

## BITS, BYTES&PIXELS



### LIMA AREA 99/4A USER GROUP VOLUME 2 NUNBER 4 APRIL 1986

### COMMENTARY

We are amazed! When the TI 99/4A came into the market in 1970 it was viewed like all other computers, part novelty, part toy, something to impress the neighbors, and very expensive. When it left the market in 1983 some owners thought is was the end of an era. Fortunatly for all of us the enterprising spirit of some of its owners it didn't end. Thanks to them it lives.

To-day as a consequence of the creativeness of many persons the 99/4A has the capability to compete favorably with many of the more expensive computers, particularly those named after the fruit of the apple tree.

The 99/4A using RAMDISK and GRAM-CRACKER and a variety of innovative, adaptive software is as versitile as any home computer.

We've got to say, "Thanks" to all the entrepeneural genius that made it all possible.



"Hey, this is software work!"

### BOOK

If you haven't read "The Orphan Chronicals" you owe it to yourself to do so. It is a book about the history of the 99/4A written by and author that has researched his subject and presents it in an iteresting and arresting manner. We have a copy that is available for loan. Contact us.EDITOR

### MISCELLANY

A drifter walked into a small har with a dog in his arms. He laid the dog on the bar and the bartender was somewhat startled to see that the dog had no legs, although it seemed to be quite happy.

"That's a cute little dog"said the bartender. "What's his name?" "He don't(sic) have one, said the drifter. "It don't matter 'cause he couldn't come if I ralled him anyway."

### LAST MEETING

At the last meeting, March 15, there was a demonstration of GRAMCRACKER, a unique and versitle means of eliminating the need to change command Modules. It is now possible to place all of them on disks and acr/ess them thru menu driven programs. Additionally there was a deomonstion of Graph-Paper, which is in our Library. (By the way if you know of a method of converting this to 10 by 10 from the present 8 by 8 we'd be interested-EDITOR)

### LIBRARY NEWS

Our Library continues to grow.Accompanying this issue is a list of new software and a large number of new titles. We've tried some of them and we are impressed.

### BRAIN TEASER

A ship is twice as old as its boiler is. Th sum of their ages equals 49 How old is the ship and how old is its boiler?

TIPS FROM THE TIGER CUB

Thanks again to Jim Peterson for another of his "Tips from the Tiger Cub". This issue is attached to the Bits, Bytes ect.

### WELCOME

We welcome other User Groups who receive B.B & P. We read your newsletters with interest. If you know of a group who would like to receive ours let us know.

### FLIPPY DISKS

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Do you know that you can make double sided disks out of single sided disks? If you don't know ask our resident expert, Charlie Good. it takes is a template(easily made) and an inexpensive 1 hole punch. You can cut your disk costs in half. \*\*\*\*\*\*\*\*\*\*

BITS, BYTES & PIXELS

Published by Lima 99/4A User Group

Hal Sehnert Editor Charles Good Tech. Editor

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\* Published Monthly \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* TRY THIS...

Get your TI Voice Synthensizer to say phrases. Did you ever notice that your SS spells out some of the phrases in its vocabulary list? This is because it looks for each word in the list seperatly. The solution? Bracket the phrase with Pound signs (#) to make the SS treat the phrase as a unit. viz, ("I am the #Texas Instruments# home computer.

(Written by Steven Booker age 13 reprinted by permission Penn-Uhio User Group)

CHARLIE SAYS:

### LOADING FROM DISK

Although the information in this article is probably old hat to many of you vereran TI users, I still get many questions at club meetings concerning how to load files and programs from club library disks. "There is a name on the disk directory, but I can't seem to get it to load. What do I If this is sometimes your problem, this artilce is for you. I am assuming that the library disk containing the file is not damaged.

Disk files that can be loaded directly into the computer are in the following forms:

> **PROGRAM** INT/UAR 254 DIS/VAR 163 DIS/VAR 80 DIS/FIX 80

. 94 =82+12,ai .bio ansay is ai maliod The ship is 28 years old and the

ANSWER TO BRAIN TEASER

Any other file format represents a data file which cannot be loaded directly but must be loaded from within a program already in the compuer. Examples are INT/FIX 108, INT/VAR 128, and DIS/VAR 64.

PROGRAM---- These files are the most common and the vast majority represent TI BASIC or EXTENDED BASIC programs. Many TI BASIC programs load and run correctly from EXTENDED BASIC (but not visa versa). However, if after loading the PROGRAM file into EXTENDED BASIC you get a BAD VALUE IN XXX error when you attempt to RUN the program, you need to reload the program into TI BASIC. The BAD VALUE error is caused by the use of chars above 143, which is not allowed in EXTENDED BASIC.

If you attempt to load an EXTENDED BASIC program into TI BASIC it will seem to load properly. However, when you RUN the program you will probably get a FOR-NEXT ERROR IN XXX message. Attempting to list line XXX gives a screen of nonsense. You cannot use II BASIC to work with EXTENDED BASIC programs.

If a PROGRAM file occupies more than 45 disk sectors and won't load in either version of BASIC you have to open up extra memory. Do this by typing the following:

CALL FILES(1) enter

NEW enter

OLD DSK1.FILENAME enter

The program will now probably load.

Occasionally a PROGRAM file will not load from either version of basic, giving an I/O ERROR 50 when you attempt to do so. These files are likely to be assembly language programs that need the EDITOR/ASSEMBLER module to load. Press "2" for EDITOR/ASSEMBLER.

