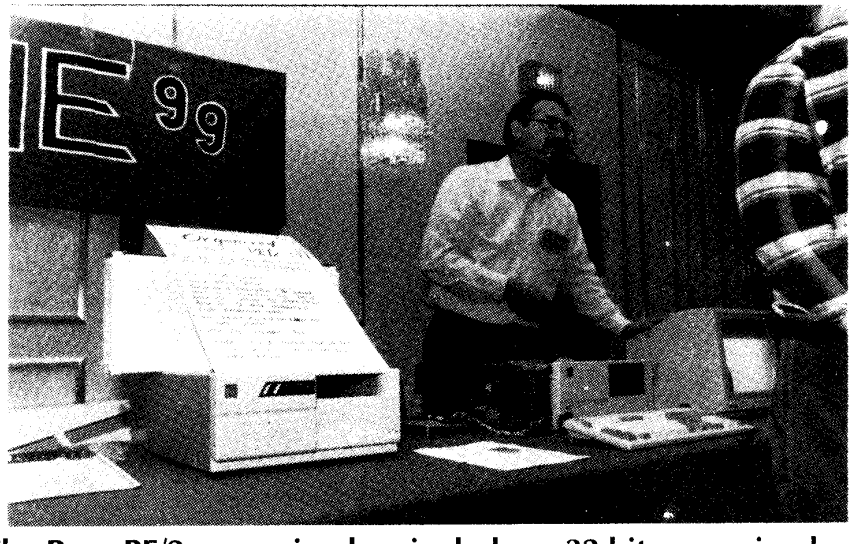
Covering the TI99/4A and the Myarc 9640

MICROpendium

Volume 7 Number 10 November 1990 $2.50



The Rave PE/2 expansion box includes a 32-bit expansion bus with virtually limitless possibilities. See story page 33.

More than 530 attended the 8th annual Chicago TI Faire. Our coverage includes producs and photos and starts on page 6.

INSIDE

Reviews of the Asgard Mouse, Artist Printshop and PagePro Headline Maker

Regena and the 12 Days of Christmas

Jerry Stern on computers, the Pope and Caesar

Barry Traver on characters and colors in assembly

Announcing the MAGNAVOX 1CM135

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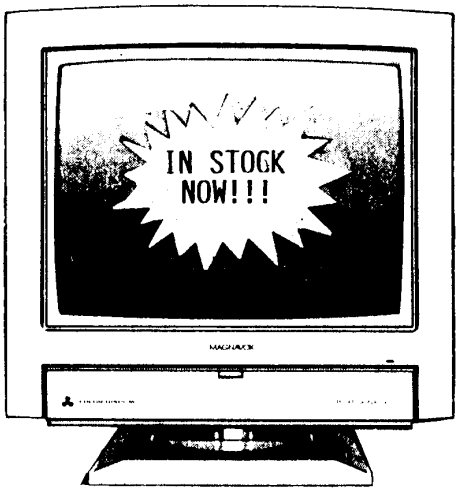

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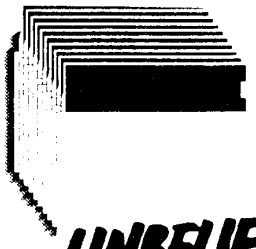

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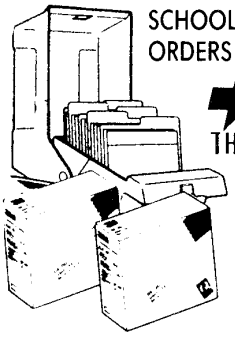

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MICROpendium (ISSN 10432299) is published monthly for $25 per year by Burns-Koloen Communications Inc., 16606 Terrace Dr., Austin, TX 78728-1156. Second-class postage paid at Austin, Texas, and additional mailing offices. POSTMASTER: Send address changes to MICROpendium, P.O. Box 1343, Round Rock, TX 78680-1343.

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All correspondence should be mailed to MICROpendium at P.O. Box 1343, Round Rock, TX 78680. We cannot take responsibility for unsolicited manuscripts but will give consideration to anything sent to the above address. Manuscripts will be returned only if a self-addressed stamped envelope is included.

Foreign subscriptions are $30.25 (Mexico); $32.50 (Canada); $30.00, surface mail to other countries; $42 airmail to other countries.

All editions of MICROpendium are mailed from the Round Rock (Texas) Post Office.

Mailing address: P.O. Box 1343, Round Rock TX 78680
Telephone: (512) 255-1512

CompuServe: 75156,3270
Delphi TI NET: MICROPENDIUM
GEnie: J.Koloen

John Koloen.....**Publisher**
Laura Burns.....**Editor**

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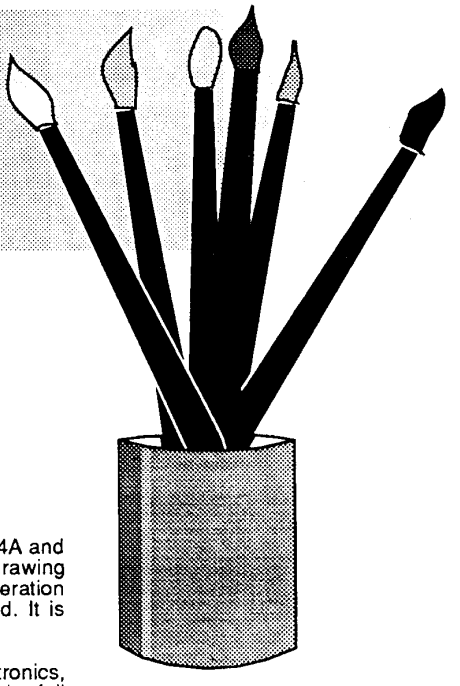
***READ THIS**

Here are some tips to help you when entering programs from MICROpendium:
1. All BASIC and Extended BASIC programs are run through Checksum, the numbers that follow exclamation points at the end of each program line. Do not enter these numbers or exclamation points. Checksum was published in the October 1987 edition.
2. Long XBASIC lines are entered by inputting until the screen stops accepting characters, pressing Enter, pressing FCTN REDO, cursoring to the end of the line and continuing input.

Yet Another Paint Program



Y.A.P.P., by Alexander Hulpke, is the most advanced drawing system for the TI-99/4A and the Myarc Geneve 9640. Combining all the popular painting features of other drawing programs, along with the spectacular graphics capabilities provided by the newgeneration of graphics hardware, *Y.A.P.P.* may be the last paint program you will ever need. It is certainly the type of programthe new generation of hardware was designed to run.

Y.A.P.P. is designed to function on a TI-99/4A with an 80-column device (by Mechatronics, Dijit or Asgard), or on a Myarc Geneve 9640. It is the first program designed to take full advantage of the features offered by the 9938 Video processor used in those devices. Furthermore, it is a full-featured drawing program that includes:

- Support for 4 different drawing modes including 256x212 dots with 256 colors, 256x424 with 256 colors, 512x212 with 16 colors, and 512x424 with 16 colors. Unlike a standard TI-99/4A, each dot can be any of the available colors.
- An icon driven interface that works with the *Asgard Mouse*, the *Myarc Mouse*, a *Mechatronics/Dijit* mouse, or a joystick.
- Extensive drawing commands including an airbrush tool, different drawing brushes, lines, boxes, frames, filling, circles/ellipses, etc.
- Built-in support for moving and copying parts of a picture.
- A fast zoom drawing mode (192K video RAM required for some graphics modes).
- Built-in support for *TI-Artist* compatible fonts - type on the screen with ease in your favorite fonts.
- Support for creating and using color clip-art. An "undo" function for erasing mistakes.
- The saving and loading of pictures, including support for *My-Art* picture format, and a built-in mouse/joystick driven disk cataloger.
- Extensive support for 10 different logic functions that work with almost all commands for use in creating special effects.
- A complete printout utility for Epson or compatible printers for printing color pictures in gray-scale on most dot-matrix printers.
- Complete, and superior, support for GIF format pictures.

