N U T I N E W S

* N I T T A N Y U S E R S O F T E X A S I N S T R U M E N T S *

L. Chapin, Pres. APRIL 1990 M. Villano, Ed.

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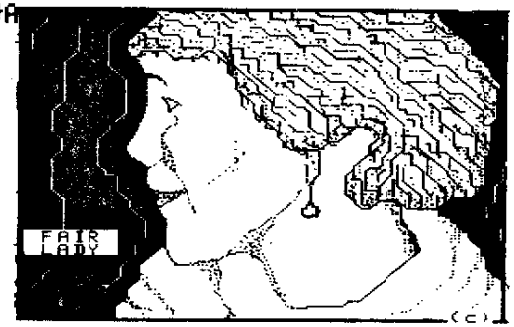

SPECIAL ISSUE: REPORTS ON THE FAIRS

M.I.E.C. MICROCOMPUTER INFO EXCHANGE CONFERENCE AND COMPUTER FAIR
T.I.C.O.F.F. TEX INSTR (AND IBM CLONE) COMPUTER OWNERS' FUN FAIRE

1990 MIEC & COMPUTER FAIR: Our third showing at the MIEC, hosted by Penn State on March 9 - 10th, is now behind us. *Chip Chapin, Maurice Villano and David Snell* packed a *Geneve* and three *TI-99/4A's* with peripherals, software, literature and the *NUTI* Library on three tables in the lobby of the *Keller Conference Center*. We were glad to have *Dave* actively participate this year. His display was the same as at the *Earth & Mineral Science Museum* where he is the curator. He used two consoles (cassette only): one ran text announcements on a screen; the other ran an astronomy program *(Stargazer)* for the public. We thank the *MUG* staff for printing handout literature, and Conference Center's Coordinator *Donna Ricketts* for the display area and providing overnight security which saved us from having to knockdown, take home, and then setup our equipment again in the morning, a back-breaker job! Our audience was again mostly *MIEC* conferees who browsed by our tables during breaks. The *Nittany Lion Inn* is being expanded and we hope the vendors' display areas there might be able to accomocate us next year.

NEXT MEETING: *Chip Chapin*'s home, Tues. Apr 17th, 7 p.m.

(c) From BEST OF DRAW 'N PLOT (1), by courtesy of *Quality 99 Software*.

T.I.C.O.F.F. FAIR: *(East Coast Computer Show Roselle Park, NJ)*

"It was a dark and stormy night..." No, that wasn't *Snoopy* weaving a mystery tale, but is your editor describing the pre-dawn weather that greeted him and *Chip Chapin* as they drove in rain and fog to the Annual *T.I.C.O.F.F. Faire* at Roselle Park High School, NJ on Sat., March 17th. The event is put on by TI user groups in the greater NY and Northern NJ area. It's sponsored by the student council of RPHS and proceeds go to a student scholarship fund. The registration desk and cafeteria seemed to function smoothly and these activities were handled by the students.

Despite claims of increased attendance at this *Fair* over the years, it seemed down somewhat from 1989, at least to this one observer's eye. The gymnasium was used as a main exhibition hall and most of the tables were occupied. Well-known TI mail order dealers who frequent the "fair circuit," such as *Bud Mills Service, LGMA Products, MYARC, and the Reve 99 Company* were in evidence. A pleasant surprise was *Beery Miller from 9640 News*. Missing a second year was *Chris Bobbitt of Asgard Software*; the long-awaited release of *PRESS* has apparently failed to materialize. User groups which I could identify as TI-related and selling items at a table were *Boston Computer Society (99/4A), Central Westchester 99'ers, Lehigh 99'ers, Long Island 99'ers, North Jersey IBM-TI UG, & QB 99'ers*. Other businesses selling TI or related products were *Colonial Software, Computer Shopper, Harrison Software, MICROpendium, Nitka Computer Software*, and a *"Swap Shop" operated by TICOFF* to buy, sell or trade items.

