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THE MIDNITE XPRESS NOTES

Midnite Meanderings

by Jim Strasma

SPEAKING OF FLOODS...:

We give up! No one can review everything for Commodore products any more, so we've decided to stop feeling bad about what we miss, and console ourselves with knowing no one else even tries. I've also seen a vision of the future in a chat with RUN tech-editor Guy Wright. Guy reports there are only a couple of widely-available word processors for the Tandy Color Computer now, because only the best survived. The same seems to be happening with PET and VIC products. If you find a product on sale for either model at a computer dealer's, it is probably either something that never did sell, or so good it still sells even after hardware sales have dropped off. In a couple of years, the same will probably be true of 64 products. Fortunately for those of us who earn part of our living explaining technology, new machines are already appearing.

CBM, PET, AND VIC SOFTWARE BARGAINS:

VIC owners should watch for sales this summer. Although the VIC may not have been cancelled, nothing was said about it at the June CES (see separate report), and the newly-announced Commodore 16 is the same price. Dealers are busily closing out their stocks of VIC programs at an average price of \$10 per cartridge, and \$5 per cassette, including most of the latest games. The same programs for the 64 may cost as much as \$40, while a new VIC may cost no more than a new 64 sound chip. However, when current stocks are gone, VIC owners should expect to be out of luck, so get whatever you need now!

8032/8096 owners may not find as many bargains as VIC owners, but most products are still available. However, only 8096 products sold in Europe and Canada are still being improved, because too few U.S. dealers stock the 8096 to justify work on U.S. products. Still, the 8096 with disk drive and printer remains an amazingly powerful machine for its cost. It offers enough speed, comfort and capacity for many serious business uses.

WATCH FOR THESE NEW BOOKS!

Two important books will appear this summer, hopefully in time for our LC⁴ computer camp at Lincoln College. One is Jim Butterfield's introduction to machine language, from Brady; the other is Dick Immers and Gerald Neufeldt's advanced DOS manual for the 1541 disk drive, from Datamost. Few other books published for Commodore users this year will have more impact! Watch for them.

COMMODORE CONFERENCES PAST AND PRESENT:

Our thanks again to TPUG for inviting us to their annual conference. It's always a joy to renew friendships with many of the friends we normally "see" only via mail and long-distance phone. Those of you who missed it may meet us in Hershey PA July 28, for a similar conference sponsored by several dozen user groups from the Mid-Atlantic states. For more info, write Eight Squared, Box 76, Mt. Holly Springs PA 17065.

STOP THIEF CORRECTION:

In issue #18, we thanked the wrong Jim for sending us the Stop Thief ROM for Christmas. Jim Kemp was our benefactor, not Jim Lewis. Our apologies to both!

COMMODORE MELLOW?

If there's one term I've never heard used in connection with Commodore, it's "mellow." If used at all in the frantic micro industry, it is usually applied to Apple, which rarely appears to have a care in the world when it comes to the big shows like C.E.S (See separate C.E.S. report under Competitor's Notes). But this year Apple didn't show, and Commodore was the one looking mellow.

Forget about Jack Tramiel and a dozen of his most loyal supporters being gone. With one exception, they may not even be missed, and did not all even leave voluntarily. This was emphasized in a fine half hour conversation Keith Peterson and I had with Commodore Chairman Irving Gould the first night of CES. Instead of the usual press conference, Gould and other officers of Commodore simply mixed with their guests at a splendid reception in the best part of Chicago's opulent Near North side. As I said, mellow.

And why not? Another financial quarter has ended, with results every bit as good as those which have astounded the financial community throughout the past several years. Commodore continues to more than double its sales and profits each year.

THE 264 - OOPS, I MEAN THE PLUS 4:

Now someone will say, but what comes after the 64? (Be sure to read Butterfield's comments on the 264, now renamed the **Plus 4**, below.) The **Plus 4** isn't even an undisputed improvement. To which Commodore can rightly reply, "So what? We've already sold 400,000 of them." The size of its intended market (those willing to give up arcade-quality games for easier serious programming in BASIC) remains to be seen, but the machine is small (nearly as small as my Tandy 100), powerful (Commodore's first full-size BASIC), and easy to use (a good keyboard, well laid-out.) The **Plus 4** looks nearly as it did at the January CES, with one change. Instead of your choice of 300 built-in ROMs, all will come with the multi-purpose program 3+1 from Tri-Micro, with others such as **Superscript II** available as plug-in ROM cartridges. (Yes, they can also be permanently installed with a bit of disassembly.) At its newly announced retail price of \$300, the **Plus 4** should sell well, and Midnite will support it. Remember that competitors for this part of the computer market are now few and far between. One other note about the **Plus 4**; the new incompatible joystick connectors were not used to make yours obsolete after all. They are now shielded, a step required to make the machine quickly acceptable to the FCC; using Atari connectors would have delayed certification for 9 months. Who will be first to offer an adapter?

THE 16:

As for the 16, I couldn't bring myself to pay much attention to it. Although it shares its case with the VIC and 64, it is black, and internally like the **Plus 4**, except that it has only 16K of memory. It will reportedly sell for under \$100, and unlike the VIC and 64 may lack the User Port that lets them use a MODEM. It may bring some life back into the faltering VIC market, but isn't nearly as attractive as the **Plus 4**.

OTHER MODELS WON'T APPEAR BEFORE 1984:

Though nothing was officially announced about the new models announced in Hannover, Germany in April, we did learn many details about them. However, in a break from our usual tradition, we won't bore you with details. The reason is a firm assurance by Irving Gould that neither the IBM-PC compatible based on an unreleased version of the Hyperion, nor the \$1,200 three-user Unix work station based on the 28000 16-bit processor will be sold during 1984, though we might see both by this time next year. Enough could be changed in that time that speculation now would be pointless.

THE 264 (now the Plus 4): BUTTERFIELD'S RESPONSE

Dear Midnite:

You may be looking a little too harshly at the **Plus 4**. It's not intended to replace the **64**; it has its own advantages and the **64** retains its own unique charm. To a program hacker, the **64** is the most fun of any computer I've seen. On your "3 serious lacks:"

1. Inability to run most software: BASIC is upwardly compatible. Only the POKES have been changed. Perhaps the problem is in the **64**: you gotta POKE for sound, color, high resolution, etc. By the time you preserve all those POKES in a new machine, you have a **64**. The **Plus 4** has words for all that stuff - and for future compatibility, that's a hopeful sign, since it liberates the user from remembering where the POKES are for each machine. In general, to make a **64** program compatible, look up the POKES and substitute the appropriate word: SOUND, GRAPHICS, COLOR or whatever. It would be nice to dream that future Commodore machines would continue to support English language commands.

Machine language is the same as for the 6510. Naturally, the equivalent to the POKES are different; but Commodore has left much of zero page compatible with the **64**. The biggest problem in running machine language is similar to that of the VIC: BASIC loads to hex 1000, compared to the **64**'s hex 0800; while that doesn't bother BASIC a bit, it can cause relocation difficulties in some machine language programs.

The **Plus 4** does dump sprites and ADSR sound; programs using these will have a real conversion job on their hands. For the rest, the job shouldn't be big. Although many commercial programs chuck full of sound, graphics, and cosmetics can't be expected to load and go, many user programs will require a minimum of rechopping.

2. Lack of 80 column capability, even as an add on. To get 80 columns you gotta scrap color and probably graphics. Commodore has never furnished 80 columns for the **64**, but other vendors do. I suspect this will happen again for the 264. There have been a zillion rumors about new Commodore business machines and 80 column **64**'s; we'll have to see how they work out. But the **Plus 4** isn't Commodore's wide screen extravaganza.
3. Inadequate Memory. Depends on what you want. I've heard of 256K systems that lost over 140K when the operating system and DOS were loaded. The **Plus 4** shows over 60K available to BASIC when powered up. Do you really need more? Cartridge and built-in programs, like BASIC, use no RAM and have the whole 64K as work area. That's potentially over 10 thousand words in a word processor..who writes chapters bigger than that? That could even furnish 4000 cells or more in a spread sheet. Heck, I never thought the **64** was that starved for memory; I'd be interested in hearing from programmers who feel crowded. The only places I know of where really big memory makes a difference is in multiple high-resolution screens, and large mathematical arrays. In both cases, you need to go outside the range of 8 bits...and well beyond \$5000.

Maybe our problem is this: as experienced hackers, we've forgotten how horrible it is to look up all those numbers to change the border color, make the machine go "beep", and draw an egg on the screen. Remember that brick wall you hit when all those numbers came at you in the **64** user's guide chapter 6 on Sprite Graphics? The **Plus 4** manual doesn't have that obstacle; the system does things in English. Want to renumber a program? Trace execution? Trap possible errors? Print neatly with PRINT USING? Take a disk DIRECTORY? Draw and use a shape with SHAPE? Draw a rectangle (tilted 15 degrees from horizontal) with BOX and paint it green with PAINT? Just give the commands to the 264.

It's a lot of fun to chop around the innards of the **64**; I bet the **Plus 4** won't be half as much fun. Yes, the **64** makes beautiful music and the **Plus 4** bleats. But the **Plus 4** will be much easier for learners who want results. Keep lovin' your **64**. But others will trade away **64** features for the unique features of the **264**.

I'm sure Commodore has other machines up its sleeve. Don't ask the **Plus 4** to do everything you might ever want in a computer. It's just one of many. Like the **64**, there will be things you love about it and things you detest. -Jim Butterfield

Competitors Notes

Consumer Electronics Show (CES), Summer 1984:

Summer CES (king of home computer shows) was far more subdued than last year's, with some major players gone. TI only showed calculators, and **Mattel**, **Apple** and **IBM** didn't show at all. **Atari** and **Coleco** both had booths even larger than **Commodore's**, but spent their time swatting rumors they were on their last legs. Atari "announced" a revised high end computer without showing or describing it in useful detail, or mentioning a release date or price (not surprsing, since they've just fired most of their research and development department.) Coleco displayed every program it could find for Adam - lots of excellent arcade games, but little else, and no sign of the long-promised CP/M.

WHICH MACHINES WERE MOST IN EVIDENCE?

Commodore also limited its revelations to the popular 64, the 264 (now named the Plus 4), and the 16 (a 16K version of the 264 in a black VIC case). As usual, their booth was so tightly packed with equipment that had to appear busy. Even so, it WAS busy. This was Commodore's year at CES: over two thirds of the other booths in the computer building sported at least one 64 (at least double the number of Apples present). Atari 600's were also plentiful, matching the Apples in number, but I only counted 5 IBM PC Jr's in the entire show. This was especially obvious in the product showcase where the best products were honored. Apple, Atari and Commodore rated 2 machines each, decked heavily with winning programs, but the lone Jr sported only 2 winning programs. (I bet this is the only CES report you'll read that mentions IBM's poor showing!)

This year, I allowed 2 days to see everything at the show. Fat chance! I barely got to walk past all the booths in the computer building. If any other important consumer electronics product was announced, I missed it. The most important innovations I did see were a color flat screen TV and a watch with 2K RAM + RS232 port, both from Japan.

ON COMPANIES SUPPORTING COMMODORE HARDWARE:

I had the most fun in the smaller booths; unlike the big booth folks, most have been around Commodore long enough to know us. Several were eager to show their latest innovations, such as improved paint programs from **Edumate** and **Inkwell Systems**, and a piano keyboard for the 64 from **Melodian** (see separate review). Unfortunately, I didn't see everyone. I hit the **Cardco** booth just as everyone dropped from exhaustion, and only glanced at their tiny new LQ-2 letter quality printer. **Access Software** showed a new multi-screen game on how to blow up Russia, but I couldn't raise anyone there on either of 2 visits. **HES** and **Epyx** both showed programs titled "Summer Games"; the Epyx edition seemed better done. **Datamost** showed a badly needed \$20 software fast-load for the 1541 that triples the load speed. With twin singles, it reportedly copies at 5 times the usual rate. Another small booth featured a **Taiwanese company** that makes Commodore-compatible datasets; this year they're also offering repairable power supplies for the 64, and a cloned "+G" printer interface. **Batteries Included**, featured in at least one Show newspaper, brought their new BI-80 80-column card and Paperclip with built-in spelling checker. The BI-80 worked very well in the booth, using 8K of RAM at \$8000, and adding BASIC 4. The spelling checker works well, and seems as easy to use as (but much faster than) the one in RTC's Script 64. **Precision Software** hosted a dinner dance to show their excellent line of serious software, but we missed it, due to Ellen's allergies. **Professional Software** had the biggest gimmick - a hot air balloon anchored in the yard. I also got a chance to try out the new **backless kneeler chairs**; they're more comfortable than I expected. Too bad the massages given booth visitors don't come with it.

As you see, CES is half hype and all hardball. Companies spend colossal sums to come, but few dare stay away. This is where dealers do their Christmas shopping!

FINAL DIALOG ON HESMON AND COPYRIGHT:

Issue 17 reply 1: Terry Peterson, author of HESMON

Your earlier published deprecations of my efforts in writing HESMON were rankling; but your irresponsible and self-contradictory attack in issue 17 finally pushed me over my activation barrier for letter writing.

1) I cannot assert you are wrong to say HESMON is a modestly revised Micromon. I used Micromon and Extramon code as models wherever possible! I had been using and improving on them for years. I obtained verbal permission from Bill Seiler to make commercial use of his code. Jay [Balakrishnan of HES] gave me some additional code.

2) Even miniscule modifications to public domain software may be subject to copyright! HESMON incorporates features I feel are major improvements--features I created, representing considerable effort on my part. That (and superb distribution by HES) is the true source of my royalty dollars. Don't copy (or encourage others to copy) my work.

3) The only things I changed in the command syntax were things I didn't like. As for Arthur Cochrane's distinctive dating method, I don't know what that is.

4) I regret you find my puny efforts at copy protection offensive. The usual arguments used to justify copying disks cannot sensibly be applied to ROM cartridges! I find your suggestion that assisting in the circumvention of HESMON's copy-protection would be 'public spirited' very strange indeed. Furthermore, why bother? Can it be there are desirable features in HESMON not found in the public domain programs?

Reply 2: Hal Hardenbergh, editor of DTACK Grounded

1) I believe JS's stand is utterly wrong. A public domain program belongs equally to everyone. If Terry has taken a public domain program, done some small amount of original work on it, copyrighted the work and offered it for sale, such action is not only entirely legal but meets the highest ethical and moral standards.

2) CP/M was originally developed under Navy funding and hence was in the public domain. FORTH was developed using U.S. funds at Kitts Peak and was therefore in the public domain. Prime Computer's DOS was funded by the U.S. and is in the public domain. How can anyone be guilty of using public domain software? They own it, don't they?

3) If you have any respect for private property rights, I suggest you rethink your ethical and moral stand on public domain software and the copyrighting of revised versions of public domain software. You have, in my opinion, unjustly maligned Terry. I believe Terry is entitled to redress in Midnite.

Update: by JS

1) Mutual friend Hal Hardenbergh spent over an hour on the phone cross-country trying to convince me of my error, sent a book and several pieces of mail on the subject, pleads his case at least 3 times in the current issue of his DTACK Grounded newsletter (I especially enjoyed the page labeled "Cardinal Sins", in which I was compared to a Catholic Archbishop with a mistress, and promised more if Hal doesn't approve of this update.)

According to a lawyer friend, at least 1/3 of the code should be original before a program can be copyrighted. I consider that figure far too low, morally if not legally, but Hal reports the figure in Europe is 25% for commercial programs, and feels a much lower figure is adequate for public domain works. I consider this the heart of our difference.

2) Neither reply, nor any of Hal's other efforts properly answers my original complaint--that HESMON still does not mention its agreed-upon author(s) by name. Those who donate work to the public deserve better treatment from it.

3) I bought HESMON solely to have Micromon in ROM, and was (as suggested in Midnite 17) furious to find it gelded. I did not suggest anyone copy HESMON illegally, and have since found and switched to a relocatable Micromon in ROM for the 64 (see separate review).

4) In good Midnite tradition, everyone's had a say. New topic next time.

DISK DRIVE WASHER MAINTENANCE:

There is an inherent problem with the mechanism in the disk drive that holds the diskette onto the drive hub. The spring in this assembly cuts into the flat washers mounted on the top and the bottom of it, resulting in a lot of wear on these washers, and flecks of metal become airborne. A person of average mechanical abilities can open up the disk drive, remove the subassembly that holds down the diskette, disassemble and clean it with isopropyl alcohol, lubricate it, and reassemble everything. -Dick Emmel (in Northwest Users Guide)

1541 SPEED UP ROM:

I just read a little something you wrote about the 1541 speed up ROM's. You may have not been able to detect a difference, but I sure did. I tested it with my copy of **WordPro**. Normally it takes about 104 seconds to load. With the speed up ROM in place, it takes only 88 seconds. That's about 15% difference. Take my word for it, the speed up ROM's do work. They are still way slower than a 4040, but they do the job. -Mark Niggemann

FOR SALE:

I have a used (for one month) Commodore D9090 7.5 megabyte hard disk drive and a Silicon Office program for a CBM 8096 with hard disk. I would like to sell them together for \$3000. -Larry Rood, P.O. Box 275, Mt. Rainier MD 20712 (301) 779-6200

Tip: ON USING RELATIVE FILES IN BASIC 2.0:

Re Jan 84 The Users Port newsletter, item on relative files [a listing of a 64/VIC relative access file program]. My comments all involve the positioning "P" command:

Ritual: I always add 96 to the relative address when using it in a positioning command. No logical reason, except that's what Commodore does in 4.0 BASIC.

Good Habits: I advise users to always set the record pointer (RP) value to 1 and read or write the whole record. This avoids a sneaky pitfall: writing to any field erases all the following fields.

Bug correction: It's best to give every position command TWICE; this helps avoid a timing bug that can write or read bad stuff.

Quick trick: If your record number is always less than 32768, you can get RH and RL very easily. In fact, the commands will read: PRINT#15,"P" + CHR\$(99) + CHR\$(R AND 255) + CHR\$(R/256) + CHR\$(1). The 99 is the secondary address 3(+96); R is the record number; 1 is the record pointer. And remember that it's smart to do the positioning twice.

Another bug: Write enough records the first time to insure more than one block of data. Otherwise the index block (called a "side sector") may be badly formed.

Preventative coding: I like to specify drive 0 when using single drives. Thus, if you are doing files with a record length of 50, create at least 6 records the first time out; that's 300 bytes, which exceed the 254 byte capacity of the first block. The disk unit can get confused; this helps straighten it out. Put a "0:" prefix ahead of the file name.

Quick trick: After you have created the file, you don't need to use the length information any more. OPEN 3,8,3,"0:REL FILE" will do the trick.

Hope this information is useful to your users. -Jim Butterfield (in The Users Port)

More: According to the latest Commodore disk drive manual, the second RECORD# command goes immediately AFTER a write (PRINT#) to the relative file. Also, we recommend creating a full-size file on the first write. If you might need 1,000 records, create all of them the first time you open the file. Again, no deep reason except that files I've created this way always work and others don't. -JS

by Elizabeth Kasper

KASPAR'S KOMMENTS:

If you don't think there is any educational software for the 64, send for the 72p. Commodore Quality Courseware catalog from The Follet Library Book Co., 4506 Northwest Highway, Crystal Lake IL 60014. It lists Commodore software produced by 124 companies from ACCO International, Inc. to Ziggurat.

Computer Comment of the Year: Evaluation forms were distributed for a 2-credit graduate course on microcomputing I conducted for teachers recently at Western Illinois University. One student wrote, "This course included far too much; all I wanted to know was how to turn on the computer!"

A high school principal told me recently that he was puzzled by the large amount of down time his Apples were suffering until the repairmen reported the problem was missing chips. Now all machines are fitted with case locks. The 64, I am glad to report, is more difficult to open than the Apple.

The Learning Co. News: At a recent Illinois computer conference, Frona Kahn of The Learning Co. reported they are translating their Apple educational programs into Commodore BASIC as rapidly as possible. Already on the market are **Juggles' Rainbow, Bumble Games, Bumble Plot, Moptown Hotel, Moptown Parade, and Magic Spells.** **Rocky's Boots**, however, has proved the most difficult to translate and is not yet ready.

Multiple Type Fonts: Many people who design brochures, posters, etc., have a great need for a multiple fonts program like Radio Shack has - with more than 50 fonts in many sizes. And please don't tell us to take the time to design our own with one of the many such programs available. Why has no one written one yet for the 64?

Wanted: Koala programs: Attention hackers: The producers of Koala Ware are begging people to write programs for them for their Koala Pad. They include with the pad clear programming directions with examples. The pad's versatility is excellent, but the few available programs are mostly mediocre. Go to it!

Scholastic, Inc. News: Scholastic, Inc., publisher of educational materials, has announced that it is releasing 6 low-cost children's fun-learning programs for the 64 (for \$20 each). Glad to see another Appeware producer coming around to Commodore! Included are **Poster** (a drawing program that teaches programming) and **Twistaplot**, an interactive reading program called in which the child repeatedly chooses between several alternatives to control the plot. I believe these programs were originally published as part of Microzine, their monthly Apple diskette magazine for children.

The March issue of Scholastic's Electronic Learning reports research from the Alameda CA school district showing that children, after using computers in school, feel more positively about themselves and school. The kind of computer use (drill and practice, programming, etc.) does not seem to matter. These improved attitudes have resulted in better attendance and a decrease in vandalism.

CEAB EDUCATIONAL SOFTWARE REVISED:

The San Fernando Valley Commodore Users Group (SFVUCUG) in Granada Hills CA has purchased the new COMMODORE CANADA CEAB software. "It is much enhanced over what we now have (including revisions to overcome the 64 ROM revision). It consists of 58 disks of 792 programs. Because it cost us \$325 to purchase the package we must charge a surcharge per disk to recoup the money for the treasury. The total will amount to \$5 per disk or a package deal of \$250 for the 58 disks (including documentation). -Steve Botts (in The Users Port)

Assemblers:

HOW DO I USE PAL UNASSM?

Q: I use **PAL 64**, and on my diskette is a program called **PAL UNASSM**, credited to JS. The program has a REM UNASS.PAL1.6 and appears to be a program generator that creates some files starting with POWER.CT and ending with POWER.LB. The question is, "Now what?" On my **PAL 64** diskette, there does not seem to be a "PALVERTER 64" program or a MAE to PAL converter, unless these are generated by your "PAL UNASSM" program. The prefix of POWER. to the files generated by your program - does it require the use of **Power 64**? I would greatly appreciate it if you could clarify the operating instructions for these files, and for any other tips. -A.J. Bryant, 1118 Wall St., Winnipeg MAN R3E 2S1 CANADA

A: Welcome to public domain! **Unassembler** looks at machine language program in memory and creates source code for it. You'll have to study the listing to learn how to use it. The files do not require **Power** to run **PAL**. -JS

BASIC

Answer: GOSUB AS A DIRECT COMMAND:

A: About that GOSUB as a direct command (noted by Gary Stone in #17, p.19). When you type in any line, it's taken from the screen and delivered to an area called input buffer. Then it's chewed up a little (tokenized), and finally executed - directly from the input buffer. If you give a GOSUB as a direct command, the computer will execute it, of course. But as it is executed, the return point is carefully noted - that's a bit along the input buffer. What happens if you do any sort of INPUT or GET in the subroutine? You wreck the input buffer! What does the subroutine go back to? Junk. It's trying to return to a place that's gone; and that's where you get a SYNTAX ERROR or other oddity.

Try this: call the same subroutine; but prefix the GOSUB with a whole bunch of colons - for example, :::::::::::GOSUB 3300. Chances are that you'll be far enough along in the input buffer that the GET won't smash your GOSUB statement, and everything will work well.

Quiz: Why are INPUT and GET not permitted as direct statements? -Jim Butterfield

BOOLEAN TRICK:

Here's another Boolean Trick that allows you to multiply or divide instead of just adding or subtracting. You really only need remember that $X|0=0$ and $X|1=X$.

Instead of this: 100 IF X>5 THEN Z=(X*Y)
200 IF X<=5 THEN Z=(X*Y)*3

Use this: 100 Z=(X*Y)*3[up arrow]-(X<5) -Data Loops Mountain Computer Society

OH, THOSE QUOTES!:

Dear Admiral 6502: Sometimes when I'm trying to move the cursor while programming, it refuses to obey me, and gives me a funny symbol instead. What goes? Signed, Unquotable.

Dear U: Your name suits your dilemma. You have entered the nefarious world of the "quotes" mode. There isn't a beginning Commodore user alive who will believe this mode could someday be useful! Seriously, you get into this pickle whenever you type an ODD number of quotes (double ones, that is) on a line. It doesn't matter if you have deleted it or not, once it's there, it counts. You already know how you got there and just need to know how to get out? Here are several ways, each useful in certain circumstances.

* The DElete key will still work. This is good, because the first thing you'll want to do is get rid of those funny symbols, right?

* You can hit RETURN. This cancels quote mode, and you can come back to the line with the cursor keys to make changes, or just go where you wanted to in the first place.

Of course, this stores the subject line in memory, as it stands.

* You can hold the SHIFT key and hit RETURN. The cursor moves to the next line, but nothing gets remembered. Quotes mode is off, and you can move wherever you like. If you didn't want to destroy the old copy of a matching line, this is a way to handle it.

* You can type another double quote, then move freely. This includes cursor lefts to correct mistakes on the current line, which may be what you were trying to do originally.

