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TWIN CITIES 128
THE COMMODORE 128™
Journal

Rumor/Opinion/Mayhem:

***"Deja Vu" as Commodore designs
yet another 64 successor!***

Summer Product Special:

Featuring Reviews Of:

Spectrum 128

Sketchpad 128

Format Executive

Quicksilver IEEE interface

The 1750 Clone

Bible Search 128

ESP Tester

The Write Stuff 128 v2.0

Plus:

C-128 Price & Progress Report

Terms of Endearment: 128 terminal software overview

C-128 Software Listing

BASIC 8 Structures Examined

Hudson vs. Lovhaug

The State of C-128 Software Development

25

Twin Cities 128: The Commodore 128 Journal

Issue #25

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Production Staff

Loren Lovhaug, *Managing Editor*

Avonelle Lovhaug, *Associate Editor*

Frank Hudson, *Factotum*

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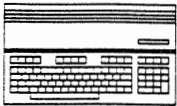
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Frank Hudson
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Twin Cities 128 commits publication about every other month, and judge, we'd do it more often if we could. In between issues you can visit us on QLink in the Hardware Support Area. Want to see what we did prior to Issue #18? Order the *Twin Cities 128 Compendium Book #1* for \$16.95. It contains all the good stuff from our earlier numbers in a handy spiral-bound format. Save space on your bookshelf for our new book *500 C-128 Questions Answered* due out this fall. Are you reading someone else's *TC-128*? You can subscribe to us: six issues for \$12.50; twelve issues for \$25 (contact us for foreign rates, which differ). Address all orders and correspondence to: **Twin Cities 128 P.O. Box 11578 Minneapolis, MN 55411.**

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by Loren Lovhaug

May 1985: Commodore designs a successor to its popular Commodore 64 personal computer. The new product offers 128K of random access memory, a faster microprocessor, an 80 column text display, options for memory expansion, enhanced graphics capabilities, an enriched BASIC programming language, a vastly improved screen editor, and an extended keyboard.

May 1989: Commodore designs a successor to its popular Commodore 64 personal computer. The new product offers 128K of random access memory, a faster microprocessor, an 80 column text display, options for memory expansion, enhanced graphics capabilities, an enriched BASIC programming language, a vastly improved screen editor, and an extended keyboard.

Look carefully at the two preceding paragraphs. No, I did not get careless with my word processor's range copy facility; these paragraphs are indeed meant to be exact duplicates of each other. Exact duplicates of each other with one seemingly insignificant, but extremely important exception. An exception that Commodore apparently is ignorant of. Yes folks, despite what it says on your calendars, Commodore apparently believes that time and the computer industry have stood still; frozen in the year 1985.

This is not a knock against eight bit computer technology. I am quite content with the four 128s in my office. However, I will be the first to admit that the progression of technology has rendered our box far less attractive marketwise than it used to be. Some people will tell you that this is because there has not been sufficient C-128 software development. This is simply not true. For support of this supposition see my half of this issue's Hudson vs. Lovhaug opinion article. In fact, as a result of the fantastic software that has been developed for the 128 over the last four years, the C-128 is a significantly better computer today than it was back in 1985. The difference is that during the "four years that Commodore forgot" inexpensive MS-DOS computers arrived as did affordable hard drive technology. In 1985, the 128 was an incredible deal when compared to a 4 megahertz genuine IBM PC or a 512K Macintosh, but today for the price of a 128D system you don't have to shop very aggressively to find a comparably priced 10 megahertz dual drive MS-DOS machine and with just a little more effort you can probably haggle out a hard drive as well. So in an arena where the 128's advantages are fading to an extent, Commodore proposes to replace the 128 with a machine which has as many, if not more deficiencies.

Here are the preliminary stats on the machine that is being considered: a four megahertz 8 bit machine with built-in 1581 compatible 3.5 inch disk drive, with a standard 128K RAM expandable to 1 megabyte. Like the 128, it has a "64 mode" and uses the "fast serial" disk routines. In addition, the machine will sport an expanded version of BASIC 7.0, a new video display controller called the VIC III which promises Amiga-like graphics capabilities including: dot addressable color with a theoretical palette of 4096 colors. Also included is a dual SID chip arrangement for stereo sound. As of this writing, the user/RS-232 port is going to be the same edge connector arrangement found on the 128 and at least one serial connector for daisy-chaining existing serial bus peripherals such as the 1571 disk drive and Commodore compatible printers. Target price: \$350.

Sounds impressive, right? At first glance, it is. There is no doubt in my mind that the end product of intense labor by Fred Bowen and the rest of the gang at Commodore engineering will be a fine computer. However, a lot more goes into the making of a "winner" in the microcomputer industry than just great hardware. After all, from a technical standpoint, the Plus/4 and the TI/99 exhibited fine hardware design.

Rumor Opinion & Mayhem

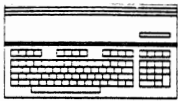
As neat as the *Commodore 65* (what it is called in West Chester engineering circles) hardware is, there are a number of reasons why most Commodore industry analysts are predicting that either it will never see the light of day, or if it does appear, it will be disastrous flop.

The first, and perhaps foremost, question mark is software development. It is no secret that for the past two years, major software developers (especially game developers) are looking to reduce the number of formats and systems they are supporting. Given the fact that most large developers are already supporting two major Commodore formats, namely 5.25 170K Commodore 64 (128) disks and 3.5" 880K Amiga disks, it is understandable why software developers might be weary of adding yet another Commodore system/format to their product line, especially one which in its native mode would be completely incompatible with either of the existing Commodore systems. This is the same spectre which haunted our own Commodore 128 and prevented many software houses from developing native mode software for our machine. If this scenario would again be played out with the Commodore 65, "64 mode" then would be this machine's "saving grace". Or would it? Consider this: how many C-64 programs come on, or or will even work on 3.5" floppy disks? Also, given the ten million C-64 and C-128 systems already on desktops across the planet, 99.9% of which are connected to at least one 5.25" disk drive, how likely is that developers are going to rush to move their applications to 3.5" disks for a system that has no sales track record?

☺☺ *After all, Commodore may have forgotten the past four years, but Commodore owners certainly have not.* ☺☺

Which brings us to the next major question mark for the C-65: sales. Who does Commodore believe is going to buy this machine? I can't see Macintosh users, MSDOS users, or Apple II owners running out to buy this machine. Clearly the largest potential market for the C-65 is Commodore's existing customer base of eight bit computerists. However, I wonder how many C-64 and C-128 owners will buy the C-65, especially if Commodore cannot demonstrate its willingness to support and stimulate development for its older eight bit products? I suspect that this issue will be particularly acute given this machine's similarity to the 128. After all, Commodore may have forgotten the past four years, but Commodore owners certainly have not. During those four years Commodore 8 bitters have witnessed Commodore turning its back on its line of eight bit computers, opting instead to focus nearly all of the companies' resources on Amiga & MSDOS products. Four years ago, potential 128 owners had the hope that Commodore was going to play an active role in encouraging 128 sales and development. Today, I don't think potential C-65 owners can realistically share that same hope. And without that hope, the C-65 in their eyes is just an overpriced C-64 with a built-in disk drive that won't boot most popular C-64 titles.

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C-128 PRICE AND PROGRESS REPORT...

by Frank Hudson

For a computer that is supposed to be in its twilight years the 128 has generated some breakthrough products recently. Take a look at the reviews in this issue for more information, but we have to note the following:

SOGWAP's Bible Search program

If you are even a little bit interested in the New Testament give this program a look. One thing that we can't do in a review is give a convincing account of just how fast this database is. Sure Tom Wright gives us some timings, but it's all too possible to slide through accounts of "so many records in so many seconds" with an idea that this is just another standard disk file search routine in action. Instead we urge you to try it with any drive - you'll be amazed. Try it with a REU, and you'll send your amazement meter out to be serviced! Bible Search just flat-out beats the read/write heads off any floppy disk search we've seen (on any home computer), and in the case of the RAM disk installation, any hard drive too. *Maybe we 128 owners don't have access to cheap hard drives, but we evidently have some very clever programmers!*

Bible Search 128 will cost you \$25 in your choice of 1541, 1571, or 1581 disk formats (be sure to specify which one) SOGWAP Software, 115 Belmont Rd., Decatur IN 46733. Phone: (219) 724-3900.

Busy and Best

Don't skip over the this issue's coverage of Busy Bee's The Write Stuff 2.0 for the 128. I know what some of you are saying: "Another word processor for the 128. Ho-Hum and snore." Well wake up! I don't care how happy you are with your current 128 word blender consider this product strongly. Loren's review will clue you to its surprising wealth of features, but it's not a list of features alone that makes this one of our favorite 128 applications.

Again, speed is something our slow old words can't fully convey. And if you spell like **I don't**, The Write Stuff now has the fastest and best spell checker available on the 128. TWS' speller is more than the "unrecognized word finder" that passes for spell checking in older programs; offering instead the suggested corrections and fast look up abilities the truly terrible speller needs.

If you skipped the preceding paragraph because you know how to spell all the words you write with, TWS lets you use an even faster "find my typos" mode that bypasses the look it up module and goes directly to the accept/correct step. It's smart programming.

The Write Stuff 2.0 will set you back all of \$39.95 for new buyers, current owners can upgrade to version 2.0 with Speller for \$10.00 (add \$5 for a special 1581 version). Busy Bee also has a 3 disk collection of business, legal, and general interest letters and templates all in the Write Stuff format. For just \$10, you get a ton of time-saving text. **Busy Bee Software P.O. Box 2959 Lompoc CA 93438 Phone: (805) 736-8184 (voice before 5 pm PST, a 300/1200 bps BBS afterwards) (orders under \$19.95, please add \$2.50 s&h)**

Jiffy Intrigue

From the JiffyDOS people at Creative Micro Designs Inc. comes news that work is starting on an upgrade ROM for their hardware disk speed-up system. If you've heard or read about some legal disagreements that they had with Commodore over their earlier ROMs, CMD reports it has all been settled. The issue arose because the same JiffyDOS ROMs sold to consumers were used in a 1571 drive clone marketed in Europe. Commodore felt they had to protect their proprietary rights to the drive and in the course of the suit it was determined that portions of the JiffyDOS ROMs duplicated Commodore's code (not surprising, since JiffyDOS works so well with commercial software that depends on particular ROMcalls).

Some will find it ironic that Commodore took the trouble to go after this clone drive when many domestic users report they have had trouble finding Commodore 1571 drives, but legally that is irrelevant. The European '71 clone was quashed by the suit, and Creative Micro Designs now has license to use those portions of the Commodore code it needs, all of course at a cost to CMD Inc.

TC-128 will no doubt hear all the gory details when we share a booth with the JiffyDOS folks at World Of Commodore Philadelphia this coming September.

There's a "price" to disagreements like this, but little "progress". Commodore has a right to the proprietary design of its drive ROMs without a doubt, but where's the wisdom of hindering a significant advance for Commodore users such as JiffyDOS? There are times you can have a "right" and in the long run still be wrong.

Although TC-128 has no inside information to assign any malign motives to it, isn't it odd that a scattering of formerly unavailable 1750 REU's began to show up after Software Support International went out on a limb and began to manufacture hand-made 1750 Clones out of 1764/256K REU

Dog-in-the-manger tactics or just Commodore and a third party source both trying to meet our needs? We've been critical of West Chester's neglect of the 128 market in the past and Loren's support proposal offers one good way to remedy that situation. Let's hope the new Commodore management is thinking about long term support for its products and their customers and that we won't have to shoo Bowser out of the straw to get it.

Get a piece of the Rock

Robert Rockefeller has announced the Diamond Text Editor for the 128 in 80 column mode. Some of the advertised features are: over 140 commands in a 16K buffer, 8 file buffers and 32 resizable, relocatable windows, macros (including conditional IF/THEN/ELSE macros) with a record mode, can be co-resident in RAM with Commodore's HCD65 assembler (DEVPAK), RAMdisk compatible, auto indentation, and the ever popular "much, much more!"

Sounds like a powerful product. Cost is \$42.95 US or \$49.95 Canadian from **Robert Rockefeller, P.O. Box 113 Langton Ontario N0E 1G0 Phone: (519) 875-2580.**

Budgetary constraints?

Another financial package for the 128 surfaces, Automatic Family Financial System. It's a home accounting application which does month by month and actual/projected reports as well as promising tax-time information. Does \$29.95 fit into your budget? **Order from Peter Saltarelli 3832 Cross Bend Rd. Plano TX 75023 Phone: (214) 964-7222.**

Ala Carte?

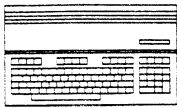
\$25 gets you an order of Crab's Terminal V3.1 from Stephane Laroche 3654 Henri-Julien Montreal Quebec H2X 3H5 Canada This term program offers more than the usual Xmodem and Punter transfer protocols. See Nathan Beck's terminal run-down elsewhere in this issue for the low-down.

Guess who?

Free Spirit Software is now handling the distribution of VizaStar and VizaWrite 128.

Vizawrite 128 is an 80 column word processor with the usual features including mail-merge, spelling checker, and search and replace along with some not so usual stuff like a calculator, up to 240 character page width, and a glossary for frequently used words or phrases. Price is \$59.95.

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Vizastar 128 is more unique, a genuine power-user spreadsheet for the 128 - up to 1000 rows by 64 columns, three-dimensional capabilities, multiple windows, powerful macro functions, and so on. In short, what you have is an approximation of Lotus 123 V1.0 that runs on your 128. How about Lotus' graphics and database modules? VizaStar has versions of them too.

First time around VizaStar faced heavy going because few Commodore users wanted to consider an above \$100 product however full-featured it was. Free Spirit's new price of \$69.95 should change all that.

Free Spirit's address is P.O. Box 128 58 Noble St. Kutztown PA 19530 Phone: (215) 683-5609.

Waiting for GeoBASIC (or for that matter a GeoProgrammer that runs in 128 mode)? You're still out of luck. We've heard reports that work was pretty far along with GeoBASIC, but that the Berkeley Boys are now hard at work on MS-DOS GEOS. We've got a bet with Pete Rose that the MS-DOS version of the graphics operating system won't be copy protected!

Don't look for Lou Wallace and Dave Darus' Walrus Paint machine language 80 column paint program just yet either, as the BASIC 8 Dynamic Duo has been working hard on another project we can't disclose here. However, DigiTalker, Lou's 128 package using startlingly realistic digitized sound samples has arrived at a major 128 software distributor and will be released shortly. Look for a report in our next issue.

How about Pocket Writer 3, the long-promised improvement to the peerless WYSIWYG 128 word Vega-Matic? Our letters are still going un-answered, and Digital Solutions' ads are getting less frequent too. Whenever we find out more we'll let you know.

One place you won't be seeing ads any more is Commodore Magazine. Word has reached us that the long-running house organ has folded its bellows and sounded its last prelude. One likely reason? Look at the ad index for the issue on the stands. Only about a dozen firms, some of which received heavily discounted placements.

I'll miss Mark Jordan's 128 and GEOS coverage, but the magazine must have been losing money and business is business. Commodore's departure leaves Info Magazine the only publication still trying to support the 64, the 128 and the Amiga between two covers.

Things are getting tight in the Commodore eight-bit journalism market as ad revenue dries up, but TC-128 is supported largely by you, the subscriber. Sure we welcome ads, but we can get along just fine without them. Which is why we can be totally honest in our reviews and why we are able to continue providing the 128 coverage you have come to expect even as the others cut back.

For a good time call...

The big-time glossy Commodore magazines have taken a beating lately with Commodore and Ahoy shutting down the presses. Even the page counts of RUN and Gazette are moving quickly toward TC-128 level (smile when you read that). However since the folks at RUN are spending less time creating pages, they have more time to create groovy special projects. The latest, FUN PAK 128 is a collection of C-128 games (yes, kids, the G-word) many of which are full blown 80 column wonders! Loren has seen a few of these games, but has managed to keep them away from my prying eyes, and tells me they are fantastic. To order your copy of Fun Pak 128, call 1-800-343-0728. At just 19.95 it looks like a real bargain.

