319 |
| ST-277 (65MB)   | \$329 |
| ST-4096 (80MB)  | \$529 |
| ST-4144 (120MB) | \$579 |

## CO-PROCESSORS

### INTEL

|          |       |
|----------|-------|
| 8087-5   | \$89  |
| 8087-8   | \$129 |
| 8087-10  | \$169 |
| 80287-8  | \$199 |
| 80287-10 | \$229 |
| 80387-16 | \$339 |
| 80387-20 | \$389 |

### Commodore COMMODORE 64-C 25 PIECE STARTERS PACKAGE

Package Includes: Commodore 64-C • Commodore 1541 Disc Drive • Monochrome Monitor • Head Cleaner • 10 Diskettes • Software Bundle

**\$348**

### Commodore COMMODORE 64-C 25 PIECE DREAM PACKAGE

Package Includes: Commodore 64-C • Commodore 1541 Disc Drive • Color Monitor • 80 Column Printer • 10 Diskettes • Software Bundle

**NEW LOW PRICE!!**

### Commodore COMMODORE 128-D 25 PIECE STARTERS PACKAGE

Package Includes: Commodore 128-D With Built-In 1571 Disc Drive • Monochrome Monitor • Head Cleaner • 10 Diskettes • Software Bundle

**\$398**

### Commodore COMMODORE 128-D 25 PIECE DREAM PACKAGE

Package Includes: Commodore 128-D With Built-In 1571 Disc Drive • RGB Color Monitor • 80 Column Printer • 10 Diskettes • Software Bundle

**NEW LOW PRICE!!**

### AMIGA AMIGA 500 25 PIECE STARTERS PACKAGE

Package Includes: Amiga 500 With Built-In Disc Drive • RGB Color Monitor • Mouse • 10 Diskettes • Software Bundle

**\$798**

### AMIGA AMIGA 500 25 PIECE DREAM PACKAGE

Package Includes: Amiga 500 With Built-In Disc Drive • RGB Color Monitor • Mouse • 10 Diskettes • 80 Column Printer

**NEW LOW PRICE!!**

**CALL TOLL FREE 1-800-451-9780**

NEW YORK STATE RESIDENTS CALL (212) 695-7133  
 CUSTOMER SERVICE CALL (212) 967-2353 FAX (212) 695-0982  
 MON.-SAT. 10:00AM-7:00PM SUNDAYS 10:30AM-6:00PM  
 ALL SYSTEMS AVAILABLE WITH: 20/30/40/60/80 HARD DRIVES  
 ALL SYSTEMS AVAILABLE WITH: MGA/CGA/VGA/MULTISCREEN



Use M/C, Visa, AMEX, Discover, Diners or send money order, certified checks. All merchandise brand new factory fresh. Shipping charges non-refundable. Minimum shipping and handling \$4.95, maximum \$89.00. Shipping costs reflect individual packaging. Air shipping additional. For mail orders please call before sending in money order. All prices subject to manufacturers increase/decrease. Refunds within 7 days only with original packaging & unexpired guarantee card. Some products subject to restocking fee. No refunds without prior verbal authorization. Customer Service between 12pm - 6pm. Pictures are for illustration purposes only. Not responsible for typographical errors. Consumer Affairs License No. 800-253. Prices good for mail order only.

planet's surface. You fly toward an enemy base, firing missiles at the main building. It wouldn't be so hard to hit the building if it weren't for the enemy fliers that pursue you so relentlessly. And it would be easier to destroy the base if you only had more missiles.

*Mission Starlight* is a difficult challenge. It takes a long time to master the controls, and you have to figure out when your enemies are close enough to hit you. Then you have to nail down the evasive tactics that will save your life on the planet's surface.



**Knock out the alien power plants with *Mission Starlight*.**

On the surface and in space, the graphics are excellent. Each type of ship has a special shape, and that shape plays a role in how hard the ship is to destroy. For example, when you fly to the first planet, there's a diamond-shaped ship that rotates. In one stage of the rotation, the ship will hit you unless you dodge it. In another, you can fly right over it and zap it to astral smithereens. The trick is knowing when to dodge and when to zap.

And you don't just see the zaps—you hear them. As with other Casady and Greene games, *Mission Starlight* is a symphony of great Macintosh sounds. From the first ditty at the introductory screen to the eerie electronic hum as you choose the next planet to conquer, the game puts the Mac through its audible paces.

The game runs fine on most home computers, but watch out if you have any INITs or special video requirements. The company includes a special INIT that takes care of most of these problems, but some INITs can still cause trouble.

Probably the biggest shortcoming of the game is the way it uses the mouse. The mouse isn't a precise enough controller for this game. I had

to use the keyboard instead. It's easy to map the keys just as you like them, and I appreciated that feature. But I'd like to see the mouse play a bigger role in the game.

Mouse or no mouse, I'd like to play more *Mission Starlight*. It's proof that the Macintosh is a fine platform for pure fun.

HEIDI E. H. AYCOCK

Macintosh Plus, SE, SE/30, II, IIfx, IIfx, IIci, or Portable—\$49.95

CASADY & GREENE  
P.O. Box 223779  
Carmel, CA 93922  
(408) 624-8716

## ULTRAPAIN

This program has almost everything a Mac artist needs in a graphics package—at a very reasonable price. It does the work of four different programs: a basic black-and-white paintbox in the *MacPaint* mold, a low-level structured drawing program such as *MacDraw*, a gray-scale/8-bit color image processor for editing scanned art, and an 8-bit color paint program.

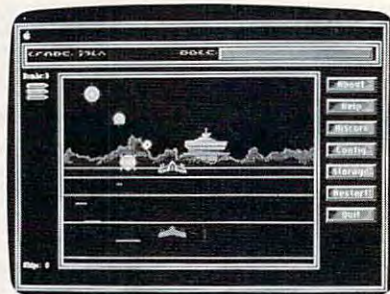
Not only does it offer all the standard graphics tools you've come to expect, but it has a remarkable amount of advanced functionality. Up to eight layers can be combined in one picture; layers can be paint, draw, or a combination; and any layer can be hidden or grayed. You can edit objects at up to 600 dpi, kern text to fractional widths, and do Boolean operations on draw objects (OR, XOR, BIC, and so on) in order to combine them in different ways.

Image-processing effects for gray-scale and 8-bit images include adjustments to luminance, sharpness, contrast, blur, and pixelization. Bezier curve editing is available for high-resolution drawing, and an adjustable autotrace tool—one of the best I've used—converts paint images to draw images with good fidelity. *UltraPaint* imports and exports all the standard graphics file formats except EPS (Encapsulated PostScript).

The program's most innovative feature is its modular open architecture. *UltraPaint* is designed to accept

external tools, letting you easily add innovative paint and draw effects and create new kinds of objects. These options can be added to the program by simply dragging them into a special folder; the external tools then become available in their own tool palette. Among the more useful external tools included in the package are a chalk tool, for charcoal and pastel effects, and a water droplet tool, for blending the edges of paint objects.

*UltraPaint* is compact and useful, but no program is perfect. I missed small but significant features, such as autoscrolling on demand, resizing paint objects by percentages, and the ability to automatically set the opening size of a new painting to the size of the monitor you're using (pictures always open in the default 512 × 342 standard Mac screen size).



***UltraPaint* is four different kinds of graphics programs rolled into one application.**

Many of the more specialized tools contained in dedicated color paint and gray-scale-editing packages aren't in *UltraPaint*, but the program's open architecture means that these tools can be added later.

Most serious Mac artists will already have invested in higher-priced software that does everything *UltraPaint* can do. But for the Mac artist looking for one package that does it all, *UltraPaint* is the best and most cost-effective choice. It could be all you ever need in a graphics program.

STEVEN ANZOVIN

Macintosh Plus, SE, SE/30, II, IIfx, IIfx, IIci, or Portable with 1MB RAM (2MB for color paint)—\$199

DENEBA SOFTWARE  
3305 NW 74th Ave.  
Miami, FL 33122  
(800) 622-6827  
(305) 594-6965

# Software Discounters Of America

Est 1984

## WE ARE THE #1 SOFTWARE SOURCE FOR THOUSANDS OF COMPUTER OWNERS

If you've never shopped with us before, now is the time to find out why so many valued customers have!

- Speedy Delivery
- Deep Discounts
- Astronomical Selections

- Free shipping on orders over \$100
- No surcharge on MC/VISA
- Overnight & 2 day shipping available

### ACCOLADE

Build ships, mines and colonies. Deploy your fleet and explore the stars. White knuckle tactical combat. 9 scenarios or create your own.

STAR CONTROL  
List \$49.95

SDA Discount Price \$32

|                                    |                                      |
|------------------------------------|--------------------------------------|
| <b>ACCESS</b>                      | <b>BRODERBUND</b>                    |
| Crime Wave (w/sound) . . . \$39    | Ancient Art of War at Sea . . . \$29 |
| Mean Streets (w/sound) . . . \$39  | Banner Mania . . . \$23              |
| WCLB Golf (w/sound) . . . \$35     | Carmen S.D. - Europe . . . \$32      |
| <b>ACCOLADE</b>                    | Carmen S.D. - Time . . . \$32        |
| Balance of the Planet . . . \$32   | Carmen S.D. - U.S.A. . . . \$32      |
| Bar Games . . . \$29               | Carmen S.D. - World . . . \$32       |
| Blue Angels Flight Sim. . . \$32   | Life & Death . . . \$39              |
| Day of the Viper . . . \$32        | Lakers vs. Celtics . . . \$32        |
| Don't Go Alone . . . \$25          | LHX Attack Chopper . . . \$39        |
| 4th & Inches Football . . . \$14   | Deluxa . . . \$16                    |
| Grand Prix Circuit . . . \$25      | <b>INFOCOM</b>                       |
| Gunboat . . . \$32                 | Battletech . . . \$19                |
| Hardball . . . \$9.88              | Omni-Play Horse Race . . . \$32      |
| Hardball 2 . . . \$32              | Low Blow . . . \$26                  |
| Harmony . . . \$29                 | Madden Football . . . \$32           |
| Heatwave Boat Racing . . . \$29    | Maniac Mansion (Hi-Res) . . . \$14   |
| Ishido . . . \$35                  | Might & Magic 1 or 2 . . . \$32 Ea.  |
| J.N. Unlimited Golf . . . \$39     | Remote Control . . . \$8.88          |
| J.N. Golf Champ Courses . . . \$16 | Ses. St. First Writer . . . \$9.88   |
| J.N. Golf 1990 Courses . . . \$16  | Ses. St. Print Kit . . . \$9.88      |
| J.N. Golf Int'l Courses . . . \$16 | Swim Wear Calendar . . . \$6.88      |
| Search For The King . . . \$39     | Win, Lose or Draw . . . \$8.88       |
| Star Control . . . \$32            | Win, Lose or Draw . . . \$8.88       |
| Steel Thunder . . . \$25           | Deluxa . . . \$16                    |
| Stratego . . . \$32                | <b>INFOCOM</b>                       |
| Strike Aces . . . \$32             | Battletech . . . \$19                |
| Test Drive 2: The Duel . . . \$32  | Circuits Edge . . . \$32             |
| T.D. 2: Calif. Scenery . . . \$16  | Hitchhikers Guide . . . \$14         |
| T.D. 2: Europe Scenery . . . \$16  | Journey . . . \$19                   |
| T.D. 2: Muscle Cars . . . \$16     | King Arthur . . . \$19               |
| T.D. 2: Super Cars . . . \$16      |                                      |

|                                 |                                    |
|---------------------------------|------------------------------------|
| <b>ACTIVISION</b>               | <b>DAVIDSON</b>                    |
| Battle Chess . . . \$32         | AlgebraBlast Plus . . . \$32       |
| Death Track . . . \$19          | Math Blaster Plus . . . \$29       |
| Die Hard . . . \$25             | Personal Trainer S.A.T. . . . \$32 |
| Dragon Wars . . . \$32          | Reading & Me . . . \$24            |
| Future Wars . . . \$32          | Word Attack Plus . . . \$32        |
| Ghost Busters 2 . . . \$14      | <b>ELECTRONIC ARTS</b>             |
| Last Ninja . . . \$14           | Abrams Battle Tank . . . \$16      |
| Manhole (RQ: Hdrive) . . . \$32 | Bard's Tale 2 . . . \$16           |
| Mech Warrior . . . \$32         | Battles of Napoleon . . . \$32     |
| Music Studio 3.0 . . . \$65     | Blockout . . . \$26                |
| Neuroancer . . . \$14           | Budokan Martial Arts . . . \$32    |
| Power Drift . . . \$14          | Cartooners . . . \$32              |
| Rampage . . . \$24              | Centurion . . . \$32               |
| Tongue of the Fatman . . . \$19 | Chessmaster 2100 . . . \$32        |

|                                   |                                 |
|-----------------------------------|---------------------------------|
| <b>ARTWORX</b>                    | <b>BETHESDA</b>                 |
| Bridge 6.0 . . . \$25             | Hockey League . . . \$32        |
| Linkword Languages . . . \$25     | Simulator . . . \$25            |
| Strip Poker 2 . . . \$25          | Wayne Gretzky Hockey . . . \$35 |
| S. P. 2 Females #1 . . . \$14     | <b>BRITANNICA/DESIGNWARE</b>    |
| S. P. 2 Female/Male #2 . . . \$14 | Archipelagos . . . \$25         |
| S. P. 2 Females #3 . . . \$14     | Desigasaurus . . . \$25         |

### CREATIVE LABS, INC.

Blast away the Sound Barrier on your PC! Turn your favorite games into a stereo experience. AdLib compt.