All features of Y.A.P.P. are included in one convenient to use program that can be run equally well from a TI-99/4A or a Geneve. Y.A.P.P. includes a large collection of original example pictures and fonts, and a manual/tutorial with illustrations. A German language manual is also available on request.

Requires either: (1) a TI-99/4A with an 80-column card, 32K, a disk system, and either an Asgard Mouse, 80-column device mouse or a joystick; or (2) a Myarc Geneve 9640 with a disk system, an Asgard or a Myarc Mouse.

Suggested retail:

$29.95

U.S. add $2.50 S&H
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Comments

A report on the Chicago faire

And a replacement for Triton Products

By JOHN KOLOEN

Last month I suggested strongly that Triton Products would not be serving the TI community any longer. A day after we sent the magazine to the press a former Triton official, Terry Miller, called to say that he purchased the TI marketing rights from Triton Products and set up shop as TM Direct Product Marketing. As I said last month, Triton is no longer in the TI market. Miller expected to be online with his company by Oct. 29. He expects to publish a catalog sometime after the first of the year. Business hours for the company are M-F 9-4 (Pacific time). The phone number is 800-336-9966. Miller says calls to Triton will be forwarded to TM Direct Product Marketing.

CHICAGO FAIRE REPORT

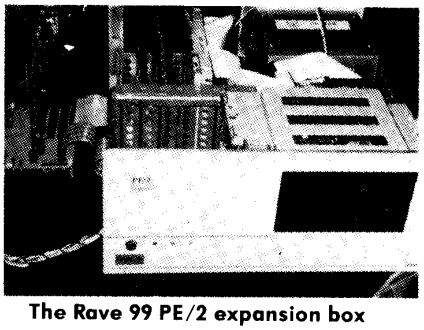
The 8th annual Chicago TI International World Faire was another big success, judging from attendance figures and conversations with vendors and visitors. More than 530 people attended the fair.

Absent from the fair was Myarc Inc. In years past, the presence of Myarc's Lou Phillips generated an enormous amount of interest. It also tended to raise the expectations of many visitors regarding Myarc and Myarc product development. For example, last year Phillips told a large crowd that the final version of MDOS was being packaged for mailing to Geneve users. A year later, that final version is still unavailable. Supposedly MDOS V. 0.98h was to be available early this month, but it, too, hasn't materialized.

This year's fair, however, wasn't nearly as frenzied. People weren't talking about big breakthroughs regarding the Geneve and Myarc. The fact that Myarc wasn't in attendance probably helped make this the most "comfortable" fair I've attended.

Also inconspicuous by its absence was JP Software, also known as J. Peter Hoddie and Paul Charlton. JP Software was scheduled to present a seminar demonstrating new programs for the TI and the Geneve but failed to show up.

In fact, only three vendors had major or exclusive products for the Geneve: Bud Mills was showing his Memex expansion memory card for the Geneve, Rave 99 showed its PE/2-B expansion box for the Geneve, and Beery Miller had a table for his Geneve diskazine 9640 News (he also spoke at a seminar). For the most part the vendors and seminar speakers focused on the TI99/4A. Of course, several vendors offered software for both the TI and the Geneve.



The Rave 99 PE/2 expansion box

Nonetheless, a number of interesting products were for sale, including the Rave 99 PE/2 expansion box, Asgard's MIDI interface and TI-Image Maker by Oasis Pensive Abacutors.

A product that didn't appear that's been the subject of much conversation on bulletin boards and in user group newsletters for months was the hard and floppy disk controller marketed by Electronic Systems Development Corp. While the company held a seminar, it didn't have a prototype to show. Even so, the company says it will have boards ready for shipment by the end of November. The card is priced at about $240 and is for use with the TI only.

Asgard's MIDI Master interface, designed by Mike Maksimik of the Chicago TI User Group, supports up to 16 channels simultaneously. Using an RS232 cable, the interface links the TI PEB to an electronic keyboard, or other interfaceable device. Musical scores can be written using a word processor, or the keyboard can generate the score. Music files from the PC world can even be imported for use with the MIDI interface. Everything can be saved to disk.

TI makes music with MIDI Master

For those who are musically inclined, the MIDI interface represents a breakthrough. MIDI Master is available for the TI as a cartridge and a disk version for use with the Geneve. Both versions require a disk system and RS232 port. The price is $44.95. Asgard says a cassette version of MIDI Master will be available in the future.

Asgard was also selling a number of new programs, including Rock Runner, Tournament Solitaire, Waterworks, Castle Darkholm, Rattlesnake Bend, Artist Font Maker, Sports Pics, Yet Another Paint Program (YAPP), nine enhancement packages for its Page Pro 99 program, Screen Preview for TI-Writer, The Animator and Link, a cartridge-based terminal emulator. See Newsbytes for descriptions of these programs.

For more information, write Asgard at P.O. Box 10306, Rockville, MD 20849; or call 703-255-3085.

The Rave 99 PE/2 expansion box looks like a mini-AT box from the PC world. It's more attractive and smaller than the TI PEB and may be the best Christmas present a TI user could get. Principal features include a 200-watt power supply, enough to support up to three internal floppies and a 3.5-inch hard disk.

(See Page 34)

Treat yourself to something special this holiday season...

GIF MANIA

Imagine having the world's largest collection of clip-art and scanned images at your fingertips? Sounds like a dream come true, right? GIF Manla instantly turns that dream into a reality! Read on...

That's right, now all 99ers have the world's largest collection of artwork at their fingertips. For the first time ever, using GIF Manla, industry standard GIF files can be viewed on an ordinary TI-99/4a. In addition, GIF Manla can convert any GIF image into a regular TI Artist file ... and from there the possibilities are endless.

The Brief History of GIF: The GIF file format was developed by CompuServe to allow users of different computers to exchange common graphic/image files. This format quickly became a world-wide standard and now well over 100,000 GIF image files currently exisit. Most of these files are available to you for free through on-line information services and local user groups. To get you started we have included a small collection of GIF files GIF Manla.

Only $14.95

GIF Manla requires a TI-99/4a with 32K, disk drive, and either an XB or E/A cartridge. GIF Manla will operate on the Geneve 9640 in GPL mode but will not take advantage of the Geneve's advanced display capabilities. HFDC compatible.

TI Artist Plus!

More than just an ordinary drawing package, TI Artist PLUS! is a complete drawing system that consists of six dynamic graphics development modules. With these modules virtually anyone can create, edit, transform, scale, print and present the most dazzling of graphics. Animated sequences can be developed using all of the drawing functions and the movie editor. The innovative point-and-shoot menu system also makes TI Artist is extremely user friendly.

TI Artist PLUS! is also the most compatible program available. It works with almost any printer, including a few color printers. It's backwards compatible with all of the existing artwork available for the original TI Artist. And it's compatible with the Geneve 9640 (in GPL mode), most RAMdisks, and the Myarc HFDC. (Please contact us regarding specific product compatibility).

Only $24.95

Owners of the original TI Artist may upgrade to TI Artist PLUS! for only $14.95 (plus shipping). To be eligable for the reduced rate, return your original TI Artist disk and the front page of your existing TI Artist manual along with your upgrade fee.

A TI-99/4a system with 32K, disk drive and an XB, MM, or E/A cartridge is required to operate TI Artist PLUS! Compatible with Geneve in GPL mode.

The MISSING LINK

The Ultimate Extended Basic Upgrade

The Missing Link is a powerful extension of the Extended Basic language that allows programmers to access all of the high resolution bit-mapped graphics and advanced text modes of the TI- 99/4a. Before The Missing Link was developed these advanced display modes could only be accessed through assembly language programs, or by using optional and often expensive hardware. But now, using The Missing Link, ordinary Extended Basic programs, without the aid of any additional hardware, can be written to take full advantage of these advanced display modes.