TWIN CITIES 128
THE COMMODORE 128 Journal

North America's only C-128 specific publication providing reviews, techniques, information, and forthright opinions for everyone who is serious about using the 128!

Single Issues \$2.50
 6 Issue Subscription \$12.50
 12 Issue Subscription \$25.00
 Twin Cities 128 Compendium Book Number 1 \$16.95

(Subscription prices above are for USA only-write for our international rates)

Twin Cities 128
P.O. Box 11578
Minneapolis MN 55411

BIBLE SEARCH 128

Review by Thomas Wright

The Bible: it's the most studied book in the history of civilization. More books have been written about this book than any other. Scholars and believers have spent life times studying it. One of the basic tools of Bible study is a specialized reference book created by scholars called a concordance. A concordance is an alphabetical index of all important words in any work, as well as the passages in which the words are found.

One of the first concordances of the Greek New Testament was created about 1300. The first concordance in English was published in 1535 in London. By that time, there were several different English translations of the Bible. In 1604, King James The First called a conference of church leaders in an attempt to reconcile the various religious parties in England. Out of this conference came the first Authorized Version of the English Bible. This became known in later centuries as the King James Bible, abbreviated KJV.

Three centuries later an American named James Strong published the definitive English language concordance called Strong's Exhaustive Concordance of the Bible. This is a huge book of more than 1800 large pages in small print that remains in print today.

We computer users might look at these books as a simple, alphabetically indexed database, and as such they are ready for an update to the electronic age. It is not surprising then that several software companies have created Bible concordance databases. Because of the sheer bulk of the Biblical text, most software concordances are designed for computer systems with hard drives or plenty of onboard ram. A few 8 bit concordances are available. The best known is the Landmark Computer Reference Bible created by Rick Pavy. Pavy's system begins with the entire Biblical text on twenty-five 5.25" disks, five of which contain the New Testament. Twenty-five disks make any thorough search cumbersome and extremely time consuming. Pavy even offers this caveat, "You may have heard of, wished you'd (sic) had, or simply read about other computer Bibles that have instant access" when you conduct a search of the Bible. These Bibles are made only for IBM or MS-DOS computers WITH a hard drive, and cost hundreds of dollars."

Well Mr. Pavy, miracles sometimes happen. Michael Miller of SOGWAP software has created an "instant access" Bible concordance for the KJV New Testament called Bible Search for the 8 bit Commodore machines. The secret of SOGWAP's "instant access" is the text compression algorithm. This compression does more as SOGWAP has managed to compact the entire New Testament onto two sides of a 1541 disk, one 1571 or one 1581! The 1581 version manages to put all the text and the concordance on a single disk. Little or no disk swapping is required. There is also a version for the 1750/1764 REU which loads the entire compacted New Testament into a RAM disk in less than two minutes. It will not, however, utilize the RAMDOS software from Commodore. Let's talk about speed. The 128 version of Bible Search loads in 30 seconds. Once loaded, the access speed is remarkable. I used a 128D with a 1541 as drive 2. With the concordance disk in drive 2 and the complete compacted New Testament text in the 1571, any verse or word in entire The New Testament will appear on screen in 5 seconds! (Editor's note: my experiments with both the 1581 and REU versions of Bible Search were equally impressive, giving 128 owners truly instantaneous access to biblical text.)

You may print to screen all references of your search word by book, chapter and verse or you may print to screen each verse that contains your search word. The search word is highlighted in the context of the first verse that contains it. With a touch of a key, you may list each succeeding verse that contains your search word until all have been listed and scrolled down the screen. With the touch of another key, you may view your search word in context. That is, you may view the preceding verses or the succeeding

verses one by one. You may also move forward or backward in the text by chapters rather than by verses. When scrolling through Biblical text, a line feed is inserted between chapters. Paragraphs are set off with the \$ symbol. The words of Christ are in color. (This is barely discernible on my monochrome monitor.) Italics are used to show where translators added words for clarity that were not part of the original text. You may search the entire New Testament or restrict your search to a single book of the New Testament, Gospels only, or all books except the Gospels.

It requires about 20 seconds to list 196 separate references to a search word. In two minutes and 5 seconds, 206 highlighted instances of the search word in 196 verses throughout the New Testament were loaded from disk and printed to the screen. Each instance of the search word had the book, chapter and verse in the left margin.

A single keystroke sends the current verse to your printer. Text can only be sent to the printer one verse at a time. The most recent verse on screen is the only verse that will be printed. This is a serious weakness of the program.

This is a complete concordance. All the words in the New Testament are listed not just important words. You can look up every word in the text including small insignificant words such as the articles a, an, etc. Strong's Exhaustive Concordance of The Bible excludes the 47 most common short words; prepositions, articles, pronouns etc., and places these in a separate appendix without printing them in their context verse. Strong explains that to print all the verses containing these short words would require a virtual reprinting of the entire Bible. Miller's compaction technique combined with the random access capabilities of an electronic databases makes it possible to search for any word in the text and not just selected important words.

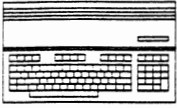
If a search word is misspelled or otherwise not in the New Testament, the screen fills with four columns of twenty words each in alphabetical order with a highlighted cursor at the point where your search word would appear if it were in the text. For example, "justice" does not occur in the KJV New Testament. The cursor highlights "justification" with "just" before and "justified" after. You then have an opportunity to change your search word to any one of the eighty words on screen or begin your search again.

Multiple searches are easily conducted. First you search for one word. Then by adding a second word you will see all references that contain both. By adding a third word you will see all verses containing all three words. Wild cards are accepted as well. "Baptiz*" will list baptized, baptizing, baptizer etc.

Selected text may be saved to disk and later loaded or merged with previous text. However, the text is saved in the form of a four block PRG file that is coded for the compacting routine and is indecipherable. Consequently, you cannot easily manipulate sections of the New Testament text into your own custom passages. This is a serious shortcoming.

Some might disagree with SOGWAP's choice of the King James Version. This 1610 translation has many arcane passages and few modern students rely on this translation. SOGWAP has indicated they are tentatively planning a package based on the New International Version (NIV) and ask for an expression of interest from users. Even though the entire Bible text would require 4.5 megs of storage, I would like to see the complete Bible available in this compacted format.

Bible Search comes on three disks, the main program, concordance and compacted New Testament text. None are copy protected. A twelve page manual is included that provides most of the information needed to navigate through the menu driven program. The manual contains nothing about the disk save, load and merge options. Bible Search is an elegant, creative 128 program for modest price of \$25. See the Price & Progress Report for ordering information.



reviewed by Peter Jacobson

Sooner or later, many C-128 users will run into the problem of how to move data amongst foreign disk formats. After all, not only do we have to cope with the multitude of MS-DOS machines out there, but even the 128 itself can produce the distinct CP/M and Commodore 8 bit (CBM) disk files.

What's the fastest way through this file conversion jungle? Programs that can train our intelligent disk drives to perform a disk format translation. Powersoft's Format Executive is the most versatile of the current crop of C-128 format translators.

Format Executive's modular design offers the ability to format, read and write approximately 150 CBM, CP/M, MS and PC DOS formats. With the proper software and hardware, this can be extended to the Amiga, Atari ST, and the Apple Macintosh--because the Amiga, ST, and the Mac can also be instructed to use the MS-DOS formats through their own file translation software.

Format Executive runs under CP/M 3.0 on the C-128 and requires at least one 1571 drive (with the new ROMs). Also supported are the 17xx REU's and the 1581 drive. Since it is running under CP/M, Format Executive takes advantage of the speed of the Z80, the RAMDISK (Drive M: to CP/M) and the fact that CP/M uses 'burst' mode when writing to a 1571 or a 1581.

The first of three modules contained in Format Executive is FE.COM, which can format or 'recognize' various CP/M and MS-DOS formats. FE.COM will present you with a menu asking if you want to (F)ormat or (R)ecognize. If you choose 'F', you will be presented with a menu whereby you choose a disk format for a disk. On choosing 'R' you will be asked to choose where you want the formats recognized by CP/M's BIOS to reside. A total of sixteen different formats may be recognized, and you are able to add or delete formats at this point. If you have had Format Executive rewrite the drive table (and reboot) you can immediately use any MFM CP/M format. This is not true of the PC or MS DOS formats--they are only useable within another module called FE-IBM. In some cases you will have to 'patch' your CPM + .SYS file to use certain formats, which is explained in the manual.

The second module is called FE-IBM. With it you can transfer files between PC or MS-DOS to CP/M or vice-versa. Note: you cannot transfer directly to a CBM format from MS-DOS without first going through an intermediate CP/M file which serves as a temporary bridge. Before one can use the FE-IBM, one must use FE.COM to have the BIOS recognize the PC or MS-DOS format you will be using. You have a choice among the following:

- 160K SSDD 5 1/4" 40 track 8 sectors/track
- 320K DSDD 5 1/4" 40 track 8 sectors/track
- 180K SSDD 5 1/4" 40 track 9 sectors/track
- 360K DSDD 5 1/4" 40 track 9 sectors/track
- 200K SSDD 5 1/4" 40 track 10 sectors/track
- 400K DSDD 5 1/4" 40 track 10 sectors/track
- 720K DSDD 3 1/2" 80 track 10 sectors/track

The MS-DOS files must reside in the root directory but you can transfer them to any user area on a CP/M disk. Under FE-IBM you can COPY, RENAME, ERASE, or do a directory (DIR) of either the MS-DOS or the CP/M disk.

There is a bug in the 1581 ROM and if you plan to do much transferring of files to a 1581 CP/M disk, you are encouraged to use the May 28, 1987 version of CP/M. The 1581 cannot recognize a disk change when you exchange disks. A program included with Format Executive called FIX158.COM will write a small program to the drive's RAM correcting this problem. If you don't use it, you run the risk of losing data by removing one disk, replacing it with another disk, and then writing to this new disk.

FORMAT EXECUTIVE

The third of the three modules is FE-CBM which allows you to transfer files between normal 128 CBM DOS and CP/M DOS. stated previously you must transfer CBM files to CP/M before you can transfer them to MS DOS format with Format Executive

Using FE-CBM is quite similar to using FE-IBM. You have the same options as you do in FE-IBM in terms of DIR, RENAME, etc. The real power comes in with the 'COPY' options. Here there are several options that affect the destination file. You can designate the filetype (PRG, SEQ, etc.), whether it is ASCII or not, order translation to or from ASCII and PETASCII, elect to strip the high bit in Word Star files, or just plain no translation.

The following are just a few examples using FE-CBM. Say you have a dBase II file that you wish to port the data over to a CBM relative file. You would first save the dBase file under dBase using the SDF or delimited options. Now use FE-CBM to transfer the DBF file to a sequential file, then place it into your relative file. If you have Word Star files, you would go about copying text files to CBM in much the same manner. If you can, save the file in Word Star's non-document mode (strips out all the control characters), then you simply copy the file over to a CBM SEQ or PRG file selecting ASCII translation and stripping of the Word Star high bit. If you do the reverse, (CBM SEQ to CP/M), you will find that the resultant file will have no linefeeds. To solve this problem, Format Executive also has a program that will add or strip linefeeds.

FE-CBM will transfer PRG, SEQ, USR or REL files to a CP/M disk. C-128 word processor files can be translated and edited under CP/M, and Format Executive aids the uploading of CP/M '.com' files to telecommunications services such as QLINK that require all files to be in standard CBM format.

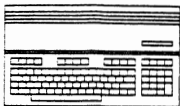
Format Executive is very well written and does all that it claims to do. I found it easy to use once I got the proper syntax of the commands down. For users unfamiliar with CP/M, knowledge of CP/M's time-worn PIP.COM is essential to using Format Executive. Don't forget, when copying from one disk to another with PIP, the destination disk is stated first, then the original. e.g. PIP m: = a:*.* means to copy all files from the A: disk (first drive) to the M: device (the REU RAM disk) One can think of it this way: PIP destination: source:.

Format Executive will work best for those that have mastered such CP/M basics, but it is also endowed with examples of usage for those who wish to learn them.

One minor irritant: while the disk is not copy protected, the program is password protected using a 4 digit Hex number which you must match with a counter code contained in the Authentication Code Book. If you don't enter the correct code after a few tries, you won't be able to use Format Executive. This may be inconvenient, but I applaud their for not forcing us to use a dongle or some disk protection scheme.

This isn't really so bad under CP/M. Once you have loaded a module into memory and perform the authentication, you will not have to authenticate it again for that session, providing you have not done a cold boot or a reset using the reset button.

**Format Executive is available only through:
Powersoft, Inc., P.O. Box 7333, Bradenton FL, 34210
\$59.95 (US) + \$3.50 s/h, Terms: Money order or check
COD's add \$3.00**



QUICKSILVER IEEE

reviewed by Miklos Garmaszeghy

Recently, I picked up a couple of IEEE drives quite cheap (actually for free). High capacity IEEE drives, which were originally intended to be used with the older PET and B-128 computers, can often be had a bargain basement prices. Only one slight problem: the C-128 was not designed to handle IEEE parallel bus drive. Not being able to resist the urge to try these on my 128, I started hunting for an appropriate IEEE interface that would let me use them. Unfortunately, I found them few and far between. One of the few, if not the only one, still widely available is the Quicksilver 128 from Skyles Electric Works. (For those not familiar with IEEE drives, see the IEEE drive primer elsewhere in this issue.)

The Quicksilver consists of an interface cartridge that plugs into the cartridge expansion port (and draws its power from there also), an IEEE connector cable and a replacement ROM chip. The interface has another cartridge port built into the back of it, so you do not need a port expander if you also have a RAM expander or other cartridge. (The only thing I did not like about this arrangement was the physical length: with the interface and a 1750 expander plugged into the back of it, my stock C-128 becomes a total of 24 inches deep from front to back. Unfortunately, this is about 2 inches longer than my computer desk, resulting in a slight overhang at the back.) The Quicksilver is also compatible with C-64 computers as well.

Installation

Two basic steps are required to install the IEEE interface: replace the existing KERNAL ROM chip with the special Quicksilver ROM and plug the cartridge into the cartridge port. The instruction manual is clear and concise with many photos to guide you for installing the replacement ROM chip in the C-128. (Even though I did not find it too difficult (as my 128 has been apart many times during my various tinkering), replacing a ROM chip requires total disassembly of the C-128 to get at its innards. This may not be something for the faint at heart.)

The new ROM replaces the existing KERNAL ROM chip and is updated to KERNAL revision 5 level (the latest available for the 128). If you want to use the IEEE bus in the C-64 mode of the 128, then you will also have to install a jumper clip onto one of the pins of the 8502 CPU chip. The interface works fine in C-128 mode without this jumper, so I elected not to connect it on my set.

The interface contains 4 configuration switches, which allow you set the operating mode. These have to do with which devices are accessed by the normal serial bus and which are re-assigned to the IEEE bus. The switches are hardware set and cannot be overridden by software settings. They can, however, be reset instantly in mid application without having to turn off the power. The only thing that I disliked about the switching arrangement was: devices 9 and 10 are always tied together. Thus, it is not possible to have say an IEEE device 9 and a serial device 10 on line at the same time, because they are BOTH affected by the same configuration switch.

Software Compatibility

The manual indicates that the Quicksilver ROM is transparent to most commercial application programs and should be to all BASIC programs that you would write yourself (assuming that they do not do strange things to the disk drive itself). The Skyles catalog lists a ROM switch which lets you switch between the Quicksilver ROM and the original KERNAL ROM.

In my tests, the only commercial software that caused problems for the Quicksilver was GEOS 128. This is not a major problem, because, with the exception of 1541 like 2031 and 4040 drives, GEOS is not set up to support other IEEE disk formats. However, when trying to install a IEEE device as drive B:, my GEOS just locked up and went on a vacation to never-never land. The least it could do is assume the

unknown drive is a 1541 and remain alive. On the other hand, GEOS worked fine with the Quicksilver ROM, as long as I did not try to access any IEEE devices.

