THE BALL 'N CHAIN

A Publication of the

TI SLAVES

SALT LAKE AND VALLEY 99ER USER GROUP

Hooooo's coming to user group meeting!

YOU, WE HOPE! WE ARE HAVING A SOFTWARE SWAP. PLEASE COME!

AUGUST 1988

THE NEW FEATURES OF *FUNNELWEB v4.1*
by Charles Good
Lima Ohio User Group

FUNNELWEB is probably the most significant software ever
for the 99/4a. After booting FUNNELWEB v4.1 from XBASIC (you
can boot FWB from any assembly language loader, but the
XBASIC module is the best way) you can do all of the
following without changing modules:
1. With a single keypress you can load from a selection
of user created menus almost any software ever written for
the 99/4A. If the software you want to load isn't configured
into one of your user created software menus, you can call up
a disk directory anywhere within FWB, mark the file name of
software seen in the directory, and then load that software.
2. Do work processing with a much improved version of
TI-Writer.
3. Create assembly source code and then assemble it as
you would with the E/A module.
4. Manage disks with a modified version of DM1000 which
is supplied with the FWB package. Pre-configured menu entry
points for other common disk managers are also provided.
5. View and edit disk sectors with a modified version or
DISK PATCH, also sometimes known as DISKO.

This review will describe the changes and additions in
v4.1 as compared to v4.0. Although this description is based
on the May 30, 1988 release which says "Memorial Day" on the
XBASIC title screen, the review should be valid for all
subsequent releases of v4.1.

Enhanced CENTRAL MENU capabilities.
Each central menu now has 8 items, and items 4-7 are
completely configurable to load any kind of assembly language
file. This includes autostarting D/F80 source code and
assembly PROGRAM files. In previous versions of FWB the
central menus could only load PROGRAM files and only a
limited number of central menu slots were configurable.

The TI-Writer menu reads as follows:
1 EDITOR
2 FORMATTER
3 DISK UTILITIES
4 MODEM
5 DATA BASE
6 DM1000
7 DSKU
8 USER LIST
As noted above, items 4-7 can be configured to suit the
user. MODEM is an entry point for terminal emulation
software such as FAST TERM or TELCO. DSKU refers to John
Birdwell's "DISK UTILTITIES." This fairware disk
manager/sector editor is so good that some former users of
DM1000, myself included, have switched to DSKU for most disk
management uses. DSKU is not provided as part of the FWB
package, but can be obtained directly from John Birdwell or
from most user group libraries.

Item 3 in the above TIW central menu leads to a specially
created user list menu in which disk management software is
grouped together. The DISK UTILITIES menu reads as follows:
1 DM1000
2 DSKU
3 MYARC DM
4 DPATCH
5 SCREAMER
6 TRACKER
7 ARCHIVER
8 CONFIGURE
9 <CTR ROM>
DPATCH is the modified sector editor DISKO which is
provided as part of the FWB package. SCREAMER is a good
entry point for an ultra fast whole disk copier such as
REDISKIT or TURBO COPY. TRACKER can be used to load one of
the various 'copies anything including protected disks' track
copiers. Will McGovern, one of the FWB authors, has written
a fairware track copier called TRACKER that is one of the few
(maybe the only) that works with a Myarc disk controller.
Send him a few bucks in Australia and he will send it to you,
or look in your user group library. ARCHIVER will load the
latest version of Barry Boone's archiving/compressing
program. This archiving software is not part of the FWB
package. CONFIGURE boots the FWB configuration files CF/CG.
Items 1-8 in the above DISK UTILITIES user list menu can be
altered with CF/CG to boot any assembly D/F80 (autostarting
or not) or PROGRAM files.

The Edit/Assm central looks this way as configured on the
FWB distribution disk:
1 EDITOR
2 ASSEMBLER
3 LOADERS
4 C-COMPILER
5 DISK PATCH
6 LINEHUNTER
7 ..
8 RESET
Item 4 loads the latest v4 release of c99. LOADERS,
unchanged from FWB v4.0, leads to a menu for loading assembly
D/F80 or PROGRAM files that aren't already configured into
one of the FWB user lists. LINEHUNTER is new to v4.1. It is
an assembly programming utility that prints on the screen any
specified line of assembly D/V80 source code. You can also
type the name of a label, and LINEHUNTER will display lines
that have that label.

THE CONFIGURATION PROGRAM, FILES CF/CG:
This has been totally redone for v4.1 and MUST be used to
do any configuring of the various user lists. It is no
longer possible to directly edit FWB's XBASIC LOAD program to
alter the XBASIC user list because there is very little
XBASIC code in LOAD. There are only a few XBASIC line
numbers in LOAD and the rest of LOAD is all in assembly.

CONFIGURE is much easier to use in v4.1 than it was in v4.0. CF/CG has a tree structure which allows you to quickly get to any part of the configuration without redoing the entire configuration process. The configuration program is very professional looking with sound effects, overlaping menu windows that pop into view, and help screens that are available at various points in the configuration process by pressing "?". Obviously much effort went into the preparation of the new v4.1 configuration files. The authors note that CF/CG was condensed from over 500 sectors of source code.