Included free with The Missing Link is PaperSaver, the first program ever written for The Missing Link. PaperSaver is an impressive utility program that, for the first time ever, lets you see precisely how text prepared with TI Writer is going to look *before* it is printed.

Only $24.95

If you would like to see a complete demostration of this incredible Extended Basic enhancement product, send us $3.00 and we'll send you our exclusive *Live Demonstration* of The Missing Link.

A TI-99/4a system with 32K, disk drive and an Extended Basic cartridge is all that is required to operate The Missing Link. Compatible with Geneve in GPL mode.

TI BASE Version 3.0

More Features • More Power • More Flexibility

When it comes to database management systems, TI Base is the only choice. With its overwhelming file handling capabilities, extensive command programming language, and unmatched information processing facilities, TI Base is clearly most advanced and flexible database management system available for the TI-99/4a and Geneve 9640. It's also the most widely supported database system available.

Some of TI Base's outstanding features include: support for up to 5 active databases of 16129 records each, with 17 fields per record, and 255 characters per field; procedural command language consisting of over 50 commands similar to those used by Ashton-Tate in dBASE; full database manipulation and on-the-fly restructuring without data loss; formatted display and printing capabilities; math functions; sorting; disk management; 40 column editor; plus more!

Only $24.95

Owners of the original TI Base may upgrade to TI Base 3.0 for only $14.95 (plus shipping). To be eligable for the reduced rate return both of your original TI Base disks along with your upgrade fee.

A TI-99/4a system with 32K, disk drive and an XB, MM, or E/A cartridge is required to operate TI Base. Compatible with Geneve in GPL mode.

TEXAMENTS

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Please add $3.00 for domestic first class (and Canadian) delivery, $8.50 for foreign insured air mail delivery. Orders are usually shipped within a 48 hour period. C.O.D. orders are accepted and must be placed by phone. Sorry, no credit card orders accepted. For more information please call or write.

Feedback

Wants a new manual

I am the owner of the Geneve and the Hard/Floppy Controller with a 20 meg. drive and two DS/DD drives. I'm happy as a bug in a rug with it. I, however, have a suggestion to make. For the last several months, our local group, the Macon 99/4A Users Group, has been receiving back copies of the newsletter "Chicago TImes," of the Chicago users group. It includes a column called "Geneve Support Article," by a knowledgeable guy who calls himself old Krome Dome Jonz. A series of columns by him are on the AUTOEXEC file. He not only covers the writing of the file, but also *explains* why and how he does this, which explained a lot of things to me.

The basis of my letter is that the hardware makers take too much for granted when writing their manuals, and don't stop to think about a whole lot of us, who probably know the 99/4A like the back of our hands, but, learning M-DOS and all the ins and outs of the hard floppy controller, find the manuals leave a lot to be needed. No wonder the comment (Feedback, September 1990) that the writer knew of only *one* 9640 in the state of South Carolina.

Apparently, Myarc isn't going to give us any help along these lines, so why doesn't someone who knows these jewels like the back of his hand write a step-by-step manual on both pieces of equipment and set a worthwhile price. Not only would it help us owners out, but it would also sell more merchandise. I would be first in line for either one. The 9640 manual mentions batch files in M-DOS, but not until I purchased a paperback on MS-DOS batch files did I begin to understand about them. I was extremely lucky when I bought my 9640, because a good friend of mine had a little more than a year's experience with his 9640 and HD, so when I got mine we loaded his HD backup onto my HD and I was ready to go. Now I want to learn what it's all about and I don't feel right about bugging him with questions all the time. Another good example of hands-on learning is Martin Smoley's TI-BASE tutorials.

Ed Hintermeier
Macon, Georgia

Funnelweb updated

In several recent issues reference has been made to versions of Funnelweb which make it appear that people are not aware of the latest. The current version is 4.30. This version has seen several updates of the 80-column Disk Review which now includes every disk manager function one can imagine. Oct. 24 a new copy of DR80/81 was received directly from Tony McGovern which corrects the XB RANDOMIZE problem which was the bug described by John Bulakowski in "Diskreview useful but has small bug" (User Notes, October '90).

Also, since the latest DR80 includes *all* disk manager functions, the fixed described in the user note following ("80-column fix for Diskreview") is hardly worthwhile now that DR is a complete disk manager/sector editor and makes both DM-1000 and DPatch superfluous. Some of the disk manager functions were still missing from the "buggy" version.

If you are still using a pre-4.30 version, do *not* rush out to obtain 4.30. Version 4.31 should be appearing shortly and might already be available by the time this information gets into print. Its DR40 includes all disk/file/sector functions now found only in DR80. Obviously, those functions dealing with 80-column file display won't be there, but for those without an 80-column device it should increase the value of the Diskreview utility and thereby FW itself.

Lutz Winkler
San Diego, California

Words of praise

It's time to renew my subscription again and I want to thank both of you for your effort to keep us informed about the 99/4A and 9640 computer. I think you both deserve a round of applause.

I would also like to thank the ones that do the reviews and send in the articles that you print in MICROpendium. I don't want to forget those great programmers that send in programs; without them I don't think I would have much for my 99/4A.

I like all the columns and features in MICROpendium and it would be hard to rank what I like best. I have read where some readers don't like the long programs; fo me, the longer the better. It's not easy understand what some of the programs ar supposed to do when you don't know ho to program, but my wife and I keep at until we make it work. It's nice when th dumb computer quits saying, "you can't d that," or "that's only legal in a program.

W.R. Knigh
Glendale, Arizon

***Feedback is a forum for TI99/4A an Geneve 9640 users. The editor will con dense submissions when necessary. W ask readers to restrict themselves to on subject for the sake of simplicity. Ma Feedback items to* MICROpendium, P.O Box 1343, Round Rock, TX 78680.**

USER GROUP UPDATE

These are additions and updates to our use group listings, begun in our May 1987 issue

Kentucky

Bluegrass 99 Computer Society, P.O. Bo 1237, Lexington KY 40590 (new mailin address).

Michigan

Grand Rapids Area 99er Computer Grou 1419 Laughlin Dr., N.W., Grand Rapids, M 49504-2423 (new address). Now incorporatin Muskegon 99ers. Meets 2nd Monday eac month, also 4th Monday September-June, ex cept December. Annual dues $18.

Pennsylvania

Central PA 99/4A Users Group, c/o D.A Swartz, Secretary, 5309 Devonshire Rd. Harrisburg, PA 17112-3906 (new address)

THE BUNYARD
HARDWARE MANUAL
FOR THE
TI 99 / 4A

- ☐ CONSOLE DESIGN
- ☐ CUSTOM CHIP OPERATION
- ☐ TMS 9900 H/W ORGANIZATION
- ☐ TMS 9900 INSTRUCTION SET
- ☐ INTERFACING PITFALLS
- ☐ CONSOLE SCHEMATICS
- ☐ PEB CARD DESCRIPTION
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- ☐ EXTENDED BASIC MODULE DESCRIPTION & SCHEMATICS