SOUND BLASTER  
List \$239.95 SDA Price \$179

OPTIONAL MIDI ADAPTER  
List \$79.95 SDA Price \$65

|                                     |                                    |
|-------------------------------------|------------------------------------|
| Hunt For Red Oct. . . . \$21        | Remote Control . . . \$8.88        |
| Indianapolis 500 . . . \$32         | Ses. St. First Writer . . . \$9.88 |
| Indy Jones: Crusade . . . \$32      | Ses. St. Print Kit . . . \$9.88    |
| Graphic Adventure . . . \$32        | Swim Wear Calendar . . . \$6.88    |
| Keef the Thief . . . \$9.88         | Win, Lose or Draw . . . \$8.88     |
| Lakers vs. Celtics . . . \$32       | Win, Lose or Draw . . . \$8.88     |
| LHX Attack Chopper . . . \$39       | Deluxa . . . \$16                  |
| Life & Death . . . \$39             | <b>INFOCOM</b>                     |
| Loom . . . \$39                     | Battletech . . . \$19              |
| Low Blow . . . \$26                 | Circuits Edge . . . \$32           |
| Madden Football . . . \$32          | Hitchhikers Guide . . . \$14       |
| Maniac Mansion (Hi-Res) . . . \$14  | Journey . . . \$19                 |
| Might & Magic 1 or 2 . . . \$32 Ea. | King Arthur . . . \$19             |



### Spectrum HoloByte

1st there was Tetris, then Weltris, now comes the 3rd in the series of positively addicting games from the Soviet Union. **FACES...TRIS III**  
List \$39.95



SDA Discount Price \$25

|                                 |                                 |
|---------------------------------|---------------------------------|
| Red Storm Rising . . . \$35     | Solitaire Royale . . . \$23     |
| Silent Service 2 . . . Call     | Sword of the Samurai . . . \$35 |
| Sword of the Samurai . . . \$35 | The Punisher . . . \$26         |
| The Punisher . . . \$26         |                                 |

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| <b>MINDSCAPE</b>                      | <b>ORIGIN</b>                     |
| Action Fighter . . . \$21             | Bad Blood . . . \$32              |
| Balance of Power 1990 . . . \$32      | Knights of Legend . . . \$32      |
| Gauntlet 2 . . . \$26                 | Omega . . . \$32                  |
| Space Harrier . . . \$26              | Quest For Clues Book 2 . . . Call |
| Star Trek 5 Final Frontier . . . \$35 | Space Rogue . . . \$32            |

|                                   |                                       |
|-----------------------------------|---------------------------------------|
| <b>ORIGIN</b>                     | <b>SIERRA</b>                         |
| Bad Blood . . . \$32              | A-10 Tank Killer . . . \$32           |
| Knights of Legend . . . \$32      | Black Cauldron . . . \$25             |
| Omega . . . \$32                  | Code Name: Iceman . . . \$39          |
| Quest For Clues Book 2 . . . Call | Colonels Bequest . . . \$39           |
| Space Rogue . . . \$32            | Conquests of Camelot . . . \$39       |
| Tangled Tales . . . \$19          | David Wolf Secret Agent . . . \$32    |
| Times of Lore . . . \$25          | Hero's Quest . . . \$39               |
| Ultima 4 or 5 . . . \$39 Ea.      | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Ultima 6 . . . \$44               | Keeping Up With Jones . . . Call      |
| Ultima Trilogy . . . \$39         | King's Quest 1, 2 or 3 . . . \$32 Ea. |
| Windwalker . . . \$25             | King's Quest 4 . . . \$39             |
| Wing Commander . . . Call         | Leisure Suit Larry . . . \$25         |

|  |                                       |
|--|---------------------------------------|
| <b>SIERRA</b>                            | <b>SHARE DATA</b>                     |
| A-10 Tank Killer . . . \$32              | All New Family Feud . . . \$8.88      |
| Black Cauldron . . . \$25                | Concentration 2 . . . \$9.88          |
| Code Name: Iceman . . . \$39             | <b>SIERRA</b>                         |
| Colonels Bequest . . . \$39              | A-10 Tank Killer . . . \$32           |
| Conquests of Camelot . . . \$39          | Black Cauldron . . . \$25             |
| David Wolf Secret Agent . . . \$32       | Code Name: Iceman . . . \$39          |
| Hero's Quest . . . \$39                  | Colonels Bequest . . . \$39           |
| Hoyle's Games 1 or 2 . . . \$23 Ea.      | Conquests of Camelot . . . \$39       |
| Keeping Up With Jones . . . Call         | David Wolf Secret Agent . . . \$32    |
| King's Quest 1, 2 or 3 . . . \$32 Ea.    | Hero's Quest . . . \$39               |
| King's Quest 4 . . . \$39                | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Leisure Suit Larry . . . \$25            | Keeping Up With Jones . . . Call      |
| Leisure Suit Larry 2 or 3 . . . \$39 Ea. | King's Quest 1, 2 or 3 . . . \$32 Ea. |

|  |                                       |
|--|---------------------------------------|
| <b>SIERRA</b>                            | <b>SHARE DATA</b>                     |
| A-10 Tank Killer . . . \$32              | All New Family Feud . . . \$8.88      |
| Black Cauldron . . . \$25                | Concentration 2 . . . \$9.88          |
| Code Name: Iceman . . . \$39             | <b>SIERRA</b>                         |
| Colonels Bequest . . . \$39              | A-10 Tank Killer . . . \$32           |
| Conquests of Camelot . . . \$39          | Black Cauldron . . . \$25             |
| David Wolf Secret Agent . . . \$32       | Code Name: Iceman . . . \$39          |
| Hero's Quest . . . \$39                  | Colonels Bequest . . . \$39           |
| Hoyle's Games 1 or 2 . . . \$23 Ea.      | Conquests of Camelot . . . \$39       |
| Keeping Up With Jones . . . Call         | David Wolf Secret Agent . . . \$32    |
| King's Quest 1, 2 or 3 . . . \$32 Ea.    | Hero's Quest . . . \$39               |
| King's Quest 4 . . . \$39                | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Leisure Suit Larry . . . \$25            | Keeping Up With Jones . . . Call      |
| Leisure Suit Larry 2 or 3 . . . \$39 Ea. | King's Quest 1, 2 or 3 . . . \$32 Ea. |

|  |                                       |
|--|---------------------------------------|
| <b>SIERRA</b>                            | <b>SHARE DATA</b>                     |
| A-10 Tank Killer . . . \$32              | All New Family Feud . . . \$8.88      |
| Black Cauldron . . . \$25                | Concentration 2 . . . \$9.88          |
| Code Name: Iceman . . . \$39             | <b>SIERRA</b>                         |
| Colonels Bequest . . . \$39              | A-10 Tank Killer . . . \$32           |
| Conquests of Camelot . . . \$39          | Black Cauldron . . . \$25             |
| David Wolf Secret Agent . . . \$32       | Code Name: Iceman . . . \$39          |
| Hero's Quest . . . \$39                  | Colonels Bequest . . . \$39           |
| Hoyle's Games 1 or 2 . . . \$23 Ea.      | Conquests of Camelot . . . \$39       |
| Keeping Up With Jones . . . Call         | David Wolf Secret Agent . . . \$32    |
| King's Quest 1, 2 or 3 . . . \$32 Ea.    | Hero's Quest . . . \$39               |
| King's Quest 4 . . . \$39                | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Leisure Suit Larry . . . \$25            | Keeping Up With Jones . . . Call      |
| Leisure Suit Larry 2 or 3 . . . \$39 Ea. | King's Quest 1, 2 or 3 . . . \$32 Ea. |

|  |                                       |
|--|---------------------------------------|
| <b>SIERRA</b>                            | <b>SHARE DATA</b>                     |
| A-10 Tank Killer . . . \$32              | All New Family Feud . . . \$8.88      |
| Black Cauldron . . . \$25                | Concentration 2 . . . \$9.88          |
| Code Name: Iceman . . . \$39             | <b>SIERRA</b>                         |
| Colonels Bequest . . . \$39              | A-10 Tank Killer . . . \$32           |
| Conquests of Camelot . . . \$39          | Black Cauldron . . . \$25             |
| David Wolf Secret Agent . . . \$32       | Code Name: Iceman . . . \$39          |
| Hero's Quest . . . \$39                  | Colonels Bequest . . . \$39           |
| Hoyle's Games 1 or 2 . . . \$23 Ea.      | Conquests of Camelot . . . \$39       |
| Keeping Up With Jones . . . Call         | David Wolf Secret Agent . . . \$32    |
| King's Quest 1, 2 or 3 . . . \$32 Ea.    | Hero's Quest . . . \$39               |
| King's Quest 4 . . . \$39                | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Leisure Suit Larry . . . \$25            | Keeping Up With Jones . . . Call      |
| Leisure Suit Larry 2 or 3 . . . \$39 Ea. | King's Quest 1, 2 or 3 . . . \$32 Ea. |

|  |                                       |
|--|---------------------------------------|
| <b>SIERRA</b>                            | <b>SHARE DATA</b>                     |
| A-10 Tank Killer . . . \$32              | All New Family Feud . . . \$8.88      |
| Black Cauldron . . . \$25                | Concentration 2 . . . \$9.88          |
| Code Name: Iceman . . . \$39             | <b>SIERRA</b>                         |
| Colonels Bequest . . . \$39              | A-10 Tank Killer . . . \$32           |
| Conquests of Camelot . . . \$39          | Black Cauldron . . . \$25             |
| David Wolf Secret Agent . . . \$32       | Code Name: Iceman . . . \$39          |
| Hero's Quest . . . \$39                  | Colonels Bequest . . . \$39           |
| Hoyle's Games 1 or 2 . . . \$23 Ea.      | Conquests of Camelot . . . \$39       |
| Keeping Up With Jones . . . Call         | David Wolf Secret Agent . . . \$32    |
| King's Quest 1, 2 or 3 . . . \$32 Ea.    | Hero's Quest . . . \$39               |
| King's Quest 4 . . . \$39                | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Leisure Suit Larry . . . \$25            | Keeping Up With Jones . . . Call      |
| Leisure Suit Larry 2 or 3 . . . \$39 Ea. | King's Quest 1, 2 or 3 . . . \$32 Ea. |

|  |                                       |
|--|---------------------------------------|
| <b>SIERRA</b>                            | <b>SHARE DATA</b>                     |
| A-10 Tank Killer . . . \$32              | All New Family Feud . . . \$8.88      |
| Black Cauldron . . . \$25                | Concentration 2 . . . \$9.88          |
| Code Name: Iceman . . . \$39             | <b>SIERRA</b>                         |
| Colonels Bequest . . . \$39              | A-10 Tank Killer . . . \$32           |
| Conquests of Camelot . . . \$39          | Black Cauldron . . . \$25             |
| David Wolf Secret Agent . . . \$32       | Code Name: Iceman . . . \$39          |
| Hero's Quest . . . \$39                  | Colonels Bequest . . . \$39           |
| Hoyle's Games 1 or 2 . . . \$23 Ea.      | Conquests of Camelot . . . \$39       |
| Keeping Up With Jones . . . Call         | David Wolf Secret Agent . . . \$32    |
| King's Quest 1, 2 or 3 . . . \$32 Ea.    | Hero's Quest . . . \$39               |
| King's Quest 4 . . . \$39                | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Leisure Suit Larry . . . \$25            | Keeping Up With Jones . . . Call      |
| Leisure Suit Larry 2 or 3 . . . \$39 Ea. | King's Quest 1, 2 or 3 . . . \$32 Ea. |