Then press "5" for RUN PROGRAM FILE. When prompted, type DSK1. FILENAME, hit enter, and the program should load and start running. Some assembly language programs of this type can also be loaded from the TI-WRITER option #3. UTILITY.

Finally, some specialized PROGRAM files can only be loaded from the ADVENTURE, PERSONAL RECORD KEEPING, STATISTICS, or other specialized module. These files are actually data bases that can only be used with their particular module.

INT/VAR 254--- These files are normally long EXTENDED BASIC programs that OLD and RUN in the normal way from disk if memory expansion is connected to the system. They usually exceed 45 disk sectors in length and do not require CALL FILES(1) to load. Once loaded, these long programs cannot usually be saved to tape (SAVE CS1) without special techniques. You cannot OLD any INT/VAR 254 programs from TI BASIC.

DIS/VAR 163--- This type of file represents an EXTENDED BASIC subroutine in MERGE format. can be merged into a program already in memory. To load such files, type MERGE DSK1.FILENAME and hit enter. You must do this even if there is no other program in memory. You cannot use OLD with files of this type. To save a program in MERGE format, type SAVE DSK1.FILENAME, MERGE. The MERGE option is not available from TI BASIC.



DIS/VAR 80---- These are text files which can be read from the screen, edited, and printed to a printer via II-WRITER either by using the module or one of our extended basic loaders such as FUNLWRITER. The EDITOR/ASSEMBLER will also read, edit, and print these files from E/A option #1 "TO EDIT". Many of our more complicated programs have documentation files on the same disk as the program. These files usually have the program name followed by the letters DOC. For example, H186DOC is a file containing the instructions for operating program H186.

DIS/FIX 80---- These are assembly language programs which. must be loaded via EDITOR/ASSEMBLER or MINI MEMORY modules. Press #2 to load EDITOR/ASSEMBLER or #3 to load MINI MEMORY. Then press the number corresponding to the prompt LOAD AND RUN. When asked for FILE NAME type DSK1.FILENAME and hit enter. The DIS/FIX 80 file will load and may start running. If it doesn't start running, at the next FILE NAME prompt press enter. at the PROGRAM NAME prompt type the name that gets the program going, and press enter. Sometimes this name is START. The correct startup name can often be found in the program documentation, which may exist on the disk as a DIS/VAR 80 file.



FINAL NOTES---- Any of the above file types may also be used as a data file to be loaded only from another program. For example, last month in this newsletter I discssed one of my own programs which creates an INT/VAR 254 file. This file cannot be loaded directly by EXTENDED BASIC. The computer recognizes that the data in the file is not similar to a long EXTENDED BASIC program.

With the above information you should have no trouble loading everything from the disks in our club library. Check out each program and ENJOY! Some of our public domain stuff would cost alot of bucks of purchased commercially. In fact, Guy Stephan Romano has informed me that public domain programs in our library are in fact currently being sold commercially by TEX COMP, the NATIONAL ASSISTANCE GROUP, and a few others.

### EXCHANGE CENTERS ARE CLOSED

A phone call placed March 18 to TI-CARES (800-842-2737) confirms that by the time you read this all II exchange centers, including the one in Dayton, will be permanently closed. All in and out of warranty repair and service will in the future be handled through this number, with repairs performed at II's Lubbock Texas repair center. Service should be fairly rapid, since in most cases, the item will not actually be repaired and shipped back. Instead, a new or rebuilt item will be shipped immediately from inventory upon reciept of the required fee or proof of purchase.

(One of our club members recently received an entire TI-WRITER package after sending in his non-working TI-WRITER module).

The TI-CARES operator said that customers should call TI-CARES before shipping anything to Texas. TI pays return postage, but does not pay postage to Texas even for in warranty service. The operator said that TI will continue to repair/replace all 99/4A products manufactured by TI. Hours for the TI-CARES number are Monday-Thursday 8:00-4:15 and Friday 9:00-4:15 CENTRAL time.

II has done its consumer customers a great service by continuing to maintain and stock its exchange centers for more than 2.5 years after announcing II was going out of the home computer market. I am suprised they kept them open this long.

Club members are well advised to determine the "return defective merchandise" policy of any dealer from whom they buy II products. the dealer will take back any defective product and ship a replacement from stock, fine. dealers such as TEX COMP have in the past insisted that you go through TI to replace any defective TI manufactured product the dealer sells you. This can be a hassle. New computer products are sometimes defective. I, for example, once purchased an EDITOR/ASSEMBLER package all wraped in plastic with no disk A inside. I have also purchased a non-working stand alone Both times a trip to disk drive. Dayton fixed things quickly with an instant replacement, but no more! LET THE BUYER BEWARE, at least when it comes to dealer vs. manufacturer warranty on TI products.

### "THE COUNT" WORDS

Here we go again with another list of words accepted by the two word commands of a Scott Adams adventure. This time we look at adventure #5, THE COUNT. The computer responds only to the first three letters of each word, which are in upper case. A question mark means I am not entirely sure what the rest of the word is.

