VIC
Scaling Bar Graphs

James P. McCallister

Bar graphs often have more visual impact than figures or statistics. This utility program gives you multicolor bar graph capability and demonstrates its practical uses. There is a discussion of modification of control variables to suit a variety of applications.

As you learn to solve problems in BASIC on your VIC, you realize that calculations are fairly easy to program no matter how complex the math. However, you sometimes want to display your answers in a way that highlights their meaning. One very effective method is to construct a bar graph.

This article describes a utility bar graph subroutine you can add to your own programs. It's very easy to use, and it's suitable for many applications. Once you have it saved on tape or disk, you can quickly turn a modest calculation into an analysis of options or a graphic history of trends.

One Practical Application

Here's an example that demonstrates a practical use of the bar graph subroutine. Suppose you want to borrow money to buy a car. Checking a reference book on business math, you find that the monthly payment calculation for an installment loan is:

payment = amount of loan * r/(1-(1 + n)$^{-r}$)

where *n* is the number of months and *r* is the monthly interest rate, expressed as a decimal fraction. Also,

total finance cost = (*n* * payment) - amount of loan

So, as a first step, you come up with this BASIC program to do the fundamental calculation:

```
100 INPUT"{2 DOWN}AMNT,APR";AM,AR
110 MR=AR/1200
120 INPUT"MONTHS";N
130 MP=AM*MR/(1-(1+MR)↑-N)
140 FC=N*MP-AM
150 DEFFNR(X)=-INT(-X*100)/100
160 PRINT"PAYMNT=$";FNR(MP),"FIN COST=$"
    ;FNR(FC)
170 GOTO100
```

In this program, AM is the amount of the loan, AR is the annual percentage rate, and N is the term, in months. MR is the monthly rate expressed as a decimal fraction. The results are MP, the monthly payment, and FC, the total finance cost; both are based on the formulas you started with. The function FNR(X) defined in line 150 rounds to the next highest penny, and the results are printed in line 160.

Naturally, increasing the number of months (or term) of the loan makes the payment lower, but increases the finance cost. With this program you could experiment with various amounts, APRs and terms, and arrive at a decision about which loan suits you best.

Instead, let's modify the program to *plot* the effect of various term lengths of the loan, using the bar graph subroutine. We'll still use the INPUT statement for amount and APR; but we'll use the FOR/NEXT statements to automatically vary N and take care of storing the answers. Now the program looks like this:

```
100 INPUT"{CLR}AMNT,APR";AM,AR
110 MR=AR/1200
120 FORI=0TO8:N=6*(I+2):REM N=12TO60BY6'
    S
130 Y(0,I)=AM*MR/(1-(1+MR)↑-N)
140 Y(1,I)=N*Y(0,I)-AM
150 NEXTI:QB=8
160 QL$="{12 SPACES}1 2 3 4 5{15 SPACES}
    YEARS"
170 QT$="{2 SPACES}MONTHLY PAYMENT":Z=0:
    GOSUB9900
180 QT$="{2 SPACES}TOTAL FINANCE COST":Z
    =1:GOSUB9900
190 GOTO100
```


www.commodore.ca

Add lines 9900 to 9999 (see Program 2).

The resulting graphs are in Figures 1 and 2 for a loan of $5000 at 12.8 percent.

We'll deal with the new variables in detail later. But you can already see that plotting the graphs requires these steps:

1. The BASIC instructions for the subroutine are added to the program, beginning in line 9900. (Later, we'll discuss the most efficient ways to do this.)

2. The numbers to be plotted are put into two lists, one for each graph. At line 130, the list for the monthly payment graph is put in Y(0,I), and at line 140 the list for the finance cost graph is put in Y(1,I). The first subscript for each Y variable identifies the list. The second subscript is a label for each number in the list.

3. After the lists are completed, GOSUB9900 is "called" once for each graph (line 240).

4. Before calling GOSUB9900 the first time, QB is given a value of 8 so the subroutine would know how long the lists were and how many bars to plot. Also, the legend to appear at the bottom of the screen is put in QL$.

5. Before calling GOSUB9900 each time, title information is put in QT$. This is different for each graph.

6. Before calling GOSUB9900 each time, Z is given a value corresponding to the list to be plotted.

The graphs in Figures 1 and 2 can be displayed using just the lines listed so far. The subroutine does all the layout work. The vertical scale and labeling are automatic. The example could have included billions of dollars or 10^{-9} seconds of time – the scale would still be worked out and labeled correctly.

Program Features

Now we're ready to explore the features of the subroutine in greater depth. The primary features are:

- one to 21 vertical bars per display (number specified by user).
- automatic ranging and scaling for each display, with no restrictions on the signs or magnitudes of the values to be plotted. The scale is labeled.
- operates from a two-dimensional array, so that several lists can be stored before plotting the first one.
- positive bars go up; negative bars go down.
- built-in "hold" of display, released by touching any key; cursor prompt in lower-right corner.
- universal memory configuration. Adds 2300 bytes to the calling program.
- scale lines in contrasting color (green).

The subroutine also has a number of *optional* features which are *transparent* to the user. (Transparent features are built-in program features that you can ignore without consequence – they take care of themselves.) The features are controlled by giving values to certain control variables. In BASIC, all numeric variables are initially set to zero, and the subroutine is designed so that a zero signifies the standard condition for each option. That's why the standard choices are transparent. The standard choice for an option is often called the "default" option, because if you don't specify an option, you'll get the standard choice by default. The transparent features are:

- The top four lines of the display can be printed with title or explanatory information. (Null strings are standard.) Also, the two bottom lines can be printed with legend information.
- Choice of bar color (black is standard); or contrasting colors for "up" and "down" bars; or alternating bar colors; or contrasting colored bars grouped in pairs.
- Close-spaced (standard) or double-spaced bars.
- Graph positioned against right edge of screen (standard), or moved left a chosen number of spaces.
- Automatic ranging and scaling, with all bars starting at zero (standard); or expanded, offset scale; or preassigned scale. Also, prescaling of multiple lists before plotting.
- Vertical scale labeled (standard), or unlabeled. Labels are printed to the left of the scale, if there's room. Otherwise, they will move automatically to just above or below the scale.

How To Use The Subroutine

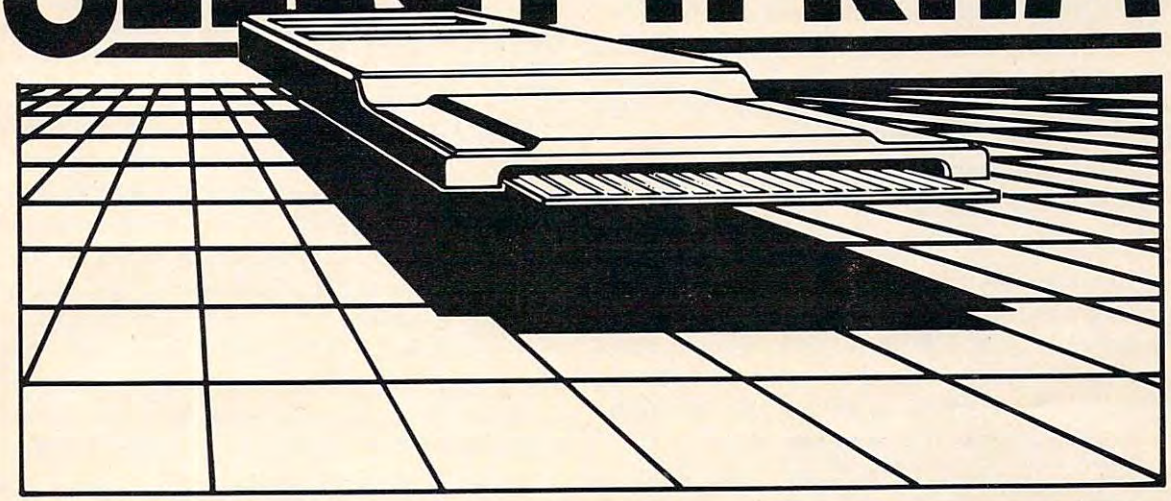
To create a bar graph plot, insert GOSUB9900 into your program after assigning the value or values to be plotted into the Y array. There are two fundamental restrictions in your main program. First, you cannot use line numbers from 9900 to 9999. Second, you shouldn't use variable names starting with Q, unless you're willing to share them with the subroutine.

The result of the GOSUB9900 (if no control variables are set) will be a single bar, representing the value stored in Y(0,0). Going beyond this simple graph requires using control variables – but only those you want to change from zero. Most likely you'll find that several of the controls are quickly mastered. You can then add more to your repertoire as you gain experience. All control variables must be given any new values before GOSUB9900.

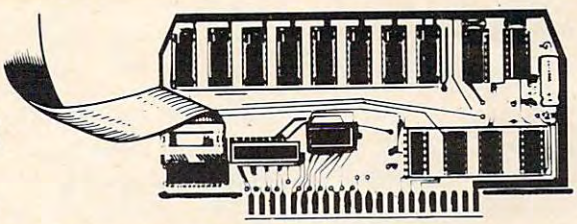
www.commodore.ca

64K for VIC 20™

SELECT·A·RAM™



SELECT·A·RAM



STANDARD FEATURES

- 8K BLOCKS SELECTABLE FROM THE KEYBOARD OR BY SOFTWARE COMMAND
- TWO EXPANSION SLOTS
- WRITE PROTECTION
- RESET SWITCH
- EXPANDABLE TO 192K WITH ADDITION OF 64K EXPANSION MODULES
- COMPATIBLE WITH ROM CARTRIDGES
- ONE YEAR WARRANTY ON PARTS AND LABOR
- 15 DAY MONEY BACK GUARANTEE

SELECT-A-RAM .....$169.
64K EXPANSION MODULE .....$149.
TRADE-INS ACCEPTED
3K $5 8K$10 16K-$20

VIC 20 IS A TRADEMARK
OF COMMODORE ELECTRONICS LIMITED

APS-52A

52K MEMORY FOR ATARI 400/800 ..... $119.00

The APS-52A memory expansion boards come assembled and tested with a 90 day warranty covering materials and workmanship. Boards come with complete documentation including operation and installation instructions and a memory test program.

16K TRADE-INS ACCEPTED $15.00

ATARI 400 AND 800 ARE TRADEMARKS
OF ATARI,INC.

512-441-3202 PO BOX 43006 Austin, Tx. 78745-0001

MasterCard

APS

ADVANCED·PROCESSOR·SYSTEMS

VISA®

www.commodore.ca

Optional Feature Controls

These are the rules for the control variables:

1. List identification. The variable Z becomes the first subscript of the Y values, thereby controlling which list is to be plotted. If there is only one list, then Z is always zero and never needs to be changed from its initial zero value.

2. Number of bars. The number of bars plotted is controlled by the variable QB. QB=0 plots one bar; QB=1 plots two bars, etc. The maximum value of QB is 20, which will plot 21 bars scaled to the values stored in Y(Z,0), Y(Z,1), Y(Z,2) – up to Y(Z,20). If either Z or QB is greater than ten, it is mandatory to use a DIM statement at the beginning of the program to DIMension the Y array. Even if they are both less than ten, it's still good programming to DIMension to save memory.

3. Title and legend. Up to 88 characters of title can be printed on the top four lines by creating a string variable QT$. Likewise, up to 44 characters of legend can be printed on the bottom two lines with QL$. [*Note:* The 44th character of QL$ can be used only with a trick. For example, if the last word is MONTH, end QL$ with the sequence "...MONH{LEFT}{INST}T". Otherwise, the top of the display will roll up and off. This sequence is only needed for exactly 44 characters.]

4. Bar color options. Bar colors are controlled with the standard VIC POKE codes for colors (which are one number lower than that color key on the keyboard). For example, the code for black is zero, and black is the standard color for the bars. The color control variables are Q0 and Q1. By assigning nonzero values to one or both, you can do the following:

- All bars one color: assign the same color to Q0 and Q1. Example: Q0=6: Q1=6 will result in all blue bars.
- Up bars one color, down bars another: assign the color for the up bars to Q0, and the color for the down bars to Q1. Example: Q0=0: Q1=4 will result in black bars pointing up and purple bars pointing down.
- Bars alternating colors: if either Q0, Q1, or both are given a minus sign, then ABS(Q0) is the color of the even bars and ABS(Q1) is the color of the odd bars. Example: Q0=6: Q1=-7 will result in bars alternating between blue and yellow.

5. Bar spacing. The standard option provides bars which are closely spaced. However, if QB is assigned a negative value, the bars will be plotted with a space between them. The maximum negative value allowed is ten (QB=-10), which will plot 11 bars separated by 10 spaces. In addition, if the alternating bar colors option is chosen at the same time that QB is negative, the bars will be plotted in closely spaced pairs separated by open spaces. Under these conditions, the maximum negative value allowed is 13 (QB=-13), which will plot seven pairs (14 bars) separated by six spaces.

6. Graph centering. The graph is normally positioned against the right edge of the screen (standard). You can move it to the left n spaces by setting QC=n.

7. Scale factor options. The options for the automatic ranging and scaling feature are controlled by the variable QS. The standard choice, QS=0, will always produce a useful graph of the data, and in many cases the result can't be improved upon. However, sometimes a bar graph can be done in a different way that makes it more informative. After all, effective chartmaking will always consider the reader, the data being compared, the most significant facts, and so on. The optional choices for QS allow you to have a scale offset from zero, or a prespecified scale. You can also prescale lists of values before doing any plots, which is desirable for merged graphs or for finding a common scale for several graphs in sequence.

Figures 3 and 4 illustrate the scale offset from zero. The graph in Figure 3 results from QS=0. Depending on the circumstances, this may be the best graph for this data. One problem, however, is that the variations are small compared to the length of the bars. If the *variations* are the most important characteristic of the data, then Figure 4 is a better display. This is achieved by making QS=1. The scale is expanded as much as possible – times ten, in this case. It must also be offset so the bottoms of the bars don't reach zero.

If you were the chairman of a charity sale and this was a graph of yearly results, you'd probably use Figure 4 when talking to your committee because it's easy to see the changes. But you might use Figure 3 in the final report because it doesn't exaggerate the bad news for '83. In Figure 4, the bar for '83 is only 50 percent as high as '82, but Figure 3 shows the true proportion – 93 percent. An offset scale isn't always possible, as, for example, when the list includes both positive and negative numbers. In such cases, QS=1 will not have any special effect on the graph. Figure 5 is a graph of such data.

The QS=2 option allows you to second-guess the Automatic Ranging and Scaling Rules by giving starting values to QX and QN. These two variables store the maximum and minimum values found in scanning the list of numbers to be plotted. This option, in effect, allows you to preassign a particular scale or a particular offset. Study the rules under "Automatic Ranging And Scaling," and then experiment to master this option.

The prescaling options, QS=3, 4, and 5, are

www.commodore.ca

COMPUTER BOOKS
★ ★ SALE ★ ★

VIC-20 and COMMODORE-64

• Learn Programming • Learn Graphics • Ready Made Programs
Now You Can Explore The Inner Workings of your Computer

Beginning Assembly Language Programming For Your VIC or 64
Now you can learn the powerful assembly language, to get the most out of your computer. Easy to use and simple to understand, comes with machine language monitor. Perfect for the beginner — specify VIC or 64.

List $29.95 / **Sale $24.95**

I Speak BASIC To My VIC
This is the first book you should read when you get your VIC-20. Everything you need to know about BASIC programming, cassette operation, and even file handling is explained in an easy to read, easy to use format.

List $10.95 / **Sale $7.95**

VIC Revealed
The most comprehensive explanation of the hardware capabilities of your VIC-20. All the chips and corresponding instruction sets are included *plus* BASIC ROM variables and sound effects programming. (A must for Assembly language programming.)

List $14.95 / **Sale $11.95**

VIC Graphics
Finally you can learn how to do color plotting, drawing maps, pie charts, line graphs and even moving shapes on the screen. All in high-resolution with easy to understand instructions. (This is a must for game designers) requires Super Expander.

List $14.95 / **Sale $11.95**

Stimulating Simulations
Twelve simulation programs. Each program is presented with a listing, sample run, instructions, and ideas for variations. Original program listings are provided in VIC BASIC. (This book is a good starting point for the computer hobbyist who wishes to explore the use of the small computer in simulating real events.)

List $8.95 / **Sale $5.95**

Elementary Commodore-64
Now you can learn how to do more than play games. Even if you're already writing programs, this book has all the information you need and will satisfy the rest of the family's desire to participate. Step by step chapters lead you through the process of hooking up the computer, loading and saving programs on either disk or tape and using the powerful cursor commands for easy correcting. The sample programs are fun and useful too. You will learn how to create music, graphics and all sorts of handy utilities like checkbook balancers and file systems.

List $16.95 / **Sale $13.95**

Commodore-64 Reference Guide — List $19.95 / **Sale $16.95**

VIC-20 Reference Guide — List $16.95 / **Sale $13.95**

Add $3.00 for postage. Add $6.00 for CANADA, PUERTO RICO, HAWAII orders. WE DO NOT EXPORT TO OTHER COUNTRIES.

Enclose Cashiers Check, Money Order or Personal Check. Allow 14 days for delivery, 2 to 7 days for phone orders, 1 day express mail! Canada orders must be in U.S. dollars. We accept Visa and MasterCard.

PROTECTO
ENTERPRIZES (WE LOVE OUR CUSTOMERS)
BOX 550, BARRINGTON, ILLINOIS 60010
Phone 312/382-5244 to order

www.commodore.ca

the same as QS=0,1, and 2, except nothing is put on the screen. But the maximum value (QX), minimum value (QN), scale factor (QZ), upper-scale label (QU), and lower-scale label (QD) are all computed and made available to the main program. Our final program uses this capability to combine Figures 1 and 2 into one graph. It's possible to make some very effective displays with these options, without a lot of programming.

8. Scale labels. You can suppress the printing of the scale labels within the subroutine by making QS negative, or if QS=0, by giving it a value of -.1.

Putting It All Together

Now we're ready to demonstrate some of these optional features using the car loan example. Program 1 merges the two previous bar graphs (Figures 1 and 2) into one display using two bar colors (see Figure 6).

Line 90 dimensions the Y array to conserve memory. If we don't do this, the BASIC interpreter will DIMension it Y(10,10) by default and tie up 455 extra bytes of memory.

We discussed lines 100-150 in the car loan example. Lines 160-190 prescale the Z=0 and Z=1 lists and then create a merged list suitable for graphing on a common scale. The merged list, in Z=2, contains *both* monthly payment and finance cost data, but at twelve-month intervals, instead of six. After prescaling each old list, the values are divided by their respective scale factors for combining into the new list. As a result, the numbers in the new list are all in the range of 0 to 5, instead of their true values. Therefore, we suppress the printing of the automatic scale labels and overprint with the labels (QU) obtained during the prescaling calls. As you can see, line 160 prescales the Z=0 list, and line 170 prescales Z=1. Line 180 puts five Z=0 values into the Z=2 list, with subscripts (2,0), (2,2), (2,4), (2,6), and (2,8). Line 190 puts five Z=1 values into subscripts (2,1), (2,3), (2,5), (2,7), and (2,9).

Line 200 establishes the optional features for the bar graph by assigning values to control variables Z, Q1, QB, QS, and QC. You should be able to match up the values in the program with the features in the graph.

Lines 210-230 create the string variables for the title and legend. Notice that part of the title uses the input variables for the amount and APR of the loan.

The scale labels we need for this graph are special, so the subroutine labels were turned off. In line 9988, you can GOSUB to your own subroutine and overprint the graph with anything you wish. In our program, we GOSUB 800-830.

Adding The Subroutine To Your Program

There are several ways to use this program with your own programs, but the easiest is to plan ahead. If you want bar graph displays, load this program into memory before you start to type in your main program, and you've got it. However, if you want to combine the bar graph subroutine with a program that's already on tape or disk, without retyping the program, here's a technique to do this which should work every time. It's a slight embellishment of Mark Niggemann's method (COMPUTE!, March 1983, p. 210).

Let's assume that you have a copy of the bar graph subroutine (Program 2) saved on tape or disk with a filename "BARSUB", and that you have a main program we'll call PROGA also saved. You want to improve PROGA by adding bar graph capability. First of all, the program cannot have any line numbers as high as BARSUB's line numbers. That is, they must be below 9900. In the case of Program 1 in this article, you must be sure to delete line 9988 before going further. LOAD PROGA and observe the line number restriction. Then clear the screen and type:

```
?PEEK(43),PEEK(44)
```

RETURN and write down the two answers, which make up the start-of-BASIC memory pointer. On an unexpanded VIC, they'll be 1 and 16 (location 1 on page 16). The trick is to change the Start pointer to be two less than the current value of the End pointer in 45 and 46. A reliable way to do this is to type in the following in direct mode (no line number) and hit RETURN:

```
A=PEEK(45)+256*PEEK(46)-2:B=INT(A/256):
  POKE43,A-256*B:POKE44,B
```

Then proceed:

```
LOAD"BARSUB"
PRESS PLAY ON TAPE
OK
SEARCHING FOR BARSUB
FOUND BARSUB
LOADING
READY.
```

Finally, POKE the numbers you wrote down back into memory. For the unexpanded VIC, for example:

```
POKE43,1:POKE44,16
```

At this point you have combined the two programs and are ready to proceed with debugging.

A Look At The Program

The bar graph subroutine adds 2300 bytes to the main program. That's not including the Y array and the part of the main program that gets ready to call the subroutine. Even so, a worthwhile program will still fit in a 5K unexpanded VIC. Our

www.commodore.ca

NEW

MPI INTRODUCES SUPER ACTION MEMORY EXPANDER BOARD FOR VIC 20*

Adds 24K and 3 Expansion Slots With Switches and Fuse $109.95

(Expandable To 35K By Simply Adding Memory Chips and Switches)

INTRODUCTORY PRICE

$109.95

Transfer Cartridges To Tape

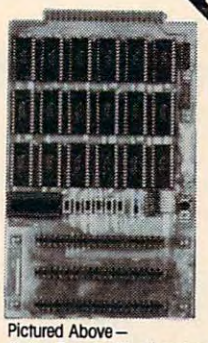
Evade Self Destruct Code With Write Protect Switch

All Boards Factory Tested

Complete Instructions And Illustrations Included.

Fuse Protected

Reset Switch



Pictured Above—
Action Board with all options

24K BOARD FEATURES:

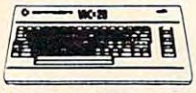
- *Adds 24K Memory (29K with VIC* 5K).
- *Upgrade Board to 35K by adding IC's and switches.
- *Memory switchable in 8K sections. (No need to remove memory board to run your other programs).
- *3 expansion slots with switches (for game or extra utility cartridges).
- *Reset button allows restarting computer without turning power off.
- *.5 amp fuse protected.
- *Switch relocates expansion cartridges in memory so that it can be saved on tape as a backup for your valuable programs. (The unexpanded VIC will not allow cartridges to be saved on tape).
- *Write protect switches allow programs stored in RAM at ROM location or entire Memory to be protected against accidental write.
- *Switch allows memory to be moved between RAM and ROM location. (Useful for developing your own games and saving on tape).
- *Gold plated card edge connector.
- *No other memory expansion needed.
- *Easily plugs into your VIC, no modifications necessary. Saves wear on your VIC 20 since board never needs to be removed or power turned off and on to run other tapes or cartridges.
- **Optional 35K memory (40K with VIC* 5K).

24K memory, 3 expansion slots, switches assembled and tested **$109.95**

Same as above with sockets that allow you to later add your own memory chips to bring memory from 24K to 35K **$124.95**

Full 35K memory, 3 expansion slots, 3K expander mode, eprom socket (switch selectable between BLK 3 & BLK 5) and all switches assembled and tested (eprom not included) **$149.95**

Bare 35K board with complete instruction and parts list **$39.95**



VIC 20* is a registered trademark of Commodore.

COD ORDERS
816 444 4651
MIDWEST PERIPHERAL INDUSTRIES

MPI

Add $5 for shipping and handling
Mo. residents add 5½% sales tax
Send check or money order to

MPI
Box 8123-B
Kansas City, MO 64112

NEW NEW NEW

"The Original"

THE FINEST
EXPANSION CHASSIS
for the
VIC-20*

"Since 1981"

15-Day Money Back Trial

6-Month Warranty

The "GAME MACHINE"®

Now only $85

- Fully buffered Electronics.

6-slots
Plug in up to 6 GAMES or MEMORY PACKS then Switch Select each separately or in combination

RESET

Plug in up to 40K RAM and all other PACKS that are available. (Can be daisy chained.)

- Memory Protect included
- Fully Buffered (prevent memory dropouts)
- Fuse Protection
- Large switches
- Rigid support
- Also other prod. avail.

IN STOCK immediate delivery.
Send Money Order and we pay the shipping.
—ORDER TODAY—

® PARSEC RESEARCH (Established 1976)
* VIC-20 is a TM of Commodore

(MC & VISA accepted)
Call: (415) 651-3160
PARSEC RESEARCH
Drawer 1766-C
Fremont, CA 94538
• Dealer inquiries invited •

NEW

LEROY'S CHEATSHEET™ KEYBOARD OVERLAYS FOR YOUR VIC-20™

AT LAST! The information you need, at your fingertips, without going back to the manual. No need to memorize commands. These durable plastic coated overlays are designed for use by first time users, amateur enthusiasts, and trained professionals. Each overlay contains program starting locations, function key labeling, commands and warnings in bold letters, and additional helpful aids in center cutout.

DON'T DELAY - MAIL TODAY

Please send me the following Leroy's Cheatsheet™ keyboard overlays

- ☐ Programmer's Aid[1]
- ☐ Vicmon[1]
- ☐ Super Expander[1]
- ☐ Vic Typewriter[1]
- ☐ Victerm 1[1]
- ☐ Graphic Printer (1515 & 1525)[1]
- ☐ UMI Wordcraft 20[2]
- ☐ HES Writer[3]
- ☐ HES Vic Forth[3]

ONLY $3.95 EACH

Send check or money order plus $2.00 (postage and handling)
PA residents add 6% sales tax.

Name_____

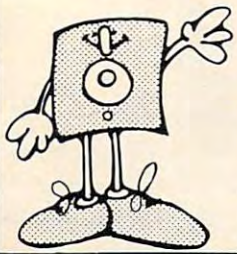
Address_____

City_____ State_____ Zip_____

(1) Products of Commodore Business Machines, Inc. (2) Product of United Microware Industries, Inc.
(3) Products of Human Engineered Software. VIC-20 is a Trademark of Commodore Business Machines, Inc.

CHEATSHEET PRODUCTS™ CP1083
P.O. Box 8299 Pittsburgh PA. 15218

Verbatim
flexible disks



Call Free **(800) 235-4137** for prices and information. Dealer inquiries invited. C.O.D. and charge cards accepted.

PACIFIC EXCHANGES
100 Foothill Blvd.
San Luis Obispo, CA
93401. In Cal. call
(800) 592-5935 or
(805) 543-1037.

VISA

www.commodore.ca

Figure 1:
Car Loan Analysis – Monthly Payment

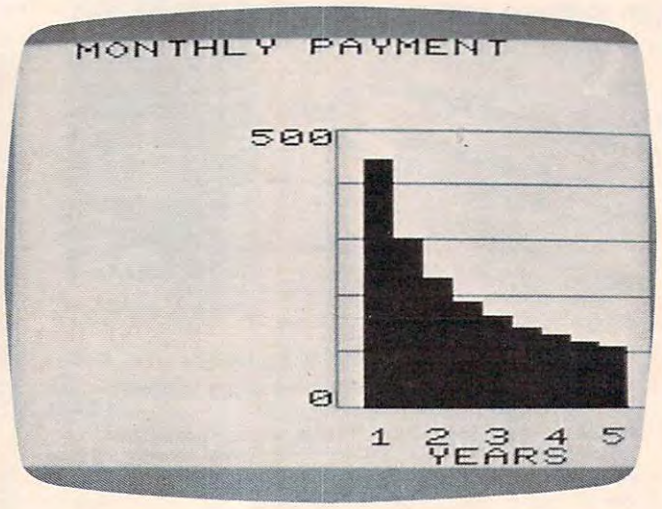


Figure 2:
Car Loan Analysis – Total Finance Cost

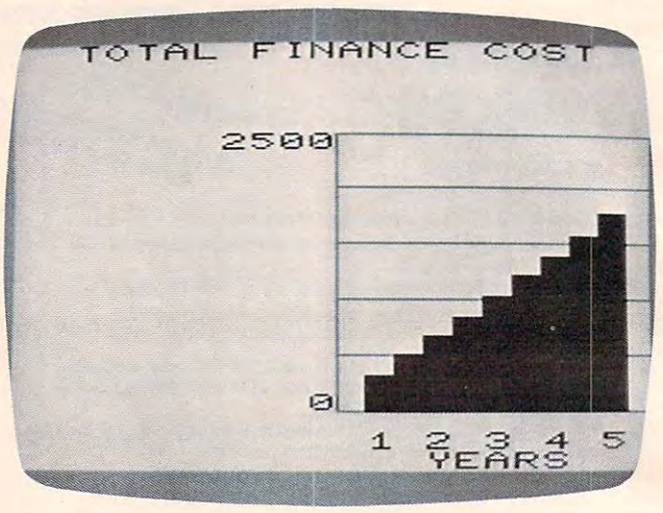


Figure 3: Standard Scale

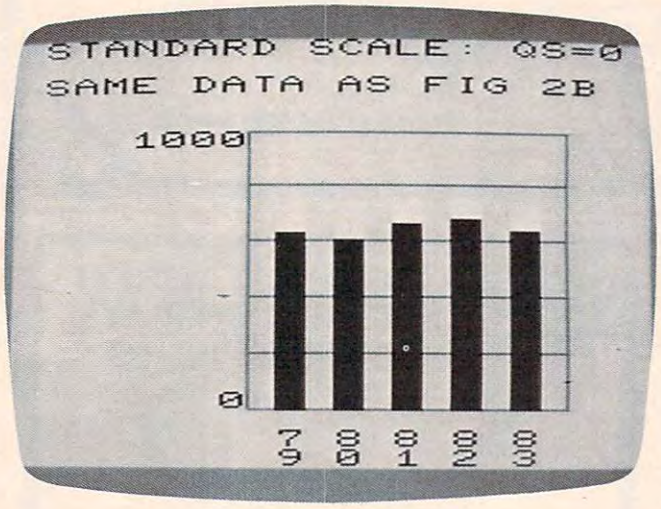


Figure 4: Expanded Scale With Offset

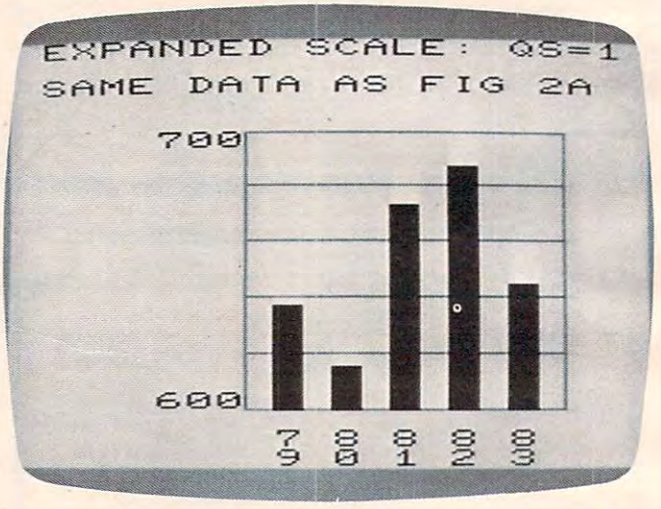


Figure 5:
Scale Including Both Positive And Negative Numbers

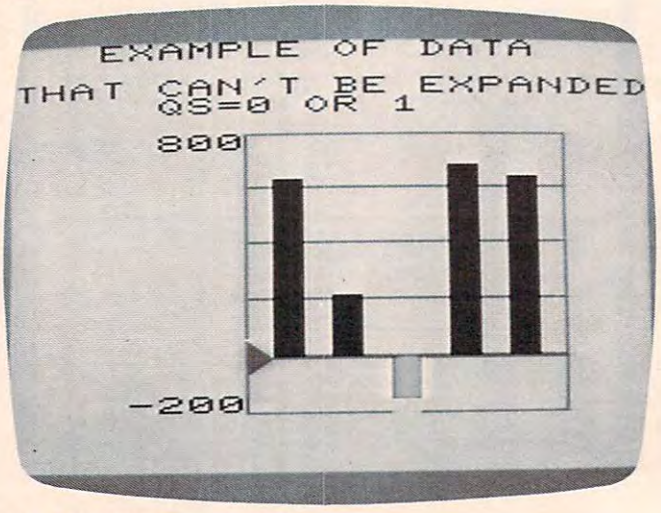
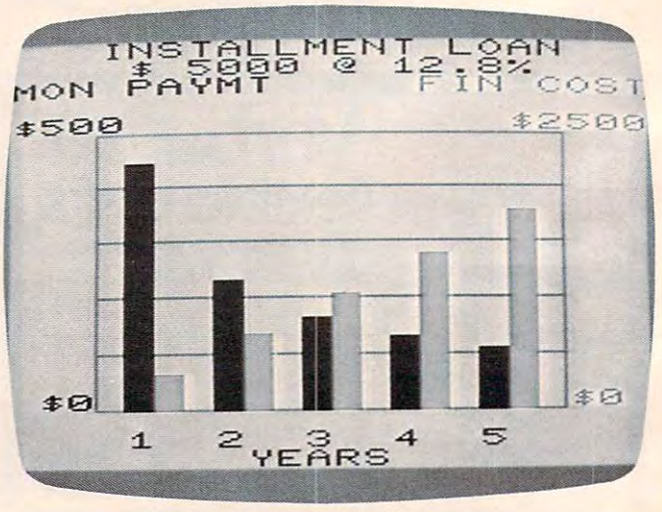
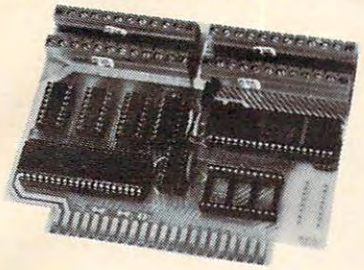


Figure 6: Car Loan Analysis – Total Cost (Combines graphs from Figures 1 and 2.)



www.commodore.ca

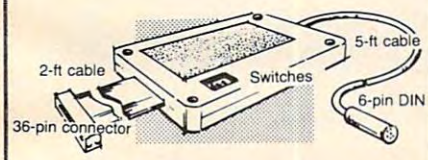
NEW!
Universal Input/Output Board for VIC-20/64



16-channel A/D converter & 1-channel D/A output; 16 high-current discrete outputs.
• University physics & electrical engineering labs and hospital applications.

