The TC-128/64 News

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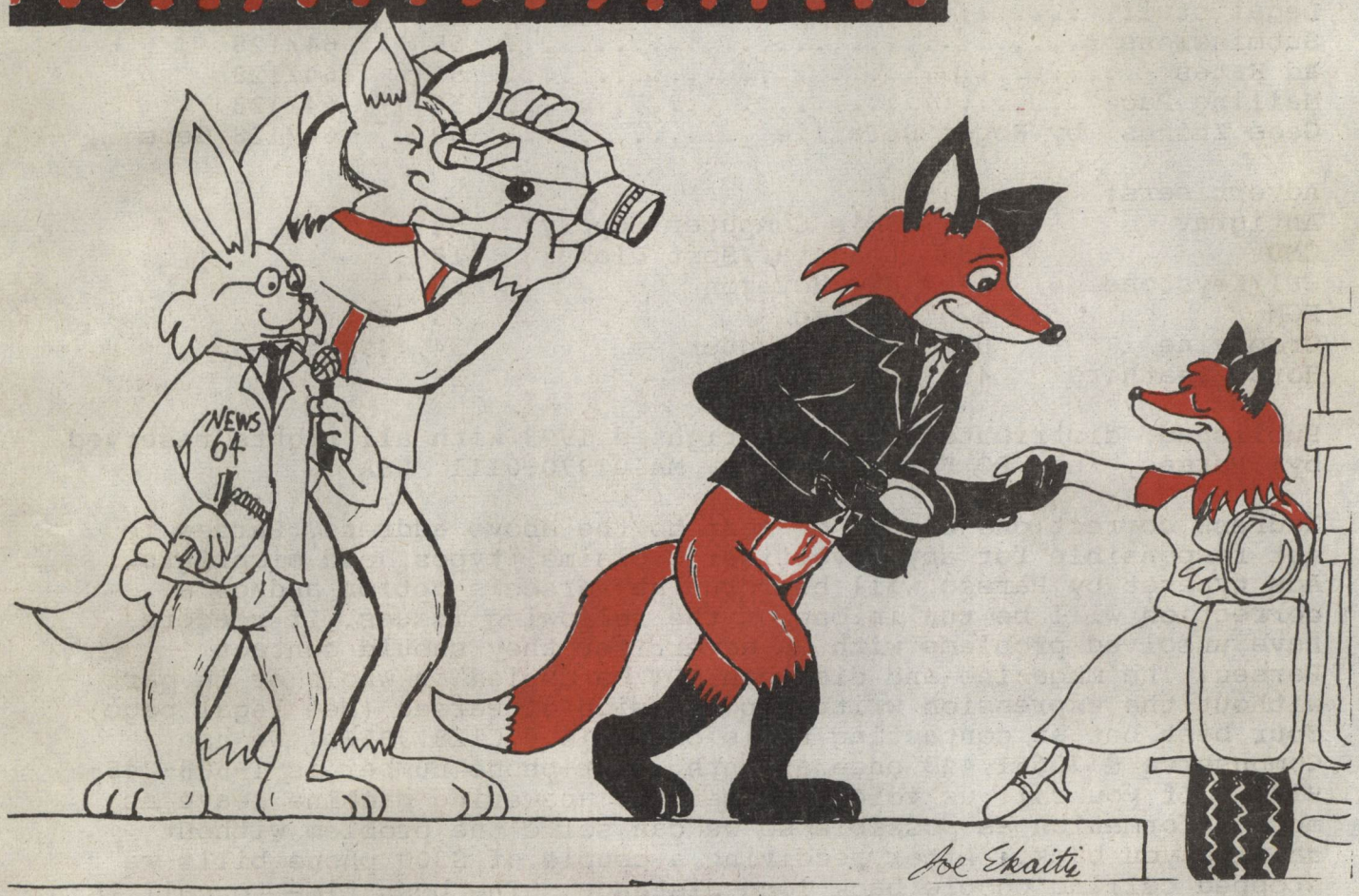

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TC-128/64 - Issue #33 - Jan 93

The Commodore 128 & 64 Computer Journal

Editors: John W. Brown and Tom Adams

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This magazine is dedicated to my mother to whom I gratefully owe all my successes and failures.

NEWS, RUMORS, AND MAYHEM !!!

NEWS FROM THE TOP

BY JOHN W. BROWN

Hee, hee, bet you have missed this column since Loren sold me TC-128. In the finest of past TC-128 editorial license and mayhem I present you mine! Before I forget, if anyone finds anything here offensive I want your lawyers reading this to be clear on the fact that everything after this sentence is pure rumor, jest, editorial license, distorted truth, altered facts, fiction, mistyped data, poorly excerpted sentences, all the above or none of the above. Just don't sue me, I don't have any money as it is, I gave it all to untracable relatives for safe keeping in trust funds :D

COMPUTER REPAIRS

Parsec stopped doing *all* computer repairs and upgrades this summer (1992). The reason, I am the only one here skilled enough to do the repairs and I simply could not keep up with the repair work, plus attend to everything else. We turned all our repair work over to: Harvey and Associates, 1409 Mill St, Laramie, WY, 82070, 1-351-742-3275.

.INFO WENT UNDER!

Serves them right, doesn't it? Yes, I was an unlucky person too, they shafted me out of at least eight issues (after I resubscribed!) when they went 100% to that other machine. Ever notice the trend of magazines going from "in my bedroom on a C64 and 9 pin printer" to big and glossy to "the C64/128 market is dead and we have to move on to Axxxx" and then moving onto Axxxx and going under shortly thereafter. Stranding countless thousands of innocent and beat-up subscribers? I wonder if the people at .info are going to be selling all the fancy equipment they bought with subscribers money to help give customers partial refunds on the remaining issues? I think it is nothing but a rumor that they raided the offices after closing the doors and deprived the creditors of the whatever was not nailed down. It was no loss for me when I sold my last Amiga and it is no loss in my humble opinion that .info closed their doors, neither for 8 bitters or Amiga readers. File this tidbit under last laugh ... One of the reoccurring and belittling themes in .info was who would want to own a 8 bitter now that all those wonderful "other" machines were in vogue. So, here is mine, "The real question should have been who would want to own stock in an Amiga magazine?" :D

GEOWORLD

As far as I know geoWorld is dead, no new news on what will happen there.

GEOMETRIX

geoMetrix is dead too. Basically up the creek without a paddle on this one too. If you subscribed to geoMetrix because of the column we ran in issue #31, send me a copy of your canceled check with the date plainly showing and I will adjust your TC-128/64 subscription accordingly.

RUN RAN OUT OF BREATH

I resubscribed to RUN and got my first and last issue with the single December issue. No news on how Tech Media, Tim Walsh, or any of them will handle refunds. Let us hope they do not slink off into the blackness of night and redness of debt without a proper address of the due issues. All I can say about the magazine and the last issue with about 22 pages of text (counting the program listings) is that I will miss the color ads the most. No one there must have gone to the Forbes school of publishing, because they hardly ever did reviews on advertisers products. After a couple of years (?) they did finally got around to the Turbo Master, a few months before it was discontinued at $99. I think the scene went something like this .... someone reached into a long and forgotten box and came up with a hand full of paper. After blowing and brushing the dust and caterpillar husks of woolly bear moths and other assorted dead dust bunnies off it, they turned around and shouted "did we publish more than six reviews of the 4Mhz TM", "No?", "Okay, I found a few more pages for the current issue!" Then they found another monitor review and article about using tracing paper to draw pictures on your computer.... Of course they never reviewed my products even when I advertised in the magazine. Lousy editorial way to do business in my opinion.

EDITORIAL POLICY TC-128/64

I like to review products of advertisers and believe in reviewing products of advertisers. We will take every chance to do so as long as they send the products to us. If it does not get reviewed here it is because they never sent us the products to review, even after a request. Either that or I did not think it was worth buying. Though this is not to imply reviewing it guarantees a passing grade, it does not. My best "friends" in the business are the folks at CMD and also our biggest advertisers. No special treatment for them or anyone else (if you happen to remember the gateWay review). Which brings us to ....

REVIEWING PRODUCTS

Someone complained to an author at a ham fest (try writing me a letter next time guy) about TC-128 devoting space to reviewing a recipe program that got such a low grade. He said basically "who would be interested". A lot of people, like the person that has submitted a Superbase recipe program for TC-128 after reading the review. Where else can a program get some free airtime from a review if not in TC-128? The idea is not to offer a narrow diet of programs or articles but to offer anything interesting, even if only a dozen people will be interested. If a person wanted such a program for their C-128 and I didn't review the product, wouldn't I be doing those readers and that developer an injustice? Besides, it does not hurt to learn about new products or ideas. It just might interest you if you *think* about it, or maybe it will take a couple of years? I have old Transactor magazines (best Commodore magazine ever published, bar none!) that I pull out from time to time once I get the hang of something. They are an invaluable reference source when I have enough knowledge or interest in a subject. They come out for an enjoyable page browsing quite often. Which brings us to ...

USING YOUR C-128 or C-64

I have to assume since they stopped production of the C-128 a LONG time ago, that as a percent, most C-128 owners have owned their machines for quite some time. People have complained, some with just reason, that TC-128 was too hard or too programmer oriented. That is a valid argument for the person that only wants to "use" their machine with prepackaged software that requires little or no thought. But I suspect there is a vast sea of people I have not even sailed upon yet that want to use their machine in a serious way. If so, then this is a magazine for those C-128 and C-64 users. Sorry, no three pages of program listings for a sequential file reader here. The magazine will be geared down slightly since we are adding more readers and users, though it will never be geared to the novice that just wants to load and run programs unless they enjoy the reviews, ads, and tips published here. If you want to keep your 8 bit machine and get the maximum enjoyment and value from it, we are the magazine for you.

USING PRODUCTS

Even though gateWay got a fairly bad review because of its bugs, some terminal, I still used the software. Why? Because if it is the only thing around that works on your hardware, or does what you want it to do when there are not other suitable programs around for the task, you learn to adjust. Something is usually better than nothing. So if the only C-128 recipe program I know gets a fairly low grade, I feel justified in publishing the review. If you need or want the program, you need or want the program. It is that simple. I like to think reviews encourage developers do an even better job. I know reading or hearing bad things about TC-128/64 usually encourages me to do a better job. As for a product like gateWay, I would rather suffer with the (older) gateWay bugs then use the Geos Desktop! The good news is CMD hired a excellent programmer (Jim Collette) and he has produced a new version of gateWay, version 2.5, and it looks much better. One or two buglets have popped up, but all in all it looks like it is going to be a worthy review.

PARSEC IS CONNECTED

This summer I took over the Commodore Flagship on GEnie from Bill Juliani. If you have not noticed, a lot of magazines have a "slant" towards a particular network system or service. RUN was always Q-link, PC rags tend to be Compuserve, TC-128 always had a strong GEnie leaning. Not because Loren had any vested interest in making money from products provided on the GEnie service, just because it was a nice place to use your C-128. Especially compared with Q-link.
So let me be up front about it. This magazine will not be slanted towards GEnie, it will be completed level ... I think GEnie is the best
(continued on page 24)

LINEAGES AND FAMILY ROOTS

BY MARK DULSKI

Several years ago when my oldest daughter was in grade school, one of her class assignments was to make a Family Tree album with as much information about her ancestry as she could. At the time I knew darn little myself about our ancestry so I had to seek help from relatives. After the school project was done, I wasn't. I've kept on searching through archives and such whenever I got the chance. Even though that isn't often, it wasn't long before I had two overstuffed folders filled with notes and photocopies of old records I had gleaned from various sources. I realized I better start organizing that mess somehow. In the meantime I purchased my C128 and thought using a database would be just the thing to store all this information. I was in for a disappointment. The ones I tried were either too slow, field lengths too small, or allowed too few records for the amount of information I wanted to store. The only database that did a fairly decent job for me was geoFile which also gave me some control over the format of my printouts.

Recently I was given the opportunity to try two program packages specifically designed to store genealogy information; Lineages Standard for the C64 and Family Roots for the C128, both distributed by Quinsept, Inc. Both packages have the features I've been looking for, in more, in a database to store my ancestry. Consequently, geoFile has been set aside.

LINEAGES STANDARD (C64)

Lineages is available in three different program packages; Lineages Starter which is just the basic database with limited record capacity, Lineages Standard the package viewed here, and Lineages Advanced which has the most features and a price tag to match. Standard comes on one single sided disk and a 100 page manual. The manual is fairly well written and I recommended you read it thoroughly before you begin. Besides a scattering of typos here and there throughout the manual, it appears there may have been an update to the chart program now allowing both 10 and 17 pitch printing that hasn't made it into the manual yet because it clearly states Lineages Standard can only output to the printer in 10 pitch. Not so with my copy! I also do not like manuals that refer you to section numbers like "sec. 4.5.1" rather than use specific page numbers.

The program disk is not copy protected in any way and is almost entirely a collection of Basic programs so any disk copier can be used to make a backup. There is a copier included on the program disk and the manual tells you to use it to make a backup for everyday use and to store the original in a safe place. Welcome advice.

The individual programs, even the menu, are used as modules that are loaded and run as needed, replacing the previously run module. Also on the disk is a configuration file that most of the programs use to set up a number of parameters for their operation. Several of these parameters can be redefined from within the individual programs. The trouble is, any redefined parameters are not saved to disk. You have to redefine them every time you run the that particular program module. Only Lineages Advanced and Family Roots will let you redefine and save the parameters from the configuration file as default settings, which includes customizing the program package for your hardware setup. Lineages Starter and Standard only support one disk drive which can lead to quite a bit of disk swapping. I wasn't impressed. The disk swapping got tiresome, enough so that I decided to examine the programming code to see if I could find a way to use two disk drives. The answer turned out to be a deceptively simple modification. I found that the programs already have the capability to use more than one disk drive but they read a predefined value of "1", for number of drives, out of the configuration file. Since Lineages Standard gives you no way to modify this value you are stuck using one drive? Well, not exactly. Using a public domain text editor, Zed128, to read the configuration file, I changed the value in the 8th line from a "1" to "2". Up to a value of "4" can be used for the number of drives in your setup. I then resaved the new configuration file under the same filename back to the program disk. Presto! Multiple drive capability. For a $49 package I sincerely feel Quinsept, Inc. could have at least included the option to define the number of drives to be accessed in Lineages Standard.

Before you begin entering your records into Lineages, you must create a blank data disk, a process that takes about 20 minutes. Even though

Lineages supports the 1541, 1571, and 1581 drives the added capacity of my 1571 was not used. Only 571 blank records were set up on disk regardless if the disk was formatted as single sided or double sided. Multiple data disks are supported though, for a possible database numbering in the thousands of records. More than enough room for even the largest family ancestry file I would imagine! If a number of data disks need to be made, a whole disk copier can be used to make multiple copies of the first blank data disk. I did find out there are no safeguards when creating a data disk. Since only one drive is supported, the program disk must be swapped with a disk to be formatted. Touch the keyboard by mistake before swapping disks like I did and your Lineages program disk gets formatted!

While entering information in my records I was in for a pleasant surprise. The features of the edit program just about make up for whatever shortcomings I found elsewhere in Lineages. It is recommended you enter all names first into the 'names' file before entering the record data for the individuals as each name will be assigned a record number. When entering a large number of names you can use the List utility to print out a list that shows all the individual names and their assigned record number which can be used as a reference when entering the data into the individual records. Since each record is only 254 characters long at first glance it didn't seem like it would be large enough to hold the amount of data I thought I would be entering. However, I found that in most cases this was more than enough room because all names (parents, spouse, children) in a record that were entered as a record number instead of full names, use up only two characters of space in the record file. When just the record number is entered, the program will look up the associated name and display it on screen.

After all the usual information of dates, places, names, footnotes, etc. are entered into an individual's record, the record is saved to disk. Here I was impressed with Lineages' complementing feature. When the record is saved all the children's records will be updated with their parents names, the individual's name will be entered in their parent's and spouse's records, and the spouse's record will be updated with the children's names and marriage information! All this 'complementing' may take several seconds or more which is still far less time than it would take to type all this information into each record separately. Even compared to a memory resident database I had tried, Lineages transferred data to and from records exceptionally fast with it's use of direct access files. The screen writes can be slow but being Basic code I expect that.

The charts Lineages Standard will print out include the standard pedigree chart either filled in with information or blank for hand entry, a free-form pedigree chart which is slightly more compressed than the standard form and will show 7 generations easily, a compressed pedigree chart called an Ahnentafel, and a descendants chart. I was a little surprised to see an exclamation point used for vertical lines and the minus character for horizontal lines. The output is petscii, why not use graphic characters? Something else I quickly changed in the program code (editor's note: the exclamation point was retained for this article). The descendants chart I particularly liked for showing a common ancestor and all their descendants. It would be an interesting chart for display at family reunions. The individual records can be either displayed on screen or printed out. An additional text file from a pet ascii output word processor can be easily appended to the record sheet when printed.

Some of the parameters you can define for your charts and records are; ID number printing on/off, print footnotes on/off/selectively, print empty fields on/off, print last name first on/off, print names only on/off, print married name on/off, and print header on/off.

You can also search the database to find a particular individual, a number of individuals with the same surname at birth and married name if desired, to find spouses, or individuals having similar surnames by using a soundex search. The list of names found in the search can either be displayed to screen, sent to the printer, or saved as a file list on disk which can later be loaded into memory and used by the chart programs for selecting which records to print out.

FAMILY ROOTS 128

Family Roots is the top of the line package from Quinsept, Inc. widely known throughout the genealogical field. Any files produced from the Lineages packages can be transferred to Family Roots. Even Family Roots files from other computer platforms, with the aid of Big Blue Reader, can be transferred to the Commodore

version and vice versa! The transferring can either be done yourself or Quinsept will do it for you for a fee. A toll-free phone number is also available for registered owners of Family Roots or Lineages Advanced. Support is provided for Quinsept's other products by mail only.