|  |                                       |
|--|---------------------------------------|
| <b>SIERRA</b>                            | <b>SHARE DATA</b>                     |
| A-10 Tank Killer . . . \$32              | All New Family Feud . . . \$8.88      |
| Black Cauldron . . . \$25                | Concentration 2 . . . \$9.88          |
| Code Name: Iceman . . . \$39             | <b>SIERRA</b>                         |
| Colonels Bequest . . . \$39              | A-10 Tank Killer . . . \$32           |
| Conquests of Camelot . . . \$39          | Black Cauldron . . . \$25             |
| David Wolf Secret Agent . . . \$32       | Code Name: Iceman . . . \$39          |
| Hero's Quest . . . \$39                  | Colonels Bequest . . . \$39           |
| Hoyle's Games 1 or 2 . . . \$23 Ea.      | Conquests of Camelot . . . \$39       |
| Keeping Up With Jones . . . Call         | David Wolf Secret Agent . . . \$32    |
| King's Quest 1, 2 or 3 . . . \$32 Ea.    | Hero's Quest . . . \$39               |
| King's Quest 4 . . . \$39                | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Leisure Suit Larry . . . \$25            | Keeping Up With Jones . . . Call      |
| Leisure Suit Larry 2 or 3 . . . \$39 Ea. | King's Quest 1, 2 or 3 . . . \$32 Ea. |

|  |                                       |
|--|---------------------------------------|
| <b>SIERRA</b>                            | <b>SHARE DATA</b>                     |
| A-10 Tank Killer . . . \$32              | All New Family Feud . . . \$8.88      |
| Black Cauldron . . . \$25                | Concentration 2 . . . \$9.88          |
| Code Name: Iceman . . . \$39             | <b>SIERRA</b>                         |
| Colonels Bequest . . . \$39              | A-10 Tank Killer . . . \$32           |
| Conquests of Camelot . . . \$39          | Black Cauldron . . . \$25             |
| David Wolf Secret Agent . . . \$32       | Code Name: Iceman . . . \$39          |
| Hero's Quest . . . \$39                  | Colonels Bequest . . . \$39           |
| Hoyle's Games 1 or 2 . . . \$23 Ea.      | Conquests of Camelot . . . \$39       |
| Keeping Up With Jones . . . Call         | David Wolf Secret Agent . . . \$32    |
| King's Quest 1, 2 or 3 . . . \$32 Ea.    | Hero's Quest . . . \$39               |
| King's Quest 4 . . . \$39                | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Leisure Suit Larry . . . \$25            | Keeping Up With Jones . . . Call      |
| Leisure Suit Larry 2 or 3 . . . \$39 Ea. | King's Quest 1, 2 or 3 . . . \$32 Ea. |

|  |                                       |
|--|---------------------------------------|
| <b>SIERRA</b>                            | <b>SHARE DATA</b>                     |
| A-10 Tank Killer . . . \$32              | All New Family Feud . . . \$8.88      |
| Black Cauldron . . . \$25                | Concentration 2 . . . \$9.88          |
| Code Name: Iceman . . . \$39             | <b>SIERRA</b>                         |
| Colonels Bequest . . . \$39              | A-10 Tank Killer . . . \$32           |
| Conquests of Camelot . . . \$39          | Black Cauldron . . . \$25             |
| David Wolf Secret Agent . . . \$32       | Code Name: Iceman . . . \$39          |
| Hero's Quest . . . \$39                  | Colonels Bequest . . . \$39           |
| Hoyle's Games 1 or 2 . . . \$23 Ea.      | Conquests of Camelot . . . \$39       |
| Keeping Up With Jones . . . Call         | David Wolf Secret Agent . . . \$32    |
| King's Quest 1, 2 or 3 . . . \$32 Ea.    | Hero's Quest . . . \$39               |
| King's Quest 4 . . . \$39                | Hoyle's Games 1 or 2 . . . \$23 Ea.   |
| Leisure Suit Larry . . . \$25            | Keeping Up With Jones . . . Call      |
| Leisure Suit Larry 2 or 3 . . . \$39 Ea. | King's Quest 1, 2 or 3 . . . \$32 Ea. |

## CALL or WRITE for OUR FREE FALL 1990 IBM CATALOG

- Current Complete Software Listings
- Closeout Specials
- Future Release Info
- Hint Books & Accessories Listings

|   |                                   |
|---|-----------------------------------|
| <b>Nuclear War</b> . . . \$32           | <b>Mines of Titan</b> . . . \$19  |
| <b>PGA Tour Golf</b> . . . \$32         | <b>Shogun</b> . . . \$14          |
| <b>Pipe Dream</b> . . . \$16            | <b>Zork Zero</b> . . . \$14       |
| <b>Populous</b> . . . \$32              | <b>LEARNING COMPANY</b>           |
| <b>Sentinel Worlds</b> . . . \$16       | Childs Write & Publish . . . \$44 |
| <b>688 Attack Sub</b> . . . \$32        | Reader Rabbit . . . \$32          |
| <b>Ski or Die</b> . . . \$32            | Think Quick . . . \$32            |
| <b>Star Fleet 2</b> . . . \$39          | Writer Rabbit . . . \$32          |
| <b>Starflight 2</b> . . . \$32          | S.S. Midnight Rescue . . . \$32   |
| <b>Street Rod</b> . . . \$32            | S.S. Outnumbered . . . \$32       |
| <b>Their Finest Hour</b> . . . \$39     | <b>LEISURE/VIRGIN</b>             |
| <b>Trivial Pursuit</b> . . . \$25       | Clue Master Detectives . . . \$25 |
| <b>Tunnels of Armageddon</b> . . . \$25 | Double Dragon 2 . . . \$25        |
| <b>TV Sports Football</b> . . . \$32    | Monopoly . . . \$25               |
| <b>Vegas Gambler</b> . . . \$25         | Risk . . . \$25                   |
| <b>Zak McKracken</b> . . . \$14         | Scrabble . . . \$25               |

|  |                                   |
|--|-----------------------------------|
| <b>GAMESTAR</b>                        | <b>MELBOURNE HOUSE</b>            |
| Face Off Hockey . . . \$19             | G. Norman Shark . . . \$25        |
| Take Down Wrestling . . . \$23         | Attack . . . \$13                 |
| <b>GAMETEK</b>                         | Hershisser Strike Zone . . . \$13 |
| Double Dare . . . \$9.88               | Magic Johnson B-Ball . . . \$25   |
| Hollywood Squares . . . \$9.88         | War in Middle Earth . . . \$32    |
| Jeopardy 25th Anniv. . . \$9.88        | World Trophy Soccer . . . \$25    |
| Jeopardy 1, Jr. or Sports . . . \$6.88 | <b>MICROPOSE/MEDALIST</b>         |
| Price is Right . . . \$9.88            | Airborne Ranger . . . \$25        |
| Super Password . . . \$9.88            | F-15 Strike Eagle 2 . . . \$35    |
| Wheel of Fortune . . . \$9.88          | F-19 Stealth Fighter . . . \$44   |
| 1, 2 or 3 . . . \$6.88                 | Gunship . . . \$35                |
| Wheel of Fortune Gold . . . \$9.88     | Magic Candle . . . \$32           |

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| <b>HI-TECH</b>                      | <b>MELBOURNE HOUSE</b>            |
| Looney Tunes Print Kit . . . \$9.88 | G. Norman Shark . . . \$25        |
| Muppet Adventure . . . \$9.88       | Attack . . . \$13                 |
| Muppet Print Kit . . . \$9.88       | Hershisser Strike Zone . . . \$13 |

### POLICIES & PROCEDURES

- SHIPPING: Continental U.S.A. — orders under \$100 add \$4; Free shipping on orders over \$100; Call for details on overnight & 2 day shipping. AK, HI, FPO, APO — shipping is \$5 on all orders. Canada and Puerto Rico — shipping is \$7.50 on all orders. PA residents add 6% sales tax on the total amount of orders including shipping charges.
- UPS 2 day and overnight shipping available — Call.
- Orders with cashiers checks or money orders shipped immediately on in stock items. Personal and company checks, allow 14 business days clearance. No C.O.D.'s!
- Defective merchandise replaced within 60 days of purchase. Other returns subject to 20% restocking charge. You must call customer service for return authorization — 412-361-5291, 9-5:30 EST.
- Prices and availability are subject to change.

### HOW TO ORDER

# SAVE UP TO 70% EVERYDAY!

## ON COMPUTERS, SOFTWARE & ACCESSORIES

At \$299, WHAT ARE YOU WAITING FOR?  
NEW! AMSTRAD® PC20



**PACKAGE INCLUDES:**

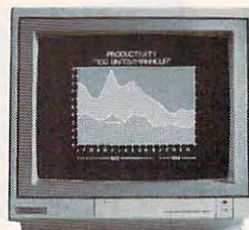
- 512K RAM memory • 3.5" 720K disk drive
- Monochrome graphics & CGA color graphics
- Parallel and serial ports for printer or modem
- PC joystick port • Microsoft DOS™ V.3.3
- Digital Research's GEM™ Desktop ("point & click")
- Digital Research's GEM™ Paint
- Microsoft compatible mouse

**FULL IBM XT®  
COMPATIBILITY!**

AT AN UNBELIEVABLE  
**\$299<sup>95</sup>**

Mfr. Sugg. Retail \$749.95 Monitor Optional

### MAGNAVOX 13" RGB COLOR MONITOR



- Originally Made for Blue Chip
- 80 Column Display
- 640 x 240 Resolution
- Built-in Tilt Stand
- RGB TTL Input with Sound

BRAND NAME SAVINGS  
**\$219<sup>95</sup>**

Mfr. Sugg. Retail \$399.00

### NEW! 10" 180 CPS PRINTER

with Near Letter Quality - The NEW NLQ 180-III

REAR FEED - REDUCES PAPER DRAG!



- LIFETIME WARRANTY ON PRINTHEAD
- 2 YEAR IMMEDIATE REPLACEMENT
- AUTO LOAD PAPER PARKING
- Dot Addressable Graphics
- Italics, Elite, Pica, Condensed
- 8K Buffer
- NLQ Selectable from Front Panel
- Pressure Sensitive Controls

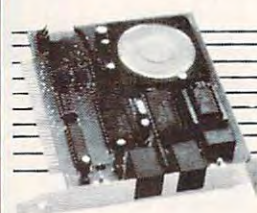
**NO ONE CAN SELL THIS FOR LESS!**

**\$149<sup>95</sup>**

Mfr. Sugg. Retail \$299.95

### 2400 BAUD INTERNAL MODEM

Superior Hayes Compatibility



- Made in the USA!
- Full or Half Duplex
- Rockwell Modem Chip Set for Fast, Reliable Communications
- Non-volatile Memory
- Built to Work with the Fastest Computers!

GET A LOT FOR YOUR \$\$\$

**\$74<sup>95</sup>**

Mfr. Sugg. Retail \$129.95

### 20 MEG ST225 HALF-HEIGHT DRIVE KIT

**Seagate**



Features: 20 Megabyte storage, supports MS-DOS, auto boots when powered up, cables and hard disk controller included, half-height - takes half the room of full size drives. Fits IBM® PC, XT and Compatibles.

**THE BEST!**

**\$218<sup>95</sup>**

Mfr. Sugg. Retail \$399.95

### LOWEST PRICE IN THE COUNTRY!



5.25" DS/DD  
Floppy Disks

**19¢** each

100% Certified - Error Free  
Lifetime Guarantee!  
If Your Diskette Fails We  
Will Replace it FREE!

**NOT JUST THE BEST PRICES! • TECHNICAL SUPPORT • 30 DAY HOME TRIAL  
FREE CATALOGS • 90 DAY IMMEDIATE REPLACEMENT • WE WON'T BE UNDERSOLD  
CALL 1-800-BUY-WISE EXT. 51 TO ORDER TODAY!**

# SAVE UP TO 70% EVERYDAY! ON COMPUTERS, SOFTWARE & ACCESSORIES

## Mice - Joysticks - Scanners

### Logitech Finesse

Software.....\$69.95

Design beautiful pages easily with Finesse. You get layout tools, WYSIWYG display, templates, clip art, etc.

Mfg. Sugg. Retail \$179.95



### Logitech C9 Serial Mouse.....\$59.95

Ergonomic design, Logi Menu software, Mouse 2-3 menu software for Lotus 1-2-3, Lifetime warranty. Minimum 256K memory, IBM PC, XT AT, PS/2 or compatibles

Mfg. Sugg. Retail \$109.95



### EPYX 500XJ

Joystick.....\$14.95

The world's first high performance joystick. Trigger finger firing, fits in the palm of your hand. IBM PC & compat.

Mfg. Sugg. Retail \$39.95



### Flywheel 4000 Control Yoke.\$29.95

For flying and driving games, 4 "fire" buttons, full X-Y control yoke, sturdy desktop adapter clamp, works like 2 separate joysticks. 15 pin connector. "Feel the Game!"

Mfg. Sugg. Retail \$99.95



### Logitech Scanman Plus.....\$129.95

The power of images instantly! 4.1" scanning window, adjust scanning resolution between 100 & 400 dpi. Adjustable contrast. Line art and 3 dither pattern settings. Includes Logitech's graphic editor. For IBM PC, XT, AT, PS/2 and compatibles.

Mfg. Sugg. Retail \$339.95



### Catchword OCR

Software.....\$99.95

Intelligent character recognition software. The perfect companion for Scanman Plus.