VIC-20 uses MW-311V $205.00
CBM-64 uses MW-311C $225.00

MW-302: VIC-20/64 Parallel Printer Interface.



Works with all centronics type parallel matrix & letter printers and plotters—Epson, C.Itoh, Okidata, Nec, Gemini 10, TP-I Smith Corona, and most others. Hardware driven; works off the serial port. Quality construction: Steel DIN connectors & shielded cables. Has these switch selectable options: Device 4, 5, 6 or 7; ASCII or PET ASCII; 7-bit or 8-bit output; upper & lower case or upper only. Recommended by PROFESSIONAL SOFTWARE for WordPro 3 Plus for the 64, and by City Software for PaperClip.

MW-302 ..... $119.95

Dealer inquiries invited.

VISA MasterCard

Micro World Electronix, Inc.
3333 S. Wadsworth Blvd. #C105,
Lakewood, CO 80227
(303) 987-9532 or 987-2671

FREE

WRITE FOR FREE CSI CATALOG OF VIC 20 and CMB 64 PRODUCTS

- SOFTWARE
- HARDWARE
- PROGRAMMING AIDS
- OPERATIONAL AIDS
- SUPPLIES
- MEDIA
- BOOKS

COMPATIBLE SYSTEMS INCORPORATED
P.O. Box 2070 • Dept. C
Saratoga, CA 95070
(408) 255-2024

64K MEMORY FOR THE *VIC 20?
YES, IT'S HERE!

LETCO

ANNOUNCES
THE ULTIMATE *VIC 20 MEMORY!

THE 64KV MEMORY EXPANSION MODULE W/24K OF NORMAL EXPANSION + 40K ADD'L FOR PROGRAM OR DATA STORAGE, BOOSTS MEMORY TO ALMOST 70,000 BYTES! THIS 40K IS PAGED IN OR OUT IN 8K BLOCKS WITH A SINGLE POKE INSTR. THE 64KV USES STATE OF THE ART DYNAMIC RAMS WITH TRANSPARENT REFRESH. ALL 8K BLOCKS ARE SWITCH SELECTABLE AND WRITE PROTECTABLE. THE ENTIRE UNIT DRAWS ONLY 250 MA. THE 64 KV HAS A GOLD PLATED EDGE CONNECTOR AND IS HOUSED IN A DISTINCTIVE BLACK CASE. PLUGS DIRECTLY INTO EXP PORT. ALL THIS AT A PRICE YOU CAN AFFORD.

ONLY $149.95

(SHIPPING AND HANDLING INCLUDED)
90 DAY LIMITED WARRANTY
OHIO RESIDENTS ADD 5% SALES TAX

LETCO
7310 WELLS RD.
PLAIN CITY, OH. 43064 DEPT. CM
1-614-873-4410

NAME _____
ADDRESS _____
CITY, STATE _____
ZIP CODE _____

WE ACCEPT VISA OR MASTERCARD. PLEASE INCLUDE CARD NO. EXP. DATE AND SIGN
*VIC 20 IS A REG. TM. OF C.B.M. INC.

VIController

HOME CONTROL SYSTEM FOR THE VIC 20 & CBM 64

- Control up to 256 lights & appliances
- 9 levels of brightness
- Manual & time control software
- Uses BSR remote switches
- Plugs into user port

ONLY $59.95

EXTENDED TIME CONTROL PROGRAM FOR CBM 64 . . . $9.95

COMvoice

NEW SPEECH SYNTHESIZER FOR VIC 20 & CBM 64

- Unlimited Vocabulary
- Automatic English to Speech Conversion
- New BASIC Command "SPEAK"
- Will Speak String Variables
- Speaks with Four Levels of Inflection
- Plugs into Expansion Port
- Built in Audio Jack

ONLY $149.95

AS EASY TO USE AS A PRINT STATEMENT!

Call (215) 861-0850 to order
MasterCard or Visa Accepted
1444 Linden Street, Bethlehem, PA 18018

GENESIS COMPUTER CORPORATION

www.commodore.ca

Automatic Ranging And Scaling Rules

The bar graph subroutine follows a set of automatic ranging and scaling rules in the process of making the graph. The entire scale consists of six lines outlining five intervals. The value represented by one interval is called the scale factor. For example, in Figure 4 there are six lines representing 600, 620, 640, 660, 680, and 700. Each interval between lines represents 20, which is the scale factor.

These are the rules the subroutine follows to decide on the scale factor and the values for the scale lines:

1. The maximum value, QX, is the most positive, or failing that, the least negative value in the list of bars. Likewise, the minimum value, QN, is the most negative, or, failing that, the least positive.

2. The scale factor will be 1, 2, or 5 times 10^n where n is a positive or negative integer, or 0. (If n is 0, 10^n is 1.) Typical scale factors would be 5, .02, 1000, 1E-6.

3. The values of the scale lines must be multiples of the scale factor, or zero.

4. The scale factor will be the *smallest* number possible, so that the full scale will include the maximum and minimum values, QX and QN. For the standard scale option, QS=0 or 3, the full scale must include zero. Therefore, QX and QN are given starting values of zero before scanning the list of Y values.

5. For the QS=1 or 4 option, QX and QN will be given a starting value equal to Y(Z,0) before the maximum/minimum scan. This will result in an expanded scale, with three exceptions:

- If all Y values are identical, an expanded scale is possible, but the automatic rules can't decide on one.
- If the Y list contains both positive and negative values, the scale cannot be expanded.
- If the maximum and minimum values are already spread out over the normal scale, the scale cannot be expanded.

In these cases, the subroutine will work as if QS=0 or 3.

6. If QS=2 or 5, the values of QX and QN at the time of GOSUB9900 are carried into the subroutine, and the rules are followed on that basis. This allows you to choose your own scale factor or offset. However, if the data in the list won't fit your scale, the scale will automatically be changed to fit the data.

final example, which generated Figure 6, left 205 bytes free after RUNning. To keep the subroutine memory size to 2300 bytes, be sure to omit all REMarks and spaces (except inside quotes) when typing the program.

Program 1:
Car Loan Application For Bar Graph

```
90 DIMY(2,9)
100 INPUT"{CLR}AMNT,APR";AM,AR
110 MR=AR/1200
120 FORI=0TO8:N=6*(I+2):REM N=12 TO 60 BY
    6'S
130 Y(0,I)=AM*MR/(1-(1+MR)↑-N)
140 Y(1,I)=N*Y(0,I)-AM
150 NEXTI:QB=8
160 QS=3:Z=0:GOSUB9900:U0=QU:Z0=QZ
170 Z=1:GOSUB9900:U1=QU:Z1=QZ
180 FORI=0TO4:Y(2,2*I)=Y(0,2*I)/Z0
190 Y(2,2*I+1)=Y(1,2*I)/Z1:NEXT
200 Z=2:QB=-9:Q1=-4:QS=-.1:QC=3
210 T1$="{3 SPACES}INSTALLMENT LOAN
    {3 SPACES}"
220 QT$=T1$+"{4 SPACES}$"+STR$(AM)+"@"+ST
    R$(AR)+"%"
230 QL$="{4 SPACES}1{2 SPACES}2{2 SPACES}
    3{2 SPACES}4{2 SPACES}5{13 SPACES}YEA
    RS"
240 GOSUB9900:GOTO100
800 T2$="{BLK}MON PAYMT{5 SPACES}{PUR}FIN
    COST"
810 T3$="{BLK}$"+MID$(STR$(U0),2):T4$="
    {PUR}$"+MID$(STR$(U1),2)
820 PRINT"{HOME}"SPC(44)T2$SPC(22)T3$TAB(
    23-LEN(T4$))T4$SPC(255)SPC(54)"{BLK}$
    0"SPC(16)"{PUR}$0{BLU}"
830 RETURN
840 REM ADD LINE 9988 AFTER PROGRAM 2 IS
    {SPACE}IN MEMORY!
9988 GOSUB800
```

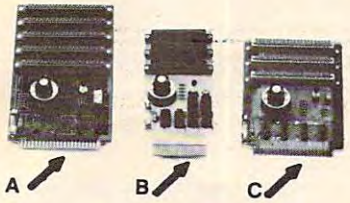
Program 2: Bar Graph Subroutine

```
9899 REM HI-PRECISION NORMALIZE
9900 DEF FNQ(X)=SGN(X)*INT(ABS(X)/Q9*(1E5
    +1E-3))/1E5
9901 REM COLOR AND QB CONTROL
9902 Q2=-(Q1<0)OR-(Q0<0):Q5=1:IFQB<0THENQ
    5=2-.5*Q2
9903 Q8=INT(20/Q5):IFABS(QB)<Q8THENQ8=ABS
    (QB)
9904 REM MAX/MIN SCAN
9905 QD=0:IF(ABS(QS)=1ORABS(QS)=4)THENQX=
    Y(Z,0):QN=Y(Z,0)
9906 IF(ABS(QS)<1ORABS(QS)=3ORQD=9)THENQX
    =0:QN=0
9908 FORQ=0TOQ8:IFY(Z,Q)>QXTHENQX=Y(Z,Q)
9910 IFY(Z,Q)<QNTHENQN=Y(Z,Q)
9912 NEXT
9913 REM AUTO RANGE/SCALE
9914 QF=QX-QN:IFQF>0THEN9918
```


www.commodore.ca

VIC-20* AND CBM-64* OWNERS

Our products have the features you need. Whether you know it or not!



A. Dataspan-50 for the VIC-20*

a) 5 slots, fully buffered, fuse protected and master reset button
b) Combination **rotary** and **rocker switch** selectable expansion board conveniently **covers all switching needs** now and in the future without using common hazardous slot-by-slot power switching.
c) Independent **write protection** on two slots

Dataspan-50 Kit **$69.95**
Dataspan-50 Assembled **$84.95**

B. Dataspan-64 for the CBM 64*

a) 3 slots, fuse protected, and master reset button.
b) Rotary switch convenience. Choose any slot, the first two, or all three.
c) Exclusive buffered electronic switching

Dataspan-64 Kit **$49.95**
Dataspan-64 Assembled **$59.95**

C. Dataspan-30 for the VIC-20*

a) 3 slots, fuse protected, and master reset button.
b) Rotary switch convenience. Choose any slot, the first two, or all three.
c) Independent **write protection** on two slots.

Dataspan-30 Kit **$34.95**
Dataspan-30 Assembled **$44.95**

"Close Out" Dataspan-20

5 Slot VIC-20* expansion board.

Dataspan-20 Kit **$49.95**
Dataspan-20 Assembled **$64.95**

Kits for Experienced Builders only!
All assembled units have full 90-Day Limited Guarantee.
*Trademark Commodore Bus. Machines

NOTES: These prices are subject to change without notice. All kits supplied with **complete assembly and operating instructions.**

D. Champagne Memory on a Beer Budget

Highest quality glass epoxy 16K memory board with gold fingers provides full block switching and write-protection on **each** 8K block. All block switches are conveniently located at the **top edge** of the board.

DataRAM
a) Bare memory board (RAM/ROM) **$13.95**
b) Bare memory board Kit **$17.95**
includes all components except RAM/ROM chips

DataRAM 8
c) Board with 8K RAM - Complete Kit **$34.95**
d) Board with 8K RAM Assembled **$37.95**
(Suggested Retail Price Assembled $47.95)

DataRAM 16
e) Board with 16K RAM - Complete Kit **$48.95**
f) Board with 16K RAM Assembled **$54.95**
(Suggested Retail Price Assembled $69.95)

E. Datablast-16

Finally a low cost, high quality 2716 EPROM programmer for the VIC-20! Put your most often used machine language programs into EPROMs.

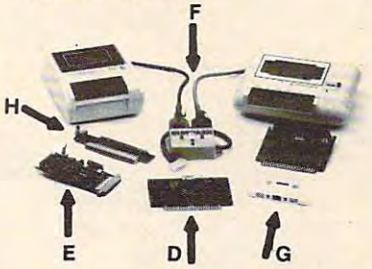
- On-board 25 volt power supply.
- Can be used with COMPUTE!'s, "Micromon" or our software below.
- Program/read mode switch.
- We suggest you use the EPROMs with our DataRAM memory board.
- Zero insertion force socket.

Datablast-16
a) Kit **$49.95**
b) Assembled **$59.95**
c) Software for Datablast-16 (tape) ..... **$ 9.95**
d) 2716 EPROMs ..... **$ 4.50**

Digital Interface Systems Co.
P.O. Box 8715
Portland, OR 97207
(503) 230-1130

SEE YOUR DEALER OR ORDER FACTORY DIRECT

TERMS: No C.O.D. orders. Shipping and Handling **$3.00**
VISA/MASTERCARD - Add **3%** Most orders shipped within 48 hours. (Personal checks — allow 2 weeks to clear)



Protect your investment with our software back-up products

F. CB-2 for the VIC-20* & CBM-64*

The CB-2 is a complete hardware package that allows you to easily and efficiently make a back-up copy of your cassette software library.

Unique features:

- Allows connection for one or two Datasette* recorders (or equivalent). Two recorders required for **simple** back-up copies.
- Exclusive state-of-the-art circuitry lets you **actually hear and see** tape data being loaded or saved.

CB-2 Assembled, Only **$39.95**

G. "Super Blocksaver"

Software and interface card for back-up copies of VIC-20* cartridges. Additional memory required. (Specify cartridge to tape or disk) **$34.95**

CBM-64* Cartridge Back-up System ..... **Call**

H. Mother Switcher

Now make any bare bones expansion board fully block selectable.

- Master reset button.
- Write-protection switch.
- Cartridges piggyback on Mother Switcher.

Mother Switcher Assembled, Only **$13.95**

RAMcharger

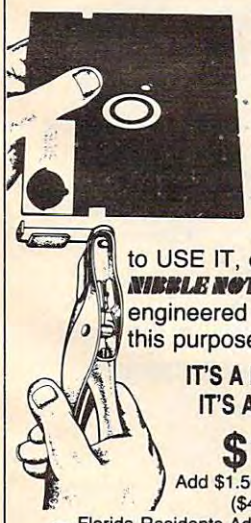
- Turn your Commodore 8K cartridge into a full 16K cartridge.
- Full block switching capabilities.
- Sockets allow future EPROM substitution.

RAMcharger Kit **$28.95**

---

*DOUBLES DISKETTE STORAGE SPACE!!

REDUCE YOUR DISKETTE COSTS BY 50%



*The back of your 5¼" single sided diskette has recording medium. All you need is an ACCURATELY placed ***"write enable notch"*** to USE IT, on many systems. ***NIBBLE NOTCH***™ is a precision engineered tool designed for this purpose.

IT'S A MONEY SAVER!
IT'S A TIME SAVER!

$14.95

Add $1.50 Postage/Handling
($4.50 Foreign)
— Florida Residents Add 5% Sales Tax —

ORDER TODAY!
SEND CHECK OR MONEY ORDER TO:

NIBBLE NOTCH ™
Division of Cortran International
4211 N.W. 75th Terrace, Dept. 1210
Lauderhill, Florida 33319

PAT. PEND. Immediate shipment

HUNDREDS OF PROGRAMS AVAILABLE FOR THE COMMODORE 64 & VIC 20

Avalon-Hill • HES • Epyx • Spinnaker • Infocom
Abacus • Sirius • Broderbund • Victory • Totl
and much more

ALL PRICES UP TO 30% BELOW RETAIL!!

	RETAIL	OUR PRICES
Quick Brown Fox (64 or VIC 20)	65.00	47.50
Hesmon (64 or VIC 20)	39.95	29.95
Paper Clip (CBM 64) (D)	125.00	96.25
Jumpman (D or Cass.)	39.95	29.95
Temple of Apshai (D)	39.95	29.95
Zork I, II, or III (D)	39.95	29.95
Deadline (D)	49.95	37.50
Starcross (D)	39.95	29.95
Facemaker (D)	34.95	26.25
Kindercomp (D)	29.95	22.50

ACCESSORIES AVAILABLE ALSO
Monitors • Printers • Expansion Boards

CARDCO		
Cardboard/3 slot	39.95	31.95
Cardco Parallel Printer Interface	79.95	63.95
DATA 20		
Video Pak (8K mem., 40/80 col. includes free word processor)	149.95	119.95

Many more products also available for APPLE, ATARI, CP/M, IBM P/C

Write or call for FREE CATALOG
TO ORDER: CALL 1-714-951-5596
8:00 A.M. - 8:00 P.M. PST Mon.-Sat.
or send check or credit card no., signature, & exp. date to:

CENTURY MICRO PRODUCTS
P.O. Box 2520
Mission Viejo, CA 92690

Visa/Mastercard add 3%. Personal checks allow 2 weeks to clear. CA residents add sales tax. Shipping and handling add $3.00 (hardware extra). Prices subject to change.

MicroClear

USER COMPATIBLE SOFTWARE
FOR YOUR VIC 20 or '64

Featuring
- FORMATTED SCREENS
- SELECTIVE RECALL TO SCREEN OR PRINTER
- ADD, DELETE, REVIEW, UPDATE, REPORT FUNCTIONS

THESIS MASTER

Organizes research notes and creates bibliography. Report generator with three level sort/select. Large text area. VIC requires 8K expansion.
DISK ONLY $29.95

STAMP COLLECTOR

Computerize your collection. Ideal for beginners and experts. Store up to 14 fields for each issue including multiple cat. nos., cat. value, cond., perf., wtmk, color. VIC requires 8K expansion.
DISK OR TAPE (Specify) $29.95

HOME LIBRARIAN

For the collector and avid reader. Random access to your own electronic card catalogue. VIC requires 8K expansion.
DISK ONLY $29.95

Send check or money order + $1.50 p/h to:

MicroClear - P.O. Box 9368
Raytown, MO 64133

Missouri residents add 5.625% sales tax
Specify VIC or '64
DEALER INQUIRIES INVITED

www.commodore.ca

```
9915 IFQX=ØTHENQU=5:QD=Ø:QR=Ø:QZ=1:GOTO99
     42
9916 QD=9:GOTO99Ø6
9918 QL=INT(LOG(QF)/LOG(1Ø)):GOSUB9996:QP
     =FNQ(QF):QY=.5:IFQP>2.5THENQY=1
9920 IFQP>5THENQY=2
9922 IFQP=1THENQY=.2
9924 GOSUB9996:Q3=FNQ(QX):Q4=FNQ(QN)
9925 QU=-INT(-Q3/QY):QD=INT(Q4/QY)
9926 IFQD>=ØTHENQR=Ø:QU=QD+5:GOTO9934
9928 IFQU<=ØTHENQR=5:QD=QU-5:GOTO9934
9930 IFQ3+Q4>ØTHENQU=QD+5:QR=-QD:GOTO9934
9932 QD=QU-5:QR=-QD
9934 IFQ3/QY<=QUANDQ4/QY>=QDTHEN9938
9935 QY=QY*2+3.5*(QY=2)-.1*(QY=.2):IFQY=.
     5ANDQP>1THENQL=QL+1
9936 GOTO9924
9938 QZ=QY*Q9:QS$=""
9940 QO=24*QD*(QD>Ø)-24*QU*(QU<Ø):QU=QU*Q
     Z:QD=QD*QZ
9941 IFQS=>ØTHENQS$=MID$(STR$(QU),1-(QU=>
     Ø))
9942 IFABS(QS)>2THENRETURN:REM{4 SPACES}I
     FTRUE, NO PLOT
9943 REM COLOR FUNCTIONS
9944 DEF FNQT(X)=ABS(Q1)*(Q2ANDXAND1)-ABS
     (QØ)*NOT-(Q2ANDXAND1)
9945 DEF FNQB(X)=ABS(QØ)*(Q2ANDNOT(XAND1)
     )-ABS(Q1)*NOT-(Q2ANDNOT(XAND1))
9946 PRINT"{CLR}";QT$;"{HOME}";:Q3=INT(Q5
     *Q8):IFQ3>19THENQ3=19
9947 REM BUILD SCALE LINES
9948 QA$="O":QB$="L":FORQ=ØTOQ3:QA$=QA$+"
     [T]":QB$=QB$+"[@]":NEXT:Q3=Q:QW=
     2Ø-Q3-ABS(QC)
9950 QW=-QW*(QW>Ø):QL=2Ø-QW-Q3:QA$=QA$+"P
     ":QB$=QB$+"@":Q4=QW-LEN(QS$):IFQ4>=Ø
     THEN9954
9951 REM PRINT SCALE & LABELS
9952 PRINTSPC(88)QS$:PRINTSPC(QW):QF=PEEK
     (646):GOTO9955
9954 PRINTSPC(11Ø+Q4)QS$;:QF=PEEK(646)
9955 PRINT"{GRN}"QA$SPC(QL):FORQ=ØTO12:PR
     INTSPC(QW)"[G]"SPC(Q3)"[M]"SPC(Q
     L):NEXT
9956 PRINT"{HOME}"SPC(154):FORQ=4TO1STEP-
     1:IFQR>QTHENPRINTSPC(22):GOTO9960
9958 PRINTSPC(QW)QB$SPC(QL):IFQR<QTHENPRI
     NTSPC(44):GOTO9962
9960 PRINTSPC(QW)QA$SPC(22+QL)
9962 NEXT:IFQS=>ØTHENQS$=MID$(STR$(QD),1-
     (QD=>Ø))
9964 PRINTSPC(QW)QB$;:POKE646,QF:PRINTSPC
     (QL):Q4=QW-LEN(QS$):IFQ4<ØTHENPRINTQ
     S$:GOTO9967
9965 PRINT"{UP}"SPC(Q4)QS$SPC(Q3+24+QL)
9966 REM Q3=START SCREEN RAM{12 SPACES}Q4
     =COLOR RAM ADDER
9967 Q3=256*PEEK(648):Q4=37888+4*(PEEK(36
     866)AND128)-Q3
9968 REM ZERO MARKER
9969 IFQR>ØANDQR<5THENQP=Q3+418+QW-66*QR:
     POKEQP,223:POKEQP+22,1Ø5
9970 REM COMPUTE BAR LENGTH IN PIXELS; CO
     MPUTE POKE ORIGIN
9971 FORQ=ØTOQ8:QY=INT(24*ABS(Y(Z,Q))/QZ)
     +QO
9972 QF=INT(QY/8):QL=QY-8*QF:IFQY=ØTHENQL
     =1
9973 QP=Q3+419+QW-66*QR+INT(Q*Q5):IF(Y(Z,
     Q)<ØORQR=5)THEN9982
9974 REM POKE "UP" BARS
9975 IFQF>ØTHENFORQP=QPTOQP-22*(QF-1)STEP
     -22:POKEQP,224:POKEQP+Q4,FNQT(Q):NEX
     T
9976 REM Q%=CODES FOR UP SEGMNTS
9977 Q%(1)=1ØØ:Q%(2)=111:Q%(3)=121:Q%(4)=
     98:Q%(5)=248:Q%(6)=247:Q%(7)=227
9978 IFQL>ØTHENPOKEQP,Q%(QL):POKEQP+Q4,FN
     QT(Q)
9980 GOTO9987
9981 REM POKE "DOWN" BARS
9982 QP=QP+22:IFQF>ØTHENFORQP=QPTOQP+22*(
     QF-1)STEP22:POKEQP,224:POKEQP+Q4,FNQ
     B(Q):NEXT
9983 REM Q%=CODES FOR DWN SEGMNTS
9984 Q%(1)=99:Q%(2)=119:Q%(3)=12Ø:Q%(4)=2
     26:Q%(5)=249:Q%(6)=239:Q%(7)=228
9985 IFQL>ØTHENPOKEQP,Q%(QL):POKEQP+Q4,FN
     QB(Q)
9986 REM END BAR LOOP;PRINT LEGEND
9987 NEXT:PRINTQL$TAB(43)
9988 REM GOSUB OVERPRINT HERE,{9 SPACES}I
     F DESIRED
9989 REM HOLD DISPLAY; TURN ON CURSOR
9990 PRINT"{HOME}"SPC(255)SPC(25Ø):POKE2Ø
     4,Ø
9992 GETQ$:IFQ$=""THEN9992
9994 POKE2Ø7,Ø:POKE2Ø4,1:RETURN
9995 REM HI-PRECISION EXPONENT SUBROUTINE
9996 Q9=1:ONSGN(QL)+1GOTO9999,9998
9997 FORQ=1TO-QL:Q9=Q9/1Ø:NEXT:RETURN
9998 FORQ=1TOQL:Q9=Q9*1Ø:NEXT
9999 RETURN                                  ©
```


This Publication is available in Microform.

University Microfilms International

Please send additional information

for _____ (name of publication)

Name_____

Institution_____

Street_____

City_____

State_____ Zip_____

300 North Zeeb Road, Dept. P.R., Ann Arbor, Mi. 48106

www.commodore.ca

THAT'S ENTERTAINMENT

FOR DISCRIMINATING TASTES

TRI MICRO

COSMIC SPLIT

You have to defend yourself from the tri-legged creatures attacking the planet. Their hatcheries keep producing eggs, which you must destroy to control the proliferation of the creatures. Fast action with 99 levels of play. Control color of characters and background. Save your game and return to play.

$39.95

KRYSTALS OF ZONG

Your object is to overcome various obstacles and overpower creatures intent on stopping you as you progress on your quest for the Krystals of Zong. Quick reactions will be necessary if you are to succeed. Clues will guide you. Arcade style game, with adventure game overtones.

$29.95

THE AMULET

The princess has lost the amulet, a magical necklace with seven precious stones. In order to defend the kingdom, you must recover the amulet, searching through swamps, castles, and rivers of the realm. In your journey, you will encounter barbarians, wizards, knights, and others whose mission is to stop you. Graphics, sound and strategy play a part in your successful mission.

$39.95

PALADIN

Sharpen your wits and rivet your attention as you engage the enemy in defender-like action. 256 types of intelligent enemy attacks. Virtual coordinate acceleration.

$29.95

TRI GRAPH

Try your hand at playing Picasso—sketch with various colors and eight sizes of brush strokes. Label your sketches—create charts—animate characters—build shape/screen libraries. Full 64,000 bit pixelation.

$34.95

TRI SLUGGER STATS

End the tedious procedure of keeping Little League and Softball League statistics. This statistics package will maintain player averages and records and team records. Allows you to rotate your players and effectively manage your team. Easily learned menus and prompts keep you involved with the team while the computer performs your statistical tabulations and reporting.

$39.95

Home and Business Applications Also—Inquire. Dealer Inquiries Invited:

International TriMicro
4122 E. Chapman, Ste. 30
Orange, California 92669
(714) 771-4038

International TriMicro
904 West Cypress Drive
Arlington Heights, IL 60005
(312) 394-2322

International TriMicro
901 Summit Hill Dr.
Knoxville, TN 37915
(615) 522-4824

www.commodore.ca

64 CHARACTER CREATOR

Al J. Ockert

This menu-driven utility makes it easy to create, modify, and save custom characters. Also, the program calculates DATA statements for your new characters and allows a review of your creation in any 64 color.

This character generator program moves the complete character set (256 characters) into RAM and sets up the screen so you can easily redefine characters. Up to 128 characters can be redefined at any one time. However, the reversed (inverse video) characters cannot be redefined without modifying the program.

An 8x8 grid will be drawn on the screen. By using the cursor keys, you can draw any character you wish to create.

With single-key commands, all of which are listed next to the grid on screen, characters can be manipulated for a variety of purposes. When you have the character the way you want it, the D command will display the DATA statement containing your new character.

After you have redefined as many characters as you wish (up to 128), you can save them in a data file by using the S command. Preceding all the character data will be the total number of characters saved in that data file. And preceding each character's data will be the key code of that character.

The next time you run the program, you can load all the characters saved in a data file by using the L command. The program is set up for tape files. If you are a disk drive owner, simply substitute the following lines:

```
640 IF A$="L"THEN OPEN1,8,0,N$:GOTO900
645 OPEN1,8,1,N$:GOTO800
```

Easy Single-Key Access

When the program is first run after the ROM character set is transferred to RAM and the screen set up, the program initializes the C (select a character) command. If you want to load previously defined characters first, select any character to get back to the main menu. Then select the L (load) command.

While running the program, you can view the character that you are creating in the Multi-Color Mode (MCM) by selecting the M (Multi-Color ON) command. All the characters displayed on the screen will be in multicolor. However, only the character that you are creating, which is displayed at screen location 1731, will change when you change the color with F7. This is because only Color Memory location 56003, which contains the color information for screen location 1731, is changed with the F7 function key.

Also, while in MCM, the redefined character has to have a color between 8 and 15 in Color RAM (CRAM) to be in MCM. That is, if the color code is between 8 and 15 (orange through gray 3) in the CRAM, then the bit pairs will change colors as the background colors BKG #0 through BKG #2 are changed. However, if the color code in CRAM is from 0 to 7 (black through yellow), then the redefined character will be displayed only in that color.

You can also see what different color combinations look like by changing the screen background color BKG #0 using the F1 function key and changing the character color by using the F7 function key. When the three background colors are changed by using F1, F3, and F5, respectively, all the screen characters change.

The bit pair/color register format is displayed in the upper-right corner of the screen. This is to assist you in determining what color the bit pair will have while in Multi-Color Mode. If both pixels of the bit pair are off (00), the screen (BKG #0) register color will be displayed there.

If only the second pixel of the bit pair is on (01), background #1 (BKG #1) register color will be displayed for the bit pair.

If only the first pixel of the bit pair is on (10), background #2 (BKG #2) register color will be displayed for the bit pair.