Basically what you do is load a configuration data file, alter the configuration, resave the altered data file to disk, and then while it is still in memory install the new configuration data into the FWB LOAD and UTIL1 files. If you later obtain a more recent release of FWB v4.1 you can configure the more recent release simply by loading your old configuration data file and installing this data into the newer LOAD and UTIL1 files. This is REALLY EASY! I had access to a pre-release beta testing edition of FWB v4.1 and was able to use the beta testing edition's configuration data file to configure my "Memorial Day" v4.1 in about 30 seconds. Hopefully the FWB authors will maintain this configuration data file system in all future upgrades of FWB and allow this easy transfer of v4.1 configuration information into all future FWB updates. Unfortunately, configuration information from v4.0 cannot be transferred directly to v4.1.

The important universal keys to remember in the configuration routine are <ENTER> to advance to the next window, and BACK to return to the previous part of the program (often the previous window). AID will get you a disk directory from most places in the program, and "?" brings up the help screens. When a window is displayed, you press the first letter of the text line in the window to perform the function indicated. If the window says

```
:Load:
:Edit:
:Save:
```

then you press "L", "E", or "S". Sometimes "N" and "B" are used to move the cursor up and down within a window when the functions "Next" and "Back" are displayed in the previous window. When more than one window is visible at the same time, the active window is indicated by a fat (2 pixel wide) border. The borders of the windows get alternately fat and skinny depending upon which is the currently active window.

The early windows in the configuration process are as follows:

```
Sysinfo        Quit          Install :   FIRST
                                         WINDOW

:Load:  :Loading:      :Boot Tracking OFF:
:Edit:  :Devices:      :TI-Writer side 1 :   LOADING
:Save:  :Colors :      :Edit/Assm side 1 :   WINDOW
SECOND  :Menu   :      :Working Drive  2 :
WINDOW  :XB List:
        :UL List:
        THIRD         :Edtr Printer:
        WINDOW        :Fatr Printer:   DEVICES
                      :Object File :   WINDOW
                      :Work File   :
                      :Program     :


                      :Edit:
                      :Next:   COLOR
                      :Back:   WINDOW
                      :Xchg:
                      :Redo:
                      :View:


                      :TI-Writer side:   MENU
                      :Edit/Assm side:   WINDOW
```

You start out by pressing S(ysinfo) to display the second window, and then press L(oad) to load the configuration data file, following the prompts for loading. The name of this file on the FWB distribution disk is SYSCON, but you can use any name. You can create different FWB configurations on different configuration data files each with a different file name. After loading the configuration file, you press E(dit) to change the the configuration data and display the third window. From here you bring up fourth series of windows where much of the configuration actually occurs.

LOADING WINDOW: Boot Tracking toggles between ON and OFF by pressing "B". Usually it is left ON unless FWB is installed on a ramdisk. In that case, the authors suggest it is sometimes best to leave boot tracking OFF. If the files loaded by FWB's central menus are in different drives (or ramdisks) these drive numbers are specified next to "TI-Writer side" and "Edit/Assm side". The "Working Drive" is the default drive number that appears after "DSK" if the mailbox workfile name is empty when you LF from the editor or use the Formatter.

DEVICES WINDOW: Printer names are self explanatory. "Object File" name is the default that appears on the screen next to DSKx. when you select LOADERS from the Edit/Assm central menu and try to load a D/F80 assembly file. I have "Object File" name configured as "DF/80FILE" to remind me that only this type of file can be loaded from certain parts of LOADERS. "Work File" is the default file name used the first time you LF. It is best to leave this blank as it is

on the distribution disk. If "Work File" is left blank, you can exit FWB, go through the title screen and do something in BASIC without turning off the PE box, return to FWB and find the previous workfile name still there when you LF. "Program" is the default displayed on the screen when you use the LOADERS menu to load assembly PROGRAM files. The ability to set "Object File" and "Program" defaults is a feature new to FWB v4.1.

COLOR WINDOW: Here you can edit and view your choice of 10 color combinations. You can alternate between two sets of such combinations. The one listed at the top of the list is the combination that appears first when you boot FWB.

MENU WINDOW: This choice allows you to configure items 4-7 in each of the central menus. You can configure autostarting D/F80 assembly files or assembly PROGRAM files. Each file name is limited to two characters and should either be on the boot disk in the either one of the two central menu drive numbers specified above in the LOADING MENU. Press BACK to exit this part of the configuration process.

XB LIST AND UL LIST CONFIGURATION: These are both done in a similar manner. First F(etch) the list by pressing "F". Then press N(ext) or B(ack) to select the item to be configured and press E(dit) to change that item. Press <ENTER> to go from menu to menu in the editing process. When asked for the "Secondary" this refers to the drive number specified in the devices window for the E/A central menu files. If you ask for a "Reminder", FWB will display the message INSERT UTILITY DISK when you attempt to boot the configured program from a FWB menu. When XB List or UL List configuration is finished (and S(aved) in the case of UL List), press BACK to return to the third window.