FIRST WORDS SECOND WORDS (usually a noun)

ATTack AUThorize?	ANY ARDund
BREak	BAT
BURn	BED
BUSt CATch	BEL1 BITe
CLImb	BLO?
CLOse	BOLt
CUT	BOX
DRIve	CARd
DROp	CAStle
EAT	CIGarette
EMPtu	CLIp
ENTer	CDAttle
EXAmine	COFfin
EXIt	CROwd?
EXTerminate	DASies
FEE1	DOOr
FIL1	DOWN
FINish	DRAcula
FLUsh	DREam
FKY	DUMb-waiter
GET	DUSt
GO	EASt
HELD	END
IGNite	FEEt
INVentory	FILe
JAM	FISt
JUMp	FLAg
KIL1	FOOt
LEAve LIFt	GAMe GARlic
LIGht	GATe
LOCK	GLASS
LOCK	HANdle
LOWer	HELD
LUWBL	

MAKe HOLe MOVe INVentory 0PEn KEY DUT LEDge PICk LENs PUL1 LETter PUT LID QUIT LOCk RAIse MALlot REAch MATches REMove MEMo RINCE MIRCOR RUN NAIl file SAUe NECk SAY NORth SCOre NOTe SHUt OVEn SLEep PACk SMAsh package **SMOke** PASsage TAKe PILlow TIE PIT TO POLe TOUch **PORtrait** TRI? POStcard UNC? RING UNLock ROOm SHEets UNTio USE SLEep WAIt SOUth WALK STAke WITh **TABlets** YEL1 TAC TOllet TORch TREe ЦP VAlipire **UENt** VIAL WATch

The words that follow are from Vodoo Castle and the ones we had to omit because there wasn't enough space in the March issue. (All are second words)

NAIls	SIGn
NORth	500t
	SOUth
PAGE	soup
PAPer	STAirs
PATh	statue
PINs	STick
PLAque	SWEep
POT	SWOrd
PUP	TUBes
RABbit's	UP
RAU?	VOIce
RINg	
ROCk	VOOdoo
SAFe	WAL 1
SAPhire	WESt
SAW	WINdow
SHIeld	WRIghting
SHOvel	ZAP

For sale: Two SS full size drives. Call Vic Schaffner 419-229-3043

For Sale: Expansion box and expansion box controler card. \$107. Tom McCabe 419-692-3641

For Sale: 32K card \$80. TI impact printer \$180. Call Mel Nomina 419-692-9564

Want to buy: TI 99/4a console. Call James McCormick 419 991-1445



WESt

**U**INdow

AND WHEN YOU POUR IN ALPHABET SOUP ... PRESTO!

IT BECOMES A WORD PROCESSOR! TIPE FROM THE TRADESIS

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prospecial, or both Hets Builts diels for 637 portsald. Tierrab Full Mier Collection, just 112 postpalet

Each of these contains either 5 or 4 of sy regular 13 citalog program, and the remaining disk space has been filled with some of the boot public domain programs of the same category. I am MOY solling public docate program - my own programs on these disks are greatly discounted from their usual

price, and the public docain 18 a REE bonte! TIGENCID'S BEST PROGRAMING TUTOR PROGRAMMER'S UTILITIES BRAZN SAMES SMAIN TEARERS

For descriptions of Mase

Catalon!

MAIN DUSTERS! MANEUVERING GAMES ACTION LANGE REFLEX WE CONCENTRATION TWO-PLATER SAMES KID'S SHEE HOME GALES 767 II NEIT J

HORD SAIES ELEMENTARY MATH MINBLE/HIGH SCHOOL HATH VOCABLE MY AND READING MUSICAL SOUCATION EARY SOUT KALEIBORGPER AND DIBPLAYS

semi a dollar for my

I found's bug in itte & 156 ACIEPT AT (21, 23) WEIDATE (DISTIBLIZE(2) MEEPIK IS IF K 348 4-8+1 SE F-8 SE FOR Jun (I OR IDIO THEN 150

f array? [\$8-188] \* 1: ACCEPT AT (24, 25) VALIDATE (DIELT) 912 E(3):E II IF 6(1 OR 6):44 TH 8 1821 II A4(J-1)=TE II X=J-

While they last, and the supply in limited, I will I "COMPARIBONS" II C. H-I mell o simple Yexam Instr. compute interfece cobin for 82.86 with any order for Md you ever nonder how a

ection, it will also whom 268 DISPLAY #7(24,1): "Change you the value leing held in to?" II ACCEPT AT (24, 1218)! the temperary variable TR, E(3):86(P);; (w) :: 50008 1) the total number of mens and comparisons made.

Then you can change any of the vertables and resert. # 50009 244,319,446,519,569, Try AAA in the lest position or III in thefirst, You will find that som of the history or Coles to SOTO ISS factuat ports are not as fast when a list is already almet in sequency,

188 CALL CLEAR II CALL SCREE Miliber FOR SET=2 TO 9 11 CA LL TOLOR (SET, 5, 16):1 HEXT SE T : ON WARNING MEET IS RAND 3L1MO

IIS DISPLAY AT(ZI, DERABE AL ZIS HERT J IN CHC+1 IN IF F-LI\*>>>TIGENCUS BOR! MATCHER( ((") :"Wait, please - gamera ting's "random array...." 11 BIN 48 ([41) , 88 (141), ST (25.2) 128 FOR J=1 TO 188 11 FOR L= 290 REN =BHAKERBERTS 1 TO 3 to BEGD=BEGDECHREGE MT(2/mRMD+65)) 11 MEIT L 21 X - 31/ MmH+1 11 L=1 11 MmH+1 12 -2 :: As(X)=8s(X):: 608UB 32

(38 MSPLAY AT (3, 1) TRASE ALL 1"(1) BUBBLE SORT': :"(2) SH AKER JORT": 1"(3) SMP SORT" 1 ("(4) SHUTTLE SORT': 1"(5)