If both pixels of the pair are on (11), the Color Memory (CRAM) color will be displayed for the bit pair — but only in screen location 1731.

After you have created a few characters, by using the left arrow (←) command you can break from the program to see what your characters look like on the screen in different combinations. The screen can be cleared and your characters typed onto the screen. In this mode the program can even be listed. However, if you modify the program now, you will lose your redefined character data in the arrays since all variables are zeroed when you modify or edit a program.

If you stay in the immediate mode, you will not lose your characters, and you can return to the main program by typing in GOTO 12 and RETURN.

www.commodore.ca

64 Character Creator

```
5 POKE52,56:POKE56,56:CLR:PRINTCHR$(142)
10 DIMA(8,8),D%(127,8),C$(15),K%(127):L=0
   :CH=0:F=0
12 X=0:Y=0:R=0:C=O:CM=14336:RA=56334:V=53
   248:S=1367
15 IFF=0THENPRINT"{CLR}{DOWN}IT WILL TAKE
    ABOUT 40 SECONDS TO SET UP"
20 RESTORE:FORX=0TO15:READC$(X):NEXT
21 FORR=1TO8:FORC=1TO8:A(R,C)=46:NEXTC,R
25 C0=PEEK(V+33)AND15:C1=PEEK(V+34)AND15
27 CL=PEEK(V+2755)AND15:C2=PEEK(V+35)AND1
   5
29 IFL>0ORF=1THEN39
31 POKERA,(PEEK(RA)AND254):POKE1,PEEK(1)A
   ND251
34 FORI=0TO255:FORJ=0TO7:POKECM+I*8+J,PEE
   K(V+I*8+J):NEXTJ,I
36 POKE1,PEEK(1)OR4:POKERA,PEEK(RA)OR1
37 POKEV+24,(PEEK(V+24)AND240)OR14
39 PRINT"{CLR}"SPC(20)"IN MULTI-COLOR MOD
   E"
40 PRINT" CHARACTER GENERATOR{2 SPACES}BI
   T PAIR/COLOR REG"
48 PRINT"{UP} *{2 SPACES}TURN ON PIXEL
   {7 SPACES}00{7 SPACES}BKG#0"
50 PRINT" -{2 SPACES}ERASE PIXEL
   {9 SPACES}01{7 SPACES}BKG#1"
51 PRINT" F1 BKG#0-"C$(C0)TAB(24)"10
   {7 SPACES}BKG#2"
52 PRINT" F3 BKG#1-"C$(C1)TAB(24)"11
   {7 SPACES}CRAM "
54 PRINT" F5 BKG#2-"C$(C2)
56 PRINT" F7 CRAM -"C$(CL)
58 PRINT" ={2 SPACES}COMPUTE CHARACTER"
60 PRINT" D{2 SPACES}DATA"
61 PRINT" O{2 SPACES}MULTI-COLOR OFF"
62 PRINT" N{2 SPACES}NEW SCREEN"
63 PRINT" M{2 SPACES}MULTI-COLOR ON"
64 PRINT" S{2 SPACES}SAVE CHARACTERS"
66 PRINT" L{2 SPACES}LOAD CHARACTERS"
68 PRINT" C{2 SPACES}NEW CHARACTER"
69 PRINT" ←{2 SPACES}BREAK PROGRAM"
70 PRINT" Q{2 SPACES}QUIT"
80 POKES-40+1,76:POKES-40+2,122:POKES-40+
   3,76:POKES-40+4,122:POKES-40+5,76:POKE
   S-40+6,122
81 POKES-40+7,76:POKES-40+8,122
82 FORR=0TO7:POKES+C+R*40,84:NEXT
84 FORC=C-1TO1STEP-1:POKES+C+R*40,69:NEXT
86 FORR=R-1TO0STEP-1:POKES+C+R*40,89:NEXT
90 Y=0:FORR=1TO8:FORC=1TO8:Y=Y+1:POKES+Y,
   A(R,C):NEXT:Y=Y+32:NEXT
95 Y=1:X=1:GOTO300
100 GETA$:IFA$=""THEN100
110 R=S+X+(Y-1)*40:C=A(Y,X):POKER,C
120 IFA$="{DOWN}"THENY=Y+1:IFY>8THENY=1
130 IFA$="{UP}"THENY=Y-1:IFY<1THENY=8
140 IFA$="{RIGHT}"THENX=X+1:IFX>8THENX=1
150 IFA$="{LEFT}"THENX=X-1:IFX<1THENX=8
160 IFA$="-"THENA(Y,X)=46
170 IFA$="*"THENR=42:A(Y,X)=R
180 IFA$="="THEN400
190 IFA$="D"THEN500
200 IFA$="N"ORA$="Q"ORA$="←"ORA$="L"ORA$
   ="S"THEN600
205 IFA$="M"THEN580
207 IFA$="O"THEN590
210 IFA$="C"THEN700
220 IFA$="{F1}"THENR=33:GOTO520
230 IFA$="{F3}"THENR=34:GOTO520
240 IFA$="{F5}"THENR=35:GOTO520
250 IFA$="{F7}"THENR=2755:GOTO520
300 R=S+X+(Y-1)*40:C=A(Y,X)+128:POKER,C:I
   FF=0THEN700
305 GOTO100
400 FORY=0TO8:D%(L,Y)=0:NEXT:CH=1
401 FORY=1TO8:FORX=1TO8:PIX=A(Y,X)-42:IFP
   IX>0THENPIX=0:GOTO420
410 PIX=1
420 D%(L,Y)=D%(L,Y)+PIX*2↑(8-X):NEXTX,Y
430 FORY=0TO7:POKECM+8*K%(L)+Y,D%(L,Y+1):
   POKE1731,K%(L):NEXT:GOTO95
450 PRINT"{HOME}{20 DOWN}{RVS}"A$": YES O
   R NO {OFF}{22 SPACES}"
460 FORX=1TO10:GETN$:NEXT
470 GETN$:IFN$=""THEN470
480 PRINT"{UP}{16 SPACES}{UP}":IFA$="N"OR
   A$="Q"ORA$="←"ORA$="L"ORA$="S"THENRE
   TURN
481 IFN$="Y"THEN12
482 IFN$="N"THENPRINT"{DOWN}TO RETURN TO
   {SPACE}THE PROGRAM TYPE GOTO 12":STOP
490 PRINT"{RVS}{HOME}{6 DOWN}CONTINUE":GO
   TO460
500 PRINT"{CLR}{DOWN}{3 RIGHT}DATA";:FORY
   =1TO8:PRINTD%(L,Y)"{LEFT},";:NEXT:PRI
   NT"{LEFT} "
510 PRINT"{DOWN}FOR KEY CODE="K%(L):GOTO4
   90
520 C=PEEK(V+R)AND15:C=C+1:IFC>15THENC=0
530 POKEV+R,C:PRINT"{HOME}{4 DOWN}";:IFR=
   33THENC0=C:GOTO570
540 PRINT"{DOWN}";:IFR=34THENC1=C:GOTO570
550 PRINT"{DOWN}";:IFR=35THENC2=C:GOTO570
560 PRINT"{DOWN}";:CL=C
570 PRINT"{10 RIGHT}"C$(C)"{2 SPACES}":GO
   TO300
580 POKEV+22,PEEK(V+22)OR16:GOTO300
590 POKEV+22,PEEK(V+22)AND 239:GOTO300
600 GOSUB450:IFN$<>"Y"THEN95
610 GETN$:GETN$:IFA$="N"THEN12
620 IFA$="Q"THENPOKEV+24,21:POKEV+22,PEEK
   (V+22)AND239:END
625 IFA$="←"THENPRINT"{DOWN}TO RETURN TO
    THE PROGRAM TYPE GOTO 12":STOP
630 PRINT"{CLR}":INPUT"NAME OF CHARACTER
   {SPACE}FILE";N$:PRINT
640 IFA$="L"THENOPEN1,1,0,N$:GOTO900
645 OPEN1,1,1,N$:GOTO800
700 PRINT"{HOME}{20 DOWN}{RVS}PRESS KEY T
   HAT YOU WANT TO CHANGE{OFF}":F=1
705 IFCH=1THENL=L+1:CH=0
710 GETA$:IFA$=""THEN710
720 POKE16385,ASC(A$):K%(L)=PEEK(16385)AN
   D191:IFK%(L)>64THENK%(L)=K%(L)-64
722 POKE1731,K%(L)
725 PRINT"{2 UP}"SPC(24)"KEY CODE="K%(L)"
   {LEFT}{2 SPACES}"
730 PRINT"{33 SPACES}":IFL=0THEN100
735 FORY=0TO8:FORX=0TO8:A(Y,X)=46:NEXTX,Y
   :GOTO90
800 PRINT#1,L
802 FORY=0TOL:PRINT#1,K%(Y):FORX=1TO8:PRI
   NT#1,D%(Y,X):NEXTX,Y:CLOSE1:GOTO12
900 INPUT#1,L:FORY=0TOL:INPUT#1,K%(Y):FOR
   X=1TO8:INPUT#1,D%(Y,X):NEXTX,Y:CLOSE1
910 PRINT"COMPUTING CHARACTERS"
920 FORY=0TOL:FORX=1TO8:POKECM+8*K%(Y)+(X
   -1),D%(Y,X):NEXTX,Y:GOTO12
1000 DATABLACK,WHITE,RED,CYAN,PURPLE,GREE
     N,BLUE,YELLOW
1010 DATAORANGE,BROWN,LT RED,GREY1,GREY2,
     LT GREEN,LT BLUE,GREY3
```

©

www.commodore.ca

BUSIWRITER

WORD PROCESSOR PROGRAM

$99

THE BEST Personal/Professional Word Processor for the Commodore 64

BUSICALC 1

BUSINESS CALCULATION PROGRAM

$69

A "BEST BUY" Electronic Spread Sheet for all Commodore's

BUSICALC 2

BUSINESS CALCULATION PROGRAM

$99

The MOST CAPABLE Electronic Spread Sheet for the Commodore 64

WE'RE HERE!

Skyles Electric Works
231E South Whisman Road
Mountain View, CA 94041
(415) 965-1735

AVAILABLE NOW! Call 800 227-9998**
For the name of your nearest dealer, detailed information or a catalog of products.
***California, Canada and Alaska, please call (415) 965-1735.*

In Europe: SUPERSOFT, Winchester House, Canning Road, Harrow Wealdstone, England HA3 7SJ Tel. 01-861-1166

www.commodore.ca

CAPUTE!

Modifications Or Corrections To Previous Articles

Atari Retirement Planning

In Craig Cole's suggested improvements to the Atari version of Retirement Planner (COMPUTE!, April 1983) which appeared in the July "Readers' Feedback" section (p. 16), line 70 should have read:

```
70 Y=Y+1
```

TI Goblin

As this game from the July issue (p. 72) was presented, your goblin could not reach the faces in the rightmost column of the screen. This can be corrected by changing line 760 to read:

```
760 COL=COL+SGN(31-COL)
```

To make the game display the proper high score, delete lines 270, 280, and 290, and add the following line:

```
1125 IF S>HS THEN 1130 ELSE 1140
```

Thanks to Canadian reader Luc Cousineau and others who pointed out this problem.

Fortress Of Adnil

In the program for this Timex/Sinclair game (July 1983, p. 92), the GOTO statements were missing from the following two lines:

```
8040 IF INKEY$="" THEN GOTO 8020
8209 IF INKEY$="" THEN GOTO 8207
```

Roadblock

Readers who have had trouble typing in this long machine language program for the Atari may want to add the following lines to the BASIC loader (July 1983, p. 108) to help check for typing errors in their DATA statements:

```
15 LN=1010
20 FOR L=0 TO 16
25 FOR C=0 TO 69
30 D=PEEK(L*70+13824+C):IF D>15010 T
   HEN 40
35 T=T+D:NEXT C
40 READ CK:IF CK<>T THEN PRINT "ERRO
   R IN LINES ";LN;"-";LN+90:STOP
45 PRINT "LINES ";LN;"-";LN+90;" OK"
50 T=0:LN=LN+100:NEXT L
55 A=USR(14788)
3000 DATA 3797,8372,7521,6620,6660,8
     073
3010 DATA 7319,7083,6853,6626,6631,8
     059
3020 DATA 7685,7702,7951,7720,7014
```

Circles

For the machine language circle-drawing routine presented in this Atari graphics article from the July issue to work properly, the following lines must be added to Program 7 (p. 168), the BASIC loader for the routine:

```
28004 RESTORE 29500
28005 FOR I=1577 TO 1584:READ A:POKE
      I,A:NEXT I
29500 DATA 128,64,32,16,8,4,2,1
```

Timex/Sinclair Screenscrolls

Reader Daniel Froats notes that the screen scrolling programs from the July issue (p. 216) will work with the basic 2K of memory if the following two lines are entered before running the program:

```
POKE 16389,n
CLS
```

Replace n with any number greater than 90.

Commodore 64 Video Tour

Jim Butterfield writes that readers whose 64s have the newer ROM sets may experience problems with the BASIC programs from Parts VI (July 1983 p. 218) and VII (August 1983, p. 182) of his series on the 64's video capabilities. This is because the ROM routines leave the raster interrupt in a non-standard state. To make the programs work, add the following line:

```
90 POKE 53265,27
```

VIC Bitmapping

Line 100 of Program 1 from this article on VIC high resolution graphics (July 1983, p. 248) should read:

```
100 POKEV+15,17*T-9:FORI=.TO255:POKEW+I,I
    :POKER+I,C-1:NEXT:FORI=.TOL*2*↑STEPB
```

The "shifted up-arrow" key combination on the VIC gives the symbol for pi, which acts as a constant with the value of pi when used in calculations.

First Math

A bug in the VIC, 64, and Apple versions of this educational game from the August issue (p. 92) sometimes causes a "division by zero" error when playing in the addition, subtraction, or multiplication modes. To prevent this, add the following line:

VIC or 64 Version (Programs 1 or 2)

```
123 IF A$<>CHR$(47) THEN 140
```

Apple Version (Program 5)

```
395 IF A$ <> ("/") THEN 430
```

©

www.commodore.ca

A Beginner's Guide To Typing In Programs

What Is A Program?

A computer cannot perform any task by itself. Like a car without gas, a computer has *potential*, but without a program, it isn't going anywhere. Most of the programs published in **COMPUTE!** are written in a computer language called BASIC. BASIC is easy to learn and is built into most computers (on some computers, you have to purchase an optional BASIC cartridge).

BASIC Programs

Each month, **COMPUTE!** publishes programs for many machines. To start out, type in only programs written for your machine, e.g., "TI Version" if you have a TI-99/4. Later, when you gain experience with your computer's BASIC, you can try typing in and converting certain programs from one computer to yours.

Computers can be picky. Unlike the English language, which is full of ambiguities, BASIC usually has only one "right way" of stating something. Every letter, character, or number is significant. A common mistake is substituting a letter such as "O" for the numeral "0", a lowercase "l" for the numeral "1", or an uppercase "B" for the numeral "8". Also, you must enter all punctuation such as colons and commas just as they appear in the magazine. Spacing can be important. To be safe, type in the listings *exactly* as they appear.

Brackets And Special Characters

The exception to this typing rule is when you see the curved bracket, such as "{DOWN}". Anything within a set of brackets is a special character or characters that cannot easily be listed on a printer. When you come across such a special statement, refer to the appropriate key for your computer. For example, if you have an Atari, refer to the "Atari" section in "How to Type COMPUTE!'s Programs."

About DATA Statements

Some programs contain a section or sections of DATA statements. These lines provide information needed by the program. Some DATA statements contain actual programs (called machine language); others contain graphics codes. These lines are especially sensitive to errors.

If a single number in any one DATA statement is mistyped, your machine could "lock up," or "crash." The keyboard, break key, and RESET (or STOP) keys may all seem "dead," and the screen may go blank. Don't panic – no damage is done. To regain control, you have to turn off your computer, then turn it back on. This will erase whatever program was in memory, so always SAVE a copy of your program before you RUN it. If your computer crashes, you can LOAD the program and look for your mistake.

Sometimes a mistyped DATA statement will cause an error message when the program is RUN. The error message may refer to the program line that READs the data. *The error is still in the DATA statements, though.*

Get To Know Your Machine

You should familiarize yourself with your computer before attempting to type in a program. Learn the statements you use to store and retrieve programs from tape or disk. You'll want to save a copy of your program, so that you won't have to type it in every time you want to use it. Learn to use your machine's editing functions. How do you change a line if you made a mistake? You can always retype the line, but you at least need to know how to backspace. Do you know how to enter inverse video, lowercase, and control characters? It's all explained in your computer's manuals.

A Quick Review

1) Type in the program a line at a time, in order. Press RETURN or ENTER at the end of each line. Use backspace or the back arrow to correct mistakes.

2) Check the line you've typed against the line in the magazine. You can check the entire program again if you get an error when you RUN the program.

3) Make sure you've entered statements in brackets as the appropriate control key (see "How To Type COMPUTE!'s Programs" elsewhere in the magazine.)

We regret that we are no longer able to respond to individual inquiries about programs, products, or services appearing in **COMPUTE!** *due to increasing publication activity. On those infrequent occasions when a published program contains a typo, the correction will appear on the CAPUTE! page, usually within eight weeks. If you have specific questions about items or programs which you've seen in* **COMPUTE!**, *please send them to Readers Feedback, P.O. Box 5406, Greensboro, NC 27403.* ©

www.commodore.ca

TALMIS/ InfoWorld

Sell Your Software
TO MAJOR PUBLISHERS!

Would you like the opportunity to discuss your software or software development skills with major publishers looking for product and development assistance, venture capitalists looking for investment opportunities and agents looking for software developers? At The Great American Software Contest you can do all that and compete for prizes worth up to $10,000 at the same time!

In addition, you'll spend the day before the exhibit in seminars with software market analysts from TALMIS—the same people consulted by IBM, Atari and other major companies for information and advice. They'll tell you what it will take to sell software yourself; how you might work with an agent; what publishers and venture capitalists are looking for; what to watch out for when negotiating contracts, how the software market is changing and more important selling tips.

We've tried to make this conference as inexpensive for you as possible. You won't need any fancy booth or signs. Curtained booths are available for those with top-secret programs. Just bring yourself, your microcomputer and your unpublished software. The cost for you to compete for prizes up to $10,000, learn the ropes of software selling and discuss your products or talents with publishers, agents and venture capitalists is $195 plus $15 for electricity (that's less than it costs us.) Special hotel rates are available.

Space is limited so call today to enter The TALMIS/InfoWorld Great American Software Contest. And get busy on that software—the publishers are waiting for you! For more details contact Master Plans Conference Management, 111 E. Chestnut St., Suite 24F, Chicago, IL 60611: (312) 944-1711.

Enter
THE GREAT AMERICAN SOFTWARE CONTEST

Nov. 1-2
Boston Park Plaza
Boston, MA

One $10,000 Grand Prize
Five $3000 First Prizes in category
Five $500 Second Prizes in category
Ten $250 Third Prizes in category

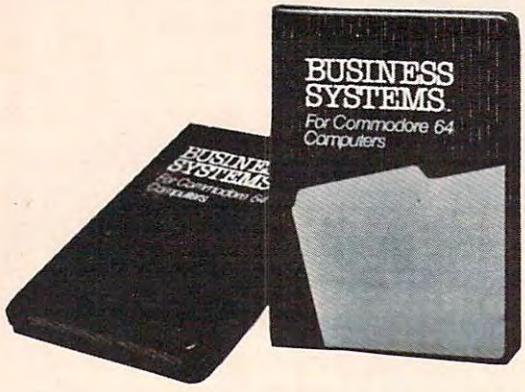
+ $30,000 IN PRIZES

TALMIS/ InfoWorld

Affiliates of International Data Corporation

www.commodore.ca

COMMODORE 64
PROFESSIONAL BUSINESS PROGRAMS



- **INTRODUCTORY OFFER ½ PRICE!**
- **15 DAY FREE TRIAL!**
- **LIFETIME GUARANTEE!**
- **FILE GUARD (TM)**

PROFESSIONAL BUSINESS PROGRAMS! *Disk)*

You take no risk! We are so sure these professional business programs will meet and exceed your highest expectations, we are willing to allow you to try these programs at our expense! These are designed and produced by **Southern Solutions** who produces professional business programs for **Commodores** most expensive computers. These business program will convert your **Commodore 64** into a Professional Business Machine!!!

INTRODUCTORY OFFER! (Expires 12-25-83)

	List	½ Price
• General Ledger & Cash Flow	$119.00	$59.00
• Accounts Payable Plus Check Writing	$119.00	$59.00
• Accounts Receivable	$119.00	$59.00
• Payroll	$119.00	$59.00
• Inventory	$119.00	$59.00
• Data Base Manager	$119.00	$59.00

15 DAY FREE TRIAL!

We give you 15 days at your business for you to try out these programs! Should they not meet your requirements just send them back prepaid and we'll refund your purchase price!

LIFETIME GUARANTEE!

If a program fails due to faulty workmanship or material anytime you personally own and use the program we will replace it at no charge!

FILE GUARD (TM)

Prevents loss of data and confidential files due to power failure — a Southern Solutions exclusive!

PLUS: THESE PROFESSIONAL BUSINESS PROGRAMS -

- ***Script 64 - No. 1 Executive Word Processor - Disk*** ***List $99 - Sale $59***
- ***Complete Data Base - Tape-Disk*** ***List $89 - Sale $59***
- ***Electronic Spread Sheet (like Visicalc) - Tape-Disk*** ***List $89 - Sale $59***

• LOWEST PRICES • 15 DAY FREE TRIAL • 90 DAY FREE REPLACEMENT WARRANTY
• BEST SERVICE IN U.S.A. • ONE DAY EXPRESS MAIL • OVER 500 PROGRAMS • FREE CATALOGS

Add $3.00 for postage. Add $6.00 for CANADA, PUERTO RICO, HAWAII orders. WE DO NOT EXPORT TO OTHER COUNTRIES.

Enclose Cashiers Check, Money Order or Personal Check. Allow 14 days for delivery, 2 to 7 days for phone orders, 1 day express mail! Canada orders must be in U.S. dollars. We accept Visa and MasterCard. We ship C.O.D.

PROTECTO
ENTERPRIZES (WE LOVE OUR CUSTOMERS)
BOX 550, BARRINGTON, ILLINOIS 60010
Phone 312/382-5244 to order

www.commodore.ca

NEWS & PRODUCTS

80-Column Commodore 64 Word Processor

Mirage Concepts has produced an 80-column word processor for the Commodore 64. The machine language program produces the expanded display without hardware modifications.

The *Word Processor* allows text to be formatted on the screen exactly as it will appear on the printed page. Other features of the program include word wrap, search and replace, block functions, and more than 70 single-keystroke commands. The $99.95 word processor is designed to work with a variety of printers.

Another Mirage product for the 64 is *Database Manager*, which features free-form design and input. It includes the ability to sort any field and to calculate fields. It can handle up to 65,535 records per file, 2,000 characters per record, 200 fields per record, and 250 characters per field.

Database Manager sells for $99.95.

Word Processor *and* Database Manager *are available from Mirage Concepts for the Commodore 64.*

Mirage Concepts, Inc.
2519 W. Shaw, No. 106
Fresno, CA 93711
(209) 227-8369

64 Math Drill

The *Math Teacher* is a math tutorial program that drills students in the basics of addition, subtraction, multiplication, and division. The program, which is available from CompuTech, is designed for use with students from first grade through junior high school.

The game, which makes use of the Commodore 64's graphics capabilities, is designed to work with either a color or black-and-white monitor.

The *Math Teacher* is available on tape for $39.95.

CompuTech
P.O. Box 7000-309
Redondo Beach, CA 90277

Apple, Atari, 64 Games

Avalon Hill has introduced a handful of new games for the Apple, Atari, and Commodore 64 computers. Here is what the company has to offer.

Paris in Danger is a simulation of Napoleon's 1814 campaign in France. The player can assume the role of Napoleon, Commander Schwarzenberg, or can play both sides. The $35 game is available for 48K Atari 800 and 1200XL computers.

T.G.I.F. is a party game for up to four players. The game recreates a typical working-class workweek. Can you survive until payday? The game is available on cassette for the Commodore 64, and on cassette or disk for 40K Atari machines.

Parthian Kings is an Apple game for up to four players. Feudal civil war is coming and the struggle is on for who will rule the land. The winner will be the best strategist and leader.

S.C.I.M.M.A.R.'S, which stands for Surface Contra-Gravity Individual Manned Mobile Anti-Vehicle Raiders, is a game of gladiatorial armor combat set in the far future. The $30 game is available for Apple computers.

For Your TI-99/4A
FLIGHT SIMULATOR

The Dow-4 Gazelle is a realistic IFR simulation of a typical 4-place private plane. It is not a game. A manual with 30 pages of text plus 7 figures helps the novice learn to fly. Experienced pilots will enjoy flying the ILS approach. Response time under 1 sec average. Display shows full panel (10 dials & 11 lights) and indicates position of runway for landing. Realistic sound effects. See reviews in Jan 83 99'er and Jun 83 AOPA Pilot. Only requires joystick. $30.

EDITOR/ASSEMBLER

The Dow E/A turns your computer into an assembly language machine. Requires Mini Memory Module. Load once and use all day, saving and restoring source assembly language programs on cassette (1 sec. per statement), just as you do with Basic. Supports all of the TI's instructions, 6 directives, and various interactive commands. Assembles into memory in 3 sec. per statement. Manual includes sample program with detailed explanations. Increase your programming enjoyment over the Line-by-line Assembler, and if you upgrade to TI's Editor/Assembler, you can convert your programs without rekeying them. $25

Send SASE for additional information. To order, send check or MO U.S. funds:
JOHN T. DOW
6360 Caton
Pittsburgh, PA 15217
First class postage to U.S. and Canada included--others add U.S. $2 (PA residents add 6% state sales tax).

www.commodore.ca

Stack * Rack
Modular Workshelf System

NEW

MODEL #A181818 $102.00 + $4.00 Shipping
18" wide

Locates monitor up at eye level, computer stores under shelf, organizes reference material.

CONSTRUCTION: Solid Oak, engineered for strength.
FINISH: Natural hand rubbed oil, with color accent stripe.
FOOTPRINT: Stacks all components and materials vertically.
ERGONOMICS: Shelves adjustable for height & angle.
FLEXIBLE: Fits all computer types.
SIMPLE: Positions on desk or work table.

9 models to fit all systems.

california design works
Box 3052
Monterey
California 93940

Order direct.
Illustrated Catalog available
Dealer information available.

PROTECT YOUR SYSTEM from *POWER DAMAGE*

LOW COST

- Metal Oxide Varistor short circuits transient high voltage "spikes" before damage occurs
- Continuous ±5 nanosecond response protection
- Handles common and differential mode surges
- Prevents software "glitches" and memory loss
- Reduces solid state equipment damage
- EMI and RFI noise suppression filters
- For use only with 110 volt, 15 amp, 60 hz circuits
- Limited 5-year replacement warranty

Holub Enterprises, Inc., Dept.-C
P.O. Box 9471
Greensboro, NC 27429

☐ Enclosed is check or money order for _____ Solid State Protectors @ 8.95 each plus .50 each for postage and handling.

NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____

ORDER SEVERAL — PROTECT STEREOS, TVS AND OTHER SOLID STATE APPLIANCES!!

Computer Football Strategy is a detailed statistical treatment of 18 great teams. You have 20 offensive and 10 defensive plays to choose from as the animated action unfolds on the scrolling football field. The game is available on cassette for the Commodore 64 and Atari computers, and on disk for Atari. Price is $16 for tape, $21 for disk.

T.A.C., an acronym for Tactical Armor Command, is a simulation of armored combat during World War II. Five different scenarios are available in this $40 Apple game.

The Avalon Hill Game Company
4517 Harford Road
Baltimore, MD 21214
(301) 254-5300

Automodem With Parallel Printer Port

The AutoPrint Microconnection, an auto-answer, auto-dial modem for the VIC-20, Commodore 64, and Atari computers, has been introduced by Microperipheral.

The modem, which operates at 300 baud, includes a Centronics compatible parallel printer port.

The two-pound unit plugs directly into the computer. With the modem connected to the phone line, an attached printer will provide a hard copy of whatever appears on the screen.

The AutoPrint Microconnection is available for $149.95.

The Microperipheral Corp.
2565 152nd Ave. N.E.
Redmond, WA 98052
(206) 881-7544

Strategy Wargame

Combat Leader is a battle-of-the-tanks game that combines realistic rules, historical accuracy, and speed.

The game, available for Atari computers with a version forthcoming for the Commodore 64, gives you control of more than 70 tanks on a scrolling battlefield. Each tank is historically rated for armor thickness, strength, speed, and accuracy.

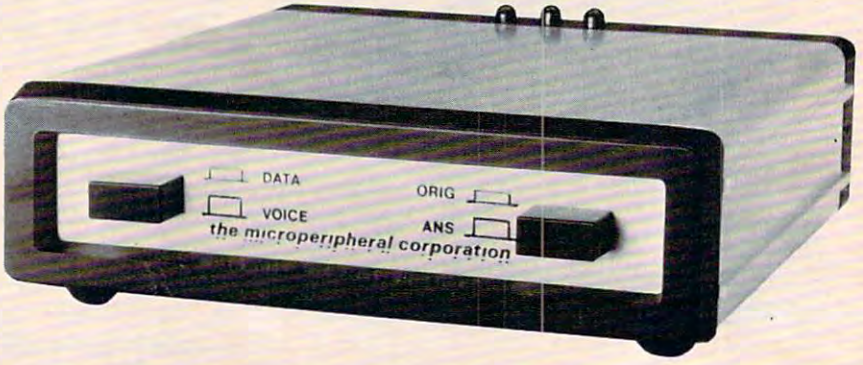
Combat Leader, which includes eight speed levels and a realtime option, sells for $39.95.

Strategic Simulations Inc.
883 Stierlin Road
Building A-200
Mountain View, CA 94043
(415) 964-1353

Internal VIC Expansion

Legend Valley Computer Systems has produced a 27K internal expansion board for the VIC-20.

The board fits under the keyboard and is piggybacked to the original 6502 microprocessor. The additional memory is selectable in 8K blocks via a switch on



The AutoPrint Microconnection is a combination modem-parallel printer interface for the Atari, Commodore 64, or VIC-20.

www.commodore.ca

Products for Commodore, Atari, Apple, and others!

NEW

THE MONKEY WRENCH II
A PROGRAMMERS AID FOR ATARI 800
NEW AND IMPROVED — 18 COMMANDS
PLUGS INTO RIGHT CARTRIDGE SLOT

If you are a person who likes to monkey around with the ATARI 800, then THE MONKEY WRENCH II is for you!! Make your programming tasks easier, less time-consuming and more fun. Why spend extra hours working on a BASIC program when the MONKEY WRENCH can do it for you in seconds. It can also make backup copies of boot type cassette programs. Plugs into the right slot and works with ATARI BASIC cartridge.

$59.95

The MONKEY WRENCH provides 18 direct mode commands. They are: AUTO LINE NUMBERING — Provides new line numbers when entering BASIC program lines. RENUMBER — Renumbers BASIC's line numbers including internal references. DELETE LINE NUMBERS — Removes a range BASIC line numbers.

VARIABLES — Display all BASIC variables and their current value. Scrolling — Use the START & SELECT keys to display BASIC lines automatically. Scroll up or down BASIC program. FIND STRING — Find every occurrence of a string. XCHANGE STRING — Find every occurrence of a string and replace it with another string. MOVE LINES — Move lines from one part of program to another part of program. COPY LINES — Copy lines from one part of program to another part of program. FORMATTED LIST — Print BASIC program in special line format and automatic page numbering. DISK DIRECTORY — Display Disk Directory. CHANGE MARGINS — Provides the capability to easily change the screen margins. MEMORY TEST — Provides the capability to test RAM memory. CURSOR EXCHANGE — Allows usage of the cursor keys without holding down the CTRL key. UPPER CASE LOCK — Keeps the computer in the upper case character set. HEX CONVERSION — Converts a hexadecimal number to a decimal number. DECIMAL CONVERSION — Converts a decimal number to a hexadecimal number. MONITOR — Enter the machine language monitor.