NOTE: Quote mode is also alive when you have entered one or more INSerT keys. Until you type a character for every insert, you can't go up, down, left or right. Even the DELete key gives you a graphic symbol, until all the inserts have been satisfied. -"Admiral 6502" (in Barrie Ontario BUG Newsletter)

ROM LOCATION DIFFERENCE:

A location that differs in all ROMs is: 61654 (\$F0D6)
in 4.0 in 2.0 in 1.0 in VIC in 64:
32 (\$20) 169 (\$A9) 240 (\$F0) 145 (\$91) 82 (\$52) -JS

Other High Level Languages:

APL CAN DO CURVE FITTING ON THE SUPERPET:

For you engineers that own SuperPets - do you do any curve fitting? Why not use the built-in curve fitting routines in the SuperPet? It is built into the APL language. The method to fit any curve, of any order, is:

Enter the Y values: Y ← a b c dn
Enter the corresponding X values: X ← a b c dn
Ask the machine for the fit: Y X⁰ . *0 1 2 3 4.....N

The results that come back to the screen are the fit coefficients in the form:

$$Y = A + BX + CX^2 + DX^3 \dots NX^{(n-1)}$$

The N is the order of the curve to be fit. Notice there are no commas between the data entries. -Frank Herr (in The Users Port)

Wanted: FORTRAN SOFTWARE FOR HARD SCIENCE?

Q: Do you know of any "hard science" software for the 64, specifically a **FORTRAN IV, 77 compiler**? Also, any good engineering graphing software would be very helpful! For someone trying to learn machine language, Hesware's machine language monitor is a nightmare, with no documentation to speak of. Secondly, is there any book on the 1541 disk drive? I am having a tough time running a program in one drive to read the input off the other drive. -G. R. Guthman, 417 S. Washington, Carbondale IL 62901

A: The only FORTRAN for the 64 we've seen is Nevada FORTRAN running under CP/M. Any other suggestions, readers? As for a book on the disk drive, look for one from Datamost this summer. Meanwhile, chapter 6 of our PET Personal Computer Guide is about it for file handling. Use the 4040 DOS 2.0 and BASIC 2 info. - ES

Low-Level Languages:

NEW OP-CODES FOR THE 6510 CHIP?

Q: We are seeing a wider use of pseudo op-codes in programs. If we are to believe Ray West, these extra op-codes go outside the guaranteed set for 65XX devices, and programs that use them may not run on every computer. M* R***T is one such program; testing shows no problems across a wide range of 64's. Does this mean Commodore has expanded the guaranteed set and only told the software houses? Does the 6510 have an expanded guaranteed set of op-codes? Any lists? -Paul Blair

A: At least two magazines have published lists of extra op-codes which have always been there, but have never been documented - most likely because some don't do anything useful, and others may not always work, or may not work on future machines. You can test them using the WALK command found in **Micromon**. However, I STRONGLY recommend that you AVOID their use whenever possible, as they are the opposite of well-documented code. -JS

User Group Notes

For complete lists of local user groups, see Commodore magazine. -ES

ARKANSAS

Clark County (Arkansas) Computer COMAL Club, Bismarck AR. David and Beth Skinner of Route 2, Box 651, Bismarck AR 71929 (501/865-2237), sent us a membership application form to their local Commodore 64 user group that specializes in COAL, business and farm applications. You can join as a professional (\$30), student (\$15), regular (\$20) or associate (\$10) member. Visitors pay \$5 (or \$2 for students) per meeting. Members have access to the club library of programs on diskette... -ES

CALIFORNIA

San Fernando Valley Commodore Users Group, Granada Hills CA. It was great to see Tom Lynch presented with a token of appreciation at the last meeting. It's a privilege to work with Tom, and watch him put in at least 40 hours a week on this club, after his regular job. -Steve Botts (The Users Port editor)

South Bay Commodore Users' Group, Manhattan Beach CA. Craig Wittler, at 17306 Ermanita Av., #3, Torrance CA 90504, is the editor of this group's monthly newsletter, Use**Letter. Meetings are in Hermosa Beach. For membership info, write 401 Ninth St., Manhattan CA 90266.

ILLINOIS

Gateway Computer Club, Fairview Heights IL. This St. Louis area (Illinois side) computer club now publishes a monthly Gazette for members, edited by Joel Minto. President is Vince Le Pes. Direct all membership applications and questions to Rich Fisher, P.O. Box 1831, Fairview Heights IL 62208. [JS is a proud honorary member of the group.]

Springfield Area VIC Enthusiasts (SAVE). 10 SAVE:REM What at first seemed to be SAVE'S liability was that none of its members had been a user for more than a year. Ironically, this has seemed to draw many new computer owners. The "non-technical" computer language used at meetings leaves new users comfortable. As we grow, let's remember that guy who sits quietly in the corner. -Mike Stout

MARYLAND

Baltimore Area Commodore Users Group (BAY-CUG), Baltimore MD. This new group meets the fourth Wednesday of the month at Loch Raven Senior High School in Baltimore. Contact Michael M. Broumberg at 4605 Vogt Av., Baltimore MD 21206 (301/325-2156) for more info.

MISSOURI

The Joplin Commodore Computer User's Group. We have received a good deal of mail from people and companies wishing to sell their wares. All such mail is deposited in a large basket at the library. Please feel free to browse through it and copy anything interesting. Other group newsletters will be in the same basket (labeled JCCUG mail).

THE KCPUG group in Kansas City/Independence MO has grown to 550 members with 20 new member a month. Rick West reports all the new members are Commodore 64 very hungry users. For more information, call their bulletin board at 816/257-5058.

NEW JERSEY

My wife and I attended the 9th Annual Trenton Computer Festival. Commodore User Group was well attended with 64 owners. All very concerned with the problems and servicing of the 1541 disk drive. When Commodore had dealers, this was not a problem. -John Z. Novicki

NEW YORK

Upstate Commodore User Group, Horseheads NY. President Chris Johnson sent a request to the Central Illinois PET User Group for information on our disk library. This VIC and 64 club of approximately 100 members with VIC's and 64's is located in the southern tier area of New York and Pennsylvania hopes to start an open BBS soon. Write Chris at Box 5242, Arnot Mall, Horseheads NY 14844, for more info.

OHIO

Central Ohio Commodore User's Group asks to be added to the User Group list. [They were formerly listed as COPUG]. Contact is still Philip H. Lynch, 107 S. Westmoor Av., Columbus OH 43204 (614/274-0304).

SOUTH DAKOTA

Veblen SD. Would any of the groups that read the Midnite be willing to drop us a copy of their By-laws? There are enough users in our area to start a users group, but we don't know how to outline ourselves. We would appreciate any examples. Sincerely, G. Duane Baun, Pastor, Our Savior's Lutheran, Veblen SD 57270 (???)738-2479)

TEXAS

Texoma Regional Association of Commodore Enthusiasts (TRACE). Art Klinger of 4659 Balboa Dr., Wichita Falls TX 76310 (817/692-4718), sent us the announcement of this group, which meets the third Monday of each month at either Data Pro or Computers & Electronics in some unmentioned town. Contact Art for specific information! -ES

Video Notes

COLORFUL LISTINGS:

Have you ever wanted your listings to automatically come up with a different color besides light blue? Well, you can do it. You have four different colors you can choose from - white, red, green, and blue. White has a CHR\$ value of 5, red is 28, green is 30 and blue is 31. This is how you can do it for the color white:

First type: `Ø REM" "`

Then type, in immediate mode: `POKE2054,5`

Now resave the program. Every time you list it, the listing will be white. -Jim Retz (in Mountain Computer Society Data Loops)

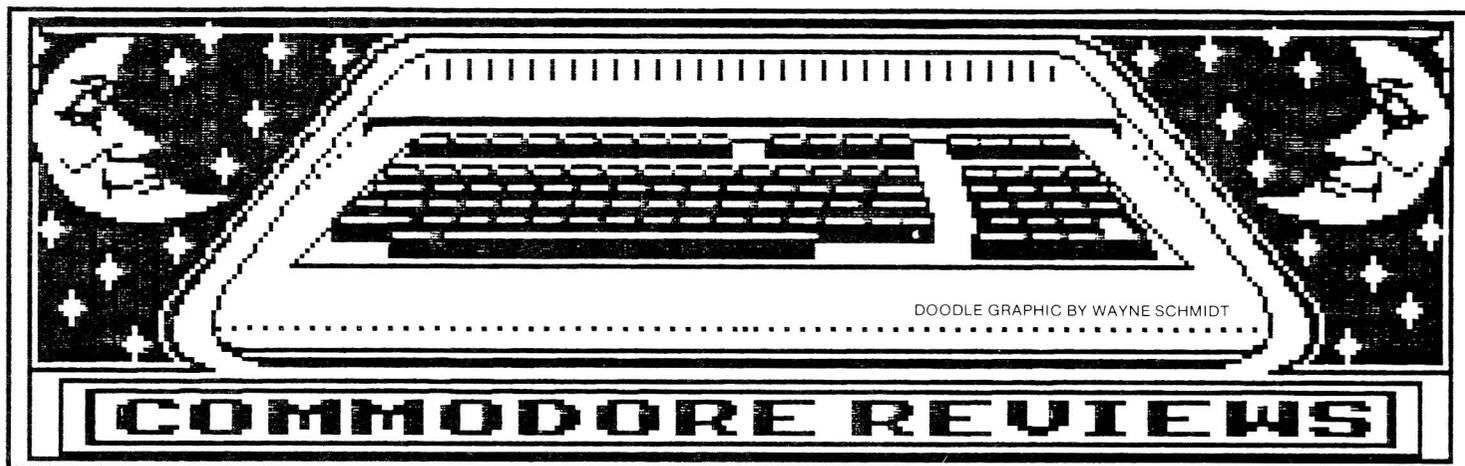
ROM DIFFERENCES, or WHY YOUR SCREEN GOES BLANK:

Unfortunately, ROM 1 machines [for the 64] had a tendency to show "sparkle" on the screen (especially when waiting for a GET statement or reading a file). To correct this and a few other concerns, Commodore introduced ROM 2. In ROM 2, the color memory was automatically filled with the color of the screen background, so all characters POKEd to the screen were the same color as the background. This means a program that shows up fine on a ROM 1 may be totally invisible on a ROM 2. Not satisfied, Commodore introduced Version 3, in which color memory is automatically filled with the cursor color.

April's Compute! Gazette (pp. 1124-126) suggests another way if you're willing to have characters all of the same color. First, POKE screen color with the color you want your characters. Then, CLear the screen. Finally, POKE screen color with the color you want your screen. -Mindy Skelton (in 8 Squared)

PRINT THE SCREEN:

If you are attempting to print the screen of a 64, you will have discovered that the program in the manual (p.32) will not work as shown. In addition to changing line 60050 for the program to work on the 64, line 60060 must also be changed, as follows:
`60060 SC=PEEK(VR+40*CL+RO)` -(in SAVE Newsletter)



Book Reviews

THE BEST VIC/COMMODORE SOFTWARE, by The Editors of Consumer Guide, for 64 or VIC.

\$5 spiral book from Publications Intl., 3841 W. Oakton, Skokie IL 60076. 1984. 192p.

REVIEW #1: A compilation of software for the VIC and 64. [It came to Midnite subscribers as issue #16.] All software available as of October 15, 1983 was considered and rated by Jim and Ellen Strasma and people from user groups such as ours. It used a rating scale of 1 to 10 and rejected all below a rating of 5. The publisher, Consumers Guide, verified all the software listings for accuracy and rejected programs with unverifiable claims. I highly recommend this book! I especially liked the ratings for performance, ease of use, reliability, documentation and user group average. There is a one page description with price, who sells it, etc. -Tom Lynch (in The Users Port)

REVIEW #2: Don't be fooled by the misleading title. Nicely packaged in a spiral cover containing well written descriptions of some of the best software available for all Commodore computers; not just 64's and VIC's. Although the book was written by knowledgeable writers, it seems to have an opinionated slant in places. For instance, **The Consultant** is described as "clearly the best database manager currently available." No mention is made of the argument that **The Consultant** is very weak on mail lists because it will not surpress an empty field nor an empty line or that only two fields can be put on a line (city state on one line and ZIP on another). Although **The Consultant's** speed, record lengths, and search capabilities are better, I still think **Power File (Flex-File 2.1)** is better, but then, I'm known to be opinionated. Read the book and take your own opinionated stance. CHUG's **Micromon**, by Russ Bennett, is listed as "one of the most important programs you can own." Unfortunately, it is no longer sold for CHUG through Foxfire Systems, as that organization has gone into bankruptcy. CHUG would like to hear from another capable company interested in marketing Russ Bennett's versions of **Micromon** and **Micromon-64**.

Warning: Use extreme caution in loaning it out! Borrowers like it so much they take their time in returning it. Tell them to buy their own. -John Walker (in Hardcopy)

[NOTE: Many can't find it in B. Dalton, Crown or Walden bookstores. We're also out, but will reorder once more. If you want one, send \$5 to Midnite Software, Inc., 635 Maple, Mt. Zion IL 62549 by August 15, 1984. Our last offer! -ES]

DOCTOR ARON'S GUIDE TO THE CARE, FEEDING AND TRAINING OF YOUR COMMODORE 64, by A. and E. Aron. Paperback from Hayden Books, 50 Essex St., Rochelle Park NJ 07662. 1984. 300p.

This large format paperback, written by teachers for the beginner (aren't they all?), intentionally repeats material whenever the authors feel you might be confused, and uses a variety of type sizes and separate boxes to emphasize different topics. Each chapter ends with a summary and exercises, with answers and a glossary in the back. However, there is no index, and finding particular topics is difficult because of the many typefaces, even in the table of contents. The authors claim you'll learn BASIC in 12 hours, which may be true, as far as the book goes, but I doubt it. Naturally, I couldn't find any reference to files, though I did find a chapter on arrays. I'm biased, but I'll pass. -JS

THE ENCYCLOPEDIA OF MICROCOMPUTER TERMINOLOGY, by Linda and John Christie, for all models. \$10 paperback/\$20 hardback from Prentice Hall, Englewood Cliffs NJ 07632. 1984. <300 p.

Jargon got you down? Don't understand the beginner's page in the kids' computer magazine? Fear no longer, help is here, in the form of over 4,000 simple definitions of computer terms. The definition for "jargon", for example includes this gem: "Words cease to be jargon when they become generally accepted in fields other than the one in which they originated." That comment is typical of what sets this book apart from a dictionary; its definitions include added comments, background information, occasional examples and further references. There's no need to read it from start to finish, but you could if you wanted to, without falling asleep. Although designed for business and professional people, I recommend it for anyone in need of help with computer terms. -JS

THE FIRST PRIMER OF MICROCOMPUTER TELECOMMUNICATIONS, by Jim Cambron, for all computers. Paperback from TAB Books (distributed by B. Dalton or Walden books.)

This book assumes you have never used a computer, let alone a modem. It explains how a computer works and how the computer sends this information over the phone lines. The best section gave detailed procedures for using a bulletin board over the phone lines, showing some actual examples. However, it failed to go into any detail on such subjects as down-loading or up-loading of programs. Recommend for first time modem users. -Jeff Hinline (in CCC of Toledo OH Newsletter)

FREE SOFTWARE FOR YOUR COMMODORE 64/VIC-20/PET*CBM, for all Commodore computers.

\$9 paperback from David & Dorothy Heller Enrich/Ohaus, 2325 Paragon Dr., San Jose CA.

Can't find public domain programs? Well, this is the book for you. Free Software does mini-profiles on user groups all over the world; it lists over 100 clubs and their addresses. Describes telecommunications basics including how to effectively use a Punter BBS. Also lists several hundred BBS's and their telephone #'s, but don't get upset if some aren't operating now, as BBS's come and go daily. Any serious telecommunications hobbyist would enjoy this book. Recommended. -Mike Stout

GETTING ON-LINE, by M. David Stone, for all models.

\$15 paperback from Prentice Hall, Englewood Cliffs NJ 07632. 1984. 306 p.

Are you in need of help using your MODEM? Can't make sense of CompuServe or the Source? Here's a comprehensive resource that may help. Getting On-Line starts with your hardware, both the computer and the MODEM, then covers needed features in terminal software and how a few real programs stack up, and finally the nitty gritty of hooking up an RS232 port (a common way to handle a MODEM). The other half is a catalog of what's available from most of the well-known information utilities, including BRS After Dark, Dephi, Dialog, Newsnet, Nexus, and others, besides the big 3 you've already heard about. There are also hints on how to get what you need from each of them, and a search strategy that may save you time and money. Although Commodore isn't the prime focus of this book, it isn't neglected either, and I doubt if you'll find a better overall resource for this rapidly expanding field. If MODEMS matter to you, look for Getting On-Line. Recommended. -JS

GETTING THE MOST FROM YOUR VIC-20, \$10 by Hank Gilbrech for VIC. Paperback? from Prentice-Hall, Englewood Cliffs NJ 07632. 1983. 135p.

REVIEW #1: For the new VIC owner that wants more than just games. Topics range from the joystick to creating cassette files to home finance and education. The author effectively uses example programs to make learning easier. Every program is followed by a line by line description of what's happening. Recommended for the new user. -Dan Bluhn

REVIEW #2: This book has two parts--ten short chapters teaching different aspects of BASIC programming, followed by ten short application programs. Throughout the book, however, the approach is a short listing, followed by a description of what it does, with those in the latter section adding a list of variables used. Thus, the book won't help you much unless you're willing to try the exercises. Getting the Most doesn't try to cover everything; it assumes you've read the owner's manual and are ready to work with the more unusual and advanced BASIC concepts (although not all THAT advanced.) Files are briefly mentioned, but only for cassettes, and nothing is said about using a printer, although joysticks are described. Personally, my main need is for reference materials, and this book is almost useless for that. But if you're looking for a programming workbook in VIC BASIC that goes beyond the trivial, this may be just what you need. -JS

GOING ON LINE WITH YOUR MICRO, by Lou Haas, for all computers.

This book, for the advanced telecommunications hacker with some previous MODEM experience, is quite detailed and technical. Subjects covered are 'X-Modem operation for down-loading operations'...CP/M operation with a MODEM system, such as the Heath Users Group uses (useful for the many free programs available through these CP/M systems). One useful feature was a list of over 150 BBS systems, their telephone numbers and peculiarities. Be careful though; you can run up a large long distance bill very quickly. The appendix lists many sources of MODEM hardware and software, as well as programs for starting your own bulletin board system. -Jeff Hineline (in CCC of Toledo OH Newsletter)

KOALAPAD INSTANT PROGRAMMER'S GUIDE, by Koala Industries, for 64.

Booklet from Koala Technologies, 3100 Patrick Henry Dr., Santa Clara CA 95050.

A clearly written 9-page guide to writing programs for the **Koalapad** touch tablet, it includes how to read raw data, plot, scale, make tones, etc. Not for the novice programmer, but those with some know-how will find it fascinating. And judging from the few, limited programs on the market, Koala Industries should be delighted to have creative programs being written for such an outstanding piece of technology. -Elizabeth Kaspar

LEARNING AND TEACHING WITH COMPUTERS, by Tim O'Shea & John Self, for all computers.

\$13 paperback from Prentice-Hall, Inc., Englewood Cliffs, NJ 07632. 1983.

This publication is directed to teachers and college students concerned with education through computers. The authors point-out that current software available needs to improve to better the ability of education through computers. The book covers many current different systems used in the field of education & future usage of the same. Recommended only to teachers and students. -Mike Stout

Update (#13): LEROY'S CHEATSHEET, \$4+\$2 shipping+6%tax for each overlay from Cheatsheet Products, Box 8299, Pittsburg PA 15218.

I ordered the overlays for **Easy Script** and **Term 64**. I was not disappointed. I typed this article (my first using **Easy Script**) without referring to the manual, after going through the tutorial for **Easy Script** about two weeks earlier. There are several minor errors on the overlay, one of which messed up my output format. The one for **Term 64** [with far fewer commands] was much simpler and maybe not worth the cost. You must cut out the area for the keyboard and function keys using an X-Acto knife or a razor blade. A slip could ruin your overlay. -Al Harsch (in WCUC News)

MASTERING THE COMMODORE 64, by A.J. Jones and G.J. Carpenter, for 64.

\$15 paperback (\$25 for matching diskette--not tested) from Wiley Press, 605 Third Av., New York NY 10158. 1984. 383 p.

This is the first book I've seen for the 64 that goes significantly beyond the beginner level. Earlier efforts we've reviewed usually stopped where Mastering the Commodore 64 starts, limited their scope to a single topic like graphics or sound, or failed completely. It is similar in some ways to Ray West's landmark book for the CBM, though not as comprehensive or easily usable for quick reference. On the other hand, it is more readable than West's book, and covers the same ground--everything from the end of Commodore's owner's guide through simple machine language, covering advanced disk handling, memory management, sorting and other needed topics along the way. As of right now, if I could have only one book for the 64, this would be it. Highly recommended. -JS

THE MICROCOMPUTER USERS HANDBOOK 1984, by D. Longley and M. Shain, for all computers.

\$40 paperback from Wiley-Interscience, New York NY. 1984. 324p.

Do the British write better computer books than Americans, or are only their best works imported? Either way, I always look forward to a new British offering. The Microcomputer Users Handbook is the newest, and not disappointing in any way. It is a large book, double columned and chock full of useful information, not just about Commodore, but about the entire industry. Written by a large team, one chapter apiece, the book covers nearly everything of interest to the small business considering a computer. Chapters cover: the use of computers in business, the right way to buy one, maintenance, staff participation, files, hardware, operating systems, languages, word processing, scheduling, networking, security, ergonomics and a dozen other equally important topics, all well presented. There is also a large survey of available business machines, including only the B series from Commodore's line. There is also a glossary at the end, but no index. Except for the shortage of Commodore info, and having all prices in British Pounds, this is the best single survey of the industry I've seen yet. Highly recommended to all who need the large picture, and are willing to pay well to get it. -JS

PROGRAMMING YOUR COMMODORE 64 IN BASIC, by Mario Eisenbacher, for 64.

\$13 paperback from Prentice-Hall, Inc., Englewood Cliffs, NJ 07632. 1984.

A good choice for anyone beginning to program the Commodore 64 in BASIC. The book progressively introduces BASIC statements, commands, and functions in groups, with short exercises to improve comprehension; each chapter ends with a review and exercises. A stimulus for beginning programmers; as new material is covered, you will undoubtedly "tary" to develop programs that will get more complex as more BASIC is covered. The material is easily grasped without knowing BASIC; however, the chapter on special effects of graphics and sound may require more depth than provided. -Harry J. Bethke

VIC BASIC, by Ramon Zamora et al., for VIC.

Paperback from Reston, 11480 Sunset Hills Rd., Reston VA 22090. 1983. 360 p.

After reading my recent article on Commodore books, Bob Albrecht, who authored one of my oldest favorites, sent this new book for review. Like my old favorite and an earlier volume for the PET, this VIC manual is very understandable and light-hearted, full of cute illustrations and things to try, with lots of explanations. Though not packaged as such, VIC BASIC would make a fine text for teaching BASIC to youth. It includes a summary at the end of each chapter, with exercises and answers. Topics are arranged in order of use in creating fun programs, rather than a logical progression through BASIC. For instance, POKE is taught before PRINT, making reference somewhat difficult. Another strange omission is the entire concept of files; even LOAD and SAVE are only mentioned in an appendix. Syntax for some BASIC words doesn't even appear there. As a fun approach to a fun machine, VIC BASIC is a fine intro manual for youth or adults, but needs a companion volume to cover more advanced topics and serve as a reference. I like it, but not quite as much as Datamost's excellent book Kids and the VIC for the same audience. -JS

Accounting and Finance/Tax Programs:

Update (see #9,11,13): BPI GENERAL LEDGER and ACCOUNTS PAYABLE, for CBM.
See school use review under Education Reviews.

CBM 64 GENERAL LEDGER, \$100 diskette for 64.

General ledger from MicroSpec Ltd., P.O. Box 863085, Plano TX 75086. No warranty. Version 2.001 copy protected.

I recently had the dubious honor of implementing version 1.002 of this small business accounting system. Many frazzled hours later, I was beginning to wonder if this wasn't really a devilishly clever adventure game with real life consequences at stake rather than a business program. I first began to suspect the program's authors had a flair for the dramatic when, having completed entry of 6 fields of information in creating each of 65 accounts, I chose the printout option from the File Maintenance menu [and found] the key file to access the information had not yet been written. After re-entering all account parameters and returning to the Main Menu before selecting any other function, this part worked fine. When the income statement is printed, the net income amount is incorrect. When I closed the fiscal year, everything was zeroed, including the balance sheet account balances. Malfunctions such as these are inexcusable in a serious business system. -Steve Harrison (in Springfield PET Users Group Newsletter)

COMPLETE PERSONAL ACCOUNTANT, diskette for 64.

Home accounting package from Futurehouse, Inc., Box 3470, Chapel Hill NC 27519.

Tracks up to 99 accounts and up to 9 categories within each account. Standard accounts are supplied, which you may adapt or ignore. If you don't like reading manuals, you'll also have the choice of watching a tutorial instead; a complete one is included on the back side of the program diskette. It doesn't do payroll. -JS

EZZE BOOKS 64, by B. Prouty. \$15 diskette for the 64.

(PET version reviewed in M#10 as **Databooks**.) General accounting package (CC DISK #2) from Comm'Putoy Cult, Box 7776, San Diego Ca 92107. Requires CBM disk and CBM or ASCII printer. No stated warranty. Unprotected.

Although we do our accounting on the 8032, using BPI programs, I requested a review copy of **eZZe Books 64** for the sake of our 64 readers. I am reluctant to recommend the Info Designs packages sold by Commodore until I hear the results of a reported lawsuit claiming Info Designs illegally copied its package from those of Southern Solutions' Chuck Stuart. Since we also haven't heard from Southern Solutions in a while, the need to find a good 64 accounting package has become extreme.

Into the gap comes long-time subscriber and bookkeeper, B. Prouty of the San Diego users group. Her accounting system comes as 3 large programs that can be listed and changed as needed. One program is run only once, to set up the system. The rest of the time, you simply load one program for Payroll, and the other for general accounting. (The two feed info back and forth as needed.) This prevents the endless disk-swapping we've seen in other packages. One of the nicest features is a code next to each question, referring to a matching paragraph in the manual that explains it. Other good features are a requirement that the books balance before ending a session, and refusal to modify account values without a journal entry (for an audit trail.) There is also a simple two-level password system. Since the package doesn't come with a sample data diskette, it will take some time to learn, but once set up, operation is straight-forward. If you need an accounting package for the 64 that doesn't do weird things like try to destroy your disk drive when you back it up, consider **eZZe Books 64**. Highly recommended. -JS

INVENTORY, Version 1.1, diskette for 64.