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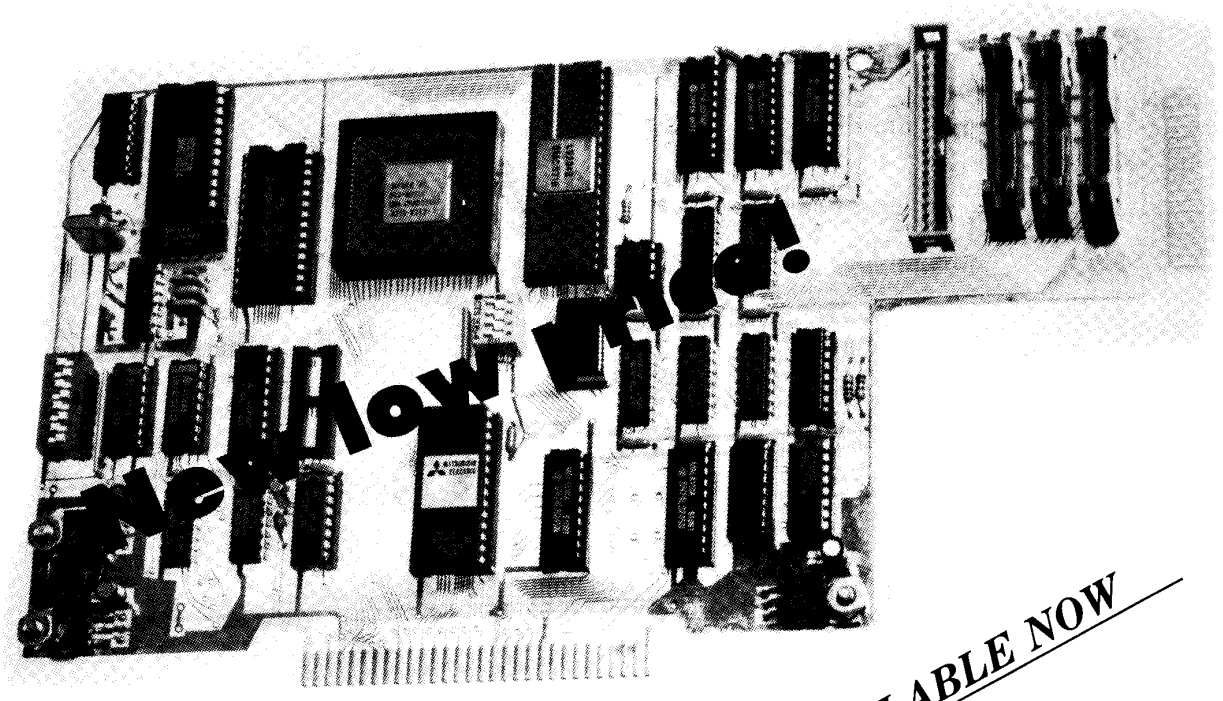

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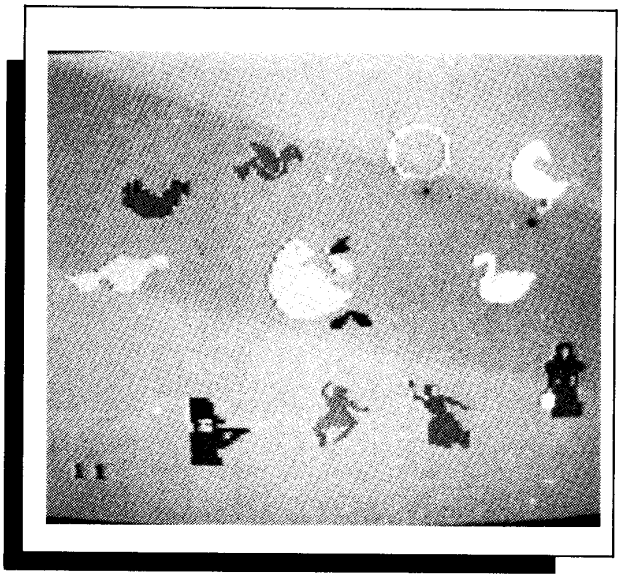
BASIC

Using subroutines in music

By REGENA



Many songs have basic sections of music that are repeated to make up the whole song. For example, if the first line is A and the second line with a different tune is B, a complete song may be the pattern ABAB or perhaps AABA. If you like to write computer music, you may want to make your programs more efficient by using repeated sections with FOR-NEXT loops or subroutines.

Take a look at some of the Christmas songs (since this is the season). "Deck the Halls" is an example. Call the first line "A". Notice that the second line and the fourth line are the same tune. The third line is a different tune, or "B". The pattern is AABA. To program this, you could have the music for Line A in one subroutine and use this process:

```
500 GOSUB 1000
600 GOSUB 1000
700 Programming for the third line
800 GOSUB 1000
900 STOP
1000 Programming for the first line
```

"The First Noel" is another song with repeated melodies. The first two lines are one melody, which is repeated as the third and fourth lines, then the chorus is different. Its pattern could be used with a FOR-NEXT loop:

```
500 FOR X=1 TO 2
510 Programming for the first two lines
600 NEXT X
700 Programming for the chorus
```

"Away in a Manger" has an ABAC pattern. Here is one way to program it.

```
500 FOR X=1 TO 4
510 ON X GOSUB 1000,2000,1000,3000
520 NEXT X
...
1000 Programming for the melody of the first line
2000 Programming for the melody of the second line
3000 Programming for the melody of the fourth line
```

There are four lines. The FOR-NEXT loop will let the variable X vary from 1 to 4, incrementing by 1 each time. Line 510 says when X=1 then GOSUB 1000, when X=2 then GOSUB 2000, when X=3 then GOSUB 1000 and when X=4 then GOSUB 3000.

Of course, with any of these songs you may want to sing several verses, so simply put a FOR-NEXT loop for the verses around the whole melody for one verse.

One song using a lot of repetition is "The Twelve Days of Christmas" — ideal for a computer! Here is a basic pattern that could be used. Arrange the subroutines so they count backwards properly, then you can enter the subroutine wherever needed:

```
3000 Twelve drummers drumming
3100 Eleven pipers piping
3200 Ten lords a-leaping
3300 Nine ladies dancing
3400 Eight maids a-milking
3500 Seven swans a-swimming
3600 Six geese a-laying
3700 Five golden rings
3800 Four calling birds
3900 Three French hens
4000 Two turtle doves
4100 And
4110 A partridge in a pear tree
4200 RETURN
```

Now you can use a pattern such as

```
1000 FOR VERSE=1 TO 12
1010 Programming for melody of On the __ day of Christmas my true love sent to me
1010 ON VERSE GOSUB 4110,4000,3900,3800,3700,3600,3500,3400,3300,3200,3100,3000
1020 NEXT VERSE
```

With music only, this can be simplified even more because the melodies from the sixth day on are the same. You could just repeat that subroutine a certain number of times. However, in my version this month, I added graphics; and each subroutine includes putting that picture on the screen. The first time through for the second, third and fourth days the music is the same as the 6th-12th days, so I had to add some extra coding for those cases. I also defined all colors and characters among the sound statements as the song is being played. Line 500 starts the FOR-NEXT loop and Lines 890-920 branch properly. At the end of the song, press any key to clear the screen and end.

Note: I realize it is much easier to type in a program like this using Extended BASIC. First type in all the CALL SOUND statements using the "redo" editing feature. Then type in the CALL CHAR statements, then the CALL HCHAR and CALL VCHAR statements. However, you cannot run this program in TI Extended BASIC because I have used graphics in color sets 15 and 16. SAVE the program, get back into TI BASIC, load the program then RUN it.

This is full memory — so if you have the disk system, be sure to use this procedure before running the program:

```
CALL FILES (1)          (ENTER)
NEW                     (ENTER)
```

(See Page 11)

REGENA ON BASIC —

(Continued from Page 10)

```
OLD DSK1.TWELVE          (ENTER)
RUN                      (ENTER)
```

If you would like to save typing effort, you may have a copy of this program by sending $4 to *REGENA, 918 Cedar Knolls West, Cedar City, UT 84720.* Please specify that you need "Twelve Days of Christmas" for the TI and whether you want cassette or diskette.