THE FINAL CONFIGURATION STEPS: Press BACK several times to return to the second window and then press S(ave) to save the modified SYSCON configuration data file back to disk for later use. Then press BACK, and from the first window press I(nstall) to install the configuration data into the LOAD and UTIL1 files. Follow the prompts. An alternate name for the UTIL1 file is FW and you can use this name is you want. The alternate name used to be RELOAD in earlier versions of FWB, but this name is too long to use with current Horizon Ramdisk Menu software. It is necessary to save the configuration data to BOTH the LOAD and the FW/UTIL1 files, so cycle through the installation process twice. Then press BACK a couple of times to return to the first window and press B(uit) to return to FWB. If you exit configuration with B(uit) you will not immediately see your new configurations. It is necessary to reboot FWB from the beginning for the new configurations to appear on screen.

UL LIST SPECIAL CONSIDERATIONS: Immediately after configuring a USER LIST and before pressing BACK to return to the third window it is necessary to S(ave) the configuration to the USER LIST, since this user list data is NOT saved as part of the configuration data file. When you return to the third window your USER LIST data may be lost. You may create as many USER LISTS as you want, each under different names. These lists can be loaded from each other, or they can be loaded from the central menus. DISK UTILITIES from the

TI-Writer central menu is a special user list file named DS, and can be configured from the "UL List" option of the third configuration window. If you come across a more recent release of FWB v4.1 you can use your previously configured user lists (files UL, DS, and any of your own user list files) unmodified with the more recent release. You don't have to configure your user lists all over again. I hope it will be possible to use unmodified v4.1 user lists in future versions of FWB (v4.2 etc) as well. Unfortunately the FWB authors state that v4.0 and earlier user lists are not guaranteed to be compatable with v4.1.

NEW FEATURES IN *QUICK DIRECTORY*:

You can now mark ANY file in QUICK DIRECTORY, invoked by AID from most places in FWB. If the marked file reads PROGRAM, then its name will appear on screen as the default when you load an assembly language PROGRAM file from items 1-3 of the LOADERS menu. If the marked file is D/F80, then it will show up on screen as the default when you load assembly object code from items 4-7 of the LOADERS menu. The ability to mark files from QUICK DIRECTORY for the LOADERS menu is new to v4.1. Any file may be marked for deletion, and after deletion the sector count and file name list displayed on screen by QUICK DIRECTORY are immediately updated. The ability to delete from QD and immediate updating in both QD and SD (from the editor) are new to v4.1. I consider all the new features described in this paragraph to be very useful.

Other changes in QD include the ability to unmark a workfile name as O(ld) and revert back to the previous workfile name. In v4.0 you could only do this by using SD from the editor. The N(ext) and B(ack) keys are now used to page through the alphabetical list of file names in QD rather than SHIFT/CTRL as in v4.0. This change makes QD consistant with other sections of FWB v4.1 since "N" and "B" are commonly used to move foreward or backward, particularly in configuration.

DM1000 CHANGES:

The FWB authors include their own modifications of DM1000 v3.5 as part of the FWB package. (PLEASE NOTE: DM1000 is fairware, and if you use FWB you should not only send a fairware donation to the FWB authors, you should ALSO send a fairware donation to the Ottawa User Group for the use of DM1000.) V3.5 is the last source code sent directly to the FWB authors by the Ottawa UG and this is why the FWB authors have based their modifications on this rather than a later version. FWB co-author Tony McGovern writes me that he beleives his modified v3.5 will do everything that DM1000 v4.0 will do except line by line scrolling with V(iew). Tony has given DM1000 the squeeze job, and the result is that FWB's modified v3.5 files are smaller than the original v3.5 and much smaller than DM1000 v4.0.

The most important feature of FWB's DM1000 is that it formats disks at 18 sectors per track in DD mode with a Myarc disk controller. Bugs in T(ype), P(rint), and C(opy) have

been fixed, and you can now use 3 digit printer entry codes. Horizon Ramdisks at high CRU adresses are fully supported except for initialization during Disk Copy.

OTHER FEATURES NEW TO FWB v4.1:

The formatter may now have 4 disk files open at the same time. From the assembler the object file name is passed back to the object file parts of the LOADERS menu and appears as the on screen default for immediate loading.

The keyboard control of DISK PATCH has been augmented to make it consistant with John Birdwell's DISK UTILITIES. The DISK PATCH title screen tells you that you can use the "original" keys (this means the keys that worked with FWB v4.0, which arn't quite the original DISKO keys) and an alternate set of key presses that corresponds to the keys used to control DISK UTILITIES (Ctrl/H for Hex display, Ctrl/N for next sextor, Ctrl/W for write to sector, etc). If you are familiar with the keyboard controls of DISK UTILITIES you will have no trouble using FWB's DISK PATCH.

FINAL CONCLUSIONS:

In my opinion everyone who does serious disk based work with the 99/4A should be using FWB. If you don't have it, check your user group's library. User groups, not individuals, may obtain FUNNELWEB v4.1 at no charge by sending a disk and paid return mailer to the Lima User Group, P.O. Box 647, Venedocia OH 45894.

