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Vol. 6 No. 3

MARCH 1988

This newsletter is published jointly by OH-MI-TI and New Horizons TI-99/4A Home Computer Users' Groups. Material may be reproduced without permission provided the author and source are acknowledged. For more information concerning TI Users' Groups in the Northwest Ohio area, contact:
also THE MYARC GENEVE 9640

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////////////////////////////////////
(419) 385-7484
TICOMM BBS
>>> 24-HRS <<<
SYSOPS

Don Turner
President, New Horizons
1690 Idlewood Street
Toledo, OH 43615
(419) 537-1454

Meeting: 11 Mar '88 Fri
Oregon #2 Fire Station
Time 7:00 Pm.

> TURNER - MILLS <
////////////////////////////////////

Meeting: 12 Mar '88 Sat
Unity Church - Secor Road
New time: 12:00 Pm.

THE NEWSLETTER STAFF

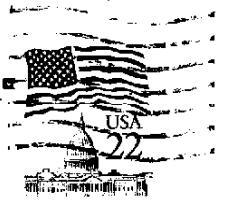
Roger & Judy Feinauer Earl Hoffsis

LOCAL CONTRIBUTIONS BY:

Jo Symington Bill Sager

Don't forget to pay your dues

SEE YOU AT THE
MEETING ON
MARCH
11TH
OR
12TH



Bill Sager
612 Meadow Springs.
Maumee, Ohio. 43537
Phone 1-419-893-7962

Dallas TI Home Computer Gp
c/o Louis Guion
PO Box 29863
Dallas, TX 75299

THE PRESIDENTS PAGE

PRESIDENT'S CORNER
OH-MI-TI
By Bob Peters

NEW HORIZON NEWS
By Don Turner

Bob's article not available
at time of printing of news-
letter sorry.

EDITOR

by Roger Feinauer

Last months meeting wasn't the greatest for me as my demo on Font Writer II bombed. As I reflect on everything that happened that day. I thought I had all my ducks in a row except one. That is I didn't have a backup copy with me. From this I learned a bitter lesson disks can, and, once and while fail. This is the second time since 1983 this has happened not a bad record, but still it can happen.

Because of this I am going to offer to anyone interested a chance to borrow my copy of Font writer to try out on there computer for a week. Please this is not ment as a means for someone to pirate software but a chance for someone to see this great piece of software at work.

Which brings me to some thoughts does anyone have any material that explains the transliterate comands in Ti-Writer. As i'm at it does anyone have any short routines using the TL comands that would be useful to the other members of the clubs. These are some of the most powerful features of Ti-Writer, but most don't ever use them. If you do send me a copy as I would I would like to put them in the newsletter.

Greetings to all the members of NEW HORIZONS. I would like to start March off with all of the members at this months meeting. Be sure to attend or you could miss something that would benifit you. There will be prizes and some intresting ideas at this meeting. We will be meeting at UNITY CHURCH on Executive Pkwy at 12:30 on March 12th.

MICROPENDIUM is available each month at the club sales desk. These are in limited quantities so be sure to get yours while they last. MICROPENDIUM has some of latest news and software concerning the TI-99/4A and the GENEVE 9640. Also it has reviews on software/hardware and such such are. This month will have some of the most exciting demos so far this year! Paul Martin is going to demo the SUPER-CART and some SUPER-CART software. The SUPER-CART is a modified command module that has an 8K memory chip installed wich makes it quite versatile allowing the user to load data into it and running it just like a normal command module. There is much more but I'll let Paul explain at the demo. Dave Romer is going to demo the software from John Johnson named REHIND ME. From what Dave tells me this is a really great piece of software. If you are using or have seen John's MENU software I am sure this is going to be just as good or better!!

continued on next page

HORIZON COMPUTER LIMITED has been purchased by BUD MILLS SERVICES. The bare Horizon Card may still be purchased as before, but your orders should be sent to:

BUD MILLS SERVICES 166
 Dartmouth Drive Toledo Ohio
 43614

ANNOUNCING THE HRD+ RAMDISK

This Ramdisk is constructed on the HORIZON Ramdisk Board using the Hitachi 62256LP12 (32K) CMOS Memory chips (or the equivalent NEC 43256LP12).

The Card is available NOW in several memory sizes- ONE+MEG, 800K (GENEVE), 512K, 384K (DSDD), 192K (DSSD), and 96K (SSSD). See attached Order Form for Prices.