148 DISPLAY AT(13,1):\*(6) BU 1 1. 509UD 1828 11 Majiet 14 ICK SONT": 1"(7) RESIRT SORT F=1 "1 1"(B) SHELL SORT": 1"(9) RESERVED'S S'TYPO Number of Chaice'

164 DISPLAY AT (24, 1): Size o F AS(J))=A6(J-1) THEN 388

175 ON 8 60808 235,388,438,5 F=1 64,556,456,856,916,25616 11 BISPLAY NT(22, 1) | W; "SWAPS": C 188 DISPLAY AT (24, 1) I "Choose (1)Menu or (2)Resort\* 1: AC CEPT AT (24,7) VALIDATE ("12") 8 IZE(1):0 11 IF 0-1 THEN 130 198 DISPLAY AT(24,1) (\*Clange which amitim? #" rr iccep T AT(24, 2) VALIBATE(DIST)BI erasples. Also \$19.95 let you actually see it in ELSE IF Pi GR PNS THEM 198

20 :: 6070 191

218 B18PLAY A1(22,1); \* \*; \* : 11 50\$UB 1811 11 N=6 11 8N 668,868,728,25618 11 BISPLAY ATTZZ, I Friti "SMAPS" (C; "COMPA 728 REM HOUSOLISGRY+ 136 CALL CLEAR II GOSHE 985

149 FOR J=2 TO N :1 C=C+1 11 IF #8(3) >=#\$(3-1) THEN 245 258 TS-AS (J) 1: 50909 1856 11 AS(J)=AS(J-1);; I=J ;; 508U # 1526 :: A\$(J-|)=76 :: Jej-1 fr 60503 1528 is H-H-1 st

I THEN 288 238 Nediel 11 Fal 11 Nadiel 11 MM-1 11 50TO 248 28 RETURN

381 CALL CLEAR :: 60900 988 84

32! NaM+1 :: Feb :: FOR Jal TO R-1 to C-C+t to IF AD(J) ( =A1(J+1)THEN 349 338 Te-46 (3) ++ 609UB 1858 ++ A9(J)=A\$(J+1)1: [#J 1: 608U

\$ 1)28 tt #\$(J+1):T\$ tt YeJ+

348 MEYT J 11 C-C41 11 IF F-O THEN 418 356 H=H+[ | | R=R-1 | | C=C+1

II IF ROL THEN 418 70 L-1 STEP -1 11 (#C+) 11 T 378 16-A4 (3) :: 608UB 1858 :: - A\$(J)=A\$(J-1)1: J=) 11 608U 1 31 108UB 1828 11 F=N+1 11

384 HEXT J 11 C=C+1 11 IF F= A THEY 418

398 Hallet is Fafet is CaC+1 II IF LER THER 418 488 60TO 328 418 RETURN

425 REF #SWAPSORT# 438 CALL CLEAR :: GORUD PRE 446 FOR JULY TO HALL IN HOWAL 11 R=2 11 FOR 33=3+1 TO N 11 C=C+1 II IF AS(R)(=M(QJ)TH

456 H-H4 11 R-JJ 466 HENT JJ 1: C=C+1 1: 1F R al Tid's the

474 T9-A(2):: 60000 1/54 11 A4(2)=#(#) 11 X=2 11 (0618 1826 11 keifthefe 11 Ket 11 % 0909 1426

400 MENT J II RETURN 496 REE HARBETTLE FORTHARD SAA CALL CLEAR :: 6080) 988 SIE FOR JEL TO H-1 11 FOR JA #3 TO LETER -1 or CaC+L to IF AS(JJ) (=AS(JJ+1) THEN 536 :: T\$=A0(JJ):: 609UB 1!56 t: A0(JJ)-M0(JJ+1)+: X=J| 11 6

0949 1425 528 AS(JI+1)=TS :: X=Ji+1 :: SOSUD 1120 :: NEXT JJ 538 NEXT J :: RETURN

548 REN HOUSEASY SORTHIBESE 558 CALL CLEAR 11 SOSID 986 568 Well+1 : D=1 578 Wellet :: De2#8 :: (=C+L 11 RF DOWN THEM 578

588 N=0+1 11 D=18719/2:11 C= C+1 :: IF B=# THEN 43# 599 FOR 1=1 TO M-D 1: 1=N+1 ss Yell

ASS N-No. 11 Z=Y+D 11 C=C+1 11 IF AS(Y) (=AS(Z) THEN 628 1 : T4=A4(/):: G08UB L05: :: A \$(Y)=A\$(!):: X=Y :: 605UB 15 28 1: A8(Z)=T\$ 1: X=Z 1: 60S HB 1424

618 W=N+: :: Y=Y-B :: (=C+1 II IF YX THEN AND 629 MEXT J :: 6010 588

**638 RETURN** 448 REM IQUICASORTO 458 CALL CLEAR II GOSUL 988 668 Nath: 12 Lat 12 Nath: 22 Red er fellet er Tob 678 T\$=A:(INT((L+R)/2)):: 60

SUB 1958 as W=N+1 :: J=L :: Market 1: 13 mg ARE COC+; to IF AS(2))=TO TH

EN 711 698 NaM+: 11 JaJ+1

788 6010 488 716 CHC+: EE IF ASCREPMENT MEN 714

728 N=N+: :: JJ=JJ-1 :: 5010 719 738 D=C+1 11 IF AS(3) CMS(33

STHEM 741 748 C=C+: rs IF J>=33 THEN 7

758 W=W+) +: J=J+L +: 日10 7 768 C=C+1 (: 1F J)=JJ THEN 7 778 WWHI 21 MS-AD GD12 AS G )=M6{(}})): X=J :: \$1800 1925 10 M(J2)=#0 11 X=JJ 11 508