TWELVE DAYS OF CHRISTMAS

```
100 REM  TWELVE DAYS
110 CALL CLEAR
120 CALL SCREEN(8)
130 CALL COLOR(1,7,1)
140 T=300
150 CALL SOUND(2*T,523,2,220
,8,175,10)
160 CALL CHAR(96,"0000010307
070F1F")
170 CALL CHAR(97,"00F0F8FCCE
CFFFFF")
180 CALL CHAR(98,"1F3F3F7F7F
7F7F7F")
190 CALL CHAR(99,"FEFCF8F0F1
FFFFFF")
200 CALL SOUND(T,523,2,440,6
,262,8)
210 CALL CHAR(100,"000000008
0E0F0F8")
220 CALL CHAR(101,"FFFFFFFFF
FFFFFFF")
230 CALL SOUND(T,587,2,440,6
,262,8)
240 CALL CHAR(102,"FCFCFEFFF
FFFFFFF")
250 CALL CHAR(103,"7F7F7F3F3
F1F1F0F")
260 CALL SOUND(2*T,440,2,294
,6,175,8)
270 CALL CHAR(104,"FFFFFEFCF
CF8F0E")
280 CALL CHAR(105,"070301")
290 CALL CHAR(106,"FFFFFF")
300 CALL CHAR(107,"FFF0C")
310 CALL CHAR(108,"E0F0F87E7
F3F3F1E")
320 CALL SOUND(T,440,2,349,6
,147,8)
330 CALL CHAR(40,"020C143C6E
FEFC8")
340 CALL CHAR(41,"01020E3E7C
FCF8F")
350 CALL SOUND(T,466,2,349,6
,147,8)
360 CALL CHAR(120,"000000000
00282C1")
370 CALL COLOR(12,12,1)
380 CALL SOUND(2*T,523,2,392
,6,165,8)
390 CALL COLOR(9,12,1)
400 CALL COLOR(10,12,1)
410 CALL COLOR(2,13,1)
420 CALL CHAR(42,"E0F87E7E3F
1F0F")
430 CALL SOUND(T,523,2,330,6
,131,8)
440 CALL CHAR(109,"1E7FFBFFF
FE2C08")
450 CALL SOUND(T,440,2,330,6
,131,8)
460 CALL CHAR(110,"00C0FEFFF
FFFFFFF")
470 CALL SOUND(T,466,2,349,6
,147,8)
480 CALL CHAR(111,"00070F3FF
FFFFFFF")
490 CALL SOUND(T,392,2,349,6
,147,8)
500 FOR V=1 TO 12
510 CALL CLEAR
520 CALL SOUND(T,262,1,330,1
0,196,8)
530 CALL CHAR(112,"000000000
0010307")
540 CALL SOUND(T,262,3,330,1
0,196,8)
550 CALL CHAR(113,"000FFF7F1
F0F0703")
560 CALL SOUND(2*T,262,1,175
,8,220,10)
570 PRINT V
580 CALL CHAR(80,"084C4CEEEF
EF7FFF")
590 CALL CHAR(81,"0000000080
C1E3FF")
600 CALL COLOR(7,9,1)
610 CALL COLOR(11,12,1)
620 CALL SOUND(T,349,1,175,8
,220,10)
630 CALL CHAR(82,"55577F7BFF
FFFDFC")
640 CALL SOUND(T,349,3,275,8
,220,10)
650 CALL CHAR(83,"FFFFFF7F3F
0F0301")
660 CALL SOUND(2*T,349,1,262
,8,175,10)
670 CALL CHAR(84,"FFFFFFFFFF
FFFFFF")
680 CALL CHAR(85,"F0F0F0E0E0
C08")
690 CALL COLOR(8,6,1)
700 CALL CHAR(88,"E0FC7E7F3F
3F5FEF")
710 CALL SOUND(T,330,1,262,8
,175,10)
720 CALL CHAR(89,"0003078FDF
DFEFEF")
730 CALL SOUND(T,349,1,262,8
,175,10)
740 CALL CHAR(90,"00C0E020F0
F0F81")
750 CALL SOUND(T,392,2,330,8
,131,10)
760 CALL CHAR(91,"F6F6F6F4EC
18F0C")
770 CALL SOUND(T,440,2,330,8
,131,10)
780 CALL CHAR(92,"EFF77B3D3E
1F0F07")
790 CALL SOUND(T,466,2,294,8
,131,10)
800 CALL CHAR(93,"030F7F3F3E
1E1C0C")
810 CALL SOUND(T,392,2,294,8
,131,10)
820 CALL CHAR(121,"00030F1C3
830606")
830 CALL SOUND(3*T,440,1,262
,8,175,10)
840 CALL CHAR(122,"FFFF")
850 CALL CHAR(123,"00C0F0381
C0C0606")
860 CALL CHAR(124,"C0C0C0C0C
0C0C0C")
870 CALL CHAR(125,"030303030
3030303")
880 CALL CHAR(126,"606030381
C0F03")
890 IF V>4 THEN 920
```

(See Page 12)

REGENA ON BASIC—

(Continued from Page 11)

```
900 ON V GOSUB 2850,3140,333
0,3530
910 IF V=1 THEN 930
920 ON V GOSUB 2840,2840,284
0,2530,2130,1970,1810,1610,
1
450,1270,1090,950
930 NEXT V
940 GOTO 3690
950 CALL SOUND(2*T,523,0,196
,8,131,10)
960 CALL SOUND(T,392,1,233,8
,131,10)
970 CALL HCHAR(16,5,33)
980 CALL HCHAR(16,6,137)
990 CALL SOUND(T,440,1,220,8
,131,10)
1000 CALL HCHAR(16,7,35)
1010 CALL HCHAR(17,5,36)
1020 CALL SOUND(T,466,1,196,
8,131,10)
1030 CALL HCHAR(17,6,37)
1040 CALL HCHAR(17,7,38)
1050 CALL SOUND(T,392,1,196,
8,131,10)
1060 CALL HCHAR(18,5,39)
1070 CALL HCHAR(18,6,147)
1080 CALL HCHAR(18,7,148)
1090 CALL SOUND(T,523,1)
1100 CALL CHAR(39,"FB7A3D0D0
1")
1110 CALL SOUND(T,523,0,175,
6,110,10)
1120 CALL CHAR(147,"7DFEFEFF
FF")
1130 CALL SOUND(T,523,2,176,
6,110,10)
1140 CALL CHAR(148,"DFBEBC70
4")
1150 CALL SOUND(T,392,1,294,
6,117,10)
1160 CALL HCHAR(19,10,59)
1170 CALL HCHAR(20,10,60)
1180 CALL SOUND(T,440,1,294,
6,117,10)
1190 CALL HCHAR(20,11,61)
1200 CALL HCHAR(20,12,62)
1210 CALL SOUND(T,466,1,330,
6,131,10)
1220 CALL VCHAR(21,10,137,2)
1230 CALL HCHAR(21,11,145)
1240 CALL SOUND(T,392,1,330,
6,131,10)
1250 CALL HCHAR(21,12,146)
1260 CALL HCHAR(22,11,142)
1270 CALL SOUND(2*T,523,1,34
9,6,262,10)
1280 CALL CHAR(36,"BFBFDFDFE
FEFF7F7")
1290 CALL CHAR(37,"00EFEFD7D
7BBBB7D")
7BBBB7D")
1300 CALL CHAR(38,"FDFBFBF7F
7EFEFDF")
1310 CALL SOUND(T,392,1,294,
6,233,10)
1320 CALL HCHAR(18,16,128)
1330 CALL HCHAR(18,17,129)
1340 CALL SOUND(T,440,1,294,
6,233,10)
1350 CALL HCHAR(19,16,130)
1360 CALL HCHAR(19,17,131)
1370 CALL SOUND(T,466,1,262,
8,330,10)
1380 CALL HCHAR(19,18,132)
1390 CALL HCHAR(20,16,133)
1400 CALL SOUND(2*T,392,1,26
2,8,330,10)
1410 CALL HCHAR(20,17,134)
1420 CALL HCHAR(20,18,135)
1430 CALL HCHAR(21,16,94)
1440 CALL HCHAR(21,17,95)
1450 CALL SOUND(2*T,523,1,17
5,6,110,10)
1460 CALL COLOR(13,6,1)
1470 CALL CHAR(33,"071F3F7FF
F7F8FF")
1480 CALL CHAR(35,"E0F8FCFEF
FFEF10F")
1490 CALL SOUND(T,392,1,175,
6,117,10)
1500 CALL HCHAR(18,21,152)
1510 CALL HCHAR(18,22,153)
1520 CALL SOUND(T,440,1,175,
6,117,10)
1530 CALL HCHAR(19,21,154)
1540 CALL HCHAR(19,22,155)
1550 CALL SOUND(T,466,1,196,
6,131,10)
1560 CALL HCHAR(19,23,156)
1570 CALL HCHAR(20,22,157)
1580 CALL SOUND(T,392,1,196,
6,131,10)
1590 CALL HCHAR(20,23,158)
1600 CALL HCHAR(21,22,159,2)
1610 CALL SOUND(2*T,523,1,39
2,6,131,10)
1620 CALL CHAR(135,"80C0E0E0
C08")
1630 CALL CHAR(94,"78783C3(
C383")
1640 CALL CHAR(95,"1E3C7860
")
1650 CALL SOUND(T,392,1,233,
8,131,10)
1660 CALL HCHAR(16,28,58)
1670 CALL HCHAR(17,27,136)
1680 CALL SOUND(T,440,1,233,
8,131,10)
1690 CALL HCHAR(17,28,137)
1700 CALL HCHAR(17,29,138)
1710 CALL SOUND(T,466,1,233,
8,131,10)
1720 CALL HCHAR(18,27,139)
1730 CALL HCHAR(18,28,140)
1740 CALL SOUND(2*T,392,1,2
3,8,131,10)
1750 CALL HCHAR(18,29,141)
1760 CALL HCHAR(19,28,137)
1770 CALL HCHAR(19,29,142)
1780 CALL HCHAR(20,28,143)
1790 CALL HCHAR(20,29,144)
1800 CALL HCHAR(19,27,78)
1810 CALL SOUND(2*T,523,1,2
4,6,175,10)
1820 CALL CHAR(131,"FEFFFFF
FCFCFFFF")
1830 CALL CHAR(132,"0080C0E
FF7F08")
1840 CALL CHAR(133,"1F3F3F7
7FFEF0F")
1850 CALL SOUND(T,392,1,311
6,175,10)
1860 CALL HCHAR(11,24,71)
1870 CALL HCHAR(12,24,72)
1880 CALL SOUND(T,440,1,311
6,175,10)
1890 CALL HCHAR(12,25,73)
1900 CALL HCHAR(12,26,74)
1910 CALL SOUND(T,466,1,330
6,175,10)
1920 CALL HCHAR(13,24,75)
1930 CALL HCHAR(13,25,76)
1940 CALL SOUND(T,392,1,330
6,175,10)
1950 CALL HCHAR(13,26,77)
1960 CALL CHAR(134,"FFFFFFF
FF33070F")
1970 CALL SOUND(2*T,523,1,2
4,6,175,8)
1980 CALL CHAR(128,"01070E(
0C0C0E07")
1990 CALL CHAR(129,"808078
```