Inventory program from MicroSpec, Ltd., P.O. Box 863085, Plano TX 75086.

Version 1.1 works great. The program now does everything claimed plus the ability to run on various printers by coding ASCII values, secondary address and separate linefeed. You can track 1200 items per diskette. Each item is given a part number, description, quantity and pricing information, sales and min-max stock level, and physical location code. Add, delete, change and scan functions maintain these items. The system will generate a suggested re-order list based on min-max levels designated by the user and stock on hand. Transactions are entered by sales, returns, posting purchase orders and receipts. It includes a sales report showing period to date and year to date by part number or description. If the user provides a supplier code in the part number, the program will give sales sub-totals by supplier. You can print a physical inventory count sheet, with the counts entered as a second function, and generate a shrinkage report, adjust inventory, and generate a total inventory printout by either cost or retail.

This program is very useful for a small or medium business. It could be adapted to keep track of collectibles, such as stamps or coins. Several drawbacks are not printing dates on reports, not keeping records by manufacturer and not giving total recorded dollars. It would also be helpful to print reports by manufacture code. I have been using this program for over 6 months and am pleased with the results. -Dave Menaker (in Montgomery County CCS (Silver Spring MD) Newsletter)

SOFTAX 83, \$70 diskette for the 64

Tax package from Softax, Box 332, St. Paul MN 55102 612/224-7477. BASIC + machine language. DOS-protected, spare diskette \$20. 10 day guarantee or your money back.

SOFTAX 83 will prepare and print form 1040, Schedules A,B,C,D,E,G,SE,W, and form 2441. It will also prepare and print Minnesota forms M-1 and M-1B. All except the 1040 may be sent to the IRS as printed on fan fold computer paper. It should work with any properly interfaced printer. Containing programs on both sides of one diskette, **Softax 83** is very easy to work with and instructions are well written. Schedules or forms are stored in RAM in a logical sequence with "swapping" as you work your way through the return. When you enter taxpayer information and numbers, the program quickly computes each schedule, automatically carries the figures to form 1040 and computes your tax liability or refund, rounding all numbers as per IRS code. You can do "what if" calculations on any supported schedule or form very quickly. You can "save" a return to disk, but only reload a previously saved file once when you first begin the program. A color option via the function keys would be nice. Good income tax software for the 64 is expensive and very hard to find. Companies must charge a high price, because their product can only be sold for a couple of months each year. This program has the best warranty and return policy I've seen. This is a very good program, well suited for those who prepare their own returns and track their financial progress or tax strategy through the year. -Steve Shubitz

Data Base Managers and Mail Lists:

Update: THE CONSULTANT, by Dieter Demmer. \$150 diskette for CBM, PET or 64.

Formerly called **Oracle** or **Delphi's Oracle**, from Batteries Included. See reviews in **Midnite** # 14-15,15-33,16-27,18-09 and comparison with **Manager** below.

Update (#18): CODEWRITER (HOME FILE WRITER), \$50 diskette for 64.

Application generator from Codewriter Corp., 7847 N. Caldwell Av., Niles IL 60648 (800/621-4109 or 312/470-0700).

I've been intending to review **Codewriter** for some time, only to find out after doing so, that one of its two parts was reviewed last issue as **Home File Writer**. Oh well, both names are correct. I've rarely seen a product with better documentation and on-line helps, and few data managers offer more flexibility, particularly in the area of trapping faulty inputs. The full-screen editor and numerous prompts makes creating a file easier than any other data manager I've tested. Because both **Home File Writer** and its output are unprotected BASIC programs and compatible with nearly any hardware, you are free to add

still other features, and make needed backups. Finished listings are readably spaced, and full of helpful REMark statements.

Codewriter's separately-sold report generator, a weak link in many data managers, is very flexible and easy to use. It allows an 80 column by 58 row report, set up virtually any way, including 1, 2 or 3 up mail labels. The format screen scrolls to show the whole report. It can also link dissimilar report formats in a report, with overall totals. The only painful part of making a report is manually copying 2 programs from one diskette to another. Also, **Home File Writer** is slower than machine language data managers. Its editing options don't meet Commodore's data entry standards (described in the Whole PET Catalog), and it can't handle commas. The included programs have a few unneeded lines (delete 49999-50161, and 60000-), but these are trivial complaints. Although a reviewer in a competing magazine disagreed completely, I consider this one of the most interesting products I've ever tested. **Home File Writer** offers something to most everyone, from beginner to expert. Highly recommended. -JS

Update (see #12,15,18): DATA BASE MANAGER, diskette for 64.

Data manager from MicroSpec Ltd., P.O. Box 863085, Plano TX 75086.

Your issue 18 compliments this manual. The reviewer must have had one different than mine. In playing with the program, I found it apparently has mathematical capabilities not mentioned in the manual. However, the company was not courteous enough to answer correspondence, even when I offered to pay for a backup diskette. Many publishers are begging for their programs to be illegally copied. -Keith Klarin

DATA MANAGER, diskette? for 64.

Data manager from Timeworks, Inc., 405 Lake Cook Rd., Deerfield IL 60015.

This program works well on my 64, except for the print section. I use a Commodore 4022 tractor printer with an Interpod interface. This hardware has worked with every other program I have except this one. -Raymond E. Nichols

Update: THE MANAGER VS. THE CONSULTANT (DELPHI'S ORACLE), diskette for 64.

I recently purchased Commodore's **The Manager** for the 64, and, since the only filing program I'd used before was Timeworks' pathetic Data Manager, I wasn't sure if it was good or bad. So, when a friend offered to lend me Batteries Included's **The Consultant** for a weekend, I did a serious comparison. Here are some of the results: **The Consultant** is generally faster, since the whole program loads at once, while **Manager's** program "modules" mean more delays and disk-swapping. **The Consultant** uses relative files, while **Manager** uses indexed sequential files, but both files need their included utilities to be used by **Easy Script**. **Manager** allows up to 1500 characters per record; **The Consultant** can handle about 4000 (most file programs are limited to about 250). It's a little easier to set up input screens with **Manager**, but **The Consultant's** "Field labels" make other processes a lot easier. Setting up output forms is a confusing process on both, but **The Consultant's** manual is much better. **The Consultant** has a special format for mailing labels, but **Manager** makes it easier to send a report to the screen. **Manager** is noticeably slower in assembling reports, but **The Consultant** reports to the printer seem to be limited to 40 columns! **Manager's** biggest advantage is with arithmetic: once you learn how to write an arithmetic "program," you can add computed "fields" to input screens, reports and file records. Over all, **The Consultant** is the better product, but with **Manager** going for under \$50 and **The Consultant** over \$100, it isn't quite that good. -Craig Wittler

PRACTIFILE, by Michael Riley. \$55 diskette for all models.

Formerly called **Flex-File**, from Computer Software Associates, 50 Teed Dr., Randolph MA 02368. See reviews in **Midnite** #16-30 and 18-11.

SUPERBASE, by Tranmer and Cranstoun. \$99 diskette for 64/\$195 for 8096 or B-128. Relational data manager from Precision Software (USA), 1675 York Av., Suite 11D, New York NY 10128 (212/490-1825). Machine language. DOS protected; backup copy included.

Specs: random files; 15 related files; 1 prime key; 255 characters per field; 127 fields; 1,108 characters per record; number of records limited to disk capacity; 4 screens per record; programmable; works with: **Easy Script**, **Super Script**.

Superbase is easily the most sophisticated data base currently available for the 64 and B-128, and among the very best for the CBM 8096 as well. It excells in handling and relating data from multiple files, and also includes a true database language that includes nearly all important BASIC commands. You can write your own programs as well as complete application systems that run without intervention, up to 4K long on the 64 and 8K on the 8096. Like the best competing programs, **Superbase** allows full-screen formatting of data, has completely flexible report formats, and easily sends its data to popular word processors. It also makes restructuring simpler than any other data manager we've tested. It also makes good use of the function keys on the B-128, to reduce typing. It has excellent documentation, although learning to use such a powerful program takes time. On-screen menus and numerous help screens make getting started fairly simple. Later, you can add your own help screens and memos. The only limitations that will likely trouble you are: one prime key (shared by all current programs offering multiple files), and its inability to work with alternate disk drives (due to DOS protection), such as 1541 owners with access to larger disk drives. Area dealers report it has become their best-selling data manager; praise for it seems universal. Highly recommended for 64 owners and others who don't need the added features of **Super Office**. -JS

Integrated Packages:

SUPER OFFICE, by S. Tranmer and T. Cranstoun. \$395 diskette for B-128 or 8096. Integrated system (relational data manager and word processor) from Precision Software (USA), 1675 York Av., Suite 11D, New York, NY 10128 (212/490-1825). Requires 8050 disk drive. CBM or ASCII printer optional. 30 day media warranty. Machine language. DOS protected; backup copy included.

Specs: random files; 15 related files; 1 prime key; 255 characters per field; 127 fields; 1,108 characters per record; number of records limited to disk capacity; 4 screens per record; programmable; contains **Superbase** and **SuperScript II**, and **SuperSpell**.

As the first integrated system I've tested since **Silicon Office**, it appears to be vastly better than its renowned competitor. **Super Office** combines **Superbase**, **Super Script II** and **Super Spell** - each among the very best available programs in their respective fields - so that they use each others data automatically, giving **Super Office** a huge advantage over all competitors. That it is also among the very first commercial programs to work with the new B-128 model makes it all the more attractive. For file-handling information in **Super Office**, see the review for **Super Base** above. To this, add all the features of **SuperScript**, plus word wrap (no broken words at line ends), and **SuperSpell's** 30,000 (expandable) word dictionary. As in **Silicon Office**, the word processor can pull in any data from any active file anywhere in a document, giving extreme flexibility and ease in planning report formats and bulk mailings - but much faster than in **Silicon Office**. Although the spelling checker is not available simultaneously with the data manager, it is loaded together with the word processor to check a finished document. The price of **Super Office** is far less than that of any competing program, and the program comes from a very reputable company. New as it is, I love it. Highly recommended. -JS

COPY WRITER, by IDPC. \$80 diskette for 64. Also versions for PET/BM with CBM or PEDISK disk drive.

Two-column word processor from CGRS Microtech, Box 102, Langhorne PA 19047 (215/757-0284). FORTH. DOS-protected master creates unlimited program diskettes for daily use. 90 day media warranty.

Copy Writer is a very good word processing program, with most of the expected features, and some that are both important and unique. Besides being the only program we've tested that was written in FORTH (a computer language known for speed and brevity), it is the only word processor we've tested that is available for CGRS Microtech's ultra-fast but non-standard PEDISK II drive.

The 64 version starts with 812 lines of text free, and works well with both the Bus Card IEEE-488 interface and the MSD dual disk drive, as well as the 1541. Printers may be connected to either the user port or the serial bus. **Copy Writer** comes with a choice of 7 popular printers, plus the option of manually entering the codes for another printer (unfortunately entered in hexadecimal). I managed to overload the space allowed for these with my Prowriter 8510's codes, but got everything working except super- and subscript. All such questions are answered only once, when creating a daily use diskette.

One drawback drove me right up the wall; unlike virtually all

other Commodore programs, **Copy Writer** makes the DELETE key delete the character under the cursor rather than to the right of it. This makes backing up over a mistake a slow, painful operation.

On the other hand, **Copy Writer** contains a singularly wonderful feature, shared by only one other program we've tested. Like the \$1,000 CBM program **Silicon Office**, **Copy Writer** does true two-column output, as shown here, with only occasional hitches. **Copy Writer** also has the popular cut and paste feature, as well as a way to avoid "widows and orphans" (partial paragraphs at the top or bottom of a page.)

Another unique feature lets you print text exactly as it appears in memory, with or without formatting marks. It also has GOTO line number, easing those 500 line jumps, and the usual block moves, search and replace, linked file, and mail shot features.

Other features I missed were video output, a choice of colors (you get light gray letters on black, with dark gray border), an insert mode, and 80 columns (available with CGRS's 80 column **Screenmaker** video board--not tested.)

On balance, **Copy Writer** is a full-featured word processor that is very easy to use with the usual equipment, and well suited to the needs of newsletter editors. Its cost is reasonable, and the company long established. PEDISK II users especially need it. Recommended.-JS

HOMEWORD, THE PERSONAL WORD PROCESSOR, \$45-65 diskette for 64.

Icon-guided word processor from Sierra, Sierra Building, Coarsegold CA 93614.

Homeword is a modestly-priced word processor that will fulfill all your home correspondence needs, both personal and business. "Icons" (screen pictures representing its various functions) make **Homeword** easy to use. File operations (saving, retrieving) are represented by a filing cabinet. Format and edit operations are represented by a sheet of paper. Two nice additions are a reference card summary of major commands, and a cassette tape with an introductory lecture on using **Homeword**. I would rate **Homeword** on a scale of 1 to 10 as an 8. But would I buy **Homeword**? No, because one drawback outweighs all its good features for color TV users: the screen displays white letters on a black background and can't be adjusted for other combinations. -Bill Rhodes (in Eight Squared).

OMNIWRITER and OMNISPELL, \$50-70 diskette for 64.

Word processor and spelling checker from HES, 71 Park Lane, Brisbane CA 90066. Supports both serial port and RS-232 printers.

OmniWriter/OmniSpell is a powerful, easy to use word processor and spelling checker. Includes a single diskette, instruction booklet, quick reference card and an overlay for the function keys. Maximum document size is 34,000 characters (about 17 pages). Documents can be copied from sequential files, personalized with mail merging. The left margin, tab stops and right margin can be changed as often as necessary. Commands include moving or copying blocks of text, replacing phrases, disk commands, inserting or deleting text, renaming the document, and numerous print enhancements.

OmniSpell contains a 30,000 word dictionary. It flags unrecognized words in the text, and can create a user dictionary. You can call the dictionary from within a document and ask for the spelling of words. -Paul Gilbert (in Fox Valley Users Group Newsletter)

SUPER-TEXT, approx. \$65 for 64.

Word processor from Muse Software, 347 Charles St., Baltimore MD 21201. 40- and 80-column software options. Protected diskette with backup; \$10 replacement.

A nicely done word processing package, with a clear and well-organized manual and a reference card. On the plus side are such features as wordwrap and an 80 column option. The 80 column screen really needs a monochrome monitor to be clearly readable, but is easy to use and offers one especially nice feature: Pressing "H" shows you "help screens" to guide you through the many options. Other features include block moves of text, headers, and an option to link several files together, which may be searched. The major disadvantage is that there are 3 separate modes of entry. I found it annoying and not a little confusing to be forever jumping back and forth between Cursor, Add and Change modes. Overall, this is a well done word processor. For those who demand 80 columns and can live with mode-hopping. -Mindy Skelton (in 8 Squared)

Update (see #18): TEXT MASTER, \$35 cassette, \$40 diskette for 64 or VIC+8K.

Word processor from Universal Systems, Box 126, Urbana IL 61801.

From the first time you boot-up this word processing program, you wonder why anyone would want to dump their VIC. With such features as horizontal and vertical scroll, text justification, unlimited tabs and column setting, and 10 user defined printer character codes, this machine language program will make your VIC a powerful word processor. I can create, edit, save and print any of my text, with easy to learn commands, but I wish the program could move lines or blocks of text or search for phrases and words. -Jack Hatcher

Update (see #16): WRITER'S ASSISTANT, \$69-100 diskette for 64.

Word processor from Rainbow Computer Corp., 490 Lancaster Pike, Frazer PA 19355. Works with **File Assistant**.

Has wraparound; does not format to screen before printing; can create glossaries. Each document can contain 356 lines; 9 files can print as one document. Found it very difficult to use for a novice, even with the tutorial. Not well documented. Very difficult to get out of typing text once in the Entering a Document mode. Only a few embedded printer commands worked with my Prowriter printer and Smart ASCII interface. I don't recommend it for a first-time user. -Judy Treskovich (in WCUC News)

Church Notes

APOCALYPSE, \$20 for 64 or PET

Bible tutorial from The Spiritual Source, 24 Carol Av., Manorville NY 11949

This is the King James version of Revelations. The whole book is on disk for rapid access of any verse. The output is in a pleasing reverse video and the function keys are used to move forward or backward through the text. The programming, in BASIC, is well done. The only limitation is the lack of a means of searching for a key word or phrase. I would recommend this to any serious student of the Bible. The Spiritual Source has other books on disk, too - Matthew, Mark, Luke, and John. -Tom Lynch (in SFVCUG's The Users Port)

CALLING RECORD, by Dan Cheatham. \$10 diskette/\$8 cassette/\$5 listing for 64.

Simple data manager from Theobyte, 5227 Leavenworth Rd., Kansas City KS 66104 (913/287-3663). No C.O.D., full refund for 10 days.

Simple in-memory database of up to 250 names. Includes when last called on and when next to visit. With or without a serial bus printer. Only with difficulty can you find a forgotten name. Primitive formatting and error-checking. -JS

ELECTRONIC CONCORDANCE, \$54 diskettes (7) for 64.

New Testament concordance from Theobyte, 5227 Leavenworth Rd., Kansas City KS 66104 (913/287-3663). No C.O.D., full refund for 10 days.

New Testament on 6 diskettes of 20K sequential files, divided into 70 character lines, plus the program diskette (for \$6). Comes either as a \$54 package or as a monthly subscription (\$8 each installment). Omits most punctuation (along with capital letters!). Can search for 1 or 2 texts to match - up to 127 hits. Screen or printer output. A mass search program option allows searches on up to 6 phrases to be found. A diskette survey program checks whole diskette at once. Rank program checks frequency of use of words in all or part of a file. Up to 999 words used. Printouts are not paged. Not recommended. -JS

GAME OF THE MACCABEES, by John Barger. \$25 diskette for 64.

Old Testament game from Davka Corporation, 845 N. Michigan Av., Suite 843, Chicago IL 60611 (800/621-8227 or 312/944-4070). Unprotected. No stated warranty.

A horizontal "Space Invaders." Uses Keyboard or joystick port 2. You, a Jewish rebel against Greek oppressors, are to zap their soldiers as they advance on you behind pagan altars. Occasionally an enemy elephant floats past on a balloon - get extra points by hitting it too, but don't shoot arriving olive oil. At any time, you can get extra lives by answering questions about Chanukah, the Jewish winter holiday near Christmas. Hit one soldier too often and he comes back as an unbeatable ghost. Lose, and a cute Jewish tune plays. Nicely done. -JS

THE ISRAEL GEOGRAPHY GAME, by the Microworks. \$25 diskette for 64.

Geography game from Davka Corporation, 845 N. Michigan Av., Suite 843, Chicago IL 60611 (800/621-8227 or 312/944-4070). Unprotected. No stated warranty.

Some music. Picks up semi-matches. Asks questions on one of 4 regions in Israel. Uses simple graphics and a sprite plus GET loop for questions. No time limit. Gives 3 tries, each with a hint, fewer points after each miss. Quite usable (better than I.Q. Baseball). Seems a bit costly. -JS

JEWISH I.Q. BASEBALL V2.2, \$25 alone or \$30 with quizmaker, for 64.

Jewish facts quiz from Davka Corporation, 845 N. Michigan Av., Suite 843, Chicago IL 60611 (800/621-8227 or 312/944-4070). 1-2 players. Requires CBM disk drive. Unprotected. Keyboard only. 30 day media warranty.

Multiple choice text on Jewish facts. Can't start with LOAD"*,8,1. 2 levels of

questions. Simulates baseball, as right answer equals a hit. Starts with national anthem. Questions appear and you choose A,B or C. No time limit. Can quit after an inning. High res picture of field as seen from stands. Simple sprites and simple tunes. When you make a quiz, you may choose 4 levels of difficulty (not 8). Limit is 117 characters (3 lines), with up to 4 choices. You can edit questions by number. Boring! -JS

LOOKING INTO THE BOOK, \$10 diskette/\$8 cassette/\$5 listing for 64.

Bible games from Theobyte, 5227 Leavenworth Rd., Kansas City KS 66104 (913/287-3663). No C.O.D., full refund for 10 days.

5 simple Bible games, some fairly good. Includes Flip!, Bible Jumble, Split, and 2 versions of Bible Sort. -JS

ON THE DOLE. \$10 diskette/\$8 cassette/\$5 listing for 64.

Unemployment simulation from Theobyte, 5227 Leavenworth Rd., Kansas City KS 66104 (913/287-3663).

What to cut out - try to survive a year. A depressing simulation in need of a better user interface. Not recommended. -JS

SAMSON AND DELILAH, by the Software Group. \$25 diskette for 64.

Old Testament game from Davka Corporation, 845 N. Michigan Av., Suite 843, Chicago IL 60611 (800/621-8227 or 312/944-4070). DOS protected. Requires joystick. 30 day media warranty; \$5 after that.

This "Donkey Kong in reverse" game starts with several screens about the life of Samson to simply read. Allows several difficulty options. Guards may be avoided or whacked with the jawbone of an ass. Delilah and the lion must be avoided. To get the jawbone, jump on it and grab, but you can only keep it a short while. There are 3 attempts per game and 6 levels. Fails to turn off sprites when you lose. Simple beeps and graphics. I fail to see the connection with religion and the real life of Samson. Not recommended. -JS

SEARCH FOR YOUR JEWISH COUSIN, by Judith Goldman. \$?? diskette for 64.

Adventure game for ages 9+ from Davka Corporation, 845 N. Michigan Av., Suite 843, Chicago IL 60611 (800/621-8227 or 312/944-4070). Unprotected.

Tour Israel adventure for 1 player. Takes 10-30 minutes. Includes simple map. 20 possible towns. 7 days to find an unknown cousin, Sara, who paid for your trip. 4 stops/day (2 in the desert). Can only go to connected towns. Inquiry costs a day. Occasionally gives you a free turn or takes one away. Simple tune and graphics. Just press a few keys. Easy and fairly fun. -JS

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School Administration:

Update (see #15): ATTENDANCE PLUS/REPORT CARD PLUS, by Rich Rediker. \$850 diskette (each module) for 8032 with 8050. School attendance and grading package from Rediker Software, 67 Genevieve Dr., Hampden MA 01036 (413/566-345).

After using **Report Card Plus** for 2 report card runs for 600 students in grades 9-12, I find the program EXCELLENT and well worth the cost. Entering grades for one period takes one clerk 7-8 hours to enter, and report cards are printed on an 8023P in 6-7 hours, compared to our old schedule of 3 clerks taking 3.5 work days to record and hand mark our 600 report cards. The big plus is that we have access to the entire student database for other statistical needs (rank in class, honor roll, failures). The programs seem just about "bomb proof." Most problems happened because I was distracted when I read the instructions. Rich Rediker is preparing final documentation (bless you for discussing problems on the phone!) We expect to test **Attendance** for the 1984/85 school year. Rich is now working on the scheduling part of his Administration trilogy. **Report Card Plus/Attendance Plus** is EXCELLENT, and costs half as much as competing school packages; I would recommend it HIGHLY to any school our size for attendance and report cards. -Bob Bergevin

Update (see #9,11): BPI GENERAL LEDGER and ACCOUNTS PAYABLE, for CBM.

We have cut ties to our BOCES data processing (Board of Cooperative Educational Services that provides shared services to school districts, such as special education classes, vocational training, purchasing). It was filled with errors, and took forever to return data when needed. Our new School District Treasurer is running our District on the 8096 with the **BPI General Ledger** and **Accounts Payable** and a Visicalc program. We have saved the cost of the equipment and software in the first year of dropping the BOCES service, AND we have local control and access. For an investment of less than \$3200, any school district could do the same. The magic ingredient is a person who understands what is needed and how to get it going. We have one of those! -Bob Bergevin, Clintonville NY

TESTMASTER, by Michael Horner. \$35 diskette for 64 and PET/CBM.

Test maker utility from Midwest Software, Box 214, Farmington MI 48024 (313/477-0897). Requires CBM disk drive. 30 day free replacement warranty. DOS-protected, spare copy \$4.

When I reviewed Midwest's **Multiple Choice** program (M#15), I liked it a great deal except for one major limitation: it can only handle the 50 questions it can hold in memory at once. Now Midwest offers **Testmaster**, which can handle up to 100 questions at once, keeping them in a relative file on disk, and even combine questions from several such files into a single test. This allows you to make each major topic in a course into a separate quiz file for pop tests, and then combine all the relevant files in a comprehensive exam. Questions may be true/false, multiple guess, or short answer type; they may appear on screen or paper, and you can print out both an answer key and a response sheet.

Like **Multiple Choice**, **Testmaster** randomizes the order of questions within test sections, as well as the order of suggested responses. Both tend to take a set (the odds of 2 matching answers in a row are fairly high), but students haven't noticed yet. Unfortunately since both programs are compiled and source code isn't offered, fixing this would be a long and thankless job. (I presume the authors used $X=RND(0)$, rather than $X=RND(-TI)$ at the start, followed by $X=RND(1)$ as needed. $RND(0)$ tends to vary within an unpredictable but limited range.) I'm also limited to 4040 diskette format by the program's DOS-protection, though I'd rather use my 8250. But Midwest has suffered its share of schools using what they haven't bought, so I understand their wish for both compiled code and DOS protection. Both of Midwest's testing programs are excellent, especially **Testmaster**. I use it for all my major tests, giving alternate forms of the same test to students sitting next to each other. Grading time is much reduced. Highly recommended.-JS

Computer-Assisted Instruction:

ALPHABET CONSTRUCTION SET, \$40 diskette for 64.

Alphabet game for ages 2-7 from Futurehouse, Inc., Box 3470, Chapel Hill NC 27514. Requires S.A.M. voice synthesizer and Edumate light pen.