UB 1818 :: 60TO 688 788 19841 (1.39341 (1.99441 11 33-33-1 11 C=C+1 11 IF 3> of THY SIG

798 Well+1 :: ToT+1 :: Well+1 11 87(7.8)=3 11 H-041 21 876 7,114 988 Wellet ex Redd 11 CmC+1 t

I IF ICR THEN ATE BIS C-C+1 to IF T-8 THEN BIJ 825 WW+L :: L-ST(T,S):: W-W +1 as R=ST(T,1)as W-W+1 as T #T-1 II 50T0 678

034 RITUMN 844 RM SEURESORT SERTENDASS 858 CALL CLEAR 1: SCRUB 988 868 FOR J=2 TO N 11 CWC+1 11 IF M(J)>=AS(J-1)THEN 988

1128 R-X

FF EOTO 1436

1838 IF RR>28 THEN RR-RR-29

1846 C=1-(X)25)#5-(I)46)#5-

(X)48)15-(X)88)45 II BIBPLAY

GOSCIE LEAR LE RETURN

AT(RR,CC):AB(X);:: W=N+1 ::

878 THAS(J):: 608UE 1858 :: FOR L=J-1 TO 1 STEF -1 :: A \$(L+1|@A\$(L):: X@L+| 1: 60SU 3 1821

888 C\*C+1 11 IF A\$(L-1)>=T\$ THEN (78 1: AS(L)=T4 1: I=L 11 GOSUR 1828 11 GOTO 988 898 MEXT L

988 NEXT J 11 RETURN 916 REM #SMELLSORT# 928 CALL CLEAR 11 60BUD 988 931 H=H+1 (1 M=H 948 W-W+L 11 M=1NT(N/3)+1

950 FOR J=1 TO N-H tr FOR JJ "J TO 1 STEP -N :: C-C+1 :: IF ASGJ) (=AS(JJ+H) THEN 978 11 T4-40 (J2) 11 G08UD 1858 948 A8(33) =A8(33+H):| 1=33 | # \$0\$UB 1929 ## A\$(J7+H)=78

## X=#F# 1: GOSUD 1128 1: N FIT 33 MT CERMD+21 134 FOR #=1 TO 23 STEP T 11 978 NEXT J 11 C=C+1 11 IF N>

1 THEN 948 11 RETURN 984 HER SPENEN ARRAYS 978 FCR J=1 TO 6 1: A\$(J)=B\$ B 1826 1046 NERT J 11 Nº5 1518 918PLAY AT(24,1)1 A to

abort P to pause" :: RETUR LL IOLOR(14,2,8):1 60TO 13E

> The following routine will cruite a D/V00 411s mased GRANPAGE, to be loaded into 71-Witer as a 77x57 grid numbered along the left and

163 DISPLAY AT(22,14): "To-" lottom. Arrow lays can then 176 11 N=0+1 11 G0500 1666 1 1 RETURN 1840 CALL KEY(3,KL,88):: IF

984 THEN 1996 1870 IF K1=45 THEN 138 140 CALL KEY(3, K2, 89) :: IF SSK! THEN 1889 LATE RETURN

Den't try tising these sorts, because the screen dimlay distorts the speed. Option 7 has been left open so that you can aid your own the same format, starting in line 25666.

Trese coutines may not be the most efficient forms, and their names may not be correct. If you know batter ones, let me knew!

100 ! BARKET HEAVING by JIM P eterson

119 CALL CLEAR :: Noti 1: To 2 EL CHE-"ASASASASASASASASFF DEFFERDAFF AT CALL CHAR (142, CHB):: CALL COLOR(14,2, W. IJ. 2. W) II CALL SCREEN(W) : CILL CHAR(134, CH9):: CH=14

130 FOR C=1 TO 31 STEP T 11 FOR R=1 TO 23 STEP T :: CALL HCMAR (R, C+1, CH) 11 NEXT R 11 MEST C

148 CH=ABS ( (CH=142) #135+ (CH= 134:4143) | | RANDON12E | | | | | | | | |

FOR C=2 TO 32 STEP T :: CALL HCIAR (R.C. CH) :: HEXT C 168 FOR C=31 TO 1 STEP -T :: CALL HCHAR (R+L, C,CH) :: NEXT C 12 NEXT R 12 CHOCH-1 12 H =[N'(14#RND+3):| ]=[N'(13#RND

178 IF CH+134 THEN CALL COLD R(1),2,0)11 6070 130 ELSE CA

le used to create a line graph of esterials of whatever, associated with text as maired.

