TIPS99

TI PUGET SOUND 99ERS

.O. BOX 6073
YNNWOOD, WA 98036

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Puget Sound
8701/8702

*** SUPER DOUBLE ISSUE!!! ***

JANUARY/FEBRUARY 1987 Vol. 6 No. 01

MEMBERSHIP $15.00 PER YEAR NEWSLETTER PRICE (FOR NON-MEMBERS) $1.50 PER ISSUE

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NEWSLETTER:	TOM WYNNE	745-3249	LIBRARIAN :	JOHN EOLAND	672-7593

NEXT MEETING

DATE : THURSDAY, February 19, 1987 TIME: 7:00 PM
PLACE: Kirkland Public Library, 406 Kirkland Ave, Kirkland

AGENDA:
- Introduction of new officers
- Joy Paint 99 demonstration
- Demonstration/Lecture
- TI99/4A new news and info
- Library updates-John Ueland
- Question and Answer session

MARCH MEETING

DATE : Thursday, March 19, 1987
TIME : 7:00 PM
PLACE: Kirkland Public Library
406 Kirkland Ave, Kirkland

APRIL MEETING

DATE : Thursday, April 16, 1987
TIME : 7:00 PM
PLACE: Kirkland Public Library
406 Kirkland Ave, Kirkland

IN THIS NEWSLETTER

TI99/4A NEWS

Reviews, Comments, Tricks, Hints

Programming the TI99/4A

BASIC:

LOGO:

FORTH:

ASSEMBLY LANGUAGE:

SOME LOCAL BULLETIN BOARD NUMBERS

TITLE	PHONE NUMBER
PUGET SOUND 99ERS BBS-SEATTLE	784-4142
TIBBS NW-ED DURFFEE-BELLEVUE	641-5884
QUEEN ANNE COMPUTER SHOPPE	361-0895
NEW WORLD BBS	365-6938
BAINBRIDGE ISLAND	1-598-3228
TELETRAVEL	742-9034
SHUTTLE	885-INFO
TROTHGUARD-BURIEN	824-6757
RADIO 1	878-0158
GEnie	1-800-638-8369

THE PRESIDENT SAYS

By Chuck Wynne

In the communications world, GTE presented computer users with a link called PC Persuit. With this it only cost $25 per month to call bulletin boards throughout the country on off hours with unlimited time. A great bargain I haven't persued yet. Alas comes the other companies crying foul. "We want part of the action!" Oh, but we cannot do it for such a low price. We must be fair and raise the rates! To do this will kill the golden goose! I sure hope all those computer users have their say about this. It sure has kept the TI world informed of whats going on.

Compuserve is not being fair either. There latest online magazine shows RLE graphics pictures and says you have to have a graphics system to use them. They wouldn't want to mention the TI99/4A as being able to use them with the greatest of ease would they? In fact they don't mention us at all. It seems all of the magazines only support equipment still making the almighty buck, not the discontinued models still being used by the thousands in homes. Yet, we buy their drives, modems, monitors, printers, etc.

Here's a little tip for TI Writer from the Bayou Byte. Want to retrieve or save a file of a different name, but retain the name of the previous file in the SF or LF section? Put your cursor past the DSK1. and press FCTN 2 (INS) space once and type in your new file name. The old one is saved just to the right and not used. To use it, just DEL CHAR on the new one and the old one is then used.

IBM had their worst quarter in the company's history lately. Just want to mention it because it involves clones and software freebies that is doing them in. It's true in all of the computer world. It looks as if the population is thinning out to the hard core users. I guess the ones in it for the fad are fadeing out of the picture fast.

We have reviewed the program Joy Paint. This Graphics drawing program is very good. They even have an option that says "LOAD ANYTHING". It will load graphics of unknown nature. Some of it turns out wierd, but at least you can see if it fits. The picture you can draw is larger than the monitor, which allows you to scroll right, left, up, down. We should get a full review later.

The dues has been voted in at $15 per year per family. Keep this in mind in renewing! Any problems, let me know!

Barbara Wiederhold is gearing up for this years convention already. If you can, give her some mental and physical support. We want, and can have another winner this year.

Minutes of Puget Sound 99ers Meeting

January 22nd, 1987
Submitted by Dennis Wood, Secretary

The meeting was held at the Kirkland Library and had about 30 members in attendance. Chuck Wynne, President, announced the results of the election of officers, which was later revised due to lack of interest by some parties, and the trading of two offices. The final result is:

President:	Chuck Wynne
Vice-President:	Gene Christiansen
Newsletter Editor:	Tom Wynne
Librarian:	John Ueland
Secretary:	Dennis Wood
Treasurer:	Dennis Wood

Barbara Weiderhold talked about some new products she has received in her shoppe. Fontwriter by J. P. Hoddie will allow you to combine instance type graphics, CSDD or other fonts, and TI-Writer files. In essence, it is a souped up replacement for the TI-Writer Formatter. It needs to be demonstrated by someone at one of our meetings. Any volunteers?

CALENDAR was also discussed. It prints an annotated calendar, with each date showing anything you enter, like birthdays, anniversaries, etc. A nice package for a fundraiser? It is freeware, and will be placed in the library. Another program, WORDSEARCH by Tom Wynne, will take a list of entered words and hide them in a rectangle of random letters. Just like the game books!

A product spec sheet for the Triton IBM connection to the TI was passed around. It appears as though you wind up with both an IBM computer and a TI computer, both sharing the same keyboard. Triton shows a box plugged into the side port of the console with cables to the IBM box, display, (and PEBox?). We would sure like to have someone bring one to the next meeting! I gave a treasurer's report via computer. I had transmitted it to Chuck via modem using Mass-Transfer. Chuck gave a tutorial about number systems like base ten, two (binary), eight (octal) and sixteen (hex). Tom then discussed the memory organization of the 99/4A, and how sixteen bits is used to address memory. Not much different from IBM, or any other machine, until you get to "paging" of memory to go beyond 64K.

The newsletter is late this month due to a lack of committed members willing to volunteer their time to the cause. Remember, you get out of this group in direct proportion to what you put in. Also, a lot of small efforts can add up to a significant result, if we all pull together. Beginning this month dues are raised to $15 per year. Lets all contribute articles to the newsletter and bring software to the meetings to demo and/or submit to the library. See you next month. Dennis Wood

R-A-M
By GENE CHRISTIANSEN

It has been some time since my stirring commentary has graced these pages and I hoped that I have been missed. Suffice it to say that some problems of a personal nature have really eaten up my time. BUT I'M BACK!!!

Let me get the ball rolling with a critical review of the upcoming demise of the TI-99/4A. What did I say? demise? Yes! And I'll show how.

About two years ago, a man in New Jersey began to pursue a dream. This was (and still is) to take the easiest to use (and most accurate) home computer and make it better. It did not matter that the machine was no longer being produced. This man knew that there were (are) millions of dedicated users who wanted, needed, and DESERVED to have a better version of the machine that they had grown to love.

He weathered many storms and letdowns. Betrayals come more often than the good tidings. Through it all, he kept the faith. He took his travelling "dog-and-pony show" back and forth across the country to every electronics fair and exhibition imaginable. When "at home", he handled phone calls to his company personally.

A lesser man may have too tired or discouraged to keep on but Lou Phillips met these challenges with uncommon good humor and a keen desire to not only sell a product but to make happy users - no matter what kind of equipment was purchased.

Now he faces a larger conflict. A competitor even more insidious because IT promises "what the people want". This foe of the TI-99/4A is IBM compatibility.

Mr. Phillips has made it clear that the "GENEVE" will use the Microsoft Disk Operating System. This is MS/DOS! This means that files created on an IBM can be read by the "GENEVE"! At the TI convention held here in Seattle this past September, it was stated the work had already begun on a Lotus 1-2-3 "look-alike". (The TI already has a pretty good word processor to which improvements seem to just keep coming.)

So what is the point of "IBM compatibility"? I'll tell you. To kill, once and for all, the 99/4A. When "Big Blue" entered the PC market, it moved quickly to ensure that it would be the industry standard. Oh, sure, there were the

C-64, Apple, Atari, and many others. But when IBM moved onto the scene, most of these either tried to become better or just died out right.

However, two-and-half million users did not give up. They continued to faithfully use the best computer around. Sure they put up with limited memory and slower execution. It is the operation that is the key. People would keep their TI's even after selling their IBM PC's. The SEATTLE TIMES classified ads on any given day bear me out. See all the ads for PC's and clones? How many TI's are for sale? When one should appear, it is gone within a couple of days.

So, what do we get for this loyalty? The "GENEVE". It is faster and more powerful than IBM or its clones (clowns).