In addition to the BASIC commands, the Monkey Wrench also contains a machine language monitor with 16 commands used to interact with the powerful features of the 6502 microprocessor.

NEW

VIC RABBIT CARTRIDGE AND CBM 64 RABBIT CARTRIDGE

NEW FEATURE!
DATA FILES!
"High Speed Cassette Load and Save!"
$39.95
(includes cartridge and manual)

for VIC

Don't waste your Life away waiting to LOAD and SAVE programs on Cassette Deck.

Load or Save 8K in approximately 30 seconds! Try it—your Un-Rabbitized VIC or 64 takes almost 3 minutes. It's not only fast but VERY RELIABLE.

Almost as fast as 1541 Disk Drive! Don't be foolish — Why buy the disk when you can get the Rabbit for much, much less!

Allows one to APPEND Basic Programs!
Easy to install — just plugs in.
Expansion Connector on rear of the VIC Rabbit.
Works with or without Expansion Memory.
Works with VIC or 64 Cassette Deck.
12 Commands provide other neat features.
Fast Data Files - two data file modes.
Also Available for 2001, 4001, and 8032.

Now for the "64"

STCP — 300/1200 Baud
Standard Terminal Communications Package

PFO IOD OOA CP<D1>D2 BELL - 12 30 00 10 14 36

Don't settle for non-standard Communications Protocol! Access Micro Net, Source, Bulletin Boards, Local Mainframe, etc.

- Complete Package — Includes RS232 Interface Board and software (does not include modem)
- Communicates in Industry Standard ASCII
- Upload/Download to/from Disk
- Automatic File Translation
- Can be controlled from keyboard or user supplied basic or machine language program

Specify 3.0 or 4.0 ROMS or 8032 Commodore Computer 4040 or 8050 or PEDISK II Disk or CBM64 on 1541.

Price: $129.95

ATARI AND PET EPROM PROGRAMMER

Programs 2716 and 2532 EPROMs. Includes hardware and software. PET = $75.00 — ATARI (includes sophisticated machine language monitor) = $119.95

PET BASIC SCROLL PROGRAM
Scroll thru Basic Programs using cursor up/down keys. Specify computer. $6.00 on cassette, $9.00 on diskette.

65C02 MAE
Same as our MAE but enhanced for the new 65C02 Opcodes. Turns your computer into a development system for the new ROCKWELL 65C02 Microprocessor. $200.00 — Specify Computer.

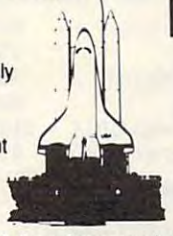
6800 CROSS ASSEMBLER
A Cross Assembler based on the MAE that runs on the PET, Apple, or Atari but assembles opcodes for the Motorola 6800 microprocessor. Turns your computer into a development system for the Motorola 6800 Microprocessor. $200.00 — Specify Computer.

ATARI and VIC Cartridges
EHS can supply large quantities of ATARI and VIC Cartridges for software developers. If you need cartridges, call for pricing.

More than just an Assembler/Editor!
Now for the "64"

MAE
for PET APPLE ATARI
~~$169.95~~
New Price $99.95

It's a Professionally Designed Software Development System



Blast off with the software used on the space shuttle project!

- Designed to improve Programmer Productivity.
- Similar syntax and commands — No need to relearn peculiar syntaxes and commands when you go from PET to APPLE to ATARI.
- Coresident Assembler/Editor — No need to load the Editor then the Assembler then the Editor, etc.
- Also includes Word Processor, Relocating Loader, and much more.
- Options: EPROM Programmer, unimplemented opcode circuitry.
- STILL NOT CONVINCED: Send for free spec sheet!

TRAP 65
TRAP 65 is a hardware device that plugs into your 6502's socket. Prevents execution of unimplemented opcodes and provides capability to extend the machines' instruction set.
For PET/APPLE/SYM
Reduced from $149.95 to $69.95

5¼ INCH SOFT SECTORED DISKETTES
Highest quality. We use them on our PETs, APPLEs, ATARIs, and other computers. $22.50/10 or $44.50/20

Prowriter Printer - Excellent dot matrix print parallel =call
Serial = Call IEEE = Call

DC Hayes Smart Modem = $235.00
DC Hayes Micro Modem II = $289.00

Rana Disk Drive - 375
4 Drive Controller - 114

EPROMS 2716 = $4.50 2532 = $7.50
Over 40 Commodore Programs by Baker (on 4040) = $25.00

eastern house

3239 Linda Dr.
Winston-Salem, N.C. 27106
(919) 924-2889 (919) 748-8446
Send for free catalog!

VISA
MasterCard

www.commodore.ca

commodore
SUPER-MART
★★★★★★★★★★★★★★★
$$$ SAVE TIME & MONEY $$$
HANNA ENTERPRISES
1303 COLUMBIA DR. suite 207
Richardson, Texas 75081
OUTSIDE OF TEXAS CALL
1-800-527-1738
TO ORDER CALL (214)
231-2645
MasterCard & Visa accepted
add 3% surcharge for credit cards
F.O.B. Dallas, Texas
9:30 a.m. - 6:30 p.m. (m-f)
10:30 a.m. - 2:30 p.m. sat.

COMMODORE COMPUTERS

B-500-128k	$777.20
PET 64	$627.50
8032	$627.50
8096	$876.25
9000 Super Pet	$1071.25
c-64	$233.00
Executive 64 portable	CALL

COMMODORE DISK DRIVES

1541 (170k)	$250.50
2031	$311.00
4040 (340k)	$657.85
8050 (1mg)	$981.90
8250 (2mg)	$1226.50
9060 hard disk (5mg)	$2040.00
9090 hard disk (7.5mg)	$2290.00

COMMODORE PRINTERS

1525 (30cps)	$238.75
1526 (100cps)	$343.95
4023 CBM (100cps)	$330.95
8023 (160cps)	$537.95
6400 daisy wheel CBM	$1417.75
new! 1520 plotter printer	$178.50

COMMODORE PERIPHERALS

1701 color monitor	$249.95
c1600 modem	$59.30
c1650 automatic modem	$94.50
Datasette 1530	$58.50
CBM 64k memory board	$246.95
Super Pet upgrade board	$488.95
Cables PET-IEEE	$34.95
Cables IEEE-IEEE	$42.95

COMMODORE SOFTWARE FOR CMB

Wordpro4+ or 5+	$305.00
Visicalc (Expanded)	$195.00
BPI G/L A/R A/P Inv. etc.	$320 ea.
MANAGER (database)	$195.00
c64 SOFTWARE:	
Easy script	$99.95
Easy mail	$49.95
Word/name machine	$29.95
Logo	$99.95
Pilot	$99.95
Music machine	$29.95
Music composer	$29.95

the rear of the VIC-20 cabinet.

The expansion board is available for $129.95.

Legend Valley Computer Systems
1474 Naughtingham
Newark, OH 43055

Traveling Timex

Car Comp is an accessory for the Timex/Sinclair computer that turns it into a traveling companion.

Car Comp is a rigid platform to which the computer and cassette recorder can be attached. It can be used anywhere with AC power or a 12-volt cigarette-lighter outlet.

Car Comp, which is produced by L&G Enterprises, sells for $59.95.

L&G Enterprises
Box 6854
Silver Spring, MD 20906

Car Comp secures a Timex/Sinclair and cassette deck as well as allowing power to be drawn from a standard auto cigarette-lighter outlet.

TI-99/4A Assortment

Western Properties Investment Company has produced a line of products designed for the TI-99/4A computer. The programs include a word processor, a data base, and a spreadsheet.

The word processor, *Printer Book*, is designed to handle up to two pages of text. Control of the printer is achieved through use of the CTRL key. The program can be used in conjunction with one of Western Properties' *File Book* programs to merge records from a data base with text. *Printer Book*'s 14 menu options include record merging, merge to screen or printer, and automatic multi-letter printing.

File-Book III handles up to 100 records with 6 items per record. The program includes full editing, search and sort capabilities as well as output to screen, printer or tape.

Income and Expense Spreadsheet IV is an accounting spreadsheet composed of 2 income and 50 expense categories. The program produces monthly charts of each of the 52 categories and an annual chart. Data is saved to tape with a cassette routine that is four times normal speed.

Printer Book and *File-Book III* are available for $39.95. *Income and Expense Spreadsheet* sells for $43.95. The programs run on Extended BASIC, but require no memory expansion. A printer is optional for the data base and spreadsheet programs.

Western Properties Investment Company
Software Division
P.O. Box 9602
Marina Del Rey, CA 90295

VCR Interface For VIC And 64

The Videobook Corporation has introduced Prometheus 1, an interface for the Commodore 64 and VIC-20 computers and home video cassette recorders.

Prometheus 1 allows you to produce interactive videotape courseware. It will connect a VIC-20 or Commodore 64 to various Panasonic, Magnavox, Canon, and Hitachi video cassette recorders.

The interface, which sells for $49.95, is being marketed in conjunction with Videobook's *Comp-U-Tutor Computer/VCR*

www.commodore.ca

Will This Happen to You?

NOT IF YOU BUY YOUR PRINTER FROM...

THE PRINTER STORE

After reading this issue of ***Compute,*** you are now fully aware of the many outstanding printers on the market today. But what you might not be aware of is that the printer you like best, might not be compatible with your computer and software. (The picture above is good example of printer incompatibility). At the **Printer Store,** we specialize in printers, so our experienced professional staff can help you choose the right printer for your personal and business needs. If you want the **Best Value, Low Price, Product Availability,** and **Support,** call The Printer Store and ask us about:

- **FREE TECHNICAL CONSULTATION**
- **FULL AFTER SALE SUPPORT**
- **FULL FACTORY AUTHORIZED SERVICE**

DOT MATRIX PRINTERS

EPSON SERIES
- FX 80 ..... $ CALL
- FX 100 ..... $ CALL

OKIDATA SERIES
- 82A ..... $ CALL
- 83A ..... $ CALL
- 92A ..... $ CALL
- 93A ..... $ CALL
- 84 (parallel) ..... $ CALL

C. ITOH SERIES
- 8510 Prowriter ..... $ 395
- Prowriter II ..... $ CALL
- New! Banana ..... $ 239

IDS SERIES
- Microprism 480 ..... $ CALL
- Prism 80 ..... $ CALL
- Prism 132 ..... $ CALL

GEMINI SERIES
- Gemini 10X ..... $ CALL
- Gemini 15 ..... $ CALL

NEC 8023 ..... $ 419

Toshiba P 1350 ..... $ 1750

LETTER QUALITY PRINTERS

BROTHER SERIES
- HR-1 (parallel) ..... $ CALL
- HR-1 (serial) ..... $ CALL
- HR-15 ..... $ CALL

COMREX SERIES
- CR-1 (parallel) ..... $ 795
- CR-1 (serial) ..... $ 865
- CR-2 ..... $ CALL

C.ITOH SERIES
- F-10 40 CPS ..... $ CALL
- F10 55 CPS ..... $ CALL

Daisywriter 48K ..... $ CALL

NEC SERIES
- 3510 ..... $ CALL
- 3530 ..... $ CALL
- 3550 ..... $ CALL
- 7710 ..... $ 2425
- 7720 ..... $ 2900
- 7730 ..... $2400

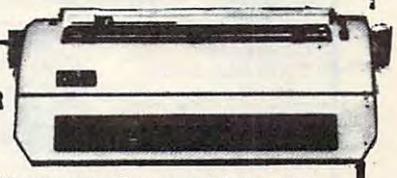
NEC Accessories ..... $ CALL

C. ITOH 8510 Prowriter

- 120 CPS - 1.3K Buffer - 144x60 dots 1 inch Nx9 dot matrix - Proportional Spacing - 8 Character sizes - 5 unique alphabets - Greek character set - Graphic symbols - bi-directional, logic-seeking - Adjustable tractors - Single-sheet friction feed - Vertical & horizontal tabbing.

C. ITOH 8510 Prowriter ..... List $795 **$395**

BROTHER HR-1



- 16 CPS - Bi-directional - Super and Subscript
- IBM Selectric type ribbon - Prints up to 6 copies
- Ideal for word processing

Parallel ..... List 1100 **$ Call**

Serial ..... List 1200 **$ Call**

INTERFACE EQUIPMENT

- Apple Dumpling $145
- Grappler Plus .... $ CALL
- Complete stock of Epson Accessories $ CALL
- Custom Printer Cables for Apple, Atari, IBM TRS-80 $ CALL
- Printer Stands: large .. $95
- Printers Stands: small . $25
- Printer Ribbons ... $ CALL
- Printer Sound Enclosure $ CALL
- Vic 20/Comm. 64 Interface ... $ CALL

In order to serve you better, The Printer Store will be moving to larger facilities. The move should be completed by Aug 25.

We carry a full line of Cables and Accessories

Call (714) 241-0701 and ask us about...

1) LOW PRICES
2) SAME DAY SHIPPING
3) FREE TECHNICAL SUPPORT
4) FULL SERVICE OPTION

THE PHONE REBATE **Printer** STORE

We are so confident of our LOW PRICES and SUPPORT that we are going to ask you to make the initial investment by calling us. In return, when you buy your printer from us, we will rebate the cost of your call and deduct it from your invoice.

HOW TO ORDER: Our phone lines are open from 8 a.m. to 6 p.m. PST, Monday-Friday. We accept VISA, MASTERCHARGE (at no extra charge), personal checks take two weeks to clear. COD's accepted. Same-day shipment on orders placed before 1 p.m. Manufacturer's warranty applicable on all equipment. Prices subject to change.

STORE — 2720 S. Harbor Blvd., Suite E, Santa Ana, CA 92704

© The Printer Store, 1983

www.commodore.ca

YORK 10™
CASSETTES
DISKETTES

NEW!
LOWER PRICES
LONGER LENGTHS

DATA TRAC / C-06, C-12, C-24

From the leading supplier of Computer Grade Cassettes, new, longer length C-12's (6 minutes per side) provide the extra few feet needed for some 16K programs.

Premium 5-screw shell with leader — BASF tape

Internationally acclaimed. Thousands of repeat users.

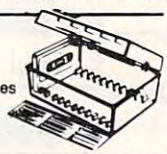
Error Free • Money back Guarantee

	C-06	C-12	C-24	HARD BOX
1 Dozen	7.00	7.50	9.00	2.50
2 Dozen	13.00	14.00	17.00	4.00

500 C-12's—38¢ each • w/labels
Shipping $17.500 add 4¢
500 Boxes 13¢ ea. • shipping $10./500

TRACTOR FEED • DIE-CUT BLANK CASSETTE LABELS
$3.00/100 $20.00/1000

CASSETTE STORAGE CADDY
Holds 12 cassettes w/o boxes
Includes edge labels and Index card
$2.95



BASF QUALIMETRIC FLEXI-DISC
5¼" SSDD, Soft Sect.
Lifetime warranty!
$26.95/10 $120.00/50 $215.00/100

MICRO CASSETTES
in convenient short lengths

	MC-10	MC-20	MC-30
1 Doz.	16.50	18.00	19.00
2 Doz.	32.50	34.50	36.00

Fits Epson and Sharp micro drives

Same superior tape in premium shell with leaders. Includes box.

SHIPPING/HANDLING $3.50
Any quantity (except 500 special)

NOTE: Outside 48 Contin. States shipping $3.50 PLUS $1 per caddy: per dozen cassettes: per dozen boxes: per 10 discs.

In Cont. U.S. shipments are by UPS unless Parcel Post requested.

California residents add Sales Tax

WRITE FOR FREE BROCHURE
ASK FOR QUANTITY DISCOUNTS
for IMMEDIATE SHIPMENT on Credit Card Orders

Call: 213/700-0330

YORK 10™ Computerware
9525 Vassar Ave. #CM Chatsworth, CA 91311

Interactive Authoring System. The program, which sells for $149.95, permits the playback of packaged commercial programs, or will allow the user to write custom programs.

Videobook Corporation
P.O. Box 19597
Seattle, WA 98109

Ergonomic Joysticks

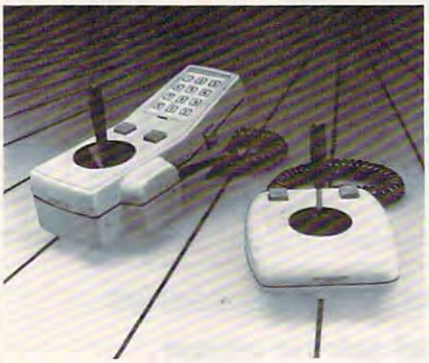
Comrex has released a pair of joysticks described as "electronically and ergonomically" designed to allow game players to improve their skills with less fatigue.

The deluxe ComMander, which sells for $44.95, is shaped like a hand-held telephone. It features a precision control, self-centering handle, and four firing buttons that have user-definable functions.

The standard ComMander, which is priced at $19.95, is designed with rounded corners and two fire buttons.

Both joysticks, which are equipped with coiled cords, are compatible with Atari 400/800, Commodore 64, and VIC-20 computers. The deluxe model will work with Apple computers.

Comrex International, Inc.
3701 Skypark Drive
Torrance, CA 90505
(213) 373-0280



The Comrex deluxe ComMander joystick is shaped like a hand-held telephone. The standard model has rounded, smooth corners to fit large and small hands.

Apple Space Game

Pentapus is a high-resolution space survival game for Apple II computers from Turning Point Software.

You begin the game in an uncharted region of another universe. To return home, you must defeat the Devilish Mutant Army for control of the stargates between universes. You must use your speed and intelligence to defeat waves of Drangels, Eagulls, and the Pentapus.

Pentapus, which sells for $29.95, incorporates graphics, sound, high-score editing, and four skill levels, including a children's level.

Turning Point Software, Inc.
11A Main Street
Watertown, MA 02172
(617) 923-4441

64K VIC Memory Expansion

Advanced Processor Systems has introduced SELECT-A-RAM, a 64K memory expansion cartridge for the VIC-20. The cartridge provides two expansion slots for program or game cartridges or additional memory expansion up to 192K.

The unit plugs into the VIC memory expansion slot and draws its power from the VIC-20. The memory expander, which sells for $169, features write protection, a reset switch, and optional use of external power.

Advanced Processor Systems
P.O. Box 43006
Austin, TX 78745
(512) 441-3202

64 Spreadsheet

Multiplan, a multiple-page financial spreadsheet program produced by Microsoft, will be mar-

www.commodore.ca

SoftWare Warehouse Outlet

MEETING YOUR SOFTWARE NEEDS FOR LESS!!!

COMMODORE 64

Broderbund

Choplifter (C)	30.40
Sea Fox (C)	27.00
Serpentine (C)	27.00
David's Midnight Magic (D)	27.00
Sky Blazer (D)	27.00
A.E. (D)	27.00
Load Runner (D)	27.00

Commodore

Assembler 64 (D)	16.90
Logo (D)	47.90
Pilot (D)	47.90
Pet Emulator (D)	43.00
Screen Editor (D)	16.90
Bonus Pack (D, C)	16.90
CP/M 2.2 Operating System (CT)	69.00
Super Expander VSP (CT)	16.90
Easy Finance (1-5) (D)	19.35
Easy Call 64 (D)	73.75
The Manager (D)	43.00
Easy Script (D)	43.00
Easy Mail 64 (D)	16.90
Easy Spell 64 (D)	16.90
Word/Name Machine (D)	16.90
Intro to Basic I (C)	19.35
Gortek & The Microchips (C)	24.80
Easy Lesson/Easy Quiz (D)	16.90
Music Machine (CT)	16.90
Codewriter (D)	47.90
Zork 1, 2, 3 (D)	29.50
Inventory Mgmt. (D)	43.00
Payroll/Checkwriting (D)	43.00
Accts. Payable (D)	43.00
Accts. Receivable (D)	43.00
General Ledger (D)	43.00

Creative Software

Car Costs (C) 10.15 (D)	13.50
Decision Maker (C) 10.15 (D)	13.50
Household Finance (C) 13.50 (D)	16.90
Home Inventory (C) 10.15 (D)	13.50
Loan Analyzer (C) 10.15 (D)	13.50
Moon Dust (CT)	23.65
Astroblitz (CT)	23.65
Trashman (CT)	23.65
Save New York! (CT)	23.65
Spitball (CT)	23.65
Crisis Mountain (CT)	23.65

Datamost

Space Ark (D)	24.25
Swashbuckler (D)	24.25

Datasoft

Zaxxon (D, C)	27.00
Moonshuttle (CT)	20.30
Poo Yan (C, D, CT)	20.30
Sands of Egypt (D)	20.30
Bruce Lee (D,C,CT)	27.00
Genesis (D,C)	27.00
Heathcliff (D,C,CT)	27.00
O'Rileys Mine (D,C)	20.30

EPYX

Temple of Apshai (D)	27.00
Upper Reaches of Apshai (D)	13.55
Curse of RA (D)	13.55
Sword of Fargoal (D)	20.30
Jumpman (D,C)	27.00

Hes Software

Hes Mon 64 (CT)	27.00
Turtle Graphics II (CT)	40.60
Hes Writer 64 (CT)	30.45
Gridrunner (CT)	20.30
Retro Ball (CT)	27.00
Benji Space Rescue (D)	30.45
Coco (D,C)	33.80

Micro Prose

Floyd of the Jungle (D)	20.80
Hellcat Ace (D)	20.80

Sierra On-Line

Frogger (D,C)	23.65
New Jawbreaker (D)	20.30
Crossfire (D)	20.30

Sirius Software

Squish 'Em (D)	23.65
Repton (D)	27.00
Blade/Blackpoole (D)	27.00
Critical Mass (D)	27.00
Type Attack (D)	27.00
Way-Out (D)	27.00
Bandits (D)	27.00
Ozzy Ozone (D	23.65
Shadow Scorcher (D)	23.65
Fast Eddie (D)	23.65

Spinnaker

Face Maker (D, CT)	23.65
Hey Diddle Diddle (D)	20.30
Kindercomp (D)	20.30
Snooper Troops 1 (D)	27.00
Fraction Fever (D, CT)	23.65
Amazing Thing (D)	27.00

Synapse

Ft. Apocalypse (D, C)	23.70
Protector (D, C)	23.70
Survivor (D, C)	23.70
Shamus (D, C)	23.70

Timeworks

Dungeons of Algebra Dragons (D, C)	19.10
Robbers of the Lost Tomb (D, C)	19.10
Wall Street (D, C)	19.10
Money Manager (D, C)	19.10
Electronic Checkbook (D, C)	19.10
Word Pro 3 +	65.00

ATARI

Broderbund

David's Midnight Magic (D)	23.90
Apple Panic (C, D)	20.30
Choplifter (D)	23.70
Serpentine (D, C)	23.70
A.E. (D)	23.70
Sea Fox (D)	20.30
Labyrinth (D, C)	20.30
Genetic Drift (D, C)	20.30

Datasoft

Micropainter (D)	22.65
Pac. Coast Hwy. (C)	16.90
Text Wizard (D)	33.80
Canyon Climber (C, D)	16.90
Clowns and Balloons (C)	16.90
Basic Compiler (D)	54.00
Spell Wizard (D)	27.00
Sands of Egypt (D)	20.30
Zaxxon (D, C)	27.00
Moon Shuttle (D, C)	20.30
O'Riley's Mine (D, C)	20.30
Rosen's Brigade (D, C)	11.50
Poo Yan (D, C)	20.30
Bruce Lee (D, C, CT)	27.00
Genesis (D, C, CT)	27.00

Datamost

Swashbuckler (D, CT)	24.25

EPYX

Temple of Apshai (D)	27.00
Crush, Crumble and Chomp (D, C)	20.30
Jumpman (D)	27.00
Crypt of the Undead (D)	27.00

First Star

Call for Availability and Pricing

Micro Prose

Chopper Rescue (D, C)	20.75
Floyd of the Jungle (D, C)	20.75
Hellcat Ace (D, C)	20.75
Wingman (D, C)	25.00

Synapse

Shamus II (D, C)	23.70
Pharoah's Curse (D, C)	23.70
Ft. Apocalypse (D, C)	23.70
Nautilus (D, C)	20.30
Blue Max (D, C)	23.70
Dimension X (D, C)	23.70
Zeppelin (D, C)	23.70

Spinnaker

Facemaker (CT, D)	23.65
Snooper Troop 1 or 2 (D)	30.40
Hey Diddle Diddle (D)	20.30
Story Machine (D)	23.65

Thorn E.M.I.

Jumbo Jet Pilot (CT)	30.45
Sub Commander (CT)	30.45
Figure Fun (C)	20.30
Soccer (CT)	30.45
Kickback (CT)	30.45
Home Fin. Mgmt. (C)	20.30
Darts (C)	20.30

Parker Bros.

Frogger	37.00
Q Bert	37.00
Astro Chase	37.00

commodore

Commodore 64	239.95
1541 Disk Drive	239.95
1530 Datasette	61.30
1525 Printer	214.75
1701 Color Monitor	239.95
1600 Modem	50.50
Parallel Interface	60.00
3 Port Expander	30.00
6 Port Expander	75.00
64 Prog. Ref. Guide	17.00

Diskettes

BASF 5¼" SSDD 2 pak	5.50
BASF Soft Box (10)	23.80

Joysticks

Pointmaster	10.95
Pointmaster Pro	18.55
Fire Control	7.85
Wico Command Ctrl.	19.50
Wico "Boss"	13.50
Wico Red Ball	20.75

COLECO

Coleco

Adam Computer System	595.00
Adam Computer Module	445.00

apple

Broderbund

Serpentine (D)	23.70
A. E. (D)	23.70
Arcade Machine (D)	40.60
Apple Panic (D)	20.30
Choplifter (D)	23.70
David's Midnight Magic (D)	23.70

Datasoft

Zaxxon (D)	27.00
Canyon Climber (D)	16.90
Sands of Egypt (D)	20.30
Fathom 40 (D)	23.70
Lisp (D)	67.50
Micro Painter (D)	23.70
Poo Yan (D)	20.30
Bruce Lee (D)	27.00
Genesis (D)	27.00
Moonshuttle (D)	20.30

Sirius

Call for Availability and Pricing

Spinnaker

Facemaker (D)	23.65
Story Machine (D)	23.65
Hey Diddle Diddle (D)	20.60

Programs for all Systems

Avalon Hill	Call for Availability and Price
Strategic Simulations	

VIC 20, T.I. 99 4A, RADIO SHACK, IBM-PC SOFTWARE LISTS AVAILABLE

For additional information and to order, call Toll free:

1-800-527-8698 Outside Texas

1-800-442-8717 Inside Texas

Terms and Ordering Information:

To order call 1-800-527-8698 and send certified checks, money orders or personal checks (allow 2 weeks to clear), or use your VISA, Master Card or American Express. Inside Texas call 1-800-442-8717. Include $2 for postage and handling. (C.O.D.orders add $1.50) UPS Blue Label $3,Canada $6. Other countries include 10% for P&H. All products factory sealed with manufacture's warranty. All returns require R.A.#. Prices subject to change without notice. Order desk hours: Mon-Fri 8-5, Sat 9-1 CST.

SoftWare Warehouse Outlet
802 N. HIGH SUITE H
LONGVIEW, TEXAS 75601

www.commodore.ca

keted by Commodore for the Commodore 64 computer.

The program, which can handle home budgets, financial planning, small business accounting, educational projects, and statistics, will be available on disk for less than $100.

Commodore
Computer Systems Division
1200 Wilson Drive
West Chester, PA 19380
(215) 431-9100

TI Joystick

The Prostick 2002 is a direct replacement joystick for the TI-99/4 and TI-99/4A computers.

The joystick, which sells for $29.95, requires no additional interface for connection with the TI. It includes a 4-way/8-way switchable gateplate that allows 8-way action to be disabled when playing games that are limited to vertical and horizontal movement.

The Prostick 2002 has two firing buttons located on the top end of the base, allowing both right- and left-handed play. The fire buttons are designed to be controlled by the index finger for faster response and decreased fatigue during play.

Newport Controls
15425 Los Gatos Boulevard
Los Gatos, CA 95030
(408) 358-3439

Data Base Manager For VIC And 64

Jini Micro Systems, creator of several data base managers for Commodore computers, has released *Mini Jini*, a record keeper for the VIC and 64.

The program is available in cartridge format, and files can be saved to either tape or disk. It will handle between 35 and 500 records, depending on available memory.

Mini Jini will accept up to 10 fields of information per record, can sort by any field, and can search by record number, name, or phrase. When used with a printer, the program can generate reports and mailing labels.

Mini Jini includes a math function to perform calculations on file data, and it can be used in conjunction with word processing programs to produce personalized letters and custom reports.

The program sells for $89.95. Data files with sample records set up for dozens of applications are available on disk for $14.95, or tape for $9.95.

Jini Micro Systems, Inc.
Box 274
Riverdale, NY 10463

TI-99/4A Cartridge Connection

Romox is producing the GamePort expansion module for the TI-99/4A. The module, which sells for $39.95, plugs into the computer's I/O port and accesses the 9900 CPU directly.

The GamePort is designed to circumvent the reported plan of Texas Instruments to modify its internal software to accept only cartridges programmed in TI's patented GROM format.

The GamePort module, which accepts both GROM and standard ROM cartridges, includes an 8K ROM, plus RAM memory.

Romox, Inc.
501 Vandell Way
Campbell, CA

Grade And Attendance Manager

GradeCalc is a grade and attendance management package designed to relieve teachers of time-consuming, record-keeping tasks.

The grade section can average grades using a variety of methods, including percentage

COMMODORE 64 SOFTWARE

THE MAILER: A list and label program ideal for mailing lists. Disk. **$30.00**

SUPER MAILER: A deluxe version. Adds sorts, searches, alphabetizing and more. Disk. **$50.00**

DATA-BYTES: A data-storage and retrieval program. Prints hard copies. Integrates with the mailer. Disk. **$30.00**

THE EDITOR: Integrates with mailer and data bytes programs. Add sorts, enhanced editing features and more. Disk. **$30.00**

SALES 64: Generates personalized sales orders, receipts, invoices & packing slips on economical plain paper. Tractor feed compatible. Disk. **$30.00**

TRS80 Model 100 version $30.00 (tape) Deluxe version $50.00 (tape)

SUSIE SOFTWARE
709 Wilshire Drive, Mt. Prospect, IL 60056 (312) 394-5165

GENERIC GAMES
* * *
STAR THIEF
BY JAMES NITCHALS
(APPLE II DISK)
ONLY $9.95

COD ORDERS MUST PAY SHIPPING AND HANDLING. DEALER INQUIRIES INVITED. FOR ADDITIONAL INFO ON NEW RELEASES SEE THE READER INFORMATION CARDS IN THE BACK OF THIS MAGAZINE.
SEND CHECK OR MONEY ORDER TO:

N C D
P.O. Box 947
Solana Beach, CA 92075

www.commodore.ca

APPLE COUNTRY LTD.®

YOU'RE GONNA LOVE THESE ROCK BOTTOM PRICES!