A very well done, highly educational and entertaining alphabet game with quite a few twists. It introduces ROBO, who demonstrates how to draw a letter, has the student draw the same letter, compares letters and explains what the student did wrong. Then the student must draw the letter by memory. The only problem I see is once you choose a letter you have to complete the cycle. Recommended for use with the Edumate light pen, because it is so easy to use. It definitely keeps a child occupied. -Rodney Weeks

ASTROTALK, \$40 diskette for 64.

Astrology tutorial from Matrix Software, 315 Marion Av., Big Rapids MI 49307.

Designed for students and beginners of astrology. This program not only works out the accurate positions of the planets and their aspects to each other and sensitive celestial points, but also displays suggested delineations of the chart as it relates to vocation, love life, career, etc. A screen dump provides hardcopies. This program is a trendsetter since no one else has anything like it for the price. -John Walker (in Hardcopy)

Update (see #18): THE FACTORY, by Sunburst Communications. \$35 diskette for 64.

Factory simulation game for ages 7+ from HesWare, 150 North Hill Dr., Brisbane CA 94005. DOS-protected, no backup offered. 6 month limited warranty.

In this simulation of a series of programmable machines, you program sequences of machine actions that will produce desired products. At first, these will be your own design; later you match those created by the computer, aiming for efficiency. In addition to programming concepts, **Factory** illustrates angles, shapes and rotation. The program makes fairly good use of graphics, and has some appropriate sounds. Its manual is quite easy to read, and there are screen helps. However, the program's action seems far too slow--unlikely to hold the interest of most children for very long. Still, the concept is quite nice: set a series of machines to match a pre-programmed design (yours or someone else's.) Puzzling out the more difficult ones should keep a 7 year old busy for quite some time, and serve as good practice for spatial relation problems on IQ tests. If only it ran at a decent speed! Recommended, but only for very patient children. -JS

FLIGHT SIMULATOR II, about \$50 for 64.

Flying simulation from SubLogic, 716 Edgebrook Dr., Champaign IL 61820. Joystick optional.

REVIEW #1: At last! Although there are a few far-fetched advertising claims, on the whole the program lives up to its expectations. However, getting airborne isn't that simple. Several very talented and quick-learning game players spend hours trying to fly this simulator without much success. Without basic flight skills or someone knowledgeable to help, don't expect to master this. My other complaint is with a statement which implies impending certification of this program so that a pilot can "log his time." This just isn't realistic.

Now to the good stuff! This is, without a doubt, the BEST flight simulator I have ever seen. The controls respond very realistically. It even gives minor changes in engine pitch during changes in altitude. The NAV/COM package is superb, all significant VOR stations can be tuned, ADF and DME equipment function perfectly, and even the transponder frequency can be changed! Every functional control in a Piper Archer II is there, and functions properly. It has a full 360° field of vision with a choice of 9 different windows, plus a "radar" view that "zooms" in and out to show your position from above. With the editor mode, you have complete control. When "Reality" mode is activated, you must even turn on your magnetos and start your engine, and if you leave your lights on too long, bulbs will burn out! If "Reliability" mode is altered, you have random problems. Chosen options can be saved to disk; however, the manual does NOT clarify that the diskette will be FORMATTED beforehand. Aside from that, the documentation is the best I've seen. Any pilot will be most pleased with this program; it's been an invaluable aid in sharpening up my navigation skills without having to rent an airplane! -Art Kimball

REVIEW #2: Flight Simulator II is well worth \$50. This **Flight Simulator** is just like real life flying without taking the risk. You have 9 different views from the cockpit. This so-called game begins at Meigs Field in Chicago, and you can fly anywhere you wish. On takeoff, you can see Lake Michigan and the John Hancock Building. Make sure you know how to swim because you will crash into Lake Michigan a lot at first. This simulator has many different options. You can choose bad weather, night flying, a World War I battle game and many others. You can also make up your own option in edit mode. **Flight Simulator II** has great graphics and sound effects. You hear the engine roar, and pass over the ground with all roads, airports and buildings visible. On a scale from 1 to 10, I would give it a 9-1/2. -Todd McDonald (in Fox Valley User Group Newsletter)

KEYBOARDING, by Don Johnson. "Free" diskette for 8032 with 8050.

School typing tutorial from Don Johnson, 16518 - 126th S.E., Renton WA 98055.

I hurriedly grabbed a typing program from the TPUG public domain library to use in a short term Data Entry class this past spring. Although it had some bugs in it, and a poor means of checking the students' files, it was exceedingly useful and well done. Students had 4 options: practice, skill improvement, timed drills, and flash routine. I could have my students record speed and accuracy for each key with the timed drills, and practice different combinations of hand positions under practice and skill improvement. I did wish that the "test drill" section had the same generalized drills or recording that the skill improvement section used (like upper wrist, lower wrist, each numeral, all rows, Alpha Progress, etc.). The flash routine (flashing a sentence to be typed by memory) would also bomb out if the student accidentally hit the CURSOR DOWN or RUN/STOP key instead of the DELete key when correcting a spacing error (which they weren't supposed to use!). That routine also didn't dump the buffer of accumulated extra letters from one exercise to the next, making it impossible for a student to start the next line of type with a "clean slate." Still, the program did the job and with a flourish.

The program also had a file maker program for the teacher to check the students' recorded drills and to create new drills. However, with no printout option, it was a bit awkward having to read each individual test record separately on the screen and handwrite the results, instead of concatenating all files from one student for the day into one chart and printing it out. I also couldn't figure out how to create a new file, since there were no screen prompts or instructions, and I didn't have the time to list and interpret a previously created exercise.

What a surprise it was to find that this tutorial was an earlier version of **Keyboarding**, by Don Johnson of Renton, Washington! It now has a marvelous option to print the results to screen or printer when you're done, thank goodness! The student can view their day's results and print 2 copies, one for the teacher and one to keep. The flash routine also no longer bombs out if you hit the CURSOR DOWN key. By all means, get the updated version from him at the above address! (Even though it's free to user groups, make sure it doesn't cost Don even a dime to provide it to your group, and remember his time involved!) It beats any commercial or public domain program I've yet seen for a natural progression through the keyboard - and serves as an excellent daily "warm-up" exercise for more the elaborate keyboarding of data entry and word processing applications. -ES

Update (see #15): KINDER KONCEPTS, by Michael Horner. Two diskettes for PET.

Pre-school learning exercises (ages 3-8) from Midwest Software, Box 214, Farmington MI 48024. Requires CBM disk drive. 30 day free replacement warranty. Unprotected.

This two diskette package (one for reading and one for math) is still without a doubt the best set of early learning games I've seen, covering everything from distinguishing a square from a triangle to division by two's. We highly recommended the 64 version in issue 15, that will reportedly still be sold someday by Commodore. Meanwhile, the PET version is available directly from Midwest Software, and except for not having color, is nearly as good as the 64 version. All but two of the activities work well on the 8032 as well.

Kinder Koncepts starts with a large menu of possible activities, from which you choose by pressing one key. Then the activity shows a problem or situation, in huge letters, and has you choose the correct answer by pressing one or more keys. Text is minimized, easing use by non-readers without parental help. Correct answers are greeted with varying happy

faces, beeps, and notes, and a series of 10 correct (or nearly so) answers leads to a display of happy faces and a nursery tune, with a chance to try again or return to the menu. Correct answers on the second try are indicated by smaller than usual winner blocks at the top of the display, and a second miss puts a small dot there, shows you the correct answer, and skips the tunes. The only weakness I found in the program is that the sounds are not optional; this may limit its use in class. Otherwise, the program is the best collection of educational programs we've seen. Highly recommended. -JS

SPACE MATH, by Ray Soular. \$40 diskette for 64.

Math trainer for ages 6+ from EnTech, 10733 Chiquita, Studio City CA 91604 (818/768-6646). Requires CBM disk drive. 90 day replacement warranty.

Space Math's unique feature is that it talks in an actual digitized human voice, saying things like "I'm Super Chicken", and "Who says chickens can't fly?" It also features multi-color graphics and multi-voice music. It offers multi-levels and any arithmetic function, uses your name, and allows you to enter your answers in left to right or right to left, whichever you prefer. I really enjoyed level 3's demo of break-dancing. But \$40 is a lot of money for yet another math trainer. I'll pass. -JS

STORY MACHINE, cartridge for 64.

Animated children's text editor from Spinnaker, 215 First St., Cambridge MA 02142. Part of the Early Learning Series.

The **Story Machine** sets a lofty goal; a child types in a simple story and watches the computer animate it. While approaching this goal in practice, its limitations are also frustrating. Excellent graphics and sound make the story very appealing; however, the English language is reduced to a combination of 13 nouns and 11 verbs the program recognizes (plus about 24 other words - articles, adverbs, pronouns and prepositions - that have little effect on the story display.) The program also limits sentence structure to noun-verb or noun-verb-object patterns; even the 5-9 age group uses far more complex English syntax. While the program encourages good sentence structure, it also refuses reasonable sentences. Although **Story Machine** will provide diversion and novelty, its educational value is limited to little more than keyboard familiarity, and the option to save stories to cassette doesn't work. The program is fun, while the music and animation are lively, colorful and fascinating, but don't expect a child to produce The Great American Novel with this cartridge. -Donald Miller (in WCUC News)

Furniture Reviews

COMPUTER COVER, for VIC or 64 with disk or datasette.

sample set \$22.50 From Pro-Tech, 7411 Southwest 147th. Ct., Miami FL 33193 (305/382-4011). No stated warranty.

This is one of those rare products you don't even have to see to rate. The company sent our user group a sample of the fabric used for the covers, and that's enough to know I can't recommend the product. The covers are made of foam insulated nylon fabric. Considering the heat problems with the 1541 and early VICs, foam insulation is the last thing you'd want covering them. Not recommended. -JS

Adventure Games:

KAIIV, Warriors of Ras series. Diskette or cassette for 64.

Graphic text adventure from Screenplay, P.O. Box 3558, Chapel Hill NC 27514.

In this Dungeons and Dragons type game, you can use a saved character or saved adventure, buy equipment, and enter the KAIIV (a cave), which tells you about your enemies, and if there is something in front of you. The top half of the screen contains graphics. In one 45 minute adventure, I met wolves, ghouls, elves, dwarves, skeletons, bats, fighters and lions. The excellent instruction booklet covers everything. -David Priess (in BNCUG's Peeks & Pokes)

THE WYLDE, Warriors of Ras series, #3. Diskette or cassette? for 64.

Graphic text adventure from Screenplay, P.O. Box 3558, Chapel Hill NC 27514.

The idea is to get ingredients for the Wizard's potions. Starting in a city, you buy equipment, do something with your money and depart for the mountain wilderness. When you meet a monster, you see things close up. Though the graphics are good, this is the worst part of the game; the game play is very slow. If you have 5 or 6 monsters, it might be wise to walk to a computer store for a new game while the computer moves the monsters. The instructions were very good; like **Kaiv**, it list all your commands. Overall, it is a good game, even the the speed is not impressive. -David Priess (in BNCUG's Peeks & Pokes)

Arcade Games:

BUGABOO, by Paco and Paco (Indescomp). \$30 diskette/cassette for 64; cassette for VIC.

Jumping arcade distributed by Quicksilva, Inc., 426 W. Nakoma, San Antonio TX 78216 (512/340-3684).

Fascinating, and the documentation is a striking literary piece. Two stationary venus fly traps and a flying flea-eater (or pterodactyl?) try to devour the unsuspecting bugaboo. The bugaboo has several positions, depending on the terrain he is resting on. The bugaboo's bi-directional movement is easy to master; the longer the joystick is held in the desired direction, the higher the jump. The jumping from round terrace to round terrace is sometimes a bit complicated and discouraging, but is not fatal. There are only two ways to die: be eaten by a pterodactyl, or by a venus fly trap, which is a nice attraction to small children, or clumsy parents. The music is a bit tedious but can be shut off without sacrificing sound effects. While the graphics and animation are stunning, the introductory sequence is also tedious, with no way to by-pass it. -Ray Meredith (in Hacker Rag)

Update (#11,12,16): **CHOPLIFTER**, cartridge for 64 or VIC.

Rescue game from Broderbund Software, 1938 - 4th St., San Rafael CA 94901. Requires joystick.

UPDATE #1: The 64 version is quite enjoyable, but I found the controls somewhat difficult to master. If you hold the button down for sustained fire you do an about-face. This usually leads to being shot down in flames. I can't call this a non-violent game since you are constantly shooting and being shot at and hostages are dying in droves. It's good, clean, violent fun! -by Bill Holt (in WIPUG Newsletter)

UPDATE #2: The graphics and challenge are excellent. My two sons were at the 64 for hours playing this game. My only complaint is that it's difficult to position the chopper to defend against the jets as they strafe with air-to-air missiles. Nevertheless, I'm sure anyone will enjoy this most challenging game. You can play it for hours and still find each helicopter launch exciting. -Dick Wenner (in Eight Squared)

CENTIPEDE, cartridge? for 64.

Arcade from Atarisoft, 1265 Borregas Av., Box 427, Sunnyvale CA 94086.

Very good. Identical to the arcade version. Even my high score is the same. Throw away your rip-off version and get the real thing. Also, get a trackball. -Bill Holt (in WIPUG Newsletter)

DIG DUG, cartridge? for 64.

Digging arcade from Atarisoft, 1265 Borregas Av., Box 427, Sunnyvale CA 94086.

Very good. The sound and graphics are certainly arcade quality, and it has that addictive quality. It's obviously a digging game - really a variant on Pac Man, but without a definite maze. You get points for picking up fruit as well as blowing up monsters, and you're dead if they touch you. -Bill Holt (in WIPUG Newsletter)

LASER STRIKE, diskette or cassette for 64.

Alien shoot-out? arcade from Isis Hathor Digital Productions, 6184 Verdura Av., Goleta CA 93117. Machine Language.

Well written game, with good sound, and well done graphics. The game consists of 2 sectors, the asteroid field, and the ice caves, each with 8 sub-sectors. In the asteroid field, the largest air object is the asteroid cities, which float by and dare you to hit their power plants. Asteroids, another hazard, must be avoided, not destroyed. Bases on the 'ground' have 2 possible places to be bombed. The most plentiful source of game points are small purple solar pods. Once a solar pod is shot, it turns to space debris which must be avoided at all costs. Since solar pods approach diagonally, you must leave a path through them (an un-shot solar pod is harmless to your space ship). This game has left to right scrolling that is not smooth. The sound effects, though good, are not varied. I give Laser Strike an 8+ on 1-10 scale. -Ray Meredith (in Hacker Rag)

MONSTER SMASH, by Dave Eisler. \$30 diskette for 64.

Shooting arcade from Datamost, 8943 Fullbright Av, Chatsworth CA 91311-2750. For keyboard or joystick. DOS-protected, no spare disk available. No stated warranty.

A briefly enjoyable fast-action arcade game, in which you manipulate gates and hammers to channel quick-moving things into position to be smashed. Let 10 of them past alive, and you lose. Pound the whole bunch, and you get to try again with faster monsters. Adding to the excitement are eggs that if ignored are safe, but if pounded become triple score and risk snakes, plus an occasional human that you are not to smash. Supposedly after the third board, the gates become individually controllable (adding to the complexity and flexibility of the game,) but thus far I've only gotten to, not beyond that board. Control seemed too much a matter of how fast I could pound the joystick and fire button, rather than how well I could move them. Even Jamie, with his faster reflexes, was not overly impressed. On the other hand, an expert arcadian might really enjoy individually controlling all those gates at high speed. -JS

MOTHERSHIP, by Al Laity. \$25 diskette or cassette for 64.

Alien shootout for 1-2 players from Softsync, 14 E. 34th St., New York NY 10016 (212/685-2080). Requires joystick. Unprotected. 90 day limited warranty.

In this expert-level alien shootout, you are flying down a corridor like the one in Starwars games, shooting at enemy ships flying the other way down the corridor. You have to zap 12 to advance to the next level. By the time we became utterly bored, Jamie had managed 4 on the easiest of 3 levels. The single sheet manual says there are two more boards--one in which you wander through a maze of ship's corridors to its control panel, avoiding meanies on the way, and the other in which you invade the meanies' home turf, avoiding their defenses as you do. Mothership lacks the usual amenities, such as demo and practice modes and pause options. The graphics and sound are OK, but nothing to write home about. Jamie considers it definitely not recommended. I'd agree, except possibly for expert arcadians in need of a real challenge. -JS

NECROMANCER, by Bill Williams. \$35 diskette or cassette for 64.

Magical 1-person combat game from Synapse, 5221 Central Av., Richmond CA 94804. Joystick required. 90 day media warranty. DOS-protected, spare copy on back.

In **Necromancer**, your task is to grow an army of trees, and march it through a series of vaults into a confrontation with a bad wizard called (of course) the Necromancer. This is a difficult game to figure out, although well worth the effort. In the first screen, you plant trees in defensible positions, and then defend them against ogres and spiders as they grow, using the joystick to aim a magic fireball. If you hit an "eye pod", you get extra seeds to plant. Then, when your strength gives out, you and your adult trees proceed to the second board, in which you attack spider larvae with your trees, by planting them atop their nests. "Hands of Fate" randomly reach down to grab passing trees and drop mystery prizes that help or hinder you. If you make it past all 5 levels of spider vaults, you'll next enter a graveyard, where the Necromancer appears on headstones. Walk over gravestones to remove them, zap the Necromancer (until he reincarnates), and fight all the spiders you missed before (some are now immortal). Talk about involved! Jamie can do it, but can't explain it; you can judge my explanation (my playing is worse). Even so, I like this game. **Necromancer** isn't just another me-too arcade game. Its graphics are unusually good, its music is down-right addictive, and its play action constantly lures you into just one more try. Recommended for fantasy lovers. -JS

Update (see #18): OVER THE RAINBOW

"Q:bert"-type arcade from City Software, 735 W. Wisconsin, Milwaukee, WI 53233. DOS protected. Media warranty.

This exciting game has won the hearts of our household. The graphics and sound combine to make it enjoyable to play. Major liability is its poor joystick control! Has a very good beginners mode. -Mike Stout

POOYAN, diskette or cassette for 64.

Bouncing shootout from Datasoft, 19808 Nordhoff Place, Chatsworth CA 91311. Requires at least one joystick.

Datasoft's first entry into the Commodore 64 software market, boasting hi-res graphics, calliope style music, and superb sprite animation. You are a brave forest-dwelling pig who rides up and down the Pooyan tree in your elevator, protecting your family from tree-dwelling wolves. The wolves' method of attack is to leap from trees, inflate balloons, and float gently to earth. You must pop their balloons with your bow and arrow. But soon the wolves have captured your family and you must save them. To do this you must go to the wolf lair! There, atop a tree, is an ominous-looking boulder. Now the wolves catch balloons and float up, as you try to destroy as many as possible. If 7 or so wolves make it to the treetop, they push the boulder ..onto you! Bonus screens, changing tunes, a two-player option, and excellent sprite animation are await you. One problem, however, is that two fifths of the title letters are printed in an unreadable red. Nevertheless, the game should be at least considered by game by all ages. Truly a work of art. -Garry LeMasters (in Eight Squared)

PRINCESS AND FROG, by PSI. Cartridge for 64.

Hopping arcade from Romox, contact Bob Harrison (408/374-7201).

This is the first game I've seen for the erasable Romox software cartridges. It is a medium quality takeoff on **Frogger**, in which the cars become knights on horseback, and the logs become snakes, etc. The graphics and sound don't even approach the original, but the cost might be more reasonable, and the play action is similar. Still not recommended. -JS

Q*BERT, cartridge for 64.

Hopping arcade from Parker Brothers, 50 Dunham Rd., Beverly MA 01915 (617/927-7600).

Great. He (she?) is a round, two-leg, no arms nose-nose who spends his time hopping around a pyramid of colored blocks trying to change them all to a new color while avoiding bouncing balls and a snake and a crab-like thing named Ugg. As you advance to higher levels he has to land on each block two and then three times. An excellent adaptation with hardly anything lost. (They apparently couldn't manage his mumbled swearing when killed,

however.) Hold your joystick diagonally with the fire button point up. -Bill Holt (in WIPUG Newsletter)

RESCUE SQUAD, by John Kutcher. \$30 diskette for 64.

Rescue game from Muse, 347 Charles St., Baltimore MD 21201 (301/659-7212). Joystick required. No warranty, replacement \$10. Unprotected.

As a former Emergency Medical Technician, the idea behind **Rescue Squad** appeals to me. In it you drive to the scene of a fire, catch victims as they leap from windows, and then search the building for survivors. Unlike most arcade games, **Rescue Squad** comes with good on-screen directions, and a brief but adequate printed manual. High scores are saved to disk, and since you can backup the diskette, doing so won't endanger the program itself. Thank you, Muse! Other neat options include: pause, slow-motion, re-start and erase high scores. The music is quite enjoyable; the graphics simpler than in some games, but well done; and the play action is quite good. The 3 screens remind me of **Frogger**, **Bank Robbers**, and **Pac Man**, with enough differences to stay out of court. The only bug I found was that twice I got stuck in the second screen - able to move, but with nothing else, and no way out without losing my score. **Rescue Squad** is an enjoyable varied game, with all amenities for pleasant play, a low price, and no thumping diskettes. Recommended. -JS

SAMMY LIGHTFOOT, by Warren Schwader. \$30 diskette for 64.

Acrobat game from Sierra, Sierra Building, Coarsegold CA 93614 (209/683-6858). Joystick required. 90 day free replacement warranty. DOS-protected.

Sammy Lightfoot is a circus performer, who does Donkey Kong-like antics (jumping, running and dodging) for your enjoyment. You direct him over balls, flames, pits and such, swing on a rope, jump on a trampoline, and sneak up on a "man-eating pumpkin" from behind. Board two has you avoid a line of plunging bricks while hopping across a series of platforms that sometimes disappear, then hop back across on top of the plungers. Board three has you avoid a bouncing ball, plunging gates, and a wall of fire. There may be other boards, but Jamie didn't get past board three (and I didn't even get to it.) He blames the failure on joystick problems. Although **Sammy Lightfoot** is a pleasant non-violent game, it lacks a few of the usual amenities, such as a practice mode and beautiful music. On the other hand, the price is reasonable, the screens colorful, and the play action varied and enjoyable. -JS

SLALOM, by Steven Sidley. \$30 diskette for 64.

Skiing arcade from Tronix, 8295 S. LaCienega Blvd., Inglewood CA 90301. Requires joystick. DOS-protected. 30 day warranty on media only.

Another skiing game, but this time from the skier's viewpoint (well, from close behind.) Avoid the poles, the ice and the rocks. If you succeed, 4 more courses await you. Fairly good graphics, and an annoying little tune, but not enough action to enthrall an adult for five minutes, let alone four hours. Might be good as a warmup before a beginner's ski lesson, but otherwise not recommended. -JS

STARTREK, \$40 cartridge for 64.

Alien shootout from SEGA, 5555 Melrose Av., Los Angeles CA 90038. Joystick optional. 120 day replacement warranty.

How (you may ask) could the original Startrek, one of the first and most enduring computer strategy games, be crammed into an arcade game? Fairly well, as it turns out. Most essential elements are preserved, including bases, Klingons, phasers, photon torpedos, short and long-range sensors, and warp drive. SEGA's version also adds anti-matter saucers and a super baddie called Nomad. On the other hand, you'll have to do without impulse power, a galactic map, and Romulans, among other things. Such is the price of being able to control everything from a joystick.

The basic idea is to shoot everything you see except bases, and fly into those for refueling. Since the Klingons are a bit weak on aiming, keeping moving is also a good idea, as in most arcade games. The helpful manual also gives other hints, and includes a plastic stick-on job aid for your joystick, just like the best word processors! Unfortunately, this Startrek has no demo mode, little music, and only one primary screen

(with varying opponents.) We got it for \$15 from a dealer closing out his Commodore wares, and consider SEGA's **Startrek** a fair buy at that price. It won't replace all your other Startreks, but stands well on its own. -JS

TAPPER, by Bally/MIDWAY, for the 64.

Pac-man variation arcade from SEGA, 5555 Melrose Av., Los Angeles CA 90038.

In this unusual variation on Pac Man (minus the ghosts), you are a barkeep, wandering 4 rows of tables in a series of 4 saloons, collecting empty rootbeer mugs and tips. If you pick up the tip, dance hall girls perform for you, and if you clear the board, you get a drink yourself, with various antics to go with that. As a cartoon, **Tapper** is really cute, with lots of cute multi-color graphics and simple music. As a game, it leaves a great deal to be desired - too little variation, and little if any relation to the actual work of a barkeep. It got a lot of comment at CES, but I'll pass. -JS

TURMOIL, diskette? for 64.

Alien shoot-out from Sirius Software, 10364 Rockingham Dr., Sacramento CA 95827.

This game has your spaceship zooming up and down a center alley divided into 7 lanes, while alien ships appear from both sides. From time to time, a prize at the end of a lane will give you maximum points when your ship collects it (before it turns into a deadly cannonball)., and a blaster-proof blue ship will cruise by (stay clear). If arrows that zip in are not shot before they reach the end of the screen, they turn into armoured tanks that can only be destroyed from behind. When an entire wave of aliens has been blasted, tougher space foes attack after a 5 second break. There are 9 levels of play and an extra ship is awarded for each advance. When level 5 is reached, the dividing lines will vanish now and then. By moving fast and keeping the fire button down, I was able to reach level 5. -Tom Skantar (in WCUC News)

WIDOW'S REVENGE, \$25 diskette? for 64?

Centipede-type arcade from Nufekop, Box 156, Shady Cove OR 97539-0156. DOS protected.

A fast action game much like **Centipede**. Good sound, but graphics weren't outstanding. Easy to play and challenging enough to make it fun. Recommended. -Doug Speta

ZAXXON, by SEGA. \$35 diskette or cassette for 64.

Space combat game for 1-2 players from Synapse, 5221 Central Ave., Richmond CA 94804. Requires joystick. 90 day media warranty. DOS-protected, spare copy on back.