We also get someone who wants to foist the cumbersome IBM operating system on us. Someone who wants us to buy IBM software. Someone who wants us to BE IBM. When this happens, no one will write software for the TI. And when the software support goes, so does the machine!!!

However, it is not enough to kill the valiant champion that made home computing fun. No, I afraid that this will be the end of the "GENEVE". It is designed to be TI compatible!!! It is designed to use most of the existing programs!!! It is designed to enhance what we already have and love!!! NOT REPLACE IT!!!

In this war, and it is a war, the losers will be all of us who love the "machine that could". Even the man in New Jersey.

Puget Sound 99'ers 1986 Financial Report

Submitted by Dennis Wood, Treasurer

Balance on December 31, 1985		$422.17
Income during 1986		$2269.73
Dues	$1310.00	
Disk and Library sales	929.73	
Tape sale	20.00	
Ad in newsletter	10.00	
Expenses during 1986		($2237.43)
Newsletter, printing and postage	$1344.21	
Disks for library	623.00	
BBS phone	204.55	
PO Box	22.00	
Misc	43.67	
Balance on December 31, 1986		$454.47

IBM COMPATIBILITY FOR THE 99/4A

Technical Info:

1. Two part system. A TURBO XT and a small bridge box that connects to the side I/O port on your 4A.

2. The TURBO XT is an 8 Mhz, 4.77 Mhz (switchable) mother board, power supply, XT style case, CGA color graphics card (both RGB and Composite), Floppy Disk controller 1 half hight DS/DD disk drive, port and 256K of Ram on the mother board. The mother board has socket for up to 640K of RAM. There are 8 expansion slots, two of which are used by the CGA card and the Floppy disk controller.

3. The bridge box has inputs V 4A Video in, XT Video in, and outputs for XT Keyboard out and Monitor out. It also contains the software for Keyboard switching between 4A mode and XT mode and the software to convert the 4A key strokes into XT keycodes. It has a pass-through, so you can keep your P-Box or other peripherals hooked up.

4. Mode switching from 4A to XT can be done through Basic or X-Basic with CALL XT or by holding down FCTN CTRL ENTER on power up of the 4A.

5. Mode switching from XT is done by pressing FCTN CTRL ENTER.

6. The ONLY items shared by the two systems are the 4A keyboard and your current monitor or TV. Yes you can get 80 columns out of a composite monitor, but it is easiest to read with the color turned off in 80 column mode. The XT allows MODE 40 which also gives you 40 column mode. Graphics programs, such as games and drawing programs work fine in 80 column and most other software that doesn't combine weird foreground text colors are also quite readable.

7. By not sharing the disk drives it is possible to do concurrent processing on the XT. Example: Go into XT mode, start up your COMMUNICATIONS software, log on to a BBS, and start down load. Now you can switch modes back to the 4A and do whatever you would like in 4A mode while the XT is still down loading from the BBS!!

8. We have tested this system on a number of 4A system configurations, and have found it to be very compatible. Since it is an IBM clone, it is also fully compatible

with both IBM software and IBM HARDWARE. Yes, you can add ANY IBM cards you would like to the system.

9. The minimum 4A system requirements: A TI 99/4A console and a monitor or a TV set with RF modulator.

General Info:

1. This system is being marketed by Triton Products Company in San Francisco, CA. They are also handling the production of the bridge boxes, and they have contracted for the Turbo XT clones to their specifications.

2. The system has a 30 DAY money back guarantee and a 1 YEAR parts and labor warranty.

3. The cost for this system (Turbo XT, Bridge box and cable), is $499.00, plus $19.90 for shipping and handling.

4. Their toll free number for additional info and/or a 6 page 4 color brochure on this system is 800-227-6900, Monday through Friday - 6AM to 6PM and Saturday 6AM to 4PM, Pacific Time. PLEASE DON'T CALL THEM UNTIL MONDAY, JANUARY 19, 1987 FOR TECHNICAL INFO OR QUESTIONS. You can call before then to get a brochure. The people that answer the phones are going through a training course so they won't be able to properly answer your questions until then.

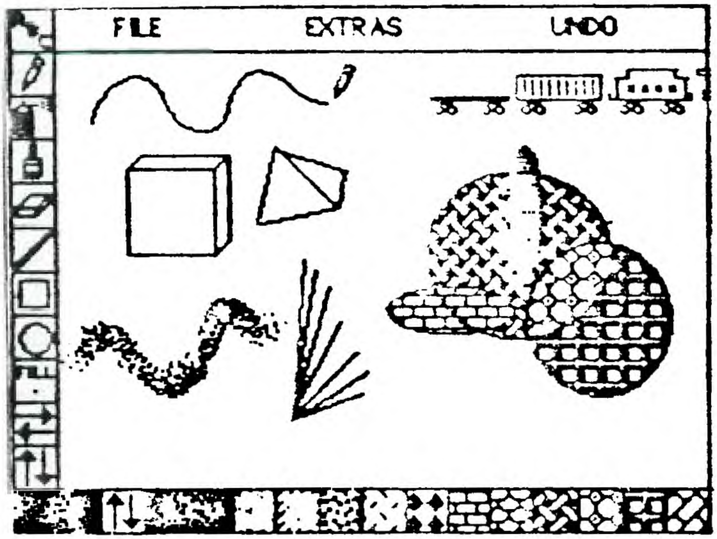
5. Delivery is scheduled to start on March 1st of this year.

We have been using this system for awhile now and we are very pleased with its performance. This isn't vaporware, ALL R&D, testing and software is complete and the units are ready for production, so the March time frame is a reality.

At last, a MAJOR expansion for the 4A. We hope you are as pleased with this product as you have been with our products in the past. As the Triton Brochure says:

MAKE THE IBM CONNECTION TO YOUR TI99/4A

-----------MG----------



JOY PAINT 99-A Review

By Tom Wynne

Joy Paint 99 is a graphics program that uses MacPaint type icons and Macintosh type pull-down menus to allow you to draw pictures with ease. This drawing program is entirely joystick controlled and you use the fire button to select icons off of the screen. The use of Icons will allow you to select options without the use of the keyboard. Now I will tell some of the features of Joy Paint.

First of all, Joy Paint will load from either Editor/Assembler, Extended BASIC, or even from the Utility option of TI-Writer all from the same disk. Second, there are only two programs, Joy Paint and Joy Paint Pal so there is not much disk access to get around the menus.

VIEWING YOUR DRAWING

Joy Paint has a drawing area of 336x256 dots (42 columns by 32 rows) while the other drawing programs allow you 256x192 dots (32 columns by 24 rows). This is because Joy Paint allows you to window (like TI-Writer) while the others are restricted by the screen size. To window, you move the pen onto the arrow symbols,

⇆ ⇅

to move the page up, down, left, and right. I like using this larger drawing area for making posters and signs and other larger drawings. You can display the drawing window without the command line and icons by selecting VIEW. You can also display the entire drawing by selecting SHOW PAGE and it will display your entire drawing in a condensed form on the screen.

DRAWING

Because Joy Paint uses joysticks only, the ease of drawing depends on the joystick you are using. If you want to be more precise in your drawing, you can use the FATPIXELS option to enlarge the picture to edit a dot at a time. Down the left side of the screen are icons. With these icons you can choose from text entry, drawing, erasing, painting, line and rectangle drawing, and ovals. With text entry you are able to move a cursor around with the arrow keys and type text on the screen. Lower case is true lower case! You can draw lines in much the same way as most but you can also draw rectangles and ovals. The paint features a smart fill routine but instead of just solid fill, you can fill with one of 26 different patterns from the bottom of the screen. These patterns are just selected by pressing the button on the one you choose. You have the option also to change the pattern by drawing a new one using Joy Paint's Pal.

Joy Paint has some additional features like FLIP HORIZONTAL, FLIP VERTICAL, ROTATE, INVERT, CLEAR, and MAGNIFY. These are all chosen by an area you select by surrounding it by a rectangle. Other features include NEW which erases the entire drawing, COLOR, which you can choose from 8 color combinations, OWNER displays the purchaser of the copy (to discourage piracy), and QUIT which exits you to the title screen.

Joy Paint has the features CUT, PASTE, COPY, and MOVE to enable you to manipulate larger portions of your drawing. The CUT and PASTE work in much the same way as Macintosh in that you can CUT a piece of your drawing out and store it into a separate area of memory so you can load in another drawing and PASTE it back in. This is widely used for using pre-designed graphics which is available on a companion diskette.

Joy Paint features many file options. These include not only LOAD, and SAVE routines, but you can also DELETE files, and look at the DIRECTORY of any disk. The Joy Paint Pal has the features LOAD ANY and SAVE ANY which will read any memory-image files onto the screen. You can load TI-Artist, Graphx, Extended Business Graphs, and even files that are not even graphics! The print feature allows you to print in normal or double size, single or double density to an Epson compatible printer. You have the option to print it to a disk file and use a conversion file in the future to print to other kinds of printers.