DONE

(BB&P editorial note: The following file, written by John Birdwell describes the changes made in DISK UTILITIES v4.1 as compared to v4.0a. John asks $15 to become a registered user. After payment of this fee, updates are free. For updates after registeing check your user group library, or send John a disk and postage paid return mailer, or send $5 and John will provide the disk and mailer.)

```
*********************************
*                               *
*    UPDATE INFORMATION         *
*    FOR DISK UTILITIES         *
*       Version 4.1             *
*                               *
*       John Birdwell           *
*    7052 Springhill Circle     *
*    Eden Prairie, MN 55344     *
*********************************
```

NOTE: A special verson of Disk Utilities (4.1M) is available for use with the Myarc Disk Controller. This is required to format a DS/DD disk to 1440 sectors. If you are utilizing this program with either a Geneve 9640 or have the 80 track Eprom installed in your disk controller this version is not needed. If you are in need of this version please indicate when requesting this program.

ADDED AND CHANGED FEATURES

1. File Utilities: FILE OPS- Added - (E)dit Option. Selecting the (E) option will enter the File Sector Editor. Changed - (D)elete Option. If the file is protected the input will not be accepted. Pressing a 'P' will remove the 'D'. Changed - (V)iew Option. View will now display any size Display Fixed or Display Variable File. Selecting (V)iew will provide you with a prompt to output to Display or Printer, any size display file can be sent to your printer. FIND STRING- Changed to show the sector number within the file that the match occurred.

2. Disk Manager: Added - Copy (Bitmap). This selection will copy all used sector from the source disk to the destination disk. Added - Reset Disk. This selection will reset a previously initialized to its initialized state without formatting. Changed - Copy (Backup/Bitmap). If the destination disk is initialed to the number of sectors as the source disk the initalization step is not performed.

3. Disk Utilities: Removed - Setup Myarc Ramdisk (Needed the space for more inportant changes and additions.).

4. Sector Utilities: Added - Copy Sectors. This selection will copy a range of sectors. Added - Mark Sector. This selection will mark a sector as used. Added - Free Sector. This selection will unmark a sector as used.

5. System Setup: Added - Printout size for File print. Added - Special Print Code. This allows a hex string of up to 20 characters to be used for your printouts. ie- Should you desire the Disk Report printed in super-script you can designate this in you Special Print Code. Changed - Printout Size Selections. N - Normal. Will precede your printout with the code needed to set your printer to its standard print size. C - Compressed. Will precede your printout with the code needed to set your printer to its Compressed print size. S - Special. Will precede your printout with the code you designate as special.

NOTE: Due to the addition of the special print code a printer reset is sent to your printer to reset it to its initialized state. This code MUST be set through a sector edit. All defaults are currently set for an OKIDATA printer. See docs for this location.

6. Exit: No Change.

7. Load FW: This selection will load the Funnelweb UTIL1 file from any drive.

OTHER CHANGES: Sector/File Editor: Added - Insert Key (FCTN/2). This key will insert a null if in Hex or a space

SLaVe Newsletter version edited by Dwight Klettke.