Zaxxon is the authorized version of the arcade game, where you fly a delta-wing spacecraft through a simulated three-dimensional alien fortress, shooting up its defences and squeezing through narrow openings in its walls. Success leads to a deep space dog fight with other ships, another alien city, and a super opponent named - Zaxxon. Fuel is a constant problem, eased by blowing up enemy fuel dumps. Other targets have set point values, listed in the brief but adequate manual. The graphics are excellent - almost without equal, but the sounds (though realistic) are the usual irritating war game buzzes. Play action is exciting, but mainly for those who like shoot-'em-ups. -JS

Strategy and Simulation Games:

BRIDGE 4.0, for 64.

Bridge simulation from Artworx, 150 N. Main St., Fairport NY 14450.

The big advantage to **Bridge 4.0** is that a player may bid one hand while the computer bids the other 3 hands. However, the only written instructions were on how to load the program. The only salvation [is that] you are prompted for any inputs and the correct responses become obvious after a little trial and error. This program does a good job of handling the bidding and playing of a hand. I must admit [the computer] has won his share of bids and whenever I overbid, he will double and usually set me! Though the program is written in BASIC, the response time is good. I would highly recommend **Bridge 4.0** for all Bridge players and those just learning how to play. -Bill Brouillet (in The Hacker Rag)

Update (see #15,16): COMPUTER BASEBALL, \$40 diskette? for 64.

from Strategic Simulations, 883 Stierlin Rd., Bldg. A-200, Mountain View CA 94043 (415/964-1353). DOS Protected.

Not an arcade game, but offers all the action a true baseball fan could want. Comes with 24 of the greatest teams ever to take the field. Now you can have Babe Ruth bat against Sandy Loufax or Lou Gehrig try his skill against Bruce Sutter's slit-finger fastball. If you can't finish the game, save it on disk for later. This exciting game is well worth the money, especially if you enjoy statistics. Recommended! -Mike Stout

MATCHBOXES, \$30 diskette or cassette for 64?

Memory simulation from Broderbund Software, 1938 - 4th St., Rafael CA 94901.

Remember the popular game show Concentration? **Matchboxes** is a computerized version, but much more. The program comes with 4 different games and 3 levels of difficulty for each. The programmers did an excellent job of combining sound and graphics. The game is more than just for kids, but serves as an educational and entertaining piece of software for the youngsters. Recommended. -Mike Stout

PANZER JAGD, \$25 cassette or diskette for 64.

War game from Avalon-Hill, 4817 Harford, Baltimore MD 21214. Requires joystick. Unprotected. Free replacement warranty.

In this strategy tank war game, you are a German tank group invading Russia. The goal is to conquer as much ground as possible, zapping defending units. You use a variety of weapons to face a different defenders over a changing terrain. You only see the enemy units when they shoot at you, or when you close in on them. Although you begin with superior firepower, you'll still need to keep your forces hidden from opposing artillery. You will also have trouble aiming your own artillery until you spot something at which to shoot. Although well done in the Avalon Hill tradition, with good use of color and sound, the play action seems far too slow. To begin, it takes forever to individually instruct 30 different units via the joystick. Playing time is rather accurately listed as 1-4 hours. Overall, a well-done game, that may need to be compiled for speed. -JS

PITSTOP, \$35 cartridge for 1-4 players for 64 or VIC.

Race car simulation from Epyx, 1043 Kiel Ct., Sunnyvale CA 94089. Requires joystick.

Pitstop is the most 'polished' of the Grand Prix racing simulations I've seen. It has taken the best graphics and combined them with the most imaginative and innovative sound, resulting in a well-thought-out, very impressive game. Has 3 levels of difficulty over 6 different courses. A separate graphic window gives an 'overview' of the course. Every bump takes its toll on your tires, which change color to show they must be replaced. When you enter the pits, you must manipulate each crew member to change tires and fuel your car. Though I find little fault with this top-notch racing simulation, my kids and I tired of it quickly; it doesn't have the 'staying power' of **Jumpman**. -Rich Westerman (in Hacker Rag)

TAC: Tactical Armor Command, by Si-Yong Yi. \$40 diskette for 64.

War game from Avalon-Hill, 4517 Harford Rd., Baltimore MD 21214. DOS-protected, no spare available. "Defective software will be replaced."

Finally an Avalon-Hill game on diskette (but still slow to load). In this tank war, you support a country, buy equipment, and face either another human or "Al Logarithm" (the computer) in your tank on a grassy field relieved by a few tree clumps. Numerous options within each slowly played out turn, ranging from aerial views of other visible tanks to smoke screens, include most things used in World War II. In my first effort, 3 U.S. tanks against 1 German tank, it took over an hour to find the enemy, and under 5 minutes to blow it up (1 shot.) I might have enjoyed steering more tanks (more real time action!), but that means more work directing them all in each turn. There are also several action scenarios, from "hide and seek" to "let's get out of here." Though I appreciated the graphic display of the tanks and playing field, the interesting (though imperfectly organized) manual, and the realism of the calculations, I prefer the faster action of **Panzer Jagd** (see separate review). Still, **TAC** juxtaposes tanks that never actually fought each other (like Brits vs. Yanks), while P.J. is strictly Germans vs. Russians. -JS

Disk or Cassette Drives and Supplies:

COMMODORE SFD 1001 DISK DRIVE, \$750 disk drive for all Commodore computers.

Single disk storage device from Commodore, 1200 Wilson Dr., West Chester PA 19380.

One of Commodore's best-kept secrets is the new SFD-1001 single disk drive. Though it looks just like a 1541 with a better door latch, it holds over a megabyte of formatted data, and comes only with an IEEE-488 interface. In other words, it's half of an 8250, in one-fourth of the space. It's also the first single drive I've seen from Commodore that appears to work properly. The drive is reportedly by Panasonic in Japan; it works well and quickly, like the similar one used in MSD disks. The only glitch we've had in two months of use are a few instances of temporary catatonia, usually cured by a thump on the cover—apparently a loose wire, since tightened and with no data lost. Except for lack of a BACKUP command and its smaller 4K memory, the 1001 appears identical in features to our beloved 8250. If you already have an 8250 and need a spare, this is an excellent alternative to a second dual drive. Now let's hope Commodore realizes 64 owners also have use for a larger disk, and releases a version for them too. Recommended. -JS

Interfaces:

THE CONNECTION Interface from Tymac.

See discussion under the OKIDATA 92 printer review below.

DAMS IEEE INTERFACE, for 64 or VIC?

IEEE to IEEE or serial interface from Beaver Software Systems, P.O. Box 88, Cabin John MD 20818

Of the 4 IEEE interfaces I've used (Skyles, MSD, RTC-Link and DAMS), DAMS is by far the most transparent and easiest to use. Its greatest advantage is that one simply plugs it in and forgets it; the disk drive works (IEEE or serial or both), the printer works, the cassette works, everything's fine. My experience with other IEEE interfaces has not been so simple. The Skyles interface was intended "for the professional user" - I couldn't even get a disk catalog to come up, much less understand the instructions. The Link is a very capable interface and wins the prize for unobtrusiveness, but it's messy to use. You have to "relocate" it out the way of the software you intend to use. The programs are provided in diskette, but there's a lot of trial and error involved. The MSD-CIE interface is large and ungainly, like the DAMS, but like the Link, it must be moved about. Worse than that, it disables the serial port so that my printer doesn't work! DAM loads WordPro, but it won't run. If the DAMS interface becomes transparent to WordPro, I'll seriously consider buying it. -James Condon to Beaver Software Systems

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Printers and Printer Supplies:

OKIDATA 92 PRINTER, printer for 64.

Dot matrix printer from Okidata. Requires serial bus to parallel interface.

We purchased **The Connection** interface from Tymac, and the Okidata 92 printer, and, I am happy to report, they make an EXCELLENT combination. We have used the setup with word processing programs (**Easy Script/Speedscript/Papermate**) and they all work perfectly. I have used it with **The Banner Machine** and **Chartpak-64**, both hard copy graphics programs, and am happy to report that everything works exactly as it did with our Commodore 1526/801 printer — only much faster and much better. Come to think of it, I haven't found a program this combination doesn't work with, and we use quite a number of programs, both ours and "canned" software, and they all work perfectly. If you are looking for a better printer because you need more speed or higher quality text, I cannot think of a better combination. -Bro. Timothy Brady

ROYAL ALPHA 2015 TYPEWRITER/PRINTER, about \$400 for all computers.

Daisy wheel typewriter/printer from Royal. Requires serial bus to parallel interface.

Not blazingly fast, but consistent and precise, this Centronics parallel typewriter/printer has amazed me. It puts superb, clean type on paper - with class. The 2015 has lots of smarts, with an ample buffer. The comfortably detailed manual spells out each of the software commands that will perform virtually every function, including pitch changes, underlining, and sub- and super-scripts. It has 5 different daisy wheel type styles. The only drawback I have found is that some of the word processors will not support the more esoteric commands. -Howard S. Dybedock (in The Hacker Rag)

TTX-1014 DAISY PRINTER, \$480 printer for all computers.

Letter quality printer from Teletex Communication Corporation.

I am using it with the 64 through a Cardco interface. The print speed averages 12 cps. Special features allow you to select pitch (10,12,15 cpi), bold or shadow mode, two styles of underlining, superscript and subscript, and various lines per inch. Paper handling is with friction feed or with a passive pin guide. Although I was skeptical at first, the passive pin feed works well and I have yet to have the paper become misaligned or not feed properly. Ribbons from certain other printers or typewriters (Sears) will also work in this printer. The manufacturers have succeeded in producing an inexpensive daisy printer with a minimum number of parts. Although the manual leaves a great deal to be desired, there is enough information in it for someone who is somewhat experienced in setting up computer equipment. A list was included which gave the DIP switch settings for a many computers, including the 64.

The **PaperClip 64** diskette includes the TTX-1014 in its list of printer files which can be merged into that particular word processor. I can also connect the printer directly to the user port and not use the Cardco interface, since **Paperclip 64D** supports the user port. No additional interface was needed beyond the cable I had to make for the connection. I am extremely pleased with this printer and recommend it highly. -Donald McNeil

Other:

MELODIAN MUSIC KEYBOARD,

\$200 keyboard and diskette for 64.

Piano keyboard from Melodian.

Includes **Concertmaster** program.

See under Utility Reviews:
Music and Sound Aids.



Ellen & Jim Strasma recognize Debby Oldfield from the cover of **Midnite 18**.

High Level Languages:

ZOOM PASCAL, by Willi Kusche. \$40 for the 64.
Structured language from Abacus, P.O. Box 7211, Grand Rapids MI 49510.

One software package that has definitely impressed me is Zoom Pascal. It's a great compiler (with a mediocre editor, but I write my source programs with Easy Script and do just fine), and even this "incomplete" application of Pascal does a lot more than BASIC: It's worth the price just to get "IF/THEN/ELSE," long variable names and no line numbers. After compiling a dozen programs of various types, the only problem I've had is, using string variables declared in the program, Zoom ignores all capitalization ("Titles and Headings" becomes "titles and headings"). -Craig Wittler

Update (see #18): THE LAST ONE, by David James. \$100 diskette versions for 64 or CBM/PET. Application generator from Blue Sky Software, 26 Springdale Rd., Cherry Hill NJ 08003. Requires 1541. Printer optional. DOS protected, but allows 5 copies. No warranty.

As suggested last time, be prepared to sit when you use this program--creating the very simple mail list described in the tutorial took about 8 hours. However, that isn't the bad news. The bad news is that the program never completed--after running all night and showing no signs of finishing, I broke in and discovered the otherwise unused work diskette was completely full with a write file open. Since this protected program also made sure BASIC was dead when I regained control, you should not expect to be able to recover from such an error, but then you'll never know anyway, since the program never mentioned there was a problem.

After all this effort, I consider The Last One as a good idea gone wild, at least on the 64. It tries to do so much that doing anything at all becomes unbearably complicated, particularly for the new user. Assuming the package does work, (which I have yet to see), it will only be usable by those already able to program, ostensibly to save time. If used "flat out", to design a large package (up to 9 related files), on a larger and faster disk (the CBM version), it might be very helpful at avoiding the usual confusion in such projects. On the other hand, rarely have I seen a product less suited to new users and the 1541 disk drive. Sorry, but I cannot recommend the 64 version yet. -JS

Low-Level Languages:

Update (see #16,18): CP/M 2.2, \$50-60 cartridge or diskette for 64. Operating system from Commodore, 1200 Wilson Dr., West Chester PA 19380. Works with Commodore's IEEE interface cartridge (reportedly now available for \$65.)

If you don't have IEEE drives, you need to reconfigure the CP/M (Control Program/Monitor) software to your serial drive system. Complete instructions are given in the accompanying guide. Any programs that do not require an 80 column screen should run. It will prompt you to change diskettes if you try to access drive B with a single drive system. CP/M will use drive 0 as drive A and drive 1 as drive B on a dual drive. The utilities you will use first on the diskette include COPY (make a backup), CONFIG (customize the I/O setup to your system and save to disk as the default), and MOVCPM (generates a version that will work in any memory size from 20K to a maximum 48K). SYSGEN can be used to make the change permanent. The manual, marked "preliminary," appears to be good and readable. The package when complete will include 2 diskettes. -Dan Weidman (in CUGSL Newsletter)

Magazine Reviews

CHRISTIAN COMPUTING, \$12/year for all computers.

Bi-monthly magazine from 72 Valley Hill Rd., Stockbridge GA 30281. Sample issue \$2.

Christian Computing is a small (24 pages) but glossy new magazine, edited by a pleasant woman with a \$10 name, Dr./Mrs. Nancy White Kelly. But don't hold that against her; she's trying hard. The first issue's articles include one on Paul's scribe Tertius and mailing lists, how a Christian high school started a computer program, Campus Crusade for Christ's computer strategy, how a Baptist church was computerized, and a "complete" guide to church computer systems that doesn't mention a single one. There are also missionary notes, a review of the Apple][e and Adam][church package, and a Bible teaching game, plus a note about a Christian Computer Association, all handled very briefly. Though the only reference I noticed to Commodore was a classified ad, I welcome this new effort, and suggest pastors and interested Christians ask for a sample. -JS

COMAL TODAY, \$24/yr. + \$60/yr matching diskette for all Commodore computers.

Bimonthly newsletter and/or diskette from COMAL Users Group USA Ltd, 5501 Groveland Terrace, Madison WI 53716.

Len Lindsay, whose handling of what later became Compute! inspired the Midnite, is back! The reason is COMAL, the excellent Pascal-like Super BASIC from Denmark. For 2 lonely years, Len promoted COMAL almost single-handedly in the U.S., finally achieving respectability for it. Now that there is a real base of COMAL users, Len has begun another a newsletter exclusively for COMAL. Physically, COMAL Today like an issue of the Midnite, without the bold face and titling we use for easier reference, but with double columns. Issue 1 was 24 pages; 2 is 32, and both went out via bulk mail. As for contents, there's something for everyone, all well done. If you use COMAL, get COMAL Today. Recommended.-JS

COMMODORE COMPUTING INTERNATIONAL, \$39/year for all Commodore computers.

Monthly magazine from Nick Hampshire Publs., 167-169 Great Portland St., London W1 ENGLAND.

After the demise of Microcomputer Printout, I wondered how to keep up with Commodore news in England. Here's one way. Though it lacks the inspired wit and priceless comparisons and explanations of the former MCP, Commodore Computing International covers a full range of topics, including news, reviews, hints, articles and listings. As in MCP, most ads are for interesting but costly products unknown in the U.S. I doubt if I'll subscribe, due to shortages of time and money, but I'd enjoy reading any issues I see. -JS

ENTER, \$13/year (10 issues) for all computers.

General computer monthly from P.O. Box 2685, Boulder CO

A refreshingly different magazine mainly for teenagers, the subject matter is so well written that adults should also enjoy it. It has a variety of articles for beginners. The overall subject seems to be the use of computers in our society instead of how to use computers. I recommend it to everybody. -Rodney Weeks

FAMILY COMPUTING, \$18/year for all computers.

Monthly magazine from Scholastic, 730 Broadway, New York NY 10003.

There's an article about how we do the Midnite in the current June issue, so it seemed like a good time to take another look at this new magazine. We'd passed it up at first because it seemed Apple-happy. This 316-page issue includes coverage for most home machines, but not as much on any one as brand-conscious readers would want. It also profiles computer-using families, compares easy word processors, suggests how to get a summer computer job, and quite a bit more. Everything seems reasonable, wholesome and helpful. I prefer a tighter focus on Commodore myself, but also know that cross-fertilization is as important for ideas as it is for flowers. If your whole family happily uses computers, Family Computing might be one magazine all will enjoy. -JS

GRAPH-TERM 64, by John R. Bennett. \$50 diskette or cassette for 64.

Terminal program from Bennett Software, 3465 Yellowstone, Ann Arbor MI 48105 (313/665-4156). 1520 plotter optional. Machine language. Unprotected. No stated warranty. Tested successfully at 300 baud.

Using the high resolution drawing capability of the 64, and the even higher resolution plotting capability of the 1520 printer/plotter, **Graph-Term 64** accepts data from mainframe computers as though it were a Tektronix 4010 graphics terminal. (It even corrects for the 64's screen not being square!) Though the 200 by 320 resolution of the screen and the 480 by 630 resolution of the plotter don't match the 780 by 1024 resolution of the Tektronix, a 64 system with this program is a lot cheaper, making it attractive to engineers and scientists on limited budgets who need Tektronix graphics. Besides displaying and printing graphic plots, **Graph-Term 64** also allows its users to create new plots, and upload them to other computers, as though it were a 4010. It can also capture the data it displays, and save it to disk or tape for re-loading. And like most any terminal, **Graph Term 64** also handles ordinary text. On the other hand, the engineering background of the program is apparent in its lack of bells and whistles to ease its use. You should be familiar with BASIC, and able to alter simple programs if you don't want to be limited to its standard 300 baud, 8 bit, no parity, 1 stop bit, full duplex setup. If you need this program at all, it will seem quite a bargain to you. -JS

THE SMART 64 TERMINAL—Release 3, by Joe O'Hara. Diskette for 64 or VIC.

Terminal program from Microtechnic Solutions, P.O. Box 2940, New Haven CT 06515 (203/389-8383). Supports CBM 1515, 1525 and 1526 printers.

Like most other fine terminal programs, **Smart 64 Terminal—Release 3** can transmit or receive programs, and convert the characters into a form your 64 or VIC can run. It can set the maximum number of characters to send before adding a carriage return code. It is also the only terminal program we've tested for the 64 that supports the former 1515 printer and new 1526 printer. **Smart 64 Terminal—Release 3** can call a series of phone numbers in turn until one answers. It also supports a pre-programmed response to a CONTROL-E inquiry by a host system, and the hardware X-Line handshake used by some directly-wired computer systems. Although the program can't be copied, you can make multiple data diskettes. As the computer text buffer is filled with incoming data, a gauge at the right side of the screen will slowly descend to show how much room is left; it should hold over 16 minutes of data before automatically saving it to disk. **Smart 64 Terminal—Release 3** has many desirable features, at a reasonable price, but is a bit inconvenient to use with special protocols such as Comuserve's, and its preliminary manual leaves a lot to be desired. -JS

THE SOFTBOARD BULLETIN BOARD SYSTEM, \$40 diskette for 64 or VIC+16K.

Bulletin board system from Walter Newton, 2005 New Haven Dr., Dallas TX 75217. Requires 1540/41, 1650 modem or Hayes Smartmodem 300. BASIC.

Really, a BBS for the 64 or VIC w/16k memory! Fairly simple to operate and easy to access effectively. Written in BASIC but operates surprisingly fast. Major liability - no up/downloading of programs. Mr. Newton did a good job at developing this program and the price is right! Comes with a useful manual and even has a section for paid advertisements. Recommended. -Mike Stout

TERMIN/ALL 64, by Scott Burns. \$35 diskette or cassette for 64.

Terminal program from Cognitek, P.O. Box 931, Urbana IL 61801 (217/254-9600). CBM printer optional. Machine language. Requires dongle in joyport 2. 90 day media warranty. Tested successfully at 300 and 1200 baud.

Termin/all 64 is a new program, and still being improved. A recent change allows

either of two 64's connected via **Termin/all 64** to give any desired command to the other computer - disk commands, SYS calls, you name it. Similarly, the package now includes a simple drawing ability, again with either of two connected 64's able to draw on the screen of the other computer. Shades of two-player games with a real difference! However, I still consider **Termin/all**'s upload and download options to be among the weakest around. Only skilled users will likely put up with the hassles of using it for anything other than simple communications. Although **Termin/all** functions well enough as a simple terminal, it lacks many of the amenities of similarly-priced competitors. Normally, I'd applaud its use of a dongle for copy protection, allowing it to be used with larger IEEE-488 disk drives. However, I don't approve having to plug the dongle in when the computer is already on, due to the danger of blowing a chip in the process. Not recommended yet. -JS

TERM.OTT.C64.V10, by Tony Ott. \$7 diskette versions for **64**, **VIC** or **PET**.

Terminal program from Commodore Communications, 10378 Coburg Lands, St. Louis MO 63137.

This terminal software will operate on the Punter Boards as well as others. Will allow downloading on the Punter systems, and contains all the features of most public domain terminal programs. It has a color menu for easy use, but several options aren't developed yet. You can't beat the price, but it took me 3 months and a phone call to get my copy. (Publications that list this diskette as free to anyone sending a formatted diskette forget to mention the \$7 service charge.) Recommended if you aren't in a hurry. -Mike Stout

Update (see #15,18): VIDTEX, by Duane Harris. \$40 diskette for **64**.

Terminal program from CompuServe Information Service, 50000 Arlington Centre Blvd., Columbus OH 43220 (800/848-8990). Unprotected.

UPDATE #1: You don't need the program diskette in the drive after startup, saving loading time and disk swaps. **Vidtex** is the only program I've tested that can actually auto-dial and auto-log onto real systems without any key pressing by you beyond running the program. This is very helpful, and an amazing oversight in its competitors. I would have liked to load the program from diskette and immediately see a menu of options, as when you sign on to CompuServe itself. New users may become frustrated long before finding out how to display its two help screens. You'll really notice the lack of an 80 column option, but word wrap keeps things fairly readable, and being able to display downloaded color graphics partly makes up for it. If you spend any time on CompuServe, this is the terminal program for you. Highly recommended. -JS

UPDATE #2: Has excellent print and buffer features, best of all offers easy control commands for the user. The downloading by feature alone saved me 20 minutes the other night. The manual tells you to make a backup for safety reasons. Recommended. -Mike Stout

VIP TERMINAL, by Dan Nelson and Brian Lundgren.

Icon-driven terminal program from Softlaw, 9072 Lyndale Ave. So., Minneapolis MN 55420

Imagine Commodore's **Magic Desk** program on-line. Softlaw has made a valiant attempt to ease the hassles of using a full-featured terminal program. In addition to a high resolution desk image at the start of the program, **VIP Terminal** makes full use of icons (pictures) and joystick selection of options (next best thing to a game). Then, when you really want to use the program, it has several dozen help screens to explain most things. Unlike **Magic Desk**, **VIP Terminal** has almost no limits to its power. It is the only program I've tested that can serve as a host computer itself, answering the phone when you're not around, taking and giving messages, and even sending and receiving programs. It also stores all the usual MODEM parameters separately for each of the 16 numbers in its phone directory. Unfortunately, its sign-on routine only stores one prompt and one response, which is not enough to sign on to any network I've ever used. Another aspect that could be improved is off-line message preparation, currently limited to 127 characters in each of the 20 function keys. A few owners may use a gimmick that claims to tone dial for you through the TV speaker and your phone handset, but **VIP Terminal**'s chime on the quarter hour, and beep at the right margin features are more useful. If you're looking for a very powerful terminal program that's still easy to use, consider **VIP Terminal** first. Recommended. -JS

Disk Aids

SOFTLOC, \$35 diskette for 64.

List protection utility from Softpeople, 2042 Marshall Av., St. Paul MN 55104. DOS-protected. Backup \$15. No stated warranty.

For all the RUN readers who've been begging for a way to keep folks from listing their programs, here's a technique that should do it. Your program is encrypted, based on a 7-letter password you supply. To use it again, you have to type in that password. So long as you remember it, you can even change it later. That's the good news.

The bad news (for thieves) is that if you don't quite get the password right when changing it, the program will be destroyed. Similarly, if you miss the password when trying to run the program, you'll be shut down. On the other hand, nothing in this package keeps anyone from copying your programs; they just can't use them without the password. One other notable limitation is that only one encrypted program is allowed per diskette, because you start the program by loading a special boot program. It in turn loads your program. This could be a useful product, although I'd hesitate to rely on it in crucial situations without further testing, and can't imagine using it myself. Tentatively recommended to those who need a way to truly list-proof their programs. -JS

Graphic Aids

ALPHABET CONSTRUCTION SET, for 64 with Edumate light pen and S.A.M.

See under Education Reviews.

COLORING SERIES I, diskette for 64 with Koalapad.

Electronic coloring book from Koala Industries, 3100 Patrick Henry Dr., Santa Clara CA 95050.

This diskette, an electronic coloring book, contains 26 geometric designs, some quite complex. The child can select any of 16 colors or 16 patterns and then use the "fill" command. The colored designs are most attractive, and children don't have to worry about staying inside the lines, but they eventually tired of this Johnny-one-note program. Too bad a creative programmer did not add a few variations. -Elizabeth Kaspar

COMPUTER CRAYONS, \$40 diskette for 64 with Edumate light pen.

Color alphabet drawing aid from Futurehouse, Inc., Box 3470, Chapel Hill NC 27514.

This cute program has 26 pre-drawn screens, one for every letter of the alphabet. The child can color them in using the light pen, choosing from 6 colors. It also comes with a sketch pad, a disk routine to save pictures and an animation routine for each screen. My 5 year old loves it because it is so easy to erase mistakes and he can choose from lots of pictures. I recommend this for small children; it's very user friendly. -Rodney Weeks

DELTA DRAWING, by Computer Access. \$40 cartridge for 64.