Other software titles tried without incident include: Pocket Writer (v1.2) and Pocket Planner; Timeworks WordWriter and SwiftCalc; Merlin 128; and C-128 Devpack. (I do not use a lot of commercial software, so my choices were rather limited). My tests consisted of two basic parts: test if the program would boot properly with the replacement ROM installed; and check to see if the application could read and write to the IEEE disk drives.

One important point that I discovered was that with the Quicksilver replacement ROM installed, you must have the Quicksilver cartridge plugged in at all times or the computer will lock up. This could be easily fixed in the ROM by providing a check that would route all bus commands to the serial bus if the IEEE interface were not present.

IEEE and CP/M

My main reason for buying the IEEE interface was to let me use the 9090 hard drive in CP/M mode on my 128. (Although the capacity of the 9090 is small compared to most modern hard disk systems, only 7.5 megabytes, it is set up to run under normal Commodore DOS.) I realized from the start that I was taking a big gamble when buying the Quicksilver because both from the catalog and in a previous phone conversation with Bob Skyles from Skyles Electric, I was informed that the Quicksilver was definitely **not** CP/M compatible. Well Mr. Skyles, I have news for you: I am currently running the 9090 and SFD drives in CP/M mode and they work perfectly! This is not to say, however, that it did not involve some effort on my part: I had to write an extensive patch for the CP/M operating system to add support for these drives, but the effort was worth it. (NOTE: The CP/M IEEE support routines will soon be available through Herne Data Systems Ltd., with a retail price of \$19.95 (US) or \$22.95 (CDN).)

It is interesting to note that there is actually a native CP/M format for the 8050 drive which is used by the B-128 with an 8088 option board running CP/M-86. This disk format, which provides some 450k of data space on a single sided disk, is not normally supported by C-128 CP/M but can be read and written by 8050, 8250 and SFD drives. With a few simple patches to the 128 CP/M BIOS, I was able to add support quite easily. CP/M was also available as an option on some of the early PET computers as well, also using 8050 and 8250 drives.

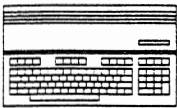
It should be noted that there are some problems with CP/M mode: in order to boot CP/M, you must have the MAY 87 release version (i.e. the one that supports the 1581 drive). The earlier versions (AUG 85 and DEC 85) will only reach the sign on screen, then just hang up the systems. (Perhaps this is why I was repeatedly told that it would be impossible to get CP/M to work with the IEEE drives.) I suspect that there is only a minor problem with the system initialization code, because the system does not hang up until after the CPM+.SYS file has been loaded and begins to execute. This means that it should be possible to correct the problem.

Concluding Remarks

After several months of use, I have found the Quicksilver IEEE interface to be reliable and virtually transparent to all applications I have tried. The ability to use the 9090 hard drive in CP/M mode on my 128 is an added bonus that I only dreamed about before.

If you have an IEEE drive collecting dust somewhere or can get one cheap, then I would recommend getting a Quicksilver IEEE interface so it can be used on your 128. After all, the cost of the interface is cheaper than a new 1571 or 1581.

Skyles Electric Works, 231-E South Whisman Rd., Mountain View, CA 94041, (800) 227-9998, (415) 965-1735
\$119.95 for the C-128, \$124.95 for the C-128D
(plus \$4.50 shipping & handling)



Continued from Page 3

The last major hurdle for the C-65 is simple momentum. Currently Commodore plans to have this machine ready to sell by mid-November of 1989. However, since the machine is not even in the prototype stage it was unable to make an appearance at the Summer CES in Chicago. This means that retailers, wholesalers, and software developers did not have a chance to put the C-65 into their Christmas sales plans. Upon introduction the machine will likely have very little (if any) retail distribution or commercial software development in place. Add to this the fact that Commodore does not have anything even resembling a dealer network and one has to assume that the C-65 is going to be a very slow starter saleswise.

All of these factors combined paint a rather dismal future for this potential C-64 and C-128 replacement product. But aside from the realities of the marketplace, I think there is yet another reason why this product is shaping up to be a monumental disaster for Commodore. In my opinion the introduction of this product does nothing more than antagonize Commodore's existing eight bit and Amiga customer base. On the eight bit side, the continued de-emphasis of the 64 and 128 product lines will be accelerated, the likely result being the further discouragement of third party software development even worse peripheral shortages. Amiga owners will be unhappy with Commodore's diversion of resources away from the development of the litany of promised, but not yet delivered products for their machines. In addition, the introduction of another sub \$700 graphics "gee whiz" box will do nothing to inspire the confidence of Amiga 500 owners in Commodore's long term commitment to their "closed architecture" Amiga. Given that Commodore draws most of its business from within these customer niches, can Commodore really afford their alienation?

To end this essay, I must point out that it is by no means certain that the C-65 will end up being released. However, there are numerous indications that it will. There are those that would say that at this early date I should not even be commenting on clandestine development. However, ever since Irving Gould himself publicly leaked this information in a late April interview in the Wall Street Journal, wild rumors have been circulating. A number of these rumors even went so far as to suggest that the machine under development would be C-128 compatible and herald a new age of Commodore 8 bit support. Clearly this is not the case. My goal in writing this piece is to try and point out the folly the C-65, but even more importantly, you should understand that the release of such a product in and of itself provides no additional support for Commodore 64 and 128 owners. If there is a "silver lining" in all of this, it is that such events may make it easier for Commodore to turn over that responsibility to someone who is willing to provide that support.

IEEE PRIMER

by Miklos Garamszeghy

For those not familiar with IEEE drives, they are heavy duty, high capacity drives with a parallel IEEE 488 (also known as GPIB - General Purpose Instrument Bus or HPIB - Hewlett Packard Interface Bus) interface. They were mainly used with the older Commodore PET and B-128 computers, but can be adapted to the C-64 and C-128 through the use of special interfaces. They can often be had quite cheap from used computer dealers and surplus outlets. I picked up a D9090, which is a 7.5 meg hard drive, and an SFD 1001, which is a single drive, double sided 1 megabyte 5-1/4 floppy drive. Also available are a 2031, which is the IEEE equivalent to the 1541 drive; a 4040, which is like a dual drive 1541; an 8050, which is a single sided, dual drive similar to the SFD 1001 (but only 500k bytes per drive); an 8250, which is a double sided version on the 8050 (and hence equivalent to a dual SFD 1001 drive); a D9060 which is a 5 meg hard drive; and the little known 8060, which is a dual 8 inch drive. Several third party IEEE drives for Commodore equipment can also be used, such as the MSD single and dual drives. A series of printers using the IEEE bus are also available. Other computer manufacturers, such as Hewlett-Packard, have also produced peripherals using the IEEE bus, but these are generally not compatible with Commodore equipment.

All this brings me to the question: what advantages do IEEE drives have over, say the 1571 or 1581 drive? IEEE drives are generally known for their rugged and durable operation. In the past, they have been the choice for BBS systems run on C64 computers due in part to their reliability and capacity, and also to the parallel bus speed. While the speed gap has been narrowed, and actually surpassed in some cases, some of the IEEE drives still have a greater capacity than the even the 1581. Speed tests for various drives are outlined in Tables 1.

The Commodore IEEE bus has a rated transfer speed of 1.2 kbytes per second (about 4 time as fast as a 1541). This can be deceptive though, as noted by the read and especially write times given in Table 1. When other factors, such as track to track access time and latency times are considered, the IEEE drives stack up quite favorably against even 'fast' serial bus devices like the 1581.

IEEE drives also have some other advantages over serial bus drives: the dual drive versions make it very easy to do whole disk copies and selective file copies from one drive to the other using simple Commodore DOS commands. In addition, the capacity of the 8250 and SFD drives are 1 meg per disk, or about 25% greater than the 1581. Some IEEE drives can also have larger relative files, making them excellent choices for large databases. For example, with the 9090, you can have a single relative file of over 7 megabytes long. Try that on your 1581!

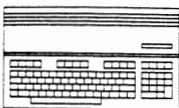
Table 1: IEEE Drive Speed Characteristics:

	1571*	1581*	SFD-1001	D9090
Read (sec)	41	29	23	16
Write (sec)	85	38	40	22

Note: * serial drives used for comparison tests.

Read test consists of reading a 154 block SEQ file into Pocket Writer.

Write test consists of writing a 154 block SEQ file from Pocket Writer.

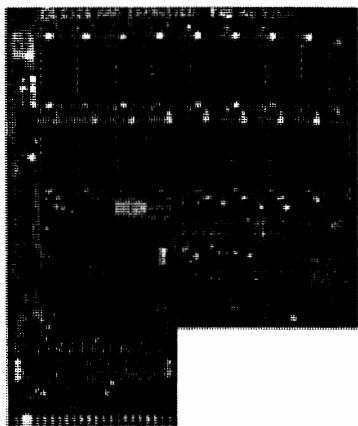


reviewed by Frank Hudson

Computer users have gotten used to a cycle of ever increasing availability and decreasing prices for the peripherals they need. Though this cycle rewards patience and often gives early buyers regrets, 128 owners who thought twice about buying a 1750 RAM expansion unit (REU) in 1987 had a rude shock in 1988. REU's became scarce, then scarcer. Large mail-order houses ran out of units, and even Berkeley Softworks was unable to pry any 1750's from Commodore to fulfill offers they had made to GEOS users. REU's that sold for \$170 to \$200 two years ago as new items were resold for nearly the new price--but even then they were hard to find because few REU owners never wanted to sell their 1750s after seeing what they can do.

Enter the 1750 Clone from Software Support International. At less than \$200 it once again opens the window of availability for expansion of the C-128 to a full 640K.

The 1750 Clone is not a clone in the sense the term is most often used. Nobody at Software Support devised an emulation of the Commodore REU controller--they just found a ready source of this beast by buying a bunch of Commodore's 1764's originally meant for C-64's, and then SSI gave that unit's 256K a doubling to full 1750 strength. This is the same modification that some end users have done themselves. The Clone functions just as an actual 1750 REU would, with no differences save that your case says 1764 instead of 1750.



Why should you let Software Support International do this for you, as opposed to attempting the upgrade yourself?

Modification of a REU is not a beginner's project, voids any warranty the unit might have, could damage your REU, and besides, RAM costs in small lots can be prohibitive. At \$199.95, the 1750 Clone is fairly priced considering the cost of RAM these days and the amount of hand work involved.

The Clone arrives with the same manual that shipped with the 1764, two demo disks, a Commodore warranty card (more on this later) and a small manual provided by SSI. Since the 1764 manual and demo disk concern themselves exclusively with the C-64, the added material is welcome. On the Clone's demo disk are the latest versions of Fred Bowen's RAMDOS software, a couple of test programs to confirm that your REU and 128 expansion port work properly, utilities useful to the BASIC programmer dealing with the REU's and four graphics demos. Not included is the beefier C-64 power supply that Commodore packs with the 1764. The 128's power pack was designed to handle the load from the RAM expansion from the beginning, so it's not needed. If any 64 owners are sneaking a peek at the TC-128 this issue, you can buy this power pack separately from SSI.

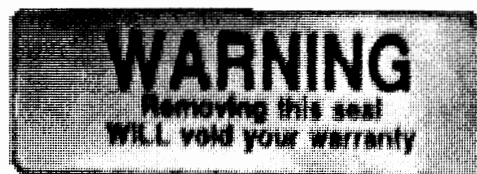
THE 1750 CLONE



Despite its small size, the four page Clone manual does a good job of describing how to use the REU with BASIC 7.0's STASH, FETCH and SWAP commands. CP/M and GEOS are touched upon briefly, but since the use of RAM expansion in these two environments is explained in those operating system's documentation, this is no great loss. What the manual doesn't tell you is what every regular CP/M and GEOS user knows: you don't want to use them on the 128 without a REU! Every time these operating systems pause to access a disk drive, they could instead be reading data from RAM at one megabyte per second. Under regular Commodore DOS, if your application supports any kind of RAM disk, you can use the REU as a "poor-man's hard drive" to greatly increase the speed of operation.

What about that Commodore warranty card? Just as if you or I opened up a REU, SSI's modification voids the Commodore guarantee. The documentation plainly states that this card should be filled out and sent to Software Support NOT Commodore, and SSI then provides the same 90 day guarantee that West Chester would. Since the REU is a purely electrical device, 90 days is adequate as such devices have nothing to break or go out of adjustment. However, I can think of no good reason to use the actual Commodore card. How tough could it have been to print up a batch of Software Support International warranty cards, or at the least to print labels with SSI's address to cover up the West Chester one on the card? Knowing the reluctance of many users to read documentation, I suspect many of the cards are going to Pennsylvania, not Washington.

Except for that faux pas, I can completely recommend the 1750 Clone. When 128 owners wanted them most, it was SSI who answered the call and gave us the REU's our systems needed.



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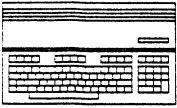
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E.S.P. TESTER

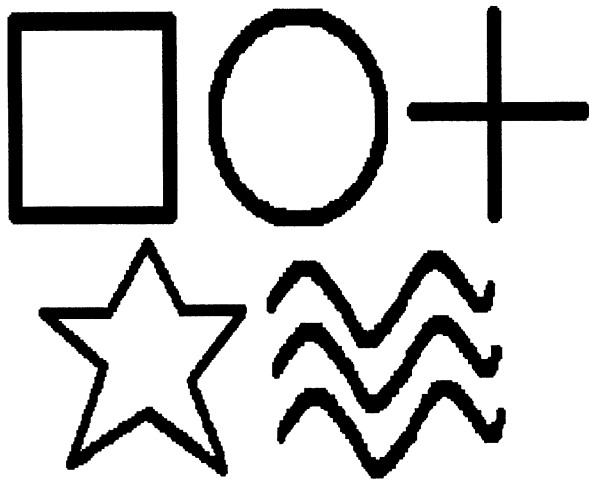
reviewed by Frank Hudson

Welcome back to the *Twin Cities 128 New Age Department* where we guide seekers to enlightenment through the yoga of 128 use. Yes disciples, that means that Free Spirit Software has released yet another inexpensive C-128 non-productivity program, in this case ESP Tester. Unlike our last foray into the mystic Tarot, the concept for this program comes from a more nearby time and place, Post-WWII Duke University in North Carolina. It seems a professor there, a Dr. J.B. Rhine, had an idea to try to quantify the old sixth sense so that we could have psychic batting averages if not indeed on-base percentages, total average, caught stealing, and game winning RBI's.

Two age-old forces are at work here. 1) practitioners of the "soft sciences" like to muscle up their work with nice hard statistical figures, and 2) psychics seem forever drawn to an audience of scientists. In Dr. Rhine's celebrated experiments, a deck of cards was devised containing five symbols (a star, a circle, a set of wavy lines, a box and a plus sign) and during varying procedures called "runs" a subject would in some way try to guess the right card. In a run of 25, five correct "hits" would constitute a chance result, and consistent results of better than chance would seem to indicate some sort of extra sensory perception, E.S.P. Guessing cards is of course a standard parlor magic trick of some antiquity. But as a man of science, Dr. Rhine, received the credit in many popular publications for devising the scheme.

There is very little difference between the Precognition and Clairvoyance tests in practice, since with the "real" cards the procedure differs as to whether the subject guesses before or after the deck is shuffled. The program does a poor job of reflecting this subtle difference. Overall though, the program works well, and the price, like that of the Tarot 128 program, is lower than buying the set of cards and associated instruction book from a novelty store, and using the computer makes this game more interesting and entertaining. Though the symbols on the cards used in Rhine's tests are of a schematic nature, they are displayed quite nicely through the 80 column graphics abilities of BASIC 8. For kids, parties, and just as a general good time conversation piece I can recommend buying ESP tester.

E.S.P. Tester, \$19.00, Free Spirit Software, Box 129, 58 Noble Street, Kutztown PA, 19530, 800-638-5757



Over the years certain individuals were reported to be able to consistently produce above chance results in a series of runs on these cards, thus demonstrating either a measurable psychic ability or skill at deception. Free Spirit's E.S.P. Tester allows the computer to produce runs of these cards and tallies the results. Upon loading (the disk does not self-boot), the user is prompted to choose one of 3 kinds of tests.