Mfg. Sugg. Retail \$249.95



## Software - Software - Software

### Personal /Productivity

by Melody Hall

Make Calendars & Stationery

Mfr. Sugg. Retail \$9.95.....\$6.95

Electronic Checkbook

Mfr. Sugg. Retail \$9.95.....\$6.95

Let's Make Greeting Cards

Mfr. Sugg. Retail \$9.95.....\$6.95

Money Manager

Mfr. Sugg. Retail \$9.95.....\$6.95

Let's Make Signs & Banners

Mfr. Sugg. Retail \$9.95.....\$6.95

Thesaurus with Spellchecker

Mfr. Sugg. Retail \$9.95.....\$6.95

Dollars & Sense by Monogram

Mfr. Sugg. Retail \$99.95.\$68.95



### Personal /Productivity

Entrepreneur by Maverick

Mfr. Sugg. Retail \$29.95..\$21.95

Company Policy Manual

Mfr. Sugg. Retail \$49.95..\$32.95

Sales Enhancer Plus

Mfr. Sugg. Retail \$34.95..\$21.95

Family Reunion by Famware

Mfr. Sugg. Retail \$9.95....\$44.95

Grandville Publications

Up Your Cash Flow

Mfr. Sugg. Retail \$9.95....\$97.95

### Educational

Body Transparent by Designware

Mfr. Sugg. Retail \$9.95....\$29.95

States & Traits

Mfr. Sugg. Retail \$9.95....\$29.95



### Educational

Mavis Beacon Teaches Typing by Electronic Arts

Mfr. Sugg. Retail \$29.95..\$37.95

Pro Tennis Tour

Mfr. Sugg. Retail \$49.95..\$31.95

Weather Brief

Mfr. Sugg. Retail \$9.95....\$37.95

World Atlas

Mfr. Sugg. Retail \$9.95....\$47.95

### Entertainment

Trivial Pursuit by Electronic Arts

Mfr. Sugg. Retail \$34.95..\$34.95

Jeopardy 25th Anniv. by Gametel

Mfr. Sugg. Retail \$9.95.....\$8.95

Wheel of Fortune Golden

Mfr. Sugg. Retail \$9.95.....\$8.95



Prices do not include shipping charges. Call to get your lowest delivered cost. We insure all shipments at no extra cost to you! All packages are normally shipped UPS Ground. 2nd day and overnight delivery are available at extra cost. We ship to all points in the US, Canada, Puerto Rico, Alaska, Hawaii, Virgin Islands and APO-FPO. Monitors only shipped in Continental US. Illinois residents add 6.5% sales tax. Prices and availability subject to change without notice. Not responsible for typographical errors or omissions. \*Computer Direct will match any current (within 30 days) nationally advertised delivered price on exact same items. Sales tax not included. Verification required.

FAX Ordering 708/382-7545 Outside Service Area, Please Call 708/382-5058

### COMPUTER DIRECT, INC.

22292 N. PEPPER RD.

BARRINGTON, IL 60010

"WE LOVE OUR CUSTOMERS"

E 103190

Circle Reader Service Number 114

www.commodore.ca

# SAVE ON THESE NEW PERSONAL COMPUTER SYSTEMS WITH STATE OF THE ART IDE TECHNOLOGY\*

**The Lowest Price Guaranteed!**



## VIP 12MHz 8086 Computer System

- Complete XT® Compatibility
- 640K RAM Expandable to 1 MEG
- Front Panel LED Display
- Parallel, Serial & Game Ports
- MGA & CGA Card
- 101 Key AT® Style Keyboard
- 360K Floppy Drive & Controller
- Clock/Calendar
- 150 Watt Power Supply
- NEC V-20 CPU
- \* XT® Based System do not include IDE Controller

Systems Include  
MS-DOS 3.3

Base Price

**\$399.95**

Mfr. Sugg. Retail \$699.95 Monitor Optional

### Hard Drive and Monitor Options

| Hard Drive | Mono    | RGB     | EGA     | VGA     |
|------------|---------|---------|---------|---------|
| No Drive   | 519.95  | 629.95  | 849.95  | 911.95  |
| 20MB       | 769.95  | 889.95  | 1089.95 | 1151.95 |
| 40MB       | 919.95  | 1019.95 | 1239.95 | 1301.95 |
| 80MB       | 1159.95 | 1249.95 | 1499.95 | 1539.95 |

Call for Your FREE Catalog Today!

**Lowest Priced 286 Computer Anywhere!**



## VIP 12MHz 286 Computer System

- Complete AT® Compatibility
- 512K RAM Expandable to 4 MEG
- 12 MHz 80286 Microprocessor with Phoenix BIOS
- Parallel, Serial & Game Card
- Choice of 1.2 or 1.44 MEG Floppy Drive
- 101 Key AT® Style Keyboard
- 200 Watt Power Supply

System Includes

HFDC-III IDE & Floppy Controller  
Increases your data transfer rate up to 100%. Exclusively on our VIP specially equipped personal computer systems

Base Price

**\$499.95**

Mfr. Sugg. Retail \$799.95 Monitor Optional

### Hard Drive and Monitor Options

| Hard Drive | Mono    | RGB     | EGA     | VGA     |
|------------|---------|---------|---------|---------|
| No Drive   | 689.95  | 839.95  | 929.95  | 1039.95 |
| 20MB       | 929.95  | 1079.95 | 1169.95 | 1279.95 |
| 48MB       | 979.95  | 1149.95 | 1239.95 | 1349.95 |
| 71MB       | 1109.95 | 1259.95 | 1349.95 | 1459.95 |
| 111MB      | 1399.95 | 1549.95 | 1639.95 | 1749.95 |

**Fast 16MHz Processor Speed**



## VIP 16MHz 286 Computer System

- Complete AT® Compatibility
- 512K RAM Expandable to 8 MEG
- 16 MHz 80286 Microprocessor with Phoenix BIOS
- Choice of 1.2 or 1.44 MEG Floppy Drive
- 101 Key AT® Style Keyboard
- 200 Watt Power Supply

System Includes

HFDC-III Floppy Controller & IDE Bus Connector  
Increases your data transfer rate up to 100%. Exclusively on our VIP specially equipped personal computer systems

Base Price

**\$599.95**

Mfr. Sugg. Retail \$899.95 Monitor Optional

### Hard Drive and Monitor Options

| Hard Drive | Mono    | RGB     | EGA     | VGA     |
|------------|---------|---------|---------|---------|
| No Drive   | 789.95  | 939.95  | 1049.95 | 1129.95 |
| 20MB       | 1029.95 | 1179.95 | 1289.95 | 1369.95 |
| 48MB       | 1099.95 | 1249.95 | 1359.95 | 1439.95 |
| 71MB       | 1209.95 | 1359.95 | 1469.95 | 1549.95 |
| 111MB      | 1499.95 | 1649.95 | 1759.95 | 1839.95 |

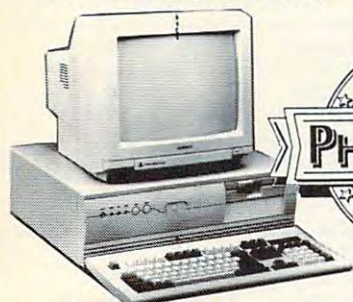
**NOT JUST THE BEST PRICES! • TECHNICAL SUPPORT • 30 DAY HOME TRIAL  
FREE CATALOGS • 90 DAY IMMEDIATE REPLACEMENT • WE WON'T BE UNDERSOLD**

**CALL 1-800-BUY-WISE EXT. 51 TO ORDER TODAY!**

[www.commodore.ca](http://www.commodore.ca)

# INCREASE YOUR DATA TRANSFER RATE UP TO 100%! WITH OUR SPECIALLY EQUIPPED **VIP** COMPUTERS

## 386 Performance at a 286 Price!



### VIP 16MHz 386SX Computer System

- 16MHz 80386SX Microprocessor with Phoenix BIOS
- 512K RAM Expand. to 8 MEG
- Full Case/3 Open Drive Bays
- Parallel, Serial & Game Card
- Choice of 1.2 or 1.44 MEG Drive
- 101 Key AT® Style Keyboard
- Chips & Technology Chip Set
- 200 Watt Power Supply

#### System Includes

HFDC-III IDE & Floppy Controller  
*Increases your data transfer rate up to 100%. Exclusively on our VIP specially equipped personal computer systems*

#### Base Price

# \$799.95

Mfr. Sugg. Retail \$1299.95 Monitor Optional

### Hard Drive and Monitor Options

|          | Mono    | RGB     | EGA     | VGA     |
|----------|---------|---------|---------|---------|
| No Drive | 979.95  | 1139.95 | 1249.95 | 1329.95 |
| 20MB     | 1219.95 | 1379.95 | 1489.95 | 1569.95 |
| 48MB     | 1289.95 | 1449.95 | 1559.95 | 1639.95 |
| 71MB     | 1399.95 | 1559.95 | 1669.95 | 1749.95 |
| 111MB    | 1689.95 | 1849.95 | 1959.95 | 2039.95 |

## The Most Affordable 386!



### VIP 20MHz 386 Computer System

- 20MHz 80386 Microprocessor with Phoenix BIOS
- 1 MEG RAM Expand. to 8 MEG
- Parallel, Serial & Game Card
- Choice of 1.2 or 1.44 MEG Floppy Drive
- 101 Key AT® Style Keyboard
- Chips & Technology Chip Set
- 200 Watt Power Supply

#### System Includes

HFDC-III IDE & Floppy Controller  
*Increases your data transfer rate up to 100%. Exclusively on our VIP specially equipped personal computer systems*

#### Base Price

# \$1199.95

Mfr. Sugg. Retail \$1424.80 Monitor Optional

### Hard Drive and Monitor Options

|          | Mono    | RGB     | EGA     | VGA     |
|----------|---------|---------|---------|---------|
| No Drive | 1389.95 | 1539.95 | 1649.95 | 1729.95 |
| 20MB     | 1629.95 | 1779.95 | 1889.95 | 1969.95 |
| 48MB     | 1699.95 | 1849.95 | 1959.95 | 2039.95 |
| 71MB     | 1809.95 | 1959.95 | 2069.95 | 2149.95 |
| 111MB    | 2099.95 | 2249.95 | 2359.95 | 2439.95 |

## Get the "Tower of Power" and Save Your Desktop Space



### VIP 25MHz 386 Tower Case Computer

- 386 25MHz Tower Case Computer
- 1 MEG RAM Expand. to 8 MEG
- Phoenix BIOS Monitor Optional

#### System Includes

HFDC-III IDE & Floppy Controller  
*Increases your data transfer rate up to 100%. Exclusively on our VIP specially equipped personal computer systems*

#### Base Price

# \$1499.95

## Then Add Your Custom Components

- **Seagate Hard Drives**  
*We Carry a Complete Line*
  - **Monitors**  
*Brand Names Like Magnavox, Leading Technology, etc.*
  - **Video Cards**  
*We Carry the Latest Video Technology Available*
  - **Modems, Printers, FAX, Power Protection . . .**  
*Too Many Options to List ...*
- Thousands of Items  
In Stock Call Today!**

Prices do not include shipping charges. Call to get your lowest delivered cost. We insure all shipments at no extra cost to you! All packages are normally shipped UPS Ground. 2nd day and overnight delivery are available at extra cost. We ship to all points in the US, Canada, Puerto Rico, Alaska, Hawaii, Virgin Islands and APO-FPO. Monitors only shipped in Continental US. Illinois residents add 6.5% sales tax. Prices and availability subject to change without notice. Not responsible for typographical errors or omissions. \*Computer Direct will match any current (within 30 days) nationally advertised delivered price on exact same items. Sales tax not included. Verification required.