Family Roots will do everything Lineages does and much, much more. It comes on one double sided disk, also not copy protected, with a 300 page 3-ring binder manual. This manual could also use a proofreader. Where Lineages says to read the manual, Family Roots means Read The Manual. It's a must! Like Lineages, Family Roots is a collection of programs, only here they are compiled Basic code, that are loaded as modules when needed.

There are 240 parameters, over which you have total control, and the option to save any changes to disk as default settings. With all these user modifiable parameters, Quinsept recommends when you begin to use the program, do so with the attitude you are only trying it out. If you change something in the parameters, particularly record size and field types, you will want to start all over from scratch in order to get the database customized exactly the way you want it. I re-did mine three times!

Family Roots fully supports the 1541, the added capacity of the 1571 and 1581 drives, and from what I understand, CMD hard drives, Ramlink and Ramdrive. It can use up to 4 disk drives. It works with either 40 or 80 column monitors. The record size is definable, not restricted to 254 characters per record like Lineages, plus there are 9 user defined fields available in each record in addition to the normal fields for parents, children, spouse, birth, death, marriage, etc. Direct access files are used in Family Roots so data transfers to and from the records are very fast.

Data entry and storage is the same as with Lineages only with far more parameters you can define for custom design of your data entry. Here too, "complementing" will occur if you have it turned on when the record data is saved to disk. Searching the data base is by far more versatile than with Lineages. Not only on names but dates, addresses, number of marriages, number of children, occupation, blank fields, etc. If it is in there you can search for it. When viewing a record on screen you have the ability to step through a family line (father, mother, spouse, or children) displaying those records on screen in turn or you can send to the printer the currently displayed record. A small petscii word processor has been included in the package allowing you to type up a page or two of notes for individuals. It is no PaperClip III but was a welcome addition nevertheless since I did not have a petscii output word processor, which Family Roots requires for text.

There is almost total control over how the charts and records are printed out. From changing the order of the fields, allowing custom printouts, capitalizing surnames, letting you decide if married names are to be shown, if dates should be printed with month names, to selection of one of the four user defined print pitches. The charts or records can even be sent to disk as a text file. With almost 100 parameters controlling the printing of charts and records in Family Roots, resulting in so many variations for each chart, I still have not decided what I will eventually use to print out an ancestry album.

I did run across one peculiarity when setting up the print pitches. If your printer needs say "chr$(27)+W" for a certain pitch setting, when entering it into Family Roots "chr$(27)+w" has to be used. Notice the difference between the lower and uppercase "W". Absolutely no mention in the manual that any letter case has to be switched, which caused me quite a headache when defining the print pitches I wanted to use. I also found a minor bug in the program when printing out a blank, wide family, group sheet. The parameter determining print pitch is changed by the program when it should not be. An error is ge.rated when you try to print again from within the Groups program unless you first change the parameter back to its original setting. See the edited chart on the following page.

ORIGINAL COMMODORE
1750 (512K) RAM EXPANSION PLUG-IN
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Commodore has just released 400 of these hard-to-find RAM expansion units that give you a full 512K of RAM at a sensational price. NOTE: The 1750 works with C64 and C128. A separate heavy-duty power supply is needed for the C64, which we will sell at a discounted price of $27.95. DON'T MISS OUT ON THIS ONE!
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```
Predecessors of Mark Jerome Dulski (rn=1)
1       2       3       4       5       6       7