In test one, Telepathy, both the sender and receiver are humans, while test two, Clairvoyance, and three, Precognition require only a 128 with 80 column monitor and a willing user/subject. For a Telepathy run, the sender is shown a card on the screen and the receiver (seated so they can't see the screen) calls out their guess, which is then recorded by the sender. For the other two tests, the subject just guesses which card the computer is "holding" and at the end of all runs, the total of correct hits is displayed, the deviation from chance is calculated and a set of odds for this performance is shown which corresponds to the subject's "score" if we can be so materialistic. These figures can be sent to the printer, but there is no ability to store high scores to disk (a curious omission, but maybe it felt too much like a computer game that way.)

MAS-128

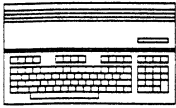
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THE WRITE STUFF V2.0

by Loren Lovhaug

When we last left the brave crew at Voyager Mindtools Inc. our heroes had pretty much settled on Pocket Writer 2 and Paperclip III as their C-128 word processing "dynamic duo". But alas they had a few regrets. First, although they loved Pocket Writer's incredible "what you see is what you get" display, 1351 mouse support, and its wonderful mnemonic intuitive command structure every time they booted up Pocket they lamented the product's ridiculous copy protection, its lack of anything resembling a real spell checker, and non-existent macro capability. Paperclip III addresses many of Pocket's deficiencies, but at a price: the loss of the wonderful WYSIWYG display, a loss of sophistication when dealing with the laser printer, and most importantly a steep learning curve for the TC-128 factotum.

Frank: Really now, I'm not so dumb as to be incapable of using a post-formatted word processor with lots of arcane keystroke commands, but the last time I used Paperclip it was on a C-64 and I still wonder were to put the dongle! Pocket has its share of keystrokes to memorize too, but at least you see right away when you've guessed right. Now spelling checkers - there's something an abis...abyis...abysmal speller like myself needs badly.

Loren: Avonelle is painfully aware of your spelling prowess.

Avonelle: I am painfully aware of yours too.

Loren: Okay, okay. We are agreed that spell checking and more importantly, correcting, ability is important. But I need Pocket's printer driver flexibility. But I also need macros...but that copy protection...arrgh.

Frank: Hmm...I seem to recall at least one prophet bemoaning this problem on another page around here. We have a magazine to put out now don't we?

Avonelle: You know guys, it is too bad that the Write Stuff doesn't have a spelling checker yet. It has extensive macro capabilities, industrial strength printer flexibility and was not copy protected. So close...

Frank: No tougher than Paperclip to use?

Loren: Nope, and with its macro capabilities I could set it up so that its keystrokes are nearly identical to Pocket's.

A few hours later, after factotum Frank has returned from the post office, we find our heroes sorting through the magnificent mass of mail which arrives weekly. Avonelle pulls out the subscriptions, single issue, and book orders and begins processing the hefty stack, leaving Loren and Frank with the press releases, user group newsletters, information request, and one lone floppy disk mailer.

Loren: Hmm.. announcements of seventy five new BASIC 8 programs from Free Spirit, what's in that disk mailer Frank?

Frank: BB Speller. Does Daisy do software?

Loren: Hey wait! That's not air rifle vaporware! That must be something new from Busy Bee...could it be?

Avonelle: Uh oh..I feel word processor lust coming on.

Frank: There goes the production schedule.

Indeed Loren, flash feeds the manual text into his brain and dashes to an open 128D and soon discovers that The Write Stuff now includes a nifty spell checker.

Frank: What's all this stuff on the screen?

Loren: That's the dictionaries loading in. There's a small dictionary for the good spellers (17,000 words) and a larger one for the rest of us (61,000 words). The user gets to choose if they want the full size version or can get along with only the faster small one. They're going into the RAM expansion on this machine.

Frank: That should speed checking!

Loren: The spell checker will also work from disk, and even there it is compatible with most any kind of fast loader like Jiffy DOS or fast load cartridges. The Write Stuff uses a unique two-step process when checking a whole document. Here's where you start out, with this "Quick Check Menu" screen. It looks here like what you might see in one of those "unrecognized word finder" spell checkers you don't like, but since a large proportion of the words flagged here will be simple typos or words no dictionary holds (like names for example), this makes for the fastest possible correction or elimination of these.

Frank: OK, even I make typos. But what's the second step?

Loren: First we'll get rid of the proper names and typos. After telling the speller that we know how to spell "Avonelle" and it doesn't, all you have to do is hit return on any highlighted word and be taken to the Correction Menu. Here's were it gets interesting.

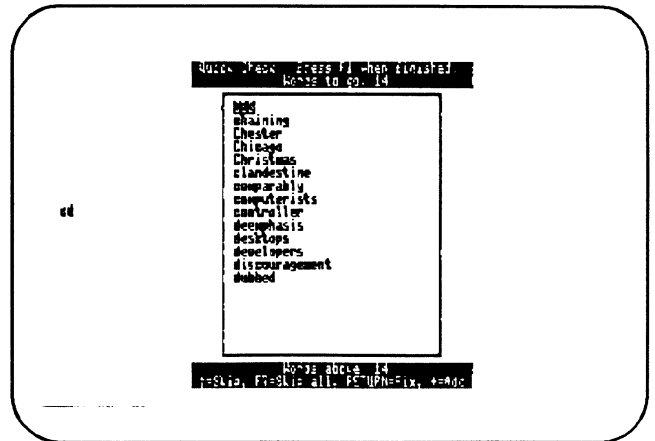
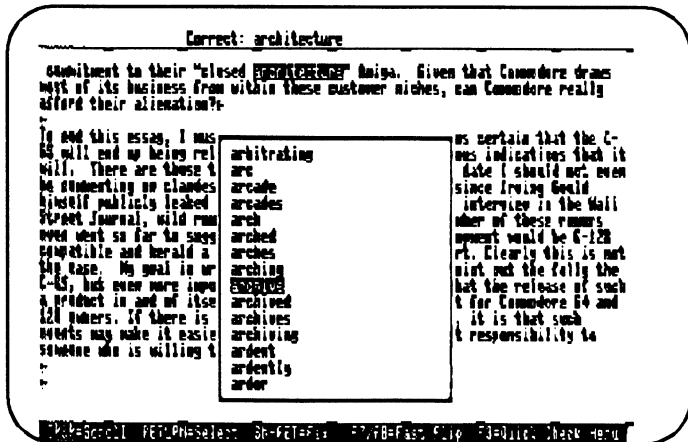
Frank: It looks them up in the dictionary and displays suggested corrections like Paperclip III or GeoSpell. Only faster and with a larger window of suggestions.

Loren: Yup, since it runs from the REU and doesn't have to check the typos along with the words you really need help with, it's the fastest spell checking available on the 128.

Disk based spell checking, however aided by fast loaders, welcomes this two-step scheme even more so. Besides whole document spell checking it will also check individual words, add unrecognized words to its dictionary, and it has the ability to merge words from its user dictionary into either the small or large dictionary files.

Frank: Now if only it searched phonetically for suggested corrections instead of just alphabetically...

Loren: Some people want the moon for the price of bus pass! The Write Stuff 2.0 with the best C-128 speller available costs \$39.95. Upgrades from the earlier versions of The Write Stuff 128 cost \$10.00. Let's not forget, The Write Stuff is a great word processor, equal to anything else on the 128 in overall power. While it may not quite as easy to use as Pocket Writer 2, the program's help screens, menus, and Busy Bee's well written manuals make it understandable to most users. V2.0 is essentially the addition of this great spell checker, but improvements have been made to the way it handles multiple drives and a couple of other areas. For more details you can check out Avonelle's review of it in Issue #22 of Twin Cities 128.



Sketchpad 128 & Spectrum 128

reviewed by Frank Hudson

In some ways painting on your computer is like drawing with your foot. Haven't we all been drawing just fine since the first rainy day we were given a box of Crayolas and a Big Chief tablet? Didn't our mothers reserve favored spots at the International Frigidare Gallery for our masterpieces? Why do we want to start all over again, tipping that crayon box over on its broad side and sliding it all round the desktop?

Computer drawing isn't quite like computerized writing or accounting in this respect. In the later two cases I'm sure most of us wouldn't want to give up our keyboards and screens, and see little advantage to the old ways of doing things. In contrast, painting with computers is a strong push/pull. On one side we are aided in drawing a straight line and a good circle, on the other we must wait while an object is rendered. Our silicon assistant can mix vibrant colors or provide a perfect textured fill, and it can bewilder us in moments of fleeting inspiration as we pour through documentation and screen menus trying to find out how to do exactly what we want to do.

Evidently many of us mouse hugging, would be Picasso's find the help well worth the trouble, as painting programs have been a staple of computerdom since the beginning. There are presently several artistic packages that run on the 128, and the two I'm going to look at here utilize the higher resolution 620X200 ("80 column") screen mode for display and the 1351 mouse for input. There are some other similarities too. Both are written by David Krohne ("The Whiz Kid"), distributed by Free Spirit Software, and are written in and utilize the BASIC 8 graphics language/environment.

The first package, Sketchpad 128, is a monochrome drawing program. Although use is made of expanded 64K VDC RAM as a buffer (more on this later), owners of the older "flat" 128 with only 16K VDC RAM can access the rest of the program's features. In the documentation, programmer Krohne says that smooth freehand drawing was his primary goal in designing Sketchpad, and that has been well implemented.

The other drawing tools and the load/save requestors are accessed by flipping through several layers of menus that appear as a pop up menu in the center of the screen, or in the case of the "pen tips", from a strip that drops in along the top. As usual in programs Krohne has designed, the normally irrelevant right mouse button is used to call the menus as well as an all purpose escape key, while the left button remains in its usual role as the action key. For the most part, this two button arrangement works well, but shuffling through the layers of menus in order to access all the features can be clumsy. Pop or drop-down menus and icon toolboxes, as used with most modern mouse-driven programs, would have been a better solution. Since Sketchpad is written with BASIC 8, it uses the increasingly popular graphics file formats introduced by this language. The clip (brus. file) creating function is especially powerful, and can be used to easily create custom pattern fills simply by clipping any portion of a screen drawing. Sketchpad supplies 24 already constructed pattern fills, which include a fairly convincing "wood grain" that I especially liked. Also present from BASIC 8 are the Rylander Solids, a set of objects (doughnut, sphere, spoon) which take a long time to render on the screen, but in the end represent convincing 3D shaded shapes. Both Sketchpad and the Spectrum 128 program I'll discuss below can import Print Shop format graphics, giving them a ready source of small clip art.

Other extras are an Enlarge Area option that can resize a section of a picture two, three, or four times larger; a slideshow utility, and a command that sets the current screen on a constant sideways scroll.

My personal test routine with graphics programs is to just boot it up and start to draw, judging the environment by how good a picture I can produce and how little the user interface gets in the way. After this test, my overall impression of Sketchpad was favorable. There are plenty of freehand drawing tools and they work well, and the higher resolution 80 column graphics allow creation of better quality pictures. I did experience occasional frustration from shuffling through the layers of menus looking for a particular function however. Referring to the short but adequate documentation booklet usually helped me find which menu page I was looking for.

Sketchpad has a couple of failings that knock it down a grade. There is no "undo" function, although you can "lock" the picture (save it to a buffer in the 64K VDC RAM). One of the nearly universal advantages of computer drawing programs, no matter what system they run on, is the ability to "take back the last action". Sketchpad's lock/save-to-buffer command forces the user into performing four mouse clicks in a forced march through the stacked menus to accomplish what other programs simply and invisibly do automatically for the user. Since Sketchpad otherwise implements most of the standard drawing program commands, this omission is puzzling.

It would be a nice extra if keyboard equivalents would be included for this and some of the other commands, as this would save mouse mileage for the experienced user of the program.

That old standby of persnickety computer artists, pixel edit (aka "Zoom mode" or "fat pixels") is included in Sketchpad, but did not work as expected for this user. A pixel that has been turned on in pixel edit will sometimes appear off after return to the full sized bitmap and re-zooming in on the area just worked on will confirm that indeed the program did not "remember" your previous efforts. Odd.

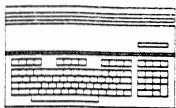
Even more puzzling is the failure to disable the run/stop key which will interrupt Sketchpad leading to the loss of any picture you are working on.

Spectrum 128 is a much more complex program than Sketchpad offering extensive color painting abilities, a more modern user interface, and some other extras. A mouse and 80 column monitor are required just as with Sketchpad, but this time the 64K VDC RAM is needed too. In return Spectrum gives you the ability to paint with 128 apparent colors on the 128's 80 column screen!

While my "boot up and start painting" test rewarded me with a good overview of what this program can do, one can make more intelligent use of Spectrum after reading the manual's explanation of the 80 column screen color map and the author's tips on using it. Speaking of documentation, our copy was supplied with the pre-production version of the manual, which goes 13 full-sized pages and adequately describes the program's many features.

In place of Sketchpad's stacked series of menus, Spectrum uses a more modern drop down scheme. Despite the large number of options, I found this user interface easier to wade through than Sketchpad's. Once again, the right mouse button is used to drop the menus down and as an effective escape key, while the left is the action key. Once you get the hang of this you'll wonder why more programs don't make use of the 1351's right button.

Continued on Page 15



Sketchpad & Spectrum continued



Besides circle, line, draw, airbrush, erase, fill, etc Spectrum has a whole extra menu of geometric two-dimensional shapes (Dodecagon, Octagon, Hexagon, Diamond, and Triangle) to play with. All of these are rendered quickly and work well. The Rylander 3D solids are also available. A great many pre-made fills are provided on a second disk, which include a variety of half-tones and textures. Of course any BASIC 8 brush file can be used (or created) by Spectrum.

Once again I wished for some keyboard commands that could be used to speed up the selection process. With this increasingly common scheme, beginners can start out using the mouse driven menus and progress, at their own rate, to the speedier keyboard equivalents for the same commands.

The 128 colors that are a unique-to-the-C-128 feature of Spectrum are produced by dithering, a process that mixes some white or black pixels in varying proportions with one of the standard 16 C-128 colors producing a convincing variety of shades. The extended palette cannot be used by every operation however, and no matter what the mode the underlying 8 x 2 80 column color card structure must be attended to, or color bleeding will result.

With careful work the 128's 80 column screen can take on an almost Amiga-like panoply of color, and older monochrome BASIC 8 format graphics can be colorized. Currently, Spectrum can do things that no other 128 program can accomplish, and therefore is well worth considering if you work often with BASIC 8 format graphics files and want to produce color screens on the 128. Although it is designed as a color painting application, Spectrum will do everything the monochrome Sketchpad can do, and more, except the sideways scrolling and Enlarge area command. My judgement is that Spectrum is the better all around choice among these two programs, even for print-out oriented artists, providing they have 64K VDC RAM and REU equipped machines.

None-the-less, there are still some rough edges with this program. Yup, the run/stop key will freeze Spectrum in the middle of whatever you're doing, and a loss of the current document will result. And again, there is no "undo" key. Frequent stashing of your picture to the RAM disk (supported through a menu option) is probably the best available substitute. As a minor quibble, the screen's border is set to the same color as the main background color making this no-mans-land invisible. Because of this, the artist can run out of drawing room unexpectedly. A request is made at Spectrum's boot-up asking about your monitor's interlace sync capabilities (most 128 monitors can display an interlace mode like the Amiga's with varying degrees of success), but

answering yes only seems to add the infamous interlace jitter without returning any noticeable increase in resolution. Someday 128 owners may have an interlace mode paint program (I've seen a prototype), but Spectrum isn't one. Take a tip from TC-128, and just say no to Spectrum's interlace question.

Are either of these programs better than my long-time personal favorite, GeoPaint? In certain functions, yes. Being able to clip a pattern fill at will is undeniably useful, and the greater number of computer drawn geometric shapes offered here will attract some artists. Spectrum 128's color abilities are a towering stack of paintpots better than GeoPaint's limited (and 40 column mode only) ones, but they are not without the limitations familiar to all who have wrestled with a color-card mapped Commodore screen. Either of the Free Spirit packages is cheaper than GEOS v2.0, and neither have the copy protection hassles that accompany the Berkeley Softworks product.