The Pal also has features which can REDUCE an area, and allow you to change any of the 26 paint patterns and save them using SAVE. Great Lakes Software is asking for your ideas on what other features to add to the Joy Paint Pal since there is extra room available in the Pal program.

The final and (I believe) the best feature is the UNDO feature. This will allow you to 'take back' the last thing that you did. If I have accidentally erased something or drawn something I didn't like, I can choose the UNDO and my work is restored!

I like Joy Paint because it is well structured, and powerful. This is the closest program that is comparable to the Macpaint I have seen. Also the line and box drawing is fast. The longer I streach the box, the faster the cursor jumps. I can surround an area much faster and I can make the area the size I want, not a pre-defined size. This makes MOVING and COPYING much easier and faster. The larger window size is a plus. I have tried to make several drawings and I keep running out of room on the screen. The only way out was to make two drawings and run to the photocopier to complete the picture. The window is not a page size, but is big enough for me.

Unfortunately, there are drawbacks as in most programs. First, if you like color, too bad. You are only able to select from 8 combinations of forground and background screen colors much like TI-Writer's CTRL-3.

When you move your pencil onto any of the icons, it turns into a ball meaning you must select an option. The problem is that when you move your pencil up or left next to the icons, you leave the function too soon and you must go back and select it again. This happened when I was trying to copy something that was on the far left side of my drawing and I could not move over far enough to get it.

Another problem is that the cursor movement is too fast. The cursor jumps too fast when you are trying to move a small distance. For instance, I was trying to draw a small box around an object to copy it. It was difficult for me to keep the cursor from jumping too far and making the box too large. I do not know of a function to slow the cursor down! I also would like the option to have the keyboard arrow keys as an alternate input for cursor control for better accuracy.

Joy Paint does not support instances or clipboards. If, for instance, you wanted to have a fancy font in your drawing. There is the CUT feature but in order to use it you must save your drawing, load the drawing with the alphabet on it in a certain font, CUT a letter you want out, load your drawing back in and PASTE it on your drawing. Then you must repeat this process for the next letter. This can be very cumbersome.

The final item is that there is no way of scrolling your window without going back to the icon. If I was drawing in the upper right corner of the screen and I wanted to shift the drawing to the left, I would have to move my cursor back down to the lower left to the icon to shift the screen. I would like to see some kind of key press, like FCTN or CTRL ESDX, to shift the screen just for convenience.

All in all, I think Joy Paint is a well-written, usable utility, with lots of powerful features. Besides its problems, the user interface (icons) is useful. I sat down and started drawing without the need for the manual which is a plus in my book! This is well worth adding to your library of graphics utilities.

FUNLWRITER V3.0

By BILL K.

I was one of the first people in the USA to get a copy of the Version 2 of FUNLWRITER (XB loader for TI-Writer files) and have been using it ever since. It was a great program and the only thing I didn't like about it was when you went from the Editor to Formatter, you had to go back to the title screen and re-boot the loader. But now this problem has been solved by the new Version 3.0.

FUNLWRITER V3.0 allows the Extended Basic module to be used to load files from TI-Writer, Editor Assembler and DM1000 V2.3. It also features a utilities menu where you can add files to load such as DPATCH (DISKO) which is already included, TI-FORTH, or possibly FAST TERM.

I believe the best feature that has been added to this program is the fact that you can run the disk in any drive number, just type "RUN DSKx.LOAD" and the files will be read from that drive. I put the programs on my work disk that I keep in drive 3 which frees up 1 and 2 for printing files from one disk to another (something I do a lot with this BBS).

As mentioned above, now you can go from the Editor to Formatter without having to re-boot the program (similiar to the TI-Writer module). And this version still has the great Show Directory feature as the earlier version.

Another feature is the ease of changing the screen/text colors and the printer default. This is done by changing a few lines in the Load program.

In closing, I would like to congratulate Tony Will

McGovern of Australia for such a complete program and sharing it with the rest of the world. If I only had one disk with my system, it would be FUNLWRITER.

-Bill K.

Thank you, Bill. As this file also came by way of Dave Powell, we don't know what the "K" stands for ... though in this case, it could be "knowledgeable".

SHOE / JEFF MacNELLY
I WENT TO THE BIGGEST COMPANY WHEN I BOUGHT MY PERSONAL COMPUTER.
THAT WAY, I FIGURE I'LL GET QUALITY SERVICE.
EVEN THOUGH THE REPAIR GUY IS A LITTLE STRANGE
11/24

MULTIPLAN TID-BITS

by Dennis Wood

I had been using Multiplan to keep records of my son's swim times by entering his times in seconds and hundreds of seconds, such as 31.89. This allowed me to add a row that consisted of a formula that searched thru his times for the minimum, i.e. MIN(rc:rc), to automate a visual search for the lowest time. A major problem occurred, however, when he began swimming longer lengths, and exceeded 59.99 seconds. One solution would have been to express all times in seconds, such as 61.99 seconds instead of 1:01.99. This allows the MIN(..) formula to still work, but the time display does not look correct, and requires conversion back and forth.

What I did was convert all the times to text entries, by entering them in the Alpha mode instead of Value mode. The display of 59.99 or 1:01.99 now look correct and can be entered directly without conversion. Then I wrote a series of formulas using MULTIPLAN's ability to convert text to value, VALUE(..), and value to text, FIXED(..), functions. If the string had a length of more than 5 then it was assumed to have a colon at the 6th position counting from the right. Then two formulas, one for minutes and another for seconds were written. If the length was more than 5, minutes were extracted and converted to a value. If the length was 5 or less, minutes was set to zero. Seconds were converted by taking the last 5 positions and converting them to a value. One cell calculated minutes and a second calculated seconds. Then a third cell was used to combine the two values into seconds by multiplying minutes by 60 and adding seconds. I can now find the minimum by searching thru a range of these converted values. After finding the minimum, it is now necessary to display it as "min:sec". This is accomplished by using the integer function, INT(..), to find minutes and the modulo function, MOD(..), to find seconds, and converting them back into a text stream using the FIXED(..) function. I printed the formula using a printer setup of DSK1.XX, giving me a TI-Writer file on disk. I then merged the file into this report, and added comments. Printout of MULTIPLAN formulas for each cell. Cell format is expected to be "MM:SS.HH" where MM is minutes, SS is seconds and HH is hundredths of seconds.

Text input

```
1 "1:01.99"
```

Formula to compute and convert minutes to a value.

```
2 IF((LEN(R[-1]C)<6),0,VALUE(MID(R[-1]C,
  1,LEN(R[-1]C)-6)))
```

Formula to compute and convert seconds to a value.

```
3 VALUE(MID(R[-2]C,LEN(R[-2]C)-4,5))
```

Formula to combine minutes plus seconds.

```
4 60*R[-2]C+R[-1]C
```

Formula to search several columns of converted times for minimum.

```
5 MIN(R[-1]C:R[-1]C[+4])
```

Formula to convert value back to text "min:sec", with seconds displayed to 2 decimals.

```
6 FIXED(INT(R[-1]C/60),0)&":"&FIXED(
  MOD(R[-1]C,60),2)
```

I hope this short note has helped make the power of Multiplan more useful to you. Don't be afraid to experiment. It probably can be done!

MULTIPLAN machinations

By Bill Harms

In this article I will introduce you to a method to transfer data from a basic program to Multiplan.

I use Multiplan to keep my budget and to estimate my income taxes. I have a spreadsheet with 18 columns: 12 Months, Yearly Totals, Year-To-Date, Weekly Average, Monthly Average and two for taxes. Those last two have formulas to get various numbers from the spreadsheet. The rows include: Pay, Interest, Expenses, Loans and Other. You can really do "what If'ing" and "Why Not'ing" with Multiplan.

It was a bear, however, adding up all the darn monthly checkbook entries in separate categories (Meals Out, My Pay, My Wife's pay, Groceries, Interest, etc.).

Since Multiplan doesn't have a for/next capability and can't scan data until some criteria is met, it was too time consuming to enter the 100 to 150 monthly entries directly from my checkbook into multiplan (if there was enough RAM).

Now I use a nice little fast (I mean fast) Extended Basic program I wrote to get those transactions added by category. Then I can use a SYLK creator to quickly and correctly prepare them for loading into my Multiplan Spreadsheet. SYLK or Symbolic Link files are a little known feature of Multiplan. They can be written to disk by a basic program and read by Multiplan.

In this article I will show you how this is done. This material is based on a program I got from TI, a series of articles in the May (and latter) 1985 SUPER 99 MONTHLY (now called the SMART PROGRAMMER), and the Multiplan manual.