                        !Philipus Dulski (rn=51)
                        !
                !Andrew Dulski (rn=18)
                !       !
                !       !Catherine ??? (rn=52)
                !
        !Edward Andrew Dulski (rn=12)
        !       !
        !       !Magdalene Printz (rn=19)
        !
!Jerome Edward Dulski (rn=6)
!       !
!       !               !Paul Zalewski (rn=53)
!       !               !
!       !       !Jacob Zalewski (rn=28)
!       !       !       !
!       !       !       !Catherine ??? (rn=54)
!       !       !
!       !Jane Zalewski (rn=13)
!               !
!               !       !Andrew Inc (rn=58)
!               !       !
!               !Mary Inc (rn=29)
!                       !
!                       !Josephine Pacholski (rn=59)
! Mark Jerome Dulski (rn=1)
!
!                       !Theoder Hoppe (rn=65)
!                       !
!               !Albert Hoppe (rn=38)
!               !       !
!               !       !Friderike Fuhs (rn=66)
!               !
!       !Harley Emamuel Hoppe (rn=15)
!       !       !
!       !       !       !Herman Krause (rn=67)
!       !       !       !
!       !       !Mathilda Krause (rn=39)
!       !               !
!       !               !Christine Voss (rn=68)
!       !
!Beverly June Hoppe (rn=7)
        !
        !               !Edward Boutwell (rn=69)
        !               !
        !       !Arthur Boutwell (rn=45)
        !       !       !
        !       !       !Elizabeth Zehrbach (rn=70)
        !       !
        !Edna LaVonne Boutwell (rn=16)
                !
                !Beulah Romick (rn=46)
```

Family Roots free-form pedigree chart. Names only parameter 'on', last name first 'off', and show record number 'on'.

C64 LINEAGES STANDARD B-

With no multiple drive capability, plus the fact my 1571 disk drive is forced into 1541 capacity for the data disk, what would have been an 'A' rating, has to be reduced to a 'B-'. Just these two options would make Lineages a far nicer program package to use. Forcing a purchaser to buy the $99 Lineages Advanced package in order to have multiple drive use and a couple of other niceties is unnecessary.

C128 FAMILY ROOTS A+

I rate this one an "A+", I loved it! Family Roots does just what I want in a genealogical records program package, plus much more. But, the attached price tag is almost prohibitive. For a Commodore program package, the $225 price is excessive in my opinion. I wonder just how many potential buyers had been turned away at the sight of that price?

Family Roots is definitely the program for the serious Genealogist. It would also be an excellent program for use by small genealogical departments in such institutions as libraries or schools. Family Roots also comes in a C-64 version. The price for Family Roots is a bit steep, much higher than Commodore users are used to paying. Though being such a specialized program package with a limited market and interest, the price can almost be excused.

Those who find Family Roots out of their price range should find Lineages just as acceptable for most of their needs. The major fault with Lineages Standard is the lack of drive support.

Editor's note: There is also a Users Group for Quinsept's customers, another plus for Quinsept!

C64 Lineages Starter $29
C64 Lineages Standard $49
C64 Lineages Advanced $99

Family Roots, C64 or C128 versions $229

Quinsept, Inc.
P.O. Box 216
Lexington, MA 02173
1-800-637-ROOT

KeyDOS ROM V2
from Antigrav Toolkit

KeyDOS ROM is a chip that contains 20 new function key definitions and 20 great utilities. **KeyDOS ROM** is easy to install in the empty ROM socket in any C128 or C128D. **KeyDOS ROM** can also be installed in the space for an empty socket in Commodore 1700, 1764, and 1750 RAM Expansion Units. All the **KeyDOS** function keys and utilities are available ***INSTANTLY*** as soon as you switch on your C128! Why waste time hunting for disks or waiting for utilities to load? Now you can have all of the following features built in - instantly at your finger tips!

- ✔ Simple installation in all Commodore 128 or 128D computers and Commodore RAM Expansion Units. Internal installation usually can be done with only a screwdriver. REU installations require some minor soldering.
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- ✔ 20 new **KeyDOS Function Keys** simplify disk access on multiple drive systems. New function keys perform commands on any disk drive with only one key press and without typing file names! Load or run programs, scratch files, open and close 1581 subdirectories, load C64 programs in C128 FAST mode, batch files - (execute commands from a file), type SEQuential files without disturbing memory - all with easy to use KeyDOS Function Keys.
- ✔ **Swapper** memory management leaves BASIC memory undisturbed! Use any KeyDOS function at any time. Your BASIC program will be waiting for you when you get back to it! You can even use Swapper to keep more than one program in memory at the same time.
- ✔ New **KeyDOS Utility** lets you select multiple files from a directory list for typing, printing, copying, renaming, and scratching. Works with most popular printers. View ASCII files with a complete 80 column true ASCII character set. View CBMASCII files. View Screen Code files such as those produced by SpeedScript, The Write Stuff, and other popular word processors. Copy files between drives. Convert text files between ASCII and CBMASCII or from Screen Code to CBMASCII. Full 1581 subdirectory support.
- ✔ **KeyDOS 1581 Visual Partitioner** lets you create 1581 partitions and subdirectories without complex commands or calculations! The display shows where space is available for subdirectories and will create them for you automatically!
- ✔ **RAMDOS** for Commodore RAM Expansion Units up to 2 MB.
- ✔ Throw away your old boots! **GEOS SuperRBoot** is the most reliable method of rebooting GEOS from an REU that has ever been devised! Save yourself frustration and hours of lost work when GEOS crashes or hangs up! SuperRBoot will reboot GEOS even if your disk drives have been renumber or shut off, and even if all of the 128's memory is lost! **ACTIVATOR** simplifies switching between GEOS and C128 native mode by restoring the reset switch and STOP/RESTORE key combination to their normal functions.
- ✔ View, edit, or disassemble disk sectors. Dump monitor output to printer or disk file. **Hexpert** advanced machine language debugger. BASIC Find/Replace utility. Recover BASIC programs after a NEW command.
- ✔ Renumber and reset disk drives. New COLLECT command protects autoboot sectors.
- ✔ Switch between two independent 80 column screens. Screen text editor and screen dump.
- ✔ Screen clock with calendar and 24 hour alarm. (If you have a SmartWatch clock chip connected to joystick port #2 for use with GEOS, a special version of the **KeyDOS ROM** is available that sets the time and date automatically. Specify the part number of your SmartWatch when ordering).
- ✔ **Video Manager** sets VDC video options - colors, interlace, screen height, TABs, cursor shape, and more!
- ✔ Utility disk with sample batch files, demonstration programs, and support utilities.
- ✔ Satisfaction Money Back Guarantee and free lifetime replacement.

*"The program is a definite MUST for all 128 users. I definitely want **KeyDOS** to be a permanent part of my computer."*
-K.H., Perris, CA.

"If you don't have a 128, then this is (yet) one more reason to upgrade."
- Jan/Feb *Kernel Chronicles*, Edmonton, Alberta

KeyDOS ROM, with 52 page manual, utility disk, and shipping in U.S., A.P.O., F.P.O., Canada and Mexico is $32.50 US. Shipping overseas is an additional $3.

Antigrav Toolkit, P.O. Box 1074, Cambridge, MA 02142

SPRAY PAINT V2.0

BY PAUL MCALEER

It is 11 pm, do you know where your screen maker is?

No? Well, perhaps you should try Spray Paint. It is a complete screen making package and by far the best I have used on the 128. Best of all, it is a true 128 program, not a conversion. The number of features are plentiful.

Upon booting, you will be presented with a quick help window. Press a key and you will be placed in the pull-down menus. There are eight of them, ranging from Tools to Macros. All of Spray Paint's features, with the exception of some Control, Commodore, and Escape key sequences, are available from the menus.

The mode to begin with is the "Graphics Text Edit". This mode is similar to the regular 128 screen editor; however, there is a coordinate display and other miscellaneous information, such as the current filename and macro name, on the status line at the bottom of the screen. Spray Paint also features continuity: Run/Stop will always back you out of a menu, or take you to the pull-down menus. Note that all of the 128's Escape key sequences are available, including those to make a window on-screen.

COLOR WALK

Color Walk is the most interesting mode of Spray Paint and bears mentioning. By defining a character to use, the path to take (either horizontal or vertical, increase or decrease, or remain the same), the colors to use, and along which direction to increase or decrease the color values, one can easily create backgrounds and tiles. Color Walk is difficult to explain but simple to use. Once these values are defined, by pressing space, the next character will be plotted. Color Walk also has a sister function in Color Trace. It will perform the same function as Walk, except that the character in a cell will not be changed; only the color/attributes will be changed.

TOOLS

Spray Paint's Tools menu offers a few neat functions. Box Maker is by far the most versatile, in that it says what it does and does what it says. Boxes are a snap with Spray Paint; just cursor to the upper left corner of the box and lower right corner, hit return, then select color and box type. There are five flavors of boxes, each unique, varying from an elaborate outlined filled box to a color fill. Tape Measure is a very handy gadget, and is great for measuring distances between objects on one's screen design. With my old screen maker, I would have to define an F-key to do this for me, Tape Measure is a very handy tool.

SCRAPPING

Scrapping is a powerful feature. It works very similar to geoPaint's editing box. Select this mode from the menu, cursor around the area to be cut, and stamp it on the screen - anywhere. Those of you with 16K of vdc ram will be limited to doing this only once. Spray Paint offers a true stamp mode for users with 64K of VDC ram and can even buffer 10 previously-used scraps for later use. Spray Paint offers 4 screen buffers, so if one makes an error, it is easy to correct.

Spray Paint can also delete words, lines, and sentences, in case you're using it as a text processor (why not)? Best yet, there's even an undelete function!

MACROS

Also featured are macros, those do-it-all beasts we have come to know and love. In case you have not discovered them, macros allow what would take tens or even hundreds of keypresses to be activated with just one keypress! Spray Paint offers 8 macros total, up to 255 keypresses and/or characters for each one. However, these macros can call each other and be linked together. Macros can be loaded, saved, 'played,' or recorded from the Macro pull-down menu. Recording a macro is sinfully easy. Just select to Record from the menu (or use the equivalent keypress), do what you want the macro to perform, choose stop recording, and it is done. You can even name your macros, if you like. This is one of the best and slickest features of Spray Paint.

FILE HANDLING

Spray Paint does not slack in the File area either. Featured is a Super Dos Shell which will perform all those tasks which might be too complicated to perform with Basic. Think of it as a mini - "Disk Whiz". The shell offers a scrolling directory, marking (tagging) of files, and a highlight bar. Loading a screen is also available from the File menu, and is supported by a slick filename input option. One can select a device number, see the directory, and more from here. Saving a buffer deserves a mention too. One can save a buffer with a multitude of options: as prg file, as seq file, as usr file, as Basic program of print statements, or into two ML assembler formats. The seq/prg options are ideal for those of us that use a bbs, and the Basic program option is a boon for folks like me who want to add a little pizazz into their Basic program.

CONFIGURATIONS & DEFAULTS

The Utilities menu offers the ability to configure Spray Paint. As an example, you can define default colors and save them or load previously saved defaults. Even the cursor itself can be redefined. I must admit that I love programs which utilize my 1351 mouse. The mouse is there and I should be able to use it, which Spray Paint does. It can use a 1351 mouse in port 1 or a joystick in port 2, but that is hardly necessary. The mouse is not used in edit, or any other mode, with the exception of the menu system. And the pointer remains on screen in edit mode, a big pain. While I love mouse support, it is not needed here, and neither is joystick support.

One last feature to mention is a simple terminal program included with Spray Paint that has no bells or whistles. But it is handy for quick online checks of your graphics, again, ideal for BBS sysops.

Spray Paint also supports RamDos, and will dump the program into the reu if it is present. Spray Paint seems to be compatible with everything out there, including Ramdrive, Ramlink, and the 1581 disk drive.

DOCUMENTATION

The documentation included with Spray Paint is fairly complete and informative. The documentation which is printed on a dot-matrix printer comes in a binder. The poor quality (dot matrix) printing is the only drawback because the documentation itself is written in a no-nonsense factual style which makes reading it easier. About the only item missing is a tutorial, which would have been a nice addition.

SHORTCOMINGS

I only have a few gripes with Spray Paint. First, if I select to view the directory while inputting a filename, the directory scrolls by much too fast. No Scroll will pause it, but the prompt for No Scroll literally appears after the directory is done scrolling.

A dedicated Undo feature would have been nice, although true buffers are available. It would also be nice if the Tape Measure feature could mark a column or row on the screen. The Tape Measure works fine as is, but this would have been a welcome addition.

Spray Paint is also password-protected. While this may not be bad for occasional use, it becomes a real pain. Having to enter a special code every time the program is to be used is a major inconvenience that punishes the honest user, and would make selling Spray Paint to another individual a problem in the future (Editor's note: I believe Spray is also partly embedded with the customer's information).

Finally, Spray Paint can not load alternative character sets. This would have made a great program even better, as it is sometimes necessary to work with a different font than the one provided. An example might be a custom designed font with companion text screens to be used within a program written by you (Editor's note: I believe a "kludge" work around would be to modify the Basic loader).

SPRAY PAINT RATING - "A"

I give Spray Paint a solid "A" and highly recommend it to you lo-res art fiends out there.

Spray Paint is $28.95 + $3.00 S/H

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THE LANDMARK SERIES

BY ROBERT KNOP

The Landmark Series is a new package of Geos utilities and games for both Geos 64 and Geos 128 by Paul B. Murdaugh. The programs included on the disk are: Dual Top v3.0 for the C-64, Dual Top 128 v3.0 for the C-128, GeoTet for the C-64 and VDC Tet for the C-128, GeoSolitaire for the C-64 and VDC Solitaire for the C-128, Checkerboard for the C-64, and Lace II for the C-128.

DUAL TOP V3.0

Dual Top v3.0 is an upgrade of the previous shareware releases of Paul's deskTop replacement. "Dual Top" works with Geos 64, while "Dual Top 128" only works with Geos 128 in 80 columns, though you may still run 40 column applications from Dual Top 128. As with anything in GEOS, the functionality and versatility of Dual Top is limited if you do not have an REU.

Both versions of Dual Top can be run from the deskTop in the same manner as any other GEOS application. You can return to the deskTop (or to GateWay) at any time by running those programs from Dual Top like a normal application. Dual Top also includes a menu option which allows you to return to the deskTop. Once you have run Dual Top, any time thereafter during this GEOS session when you exit an application, Dual Top, rather than the deskTop, will take over the system. Two utilities are also included, 64 dualboot and 128 dualboot, which run Dual Top immediately when you boot GEOS.

Dominating the appearance of the Dual Top screen (Figure 1) are two disk windows, which let you view the contents of two separate disks at once, hence the name Dual Top. Files are listed by name within these windows. Between the two windows are a number of buttons which let you select disk drives and perform common operations on files. At the top of the screen is a set of menus and a familiar looking clock display. Except where noted, everything I say holds true for both Dual Top 64 and Dual Top 128.

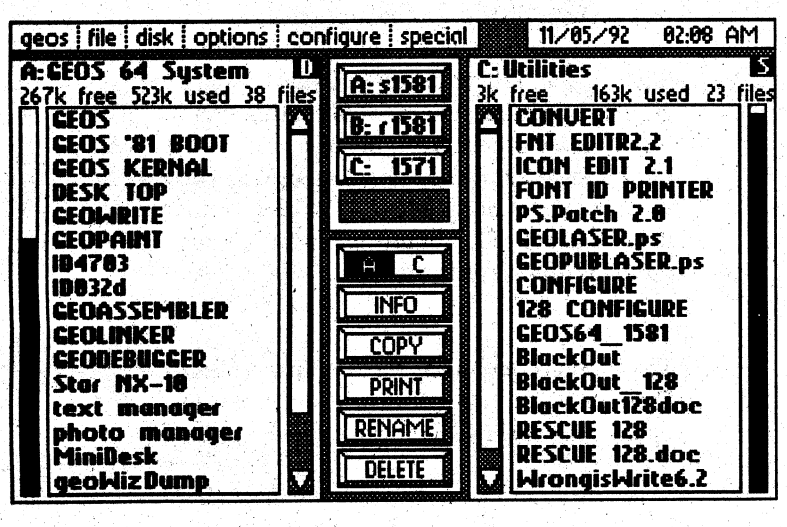
Of the two disk windows, one lists the "source" disk and the other lists the "destination" disk. Whenever you click anywhere within either window, the left or the right, the disk currently displayed in that window becomes the "source" disk. At the top of each disk window is a letter (A-D) specifying which drive's contents are displayed and the title of the disk in that drive. To the right of this title is the letter "S" or "D" to show if this window is the source or destination disk. On Dual Top 128, the entire word "Source" or "Destination" appears. Below that is the amount of disk space used and the amount of disk space free, and the number of files on the disk. Below that is the list of filenames.

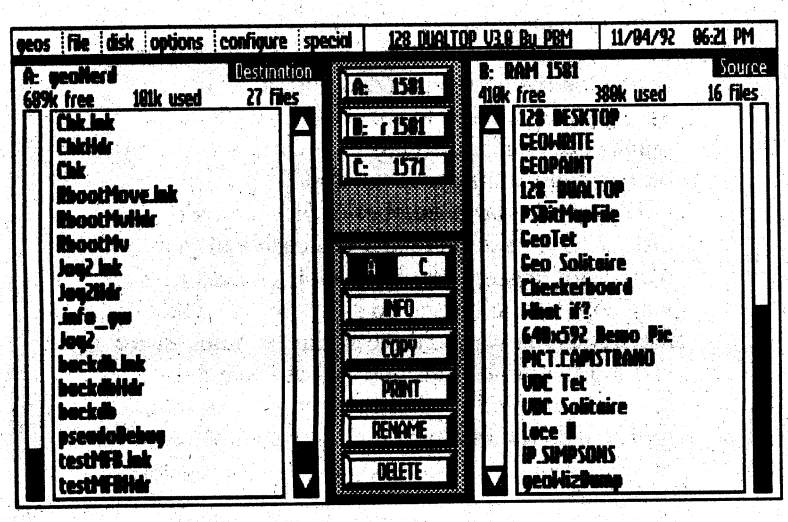
SELECTING FILES

Selecting filenames within the file window is as easy as anything I've seen within GEOS. Simply click on a filename to select it; to select multiple files, you may click on the additional filenames without any need to hold down the Commodore key. To deselect a selected file, click again on its filename, again without holding down the Commodore key. If you hold the mouse button and move the pointer across several filenames, all of the filenames you move across are selected (unless you move the mouse too quickly, in which case some files may be missed). As with the deskTop, double clicking on any file attempts to open that file, regardless of what other files might want be selected. However, with Dual Top, when selecting multiple files, you can disable "double-click opening" by holding down, you guessed it, the Commodore key. This can be useful if you wish to avoid the annoyance of accidentally opening files when you are trying to select multiple files. The ease with which one can select multiple files under Dual Top is a big plus, and removes a lot of the old deskTop headaches of multiple file operations as in "Oops! I forgot to hold the Commodore key! Time to page back and arduously reselect all those darn files!"

On one side of the filenames list, in a disk window, is a "fuel bar" that gives you a quick visual representation of how full a disk is. On the other side is a scroller bar which lets you move through the drive listing when there are more names on the disk than can be displayed in the window at one time. At the top and bottom of the scroller bar are arrows which let you scroll through the listing one name at a time. Holding the mouse button on one of these arrows causes the names to scroll continuously. Within the scroller

bar is a single button which can be dragged vertically to display filenames at any point within the listing. Contrary to the Geos/deskTop standard, you drag this button by holding down the mouse button, rather than clicking once to pick it up and clicking again to put it down. I am pleased to note that this button dynamically sizes itself in proportion to the percentage of files on the disk which may be displayed at one time within the filename window. Unfortunately, it always seems to make itself slightly too large. In other words, if there are 24 files on the disk, since the window can display 16 filenames at once I would expect the button in the scroller bar to be 2/3 the size of the total space available for the button. Instead, however, the button is larger than this, disturbing my visual perception of how many files there on the disk relative to how many names I am looking at.





DRIVE SUPPORT

Between the two disk windows are four buttons which let you select which drive's contents are listed in the current source window. The buttons display the letter of the drive and the type of the drive. For example, "1581", "r1571" for a RAM1571 drive, or "s1541" for a shadowed 1541 drive. Although I do not have a CMD RAM device, and was thus unable to test this, I believe that Dual Top will be compatible with 1581 partitions on a Ramlink or Ramdrive using the same patches to the GEOS kernal that make the deskTop compatible with these devices.

[Editor's note: Dual Top 128 worked fine with gateWay V2.5 and 1581 partitions on the Ramlink and HD but did not work properly and froze while accessing large native mode partitions on the CMD Hard Drive.]

Unlike the deskTop, the names of the disks in each drive do not appear. Since there are windows for source and destination disks in which names do appear, this is not as serious a drawback as it might sound. To change the drive in the destination window, you must first click in that window to make it the source window, click a drive icon to select the new drive, and then click back in the original source window.

DRIVE D SUPPORT

A note here about drive D support: by itself, Dual Top directly supports access to all four drives within GEOS. As Configure only configures drives A-C, you must configure drive D yourself using Dual Top's "configure" menu. Dual Top only lets you select a 1541, 1571, or 1581 as drive D; it will not let you select a RAM drive for drive D. Because many GEOS

applications still only support drives A and B, if you only have three drives installed, you can use the "configure" menu's "swap A&C," "swap B&C," and "swap A&B" options to rearrange drives.

Note that swapping drives A&B under the deskTop requires THREE disk swaps!

Unfortunately, these options do not work if you have four drives installed. It would have been nice to see more complete swap options which not only let you swap with four drives installed, but also let you easily rearrange the drives to any order. The Landmark Series manual includes an entire page detailing the ramifications and limitations of running applications from drives C and D and having data files on those drives. These limitations are not problems with Dual Top, but rather problems with Berkeley Softworks applications and the manner in which the GEOS kernal reloads the deskTop (or whatever replacement is active) after an application exits. Again, however, Dual Top could have dodged many of these limitations by allowing you to swap the order of your drives.

FILE OPERATIONS

The remaining buttons below the drive buttons allow you to perform common operations on the selected files in the source window: Info, Copy, Print, Rename, and Delete. These operations perform as you would expect them to in a manner similar to their deskTop counterparts. The Info for a file, along with the information from the file header, shows you the file's icon. This is the only time within Dual Top you will ever see file icons. The Copy function copies the selected files in the source window to the disk shown in the destination window; the list of names in the destination window is updated at the end of the entire copy operation to reflect the presence of the new files.

The Dual Top menus present you with a series of operations and options, many of which are similar to their deskTop counterparts. Some notable differences:

To select input and printer drivers, rather than selecting from a presented list, you select the name of the appropriate driver within the disk window, and then select "select printer driver" or "select input driver" from the "geos" menu.

The names of the current input and printer driver are displayed within the geos menu.

"Preferences data files," in other words, the file "Preferences" produced by the standard GEOS "Preference Manager," can be installed in the same manner as the printer and input drivers. This means you could have a number of different preferences on your disk, in files with different filenames, and swap between them at will.

The disk format function is a huge improvement over the corresponding deskTop function, in that the dialog box it opens allows you to select, right there, which drive you want to format. No more guesswork as to which drive you might be formatting, and no more need to select a disk only to get an annoying and gratuitous error box before you format it. One interesting option under the disk menu is "sort." This sorts the list of filenames alphabetically within the file window. Note that this does not change the order of the files on your disk; it just changes the order as you see it. Although this can help you find a file on a very full disk, I myself, when using a graphic operating system, would rather see the files ordered according to my own system of what I think should be near what, which usually ends up to be the order of the files on the disk), rather than alphabetically. In my opinion, this "sort" option is of limited utility.

OPTIONS

The "options" menu has three options (five, for Dual Top 128): "auto directory" automatically opens disks and lists files when Dual Top is run.

"Auto sort" automatically sorts the file listing when a disk is open. And finally, my favorite, "auto overwrite". With this selected, when you copy a file and that file already exist on the destination disk, Dual Top automatically replaces the file on the destination disk without first asking you if it is OK to so. Thank you, Paul, thank you, somebody really does care. One of my biggest complaints about the deskTop is that when I am copying a large number of files between disks, I have to sit there and OK each and every one. With "auto overwrite," now I can start a long copy operation and go away. Sure, it is more dangerous this way, and there may be times where you want to disable this option, but I find most of the time I would rather the computer do what I told it to do the first time. A fourth "auto" available only under Dual Top 128 is "auto video

adjust." With this selected, when you run a 40 column application (or a 40/80 column application such as geoPaint with the 40/80 column key in the 40-column position), GEOS automatically switches to the 40 column screen without first asking you if it is OK to do so.

Whenever you select or deselect one of these options, its setting is changed within the Dual Top file on your disk. So, by doing this with the Dual Top on your boot disk, you can permanently configure Dual Top the way you want it. It can be rather confusing, however, which Dual Top on your disk is changed to reflect the newly selected options. Occasionally I would have Dual Top present on both drives A (1581) and B (a REU), and I had a hard time keeping track of just which copy of Dual Top would be affected when I changed an option.

A couple of notes about the differences between the 64 and 128 versions. The 64 version, on its 40 column screen, feels a little cramped. There is enough room for everything, but there is only just enough room, for instance the text specifying how much room there is on the disk and so forth. The 80 column version, "Dual Top 128," feels less cluttered, and I find it nice to have the entire word "Source" and "Destination" spelled out.

There are more substantive advantages to the 128 version, most notable its support of 64K VDC RAM. If you do have 64K of VDC RAM and select "VDC 64K mode" from the "options" menu, Dual Top 128 will stash its screen in the higher range of VDC memory not used by most 80 column GEOS applications, or any 40 column applications, of course. What this means is, when you exit from an application that doesn't use all 64K of VDC RAM and the only exceptions I know of are the interlace programs on this Landmark Series disk, the Dual Top screen reappears almost instantly. It is most impressive to watch. Aside from this, everything in general is a little peppier in the 128 version, probably as a result of the 2 MHz operation in 80 columns.

SHORTCOMINGS

In my opinion, there are two serious drawbacks to Dual Top. First, there is no way to view or sort the files on a disk by anything other than name. Most notably, you cannot view files by date. As I find myself usually working entirely from a RAM disk, occasionally I copy all files which have been modified back to disk. With the deskTop, using the "sort by date" feature it is easy to select all of the files that have been modified since the last time I copied the files back to disk. Under Dual Top, the only place you can see the modification date of a file is in the info box. Thus, one is left having to remember which files were modified, or painfully look at the info boxes of those files one by one.

The second drawback is the only tool available for rearranging files on the disk is "swap" under the "file" menu. This allows you to exchange the position of two selected files on the source disk. This means if you want to move a file to the end of the disk, you must swap it one by one with every file between it and the end of the disk. It would have been very nice to see an "insert" feature, which allows you to move a file to or from any arbitrary point in the listing and have all of the other files move up or down to either fill in the space vacated by the file, or to make space for the file.

In summary: despite its drawbacks, Dual Top is a very nice and very powerful deskTop replacement. In general, most operations are smoother and faster than they are in the deskTop, partially because, as he states in the documentation, Paul has coded everything with speed in mind, but more significantly because the layout of the screen, with the two disk windows, is more ergonomic. The addition of a very large number of keyboard short cuts also helps. Like GateWay, Dual Top does not use icons, and I find myself somewhat missing icons. However, it is often more convenient to work with a list of filenames and it certainly is faster to scroll through a disk directory this way. The issue of icons versus no icons is probably a matter of personal preference, as Disk Estel states in his GateWay review in TC128 issue number 31.

The Dual Top manual mentions an intriguing future possibility: Dual Top "modules," separately programmed modules which may be added to Dual Top, presumably in a manner similar to "GateWay documents". No modules are included with Dual Top, so it is difficult to review how well these might work, but there is promise of easy, potentially powerful, and possibly even freely distributable, upgrades to Dual Top.

GEOTET, VDC TET

These games for GEOS are excellent implementations of the familiar game Tetris. GEOTET runs in 40 columns under either GEOS64 or GEOS128; VDC TET runs in 80 interlaced columns under GEOS128, and requires 64K of VDC RAM.

Upon running one of the Tet games, you are presented with a full color screen featuring the familiar "Tetris" well at the center, with various configuration options on the side. My first thought was, "why is this written as a GEOS program?" Rest assured, however, that these are thoroughly GEOized programs, and Paul has done an excellent job of writing an exciting fast paced game while taking advantage of the powerful user interface provided by the GEOS kernal. While playing the game, you use keypresses to rotate and move the falling puzzle pieces, as you might with any non-GEOS C64/C128 game. However, the various options and configurations of the Tet games are available through none other than icons, which you select with the pointer just like any other GEOS icons in any other GEOS application.

This is a very configurable implementation of Tetris. You may specify your "level," which specifies how fast puzzle pieces fall; you may specify the number of starting random rows at the bottom of the screen. Additionally, you can choose whether or not the level and the rate at which garbage rows appear increase as the game goes on. As a result of the high configurability of the Tet games, they will be interesting for both beginners and old Tetris experts. You can set it so that the pieces fall slowly enough that the beginner can get the hang of the game, or that they fall fast enough, and the garbage rows advance fast enough, that you will be sweating bullets trying to keep up with it.

The operation of both GeoTet and VDC Tet is the same. The main differences are in the appearances of the screens. VDC Tet, working on a 640x400 interlaced VDC screen, looks more impressive and more professional than does GeoTet. The colors are crisper, and the large text fonts look smoother. Also, because of the higher resolution, VDC Tet fits more on the screen than does GeoTet: help screens and the high score list stay and are always on the screen in VDC Tet, but are available at the touch of a button in GeoTet.

Unfortunately, the high resolution of the VDC Tet interlaced screen also has a drawback: the characteristic flicker of the 128's interlaced 640x400 screen can become quite hard on the eyes after a while.

GEOSOLITAIRE, VDC SOLITAIRE

These programs are very smooth graphic implementations of the familiar card game solitaire. After selecting the picture on the back of your cards from a choice of four, (my favorite is the silhouette of the UC Berkeley Campeneile that was once the logo of Berkeley Softworks), the screen clears, giving you a green background and laying out the cards (in color) in the familiar solitaire pattern. Thereafter, you play by clicking on the card you want to move, or turn over if the back is facing you, drag it to where you want to move it, and click again to put it down. The game enforces the rules of solitaire (i.e. you can't cheat) and lets you quit or start over at any time with the touch of a key. The game does not recognize when you have lost, this would be hard to code, nor when you have won, that however is less excusable.

GeoSolitaire, working in the 320x200 resolution of the 40 column screen, does not draw a full picture for each card. Rather, it writes the card's value and suit in the corners, as in a normal card, but then just draws a larger single suit character in the center of a card. VDC Solitaire, with its 640x400 resolution, which requires 64K of VDC ram, does draw full pictures of the face for each card. I found this difference to be more significant than I might have expected: the full picture of the card must be a big help in our own internal neural networks' efforts to do the pattern recognition necessary to rapidly identify a card.

Again, however, VDC Solitaire has the drawback of eye strain due to the flickering interlaced screen.

The operation of both GeoSolitaire and VDC Solitaire is very smooth and fast and I found it easy to get hooked playing game after game of solitaire when I really should have been writing reviews.... The one negative comment I might have is since Paul has already used the point-and-click GEOS interface to move cards, why not go all the way and put a menu up there that has the various options of quit, reshuffle, configure, etc. which are now only available with a keypress?

CHECKERBOARD

This 40 column GEOS program is exactly what its name claims: a checkerboard. You are presented with a traditional checkerboard, with a game of checkers set up on it. You can move any checker anywhere on the board, get rid of it, make kings, and add new checkers to the board. The operation of the program is very smooth for what it does and the graphics are well done, but it doesn't do much. The computer will not play checkers against you, nor will it enforce any rules if you are playing checkers against another person with the program.

Computerphile and technonut though I may be, it is not clear to me why one would use this program unless one did not have a physical checkers set. On the whole, it seems to me to be more convenient to play on a table with a real board and real checkers. What I would like to see in this program perhaps would be a modem interface, so that you could play checkers against your friend across town over the phone lines.