Looking at the Sketchpad/Spectrum vs. GeoPaint question overall, GeoPaint's user interface is just too much better however, and since my final display device is most often mass reproduced black & white paper, the 128 color aspects of Spectrum don't outweigh the associated problems. Those that have a harder time deciding should appreciate the GEOS to BASIC converter published in TC-128 #24 which allows one to move graphics between the GEOS and BASIC 8 supporting worlds. Using such a GeoPaint and Spectrum combination should allow Spectrum colorization of GeoPaint drawn graphics.

Sketchpad 128 retails for \$24, and Spectrum 128 retails for \$29, both from Free Spirit Software, PO Box 129, 58 Noble Street, Kutztown, PA 19530.

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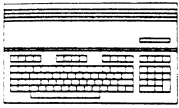
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TERMS OF ENDEARMENT

By Nathan Beck

Many say that there is a lack of software for our C-128. While that may be true in some cases, it's not the case with telecommunications programs. C-128 users have a wide selection of terminal programs to choose from.

Partly to demonstrate this fact, and partly to help you decide which particular terminal program(s) will serve you best, I'll attempt to describe as many of the contenders as I could find. While there isn't room here for an exhaustive comparison of each program's features, you'll surely find mention of at least one terminal program for any possible use, from connecting to mainframes, to yakking on a local BBS.

BOBSTERM PRO (128 version)

Screen Mode: 80 col. only
ASCII/PETASCII: ASCII only
Terminal Emulation: ADM31, VT52, VT100, USER (programmable emulation)
Modems: CBM 1650-1670, Westridge, Hayes, et. al.
Baud Rate: 300 to 2400
Protocols: XModem (CRC), Punter
Buffer: 60,000 bytes
REU Support: none
Disk Drives: 8-15
Macros: Full featured macro editor
Appearance: custom character sets, windowed menus
Notes: This program is extremely configurable. Besides the built in emulations, you can adapt it for many uses. The buffer is very nearly a full featured word processor in its own right. File type conversions, disk format (CP/M to CBM, and vice versa) conversions are possible. Files can also be split into smaller files. The macro functions, emulation

functions and buffer versatility distinguish this program as one of the best!

Author: Bob Lentini
Cost: depends on availability
Address: Progressive Peripherals & Software 464 Kalamath Street Denver, CO 80204 USA

ULTRATERM III

Screen Mode: 80 col. only
ASCII/PETASCII: ASCII only
Terminal Emulation: none
Modems: most CBM modems, Westridge, Hayes & compatibles
Baud Rate: 300-2400
Protocols: XModem (CRC & 1K), WXModem, Punter
Buffer: 61,440 bytes
REU Support: RAM disk
Disk Drives: 8-11
Macros: 8 definable F Keys of 24 characters each
Appearance: pull-down menus, very easy to use
Notes: This is one of the most versatile C-128 terms around, despite its lack of terminal emulation or color graphics. The REU is supported as a RAM Disk, but the buffer can also be used in the same way. The buffer has a full featured editor, with block move/copy functions, and more. DLE masking and XModem padding stripping are among the many transfer options. The status line contains modem status indicators, an on-line clock, and a time-of-day clock. Very nice general purpose term!
Author: Steve Boerner
Cost: \$25
Address: Post Office Box 364 Brockport, NY 14420 USA

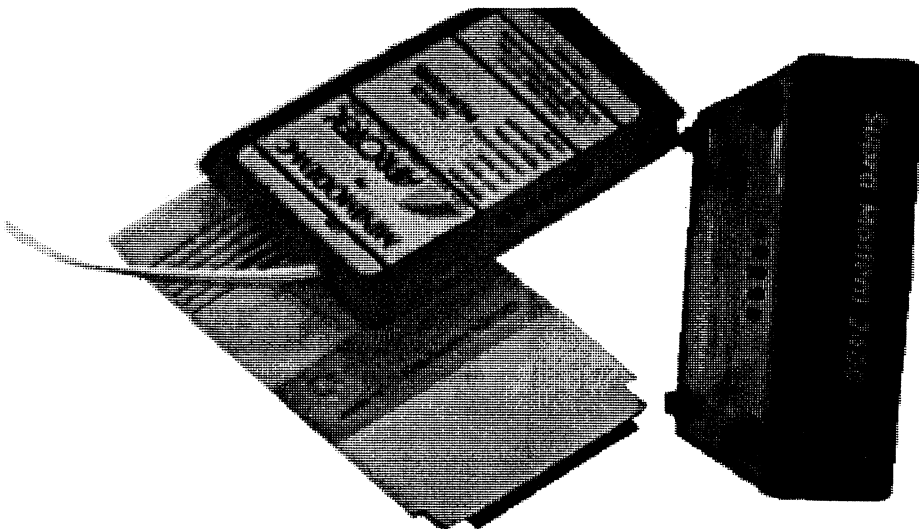
COLOR GRAPHICS TERM 4.2

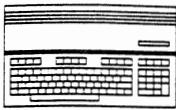
Screen Mode: 40 or 80 col. modes
ASCII/PETASCII: both
Terminal Emulation: none
Modems: most CBMs, Westridge, Hayes & compatibles
Baud Rate: 300-1200 (2400 may be possible)
Protocols: XModem (checksum), Punter (multi)
Buffer: 60,928 bytes
REU Support: via RAMDOS installed in page 14
Disk Drives: 8-9
Macros: ID and password keys, 5 extra macros
Appearance: colorful status line
Notes: I've tried several other versions of this Public Domain term (v3.3, v6.1, and v7.5), but like this best. It's good for use with Commodore Color Graphics BBSs. The buffer contains a simple message editor, but allows color graphics messages to be written. SEQ file reader built-in. The phone book file allows up to 15 entries, and each entry includes ID and password. Unfortunately, editing the phone number file is unreliable (I used a word processor). It's a good term if you generally call only Color Graphics BBSs.
Author: David Bratton & Greg Pfountz
Cost: Free-Public Domain
Address: unknown

PRO-128-TERM V16.1

Screen Mode: 80 col. only
ASCII/PETASCII: either
Terminal Emulation: none
Modems: Hayes & compatibles (like the 1670)
Baud Rate: 300-2400
Protocols: XModem (CRC), Punter (multi), WXModem
Buffer: 53,000 bytes
REU Support: none
Disk Drives: 8-30
Macros: ID and password keys, 8 definable F Keys
Appearance: colorful status line, window menus
Notes: This one disappointed me. The high version number indicates that a lot of work was done, yet bugs remain. The worst one shows up when you connect to a Color Graphic BBS, and the program insists on popping into ASCII mode. Also, the program offers file transfer at 1mhz or 2mhz (which would seem to be faster), yet this is often unreliable. Many BBSs refuse to

Continued on page 17





acknowledge the 2mhz mode of any protocol. WXModem is supported for downloading only. Its buffer contains no editor, yet you can "force" text into it by setting local echo, opening the buffer, and typing. Of course, you have to remember to close the buffer when you're done. The menus are laid out well, and clear in their uses. Note that by activating both command summary menus, you can define a virtual 40 column screen, centered on the display. Phone number file contains ID and password keys. If you can stand the aggravation, this might be a good term for Color Graphics BBSs.

Author: Paul Aidukas

Cost: \$20

Address: Post Office Box 131
Readington, NJ 08870 USA

MULTITERM 128 V3.7

Screen Mode: 40 or 80 col.

ASCII/PETASCII: either

Terminal Emulation: none

Modems: all CBM, Volks series, Hayes & compatibles

Baud Rate: 300-2400

Protocols: XModem, Punter (multi), Nibbler

Buffer: 47,104 bytes

REU Support: none

Disk Drives: 8-9

Macros: 8 definable F Keys

Appearance: simple and clear, with windowed menus

Notes: This is an oldie, but a goodie! As with Pro128Term, the buffer has no editor, but it has other features that make it worthwhile. You can read or print SEQ files stored on disk, and even send them to the modem. Along with the multi-file transfers, the term has a "modem nibbler" for whole disk copies, block by block. In fact, you can set the starting and ending tracks for this feature, for exotic copying tricks. While the phone number file cannot hold your ID and passwords, you can easily define F Keys for this purpose. The F Key editor is very powerful, and multiple F Key files are allowed. MultiTerm's best feature is the "mini-BBS", which can be left unattended or "jumped into" while on-line. You can define a password and opening message (8 lines of 39 characters each), and the mini-BBS stores a user log in the buffer along with feedback a user might leave. This feature makes it possible to setup the mini-BBS so that you (or others) can call from a remote location and access any of your files. This feature also makes MultiTerm ideal for

trading files between 2 users. You should get this one!

Author: Steve Thompson

Cost: \$5 (donation)

Address: 12 218th Place SW
Bothell, WA 98021 USA

KERMIT V2.2

Screen Mode: see notes

ASCII/PETASCII: ASCII only

Terminal Emulation: VT52, VT100, VT102, Tektronix 4010

Modems: All except CBM 1660

Baud Rate: 300-2400

Protocols: Kermit

Buffer: none

REU Support: none

Disk Drives: 8 only

Macros: none

Appearance: austere

Notes: Kermit v2.2 is actually a C-64 term program, intended for a very specific use; communication with mainframes. However, if you need to do this, Kermit will not disappoint you! The various supported emulation modes guarantee compatibility with many systems. The most exciting feature of Kermit is the ability to install any one of 5 different screen drivers (the 40 col., simulated 80 col., 2 different drivers for the Batteries Included 80 col card, and the C-128 80 col. screen). Because of this feature, it's a simple matter to place the program on an autoboot disk, with the C-128 80 col. screen driver preset as a default, and have the program boot on your C-128 as if it were a C128 program. Since it's the only C-128 program I've found that supports Kermit file transfer, I suggest you get this one. The program instructions (included on the disk or professionally printed) are concise and complete.

Author: Various people

Cost: Public Domain (but \$5 gets a printed manual)

Address: Dr. Evil Laboratories Post Office Box 3432 Redmond, WA 98073-3432 USA

LOBSTER TERM

Screen Mode: 80 col. only

ASCII/PETASCII: ASCII only

Terminal Emulation: VT100, ADM3A, IBM3101, TVI925

Modems: CBM 1660 & 1670, Hayes & compatibles

Baud Rate: 300-2400

Protocols: Xmodem (checksum)

Buffer: 56,320 bytes

REU Support: none

Disk Drives: 8-9

Macros: 8 programmable F Keys

Appearance: unusual, but nice-windowed menus

Notes: The name says it all... This is not a typical term program. Aside from its striking appearance, this term also has the unusual ability to display Doodle! pictures, display RLE pictures, and print RLE pictures. The phone number file (maximum of 20 numbers) holds ID and password info for each entry. The buffer has no editor function, but that lack can be overcome as mentioned elsewhere. If you have any need for the various terminal emulations supported, you really should get this one. This program has been superceded by Crab's Terminal, but because of its, ahem, unique features it's still worthy of your attention.

Author: Stephane Laroche

Cost: \$10

Address: 3654 Henri-Julien
Montreal, Quebec H2X 3H5 Canada

CRAB'S TERMINAL V3.1

Screen Mode: 80 col. only

ASCII/PETASCII: ASCII only

Terminal Emulation: TTY, VT100, ADM3A, IBM3101, TVI925, ANSI

Modems: CBM 1660 & 1670, Hayes and compatibles

Baud Rate: 300-2400

Protocols: Xmodem and YModem

Buffer: 56,064 bytes

REU Support: none

Disk Drives: 8-9

Macros: unknown

Appearance: like Lobster Term

Notes: I haven't purchased the fully functional version of this term, so my review here is based on the shareware version that was released without working transfer abilities. At first glance, the program appears to be a simple upgrade of Lobster, with added features. However, this version does not support the graphics display/printing, though it adds two terminal emulations. Therefore, I suggest that if you try Lobster Term (it's widely available) and you like it, send in \$25 and get this one too. The most precious new feature (to me) is the addition of ANSI terminal emulation used by many non-Commodore BBSs. This enables you to see the color graphics displays used by the ubiquitous IBM PC and its clones. Isn't it amazing that the C-128 can emulate the IBM, but not the reverse?

Author: Stepane Laroche

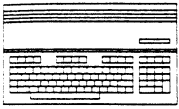
Cost: \$25

Address: same as for Lobster Term

DESTERM 128

Screen Mode: 40 or 80 col. (via software)

Continued on page 18



ASCII/PETASCII: ASCII only
Terminal Emulation: VT52, VT100, ANSI
Modems CBM 1670, Hayes and compatibles
Baud Rate: 300-9600!
Protocols: XModem (CRC & 1K), YModem (batch), Punter
Buffer: 51,200 bytes
REU Support: none (but planned)
Disk Drives: 8-15
Macros: 8 programmable F Keys of 32 characters each
Appearance: custom character set, but otherwise typical
Notes: This is a relatively new program, with a promising future. Although the program allows most Color Graphics characters, the few exceptions prevent satisfactory use with CG BBSs. The author swears that its performance at 9600 baud is better than the Amiga. Password and ID data is not saved with the phone numbers file, but since you can have as many F Key definition files as you like, that's a minor problem. One of the program's most unique features is the interlace display mode, where you can have as many as 52 lines on the screen at once. Another display trick is the 40 column screen-it uses the 80 col. screen in double wide mode, so it's a very sharp display. (Further evidence that the C-128 has a superb 80 column display chip!) There is no buffer editor, but the program can translate between ASCII and PETSCII when loading or saving the buffer. It's well conceived and powerful as it stands, and the author promises to improve it if support for the program warrants his time and effort.
Author: Matthew E. Desmond
Cost: \$25
Address: 265 Beechlawn Drive Waterloo, Ontario N21 5W8 Canada

EBBS TERM V4.51

Screen Mode: 80 col. only
ASCII/PETASCII: both
Terminal Emulation: none
Modems CBM 1670, Hayes and compatibles
Baud Rate: 300-2400
Protocols: XModem (CRC & 1K), YModem (batch), Punter
Buffer: none
REU Support: none
Disk Drives: 8 only
Macros: 8 Fkeys defined in BASIC boot program
Appearance: stark
Notes: At a meager 61 blocks (ARced), this term is the smallest of the bunch. The author (well known

for his work on telecommunications programs for both the CBM 8-bit machines and MS/DOS systems) provides this simple term for use with his C-128 BBS system, EBBS. The term offers no frills, but does function flawlessly in ASCII or Color Graphics modes. It is intended for quick use, and it excels! The BASIC boot program is well documented, and you can easily configure it to your tastes and requirements. When you're in a hurry, this one won't let you down!

Author: Ed Parry
Cost: \$5
Address: 8711 Langdon Avenue #8 Sepulveda, CA 91343 USA

NOVATERM V2.0

Screen Mode: 40 or 80 col. (via software)
ASCII/PETASCII both
Terminal Emulation: none
Modems CBM 1670, Hayes and compatibles
Baud Rate: 300-2400
Protocols: XModem (CRC), Punter
Buffer: 45,000
REU Support: none
Disk Drives: 8-9
Macros: 10 macros of 250 characters each
Appearance: typical, status line on bottom

Notes: This gem evokes mixed feelings. While it is easily the best term yet for Color Graphics use, it will never improve! The author feels that Commodore 128 users simply haven't supported it properly. Nevertheless, the current version performs flawlessly. NovaTerm simulates the 40 column screen by using the wide mode of the 80 col. screen (like DESTERM). The phone numbers file also contains the ID and password data for each of its 45 possible entries, all of which can be auto-dialed in any order you choose. A neat feature of auto-dialing is the "carrier detect alarm". Set the volume of the alarm very loud, turn the modem speaker off, and go enjoy a ball game on TV while the term dials all your favorite BBSs: When it connects, it will call you! Another unique feature is called "date tracking", as it keeps track of the last date that you called a particular BBS. For people (like me!) who call lots of BBSs, this is a handy extra. The buffer can be printed to either an ASCII or PETSCII printer.