This bare bones program is based on the one I received from TI in 1984. The disclaimer was bigger than the program! It writes a disk file with a one cell spreadsheet that can be read by Multiplan.

```
100 OPEN #1:"DSK1.SYLK",DISPLAY ,OUTPUT,FIXED 128
110 CALL CLEAR
120 INPUT "ROW NUMBER: ":R$
130 INPUT "COLUMN NUMBER: ":C$
140 INPUT "CELL CONTENT: ":A$
150 FOR Q=1 TO 27-LEN(A$)
160 W$=W$&CHR$(0)
170 NEXT Q
180 X$=CHR$(34)&A$&CHR$(34)! Surrounds contents ith quotes
190 Z$=CHR$(13)&CHR$(10)! Carrage return and line feed
200 Y$="D;PMP"&Z$&"F;DGOGB"&Z$&"B;Y"&R$&";X"&C$&Z$&
    "C;K"&X$&Z$&"W;N1;A1 1"&Z$&"E"&Z$&W$
210 PRINT #1:Y$
220 CLOSE #1
230 END
```

If you enter and run this program, you will find a file on your disk called 'SYLKF'. Befoe you can load this file you must change it. It may be written as Display, Fixed 128 and then changed to internal, Fixed 128 in the file header. In other words, the file must use display notation but must look like a internal file! There are two ways to do this. You can find a application of Barry Traver's RAW (READ AND WRITE) in the SUPPER 99 MONTHLY. OR YOU CAN USE ADVANCED DIAGNOTICS to change the last four hex characters of the first line of the file header to <0202>. Once you have done this you can load your file. First, boot Multiplan. Press <T>ransfer and then <O>ptions. Next press <S>ymbolic and then <Enter>. Now press <T>ransfer again and this time <L>oad your File.

Here is the Multiplan spreadsheet:

```
:----------:
:         1 :
: 1 HARMS   :
:           :
:----------:
```

This is what the data looks like on disk using Millers Grhapics great ADVANCED DIAGNOSTICS:

```
Drive :2  Track  : 3
```

```
Side  :1  Sector : 34
Byte  :0  Display: Ascii

I D ; P M P * * F ; D G O G
B * * B ; Y 1 ; X 1 * * C ;
K " H A R M S " * * W ; N 1
; A 1 1 * * E * * * * * *
```

Most of the time *'s stand for CR-LF (Z$ in line 190).

There are many ways you could input data besides the simple INPUT in line 140. You could read data in from data statements or from a disk file. That disk file could be created by most anything: TI Writer, RS232, another module or a Mutliplan Print File.

You can create data in BASIC and then "dump" it into a spreadsheet en masse' instead of just keyboarding it. You could transmit the outputted SYLK file of your Multiplan spreadsheet to others via RS232. The DIF (Data Interchange Format) used by Lotus 1-2-3 and Visicalc only accommodates the cell content not the sheet parameters.

This is only a taste (BAD?) of what you can create to load data into Multiplan up to other software.

Bill Harms' fine program, Fas-Tran, which is in our library makes good use of this technique. This article was printed from the ROM user groups newsletter. There is suppose to be a follow up article. If there is and I find it we'll print it next month.