ACTION	99.00	68.95
ADVANCED MUSIC SYSTEM	29.95	21.95
AE	34.95	24.49
ANTI-SUB PATROL	29.95	21.95
APPLE CIDER SPIDER	39.95	27.95
ARCADE MACHINE	59.95	41.49
ARMOR ASSAULT	39.95	27.95
ATARI BOOKKEEPER KIT	249.95	179.95
ATARI MACRO ASSEM/TEXT ED	89.95	64.49
ATARI MICROSOFT BASIC II	89.95	64.49
ATARI MUSIC COMPOSER-ROM	39.95	29.95
ATARI PILOT EDUCATION-ROM	129.95	94.95
ATARI PROGRAMMER KIT	59.95	45.95
ATARI SPEED READING	74.95	54.95
ATARI TECH USER NOTES	29.95	21.95
ATARI TOUCH TYPING	24.95	17.95
ATARI WRITER	79.95	56.95
BANDITS	34.95	24.95
BANK STREET WRITER	69.95	49.95
BASIC COMPILER	99.95	68.95
BATTLE FOR NORMANDY	39.95	27.95
BATTLE OF SHILOH	39.95	27.95
BILESTOAD	29.95	21.95
THE BLADE OF BLACKPOOL	39.95	27.95
BOOK OF ATARI SOFTWARE'83	19.95	14.95
BUG/65	34.95	24.49
C/65	80.00	54.95
CAP'N COSMO	34.95	18.95
CASTLE WOLFENSTEIN	29.95	21.95
CENTIPEDE-ROM	44.95	31.95
CHOPLIFTER - ROM	44.95	31.95
COCO	49.95	34.49
COCO II	39.95	27.95
COLOR PRINT	39.99	27.95
COMMUNICATOR KIT	279.95	214.95
CONVERSATIONAL FRENCH	59.95	42.95
CONVERSATIONAL SPANISH	59.95	42.95
THE COSMIC BALANCE	39.95	27.95
CROSSFIRE-ROM	44.95	29.95
CYTRON MASTERS	39.95	27.95
DA FUZZ	44.95	31.95
DATA PERFECT	99.95	74.95
DATALINK	39.95	27.95
DAVID'S MIDNIGHT MAGIC	34.95	24.49
DEADLINE	49.95	34.49
DEFENDER	44.95	31.95
DE RE ATARI	19.95	14.49
DIG DUG	44.95	31.95
DISK MANAGER	29.95	21.95
DISK WORKSHOP	34.95	24.49
DISKETTE INVENTORY SYSTEM	24.95	17.49
DISKEY	49.95	34.49
DISKSCAN	40.00	28.00
DISKWIZ	29.95	21.95
DIVISION I	44.95	31.95
DNIEPER RIVER LINE	30.00	21.95
DODGE RACER	34.95	24.49
EASTERN FRONT (1941)	29.95	21.95
EDIT 6502-ROM	199.95	144.95
THE EDUCATOR KIT	164.95	109.95
FACEMAKER	34.95	24.49
FANTASTIC VOYAGE-ROM	34.95	26.49
FILE MANAGER +	99.95	68.95
FINANCIAL WIZARD	59.95	39.95
FLAME LORDS	34.95	24.95
FLASH GORDON-ROM	34.95	26.95
FLIP OUT	29.95	21.95
FIREBIRD-ROM	39.95	27.95
FORT APOCALYPSE	34.95	24.49
FROGGER	34.95	24.49
GALAXIAN	44.95	31.95
GHOST ENCOUNTERS	29.95	21.95
GHOSTLY MANOR	24.95	17.95
GLOBE MASTER	29.99	21.95
GORF-ROM	44.95	28.49
GRAPHIC GENERATOR	24.95	17.49
GRAPHIC MASTER	39.95	27.95
THE HOME ACCOUNTANT	74.95	54.95
JOURNEY TO THE PLANETS	29.95	21.95
JUMPMAN	39.95	27.95
KIDS AND THE ATARI-BOOK	19.95	13.95
KINDERCOMP	29.95	21.95
K-RAZY SHOOTOUT-ROM	49.95	34.49
KING ARTHUR'S HEIR	29.95	21.95
LEGIONNAIRE	35.00	25.00
LETTER PERFECT (40/80)	149.95	109.95
LETTER PERFECT UTILITY	29.95	21.95
LUNAR LEEPER	29.95	21.95
MASTER MEMORY MAP	6.95	4.95
MASTER TYPE	39.95	27.95
MATING ZONE	29.95	21.95
MATCH BOXES	29.95	21.95
MAURAUDER	34.95	24.49
MAX/65 (WITH OS/A+)	80.00	54.95
MICKEY IN GREAT OUTDOORS	49.95	35.95
MINER 2049'ER-ROM	49.95	34.49
MISSILE COMMAND-ROM	34.95	26.49
MONSTER SMASH	29.95	21.95
MORL	44.95	31.95
NAUTILUS	34.95	24.49
NECROMANCER	34.95	24.49
THE NIGHTMARE	29.95	21.95
OPERATION WHIRLWIND	34.95	24.49
OS-A+ & BASIC A+	80.00	54.95
PAINT	39.95	29.95
PINBALL	29.95	21.95
P.M.ANIMATOR	34.95	24.49
POKER-S.A.M.	24.95	17.95
PREPPIE II	34.95	24.49
PYRAMID PUZZLER	44.95	31.95
QIX	44.95	31.95
RASTER BLASTER	29.95	21.95
READING FLIGHT	44.95	31.95
ROUNDABOUT	29.95	21.95
SAMMY LIGHTFOOT	34.95	24.49
SAMMY THE SEA SERPENT	23.95	16.95
SEA DRAGON	34.95	24.49
SEA FOX	29.95	21.95
747 LANDING SIMULATOR	22.95	16.95
SHADOW WORLD	34.95	24.49
SHAMUS-ROM	44.95	31.95
SNEAKERS	29.95	21.95
SOFTWARE AUTO-MOUTH (SAM)	59.95	41.49
SPEED READ PLUS	59.95	41.49
SPEEDWAY BLAST	29.95	21.95
SPELLING BEE GAMES	39.95	27.95
SPELL WIZARD	79.95	54.95
STARCROSS	39.95	27.95
STAR MAZE	44.95	31.95
STAR RAIDERS-ROM	44.95	31.95
STAR WARRIOR	39.95	27.95
STORY MACHINE	34.95	24.49
SUPERMAN III	49.95	35.95
SURVIVOR	34.95	24.49
SWIFTY TACH MASTER	29.95	21.95
SYN ASSMBLER	49.95	34.49
TELECOM	69.95	49.95
TELETALK	49.95	36.95
TELETARI	39.95	27.95
TEMPLE OF APSHAI	39.95	27.95
TEXT WIZARD I	99.95	68.95
TIGERS IN THE SNOW	39.95	27.95
TIME WISE	29.95	21.95
TYPE ATTACK	39.95	27.95
TUTTI FRUTTI	24.95	17.95
VC	25.00	17.49
VISICALC	199.00	149.95
WARLOCK'S REVENGE	34.95	24.49
WAY OUT	39.95	27.95
WIZARD&PRINCESS HIRES ADV	32.95	22.95
WIZARD OF WOR - ROM	44.95	31.95
YOUR ATARI COMPUTER-BOOK	16.95	12.95
ZAXXON	39.95	27.95
ZORK I II OR III	39.95	27.95

AMDEK COLOR I PLUS MONITOR		319.00
APPLE EMULATOR	CBM64	79.50
CARDBOARD (6 CART + RESET)	VIC-20	70.00
THE CARD? (FOR PARALLEL PRTR)	CBM64&VIC-20	58.00
CARDETTE (CASSETTE INTFCE)	CBM64&VIC-20	22.00
CARDAPTER/1 ATARI 2600 INTFCE	VIC-20	50.00
CARDWRITER/1 LIGHT PEN W/CASS	CBM64&VIC-20	16.50
COMMODORE 64 HOME COMPUTER	CBM64	369.50
COMMODORECOLOR PLOTTER	CBM64&VIC-20	179.50
COMMODORE 1530 DATASETTE	CBM64&VIC-20	65.00
COMMODORE 1541 DISK DRIVE	CBM64&VIC-20	329.50
COMMODORE 1525 PRINTER	CBM64&VIC-20	329.50
COMMODORE 1600 MODEM	CBM64&VIC-20	95.50
COMMODORE COLOR MONITOR	CBM64&VIC-20	269.50
COMMODORE 1650 AUTODIAL MODEM	CBM64&VIC-20	169.50
MICRO EXPANSION CHASSIS	CBM64	35.75
VIDEO PAK 80 (80 COLUMN)	CBM64	129.00
VIDEO PAK 80 WITH CP/M	CBM64	219.00
ATARI 800 48K	$489-$100 REBATE=	389.00
ATARI 1200 64K	$519-$100 REBATE=	419.00
ATARI NUMERIC KEYPAD		94.95
ATARI PROGRAMMER KIT		49.95
410 RECORDER		72.95
810 DISK DRIVE		424.95
850 INTERFACE MODULE		169.95
C. ITOH PROWRITER I		394.95
C. ITOH PROWRITER II		649.95
C. ITOH STARWRITER		1325.00
CASSETTE 'N CARTRIDGE FILE		21.95
ELEPHANT SS/SD DISK		10/16.95
ELEPHANT SS/DD DISK		10/19.95
ELEPHANT DS/DD DISK		10/25.95
EPSON FX-80 W/TRACTOR		LOW!!
EPSON MX-100 F/T		LOW!!
FLIP'N-FILE		21.95
GEMINI-10 PRINTER		LOW!!
GEMINI-15 PRINTER		LOW!!
IN HOME 400 KEYBOARD		94.95
INTEC 32K RAM		69.95
INTEC 48K RAM		119.95
MOSAIC 64K RAM SELECT		149.95
HAYES SMARTMODEM 300 BD		194.95
HAYES SMARTMODEM 1200 BD		499.95
NEC 8023 PRINTER		459.95
NEC 12" HIRES GREEN SCRN		149.95
NEC 12" ECONO GREEN SCRN		79.95
NOVATION J-CAT MODEM		109.95
NOVATION SMART-CAT 103		179.95
NOVATION SMART-CAT 212		424.95
PERCOM SS/SD/1DR (88K)		419.95
PERCOM SS/DD/1DR (176K)		539.95
PERCOM SS/DD/2DRS (352K)		859.95
PERCOM DS/DD/1DR (352K)		649.95
PERCOM DS/DD/2DRS (704K)		939.95
SIGNALMAN MK II MODEM		79.95
USI 12" AMBER MONITOR		159.95
VERSAWRITER GRAPH TABLET		239.95
WICO JOYSTICK		21.95
WICO REDBALL JOYSTICK		24.95
WICO DELUXE JOYSTICK		29.95
WICO TRACKBALL		49.95
WICO 12 FT EXTENSION CORD		6.95

commodore

AGGRESSOR	CART/VIC20	27.50
ALIEN SOCCER	CASS/VIC20	10.25
ANDROMEDA CONQUEST	CASS/C64	12.50
APE ESCAPE	DISK/VIC20	27.50
BLADE OF BLACKPOOLE	DISK/C64	27.50
CAVE-IN	CART/VIC20	27.50
CHECKBOOK	CASS/VIC20	13.75
COMPUTER FOOTBALL STRATEGY	CASS/C64	11.00
COMPUTER STOCKS & BONDS	CASS/C64	13.75
CONCENTRATION	CASS/VIC20	11.00
CRITICAL MASS	DISK/C64	27.50
CROSSFIRE	CASS/VIC20	21.00
DEADLINE	DISK/C64	34.50
DEADLY DUCK	CART/VIC20	24.00
DEADLY SKIES	CART/VIC20	27.50
DEMON ATTACK	CART/VIC20	27.50
DRELBS	CASS&DISK/64	24.00
FACEMAKER	DISK/C64	24.00
FAST EDDY	CART/VIC20	27.50
FINAL ORBIT	CART/C64	24.00
FT. APOCALYPSE	CASS&DISK/64	24.00
FROGGER	DISK/C64	24.00
FRUIT FLY	CASS/VIC20	9.00
FUEL PIRATES	CASS/VIC20	11.00
GALACTIC BLITZ	CASS/VIC20	17.25
GALACTIC CROSSFIRE	CASS/VIC20	10.25
GOLD FEVER	CART/VIC20	27.50
GOLD MINE	DISK/VIC20	27.50
GRIDRUNNER	CART/64/VIC20	27.50
HANGMAN	8KCASS/VIC20	6.25
HARRIER	CASS/VIC20	24.00
HESMON MONITOR	CART/64&VIC20	27.50
HESWRITER W/P	CART/VIC20	27.50
HESWRITER 64	CART/C64	31.00
HEY DIDDLE DIDDLE	DISK/C64	21.00
IN SEARCH OF THE MOST AMAZING THING	DISK/C64	27.50
JUMP MAN	DISK/C64	27.50
KINDERCOMP	DISK/C64	21.00
MARTIAN RAIDER	DISK/VIC20	13.75
METEOR	8KCASS/VIC20	7.50
MONSTER MAZE	CART/VIC20	27.50
MULTISOUND SYNTH.	DISK/VIC20	13.75
NUMBERCHASER	16KCASS/VIC20	17.25
NUMBER CRUNCH	CART/VIC20	27.50
NUMBER GULPER	8K CASS/VIC20	17.25
PHAROH'S CURSE	CASS&DISK/64	24.00
PREDATOR	CART/VIC20	27.50
PROTECTOR	CART/VIC20	30.25
QUICK BROWN FOX W/P	CART/VIC20/64	44.75
RAID ON ISRAM	CASS/VIC20	13.75
REAGANOMICS	CART/VIC20	27.50
REPTON	DISK/C64	27.50
RESCUE AT RIGEL	16KCASS/VIC20	21.00
RETRO BALL	CART/C64	27.50
RICOCHET	8K CASS/VIC20	13.75
ROBOT PANIC	CART/VIC20	27.50
SCORPION	CART/VIC20	27.50
SHAMUS	CART/VIC20	27.50
SHARK TRAP	DISK/VIC20	13.75
SIDEWINDER	8K CASS/VIC20	21.00
SIMON	CASS/VIC20	11.00
6502 PROF DEV SYS	CASS/64/VIC20	21.00
SKI RUN	8KCASS/VIC20	12.50
SNAKE BYTE	CART/C64	24.00
SNOOPER TROOPS #1	DISK/C64	27.50
SPACE ATTACK	8K CASS/VIC20	6.25
SPIDER CITY	CART/64/VIC20	27.50
SPORTS SEARCH	CASS/VIC20	13.75
SQUISH'EM	CART/64/VIC20	24.00
STARCROSS	DISK/C64	27.50
SURVIVOR	CASS&DISK/C64	24.00
SWARM!	CASS/VIC20	21.00
SWORD OF FARGOAL	16KCASS/VIC20	21.00
SYN THE SOUND/MUSIC	CART/VIC20	41.00
TELENGARD	CASS/C64	15.75
TORG	CASS/VIC20	12.25
TURMOIL	CART/VIC20	27.50
TURTLE GRAPHICS	CART/VIC20	27.50
TURTLE GRAPHICS II	CART/C64	41.00
TYPE ATTACK	CART/64/VIC20	27.50
THE VEIN GAME	DISK/VIC20	24.00
VIC FORTH	CART/VIC20	41.25
VIC-MEN	8KCASS/VIC20	15.00
VIC MUSIC COMPOSER	CART/VIC20	30.00
VICTREK	CASS/VIC20	12.25
VIC VANGO	CASS/VIC20	9.00
VIDEO SEARCH	CASS/VIC20	13.75
WORD SEARCH	CASS/VIC20	13.75
ZORK I II OR III	DISK/C64	27.50

ATARI · PERCOM · RanaSystems · Hayes · FRANKLIN · MOSAIC 64K RAM SELECT · EAGLE · COLUMBIA DATA PRODUCTS, INC. · NEC · IBM · TEXAS INSTRUMENTS · OKIDATA

FOR FASTEST DELIVERY: CASHIER'S CHECK OR VISA/MASTERCARD (NO EXTRA CHARGE FOR CARDS. **INCLUDE NUMBER, EXPIRATION DATE, NAME, ADDRESS & PHONE**). PERSONAL CHECK ALLOW 2 WEEKS TO CLEAR. PURCHASE ORDER MUST INCLUDE CHECK. **SHIPPING & HANDLING:** CONTINENTAL U.S. 5% ($5 MIN), U.P.S. **STREET ADDRESS REQUIRED;** APO FPO ALASKA HAWAII & MONITORS 5% ($10 MIN); FOREIGN 15% ($15 MIN). **INCLUDE PHONE NUMBER WITH ALL ORDERS.** ALL ITEMS ARE NEW WITH MANUFACTURER'S WARRANTY. APPLE COUNTRY, LTD. CANNOT GUARANTEE THE MERCHANTABILITY OF ANY PRODUCT. PRICES ARE SUBJECT TO AVAILABILITY & CHANGE WITHOUT NOTICE. DUE TO OUR LOW PRICES, ALL SALES ARE FINAL. RETURNED MERCHANDISE IS SUBJECT TO A RESTOCKING FEE & MUST COME IN ORIGINAL UNDAMAGED CARTON WITH RMA NUMBER. NO SOFTWARE EXCHANGES. CALIFORNIA RESIDENTS ADD 6% TAX. SEND $1 FOR NEW FALL CATALOG (GOOD TOWARD FIRST PURCHASE). APPLE COUNTRY, LTD. IS A **DISCOUNT MAIL ORDER HOUSE FOR THE MICROCOMPUTER INDUSTRY** & IS A CALIFORNIA CORPORATION NOT AFFILIATED WITH APPLE COMPUTER INC. APPLE IS TRADEMARK OF APPLE COMPUTER INC. 6.1.83

Call us . . . we can help! (800) 222-2602

Tech. Info., Order Status Call (619) 765-0239

P.O. Box 1099,
Julian, Calif. 92036

Apple Country, Ltd. is a DISCOUNT MAIL ORDER HOUSE for the micro computer industry and is a California corporation not affiliated with Apple Computer Inc. Apple is a trademark of Apple Computer Inc.

www.commodore.ca

Prices the Compe

Commodore 64

Avalon Hill Game Company
180-701 B-1 Nuclear Bomber (C) $12
180-702 Midway Campaign (C) $12
180-703 North Atlantic Convoy Raider (C) $12
180-704 Nukewar (C) $12
180-706 Planet Miners (C) $12
180-712 Computer Stocks & Bonds (C) $15
180-719 Andromeda Conquest (C) $14
181-721 Computer Football Strategy (C) $12
181-732 Telengard (C) $16

Broderbund
David's Midnight Magic $23
Choplifter (CT) $34
Serpentine (CT) $27
Sea Fox (CT) $27

Datamost
Roundabout $20
Bilestoad $20
Mating Zone $20

EPYX/Automated Simulations
14E-036 Jump Man (D) $27

Human Engineered Software (HES)
HEE-307 6502 Professional Dev. System (C) $23
HEE-400 Retro Ball (Crt) $27
HEE-401 Hesmon (Crt) $27
HEE-402 Turtle Graphics II (Crt) $45
HEE-404 Heswriter 64 (Crt) $35
HEE-412 Gridrunner (Crt) $27

Infocom
63E-001 Zork (D) ..... $ 27
63E-002 Zork II (D) ..... $ 27
63E-003 Deadline (D) ..... $ 34
63E-004 Starcross (D) ..... $ 27
63E-005 Zork III (D) ..... $ 27

Sierra On-Line
54E-048 Frogger (D) $23
Jaw Breaker $20

Sirius Software
70E-036 Blade of Blackpoole (D) $27
70E-037 Type Attack (Crt) $27
70E-043 Repton (D) $27
70E-046 Critical Mass (D) $27
70E-424 Snake Byte (Crt) $23
70E-445 Spider City (Crt) $27
70E-447 Squish 'em (Crt) $23
70E-448 Final Orbit (Crt) $23

Spinnaker
SKE-001 Snooper Troops #1 (D) $30
SKE-004 Facemaker (D) ..... $ 23
SKE-006 Kindercomp (D) ..... $ 20
SKE-008 Hey Diddle Diddle (D) ..... $ 20
SKE-009 In Search of the Most Amazing Thing ..... $ 27
Fraction Fever (CT) ..... $ 20
Alphabet Zoo (CT) ..... $ 20
Delta Drawing (CT) ..... $ 23

Snyapse Software
SSE-011 Ft. Apocalypse (D) ..... $ 23
SSE-016 Drelbs (D) ..... $ 23
SSE-019 Survivor (D) ..... $ 23
SSE-020 Pharoah's Curse (D) ..... $ 23
SSE-311 Ft. Apocalypse (C) ..... $ 23
SSE-316 Drelbs (C) ..... $ 23
SSE-319 Survivor (C) $23
SSE-320 Pharoah's Curse (C) ..... $ 23

United Microwave Industries
92E-302 Renaissance (C) ..... $ 20
92E-331 Motor Mania (C) ..... $ 20

Commodore 64 ..... $219
VIC 20 ..... $ 99
1525 Printer $229
1530 Datasette ..... $ 64
1541 Disk Drive $249
1600 Modem ..... $ 89
1701 Commodore Monitor $289
VIC 1311 Joystick ..... $ 8
VIC 1312 Game Paddles ..... $ 16

VIC 1210 3K Memory Expander $34
VIC 1110 8K Memory Expander $52
VIC 1111 16K Memory Expander $89
VIC 1011 RS 232 Terminal Interface $43
VIC 1211 Super Expander $59
VIC 1213 Vicmon Machine Language Monitor $45
VT 106A Recreation Pack $45
VT 107A Home Calculation Pack $45
VIC 1600 Vicmodem $89
VM Programmer's Reference Guide $14

Educational

Books
Kids and the Vic ..... $ 18
Programmer's Reference Guide (Vic) ..... $ 14
Programmer's Reference Guide (64) ..... $ 18

Language Arts
Super Hangman (C) ..... $ 14
Simon/Hess (C) ..... $ 13
Concentration (C) ..... $ 13
Home Babysitting ..... $ 23

Math
Sky Math (C) ..... $ 12
Space Division ..... $ 12
Bingo Speed Math (CT) ..... $ 23
Number Crunch (CT) ..... $ 23
Number Chaser ..... $ 17
Number Gulper ..... $ 17

Music
Vic Music Composer (CT) ..... $ 42
HES Synthesound (CT) ..... $ 49

Reading and Language Arts
Finger Spelling (D, C) ..... $ 12
My Spelling Easel (Ages 3-10) ..... $ 26

Programming Techniques
Intro to Basic Prog. I ..... $ 22
Intro to Basic Prog. II ..... $ 22
Programmer's Aid Cart ..... $ 22
Turtle Graphics/Hess (CT) ..... $ 29
Gorteck & the Microchip ..... $ 23

Social Studies/Science
Visible Solar System ..... $ 23
Reaganomics (CT) ..... $ 27

Commodore Software
Avenger ..... $ 23
Superslot ..... $ 23
Super Alien ..... $ 23
Jupiter Lander ..... $ 23
Draw Poker ..... $ 23
Midnight Drive ..... $ 23
Radar Rat Race ..... $ 23
Raid on Fort Knox ..... $ 23
Sargon II Chess ..... $ 29
Cosmic Cruncher ..... $ 23
Gorf ..... $ 29
Omega Race ..... $ 29
Sea Wolf ..... $ 23
Adventureland ..... $ 29
Pirate Cove ..... $ 29
Mission Impossible ..... $ 29
The Count ..... $ 29
Voodoo Castle ..... $ 29
The Sky is Falling ..... $ 23
Mole Attack ..... $ 23
Bingo Speed Math ..... $ 23
Home Babysitter ..... $ 23
Visible Solar System ..... $ 23
Personal Finance ..... $ 29
Quick Brown Fox ..... $ 65

Vic 20

Avalon Hill
Nuke War $12

Automated Simulations
Rescue at Rigel (C) $20
Ricochet (C) $15
Monster Maze (CT) $27
Sword of Fargoal $27

Broderbund
Martian Raider $15
Multisound Synthesizer $15
Shark Trap $15
Sky Blazer (CT) $27
Sea Fox (CT) $27
A.E. (CT) $27

Creative Software
Black Hole (CT) $36
Trashman (CT) $36
Astroblitz (CT) $36
City Bomber & Minefield (CT) $20
Apple Panic (CT) $36
Choplifter (CT) $36
Serpentine (CT) $36
Videomania (CT) $36
Terraguard (CT) $36

HES Software
HES Mon (CT) ..... $ 29
HES Writer (CT) ..... $ 29
Synthesound Music Synthesizer (CT) ..... $ 49
Turtle Graphics (CT) ..... $ 29
VIC Forth (CT) ..... $ 45
Victrek (C) ..... $ 15
Predator (CT) ..... $ 27

Sirius
Type Attack $27
Snake Byte $27

Thorn EMI
River Rescue (CT) ..... $ 29
Mutant Herd (CT) ..... $ 29

Tronix
Galactic Blitz (C) $17
Swarm (C) $20
Sidewinder (C) $20
Gold Fever (CT) $27
Deadly Skies (CT) $27

United Microware
Spiders of Mars (CT) ..... $ 34
Meteor Run (CT) ..... $ 34
Amok ..... (C) $ 15 (CT) $ 27
Alien Blitz ..... (C) $ 17 (CT) $ 27
Skymath (C) ..... $ 12
Space Division (C) ..... $ 12
Super Hangman (C) ..... $ 14
The Alien (C) ..... $ 17
3D Maze (C) ..... $ 12
Kosmic Kamikaze (C) ..... $ 17
Sub Chase (C) ..... $ 15
Renaissance ..... $ 20
Cloud Burst (CT) ..... $ 27
Satellites & Meteorites (CT) ..... $ 34
Outworld (CT) ..... $ 34
Wordcraft ..... $ 65

Call Toll Free

1-800-634-6766

Order Line Only

1095 E. Twain (702) 796-0296
Las Vegas, Nevada 89109

Information & Order Inquiries
(702) 369-5523

We accept VISA and MasterCard
Mon. — Fri. 8 A.M. to 6 P.M.
Sat. 9 A.M. to 6 P.M.

Dealers' Inquiries Invited

COMPUTER OUTLET

www.commodore.ca

tition Can't Touch

ATARI

600XL . . . CALL
800XL . . . CALL
1400XL . . CALL
1450XLD . CALL

Atari Inc.

1010 Recorder	$ 72
1050 Disk Drive	$419
1027 Printer	Call
1025 Printer	$409
830 Modem	$145
850 Interface	$159
481 Entertainer	$ 64
482 Educator	$110
483 Programmer	$ 52
484 Communicator	$289
The Bookkeeper Kit	$165
CX4104 Mailing List	$ 19
CXL 4007 Music Composer	$ 42
Programming 2 & 3	Ea.$ 22
Conversational Languages	$ 42
CX4018 Pilot	$ 55
CX405 Pilot	$ 92
CXL4003 Assembler Editor	$ 42
CX8126 Microsoft Basic II	$ 62
CXL4022 Pac-Man	$ 30
CXL4020 Centipede	$ 30
CXL4006 Super Breakout	$ 26
CXL4008 Space Invaders	$ 26
CXL4009 Computer Chess	$ 26
CXL4011 Star Raiders	$ 30
CXL4012 Missile Command	$ 26
CXL4013 Asteroids	$ 26
The Bookkeeper	$102
Home Filing Manager	$ 36
Atari Speed Reading	$ 54
Home Manager Kit	$ 55
Family Finance	$ 36
Time Wise	$ 23
Galaxian	$ 30
Defender	$ 30
Paint	$ 30
Qix	$ 30
Dig Dug	$ 30
ET Phone Home	$ 34
AtariWriter	$ 65
Donkey Kong	$ 36
Atari Logo	CALL

Business & Utilities

Visicalc	$169
Computari's Financial Wizard	$ 45
Color Accountant	$ 65
Mail Merge	$ 20
Data Perfect	$ 75
Letter Perfect	$105
Bank Street Writer	$ 45
Text Wizard	$ 65
File Manager 800 +	$ 65
Datasm 65 2.0	$ 59
Syn Assembler	$ 34
K-Dos	$ 59
Lisp Interpreter	$ 79
Basic Compiler	$ 65
Datalink	$ 27
Atari World	$ 39
Color Print	$ 27
Graphics Generator	$ 17
Micropainter	$ 23
Bishops Square	$ 20
Graphics Master	$ 17
P.M.P. Property Management	$179

Educational

Pre-School

Sammy the Sea Serpent	(C)$13(D)$19
Pre-School I.Q. Builder	(C)$13(D)$24
My First Alphabet(D)	$26
Alien Counter/Face Flash(D,C)	$26
Humpty Dumpty/Jack & Jill(C)	$25
Facemaker(D)	$23
Juggles Rainbow(D,C)	$22

Math

Monkey Up A Tree(D,C)	$19
Video Math Flash Cards(D,C)	$13
Algicalc(D,C)	$19
Compumath-Fractions	(C)$23(D)$29
Compumath-Decimals	(C)$23(D)$29
Golf Classic/Compubar (Angles)	(D,C)$26
Cash Register	(C)$13(D)$19
Big Math Attack	(C)$17(D)$22
Computation Concentration	(C) $13 (D) $15

Reading and Language Arts

My First Alphabet(D)	$26
Wordmaker(D,C)	$19
Spelling Genie(D,C)	$19
Compuread	(C)$17(D)$23
Memory Builder/Concentration	(C)$13(D)$19
Let's Spell(C)	$13
Do-It-Yourself Spelling(C)	$16
S.A.T. College Board Prep(C)	$89
Prefixes(D)	$26
Vocabulary Builder 1	(C)$13(D)$19
Fishing for Homonyms(C)	$13
Hey Diddle Diddle (D)	$ 20
Snooper Troops 1 & 2 (D)	Ea. $ 32
Story Machine(D)	$23
Crossword Magic(D)	$34

Music

Music Composer(CT)	$25
Jerry White's Music Lessons(C)	$20
Magic Melody Box	$14

Social Studies and Geography

Globemaster (D)	$ 27
States and Capitals (C)	$ 12
European Countries and Capitals (C)	$ 12

Printers

NEC

NEC 8023A	$439

Epson

FX80	$599
FX100Ft	$799

Okidata

ML82A	$419
ML83A	$649
ML84P	$979

Citoh

8510 Prowriter	$365

Mannesmann Tally

MT160L	$599

Qume

Qume Sprint 11 +	$1349

Monitors

Leading Edge

Gorilla Hi-Res 12"	$ 85

Amdek

Color I	$299

USI

Amber	$149

NEC

Green Screen	$169

Gemini

Gemini 10x	$299
Gemini 15	$479

★★ Specials of the Month ★★

WICO "BOSS" Joystick	**$ 15.00**
WICO Redball Joystick	**$ 24.00**
Elephant Disks s/s	**$ 18.00**
Verbatim Disks s/d	**$ 24.00**
Disk Savers (Plastic Sleeves) Multi Colored 1 Doz.	**$ 4.50**
Disk Mailers	**$ 3.50**
Flip n'File Diskette Holder w/Lock (holds 25)	**$ 18.50**
Flip n'File Diskette Box (holds 50)	**$ 21.00**
Gorilla Banana Printer	**$209.00**
Hayes Smartmodem 300	**$209.00**
Percom Single Density Drive	**$389.00**
Percom Double Density Drive	**$515.00**

Programming Techniques

Pilot (Cons. or Educator)	(C) $59, (D) $99
Invitation to Prog. #2 (C)	$22
Invitation to Prog. #3 (C)	$22
Tricky Tutorials—Santa Cruz	
TT#1 Display Lists (C, D)	$ 17
TT#2 Horiz/Vert. Scrolling (C, D)	$ 17
TT#3 Page Flipping (C, D)	$ 17
TT#4 Basics of Animation (C, D)	$ 17
TT#5 Player Missile Graphics (C, D)	$ 24
TT#6 South & Music (C, D)	$ 24
TT#7 Disk Utilities (D)	$ 24
TT#8 Character Graphics	$ 19
TT#9 GTIA	$ 19
TT#10 Sound Effects	$ 19
Page 6	$ 20
The Next Step	$ 27

New Hit List

Mickey & the Great Outdoors	$ 35
Temple of Apshai	$ 27
Raster Blaster	$ 20
Deadline	$ 34
Richochet	$ 15
Wiz & Princess	$ 22
Ali Baba and the Forty Thieves	$ 22
Canyon Climber	$ 20
Crush, Crumble & Chomp	$ 20
Zork I, II & III	Ea.$ 27
Softporn Adventure	$ 20
Frogger	$ 23
Choplifter	$ 23
Curse of Ra	$ 15
Ulysses and the Golden Fleece	$ 23
Tigers in the Snow	$ 27
David's Midnight Magic (D)	$ 23
Sky Blazer (D)	$ 22
Serpentine (D)	$ 22
Sea Fox (D)	$ 20
Sands of Egypt (D)	$ 27
Pool 400 (CT)	$ 27
Gorf	(D)$ 27 (CT)$ 30
Wizard of Wor	(D)$ 27 (CT)$ 30
Cyborg (D)	$ 23
Gold Rush (D)	$ 23
Bandits (D)	$ 23
Way Out (D)	$ 27
Fast Eddy (CT)	$ 24
World War (CT)	$ 24
The Cosmic Balance (D)	$ 27
Chess (D)	$ 45
Checker (D)	$ 34
Raptillian (D,C)	$ 23
Submarine Commander (CT)	$ 34
Jumbo Jet Pilot (CT)	$ 34
Soccer (CT)	$ 34
Starcross (D)	$ 27
Zaxxon (D,C)	$ 27
Miner 2049er (CT)	$ 34
Twerps (D)	$ 23
Flip Out (D)	$ 20
The Birth of the Phoenix	$ 16
Protector II	(D)$ 23 (CT)$ 29
Baseball (CT)	$ 34
Preppie II (D,C)	$ 23
Arcade Machine (D)	$ 39
Cap n' Cosmos (D)	$ 29
Spy's Demise (D)	$ 15
Repton (D)	$ 27
Critical Mass (D)	$ 27
Bumper Bash (CT)	$ 27
Millionaire (D)	$ 55
Poker Sam (D)	$ 17
Jump Man (D)	$ 27
Hellfire Warrior (D,C)	$ 27
Trion (D)	$ 27
Adventure in Time (D)	$ 20
Wavy Navy (D)	$ 23
Squish'em (CT)	$ 23
Final Orbit (CT)	$ 23
Pharoah's Curse (D,CT)	$ 23
River Quest (D,C)	$ 23

Computer Outlet

ORDERING INFORMATION AND TERMS: *For Fast Delivery send cashier checks, money orders or direct bank wire transfers. Personal and company checks allow 3 weeks to clear. C.O.D. orders ($3.00 minimum) and 1% of all orders over $300. School purchase orders welcomed. Prices reflect a cash discount only and are subject to change. Please enclose your phone number with any orders.* ***Shipping*** *— Software ($2.50 minimum). Shipping — Hardware (please call). Foreign orders, APO & FPO orders — $10 minimum and 15% of all orders over $100. Nevada residents add 5¾% sales tax. All goods are new and include factory warranty. Due to our low prices, all sales are final. All returns must have a return authorization number. Call 702-369-5523 to obtain one before returning goods for replacement.*

www.commodore.ca

scores and letter grades. Reports on missing assignments, grade totals, averages, and assignment summaries are available.