(See Page 13)

REGENA ON BASIC—

(Continued from Page 12)

```
7C7C78FC")
2000 CALL CHAR(130,"07070303
01010307")
2010 CALL SOUND(T,392,1,294,
6,175,8)
2020 CALL HCHAR(5,27,65)
2030 CALL HCHAR(5,26,64)
2040 CALL SOUND(T,440,1,294,
6,175,8)
2050 CALL HCHAR(6,26,66)
2060 CALL HCHAR(6,27,67)
2070 CALL SOUND(T,466,1,330,
6,175,8)
2080 CALL HCHAR(7,26,68)
2090 CALL HCHAR(7,27,69)
2100 CALL SOUND(T,392,1,330,
6,175,8)
2110 CALL HCHAR(7,28,70)
2120 CALL HCHAR(8,27,115)
2130 CALL SOUND(4*T,523,1,44
0,6,147,8)
2140 CALL COLOR(15,7,1)
2150 CALL CHAR(59,"FCFCFFFFF
FFFFFFF")
2160 CALL CHAR(145,"F0F1F3F7
FFFEFCF8")
2170 CALL CHAR(146,"F0E0C08"
)
2180 CALL SOUND(T,587,1,277,
6,196,8)
2190 CALL HCHAR(4,20,121)
2200 CALL HCHAR(4,21,122)
2210 CALL SOUND(3*T,494,1,27
7,6,196,8)
2220 CALL HCHAR(4,22,123)
2230 CALL HCHAR(5,22,125)
2240 CALL HCHAR(6,22,114)
2250 CALL HCHAR(6,21,127)
2260 CALL HCHAR(6,20,126)
2270 CALL HCHAR(5,20,124)
2280 CALL CHAR(152,"8080C343
43636371")
2290 CALL SOUND(8*T,523,0,33
0,6,262,10)
2300 CALL CHAR(153,"0000C0A0
A0A0A0F8")
2310 CALL CHAR(154,"3D0F0303
0301")
2320 CALL CHAR(155,"FFFFF9FC
FCFCFE7F")
2330 CALL CHAR(156,"0080E078
1E06")
2340 CALL CHAR(157,"3F7F7FFF
FFFFFFFF")
2350 CALL CHAR(158,"C0C0C0E0
E0F0F0F8")
2360 CALL CHAR(159,"FFFFFFFF
FFFF1F07")
2370 CALL COLOR(16,14,1)
2380 CALL SOUND(T,523,1,294,
8,131,10)
2390 CALL HCHAR(5,15,90)
2400 CALL HCHAR(5,14,89)
2410 CALL SOUND(T,466,1,294,
8,131,10)
2420 CALL HCHAR(6,14,91)
2430 CALL HCHAR(5,13,88)
2440 CALL SOUND(T,440,1,294,
8,131,8)
2450 CALL HCHAR(6,13,92)
2460 CALL HCHAR(6,12,93)
2470 CALL SOUND(T,392,1,294,
8,131,8)
2480 CALL COLOR(14,7,1)
2490 CALL SOUND(2*T,349,1,31
1,8,131,8)
2500 CALL CHAR(138,"C0E0F0F0
F0E0C0C")
2510 CALL CHAR(78,"0F0F0F0F0
F0F")
2520 CALL CHAR(141,"C0C0C0C0
8000808")
2530 CALL SOUND(2*T,466,1,29
4,8,131,10)
2540 CALL HCHAR(7,9,82)
2550 CALL HCHAR(7,8,81)
2560 CALL HCHAR(7,7,80)
2570 CALL HCHAR(8,9,85)
2580 CALL HCHAR(8,8,84)
2590 CALL HCHAR(8,7,83)
2600 CALL SOUND(2*T,294,1,13
1,10)
2610 CALL CHAR(142,"C0C0C0C0
E0E0E0E")
2620 CALL CHAR(143,"FFFFFF")
2630 CALL CHAR(144,"E0E0E")
2640 CALL SOUND(2*T,349,1,23
3,8,131,10)
2650 CALL CHAR(60,"FFFFC0C05
240404")
2660 CALL CHAR(61,"C0C0F0F08
080FFFF")
2670 CALL CHAR(62,"000000000
000FCFC")
2680 CALL SOUND(T,392,1,247,
8,131,10)
2690 CALL HCHAR(11,8,109)
2700 CALL HCHAR(11,7,110)
2710 CALL SOUND(T,349,1,247,
8,131,10)
2720 CALL HCHAR(11,6,111)
2730 CALL HCHAR(11,5,112)
2740 CALL SOUND(T,330,1,247,
8,131,8)
2750 CALL HCHAR(12,5,104,3)
2760 CALL HCHAR(12,6,103)
2770 CALL SOUND(T,294,1,247,
8,131,8)
2780 CALL HCHAR(12,4,113)
2790 CALL SOUND(2*T,262,1,23
3,8,165,10)
2800 CALL CHAR(67,"000000008
0E0F0F8")
2810 CALL CHAR(68,"FF7F7F3F1
F0F0701")
2820 CALL CHAR(69,"FCFEFFFFF
FFFFFFF")
2830 CALL CHAR(70,"0000F8F0E
0E0C08")
2840 CALL SOUND(T,440,1,294,
6,117,8)
2850 CALL SOUND(T,466,1,392,
6,117,8)
2860 CALL HCHAR(10,14,96)
2870 CALL HCHAR(10,15,97)
2880 CALL SOUND(2*T,523,1,17
5,8,110,10)
2890 CALL HCHAR(11,14,98)
2900 CALL HCHAR(11,15,99)
2910 CALL HCHAR(11,16,100)
2920 CALL HCHAR(12,14,101,2)
2930 CALL HCHAR(12,16,102)
2940 CALL HCHAR(12,17,100)
2950 CALL HCHAR(13,14,103)
2960 CALL HCHAR(13,15,101,2)
2970 CALL SOUND(T,587,1,294,
6,117,8)
2980 CALL HCHAR(13,17,104)
2990 CALL HCHAR(14,14,105)
3000 CALL SOUND(T,466,1,294,
6,117,8)
3010 CALL HCHAR(14,15,106)
3020 CALL HCHAR(14,16,107)
3030 CALL SOUND(T,440,1,349,
8,131,10)
3040 CALL HCHAR(10,16,120)
3050 CALL HCHAR(10,17,40)
3060 CALL SOUND(T,349,1,262,
8,131,10)
3070 CALL HCHAR(14,17,41)
3080 CALL HCHAR(14,18,42)
3090 CALL SOUND(2*T,392,1,33
0,8,131,8)
```