MILES PER GALLON
By AL HOWE

The following program was submitted by way of Dave Powell, who lives down south (Kent) and sees Al more than many of the rest of us. Thanks to both of you guys!

```
100 !**********************
110 !*                    *
120 !*  MILES PER GALLON  *
130 !*                    *
140 !*     BY AL HOWE     *
150 !*       7/20/86      *
110 !*                    *
160 !**********************
170 DIM A(68,8)::S$=""
180 IMAGE ##/## ######.# ##.## ###.###
190 IMAGE ##/## #####.#  ##.## ####.##
200 IMAGE ##/## ######.# ##.## ###.### #####.#   ##
    .## ####.##
210 IMAGE "          ####.## ###.###  #####.#   ##.##
    ####.##"
220 CALL CHAR(104,"000000000FF00000000FF0000000000
    0000000000FF00000000FF000000000")
230 CALL MAGNIFY(4)::CALL CHAR(96,"0000FF0000FF0000")
240 CALL COLOR(9,7,8)::CALL CHAR(97,"00003F2020272424")
250 CALL CHAR(98,"0000FC0404E42424")::CALL CHAR(99,"242424
    2424242424")
260 CALL CHAR(100,"24242720203F0000")::CALL CHAR(101,"2424
    E40404F40000")
270 CALL CLEAR::CALL HCHAR(2,5,96,25)::CALL HCHAR(2,4,97,
    1)
280 CALL HCHAR(2,29,98,1)::CALL VCHAR(3,4,99,3)::CALL
    VCHAR(3,29,99,3)
290 CALL HCHAR(6,4,100,1)::CALL HCHAR(6,29,101,1)::CALL
    HCHAR(6,5,96,24)
300 DISPLAY AT(4,7):"MILES PER GALLON";
310 DISPLAY AT(10,8):"1-ENTER MILES/GAL.": :TAB(8);"2-SAVE
    FILE"
320 DISPLAY AT(14,8):"3-LOAD FILE": :TAB(8);"4-PRINT FILE"
330 DISPLAY AT(18,8)BEEP:"5-CHECK DISK": :TAB(8);"6-QUIT"
340 DISPLAY AT(23,2):S$
350 CALL KEY(0,K,S)::IF S=0 THEN 350
360 IF K<49 OR K>54 THEN 350
370 ON K-48 GOTO 390,710,820,1080,920,380
380 CALL CLEAR::STOP
390 ! ***** INPUT DATA ****
400 CALL CLEAR::I=0::C=18::P=1::R=13
410 CALL HCHAR(3,3,96,28)::CALL HCHAR(21,3,96,28)
```

```
420 IF YR=0 THEN GOSUB 1420 ELSE DISPLAY AT(1,1):YR;"";MD$
430 GOSUB 1270::GOSUB 1310::I=I-16::GOTO 450
440 GOSUB 1310
450 CALL SPRITE(#1,104,12,R,C)
460 DISPLAY AT(23,1):"E-ENTER  M-MENU  ARROW KEYS"
470 CALL KEY(0,K,S)::IF S=0 THEN 470
480 IF K=77 THEN CALL DELSPRITE(#1)::GOTO 270
490 IF (K=10)*(R=141)*(I<=51) THEN 440
500 IF (K=9)*(C=198)*(P=5) THEN P=P+3::D=1::GOSUB 1290::
    GOSUB 1350::GOTO 450
510 IF (K=8)*(C=18) THEN D=0::P=1::GOSUB 1270::GOSUB 1350
    :: GOTO 450
520 IF C=18 THEN P=1
530 IF (K=11)*(R=13)*(I>1) THEN I=I-18::GOSUB 1310::I=I-16
    ::GOTO 450
540 IF (K=10)*(R<141) THEN R=R+8::I=I+1
550 IF (K=11)*(R>13) THEN R=R-8::I=I-1
560 IF (K=8)*(C>18) THEN C=C-60::P=P-1::IF P=2 THEN P=P-1
570 IF (K=9)*(C<198) THEN C=C+60::P=P+1::IF P=2 THEN P=P+1
580 IF K<>69 THEN 450
590 IF (K=69)*(C=18)THEN 600 ELSE 620
600 ACCEPT AT(INT(R/8)+3,P) VALIDATE(DIGIT) SIZE(2)BEEP:
    A(I,1)
610 ACCEPT AT(INT(R/8)+3,P+3) VALIDATE(DIGIT) SIZE(2)BEEP:
    A(I,2)
620 IF (K=69)*(C>=78) THEN 630 ELSE 640
630 ACCEPT AT(INT(R/8)+3,INT(C/8)-1)VALIDATE(NUMERIC)
    SIZE(8)BEEP:A(I,P)
640 IF I=1 THEN 680
650 IF (A(I,3)=0)+(A(I,4)=0) THEN 690
660 T=(A(I,3)-A(I-1,3))/A(I,4)::A(I,7)=INT(T^2+.5)/
    10^2
670 A(I,6)=A(I,3)-A(I-1,3)
680 T=A(I,5)*A(I,4)::A(I,8)=INT(T^2+.5)/10^2
690 J=INT(R/8)::IF D=0 THEN GOSUB 1280 ELSE GOSUB 1300
700 GOTO 450
710 ! **** SAVE FILE *****
720 GOSUB 1400::DISPLAY AT(8,8):"SAVING FILE"
730 DISPLAY AT(12,3):"FILE NAME? DSK1.";FN$
740 IF FN$="" THEN 760 ELSE DISPLAY AT(13,19):"Y/N?"
750 ACCEPT AT(13,23)VALIDATE("YN")SIZE(1)BEEP:Y$::IF Y$=
    "Y" THEN 770
760 ACCEPT AT(12,19)BEEP:FN$
765 IF FN$="" THEN GOSUB 1400::GOTO 310
770 F$="DSK1."&FN$:: S$="FILE IS SAVED"
780 OPEN #10:F$,INTERNAL::PRINT #10:YR;MD$::FOR J=1 TO 68
790 IF A(J,3)=0 THEN 810
800 PRINT #10:A(J,1);A(J,2);A(J,3);A(J,4);A(J,5);A(J,6);
    A(J,7);A(J,8) :: NEXT J
```

```
 810 CLOSE #10:: GOSUB 1400:: GOTO 310
 820 ! ***** LOAD FILE ****
 830 T=0::GOSUB 1400::DISPLAY AT(8,8):"LOADING FILE"
 840 DISPLAY AT(12,3):"FILE NAME? DSK1."
 850 ON ERROR 1410::ACCEPT AT(12,19)BEEP:FN$::F$="DSK1."&
     FN$::Z=0::T=T+1
 860 IF FN$="" THEN GOSUB 1400::GOTO 310
 870 IF Z=130 OR Z=109 THEN 850 ELSE DISPLAY AT(15,1):" "
 880 OPEN #T:F$,INTERNAL::S$=""::J=0::INPUT #T:YR,MD$
 890 J=J+1::INPUT #T:A(J,1),A(J,2),A(J,3),A(J,4),A(J,5),
     A(J,6),A(J,7),A(J,8)
 900 IF EOF(T) THEN CLOSE #T::GOTO 910::ELSE 890
 910 GOSUB 1400::GOTO 300
 920 ! **** CHECK DISK ****
 930 CALL CLEAR::TY$(1)="DIS/FIX"::TY$(2)="DIS/VAR"
 940 TY$(3)="INT/FIX"::TY$(4)="INT/VAR"::TY$(5)="PROGRAM"
 950 OPEN #1:"DSK1.",INPUT,RELATIVE,INTERNAL
 960 INPUT #1:A$,J,J,K
 970 DISPLAY "DISKNAME=";A$:"AVAILABLE=";K;"USED=";J-K
 980 DISPLAY :"FILENAME   SIZE   TYPE     P":"________
     ____   _____      _";
 990 FOR L=1 TO 127
1000 INPUT #1:A$,T,J,K::IF LEN(A$)=0 THEN 1060
1010 DISPLAY :A$;TAB(12);J;TAB(17);TY$(ABS(T));
1020 IF ABS(T)=5 THEN 1040 ELSE B$=""&STR$(K)
1030 DISPLAY SEG$(B$,LEN(B$)-1,3);
1040 IF T>0 THEN 1050 ELSE DISPLAY TAB(28);"Y";
1050 NEXT L
1060 CLOSE #1::PRINT::PRINT::PRINT TAB(9);"KEY FOR MENU"
1070 CALL KEY(0,K,S)::IF S=0 THEN 1070 ELSE 270
1080 ! *** PRINTING *****
1090 X,Y,T,M,Z=0::GOSUB 1400 :: DISPLAY AT(8,8):"PRINTING
     FILE"
1100 IF P$="" THEN DISPLAY AT(13,1):"PRINTER DIVICE?"::
     ACCEPT AT(14,1)BEEP:P$
1110 IF P$="" THEN GOSUB 1400::GOTO 310
1120 OPEN #12:P$::PRINT #12:CHR$(27);"N";CHR$(7)
1130 PRINT #12:CHR$(14);TAB(13);"MILES PER GALLON";CHR$(14)
1140 PRINT #12:CHR$(10);"VEHICLE=";MD$:"YEAR OF
     FILE=";YR;CHR$(10)
1150 PRINT #12:"DATE   ODM'TR    GALS    PRICE    MILES
        M/P/G       COST       10                       30"
1160 PRINT #12:RPT$("=",54);"!___________________!"
1170 FOR J=1 TO 68::IF A(J,3)=0 THEN 1240
1180 PRINT #12,USING 200:A(J,1),A(J,2),A(J,3),A(J,4),A(J,
     5),A(J,6),A(J,7),A(J,8);
1190 X=X+A(J,4)::Y=Y+A(J,5)::T=T+A(J,6)::M=M+A(J,7)::Z=Z+
     A(J,8)
1200 IF A(J,7)=0 THEN PRINT #12:" "::GOTO 1230
```

```
1210 L=INT(A(J,7)-10)+1::IF L>25 THEN L=25 ELSE IF L<0 THEN
     L=1
1220 PRINT #12:TAB(56);RPT$("=",L)
1230 NEXT J
1240 PRINT #12:TAB(17);RPT$("-",38):"TOTALS";
1250 PRINT #12:USING 210:X,Y/(J-1),T,M/(J-2),Z
1260 CLOSE #12::GOSUB 1400::GOTO 280
1270 DISPLAY AT(2,1):"DATE ODM'TR GALS.  PRICE"::RETURN
1280 DISPLAY AT(J+3,1):USING 180:A(I,1),A(I,2),A(I,3),A(I,
     4),A(I,5)::RETURN
1290 DISPLAY AT(2,1):"DATE MILES M/P/G COST"::RETURN
1300 DISPLAY AT(J+3,1):USING 190:A(I,1),A(I,2),A(I,6),A(I,
     7),A(I,8)::RETURN
1310 FOR J=1 TO 17::I=I+1
1320 IF D=0 THEN GOSUB 1280
1330 IF D=1 THEN GOSUB 1300
1340 NEXT J::RETURN
1350 T=I::IF I<=17 THEN I=0
1360 IF (I>=18)*(I<=34) THEN I=17
1370 IF (I>=35)*(I<=51) THEN I=33
1380 IF (I>51)*(I<=68) THEN I=50
1390 GOSUB 1310::I=T::RETURN
1400 FOR J=7 TO 24::DISPLAY AT(J,1):"  "::NEXT J::RETURN
1410 DISPLAY AT(15,9):"FILE NOT FOUND"::CALL ERR(Z,X,Y,L)::
     RETURN 870
1420 DISPLAY AT(1,1):"YEAR OF FILE?"
1430 ACCEPT AT(1,15) VALIDATE(DIGIT) SIZE(4) BEEP:YR::
     DISPLAY AT(1,1):"VEHICLE?"
1440 ACCEPT AT(1,10) BEEP:MD$
1450 DISPLAY AT(1,1):YR;" ";MD$::RETURN
```

(I had a little trouble in getting the spacing correct on this listing. As a consequence, double-check line 1150 to make sure that the display is proper. Thanks for your understanding.)

LEA̶RNING TI LOGO II - MAKING TILES

By TIM BABCOCK

The last kind of graphic characters that can be designed in Logo are called tiles. Tiles are like sprites in the way that they can have a color and a shape but unlike a sprite they can not move. Tiles are more designed for use as background design.

A total of 256 tiles can be designed at a time. They are numbered from 0 to 255, but be careful not to use the numbers assigned for numbers, letters, and other special characters.

To design a tile you use the MAKECHAR (or MC) command. This command work the same way as the MAKESHAPE command, except that the size of the grid is smaller when using the MAKECHAR command.

The TELL TILE command can be used to set a color for a tile. By doing the following:

```
TELL TILE 101
SETCOLOR: BLUE
```

Tile 101 would now have the foreground color of blue.

To place tiles on the screen, use the PUTTILE command (or the abbreviation PT). An example of the command is:

```
PUTTILE 101 17 1
```

This would put tile 101 onto the 17 column of row 1.

If you want to create a foreground and a background for a tile you can use the following:

```
TELL TILE 101
SETCOLOR[6 15]
```

This would set the tile 101 and all of the other characters in that character group (see page 62 of TI Logo II) to a red foreground color with a white background color.

In the next lesson I will show you how to create shapes and give them names.

TI FORTH PART 1

(We are unclear as to who the author of this piece is as it was passed on to us by Dave Powell. We thank both the author and Dave for making its appearance here possible.)

It seems as though there are about 200 or more copies of TI FORTH floating around in the Chicago area. When I put a message on the BBS "DOES ANYONE HAVE TI FORTH PROGRAMS?", I received NO response. So, let' s see if we can do something about that.

First, we will say that what we are going to do is for one disk drive, that is, single-sided. For those of us who have DS/SD's, start playing.

What we will do, is make our TI FORTH disk load with nearly all the options, in about 15 to 20 seconds. This is just about 1/100th of the time it takes the systems disk to load the same options. This is called BSAVE and is a binary image of what is in memory.

Before we get to that, let us start with the SYSTEMS DISK and the EDITOR/ASSEMBLER cartridge. Also, we need a console, a disk drive, and a 32k card. Those are the requirements for running TI FORTH.