LACE II

Finally, we get to what is in some ways the most impressive program of the Landmark Series. Lace II for the C-128 is an image display program which lets you view geoPaint, Basic 8, and I-Paint images. What sets it apart is, you view all of these pictures, with the exception of appropriate Basic 8 pictures, on a interlaced VDC screen, and as such Lace II requires GEOS128 and 64K of VDC RAM.

The tag to Lace II claims "GeoPaint pictures the way Mother Nature intended," and I must on the whole concur with that assessment. It is always a little depressing that in 40 columns under geoPaint you look at such a small fragment of the final printed page. In 80 columns, you can see the whole width of the document, but the aspect ratio is highly distorted, and you can't see any color that the image has. With Lace II, you can view the whole width and up to 82% of the height, of a full size geoPaint document, and in color! As a bonus, you can also view Basic 8 and I-Paint pictures.

As any 128 owner knows, the 80 column screen's color pallette differs slightly from the 40 column screen's pallette. As a result, the colors in Lace II can look rather different from how they should look. Lace II addresses this option with the "geoPaint color correction" option, which alters the VDC color pallette to match that of the 40 column screen. I assume that this is done in a manner similar to the manner in which I-Paint shows all of its various colors. As the manual states, the flickering becomes somewhat worse with geoPaint color correction enabled.

There are three modes in which geoPaint files can be viewed: 640x400, 640x496, and 640x592. Naturally, with more vertical resolution you see more of the geoPaint page at once. I tried the program with two different 1084S monitors; with one of them, Lace II did not start a 640x592 image at the top of my monitor. Rather, it would start some varying distance from the top; the part of the image that went off of the bottom of the monitor wrapped around and filled in on top. This problem did not occur with the other monitor.

[Editor's note: Lace II works fine on my 1080 monitor, maybe using the screen controls on the back of the monitor to "squish up" the screen a little would help some people]

Finally, a comment about the handling of the interlace screen in this program and in the other interlaced programs in this series (VDC Tet, VDC Solitaire). It is commonly believed that there is one problem with interlaced screens on the 128's 80 column screen, namely, the flicker. Actually, there is a second problem: the legibility of the screen. Although you cannot get rid of the flicker, interlaced VDC screens do not have to be as unreadable as most 128 owners believe they must be. Compare the 50 line text screen of Pocket Writer 2, Dialogue128, or an unpatched DesTerm128, with the 50 line text screen of ZED128 or DesTerm128 using the 80x50.ovl patch. You will notice that the letters in the latter programs are MUCH more readable than in the former. This is dramatically illustrated in the short basic demo view.screens which can be found on GEnie, the internet ftp site ccosun.caltech.edu, and elsewhere.

Unfortunately, Lace II and the other interlaced programs in this package configure the VDC screen in the default "illegible" mode. Before I chastise the Landmark Series for this, though, I must state that while we know that an interlaced text screen can be made more legible, it is not clear that the same methods will work on an interlaced graphic display. It may be that other effects (such as blank lines between every 8 lines

of the picture) may render the methods that improve interlaced text useless for graphics.

FINAL REMARKS

The manual which comes with the package is comprehensible and complete. About 80% of the manual deals with Dual Top, the other programs each getting a page or two. One comment on the manual: the title page of the manual is a beautiful example of what can be done with dot matrix printing and must have been done with CMD's LQ package, or a very impressive interpolative printer driver. Unfortunately, the bulk of the manual was printed with an old, 80 dpi printer driver. The text, with the occasional exception of italics, is readable, but the eye does not roll over the chunkier text as well as it does over the very smooth letters characteristic of the title page.

In summary, the Landmark Series is a good value. Unless you are a diehard icon adherent, Dual Top v3.0 itself is worth the price of the package, despite its drawbacks, and while Dual Top is the centerpiece of the series, the games and Lace II are hardly afterthoughts. Every program in the series is well written and very robust. If you use Geos, the Landmark series would be a worthy addition to your software library.

RATING

LANDMARK SERIES - "B+"

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GETTING STARTED WITH 128 MODE EPROMS

BY STEVE MITCHELL

If you find someone who has just bought an eprom programmer, you will always notice that special gleam in their eyes, as they dream of the impossible - before - now things that they are going to accomplish with their eprom programmer. However, several months later, many eprom programmers are up for sale again. Why? The answers vary, but for the most part can be summed up in the statement "I just couldn't seem to get going with it".

I know, I've been there. I would have bought any book at any price to learn the secrets of epromming, but could not find one. In frustration, I put my Promenade back in the box and shelved my dreams for about a year. One day Commodore Wizard Bill Mellon breezed in and said, "Since I'm here anyway, let me show you some eprom stuff". In 1 hour I was off and running. Those dreams I had are becoming reality! To save my fellow computerists this same initial frustration, I am writing this article on how to get started with 128 mode eproms.

The top items on every eprommer's list are entitled "What They Should Have Done" and I want to change. You know, everything from that sick green border in 40 column mode, to the default function keys, to device 8 as the default device instead of a tape drive, and everything in between, all the changes Commodore should have made. If only they could have had available to them the wisdom the rest of us possess!

What kind of chips come in a C-128? If you guessed eproms, you are close. Actually the operating system is in PROM chips. Prom stands for Programmable - Read - Only - Memory. It is a chip that can be programmed only once. For those who are not 100% sure about this, EPROM stands for Erasable - Programmable - Read - Only - Memory. These 2 chips are the same from the 128's point of view, but to those of us who are a little less sure of our code, eproms offer the advantage of being erasable under a special ultraviolet light.

Since this is an article to help our fledling fellow eprommers get underway, I am not going to explain the chemical differences between gals, pals, or other varieties of eproms that are electrically erasable. The 128 can not really make good use of them anyway.

The first step in fixing up Commodore's code, is to obtain a copy of their code. So let's start there: How to make copies of the 3 eproms that are in the 128.

For the sake of these instructions, I assume you have the most popular eprom programmer, Promenade, and Promos v2.0, both from Jason-Ranheim (address listed at the end of the article). If you have a version of Promos other than version 2.0, I strongly suggest you upgrade right away. Several bugs were fixed and version 2.0 works in 128 mode, forty or eighty columns. To top it off, with the extra memory available in 128 mode, you do not have to program chips in 8K sections anymore.

Let me explain in further detail. Earlier versions of "Promos" were written for the C-64. After the program (& a monitor) were loaded, you did not have that much RAM left over, so chips larger than 8K were usually programmed in 8k sections. With the advent of Promos 2.0, which runs in C-128 mode, in both forty or eighty columns and thanks to the 128's built in monitor, you can load a 32K eprom image into bank 0 and program a 32k eprom (27256) in 1 shot.

If you want to program a 64K eprom (the big one -27512), you can still load 32K in bank 0 and 32K in bank 1 and program it in halves. Before someone corrects me, Promos does have a monitor built into the program, but it only displays 40 columns wide and when at all possible my 40-80 key is down.

The operating system of the 128 is on 3 chips (I'm talking flat C-128 in 128 mode). First, there is a 16K chip that contains the Kernal. Second, there are 2 chips that contain the BASIC language & the built-in machine language monitor. Each of these is a 16K chip. An eprom that holds 16K and can be used to replace any of the 3 chips is a 27128.

Though it is outside the scope of this article, I understand there is a way to wire some jumpers on the C-128's motherboard and substitute a single 27256 (32k) chip for both the Hi & Lo Basic roms.

Have any of you JiffyDos owners ever wondered just how JiffyDos switched between 2 kernals? They use a 32K chip (27256) to replace the original 16K chip and put the original code in one half and the JiffyDOS code in the other half. A flick of the external switch switches you between the two. The reason that I mention that is to point out that even though a 16K eprom will work exactly as the original Prom's, a larger eprom will also work, in this case a 27256 chip. You simply program only the half that is seen without the switch (like JiffyDOS). When you get around to programming eproms for the empty socket in the 128, and the empty socket in the REU, you will be using 27256's.

So, to avoid having different types of chips on hand and also to avoid confusing you with different methods for different chips at every step; and since I have been using a big box of 27256's that I obtained from a ham fest, I will give you the instructions for using 27256 chips (32K) instead of the 27128 (original 16k size) chips. We will only be using 1/2 of the chip, but 27256's are only pennies more and are usually more useful for both 128 mode epromming, and 1581 drive epromming.

One idea that has always intrigued me is the possibility of putting a 2nd language, say, a C compiler/editor like Super-C128, which switches out BASIC anyway, into the upper half of the Basic roms and use an external switch to toggle between powering up in Basic or C. There is no limit to what someone with an eprom programmer can do, except their imagination!

You will need three erased 27256 chips to copy Lo-Basic, Hi-Basic, & the 128 Kernal. Erase them all now. Got that done? OK. Power down your machine, insert the Promenade, insert the Promos disk in drive 8, and power up. This will autoboot Promos and return you to Basic with the Promos wedge installed.

If your device 8 is a 1581 drive, simply copy the autoboot sector from the original Promos disk to a blank formatted 3-1/2" disk, allocate that sector with a phony directory entry. An example might be a "user" file named boot. Then file copy all the files over to that disk. This will autoboot Promos 2.0 from the 1581 instead.

First we need to verify that our chips are fully erased. Erased, to an eprom, means that all bits in it have been set to 1 (all bytes = $FF). To check this, insert a 27256 chip into the Promenade socket and type: E 0,7fff,E6 and then return. For the sake of brevity, I will not explain what every parameter means, consult the Promos manual. If your eprom is not fully erased, you will get a list of the locations that do not have all bits set to 1. You must put your chip back into a Datarase, or an equivalent UV eprom eraser, for a longer period of time. If you get the message "Erase Check Complete" with no

<<* U13. REDUNDANT. REPLACE period of time BY period or time *>>

addresses shown, the eprom is fully erased. Go ahead: erase & verify all 3 chips now and we will be ready to proceed.

Both Lo-BASIC and Hi-BASIC roms can be copied while in the C-128, there is no need to take them out. Here is how: Go into the C-128's monitor and type the following:

T F4000 F7FFF 02000.

This copies all of the Lo-Basic chip which is seen in Bank 15 (the F) from $4000 to $7FFF from rom to ram. Your copy of Lo-Basic will be located in bank 0 from $2000 to $5FFF. Whether or not you burn an eprom at this time, I suggest that you save this to disk now. While still in the monitor, type:

S "Lo-BASIC. orig" 8 02000 06000.

You can load this back in later and make changes to your hearts content. Let us burn a copy of the original now. First exit the monitor to BASIC. Since the Promos wedge is still active, type:

P 2000,5FFF, 0, E6,6.

When the yellow PGM light goes off and you get a cursor again, you will have just burned a copy of the Lo-Basic rom! To make sure it's an exact copy, let us compare the eprom to what we programmed it with. Type:

V 2000,5FFF, 0, E6.

It may not be necessary to do the verify, but I always do for peace of mind.

To copy the Hi-Basic rom, we do just about the same procedure except we read the Hi-Basic area to ram. In the monitor type:

T F8000 FBFFF 02000.

This copies all of the Hi-Basic rom which is seen in bank 15 at $8000 to $BFFF, to bank 0 ram from $2000 to $5FFF. Then while still in the monitor, to save it, type:

S "Hi-BASIC. orig" 8 02000 06000.

Exit the monitor, place your erased chip in the Promenade and type:

P 2000,5FFF, 0,E6,6.

When the PGM light goes off, verify it to be sure it's OK. Type:

V 2000,5FFF, 0,E6.

And that is it, your copy of the Hi-Basic rom is done!

Now for the 128 Kernal. We have to follow a little different procedure here because the I/O is overlayed smack dab in the middle of the area we need to copy. I am told there is a way around this problem without removing the chip from the machine, but the last thing I need is another "special trick" to confuse me. The easiest way is to take the Kernal out of the machine and read the information directly from the chip itself. Incidentally, all three chips could be read directly by placing them in the Promenade socket and issuing the appropriate read command while the Promos wedge is active. Remove the Kernal from your C-128 (labeled U35) and then with Kernal, Promos, & your Promenade in hand go to a friend's house and offer to give him a demonstration on eprom programming, to include copying your Kernal of course ;)

Here are the commands for copying the 128 Kernal. First boot with Promos in drive 8 to get the Promos wedge loaded. Instead of going into the monitor this time, we can get the information off the chip right from Basic. Place the 128 Kernal into the Promenade socket and type the following read command:

R 2000,5FFF,0,E6.

This reads the eprom into bank 0 starting at address $2000. Go into the 128 monitor to save this as a disk file. Type:

S "128kernal. orig" 8 2000 5FFF.

To program a replacement Kernal in a 27256 chip, you have to put it in the upper half of the chip due to the addressing lines being different from the original 27128 type. You could program the stock Kernal in one half and your version in the other half, like Jiffy Dos does, and use an external switch to toggle between them, but let us keep it simple. Insert your erased 27256 chip in the Promenade and from Basic, with the Promos wedge enabled, type:

P 2000,5FFF, 4000,E6,6.

Then to verify type:

V 2000,5FFF, 4000,E6.

That will program the Kernal into the top half of the chip, starting at address $4000 in the chip. Notice that both the Hi-Basic and Lo-Basic Roms were programmed into the lower half of the chip but the 128 Kernal has to be programmed into the upper half. This is due to how the address lines are hooked up to the sockets that these chips fit into. In any case, your Kernal copy is done and that is all there is to it!

Here is an extra tidbit of information: The 1581 drive has a 27256 chip for its operating system. To copy it, remove the chip from the drive's circuit board, and from Basic, with the Promos wedge enabled, type the following read command:

R 2000,9FFF, 0,E6.

This reads the 32K eprom into bank 0 starting at address $2000. Go into the 128 monitor to save this as a disk file.

Type: S "1581 ROM. orig" 8 2000 A000.

If you examine the code from the drive you will see that just less than half of the chip is used! Hmmm ... What could we add to the 81's operating system ... how about a true tree directory structure like IBM's have??? Or maybe we could map an extra 8K Ram chip in somewhere there....

If you have followed all the above steps, you will now have a copy of the Hi & Lo Basic chips and the 128 mode Kernal. You will also have three disk files with all the code contained in these chips and a little experience under your belt to boot!

Now, about those changes you always wanted to make ....

Address of Jason-Ranheim
(for Promenade & Promos 2.0):

1-916-878-0785
Jason Ranhiem Company
3105 Gayle Lane
Auburn, CA 95603

TRANSACTOR MICROFICHE

Parsec has a few sets left of the Transactor microfiche for $10 a package plus S&H. Each package contains between 10-18 pieces of fiche with no duplicates. They run from Vol 4 to Vol 8. These are old, dusty, etc. though we cleaned some of them and threw out the ones that did not look readable or were scratched in vital places. These are in at least fair shape, come "as is", and we will not break open packages to look for certain issues. For <$1.00 an issue this is a bargain. Order early and get the packages with the most fiche in them. I do not have to stress this really is a LAST chance offer :). Limit two per customer. You know Parsec's address ... get going!

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network for Commodore 64 and 128 owners. I have an interest there and I try very hard to make it the best place in the world for Commodore owners. No secrets, I would like everyone reading this to sign onto the Commodore Flagship as soon as you put down this magazine :D

Why did I take it over? Because I wanted to make sure we (Commodore community) had a good place to sign onto, to enjoy, and a place to be represented on a national level. Not to mention I have enjoyed it myself since 1986. The last part is the most important reason and quite frankly I was not going to trust it to anyone else. I was happy just doing gopher work there, file releases, conferences, that kind of stuff. The glazed look of pleasure I had in my eyes for the past few years was from getting my hands on all the hottest public domain software and testing it for the public release (yum, yum). I love software, I love having a lot of it even better. You know what they say, you can't be too skinny, have too much money, or have too much PD!

TC-128 AUTHORS ARE CONNECTED

There must be a reason why all the TC-128 authors are GEnie subscribers too?

MUTUAL

A message from number one (Hi Dave:). Please send me whatever public domain software you think we might not have already. It can be original programs, templates, pictures or whatever you have that you have authored yourself or you know to be freely distributable.
I use to trade with people and User Groups but it has gotten where I can not do so on a timely basis so I have decided not to continue trading since nothing rots more than someone who doesn't respond in a timely manner, so I will no longer be trading disks.

I hope that doesn't offend all my trading friends out there, I just do not want to be a "cad" by not responding in a timely manner to the disks you send. I simply do not have time to cross reference everyone's catalog disks to mine anymore. Especially since everyone uses a different system and every different type of data disk sent means writing a new database template to read it.

If you send me disks of programs I will add them to our own public domain collection and will also upload them to GEnie so we can all share with each other, mutual. As someone that has uploaded thousands of files to Q-link (before I quit) and GEnie since 1985, I can honestly say sharing not only feels good but "it is the right thing to do". True, I probably haven't authored 1% of the stuff I have uploaded, though I have at least a few dozen of worthy uploads up there I have authored. If you enjoy what other people share with you it is only proper that you put back a little too. That way we all gain and it has a snowball effect too. I guess that is what really steams me about other so called *public domain software companies. *They try to covertly rape and plunder software libraries and my own PD collection (most of them do shop our disks and then offer you the same disk at a higher price) but the bums never upload a SINGLE file. I think that is a real shoddy attitude for which I have no respect.

Besides being very thankful that you cared enough to send me a disk that you wanted to share with me and others, you get back the small sum spent on the disk and postage in multiples. Parsec truly gives back what it takes with all sorts of developments including this magazine, hardware, software, and services. We try to make a living by helping to advance the state of the Commodore community.

WHERE TO GO FROM HERE

I am in the Commodore business (it is a full time job and 1/2) for a couple of reasons. The most important one for me is I think I have the best, understanding, and caring customers anyone could hope to have. I love my Commodore customers and nothing could make me happier then opening my Post Office drawer and seeing all those store bought cards and especially the custom made cards and labels from all of you this year. I think Terri B. and her Handyscanner deserve special mention this year for those wonderful envelopes :) Sometimes I really need the emotional boost and this really gave me one this year. It makes the whole year of headaches and bills worth while. I wished I could have responded to every single one, but I could not. You are many and I am just one. I did read them all though, that is what bedtime is for ;) and thank you very much for all those hugs and kisses :* Plus, we saved all those unique stamps, especially the overseas ones, for my wife's stamp collection.
(continued on page 26)

SUPER EARL MOUSE

By John W. Brown

One of the nicest little treats to come my way recently was a new mouse for the C-64 and C-128, it actually caught me by surprise! This is a case of *not* judging the book by the cover.

When you first look at the box the mouse comes in here is what you will see:

No brand name on the package.

White blocks where they mark off for which computer the mouse is intended (PC - Atari - C64/128 - C1351).

The proverb on the side, "A detecting mind never rests, it's not unlike a finely-tuned musical instruments: It demands attention, practice". It is not always a good sign when hardware has the wrong use of a noun on the package (note the plural "s" on instruments) inside a proverb.

"Top quality from a super supplier"

"High Running stability to Prevent any Date Loss". Besides not understanding the gobbly-gook of the translated English I think they mean "data".

Made in Taiwan

A picture of a three button PC mouse.

This is the kind of packaging where you do *not* buy the product in the store unless they have a very liberal return policy.

SURPRISE!
Opening the box revealed a two button mouse! No instructions of course, no disk with mouse software drivers, no instructions, just the mouse nestled in a block of foam.

This is a nicely shaped "ergonomic" mouse with a very pleasing grayish/white color exterior with a smooth glassy type surface. It feels very good in your hand.

Happily, this is one mouse with the feature I have always wanted, a joystick mode switch. It is on the mouse's belly, just slide it over and you are in joystick mode automatically. Like all the mice I have tried, joystick mode on a mouse doesn't cut it with games, though it can come in handy when testing that older software (Vic-20 conversions?) that insist on using joystick port #0 (the first one or #1) for the joystick instead of the mouse. This feature is nice for some drawing programs too and for those games that allow two players to play at once. The "fire" and "escape" buttons work fine, just like they should. I have tested the mouse for about three months with various programs including Basic 8, Geos, Ipaint, games, and some drawing programs. The response is nice, smooth, and accurate. No jiggling or sporadic jumping of the cursor either.

COMPARISONS
How does it compare to the M3 and C-1351 mouse? Well, the C-1351 has a much sturdier feel, this one feels somewhat cheap compared with the C-1351, maybe the C-1351 just weighs more. I never liked the M3 mouse at all, either for the button design or its poor ergonomic design and feel. The "Super Mouse" also survived the most vital of all tests. The weekly "desktop drop" every mouse I have goes through when I knock it over the edge by accident, usually after I have forgotten I placed it here or there, or when its feet get caught with the joystick during a fast paced game :) The only ill results was when the case popped slightly apart one time and it required a squeeze to put it back together.

RATING
THE "SUPER EARL" MOUSE - "B+"
I give the "Super Earl Mouse" an "B+" because of the joystick switch, 1990s style design, and the superior tracking and feel over the C-1351 and M3. If Earl can save a couple of bucks by throwing the mouse into a plastic bag and ditching the box, I say do so. Throw a one page instruction manual in there with the mouse for the novices that might not know what the function of the switch might be or where to plug it in.

The "Super Earl Mouse" is $39.95 plus S&H (Earl takes credit cards and COD) and is available from:

Earl Harvey and Assc.
1409 Mill St
Laramie, WY 82070
307-745-7077

I always feel sorry when a customer leaves the 8 bit fold. I have owned and used many types of computers and been on many networks, roundtables, and forums. There is not an another User community quite like this one and when someone moves onto another machine I not only feel sorry for our loss of a good customer but sorry for their loss. Some things can not be replaced and the mutual feeling of belonging and spirit is one of the best things about owning a Commodore 8 bit computer. I BYTE and I am proud of it!

BELLY GAZING

What is the future of Parsec? To remain in the Commodore business as long as I enjoy it. When I no longer enjoy it I will either pass the Commodore ball to someone else who does or I will put everything we own in the public domain. But considering that every time I flick on my 8 bit friends I still get a kind of warm, comfy feeling of excitement that zaps through my body, you can count on me being around for the next couple of years. Which is why we have made the investments we have. We are not only standing behind you, but pushing you aside as we rush ahead to grab the next 8 bit goody before you get it :D

ZIP BOARD

Zip dropped us, more their loss than ours. As of 921229 I am still working on getting the board done. I am just working out the details and funding with a couple of well known individuals. It is not a cheap project. We have stopped taking deposits and have been returning the personal checks that keep trickling in. I expect to post on GEnie in Cat #2 Topic 12 about the latest developments before the end of Jan. 1993. We will also be doing a C-64 cartridge. What we do have roughly worked out is that it will be an external cartridge, yes, CMD compatible, pass through expansion port, probably 12Mhz. Once we have a new name for the board I will post that there too. Once we have a working prototype to show people and demonstrate we *might* start taking deposits again. This will most likely be your very last chance at a speed-up board. We now have over 100 deposits which is enough to do a small run and to be guaranteed that they will all be sold. If the board proves popular and sells out we will make a larger batch for wider retailing.

ARC & CS-DOS

We bought the complete rights and source code to ARC and CS-DOS from Chris Smeets. By the time you read this we will have already started on upgrading Cs-Dos and writing a new version of ARC for Geos 64/128 called geoARC.

BELLTERM C64

We use to distribute and sell Bellterm 64. We now own that too. As a special bonus *just* for GEnie subscribers it will be free for the price of the download time. Not shareware, not guiltware, not crippleware, just good commercial software at a PD price, not bad, huh! Of course, non GEnie users can still buy it from our catalog for the regular price which has been reduced to $14.95.

THE SOUND OF MUSIC

We now have the exclusive distribution rights to the SIDplayer book and disk by Compute!. We are redoing the packaging and hope to have it for sale by the end of Feb. 1993 at the latest. Yes, this means there will be future articles and lessons on using your SID, stereo cartridge, and MIDI.

THE BEST NEWS ?

What I understand from the "rumors" being posted and printed is that Commodore sold over 800,000 C-64s last year with about one half of them being sold in Germany. The C-64's tenth birthday was Sept 1992 and I believe that brings the total to 14,000,000+ so far, right? In other related news The Amxxx finally hit 4,000,000 total this year? with most of the sales overseas in Europe where it is in a dead heat with the Atari ST for number of installed users? I believe the C-128 hit 4,000,000+ before it was *discontinued*, although the Amxxx and it were both introduced within a one year time span of each other. How many years ago did they stop producing the C-128 anyhow? Like I have always said, engineers should run companies and not marketing people. Which might explain why H.Packard is so successful while other companies are dropping their profit dollars like flies. I know, I know, why do dare I comment on billion dollar companies when they could crush me like an insect? Because of the Bill of Rights ;)

C-64 IN THE NEWS

There was an Exxon employee on Compuserve recently looking for used C-64s to use

as replacements at their Singapore operation. He did not know you could buy them new! What would an industry giant of single hulled oil tankers want with a C-64??? The answer was the vendor that provided the "complete" package that they are presently using (Commodore hardware, software, special adapters, etc. for oil drilling?) is suggesting that they upgrade to a IBM PC at a cost of $65,000 big ones! Naturally they would rather continue using their C-64s as long as possible.

C-64 IN THE NEWS (again)
BROWN COR is a company that sells shipping supplies. When they promote their packaging material it pleases me to no end that the valuable object nestled in the foam is still an old style C-64. Obviously someone there knows a valuable object when they see it!

C-128 IN THE NEWS
One night during a GEnie conference CMD-Doug was commenting about seeing a flat C-128 in a video movie. <snap of fingers> JIMINY CRICKET! In the year 2030, when personal computers have been outlawed and the world is ruled by ruthless corporations that banned them, what personal computer would you use from the 1990s to help run a mining robot 50 feet tall and to jam signals meant for hostile and deadly androids? A flat C-128 of course, as seen in the Si-Fi horror movie "Crash N Burn".

C-128 IN THE NEWS (again)
I got a nice little note and booklet from Professor Rosenfeld, Department of Psychology, Northwestern University. Part of the booklet contains a paragraph about how they use the C-128 in a lie detector project. The C-128 is used in the recording of data from electrodes. Here is the quote from the booklet "The C-128 software systems for stimulus presentation, data acquisition, and analysis were all written by the first author (excepting high resolution displays by Darus, French, & Wallace, 1986)". Yes, Basic 8 is hard at work inside the hallowed halls of learning!

THE "COMGEN" aka "THE ICER"
RIO Computers has a new Toaster killer coming out for under $400. It is a genlock for the C-64 with broadcast quality output. In simple terms, a genlock allows you to overlay the computer video on a pre-existing video or transmission signal without destroying what is underneath it.

CANADIAN TARIFFS ARE LOWERED!
Good news right? Wrong? Exactly the opposite. Canada lowered tariffs on incoming goods through the Canadian Postal Service from $40 to $20. This means the goods now get taxed starting at a lower level. Anything $20 or more now gets hit with a tax (GST 15%?). As I understand it, the new law going into effect will also hit packages over $20 with a $5 surcharge! This is "suppose" to bolster floundering mail order businesses that reside in Canada. Sounds more like a couple of our own experts on economics in the US Congress went on vacation in Canada and never came back! (no such luck;) All this really means is Canadian customers now have to pay more for our products. The reason for mentioning this is for people pricing products, the price point should be considered so you do not stick your Canadian customers with paying extra tax. Instead of pricing something for $20 or $22 it might be wise to make the retail price $19.95 if at all possible. If there is one thing they hate more than Loonies in the Great White North it is GST!

US VS. THEM
One of my favor things I like to do when I get a product catalog for other computer lines is to "shop" and see how our products and values stack up to "theirs". From the PrePress Direct catalog, a Tegra Company, Vol 2.3 Page 8, comes the "SCSI II Dart Ram Drive" for the Apple Mac. A high-speed, solid state, non-volatile Ram drive that uses Simms exclusively as the storage media. Accepts 1Mb, 4Mb, 16Mb Simms to provide 4Mb to 512Mb of total storage. A built in battery ensures data protection in the event of voltage irregularites. Did you say this sounds exactly like a Ramlink ad? It does until you see the price, $3,295 with 4Mbs! Ouch! Thank you very much but I rather keep my Commie and Ramlink.

RamLink has to be one of the most unique, inexpensive, portable, solid state drive for *any* computer. For a lot of computers with names you recognize, a device like Ramlink just doesn't exist for anything less than an arm and a leg, if it exists at all. If I could only buy just one CMD device, it would probably be a RamLink, I love mine. As for 16Mb Simms, I heard rumors that some
(continued on page 32)

GEOS MACHINE LANGUAGE PROGRAMMING:

PART II. THE NATURE OF A GEOS APPLICATION

BY ROBERT A. KNOP JR.

I. INTRODUCTION: STYLES OF PROGRAMMING

When sitting down to write a Basic or machine language program on a 64 or 128, a programmer will to a greater or lesser degree think linearly about the programming project in front of him. The initialization code needs to be written, followed by the main body of the program, and finally a graceful exit. Depending on the style of the programmer, the "main body" of the program can be quite skeletal, ready to be fleshed out by adding the routines that do the dirty work of the program. Some programmers may first develop key routines and support code, but the fact remains that the programmer will eventually have to write the main body of the program which decides when any routines need to be called, and to take care of calling these routines.

Programming style can vary wildly, from the most structured of code to convoluted "spaghetti code". Structured programs are typically divided into many routines which each execute a simple task. Within a routine, if/then/else blocks are neatly delineated, and repeated blocks of code are clearly set within a loop. In Basic 7.0, for instance, this would entail heavy use of the Begin/Bend and Do/Loop statements, and very parsimonious use of the Goto statement. "Spaghetti code" is the other extreme. The boundaries between routines are less clear and the code is characterized by many jumps to other places in the code that are seemingly random to the outside observer.

Whatever the style of the programmer, his program must take control of the machine from the time it is run and see that everything functions properly; it must manage the input and output, look for user actions, and call any routines to do whatever tasks that the program needs done.

When programming under Geos, much of this is done for you. A typical Geos application is constructed out of what is known as "event driven" code. This takes structured programming to its logical extreme. No longer must the programmer write the "main body" of the program; the Geos system does that for him. You only need to tell Geos what routines to call, and under what conditions to call them.

II. EVENT-DRIVEN PROGRAMMING

As a means of understanding event-driven programming, consider the following example, a "core" of a program:

```
loop: jsr  jgetin    ;read a character from
keyboard
      beq  loop      ;a=0 means none read
      cmp  #"a"      ;if key hit was "a"...
      bne  chkb
      jsr  dostuff   ;...call the routine dostuff
      jmp  loop
chkb: cmp  #"b"      ;if key hit was "b"...
      bne  chkc
      jsr  dothings  ;...call the routine dothings
      jmp  loop
chkc: .
      .
      .
```

The program core detects events, in this example, "events" are key presses by the user. Then, based on the nature of the event, which key was pressed, the program calls a "service routine". The routine starting at location "dostuff" is the service routine associated with an event, which is the user pressing the "a" key; the routine at DOTHINGS is associated with a different event, the user pressing the "b" key; and so forth.

With some cleverness, this code could be made neater with a table of keys and a table of routine locations, and using the indirect JMP opcode. The fact remains that there is much drudgery associated with writing this kind of user interface for every program. If a simple keypress detector does not seem so daunting, imagine writing a mouse-driven icon and menu system which you would have to separately include in each and every program you wrote.

The beauty of programming under Geos is that the Geos system provides this program core for you, within what is known as the Geos MainLoop. A

complete mouse-driven icon and window user interface is already there, waiting to be used. You need only tell the system what icons and menus you have, and what routines to call when these icons and menus are selected. For instance with icons, you give it a picture using geoProgrammer and a geoPaint photo scrap, a size, a screen location, and a service routine. Write the service routine, and wait. When the user clicks the icon, Geos will automatically call your service routine.

In short, a Geos programmer never really has to write a complete program. All you need do is supply the system with tables of icons and menus, and write the service routines. If you have tasks you want executed regularly regardless of what the user does, you can also provide Geos with a table of time-based processes, which it will then call automatically at whatever interval you specify. After these things are set up, the user interface and management of the computer is taken care of by Geos.

III. THE GEOS KERNAL

The Geos MainLoop makes life a much easier for the Geos Programmer by providing a program core around which one can write event-driven code. This is only half the joy of programming under Geos. The prospective programmer also has at his disposal the impressive array of routines which comprise the Geos Kernal. The Kernal routines greatly simplify the programmer's task of managing input and output, and many other things. Routines available to the programmer include routines for graphics, text input and output, disk i/o routines of varying complexity (all the way from loading a file to manipulating a single disk sector), routines for moving blocks of memory, routines for putting dialogue boxes up on the screen, and much more. Want to draw a rectangle on the screen? No need to arduously calculate out what bit in what byte of the bitmap each pixel in the rectangle falls; simply call the Geos Kernal routine "Rectangle." Future articles in this series of articles will discuss various parts of the Geos Kernal in greater detail.

IV. GEOS APPLICATION TYPES

The term "application" pops up quite frequently when discussing Geos. Simply put, an application is a program, as distinguished from a document, which is a data file for an application.

Sometimes applications are distinguished from "desk accessories". In this case, applications are programs which take control of the machine, completely taking over from the deskTop or from whatever program the application was run. Desk accessories, on the other hand, can be run from within an application, typically from the "geos" menu, without disturbing the application or any documents the application is editing. In a broader sense, a desk accessory is also an application, just a different sort of application.

In Geos, there are two basic types of applications: sequential applications, and Vlir applications. Sequential applications are like the sort of programs many 64 and 128 programmers will be most familiar with. All of the code for the program is loaded into the memory at once from the disk file. This code contains all of the icon and menu definition tables, and all services routines that might be called. Desk accessories are a special case of sequential applications, with certain special startup and exit requirements. Sequential applications are the simplest to write and the easiest to understand.

The second type of application is the Vlir (Variable Length Indexed Record) application. These are used when the program needs to be longer, more complicated, or more powerful. Most major Geos programs, including geoWrite and geoPaint, are Vlir applications. Before describing in detail what a Vlir application is, I need to introduce the concept of overlays.

An overlay, also called a swap module, is a section of code which is loaded into a region of memory that many chunks of code share; the chunks of code are "overlayed" upon each other in that region of memory. The overlays frequently load over code that was previously there, there by erasing the previous code with its own code. Hence the term "overlay". Because programs with many overlays require many small disk loads to call a needed routine or chunk of code while you are using the application, ram devices such as a Reu, geoRam, or Ramlink make using the application that much faster.

A program that makes use of overlays is able to have more code than there is room for at one time in memory. It will start with one overlay in place. When the program no longer needs the first overlay, and needs a second overlay, the second overlay is swapped in in place of the first. The

program could then later swap the first overlay back in if necessary.

Geos Vlir applications use this overlay concept. In a Vlir application, there are two sections of executable code; the resident module, and the swap area. The resident module is loaded when the application is executed, and stays until the application is finished. Overlays (swap modules) are loaded into the swap area as they become necessary. Typically, a resident module contains common routines that many different overlays will all need to access, as well as code which manages swapping overlays in and out. Of course, one overlay can not call a routine in another overlay, since both are not in memory at the same time. Each overlay will typically have a set of related functions. For instance, consider a hypothetical paint program. One overlay may contain the routines for drawing rectangles, circles, lines, etc. Another may contain the routines for selecting and moving regions of the painting. Another may contain the file routines and so forth.

In Geos, the resident module and all swap modules of a Vlir application are stored in a Vlir file. A Vlir file has an index table (thus the I in Vlir) which points to several records (thus the R) which can be of variable length (VL). The first record in the index table is the resident module; each remaining record is typically a swap module which can be loaded into the application's swap area. A Vlir file is basically a single file that is a collection of several sequential files, each record in the Vlir file being a sort of small sequential file by itself. In standard Commodore DOS, SEQ and PRG files are both sequential in format. The Vlir concept of Geos is new to the Commodore 8 bit world.

Of course, the Geos Kernal provides routines for manipulating Vlir files. What is even better, the geoProgrammer package contains a sample Vlir application, SamVlir. SamVlir contains two routines by Eric E. Del Sesto and Tony Requist, InitSwap and SwapMod, which take care of managing a program's overlays. These routines are available for the use of registered geoProgrammer owners.

V. MEMORY USAGE

Many Basic and Machine Language programmers of the 64 and 128 are familiar with the standard memory map of their machine. Since Geos is an operating system that is loaded in from the disk and it is not located on ROM within the computer, the system needs to set aside a certain amount of RAM in which it may place itself. Since the operating system replaces the standard operating system, usage of data space, such as zero page and display screens, can be quite different from that of a standard 64 or 128. A basic memory map of Geos can be found on page 16 of the *Official Geos Programmer's Reference Guide*. A better memory map can be found in the geosMemoryMap file included with geoProgrammer and a printout of which appears in the appendix of geoProgrammer's manual. Note that these memory maps are for Geos64, but also with a few minor modifications apply to Geos128. For Geos128, this memory map describes "main memory," which in Geos is RAM block 1. I shall discuss the two areas of memory of most interest to a Geos programmer, the main block of memory in which most code will be located, and zero page memory.

MAIN MEMORY: $0400-$5FFF

The main block of memory set aside for "application program and data" is the space between $0400 and $05FFF. A little quick hexadecimal arithmetic will reveal that this is 23 kilobytes of space in which to work. A programmer's first reaction might be that this is not a whole heck of a lot of space left over for the programmer on a machine that has 64K or 128K of RAM! Plus the 128 has two 64K blocks of RAM; what happened to the other one? Block 0 RAM, dubbed BackRAM in Geos parlance, is reserved for system use. The application and data space, as well as the entry to all of the Kernal routines, are in block 1 of the 128's RAM. Within block 1 RAM and within the 64K of RAM on the 64, 16K is set aside for a foreground and a background high resolution screen. More about that in a future article. Most of the rest of the 41K not available to an application is set aside for Geos system routines, tables, and variables. A side benefit of the 128 application being confined to one block of RAM is that many programs which run on Geos128 in 40 columns will also run on Geos64, and vice versa.

Although 23K may not sound like much, a Geos machine language programmer can do quite a lot in

that amount of space. Consider that the Geos MainLoop relieves Geos programmers of writing a user interface, mouse driver, and program core. Then consider the powerful functions that the Geos Kernal provides, relieving the user of allocating valuable code space to such routines. When you take these two things into account, the 23K available to the programmer begins to seem somewhat more substantial. If you then take into account the ability of a Geos program to easily use overlays to manage more code than will fit into memory at one time, the 23K available is really not much of a limitation at all.

Having only 23K available could be a more serious limitation in finding data space. What of the program that needs to edit many pages of text, run calculations on a large spreadsheet, or edit high resolution graphics which fill an 8.5" X 11" page? There is no hope of fitting all that data into 23K, especially after some of that space has been set aside for the program code. Once again, Vlir files come to our rescue. Just as Vlir applications allow a program to have more code than fits into memory at one time, Vlir data files allow a program to manage more data than fits into memory at one time. Consider geoWrite; it only keeps the (one) current page in memory at any given time. Each page in a geoWrite file is one Vlir record. When the program goes from one page to another, it saves the old page into its record on the Vlir file, and loads the new page from its record on the Vlir file.

ZERO PAGE MEMORY

Commodore machine language programmers are always scrounging for zero page space to use in their programs. On a standard 64 or 128, almost all of zero page is set aside for either Kernel or Basic usage. Only four measly bytes, from $FB to $FE, are left untouched, for the programmer's free use. Geos is much nicer to the machine language programmer. First of all, it sets aside sixteen zero page "pseudoregisters," named r0, r1, ..., r15. The physical memory locations of these registers are defined in the file geosSymbols, found on the geoProgrammer disk, and also available on GEnie. Programs are free to use these zero page registers for whatever they want, but be warned that some Geos Kernal routines also use these registers. Many routines use these registers as a place to pass data. For example, when calling the routine Rectangle, you first load the coordinates of the corners of the rectangle into registers r2-r4. Geos Kernal routines also use some registers as temporary storage, meaning that when you call a routine, the values in certain zero page registers will be lost. Which pseudoregisters any given routine uses is well documented in *The Hitchhiker's Guide to Geos*. The *Official Geos Programmer's Reference Guide* also lists pseudoregisters destroyed by Kernal routines, but the lists here are less reliable than those in the *Hitchhiker's Guide*.

There Geos also provides ten zero page pseudoregisters (dubbed a0 through a9) which the application gets completely to itself. Neither the Geos Kernal, nor any desk accessories loaded from the application, are allowed to modify these registers. This means that the application can put a value there and count on it remaining until the application itself changes that value. Although a desk accessory isn't allowed to modify this space, one could use it by saving the contents of the pseudoregisters to another region of memory, and restoring them before exiting.

VI. Conclusion

A Geos programmer can, with relatively little effort, produce complete powerful, user-friendly programs, thanks to the user interface provided by the Geos MainLoop and the cornucopia of Geos Kernal routines. The amount of code that the programmer must develop is reduced by the event-driven nature of Geos applications. Through the use of Vlir files, programs and data files can expand well beyond the amount of memory available at any one time within the 64 or 128.

Coming up next in this series: having described the general structure of a Geos application, we will go in and get our hands dirty discussing the format and use of icon and menu tables.

people are actually using them and when the price on 16Mb Simms comes down to something less than a good used car, regular users of RamLink might be in for a surprise.

THE YEAR OF 1992
THE DEATH OF THE MANUAL
& REBIRTH OF THE DOX?

Remember when products touted as commercial software use to come with at least a nicely produced manual, like Dialogue 128 does?! Well, if the trend of products, masquerading as commercial software, is to keep coming equipped with muddy, jaggy, hard to read documentation printed on a dot matrix printer, by the year 2000 I suspect we will be back with rock and chisel for printed output! Not to knock dot matrix printing, I started with a lowly C-1520 plotter for my first catalog, but considering laser printers (such as the one I am using) cost a little more than the C-64 did new, when it first came out, or just about what my flat C-128, 1571, and RGB monitor cost combined when they were new brand, dot matrix manuals for products touted as commercial software has to be one of the most distressing and insulting trends of the market. Hey, finding laser printing services is not that tough either. The authors had to tie me down for this issue so I would not knock a grade point off each product accompanied by dot matrix "doxs". Hey! I expect little or no packaging for mail order products, but after sticking the knife in do you have to turn it too ???

HA-HA-HA

The joke is on you! That is if you have bought some of the latest packages of advertised "commercial" software in RUN magazine without reading a TC-128/64 review first. Some of this stuff would have trouble making it onto our public domain software disks, never mind as something people should be placing advertisements for in a magazine and accepting people's money.

I should have expected the worse when I saw the one page of photocopied dot matrix "doxs". Obviously this wasn't anything like the latest Buck Roger's game. This turned out to be not even like the latest 1986 Game Maker Programs. Yes, "Save those Janitors" is so bad it doesn't even rate a real review or grade.

This will probably be one of the only reviews where I feel bad saying something about the product as I believe, from the brief letter exchanges so far, that this is a well intended individual who just made a serious mistake in judgement (like I use to frequently make ;) and not someone trying to rip you off. Though I feel even worse for the people that sent him money! Hopefully he will exercise better judgement and refund the money people sent him and go back to the drawing board, literally, get some programming help, and buy a few of the new games to compare with his own efforts. Unfortunately heart and effort does not always translate into an acceptable product, I know from personal experience.

The graphics in the RUN ad for Janitors are better than the game itself ... the game does not play right and has serious joystick plotting problems, the graphics of the janitors are stick people who walk around rather stiffly and your ship looks like a slow moving, plain looking, hard to control delta triangle from the game Asteroids. The other graphics from the game look like character vomit thrown up by an ASCII terminal. The sounds are ... what sounds? I think you get the idea. If you want to waste $14.95 send me some unmarked cash or send it to: "Save those Janitors" c/o Charles Orcutt, 1821 Curry Rd #4, Schenectady, NY 12306.

SURE ITS LEGAL ....
(IF YOU DON'T GET CAUGHT)

You know something? I have a hard time believing "Super Mario Brothers" advertised in RUN magazine with all that (tm) stuff is actually PD or that Nintendo actually has seen that ad with someone cashing in on their *registered* trademarks to sell some of their own stuff. Is this really one of the things to fall under fair use? I don't think so and I bet using a trademarked character you don't own in an ad for a national magazine is a big no-no in the eyes of the beholder and that they would (understatement) be really steamed about the printing of their Mario graphic, but what do I know?! At $9 for two disks worth of "supposely" Public Domain games I suspect some people must be feeling like they dropped the soap in the shower room of a maximum security prison. At any rate, I am writing them and will update this column with a review if it warrants one.

I will also let you know if I can get my hands on a "watch replica" and if it actually tells time or just appears too :D

IN 1992 WHAT DID C-128 OWNERS *REALLY* HATE?

The same thing they have hated since 1985, programs advertised as for the C-64/128 or for the C-64 & C-128. We have grown used to C64/128 to mean "runs in C-64 mode only". I just wish programs saying they ran on the C-128 would plainly and loudly proclaim forty columns so we would not waste our money on it.

HOW TO KILL 1/2 of YOUR GEOS SHAREWARE MARKET

Make sure C-128 owners have to run it in forty columns and disable features making it crippleware.

HELP WANTED!

We have a customer that needs some special software and I was wondering if a TC-128/64 reader might have some suggestions we could publish for him. The programs are PERT (Program Evaluation Review Technique) charts, Gantt Charts, CPM (Critical Path Method). These are the terms used in management and operations research text books. There was supposedly one such program for the C-64 a while back. He would also be interested in CP/M programs if available. (reference K.Blanning)

BBS TIDBIT

The 1986 Electronic Communications Privacy Act (ECPA) makes it illegal for anyone but the sender or receiver of electronic mail to read messages exchanged over public e-mail systems, such as MCI. The exception is correspondence on internal e-mail systems used for interoffice communications.

HE KNOWS WHEN YOU ARE SLEEPING...

Wake up, it is not Santa Claus! It is your Big Brother. In the guise of national security the government bans the selling of certain compression and encoding schemes to countries outside the U.S. With the event of new technology and digital transmissions of data inside the U.S., like that of banks, the government has been very concerned that they can not snoop on data and covertly build extensive files on people like they use to in the good ole' days (can you say Hoover ten times fast?). This is an exact quote from Information Week (Nov 2 1992). "The innocent have nothing to worry about" - An FBI source on the bureau's effort to legislate a "back door" for digital communications equipment to facilitate its eavesdropping activities. You can go back to sleep now.

THE "PREMIER ISSUE"

Not 100% accurate but starting with this issue TC-128 becomes TC-128/64, the premier issue of additional C-64 coverage. Why the change? RUN died. I do hope to make the new publication more timely in 1993 with the addition of C-64 advertisers. The reviews and Geos articles have been changed to reflect the additional C-64 coverage and expansion. C-64 users interested in Geos programming should order issue #32 while supplies last. We will have much more C-64 and Geos coverage in upcoming issues, though C-128 owners need not worry because I remain one!

A FREE TC-128/64 ISSUE #33 !

Anyone can get a free copy simply by sending us their name and address by e-mail on GEnie or by US mail. User Groups can submit two names or more on floppy disk in a text file and if they want they can include (along with the disk!) printed address labels to speed up the process.

HOW ABOUT SATISFACTION GUARANTEED!!!

For anyone subscribing after Jan 1st 1993, you can get a credit refund on any outstanding issues good for anything in our catalog, no hassles, if you should ever decide TC-128/64 isn't for you. The catalog received with the free issue is a "mini-catalog" and by itself it contains over $775 worth of items starting at $0.25 and our master catalog contains MUCH more. With all those top notch items I am sure you will find something you like! All of our existing customers will get issue #33 automatically. If we do not have you in our database what are you waiting for?

=> Grab a pen, postcard, or check and get going! <=

REMEMBER, always tell people you saw their ads in TC-128/64!

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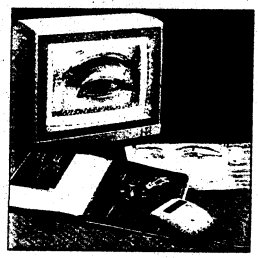

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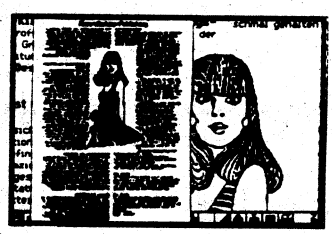

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```
[
SG Tools (C) 1992 Parsec, Inc.

Animate shows how to use page flipping to animate characters.
]

program Animate;

[$B-,C-,R-,U-,V-]

[SG Tools include files]

[$I PORT.INC]
[$I VDC.INC]
[$I VDCCONST.INC]
[$I VDCSCMGR.INC]
[$I VDCFW.INC]

const

  ClrChar = 32;         [character used to clear screen]
  ScrColor = vdcBlack; [screen color]
  MaxAniChr = 39;       [numbers of chrs to animate - 1]

type

  AniRec = record
    X, Y, XD, YD, Attr, Ani : byte;
  end;

  AniArr = array[0..MaxAniChr] of AniRec;

var

  AniArray : AniArr;

procedure Title;

var

  WaitKey : char;

begin
  FWriteVDC (0,0,vdcAltChrSet+vdcRvsVid+vdcWhite,
  '              Animate (C) 1992 Parsec, Inc. - All Rights Reserved
    ');
  FWriteVDC (18,2,vdcAltChrSet+vdcWhite,
  'Press any key to start and any key to end.');
  FlipPageVDC;
  repeat
  until KeyPressed;
  read (WaitKey)
end;

procedure InitAniArray;

var

  I : byte;

begin
  for I := 0 to MaxAniChr do
    with AniArray[I] do
    begin
      X := 39;
      Y := 12;
      XD := 1;
      YD := 1;
      Attr := vdcAltChrSet+Random (15)+1;
      Ani := 209
    end
end;

procedure Init;

begin
  Randomize;
  InitAniArray;                 [initialize animation array]
  InitVDC;                      [fire up screen manager]
  SetCursorVDC (0,0,vdcCurNone); [turn cursor off]
  FlipPageVDC;                  [now fast writes go to non-viewable page]
  SetScrColVDC (ScrColor,ScrColor);   [set our screen color]
  ClrScrVDC (ClrChar);                [clear screen]
  ClrAttrVDC (vdcAltChrSet+vdcBlack); [clear screen attributes]
  Title
```

```
end;

procedure MoveAniArray;

var

 I : byte;
 DispOfs, AttrOfs : integer;

begin
  for I := 0 to MaxAniChr do
  with AniArray[I] do
  begin
    X := X+XD;
    if X < 3 then
      XD := 1
    else
      if X > vdcScrHorz-4 then
      begin
        XD := -1;
        if (Y < vdcScrVert-4) and
        (Random (2) < 1) then
          YD := YD*-1
      end;
    Y := Y+YD;
    if Y < 3 then
      YD := 1
    else
      if Y > vdcScrVert-4 then
      begin
        YD := -1;
        if (X < vdcScrHorz-4) and
        (Random (2) < 1) then
          XD := XD*-1
      end;
    DispOfs := vdcSettings.DispMem+Y*vdcScrHorz+X;
    AttrOfs := vdcSettings.AttrMem+Y*vdcScrHorz+X;
    WriteVDC (vdcUpdateAddrHi,Hi (DispOfs));
    WriteVDC (vdcUpdateAddrLo,Lo (DispOfs));
    WriteVDC (vdcCPUData,Ani);
    WriteVDC (vdcUpdateAddrHi,Hi (AttrOfs));
    WriteVDC (vdcUpdateAddrLo,Lo (AttrOfs));
    WriteVDC (vdcCPUData,Attr)
  end
end;

procedure FlipPageAni;

begin
  with vdcSettings do
  begin
    SetDispPageVDC (DispMem,AttrMem);
    if DispMem = DispPage1 then
    begin
      DispMem := DispPage2;
      AttrMem := AttrPage2
    end
    else
    begin
      DispMem := DispPage1;
      AttrMem := AttrPage1
    end
  end
end;

procedure Run;

var

  WaitChr : char;

begin
  ClrAttrVDC (vdcAltChrSet+vdcBlack);
  FlipPageVDC;
  repeat
    ClrScrVDC (32);
    MoveAniArray;
    FlipPageAni
  until KeyPressed;
  Read (WaitChr)
end;

procedure Done;

begin
```

```
  ClrScrVDC (32);         [prepare screen for return to cp/m]
  ClrAttrVDC (vdcAltChrSet+vdcWhite);
  FlipPageVDC;
  DoneVDC                 [were finished with the screen manager]
end;

begin
  Init;
  Run;
  Done
end.

[
SG Tools (C) 1992 Parsec, Inc.

Fast Write Demo shows how to use FWriteVDC and FillAttrVDC procedures.
]

program FastWriteDemo;

[$B-,C-,R-,U-,V-]

[SG Tools include files]

[$I PORT.INC]
[$I VDC.INC]
[$I VDCCONST.INC]
[$I VDCSCMGR.INC]
[$I VDCFW.INC]

const

  ClrChar = 32; [character used to clear screen]
  ScrColor = vdcBlack; [screen color]

  MaxColors = 15;
  Colors : array[0..MaxColors] of byte =
  (vdcBlack,      vdcDarkGray,    vdcDarkBlue,   vdcLightBlue,
   vdcDarkGreen,  vdcLightGreen,  vdcDarkCyan,   vdcLightCyan,
   vdcDarkRed,    vdcLightRed,    vdcDarkPurple, vdcLightPurple,
   vdcDarkYellow, vdcLightYellow, vdcMediumGray, vdcWhite);

  ColorNameSize = 12;

  ColorNames : array[0..MaxColors] of string[ColorNameSize] =
  ('Black       ','Dark Gray   ','Dark Blue   ','Light Blue  ',
   'Dark Green  ','Light Green ','Dark Cyan   ','Light Cyan  ',
   'Dark Red    ','Light Red   ','Dark Purple ','Light Purple',
   'Dark Yellow ','Light Yellow','Medium Gray ','White       ');

  MaxScrollColors = 35;
  ScrollColors : array[0..MaxScrollColors] of byte =
  (vdcWhite, vdcMediumGray, vdcDarkGray, vdcBlack, vdcDarkGray, vdcMediumGray,v
dcWhite,
   vdcLightCyan, vdcDarkCyan, vdcLightBlue, vdcDarkBlue, vdcBlack,
   vdcDarkBlue, vdcLightBlue, vdcDarkCyan, vdcLightCyan,
   vdcLightGreen, vdcDarkGreen, vdcBlack, vdcDarkGreen, vdcLightGreen,
   vdcLightYellow, vdcDarkYellow, vdcBlack, vdcDarkYellow, vdcLightYellow,
   vdcLightRed, vdcDarkRed, vdcBlack, vdcDarkRed, vdcLightRed,
   vdcLightPurple, vdcDarkPurple, vdcBlack, vdcDarkPurple, vdcLightPurple);

  StatusMsgSize = 27;
  StatusMsg   = ' Press Any Key To Continue
  StatusBlank = '

var

  StatusX, StatusY, StatusD : byte;
  ScrollColor, FadeColor, FadeCnt : byte;

procedure Init;

begin
  StatusX := 0;
  StatusY := 23;
  StatusD := 1;
  ScrollColor := 0;
  FadeCnt := 3;
  FadeColor := 0;
  InitVDC;                        [fire up screen manager]
  SetCursorVDC (0,0,vdcCurNone); [turn cursor off]
  FlipPageVDC;                    [now fast writes go to non-viewable page]
  SetScrColVDC (ScrColor,ScrColor);   [set our screen color]
  ClrScrVDC (ClrChar);                [clear screen]
  ClrAttrVDC (vdcAltChrSet+vdcBlack); [clear screen attributes]
  FWriteVDC (0,0,vdcAltChrSet+vdcRvsVid+vdcWhite,
```