The Operating System (Thanks to John Johnson and Mike Ballman of the Miami Users Group) allows the Ramdisk to be divided into TEN logical drives or less. Only two DSK_(numbers) are used, the remaining drives will respond to DSK(name). The Menu program (Ver. 7.3) allows for 9 calls plus fifteen menu selections that you can edit on screen to customize the way you want it to appear - no more sector editing. XB programs can now be loaded from a call.

The HRD+ Kits include: The HORIZONS RAMDISK BOARD Assembly instructions Op System and MENU Software User Documentation and ALL required parts.

Note: This Menu Ver. 7.3 works on ANY Horizon Ramdisk and allows BOOTING the Geneve.

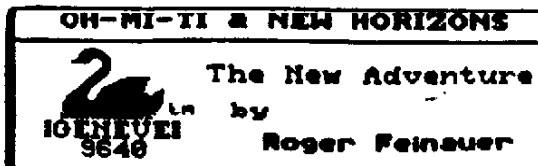
A special note to GENEVE users. Any HRD+ Ramdisk IS compatible with Your GENEVE...BUT the GENEVE will only allow the use of up to 1140 sectors (260k) without patching your SYS file. At the present time you can use any HORIZON Ramdisk to BOOT your SYSTEM files. We have a SYS patch available to allow you to format and use a 384-800k HRD+RAMDISK

as an 80 track Disk with your GENEVE. There is also a PHEONIX mod that ADDS a 90, 180, or 256k BOOT drive on top of any 384 to 800k Ramdisk on the same card and same CRU. This is only for the GENEVE.

Mike Ballman of The Miami Users Group has successfully added 2 of the 62256lp12 memory chips to the CONSOLE 16 bit BUSS resulting in a 45 to 50% increase in speed. CAUTION ... This modification may not be compatible for some programs (like FAST-COPY). Game speed will be a real CHALLENGE. Ideal uses are for BBS or Multiplan recalcs. Two 32k chips are required, but only 32k is used. Mike is working on software that may allow use of the other idle 32k if possible. This kit requires piggyback soldering in YOUR CONSOLE!!! Instructions are provided. BLACK SILVER CONSOLES ONLY !!!

For those of you who have never written an article but would like to try the following is a standard set up for the news letter.

```
.TL 35:14,27,69
.LM 0;RM 31;IN +0;NF:NA
# TITLE GOES HERE
.TL 35:27,72,27,65,11
.CE
    by Arthur Author
.TL 35:35
.IN +3;FI;AD
```



Things are starting to get exciting for the people who bought their Geneve early because it looks like everything is coming together. Looks like April 1st. Myarc will release Advance Basic v.3 and Pascal. From what I heard they didn't want to give use a half finished progression of Basic or Pascal Versions like they did with Dos. The Advance Basic is finished and is being Beta tested, Pascal as of three weeks ago only had one bug left.

It looks like It won't be long before the new disk controller is the next logical step. because without the power of the hard disk drive we won't see much of the more powerful software talked about."such as a multi-task system. An after this they will need the 1.5mg. ram card because without the memory you can't have true multi-tasking on the computer.

Well so much what will be and lets look at what is. right now I am using Myword to write this article. This version 1.1 has some interesting features. such as View file this enables the writer to view orther files while another is in memory. Or how about formatte articles thru the formatter to the screen. this enables a person to see his work before it is sent to the printer.

Don Jones of Chicago Area TI 99/4A UB. tells me their BBS. Has A Ros for the Horizon Ram Disk that will load from Mdos. their bullitin board number is 1-312-966-2342. It runs at 300,1200,2400 bd. Also it will cost you \$1 to use their down load section. This dollar is a

one time fee. One last thing mdos 1,01 will allow you pause from the type command use the following command >A:type Filename/M roger

Member of the Month

by Jo Symington
NEW HORIZONS
Earl Hoffsis

After 30 years of service to Shiller-Globe, Earl will be retiring Feb.1,1988. Earl began as a draftsman at Auto Stamping, and was Chief Engineer at Globe Wernicke and Engineering Co-ordinator at Delta Products Co. Earl has been in the engineering department since May 1962. During that time, Earl developed and has recieved patents on Marine sealing and Locking hanging file frame.

Earl plans to keep busy being Treasurer of Unity Church, New Horizons Club. Earl has been treasurer of New Horizons for the past 3 years and a member since Jan. 1983. Earl teaches Astrology at Unity Church for beginners to advanced. These classes are open to the public.

Congratulations Earl we value your friendship and loyalty to our club.

Trigonometry -Computer Applications- by Bill Harms

Why know "trig?" Well, among the reasons is -- so you can program the computer to do a true circle. There are some great programs for the TI-99/4A that only require a joystick to do it. Software like TI's Logo-II allows EASY programming to do a circle, but you can't print it. It will even teach you some important things about trig.