The attendance records can generate cumulative totals of all attendance records, or can produce reports on excessive absences or other problems.

GradeCalc is available for the Commodore 64, PET, and Apple computers for $29.95. An Atari version sells for $34.95.

Tamarack Software, Inc.
Water Street
Darby, MT 59829
(406) 821-4596

Wizware For Children

A new line of software called Wizware, designed for children between 6 and 16, is available from Scholastic. The programs are available on disk and tape for a variety of computers including Apple II, Atari, TI-99/4A, and VIC-20.

Microzine is a children's magazine in computer format. The articles in the magazine are designed to be worked with, rather than simply read. *Microzine* sells for $39.95 per issue, or $149 for six bimonthly issues. The programs are compatible with Apple II and Atari 800 computers.

Turtle Tracks teaches children the fundamentals of programming by allowing them to experiment with colors and shapes as they control the movements of a "turtle."

Square Pairs teaches youngsters number matching and how to recognize words and patterns. As the children learn more, they can use the software to design their own games.

Your VIC-20 is a hands-on introduction to the VIC for first-time users. The program explains input/output devices, graphics, music, and BASIC programming.

Electronic Party allows children to create electronic greeting cards, and lets them move surprise packages through a maze. Inside each of the packages is a surprise activity that can be acted out.

Scholastic, Inc.
730 Broadway
New York, NY 10003
(212) 505-3000

Murder Mystery — Computer Style

Infocom's *The Witness* is a 1930s whodunit that is available for most popular microcomputers.

The game immerses players in 1930s detail. In addition to the game diskette, the package includes a replica of a 30s detective magazine that serves as a users

CASSETTES ! ! !

FOR YOUR COMPUTER
DIGITAL

- Computer Grade
- 100% Error Free
- Fully Guaranteed
- Wide Dynamic Range
- 5 Screw Housing
- Carefully Packed

All Prices Include U. S. Shipping
Phone Orders Add $2.50 C.O.D. Fee

COMPUTER TAPE PRICES

Length	25 LOT	100 LOT	1000 LOT
C-5	.45/11.25	.35/35.00	30/300.00
C-10	.50/12.50	.35/35.00	30/300.00
C-20	.55/13.75	.40/40.00	35/350.00

BASF DPS Tapes Add .05 Cents Per Tape
— Custom Lengths Available —
... Write For Volume Prices...

— Norelco Cassette Cases and Labels —
[with Cassette Orders Only]

12-249 Cases/ .20 Ea. 250- .13 Ea.
12 Labels for .20 120 for 1.70
1000 Pinfeed Labels 14.50

SEND MONEY ORDERS OR CHECKS TO:

CASS-A-TAPES
Box 8123-C
Kansas City, MO 64112
816-444-4651

BIG BYTES

1541 Disk Drive	$219	1530 Datasette	$ 59
1701 Color Monitor	$219	1526 Printer 100cps	$289
1600 Modem	$ 59	1525 Printer 30cps	$199
1520 Printer/Plotter	$159	1650 Auto Modem	$ 89

COMMODORE 64 $219

Programmers Guide	$ 17	Easy Calc	$ 55
Assembler/Monitor	$ 15	Easy Finance I,II,III,IV,V	$ 17
Super Expander	$ 15	The Manager	$ 35
LOGO	$ 39	General Ledger	$ 35
PILOT	$ 39	Accounts Receivable	$ 35
CP/M 2.2	$ 59	Accounts Payable	$ 35
Intro to BASIC	$ 17	Payroll	$ 35
Visible Solar System	$ 16	Inventory	$ 35
Lazarian	$ 18	Codewriter	$ 39
Pinball Spectacular	$ 16	Easy Script	$ 35
ZORK I,II,or III	$ 25	Easy Spell	$ 17
Suspended	$ 25		
CREATIVE SOFTWARE		**SPINNAKER SOFTWARE**	
Car Costs	$ 13	Facemaker	$ 26
Household Finance	$ 23	Kindercomp	$ 22
Home Inventory	$ 13	Snooper Troops No. 1	$ 29
Moon Dust	$ 29	Delta Drawing	$ 29
Trashman	$ 29	Story Machine	$ 29
SIERRA-ON-LINE		**HES SOFTWARE**	
Frogger	$ 24	Gridrunner	$ 29
Jawbreaker	$ 21	Synthesound 64	$ 36
Mr. Cool	$ 24	64 Forth	$ 49
Creepy	$ 22	6502 Developer	$ 23

VIC - 20 $99

Programmers Guide	$ 13	Simplicalc	$ 18
VicMon	$ 25	Filer	$ 18
Atomic Mission	$ 18	Writer	$ 18
Voodoo Castle	$ 18	Money Decisions I or II	$ 22
Visible Solar System	$ 12	Speed/Bingo Math	$ 12
Gortek Learner	$ 19	Quizmaster	$ 17
Child's I.Q.	$ 17	Your Own I.Q.	$ 17
Menu Planner	$ 17	Intro to BASIC I or II	$ 19
CREATIVE SOFTWARE		**SIERRA-ON-LINE**	
Choplifter	$ 29	Frogger	$ 24
Household Finance	$ 26	Jawbreaker	$ 22
Home Inventory	$ 16	Luna Leeper	$ 24
Home Office	$ 26	Sammy	$ 24
PRINTERS		**ACCESSORIES**	
Star Gemini 10X	$309	Elephant Diskettes	$ 20
Prowriter 8510	$379	Elephant Trunks Storage	$ 19

Even if it's not listed, we probably have it, at the lowest price possible.
SEND FOR OUR CATALOG!!

All prices include cash discount. VISA/MC orders accepted - add 3.5%. C.O.D. orders add $5.00. For quickest delivery send bank check or money order. All sales are final - defective merchandise exchanged for same product only. Shipping add 3% ($2.50 minimum). Ohio customers add 5.5% sales tax. Catalog $1.00 (refundable first order). MOST ORDERS SHIPPED WITHIN 48 HOURS!

VISA/MC ORDERS ONLY 1-800-638-2617
Information and in Ohio 1-216-758-0009

1309 BOARDMAN-POLAND ROAD, POLAND, OHIO 44514
HOURS: MONDAY - FRIDAY 10 A.M. - 10 P.M., SATURDAY - 10 A.M.

www.commodore.ca

IT'S HERE AT LAST!

THE FIRST LOW COST 6502 COMPUTER WITH 48K RAM THAT'S COMPLETELY COMPATIBLE WITH APPLE II®

Introducing the RAM-TECH* *RT 2* computer which offers you greater flexibility than the Apple II+® at a price that's easier on your finances. The *RT 2* will run all software and use all peripheral hardware designed for the Apple II+.® It's 100% Apple® compatible yet it offers you features not available on the Apple II+.®

COMPARE THESE FEATURES:

- supports upper & lower case characters from the keyboard
- high quality ABS case will not crack and is light weight
- RF modulator included in addition to composite video output
- high quality light-touch keyboard with upper/lower case key
- 15 key numeric key pad for fast data entry (optional)
- high power switching power supply (8.5 amps total) will power two disk drives and several peripherals easily, has internal circuit breaker
- eight expansion slots to increase flexibility with peripheral cards
- 48K RAM expandable to 64K (192K RAM upgrade card available soon)
- socketed IC's for quick and easy service
- thousands of programs (business & home) available
- operates identically to the Apple II+® with exception of extra features on ***RT 2***
- full 90 days parts and labor warranty with fast service turn-around

THE RAM-TECH* *RT 2* IS EVERYTHING YOU ALWAYS WANTED FROM AN APPLE® (AND MORE), BUT THOUGHT YOU COULDN'T AFFORD. AND THAT'S GOOD NEWS!

BUT THE BEST NEWS IS THE PRICE:
$525.00 + $18.00 shipping & handling

WITH OPTIONAL NUMERIC KEYPAD:
$575.00 + $18.00 shipping & handling

COMPARED TO APPLE II® WHICH RETAILS AT MORE THAN DOUBLE THIS PRICE AND OFFERS YOU LESS, YOU CAN SEE WHY THE RAM-TECH* *RT 2* SHOULD BE YOUR CHOICE. *MAKE NO SYNTAX ABOUT IT, THE RT 2 IS FOR YOU!*

PERSONAL I.D. OPTION — We will burn your name into ROM. When you power up your Ram-Tech your name will be displayed on the screen. ***AN EXTRA MEASURE OF SECURITY AGAINST THEFT.***
Indicate on your order what name you wish to use (maximum 8 letters including spaces) — ADD: $25.00 for I.D. option.

ALSO AVAILABLE: (sub-assemblies for do-it yourselfers) — 90 days warranty

1 – ABS case, high quality, Apple® look-a-like and color matched, will replace Apple® case	$ 68.50
2 – same as #1 above but with numeric keypad cutout	$ 84.00
3 – keyboard with upper/lower case key, direct replacement for Apple® or Ram-Tech*	$110.00
4 – same as #3 above but with numeric keypad, use in combination with #2, also fits Apple®	$139.50
5 – RF modulator with TV switch and cable, also fits Apple®	$ 19.50
6 – switching power supply, 8.5 amps, internal circuit breaker, high power, also fits Apple®	$112.00
7 – motherboard, completely assembled & tested, fully operational with burned ROMS	$295.00
8 – bare motherboard w/ parts discription screened on board and instructions, highest quality G10 epoxy	$ 48.00

SHIPPING & HANDLING FOR ABOVE: cases #1 & 2 add 10%; all others add 5%

PERIPHERALS, CARDS & ACCESSORIES FOR YOUR RAM-TECH* OR APPLE®

all items #1 to 19 guaranteed for one year (disk drives for six months)

1 – 16K RAM card	$ 58.00
2 – 80 column card	$ 94.50
3 – clock card	$135.00
4 – communications card	$ 89.00
5 – disk controller card	$ 58.00
6 – EPROM writer card	$124.50
7 – FORTH card	$ 98.50
8 – IEEE-488 card w/cable	$186.00
9 – parallel printer card w/cable	$112.00
10 – parallel printer buffer and grappler card with cable	$245.00
11 – interger card	$ 97.50
12 – PAL card	$114.00
13 – language card	$ 72.50
14 – RS-232 serial card	$ 84.00
15 – Z-80 CP/M card	$ 92.00
16 – VERSA card	$345.00
17 – analog/digital card	$116.50
18 – system cooling fan	$ 63.00
19 – joy stick w/button	$ 24.50

DISK DRIVES: Guaranteed high quality for use with all Apple® compatible (or Ram-Tech*) controllers – DOS 3.3 & 3.2

USES SPECIAL LOW POWER CONSUMPTION CIRCUITRY

TEAC 55A	$325.00 ..... $370.00 with controller
SHUGART	$285.00 ..... $330.00 with controller

SHIPPING & HANDLING: add $3.50 per item #1 - 19 . . . disk drives add $10.00

TO ORDER

- ALL PRICES IN U.S. CURRENCY
- VISA OR MASTER CARD: SEND NUMBER, EXPIRY DATE, BANK NAME & CARD HOLDER'S NAME, INCLUDE PHONE NUMBER.
- CHECKS & MONEY ORDERS O.K. – CHECKS NEED THREE WEEKS TO CLEAR. (NO C.O.D.'S TO U.S. DUE TO POSTAL REGULATIONS)
- CANADIAN ORDERS ADD 25% FOR CDN FUNDS EXCHANGE.
- U.S. CUSTOMERS WILL HAVE TO PAY U.S. CUSTOMS 4.7% DUTY. DUTIES COLLECTED BY POST OFFICE. WE ASSUME NO LIABILITY FOR CUSTOMS CLEARANCE.

DEALER INQUIRIES REQUESTED

BYTE-RYTE

DEPT. CP
P.O. BOX 205, STATION CART.
MONTREAL, QUEBEC, CANADA H4K 2J5

(514) 335-1717

®Apple is a trademark of Apple Computer Inc.

*Ram-Tech is a trademark of **99506 CANADA INC.**

www.commodore.ca

ACCOLADE COMPUTER PRODUCTS

ATARI 850 Interface	$185.00
ATARI 410 Recorder	75.00
ATARI Disk Drive	449.00
PERCOM Double Density	599.95
EPSON Mx 80 ft. w/graftrax	$479.95
EPSON Mx 100 ft. w/graftrax	697.50
EPSON Fx 80 (160 CPS)	595.00
GEMINI 10x (120 CPS)	329.95
GEMINI 15	649.95
OKIDATA 82A (120 CPS)	459.95
DAISY Silver Reed	799.95
BMC (12" Green)	99.95
BMC (12" Color)	342.50
ATARI Writer	$77.50
Programmer's Kit	49.95
Family Finance	38.95
Juggles House	22.95
Juggles Rainbow	22.95
My First Alphabet	27.95
ATARI Basic	45.95
Missile Command	28.95
Pacman	34.95
Centipede	34.95
Qix	34.95
Dig Dug	34.95
Defender	34.95
Galaxian	34.95
Donkey Kong	38.75
E.T. Phone Home	38.75
Eastern Front	38.75
Miner 2049er	37.50
Zaxxon	29.95
Frogger	26.95
Choplifter	33.95

Dealer Inquiries Welcome
WE WILL TRY TO MEET OR BEAT ANY ADVERTISED PRICE

ACCOLADE COMPUTER PRODUCTS
4858 Coronado Ave.
San Diego, Ca 92107
(619) 223-8599

Calif. Res. add 6% Sales Tax
Shipping & Handling $4.00
Foreign Orders add $5.00
Payment in U.S. Funds only
COD Charge $1.65
COD's, Cashier Check or Money Orders
Personal checks must take 2 weeks to clear

manual, a copy of a 1930s newspaper page, a suicide note, Western Union telegram, and a matchbook.

Clues necessary to unravel this adventure mystery are hidden in this paraphernalia. The game sells for $49.95 to $59.95 depending on the version.

Infocom, Inc.
55 Wheeler St.
Cambridge, MA 02138

Thinking Game For Apple

Pensate is a thinking game of evasion for Apple computers.

The object of the game is to get to the top of an 8x8 playing grid while avoiding other playing pieces. One- and two-player options are available, and a game can be instantly replayed once it is over.

The game, which includes hundreds of possible setups, is available from Penguin Software for $19.95.

Penguin Software
830 4th Ave.
Geneva, IL 60134
(312) 232-1984

Computer Aided Instruction Programs

Random House has announced a new series of Computer Aided Instruction programs called *Custom Ware.*

The programs, described as a "mini authoring series," make it possible for the user to create and edit his own CAI lessons.

The initial *Custom Ware* offering includes lessons for grades three through six on topics including multiple-meaning words, figurative language, synonyms and antonyms, prefixes and suffixes, dictionary skills, and spelling demons.

Instructions provided with the package allow the user to customize the programs by creating additional lessons following Random House's formats.

Custom Ware is available for Apple II and IBM computers.

Random House
7307 S. Yale Ave. 103
Tulsa, OK 74136

64K RAM For Timex/Sinclair

Gladstone Electronics has introduced a 64K RAM expansion for the Timex/Sinclair computer.

The RAM pack, which sells for under $100, is enclosed in a molded plastic case.

Gladstone Electronics
1585 Kenmore Ave.
Buffalo, NY 14217
(716) 874-5510

Data Base For Commodore 64

Melcomp has produced *Database 64,* a data management system for the Commodore 64.

With the program, the user can define the number and length of fields, and records can be displayed on the screen or printer in a variety of formats. *Database 64* is menu-driven and is written in BASIC for easy modification. The program sells for $39.

Melcomp
P.O. Box 1085
Melbourne, FL 32901

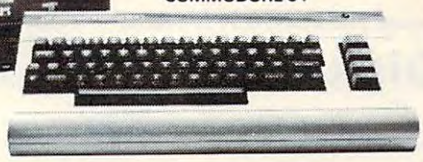
Weather Sensor For VIC And 64

The Home Automatic Weather Station is an external sensing device that allows a Commodore 64 or VIC-20 to monitor weather conditions indoors or outdoors. The package includes software to analyze conditions and make weather predictions.

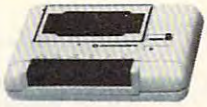
www.commodore.ca

SAVE

VIC 1701
COLOR MONITOR
COMMODORE 64



VIC 1541 DISK DRIVE



DATASSETTE

PICK YOUR BEST COMMODORE COMPUTER PACKAGE AND SAVE EVEN MORE...

C 64	$229.00	or	C 64	$229.00
VIC 1541	239.00		VIC 1530	65.00
VIC 1701	249.00		VIC 1701	249.00
Total.	$700.00		Total.	$530.00
SAVE. . . .	$ 17.00		SAVE. . . .	$ 13.00

Everything you need to support your COMMODORE VIC20 and C64

Cardco, Creative Software, EPYX, HES, UMI, WICO, Romox.

Micro Software International Inc

PractiCalc 20
For the Commodore VIC-20
16K RAM required

Tape (CV2T10). $28.00
Disk (CV2D10). 33.00

PractiCalc 64-For the Commodore 64

Tape (C60T11). $37.00
Disk (C60D11). 39.00

GET A T.I. PERIPHERAL EXPANSION BOX FREE

SAVE

We will give you T.I.'s Peripheral Expansion Unit—a $249.98 retail value—FREE—when you buy any three of the below listed items—OR—when you buy $350.00 worth of in-stock software (no substitutions).

PHP 1220 RS 232 Card.	$135.95
PHP 1240 Disk Contoller Card.	189.95
PHP 1250 Expansion System Disk Drive.	300.95
PHP 1260 Memory Expansion Card 32K.	227.95
PHP 1270 P-Code Card.	189.95
PHP 3111 TI Writer.	75.95
PHP 3113 Microsoft Multiplan.	75.95

GET A T.I. SPEECH SYNTHESIZER FREE

T.I. will give you a Speech Synthesizer—a $99.95 retail value—FREE—when you buy six solid state software cartridges. Offer expires January 31, 1984. Ask for Coupon.

We carry in stock all hardware and software for TI home computers.

QUANTITIES LIMITED!

TEXAS INSTRUMENTS

SAVE

SOUTHERN AUDIO VIDEO ELECTRONICS, INC.
1782 Marietta Blvd., N.W., Atlanta, Georgia 30318

Order Toll Free 1-800-241-2682
In Georgia (404)-351-8459

For a complete listing of all SAVE's products, send $5.00 for our catalogue (refundable with your first order).

Enjoy the convenience of in-home shopping. Call our toll free number today for orders only.

Use your American Express, VISA, Mastercard, check or money order. Minimum order of $50.00. Outside continental U.S.A. minimum order $250.00 U.S. currency. Shipping and handling charges are extra. All prices are subject to change without notice. Allow 2-4 weeks for delivery. Prices good through November 15, 1983.

www.commodore.ca

ATARI
Computers for people.

800 48K $199.00*

* after $100. rebate from ATARI cash price $299. • Includes free programmer package

810 Disk Drive.....$369.00

Educator.....$109.75
Programmer.....$ 51.75
Entertainer.....$ 63.75
Bookeeper.....$164.75

600XL $$$$$149.00
800 XL... $CALL$
1200 XL. $499.00
1400 XL . $CALL$
1450 XL . $CALL$

1025 Printer.....$399.00
1020 Color Printer .$245.00
1027 Printer.....$299.00
1010 Recorder.....$75.00
410 Recorder.....$75.00
810 Disk Drive.....$399.00
1050 Disk Drive $335.00
850 Interface.....$CALL$

PARKER BROTHERS
Tutankham R.....$33.75
Super Cobra R.....$33.75
Astro Chase R.....$33.75
Frogger R.....$33.75
QBert R.....$33.75
Popeye R.....$33.75
Risk R.....$42.75
Chess R.....$42.75

SPINNAKER
Story Machine R.....$26.75
Face Maker R.....$24.75
Kinderomp R.....$20.75
Fraction Fever R.....$24.75
Delta Drawing R.....$26.75

SSI
Battle of Shilo C/D.....$26.75
Tigers in the Snow C/D....$26.75
Battle for Normandy C/D ..$26.75
Knights of the Desert C/D .$26.75
Cosmic Balance C/D $26.75

ON-LINE
Frogger $24.95
Wizard & Prin $26.95

ROKLAN
Wizard of War.....$29.75
Gorf $29.75
Delux Invader $27.95

BIG 5
Miner 2049.....$32.75

BUSINESS
Visicalc $159.75
Letter Perfect.....$115.75
Letter Perfect.....$149.75
Data Perfect.....$99.75
Text Wizzard $49.75
Spell Wizzard $64.75
File Manager.....$69.75
Home File Mgr.....$69.75
Bookeeper.....$119.75
C.R.I.S.....$199.75
Atari Word Pro.....$109.75
Tax Advantage $35.75
Home Accountant $59.75
Bank Street W $49.75
Atari Writer.....$55.75

ADVENTURE
Preppie.....$19.95
Preppie 2.....$19.95
Diskey.....$39.95
Sea Dragon $25.50
Stratos $25.00
Treasure Quest $13.50
Series 1-12.....$15.95
Saga Series 1-6.....$24.95
Stone of Sisyphus $29.95
Eliminator.....$18.95

apple®
Apple is a Registered Trademark of Apple Computer Inc.

SSI
Battle of Shilo $26.75
Tigers in the Snow....$26.75
Cosmic Balance $26.75
Knights of the Desert.$26.75
Battle for Normandy..$26.75
Germany 1985 .....$36.75

RANA DISK DRIVES
Elite 1.....$295.00
Elite 2.....$449.00
Elite 3.....$559.00

MICRO-SCI
A2 .....call
A40.....call
A70.....call

MUSE
Castle Wolfenstein $20.75
Caverns of Frietag $20.75
Robot War.....$26.75

CONTINENTAL
Home Accountant $51.75
Book of Apple Software .$16.75

BRODERBUND
Bank Street Writer.....$44.75
AE $24.75
Apple Panic $21.75
Choplifter $24.75
David's Midnight.....$24.75

SPINNAKER
Kindercomp.....$21.75
Story Machine $23.75
FaceMaker.....$23.75
Snooper Trooper.....$29.75
Delta Drawing.....$34.75

EPYX
Temple of Apshai.....$26.95
Star Warrior.....$26.95
Crush, Crumble & Chomp .$22.75

ADVENTURE
Saga#1 Adventureland ...$29.95
Saga#2 Pirate Adventure.$29.95
Saga#3 Secret Mission...$29.95
Stone of Sisyphus $24.95

ALIEN GROUP
Atari Voice Box $99.00
Apple Voice Box.....$129.00

commodore

VIC 64.....$AVE
1541 Disk Drive .....Call
1525 Printer.....Call
1530 Datasette $64.00
1110 8k Ram.....$53.75
1211 Super Expander .$53.75
1212 Programmers Ad.$44.75
1213 Vicmon.....$44.75
Vic 20 dust cover.....$6.99
Vic 64 dust cover.....$6.99

MICROSPEC 64
Inventory Mgr.....$79.75
General Ledger $79.75
Payroll Mgr.....$79.75
Accounts Rec.....$79.75
Accounts Pay $70.75
Data Base $69.75
Checkbook Bal $64.75

HES 64
64Forth R $55.75
Hesmon R.....$29.75
Turtle Graphics R $49.75
Heswriter R $38.75
Gridrunner R.....$29.75
Attack of Mut Cam R...$34.75
Turtle Tutor R.....$29.75
Turtle Trainer R.....$29.75
Paint Brush R $23.75
Benji Space Rescue D.$29.75
Home Manager C/D ...$39.75
Time Money Mgr D $55.75
OmniCalc D $79.75
Sword Point D.....$24.75

EPYX 64
Temple of Apshai.....$28.00
Upper Reaches of A $15.00
Crush Crumble & C.....$23.00
Jumpman $28.00

CARDCO
Cardprinter / LQ1..... $499.00
Cardprint DM1..... $109.00
5 Slot Expansion 64 ..... $54.00
64 Write NOW..... $39.00
64 Mail NOW..... $29.00
2.) Write NOW..... $29.00
64 Keypad $29.00
Universal Cass. Int..... $29.75
Printer Utility..... $19.75
6 Slot Expansion..... $79.95
3 Slot Expansion..... $24.95
Vic 20/64 Printer int.....$59.95

BRODERBUND 64
Serpentine R..... $26.75
Choplifter R $32.75
Seafox R $26.75

PARKER 20
Frogger (ROM) $33.75
QBert (ROM) $33.75
Tutankham (rom) $33.75

SPINNAKER 64
Kindercomp.....$21.75
Story Machine $23.75
Face Maker $23.75
Snooper Trooper.....$29.75
Delta Drawing.....$34.75
Shamus II c/d.....$24.95
Pinhead c/d $22.95

QUICK BROWN FOX
QBF Word Processor $49.95

LJK
Letter Perfect.....$105.00
Data Perfect.....$95.00

ADVENTURE INTERNATIONAL
S. Adams Adventure $28.75

VIC-64
Household Finance C/D..$24.75

VIC 20
King Arthurs Heir Cass $24.75
Monster Maze Rom.....$24.75

PERCOM

HARD DISK DRIVES for
APPLE IBM-PC TRS-80*

5 MAGABYTE DRIVE..... $1099.75
10 MEGABYTE DRIVE $1399.75
15 MEGABYTE DRIVE $1799.75
20 MEGABYTE DRIVE $2275.75

*Add $30.00 for TRS 80 Drives

SINGLE DRIVE AT88 S1 ...$359.00
DUAL DRIVE AT88 S2 .....$559.00
DRIVE with printer port ...$449.00
AT88 Expansion Board $139.00
DUAL HEAD 44S1 .....$575.00
DUAL DRIVE 44S2 .....$949.00
SINGLE DRIVE 40S1 .....$529.00
ADD ON DRIVES .....$CALL

Lyco Computer Marketing & Consultants

TO ORDER CALL US

TOLL FREE **800-233-8760**

In PA 1-717-327-1824

www.commodore.ca

16K ATARI RAM $49.75
32K RAM $69.75
48K RAM $99.75
64K RAM $129.75
128K RAM $399.75
TECH NOTES...$29.75

BOOK of ATARI SOFTWARE 1983
346 pages $16.75

CX415 HOME FILING MANAGER $41.75
CXL4007 MUSIC COMP .. $33.75
CXL4002 ATARI BASIC .. $45.75
CX8126 MICROSOFT $65.75
CX4119 FRENCH $45.00
CX4118 GERMAN $45.00
CX4120 SPANISH $45.00
CX4108 HANGMAN $12.75
CX4102 KINGDOM $12.75
CX4112 STATES $12.75
CXL4003 ASSEMBLER .. $45.75

EASTERN HOUSE
Monkey Wrench 2 .....$52.75
INHOME
Baseball.....$29.95
IDSI
Speedway Blast..... $29.95
Pool 1.5..... $26.95

GALAXIAN $29.75
DEFENDER $29.75
DIG DUG $29.75
SPEED READING $53.75
ATARI WRITER.....$54.75
BOOKKEEPER.....$102.75
CX4018 PILOT HOME $54.75
CX 405 PILOT EDU.....$91.75
CX404 WORD PRO $99.75
CXL4013 ASTEROID $25.75
CXL4020 CENTIPEDE ...$29.75
CXL4022 PACMAN $29.75
CXL4011 STAR RAIDER .$29.75
CXL4004 BASKETBALL $25.75
CXL4006 SUPER BREAK.$25.75
CXL4008 SPACE INVAD..$25.75
CX8130 CAVERNS OF M.$27.75

APX
Eastern Ft.41 ..... $25.50
DeRay Atari $19.95
Math-Tic-Tac $15.95
Pres of US..... $15.95
3R Math $19.95
Typo Attack $24.95
Family Budget $19.95
F. Cash Flow..... $19.95

BRODERBUND
Bank Street Writer D.....$44.75
AE D.....$24.75
Apple Panic D.....$23.75
Choplifter ROM $32.75
David's Midnight.....$24.75
Stellar Shuttle C/D.....$18.75
Ft. Apocalypse.....$24.75

HES
Gridrunner R.....$27.75
Sword Point D.....$24.75

INFOCOM
Zork 1/2/or 3 ..... $29.95

FIRST STAR
Astro Chase..... $22.95

RANA DISK DRIVE
1000 .....$CALL

ALIEN GROUP
Voice Box 2 . $99.75

DON'T ASK
Sam $41.75
Abuse $15.95
Teleatri.....$27.95
Poker Sam ..$24.95

Amulet
Nuke Sub $16.75
Magic Story Book.....$24.75
Thunder Island.....$13.95

ARTWORX
Hazard Run $24.95
Hodge Podge $16.95
S. Poker.....$26.95
Bridge 3.0.....$18.95

EPYX
Jumpman $26.97
Temple of Apashi.....$27.75
Star Warrior $27.75

ATARI® Computers for people.