Author: Bruce Franklin
Cost: freeware (send a SASE with any questions)

Address: 8653 Brae Brooke Drive Lanham, MD 20706 USA

AUTOTERM 128 v1.1

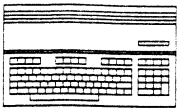
Screen Mode: 40 or 80 col. mode
ASCII/PETASCII: ASCII only
Terminal Emulation: none
Modems CBM 1670
Baud Rate: 300-1200
Protocols: XModem, Punter, Midwest
Buffer: unknown size
REU Support: none
Disk Drives: 8
Macros: 10 keys (from numeric keypad)

Appearance: unreadable status line
Notes: This is an older term, and hardly special, except for a couple of things. First, it has four built-in custom character sets that can be changed at will. It also uses a file transfer protocol called "Midwest". Apparently, a protocol that never caught on. The term is difficult to use because the status line is unreadable, and instructions aren't included. The program must be configured to autoboot (with an included autoboot maker). Though the program has an unlimited phone number file, there are better terms.
Author: Steve Lewis
Cost: \$15
Address: Post Office Box30441 Phoenix, AZ 85046 USA

SHERMTERM 128 V3

Screen Mode: 40 or 80 col. mode
ASCII/PETASCII: ASCII only
Terminal Emulation: none
Modems: CBM 1670
Baud Rate: 300-2400
Protocols: Punter (multi)
Buffer: none
REU Support: none
Disk Drives: 8-9
Macros: none
Appearance: typical (3 line status/menu)
Notes: Another "could've been"... This term does nothing special, except display text in any of 8 included custom character sets. It is written in BASIC, and the author admits that it could use compiling. You should know that, though the option appears to exist, I could not get the term to go into 40 col. mode. Nice character sets, though!
Author: Donald Sherman
Cost: Public Domain (donations)
Address: c/o River's Edge Computer Sales Post Office Box 219 Seymour, CT 06483 USA

Continued on page 19



NEZTERM V9.3

Screen Mode: 80 col. only
ASCII/PETASCII: ASCII only (see note)
Terminal Emulation: none
Modems: CBM 1670, Hayes and compatibles
Baud Rate: 300-2400 (see note)
Protocols: Xmodem, Punter
Buffer: 56,320 bytes
REU Support: none
Disk Drives: 8-9
Macros: none
Appearance: typical, separate screen menus
Notes: Originally written by Bill Nesbitt, this term has been modified by several people over the years. Limited color graphics support is available, but unreliable (see DESTERM). The latest contributor acknowledges baud rates only up to 1200, but 2400 may be possible. The buffer has a full featured editor with block functions and ASCII to PETSCII conversions. The disk drive support includes the ability to access either side of a 1571 disk (when it's formatted in 1541 mode on both sides). The phone number file allows 40 entries, and 3 ID or password settings for each entry. You can also auto-dial up to 20 consecutive entries in any order. The nicest feature of NezTerm v9.3 is the on-line Help, available in most of the program's various sections.
Author: Mike Saiter
Cost: Free-Public Domain
Address: unknown

THE COMMUNICATOR

Screen Mode: 40 or 80 col. mode
ASCII/PETASCII: both
Terminal Emulation: none
Modems: CBM 1650-1670
Baud Rate: 300-1200
Protocols: Punter
Buffer: 55,808 bytes
REU Support: none
Disk Drives: 8-11
Macros: 8 programmable F Keys
Appearance: ugly main menu
Notes: This ancient program can claim only one unique feature: it can be setup to autodial phone numbers when it's booted. The Communicator's lineage is well documented, and harkens back to the "Terminal.C1" term (for the C-64) written by Steve Punter. On-line help is available, but the program is clunky and moving between terminal mode and the command menus is unreliable.
Author: Gary Patricks
Cost: Free-Public Domain

Address: unknown

VT100 EMULATOR-128 V2.1

Screen Mode: 80 col. only
ASCII/PETASCII: ASCII
Terminal Emulation: VT100
Modems: CBM 1660-1670, Hayes and compatibles
Baud Rate: 300 to 2400 (see note)
Protocols: XModem
Buffer: 61,440 bytes
REU Support: via RAMDOS installed in page 8
Disk Drives: 8
Macros: none
Appearance: standard, status line on top line
Notes: This program is only available with the "new" 1670 modem package. Originally written by Joe O'Hara, it has been updated and enhanced by Fred Bowen (also responsible for RAMDOS and other wonders). Fred reports that speeds up to 4800 baud are possible. If you purchased a newer 1670 modem, this program will serve your VT100 needs, at least until you can get any of several others available.
Author: Joe O'Hara/Fred Bowen
Cost: see note
Address: 1200 Wilson Drive West Chester, PA 19380 USA

GEOTERM 128 V2.1

Screen Mode: 40 or 80 col.
ASCII/PETASCII: ASCII only
Terminal Emulation: none (GEOS)
Modems: CBM 1670, Hayes and compatibles
Baud Rate: 300-1200
Protocols: XModem (CRC & 1K), Punter, Nibbler
Buffer: 30,720 bytes
REU Support: as a RAM Disk (GEOS style)
Disk Drives: A, B, C (see note)
Macros: 8 programmable F Keys
Appearance: GEOS
Notes: This is the best term available for use in the GEOS environment. The original version of GeoTerm was a nifty hack, but was hard to use, as it relied on the user do all the work. This version of GeoTerm has been improved immensely, and is certainly a worthy addition to your Geos library. Some of its more noteworthy features are the inclusion of the Convert utility, definable function keys, phone number files, ASCII to PETSCII (and vice versa) conversion in the buffer, and the addition of several newer transfer protocols. Now you can download a program, convert it to GEOS format, and go (almost)

directly to it, while remaining in the Geos environment all the while. Master Blaster has done this one up right!
Author: William Coleman
Cost: \$19.97
Address: Geos Power Pak II Run Magazine 80 Elm Street Peterborough, NH 03458 USA

The 17 programs detailed above are presented in no special order. If you don't see a particular program mentioned here, it simply means that I haven't seen it--it doesn't necessarily mean that I don't like it! Note that the majority of these programs have never been sold in a store, and are either in the public domain or offered as shareware. At first I was puzzled by this. With so many quality programs out there, why aren't they being marketed? Then I heard about Bob Lentini (author of BobsTerm Pro). Software piracy is so widespread among Commodore users that Mr. Lentini simply quit developing programs for us! It simply didn't make sense to him to work hard on a product, only to see it given away as casually as an old newspaper.

In spite of the piracy, many others have written terminal programs. And, by freely releasing their programs so that you can test them first, many of these authors hope to save the money normally spent on advertising and packaging. We users do all the advertising for them, by word of mouth (and by telecommunication). This is a good system, when it works. Unfortunately, there is evidence that some users won't even pay the small prices usually asked for these extraordinarily high quality programs.

Obviously, an enormous effort has been made to supply C-128 users with quality term programs. It would be a terrible waste if the authors of these programs weren't rewarded for their labor, and could signal the end of software development for this machine. On the other hand, if we support the people who are so willing to devote their energies to our cause, perhaps we won't be remembered as "pirates". Rather, when C-128 programmers mention us, they might use terms of endearment.

INSIDE BASIC 8 STRUCTURES

by Loren Lovhaug

In previous articles I have explored a number of the fantastic abilities of BASIC 8. My goal in each essay has been to help inspire you to play with BASIC 8 and perhaps create a decent program or two. From time to time I have also suggested alternative procedures to those documented in the BASIC 8 manual for accomplishing specific tasks. In this article we will examine the inner workings of BASIC 8's structures and outline an alternative method for batch loading multiple structures.

Chapter five of the BASIC 8 manual outlines BASIC 8's memory management and structure manipulation capabilities. The chapter describes three main graphics structures, namely, brush, pattern, and font structures. Chapter five also describes logo structures, but because of their peculiar nature I am excluding them from this discussion. Brush structures are bitmapped pictures or sub-sections of pictures. Pattern structures are user defined fill patterns used mostly in conjunction with the @paint command or when the pattern draw parameter of the @dramoda command is turned on. Font structures are 8 x 8 character definitions for use with the @char and @font commands.

BASIC 8 includes a number of commands for manipulating structures. In order to make these commands work, BASIC 8 records several pieces of information about each structure. BASIC 8 stores this information in two ways. When a structure file is saved to disk, BASIC 8 starts the saving process by first recording the crucial information about a given structure at the beginning of the file. This list of structure attributes is called a "structure file header". Each structure type has a slightly different file headers (see page 21). For example, when creating a brush (picture) structure header, BASIC 8 records the fact that the structure is indeed a brush, whether it has been compressed or not, a default loading position, color cell size, size of the image, and default colors.

BASIC 8 also records structure information in system memory when a structure is loaded from disk or defined from a graphic screen. Structures data itself may be placed in a "buffer" anywhere in the C-128's complement of 128K of RAM, as well as in expansion memory if you have a 1700 or 1750 RAM expander. In order to store a structure, you must first define a buffer (see pages 31-33 in your BASIC 8 manual). When you load a structure, for instance, a picture, from disk as a structure using the @lstruct command or create a structure off a graphics screen using the @stash command BASIC 8 dutifully puts your graphics data into system memory where you tell it to do so. This is done in two steps.

First, BASIC 8 creates an entry in a special structure list called the "structure table". The BASIC 8 structure table begins at location 5340 (\$14dc) of bank 0 and spans 1536 bytes. Each entry in the structure table is made up of eight bytes. This means that there is room in the structure table for 192 structure entries. The entries in the structure table itself are fixed sequentially. This means that the entry for structure 0 always begins at location 5340, the entry for structure 1 at location 5348, 3 at 5356 etc. The eight bytes which make up a structure table entry tell BASIC 8 what kind of data you are storing, where that data is located in system memory, and how much space you have consumed in your structure buffer (see page 21). BASIC 8 proceeds to store the graphics data in the memory you specified along with an abbreviated header which is very similar (in fact it is a subset, denoted by the dark lines on page 21) to the structure file header.

The manner in which the structure itself is stored in system memory is dependent on the type of structure you are using. Brush structures are stored as a standard "bitstream" or can be packed using BASIC 8's built-in data compression algorithm. In uncompact form, the image data follows the abbreviated header for (pixel width * pixel height)/8 bytes. This is followed by the characters "colr" which marks the

beginning of the color data for your brush structure. The color data itself spans (pixel width/8) * (pixel height/8) bytes in what is called "color nybble" format. When utilizing color nybble format, BASIC 8 utilizes the first four (the high nybble) bits of a color byte to record the background color for a particular color cell and the last four (the low nybble) to record the foreground color.

Pattern structures are stored in much the same manner as uncompressed brush structures, with two notable exceptions, the entry header is smaller and the "colr" marker is omitted from the beginning of the color data. Finally font structures have a mere two byte header which indicates the size of the font's character matrix. Due to the fact that BASIC 8 does not support fonts with matrices bigger than 8 x 8 pixels this data is generally the same for all BASIC 8 fonts.

Why I bother presenting such arcane BASIC 8 trivia? Mostly because it is not documented in the BASIC 8 manual. This is exactly the kind of information I needed when I wrote my Amiga IFF to BASIC 8 graphics converter back in issue #22, which I had to discover on my own. In addition, there are several nifty applications for this knowledge. One of the most practical is batch loading of structures! **Whiz Kid, Mr. Silly, and Sir Lou take note: this idea was inspired during the lengthy meditation sessions built in at the beginning of your BASIC 8 programs while numerous structures are loaded.**

Ordinarily, when it comes time to load structure data, programmers opt to use numerous @lstruct commands to load multiple structures into system RAM. While the @lstruct command itself is not inherently a slow poke, numerous iterations of it can really make a program drag. However through your new found knowledge of the inner workings of BASIC 8 structures you can load dozens of structures in just a few seconds by simply bloading the structures directly to the buffer in which they must reside and bloading or poking in the appropriate structure table entries in order to let BASIC 8 know your structures exist. In order to better illustrate this technique I have created two short programs. The 1st loads the standard fonts on the BASIC 8 disk using the @lstruct command and then creates a binary file containing all of the fonts and a file containing their structure table entries. The 2nd program uses the files created by the 1st program to load these fonts.

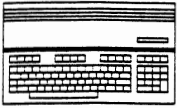
```

10 FAST:@WALRUS,0:@MODE,0:@SCREEN,0:@CLEAR,0,0,8
20 @BUFFER,0,55000,10000
30 DATA "FONT.CURSIVE","FONT.COMPUTER","FONT.GOTHIC"
40 DATA "FONT.ROMAN","FONT.SCRIPT","FONT.160 COL"
50 DATA "FONT.STYLE","FONT.THIN","FONT.FANCY"
60 FOR I= 0 TO 8
70 READ F$
80 @LSTRUCT,I,8,0,AD,F$
90 AD=@SEND
100 @CHAR,I,1,I*8,1,1,2,F$
110 NEXT I
120 @CHAR,7,1,I*8,1,1,2,"ESC ABORTS - OTHER KEYS MAKE FILES"
130 GETKEY AS:IF AS=CHR$(27) THEN 999
140 BSAVE"FONT STRUCTURES",B0,P55000 TO P61531
150 BSAVE"FONT STRUCTBLE",B0,P5340 TO P5412
999 @TEXT

10 FAST:@WALRUS,0:@MODE,0:@SCREEN,0:@CLEAR,0,0,8
20 @BUFFER,0,55000,10000
30 BLOAD"FONT STRUCTURES",B0,P55000
40 BLOAD"FONT STRUCTBLE",B0,P5340
100 FOR I= 0 TO 8
135 @CHAR,I,1,I*8,1,1,2,"STRUCTURE"+STR$(I)
140 NEXT I
150 @CHAR,7,1,I*8,1,1,2,"THEY ARE ALL HERE, LOADED FAST!"
160 SLEEP 5:@TEXT

```

I hope this article and the charts I have created on page 21 will help you. This information has greatly enhanced my BASIC 8 efforts, and allowed me to enhance programs like Spectrum 128 and Basicpaint.



BASIC 8 Structure File Headers

POSITION IN FILE (BYTES)

BRUSH FILES	1 2	3 4 5 6 7	8	9 10	11	12	13	14 15	16	17	18
PICT. OR BRUS.	LOAD ADDRESS LO/HI BYTES	B R U S 4 FILETYPE INDENTIFIERS	DEFAULT COLUMN FOR DISPLAY	DEFAULT SCANLINE FOR DISPLAY LO/HI BYTES	COMPRESSION FLAG	COLOR CELL SIZE	BITMAP WIDTH IN COLUMNS	BITMAP HEIGHT IN PIXELS LO/HI BYTES	BKGROUND COLOR DEFAULT	FGROUND COLOR DEFAULT	OUTLINE COLOR DEFAULT

POSITION IN FILE (BYTES)

PATTERN FILES	1 2	3 4 5 6 7	8	9	10	11
PATR.	LOAD ADDRESS LO/HI BYTES	P A T R 1 FILETYPE INDENTIFIERS	PATTERN WIDTH IN COLUMNS	PATTERN HEIGHT IN PIXELS	PATTERN WIDTH IN COLOR CELLS	PATTERN HEIGHT IN COLOR CELLS

POSITION IN FILE (BYTES)

FONT FILES	1 2	3 4 5 6 7	8	9
FONT.	LOAD ADDRESS LO/HI BYTES	C H A R 3 FILETYPE INDENTIFIERS	FONT WIDTH IN COLUMNS	FONT HEIGHT IN PIXELS

Indicates portion of file header copied into structure entry in system memory

BASIC 8 Structure Table Format

Structure Table: Locations 5340 - 6875 (\$14DC - \$1ADB)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Structure Type 4=brush 1=pattern 3=font	Buffer where structure resides 0-9	Low byte of starting address for structure data	High byte of starting address for structure	Low byte of starting address next structure	High byte of starting address next structure	Low byte total bytes used in buffer	High byte total bytes used in buffer

Hudson vs. Lovhaug

The State of C-128 Software Development



While Commodore 128 owners certainly have a right to complain about Commodore's shenanigans, it is my contention that they really do not have a valid complaint against Commodore software developers. The well-worn myth which reverberates at Commodore shows, on national telecommunications networks, and at user group meetings, namely that "there ain't no software for the 128" simply is not true. What is true is that there are not

"thousands" of commercial 128-mode titles, in particular there are not "thousands" of games. However a quick examination of our product listing in this issue will show you that there is a wide variety of affordable hardware and software titles which do a good job of meeting the needs of most home computerists.