But what if you have Triton's Super Extended Basic Module (sxb) with it's Draw N'Plot or some other program that allows "bit map graphics?" Programs like TI-Artist don't usually allow creation of a true circle on some printouts(screen dumps) or allow an Oval on the screen.

Bit Map Graphics is just being able to put points at each of the 256 locations across the screen and the 192 points down the screen. To do a circle some programs like Tritons' sxb or Mechatronics' Extended Basic II plus allow you to create a circle by just entering the program statement "CALL LINK("CIRCLE",X,Y,R)", where X and Y are the Center Point coordinates and R is the Radius. Easy right! Problem is: you might not get a true circle, especially on the printout.

How to solve this problem, "challenge?" And what if you want an Oval of precise dimensions or a Star or a Fan or an Hexagon? Geometrics on our computer (screen and printout) can be easy -- read on.

I searched high and low for programs, manuals, articles, books that allowed a programmer or user to create these neat shapes. Roger Merritt said it was easy, but then he said the word "sine", then the word "cosine" and told me about a tricky little math. routine with triangulation. Well that was too much. Soon after that I was given a book that had the solution, almost. Steve Davis Publishing's book "Programs for the TI Home Computer" of 1983 has 2 programs by the also famous John Clulow and Bernie Elsner. The 9 short lines of program code (840-920) on page 82 were the break-through needed. With a few program statement additions it almost worked while using the Triton sxb module.

Here again, sine, cosine and pi were used, but what did they do? So I bought a little paperback called "TRIGONOMETRY for the Practical Worker" by J.E.Thompson in 1982. Wow, by the time I got to page 43, I had a decent understanding of basic trig., and even how points on the circumference of a circle are derived. Another source of knowledge was rediscovered in the Home Computer magazine, issue 5.4 in 1985. A neat article and program called Trig-Trix by Roger Wood shed some light on the subject. The TI/Microsoft Multiplan program even allows you to get the sine, cosine of an angle and pi very easily. The TI manuals were no help at all.

Well, back to BASIC. It took some trial and error and an IBM'er friends' example. We just tried several ways of doing the basic math on the variables and got the PERFECT solution to do a circle and much more! Please buy Tritons' Super Extended Basic or Mechatronics' Extended Basic II plus or some other similar bit-map using prog., put it in the graphics mode and try the following routine.

This program uses Triton's sxb module and it's commands.

```

100 CALL INIT :: CALL DRAWNPLOT :: CALL LINK("GCLEAR")
120 INPUT "X point for Center ":XX ! try 200
130 INPUT "Y point for Center ":YY ! try 100
140 INPUT "          Radius ":R ! try 50
150 INPUT "          Ovalizer ":O ! try 1.00
160 INPUT " Stepper (angle) ":S ! try .24
175 RADIANS=0 ! next we move to start point on circumference
180 CALL LINK("MOVE",XX+R*COS(RADIANS),YY-R*O*SIN(RADIANS))
190 FOR RADIANS=0 TO 2*PI STEP S ! this=full 360 degrees.
200 X=XX+R*COS(RADIANS)
210 Y=YY-R*O*SIN(RADIANS)
220 CALL LINK("DRAW",X,Y,R)
230 NEXT RADIANS
250 CALL LINK("SHOW")

```

Now you have a nice little circle on the screen. For a true circle with the expanded screen dump, use an Ovalizer of 1.18. With a few changes you can do lots more.

But first, what are: PI, RADIANS, SIN, COS? Who cares? It works. PI is a # (3.1416 approx. on the TI), which when multiplied by the radius * 2 = circumference. Did you know that 2 pi's make a whole (circle). It takes about 6.28 RADIANS to make a circle, which is now = to 360 degrees. A long time ago, no one used degrees, but the Babylonians calculated a full year at 360 days or units, which was a nice unit for a full circle (of the earth about the sun). Minutes and Seconds (60ths) came later. In Latin the word is "gradus" for a degree. To convert degrees to radians just multiply by PI and divide by 180.

SIN and COS. What is SIN (sine)? The sine of an angle in a right triangle is simply: the ratio of the side opposite the angle length - to the hypotenuse length. It comes from the Latin word "sinus", or breast because it represents the portion of a circle/arc that extends beyond a straight line drawn from 2 points on a circles' circumference. The COS (cosine) of a right triangle is the ratio of the adjacent side length to the hypotenuse. Since you know a right triangle has one 90 degree angle, and all the angles = 180 degrees, you can calc. all the other measures of the triangle.