FAX Ordering 708/382-7545 Outside Service Area, Please Call 708/382-5058

## COMPUTER DIRECT, INC.

22292 N. PEPPER RD.

BARRINGTON, IL 60010

E 103190

"WE LOVE OUR CUSTOMERS"

www.commodore.com

|  |  |   |  |
|--|--|---|--|
| <p><b>Perform</b></p> <p><b>PC</b></p>                                 | <p>Here's a superior design package for business forms of any type. You can fill in forms manually or from <i>dBase</i> or ASCII files, and you can include graphics for company logos and such. <i>Perform</i> features data-entry validation (including numeric check), range selection, and math. Logical calculations are supported, as is bar-code creation. The GEM environment allows WYSIWYG point-and-click work.</p> <p><i>Ervin Bobo</i></p>                            | <p>IBM, Tandy, or compatible PC; 640K; DOS 2.1 or higher; hard drive with at least 2MB free; graphics display; mouse recommended</p>        | <p>Delrina Technology<br/>15495 Los Gatos Ave.<br/>Los Gatos, CA 95032<br/>\$295.00</p>  |
| <p><b>Canned Art: Clip Art for the Macintosh</b></p> <p><b>MAC</b></p> | <p>How about a five-pound, 802-page book that consists almost entirely of pictures? This book shows over 15,000 pieces of Macintosh clip art from 35 companies and includes coupons worth over \$1,000 in discounts on much of the clip art contained in the book. Peachpit Press also includes a coupon for a companion disk with 61 samples of the book's clip art. Both are highly recommended to serious desktop publishers.</p> <p><i>David English</i></p>                   | <p>The disk requires a Macintosh 512KE, Plus, SE, SE/30, II, IIX, ILCI, or Portable. It uncompresses to over two megabytes of clip art.</p> | <p>Peachpit Press<br/>1085 Keith Ave.<br/>Berkeley, CA 94708<br/>(800) 293-9444<br/>Book—\$29.95<br/>Disk—\$10.00</p>                  |
| <p><b>Never Mind</b></p> <p><b>AMIGA</b></p>                           | <p>This game would be wonderful if it weren't unplayably difficult. Run around rooms composed of 3-D isometric cubes, collecting missing pieces of a picture displayed on one of the walls and unscrambling the image. Meanies try to thwart you as a timer counts down. Part of the fun of puzzle games is thinking out moves and planning strategy, something you won't have time for here. Never mind <i>Never Mind</i>.</p> <p><i>Tom Malcom</i></p>                           | <p>Amiga 500, 1000, or 2000</p>   | <p>Psychopse/Psygnosis<br/>Century Buildings<br/>Tower St.<br/>Liverpool, U.K. L34BJ<br/>051-709-5755<br/>\$34.95</p>                  |
| <p><b>Jet-Boys</b></p> <p><b>64/128</b></p>                            | <p>Strap on your jet pack and scroll horizontally through hordes of galactic terrorists. Learn the pattern of your attacking foes and try to grab more powerful weapons as they fly by. <i>Jet-Boys</i> is one of those fast-paced arcade-style games that make you thankful you aren't paying 25 cents each time you play it. You could go broke trying to master it. Colorful, smooth-scrolling, but frustrating.</p> <p><i>Tom Netsel</i></p>                                   | <p>Commodore 64 and 128, joystick required</p>  | <p>Avantage<br/>550 S. Winchester Blvd.<br/>Suite 200<br/>San Jose, CA 95128<br/>(408) 985-1700<br/>\$34.95</p>                        |
| <p><b>WritePro</b></p> <p><b>PC</b></p>                                | <p>This program claims to teach creative writing. <i>WritePro</i> requires you to begin with a character and an antagonist, from whom the plot will flow. By drawing on solid rules for fiction and using repetitive reinforcement, it should help any beginner. <i>WritePro</i> is available in two packages, one containing Lessons 1 and 2 and the other with Lessons 3 and 4. A built-in word processor is included.</p> <p><i>Ervin Bobo</i></p>                              | <p>IBM, Tandy, or compatible PC; 512K; DOS 2.0 or higher; one floppy drive</p>  | <p>WritePro<br/>43 Linden Cir.<br/>Scarborough, NY 10510<br/>\$89.95 (all four lessons)</p>  |
| <p><b>Shinobi</b></p> <p><b>64/128</b></p>                             | <p>This is one of the better arcade-style ninja games. The pace is nonstop, the joystick maneuvers easy to master. Your ninja scrolls horizontally on two levels, trying to take out thugs, gunmen, and frogmen before they eliminate him. Fling lethal shurikens or use your deadly fists to take out foes. When all else fails, rely on your ninja magic. But use it sparingly as you battle the evil Ring of Five.</p> <p><i>Tom Netsel</i></p>                                 | <p>Commodore 64 and 128, joystick required.</p>   | <p>Sega of America<br/>Distributed by Electronic Arts<br/>1820 Gateway Dr.<br/>San Mateo, CA 94404<br/>(415) 571-7171<br/>\$34.95</p>  |
| <p><b>MyPhonebook</b></p> <p><b>PC</b></p>                             | <p>Nothing could be simpler than keeping track of your telephone numbers and addresses with this single-purpose software. Separate options are available for keeping records according to name and company or just by name, which doubles the number of available records. The product alphabetizes the list and prints out the names in the form of a booklet that can be carried in the leatherlike plastic wallet provided.</p> <p><i>Robert Bixby</i></p>                      | <p>IBM, Tandy, or compatible PC; 256K; DOS 2.0 or higher</p>  | <p>MySoftware<br/>1259 El Camino Real<br/>Suite 167<br/>Menlo Park, CA 94025<br/>\$9.95 (5¼-inch disk),<br/>\$14.95 (3½-inch disk)</p> |
| <p><b>Island of Lost Hope</b></p> <p><b>AMIGA</b></p>                  | <p>A graphic adventure with crisp, overscan artwork, this game is simplistic and arbitrary. It has onscreen mapping, programmable function keys, and three methods of movement, but it lacks depth. <i>ILOH</i> is linear; there's generally only one method for solving the rather unimaginative puzzles. It's also short—I finished it in a matter of hours. A good starter game for beginning adventurers, it will disappoint experienced players.</p> <p><i>Tom Malcom</i></p> | <p>Amiga</p>  | <p>Digital Concepts<br/>43035 Hayes<br/>Sterling Heights, MI 48078<br/>(313) 772-1416<br/>\$39.95</p>                                  |





|                           |   |  |   |
|---------------------------|---|--|---|
| <b>Menu! version 2.1</b>  | <p><i>Menu!</i> is an operating-system shell that lets you assign 25 programs to a menu called from your AUTOEXEC batch file at boot time. Pressing a letter key A-Y will call up the program associated with that letter on the menu. <i>Menu!</i> also offers a short list of DOS commands on a submenu called up by pressing Z. <i>Menu!</i> can provide prompts that precede and follow program operation and keypresses within the program.</p> <p style="text-align: right;"><i>Robert Bixby</i></p>              | IBM, Tandy, or compatible PC; 68K; DOS 2.0 or higher; hard disk recommended  | POP Computer Products<br>P.O. Box 1833<br>Evergreen, CO 80439<br>\$29.95                                |
| PC                        |   |  |   |
| <b>Cactus Calendar</b>    | <p>This is a comprehensive calendar program that caters to the needs of salespeople or other professionals requiring minute time management of multiple tasks. <i>Cactus Calendar</i> can produce several types of calendars in addition to daily calendars for task and appointment lists that utilize 5½ × 8½ inch 3-ring binders. The program's strong suit is calculating repetitive events. Unfortunately, no onscreen calendar display is possible.</p> <p style="text-align: right;"><i>James W. Maki.</i></p>   | IBM, Tandy, or compatible PC; 640K; DOS 2.0 or higher; Epson (9- or 24-pin) or HP LaserJet II or compatible printer                                  | Cactus Software<br>P.O. Box 880<br>Peoria, AZ 85380-0880<br>\$49.95                                     |
| PC                        |   |  |   |
| <b>ColorIX VGA Paint</b>  | <p>This is the most powerful PC paint program I've seen. It supports 360 × 480 with 256 colors on most VGA cards—that's nearly three times the usual VGA resolution for 256 colors! With SuperVGA graphics adapters, you can go all the way up to 800 × 600 with 256 colors or 1024 × 768 with 16 colors. <i>ColorIX VGA Paint</i> uses pop-up menus so you can see the whole picture, but it takes awhile to learn the sequence of menus.</p> <p style="text-align: right;"><i>David English</i></p>                   | IBM, Tandy, or compatible PC; 384K; DOS 2.0 or higher; VGA graphics adapter; mouse recommended   | RIX Software<br>18552 MacArthur Blvd.<br>Suite 375<br>Irvine, CA 92715<br>\$199.00                      |
| PC                        |   |  |   |
| <b>GraphMaster</b>        | <p>With <i>GraphMaster</i>, you can create bar, line, pie, area, and scatter graphs from data typed at the keyboard or sequential data read from a disk. The program includes a handy pixel-level graph editor which you can use to transform your graphs into complex pictures. The program is easy to use and inexpensive, but it can only display in CGA (640 × 200) and Hercules (720 × 348) and only print in CGA to IBM- or Epson-compatible printers.</p> <p style="text-align: right;"><i>David English</i></p> | IBM, Tandy, or compatible PC; 256K; DOS 2.1 or higher; graphics adapter; printer optional  | Zephyr Services<br>1900 Murray Ave.<br>Pittsburgh, PA 15217<br>\$39.95                                  |
| PC                        |   |  |   |
| <b>Microace Blackjack</b> | <p>While <i>Microace Blackjack</i> probably should be played only for fun, this program also purports to hone your skills and increase your winnings at blackjack. Four built-in strategies may be used to beat the house, or you can design your own and let the computer analyze it. Practice in card counting is supported, though this is a chancy skill in multiple-deck games. Have fun with it, but don't bet the rent.</p> <p style="text-align: right;"><i>Ervin Bobo</i></p>                                  | IBM, Tandy, and compatible PCs; 512K; DOS 2.0 or higher; MDA, CGA, EGA, or VGA   | Microace<br>Box 5223<br>Englewood, CO 80155<br>\$49.95  |
| PC                        |   |  |   |
| <b>OmniMac/Ultra</b>      | <p>Looking for a real keyboard for your Mac or Apple IIGs? The OmniMac/Ultra features 119 full-stroke, audible-click keys, including 27 function keys (15 on the top and 12 on the side), an oversized delete key, an L-shaped return key, and a handy Period/Comma Lock key. You also get software that lets you program the function keys and a full five-year warranty. It's a great replacement for the mushy Mac Plus and 512KE keyboards.</p> <p style="text-align: right;"><i>David English</i></p>              | Macintosh 512KE, Plus, SE, SE/30, II, IIX, IIGx, and IIGi; Apple IIGS  | Northgate Computer Systems<br>1 Northgate Pkwy.<br>Eden Prairie, MN 55344<br>(800) 648-7736<br>\$159.00 |
| MAC                       |   |  |   |
| <b>Qix</b>                | <p>Qix is an excruciatingly simple game with an itchy fascination much like <i>Tetris</i>. The object is to capture territory while avoiding contact with randomly moving shapes. When you conquer more than a set percentage of the screen, you receive points based on how far you exceeded the threshold. You will never sit down with the intention of wasting hours on <i>Qix</i>, but something prevents you from putting it away.</p> <p style="text-align: right;"><i>Robert Bixby</i></p>                      | IBM, Tandy, or compatible PC; 512K; DOS 2.1 or higher; CGA, MCGA, Tandy 16-color graphics adapter; supports Ad Lib sound board; joystick recommended | Taito<br>267 W. Esplanade<br>Suite 206<br>North Vancouver, B.C.<br>Canada V7M 1A5<br>\$34.95            |
| PC                        |   |  |   |
| <b>Reminders!</b>         | <p>Never forget an important event again. <i>Reminders!</i> from POP Computer Products lets you see a schedule for this week or next month, print and log finished tasks, and set different-sounding alarms. If you want to stay out of the doghouse by remembering anniversaries and birthdays or to remain in good standing with your supervisor by arriving at meetings on time, try this small, easy-to-use calendar-and-alarm package.</p> <p style="text-align: right;"><i>Joyce Sides</i></p>                    | IBM, Tandy, or compatible PC; 256K; DOS 2.0 or higher; hard disk drive and printer recommended   | POP Computer Products<br>P.O. Box 1833<br>Evergreen, CO 80439<br>\$39.95                                |
| PC                        |   |  |   |

## PAM DATABASE

For Users That Demand Easy-To-Use Software

PAM (Program Automated Method) Users say:

### "REVOLUTIONARY"

- ▣ Design Custom Applications - No Experience Required.
- ▣ Time-Saver Manual (278 pages with 225 illustrations) unlike those "easy to use" Systems with Volumes; full, step-by-step Tutorial is a mini-lesson in databases.
- ▣ Advanced beyond other Relational Databases that claim State-of-the-Art: Common Fields Not Required with PAM.
- ▣ More Automatic Query capabilities than other products; exceptionally Fast Response Time, even on large files.
- ▣ Includes: Report Writer; 28 Label Formats; Mail-Merge (write letters from within PAM); 14 Data Types, plus Calculated Fields, Matrix Tables and much, much more.
- ▣ Price is easy, too! Four Models from only \$45.00.

•PCM Magazine, 6/90- "PAM is indeed versatile and above all fast...extraordinary speed...eminently understandable, even to the database novice...excellent primer on databases... PAM is a super deal by all odds. It's powerful, economical...easy to learn...well documented and well-supported."

Software Composers, Inc.

4500 Newcombe Drive ■ Plano, Texas 75093-3913 ■ (214) 985-8018

Circle Reader Service Number 172

## \$9.95 ORGANIZER HARD DISK MENU

for IBM XT/AT™/Compatibles.

Start your programs,  
up to 676, with only  
two key strokes.

EXAMPLE- 26 categories hold 26 programs each. 1st key selects category, 2nd selects program. When through, menu returns.