Speakers and seminars were scheduled throughout the day: *Al Beard, LMGA Products* upgrade to FORTRAN 99'9640; *Beery Miller, 9640 NEWS* diskazine demo'ed "Windows" out of M-DOS; and *Lou Phillips of MYARC* updated the status of software for the Geneve and HFDC. These were of the most interest to *Chip* and me. This year my spending was modest; I picked up some blank floppies in bulk (generics from *Diskette World* a good value) and miscellaneous software like *Beery Miller's TETRIS*, which loads from M-DOS; the so-called "complete" collection of *TIPS* pics from CW 99'ers; and *RLE* pics on sale at the BCS table, to add to my "artsy-pixy" files. The only serious acquisitions were *free FORTRAN upgrades* from Al Beard, and copies of a *debugged M-DOS V.96H, and MDMV V1.40* from Lou Phillips. Beery Miller is serding me *4Basic V2.99A* to run his new game BARRICADE. After evaluation, these will be reviewed in future issues of *NUTI NEWS*. (For piece de resistance of goodies read WHAT Chip ordered at TICOFF!)

A hot-dogs-and-pizza-and-soda-pop luncheon was graciously hosted by TICOFF, in conjunction with a meeting for Users Group presidents and/or their reps. *Art Byers* of CW 99'ers presided. Mutual problems of group activities and membership were discussed. Among those present, besides the groups with tables mentioned above, were: *Gary Taylor of Pittsburgh U.G.; Mickey Schmitt of West Penn 99'ers; Glenn Pearson, Central Garden State U.G.*, and, of course, your personal *NUTI reps- Chip and Maurice*.

Would we be willing to make the one-day, 450-mile round trip *again*, from State College, PA - Roselle Park, NJ, especially in the weather we had the past two times? Well, MAYBE next year! *(TICOFF'91- March 15th)*

* * * * * * *

TIPS FROM THE TIGERCUB

#55

Tigercub Software
156 Collingwood Ave.
Columbus OH 43213

I am still offering over 120 original and unique entertainment, educational and utility programs at just $1.00 each, or on collection disks at $5.00 per disk.

The contents of the first 52 issues of this newsletter are available as ready-to-run programs on 5 Tips Disks at $10 each.

And my three Nuts & Bolts Disk, $15 each, each contain over 100 subprograms for you to merge into your own programs to do all kinds of wonderful things.

My catalog is available for $1, deductable from your first order (specify TIGERCUB catalog).

****

TI-PD LIBRARY

I have selected public domain programs, by category, to fill over 200 disks, as full as possible if I had enough programs of the category, with all the Basic-only programs converted to XBasic, with an E/A loader provided for assembly programs if possible, instructions added and any obvious bugs corrected, and with an auto-loader by full program name on each disk. These are available as a copying service for just $1.50 post-paid in U.S. and Canada. No fairware will be offered without the author's permission. Send SASE for list or $1, refundable for 9-page catalog listing all titles and authors. Be sure to specify TI-PD catalog.

****

The Tigercub has dipped a cautious paw into the cold dark mysterious waters of assembly, while still keeping a firm grip on trusty old Extended Basic. The result is an XBasic program that writes an assembly program!

The following subprogram, when merged into any program which has reidentified characters, and called after the characters have been reidentified, will write a source code which can be assembled into object code, loaded from XBasic and linked to instantly access the character set.