VDC Fast Write Demo (C) 1992 Parsec, Inc. - All Rights Reserved

```
    ')
end;

procedure DispColors (X, Y : byte);

var

  CX, CY : byte;

begin
  FWriteVDC (X,Y,vdcAltChrSet+vdcRvsVid+vdcLightGreen,' Colors ');
  Y := Y+2;
  for CY := 0 to 3 do
    for CX := 0 to 3 do
    begin
      FWriteVDC (CX*ColorNameSize+X,CY*1+Y,
      vdcAltChrSet+vdcRvsVid+Colors[CY*4+CX],ColorNames[CY*4+CX])
    end
end;

procedure DispAttributes (X, Y : byte);

begin
  FWriteVDC (X,Y,vdcAltChrSet+vdcRvsVid+vdcLightGreen,
  ' Attributes ');
  FWriteVDC (X,Y+2,vdcAltChrSet+vdcRvsVid+vdcLightYellow,
  ' Reverse    ');
  FWriteVDC (X,Y+3,vdcAltChrSet+vdcUnderline+vdcLightYellow,
  ' Underline ');
  FWriteVDC (X,Y+4,vdcAltChrSet+vdcBlink+vdcLightYellow,
  ' Blink      ')
end;

procedure DispChrSet (X, Y, Attr : byte);

var

  CX, CY : byte;
  ChrLine : string[64];

begin
  if Attr and vdcAltChrSet = vdcAltChrSet then
    FWriteVDC (X,Y,vdcAltChrSet+vdcRvsVid+vdcLightGreen,
    ' Alternate Character Set ')
  else
    FWriteVDC (X,Y,vdcAltChrSet+vdcRvsVid+vdcLightGreen,
    ' Standard Character Set  ');
  ChrLine[0] := #64; [set string length]
  Y := Y+2;
  for CY := 0 to 3 do
  begin
    for CX := 0 to 63 do
      ChrLine[CX+1] := Chr (CY*64+CX);
    FWriteVDC (X,CY+Y,Attr,ChrLine)
  end
end;

procedure DrawBlock (X1, Y1, X2, Y2 : byte);

var

  I : byte;
  BlkStr : fwMaxStr;

begin
  FillChar (BlkStr,X2-X1+2,' ');
  BlkStr[0] := Chr (X2-X1+1);
  for I := Y1 to Y2 do
    FWriteVDC (X1,I,vdcAltChrSet+vdcRvsVid+vdcWhite,BlkStr)
end;

procedure DispAttrScr;

begin
  FWriteVDC (0,0,vdcAltChrSet+vdcRvsVid+vdcLightGreen,
  ' Color Scroll ');
  DrawBlock (0,2,79,4);
  FWriteVDC (0,6,vdcAltChrSet+vdcRvsVid+vdcLightGreen,
  ' Fade In/Out ');
  DrawBlock (0,8,79,8)
end;

procedure AttrScroll;
```

```
var

  Y, C : byte;

begin
  Y := 2;
  C := ScrollColor;
  repeat
    FillAttrVDC (0,Y,80,
    ScrollColors[C]+vdcAltChrSet+vdcRvsVid);
    C := C+1;
    if C>MaxScrollColors then
      C := 0;
    Y := Y+1;
  until Y > 4;
  ScrollColor := ScrollColor+1;
  if ScrollColor>MaxScrollColors then
    ScrollColor := 0
end;

procedure Fade;

begin
  FadeCnt := FadeCnt-1;
  if FadeCnt = 0 then
  begin
    FillAttrVDC (0,8,80,
    ScrollColors[FadeColor]+vdcAltChrSet+vdcRvsVid);
    FadeCnt := 3;
    FadeColor := FadeColor+1;
    if FadeColor > MaxScrollColors then
      FadeColor := 0
  end;
end;

procedure StatusLine;

begin
  FWriteVDC (StatusX,StatusY,vdcAltChrSet+vdcWhite,StatusBlank);
  StatusX := StatusX+StatusD;
  if StatusX < 1 then
    StatusD := 1;
  if StatusX >= vdcScrHorz-StatusMsgSize then
    StatusD := -1;
  FWriteVDC (StatusX,StatusY,vdcAltChrSet+vdcRvsVid+vdcWhite,StatusMsg)
end;

procedure Run;

var

  WaitChr : char;

begin
  DispColors (0,2);            [fast write section]
  DispAttributes (50,2);
  DispChrSet (0,9,vdcLightCyan);
  DispChrSet (0,16,vdcAltChrSet+vdcLightCyan);
  repeat
    StatusLine;
    FlipPageVDC
  until KeyPressed;
  Read (WaitChr);
  ClrScrVDC (ClrChar);         [color scroll/fade section]
  ClrAttrVDC (vdcAltChrSet+vdcBlack);
  DispAttrScr;
  repeat
    AttrScroll;
    Fade;
    StatusLine;
    FlipPageVDC
  until KeyPressed;
  Read (WaitChr);
end;

procedure Done;

begin
  ClrScrVDC (32);        [prepare screen for return to cp/m]
  ClrAttrVDC (vdcAltChrSet+vdcWhite);
  FlipPageVDC;
  DoneVDC                [were finished with the screen manager]
end;

begin
```

```
  Init;
  Run;
  Done
end.

{
SG Tools (C) 1992 Parsec, Inc.

Common VDC constants
}

const

{VDC registers}

  vdcHorzTotal            = 0;  vdcHorzDisp             = 1;
  vdcHorzSyncPos          = 2;  vdcVertHorzSyncWidth    = 3;
  vdcVertTotal            = 4;  vdcVertTotalAdj         = 5;
  vdcVertDisp             = 6;  vdcVertSyncPos          = 7;
  vdcInterlaceMode        = 8;  vdcCharTotalVert        = 9;
  vdcCurStartScanLine     = 10; vdcCurEndScanLine       = 11;
  vdcDispStartAddrHi      = 12; vdcDispStartAddrLo      = 13;
  vdcCurPosHi             = 14; vdcCurPosLo             = 15;
  vdcLightPenVert         = 16; vdcLightPenHorz         = 17;
  vdcUpdateAddrHi         = 18; vdcUpdateAddrLo         = 19;
  vdcAttrStartAddrHi      = 20; vdcAttrStartAddrLo      = 21;
  vdcCharDispHorz         = 22; vdcCharDispVert         = 23;
  vdcVertSmoothScroll     = 24; vdcHorzSmoothScroll     = 25;
  vdcFgBgColor            = 26; vdcAddrIncPerRow        = 27;
  vdcCharSetStartAddr     = 28; vdcUnderlineScanLineCnt = 29;
  vdcWordCount            = 30; vdcCPUData              = 31;
  vdcBlockCopySourceAddrHi = 32; vdcBlockCopySourceAddrLo = 33;
  vdcDispEnableStart      = 34; vdcDispEnableEnd        = 35;
  vdcRamRefresh           = 36;

{VDC cursor modes}

  vdcCurSolid    = 0; vdcCurNone      = 1; vdcCurRate16    = 2;
  vdcCurRate32   = 3;

{VDC display attributes}

  vdcAltChrSet    = $80; vdcRvsVid    = $40; vdcUnderline  = $20;
  vdcBlink        = $10; vdcRed       = $08; vdcGreen      = $04;
  vdcBlue         = $02; vdcIntensity = $01;

{VDC RGB colors}

  vdcBlack      = 0;  vdcDarkGray    = 1;  vdcDarkBlue    = 2;
  vdcLightBlue  = 3;  vdcDarkGreen   = 4;  vdcLightGreen  = 5;
  vdcDarkCyan   = 6;  vdcLightCyan   = 7;  vdcDarkRed     = 8;
  vdcLightRed   = 9;  vdcDarkPurple  = 10; vdcLightPurple = 11;
  vdcDarkYellow = 12; vdcLightYellow = 13; vdcMediumGray  = 14;
  vdcWhite      = 15;

{VDC ram types}

  vdcRam4416 = $00; vdcRam4164 = $10;

{VDC version}
  vdcVer7a = 0; vdcVer8  = 1; vdcVer9  = 1;

{VDC max sizes}
  vdcMaxBlock = 255;
  vdcScrHorz  = 80;
  vdcScrVert  = 25;
  vdcScrSize  = 2000;

{VDC current settings record}
type
  TVDC = record
    RamType,
    Version,
    ScreenColor,
    CursorTop,
    CursorBottom,
    Mode : byte;
    DispMem,
    AttrMem,
    DispPage1,
    AttrPage1,
    DispPage2,
```

```
    AttrPage2,
    CharDefMem,
    BitMap : integer
  end;

[Global VDC vars]

var

  vdcSettings : TVDC;


[
SG Tools (C) 1992 Parsec, Inc.

The VDC Fast Write module supports fast display I/O using current DispMem
and AttrMem.
]

type

  fwMaxStr = string[255];

procedure FillDispVDC (X, Y, CLen, C : byte);

var

  DispOfs : integer;

begin
  DispOfs := vdcSettings.DispMem+Y*vdcScrHorz+X;
  FillMemVDC (DispOfs,CLen,C)
end;

procedure FillAttrVDC (X, Y, ALen, A : byte);

var

  AttrOfs : integer;

begin
  AttrOfs := vdcSettings.AttrMem+Y*vdcScrHorz+X;
  FillMemVDC (AttrOfs,ALen,A)
end;

procedure FWriteVDC (X, Y, Attr : byte;
                     FWStr : fwMaxStr);

var
  I, DispOfs, AttrOfs : integer;
  FWStrLen : byte;

begin
  DispOfs := vdcSettings.DispMem+Y*vdcScrHorz+X;
  AttrOfs := vdcSettings.AttrMem+Y*vdcScrHorz+X;
  FWStrLen := Length (FWStr);
  WriteVDC (vdcUpdateAddrHi,Hi (DispOfs));
  WriteVDC (vdcUpdateAddrLo,Lo (DispOfs));
  for I := 1 to FWStrLen do
    WriteVDC (vdcCPUData,Ord (FWStr[I]));
  FillMemVdc (AttrOfs,FWStrLen,Attr)
end;

[
SG Tools (C) 1992 Parsec, Inc.
VDC Screen Manager
]

[map current VDC layout]
procedure MapVDC;

begin
  with vdcSettings do
  begin
    DispMem := ReadVDC (vdcDispStartAddrHi)*256+
               ReadVDC (vdcDispStartAddrLo);
    AttrMem := ReadVDC (vdcAttrStartAddrHi)*256+
               ReadVDC (vdcAttrStartAddrLo);
    if (ReadVDC (vdcCharTotalVert) and $1f) > $0f then
      CharDefMem :=
      (ReadVDC (vdcCharSetStartAddr) and $c0)*256
```