Logo-type turtle graphics program for ages 4-adult from Spinnaker, 215 - 1st St., Cambridge MA 02142. 30 day free replacement warranty. Uses datasette. 1525 printer optional.

REVIEW #1: Delta Drawing is a simple one and two keystroke color version of Instant Logo, the turtle graphics drawing program for kids (included in Logo from Commodore.) Though you can create instructions for the drawing turtle, the emphasis is on pressing keys to make drawings. This makes it easier to use for younger children who don't read yet, but harder to create the intricate designs for which Logo is justly famous. Several commands require SHIFT and CONTROL key combinations, few of which will seem obvious to new users. The lengthy (90+p.) manual, on the other hand, is excellent, as usual for Spinnaker, and will fill in many of the rough spots. Being able to save and print results is also a plus.

Personally, I see **Delta Drawing** as a halfway product - midway between the easy drawing programs, such as **Doodle** and **Flexidraw**, and the programmable turtle graphics in Logo and COMAL. As such, it seems to have fallen into the cracks, and may not fit any audience very well. On the other hand, those without a disk drive may want to consider it. -JS

REVIEW #2: A fine example of the versatility of the 64 and its high resolution capabilities. **Delta Drawing** is both educational and entertaining for the entire age group recommended. The simple commands are easily understood by the youngest children, while more sophisticated techniques for creating high resolution screens are available to more mature users. Besides using the CRT as a canvas, **Delta Drawing** can use simple sequential maneuvers that eliminate the drudgery of point-by-point, line-by-line drawing; these are recorded as "programs" and teach the importance and intricacies of sequential programming procedures. I highly recommend **Delta Drawing** for creating colorful and intricate high resolution screens. -Donald Miller (in WCUC News).

Update (see #15): **DOODLE**, diskette for 64.

Drawing/painting aid from City Software, 735 W. Wisconsin Av., Milwaukee WI 53233.

The new version is still plagued with printer problems. City Software cannot get the 1526 to print out any **Doodle** drawings. If anyone has the answer, I'm sure they'd like to hear from you. -Mike Stout

Update (see #15,18): **KOALAPAD TOUCH TABLET**, \$66 for 64.

Drawing/painting aid from Koala Technologies, 3100 Patrick Henry Dr., Santa Clara CA 95050.

Children and adults will get hours of enjoyment drawing on the **Koalapad**. With the **Koala Painter** program, drawing freehand includes a choice of colors and brush widths. Designs can be created on 2 different screens, and transferred from one to the other, as can a file of pictures (both backgrounds and animals) on the painter diskette. The children in a nearby third grade class have great fun with it. Surprisingly, the small size of the touch sensitive area compared to the screen did not make drawing awkward. -Elizabeth Kaspar

EDUMATE LIGHT PEN/PERIPHERAL VISION, \$70 diskette for 64.

I bought it because it seemed so well supported in software. The company is bringing out a whole line of software for children using the pen and S.A.M. It seems to work well especially with the new drawing routine, **Peripheral Vision**. I highly recommend it for drawing, since it is more powerful than **Doodle**. -Rodney Weeks

PERIPHERAL VISION, \$35 diskette for 64 with **Edumate light pen**.

Drawing aid from Futurehouse, Inc., Box 3470, Chapel Hill NC 27514.

This software is a big improvement over their original program, because it will do almost anything. You have 15 colors, 6 brush strokes, 35 predesigned textures (or make your own), pre-defined circles, squares and triangles, plus a beautiful printer routine that gives shading of the different colors. Highly recommended; suggest you see it for yourself. The only problem is you might need a cup of coffee when it loads or a pot of coffee when it prints. -Rodney Weeks

Update (see #16,18): **SUPER EXPANDER**, cartridge for 64.

Programmer's graphics/sound aid from Commodore, 1200 Wilson Dr., West Chester PA 19380.

We have here a little handy-dandy plastic box that's chock full of missing BASIC commands. You give this little Beggar about 8K of RAM, and it gives you commands that you used to dream about. You want sound? Filter? Use a light pen? Make a circle? Use Hi-res graphics along with letters from the keyboard? Of course!

Disadvantages? For one thing, it's going to take some time to learn all the commands. You aren't going to be programming a tree in the first ten minutes. Also, if you write a program for anyone else to use, he has to have his own Super Expander cartridge or it won't run. Still, **Super Expander** has many more sound and graphics features than Simon's BASIC. -Jim DeMian (Mid-Missouri Commodore Club Newsletter)

Music and Sound Aids

DANCING FEATS, diskette or cassette for 64.

Background music aid from Softsync Inc., 114 E. 34th St., New York NY 10016.

Like an electronic organ, you choose the background "band" from a wide variety of beats, tempos, styles in **Dancing Feats**. Each of the joystick's 8 positions will play a different note [that] is always in tune - the program matches your notes to the chord it is playing. While you are playing, the screen displays a "color organ" of lights which may be helpful in selecting the proper sequence of notes for your ditty. You may record the songs and save them for later play. -Colin Thompson (in The Users Port)

MASTER COMPOSER, \$35 diskette for 64.

Music aid from Access Software, 925 E. 900 S., Salt Lake City UT 84105.

Requires 1541 disk. CBM printer optional. DOS-protected, one spare available for \$7.50. 90 day limited warranty.

The demo for **Master Composer** is quite impressive, as is the graphic display of each note in all 3 voices as they play. Even more impressive is the ability to load each song separately, without **Master Composer**, and play it in the background (via IRQ) while you continue with another program, or even write a new program. The demo songs include everything from Donna Sommers to Beethoven, all well done, and another diskette of hits is available for \$10 extra.

For those interested in writing their own songs, virtually everything the SID chip can do is covered by the many options in **Master Composer**, all controlled about as easily as such a complex device can be. There are, for example, help screens, as well as an audition mode to sample current changes, and a screen dump that copies your work to a 1525 or 1526 printer. Up to 127 measures can be entered, using widely varying note values and time signatures. More than one finished song can be in memory at once, and a simple BASIC program can call each in turn as needed in a long piece. Personally, I'll miss the transposition ability of **Music Construction Set**, though not its painful choice of colors (see #18), and I haven't reviewed the highly-regarded **Musicalc** yet, with its optional piano keyboard and other innovations. Even so, **Master Composer** is an excellent program that deserves wide use. Recommended. -JS

MELODIAN MUSIC KEYBOARD, \$200 keyboard + **CONCERTMASTER** diskette for 64.

\$40 for program alone. Piano keyboard and **CONCERTMASTER** program from Melodian. 90 day warranty on keyboard, unlimited on media. DOS-protected, 1 spare available for \$5.

This is the first actual piano keyboard I've seen for the 64 that you can buy. It has only 37 fairly stiff keys, but is a vast improvement over using the QWERTY keys of the 64 as a piano (though **Concertmaster** will let you do that if you want.) Like other top programs, **Concertmaster** will record and playback your efforts with full control of every aspect of the 3 available voices. During playback, the notes are visible on screen, properly shaped. The voices can be added together or played separately, but editing a note is only possible by re-recording that voice's part. Function keys control the whole program. It gives a pleasant full color screen display and good sound. If you play at all, or are serious about learning how to play in the world of synthesizers at a fair price, this could be just the ticket. If you aren't sure, you can start out with just the program, and add the keyboard later. Recommended. -JS

MUSIC COMPOSER, for 64.

Music aid from Commodore, 1200 Wilson Dr., West Chester 19380.

The **Music Composer** is an excellent program. It could be made better for modern musicians if the instruments were more modern -- guitar sounds, bent notes, more "out of key" sounds, booming bass drum, crisp snare sounds, and more control of pitch and the special instrument are improvements I would like to see. Also, you can repeat lines, not only by using parentheses with numbers, but also by typing in a new line number over an existing #. The new number will bear the line of the first one, and the first line will remain unchanged. Discovering this was the single most important factor in my use, and it's not even in the instruction booklet. -George Warner

SPIDER EATER, diskette and plastic overlay for 64 with Koalapad.

Music program from Koala Industries, 3100 Patrick Henry Dr., Santa Clara CA 95050.

This diskette and plastic overlay turn the touch tablet into a musical keyboard. The spider teaches the location, pitches, and values of the musical staff. As a note appears on the staff, a spider starts toward it. To "zap" the spider, you press the key corresponding to the spider's position. The graphics are imaginative and colorful, with several ways to make bonus points. My panel of children enjoyed the game immensely. The note values determine the time the child has to get the spider and include quarter, half, dotted half, and whole notes. A second program option allows the child to compose and play tunes. However, the playing range is limited to only 9 notes. This program would appeal to children ages 6-10. -Elizabeth Kaspar

Printer Aids:

CTRL-64, \$25 diskette or cassette for 64. Pretty lister from Cardinal Software, 13646 Jefferson Davis Hwy., Woodbridge VA 22191. Requires compatible printer (most properly-interfaced printers will work).

Since Commodore graphic characters are hard to understand from a listing, and since many printers can't print them properly, special programs like **CTRL-64** trap troublesome characters and translate them into something both the human and the printer can understand. Thus, CHR\$(17) will appear as <down>, rather than as a reverse field lower-case "q." **CTRL-64** works well, and can hide in any of 5 parts of memory to stay out of the way of other programs. It comes in 2 flavors, one of which will handle most popular brands of printer, but if needed, other custom changes can be made to this unprotected machine-language program. My only complaint, apart from having to load and hide the program each time I turn on the computer, is that it treats each of a series of repeated graphics characters as a whole new entity, rather than just counting them. I would vastly rather see <3 down> than <down><down><down>. If you have a Cardco or similar interface that already includes a pretty lister, you won't need **CTRL-64**; both do the same job. **CTRL-64** is probably worth the cost if you need it, remembering that an \$80 interface can do the same job while also connecting your printer. -JS



For the Commodore 64

Reduction of an actual sign

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Menu Driven Disk Operating System
Execute disk commands by reading the menu and pressing just one key: LOAD, SAVE, initialize disk, validate, scratch, rename, COPY, auto list, renumber, search, replace, and more! Disk \$29.95

Flex File 2.1 By Michael Riley. Save up to 1500 typical records on a 1541 disk drive. Print information on labels or in report format. Select records 9 ways. Sort on up to 3 keys. Calculate report columns. 1541·4040·2031 Disk \$59.95

CTRL-64 Permits listing of C-64 programs on non-Commodore printers. Lists control symbols in readable form. Disk \$24.95

Screendump Print a copy of the C-64 screen simply by pressing just two keys. This machine-language program is compatible with most software. \$19.95

Chessmate 64 Analyze your own games, master games, book games, and openings. Save, print, and watch your games in a unique "chess movie." Memorize any board position and recall it after you have played through variations. Disk \$29.95

CP/M Term Download CP/M programs! Full-featured terminal program requires a Commodore CP/M adaptor. Supports C-1600, Hess, 1650 auto dial, 212 modems & RS-232 adaptor. Direct back-to-back computers (requires null modem cable). RS-232 modem with RS-232 adaptor allows transfer from other CP/M computers. Disk \$39.95

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Programmers Aids:

MASTER 64, by Micro Application. \$85 diskette for **64**. (Also versions for **CBM 8032/8096**) Programmer's aid(, screen editor?) and file handler from Abacus Software, P.O. Box 7211, Grand Rapids MI 49510 (616/241-5510). Requires 1541-compatible disk drive. IEEE-488 interface and CBM printer optional. DOS protected, 1 spare diskette for \$5. No warranty.

Specs: USR (random files); 1 prime key; 30 characters per key; number of records limited to disk capacity; 254 characters per record; 128 fields; 254 characters per field; 255 report rows; 255 report columns; works with sequential data files

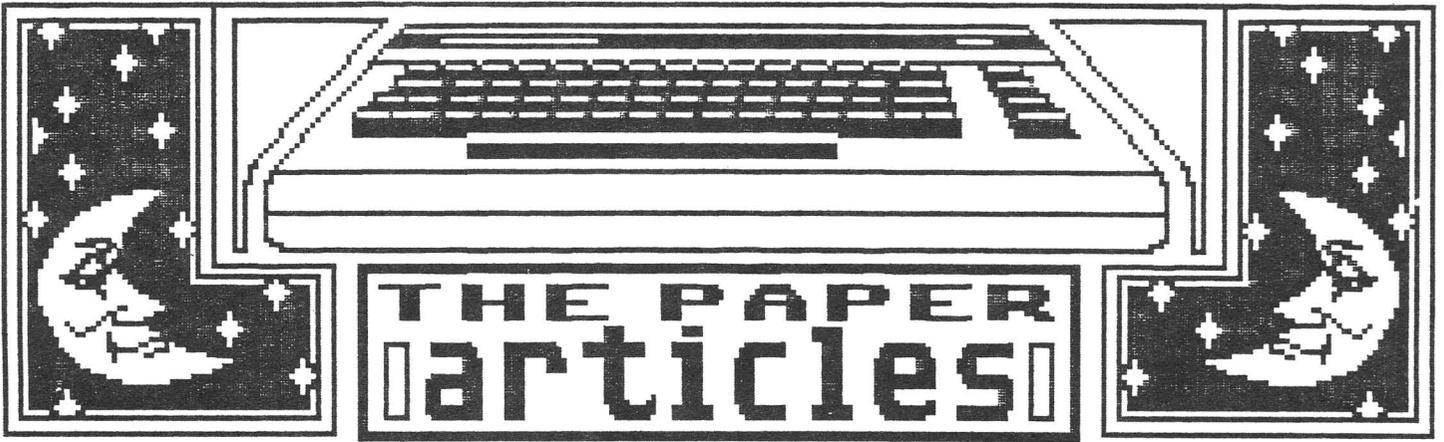
Master 64 takes a different approach to application generation than **Home File Writer** and conventional data manager programs. Instead of leading the user through the design of a file or BASIC file-handling program, **Master** adds 100 new BASIC commands to greatly ease the design of a file-handler and other serious programs. These commands fall into 10 categories: drawing commands, data entry commands, screen management commands, report formatting commands, file management commands, extended precision math, a programmer's aid package, BASIC 4.0, and a simple machine language monitor. It also includes several other utility programs. This means you must refer to the manual constantly. Fortunately, the large manual is well set up for reference. However, the manual badly needs a tutorial. Fortunately, there are two very impressive demo programs on the diskette.

What first impressed me about **Master** was its data entry commands. They completely overcome the limitations of BASIC's Input and Get commands; you can specify any kind of Input, and enter it from any desired spot on the screen. In less than an hour, a skilled BASIC programmer can design a foolproof data entry screen that follows Commodore's recommended standards. It can even include separate Help screens loaded from disk or transferred from "extra" screen pages in memory. **Master** can also arrange information on a printed page as easily as on the screen. Simply specify the row, column, length and contents of each data item. It is much more powerful than the Print Using statement of other programmer's aids.

File handling is a bit more complicated. A separate program must be run to create a data file. The files use ISAM (Indexed Sequential Access Method) for speed, but you can't Validate (Collect) a **Master** data file without losing it. Also, diskette space will only be used efficiently by the file if your chosen record size divides closely into 254. Further, deleted records still use up space on the disk until the file is copied by a separate program. On the other hand, **Master** commands can greatly compress the size of file data.

Another favorite feature is **Master**'s unique 22 digit precision math. **Master** works well with a transparent IEEE-488 interface, such as the BusCard, and any connected CBM disk drive. On the other hand, don't expect to use other programmer's aid programs or cartridges at the same time. Instead of the usual 38K free, you'll have just 20K for your programs, meaning you will still have trouble using **Master** for very large applications. This is a surprising limitation, because the diskette includes a special unprotected run-time version of **Master** that lacks many usual options. If that version had been designed to use only the memory it needs, much more memory could have been freed for data in finished programs. At Lincoln College, an early 4K version of **Master** for the PET (**Procep**) has been used reliably for 2 years in several major application programs, because it is so extremely easy to create new applications with **Procep**. Yet, the college has no interest in **Master**, because it uses up too much memory. Still, if your planned application will fit in the memory available, **Master** will greatly ease your work in developing programs, and you may freely sell your finished program without paying a royalty to use the run-time version of **Master**. If you want to protect that program from unauthorized listing and use, Abacus will also sell you a set of dongles to limit program access.

Overall, **Master**, is more likely to be used by a trained programmer than a new user. I like **Master** a lot, but don't use it as often as I'd expected, largely due to its size. On the other hand, in the proper application, nothing else currently available controls your screen and printer more completely or precisely, and the price is quite appropriate compared to other programmer's aids. -JS



DOODLE GRAPHIC BY WAYNE SCHMIDT

Feature Article:
MIDNITE MUSINGS

BUYING SOFTWARE FROM A CLOWN
...adventures in shopping...

by **KMACK**

New Commodore 64 users are constantly searching for prepackaged software - but who really likes to wait around for an over-priced mail order item? If you are into the instant gratification of buying and plugging in - but still hate going to those sleazy back alley shops or posh PC boutiques, then Child World may be the place for you.

Stooping, yet still towering over me, was a giant ten-foot-tall yellow giraffe. I stared up, astonished at the speckled face and vacant eyes. My question stammered forth feebly in an alien-like voice, "Do you carry any software for the Commodore 64?"

The giant creature reared its head skyward, against the brilliant fluorescent lights. A stubby hoof pointed menacingly toward a canyon-like corridor. Suddenly, shrieks and cries pierced the air as a swarm of children rocketed past, narrowly avoiding numerous catastrophic collisions with stacks of cellophane-wrapped boxes. Latent feelings of agoraphobia welled within me; I stood frozen in my tracks, pressed against the model airplanes until I spotted a distant figure. Colorfully garbed, with a pointed cap, the figure was distributing balloons to a horde of small faces with attached grasping hands.

I breathed deeply and walked cautiously toward the figure, passing young mothers as they strolled aimlessly. Their faces seemed slightly glazed as they tried not to bump against the towering walls of toys. As I approached, the colorful target turned to face me. I stared at a clown my own height and stammered, "Do you have software for the 64?"

"Aisle 2, video games," the clown replied, thrusting a red balloon into my palm.

Overwhelmed among the rows of big-name video games and software, tucked away in a corner, was the familiar blue and white sign. A single glass-enclosed shelf riveted my attention as I scanned past the VIC games, until I saw a seemingly vast selection of 64 software. The excitement mounted as I read the titles aloud: Learning BASIC...Advanced BASIC...Assembler kits...Sprite Master...Games.... But wait - I don't have a Datasette! I quickly checked my wallet for \$58 (a good price!), then resumed my search for a diskette. Though few were to be found, a source (even higher than the giraffe) assured me more were coming. I finally settled on the sale-priced Music Composer for \$15 - still behind glass. I envisioned a return conversation with the clown, until I noticed a tag: "Instructions for Buying this Item." Heading for the check-out lane, I passed a flood of childhood memories in the form of molded plastic. I promptly paid for my receipt, and was directed to a huge cage, where another clown exchanged my receipt for the cartridge. The red balloon made its way into the hands of a crying four-year-old. Once home, I knew instantly I would go back for the \$58 Datasette. The lesson learned? If you know exactly what you want, Child World has your price. If you're not sure, don't expect any help from the clowns. Either way, expect to spend any savings on a squirt gun or model airplane!

PROTECTED INPUT 64

by Rick West

This subroutine is used for data input on any Commodore computer. The program looks very large just to be used for input; however, the features outweigh the size if you want protected entry. The features of this input routine are:

1. Set length of field. The variable used is (LK).
2. Numeric input only. The + and - sign can be entered only as the first character. The . can be entered only one time for an entry, but can be deleted and re-entered for corrections (DT=2).
3. Dollar and Cent form is numeric also. It will always return in the form 0.00 for any entry (DT=3). This optional subroutine, starting at 10410, does the conversion and can be used separately.
4. Set Alpha-Numeric input. This will let you input upper/lower case, numbers and needed special characters. It will not let you enter problem characters (DT=0).
5. Set Alpha input (DT=1). Lets only upper/lower case and spaces be entered.
6. Preset defaults can be passed to the subroutine by setting DD\$ to the default. This default may be set larger than LK, for one chance entry. If the default is larger than LK and you delete part of it, the LK setting takes over.
7. Other special features, like a space may not be entered as the first character. Hitting return without an entry will have no effect, except on Dollars and Cents. On Dollars form, a return without entry will return 0.00 as a value.

Make sure you do not use the same variables used in this routine, such as:

1. LK = This is the length of field.
2. DT = The type of entry you want.
3. DD\$ = default variable (optional)
4. The subroutine will return the entry as DR\$.
5. A special four part cursor that can be anything you want. The speed of the cursor is set by line 10150. To slow the cursor down, increase the number added to TI. To speed the cursor up, make the number smaller. The cursor is controlled by the jiffy clock and will run the same speed if compiled. The cursor speed will not effect the data entry speed in any way because of the count down loops through the get statement. Try it!

This program uses some special tricks with AND and OR in some of the if-statements, so watch changing them.