For a circle we tell the computer the radius, which it uses as a hypotenuse and sequentially tell it the angle from 0 to 360 degrees (in terms of radians). The side lengths of the sequentially created triangles give us the units (vert./horiz.) for each point on the circumference of the circle to use for the X and Y plot. A more through discussion of the technique would be nice, but this article is already too long. Besides you need a pencil and paper or a computer graphics program to really "see" how it works.

Try changing the above program to do a star. Try it with the FOR/NEXT loop using a variable that is assigned different values.

An even easier way to study trig. on the computer and do a true circle, arc, oval, fan, hex., oct., star, etc. is to get a copy of CLASS @ from me. I wrote this program to exercise the Triton Super Extended Basic modules' new drawing commands. Just send \$10.00 to Bill Harms, 6527 Hayes Ct, Chino, CA 91710 for the floppy.

-- E X P L O R E -- in Harms' Way

A REVIEW BY JAY S. LEBER

110 was my fault

I waited until now to write anything about Font Writer, by J. Peter Hoddie, because an updated version was promised. Well I finally received the update, Font Writer II, and now I intend to spew forth some thoughts about it using, you guessed it, Font Writer II.

First of all lets talk about buying the program. It is distributed by Asgard Software, P.O. Box 10306, Rockville, MD 20850. The program sold for 24.95 when I originally bought it way back in November of 1986, then I paid another 6 for the update in April of 87. A paper in my package says that a "data" disk is available separately, though the manual implies that it is included, for another 3. This comes to 33.95 total. It uses pictures, images, and character sets from GRAPHX, II Artist, and or CSGD. This means that if you dont have at least one of these programs you wont be able to do much with it.

I also want to make mention, in my opinion, of the very bad shipping policy of Asgard. They announced the update on CompuServe FIVE MONTHS before I actually received it! This is not good business practice in my opinion. Chris Bobbitt of Asgard told me that the author promised it to him and he announced it, but then it was never really finished. Asgard is able to be reached by phone and they did send me a card a month before I received the program, but I still feel angered over this. I have ordered other products from Asgard and they have not been as bad, but I always have to allow them 2 months, even for programs that they DO have in stock, such as Pre-Scan-It!, which I am still waiting for. Chris, GET ON THE BALL! WE DO NOT LIKE TO WAIT THIS LONG!?

Now to a description. Font Writer lets you use II Writer, included, or any other DUMB text editor to write a file which can be printed with different fonts and graphics than a normal text editor can use. It can mix CSGD fonts, II Artist fonts, CSGD pictures, II Artist pictures, GRAPHX pictures, II Artist instances, and your printers own fonts in many new ways previously unavailable. You can also use the program to create or edit your own fonts and images. It also converts from CSGD graphics to II Artist instances and vice versa. You can even convert from CSGD pictures to II Artist instances and vice versa. As if this is not enough, the program has a version of the II Writer Editor and Formatter, a disk manager, and even a banner program. Altogether this is a very complex collection whose abilities I will only touch on. Required are II XB and a full including a dot matrix printer. I dont know about compatibilities. Helpful are a print spooler OR BUFFER, 2 OR MORE DISK DRIVES AND ESPECIALLY A RAMDISK. The program can run from any drive as it uses the disk name to find it. It will run on the Geneve using II XB but will not run in Myarc XB II due to some incompatibilities.

DO NOT
OWN WHY
DROTHS
HERE WAS
TO THE
BY JIMMY

I will now discuss the Formatter part of the program, as this is what I have used and it is its most powerful feature. To create a printout such as you are reading one loads the IIW Editor and writes a file. Anyone who has used II Writer and printed with the Text Formatter will appreciate this program. In addition to many of the dot commands that are recognized by II Writers Text Formatter such as @program gives a host of new dot commands. You will lose a few, however, such as the HE, FO, and TL. If you use the new commands, some of which are very nice, you cannot print the document with II Writers Formatter. Instead you would use Font Writers Formatter. It gives you commands to load fonts, set the character spacing, compress and or double width them. You can only change fonts starting on a new line. Ill do it right now.