(Save this third song under the filename COLUMBIA.)

```
  2 DIM L$(12),S(12)
 10 GOTO 100
 11 D,CH$,CH,SET,J,L$(),N,S(),CX,NX,T,V,M,XX,Q
 30 CALL CLEAR :: CALL SCREEN :: CALL CHAR :: CALL COLOR :: CALL VCHAR :: CALL
 SOUND :: CALL PEEK
 40 !@P-
100 CALL CLEAR :: CALL SCREEN(16):: DISPLAY AT(8,1):"  COLUMBIA, THE GEM OF THE"
 :"":TAB(12);"OCEAN" :: DISPLAY AT(24,2):"programmed by Jim Peterson" :: FOR D=1 TO 500
110 NEXT D
120 CH$="995A3CFFFF3C5A99" :: FOR CH=40 TO 136 STEP 8 :: CALL CHAR(CH,CH$):: NEXT CH
130 REM - contains characters above ASCII 127 keyed in with the CTRL key, which
will appear as blanks on printout
139 !@P+
140 DATA XXXXX(h'x HPPH x'h(XXXXX,XPPPP(hh'x HH x'hh(PPPPX,XPO0000000'x  x'000000
OPX,XPO@@(HHOp'xx'pOHH(@@OPX
141 !@P-
150 DATA XPO@@(HHOpX''XpOHH(@@OPX,((O(((HHOpp''ppOHH(((O((,hhOHHH88888888888888HHH
Ohh,'hOHHH8@OXH((HXO@8HHHOh'
160 DATA x'00000800H(   (HOO80000'x, x'ppp8XH( PP (HX8ppp'x ,H x'Xp8H( PHHP (H8pX'
 x H,PH x''8( PHXXHP (8''x HP
170 FOR SET=2 TO 13 :: CALL COLOR(SET,1,1):: NEXT SET
180 FOR J=1 TO 12 :: READ L$(J):: NEXT J
190 FOR J=1 TO 12 :: PRINT TAB(3);L$(J):: NEXT J
200 FOR J=12 TO 2 STEP -1 :: PRINT TAB(3);L$(J):: NEXT J
210 PRINT TAB(3);L$(1);:: CALL VCHAR(1,29,1,192)
220 DATA 277,294,330,370,392,440,494,523,554,587,659,40000
230 DATA 3,2,0,1,2,7,4,5,0,3,5,7,1,5,0,4,6,0,3,10,0,1,8,0,2,7,0,10,5,0
240 DATA 2,2,0,4,3,0,2,11,0,2,10,0,2,8,0,2,7,0,2,6,0,2,5,7,8,5,0,6,4,0
250 DATA 2,6,7,4,6,0,2,6,7,2,6,0,4,6,7,2,7,0,2,9,0,2,10,0,10,6,0
260 DATA 4,10,0,2,9,0,2,7,0,2,6,0,2,5,0,2,4,0,2,3,0,2,6,0,2,1,0,14,2,0
270 DATA 2,2,0,4,6,0,3,6,7,1,6,0,2,5,0,2,4,0,2,3,0,2,2,0,2,2,7,10,5,0
280 DATA 2,5,0,2,6,0,4,7,0,2,7,7,2,8,0,2,7,0,2,6,0,2,5,0,12,6,0
290 DATA 4,6,0,2,10,7,4,10,0,2,10,7,2,8,0,2,7,0,2,6,0,2,5,0,2,4,0,10,3,0
300 DATA 2,11,0,2,10,0,2,8,0,2,7,0,2,6,0,2,5,0,4,4,0,2,3,0,2,4,0,12,5,0
310 DATA 2,4,0,2,5,0,4,6,0,3,6,7,1,6,0,4,6,7,3,10,0,1,8,0,12,7,0
320 DATA 2,4,0,2,5,0,4,6,0,3,6,7,1,6,0,4,6,7,3,10,0,1,8,0,12,7,0
330 DATA 2,5,0,2,7,0,2,10,0,4,10,0,2,8,0,2,7,0,2,6,0,2,5,0,2,4,0,2,4,7,10,3,0
340 DATA 2,11,0,2,10,0,2,8,0,2,7,0,2,6,0,2,5,0,4,4,0,2,3,0,2,4,0,8,5,0
350 FOR N=1 TO 12 :: READ S(N):: NEXT N
360 CX=1 :: NX=1
370 !FOR J=1 TO 117 :: READ T,N,V :: FOR M=1 TO T :: CALL SOUND(-999,S(N),V,S(
N)*1.01,V):: CALL COLOR(N+NX,N+2,CX):: CALL COLOR(N,CX,CX):: NEXT M :: NEXT J
371 FOR J=1 TO 117 :: READ T,N,V :: FOR M=1 TO T :: CALL SOUND(-999,S(N),V+10,S(
N)*1.01,V+10):: CALL COLOR(N+NX,N+2,CX):: CALL COLOR(N,CX,CX):: NEXT M :: NEXT J
380 RESTORE 230 :: XX=XX+1 :: ON XX GOTO 390,400,410,370,420,430,440,460
390 CX=2 :: GOTO 370
400 CALL PEEK(12288,Q):: IF Q=3 THEN CALL SCREEN(5):: GOTO 370
401 FOR J=V TO 30 :: CALL SOUND(-99,S(N),J,S(N)*1.01,J):: NEXT J
```

```
402 IF Q=1 THEN RUN "DSK1.DARK" ELSE IF Q=2 THEN RUN "DSK1.QUICKLOAD" ELSE CALL
    CLEAR :: STOP
410 CX=16 :: CALL SCREEN(14):: GOTO 370
420 CALL SCREEN(5):: GOTO 370
430 CALL SCREEN(7):: GOTO 370
440 FOR SET=1 TO 13 :: CALL COLOR(SET,2,2):: NEXT SET
450 CALL SCREEN(16):: CX=2 :: NX=0 :: GOTO 370
460 CALL SCREEN(2):: XX=XX-2 :: GOTO 370
```

I have always wanted a pocket calculator with several memories and a window to display the
contents of each one. So, since there is plenty of room for windows on a TV screen, I wrote
one.