MODEMS

ANCHOR MARK I ..$79.00
ANCHOR MARK II..$79.00
HAYES SMART ...$239.00
HAYES MICRO II $309.00
Micro Bit
MPP-1000.....$159.00
NOVATION
CAT.....$144.00
D-CAT.....$155.00
J-CAT.....$115.00
APPLE CAT II....$279.00
212 APPLE CAT .$589.00

MONITORS

NEC JB1260.....$125.00
NEC JB1201.....$155.00
NEC TC1201.....$315.00

Amdek Color I.....$275.00
Amdek 300 Green.....$149.00
Amdek 300 Amber $149.00
Gorilla Green $99.00

WICO JOYSTICKS

APPLE - VIC - ATARI - TI
Command Control $20.95
Redball.....$22.75
Apple Trackball $58.00
TRACK BALL $52.75
EXTENSION CORD $9.75
APPLE ADAPTOR $18.95
T.I. ADAPTOR $9.95
POINT MASTER..... $12.75

apple®

APPLE DUMPLING GX $99.75
APPLE DUMPLING 64 ..(16 Buffer)$179.75

INFOCOM
Zork I, II, or III..... $26.75
Deadline $33.75

BLANK DISKETTES

ELEPHANT SS/SD.....$18.25
ELEPHANT SS/DD.....$21.75
KANGAROO SS/DD with storage case $24.75
MAXELL MD I $29.75
MAXELL MD II $39.75
DISK CASE (holds 10) $4.95
DISK CASE (holds 50) $19.75
ROM CASE (holds 10) $19.75

SANYO

MBC 1000.....$1549.00
(with micropro software package)
MBC 1250.....$2195.00
MBC4050 .....$2749.00
EFD 160 Disk.....$499.00
5500 Letter Q. Printer...$649.00

PRINTER INTERFACING AVAILABLE

APPLE DUMPLING GX $99.75
APPLE DUMPLING 64...(16 Buffer)...$179.75

	ATARI	APPLE	VIC
EPSON	$35.00	$79.00	$65.00
CITOH	$35.00	$79.00	$65.00
NEC	$35.00	$79.00	$65.00
OKIDATA	$35.00	$79.00	$65.00
GEMINI	$35.00	$79.00	$65.00
SMITH CORONA	$35.00	$79.00	$65.00

Atari parallel Printer cable (6') ...$39.95
Microbits Parallel Cable $89.95

commodore

HES VIC-20

Torg C.....$14.75
HES Games I C $14.75
HES Games II C $14.75
VIC Fortit Rom $42.75
HES MON Rom $28.75
Turtle Graphics Rom $28.75
HES Writer Rom $28.75
Shamus Rom.....$28.75
Protector Rom $31.75
Robot Panic Rom $28.75

DISKETTE SALE

BULK DISKS (qty 150) .....$1.50 ea.
Certron CC-10 (3 blank cassettes)...$3.75

PRINTER RIBBONS AVAILABLE

PROWRITER 2P.....$699.00
GEMINI 15.....$449.00
PRINTMASTER $1589.00
SMITH CORONA TP1...$549.00
CITOH 8600B.....$1025.00
STARWRITER.....$1099.00
OKIDATA 82 ..... SAVE
OKIDATA 83 ..... LOWEST PRICE
OKIDATA 84P .... AVAILABLE
OKIDATA 93 ..... SAVE
TRACTOR..... $49.75
OKIDATA 92..... $SAVE

SAVE on these in-stock PRINTERS

GORILLA GX-100 .....$199.00
EPSON ..... $CALL
GEMINI 10X $289.00
PROWRITER $359.00
NEC 8023 .....$399.00

MasterCard TO ORDER VISA

CALL TOLL FREE
800-233-8760
In PA 1-717-327-1824

or send order to
Lyco Computer
P.O. Box 5088
Jersey Shore, PA 17740

POLICY

In-stock items shipped within 24 hours of order. Personal checks require four weeks clearance before shipping. No deposit on C.O.D. orders. Free shipping on prepaid cash orders within the continental U.S. PA residents add sales tax. All products subject to availability and price change. Advertised prices show 4% discount offered for cash, add 4% for Master Card or Visa. DEALER INQUIRIES INVITED.

www.commodore.ca

The Home Automatic Weather Station can be connected to a VIC or 64 to monitor changing weather conditions.

The sensor is designed to be used as an educational tool or as a monitoring tool for sensitive environments such as greenhouses. The package is available for $199.95. The software comes in both tape and disk versions.

Vaisala Inc.
2 Tower Office Park
Woburn, MA 01801
(617) 933-4500

DOS Enhancer For VIC And 64

Softron has introduced *EZ/DOS*, a program that simplifies the use of the Commodore 1540/1541 disk drives.

The machine language program is loaded into memory and then is invisible until you need it. Call the menu and execute one of the options. They include LOADing or SAVEing a program, replacing a program, VERIFYing a program, reading a disk directory, formatting a new disk, renaming or erasing a file, or renaming a disk.

The program, which is available on disk, sells for $29.95.

Other new products available from Softron include:

The Do It Yourself Book, a book and software package for the VIC-20. The disk version is available for $29.95, and the tape version is available for $27.94.

Pizza Time! is an 8K arcade game for the VIC-20. The disk version sells for $24.95, and the tape version sells for $22.95.

Softron's Keyboard Soft/Lay is a keyboard overlay that includes BASIC commands, memory locations, and DOS commands. It is available for both the VIC and 64 for $8.95.

Softron, Inc.
2067 Broadway, Suite 27
New York, NY 10023
(212) 490-0077

The Family Tree

A pair of genealogical programs for the TRS-80 Color Computer are available from The Word Merchant.

The programs are *Family*, which maintains data on 255 ancestors in eight generations, and *Famprint*, which uses the information in the *Family* data base to print out three genealogical forms. They are Pedigree, which provides five generations of information for any name; Family Group Chart, which provides information on each husband-wife pair; and Reference Number Index, which lists all names with their corresponding reference numbers.

The programs, which require Extended BASIC and 32K, are available as a package on cassette for $9.95.

The Word Merchant
P.O. Box 232
Lititz, PA 17543

Optical Scanner System

Databar has introduced an optical scanner, called OSCAR, designed to read specially coded programs into most popular microcomputers.

The $79.95 scanner includes an issue of a monthly magazine which contains BASIC programs coded for scanning. Subsequent issues of the magazine will sell for $10.

The OSCAR system is expected to be available in early 1984.

Databar Corporation
10202 Crosstown Circle
Eden Prairie, MN 55344
(612) 944-5700

Color Computer Spreadsheet

Elite-Calc is a machine language electronic spreadsheet for the TRS-80 Color Computer. The program, a product of Elite Software, adjusts itself to any memory size, but requires Extended BASIC to run.

With *Elite-Calc*, spreadsheets of 255 rows by 255 columns can be created. Manipulation of data is accomplished through a variety of functions, including LOG, SQR, ABS, SUM, AVERAGE, MIN, and MAX. Relational operators and the trigonometric functions also are supported.

The program includes HELP displays, rapid entry modes for text and data, and an option for automatic cursor movement. *Elite-Calc* is available on tape or disk for $44.95.

Elite Software
Box 11224
Pittsburgh, PA 15238
(412) 795-8492

CALENDAR

October 19-21, Pinehurst Hotel and Country Club, Chapel Hill, NC. "Introduction to Computers and Their Applications." A three-day seminar sponsored by LEARNING AT PINEHURST. Hands-on instruction and learning sessions on software, hardware, languages, applications, and the history and future

www.commodore.ca

HARMONY VIDEO & COMPUTERS
800-221-8927

JVC ● PANASONIC ● SONY PROFEEL ● ZENITH ● HITACHI ● QUASAR

G.E. ● SANYO ● SONY PROJECTION ● TDK ● MAXELL ● FUJI ● SCOTCH ● SONY ● RCA

COMMODORE	
VIC 20	89.95
COMMODORE	199.95
VIC 2N DATASETTE	59.95
COMMODORE DISC DRIVE	209.95
1525B PRINTER	209.95
COMMODORE MONITOR	249.95
VIC TELEPHONE MODEM	69.95
RS 232 TERMINAL INTERFACE	CALL
IGEE-488 INTERFACE	CALL
VIC 8K MEMORY PAC	39.95
VIC 16K MEMORY PAC	89.95
MOTHER BOARD	89.95
VIC 3K SUPER EXPANDER	
VIC PROGRAMMER'S AID	CALL
VIC MON	CALL
INTRO TO BASIC I & II	69.95

APPLE 2 PLUS
999.95

APPLE 2E
CALL

EPSON
MX 80 PRINTER
399.95

EPSON
FX 80 PRINTER
599.95

ATARI		
ATARI	400 W16K	129.95
ATARI	800 W48K	249.95
ATARI	1200 XL W64K	369.95
ATARI	410 RECORDER	76.95
ATARI	1010 RECORDER	77.95
ATARI	810 DISC DRIVE	389.95
ATARI	830 ACOUSTIC TEL. MODEM	159.95
ATARI	850 INTERFACE	169.95
ATARI	822 THERMOL PRINTER	CALL
ATARI	1020 40 COL. PRINTER	219.95
ATARI	1025 80 COL. PRINTER	379.95
ATARI	16K MEMORY EXPANDER	89.95
ATARI	WORD PROCESSOR	69.95
ATARI	BASIC REF. GUIDE	CALL
ATARI	PROGRAMMER KIT	CALL
ATARI	ENTERTAINER KIT	29.95

WE CARRY A FULL LINE OF SOFTWARE FOR ATARI AND COMMODORE
CALL FOR LOWEST PRICES

ALL SONY T.V.'s IN STOCK CALL FOR LOWEST PRICES

ALL VCR's IN STOCK CALL FOR LOWEST PRICES

VIDEO TAPE (By case of 10 only)

	VHS T120	VHS T160	HIGH GRADE	BETA L500	BETA L750	BETA L830
TDK	8.85	14.75	10.75	6.50	7.99	10.25
FUJI	9.65	14.75	11.75	6.50	7.99	
MAXELL	8.40	13.50	10.25	6.50	7.99	10.25
MEMOREX	8.75	13.50	10.50	6.50	7.99	10.25
SCOTCH	8.50	13.50	10.25	6.50	7.99	
SONY			10.25	6.99	8.40	10.25
JVC	9.50	13.50	11.50			
RCA	8.90					
PANASONIC	8.50					

TDK PROFESSIONAL T120	15.95
MAXELL PROFESSIONAL L750 OR T120	15.95
MEMOREX PROFESSIONAL	16.95

FOR THE LOWEST PRICES ON VIDEO CALL 800-221-8927

To order simply dial toll free 800-221-8927 with your Master Card or VISA and your order will arrive via UPS or send certified check or money order only to: HARMONY VIDEO AND ELECTRONICS, 2357 Coney Island Ave., Brooklyn, N.Y. 11223, and add approximate shipping postage and insurance charges. Credit cards for phone order only. For customer service please dial (212) 627-8960. All pries and availability subject to change without notice. All orders shipped out of state. Dealer inquires invited!!! For sales info dial (212) 627-6989. Open Sun. 10-4 Mon.-Thur. 9-7 Fri. 9-3.

800-221-8927

COMMODORE ATARI APPLE TEXAS INSTRUMENTS EPSON

www.commodore.ca

of computers. Course fee is $550 per person; group discounts available. For more information, write LEARNING AT PINEHURST, P.O. Box 2328, Chapel Hill, NC 27514.

October 20-21, Mission Valley Inn and Convention Center, Raleigh, NC. Carolina Micro-Expo. Over 50 seminars on microcomputers and their use will be presented. Local and national manufacturers and suppliers will demonstrate equipment. For more information, contact Richard Gardner, Show Manager, HMM Associates, Inc., 8400 Glenwood Avenue, Raleigh, NC 27612. (919) 782-0824.

October 26-28, Red Lion Inn, San Jose, CA. Annual Conference of the California Educational Data Processing Association (CEDPA): "Update '83: Are We Ready For 1984?" Sessions will focus on the spectrum of computing power available to data processing and instructional professionals and explore the impact of high technology on education. For information and registration, contact Jane Householder, Office of the Los Angeles County Superintendent of Schools, Room 226, 9300 East Imperial Highway, Downey, CA 90242. (213) 922-6141.

November 3-6, New York Coliseum, New York, NY. Electronic Fun Expo. New York's first state-of-the-art consumer electronics show. Open to the public. For more information, write to Bill O'Brien, Electronic Fun, 350 East 81st Street, New York, NY 10028. (212) 734-4440.

November 5-6, Scottish Rite Center, San Diego, CA. 4th Annual San Diego Computer Fair. The fair will feature short technical sessions, programming and computer game contests, door prizes, commercial displays, and displays by computer user groups. Registration is $5, Saturday night banquet fee is $12. Reservations can be made by mailing a check or money order to: San Diego Computer Society, P.O. Box 81537, San Diego, CA 92138. (619) 565-8720.

November 16-18, Pinehurst Hotel and Country Club, Chapel Hill, NC. "Introduction to Microcomputers and Their Applications." A three-day seminar featuring hands-on instruction and learning sessions on software, hardware, languages, applications, and the history and future of microcomputers. Course fee is $550; group discounts are available. For more information, write to LEARNING AT PINEHURST, P.O. Box 2328, Chapel Hill, NC 27514.

November 17-19, Hynes Auditorium, Boston, MA. Fifth Annual Northeast Computer Show and Software Exposition. Features nearly 500 displays and exhibits of microcomputers, accessories, peripherals, and software. Show hours are 10:30 a.m. to 5:30 p.m. daily. Admission is $7.50. For more information, call or write Northeast Expositions, 822 Boylston St., Chestnut Hill, MA 02167. (800) 841-7000 or (617) 739-2000 (in Massachusetts).

New Product releases are selected from submissions for reasons of timeliness, available space, and general interest to our readers. We regret that we are unable to select all new product submissions for publication. Readers should be aware that we present here some edited version of material submitted by vendors and are unable to vouch for its accuracy at time of publication.

COMPUTE! *welcomes notices of upcoming events and requests that the sponsors send a short description, their name and phone number, and an address to which interested readers may write for further information. Please send notices at least three months before the date of the event, to: Calendar, P.O. Box 5406, Greensboro, NC 27403.* ©

PRODUCT MART

SLASH YOUR FUEL BILLS

Shelter Software's
HOME ENERGY OPTI-MI$ER™
• Finds the best ways you can save energy—and money • Calculates how much you can save with solar heat, many other options • Easy, accurate • For homes anywhere
SAVE HUNDREDS EACH WINTER
Atari* 400/800 or Apple II**,
32K. min. Delivery in 4-6 weeks.
$39.50 Pa. residents add $2.37 tax.
Shelter Software™
Box 521 Emmaus PA 18049
SOFTWARE THAT PAYS FOR ITSELF™
* Atari Inc.™ ** Apple Computers Inc.™

$179

For $179 our TYPE & PRINT turns the Olivetti Praxis typewriter into the perfect printer for your personal computer. Best of all, our cable simply PLUGS ON – no soldering! And it's smart enough to be fully compatible with most systems.
Applied Creative Technology Inc
800·433·5373
(817-261-6905)

www.commodore.ca

MEMORY EXPANSION BOARDS for ATARI* COMPUTERS

Tiny Tek, Inc. Memory Boards are fully assembled, tested, and guaranteed

48K/52K Memory Board	$114.95
For ATARI* 400	
52K Addressable Memory	
Easy to Install	
32K Memory Board	$79.95
For ATARI* 400 or 800	
No Modifications Required	
16K Memory Board	$49.95
For ATARI* 800	
No Modifications Required	

We Will Meet Advertised Prices

BUILD YOUR OWN MEMORY

48K/52K Board (No Components)	$35.00
32K Board (No Components)	$30.00
16K Board (No Components)	$10.00
48K/52K Complete Kit	$90.00
32K Complete Kit	$60.00
16K Complete Kit	$35.00

Add $2 Shipping & Handling
Visa & MasterCard Accepted
*ATARI is a trademark of Atari Inc.
Dealer Inquiries Welcome

Tiny Tek, Inc.
P.O. Box 12609 • Dallas, TX 75225
214-373-8926

NEW! ! FACTORY DIRECT

SPACE SAVING
C.R.T./T.V. STAND
IN DURABLE FORMICA
(Oak-Beech-Beige)
For Most Popular Computers
VIC-ATARI-T.I.-TIMEX-64-etc.
NOW ONLY $47.00*
(* shipping included)

EYE LEVEL VUEING - COVERS CABLE JUMBLE

VIC-20™ AFFORDABLE SOFTWARE

• BILOW'S CAR RACE • BILOW'S BOMBERS •
• BILOW'S CHOPPERS • DENVER SKIERS •
• BILOW'S SUBS • BILOW'S MISSILES •
Hi-Resolution Graphics, Sound & Colors.

Cassette Tapes $ 6.00*
6-Pac *Special* $30.00*

ORDER TODAY
CHECK, MONEY ORDER

"BILOW'S" ENTERPRISES
BOX 661655
MIAMI SPRINGS FLORIDA 33166

FLY Your Computer

FLIGHT SIMULATOR GAMES

Sky Pilot (8K VIC-20)	$18.00
Runway 20 (16K VIC-20)	$25.00
Runway 64	$25.00
Micro-Pilot (EPSON HX-20)	$18.00

ADD $2.00 FOR DISK VERSION

TORPEDO!

Submarine Battle Games
8K VIC-20 or Commodore 64 **$25.00**

SUSIE SOFTWARE
709 Wilshire Dr. Mt. Prospect, IL 60056
(312) 394-5165

Wasting Money? We Have the World's Most Cost Effective Development System.

Send for Free Brochure

- Includes Hexkit 1.0, a powerful 100% machine code editor-debugger utility program that makes coding for 8-bit Micros a snap.
- Program from Commodore VIC-20 keyboard into built-in 4K ROM emulator
- Jumper to target ROM socket
- Test programs in circuit
- Built-in EPROM programmer and power supply
- Burns & runs EPROMS for the Commodore VIC-20, too
- Comprehensive manuals
- Fits EXPANSION PORT

VISA AND MASTERCARD ACCEPTED

PROMQUEEN CARTRIDGE ONLY $199 U.S. $269 CAN.

+ Prices	U.S.	Can.
Promqueen 64	$299.00	$399.00
8K board w/ 1 Eprom	$ 29.95	$ 39.95
16K board w/ 1 Eprom	$ 39.95	$ 49.95
8K ROM board w/ 1 Eprom-C64	$ 39.95	$ 49.95

Distributed in U.S. by **Arbutus Total Soft, Inc.**
4202 Meridian, Suite 214
Bellingham, WA 98226
Ph. 800-426-1253, in Washington 206-733-0404

Distributed in Canada by
IBC/Distribution Canada
4047 Cambie St., Vancouver, BC V5Z 2X9
Ph. 604-879-7812

HAVING LOADING PROBLEMS ?

GET A Z-DUBBER

Because of the great variation in cassette recorders used with the ZX80/81/TS1000 (some in very poor shape), you may be having a hard time loading cassette programs. The (Z-Dubber) connects between the cassette recorder and the computer, and its circuitry produces a much better signal for the computer to read. The (Z-Dubber) also allows you to connect two cassette recorders together to make perfect backup copies. The Z-Dubber can be yours for $31.95 postpaid. Add $2.50 for shipping outside the US, Canada or Mexico.

CHARGE OR COD ORDERS CALL
1-800-227-3800
ASK FOR OPERATOR 225

BYTESIZE MICRO TECHNOLOGY
PO BOX 12309 DEPT DM
SEATTLE, WA 98111
(206) 236-BYTE
CALL OR WRITE FOR DEALER INFORMATION

SM-ESH

Screen displays are the interfaces between micros and human beings.

Good screen displays are the hallmark of top rank application programs — but they are expensive.

The ESH (ergonomic screen handler) from SM allows you to produce superb screen displays with an astonishing economy of effort.

for cbm 8032 or 8096

FREE CATALOG!

JEWEL THIEF
ADVENTURE GAME - $14.95
CAN YOU BREAK INTO THE CRYSTAL CITY MUSEUM AND STEAL THE 'BLUE WALLABY' DIAMOND WITHOUT BEING CAUGHT?
FOR: VIC20 - REQUIRES 8K EXPANDER
ZX81/TIMEX1000 - REQUIRES 16K
COMMODORE 64 ($19.95)
KAYPRO II ($19.95)

ANDROID
STRATAGY GAME - $18.95
RETREIVE THE S.S.R. FROM THE ALIEN ANDROIDS. GET PAST INTERCEPTERS, DESTROYERS, AND THEN GEORGE.
FOR: VIC20 - REQUIRES 16K EXPANDER
ZX81/TIMEX1000 - REQUIRES 16K
COMMODORE 64

AVAILABLE ON CASSETTE OR DISK.
ADD $1.00 FOR EACH DISK ORDERED.
CHECK OR MONEY ORDER (NO C.O.D.).
FORIEGN ORDERS ADD $2.00.
ORDERS PROCESSED IN 1-3 DAYS.
• DEALER INQUIRIES INVITED. •

MORE PROGRAMS AVAILABLE.
SEND FOR FREE CATALOG.

CRYSTAL MICROSOFT LTD.
P.O. BOX 440852
HOUSTON, TX.
77244
Makes checks as welcome as cash.
TeleCheck

VIC-20 COMMODORE 64

THE RECIPE BOX

Now you can easily store and recall your favorite recipes on your Commodore computer. THE RECIPE BOX is a complete menu-driven disk system that comes with these additional features:

SEARCH BY INGREDIENT — Only have a pound of hamburger in the freezer? Let THE RECIPE BOX show you all the recipes that you have on file that use hamburger, or any other ingredient you choose.
SEARCH BY CATEGORY — Code your recipes as to breakfast, lunch, dinner, snacks, etc.
SEARCH BY CATEGORY/INGREDIENT — Any combination of the above.
AUTOMATIC MEASUREMENT — THE RECIPE BOX will automatically scale up or down the amount of ingredients you need according to how many servings you want.
SCREEN OR PRINTED OUTPUT — Have printed copies to use in the kitchen or give to friends.

THE RECIPE BOX requires one disk drive and will run on a 5K VIC-20, Commodore 64. Please specify. Send check or money order for $21.95 to:

Aries Marketing Co.
P.O. Box 4196
4200 Shannon Drive
Baltimore, Md. 21205
Md. residents add 5% sales tax

COMMODOR 64

"ABC" THE ALPHABET FOR PRESCHOOERS
TEACH YOUR CHILDREN THE ALPHABET EARLY WITH GRAPHICS AND SOUND
ONLY $18.95 ON CASSETTE
OR $21.95 ON DISK

VIC-20

(CASSETTES ONLY)
THE ALPHABET GAME .....$ 9.95(ea)
LEARNING NUMBERS 0-50
PART I....$ 9.95(ea)
LEARNING NUMBERS 51-100
PART II....$ 9.95(ea)
PART I&II ARE AVAIL. IN: ENGLISH; SPANISH; FRENCH; AND GERMAN VERSIONS PLEASE STATE LANG
ANY 3 VIC-20 CASSETTES FOR ONLY $ 25.-
Check or Money order +$1.50 Post. N.Y. Res+7¼tx.

THOR SOFTWARE
47 CHERNUCHA AVE.
MERRICK, N.Y. 11566

www.commodore.ca

VIC & APPLE

DISCOUNT SOFTWARE (game, utility, educ., applications) for the VIC-20 and APPLE 11+ or APPLE 11e (1 disk, 48K). Write for a full catalogue — 30-day warranty on faulty merchandise — please pay in your country's currency. VIC on cassette only.

	U.S.A. - CAN.	U.K.
VIC-20		
SNAKMAN	$9.00	£4.00
CRICKET	9.00	4.00
KRAZY KONG	9.00	4.00
ESCAPE	9.00	4.00
APPLE		
CHOPLIFTER	14.00	8.50
CASTLE WOLFN.	14.00	8.50
SNEAKERS	12.00	7.50
RASTER BLASTER	14.00	8.50

DISCOUNT SOFTWARE
P.O. Box 1489
Niagara-on-the-Lake, Ont.,
Canada L0S 1J0

FREE FREE FREE for C64/V20*

One 3 piece set of the finest quality, hand made computer covers for the C64/V20*, printer and disk drive. **A $23.95 value!**...When you enter your one year subscription to **SOFTYPE**...Why spend hours of typing?...Avoid frustrations!!! Let **SOFTYPE** do it for you!...**for as little as $3.99,** we will send you one menu driven tape or diskette** a month with all the public domain programs for your C64/V20* printed in the monthly issues of this magazine. Order now!!!...before the Christmas rush.

- ☐ C64* 1 year subscription to **SOFTYPE**
- ☐ V20* (with FREE covers) $47.88
- ☐ Set of three covers... Only $23.95 (Texas add 6% sales tax)
- ☐ One month of **SOFTYPE**... $3.99

**Add $1.75 for disk version per issue

Send check or money order to:
SOFTYPE
1807 Cobble Creek
Houston, Texas 77073

*TRADEMARK OF COMMODORE BUSINESS MACHINES. YOU PAY ONLY FOR THE SERVICE AND TAPE. THE PROGRAMS ARE FREE.

MAKE YOUR OWN CARTRIDGES!

- Complete System • Programs 8K Cartridge to "AUTO-RUN" (opt) at Power-up — YOUR BASIC or Machine-Code Prgm.
- Prototype GAMES
- EDUCATIONAL use — NO Load Delay
- OS-3721 plugs into VIC-20
- Expansion socket on board
- Carts. Erasable & BLK Locatable

OS-3723 ZIF socket module Allows programming 2764, 2732A, 2732, 2716, 2564, 2532, 2516 EPROMS	$24.50
OS-37A System (Pgmr., 8K Cart)	$88.50
OS-37B System (Pgmr., ZIF mod) (Software Tape incl. Disk add $2)	$88.50
OS-3722 Blank 8K Carts.	$24.50
Blank 2764 EPROMS	$11.50

OTTO SYSTEMS
8135 ENGINEER ROAD
SAN DIEGO, CA 92111
(619) 569-5665

Add $4 Shipg. & Hndlg. — CA res. 6% tax

ATTENTION
TEXAS INSTRUMENTS TI-99/4A
OWNERS

We have hundreds of 3rd party independent software programs on cassette and disk ready to run on your TI-99/4A. Games, business, and educational programming at discount prices as low as $8.95 ea. Plus all TI hardware and software at incredibly low, low prices, including the new TI-99/2 and CC-40 computers. We also have dust covers, heavy duty joysticks with TI adapters, and many more accessories. Call or write now for a FREE listing. We ship your order U.P.S. the same or next business day to insure fast service. Visa and MasterCard accepted (NO service charges) or C.O.D. is okay.

THE MUSIC WORKSHOP
59 E. Tioga St.
Tunkhannock, PA 18657
CALL 1-717-836-4522

KINDER KONCEPTS

30 PROGRAMS FOR KINDERGARTEN CHILDREN. READING READINESS, MATH CONCEPTS, PERCEPTION, COLORS, SHAPES, ETC.

Disks $39.50 for 5 programs*
All 30 on 1 disk with Backup — $175.00

For COMMODORE PET® and 64,™ and APPLE II +

We also carry "Master Grades", "Multiple Choice", "Football Scout" and other useful programs for teachers.

Please add $2.00 per disk for shipping & handling.

MIDWEST SOFTWARE
BOX 214 • FARMINGTON, MI 48024
Phone: 313-477-0897 (4:00 pm - 11:00 pm)

Please send for complete descriptions and ordering information.

* Sample disk with 2 programs for $10.00.

* and TM trademarks of Commodore Business Machines and Apple Computer Company.

GEMINI OR EPSON PRINTER CONFIGURATION PROGRAM

If you have trouble understanding all those software codes that configure your printer, then this is the program for you. Just turn on your printer, boot the program and choose from the menu more than a dozen print types. We also include a preview of other functions available on the Gemini/Epson printers. Program is available for Apple II+, Ataris and Vic-20. Specify computer type, memory size and either disk or tape when ordering. Send check or money order for 21.95(disk)14.95(tape) to: DOWN AND OUT SOFTWARE, 33 Storm Drive, Holtsville, NY 11742.

APPLE·ATARI·COMMODORE·TI OWNERS
PROTECT YOUR INVESTMENT
CLEAR ANTI-STATIC VINYL

Dust Covers

Full One Year Guarantee

COVERS AVAILABLE FOR YOUR SPECIFIC MODELS
ATARI·COMMODORE·TI
COMPUTER AND ACCESSORY COVERS EACH $9.95
APPLE
COMPUTER AND ACCESSORY COVERS EACH $11.95
WE HAVE OVER 1,000 MAKES AND MODELS
PLEASE STATE MAKE AND MODEL WHEN ORDERING
ALSO AVAILABLE: ANTI-STATIC MATS 18"x24" $24.95
IDEAL FOR HOME OR OFFICE USE

Call or Write for Brochure

MasterCard VISA

ILLINOIS RESIDENTS ADD 5% SALES TAX

COM-COV
217/787-9372
113 EXETER COURT
SPRINGFIELD, IL 62704

ALL ORDERS ADD $2 FOR SHIPPING AND HANDLING
PLEASE ALLOW 4-6 WEEKS FOR DELIVERY

WHERE DOES IT GO ?

This package makes short work of tracking 35 expenses and 7 incomes (which may be changed, deleted or added too). Suggestions and instructions for its use are provided.

Daily or weekly records may be stored and then entered on supplied monthly forms.

Household financial record keeping becomes easy and pleasant. (The results may surprise you.)

TI-99/4A Cassette Package $12.95
(Fla. Add 5% Tax). . . . .+$ 1.50 Postage

Free Additional Information

I. S. A.
9808 N. W. 67th Court
Tamarac, Florida 33321

1/2 PRICE INTRODUCTION
Commodore & TI

Spreadsheet	19.95
Data Base	19.95
Word Processor	9.95
Payroll	9.95
Mailing List	9.95
Inventory	9.95
Games Pak*	19.95
Education Pak*	19.95
Business Pak*	19.95

(*Valu-paks have 5 programs)

VALORUM
441 Clyde Ave.
Mtn. View, CA 94043
(415) 968-8500

www.commodore.ca

SOFTWARE SUPER SAVINGS

Apple-[1] Atari-[2] IBM-[3] Com64-[4]

		TCE	LIST
12	A.E.	23.99	34.95
12	BANKSTREET WR.	49.99	69.95
12	CASTLE WOLFEN.	19.99	29.95
2	DONKEY KONG	36.99	49.95
1234	FROGGER	22.99	34.95
124	HOME ACCOUNTANT	47.99	74.99
24	JUMPMAN	27.99	39.95
12	KNIGHTS DESERT	27.99	39.95
1	LEGACY LLYLGAMYN	28.99	39.95
4	QUICK BROWN FOX	45.99	65.00
12	RANA DISK DRIVES	CALL	
12	SARGON II	23.99	34.95
1234	SNOOPER TROOPS	31.99	44.95
1234	SUSPENDED	33.99	49.95
1234	TEMPLE APSHAI	27.99	39.95
12	ULTIMA II	39.99	59.95
12	ZAXXON	26.99	39.95
1234	ZORK 1,2,3 EA.	26.99	39.95

DISKS	ELEPHANT	MAXELL
12 SSSD	$17.99/10	—
23 SSDD	$21.99/10	$28.99/10
3 DSDD	$26.99/10	$40.99/10

(313) 528-1554 P.O. BOX 569

The Computer Express DEPT. 8

FREE Indicat Typ TROY, MI 48099

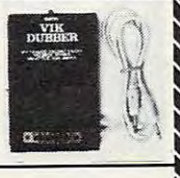
MASTER CARD/VISA/CHECKS/MONEY ORDERS/COD ACCEPTED

SHIPPING: US $2 CANADA $6 FOREIGN $10 MICH ADD 4% TAX

GET THE MOST FROM YOUR VIC-20/C64

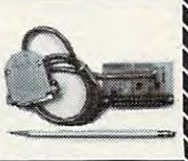
CASSETTE INTERFACE

- USE ANY STANDARD CASSETTE RECORDER
- CONNECTS TO THE CASSETTE PORT
- CONTROLS THE CASSETTE MOTOR
- NEEDS NO BATTERIES
- COPY FROM RECORDER TO RECORDER
- THIS IS THE BEST ONE FOR LESS $$$
- ONLY $34.95 POSTPAID ADD $2.50 FOR SHIPPING OUTSIDE US, CANADA, MEXICO



THE MODEM INTERFACE

- CONNECTS TO THE USER I/O PORT
- NEEDS NO BATTERIES/SOLDERING
- CONNECTS ANY STANDARD MODEM
- USE MODEM AUTODIAL/ANSWER FEATURES
- COMES WITH A FREE TYPE IN BASIC TERMINAL PROGRAM
- ONLY $24.95 POSTPAID ADD $2.50 FOR SHIPPING OUTSIDE US, CANADA, MEXICO



CHARGE OR COD ORDERS CALL

1-800-227-3800

ASK FOR OPERATOR 225

BYTESIZE MICRO TECHNOLOGY PO BOX 12309 DEPT DM SEATTLE, WA 98111 (206) 236-BYTE

CALL OR WRITE FOR DEALER INFORMATION

'PUBLIC DOMAIN'™ — SOFTWARE —

Supporting all COMMODORE computers

Written by users, for users

★ GAMES ★ UTILITIES ★ EDUCATIONAL ★

Over 1300 programs and growing.