The source code is based on 2FONTS/S by Barry Traver, who gives credit to Mac McCormick, David Migicovsky and Karl Schuneman.

```
19000 SUB CHARSUB(HX$())
19001 DISPLAY AT(12,1)ERASE
ALL:"Source code filename?":
"DSK" :: ACCEPT AT(13,4)SIZE
(12)BEEP:F$ :: OPEN #1:"DSK"
&F$,OUTPUT
19002 DISPLAY AT(15,1):"LINK
ABLE program name?" :: ACCEP
T AT(16,1)SIZE(6):P$
19003 DISPLAY AT(18,1):"Rede
fine characters from    ASCI
I     to ASCII"
19004 ACCEPT AT(19,?)VALIDAT
E(DIGIT)SIZE(3):F
19005 ACCEPT AT(19,21)VALIDA
TE(DIGIT)SIZE(3):T
19006 PRINT #1:TAB(8);"DEF";
TAB(13);P$ :: PRINT #1:"VMBW
   EQU  >2024" :: PRINT #1:"
STATUS EQU  >837C"
19007 NB=(T-F+1)*8 :: CALL D
EC_HEX(NB,N$):: A=768+F*8 ::
 CALL DEC_HEX(A,A$)
19008 FOR CH=F TO T :: IF CH
<144 THEN CALL CHARPAT(CH,CH
$)ELSE CH$=HX$(CH)
19009 IF FLAG=0 THEN PRINT #
1:"FONT";:: FLAG=1
19010 FOR J=1 TO 13 STEP 4 :
: M$=M$&">"&SEG$(CH$,J,4)&",
" :: NEXT J :: M$=SEG$(M$,1,
23)&"  *"&CHR$(CH)
19011 PRINT #1:TAB(1);"DATA
"&M$ :: M$="" :: NEXT CH
19012 PRINT #1:P$;TAB(8);"LI
   R1,FONT" :: PRINT #1:TAB(
8);"LI   R0,>"&A$ :: PRINT #
1:TAB(8);"LI   R2,>"&N$
19013 PRINT #1:TAB(8);"BLWP
@VMBW":TAB(8);"CLR  @STATUS"
:TAB(8);"RT":TAB(8);"END" ::
 CLOSE #1
19014 SUBEND
19015 SUB DEC_HEX(D,H$)
19016 X$="0123456789ABCDEF"
:: A=D+65536*(D>32767)
19017 H$=SEG$(X$,(INT(A/4096
)AND 15)+1,1)&SEG$(X$,(INT(A
/256)AND 15)+1,1)&SEG$(X$,(I
NT(A/16)AND 15)+1,1)&SEG$(X$
,(A AND 15)+1,1):: SUBEND
```

Now to try it out. You probably know that CALL CHARSET will restore reidentified characters below ASCII 96 to normal form, but not those above, so let's write a routine to restore those. Clear the memory with NEW, merge in the above, which you should have SAVED with -
SAVE DSK1.CHARSUB,MERGE
by MERGE DSK1.CHARSUB. Add a line -
100 CALL CHARSUB(HX$()) and RUN. Answer the filename prompt with DSK1.OLDLOW/S, the next prompt with OLDLOW and select ASCII 97 to 127.

When done, insert the Editor/Assembler module and its disk Part A. Select Assembler, Y to load assembler, give the source code DSK1.OLDLOW/S, object code DSK1.OLDLOW/O, just press Enter at next prompt, and R for options. You should get 0000 ERRORS.

Now key in this routine to test your program.

```
100 CALL INIT :: CALL LOAD("
DSK1.OLDLOW/O"):: FOR CH=33
TO 126 :: CALL CHAR(CH,"FF81
818181818181FF"):: PRINT CHR$(
CH);:: NEXT CH
101 CALL KEY(0,K,S):: IF S=0
 THEN 101 ELSE CALL CHARSET
102 CALL KEY(0,K,S):: IF S=0
 THEN 102 ELSE CALL LINK("OL
DLOW")
110 GOTO 110
```

Press any key to restore the upper case characters by CALL CHARSET, any key again to use the CALL LINK.

You are now ready to use the routine to copy all kinds of character sets from the programs in your library. You don't have any such programs? Not to worry. You don't have to reidentify characters one by one with one of those graphics editor programs. You can just manipulate the existing hex codes of the normal characters. I have created nearly 50 different character sets by that method!

The space occupied by a character on the screen is really an 8x8 square of 64 tiny dots. Various dots are turned on (colored) and off (transparent) to create a pattern - just the opposite of light bulbs on a scoreboard.

And those on-and-off dots are really the binary numbers which the computer uses. But fortunately the computer lets us use hexadecimal numbers rather than binary. The following will print out a reference chart of decimal to binary to hexadecimal. You can easily convert it to dump to a printer.

```
10 DISPLAY AT(6,1)ERASE ALL:
"DEC BIN HEX"
100 FOR J=0 TO 15 :: CALL DE
C_BIN(J,B$):: CALL DEC_HEX(J
,H$):: DISPLAY AT(J+8,1):J;T
AB(5);B$;TAB(10);SEG$(H$,4,1
):: NEXT J
21020 SUB DEC_BIN(D2,B$):: D
=D2 :: IF D=0 THEN B$="0000"
 :: SUBEXIT
21021 IF D=1 THEN 21022 :: X
=D/2 :: B2$=STR$(ABS(X<>INT(
X)))&B2$ :: D=INT(X):: IF D>
1 THEN 21021
21022 B2$="1"&B2$ :: B$=RPT$
("0",4-LEN(B2$))&B2$ :: B2$=
"" :: SUBEND
21039 SUB DEC_HEX(D,H$)
21040 X$="0123456789ABCDEF"
:: A=D+65536*(D>32767)
21041 H$=SEG$(X$,(INT(A/4096
)AND 15)+1,1)&SEG$(X$,(INT(A
/256)AND 15)+1,1)&SEG$(X$,(I
NT(A/16)AND 15)+1,1)&SEG$(X$
,(A AND 15)+1,1):: SUBEND
```