(See Page 14)

REGENA ON BASIC—

(Continued from Page 13)

```
3100 CALL HCHAR(11,17,108)
3110 CALL SOUND(8*T,349,1,26
2,8,110,10)
3120 CALL SOUND(50,9999,30)
3130 RETURN
3140 CALL SOUND(2*T,523,1,29
4,8,131,10)
3150 CALL CHAR(127,"00000000
0000FF")
3160 CALL CHAR(114,"06060C1C
38F0C")
3170 CALL CHAR(115,"14141414
FC782")
3180 CALL COLOR(5,16,1)
3190 CALL SOUND(T,392,1,294,
8,131,10)
3200 CALL HCHAR(11,8,109)
3210 CALL HCHAR(11,7,110)
3220 CALL SOUND(T,440,1,294,
8,131,10)
3230 CALL HCHAR(11,6,111)
3240 CALL HCHAR(11,5,112)
3250 CALL SOUND(2*T,466,1,33
0,8,131,10)
3260 CALL HCHAR(12,5,104,3)
3270 CALL HCHAR(12,6,103)
3280 CALL HCHAR(12,4,113)
3290 CALL CHAR(65,"E0F0F0D0F
8780C04")
3300 CALL CHAR(64,"0003070F1
F1F3F7F")
3310 CALL CHAR(66,"7EFEFEFEF
FFFFFFF")
3320 RETURN
3330 CALL SOUND(2*T,523,1,29
4,8,175,10)
3340 CALL HCHAR(7,7,80)
3350 CALL HCHAR(7,8,81)
3360 CALL HCHAR(7,9,82)
3370 CALL HCHAR(8,9,85)
3380 CALL HCHAR(8,8,84)
3390 CALL HCHAR(8,7,83)
3400 CALL CHAR(71,"1E7F5F73C
3030303")
3410 CALL CHAR(72,"07060E1F1
E1D1D1D")
3420 CALL SOUND(T,392,1,294,
8,175,10)
3430 CALL CHAR(73,"0D33CF7FF
FFFFFFF")
3440 CALL SOUND(T,440,1,294,
8,175,10)
3450 CALL CHAR(74,"8812FDFAF
4ECD8B8")
3460 CALL SOUND(2*T,466,1,33
0,8,175,10)
3470 CALL CHAR(75,"1F1E0F070
1")
3480 CALL CHAR(76,"FE7D83FFF
E")
3490 CALL CHAR(77,"70E0C08")
3500 CALL COLOR(6,16,1)
3510 GOSUB 3140
3520 RETURN
3530 CALL SOUND(2*T,523,1,2
3,8,147,10)
3540 CALL CHAR(58,"3C7E6642
242E7E7")
3550 CALL CHAR(136,"03070F0
0F070303")
3560 CALL CHAR(137,"FFFFFFF
FFFFFFFF")
3570 CALL SOUND(T,392,1,294,
8,147,10)
3580 CALL HCHAR(5,15,90)
3590 CALL HCHAR(5,14,89)
3600 CALL SOUND(T,440,1,294,
8,147,10)
3610 CALL HCHAR(5,13,88)
3620 CALL HCHAR(6,14,91)
3630 CALL SOUND(2*T,466,1,3
0,8,131,10)
3640 CALL HCHAR(6,13,92)
3650 CALL HCHAR(6,12,93)
3660 CALL CHAR(139,"0303030
0304081")
3670 CALL CHAR(140,"7E3C3C7
7FFFFFFF")
3680 RETURN
3690 CALL KEY(3,K,S)
3700 IF S<1 THEN 3690
3710 CALL CLEAR
3720 END
```

EXTENDED BASIC

Computers, the Pope, and Caesar

By JERRY STERN
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Here's a trivia question: Was 1900 a leap year? O.K., everybody know their answers? Wrong! Well, probably. The answer is no. Unless, of course, you are still using the Julian calendar created by Julius Caesar in 45 B.C. That calendar used nearly the same months and lengths as ours, except that all years evenly divisible by four were leap years. Unlike our system. Yes, really.

OUR calendar is the Gregorian calendar, adopted by Pope Gregory XIII in 1582. The Catholic nations of Europe adopted the calendar immediately, but Britain was not on particularly friendly terms with Rome in those days, and stayed on the Julian calendar until 1752. What's the difference? Well, the old Julian calendar had too many leap years, so after sixteen centuries, the dates had drifted thirteen days from the seasons. The newer Gregorian calendar only has leap years when the year is divisible by four, and NOT divisible by one hundred unless it is divisible by 400. That is, 1600 and 2000 were and will be leap years, but 1800, 1900, and 2100 weren't and won't be leap years.

Confused yet? It gets worse. In 52 A.D., Dionysius Exiguus, the abbot o Rome, decided that the beginning of th year should be March 25th. He also bega the B.C. and A.D. year designations. Pop Gregory put New Year's day back on Jan uary first, but many of the abbot's othe holiday changes, like Christmas, hav stayed where he put them on the calenda

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The Gregorian calendar is far more accurate than those older systems; to stay in sync with the seasons, we won't have to make any corrections until about the year 4905.

Now, what does the history of time measurement have to do with programming? Hmmm.... Well, this month's program prints calendars, but it only prints Gregorian calendars, so if you try to print a calendar earlier that 1753, it will be useless for Britain and the colonies, or a calendar earlier than 1583 will be just plain wrong. Of course, if you only need a current wall calendar that prints in double size numbers and fills two pages, and has a big, bold, dark year number at the top, and maybe prints the weekends in bold type, than CALENDAR will be just perfect. Oh, and the Julian period and the day of the year is shown for the first day of each month, too.

The Julian period is commonly called the Julian date, but it is named after Julius Scaliger, the father of Joseph Scaliger, the astronomer who created the system in 1582. There is no relation between the Julian date and the old Julian calendar. Simply, the Julian date is the count of how many days have passed since January first, 4713 B.C. That's an arbitrary date, chosen because it was the last time that the astronomical cycles and the calendar all started together. The Julian date is useful for calculating how many days have passed between two events; just subtract one Julian date from the other. January first, 1991 will be the Julian date 2,448,258. CALENDAR uses the subprogram JULIAN to calculate the number from the month, day, and year numbers.

The day of the year is also calculated by a subprogram, YEARDAY. It just adds up the days passed in the year to your date, and allows for February 29th in leap years. (Yes, it knows about 1900.)