Take the SYSTEMS DISK and put a WRITE PROTECTION TAB or a piece of tape over the little square notch that is cut out of the edge of the disk. Now, load your Disk Manager utility then place the SYSTEMS DISK in the drive. We HAVE to backup the disk because I know we will blow at LEAST one copy. Don't take the WRITE PROTECTION TAB of the MASTER for ANY reason. (Editor's Note: You may use any disk manager that you feel comfortable with to make this backup copy.) Now use this copy when you use Forth and keep the original just in case.

Now we are going to use our backup copy and call it SYSTEMS DISK. It has everything we need to make TI FORTH programs.

Place SYSTEMS DISK in drive and the EDITOR/ASSEMBLER into the console and follow these steps:

-Select #2 for E/A from the master screen.
-Select #3 for LOAD AND RUN
-Now, type in:
DSK1.FORTH and press enter.

Now you have the welcome screen with 20 options that you can load. The cursor is flashing under the TI FORTH.

What we want to do first is correct a bug in screen #72. (From now on we will call a FORTH screen "scr".) A scr has 16 lines and has 64 characters per line. These lines start with line 0 and go to 15. The scr has about 1k of information. We want to edit scr #72 but all we have is a menu and a flashing cursor. You have to make a choice of either the 64 column display or the 40 column display. I work with the 64 because I use a 19 inch monitor. Try one and then the other to see which is the best for you.

We will load the 40 column editor first. We will start by typing in:

-EDITOR just as you see it here and then press enter.

The system now goes to the disk and looks for scr #34 because the word -EDITOR is the same as 34 LOAD. It will load scr 34 thru 38 and put everything in memory. It then comes back and says ok. Now we have an editor with nothing in it. We need a scr to edit. We have the cursor in the next line and the computer said ok. This means it got the editor, ok. If something went wrong, it would have told you so by giving an error. If you have an ok let's go on.
Type in:

72 EDIT and press enter

Now, we have something to edit, one of TI's bugs. Look at line #5. The first word is PAB_ADDR. This is the bug. It should be PAB-ADDR. In other words, not the underline character, but the minus character. This scr is to set up alternate output to RS232 for hard copies. Great!, you say. My printer is PIO. Now what do I do? No problem! You just change the words in line 4 where it says RS232.BA=9600 to:

PIO

Now the line should look like this:

```
4 SET-PAB OUTPT F-D" PIO"

OPN 3
```

We are now set up for a PIO printer so we have to make it permanent. Just a figure of speech, nothing is permanent. The computer has marked this scr as update, so, we have to write it to disk. Make sure you remove the Write Protection from the disk. Now, hold down the function key and press the "G". We are back in command mode. The cursor is almost at the bottom-left and flashing.

Type in:

FLUSH and press enter

The new data has just been printed to scr #72 on your disk. No more bug.

Now, let's try the 64 column editor. The cursor has come back after the ok, so type in:

COLD and press enter

Since we can't use both editors at the same time, the word COLD booted the FORTH kernel and started from scratch.

Now, we can load the 64 editor. So, type in:

-64SUPPORT and press enter

Sit back and relax for a while, this is what bugged me. To pass the time, you can read the FORTH manual, look through it and you may find something interesting. If you took the time to read this, you better learn to love that book. Another book, "STARTING FORTH" by Leo Brodie, is a good book.

By now we should have 64 support and an OK. Try to edit scr 72. Play around. All you can do is blow the program on the disk or lock up your system. Either is no big deal, you still have your MASTER SYSTEMS DISK.

Remember the command:

72 EDIT

If you change the number 72 to anything else, you will change the scr you are going to look at or edit. FORTH scr are numbered from 0 to 89, so you have 90 scr per disk, this can be changed but we will take one task at a time.

Now we have a workable disk, every scr on the disk works. To find out what all these scr do, go to the command mode and type:

MENU and press enter

You can stop the scrolling by pressing the space bar and start scrolling by pressing it again. Here are all the options you can load. Type them in just as you see them entered. Try them one at a time, refer to the book to get more help on what they do. Play around with them and enter commands to see what they do. If it crashes, so what? You still have the MASTER! Start over again. Find the options you use the most and remember their names.

In the next chapter, we will show you how to make all these options load very quickly by saving the entire memory in binary image (called BSAVE).

LEARNING TI-99/4A ASSEMBLY - PART 1

By NICK IACOVELLI, JR.

Well, here it is. My first in a long series of articles on TI assembler.

This first article will be concerned with the most important thing - to get a character to be displayed on the screen.

The first thing I must tell you about is the '*' character. This is the TI Assembler REM character. If you put this in in the first column of your assembly code, the computer will ignore what is printed to the right of it.

THE FIRST STEP

1. Insert the disk Editor/Assembler PART 1 into the disk drive.

2. Select option 2 for Editor/Assembler. Then take option 1 and then press 2 to edit. This is the area that you type in your source code.

3. After you type your source code, press FCTN 9 twice. Then press 3 to save. Enter the letter 'Y' for the variable format and save your code under the filename 'source'.

THE COLUMNS

LABELS - Any name or marker you desire for JUMP and BL must start in column one

OPERATION FIELD - The first position following a space character. (The space is the termination a label field.) If there is no label, then the operation field starts in the second column.

OPERAND FIELD - The first position after a space following the OPERATION FIELD.

EXAMPLE:

```
123456789012345678901234567890
TEST   LI   R1,>0000
```

The LABEL is TEST. The OPERATION FIELD is LI. The OPERAND FIELD is R1,>0000

THE FIRST PROGRAM

The following program shows you how to place a singl character on the screen.

The TI-99/4A computer divides the screen into 768 squares. These squares start at the top (0) and work down. The TI has built in utilities to move one character to a location on the screen. These utilities are; VMBW, VSBW, VMBR, and VSBR.

VMBW-writes more than one character on the screen.
VSBW-writes one character on ther screen.
VMBR-reads more than one charcter off the screen.
VSBR-reads a single character off the screen.

ALL OF THESE UTILITIES USE REGISTERS 0-2.

Let us define the start of the program and put it in the label field.

```
      DEF START
      REF VSBW
* NEED TO REF THE UTILITIY WE WILL USE

START LI R0,400
      LI R1,>4100
      BLWP @VSBW
      END
```

LI R0,400 is the spot on the screen where I want to place my character. LI R1,>4100 is the first byte (>41='A' of the character I want written, IN HEXIDECIMAL. By changing this, you would have a different character written. The BLWP @VSBW does the actual writing on the screen.

Now, save the program. Load the Assembler and type DSK1.SOURCE. Then, type DSK1.OBJECT. Press enter and type RC. It will now assemble the source code. When it has assembled without error, press option 3 for "LOAD AND RUN". Type DSK1.OBJECT. When the cursor returns, press enter. Then type START and press enter once again.

In the next acticle, I will show you how to write more than one character to the screen and move it forward or backward. I will also demonstrate the use of a KEYSCAN and answer to any questions you may have.

(Editor... The preceding was passed along to us from Dave Powell. I am going to have to leave it to him to giv the credit as to which BBS he downloaded it from. Thanks for the input, though!)

HOW TO READ AND WRITE INDIVIDUAL SECTORS ON *THE TI*

By Todd Kaplan

(I give permission to reprint this article in any form printed, electronic or otherwise.)

This article is, as the title suggests, how to access individual sectors of a floppy diskette with a TI-99/4A computer. The programs to perform single sector I/O are contained in the Disk Drive Controller's DSR (Device Service Routine) ROM. I will attempt to explain how to access that program. If you are not very familiar with the DSR routines on the 99/4A and just want to easily access sectors, you can skip this part and just use the subroutines provided at the end of this article.

If you are at all knowledgeable of how to use the DSRLNK utility, you know that you must set up a PAB (Peripheral Access Block) in VDP (Video Display Processor) RAM. That PAB must have some type of device name and you must write the address of the device name length to a pointer in CPU RAM (Main Memory). The address of that pointer is at >8356. You should also know that the DSRLNK utility needs some DATA for it to function properly.

In a typical DSR access, you usually see is the following:

```
* DSR ACCESS

     LI   R6,PAB+9   POINTER TO NAME LENGTH IN VDP RAM
     MOV  R6,@>8356  STORE POINTER TO NAME LENGTH
     BLWP @DSRLNK    EXECUTE DSR
     DATA 8
```

A funny thing about the above example (or typical if you are used to TI) is that we need the 'DATA 8' part, but nowhere in the Editor Assembler (E/A) manual does it say why. The '8' is a pointer for where the search of DSR ROM begins. There is a pointer at location >4008 in all of the DSR ROMs that points to the beginning of where the search for the device name is to begin.