It would be nice if this could be done anywhere in a line, but alas. You can use the regular text of your printer. If you do this you can change fonts anywhere using Control U, the special character mode of II Writer. The docs for Font Writer give a very good description of this. If you go to text mode the program will ignore your margins, so this may defer you. The transliteration command does not work however. Interestingly enough, you can use the ampersand and \$ signs normally. That is, if the font supports them, and this one didnt support

Ⓢ my mistake - should read:

.LM, .RM, .AD, .FI, .BP, .LS, etc, PTEX NEWSLETTER PG 6

the ampersand. I don't find that out until the program doesn't crash. By normally, I mean that they print as they would on a regular typewriter and do not underline or overstrike as in TI Writer. What does bother me is that TI Artist and CSGD fonts do not support some punctuation that are important such as question marks, apostrophes, and parenthesis. Many also do not support lower case and numbers. Keep this in mind because every time you write, hell, you're etc. it will not print the apostrophe. People will think you are illiterate. I will now change fonts again.

You can also mix your printout with pictures and graphics. By the way the term those and instance mean the same thing to this program. I will now load an instance and have it printed in a row across the page.



Did you notice that it printed to the right of the margins. I do not know why! The interesting thing here is that I originally drew that instance as a picture with Joy Point 99, then I converted it to TI Artist picture format. Then I used TI Artist to convert it to an instance, then I used it here. I also used Font Writer to convert the instance to a CSGD graphic so that I can use CSGD and print it on labels and letterheads. It is very nice to be able to do this, but it does take time and patience. After printing this I decided I don't like this font, time to change again.

I will end my review and give you my comments at this point, since it will take me about half an hour to print this file using this program. I find that Font Writer II is very well written and user friendly. It can be useful and effective for writing files where text, fonts, and graphics need to be mixed. Unfortunately, you are never sure what the end printout will look like until it is done. I would love to be able to see the printout on screen, but I have always been a dreamer.

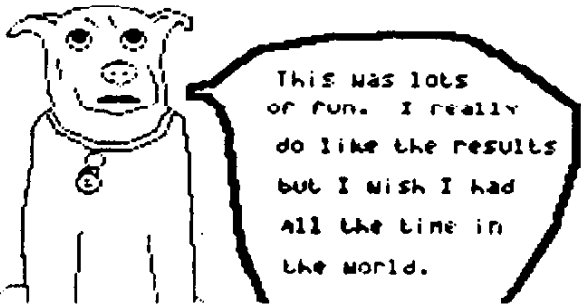
What I don't like is that it is very easy to make errors that you wouldn't find until printout time. And the program takes so long to print that reprints become a real pain. My 100 cps Panasonic KX-1150 takes approx 15 minutes to print a page of text such as this one. I use a Myarc 512K Ramdisk so I would assume that disk drives would be even worse. I would not recommend this to someone who is not patient and only to someone who has hours of time to experiment.

Also, and this is important, there are bugs in the program and errors in the manual that can really piss you off. I have had the program crash about 10 times in the 2 days I've been using it. I have not been able to figure out why. There are times when it can crash while printing, then print correctly the next time with no changes made. I have had the screen lock up a few times and saw no problem in the text file. BY THE WAY, THE FIRST TIME I PRINTED THIS IT LOCKED UP AT THE WORD "SAW" IN THE PREVIOUS LINE. I DO NOT KNOW WHY AND I DO NOT KNOW IF IT WILL WORK CORRECTLY WHEN I GO TO PRINT IT NOW! Sometimes by placing lines in different order it works, but it should make no difference. Also, the LM and RM do not work as one would expect and are very temperamental. The same goes for the Indent command which I no longer use. Notice that this text is indented one character. I do not know why! No command was given for this. My feelings are that more testing should have been done and that this program may have still been released prematurely. I give it the following letter grades.

Performance	E
Ease of Use	C
Value	B
Speed	C
Documentation	A-
Shipping Policy	D
Programming	A
Final Grade	B-C

← I DO NOT UNDERSTAND WHY IT DID THIS EITHER

This was my mistake. The formatter wanted to put sparks on the next page but I tried to fit it.



120 END

QUAD COLUMN REVISITED...

By: Mike Dodd - reprinted from LA Topics

Editor: In a previous issue of 99'er News I reprinted an article on how to print a 4 column page. Mike Dodd has improved the original program by adding assembly language support.