And this routine will show you how each letter is formed, by binary 0's (off) and 1's (on), for each key you press. I put it in merge format so you can MERGE it into any program and CALL it to examine the characters.

```
17000 SUB CHARVIEW
17001 !programmed by Jim Pet
erson Feb 1989
17002 DISPLAY AT(1,1)ERASE A
LL:"CHARACTERS IN BINARY & H
EX":;:"Press any key to see
the   binary representation
 of thescreen character and
its hexcode."
17003 DISPLAY AT(8,1):"Press
 Enter to see the char-acter
."
17004 CALL KEY(0,K,S):: IF K
=13 THEN 17005 ELSE IF S=0 O
R K<32 OR K>143 THEN 17004 E
LSE 17007
17005 CALL CHAR(48,"FF"&RPT$
("81",6)&RPT$("FF",9))
17006 CALL KEY(0,K,S):: IF S
<1 THEN 17006 ELSE CALL CHAR
(48,"0038444444444438001030
1010101038"):: GOTO 17004
17007 CALL CHARPAT(K,CH$)
17008 R=12 :: FOR J=1 TO 15
STEP 2
17009 H$=SEG$(CH$,J,1):: CAL
L HEX_BIN(H$,B$)
17010 DISPLAY AT(R,8):B$
17011 H$=SEG$(CH$,J+1,1):: C
ALL HEX_BIN(H$,B$)
17012 DISPLAY AT(R,12):B$ ::
 DISPLAY AT(R,18):SEG$(CH$,J
,2):: R=R+1 :: NEXT J :: DIS
PLAY AT(22,6):CH$ :: GOTO 17
004
17013 SUBEND
17014 SUB HEX_BIN(H$,B$):: H
X$="0123456789ABCDEF" :: BN$
="0000X0001X0010X0011X0100X0
101X0110X0111X1000X1001X1010
X1011X1100X1101X1110X1111"
17015 FOR J=LEN(H$)TO 1 STEP
 -1 :: X$=SEG$(H$,J,1)
17016 X=POS(HX$,X$,1)-1 :: T
$=SEG$(BN$,X*5+1,4)&T$ :: NE
XT J :: B$=T$ :: T$="" :: SU
BEND
```

And to reidentify a character, you just change the numbers and letters in the 16-digit hex code which represents the binary pattern. By writing little routines to switch those digits around, all kinds of things can be done.

For instance, the normal characters always have the top row of dots turned off, to provide spacing between lines of text on the screen. If you want taller characters you will have to double-space the lines, but you can create them by making the numerals and upper case characters consist of the 2nd-7th rows, the 7th row again, and the 8th row - it just happens to work out.

```
18000 SUB HIGHCHAR :: FOR CH
=48 TO 90 :: CALL CHARPAT(CH
,CH$):: CALL CHAR(CH,SEG$(CH
$,3,10)&RPT$(SEG$(CH$,13,2),
2)&SEG$(CH$,15,2)):: NEXT CH
 :: SUBEND
```

I made that a subprogram so you can MERGE it in and use it to modify other character sets.

If we take the hex code apart, 2 digits at a time, and reassemble it backward,

```
100 CALL CLEAR :: FOR CH=33
TO 90 :: CALL CHARPAT(CH,CH$
):: FOR J=1 TO 15 STEP 2 ::
CH2$=SEG$(CH$,J,2)&CH2$ :: N
EXT J :: CALL CHAR(CH,CH2$):
: CH2$="" :: NEXT CH
110 DISPLAY AT(12,1):"?NWOD
EDISPU":"YT EHT DENRUT OHW !
YEH" :: GOTO 110
```

That one was in my first Tips newsletter, years ago, but it is much more effective at assembly speed.