It does not require any use of the Enter key, but each CALL KEY input must be validated
and processed, so don't type too fast. It will accept such inputs as M1=7= or M1=7+1= or
M2=1-M1= to put a value in a memory, or 6+7= or 6+M2= to calculate and display, or 6+7M1 or
M1-.M2M3 to calculate and put into memory, and will even do multiple calculations such as
1+2-3/4*5%6, subtotaling after the first two.

```
100 CALL CLEAR :: CALL SCREEN(5):: DEF S$(X)=SEG$(A$,X,1)&" = " :: CALL PEEK(819
    8,A):: IF A<>170 THEN CALL INIT
110 CALL LOAD(-31806,16):: ON WARNING NEXT :: GOTO 140
120 SET,M$(),K,S,A$,S$(),R,C,N,N1,N2,N1F,N2F,M1F,M,MF,DF,FF,VF,EF,FL,N$,F2,T,M
    2,MEM(),ST,NX,ZF
130 CALL COLOR :: CALL CHAR :: CALL KEY :: CALL SOUND !@P-
140 FOR SET=0 TO 4 :: CALL COLOR(SET,16,1):: NEXT SET :: FOR SET=5 TO 8 :: CALL
    COLOR(SET,5,16):: NEXT SET :: CALL CHAR(64,"0")
150 FOR SET=9 TO 12 :: CALL COLOR(SET,16,1):: NEXT SET
160 DISPLAY AT(1,10):"TIGERCUB":"   MULTIMEMORY@CALCULATOR": :"MEMORY #1": :"MEM
    ORY #2": :"MEMORY #3": :"MEMORY #4": :"MEMORY #5"
170 M$(1)="0123456789.+-*/%=CXM" :: M$(2)="0123456789.ASTDPECXM" :: DISPLAY AT(2
    0,1):"use ?":"(1) symbols":"(2) alpha characters"
180 CALL KEY(0,K,S):: IF S=0 OR K<49 OR K>50 THEN 180 :: A$=M$(K-48)
190 DISPLAY AT(20,1):S$(12);"add";TAB(16);S$(16);"percent" :: DISPLAY AT(21,1):
    S$(13);"subtract";TAB(16);S$(17);"equals"
200 DISPLAY AT(22,1):S$(14);"times";TAB(16);S$(18);"cancel" :: DISPLAY AT(23,1):
    S$(15);"divide by";TAB(16);S$(19);"clear all"
210 DISPLAY AT(24,1):"M1 to M5 = memories #1 to #5"
220 R=15 :: C=1 :: N,N1,N2,N1F,N2F,M1F,M,MF,DF,FF,VF,EF,FL,ZF=0 :: N$="" :: DISP
    LAY AT(18,1):""
230 CALL KEY(3,K,S):: IF S<1 THEN 230 :: CALL SOUND(50,500,5):: DISPLAY AT(R,C):
    CHR$(K):: C=C+1
240 ON POS(A$,CHR$(K),1)+1 GOTO 260,270,270,270,270,270,270,270,270,270,270,280,
    290,250,290,290,290,340,410,420,430
250 IF VF=1 OR MF=1 THEN 290 :: ZF=1 :: N$="-" :: GOTO 230
260 DISPLAY AT(R,C-1):"?" :: C=C-1 :: GOTO 230
270 IF MF=1 THEN 260 :: FL=0 :: VF=1 :: IF DF=0 AND ZF=0 THEN N=N*10+K-48 :: GO
    TO 230 ELSE N$=N$&CHR$(K):: GOTO 230
280 IF DF=1 THEN 260 :: DF=1 :: MF,FL=0 :: IF ZF=1 THEN N$=N$&"." :: GOTO 230 EL
    SE N$=STR$(N)&"." :: GOTO 230
290 IF C=2 OR FL=1 THEN 260 :: FL=1 :: IF FF=0 THEN 320
300 F2=POS(A$,CHR$(K),1)-11 :: IF VF=1 THEN GOSUB 480
310 GOSUB 520 :: N1=T :: DISPLAY AT(18,1):"SUBTOTAL";T :: N2F,N2=0 :: FF=F2 :: GOTO 230
320 IF VF=0 THEN 330 :: VF,MF=0 :: GOSUB 480
330 MF=0 :: FF=POS(A$,CHR$(K),1)-11 :: GOTO 230
340 IF C=2 OR(FF=0 AND M1F=0)OR(C=4 AND M1F=0)OR FL=1 THEN 260
350 IF C=4 THEN EF=1 :: M2=M :: N1F,MF=0 :: GOTO 230
360 IF VF=1 THEN GOSUB 480
370 IF EF=0 THEN 400
380 IF N2F=0 THEN MEM(M2)=N1 :: DISPLAY AT(M2*2+2,11):N1 :: GOTO 220
390 GOSUB 520 :: MEM(M2)=T :: DISPLAY AT(M2*2+2,11):T :: GOTO 220
```

```
400 GOSUB 520 :: DISPLAY AT(15,C):T :: GOTO 220
410 DISPLAY AT(R,1):"";"";"";"" :: GOTO 220
420 MEM(1),MEM(2),MEM(3),MEM(4),MEM(5)=0 :: FOR R=4 TO 12 STEP 2 :: DISPLAY AT(R
  ,10):"" :: NEXT R :: GOTO 410
430 IF EF=1 AND MF=1 THEN 260
440 CALL KEY(3,K,ST):: IF ST<1 OR K<49 OR K>53 THEN 430 ELSE CALL SOUND(50,500,5
  ):: M=K-48 :: DISPLAY AT(R,C):CHR$(K):: C=C+1 :: MF=1 :: FL=0 :: IF VF=1 THEN
  GOSUB 480
450 IF N1F=0 THEN M1F,N1F=1 :: N1=MEM(M):: IF ZF=1 OR DF=1 THEN N1=VAL(N$&STR$(N
  1)):: DF,ZF=0 :: GOTO 230 ELSE 230
460 IF N2F=0 THEN N2F=1 :: N2=MEM(M):: IF ZF=1 OR DF=1 THEN N2=VAL(N$&STR$(N2))
  :: DF,ZF=0 :: GOTO 230 ELSE 230
470 GOSUB 520 :: MEM(M)=T :: DISPLAY AT(M*2+2,11):T :: GOTO 220
480 IF DF=0 AND ZF=0 THEN NX=N ELSE NX=VAL(N$):: DF,ZF=0
490 IF N1F=0 THEN N1=NX :: N1F=1 :: GOTO 510
500 N2=NX :: N2F=1
510 VF,N=0 :: N$="" :: RETURN
520 IF FF=1 THEN T=N1+N2 ELSE IF FF=2 THEN T=N1-N2 ELSE IF FF=3 THEN T=N1*N2 ELS
  E IF FF=4 THEN T=N1/N2 ELSE T=N1*N2/100
530 RETURN
```