Tom Freeman's QUADCOL program, published in the May 1986 LA Topics, is an excellent program for converting text to multiple columns. It had only one drawback: it was slow. Now, with the following assembly language subprogram, QUADCOL will read a two-column page off of a disk in mere seconds. First, you'll need to type in the assembly language program with the Editor/Assembler. Assemble it with the R option with the object file named QUADCOL/O. Now go into Extended Basic, and load QUADCOL. Type the following changes:

```

90 CALL PEEK(8194,I,Y):: IF I>256+Y<>10472 THEN CALL INIT
T :: CALL LOAD("DSK1.QUADCOL/O")
230 CALL LINK("COL",I,AS(),Y,C(),I1,I2,I3,CL,COL(),COLUMN
N,EOFFL):: IF EOFFL THEN JS0
240 ! ++DELETED LINE++
250 ! ++DELETED LINE++
260 ! ++DELETED LINE++
270 ! ++DELETED LINE++
280 ! ++DELETED LINE++
290 ! ++DELETED LINE++
300 ! ++DELETED LINE++
310 ! ++DELETED LINE++
320 ! ++DELETED LINE++
JS0 AS(I),AS(I+1),AS(I+2),AS(I+3)** :: EI=0 :: FOR Z=1
TO I :: EI=EI+C(Z):: IF Z-EI=INT((Y+COLUMN-1)/COLUMN)THE
N I1=Z :: IF COL(3)=0 THEN JS0

```

For lines that read ! ++DELETED LINE++, type the line number and press ENTER. Now re-save QUADCOL to disk. Line 90 will load the object file called QUADCOL/O off drive 1 if it is not loaded. It is possible (although VERY unlikely) that it may think it is loaded when it is not yet. If this happens, merely break with FCTN 4 and type CALL INIT :: RUN <ENTER>

The directions for using QUADCOL are the same.

I have also found a way to make running QUADCOL a little easier. Instead of counting the number of lines for the PL command, include a .PLJ2000 command at the start of your document. Then type .PLI at the end of the document. The formatter will then suppress ALL form feeds, and will immediately stop at the end.

Thanks to Craig Miller and Doug Warren of MS for the use of their SPLLNK and DSRLNK subroutines, without which this program would have been impossible to write.

* QUADCOL assembly subprogram
* written by Mike Dodd, 87.8315

```

TITL 'QUADCOL update - by Mike Dodd'
IDT 'QUADCOL'
DEF COL

```

```

* EQU
* IB
NUMASS EQU >2000      numeric assignment
NUMREF EQU >200C     numeric reference
STRASS EQU >2010     string assignment
IMLLNK EQU >2018     IXL link
VSDR EQU >2020      VDP single byte write

```

```

VDRM EQU >2024      VDP multiple byte write
VSDR EQU >2028      VDP single byte read
VDRR EQU >202C      VDP multiple byte read
ERR EQU >2034      XBasic ERROR routine
* systne
FAC EQU >834A

```

```

* DATA
* constant
D1 DATA >0001
* variable
I DATA #
Y DATA #
I1 DATA #
I2 DATA #
I3 DATA #
CL DATA #
COLUMN DATA #
EDF DATA #
DSRADD DATA >0000
VDRBUF DATA >0000

```

```

* BYTE
H01 BYTE >01
H0A BYTE >0A
EVEN

```

```

* buffers
MYNS BSS >20
STRLEN BYTE >00
STRBUF BSS >FF
EVEN

```

```

* Get number
* access with:
* DL #GETN reads from
* DATA parameter# non-array
* -OR-
* DL #GETNUM
* R1=parameter# - reads from non-array
* -OR-
* DL #GETNRI
* R0=array element number
* R1=parameter number
*
* OUT: FAC=integer number
GETN NOV #R11+,R1
GETNUM CLR R0
GETNRI DLMP ENUMREF
LMP1 >03E8
DL >1200
LMP1 MYNS
RT
* write number
* access with
* DL #WRTN writes to non-array
* DATA address of number
* DATA parameter number
* -OR-
* DL #WRTNUM
* R1=parameter number
* FAC=integer number
* -OR-

```

QUAD COLUMN (cont.)...

```

* BL @WRTNMI
+ RB=array element number
+ R1=parameter number
+ FAC=integer number
WRTN MOV +R1+,RB
MOV +RB,@FAC
MOV +R1+,R1
WRTNUM CLR RB
WRTNMI BLWP @IMLLNK
DATA >2B
BLWP @NUMASS
RT

+ DSRLNK - by MG
+ requires GPLLNK
+ 186 bytes, including DSRLNK & GPLLNK
DSRLNK DATA DSRMS,DLINK1
DSRMS EQU $
DLINK1 MOV R12,R12
JNE DLINK3
LWPI >83E8
MOV @>58,R4
BL +R4
LI R4,>11
MOV B R4,@>402(R13)
JMP DLINK2
DATA 8
DATA 0,0,0
DLINK2 MOV B @>83E7,@>402(R13)
MOV @>166C,R5
MOV B +R13,@DLINK4
INCT @DLINK4
BL +R5
LWPI DSRMS
LI R12,>2800
DLINK3 INC R14
MOV B +R14+,@>836D
MOV @>8356,R3
AI R3,-8
BLWP @GPLLNK
DLINK4 BYTE >03
DLINK5 BYTE >00
MOV B @DSRMS+7,@>8C82
MOV B R3,@>8C82
SZCB R12,R15
MOV B @>8800,R3
SRL R3,5
MOV B R3,+R13
JNE DLINK6
COC @>837C,R12
JNE DLINK7
DLINK6 SOCB R12,R15
DLINK7 RTWP

+ GPLLNK - by MG
+ 78 bytes
GPLLNK DATA GLNKMS
DATA GLINK1
DATA GLINK2
DATA >176C
DATA >58
GLNKMS EQU $->18
BSS 8
GLINK1 MOV +R11,@>83E8
MOV +R14+,@>83EC
MOV @>280E,R12
MOV R9,@>280E
LWPI >83E8
BL +R4
MOV @GLNKMS+28,@>8382(R4)