**For more information, contact Rick at:
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```

9999 POKE53280,0:POKE53281,0:PRINT"■"
10000 PRINT"GIVE ME A INPUT ";DD$;:DT=3:LK=6:GOSUB10050
10010 RUN
10030 REM *** INPUT PROGRAM 64 ***
10040 LK=30:REM LK= LENGTH OF STRING TO INPUT
10050 REM DT= TYPE OF INPUT ALPHA OR NUM.
10060 REM DT=0 =ALPHA-NUM. INPUT
10070 REM DT=1 =ALPHA ONLY
10080 REM DT=2 =NUM. AND '+', '-','.'
10090 REM DT=3 =RETURN WITH DOLLAR FORM
10100 REM DD$=GET VARIABLE
10110 REM DR$=RETURNED VARIABLE
10120 IF DT=3 THEN DT=2:ZZ=1:REM DR=CAL VARIABLE ZZ= FLAG FOR DOLLARS
10130 DR$=DD$:MM$(0)="-###":MM$(1)="###"
10135 MM$(2)="+###":MM$(3)="4###"
10140 LS=LEN(DR$)
10150 II=TI+10:REM CURSOR SPEED
10160 GETDD$:PRINTMM$(Y);
10170 IFDD$<>" "THEN10210
10175 IFTI>IIANDY>2THENY=0:GOTO10150
10180 IFTI>IITHENY=Y+1:GOTO10150
10200 II=II-1:GOTO10160
10210 DR=ASC(DD$):IFDR=34 THEN10160
10220 IF(DR=20)AND(LS>0) THEN10380
10230 IF(DR=13)AND(LS>0)AND(ZZ=0)THEN PRINT" ":RETURN
10240 IF(DR=13)AND(ZZ>0)THEN GOSUB10415:ZZ=0:PRINT" ":PRINTDR$: RETURN
10250 IFDR=32ANDLS>0 AND DT<>2 AND DT<>4 THEN 10350
10260 REM-----NUMBERS DT=2 -----
10270 IF(DR>47ANDDR<58ANDDT=2)OR((DR=43ORDR=45)AND(DT=2ANDLS<1))THEN10350
10280 IF(DR=46 AND DT=2 AND ZZ<2)THEN ZZ=2:GOTO10350
10290 REM-----ALPHA DT=1 -----
10300 IF (DR>64 AND DR<91 AND DT=1)OR(DR>192 AND DR<219 AND DT=1)THEN10350
10310 REM-----ALPHA-NUMBERS DT=0 -----
10320 IF (DR>64 AND DR<91 AND DT=0)OR(DR>192 AND DR<219 AND DT=0)THEN10350
10330 IF (DR>39 AND DR<58 AND DT=0) THEN10350
10340 GOTO10160
10350 IF LS<LK THENDR$=DR$+DD$:LS=LEN(DR$):PRINTDD$;
10360 GOTO10160
10370 REM -----DELETE-----
10380 IF(ASC(RIGHT$(DR$,1))=46)AND(DT=2)THENZZ=1
10390 LS=LS-1:DR$=LEFT$(DR$,LS)
10400 PRINT" ■■■";GOTO10160
10410 REM --- CONVERT VALUE TO DOLLARS AND CENTS ---
10415 IF(ABS(VAL(DR$))<.005 OR(LS=0)THEN DR$=SR$+"0.00":RETURN
10420 DD$="00":DR$=STR$(INT((VAL(DR$)+.0051)*100)/100):LS=LEN(DR$)
10430 IFLEFT$(DR$,1)="+"THENSR$=LEFT$(DR$,1):LS=LS-1:DR$=RIGHT$(DR$,LS)
10440 IFLEFT$(DR$,1)="-"THENSR$=LEFT$(DR$,1):LS=LS-1:DR$=RIGHT$(DR$,LS)
10445 IFLEFT$(DR$,1)=" "THENSR$=LEFT$(DR$,1):LS=LS-1:DR$=RIGHT$(DR$,LS)
10450 IFSR$="+"THENSR$=""
10470 FORX=LSTO1 STEP-1:IFMID$(DR$,X,1)="."THEN X=LS-X:GOTO10490
10480 NEXT:DR$=DR$+"."00":GOTO10540
10490 IFX=2 THEN 10540
10500 IFX=1 THEN 10530
10520 LS=LEN(DR$):LS=LS-1:DR$=RIGHT$(DR$,LS):GOTO10540
10530 DR$=DR$+LEFT$(DD$,X)
10540 IF VAL(DR$)<1 THEN DR$="0"+DR$
10550 DR$=SR$+DR$:RETURN

```

LET'S TALK DISK

by Tom D'Angelo

Since its inception the Commodore 1540/1541 disk drive has apparently been plagued by problems, rumor and misinformation. For the last 9 months I have been repairing and aligning Commodore drives from all over the U.S. Most of the problems, rumor and misinformation arise from a manufacturing defect that allows the drives to go out of alignment easily. Problems with heat, the "@"SAVE, and disk interchangeability with the 4040 can all be traced to improper drive setup (speed and alignment). I have been writing to and reading from 4040 formatted disks with my 1541's for over 6 months and have yet to see any signs of slow destruction, or any other improper performance. Properly aligned drives and proper disk rotational speed are the keys to trouble free use. I have also modified most drives I have worked on so the user can adjust the disk speed without having to take the drive apart.

WHAT CAUSES DRIVE MISALIGNMENT?

The head alignment, between a very cold and a very hot drive, can move inwards $.0006''$ for a 77° F. temperature rise. A properly aligned drive has a $\pm .002''$ tolerance before needing alignment, and will still read and write properly beyond $\pm .002''$. An extreme heat rise of 77° F., causing the head to shift inwards $.0006''$ will not affect a properly aligned drive, but it might cause a borderline unit to not perform properly. All but one drive with a SAVE"@: problem that I have worked on has been due to misalignment.

Improper or non-existent lubrication on the rails the head assembly rides on contributes to noisy head movement (chattering) and improper centering on a track, possibly resulting in read errors. I have found that molybdenum disulfide in a volatile liquid seems to provide the quietest and longest lasting performance (up to a year).

DIAGNOSING A MISALIGNED DRIVE:

The easiest way to tell your drive has changed alignment is a change in the sound the drive makes when it "bumps" (the rapping sound made when the drive starts to format a new disk). The "bumping" should be sharp, rapid and equally spaced. If you notice a change, your alignment has shifted. Other signs that this shift has taken place is that the red light will flicker on and off when trying to load a program that used to give a steady red light. Your load times might be longer, and the drive might give that "bumping" sound. If too much slippage occurs, all your previously "SAVED" programs and directories cannot be read by your drive. The sneaky thing is that if it shifts, you can still "NEW" disks, save programs and read them, but disks made and programs saved before the shift will be unreadable or hard to read by any properly aligned drive. This means that if your alignment shifts and you don't notice or ignore it, you could lose all programs "SAVED" after the shift occurred when you do get your drive aligned.

OTHER DISK DRIVE DESIGN PROBLEMS:

One problem that has plagued owners with two or more 1540/1541 disk drives has been that they continually lock themselves and the computer up. Commodore has cured that problem in drives sold since Christmas 1983, with a new ROM (-05) in location UB4 (short board) and some hardware modifications.

A misdesign in the upper spindle assembly (the unit that pinches the disk against the rotating drive ring) causes rapid wear of steel washers, as exhibited by a possible intermittent grinding, squeaking or howling noise when the disk is turning. I am currently putting together a kit that will allow a user to repair the drive.

Sometimes a drive will get out of sync between where the head actually is, and where the drive thinks it is electronically. The drive appears not to work at all, but is easily cured by "NEWING" a disk, whether there is a diskette in the drive or not. All you want is to have the drive make that knocking sound in order to re-synchronize the stepper system.

ON DISKETTES FOR THE 1540/1541:

Another point has been the need to use different ID's on your diskettes. The photocell that "READS" the write protect notch also senses a disk change and causes the BAM to be reread. This is why similar ID's do not cause a problem; the "intelligent" drive knows that you have changed diskettes.

Speaking of disks, if you can fit it into the Commodore drive, you can use it - soft sector, hard sector, single, double, quad density - it doesn't matter. The Commodore 1541/4040 drive was designed to use the lowest requirement disk (single density, soft sector). Anything more is unnecessary and often a waste of money.

WHAT TO FIX ON THE DRIVE (AND THE PROGRAMS):

If you do need to have your drive aligned because you cannot read any of your older disks, you can "SAVE" any important programs that are still readable to cassette or another 1540/1541. Then if these programs can no longer be read by the aligned drive, you can still recover them.

To get your drive in proper shape, a serviceman should be able to properly fix the two slippage points that allow the drive to go out of alignment, check that the write protect photocell is properly performing both functions, set the end stop properly, set the head radial alignment and check the hysteresis, properly lubricate the required locations, and adjust the disk speed. The serviceman, for a lesser fee, should also be able to repair a new drive so that it doesn't go out of alignment. The drives do have problems, but once a 1540/1541 drive is properly repaired and aligned, it is virtually trouble free and an excellent value for the price. If you have any questions concerning the drives or this letter you can call or write me at: 502/296-5076 - 8037 E. 18th Place, Tucson AZ 85710

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KNIFE AND FORK:

Adding External I/O Devices to the 64

by Rick West

For those with some digital background, the Commodore 64 is one of the easiest computers for adding external I/O devices and one of the best low cost controllers for automated testing. The 64 memory expansion port has already been decoded into two 256 byte blocks, I/O 1 and I/O 2. These blocks are addressed at \$DE00-\$DFFF, \$DE00-\$DEFF for I/O 1 and \$DFO0-\$DFFF for I/O 2. With these 2 select lines, you could add up to 100 more 6581 sound chips, plotters, printers, light panels, and other goodies.

The memory expansion port or cartridge port is a dual row 22 pin .1" spaced connector. The 44 pins include all expected address and data lines plus some very important decode and signal lines. The pin out below has an asterisk beside the lines we will use.

TOP	BOTTOM
* 1-Ground	* A-Ground
* 2-+5 Volts	B-ROM H (not)
* 3-+5 Volts	C-Reset (not)
4-IRQ (not)	D-NMI (not)
* 5-R/W	* E-Phase two clock
** 6-Dot clock (video chip)	F-A15 address
* 7-I/O 1 (not)	H-A14 address
8-Game (not)	J-A13 address
9-XROM (not)	K-A12 address
10-I/O 2 (not)	L-A11 address
11-ROML (not)	M-A10 address
12-BA (video chip)	N-A9 address
13-DMA (not) input	P-A8 address
* 14-D7 data line	R-A7 address
* 15-D6 data line	S-A6 address
* 16-D5 data line	T-A5 address
* 17-D4 data line	U-A4 address
* 18-D3 data line	V-A3 address
* 19-D2 data line	* W-A2 address
* 20-D1 data line	* X-A1 address
* 21-D0 data line	* Y-A0 address
* 22-Ground	* Z-Ground

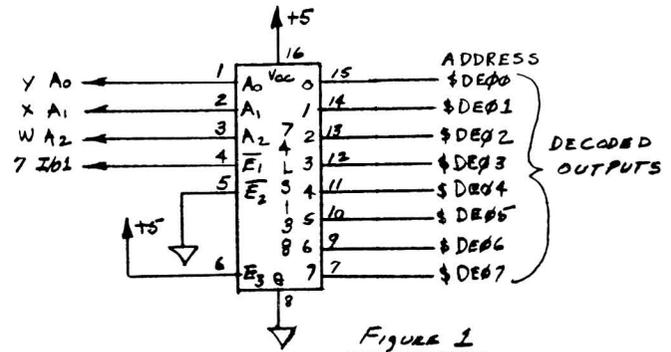


Figure 1

Let's put some of these lines to work. First, we will use a 74LS138 decoder for testing 8 decoded outputs. Figure 1 shows the circuit used and the lines hooked to the expansion port.

The output lines are shown with the addresses needed to activate them. The output at this level is just a very short pulse when addressed. By adding a couple of latches, we can store the pulse and light LEDs to show the lines addressed. Adding another line will reset the latches and turn the LEDs off. Figure 2 shows the hookup of the latches; adding a 74LS74 does the job. LED 1 is at address \$DE00, LED 2 is at address \$DE01, and the reset line is at address \$DE02. I/O 1 line goes to the not enable line of the 74LS138, and address lines A0-A2 feed inputs A, B, and C. The 74LS74 is

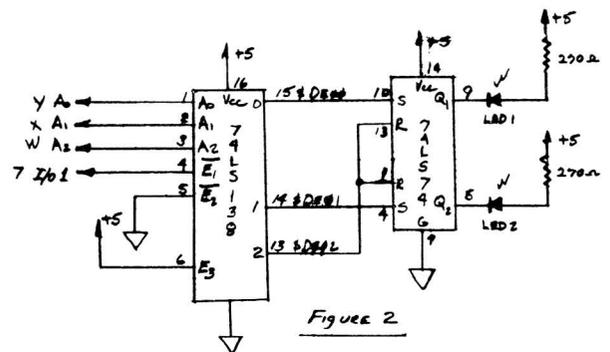


Figure 2

set up as two RS flip flops that latch the data. The set inputs of the 74LS74 are tied together and used for the reset input. The base address is set by I/O 1; if we hook the not enable line to I/O 2, the base address would be \$DFOO.

If we wish to use true data latches instead of RS flip flops, we must first design a circuit to generate a window (a pulse that falls in the middle of the timing of the address bus, data bus, and the read/write line), by anding not read/write and phase two of the clock, shown in Figure 3. Let's use the 74LS373 octal latch with tri-state output and strobe. The latch hookup is shown in Figure 3 with the timing diagram of the window generator. As can be seen from the timing diagram, the data goes false before the address lines and read/write line go false. Without the window, the data may not be true after the read/write cycle.

The circuit in Figure 3 is limited to output only. The circuit in Figure 4 can use both input and output data lines for many different applications, such as a plotter for the 64. To run a plotter, we need to drive a stepper motor in the X- and Y-axes, and be able to lift the pen and put it down on the paper. To determine where the motors are, we also need a sensor for the X and Y home positions. To use steppers, we must generate 4 phases for each motor. By using two 2 to 4 decoders, in 1 package of a 74LS139, we get two 4 phase signals. The input information from the sensors go through a 74LS368 hex inverted tri-state buffer. This does not use all the I/O, but like everything else, we'll need more inputs and output as we build. This circuit will work with any 12 volt 4 phase stepper motor.

To write a byte to the latch, we load the accumulator with the byte and store the accumulator at the latch address. To read data from the tri-state input buffers, we load the accumulator from the address. Using BASIC, we poke the address with the byte; to read the information, we peek the address for the byte. Plotter hardware is simple; the hard part is software to drive the plotter.

There is one little bug in the 64 I/O address bus, involving the timing in the 6567 video chip. When the processor is on the bus, the video chip is partly disabled. The video chip has some overlap in the timing between the processor and itself, sometimes sending an extra pulse out of the I/O 1 and I/O 2 lines, which can be seen with a good logic probe. To solve the problem, we can add phase 2 and the dot clock to the inputs of the 74LS138 inputs (see Figure 4). The dot clock is in phase with the time sharing of the video chip and processor. This shortens the window we see and seems to solve the problem on all 64's I have checked. Now you can start using the Commodore 64 to control the outside world.

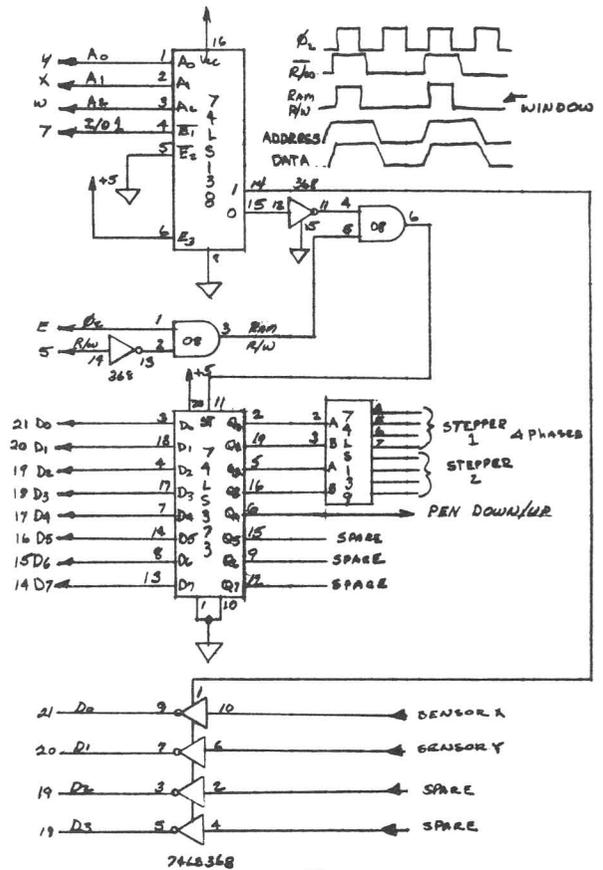


Figure 3

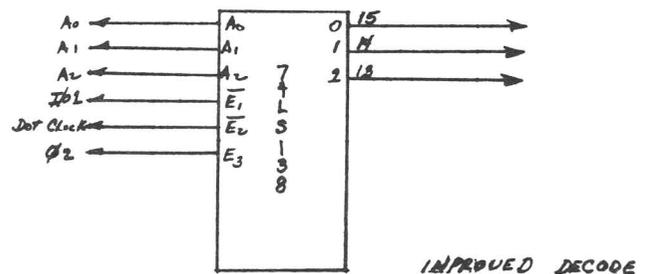


Figure 4

STACKMASTER

by Kenneth Finn

TO DO RECURSIVE PROGRAMMING:

Commodore BASIC is one of the best designed interpreters on the market. In one area, however, more could be done: the stack depth. The 6502 is limited to a one page stack. CBM BASIC reserves 62 bytes at the bottom for special use, leaving us with 194 bytes. Every FOR loop uses 18 bytes and every GOSUB uses 8 bytes. We are left with recursion levels of 10 for loops and 24 for subroutine calls. If we want to do recursive programming, we are stuck. The following program designed for the second cassette buffer and Upgrade BASIC fixes this. It provides three SYS commands to set-up memory for extra stack pages and test for stack overflow or underflow. They are:

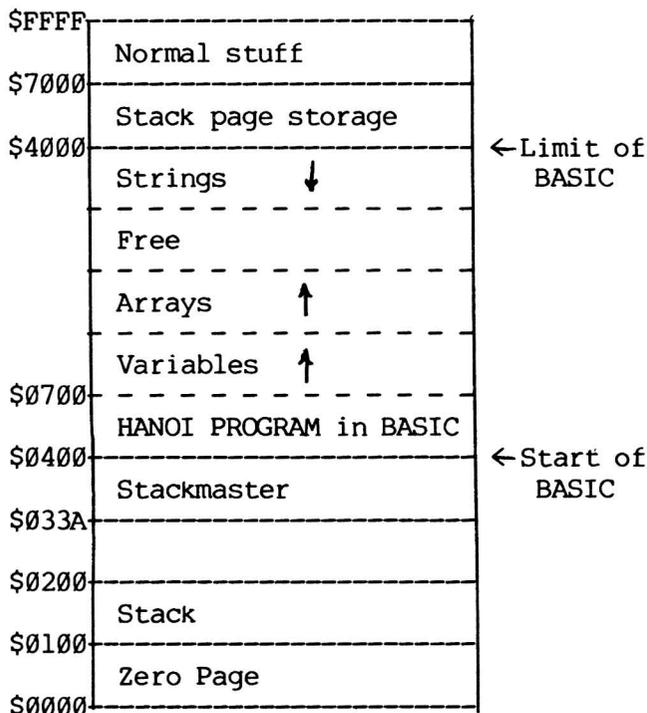
- 1) **SYS826** is used at the start of a program, to set up memory (see diagram), allow extra stack pages from \$4000 to \$7000, and set the limit of BASIC to \$4000.
- 2) **SYS866** is used as the first line in a subroutine, to check for stack overflow (less than 62 bytes remaining). If this happens, it transfers the current stack page up to the storage area.
- 3) **SYS940** is used just before a return statement, to check for stack underflow (>\$F1). If this happens, it restores the stack from the storage area in memory.

If you run out of stack room with the program, the OVERFLOW ERROR will result.

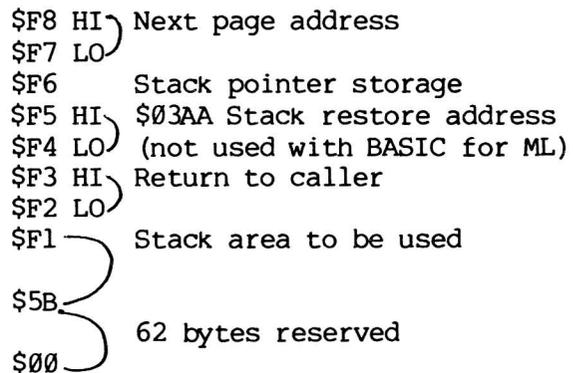
EXAMPLE:

That is all you need to know. The following BASIC program shows how this works, by solving the **Towers of Hanoi** program with a recursive algorithm. If you remove the three SYS commands, you will see any OUT OF MEMORY error at level 23, which means that BASIC is out of stack room. When the program has the SYS commands in it, you can go much larger, but it will take forever to run with all those recursive steps. The real value of this technique is for recursive algorithms that need stack depth but do not run so long.

STACKMASTER MEMORY MAP



TYPICAL STACK PAGE



MACHINE LANGUAGE VARIABLES

- \$B1 = X
- \$B2 = AC
- \$B3 = Y
- \$B4 = stack LO
- \$B5 = stack HI
- \$01 = next page LO
- \$02 = next page HI

B* PC IRQ SR AC XR YR SP
0401 E62E 32 04 5E 00 F6

Initialize SYS 826

```

033A A2 00 LDX #000
033C 86 01 STX #01
033E 86 34 STX #34
0340 A2 40 LDX #40
0342 86 02 STX #02
0344 86 35 STX #35
0346 20 77 OS JSR #0577
0348 A2 AB SEI #0AB
034C 8E F4 01 STX #01F4
034F A2 03 LDX #03
0351 8E F5 01 STX #01F5
0354 88 01 PLA
0358 80 F2 01 STX #01F2
0359 80 F3 01 STX #01F3
035C A2 F1 LDX #F1
035F 9A TXS
0360 60 RTS
  
```

"CLR" 4
Reset
Printers
\$03AB
Stack
Restore
"Not used with BASIC"

10 REM STACKER MASTER \$033A-\$0700
20 SYS 826 :REM \$033A SET UP STACK
30 REM
40 REM RECURSIVE HAND1
50 REM
60 N=26 :REM # OF DISKS
70 F\$="L":REM FROM SPINDLE
80 T\$="R":REM -TO- SPINDLE
90 O\$="C":REM OTHER SPINDLE
95 GOSUB100:END
96 REM
97 REM RECURSIVE SUBROUTINE

```

100 REM  
110 SYS(866):REM #0362 STACK CHECKER  
115 REM  
120 IF N<>1 THEN PRINTN:GOTO140  
130 PRINT"MOVE DISK#";N;" FROM ";F$;" TO ";T$;N=N+1:  
140 N=N-1:B$=T$:T$=O$:O$=B$:GOSUB100:B$=T$:T$=O$:O$=B$  
150 PRINT"MOVE DISK#";N;" FROM ";F$;" TO ";T$  
160 N=N-1:B$=O$:O$=F$:F$=B$:GOSUB100:B$=O$:O$=F$:F$=B$  
170 N=N+1:  
180 REM  
190 REM  
200 REM NOTE HOW N IS USED AS AN INDEX  
210 REM FOR DEPTH DEPTH.  
RECURSION  
READY.
  
```

STACK CHECK SYS 866

```

0341 EA 0341 EA  
0342 78 0342 78  
0343 B1 0343 B1  
0344 B2 0344 B2  
0345 B3 0345 B3  
0346 B4 0346 B4  
0347 B5 0347 B5  
0348 B6 0348 B6  
0349 B7 0349 B7  
034A B8 034A B8  
034B B9 034B B9  
034C BA 034C BA  
034D BB 034D BB  
034E BC 034E BC  
034F BD 034F BD  
0350 BE 0350 BE  
0351 BF 0351 BF  
0352 C0 0352 C0  
0353 C1 0353 C1  
0354 C2 0354 C2  
0355 C3 0355 C3  
0356 C4 0356 C4  
0357 C5 0357 C5  
0358 C6 0358 C6  
0359 C7 0359 C7  
035A C8 035A C8  
035B C9 035B C9  
035C CA 035C CA  
035D CB 035D CB  
035E CC 035E CC  
035F CD 035F CD  
0360 CE 0360 CE  
0361 CF 0361 CF  
0362 D0 0362 D0  
0363 D1 0363 D1  
0364 D2 0364 D2  
0365 D3 0365 D3  
0366 D4 0366 D4  
0367 D5 0367 D5  
0368 D6 0368 D6  
0369 D7 0369 D7  
036A D8 036A D8  
036B D9 036B D9  
036C DA 036C DA  
036D DB 036D DB  
036E DC 036E DC  
036F DD 036F DD  
0370 DE 0370 DE  
0371 DF 0371 DF  
0372 E0 0372 E0  
0373 E1 0373 E1  
0374 E2 0374 E2  
0375 E3 0375 E3  
0376 E4 0376 E4  
0377 E5 0377 E5  
0378 E6 0378 E6  
0379 E7 0379 E7  
037A E8 037A E8  
037B E9 037B E9  
037C EA 037C EA  
037D EB 037D EB  
037E EC 037E EC  
037F ED 037F ED  
0380 EE 0380 EE  
0381 EF 0381 EF  
0382 F0 0382 F0  
0383 F1 0383 F1  
0384 F2 0384 F2  
0385 F3 0385 F3  
0386 F4 0386 F4  
0387 F5 0387 F5  
0388 F6 0388 F6  
0389 F7 0389 F7  
038A F8 038A F8  
038B F9 038B F9  
038C FA 038C FA  
038D FB 038D FB  
038E FC 038E FC  
038F FD 038F FD  
0390 FE 0390 FE  
0391 FF 0391 FF  
0392 00 0392 00  
0393 01 0393 01  
0394 02 0394 02  
0395 03 0395 03  
0396 04 0396 04  
0397 05 0397 05  
0398 06 0398 06  
0399 07 0399 07  
039A 08 039A 08  
039B 09 039B 09  
039C 0A 039C 0A  
039D 0B 039D 0B  
039E 0C 039E 0C  
039F 0D 039F 0D  
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03A1 0F 03A1 0F  
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03A4 12 03A4 12  
03A5 13 03A5 13  
03A6 14 03A6 14  
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03A9 17 03A9 17  
03AA 18 03AA 18  
03AB 19 03AB 19  
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03EF 5D 03EF 5D  
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040D 7B 040D 7B  
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0539 A7 0539 A7  
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05BB 29 05BB 29  
05BC 2A 05BC 2A  
05BD 2B 05BD 2B  
05BE 2C 05BE 2C  
05BF 2D 05BF 2D  
05C0 2E 05C0 2E  
05C1 2F 05C1 2F  
05C2 30 05C2 30  
05C3 31 05C3 31  
05C4 32 05C4 32  
05C5 33 05C5 33  
05C6 34 05C6 34  
05C7 35 05C7 35  
05C8 36 05C8 36  
05C9 37 05C9 37  
05CA 38 05CA 38  
05CB 39 05CB 39  
05CC 3A 05CC 3A  
05CD 3B 05CD 3B  
05CE 3C 05CE 3C  
05CF 3D 05CF 3D  
05D0 3E 05D0 3E  
05D1 3F 05D1 3F  
05D2 40 05D2 40  
05D3 41 05D3 41  
05D4 42 05D4 42  
05D5 43 05D5 43  
05D6 44 05D6 44  
05D7 45 05D7 45  
05D8 46 05D8 46  
05D9 47 05D9 47  
05DA 48 05DA 48  
05DB 49 05DB 49  
05DC 4A 05DC 4A  
05DD 4B 05DD 4B  
05DE 4C 05DE 4C  
05DF 4D 05DF 4D  
05E0 4E 05E0 4E  
05E1 4F 05E1 4F  
05E2 50 05E2 50  
05E3 51 05E3 51  
05E4 52 05E4 52  
05E5 53 05E5 53  
05E6 54 05E6 54  
05E7 55 05E7 55  
05E8 56 05E8 56  
05E9 57 05E9 57  
05EA 58 05EA 58  
05EB 59 05EB 59  
05EC 5A 05EC 5A  
05ED 5B 05ED 5B  
05EE 5C 05EE 5C  
05EF 5D 05EF 5D  
05F0 5E 05F0 5E  
05F1 5F 05F1 5F  
05F2 60 05F2 60  
05F3 61 05F3 61  
05F4 62 05F4 62  
05F5 63 05F5 63  
05F6 64 05F6 64  
05F7 65 05F7 65  
05F8 66 05F8 66  
05F9 67 05F9 67  
05FA 68 05FA 68  
05FB 69 05FB 69  
05FC 6A 05FC 6A  
05FD 6B 05FD 6B  
05FE 6C 05FE 6C  
05FF 6D 05FF 6D  
0600 6E 0600 6E  
0601 6F 0601 6F  
0602 70 0602 70  
0603 71 0603 71  
0604 72 0604 72  
0605 73 0605 73  
0606 74 0606 74  
0607 75 0607 75  
0608 76 0608 76  
0609 77 0609 77  
060A 78 060A 78  
060B 79 060B 79  
060C 7A 060C 7A  
060D 7B 060D 7B  
060E 7C 060E 7C  
060F 7D 060F 7D  
0610 7E 0610 7E  
0611 7F 0611 7F  
0612 80 0612 80  
0613 81 0613 81  
0614 82 0614 82  
0615 83 0615 83  
06
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**SOFTWARE SPECIFICATIONS FOR
TERMINAL AND DATA BASE PROGRAMS**

by Jim and Ellen Strasma

While writing articles comparing terminal programs for the 64 and data managers for all Commodore computers, Ellen and I developed these charts. The first chart includes specifications and notes about the best available terminal programs as of May 1984. They include: **Smart 64 Term** from Microtechnic Solutions, **Superterm** from Midwest Micro Associates, **Telstar 64** from Eastern House Software, **Vidtex** from Compuserve and **VIP Term** from Softlaw. Also see related reviews in this issue.

The last page is a chart of the best data base managers as of May 1984. They are available for all Commodore computers, not just the 64. Several are also reviewed in this issue. We'd like to hear from readers on whether these charts are helpful to you. They take much longer to write than a standard review, but since they don't reflect opinions, they're less apt to get us in hot water! They also aid the companies by showing ways in which particular programs can be improved to match their competitors.