An open letter to our friends around the country.

The Salt Lake and Valley User Group (TI SLaVes) is a small (about 40 members) user group located in the state of Utah. We enjoy very much exchanging newsletters and software with other user groups in the TI community. We are however not really in the mainstream as far as what is going on in the TI software world. We do however have a library of several hundred disks. We are in the process of trying to update our public domain and fairware software as well as available RLE's, and other artint graphics, instances and fonts. We would like to establish a user group exchange of software with anyone out there who might be interested. We would be happy to exchange disk for disk with anyone who wants to. All we ask is that you write us or call us before sending any disks. You may write us at our mailing address:
TI SLaVes
3818 W. 6540 S.
West Jordan, Utah 84084
or call us and leave a message on our BBS;
or call me (Renn Crump) at 801-966-7144 after 5:30 pm (Mountain Time).

in Ascii at the current cursor position and resort the last character of the sector. Added - Delete Key (FCTN/1). This key will delete the character at the current cursor location and place a null :a Key or a space in Ascii a the end of the sector. Changed - Character highlighting. Spaces between changed characters are now highlighted to further aid in identification.

The following selections are available at all times when keyboard input is expected :- except while doing a sector edit: CTRL/I will provide you with a decimal to hex convertor. CTRL/H will provide you with a hex to decimal convertor. Depressing either of these will turn the convertor off and return you to the prompt you were at when it was turned on.

DONE

Hi-Res Graphics - Part IV

(Fourth in series by Ann Dhein)

Parts one, two and three of this series defines a drawing package as a program or group of programs what will allow the user to create graphics by turning on (or off) the smallest addressable unit of the screen-a single pixel. Drawings thus produced can be saved to disk and reloaded for editing or printing.

All of the TI-99/4A packages do this and much more. Before you purchase any program you should check to make sure it has the features you are looking for. Norton Graphics, for example, is strictly a programming utility while Paint 'N Print is pure entertainment. TI Artist is the best general purpose program by far, but nothing can beat Graphx for enhancing an artist's creativity. Joy Paint also excels but lacks color capability. Draw 'N Plot can be used as a simple drawing board, but its real merit lies in its ability to interface with your own programs.

A few programs may not work with the Myarc and/or Corcomp peripherals. Joy Paint, TI Artist and Graphx, along with most of the others work on any of the three controllers. TI Artist works beautifully with the Myarc Ram Disk, but Joy Paint does not. You must consider all this when you decide on a purchase.

Printer compatibility will be covered later and should be something to be considered.

The various packages available vary in ease of use. Super Sketch is one of the easiest to use. A child that can't read could use this program. Joy Paint which does even more than Super Sketch is also easy to use. The other programs vary in the amount of time required in learning to use them. Draw a Bit and Master Painter require the memorization of a number of function keys to use them properly. Bitmac requires some key memorization combined with the use of icons.

Draw 'N Plot uses a simple menu and a few function keys. Paint 'N Print is easy to use on a regular basis but there are a number of keys that need to be memorized which makes it harder to get started. TI Artist and Graphx are not perfect, but both are comfortable to use and very easy to begin using. TI Artist makes extensive use of icons for users who prefer them but also allows the faster method of pressing function keys for the various commands. TI Artist also requires switching between two main programs and several auxiliary ones. Graphx uses some function keys and provides an identifying strip for the top of the keyboard which makes them easy to follow. Graphx also uses menu selection for the lesser used commands. Of all the programs Graphx has the best manual. Now let's talk about drawing tools. In these packages the cursor is your "pencil" as well as your "eraser". The pencil can be moved around either by using the keyboard's arrow keys or by using a remote controlled "joystick". Some software requires joystick control. The

fire button is usually used to turn the drawing tool off and on. To make curved lines with the keyboard is difficult-you need the control that a joystick has. On the other hand straight lines are difficult with a joystick and the keyboard does a better job in this regard. However, drawing programs can usually creat lines, boxes and circles automatically.

Anywhere a joystick is required, a trackball can be used instead. The ball offers 360 degree movement for such fine control of the pencil that you can easily write your name in script. It is though, almost impossible to draw a straight line with a trackball.

In many of the programs the speed of the cursor can be controlled. This is handy because if you are drawing large areas freehand you can go much faster. When you want to work on painstaking detail then use a slower cursor for more accuracy.