This one shades characters on their left edge by turning on the pixel to the left of the leftmost "on" pixel, if any. Also try it in combination with HIGHCHAR.

```
18001 SUB NEWCHAR3 :: FOR CH
=48 TO 122 :: CALL CHARPAT(C
H,CH$):: FOR J=1 TO 15 STEP
2
18002 CH2$=CH2$&SEG$("0367CD
EF",POS("01234567",SEG$(CH$,
J,1),1),1)&SEG$(CH$,J+1,1)::
 NEXT J :: CALL CHAR(CH,CH2$
):: CH2$="" :: NEXT CH :: SU
BEND
```

This one uses HIGHCHAR to heighten the character and then blanks out three rows. Try following it with NEWCHAR3.

```
18030 SUB NEWCHAR10 :: A$="0
0" :: FOR CH=48 TO 90 :: CAL
L CHARPAT(CH,CH$):: CH$=SEG$
(CH$,3,10)&RPT$(SEG$(CH$,13,
2),2)&SEG$(CH$,15,2)
18031 CH$=SEG$(CH$,1,4)&A$&S
EG$(CH$,7,2)&A$&SEG$(CH$,11,
2)&A$&SEG$(CH$,15,2):: CALL
CHAR(CH,CH$):: NEXT CH :: SU
BEND
```

The next one, which works only on ASCII 97-122, makes tall characters ridiculously elongated above.

```
18050 SUB NEWCHAR20 :: FOR C
H=97 TO 122 :: CALL CHARPAT(
CH,CH$):: CALL CHAR(CH,SEG$(
CH$,7,2)&RPT$(SEG$(CH$,9,2),
4)&SEG$(CH$,11,6)):: NEXT CH
 :: SUBEND
```

This one has the chaacters raised by one line, widened one column at left and two columns at right to make a full 8x8 character which must be double-spaced horizontally and vertically.

```
18090 SUB NEWCHAR27 :: FOR C
H=48 TO 122 :: CALL CHARPAT(
CH,CH$):: CH$=SEG$(CH$,3,10)
&RPT$(SEG$(CH$,13,2),2)&SEG$
(CH$,15,2) : FOR J=1 TO 15 S
TEP 2
18091 CH2$=CH2$&SEG$("014589
CD",POS("01234567",SEG$(CH$,
J,1),1),1)&SEG$("0129",POS("
048C",SEG$(CH$,J+1,1),1),1)
18092 NEXT J :: CALL CHAR(CH
,CH2$):: CH2$="" :: NEXT CH
:: SUBEND
```

Those who have my Nuts & Bolts disks will see how valuable this assembly can be to make instantly available the routines for double height and double width characters, etc., etc. And if you have Todd Kaplan's amazing ALSAVE routine from the Genial Traveler Vol. 1 No. 3, you can imbed them in your XBasic program for fast loading.

And you can merge CHARSUB into any character editor or sprite defining program and, with a bit of modification, use it to convert your creations into fast-loading assembly.

These assembly loads are compatible with my BXB, so you can also load character sets into sets 15 and 16, ASCII 144-159. However, the CHARPAT statement cannot access ASCII above 143, so in this case you must dimension an array in the program you are copying from, as DIM HX$(159), and place the hex codes in the array using the ASCII as the subscript number, such as
CALL CHAR(CH+64,CH$) ::
HX$(CH+64)=CH$, so that they will be passed to the subprogram. And don't CALL INIT after you have called BXB!

So, now you try creating your own screen fonts!

Memory full,

Jim Peterson

RAVE EXPANSION BOX HEADLINES TICOFF

By Chip Chapin

It's a TI...It's a GENEVE...It's a SUPERsomethin'inabox! And would you believe, it's a NEW box! O.K., so it's a new box. And it doesn't look at all like the old PEB. But what's inside it? I mean, there's this PC-type keyboard in front, and there's no 4A console hooked-up, so it must be a Geneve, right? But why is there a TI Extended Basic cartridge stuck in the side of the box? Just what is this thing?