IS OPEN 91: "DEK! . SAAPSPAGE" DUTPUT 11 PRINT 01:760(4)|R 1184"\_",751:: |OR J=1:TO 57 1: 36-STR#(3)

185 IF JOIN THIN JOS" "636 :: PRINT 01: JUMPTO (\*1\_4,30 A"!" to MEIT i

:26 FOR T=1 TO 2 :: PRINT 01 " "pir FOR Jil TO 77 :: 36 -STRE(J)&" " 11 PRINT GLESES favorite sort routine, in (US,T,1);:: MET J :: PRINT OR 11 NEXT T IS CLOSE DI

> : !TO PRINT A HANDY REFERENC CHART OF ARCII TO HEE CORE · NOBIFIED FROM READING-BERK 1 AUG 85

IS OPEN SEPTICE IS PRINT SE (CHR4 (27) | CHR4 (77) | CHR4 (5) 188 FOR X=32 TC 63 II FOR Y= I TO E+64 STEP 32 as CALL OR APPAT (Y. YS) : 1 PRINT \$6:YE" " (CHRO(Y))\* \*jYfjii MEXT Y ii PRINT DIE" 11 NEXT 1

188 CALL CLEAR :: CALL MASKE 124 CALL HCHAR(1,1,143,768): 17(2):1 RAMBOMIZE :1 015PLAY AT (3,2): "TIGERCUB SPEED TYP HG-TEST": :TAR(12):"RPEER" n Teid

118 BISPLAY AT 5.181:196-T : HCMAR (R, C, CH) :: HEXT R :: F : X=INT(26=RHD+65):: CALL SP OR t=24 TO 2 STEP -T :: CALL FITE(81, 1, 2, 74,128):: FOR D= 1 TO T BE CALL KEY (3, K, ST) ## DM (K=1)+2 GOTD 124,138 124 ToT-1 :: 50FD 118

ISA MELT 9 11 TOT+1 11 GOTO

The UG newslatters are full of good editorials. reminding people that they had better pay for their fresware or there won't be saymore. I totally agree with that - but I can't helm thinking that if there had been as such cochasis on gaying for comportial software instead of pirating it, there would still be a lot were good programmers supporting the [1!

HENORY FULL

lia Peterson

### VERY RECENT NEWS ITEMS FOR TI USERS: April 15, 1986

The price of a GRAM KRACKER is \$189.00 + \$4.00 shipping, rather than the \$175.00 price listed in an advertisment elsewhere in this newsletter. This price INCLUDES the Cram O chip which was an option under the old pricing system..

As of April 14, 1986 Unisource Electronics of Lubbock Texas is out of business. I don't know the circumstances of why they are no longer in business, but it is too bad. TI99/4a users are now limited to just a few mail order dealers for TI manufactured hardware and software.

The Lima Area TI H.C.U.G. will have FUNLWRITER version 3.2 available for distribution at the May meeting. This is the TI-Writer loader that is discussed in the most recent (March 86) issue of Micropendium. This program not only loads TI-Writer but also loads almost anything that the Editor Assembler module will load. Those of you without an Editor Assembler will be able to use this program instead. FUNLWRITER version 3.2 is distributed as freeware. A voluntary payment to the program authors is requested.

TRITON in their most recent Spring 86 catalog are offering rebuilt TI 10 inch color monitors for \$99 which include a 90 day TI warranty. I paid \$170 for my TI monitor in November 1983 and at the time it seemed like a great price. There is a VERY REAL difference between what you see on a color monitor and what you see on a color TV. For example, there is no trouble differentiating between M and N on a monitor. I highly recommend TI monitors, especially at this price.

Service Merchandise has disk files which store 50 disks at the regular price of \$7.95. This is much cheaper than anywhere else.

The ODD LOTS store at the Lima Northland Mall has C60 tapes at 3 for 69¢. The quality of these tapes is unknown, but we have alot of cheap tapes in our club library that work fine.

Word has been received of the recent death of Tom Whitoffer. Tom is the author of PILOT 99, the never commercially released "TI PILOT". Tom was in his 20's when he died.







-- HORIZON RAMDISK FACTS --

- A RAMDISK card for the 99/4a PE-Box,
- ~ 104K (SSSD, 360 sectors) capacity, expandable to 192K (DSSD, 720 sectors).
- Uses low-power CHOS static RAM chips.
- Functions EXACTLY like a Tl floppy drive but at Random Access speed.
- Compatible with any software or language that uses a standard II DSRINK, including disk utilities, sector copy programs, and programs like DM-1000, DISK insweder II, and HILLERS Graphics EXPLORER program. Compatible languages include TI-BASIC, EXTENDED BASIC, TI-FORIX, II-LOGO and ASSEMBLY LANGUAGE.
- The only BATIERY-BACKED Randisk for the 99/4s, carry it from computer to computer like a floppy diskette. Ni-cad batteries charge while the computer is running.
- Supplied with DM-1000 as the resident disk manager program. DM-1000 may be loaded in less than two seconds via a CALL DM statement from BASIC.
- other CALL statements from TI-BASIC to 1) set the Randisk drive \$, 2) set the maximum number of sectors, 3) set the write protection, 4) turn on CRU for direct DSR screen. 5) evenue machine wode from DAGIC.
- DIP switch setting allows CRU addressing from >1000 to >1700.
- Ramdisk may be named DSK1 to DSK6.
- Comes with complete DSR source code, including a separate manual . that details all new couldings.
- Documentation explains how users may add their own assembly language CALL routines to anhance BASIC.
- Comes with development software, including a loader for any E/A opt. 3 object files to allow users to modify the USR as desired.
- Schematic Diagram and construction guide included.
- Available as 1) a resdy-to-run card (SSSU or DSSU) with 90 day warranty
  on parts and labor, and 2) as a bars printed circuit with parts list and
  instructions (no warranty). All packages include the operating system with
  full source code, documentation and development software.



RAMDISE Order form

COMPUTER, LINITED PO BOX 554 WALBRIDGE, OHIO 434A5

The MORIZON RAMDISK is available in three different versions. Refer to the description and fact sheets for details. The price includes shipment within the continental United States. Add \$5 per itse for shipping charges outside of the continental U.S.