Send check/m-order  
~ TODAY ~

J/K SOFTWARE, INC.

BOX 3487 Ogden, UT 84409

Add \$2 shipping/handling.

30 day money-back guarantee.

Circle Reader Service Number 129

## COMPUTE's Mapping the IBM PC

by Russ Davies  
ISBN 0-942386-92-2  
\$18.95

A comprehensive memory and reference guide for the IBM PC, this programmer's handbook includes programming tips and techniques, examples, and detailed explanations. In addition to comprehensive memory and port maps, the book provides in-depth discussions of the keyboard, video, and sound; cross-references the IBM documentation; and includes a complete list of BASIC tokens. For IBM PC, XT, XT/370, PCjr, Portable PC, or 3270PC. 336pp

Order your copy today.

Send \$18.95 plus \$2.00 shipping and handling (\$5.00 for orders outside the U.S. and Canada) and applicable sales tax (if you live in NC, NJ, or NY) to

COMPUTE Books  
c/o CCC  
2500 McClellan Ave.  
Pennsauken, NJ 08109

Please include the ISBN number on your check or money order. OCT90CP

## COLOR RIBBONS & PAPER

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

| Ribbons:<br>price each   | Black  | Color  | T-Shirt<br>Ribbons |
|--------------------------|--------|--------|--------------------|
| Brother 1109             | \$4.95 | \$5.95 | \$ 7.00            |
| Citizen 200/GSX 140      | 4.50   | 5.50   | 7.50               |
| Citizen GSX 140, 4-Color |        | *      |                    |
| Epson MX/FX/RX80/85      | 3.75   | 4.50   | 6.75               |
| Okidata 182/192          | 5.50   | 7.50   | 6.00               |
| Panasonic 1190/1124      | 5.75   | 7.75   |                    |
| Commodore MPS            | Call   | For    | Price              |
| Star NX1000              | 3.75   | 4.75   | 6.75               |
| Star NX1000, 4-Color     |        | 6.75   | 10.00              |

T-Shirt (Heat Transfer) Ribbons

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

### COLOR PAPER

| Color Paper              | 200 sheets assorted |            |
|--------------------------|---------------------|------------|
| Bright Pack:             | 9 1/2 x 11          | \$10.90/pk |
| Pastel Pack:             | 9 1/2 x 11          | \$ 8.90/pk |
| Color Certificate Paper: | 100 sheets          | \$ 9.95/pk |
| Color Banner Paper:      | 45 ft./roll         | \$ 8.95/pk |

Min. orders \$25.00. Minimum S&H \$4.00. Call for other ribbons and supplies. Price and spec. are subject to change w/o notice.

### RAMCO COMPUTER SUPPLIES

P.O. Box 475, Manteno, IL 60950 U.S.A.  
(USA) 800-522-6922 or 815-468-8081  
(Canada) 800-621-5444

Circle Reader Service Number 213

## 15 FULL DISKS - FREE SOFTWARE FOR IBM<sup>®</sup> COMPUTERS

TRY US! 15/5.25" or 6/3.5" disks  
full of our best sellers - FREE!  
Games, Business, Education,  
Graphics, Utilities, Finance,  
Desktop publishing, more.  
PAY ONLY \$5.00 FOR SHIPPING

SATISFACTION GUARANTEED!

INTERNATIONAL SOFTWARE LIBRARY  
ORDER TODAY - CALL

619 942-9998

since 1985



Circle Reader Service Number 127

## Mastering Quattro Pro

by Lynn Frantz  
ISBN 0-87455-222-2  
\$24.95

Explore *Quattro Pro's* numerous features in this comprehensive guide that's perfect for both new and experienced users. In this interactive tutorial, you'll learn how to design, create, and get the most from your own spreadsheets. This reference and guidebook will help you master the power of Borland's *Quattro*. 544pp

Order your copy today.

Send \$24.95 plus \$2.00 shipping and handling (\$5.00 for orders outside the U.S. and Canada) and applicable sales tax (if you live in NC, NJ, or NY) to

COMPUTE Books  
c/o CCC  
2500 McClellan Ave.  
Pennsauken, NJ 08109

Please include the ISBN number on your check or money order. OCT90CP

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.
- **Guaranteed Audience.** Our rate base is guaranteed at 275,000 per issue, with an actual monthly circulation of over 300,000.
- **Qualified Readers.** Our readers search the Product Mart for quality hardware, software, and peripheral products they can buy.
- **Cost Effectiveness.** Ad sizes range from 1/9 (2 1/4 x 3 1/4) to 1/2 page (vertical or horizontal), and you can request frequency rates of up to 12 times per year. Second color is available.

Space closing: First day of the second month preceding issue date (for example, November issue closes Sept. 1). Space limited to a first-reserved, first-served basis.



## SeXXy Software

Must State Age  
Over 21

**SeXXy Disk # 1** — An unbelievable visual erotic encounter — **MUST SEE !!**

**SeXXy Disk # 2** — an erotic encounter game for friends and lovers guaranteed to shed both clothes and inhibitions.

**SeXXy Disk # 3** — an anatomical arcade game with unusual ammunition.

**SeXXy Disk # 4** — 2 more incredible visual erotic encounters — impress your friends.

**SeXXy Disk # 5** — create your own erotic fantasies about friends and lovers.

**SeXXy Disk # 6** — view, print, or edit ten gorgeous pinups.

**\$7 each, any 3 for \$17, or all 6 for \$32**

for IBM and compat.

CGA, EGA or VGA graphics reqd.

Add \$3 s/h - in OK add tax.

3.5" disks or foreign orders add \$2 per disk.

**VISA/MC Orders only**

**800-243-1515 Ext. 600FA**

Or check/MO to: SeXXy Software, 2880 Bargey Road,  
Dept. 600SA, Hatfield, PA 19440

**THE BEST IN ADULT SOFTWARE FOR LESS !!**

Circle Reader Service Number 195

## COMPUTER INSURANCE PLUS

- ✦ Replacement with no depreciation
- ✦ Covers computer hardware in home or office
- ✦ Easy to read policy
- ✦ Bonus 20% for software coverage
- ✦ Low \$50 deductible
- ✦ Covers theft, fire, power surges, accidents, natural disasters, even earthquakes and flood
- ✦ Policy backed by an A+ company

### THE COMPUTER INSURANCE AGENCY, INC.

6150 Old Millersport Road, NE  
Pleasantville, OH 43148  
Hours: 10 a.m. to 6 p.m.

**1-800-722-0385**

Circle Reader Service Number 173

## ATTENTION PC USERS!

Application software for your IBM XT, AT, Tandy or compatible using MS-DOS 2.0 or greater, 256k available memory and at least one 5.25" disk drive.

**RECIPE MANAGER 2** Why spend hours searching for a single recipe when Recipe Manager can do it in a matter of seconds.

- Easy to use menu driven program.
- Add, Edit or Delete recipes.
- Create your own category listings for recipe storage.
- Display 32 recipe listings per page.
- Print multiple copies in draft or enhanced mode.

**\$19.95 plus S/H**

**H.O.B.O.** The Home Or Business video Organizer leads you step by step, highlighting items to enter when creating your VCR library.

- Add, Edit, Delete or View movie records.
- Search records by Title, Actor, Rating, etc.
- Enter movie description.
- Print index listings, labels and pages for your vinyl binder.
- Includes 6" x 9" vinyl binder, 8.5" x 5.5" paper and labels.

**\$19.95 plus S/H**

30-Day warranty and registration card for FREE future upgrades.

Add \$3.50 for shipping/handling. Write for FREE brochure or send check or money order to:

**SPSoftware**

P.O. Box 799

Milford, Utah 84751

(801) 387-5031

Circle Reader Service Number 122

## The Complete Desktop Publisher

by Daniel J. Makuta  
and William F. Lawrence  
ISBN 0-87455-065-3

**\$21.95**

*The Complete Desktop Publisher* is a comprehensive guide to typography, layout, and design. It includes comparisons of printing devices and discussions of available desktop publishing software. This book is an aid to learning to design like the professionals. 293pp

**Order your copy today.**

Send \$21.95 plus \$2.00 shipping and handling (\$5.00 for orders outside the U.S. and Canada) and applicable sales tax (if you live in NC, NJ, or NY) to

COMPUTE Books  
c/o CCC  
2500 McClellan Ave.  
Pennsauken, NJ 08109

Please include the ISBN number on your check or money order.

OCT90CP

Circle Reader Service Number 136

## IBM PCjr Specials

- Memory Expansions
  - Second Disk Drives
  - Parallel Printer Attachments
  - Serial Adapter Cables
  - PCjr Joystick & Mice
  - Large Keyboards for PCjr
  - BASIC Cartridge & Manual
  - IBM PCjr Repair Service
- More PCjr Accessories Available  
Call, Write, or FAX for PCjr Catalog

COMPUTER RESET

P.O. Box 461782  
Dept. - CPU

Garland, Texas 75046-1782  
(214) 276 - 8072  
FAX (214) 272 - 7920

For mechanical specifications or more information call

*East Coast*  
Caroline Hanlon  
(919) 275-9809

*Midwest*  
Barbara Vagedes  
(708) 393-1399

*West Coast*  
Lucille Dennis  
(415) 878-4905

**Call now to reserve your space!**

## NEWSLETTERS

### CompuTIPS

**Tips - Tricks - Techniques**  
Wordprocessing, DOS, Databases  
D.T.P., Spreadsheets, Q&A'S  
**First Newsletter FREE**

Send \$2 s/h to Dyna-Comp Computer Services  
1960 Kapiolani, Ste. 113-586, Honolulu, HI. 96826



## SOFTWARE

**FINEST MS DOS AND C/64 128 SHAREWARE AND PD.**  
\$3.00 U.S. Get sample disk and catalog  
mailed first class. Please specify IBM or  
Commodore. Koala Enterprises, Rt. 2, Box 677,  
Carencro, LA 70520.

**BASEBALL FANS!!!** Pursue the Pennant PC BB  
game for IBMs with 256K. Send \$10 deposit for  
Demo Version to: PTP, Box 38364-C, Greensboro,  
NC 27438. Or Call 1-(800)765-4PTP for info.

**EXCELLENT PD & SHREWARE SOFTWARE!** IBM  
Disk catalog w/sample games & utilities.  
5 1/4" \$1, 3 1/2" \$2 Free Disk each order.  
Graphica Softhouse, P.O. Box 2578,  
West Lawn, PA 19609 (215) 678-4513

**GREATER MIDWEST MICRO SOURCE**—Your BEST  
SOURCE of IBM Comp Shareware & Supplies  
for FREE Catalog write to GMMMS Dept. CPT,  
2200 180th Ave NW, Andover, MN 55304

**C64-128 PUBLIC DOMAIN SOFTWARE**—FREE  
Catalog or send \$2 for sample disk.  
PEGASUS ENTERPRISES, 3275 W. Ashlan  
Suite #3349, Fresno, CA 93722

**FOOTBALL PREDICTIONS**—\$34.99. 77% correct  
vs spread over last 10 yrs. IBM/PC  
Compatible. Send ck/mo to L. Markure  
24 Northhill St. Stamford, CT 06907

**BUY 3 GET 1 FREE!** ANY QTY \$1.95/DISK &  
\$3 S&H. 5 1/4" IBM PD & Shareware. Send  
25¢ stamp for catalog; BRC Software  
Box 2091, Naperville, IL 60567-2091

**MEGAPHYSICAL SOFTWARE FOR THE C64/128!**  
Pro-designed. No PD here. The Wisdom of  
the I Ching, computer oracle, \$39.95.  
Metaphysical Colors, personality analyzer,  
\$29.95. Tarot C64, your personal reader,  
\$19.95. Please enclose \$3.00 P/H.  
Metatools, POB 8027, Santurce, PR 00910.

**FREE! IBM PD & SHAREWARE DISK CATALOG**  
Specify 5 1/4" or 3 1/2". Low prices since 1988!  
ASP APPROVED VENDOR, Finto Software,  
Dept M, RT 2, Rosebud, TX 76570.



### WIN LOTTO MILLIONS!

**NEW DOS RELEASE!**  
YOUR LOTTERY IS BIASED! Un-  
intentionally certain number patterns  
will be selected with a greater frequency  
than others. **LOTTO PICKER 3** will uncover &  
exploit these biases & tell you which numbers to  
play—no guesswork required! **GUARANTEED** to work  
for all lotteries worldwide or your **MONEY BACK!** **WHEEL-**  
**ING** now included in DOS version! **BEAT THE LOTTERY**  
**TODAY! \$39.95** (+2.55 s/h). 3.5" add \$5. Ver. 2.1 for Apple  
II & C64/128. NY add tax.  
**ORDER TODAY! 1-800-835-2246 x 121**  
**GE RIDGE SERVICES, INC.**, 170 Broadway,  
Suite 201-CP, New York, NY 10038  
Info/Dealers 718-317-1961.