At address >400A in the ROMs, there is a pointer for the beginning of Subprogram Search List. The point that I am driving at, is that the single sector routine in the DSR ROM is a Subprogram. That Subprogram has a name just like DSK1 is the name for Disk 1. The name of that subprogram is best represented as the hexadecimal digit >10. Yes that is a single character which would be the equivalent of CHR$(16) in BASIC.

Now, all we have to do to access this program is to put it's name into the PAB and execute a DSRLNK with a DATA of

10 for the start of the search, and we can access singl sectors. Right? Wrong. The Single (un-married) Sectc Program needs parameters. These parameters are the sectc number, disk drive number, VDP buffer address and whether t read or write.

Below is a Table that shows the addresses of th parameters and describes each one's function:

Word Addresses	Function
>834E	VDP I/O Buffer Address. (The buffer should be at least 256 bytes long.)
>8350	The number of which sector is to be accessed.
>8356	Pointer to the Name Length in the PAB in VDP RAM.

Byte Addresses	Function
>834C	The number of the disk drive to access
>834D	R/W Flag, >01=Read; >00=Write

Here is what the PAB should look like:

```
* PAB DATA

PDATA  DATA >0110   Name-length of 1, Name of >10
```

Here is what the Link should look like:

```
* DSR ACCESS
      LI   R6,PAB      POINTER TO NAME LENGTH IN VDP RAM
      MOV  R6,@>8356   STORE POINTER TO NAME LENGTH
      BLWP @DSRLNK     EXECUTE DSR
      DATA >A          (or DATA 10)
```

The following is a program that reads one sector o disk drive one (DSK1) and writes the data to a differen sector on the same disk.

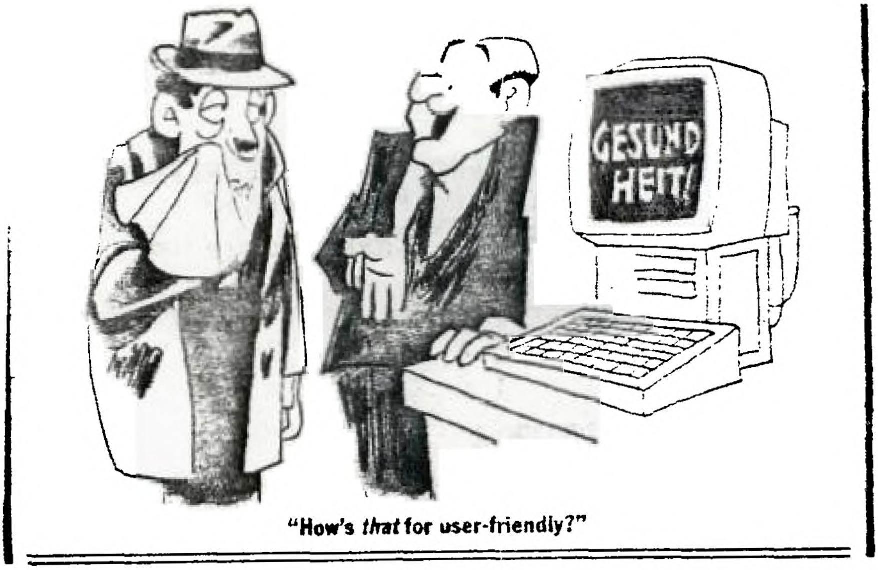
** WARNING **

This is only an example and you run the risk o damaging the data on your diskette if you run this program.

****

```
* START OF EXAMPLE USING SUBROUTINES *
**************************************

MYREG  BSS  32          WORKSPACE
* Warning! Don’t Run this example, you
* may damage the data on DSK1.
START  LWPI MYREG       Load WORKSPACE
       LI   R0,25
       MOV  R0,@SECTOR  SET UP TO READ SECTOR 25 ON DSK1
       LI   R3,BUFFER    GET ADDRESS OF CPU BUFFER
       BL   @RSECT      READ THE SECTOR INTO
* Now Sector 25 is in the CPU Buffer
       INC  @SECTOR     GO TO NEXT SECTOR
       BL   @WRSECT     WRITE CPU Buffer to Sector 26

LOOP   LIMI 0
       LIMI 2
       JMP  LOOP         WAIT FOR QUIT KEY

**************************************
* SINGLE SECTOR DISK I/O SUBROUTINES *
**************************************
* Written by Todd Kaplan
* 2/11/85
*

       REF DSRLNK,VMBW,VMBR,VSBW
       REF  KSCAN

BUFFER BSS  256         SECTOR BUFFER
KKEY   EQU  >8375
STATUS EQU  >837C       GPL STATUS BYTE
PABADD EQU  >8356       VDP ADDRESS FOR DUMMY PAB
BUFADD EQU  >834E       INPUT BUFFER ADDRESS
SECTOR EQU  >8350       # OF THE SECTOR TO ACCESS
DRVFLG EQU  >834C       MSB=DRIVE #; LSB=FLAG: >01=READ
*                       >00=WRITE
K0     DATA 0
K2     DATA 2
K10    DATA 10
DUMPAB DATA >0470       VDP PAB ADDRESS
KD1RD  DATA >0101       DRIVE 1 & READ FLAG
KD1WR  DATA >0100       DRIVE 1 & WRITE FLAG
DUMDAT DATA >0110       CONSTANT FOR SECAC  (DUMMY DATA)
DUMBUF DATA >1000       VDP BUFFER ADDRESS

***************
* READ SECTOR SUB-ROUTINE
* FROM DRIVE #1
* BUFFER IS THE CPU BUFFER USED TO READ TO
* INPUT:
*
* @SECTOR = SECTOR NUMBER OF SECTOR TO READ FROM
*      R3 = ADDRESS OF INPUT BUFFER
* BL @RSECT
*
* Output: The Buffer pointed to by R3 is filled with the
* data from the sector pointed to by @SECTOR.
RSECT

* SET UP DUMMY PAB
       LI   R0,DUMPAB         ADDRESS OF DUMMY PAB
       LI   R1,DUMDAT         DATA FOR DUMMY PAB
       LI   R2,2              2 BYTES TO WRITE
       BLWP @VMBW

       MOV  @KD1RD,@DRVFLG    DRIVE #1, READ
       MOV  @DUMBUF,@BUFADD   BUFFER IN VDP AT >1000
       MOV  @DUMPAB,@PABADD   ADDRESS OF PAB
       BLWP @DSRLNK
       DATA 10
       MOV  @BUFADD,R0        ADDRESS OF VPD BUFFFER
       MOV  R3,R1             CPU BUFFER ADDRESS
       LI   R2,256            256 BYTES LONG
       BLWP @VMBR
       RT
* END OF RSECT - DATA IS IN BUFFER


********** WRITE SECTOR
* WRSECT * SUBROUTINE FOR DRIVE 1
**********
* INPUT:
* R3     = CPU BUFFER
* @SECTOR = SECTOR TO WRITE TO
*
* BL  @WRSECT
*
* OUTPUT: The in a buffer in CPU RAM, pointed to by R3
* is written to the Sector pointed to by @SECTOR

WRSECT

* SET UP DUMMY PAB
       LI   R0,DUMPAB    ADDRESS OF DUMMY PAB
       LI   R1,DUMDAT    DATA FOR DUMMY PAB
       LI   R2,2         2 BYTES TO WRITE
       BLWP @VMBW
```

```
* WRITE CPU BUFFER TO PAB
       MOV   @DUMBUF,RO        ADDRESS OF VPD BUFFFER
       MOV   R3,R1             CPU BUFFER ADDRESS
       LI    R2,256            256 BYTES LONG
       BLWP  @VMBW             WRITE TO BUFFER

       MOV   @KD1WR,@DRVFLG     DRIVE #1, WRITE
       MOV   @DUMBUF,@BUFADD    BUFFER IN VDP
       MOV   @DUMPAB,@PABADD    ADDRESS OF PAB
       BLWP  @DSRLNK
       DATA  10
       RT
* END OF WRSECT - DATA IS IN BUFFER
       END
```



"How's *that* for user-friendly?"