Orders shipped to Ohio addresses must include 5 1/2% Ohio sales tay. On not send sabb. Habe theres or some yorders payable to HORIZON COMPUTER, LINITED, All funds are payable in U.S. currency.

Please allow four to six weeks for receipt of order. Be sure to complete all information requested below and include payment for the correct amount, including tax and shipping charges, if applicable.

Circle the item ordered or mark the quantity number above the item(s) being ordered. Bare board kit orders of at least five or more shipped to a single address with one menual and one set of disks are \$42 per board.

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(3) Double Sided Built Ramdisk \$230

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PARTS FOR YOUR RAN DISK KIT

BUD MILLS SERVICES 166 Dartmouth Dr. Toledo OH 43614

You can obtain all the "KIT PARTS" from most Electronic Parts Stores. Moneyer, overhead costs, andivadual minimum packaging and shipping require a higher cost. For your reference a parts list in attained with current prices from a mail-order supplier ad in the April, 1986 "Computer Shopper"

This PARTS KIT is available at our LOW price thru the economics of quantity purchase and low overhead. Our price does include standard one emipping sground services:

Our LOW PRICES are subject to Availability and Market Conditions. Prices quoted on the attached Purchase Order will be honored for sixty days from effective date listed.

This PARTS KIT contains the SAME Quality components that are used in the preassembled and warranted Horizons Ramdisk Card.

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### Parts list for RAMDISK

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# JRAM KRACKER

### THE PERIPHERAL THAT TI SHOULD HAVE BUILT YEARS AGO

- OPENS UP AN ENTIRE NEW AREA OF MEMORY FOR ADDITIONAL PROGRAMMING AND CUSTOM MODIFICATIONS.
- SAVES THE CONTENTS OF ANY MODULE TO DISK, CASSETTE, RAM DISK OR HARD DISK. LOADS THE SAVED MODULE :NTO THE GRAM KRACKER TO RUM IT. (ALLOWS YOU TO BACK UP AND/OR MODIFY YOUR MODULES.).
- STORES APPROXIMATELY 15 MODULES ON 1 DOUBLE SIDED DOUBLE DENSITY DISKETTE.
- ALLOWS PROGRAMMING IN THE TI PROPRIETARY GRAPHICS PROGRAMMING LANGUAGE (GPL).
- CONTAINS 56K OF BATTERY BACKED UP CARTRIDGE RAM AND GRAM USER EXPANDABLE TO 80K OF BATTERY BACKED UP MEMORY.
- CONTAINS ITS OWN MODULE PORT FOR EASIER SAYING OF MODULES.
- CONTAINS 3K OF PREPROGRAMMING FOR ON-LINE SAVING. LOADING AND EDITING OF MODULES AND OPTIONAL CONSOLE GRAMS.
- COMES WITH A DISKETTE THAT CONTAINS MANY EASY TO RUM UTILITIES TO HELP YOU CUSTOMIZE YOUR MODULES AND HEND SELECTIONS.
- ALLOWS A MENU WITH MORE THAN ONE MODULE ON IT.
- ALLOWS YOU TO SET YOUR OWN DEFAULT COLORS FOR YOUR MODULES AND ASSOCIATED SOFTWARE.
- ALLOWS YOU TO CHANGE THE DEFAULT PRINTER COMPINGRATION FOR YOUR MODULES, SUCH AS REPLACING RS232 WITH PIO.
- EASY TO INSTALL JUST PLUG IT INTO YOUR MODULE PORT AND YOU ARE READY TO GO!
- SIMPLE TO OPERATE, WITH FULL EXAMPLES IN THE OPERATORS MANUAL.

### THE GRAM KRACKER

THE FIRST IN A SERIES OF INNOVATIVE HARDWARE PRODUCTS
FROM NG FOR YOUR TI

GRAM KARCKER 0 O. O \*"O 0

### GRAM KRACKER CONTROL PANEL

RESET
EXECUTES THE POWER UP ROUTINE
TO RESET THE COMPUTER BACK TO
THE MAIN TITLE SCREEN.

NORMAL
THE MORMAL OPERATING POSITION
FOR THE GRAM KRACKER. MITH
THE SWITCH IN THIS POSITION
THE GRAM KRACKER'S MODULE
SPACE NILL AUTOMATICALLY BE
TURNED OFF WHEN A MODULE IS
PUBLICAL INTO THE GRAM
KRACKER'S MODULE PORT. (NO
NEED TO REMOVE THE GRAM
KRACKER TO USE OTHER MODULES)

OFF
ALLONS TOU TO MANUALLY TURN
OFF THE GRAM KRACKER'S MODULE
SPACE. THIS PERMITS THE "GRAM
KRACKER" SELECTION TO BE
DISPLAYED ON THE MENU MHEN AN
AUTO START MODULE HAS
PREVIOUSLY BEEN LOADED INTO
THE GRAM KRACKER.

GRAM B
TURNS ON AN ALTERNATE
DPERATING SYSTEM OR TITLE
SCREEN WHEN AN OPTIONAL RAM
(GRAM B) CHIP HAS BEEN
INSTALLED AND AN ALTERNATE OR
MODIFIED OPERATING SYSTEM HAS
BEEN LOADED INTO GRAM B.

OP SYS
ENABLES THE NORMAL TI
DEEATING SYSTEM AND TITLE
SCREEN IN GROW 8.