What this thing is, is RAVE's new EXPANSION CHASSIS for the TI-99/4A and GENEVE computer systems. Physically, the box is a "small-footprint" chassis which contains all the computer's components and provides cable connections to your monitor and to a PC-style keyboard. Connections to all your peripherials is the same as now; the rear of the chassis provides access to the connections on the peripherial cards. I did not measure the box, but it is not as wide as the TI PEB - approximately one-third shorter, I would estimate. It seemed about the same height as the old PEB but there might be an inch difference there. The same estimate applies to the depth.

When used with the 4A, the motherboard is removed from the console (you leave it inside the metal sheath) and installed in the bottom of the box before installing the up-to-three floppy drives. The RAVE keyboard interface board is installed, one or two hard drives, and up to eight peripherial boards (the same ones that are used in the TI PEB) can be installed. So what you have is a modern, small footprint style computer with a modern keyboard and - take note - a 200 watt power supply and so quiet I could hardly believe it was on. If it hadn't been for the Extended Basic cartridge in the right hand side, I would never have suspected that it was a 4A.

In its GENEVE incarnation (which wasn't shown), the Expansion Chassis (PEC instead of PEB ?) will undoubtedly look just like the 4A version, although the cartridge port will probably be a dummy. The main difference in the two versions is that the 4A computer is on the floor of the box in its version, and the GENEVE card is in a slot, just as it is now in the old box. Also in the 4A version will be the keyboard interface board which allows a PC-style keyboard to be attached to the back of the chassis. There are not really two versions of the Chassis. The same box will be used for both systems, you would simply install the appropriate hardware for your system.

The front panel has various switches and LEDs which are not all 100 percent appropriate to the TI/GENEVE operation. There is a Power switch, Keylock, Reset switch, Turbo switch, and LEDs for Power, Hard Drive, and Turbo. Many of us are used to getting that feeling of assurance that all is well by watching the LEDs flicker as data comes from the floppy or hard drive or from memory to the

RS232 card. We may have to forego that luxury with this box, but we are gaining a much larger power supply (200 watts vs 135) and a quiet box - something I had given up on.

The estimated cost of the RAVE Expansion Chassis is $300 for the TI-99/4A and $250 for the Geneve. For more information, contact RAVE 99 Co., 112 Rambling Road, Vernon CT 06066. Their phone number is (203) 871-7824.

My personal impression of the Rave Chassis is easily summed up - I want one. I was at the fair all day and I took the time to check this out more than once. It ran all day as a 4A and seemed to have no problems. It was beautiful.

This item should give the 4A community a shot in the arm. This Expansion Chassis is a whole new ball of wax, especially for the 4A. About the only thing missing is a way to tell which computer is installed. Perhaps black and silver pinstripes for the 4A? But what can we put on for the Geneve?

I'm afraid I have to give short shrift to many of the other events and items at the TICOFF, but it was indeed an excellent fair.

- Al Beard was there, handing out free updates to 99 and 9640 FORTRAN to those who had purchased earlier versions. I haven't yet had a chance to work with it, but you can bet your boots it won't be long.
- Harrison Software was there with music to sooth the savage beasts among us.
- Lou Phillips was there, representing MYARC, of course. He also had a one hour session late in the afternoon, in which he mentioned that several new pieces of software will be coming out soon. He said that JP Software will be the marketing source for these. He did not hint what those items would be.
- Berry Miller of 9640 NEWS was there. He also had a seminar in the afternoon demonstrating his WINDOWS application for the GENEVE, and talked about some new games and other applications of MYARC Advanced Basic.
- Bud Mills was there, demoing a GENEVE with two megabytes of RAM! After I quit drooling, I noticed that my hand had developed a definite "get your wallet out" twitch, but about that time I noticed the RAVE Expansion Chassis, so I tried to play one twitch off against the other. It worked for a little while...
- A plethora of User Groups were there (I lost track, particularly when so many of them have "New Jersey" involved in the name). There had to have been at least twenty, and of course the high school itself had several tables set up.

I don't know how the TICOFF people rated their fair, but I felt that it was well worth the five-hour drive. It was an intensive affair, and people really were interested in the technical aspects of things. Not that the social aspects were ignored - a brief luncheon was held for attending User Group representatives which was very enjoyable. All in all, I rate it as a great success.