INDIVIDUAL NOTES FOR THE TERMINAL CHART:

SMART 64 TERM:

- Can blank screen when printing for compatibility with 1515.
- Sends pre-stored answer-back response when CTRL-E is received.
- Supports 1526 printer.
- Supports X-line hardware handshake.
- Able to call a whole list of numbers in succession.
- Able to insert a RETURN in overlong lines to host and printer.

SUPERTERM

- Is able to selectively filter out a character received after RETURN.
- Selectable remote START/STOP characters for downloads.

TELSTAR

- Has line input mode that allows full editing before transmission.
- Has echo mode that allows computer to computer chats in full-duplex.

VIDTEX

- Can send ahead several pages to save transmission time.

VIP TERM

- Autolog entries also custom set terminal parameters.
- Can also serve as a host, with messages and file-handlig.
- Auto-tome dials 1600 MODEM through monitor speaker.
- Chimes on the quarter hour.
- Off-line message preparation only via 127 character function keys.
- Has an audible beep at right margin.
- Selectable remote START/STOP characters for downloads.

Smart 64 Term Superterm Telstar VIDTEX VIP Term

BASIC OPERATIONS:

	Smart 64 Term	Superterm	Telstar	VIDTEX	VIP Term
Control via: (m=menu, c=command, i=icon)	m/c	menu	menu	command	m/c/i
Help screens:	no	no	no	yes	yes
Status line?:	no	yes	yes	no	no
Manual easily usable as: (T=tutor, R=reference)	t	t	r	t/r	t
Preliminaryes?	yes	yes	no	no	no
SETTINGS:					
Full range of settings?:	yes	yes	yes	no	yes
Storable setups?:	yes	yes	yes	yes	yes
Reliable at:					
300 baud	yes	yes	yes	yes	yes
1200 baud (half duplex)	no	yes	no	yes	yes
Keys:					
Break	yes	no	yes	yes	yes
Escape	no	yes	no	yes	yes
Function keys	6	52	10	10	20
Definable characters?	yes	yes	yes	no	yes
Screen Size:					
40 columns	yes	yes	yes	yes	yes
80 columns via if more, list max.	hardware	scrolling 132	no	no	software 106
Timers:					
Alarm	yes	no	yes	no	yes
Clock	yes	yes	yes	no	yes
Word wrap?:	yes	no	no	yes	yes
Selectable line-feeds:					
screen	yes	yes	no	no	yes
printer	yes	yes	yes	yes	yes
Selectable colors?:	yes	yes	yes	yes	yes
Alpha lock?:	no	yes	yes	no	yes

Smart 64 Term Superterm Telstar VIDTEX VIP Term

EQUIPMENT:

Sold on: disk d/t cart disk d/t
 (c=cart, d=disk, t=tape)

Documented MODEM hookups:

1650 yes no yes yes yes
 1600 yes no yes yes yes
 1011-A interface no no no yes yes

Compatible Disks:

1541 yes yes yes yes yes
 MSD yes yes yes yes yes
 4040 via Bus Card yes no no yes yes
 8050 via Bus Card no no no yes no

Disk device # selectable?: yes no yes yes yes

Disk commands?: yes yes yes y (some) yes

Compatible printers:

Serial bus CBM yes yes yes yes yes
 Serial bus ASCII no yes yes no yes
 Others listed y (ieee-488) y (smart a) no no no

Printer settings:

Device # yes no yes yes yes
 Secondary address yes yes yes yes yes

BUYING CONSIDERATIONS:

Retail cost: \$40 \$150 \$50 \$40 ??

Warranty: 30 day 90 day 60 day none 1 year

Copy protection used: DOS cart. cart. none DOS
 If DOS, price of spare \$10 \$10

MAKING CONNECTIONS:

1650 on/off hook control?: no no yes no yes

Auto answer: yes no yes no yes

Autodial:

1650 yes no yes yes yes
 Smartmodem no no yes no yes
 Re-try yes no no no yes

Autolog:

Size of "directory" 9 d. files 8 d. files 16
 Depth of "dialog" 0 1 1 no limit 2

Smart 64 Term Superterm Telstar VIDTEX VIP Term

FILE TRANSFERS:

Download from:

Text files	yes	yes	yes	yes	yes
BASIC program files	y (2 step)	y(2 step)	yes	no	yes
Binary files	no	no	yes	yes	yes
Punter BBS	n	yes	no	no	yes
CompuServe ".img"	y (2 step)	yes	no	yes	no
CompuServe graphics	no	no	no	yes	yes

Upload programs as:

Text	y (2 step)	y(2 step)	yes	no	yes
CompuServe ".img"	y (2 step)	y(2 step)	no	yes	no
Punter BBS format	no	yes	no	no	yes

Capture info to: d/p d/t/p d/t/p d/t/p d/t/p
(d=disk, t=tape, p=printer)

Screen dump to printer?: yes yes no yes no

Buffer size: 28K 18K 2 of 8K 32K 7K

Obeys XON/XOFF?: yes yes yes yes yes

Line end delay on upload?:
delay with nulls timer no no timer
wait for prompt no yes no yes yes

EDITING:

of buffer	y(save part)	yes	yes	y(ext.)	yes
Off-line message prep.	y(ext.)	yes	yes	yes	y(tiny)

TERMINAL EMULATION:

DEC VT-52	no	yes	no	no	yes
DEC VT-100	no	yes	no	no	no

CUSTOM CHANGES:

User changeable	no	yes	no	yes	no
Links to programs?:	no	no	yes	yes	planned

COMMODORE DATA BASE FEATURES: A SURVEY OF ACCEPTABLE SOFTWARE
by Jim Strasna

Title	: Administrator II	: The Consultant	: Practifile	: The Mail Disk	: Title
Type	: Two file data base	: Data base	: Data base	: Mail list	: Type
By	: Stage One Software	: Dieter Damer	: Michael Riley	: Chris Bonnett, Jim Strasna, et al.	: By
Company	: Professional Software 51 Fremont St. Needham MA 02194 617/444-5224	: Batteries Included 71 McCaul St. Toronto ONT M5T 2X1 CAN. 416/596-1405	: Computer Software Assoc. 44 Oak St. Newton Upper Falls MA 02167 617/527-7510	: Midnight Software 1233 Richland Av. Lincoln IL 62656 217/732-2703	: Company
Price	: \$595 diskette version \$695 hard disk version	: \$150 diskette	: \$55 diskette	: \$15 diskette postpaid	: Price
For	: CBM	: CBM, PET or Commodore 64	: All models	: CBM, PET or Commodore 64	: For
Requires	: 8050+ disk drive CBM or ASCII printer	: CBM disk drive CBM or ASCII printer	: 24K added memory on VIC CBM disk drive CBM or ASCII printer	: CBM disk drive CBM or ASCII printer	: Requires
Optional	: Unlimited media warranty	: One year media warranty	: No stated warranty	: Full warranty	: Optional
Written in	: Compiled DTL BASIC	: Machine language	: BASIC + Machine language	: BASIC + Machine language	: Written in
Protection	: Cassette port dongle	: 64 Dongle in joy port 1 PET/CBM ROM at \$9000	: Cassette port dongle	: Unprotected	: Protection
File type	: Random	: Relative records	: Random	: Relative	: File type
Related files	: 2 (master & transaction)	: 1	: 1	: 1	: Related files
Prime keys	: 1 prime key	: 99 prime keys	: 1 prime key	: 1 prime key	: Prime keys
Field size	: 78 characters	: 1755 characters	: 79 characters	: 32 characters	: Field size
Fields	: 60 fields per record	: 99 fields per record	: 20 fields per record	: 10 fields per record	: Fields
Record size	: 508 characters	: 12,500 characters on 64 9,000 on PET or CBM	: 254 characters	: 150 characters	: Record size
Records	: 9000 records	: Limited to disk capacity	: 1,000 1/2-size 1541 records 2,800 records on 8050	: 1000 records	: Records
Screens/record	: 1 screen per record	: 9 screens per record	: 1 screen per record	: 1 screen per record	: Screens/record
Programmable?	: hard disk version only	: no	: yes, in BASIC	: yes, in BASIC	: Programmable?
Works with	: WordPro	: PaperClip	: PageMate, WordPro	: PaperClip, Easy Script	: Works with
Title	: Mail Now	: The Manager	: Mail Pro 64	: MDB Database Manager	: Title
Type	: Mail list	: Data base	: Mail list	: Data base	: Type
By	: Steven & Shawn Faure Greg Coggin	: Canadian Micro Distributors	: Steve Punter	: Michael R. Reinhold	: By
Company	: Cardco 313 Mathewson Wichita KS 67214 316/267-6525	: Milton ONT L9T 3P7 416/876-4741 Commodore (64 version only) 1200 Wilson Dr. West Chester PA 19380 215/431-9100	: Pro-Line Software 755 The Queensway East,UnitB Mississauga ONT L4Y 4C5 CAN. 416/273-6350	: Mirage Concepts 2519 W. Shaw - #106 Fresno CA 93711	: Company
Price	: \$40 diskette	: \$ 50 diskette (64) \$250 diskette from CMO (CBM)	: \$50 diskette (64) \$180 diskette (CBM)	: \$100 diskette	: Price
For	: Commodore 64	: CBM or Commodore 64	: Commodore 64	: Commodore 64	: For
Requires	: 1541 disk drive Serial bus printer	: 1541 disk for 64 Any CBM dual drive for CBM CBM printer	: 1541 disk drive CBM or ASCII Printer	: 1541 or 2031 disk drive	: Requires
Optional	: Lifetime full warranty	: Replacement diskette \$5	: Unstated warranty	: Serial bus printer 90 day free update warranty	: Optional
Written in	: FORTH	: BASIC plus Machine Language	: Machine language	: Machine language	: Written in
Protection	: DOS protected	: DOS protected (64) Cassette port dongle (CBM)	: DOS protected 1 backup available for \$22	: DOS protected One backup copy for \$5	: Protection
File type	: Random	: Relative	: Relative	: Relative	: File type
Related files	: 1	: 1	: 1	: 1	: Related files
Prime keys	: 1 prime key	: 16 prime keys	: 20 prime keys	: 1 prime key	: Prime keys
Field size	: 120 characters	: 40 characters (64); 80 (CBM)	: 99 characters	: 250 characters	: Field size
Fields	: 8 fields per record	: 250 fields per record	: 20 fields per record	: 200 fields per record	: Fields
Record size	: 254 characters	: 1,500 characters (64) 252 characters (CBM)	: 254 characters	: 2000 characters	: Record size
Records	: 600 records	: 2,000 small records (1541) 4,000 full records (8250)	: 4000 very small 1541 records	: 66,535 claimed	: Records
Screens/record	: 1 screen per record	: 20 per record (64); 2 (CBM)	: 1 screen per record	: 2-way scrolling screen	: Screens/record
Programmable?	: no	: yes, in BASIC	: no	: no	: Programmable?
Works with	: Write Now	: Easy Script, SuperScript	: WordPro	: Mirage word processor	: Works with
Title	: Silicon Office	: Superbase	: Super Office	: TOTL Label 2.1 (VIC) TOTL Label 2.6 (64)	: Title
Type	: Integrated system	: Relational data manager	: Integrated system	: Mail list	: Type
By	: Bristol Software Factory	: Simon Tramer & Tom Cranstoun	: Simon Tramer & Tom Cranstoun	: Ann Palmer-Carty	: By
Company	: Computer Marketing Services 26 Springdale Rd. Cherry Hill NJ 08003 609/424-5055	: Precision Software (USA) 1675 York Av., Suite 110 New York, NY 10128 212/490-1825	: Precision Software (USA) 1675 York Av., Suite 110 New York, NY 10128 212/490-1825	: TOTL Software P.O. Box 4742 Walnut Creek CA 94596 415/943-7877	: Company
Price	: \$ 999 floppy diskette \$1,495 hard disk	: \$ 99 diskette (64) \$195 diskette (CBM,B128)	: \$395	: \$20 cassette \$24 diskette	: Price
For	: CBM 8096	: B-128, CBM 8096, or 64	: B-128 or CBM 8096	: Commodore 64 or VIC 20	: For
Requires	: 8050 or 8250 disk drive	: 1541 or 8050 disk drive	: 8050 disk drive	: 16K added memory (VIC) Datasette	: Requires
Optional	: D9060/9090 hard disk CBM or ASCII printer CBM 8010 MODEM	: CBM or ASCII printer	: CBM or ASCII printer	: CBM disk drive 80-column adapter board CBM or RS232 Printer	: Optional
Support	: 2 year free replacement warranty	: 30 day media warranty	: 30 day media warranty	: Media warranty Small fee to answer queries	: Support
Written in	: Machine language	: Machine language	: Machine language	: BASIC + Machine language	: Written in
Protection	: DOS protected Backup copy included	: DOS protected Backup copy included	: DOS protected Backup copy included	: Unprotected	: Protection
File type	: Relative	: Random	: Random	: Sequential	: File type
Related files	: 6 (30 on hard disk)	: 15	: 15	: 1	: Related files
Prime keys	: 1 prime key	: 1 prime key	: 1 prime key	: 1 prime key	: Prime keys
Field size	: 78 characters (32 only for evaluation)	: 255 characters	: 255 characters	: 30 characters	: Field size
Fields	: 200 fields per record	: 127 fields per record	: 127 fields per record	: 4 fields per record	: Fields
Record size	: 254 characters	: 1,108 characters	: 1,108 characters	: 253 characters	: Record size
Records	: Limited to disk capacity	: Limited to disk capacity	: Limited to disk capacity	: 200 on 64	: Records
Screens/record	: 1 screen per record	: 4 screens per record	: 4 screens per record	: 1 screen per record	: Screens/record
Programmable?	: yes	: yes	: yes	: yes, in BASIC	: Programmable?
Works with	: Self-contained	: Easy Script, SuperScript	: Self-contained	: TOTL Text	: Works with

MACHINE	PROGRAM	COMPANY	MIDNITE REVIEW	MACHINE	PROGRAM	COMPANY	MIDNITE REVIEW
64,VIC	Pinball Math	Taylormade Software	15-39,16-61	64	Cursor 64-1 to 64-5	The Code Works	13-36
64,VIC	Pipes	Creative Software	14-24,16-62	64	Dam Bomber	HES	9-30
64	Primary Math Series	CommData	14-24	64	David's Midnight Magic	Broderbund	15-43,16-112
64	Rhymes & Riddles	Spinmaker	18-21	64	Deadly Skies	Tronix	14-37
C,P,64	Scatter (Particle scat.)	Conduit	18-24	VIC	Defender of Tri	Nufekop	12-42,15-43,16-113
64	Snooper Troops, Case 2	Spinmaker	18-21	VIC	Demon Attack	IMAGIC	14-37,16-114
64	(Benji's) Space Rescue	HesWare	15-39,16-48	64	DigDug	Atarisoft	18-33
64,VIC	Speed/Bingo Math	Commodore	12-35,13-35,16-63	64	Dino Eggs	Micro Fun	18-33
VIC	Sprintyper	Mantronics Software Designs	12-41	64,VIC	Dot Gobbler	Mr. Computer Products	14-25
64	Survival Math	Sanburst Communications	15-48	64	Escape MCP	CommData	13-36,15-43
VIC	Tiny Tutor	Computer Software Associates	18-22	64	Evolution	Sydney Dataproducts, Inc.	15-43,16-115
64,VIC	*Tooth Invaders	Commodore	14-24	VIC	Extremator	Nufekop	10-37,14-37,15-43,16-116
64,VIC	Touch Typing Tutor	Taylormade Softw.	12-42,14-24,15-40,16-64	64	Fast Eddie	Sirius	15-44
64	Trains	Spinmaker	18-22	64,VIC	Fort Apocalypse	VIC+HES;64+Synapse	14-25,15-44,16-117
64,VIC	Typing Tutor/Word Invas.	Academy Software	15-40,16-65	64	Frantic Freddie	Commercial Data Systems	15-44,16-118
VIC	VIC Lemonade	Taylormade Software	15-41	64,VIC	Frogger	Sierra On-Line	13-37,14-26,16-119
VIC	VIC Typewriter	Commodore	9-29	64	Game Pak (dragon chase..)	Computer Mat	15-44
VIC	Word Quest	Soft-Sell	14-36	C,P	Glix-Man	S & M Software	14-16
Programming CAI				64,VIC	Gorf	Commodore	10-39,14-37,16-120
64	Commodore 64 Training tape	P.F. Communications	18-26	VIC	The Grave Cave	Eathenross Software	10-38
64	Commodore 64 Tutorial	Cyberia	18-26	VIC	The Great Balloon Race	Abacus	15-44
64,VIC	Gortek & the Microchips	Commodore	15-41,16-66	64	Greenhouse	Commodore	10-33
64	Inside BASIC:Kentucky Derby	Sim Computer Products	18-26	64,VIC	Gridrunner	HES	13-37,14-26,16-121
VIC	Intro to BASIC, I & II	Commodore	16-58	PET	Guns of Fort Defiance	Avalon Hill	10-24
PET,64	The New Step by Step	PDI	15-41	64	High Seas	Briley Software	9-20
VIC	Your VIC-20	Scholastic Wizware	15-41	VIC	Hopper	DES	10-38,16-122
FURNITURE				64	Jawbreaker I & II	Sierra On-Line	13-37,14-26,16-123
64,VIC	Commodore Case	Computer Case Company	11-40	64,VIC	Juice	Tronix	18-33
ALL	One Megabyte Fuzzy Disk	Totl Software	11-32	64	Jupiter Jumpman	Epyx	13-37,14-26,16-124
ALL	Posture chair	Quill Corporation	15-42	64,VIC	Jupiter Lander	Commodore	11-41,16-125
ALL	Model 5812 Printer Stand	Royal Seating Corp.	14-18	64	Kickman	Commodore	12-37,15-44,16-126
CAMP PROGRAMS				64	Kid Grid	Tronix	18-34
Adventure				VIC	King's Ransom	Nufekop	18-34
C,P,VIC	Adventureland Adventure	Commodore	16-72	VIC	Kongo Kong	Victory	11-45,13-48
VIC	Adventure Pak I	Victory Software	11-44	VIC	Kosmic Kamikaze	UMI	9-28
VIC	Adventure Pak II	Victory Software	11-44	VIC	Laser Command	DES	12-42
64	Assault on Memory Alpha	American Peripherals	12-36	64	LeMans	Commodore	16-127
64	Aztec Adventure	Datamost	18-27	64	Logger	CommData	13-38
VIC	Baldor's Castle	Arfon (Daedalus Digital)	16-73	VIC	Ludwig's Lemon Lasers	Victory Software	11-45
VIC	Beyond II	Foxfire Systems	13-48	VIC	Mad Painter	Wunderware	10-38
64	The Blade of Blackpool	Sirius	18-27	VIC	Mancala	Victory Software	11-45
VIC	The Black Castle	DES	10-37	64	Matrix	Llamasoft	18-34
64	Cargo Run	PP&S	18-27	VIC	Maze	Victory Software	11-45
64	Castle Wolfenstein	Muse	18-28	VIC	Maze of Mikor	HES	9-30
64	Catacombs of Gold	Microspec	12-36	64	Maze Man	Creative Equipment	12-36
64	Cave of Erodod	Mindy Skelton	18-28	64	Meteor Madness	Softplus	13-38,14-27
64	Collection 64	Public Domain	13-35	64,VIC	Midnite Drive	Commodore	11-41,12-37
VIC	The Count Adventure	Commodore	16-76	C,P,6,V	Millipede	Commodore	9-30,15-44
64	Curse of Ra	Epyx	13-36,16-78	64	Miner 2049'er	Reston Software	18-32
64	Deadline	Commodore (Infocom)	16-79	64	Mission 64	Briley Software	15-45
64	Dragonriders of Pern	Epyx	18-28	VIC	Mobile Attack (Titan)	Micro Systems	10-39
64	Enchanter	Infocom	18-28	VIC	Mole Attack	Commodore	18-39
64	Gothmog's Lair	Micro World Electronix	18-28	VIC	Monster Maze	Epyx	14-38
VIC	Grave Robbers	Victory Software	11-44,13-48,14-26	64	Moon Shuttle	Datasoft	15-45,16-138
64	Infidel	Infocom	18-28	64	Moondust	Creative Software	14-27,16-129
VIC	Land of \$10 Bills	The Byte House	14-37	VIC	Motocross	Wunderware	10-38
C,P,6,V	Miser (Cursor 64-3)	The Code Works	13-36,16-82	64	Motor Mania	U.M.I.	11-41,12-36,13-38,16-131
64,VIC	Necromancer	64+Synapse;VIC+HES	19-77	64	Mr. Cool	Sierra On-Line	18-35
C,P,VIC	Pirate Cove Adventure	Commodore	13-48,16-84	64	Mr. Robot & His Robot F.	Datamost	18-35
64	Planetfall	Infocom	15-42,18-29	64	Necromancer	Synapse	18-35
VIC	Rescue at Rigel	Epyx	15-42	64	Neutral Zone	Access Software	13-38,14-27,16-132
64	Robbers of Lost Tomb	Timeworks	13-39,14-27,16-88	64	Night Mission Pinball	Sublogic	15-45,16-133
64	Starcross	Infocom	15-42,16-90,18-27	VIC	Night Rider	Victory Software	11-45
64	Suspended	Infocom	16-91,18-29	64,VIC	Nukewar	Avalon Hill	14-27
64	Swan Boat	Mindy Skelton	18-29	64	O'l Well	Sierra On-Line	18-35
64	Sword of Fargoal	Epyx	14-28,16-92	64,VIC	Omega Race	Commodore	10-39,11-41,12-38,16-134
PET,64	Telematch	Avalon Hill	10-24,13-39,16-93,18-29	64	O'Riley's Mine	Datasoft	18-35
64,P	Temple of Apshai	Epyx	13-40,14-28,15-43,16-94	VIC	Outworld	UMI	10-40,16-135
64	Trek Trouble	Mindy Skelton	18-29	64	Over the Rainbow	City Software	18-36
64	Ultima II	Sierra On-Line	18-29	VIC	Pac Bomber	HES	9-31
64	Upper Reaches of Apshai	Epyx	13-40,16-96	64	Pakacud & Superpakacuda	CommData	11-40,12-37
VIC	VooDoo Castle	Commodore	16-97	64	Pak Bomber	Commodore	11-41
64	Witness	Infocom	15-43,16-98	64	Pearl Diver	MicroSpec Ltd.	13-39
64	Zork I	Infocom	16-99	VIC	Pedestrian Polo	DES	10-38
64	Zork II	Infocom	16-100	64	Pegasus	Commercial Data Systems	15-45,16-136
64	Zork III	Infocom	16-101	64	Pegasus Odyssey	CommData	14-27
Arcade				64	Pinball Construction Set	Electronic Arts	18-36
VIC	A.E.	Broderbund	16-103	64,VIC	Pinball Spectacular		16-137
VIC	Aggressor	HES	9-30	VIC	Pinball Wizard	Tech2 Software	15-45
VIC	Air Strike	DES	10-37	64,VIC	Protector	VIC+HES;64+Synapse	14-38
VIC	Alien Soccer	MIS	10-37	64	Protector II	Synapse Software	15-45,16-138
64	Alley-Oop!	Artworx	18-30	64,VIC	Radar Rat Race	Commodore	10-40,12-38,16-139
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COMAL Today, c/o Len Lindsay, 5501 Groveland Terrace, Madison WI 53716
Commodore Computer Club of Toledo Newsletter, 734 Donna Dr, Temperance MI 48182
Commodore International, a staff newsletter published by Commodore Corporate
Commodore Newcomer's Newsletter, c/o Art Klinger, 4659 Balboa, Wichita Falls TX 76310
Commodore 64 Users Group Newsletter, c/o Clearfield UT
Commodore Users Group of St. Louis, c/o Richard Schumacher, Box 6653, St. Louis MO 63125
Comm'putoy Cult, c/o SDPUG, P.O. Box 7776, San Diego CA 92107
Eight Squared c/o J.A. Skelton, P.O. Box 76, Mt. Holly Springs PA 17065
The Exchange, c/o Bill McDannell, 1410 S. McArthur, Springfield IL 62704
The Hacker Rag, c/o Rich Westerman, R.R #1, Box 279, St. Anne IL 60961
Hardcopy, c/o CHUG, John Walker, 8738 Wildforest, Houston TX 77088
Infoworld, 375 Cochituate Rd., Framingham MA 01701 (magazine)
Fox Valley Users Group Newsletter, P.O. Box 28, North Aurora IL 60542
Joplin [MO] Commodore Computer User's Group Newsletter,
c/o Dale Connely, 422 Florida Av., Joplin MO 64801
Mid-Missouri Commodore Club Newsletter,
c/o Jim Whitacre, 780 E. Park Lane, Columbia MO 65201
Mountain Computer Society Data Loops, P.O. Box 1154, Sandy UT 84091
NorthWest Users Guide, 3808 S.E. Licynta Ct., Milwaukie OR 97222
Peeks and Pokes, BCUg, Bloomington IL
SuperPET Gazette, c/o Paul Skipsi, Box 411, Hatteras NC 29743
The Use*Letter, South Bay CUG, c/o Craig Whittler, 17306 Ermanita #3, Torrance CA 90504
SFVCUG Users Port, c/o Tom Lynch, 21208 Nashville, Chatsworth CA 91311
WCUC News, Westmoreland [PA] Computer Users Club, Commodore Section,
c/o Don Miller, 3021 Ben Venue Dr., Greensburg PA 15601
Western Illinois PUG Newsletter, Quincy IL

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The Midnite is published bi-monthly by Midnite Software, Inc.

Price: \$23 US per year (individuals), \$15 US per 6 copies (groups)

(\$28 CDN; \$33 surface, \$43 air overseas)

Back issues #11-15, 17-18 are available, plus our Whole PET Catalog (\$8 postpaid)

Send money (subscriptions & ad fees) or inquiries to **Jim & Debbie Oldfield** at:

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