In fact, the best reason for owning or keeping a C-128 in 1989 is the quality and affordability of the software available for it. One of life's most indisputable truths is the fact that excellence is not the norm, but the exception. Another nearly indisputable axiom is that quantity often encourages rather than discourages mediocrity. We see this in mass production, mass marketing, public education, and fast food. In the case of the C-128 we have been truly blessed by the fact that the software for our machine has tended to gravitate more towards the superior rather than the inferior.

In fact, the high quality of C-128 software in general may be one of the reasons why we are not seeing a head over heels mad rush of new titles for the 128, such as what has taken place for the Amiga over the past year or so. It takes a lot of time and effort to develop software, and in a market that has more than its share of true winners it is difficult to know whether your efforts will be rewarded with sales. After all, most folks (computer journalists exempted) will probably never use (or buy) more than one or two word processors.

Illustrating this point, let's imagine that there is going to be a C-128 new product explosion during the last six months of 1989. How many of those products would you expect to be better than GEOS 128, Superbase 128, Pocket Writer 2, Paperclip III, BASIC 8, or Vizastar 128? How many of them would offer the high level of power and flexibility we have come to expect, for a lower price than The Write Stuff 128?

And here in lies one of my greatest fears about the 128 marketplace today. Regardless of what Commodore decides to do with the 128's destiny, the perception that "not a whole lot of new programs are coming for the 128, therefore nothing good exists for the 128" is a lot more damning than any bizarre marketing strategy conceived in West Chester. As a corollary, I am increasingly wary of the possible influx of low grade "ripoff" software into our midst as vendors seek to "cash-in" on the desperation some 128 owners feel when they can't page through the typical glossy computer rag and read seventy five "real soon now" press releases.

Okay, now that I have spelled out why we are not seeing huge numbers of new 128 titles, I am sure that my counterpart has constructed a massive 128 product "wishlist" on the right side of the page. To rebut, I ask you as you read his list, carefully consider the following:

Hey Loren, we can agree that there is competent software out there for anyone who wants to do the usual home computer tasks on the 128. But even good programs could use a little improvement after a time, and some newer software zones remain to be hooked up for 128 development. Let's start with word processing. If you want to chop, dice and puree words, the 128 can prepare prose as tasty as that from more expensive kitchens.

There are several good, very low-cost word processing programs available, and so this area continues as the 128's strong point. Pocket Writer will Whizzy your Wig off, FontMaster and GeoWrite can do all the fancy font tricks, while CP/M WordStar, PaperClip III, and The Write Stuff have line drive power. What's there left to want? Well, in the MS-DOS field (and even on Amigas, Mac's and ST's) there is the option of heavy-duty do-everything word processors. Programs that are as easy to use as Pocket for day to day correspondence while reserving professional power for complex tasks that even our heavyweights can't touch.

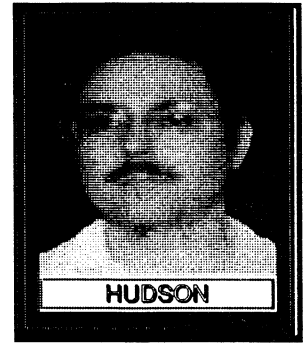
If only we had the ease of use and great screen display of Pocket with the formatting power and speed of Paperclip, the thesaurus of Fleet System, the fonts of GEOS, the spelling checker of GeoSpell, all at the cost of The Write Stuff; then we'd have the Frankenstein of 128 word processors. We can't all work like Twin Cities 128, with four 128's strung out across a desk and GEOS, Pocket Writer, BASIC 8 and PaperClip all running at once in order to prepare an issue! Some of these features do push and pull against one other (it's hard to maximize speed while shoving fully-bitmapped screen fonts around for example) but I'd love to see someone try to give such a monster life.

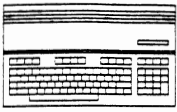
There are some features I've yet to find in any 128 word processor: real macros, ones that let you perform any function that the human operator can, a phonetic miss-spelling lookup algorithm that can speed checking documents produced by abysmal spellers such as myself, and import/export modules for the common non-Commodore word processors.

And while were at it, this writer would still like a 128 version of the "Gofer" utility popular on other operating systems. This little gem will search through the text files on a disk (or series of disks) for a particular string in the immediate presence of another string. Now where was that Olink message that mentioned the disorganized database needs of writers? Why do I have to look through a couple of disks worth of files with a word processor or a text reader when my computer would be happy to search for the string "writers" within 40 words of "database" and report which files contain that combination.

Databases and Spreadsheets? Hey, Loren you've got a point there. Products like Pocket Planner 2 and Superbase 3.0 pretty much use the full power of the machine, though it would be nice if Superbase would include the mouse/icon interface featured in the MS-DOS and Amiga Superbase Personal versions. I know the mouse isn't everyone's cup of tea, but let's give the tea drinkers the option--all right?

both essays continued on Page 23





The State of C-128 Software Development

Lovhaug continued

First, how many of the things he mentions would you seriously purchase? And second, how many of the items that he mentions are things that are either impractical to implement on the 128 or would not have broad enough appeal to sell well?

One thing I am certain of: Frank will cry out for 128 games. I am equally sure that Frank's undying lust for the ultimate baseball simulation will cloud his perception of the realities surrounding the 128 and its market niche.

Since the C-128's inception, software development on the 128 has focused on productivity packages. The reasons for this are elementary. To begin, the C-128's prime advantages over the 64 lie mostly in areas which are best exploited by productivity titles. The advantages of an enhanced keyboard, an 80 column display, and faster disk access are obvious when word processing or manipulating records in your database, but when is the last time you played a game in 64 mode and said to yourself, "Gee, this game would be a thousand times better if I could use the ALT key". Also remember that in gameland the advantages of fast disk access on the 128 have been essentially rendered moot by the development of super fastload routines which transform the "take a coffee break every time you load" speed of the 1541 into the realm of state of the art.

Additionally, you have no doubt heard the axiom, "the fact that there is a potential C-128 market of 2 million units (every one of which is also a 64 owner by virtue of 64 mode) and the fact that Commodore has sold 8 million C-64s by marketing a package designed to run under 64 mode you can target a potential market literally five times larger by producing a title in 64 mode". While this is indeed true, I'll suggest an even better supposition: C-128 owners don't buy games. Or more accurately, a far smaller percentage of 128 owners purchase games when compared to their 64 brethren. Evidence for this claim comes from a number of sources, including market research surveys conducted by Electronic Arts, RUN Magazine, and even Commodore itself, as well as from the statistics compiled by software companies from their warranty registration cards. Interestingly enough, many companies which market both 128 and 64 titles also indicate that 128 owners are twice as likely as 64 owners to fill out and return warranty cards, which makes matters even worse for the vocal minority on Q-link screaming for 128 games! Indeed our own market research indicates that our readers as a whole are far more interested in programming and productivity, than the latest variation of Pacman.

And speaking of productivity I am sure that Mr. Hudson will also grumble that 128 word processors don't have all the "swiss army knife" features of "WordPicky" as found on Amiga or MS-DOS computers. But personally, I don't mind doing without the toenail clippers, corkscrew, and fish scaler as long as the blade is sharp and rust free. I also suspect that given the strength of C-128 word processors most 128 users can do without paying the \$150 to \$200 price tag for features they would rarely (if ever) use.

I am quite satisfied with 128 software development. In fact, even as many Commodore watchers proclaim that our system has one foot in the graveyard, I am constantly amazed by the prowess, dedication, and brilliance of folks like Eric Lee, Michael Miller, Fred Bowen, Lou Wallace, Dave Darus, Rick Kane, Miklos Garamszeghy and a number of others who are quite literally taking the 128 to places that nobody thought was possible.

Hudson continued

Telecommunications? They're well served by products such as Bob's Term and Ultra Term. I still love a well executed Bob's Term macro--but why can't an 128 terminal program have a "learn mode" that just watches you log onto a BBS once and remembers how to do it the next time. You can do it on other machines, but not on the 128! Or not until someone writes the program that lets us do this!

I want the computer to do the scut work.

And now that the best new terminal software uses the REU's, how about more that use the mouse?

But it's not all the code cowboys' fault. Superbase would pick up all sorts of utility if there were sub-\$500 hard drives for the 128, and our telecommunications facilities may fall behind the pack when 9600 bps modems drop to the price 2400 bps modems are currently. Let's see some hardware development too!

You say 128 drives couldn't keep up with 9600 bps file transfers anyway? That's what the REU is for, isn't it? And one more from the "how-come?" department: why is GEOS the only example I can think of using the REU as a drive-cache to maximize speed in repeated reads and writes? MS-DOS and Amiga owners know this trick can improve even hard-drive I&O speeds, and we floppy drive machine users need it more than they do! Games? I wish I had time for games. But now Loren is telling us that those 128 mode games many of us have asked for since 1985 aren't needed anyway. These hardware facts remain as true as ever: the 128 can display better pictures than the 64--and of course handle more data more quickly. Maybe the 64's sprites make it better for the sixty-four thousandth "kill the ugly aliens" variation, but for the strategy and simulation games I like, a 128 version would be better than the 64's. I want Earl Weaver Baseball for the 128!

That covers all the core home computer applications, but there is computer growth occurring in the outer-ring suburbs. Stuff like desktop publishing, which on the 128 awaits the program with the power and laser output abilities of GeoPublish that can access the 80 column screen. Newsmaker 128 with the fixed-up printing routines lacks smooth large font output or GeoPublish's layout freedom, while Berkeley thinks that 40 columns is just fine while the rest of the DTP world has moved on to **full page** and even **two page** display monitors for it's work. Hey I'm not expecting 128 owners to pay a thousand bucks for a monitor, but is it too much to ask for the 80 column display we 128 owners are entitled too along with the ability to produced standard PostScript files to take to laser printing service bureaus?

Or how about desktop video and art--how come the Amiga has several inexpensive video digitizers and 128 owners have to make do with Computer Eyes and its 64 format graphics files? I think it's great that Loren has given us the IFF > BASIC 8 file converter for those with access to Amiga's--but not everyone can afford the "Amiga Graphics Peripheral". We 128 owners know what to say when someone tells us there isn't any software out there for our machine, but like all computer users we need continually upgraded software, and yes, even newly minted software to make full use of our 128's.

ALL NEW

MAVERICK™ v3

Why Is This Program America's Favorite Disk Utility System?

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Maverick is already the most powerful archival system money can buy. So how do you improve on that? By adding exclusive new features like these:

- A new RAM Expansion Unit support module that allows REU owners to enjoy lightning fast response with Maverick's Quick File Copier & Fast Single Data Copier utilities - no more disk swaps!
- 64k video ram support for 128D's or C128's with 64k of video RAM. This provides a memory buffer for enhanced copying capabilities.
- Have you ever lost valuable data to a fatal error on Track 18? Ever done a short "NEW" and then wished you hadn't? Our new Automatic Directory Recovery Utility recreates Track 18 on 1541 formatted disks to recover your files! This does hours of intense, critical recovery work for you *automatically!* Similar to an item on INFO Magazine's March 1989 "Wish List" of dream utilities they'd like to see!
- An all new Advanced Sector Editor with 100% ML coding for blazing speed and superior performance! Full featured - allows editing in ASCII, HEX, and even disassembly modes! Even includes comprehensive on-line help screens!
- And for GEOS 2.0 owners with 1581 drives, Maverick v3's GEOS Toolkit has a new utility that allows you to transfer the incredible GEOS v2.0 over to your high speed, high capacity 1581 drive! This transfers *everything* - which means you can run the 64 or the 128 version from the 1581 alone, WITHOUT using the 5 1/4" disks at all! And the 800K 1581 disk leaves you plenty of room to transfer all your GEOS applications over to the same disk! This is a MUST FOR SERIOUS GEOS users who want to unleash the true power of Berkeley Softworks revolutionary operating environment.
- MORE PARAMETERS! Maverick v3 now boasts over 400 parameters that either copy or entirely "break" the potentially destructive protection schemes of some of the world's finest software. Current Maverick owners know how dynamic our parameters have been, but even they will be amazed by the enhancements and additions we've made, including new parameters and special RAMBOard support capabilities exclusive to Maverick v3!
- Enhanced RAMBOard™ Support: Beginning with parameter Module #3, we gave you the ability to copy the Pocket 2.0 series of productivity software. Then Module #4 gave you parameters for 6 V-Max™ protected titles - parameters that left the competition stunned, because OUR parameters did NOT require physical drive speed modifications to work. Now Module #5, included with Maverick v3, will forever separate us from the imitators trying in vain to keep up with us. There are over TWENTY new RAMBOard support parameters that are without equal, plus a large number of special parameters that don't require the use of RAMBOard at all! And our new V-MAX™ parameters utilize proprietary read write verification routines that not only eliminate the need to alter drive speeds, but also save you from having to "copy till it boots", a sure sign of an inferior product.

All of these new features are in addition to the amazing array of utilities that have always been found in Maverick. If there's a better value on the market today, we'd like to see it.

One more thing: the next time you think about buying a program, remember that you're also buying a bit of the company that makes that program. Will they be there for you in the future? You know we will. Because you've made us the most successful Commodore mail order house in the country.

The New MAVERICK v3.0 - Only \$34.95

NOW INCLUDES PARAMETER MODULES 1, 2, 3, 4, AND 5

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Attention: Registered Maverick owners!

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ATTENTION C-128 OWNERS

Solderless 64K Video RAM Upgrade

Now that Commodore has released the C-128D with 64K of video RAM, we should be seeing 128 programs address this fantastic new feature soon.

BASIC 8 already has the capability of using all 64K of video RAM. If you own the C-128 in stock condition, you own all 16K of video RAM that Commodore felt was necessary. Using Basic 8 format and the full 64K of video RAM provides you with the ability to scroll through video memory as well as enhanced color resolution. Up until now, to upgrade the C-128 to 64K of video RAM you would have to first search out the components, then find a competent repair outlet to desolder and install the parts. **What a hassle!**

SOLUTION - We have developed a module that simply plugs in to the mother board of your C-128. **No splattered solder - No heat damage - No hassle.**

This package is available in two different forms. Model A has all parts necessary to complete your upgrade, and Model B is identical except that you supply the RAMs. Again, no soldering is necessary. If you have access to low cost RAMs, we suggest Model B.

Both models include easy to follow installation instructions, a test program to verify proper installation, and the plug in Video RAM Upgrade.

RAM UPGRADE . . . only \$49.95

COMMODORE HEAVY-DUTY POWER SUPPLIES

WATTS The Matter - Can't Get ample power?

Sorry about that. Actually, it's no laughing matter. Our technicians tell us that the majority of Commodore computer problems can be traced back to an inadequate power supply. When the power supply fails, it can (and often does) cause additional damage to the computer itself - and a computer meltdown is no joke.

This doesn't have to happen to you. We are now selling a heavy-duty power supply that will greatly diminish your fear of a power supply failure. These are NOT aftermarket units - they are made by Commodore, and are ideal for use with RAM expanders. They will provide you with a more stable, dependable source of power. This unit will work on ALL C-64's and 64c on the market.

If your system is important to you, take the extra step to safeguard your investment by getting a Commodore Heavy-Duty Power Supply today. Power you can depend on - with no unexpected shocks.

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C-64 Version-Only \$29.95 C-128 Version-Only \$44.95



THE 1750 CLONE

Thanks For The Memory

Most Commodore users are content to use their computers within the constraints placed on them by a limited amount of RAM. But some people want more. More speed. More power. And that means just one thing - more memory.