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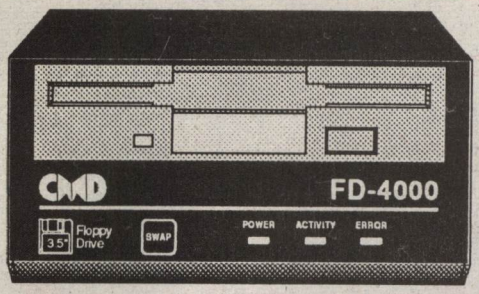

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```
    else
      CharDefMem :=
      (ReadVDC (vdcCharSetStartAddr) and $e0)*256;
    BitMap := 0
  end
end;

[fill VDC memory]

procedure FillMemVDC (FillMem, FillLen : integer;
                      Filler : byte);

var

  Blocks, Remain, I : byte;

begin
  WriteVDC (vdcUpdateAddrHi,HI (FillMem)); [start hi]
  WriteVDC (vdcUpdateAddrLo,LO (FillMem)); [start lo]
  WriteVDC (vdcVertSmoothScroll,           [block write feature]
  ReadVDC (vdcVertSmoothScroll) and $7f);
  WriteVDC (vdcCPUData,Filler);            [byte to block write]
  if FillLen > vdcMaxBlock then
  begin
    Blocks := FillLen div vdcMaxBlock;
    Remain := FillLen mod vdcMaxBlock;
    for I := 1 to Blocks do
      WriteVDC (vdcWordCount,vdcMaxBlock);[write blocks]
    if Remain > 1 then
      WriteVDC (vdcWordCount,Remain-1)    [write block remaining]
  end
  else
    if FillLen > 1 then
      WriteVDC (vdcWordCount,FillLen-1);  [write block]
end;

[copy VDC memory to VDC memory]

procedure CopyMemVDC (SMem, DMem, CopyLen : integer);

var
  Blocks, Remain, I : byte;

begin
  WriteVDC (vdcUpdateAddrHi,Hi (DMem));
  WriteVDC (vdcUpdateAddrLo,Lo (DMem));
  WriteVDC (vdcVertSmoothScroll,
  ReadVDC (vdcVertSmoothScroll) or $80);     [block copy]
  WriteVDC (vdcBlockCopySourceAddrHi,Hi (SMem));
  WriteVDC (vdcBlockCopySourceAddrLo,Lo (SMem));
  if CopyLen > vdcMaxBlock then
  begin
    Blocks := CopyLen div vdcMaxBlock;
    Remain := CopyLen mod vdcMaxBlock;
    for I := 1 to Blocks do
      WriteVDC (vdcWordCount,vdcMaxBlock);   [copy blocks]
    if Remain > 0 then
      WriteVDC (vdcWordCount,Remain)         [copy block remaining]
  end
  else
    if CopyLen > 0 then
      WriteVDC (vdcWordCount,CopyLen)        [copy block]
end;

[set VDC display and attribute start]
procedure SetDispPageVDC (DP, AP : integer);

begin
  WriteVDC (vdcDispStartAddrHi,Hi (DP));
  WriteVDC (vdcDispStartAddrLo,Lo (DP));
  WriteVDC (vdcAttrStartAddrHi,Hi (AP));
  WriteVDC (vdcAttrStartAddrLo,Lo (AP))
end;