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Printer Code Table

Most of the data came from CLEVLAND AREA 99-4 USERS GROUPS NEWSLETTER JAN. 87 which reprinted the article from BRAZOS VALLEY 99'ERS. I have added the OLIVETTI and PROWRITER codes from what information I have in the library. If there are omissions or errors, I would like to be notified. JOHN UELAND

	Gemini		Epson	Epson	Panasonc
COMMAND	10x	sg-10	mx-80	fx-80	KX-p1091
Column width	--	--	27 81 n	--	--
Condensed	27 15	27 15	27 15	27 15	27 15
Double strike	27 71	27 71	27 71	27 71	27 71
Elite	27 66 2	27 66 2	--	27 77	27 77
Emphasized	27 69	27 69	--	27 69	27 69
Expanded	27 87	27 87	27 14	27 87	27 87
Italics	27 52	27 52	--	27 52	27 52
Line sp 1/6	27 50	27 50	27 50	27 50	27 50
sp 1/8	27 48	27 48	27 48	27 48	27 48
sp n/12	--	--	--	--	--
sp 7/72	27 49	27 49	27 49	27 49	27 49
sp n/72	27 65 n	27 65 n	27 65	27 65 n	--
sp n/144	27 51 n	27 51 n	--	--	--
sp n/216	--	--	--	27 51 n	--
N L Q	--	27 66 4	--	27 120 1	27 110
Margin bottom	27 78 n	27 78 n	27 78 n	27 78 n	--
left	27 77 n	27 77 n	--	27 108 n	--
right	27 81 n	27 81 n	--	27 81 n	--
top	27 82 n	27 82 n	--	--	--
Page len IN	27 67 0 n	27 67 0 n	--	27 67 0 n	--
Page len lines	27 67 n	27 67 n	27 67 n	27 67 n	--
Paper out OFF	27 56	27 56	27 56	27 56	27 56
Pica	27 66 1	27 66 1	--	--	27 80
Proportional	--	27 112	--	27 112	27 111
Reset printer	27 64	27 64	--	27 64	--
Skip lines rel	--	--	--	--	--
Subscript	27 83 1	27 83 1	--	27 83 1	27 83 1
Superscript	27 83 0	27 83 0	--	27 83 0	27 83 0
Underline 1	27 45 1	27 45 1	--	27 45 1	27 45 1
Zero slashed	--	27 92 1	--	--	--

COMMAND	Olivetti	Prowriter	Okidata
Column width	27 80		--
	nnn:..mmm		
	27 90		
Condensed	27 20	15	29
off	pica/eli	18	
Double strike	--	27 71	27 72
off	--	27 72	
Elite	27 19	27 77	28
Emphasized	--	27 69	27 84
off	--	27 70	
Expanded	27 14	27 87 1	31
off	27 52	27 87 0	
heigh	27 29	--	
off	27 37	--	
Italic	--	27 52	--
off	--	27 53	
Line sp 1/6	27 69	27 50	27 54
sp 1/8	27 70	27 48	27 56
sp n/12	27 26 n	--	--
sp 7/72	--	27 49	--
sp n/72	--	--	--
sp n/144	--	--	27 37 57 N
sp n/216	--	--	--
N L Q	--	27 120 1	27 49
Margin bot	27 79	--	--
	nnn:..mmm	--	--
	27 90	--	--
Margin left	27 80	--	--
	nnn:m ..mmm		--
	27 90		--
Margin top	SEE BOTT	--	--
Page len IN	--	--	--
Page len lines	--	--	--
Paper out off	--	--	--
Pica	27 61	27 80	30
Proportional	--	27 112 1	--
off	--	27 112 0	
Reset printer	--	--	24
Skip lines rel	27 73 nnn	--	--
Subscript	--	27 83 1	27 83 1 27 76
Superscript	--	27 83 0	27 83 0 27 74
both off	--	27 84	
Underline 1	27 32 49	27 45 1	27 45 1 27 57
Underline 2	27 32 50	--	
Undeln dashed	27 32 51	--	
Underline off	27 43	27 45	
Zero slashed	SWITCH SEL	--	--

NOTE:

The numbers nnn:..mmm represent a series of 3 digit numbers separated by colons. These numbers represent tab settings horizontal or vertical.

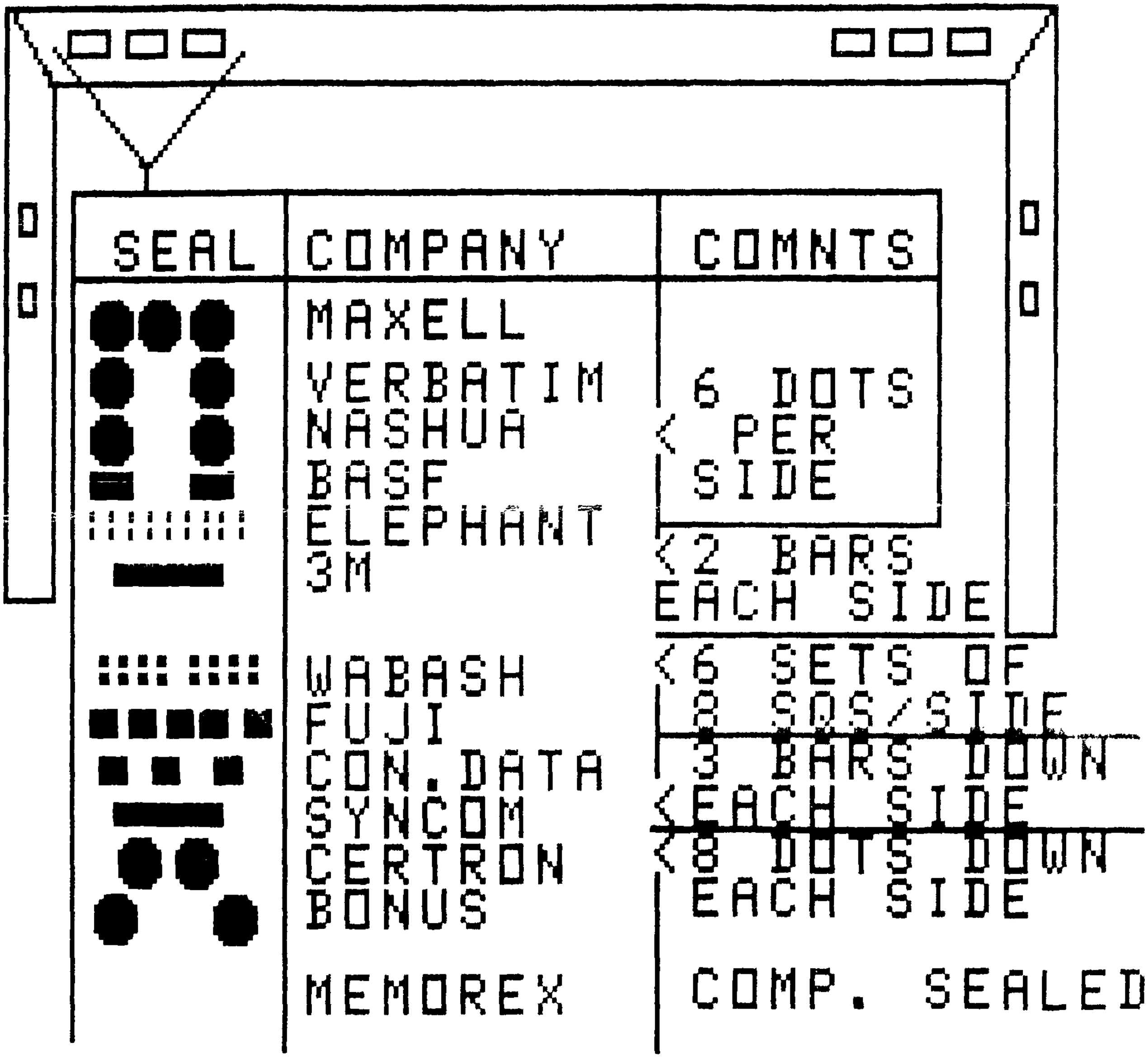
The small n identifies a variable number usually 0 to 9. Remember that on some printers this may be ASCII characters where 1 = 49 , 2 = 50 etc. Sometimes you can use "1", "2" etc. to do the same from BASIC, where double quote marks identify ASCII strings. This is true for the OLIVETTI printer, I cannot speak for the others, but try it if plain numbers do not work. If you are in the market for a printer, this makes a good feature comparison of printers. The original article did not add graphics commands which most of these printers have.

TELLING YOUR DISK TYPE

Modified by Chuck Wynne

Thanks to the NOVA UG of Vancouver Washington, this chart shows various formats of diskettes. Generic diskettes are made my many different manufacturers. You may find this interesting. The chart was done with Joy Paint!

(Chart on next page)



SEAL	COMPANY	COMNTS
● ● ●	MAXELL	
● ●	VERBATIM	6 DOTS
● ●	NASHUA	< PER
▬ ▬	BASF	SIDE
¦¦¦¦¦¦¦¦¦¦	ELEPHANT	<2 BARS
▬	3M	EACH SIDE
▪▪▪▪ ▪▪▪▪	WABASH	<6 SETS OF
■ ■ ■ ■ ■	FUJI	2 SQS/SIDE
■ ■ ■	CON.DATA	3 BARS DOWN
▬	SYNCOM	<EACH SIDE
● ●	CERTRON	<8 DOTS DOWN
● ●	BONUS	EACH SIDE
	MEMOREX	COMP. SEALED