**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., 7958 Pines Blvd.,  
Suite 270B, Pembroke Pines, FL 33024

**FREE SHIPPING!** Disks-5.25 DS/DD 25pak  
\$9.95, labels, sleeves, & tabs incl.  
3.5 DS/DD 10 pak \$6.49. DISKS ETC!,  
Dept. C, PO Box 3274, Lufkin, TX 75903.

**LOTS OF DISKS! THE BEST 64/128 PD.** Grafix,  
GEOS, Games, Bible, MIDI, Educ, 128! Low  
prices! Stamp/FREE catalog. DISCOVERIES!  
P.O. Box 9153, Waukegan, IL 60085.

**RECIPE DISK FOR C64.** Stores hundreds of  
recipes per disk. 25 recipes included.  
Free data disk to store hundreds more.  
10 utilities. Print, Edit etc., (2 disks)  
Send \$14.95 to High-tec 36076 Dalewood  
Dr. Newark, CA 94560. Demo disk \$2

**1990 NFL FOOTBALL!** Schedules, standings,  
predicts winners! DALTONWARE, Box 817,  
Mexico, MO 65265. Specify Com 64/128, IBM  
or Apple. Only \$10.95 check, MC or VISA.

1000's of C64/128 PD Prgms on 300+ disks  
Free list or send \$2 for disk. BBS 1-406-  
549-9523. Megatronic Software Company,  
807 W. Pine, Suite #3, Missoula, MT 59802.

**GIVE YOUR PC A LITTLE PERSONALITY** with  
RALPH and LULU—Zany software characters  
to bring your IBM or compatible to life!  
\$7.95 EA or \$12.95 Both (PPD.) FUTUREWARE,  
P. O. Box 7786, Sugar Creek, MO 64054.

**VIDEO DATABASE.** Don't lose videos any  
more! Let your computer find them. Easy to  
use. Many ways to view/search for an  
entry. For IBM compat. Spec. disk size.  
Send \$24.95 to MPG Video, P. O. Box 251,  
Glyndon, MD 21071. Call (703) 232-5277.

**FREE PUBLIC DOMAIN SOFTWARE**—Request  
free catalog or send \$2 for sample disk  
and catalog (refundable). C64-128. CALOKE  
IND., Dept. JK, Box 18477, K.C., MO 64133

**SHAREWARE & FREE P.D.** (IBM or C64 please  
Specify). FREE catalog or \$1 for Sample  
disk. (ASP Vendor) RVH Pub. 4291 Holland  
Rd. Suite 562-C, VA Beach, VA 23452.

**IF YOU DON'T PROTECT YOUR FILES,** who  
will? PolyCrypt for the C-64 encrypts  
and decrypts your files using a code you  
enter. Simple operation. \$7.50  
(Texans add 7 1/4% tax). Free info.  
Drachma Software, P.O. Box 8148,  
Wichita Falls, TX 76307.

**MASTER XYWRITE WITH XYMASTER**  
Automates and simplifies more than 50  
XyWrite 3+ commands. \$15. Jim Hopwood,  
5302 W. 57th, Roeland Park, KS 66205.

Business IBM PD & Shareware Catalog Disk  
W/sample programs. Specify size, \$1.50  
(refundable). **HELEN OF TROY SOFTWARE**  
Star Rt. Box 49, Cooks, MI 49817

**1581 SOFTWARE:** music, grfx, games, utl.  
& more. \$8 per packed 3.5" PD disk.  
Catalog, \$1. Ben's Domain, 913 S.  
Parkside, Blytheville, AR 72315.

**WIN—HANDICAP SPORTS WITH YOUR PC**  
Send for free info. or \$3 for 5 1/4" IBM  
compatible demo disk to RUTECH SOFTWARE,  
6010 W. Cheyenne #15-945, LV, NV 89108

I.B.M., C64, Amiga Software, 50-90% off  
guaranteed, specials. Send \$5 for  
details, list. SW Liquidators, Box 41036,  
Rockwood Mall Post Office, 4141 Dixie,  
Mississauga, Ontario, Canada L4W 4X9

**SOFTSHOPPE, INC.**  
Selected Programs, Latest Versions, As Low as  
\$1.50, Same Day Shipping, and No Minimum  
Order. For FREE CATALOG for IBM  
PD/Shareware, CALL 800-829-BEST (2378) or  
FAX 313-761-7639.

**WINDOWS AND MENUS FOR TURBO PASCAL!!!**  
Fantastic windows and various styles of  
menus with this SOURCE CODE! Send \$24.95  
DSR Enterprises, Box 127 Pequea, PA 17565.

**20 MEGA PUBLIC DOMAIN/SHAREWARE \$49.95**  
Graphics, Word Processing, Databases,  
Communications, Education, Languages,  
Games. Shipped Free on 5.25 HD diskettes  
CyberTek, POB 1528, Stafford, VA 22554.

C64, C128, & CP/M PUBLIC DOMAIN SOFTWARE  
Free Catalog, fast service, low prices,  
& Unbelievable specials. ComputerActive,  
Box 893-C, Clinton, OK 73601.

Send SASE for free catalog full of the best IBM,  
C64/128, and CP/M shareware program. Disks  
as low as \$1.99 (or try our rental program).  
Kraeger Enterprises, Dept. B., P. O. Box 276573,  
Sacramento, CA 95827-6573.

**TRY BEFORE YOU BUY:** C64, 128, AMIGA.  
Games, utilities, educ'n'l, classics, new re-  
leases, 100's of titles. Free brochure. Specify  
computer. RENT-A-DISC, Frederick Bldg.  
#221, Hunt'n, WV 25701 (304) 529-3232

**TRIVIA MASTER/Over 1,000 Questions in 5**  
Categories: Science, Literature, History,  
and More! Specify C64 or IBM (Requires).  
(GW/BASIC) Send check for \$21.95 to:  
LOM Software, Box 160, Bland, VA 24315.

**FREE PD C64-128 SOFTWARE 3000+ EUROPEAN-**  
Domestic Best Sellers (sample & catalog \$2)  
(Send SASE for catalog) WestComp Library  
P.O. Box 60818, Reno, NV 89506

**A MUST FOR DIET CONSCIOUS PEOPLE!** Diet-  
wise/energy wise diet analysis and fit-  
ness IBM software. \$39-\$120. Nutritional  
Data (800) NDR-DIET (216) 951-6593 OH.

**\*\*\*ADULT VGA SOFTWARE for IBM & COMP\*\*\***  
Visualize the full potential of VGA/SVGA with  
these stunning, hi-res, 256 color images.  
Vol.1 SEXY (6 disks) . . . . . \$13.95  
Vol.2 NUDE (6 disks) . . . . . \$13.95  
Vol.3 MORE NUDE (6 disks) . . . . . \$13.95  
Vol.4 ADULTS ONLY (6 disks) . . . . . \$13.95  
Vol.5 ADULT VGA MOVIES (6 disks) . . . . . \$13.95  
Specify disk type. Include \$3 S&H. State 21.  
Check/MO accepted. Send \$5 ppd for 2 sample  
disks. CJCware, POB 2299, Champaign, IL 61825.



**P.C. MODEM CLUB** Correspond w/ Enthusiast or Business, hobbies or common interests LINK/UP with creative individuals, Free details. Box 4534, Waterbury, CT 06704.

**BUY 3 IBM SOFTWARE GET 1 FREE.** Large collection of games, graphics, CAD, DTP, clip arts, fonts. OMNICON, 6161 El Cajon Blvd., Ste. 203, Dept. CE, San Diego, CA 92115.

**THE HOTTEST AND LATEST EUROPEAN GAMES and much more at SUPER LOW PRICES!** Send \$3 for a C64/128 or AMIGA on-disk catalog & sample. THE GAME SHOP2, Box 491, New York, NY 11375.

**HARDWARE**

**COMMODORE 1764 REU OWNERS.** Upgrade your 256K REU to 512K. For low cost of \$78.00. This low cost is for a limited time only. So don't delay. New 1764 REU with Commodore heavy duty power module \$195.00. Send cashier's check or money orders only. Include payment, slip of paper with name, home phone, address and zip clearly marked with REU. Send to R.R. Electronics, P.O. Box 57607, Murray, Utah. 84157. For recorded message, call 801-265-2871. Orders outside continental U.S. add \$10.00.

**DISK DRIVE LOCK** for 3.5" disk drive units Blocks all access to PC operating system Low cost, safe & very easy to use device \$19.95 + 2.00 S&H to: Discovery Products 5128 Prentiss Drive, Troy, MI 48098-3482.

**BUSINESS OPPORTUNITIES**

**GET PAID** for mailing letters! \$200.00 daily. Write: PAASE - WK5 161 Lincolnway North Aurora, IL 60542

**READ BOOKS** for pay! \$100 a title. Call 1-900-847-7878 (\$0.99/min) or Write: PASE - RH7, 161 Lincolnway, North Aurora, IL 60542

Let the government finance your new or existing small business. Grants/loans to: \$500,000. Free recorded message: 707-449-8600. (KS7)

**HOW TO MAKE THOUSANDS OF \$\$\$\$** with your own part-time HOME COMPUTER BUSINESS. Will teach & help you step. Send \$1 for INFO, Box 1442-A1, Orange Park, FL 32067

**EARN \$4000/MONTH FROM YOUR HOME WITH A COMPUTER**

Start part-time with potential earnings of \$10,000 or more per month. You do not need to own or know how to run a computer-we will provide free training. If you purchase our software we will give you a computer and printer. Complete financing available. To receive a FREE 2-hour Casette and Color Literature. CALL:

**Computer Business Services**  
1-800-343-8014 X303 317-758-415

**COMPUTER REPAIR**

24 hr. Computer Repair. Commodore-Amiga, IBM, Apple. A & M Computer Repair 20 Guernsey Dr. New Windsor, NY 12553 914-562-7271 - 1800-344-4102

Auth. Comm. repairs C64/128, 1541/1571, SX64, 128D, & Amiga. Selling DTK-IBM comp. comtrs. Quick Serv. 30 dy wrnty. MOM & POP's Comptr Shop, 114 N. 16th, Bethany, MO 64424.

**EDUCATION**

**B.S. & M.S. in COMPUTER SCIENCE**

The American Institute for Computer Sciences offers an in-depth correspondence program to earn your Bachelor of Science and Master of Science degrees in Computer Science at home. BS. subjects covered are: MS/DOS, BASIC, PASCAL, C, Data File Processing, Data Structures & Operating systems. MS program includes subjects in Software Engineering and Artificial Intelligence, and other topics.

**AMERICAN INST. for COMPUTER SCIENCES**  
2101 CC Magnolia Ave. South  
Birmingham, AL 35205  
CALL (205) 933-0339

**MISCELLANEOUS**

**BLANK KEYBOARD TEMPLATES** if you have games that came with pre-printed templates, you know how much help they can be. Fill in the blanks on my overlays and forget going back to the manual for every keystroke. Works for utility programs. Keyboard type, \$9.95 for pkg. of 3 + 1.50 for S&H to Whitney, R.R.#1, Box 55 Newark, IL 60541 Visa-MC-800-468-4627.

**DIRECT FROM MANUFACTURER**

Anti glare screens \$29.95. Dealer inquiries welcome. 1-800-334-3783.

**2 Books 10 Bucks**

**APPLE II**

- \_\_\_ C0017 The Apple IIc: Your First Computer
- \_\_\_ C0025 Apple Machine Language For Beginners
- \_\_\_ C0084 Second Book of Apple
- \_\_\_ C084X The Complete Apple
- \_\_\_ C0963 Guide to Sound & Graphics on the Apple IIs
- \_\_\_ C0971 Apple IIs Machine Language for Beginners
- \_\_\_ C120X Mastering the Apple IIs Toolbox
- \_\_\_ C1307 Adv. Prog. Techniques for the Apple IIs Toolbox

**COMMODORE 64 and 128**

- \_\_\_ C0092 Telecomputing on the C-64
- \_\_\_ C0610 Machine Language Games for the C-64
- \_\_\_ C0823 Mapping the C-64, Revised
- \_\_\_ C0947 More Machine Language Games for the C-64
- \_\_\_ D0346 First Book of C-64
- \_\_\_ D0361 Creating Arcade Games on the C-64
- \_\_\_ D037X C-64 Games for Kids
- \_\_\_ D040X All About the C-64 Volume 1
- \_\_\_ D054X Beginners Guide to C-64 Sound
- \_\_\_ D0701 Commodore Collection Volume 2
- \_\_\_ D0728 Third Book of C-64
- \_\_\_ D0116 Machine Language for Beginners
- \_\_\_ D0531 Second Book of Machine Language
- \_\_\_ C0327 Kids and the C-128
- \_\_\_ C0335 C-128 Machine Language for Beginners

**GENERAL**

- \_\_\_ C022X 40 Great Flight Simulator Adventures
- \_\_\_ C0920 Jet Fighter School
- \_\_\_ C117X Electronic Battlefield
- \_\_\_ C1277 SubCommander
- \_\_\_ C1781 COMPUTE!'s Computer Viruses
- \_\_\_ C1889 COMPUTE!'s Computer Security

Total Number of Books \_\_\_\_\_  
(2 book minimum)  
X \$5 each equals \_\_\_\_\_  
Sales Tax (NC, NJ, NY residents add sales tax) \_\_\_\_\_  
Shipping and handling \$1 per book \_\_\_\_\_  
Total Enclosed \_\_\_\_\_  
(Check or money order, in US funds only, made payable to Compute Publications)

Please print  
Name \_\_\_\_\_  
Street Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ ZIP \_\_\_\_\_

**Mail this entire coupon to:**  
**Compute Books**  
c/o CCC  
2500 McClellan Ave.  
Pennsauken, NJ 08109

Offer expires December 31, 1990  
Offer good only while supplies last.  
Please allow four to six weeks for delivery.