[copy VDC display and attribute memory to VDC memory]
procedure CopyDispVDC (SDP, SAP, DDP, DAP : integer);

begin
  CopyMemVDC (SDP,DDP,vdcScrSize);
  CopyMemVDC (SAP,DAP,vdcScrSize)
end;
```

```
[set new display start, update pointers and copy new screen to old]

procedure FlipPageVDC;

begin
  with vdcSettings do
  begin
    SetDispPageVDC (DispMem,AttrMem);
    if DispMem = DispPage1 then
    begin
      DispMem := DispPage2;
      AttrMem := AttrPage2;
      CopyDispVDC (DispPage1,AttrPage1,DispPage2,AttrPage2)
    end
    else
    begin
      DispMem := DispPage1;
      AttrMem := AttrPage1;
      CopyDispVDC (DispPage2,AttrPage2,DispPage1,AttrPage1)
    end
  end
end;

[set cursor top, bottom and mode]

procedure SetCursorVDC (Top, Bottom, Mode : byte);

begin
  Mode := Mode shl 5;
  Top := Top or Mode;
  WriteVDC (vdcCurStartScanLine,Top);
  WriteVDC (vdcCurEndScanLine,Bottom)
end;

[fill VDC display screen with byte]

procedure ClrScrVDC (Ch : byte);

begin
  FillMemVDC (vdcSettings.DispMem,vdcScrSize,Ch)
end;

[fill VDC attribute screen with byte]
procedure ClrAttrVDC (Attr : byte);

var

  I : byte;

begin
  FillMemVDC (vdcSettings.AttrMem,vdcScrSize,Attr)
end;

[set VDC screen fore/background color]
procedure SetScrColVDC (BgCol, FgCol : byte);

begin
  WriteVDC (vdcFgBgColor,FgCol*16+BgCol)
end;

[initilize settings record]
procedure InitVDC;

begin
  MapVDC;
  with vdcSettings do
  begin
    Version := PortIn ($d600) and $07;
    RamType := ReadVDC (vdcCharSetStartAddr) and vdcRam4164;
    ScreenColor := ReadVDC (vdcFgBgColor);
    CursorTop := ReadVDC (vdcCurStartScanLine);
    CursorBottom := ReadVDC (vdcCurEndScanLine);
    Mode := ReadVDC (vdcHorzSmoothScroll);
    DispPage1 := DispMem;
    AttrPage1 := AttrMem;
    DispPage2 := AttrPage1+$0800;
    AttrPage2 := DispPage2+$0800
  end
end;

[restore important VDC registers]
```

```
procedure DoneVDC;

begin
  with vdcSettings do
  begin
    SetDispPageVDC (DispPage1,AttrPage1);
    WriteVDC (vdcFgBgColor,ScreenColor);
    WriteVDC (vdcCurStartScanLine,CursorTop);
    WriteVDC (vdcCurEndScanLine,CursorBottom);
    WriteVDC (vdcHorzSmoothScroll,Mode)
  end
end;


[
SG Tools (C) 1992 Parsec, Inc.

The VDC Window module allows fast pop up windowing.
]

const

  winTopLeft = 207;    winTop = 247;    winTopRight = 208;
  winLeft = 244;       winFill = 32;    winRight = 231;
  winBottomLeft = 204; winBottom = 239; winBottomRight = 250;

procedure DrawWinVDC (X1,Y1,X2,Y2,A : byte;
                      Title : fwMaxStr);

var

  InsideLen, Y : byte;

begin
  InsideLen := X2-X1-1;
  for Y := Y1 to Y2 do
  begin
    FillAttrVDC (X1,Y,InsideLen+2,A);
    FillAttrVDC (X2+1,Y+1,1,
    vdcAltChrSet+vdcDarkGray)
  end;
  FillAttrVDC (X1+1,Y2+1,InsideLen+1,
  vdcAltChrSet+vdcDarkGray);
  FillDispVDC (X1,Y1,1,winTopLeft);
  FillDispVDC (X1+1,Y1,InsideLen,winTop);
  FillDispVDC (X2,Y1,1,winTopRight);
  FillDispVDC (X1,Y2,1,winBottomLeft);
  FillDispVDC (X1+1,Y2,InsideLen,winBottom);
  FillDispVDC (X2,Y2,1,winBottomRight);
  if Title <> '' then
  begin
    Title := ' '+Title+' ';
    if Length (Title) > InsideLen then
      Title[0] := Chr (InsideLen);
    FWriteVDC (X1+1,Y1,A or vdcRvsVid+vdcIntensity,Title)
  end;
  Y1 := Y1+1;
  Y2 := Y2-1;
  for Y := Y1 to Y2 do
  begin
    FillDispVDC (X1,Y,1,winLeft);
    FillDispVDC (X1+1,Y,InsideLen,winFill);
    FillDispVDC (X2,Y,1,winRight);
  end
end;

[
SG Tools (C) 1992 Parsec, Inc.
Windows shows some uses for VDC windows.
]
program Windows;

[$B-,C-,R-,U-,V-]

[SG Tools include files]
[$I PORT.INC]
[$I VDC.INC]
[$I VDCCONST.INC]
[$I VDCSCMGR.INC]
[$I VDCFW.INC]
[$I VDCWIN.INC]
```

```
const

  ClrChar = 137; [character used to clear screen]
  ScrColor = vdcBlack; [screen color]

  MaxTextLines = 6;
  TextLine : array[0..MaxTextLines] of string[80] =
  ('VDC Window Demo (C) 1992 Parsec, Inc. - All Rights Reserved',
   '',

         1         2         3         4         5         6
         7         8',

  .........0.........0.........0.........0.........0.........0
  .........0.........0',

   '',
   'As you can see C128 CP/M would be excellent for word processing, data base,
',
   'spreadsheet and many other window oriented applications.');

  StatusMsg = ' Press a key to continue ';

procedure Init;

begin
  Randomize;
  InitVDC;                          [fire up screen manager]
  SetCursorVDC (0,0,vdcCurNone); [turn cursor off]
  FlipPageVDC;                      [now fast writes go to non-viewable page]
  SetScrColVDC (ScrColor,ScrColor);       [set our screen color]
  ClrScrVDC (ClrChar);                    [clear screen]
  ClrAttrVDC (vdcAltChrSet+vdcMediumGray); [clear screen attributes]
  FWriteVDC (0,0,vdcAltChrSet+vdcRvsVid+vdcWhite,
  '          VDC Window Demo (C) 1992 Parsec, Inc. - All Rights Reserved
    ')
end;
```

```
procedure TextWindow (X1, Y1, X2, Y2 : byte);

var

Y, Lines, InsideLen : byte;
S : fwMaxStr;

begin
  DrawWinVDC (X1,Y1,X2,Y2,vdcAltChrSet+vdcDarkBlue,'Text Window');
  Y := 0;
  InsideLen := X2-X1-1;
  Lines := Y2-Y1-2;
  X1 := X1+1;
  Y1 := Y1+2;
  while (Y <= MaxTextLines) and (Y < Lines ) do
  begin
    S := TextLine[Y];
    if Length (S) > InsideLen then
      S[0] := Chr (InsideLen);
    FWriteVDC (X1,Y1+Y,vdcAltChrSet+vdcMediumGray,S);
    Y := Y+1;
  end
end;

procedure HorzScrollWindow (X1, Y1, X2, Y2, Start : byte);

var

Y, Lines, InsideLen, TextLen : byte;
S : fwMaxStr;

begin
  DrawWinVDC (X1,Y1,X2,Y2,vdcAltChrSet+vdcDarkGreen,'Scroll Window');
  Y := 0;
  InsideLen := X2-X1-1;
  Lines := Y2-Y1-2;
  X1 := X1+1;
  Y1 := Y1+2;
  while (Y <= MaxTextLines) and (Y < Lines ) do
  begin
    S := TextLine[Y];
    TextLen := Length (S);
    if Start <= TextLen then
```

```
      S := Copy (S,Start,TextLen-Start+1)
    else
      S := ' ';
    if Length (S) > InsideLen then
      S[0] := Chr (InsideLen);
    FWriteVDC (X1,Y1+Y,vdcAltChrSet+vdcLightGreen,S);
    Y := Y+1;
  end
end;

procedure StatusLine (S : fwMaxStr);

begin
  FWriteVDC ((vdcScrHorz-Length (S)) div 2,24,
  vdcAltChrSet+vdcRvsVid+vdcWhite,StatusMsg)
end;

procedure WaitKey;

var

  WaitChr : char;

begin
  StatusLine (StatusMsg);
  FlipPageVDC;
  repeat
  until KeyPressed;
  Read (WaitChr);
  ClrScrVDC (ClrChar);
  ClrAttrVDC (vdcAltChrSet+vdcMediumGray)
end;

procedure Run;

var

  I : byte;
  WaitChr : char;

begin
  WaitKey;
  StatusLine (StatusMsg);
  repeat
    DrawWinVDC (Random (39)+1,Random (11)+1,Random (37)+40,Random (10)+12,
    vdcAltChrSet+Random(8)*2,'Random Window');
    FlipPageVDC
  until KeyPressed;
  Read (WaitChr);
  ClrScrVDC (ClrChar);
  ClrAttrVDC (vdcAltChrSet+vdcMediumGray);
  for I := 3 to 77 do
  begin
    TextWindow (1,1,I,I div 4+3);
    FlipPageVDC
  end;
  WaitKey;
  for I := 1 to 80 do
  begin
    HorzScrollWindow (29,7,49,17,I);
    FlipPageVDC
  end;
  WaitKey
end;

procedure Done;

begin
  ClrScrVDC (32);        [prepare screen for return to cp/m]
  ClrAttrVDC (vdcAltChrSet+vdcWhite);
  FlipPageVDC;
  DoneVDC                [were finished with the screen manager]
end;

begin
  Init;
  Run;
  Done
```

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DR. OCTAL'S

SHARP OPERATING TIPS

Tip &0004
Adjusting Lineages
From:Mark Dulski
This tip is about how to change Lineages by Quinsept to support more than one disk drive. Here is how part of the configuration file would look if you were using a text editor to view it. The quotes are NOT part of the file, they where just included to show that each line contains a space character, value(s), space character, <carriage return>. Line number #8 in the file is what needs to be changed if a Lineages user wants access to more than one disk drive. Up to four disk drives can be accessed as shown in lines #49-52. It was not determined if any other bytes might be useful to change. It may be possible to use the extra capacity of the 1571 disk drive by changing this file but it was not tested or tried.

```
" 2 "   <- Line #1
" 4 "
" 5 "
" 6 "
" 4 "
" 32 "
" 8 "
" 1 "   <- Line #8; Default number of drives
  .
  .
  .

" 8 "   <- Line #49
" 9 "       T
" 10 "      O
" 11 "  <- Line #52; Default drive device numbers
```

Tip &0005
CADPAK
From:Doug Cotton
If you want to use the 1581 with the Cadpak program from Abacus there was a version of Cadpak provided on a 1581 disk. The cost was $10 for registered owners. If Abacus no longer provides it you still might be able to find a used copy for sale.

Tip &0006
Relative files
From: Noel Nyman
When creating a database that uses "relative" files, do not use records lengths 42, 58, or 63. These correspond to the ASCII codes for "*", ":", and "?". These are special characters to the drive. If you use them as relative record lengths, you will get a "syntax error".

Although you may never create relative files in programs of your own, many Commodore databases use relative files. Be sure the total length of all fields in any database you create is not one of the three illegal lengths. Some programs, such as Quickpro+ii, do not check for the illegal lengths and may let you enter all your data before you realize that no file has been created to hold it.

Tip &0007
Drive errors
From: Noel Nyman
You know that a flashing activity light on your disk drive means some sort of error with the file being accessed or that the command just sent to the drive was bad. But, you may also see the light flash twice with a longer pause in between pairs of flashes. This is a "ROM error" indication. The drive has found an error in the Read Only Memory in the drive. Since ROM's rarely change their data, the two beat flash is usually the result of heat buildup in the drive, a ROM that is loose in its socket, or some other circuit problem.

Tip &0008
Load command
From:Noel Nyman
Although LOAD "*",8 is billed as loading the first file on the disk, it actually loads the last file accessed, unless a new disk is initialized. To get the first file every time, use LOAD ":*",8 Note the colon added in the command.

Tip &0011
Load command
From:Noel Nyman
You can use the "*" characteristic to recover a file you just scratched in error, provided you do not access another file between the time you scratched the file and the time you realized you made a mistake. Just LOAD "*",8 and the file

will be back in the computer's memory, ready to save again, even though it has been "erased" or "scratched" from the disk directory.

Tip &0012
Load command
From:Noel Nyman
If you get a "file not found" error when a boot program tries to LOAD another program and you can not list the boot file to find what file name is missing, just type SYS 62913 (only for the C64). The file name the computer was trying to load will be printed to the screen.

DR. OCTAL'S SYNTAX ERRORS

In the article "Driving the Serial Bus" by Mike Gilsdorf it incorrectly shows a carriage return byte ($0D) after each OPEN statement in the three examples. Carriage returns are not sent after OPEN statements.

DR. OCTAL'S Q&A CLINIC

Q: Laser Direct used to do laser printing from a Commodore 128 disk using geoPublish software. Evidently they are no longer in the business. Do you have any knowledge of a supplier that is currently doing laser printing from a Commodore 128 disk using geoPublish software? If you do, would you be kind enough to supply a name and address or supply information regarding a source? Your help in this matter would be appreciated. (R.Chikar)

A: We recently added laser printing services for our customers. For a detailed price listing send a Self Addressed Stamped Envelope. Basically we just take your disk, open the document, and dump it to the laser printer. We do not do any document work.

Q: Do you know of any decent war games for the C-128 besides Free Spirit's "August 1914" game? I am open to obscure gaming companies, freeware, shareware, and companies outside the U.S. (D.Delmerico)

A: I do not. I did not even know FS had a native mode 128 game. Anyone have any suggestions?

Q: I would like to learn programming in the "C" language on my C-128. Do you have a compiler available or do you know where I can purchase one? (L.Herman, NY)

A: Your best bet at the moment is to purchase a used copy of Power C, it use to be sold by Spinnaker. I think Super C from Abacus is still being sold but I returned my copy because it was so user hostile, especially to my MSD disk drive! Though there are users that swear by Super C. I think for developing a commercial piece of software Power C would be far better, especially since it does not use weird USR files like Super C. There are many C compilers available for CP/M mode.

Q: Why do you require User Group newsletters in your offers? (various)

A: Because I (Jbee) like to read them and it helps me form an idea how "serious" the User Group is when it comes time to hand out freebies.

Q: I would like to know if the C-128 can be used for video titling. Is video desktop on the C128 (not C64) possible? If so how, about an article in Twin Cities 128 on video output using the C-128, or whatever needs to be done to get NTSC output. (H.Purdy)

A: For the C-128 there is nothing I know of for RGBI -> NSTC that is widely available. There are IBM PÇ RGBA -> NSTC converters that can be adapted for RGBI -> NSTC output that sell for around $300-$400 dollars. I did put the feelers out on GEnie and people told me it was too much money vs. buying another computer. You could still buy it and use it on your 286 or 486 if you had one, so I do not see why people would not buy it for their C-128 if they really wanted it. Anyway, I decided not to bother with it since I needed ten people to

get a good discount and filed (threw) the information away. RIO Computers has hinted at doing a C-128 version if the C-64 one advertised in this issue does well. He would need at least two hundred interested C-128 users. There supposedly was an article in a popular 1991 Electronics magazine for making your own converter for $40 worth of parts but I was never able to track down the issue.

GEOS ZHINGS

On the companion disk for issue #33 you will find geoPager 64 and two Geos fonts, "Zingies" AND "Mega Zingies". Below is a printout of the fonts turned sideways and printed at 70% of size.

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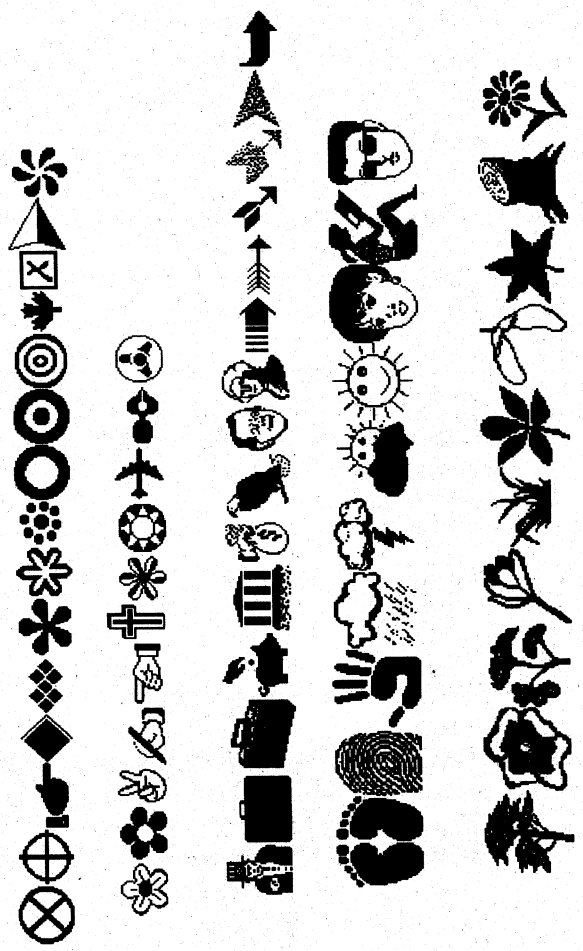

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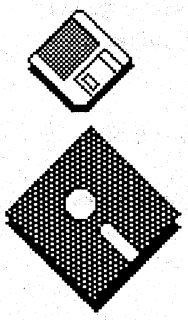

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