```

```

INCT @>8373
B @>68
GLINK2 MOV @>166C,R4
BL +R4
LWPI GLNKMS
MOV R12,@>280E
RTWP

+ DSR access subroutine
DSR MOV @DSRADD,@>8356 set address of PAB
BLWP @DSRLNK access DSR
DATA 8 code for normal file I/O
JEB DSR1 if error then DSR1
RT return
DSR1 MOV @DSRADD,R8 get address of length byte
AI R8,-8 point to error byte
BLWP @VSR get it
SRL R1,13 shift out other flags
CI R1,5 is it an I/O error?
JNE IOERR no-give an error
MOV @01,@EOF indicate EOF
B @RET return to Basic
IOERR DEC R8 point to start of PAB
MOV R8,@>831C set PAB pointer
LI R8,>2400 I/O error
BLWP @ERR give the error
IOERR1 LI R8,>2280 file error
BLWP @ERR give the error

```

* START OF MAIN PROGRAM

* format:

* CALL LINK("COL",X,AS(),Y,C(),I1,I2,I3,CL,COL(),COLUMN,
* EDFFL6)

```

COL LWPI MYMS load main workspace
+ find file number 1
MOV @>833C,R5 get address of first PAB
MOV R5,R8 get address in R8
COL1 JEB IOERR1 if 0, then give FILE ERROR
INCT R8 point to file number
BLWP @VSR get it
CB @R01,R1 is it file #1?
JEB COL2 YES!
DECT R8 back up to next link
BLWP @VSR get first byte in MSBy R1
MOV B @>8800,R5 get LSBy in MSBy R1
SWPB R5 shift
MOV B R1,R5 put MSBy in MSBy
JMP COL1 try next file
COL2 AI R5,13 point to length byte
MOV R5,@DSRADD move to DSRADD
AI R5,-7 back up to addr of VDP buffer
MOV R5,R8 VDP address to read
LI R1,VDPBUF place to put it
LI R2,2 2 bytes
BLWP @VMBR read from VDP

+ clear variables
CLR @X
CLR @Y
CLR @I1
CLR @I2
CLR @I3
CLR @EOF

+ get CL and COLUMN from Basic
BL @GETN get a number
DATA 8 8th parameter
MOV @FAC,@CL move to CL
BL @GETN get a number