GRAM 1-2 DISABLES TI BASIC AND ENABLES DISABLES II BASIC AND EMABLES GRAM IN 175 SPACE WHEN THE OPTIONAL RAM (GRAM 1 AND 2) CHIPS HAVE BEEN INSTALLED THE ALLOWS YOU TO MAVE WIREK MODULES OR PROGRAMS IN THIS SPACE OR TO MODIFY TI BASIC.

ENABLES THE NORMAL TE BASIC LANGUAGE IN GROWS T AND 2.

BANK 1 TURMS OFF WRITE PROTECTION AND ENABLES BANK 1 OF THE MODULE RAM SPACE.

TURNS ON WRITE PROTECTION FOR THE ENTIRE MODULE SPACE AND FOR GRAM Ø (ALT OP SYS).

BANK 2
TURNS OFF MRITE PROTECTION
AND ENABLES BANK 2 OF THE
MODULE RAM SPACE.

### LOADER ON

ADER ON
PLACES THE "GRAM KRACKER"
SELECTION ON THE MENU MILICH
EMABLES THE INTERNAL SOFTMARE
FOR LOADING. SAVING AND
EDITING MODULES AS WELL AS
OTHER AREAS OF MEMORY.

LOADER OFF DIGABLES THE GRAM KRACKER'S INTERNAL SOFTWARE.

THE BK OF BUILT IN PREPROGRAMMING DISPLAYS THE FOLLOWING MENU:

1. LOAD PRIMALE
2. SAVE MODULE
3. INIT MODULE SPACE
4. LOAD/SAVE CONSOLE
5. EDIT MEMORY

JUST PRESS 1, 2, 3, 4 OR 5 TO PERFORM THE FOLLOWING:

LOAD MODULE

LOADS ANY MODULE OR BASIC PROGRAM PREVIOUSLY SAVED WITH THE
SAVE MODULE SELECTION. THIS SELECTION WILL ALSO ALLOW YOU TO
LOAD MAY UTILL OR RUN PROGRAM FILE TYPE FILE, THE MODULE
LOADING AND UTILL TYPE FILE LOADING CAN AUTOMATICALLY BE
CHAINED TOGETHER WITH A BUILT IN BRAM KRACKER OPTION. THIS
MEANS THAT YOU CAN LOAD UP TO 88K BY TYPING IN 1 FILE NAME!

### SAVE MODIALE

JE MOODLE
SAYES THE CONTENTS OF ANY MODULE PLUGGED INTO THE GRAM KRACKER MODULE PORT TO DISK. CASSETTE, RAM DISK OR HARD DISK. THIS SELECTION MILL ALSO SAVE THE CONTENTS OF THE BEAM KRACKER'S RAM AND GRAM OR YOUR RASIC PROCEDULE, SINCLY PLUG AT HOM TO THE MODULE, SINCLY PLUG AT HOM THE MODULE PORT, SELECT 2 AND TYPE IN THE FILENAME TO SAVE IT OL.

INIT MODULE SPACE
CLEARS OUT THE GRAM KRACKER'S MODULE RAM AND GRAM.

LOAD/SAVE CONSOLE PAGES IN THE FOLLOWING MENU:

1. LOAD CONSOLE 2. SAVE CONSOLE 3. GROW/GRAM # 4. GROW/GRAM 1 5. GROW/GRAM 2

WHICH ALLOWS YOU TO LOAD AND SAVE THE OPTIONAL CONSOLE GRAMS, THAT CAN BE TURNED ON AND OFF IN PLACE OF THE CONSOLE GROMS  ${\bf ff}_1$  1 a 2.

COLT MEMORY

BRINGS UP A FULL SCREEN MEMORY EDITOR SIMILAR TO THE
EXPLORER'S EDITOR. THIS EDITOR ALSO ALLOWS YOU TO MOVE BLOCKS
OF MEMORY, FROM ARYNHERE TO ANYMHERE, FILL ANY BLOCK OF MEMORY
MITH A DESIGNATED BYTE OR DUMP ANY BLOCK OF MEMORY TO A
SELECTED OUTPUT DEVICE IN HEX. ASCII AND ASCII MITH THE BASIC
BIAS. (PLEASE NOTE: EDIT MEMORY AND LOAD AND SAVE CONSOLE
SELECTIONS REQUIRE MEMORY EXPANSION)

### SPECIFICATIONS.

### SYSTEM UNIT

CMOS MEMORY
16K CARTRIDGE RAN
2 BANKS >6809 - >7FFF
48K CARDIDGE GRAM
CONTIGUOUS >6809 - >FFFF
8K SYSTEM ROM/GROM
(INTERNAL SOFTWARE)

ALL MEMORY BACKED UP BY A LITHIUM BATTERY FOR DATA RETENTION

THE FOLLOWING ARE GOLD PLATED FOR HIGH RELIABILITY AND LONG

### OPTIONS

8K OP SYSTEM GRAM B 8K TI BASIC GRAM 1 8K TI BASIC GRAM 2

GPL ASSEMBLER (EARLY 86') (HITH GPL PROGRAMMERS GUIDE) GPL DISASSEMBLER (EARLY 86!)

NOTE: GRAMS # - 2 ARE 8K X 8 CMOS STATIC RAM CHIPS PART NUMBER HM6264LP 15

SIZE 4.25 x 6.5 x 1.125 INCHES

FIMISH
BLACK TEXTURED EPOXY COATING

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