VIC 20™

VIC collection #1 – 70+ programs – Tape/Disk – $10.00
VIC collection #2 – 70+ programs – Tape/Disk – $10.00
VIC collection #3 – 70+ programs – Tape/Disk – $10.00
VIC collection #4 – 50+ programs – Tape/Disk – $10.00

COMMODORE 64™

COMMODORE 64 #1 – 25+ programs – Tape/Disk – $10.00
COMMODORE 64 #2 – 25+ programs – Tape/Disk – $10.00
COMMODORE 64 #3 – 25+ programs – Tape/Disk – $10.00

PET® / CBM®

PET/CBM – 5 Utility – Tapes/Disks – $10.00 each
PET/CBM – 11 Game – Tapes/Disks – $10.00 each
PET/CBM – 6 Educational – Tapes/Disks – $10.00 each

DINSET: Reset Switch

Works on Vic 20 or Commodore 64 – $5.00

All prices include shipping and handling.

We are YOUR world wide user software connection.
An alternative to the high cost of software.

CHECK, MONEY ORDERS,
VISA and MASTERCARD accepted.

For A Free Flyer Write:

Public Domain, Inc.

5025 S. Rangeline Rd., W. Milton, OH 45383

Phone (513) 698-5638

VIC-20

QUALITY EXPANSION BOARD

ONLY $31.95

- UP TO 3 GAMES OR UTILITY CARTRIDGES.
- 3 LARGE SLIDE SWITCHES. NOT SMALL DIP SWITCHES
- RESET BUTTON. NO NEED TO TURN COMPUTER OFF BETWEEN GAMES.
- FUSED TO PROTECT VIC.
- HIGH QUALITY GOLD PLATED EDGE CONNECTOR AND NICKEL PLATED BOARD.
- SOLID RUBBER FEET SUPPORTS BOARD WHEN INSERTING CARTRIDGES.
- INSTRUCTIONS AND HINTS.

TO ORDER SEND CHECK (ALLOW 3 WEEKS) OR MONEY ORDER.

MESI P.O. BOX 51544 NEW ORLEANS, LA 70151

ADD $2.00 POSTAGE & HANDLING LA. RESIDENTS ADD 3% TAX

VIC-20 IS A TRADEMARK OF CBM, INC.

VIC & 64

BE A COPY C.A.D. (CASSETTE AIDED DUPLICATOR) NOW YOU CAN MAKE BACKUP COPIES OF ALL THE COSTLY, NON-SAVEABLE CASSETTE PROGRAMS YOU BOUGHT.

OUR BACKUP V1.0 UTILITY PROGRAM WILL LET YOU MAKE DUPLICATES THAT RUN.

BACKUP V1.0 WILL WORK WITH A STANDARD 5K UNEXPANDED VIC. MEMORY EXPANSION IS REQUIRED TO COPY PROGRAMS LONGER THAN 3K BYTES.

$24.95

PLUS $2.00 SHIPPING & HANDLING

SOFTWARE PLUS

6201 SUITE C
GREENBACK LANE
CITRUS HEIGHTS, CA 95610

VISA, MASTERCARD, AND MONEY ORDERS
CA. RESIDENTS ADD 6% SALES TAX.

VIC IS A TRADEMARK OF COMMODORE

916-726-8793

The UnKeyboard

a friendly alternative

★USE IT AS A GAME CONTROLLER

★USE IT AS A "MOUSE"

ATARI PADDLE COMPATIBLE

FREE PROGRAMS

STURDY LUCITE DRAWING ARM

2 PROGRAMMABLE FUNCTION KEYS

"THE HELPING HAND"

DRAWING BOARD

DIGITIZER

$49.95

PERSIMMON PERIPHERALS
RTE. 2 BOX 2306A
CLAYTON, GA. 30525

VIC-20 C-64

VIC 20 **POSTAGE PAID SOFTWARE** VIC 20

100% MACHINE CODE MONEY BACK GUARANTEE

Q. WARRIOR $13.95 U.S.

On a routine patrol of your defences, you discover that the Zoronian mutants are breaking through in huge numbers, you engage them in battle, almost at once you realize your laser snares, your main defences are malfunctioning, they are designed to detect and destroy mutant life forms. Instead they are hunting you. The mutants are bringing up their Z-rammer laser bolts. You summon help, none comes. You are alone, but you are a Q WARRIOR. Joystick required, fire in any direction.

PLAGUE $13.95 U.S.

Use your super energy bolt to destroy the advancing Plague-Pests, but watch out for their guardians patrolling the screen. If anything touches you - Plague Pests, their stun bombs, eggs or patrolling guardians, you will crash to the bottom of the playing area while the pests will advance.

CHRISTMAS SPECIAL -- BUY ANY TWO GAMES AND GET ONE FREE! Send cheque or money order to:

CHADWELL'S SOFTWARE
DEPT TS, 230, 4144A - 97 Street
Edmonton, Alberta, Canada T6E 5Y6

U.S. ORDERS WELCOME
DEALER INQUIRIES WELCOME

SM-TEXT + CUDA

A powerful combination of superb text processing and a name and address data base

maths and multi-search facilities make this pair into virtually a complete commercial administration system.

for cbm 8032 or 8096

Epson® MX70/MX80 & MX100 Replacement Ribbons

Manufactured by Aspen Ribbons, Inc. Buy direct from manufacturer & save. Standard ink color is black. Red, green, blue, brown, & purple colors are available for $2.00 extra per ribbon.

PRICES

Epson® MX70/80	$2.75 to $6.50 ea.
Epson® MX100	$4.75 to $9.75 ea.

Price depends on quantity ordered.

CALL FOR FREE CATALOGUE.

*Aspen Ribbons, Inc. is not affiliated with any company mentioned in this ad.

Aspen Ribbons, Inc. 1700 N. 55th St.
Boulder, CO 80301-2796 (303)444-4054
Telex: 45-0055 End User: 800-525-0646
Wholesale: 800-525-9966

www.commodore.ca

Magreeable™ software

STOCK HELPER™

Commodore 64

Stock HELPER is a tool to maintain a history of stock prices and market indicators on diskette, to display charts, and to calculate moving averages. Stock HELPER was designed and written by a "weekend investor" for other weekend investors.

Stock HELPER is available for $30.00 U.S. or $37.00 Canadian plus shipping.

(M)agreeable software, inc.
5925 Magnolia Lane • Plymouth, MN 55442
(612) 559-1108

HELPER is a trademark of (M)agreeable Software, Inc.
Commodore is a trademark of Commodore Electronics Ltd.

BEAT THE HIGH COST OF SOFTWARE

Before you buy any more software, you owe it to yourself to join S♥FTRADERS™ the fastest growing worldwide trading network. Members swap software and info for all computers.

Annual membership includes:

- Quarterly trading directories
- Monthly and flash updates
- Personalized trader listings
- Trader support systems
- Plus much more

Imagine having access to hundreds, even thousands of programs, each costing no more than the price of a stamp or phone call. Join now to beat the price increase and find out about the new member $$ offer. $49.95 U.S. $64.95 FOREIGN. SASE for info. Indicate computer model.

S♥FTRADERS™ INTERNATIONAL
1610 Shomaker Dr.
Murphysboro, IL 62966

PERSONAL PERIPHERAL PRODUCTS *presents:*

SPEAKEASY

VIC-20 SPEECH

COM-64 SPEECH

Cartridge, Instructions & Dictionary	$69.00
FALL SPECIAL: Cassette Editor & Extension Speaker, Reg. $19.95, with **SPEAKEASY**	**FREE**
Commodore 64 Adapter Board	$12.95

BARE BONES BOARDS

	Assembled	Kit
8K Ram/VIC-20 Block Switched	$29.95	$24.95
16K Ram Expander for VIC-20	$49.95	$44.95
3 Slot Switched & Fused Board/VIC-20	$24.95	$19.95
NEW: 4 Slot Switched & Fused Board/COM-64	$44.95	$34.95
COMING SOON: Mighty Modem VIC-20/COM-64	$79.95	

ADD $2.00 Total Order Handling/III.Residents Add 6% Sales Tax

PERSONAL PERIPHERAL PRODUCTS
P.O. BOX 3423
FOX VALLEY MALL
AURORA, IL 60505 • (312) 961-2347

COM-64 & VIC-20 IS A TRADEMARK OF COMMODORE

SM-LOS

Loadable Operating Systems from SM are designed to:

maximise the usefulness of expanded memories

provide the optimum environment for memory-greedy programs.

provide an extended vocabulary of BASIC commands.

for cbm 8032 or 8096

16K RAM PACKS ONLY

VIC 20 $42.95 U.S. **ZX81**

32K RAM PACKS $60.00 U.S.

Please state your machine name on your order, 6 month warranty. Add $2.95 p+h.

EXPANDABLE RAM PACKS - VIC ONLY

16K Ram Pack **'69.95** U.S. + P&H
32K Ram Pack **'89.95** U.S. + 3.50 P&H

The following can be built into your Ram Pack now or later we will install:

IC Chips Toolkit **'19.95** U.S. + 50¢ P&H
IC Chips Machine Code Monitor **'19.95** U.S. + 50¢ P&H

PLUS: available soon: Intel 8088 Co-processor + 40 Colomn Rom. Installs in your expandable Ram Pack only.

3 Slot Mother Board + 8K Ram $ 77.95 U.S. + $2.95 P&H; comes with battery connector, mode switchable to Vic + 3K, Vic + 8K, Vic + 16K, isolation switch, for super expander cartridge. 6month warranty, runs any commercial software at the flick of a switch.

Send cheque or money order to:

CHADWELL'S SOFTWARE
Dept. CM, 230, 4144A - 97 Street
Edmonton, Alberta, Canada T6E 5Y6

U.S. ORDERS WELCOME
DEALER INQUIRIES WELCOME

VIC-20 USERS

CARTRIDGE BACK-UP

- PROTECT YOUR INVESTMENT
- BACK-UP YOUR CARTRIDGES ONTO CASSETTE OR DISK
- SAVES WEAR ON YOUR CARTRIDGES AND THE MEMORY PORT
- BACKED-UP CARTRIDGES **RUN LIKE ORIGINALS** (8K RAM REQUIRED)
- SYSTEM IS AN EASY TO USE PROGRAM AND A HIGH QUALITY CARTRIDGE INTERFACE BOARD

$49.95 POST PAID

CASSETTE BACK-UP

- PROTECT YOUR INVESTMENT
- BACK-UP ANY CASSETTE TAPE ONTO TAPE OR DISK
- EASY TO USE PROGRAM
- REQUIRES **NO USER MEMORY**

$19.95 POST PAID

VISA/MASTERCARD ORDERS:
PHONE (215) 269-4803

SEND CHECK OR MONEY ORDER TO:
E-M TECHNOLOGIES
P.O. BOX 185
DOWNINGTOWN, PA. 19335

PA. RESIDENTS ADD 6%
6 MONTH REPLACEMENT GUARANTEE

NEW!

Christmas Music

Songs and Visuals
Full Chord Capability
Excellent Song Reproduction
Spectacular Full Color Graphics

Silent Night, We Three Kings, Joy To The World, It Came Upon A Midnight Clear, The First Noel, Jingle Bells, Hark The Herald Angels Sing, O' Little Town of Bethlehem, Away In A Manger, O Come All Ye Faithful, God Rest Ye Merry Gentlemen, We Wish You A Merry Christmas, Deck The Halls, O Christmas Tree, Plus A Mystery Song!

For Use With
TI 99/4A (Cassettes only)
Comodore 64 (Cassettes & Disks)
CASSETTE: $19.95; DISK: $24.95

Plus $2.- for postage & handling
Personal Checks, allow 2 weeks extra for delivery
Washington Residents add sales tax.
Dealer inquiries Welcome
P.O.Box 9204 Dept. C10, Renton WA 98055, (206) 228-1249
NATIONAL PROGRAMMING AND SOFTWARE

BUSINESS SOFTWARE PACKAGE

$59
Reg. $159

Features:

- **Accounting Ledger**
- **Inventory Control**
- **Letter Writer**
- **Mail-Out**

For TI-99 VIC-20 ATARI COM-64

Toll Free 1-800-221-7171
In Ga. 1-404-925-4686

BIZWARE, INC. 5014 Hwy. 29 Lilburn, Ga. 30247

SOFTWARE COMMODORE 64

The Staff: Polyphonic Music Editor & generator. Enter up to 93 measures of 3 part harmony on easy to use graphic display. Disk: $22.95 for 64, $17.95 for VIC. Tape: $19.95 for 64, $14.95 for VIC. Add $1.50 for Postage and Handling. Check or Visa, Master Card accepted.

We have a large selection of software for the 64—Word Processors, Data Base, Mailing List, Accounting Package, Spread Sheet, Educational Applications, Home and Personal Record Keeping, Programmers Aids, Games.

ASK FOR FREE CATALOG

PROFESSIONAL MICRO SERVICE

100 W. 22nd St., P.O.B. 7268

Baltimore, Md. 21218

301-366-0010

Dealer inquiries invited.

Commodore 64 is a registered trademark of Commodore Business Machines.

www.commodore.ca

I-CHING SOFTWARE FOR THE COMMODORE 64

- Understand the Present
- Probe the Future
- A New Contemporary Interpretation
- Based on the ancient chinese "Book of Changes"
- Includes an analysis of changing lines

tape $24.95
disk $29.95

N.Y. State Resid. ADD SALES TAX
SEND CHECK OR M.O. TO:

CYGNUS
Expert Systems Inc.

P.O. BOX 385
WATER MILL, N.Y. 11976

And now for your

64, Note Pro

Call
301-366-8138

Visa/MC

Powerful Utility Software for creating

★ MUSIC
★ SOUND EFFECTS
★ HI-RES GRAPHICS

Note Pro I—Starter sound and music editor. Tape-$24.95, Disk-$27.95

Note Pro II—Advanced sound and music editor. Tape-$46.96, Disk-$49.95

Note Pro Bridge—Copyable machine language routine which can be added to your programs to give high speed SID control and play of Note Pro files. Tape-$24.95, Disk-$27.95

Plot-a-lot—Hi-res drawing board. Use hi-res screens in your own programs. Tape-$14.95, Disk-$17.95

★ Order Today ★ Dealer Inquiries Welcomed

Electronic Lab Industries
P.O. box 7167
100 W. 22nd Street
Balto., Md. 21218
Free Brochure!

HEXADECIMAL DESK CLOCK

Solid mahogany timepiece represents the time in base sixteen. Features include: handrubbed finish, gold tone characters and hands, and a quartz movement accurate to within 10 seconds per month. Clock measures 4½ in. square, can be hung (bracket included), and runs for over 1 year on a standard AA battery. An attractive addition to the work area of any computer professional or hobbyist.

Only $18.95 plus $1.50 shipping & handling.

PA residents add 6% sales tax.
Please allow 3-5 weeks for delivery.
Send check or money order to:

DIGITIME
P.O. Box 403, Ambler, PA 19002

SM-KIT-SET B, F and M

The SM-KIT family represents the cream of programmers' productivity aids.

SM-KIT B de-bugs, enhances and restructures BASIC programs.

SM-KIT M does the same for assembler programs.

SM-KIT F is a disk doctor, specialising in floppy disk ailments. Recovery from most disk problems assured.

for cbm 8032 or 8096

DID YOU BUY YOUR ATARI® TO FILE AND INDEX:
ADDRESS BOOK COLLECTIONS
HOUSEHOLD INVENTORIES RESEARCH
CLUB MEMBERSHIPS?

NOW you can do all this with your **CASSETTE** recorder.

Introducing

~LISTIT~

Powerful and Versatile
Menu Driven/16K/Store/Format
Print Text/Edit/Delete/Add/Count
Cross-Reference/Print Labels and Lists!
A REAL DATABASE FOR ONLY

$24.95

Send check or M.O. plus $1.50 shipping

HomeSpun software
9 Peter's Path
E. Setauket, N.Y. 11733
N.Y. Residents add applicable sales tax
Dealer inquiries accepted.

DISK DUPLICATOR FOR COMMODORE SINGLE DISK DRIVES

(1540, 1541 and 2031 used with a VIC-20, commodore 64, CBM 4000 or CBM 8000 computer)

DISK DUPLICATOR provides you a fast and easy way to make back-up copies of your precious, irreplaceable diskettes. Enjoy the convenience of a dual disk drive without the expense. DISK DUPLICATOR is 100% MACHINE LANGUAGE, 100% FAST, and most importantly, 100% AFFORDABLE!

Don't let an accident or mistake catch you without back-up copies of all your diskettes. ORDER "DISK DUPLICATOR" TODAY at the special introductory price of only $14.95 postage paid (check or money order only please).

H&H ENTERPRISES DEPT. 123C
5056 NORTH 41st STREET
MILWAUKEE, WISCONSIN 53209

STATISTICAL SYSTEM

For VIC 20 & 64

NUMBER CRUNCHER. A menu driven, interactive data and statistical analysis system.

Program includes data entry, editting, transformation, and storage. Missing values are recognized.

Statistical functions include means, std. deviations, t-tests, ANOVA, correlation, multiple regression, stepwise regression, scatter plots, and contingency table analysis.

Send $50 to

Dr. Jerry L. Hintze
865 East 400 North
Kaysville, Utah 84037
(801)-546-0445

Specify VIC memory size, tape or disk. Money back guarantee!

FREE!

VIC-20 COMMODORE 64 USERS GROUP MEMBERSHIPS

With software purchase. Send for your FREE DISCOUNT software catalogue today!
Group benefits include:
- Newsletter (full of programs, reviews & ideas)
- Access to extensive club library
- Questions hot-line
- Free ads for members
- Contests
- Discounts
- Software and hardware locator service
- Members only repair service
- AND MUCH MUCH MORE!!!

MEMBERSHIPS ALSO AVAILABLE WITHOUT SOFTWARE PURCHASE

Write or call today for FREE Catalogue
803/797-1533
LORDS OF BASIC
P.O. Box 459, Dept. 101
Ladson, SC 29456
Distributor & Dealer Inquiries Invited
VIC-20 • Commodore 64 are Reg. TM of CBM

VIC-20/C-64 TERMINAL SOFTWARE

SAVE DATA ON CASSETTE
OUTPUT TO PRINTER
UPLOAD/DOWNLOAD PROGRAMS

Store your data on tape, read it back, download, or make a printed copy off line. Save on line time. Requires 8K or more EXP on VIC.

$24.95 ON CASSETTE (DISK SOON) SPECIFY VIC OR C-64

Also Available - Math Tutor (more than mere drill) add subtract - multi. - div. - 4.95 ea. or all 4 - 12.95
Coming Soon! Vic Christmas (Graphics & Sound)

Have You Checked The Price of a 2764 Eprom Recently?
Why Buy An Eprom Programmer That Can Only Program 2K or 4K Eproms?
Check Our Features!
ONLY $89.95
EPROM PROGRAMMER FOR VIC & 64

Programs 2758, 2716, 2732, 2732A, 2532, 2764 and 27128 Eproms.
Fully buffered with built in power supplies. Double regulation design on VPP supply prevents spikes that can destroy Eproms.
Utilizes USER PORT, leaving expansion port free.
Uses Personality Modules (3 of your choice included with order, others optional @$5.00)
Checks erasure, transfers ROM data to RAM, verifies.
Z.I.F. socket

ELECTROSHARP TECHNOLOGIES
1981 SANDALWOOD DR., SANTA MARIA, CA 93455
Check, Money Order, or C.O.D. 805-922-4095
805-736-0288

www.commodore.ca

Advertisers Index

Reader Service Number	Advertiser	Page
102	A-1 Computer Services	276
	Aardvark I.T.D.	191
	Abacus Software	201
103	AB Computers	220,221
104	Academy Software	283
105	Access Software Inc.	119
	Accolade Computer Products	332
106	Advanced Processor Systems	301
	Adventure International	87
	Adventure International	47
	Adventure International	125
	Alphacom	53
	American Data Cable, Inc.	215
107	American Peripherals	251
108	Animax Computer	136
	Apple Country Ltd.	327
	Applied Creative Technology Inc.	338
109	Apropos Technology	189
110	Archives	155
111	Arbutus Totalsoft, Inc.	339
	Aries Marketing Co.	339
	Artworx	101
112	Aspen Ribbons, Inc.	341
113	Atari Home Computers	17
114	Atari Service Centers	57
115	Avalon Hill Game Company	91
	Batteries Included	74, 75
	Big Bytes	330
116	Big Five	97
	Billow's Enterprises	339
117	Bizware, Inc.	342
	Boston Educational Computing, Inc.	120
118	Robert J. Brady Co.	33
119	Brøderbund Software	41
	Byte Book Club	192, 193
120	Byte-Ryte	331
	Byte-Ryte	39
	Bytesize Micro Technology	339
	Bytesize Micro Technology	341
	California Design Works	320
	Cass-A-Tapes	330
121	Cardco, Inc.	139
122	Century Micro Products	309
	Century Micro	219
	Chadwell's Software	341
	Chadwell's Software	342
	Cheatsheet Products	305
123	Cimarron Corp.	145
	City Software	143
124	Collins International Trading Corporation	195
	Com-Cov	340
	Comm*Data	99
	Commodore Business Machines	BC
125	Compatible Systems Incorporated	307
126	CompuServe	35
127	ComputAbility	205
128	Computer Case Company	198
	Computer Learning Center	183
129	The Computer Express	341
130	Computer Mail Order	184,185
131	Computer Marketing Services	113
132	Computer Marketing Services Inc.	287
133	ComputerMat	247
134	The Computer Network	26
135	Computer Outlet	328,329
	Computer Plus	136
	Computer Software Associates, Inc.	243
136	ComStar	260
137	Continental Software	107
	Cosmic Computers Unlimited	256,257
	Counterpoint Software Inc.	15
	Creative Software	58,59
138	Crystal Microsoft Ltd.	339
	Cygnus Expert Systems Inc.	343
	Data Equipment Supply Corp.	255
139	Datamost	37
	Datasoft	21
	Digital Interface Systems Co.	309
	Digitime	343
140	Dilithium Software	49
141	Discount Software	340
142	Don't Ask Computer Software	33
143	Doryt Systems, Inc.	212
	John T. Dow	319
	Down And Out Software	340
	Dr. Jerry L. Hintze	343
	Dow Jones Software	25
	Dynacomp, Inc.	157
	Eastern House Software	321
	Edupro	163
	Elcomp Publishing, Inc.	217
144	Electronic Lab Industries	343
	Electrosharp Technologies	343
	Electronic Software, Inc.	298
145	Embassy Computer Products	270
	E-M Technologies	342
146	EPYX	72
147	Eric Martin's	169
148	French Silk	203
	Frontrunner Computer Industries	298
	Funsoft	63
	Funsoft	65
	Genesis Computer Corporation	307
149	H & H Enterprises	343
	Hanna Enterprises	322
	Happy Computing	173
150	Harmony Video & Computers	337
	Holub Enterprises	320
151	HomeSpun Software	343
	Human Engineered Software	79
	Human Engineered Software	135
152	Hytec Systems	151
	Infocom	22,23
	Inhome Software Incorporated	115
	Interesting Software	288
	I.S.A.	340
	Jason-Ranheim	199
153	Jensen Tools Inc.	228
154	Jini Micro-Systems, Inc.	283
155	Kangaroo, Inc.	137
	Krell Software Corp.	133
	Leading Edge Products, Inc.	IFC
	Leading Edge Products, Inc.	IBC
	Letco	307
	Lightning Software	187
	Link Marketing	167
	London Software	103
	Lords of Basic	343
156	Luna Software	19
157	Lyco Computer Marketing & Consultants	334,335
158	(M)agreeable Software, Inc.	342
	Master Control Software Inc.	85
159	Maximus, Inc.	123
	MESI	341
	Microbits Peripheral Products	71
	MicroClear	309
160	Micro-80 Inc.	215
161	MicroGraphic Image	55
	Micro Merchant	117
162	MicroProse Software	95
163	Micro-Ware Distributing Inc.	83
	Micro World Electronix, Inc.	307
164	Midwest Micro Inc.	276
165	Midwest Micro Inc.	222
	Midwest Software	340
	Mirage Concepts, Inc.	199
166	MMG Micro Software	61
	Monarch Data Systems	207
	Moonbeam Software	39
	Mosaic Electronics, Inc.	70
	Mosaic Electronics, Inc.	4
	MPI	305
	The Music Workshop	340
	National Programming and Software	342
167	NCD	326
168	Newport Controls	187
	Nibbles & Bits Inc.	38
169	Nibble Notch	309
	Nüfekop	93
	Olympic Sales Company	215
	Omega International	128
170	Optimal Technology Inc.	167
	Optimized Data Systems	270
171	OSS/Precision Software Tools	160,161
	Otto Systems	340
	PACE	141
	Pacific Exchanges	305
	Pacific Exchanges	26
172	Parsec Research	305
	Persimmon Peripherals	341
173	Personal Computer Specialties	222
174	Personal Peripheral Products	342
	PMI	289
175	Precision Software Limited	165
176	Precision Software Limited	181
	The Printer Store	323
177	Professional Micro Services	342
178	Professional Software	1
179	Professional software	9
180	Program Design, Inc.	174
181	Programmer's Institute	263
182	Programmer's Institute	265
	The Program Store	171
183	Protecto Enterprizes	303
184	Protecto Enterprizes	230,231
185	Protecto Enterprizes	223
186	Protecto Enterprizes	179
187	Protecto Enterprizes	249
188	Protecto Enterprizes	253
189	Protecto Enterprizes	267
190	Protecto Enterprizes	269
191	Protecto Enterprizes	279
192	Protecto Enterprizes	281
193	Protecto Enterprizes	285
194	Protecto Enterprizes	51
195	Protecto Enterprizes	318
196	Psycom Software International	39
197	Public Domain, Inc.	341
	Ramiak	254
198	Rainbow Computer Corp.	177
	Rana Systems	30,31
	Rensoft Software Systems	287
	Reston Software	27
	Reston Software	67
199	Richvale Telecommunications	149
200	Romox	45
201	SAVE	333
	Scholastic Wizware	110,111
202	Shelter Software	338
	Sierra On-Line Inc.	105
	Sirius Software	153
	Sirius Software	152
	SJB Distributors Inc.	271
203	Skyles Electric Works	314
	Smoky Mountain Software	254
	SM Software Inc.	339
	SM Software Inc.	341
	SM Software Inc.	342
	SM Software Inc.	343
204	SM Software Inc.	147
205	Softraders International	342
	The Software Connection	199
	Software Plus	341
	Softype	340
	The Software Co-op	260
206	Softpeople, Inc.	317
207	Software Warehouse Outlet	325
	Southwest Micro Systems, Inc.	202
	Spinnaker	2,3
	Spinnaker	42,43
208	Star Micronics Inc.	73
	Strategic Simulations Inc.	81
209	Such-A-Deal Software	159
210	Sunburst	215
	Susie Software	326
	Susie Software	339
211	Systems Management Associates	245
	TDK	29
212	T & F Software Company	7
213	TG Software	69
	Talmis/Infoworld	293
214	Tech-Sketch Inc.	120
215	Texware Associates	212
	Thor Software	339
	3G Company, Inc.	298
	Timeworks, Inc.	128
	Tiny Tek, Inc.	339
216	Toronto Pet Users Group	167
217	Totl Software, Inc.	148
	TriMicro	311
	Tronix	12,13
	Tromx	11
	Vaisala Inc.	89
	Unicorn Software	197
	Valorum	340
	Video Home Library	270
218	Voice World	154
	Universal Software	289
219	Victory Software Inc.	203
	Videobook Corporation	104
	York 10 Computerware	324

	COMPUTE! Magazine	129
	COMPUTE!'s 1st Book of Atari Graphics	291

www.commodore.ca

TRUNKS FOR THE MEMORIES.

Introducing the most logical place to store Elephant Memory Systems® (or lesser brands of disks): The Trunk.

With its alphabetized library index, you can file or retrieve up to 60 disks, instantly.

The Trunk is made of durable molded plastic with a hinged, one-piece lid, to keep disks safe from dust, dirt, and other detriments which disks despise.

And, it's portable. Because the lid doubles as a carrying handle so your Elephant Memory Systems® disks can go anywhere you do.

There's a model for 5¼" and 8" floppies, as well as a cassette-and-game file and a special Atari® version.

So if you're looking for the best disk storage system on the market . . .

The Trunk is an open-and-shut case.

THE TRUNK. ENDORSED BY ELEPHANTS.

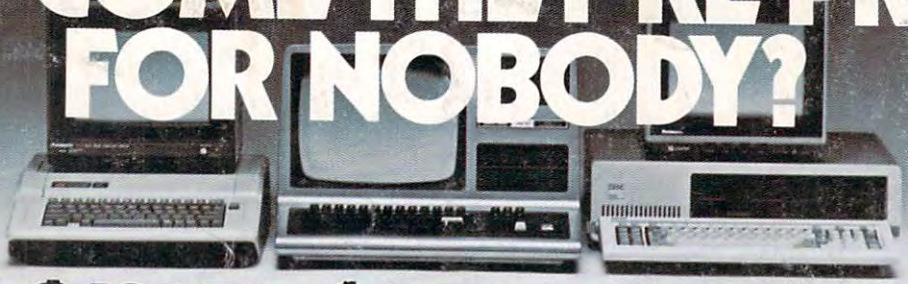
Elephant Memory Systems® Disks

A full line of top-quality floppies, in virtually every 5¼" and 8" model, for compatibility with virtually every computer on the market. Guaranteed to meet or exceed every industry standard, certified 100% error-free and problem-free, and to maintain its quality for at least 12 million passes (or over a life-time of heavy-duty use).

Marketed exclusively by Leading Edge Products, Inc., Information Systems and Supplies Division, 55 Providence Highway, Norwood, Massachusetts 02062. Call: toll-free 1-800-343-8413; or in Massachusetts call collect (617) 769-8150. Telex 951-624.

www.commodore.ca

IF PERSONAL COMPUTERS ARE FOR EVERYBODY, HOW COME THEY'RE PRICED FOR NOBODY?



A personal computer is supposed to be a computer for persons. Not just wealthy persons. Or whiz-kid persons. Or privileged persons.

But person persons.

In other words, all the persons whom Apple, IBM, and Radio Shack seem to have forgotten about (including, most likely, you).

But that's okay. Because now you can get a high-powered home computer without taking out a second mortgage on your home.

It's the Commodore 64. We're not talking about a low-priced computer that can barely retain a phone number. We're talking about a memory of 64K. Which means it can perform tasks most other home computers can't. Including some of those that cost a lot more. (Take another look at the three computers above.)

By itself, the Commodore 64 is all the computer you'll ever need. Yet, if you do want to expand its capabilities some day, you can do so by adding a full complement of Commodore peripherals. Such as disk drives. Modems. And printers.

You can also play terrific games on the Commodore 64. Many of which will be far more challenging than those you could ever play on a game machine alone.

And as great as all this sounds, what's even greater-sounding is the price. It's hundreds of dollars less than that of our nearest competitor.

So while other companies are trying to take advantage of the computer revolution, it seems to us they're really taking advantage of something else:

Their customers.

$1395* APPLE® IIe 64K

$999* TRS-80® III 16K

$1355* IBM® PC 64K

*Manufacturers' suggested list prices. Monitor included with TRS-80 III only. Commodore Business Machines—P.O. Box 500R, Conshohocken, PA 19428; Canada—3370 Pharmacy Avenue, Agincourt, Ont., Can. M1W 2K4.

commodore COMPUTERS

Apple is a registered trademark of Apple Computer, Inc.
TRS-80 is a registered trademark of Tandy Corp. IBM is a registered trademark of International Business Machines Corp.

THE COMMODORE 64™ UNDER $300.

You can't buy a better computer at twice the price.

www.commodore.ca