Instead of leaving a fine line like the single-pixel pencil, a brush applies wider and fancier lines. Draw A Bit lets you paint in wide or narrow swatches of color. TI Artist includes angle brushes and brushes that make parallel lines such as you would get from painting with a fork. Paint 'N Print has 32 brush styles including circles, squares and triangles in a number of sizes.

As mentioned earlier all paint programs listed here will draw lines for you automatically. Select the beginning and end of your line, press a button and you have a perfectly straight line. Some programs will also draw circles, ovals, rectangles and rays. A ray is like a line except that you can keep moving the cursor (pencil) around the drawing board and wherever you choose to press the fire button you can have a perfect line between your cursor position and your starting point.

Some programs will even draw ellipses and rectangles. Draw A Bit and The Graphics Package draw 90 degree arcs (4 arcs make a circle). The various programs handle this function in different manners, but the principal is the same; select the center position and the size and the figure is drawn automatically.

Filling, Shading, and Adding Depth can be accomplished in most of the programs. The Paint 'N Print package limits filling to a rectangle only, but a companion disk is available which allows filling any shape.

A manual fill requires the cursor to be moved around the shape as it is being filled. A semi-automatic fill does most of the shape in one pass while the balance is done with the cursor. A full automatic fill checks to see that every little corner has been filled. Sometimes this is called a "smart" fill.

Some programs provide patterns for shading and depth. Super Sketch has one texture pattern. TI Artist has 10 and Joy Paint has 24 to choose from. Joy Paint also has an airbrush which works like a can of spray paint. It gives a

misty sprayed effect in whatever pattern you are using. Because you can control the amount of "paint" that goes on the drawing, it makes an excellent tool for adding shadows and depth. Almost the same effect can be achieved with Paint 'N Print by using one of the larger brush sizes and switching to the texture mode. Bitmac has a feature called "Life" which can be used for getting a shaded effect.

Joy Paint and Paint 'N Print both have routines on their companion disks for creating new texture patterns. Once you have saved these patterns on disk, they can be used over and over.

Reflections is an application where symetrical figures can be drawn easily. The screen is divided into sections and whatever is drawn in one section will be reflected in the other sections. In TI Artist this is called the MIRROR function. Paint 'N Print calls it KALEIDESCOPE.

You can manipulate your picture. That is, you can Move, Flip, Rotate, Invert, Magnify and Reduce what you have drawn. Some programs let you copy one part of a picture to another part and move sections of a picture around the screen. "Inverting" means to turn all the "on" pixels off and all the "off" pixels on, thus swapping black for white and white for black. Flipping a picture gives you a mirror image.

The only programs that have functions for enlarging or reducing are Bitmac and Joy Paint. TI Artist has a function where part of a picture when in the zoom mode can be saved to disk. This will give a new picture four times size. For both enlarging and reducing, Joy Paint does the smoothest job.

The more recent programs have provisions for text to be used right along with the graphics. The nicest of these are Joy Paint and Bitmac, each of what amounts to a mini word processor built right into the drawing board. With TI Artist, variable sized letters can be easily typed on the screen from the keyboard in 81 different heights and widths. Paint 'N Print contains a font editor which makes it easy to change the resident lettering. TI Artist provides an alpha numeric load function in the enhancement section of the program. Pre-designed fonts that are stored on the disk may be loaded into the program for an endless variety of lettering. Graphx stores fonts on the clipboard and there is an endless variety to choose from. The letters to be used are laid out in the clipboard and then transported to the picture where you want them. Joy Paint 99 works much the same way. The alphabets are stored in a regular picture file and the Cut and Paste option is used to add them to your drawing.

(It now appears we will need Parts V & VI to complete this series. We encourage you to save each part for future use. A reprint of the entire series is possible if there is enough interest-ed)

SLaVeSLaVeSLaVeSLaVeSLaVeSLaVeSlaVeSLaVe
SLaVeSLaVeSLaVeSLaVeSLaVeSLaVeSlaVeSLaVe

Salt Lake and Valley 99'er User Group
Mail Address: 3818 W. 6540 So., West Jordan, Utah 84084
Bulletin Board: (801) 250-8321
BBS Hours: 24 Hours Daily

GROUP OFFICERS
President: Bruce Moore 295-8279
Vice President: Warren Young 278-1052
Secretary-Treasurer: Bob Beaudoin 262-6045
Librarian: Jim Fisher 571-0804
Asst. Librarian: Renn Crump 966-7144
BBS Sysop: Neil Howieson 250-5430
Newsletter Editor: Renn Crump 966-7144
Associate Editor: Dwight Klettke 1-649-3456

AUGUST 1988 NEWSLETTER

NEXT MEETING

The next meeting is AUGUST 20, 1988 at 9:00 am sharp. We will be
meeting in the Disabled American Veterans Meeting Hall at 273 E. 800 S.

TI SLAVES
3818 W. 6540 S.
WEST JORDAN, UTAH 84084

DALLAS TI U.G.
P.O. BOX 29863
DALLAS TX 75229
T

THIS WILL BE YOUR LAST ISSUE IF WE DO NOT HEAR FROM YOU.