Power users have long known that the ideal solution to their memory problems is out there in the form of Commodore's incredible 1750 RAM expansion module. Just plug it in, and you've got a whopping 512k of onboard RAM - the same amount of memory found on most IBM computers! This is the memory cartridge that all serious Commodore power users want. There's only one problem.

You can't find them.

That's right. These RAM units are almost impossible to buy. We've always specialized in finding solutions to Commodore related problems - here's what we came up with.

First, we bought brand new Commodore 1764 RAM expansion units, the ones with only 256k of RAM onboard. Next, we had Chip Level Design engineer and produce a custom upgrade that takes a 1764 to a full 512k! That's the same nat meg of RAM as a regular 1750! Finally, we tested each and every cartridge, and warranted them to be free from defects.

Now there's nothing to stop you from taking your Commodore 64 or 128 to levels of power and sophistication that the original designers never even dreamed of! If you're using programs like GEOS from Berkeley, the Pocket Series from Digital Solutions, future versions of Maverick from Kracker Jax, Fleet System IV from Professional Software, or the potent PaperClip III from Batteries Included, if you're using ANY of these programs, you won't believe the difference that the extra memory makes!

IMPORTANT NOTES - READ CAREFULLY

*C-64 64c (but NOT C-128 128D) owners MUST buy a heavy-duty power supply to use these units. The power supply is NOT included - it is available from us separately.

* If you ALREADY own a 1764 RAM cartridge, we can upgrade it for you. Your unit MUST be in perfect working order for us to upgrade it. The turnaround time on upgrades is approx. 2 weeks. It will NOT be necessary for you to purchase a new power supply - the one that came with your 1764 will still work fine.

THE 1750 CLONE — ONLY \$199.95
1764 UPGRADE — ONLY \$124.95



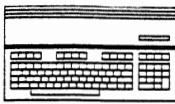
PLEASE READ BEFORE ORDERING. We accept money orders, certified checks, VISA, M.C. and Discover. Previous Software Support customers may use C.O.D. and personal checks. Orders shipped to U.S.A. 48 states, F.P.O. A.P.O. or possessions, please add \$3.50 per order for S & H. U.S. shipping is by UPS ground in most cases. **FAST 2nd DAY AIR** available, add \$1.00 per pound additional. U.S. 48 states only. Alaska or Hawaii call orders shipped 2nd day air, please add \$7.50 per order for S & H. C.O.D. available to U.S. customers only (50 states), add \$2.75 along with your S & H charges per order. Canadian customers may calculate the S & H charges by including \$4.00 (minimum charge) for the first two pieces of SOFTWARE, and \$1.00 for each additional piece per shipment. All monies must be submitted in U.S. funds. Canadians must call or write for hardware shipping charges. Foreign customers must call or write for shipping charges. Defective items are replaced at no charge if sent postpaid. All in stock orders are processed within 24 hours. U.S. SOFTWARE orders over \$100 will be shipped 2nd Day Air at our regular \$3.50 S & H charge (48 states only). Washington residents please add 7.6% additional for Sales Tax. All prices subject to change. All sales are final unless authorized by management.

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C-128 SOFTWARE ROUND-UP

Here at Twin Cities 128 we've got an unofficial ban on stories that lead with "although many say the 128 has little software for its native mode...." which is then followed by the news of the good software solutions that do run on our machine. It's a ban we violate, despite our best efforts, in most any issue.

On Olink and elsewhere people have requested a list of C-128 software. In the past we have published extensive product compendiums with mini-reviews and commentary on peripheral support. However, we simply do not have the time to compile such a listing, but we wanted to get you at least a terse listing that may be useful.

Because this is just a listing, compiled from various sources, we have no way of knowing if every piece of software here currently exists, much less if it is any good or makes maximum use of our hardware. We suspect that some titles of these may run under CP/M (though we tried to eliminate these so that this was a consistent native mode list), and some may be 64 mode imposters advertised as being 128 compatible (again we attempted to weed out as many as we could). As for GEOS titles we followed the following convention: we listed 128 specific GEOS titles and those titles which would run under the 128 version of the operating system, even if only in 40 column mode, hence, for example Geopublish, since it will run under GEOS 128. We did not include the various clip art and font collections, as technically this listing is for programs only.

In future issues, we want to improve upon this coverage by focusing on various areas of 128 computing (as we did in this issue's telecommunications round-up), giving you more complete information about the growing field of software for our favorite machine. In the future we will endeavor to include an updated C-128 hardware listing as well.

DATABASES

Data Manager 128	Timeworks Inc.	59.95
Data Master 128	Bouncing Dog Software	29.95
Dfile 128 Utilities	Skyles Electric Works	24.95
Dfile 128	Michaelsoft	24.95
File Manager 128 V2.0	Byte Power	29.95
Flex File 128	Cardinal Software	49.95
Libman	Sourceview Software	49.99
Micromain.DB	Sourceview Software	99.99
Pocket Filer 128	Digital Solutions	39.95
Pocket Filer 2	Digital Solutions	59.95
Quicksearch	Sourceview Software	79.99
Superbase 128	Progressive Peripherals	89.95

EDUCATIONAL

Bible Search 128	S.O.G.W.A.P.	25.00
Fish Math	Buchanan Software	19.95
Freddy's Puzzling Adventures	DLM Teaching Resources	32.95
Honors Algebra	Resource Software	39.95
Honors Calculus	Resource Software	39.95
Honors Geometry	Resource Software	39.95
Honors Trigonometry	Resource Software	39.95
Intelligent Tutor SAT Math V1.0	Intelligent Software Inc	69.95
Math Logic Games	HRM Software	69.00
Number Show	Free Spirit Software	19.95
Nums	Sourceview Software	49.99
Pro Tutor Accounting Business	Professional Software Inc	99.00
Science Testmaker Earth Science	Personalized Programming	149.00
Shape And Color Rodeo	DLM Teaching Resources	32.95
Student Recorder	Sourceview Software	99.99
USA Profile	Dynacomp Inc	129.95

Nothing loads your programs faster than:

THE QUICK BROWN BOX

A new concept in Commodore cartridges! Store up to 30 of your favorite programs in a single battery backed cartridge for easy and instant access. Change the contents of the box as often as you wish. The Quick Brown Box accepts most unprotected and "frozen" programs including the only word processor that saves your text as you type: The Write Stuff! The box even co-exists with GEOS, and the Commodore RAM expansion units. Loader utilities included for both the Commodore 64 and Commodore 128

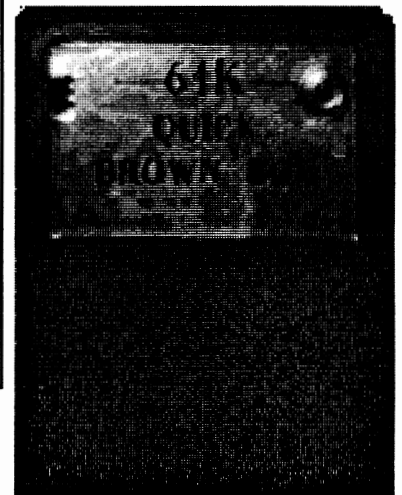
- 32K Quick Brown Box.....\$99
- 64K Quick BrownBox.....\$129
- Utilities Disk.....\$6
- Q-Disk CP/M RAMdisk.....\$10

SPECIAL PACKAGES

- 64K Quick Brown Box & The Write Stuff 64 \$139
- 64K Quick Brown Box & The Write Stuff 128 \$144

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C.O.D. add \$3, Overseas add \$5

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Continued from page 25

FINANCIAL AND ACCOUNTING

Cash In-Cash Out	Paragon Software	69.95
CCI Condominium Accounting	Clockwork Computers	299.00
CCI Integrated Merchandiser	Clockwork Computers Inc	399.00
CCI Property Management	Clockwork Computers Inc	399.00
CMS Accounting System	CMS software	179.95
CMS Inventory Module	CMS Software	79.95
KFS Accountant	KFS Software	149.95
KFS Contraction Package	KFS Software	69.95
KFS Invoicing&Accounts Receivable	KFS Software	69.95
KFS Professional Services Package	KFS Software	69.95
KFS Sales And Inventory Package	KFS Software	69.95
Micronics Accounts Payable	Sourceview Software	99.99
Micronics Balance Forward	Sourceview Software	99.99
Micronics Payroll	Sourceview Software	99.99
Microtronics General Ledger	Sourceview Software	99.99
Personal Portfolio Manager	Abacus Software	39.96
Security Analyst 128	Free Spirit Software	49.95
Source Accounting	Sourceview Software	99.99
Statelist Trading System	Stategy Software	29.95
Supra Billing	Sourceview Software	49.99
Supra General Ledger	Sourceview Software	49.99
Supra Inventory	Sourceview Software	49.99
Sylvia Porter's Investment	Timeworks Inc.	69.95
Sylvia Porter's Personal Finance	Timeworks Inc.	69.95
TAS 128	Abacus Software	59.95
Tax Perfect	Fin. Services Marketing	99.00
TISAR 128	CW Data Labs	69.00
Tisar Inventory Control Module	CW Data Labs	49.95

GAMES

A Mind Forever Voyaging	Infocom	14.95
Beyond Zork	Infocom	44.95
Leather Goddesses of Phobos	Infocom	34.95
Trinity	Infocom	24.95
C128 Superpro Football	Roy Brewer	7.00
Oubliette	Interactive	34.95
Trek 128	Byte Power	19.95

GRAPHICS

3D Canvas	Cappco	39.95
CADPak C128	Abacus Software	59.95
Calligrapher V1.0	Lynnroy Software Division	24.95
Chartpak-128	Abacus Software	39.95
Color-Rez	Briwall	14.95
Home Designer 128	Briwall	45.00
NewsMaker 128	Free Spirit Software	24.00
Sketchpad 128	Free Spirit Software	24.00
Spectrum 128	Free Spirit Software	29.00

MUSIC

Enhanced Sidplayer	Compute Books	24.95
Keyboard Blues MIDI	Electronic Courseware	79.95
Keyboard Sequencer C-128	Dr. T's	225.00
Musi-Kit Graphics	Those Designers	8.50

TELECOMMUNICATIONS

Bobstern Pro 128	Progressive Peripherals	79.95
Cnet 128	Softech	89.95
Dialogue 128	Workable Concepts	49.95
EBBS	Ed Parry	49.95
ProtoTerm 128	Briwall	21.95
SpeedTerm 128	Abacus Software	39.95

C-128 CP/M Utilities from Herne Data Systems

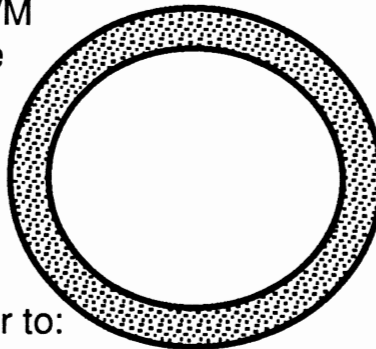
Jugg'ler-128 (\$19.95 US, \$22.95 CDN)

Jugg'ler lets you read, write and format over 150 types of CP/M disks on your 128. Complete with user definable default disk types for easy setup. (Requires a 1571 or 1581 disk drive).

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Herne Data Systems Ltd.

PO Box 714, Station C,
Toronto, ONT, M6J 3S1
tel (416) 535-9335



Scramb'ler-128 (\$19.95 US, \$22.95 CDN)

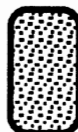
High security disk encryption system for your 1571 or 1581 drive. User transparent auto encryption and decryption.

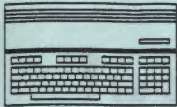
Qdisk (\$11.95 US, \$12.95 CDN)

Use your Quick Brown Box as a non-volatile CP/M RAM disk!!

Coming soon: IEEE Drive Pack

Use your IEEE drives (8050/8250 SFD/9060/9090/4040) in CP/M mode on your 128. (Requires IEEE hardware interface.)





Continued from page 26

MISC.		
Astro-Scope Report (Foreign Lang.'s)	Astrolabe Inc	295.00
Astro-Scope Report	Astrolabe Inc	195.00
Calculator 128	Educational Software	9.95
Daily Astro Report Relationship Text	Astrolabe Inc	295.00
Daily Astro-Report Electional Text	Astrolabe Inc	295.00
Daily Astro-Report Keyword Text	Astrolabe Inc	295.00
DeskPack Plus	Berkeley Softworks	29.95
Family Tree	Genealogy Software	59.95
Geos 128	Berkeley Softworks	79.95
Jane	Commodore	69.95
Landmark Computer Reference Bible	P.A.V.Y. Software	119.95
Persage	Sydesco Ltd.	49.95
Personal Numerology	Astrolabe Inc	39.95
Tarot 128	Moonshine Software	15.00
Technical Analysis System	Abacus Software	59.96
Trio 128	SoftSync	69.95
PROGRAMMING		
BASIC 8		
BASIC Compiler 128	Free Spirit Software	29.00
Blitz 128	Abacus Software	59.95
COBOL 128	Skyles Electric Works	59.95
COMAL 128 version 2.02	Abacus Software	59.95
COMAL Superchip	COMAL Users Group USA	185.00
Gnome Speed	COMAL Users Group USA	29.95
Merlin 128 Assembler	Briwall	59.95
Oxford Pascal 128	Roger Wagner Publishing	69.95
Petspeed 128	Progressive Peripherals	49.95
Power C	Progressive Peripherals	34.95
Super C Language	Spinnaker	39.95
Super Pascal	Abacus Software	79.95
	Abacus Software	59.95
UTILITIES		
128 Superchip A	Utilities Unltd Inc.	29.95
128 Superchip B	Utilities Unltd Inc.	29.95
128 Superchip C	Utilities Unltd Inc.	44.95
1541/1571 Drive Alignment	Free Spirit Software	34.95
1581 Toolkit	Software Support Intl.	39.95
C-128 Cannon	Software Support Intl.	34.95
Decender 128	Family Software	9.95
Fasthack'em 128	Basement Boys Software	29.95
Gnome Kit	Briwall	39.95
Hack Pack 128	Progressive Peripherals	34.95
Mach 128	Access Software	49.95
Micro Detective 128 V1.03	American Made Software	39.95
Partner 128	Timeworks Inc.	69.95
Physical Exam	Cardinal Software	39.95
RAMDOS-128	Progressive Peripherals	34.95
Super Disk Librarian	Free Spirit Software	29.95
Super Disk Utilities	Free Spirit Software	39.95
The Big Blue Reader + CP/M	S.O.G.W.A.P. Software	29.95
The Big Blue Reader	S.O.G.W.A.P. Software	29.95
XREF 128	Abacus Software	17.95
WORD PROCESSING		
Brainstorm V2.0	Country Road Software	22.00
Diamond Text Editor	Robert Rockefeller	42.95
Fleet System 3	Professional Software	69.95
Fleet System 4	Professional Software	79.95
Fontmaster 128	Xetec, Inc.	69.95
GeoPublish	Berkeley Softworks	49.95
Ghost Writer 128	Sourceview Software	49.95
Mix Split-Screen Editor	Mix Software	19.95
Newsmaker 128	Free Spirit Software	24.00
Pocket Writer 128	Digital Solutions	39.95
Pocket Writer 2	Digital Solutions	59.95
Protex V6.3	Sourceview Software	49.99
Superscript 128	Progressive Peripherals	79.95
The Write Stuff 128	Busy Bee	24.00
Vizawrite Classic 128	Free Spirit Software	59.95
Word Writer 128	Timeworks Inc.	69.95
Wordfile 128	Michaelsoft	24.95
Wordpro 128/S	Spinnaker	89.95
Wordpro 128	Spinnaker	69.95
Writer's Workshop 128	Berkeley Softworks	29.95
SPREDSHEETS		
GeoCalc 128	Berkeley Softworks	69.95
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Pocket Planner 2	Digital Solutions	59.95
Swift Calc 128	Timeworks Inc.	59.95
Vizastar 128	Free Spirit Software	69.95

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