```

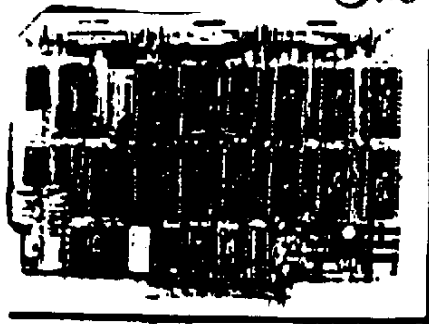
QUAD COLUMN (cont.)

```

DATA 10      10th parameter
MOV  @FAC,@COLUMN save to COLUMN

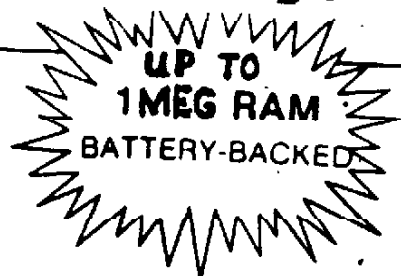
* start of Basic conversion
*
* Z30 I=I+1 :: LINPUT R1:AS(X):: B=POS(AS(X),LFS,1):: IF
* B THEN AS(X)=SEGS(AS(X),1,B-1):: Y=Y+1 :: C(X)=0
* ELSE C(X)=1
*
* I=I+1
LZ30 INC 0Y
* LINPUTR1:AS(X)
BL  @DSR      read a record from the disk
MOV  @DSRADD,R0
AI  R0,-1    point to char count byte
BLMP @VSR     get it
MOV  R1,@STRLEN write to string length
SRL  R1,8    put in LSBy
MOV  R1,R2   copy to R2 for VOP read
MOV  @VDPBUF,R0 address of VDP buffer
LI  R1,STRBUF string buffer
BLMP @VNR     read from VDP
* B=POS(AS(X),LFS,1) ! LFS=CHR$(10)
* RJ=B
CLR  R3      0
LZ30A CB  @R1+,@HBA is it CHR$(10)?
JER  LZ30B   yes!
AB  @H01,R3  no - add to length
DEC  R2      length
JNE  LZ30A   still more characters
* since B=0,
* C(X)=1
MOV  @D1,@FAC save 1 to FAC
JMP  LZ30B1  write number
* since B=1,
*
* AS(X)=SEGS(AS(X),1,B-1)
LZ30B MOV  R3,@STRLEN reset length
* Y=Y+1
INC  0Y      +1
* C(X)=0
CLR  @FAC    save 0 to FAC
* set C(X)=FAC
LZ30B1 MOV  0X,R0 get X
LI  R1,4     4th parameter
BL  @MRTN1   write it to XBasic
* set AS(X)=string
MOV  0X,R0   get X
LI  R1,2     2nd parameter
LI  R2,@STRLEN address of string length byte
BLMP @STRASB write to string
* we won't run line 240 PRINT I;Y
* 250 IF I1(>0) THEN 270
LZ50 MOV  0X1,R0 does I1=0?
JNE  LZ70   no - GOTO 270
* 260 IF Y=CL THEN I1=X :: GOTO 310
LZ60 C  0Y,@CL does Y=CL?
JNE  LZ70   no - GOTO 270
MOV  0X,0X1 I1=X
JMP  LZ10   GOTO 310
* 270 IF I2(>0) AND COL(3)<>0 THEN 290
* or IF I2=0 OR COL(3)=0 THEN 280 ELSE 290
LZ70 MOV  0X2,R0 does I2=0?
JEB  LZ80   yes - GOTO 280
LI  R0,3    3rd array element
LI  R1,9    9th parameter
BL  @GETNM1 get number
MOV  @FAC,R0 does COL(3)=0?
JNE  LZ90   no - GOTO 290
* 280 IF Y=2*CL THEN I2=X :: GOTO 310
LZ80 MOV  @CL,R0 get CL
SLA  R0,1   *2
C  R0,0Y   does 2*CL=Y?
JNE  LZ90   no - GOTO 290
MOV  0X,0X2 I2=X
JMP  LZ10   GOTO 310
* 290 IF I3(>0) AND COL(4)<>0 THEN 310
* or IF I3=0 OR COL(4)=0 THEN 300 ELSE 310
LZ90 MOV  0X3,R0 does I3=0?
JEB  LZ00   yes - GOTO 300
LI  R0,4    4th array element
LI  R1,7    7th parameter
BL  @GETNM1 get number
MOV  @FAC,R0 does COL(4)=0?
JNE  LZ10   no - goto 310
* 300 IF Y=3*CL THEN I3=X
LZ00 MOV  @CL,R0 get CL
LI  R2,3    3
MPP  R2,R0  R1=CL*3
C  0Y,R1   does Y=3*CL?
JNE  LZ10   no - goto 310
MOV  0X,0X3 I3=X
* 310-IF Y<COLUMN+CL THEN Z30
* note - didn't include EDF check, since the input
* record section handled that
LZ10 MOV  @COLUMN,R0 get COLUMN
MOV  @CL,R2   get CL
MPP  R2,R0   R1=COLUMN+CL
C  0Y,R1    is Y<COLUMN+CL?
JL  LZ30    yes - GOTO Z30
* it's time to get out of here!
* now, we have to write a LOT of variables back to IO
RET  BL  @MRTN write
DATA  I,1    Y,1st
BL  @MRTN write
DATA  Y,3    Y,3rd
BL  @MRTN write
DATA  I1,5   I1,5th
BL  @MRTN write
DATA  I2,6   I2,6th
BL  @MRTN write
DATA  I3,7   I3,7th
BL  @MRTN write
DATA  EDF,11 EDF,11
LMP1 >@SEB load GPL workspace
B  @6A      return to GPL interpreter
END

```



The

HORIZON RAMDISK



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 and ALL required parts.

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