OCT90CD

**COMPUTE Classified is a low-cost way to tell over 275,000 microcomputer owners about your product or service.**

**Additional Information. Please read carefully.**

**Rates:** \$38 per line, minimum of four lines. Any or all of the first line set in capital letters at no charge. Add \$15 per line for boldface words, or \$50 for the entire ad set in boldface (any number of lines.)

**Terms:** Prepayment is required.

**Form:** Ads are subject to publisher's approval and must be either typed or legibly printed. One line equals 40 letters and spaces between words. Please underline words to be set in boldface.

**General Information:** Advertisers using post office box number in their ads must supply permanent address and telephone number.

Orders will not be acknowledged. Ad will appear in next available issue after receipt.

**Closing:** First of the second month preceding cover date (e.g. October issue closes August 1.)

**CLASSIFIED DISPLAY RATES**

Classified display ads measure 2 1/4" wide and are priced according to height. 1" = \$275; 1 1/2" = \$400; 2" = \$525. Preferred supplied material is Velox or PMT.

**HOW TO ORDER**

To place an ad, send order and payment to Barbara Vagedes, Classified Manager, COMPUTE, 29W382 Candlewood Lane, Warrenville, IL 60555, or call Barbara Vagedes 708-393-1399, FAX 708-393-1489.



# HOTWARE

## SOFTWARE BESTSELLERS FROM AROUND THE COUNTRY

### HOME PRODUCTIVITY

#### 1. Quicken

Manage your finances.  
Intuit  
IBM, Macintosh

#### 2. The New Print Shop

Make signs, cards, banners, and more.  
Broderbund  
Apple II, Apple IIgs, Commodore 64/128, IBM, Macintosh

#### 3. Calendar Creator Plus

Create many different calendars.  
Power Up  
IBM, Macintosh

#### 4. Managing Your Money

Allocate your income.  
MECA  
Apple II, IBM, Macintosh

#### 5. PC Globe 3.0

Explore world demographics.  
PC Globe  
IBM

#### 6. PC USA

Explore the United States.  
PC Globe  
IBM

#### 7. Print Shop Graphics Library

Add variety to your *Print Shop* creations.  
Broderbund  
Apple II, Apple IIgs, Commodore 64/128, IBM

#### 8. Resume Maker

Get help in writing a resume.  
Individual  
IBM

#### 9. Family Tree Maker

Explore your ancestry.  
Banner Blue  
IBM

#### 10. Address Book Plus

Keep track of your addresses.  
Power Up  
IBM, Macintosh

### HOME ENTERTAINMENT

#### 1. SimCity

Run the world's first simulated city.  
Maxis  
Amiga, Commodore 64/128, IBM, Macintosh

#### 2. Tetris

Deceptively addicting falling-block game.  
Spectrum HoloByte  
Amiga, Apple IIgs, Commodore 64/128, Macintosh

#### 3. Flight Simulator

Head for the wild blue yonder.  
Microsoft  
IBM, Macintosh

#### 4. Trivial Pursuit

Test your knowledge of trivia.  
Parker Brothers  
IBM

#### 5. 688 Attack Sub

Command a prowling sub.  
Electronic Arts  
IBM, Amiga

#### 6. Falcon

Air combat at its best.  
Spectrum HoloByte  
Amiga, IBM, Macintosh

#### 7. ChessMaster 2100

Board strategy that isn't boring.  
Electronic Arts  
Apple II, Apple IIgs, Commodore 64/128, IBM

#### 8. Ultima VI

Continue the role-playing adventure.  
Origin  
IBM

#### 9. Welltris

Add a new dimension to *Tetris*.  
Spectrum HoloByte  
IBM

#### 10. Wolf Pack

Sink ships and subs.  
Broderbund  
IBM

### HOME LEARNING

#### 1. Mavis Beacon Teaches Typing

Learn to touch-type.  
Electronic Arts  
Apple II, Apple IIgs,  
Commodore 64/128, IBM, Macintosh

#### 2. The Playroom

Kids explore and learn on their own.  
Broderbund  
IBM

#### 3. Where in Time Is Carmen Sandiego?

Can you find Carmen in time?  
Broderbund  
IBM

#### 4. Where in the World Is Carmen Sandiego?

Chase Carmen around the world.  
Broderbund  
Amiga, Apple II, Commodore 64/128, IBM, Macintosh

#### 5. Math Blaster Plus!

Teaches basic math concepts.  
Davidson & Associates  
Apple II, Apple IIgs, IBM

#### 6. Dvorak Crash Course

John Dvorak teaches you PC basics.  
Scandinavian  
IBM

#### 7. Learning DOS

Learn the ins and outs of DOS.  
Microsoft  
IBM

#### 8. Where in the USA Is Carmen Sandiego?

The chase moves to the USA.  
Broderbund  
Amiga, Apple II, Commodore 64/128, IBM, Macintosh

#### 9. Outnumbered!

Super Solvers is back.  
The Learning Company  
IBM

#### 10. Reader Rabbit

Helps children learn to read.  
The Learning Company  
Apple II, Commodore 64/128, IBM, Macintosh



COMPUTE's Hotware lists were prepared by Egghead Discount Software and are based on retail sales of Apple II, Macintosh, and IBM software from April 29 through May 26, 1990, at 192 Egghead stores in the United States and Canada.



Now Just  
**\$149.<sup>95</sup>**  
 Suggested  
 Retail  
 Price.

# The Ad Lib Music Card: Open your ears and blow your mind.



Asteroids are hurtling by. Enemy photons are destroying the rear deflectors. Engines strain as they reach critical mass. Suddenly you hit the retros, loop around, and fire with everything you've got.

And what kind of awesome, breath-taking music is your computer playing? "Bleep, bop, beep." Pretty weak, eh? Well listen up. Because now there's the Ad Lib Music Card. It's the digital music synthesizer that's conquering the final frontier of truly realistic game playing—totally ear-blasting sound. Confront the dark overlord, and Ad Lib's 11-piece orchestra will back you up with gutsy, heart-swelling music. And if you meet

an untimely death, rest assured that Ad Lib's funeral dirge will bring tears to the eyes of your loved ones.

In fact, the Ad Lib sound is so hot, major game developers are now designing dozens of new adventures with special soundtracks just for the Ad Lib Music Card.

Call us at 1-800-463-2686 for the name of your nearest dealer, for more information, and for the ever-growing list of major game titles with spectacular Ad Lib soundtracks.

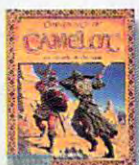
Add the missing dimension to your games with the Ad Lib Music Card. From a solo to a symphony, Ad Lib's music makes the adventure come alive.



Ad Lib Inc., 50 Stanford Street, Suite 800, Boston, MA 02114. 1-800-463-2686 in U.S. or Canada. 1-418-529-9676 International. Fax: 1-418-529-1159.

## New Compatible Games.

Here are just some of the hottest new computer games designed for use with the Ad Lib Music Card:



Sierra's Conquests of Camelot



Lucasfilm's Their Finest Hour: Battle of Britain



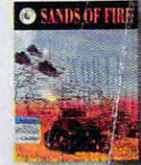
Activision's Power Drift



Electronic Arts' Centurion



Capstone's Bill & Ted's Excellent Adventure

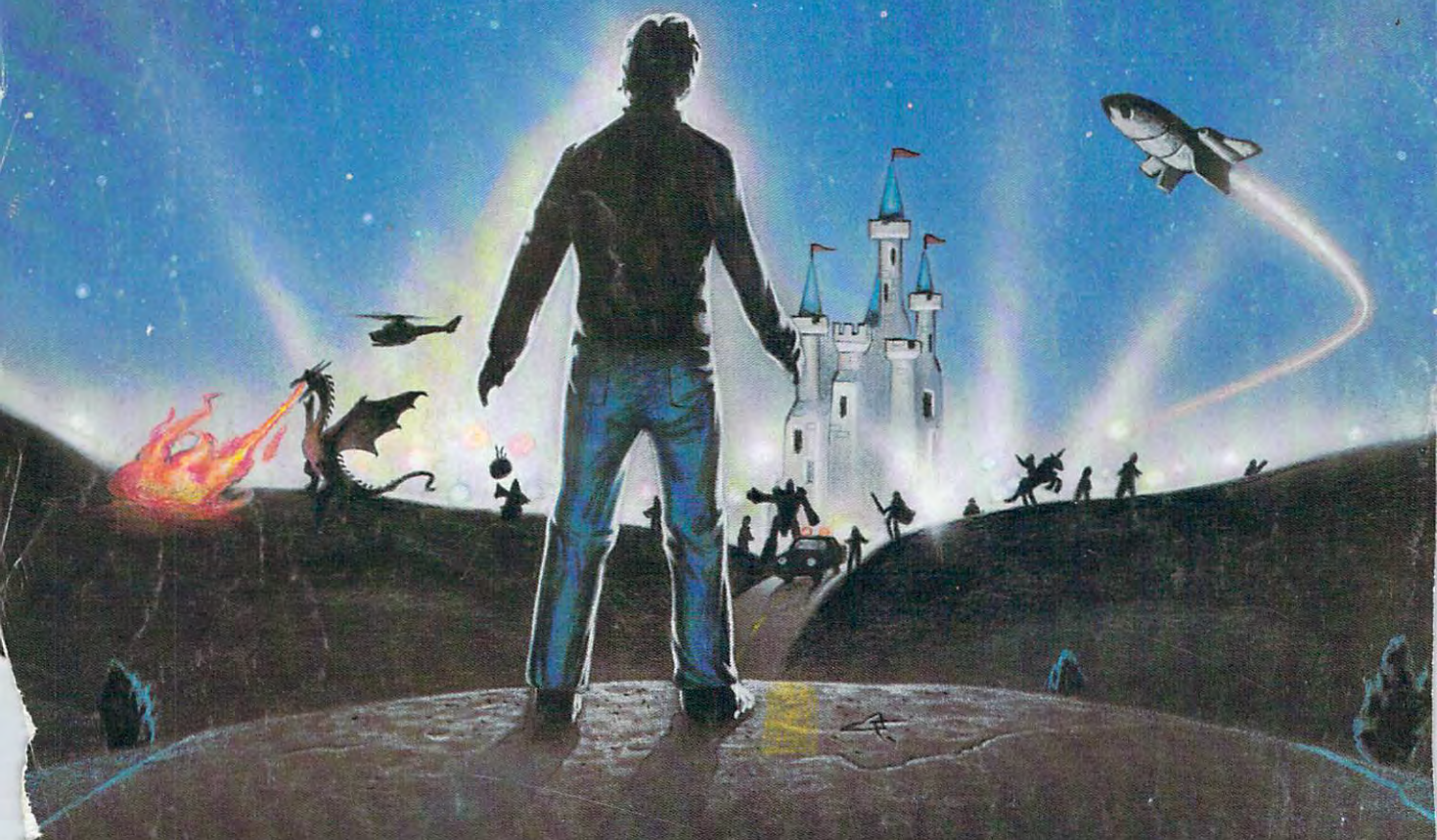


Three-Sixty Pacific's Sands of Fire

System requirements: IBM PC, XT, AT, or compatible with 256K RAM, DOS 2.0 or higher, CGA, EGA, or monochrome graphics adaptor, and headset or external speaker.  
 © 1990 Ad Lib. Ad Lib is a registered trademark of Ad Lib Inc. IBM is a registered trademark of International Business Machines Corporation.

[www.commodore.ca](http://www.commodore.ca)

# Close Encounters of the SIERRA Kind



## Get ready

for the outer limits of PC entertainment.



**SIERRA**<sup>®</sup>

The recognized leader  
in entertainment software  
for PC'S

Ask for the Compute Info Pack.

**1-800-326-6654**

outside U.S. (209) 683-4468, ext. 322 or 323

You'll receive information on more  
Super Sierra Products and Specials!

Circle Reader  
Service Number 194

IBM PC, Tandy, Atari ST, Amiga, Macintosh, Apple II