There is one more subprogram in CALENDAR for date calculations: DAY. It calculates the day of the week of any date from its month, day, and year. JULIAN, DAY, and YEARDAY could be moved into many other programs that need calendar calculations; appointment books, checkbooks, reminder systems, whatever.

Other subprograms perform the usual tasks in programs and simplify the programming task. BLUE changes the screen color; TITLE provides an introduction; and LINE draws a line across the printout from one to eight dots in height.

That leaves HEAD. HEAD was the first graphics printing subprogram that I wrote, back in 1983 (Gregorian, A.D.). All the other variations that have been published here, like HEADER, HEADER2, and UPSIDE, were all derived from this one. This was also the first subprogram that I knew I would reuse, so it was numbered at 30000, as the first in a collection. Are you collecting subprograms yet? Or do you like re-inventing the wheel for every new project? HEAD prints a year eight times normal height and width, centered on the page. The subprogram uses the screen font for the shape of the numbers, so on most systems, the top line is blank. HEAD prints that blank line too, just to be compatible with the few systems, like some Geneves, that use an alternate character set.

The Julian period is commonly called the Julian date, but it is named after Julius Scaliger, the father of Joseph Scaliger, the astronomer who created the system in 1582. There is no relation between the Julian date and the old Julian calendar.

It's time to look at the main program. Change line 90 to match the name of your printer, probably "PIO". Lines 130 through 190 ask for the year to print, and set options. You may choose to not print the Julian day and day of the year numbers, or to not print the large number header. Line 200 chooses the line spacing for the first page of the calendar. The lines will be spaced 10/72" apart if the header will be printed, or 11/72" if the header is skipped. Either option fills the page. The second page will always be spaced at 11/72" between lines, and that measurement is set in line 550.

The date calculations are done in a triple loop. The outermost loop, M= 1 to 7 step 6, is for the two pages of the calendar. The middle loop, R= M to M+5 sets the month to one through six and then to seven through twelve. The innermost loop, D= 1 to B, counts the days of the month. Although the number of days for each month are read in line 310 from data statements in lines 570 and 580, the days in February are calculated in lines 320 to 360. If the year is not a leap year, B is left equal to 28; otherwise B equals 29.

Finally, lines 440 to 500 print the numbers. DAY was used only once, in line 240, to calculate the day of the week for January first; all the succeeding months' beginning days are calculated from the last day of the prior month, plus one.

Line 450 prints Saturdays, in emphasized print. Line 460 only works on Sundays. Line 470 prints the rest of the week. All three lines convert the day number to a string for printing, allowing the dates to line up by the left character.

CALENDAR is very easy to use, and for printing current calendars there are no warnings or errors to worry about. Calendars may only be printed from as long ago as 1584, when Pope Gregory XIII instituted the Gregorian calendar, but remember that calendars from then until 1752 were different from the Julian calendars used in Britain and the colonies, and that some parts of the Far East did not adopt the Gregorian calendar until this century.

All of the printer codes used in CALENDAR are standard EPSON control codes. Before trying to convert the program, try running it unchanged. So many printers use the EPSON codes that it is very unlikely any adjustments will be necessary. But if they are, here's where to look for the changes. If needed, change these codes to those used by your printer.

Line 90: change the printer name.

Lines 250 and 550: 27, 65, 11 changes line spacing to 11/72"

Line 290 and 490: 14 turns on enlarged printing that turns off at the end of the line.

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Line 290, 450 and 460: 27, "E" or 27, 69 turns on emphasized print.

Line 300 and 460: 27, "F" or 27, 70 turns off emphasized print.

Line 430: 27, 87, 1 turns on enlarged printing that stays on until turned off.

Line 510: 27, 87, 0 turns off enlarged printing.

HEAD and LINE use these same codes, and one more.

Lines 30060 and 31660: 27, 76, nl, n2,... print double density graphics, where n2 times 256 plus nl equals the numbers of graphic dot sets to print across the page, and that same quantity of data numbers must follow the command codes.

In the 1930's, a new calendar was proposed. The so-called World calendar consists of four 91-day quarter-years. January, April, July, and October would each be, as the first month of a quarter, 31 days long. All the other months would be 30 days. The first day of every quarter would be Sunday. That's only 364 days, so one extra "Worldsday" would fall after December 30 every year, and another after June 30 in leap years. Businesses would probably love the stable calendar, but printers would lose a lot of money, and computer programmers would no longer be able to publish calendar calculating programs. Oh, well, it will probably not be adopted during this century.

But you never know. It's nearly that time of year again, so, "Happy Worldsday!"

CALENDAR

```
90 P$="RS232.DA=8.BA=4800" !
041
100 ! CALENDAR !221
110 ! VERSION 4.3 J STERN 11
/90 XB, EPSON PRINTERS !208
120 CALL BLUE :: CALL TITLE
!255
130 DISPLAY AT(7,1):"What Ye
ar?" :: ACCEPT AT(7,11)VALID
ATE(DIGIT)SIZE(4)BEEP:X !188
140 IF X<1584 THEN DISPLAY A
T(9,1)BEEP:"Ancient History!
 Before 1584calendars were d
ifferent!" :: GOTO 130 !091
150 DISPLAY AT(9,1):"Printer
 Name?":P$ :: ACCEPT AT(10,1
)VALIDATE(DIGIT,"RSCPIODABLF
N/.=")SIZE(-28):P$ !228
160 DISPLAY AT(13,1):"Print
Julian date and day#?":"Y/n"
 !071
170 ACCEPT AT(14,1)SIZE(-1)V
ALIDATE("YyNn"):TJ$ :: IF PO
S("YyNn",TJ$,1)>2 THEN NJ=-1
 !112
180 CL$=CHR$(10)&CHR$(13)!00
8
190 DISPLAY AT(16,1):"Print
Large Year at Top?":"Y/n" !0
54
200 ACCEPT AT(17,1)SIZE(-1)V
ALIDATE("YyNn"):TJ$ :: IF PO
S("YyNn",TJ$,1)<3 THEN FS=10
 ELSE FS=11 :: GOTO 220 !148
210 CALL HEAD(X,P$)!103
220 RESTORE 570 !153
230 OPEN #1:P$&".CR" !004
240 CALL DAY(1,1,X,C)!091
250 PRINT #1:CHR$(27);CHR$(6
5);CHR$(FS);CL$ !set line sp
acing !125
260 FOR M=1 TO 7 STEP 6 !243
270 FOR R=M TO M+5 !166
280 READ A$ !252
290 PRINT #1:TAB(31-LEN(A$)/
2);CHR$(14);CHR$(27);"E";A$;
" ";X;!print month name !068
300 PRINT #1:CHR$(27);"F" !1
28
310 READ B !217
320 IF R<>2 THEN 360 !050
330 IF X/4>INT(X/4)THEN 360
!148
340 IF X/100>INT(X/100)THEN
B=29 :: GOTO 360 !143
350 IF X/400=INT(X/400)THEN
B=29 !089
360 IF NJ THEN PRINT #1:CL$
:: GOTO 400 ! no julian !076
370 CALL JULIAN(R,1,X,JD)!23
0
380 CALL YEARDAY(R,1,X,YD)!0
66
390 PRINT #1:CHR$(13);" ";JD
;TAB(76);YD;CL$ !163
400 CALL LINE(1,P$)! begin c
alendar !033
410 PRINT #1:CL$;"  Sunday
  Monday      Tuesday     We
dnesday   Thursday    Friday
   Saturday" !163
420 PRINT #1:CL$ !251
430 PRINT #1:CHR$(27);CHR$(
7);CHR$(1)! set double width
 on !166
440 FOR D=1 TO B !123
450 IF C=6 THEN PRINT #1:TAB
(36);CHR$(27);CHR$(69);STR$(
D);CL$ :: GOTO 480 !203
460 IF C=0 THEN PRINT #1:" "
&CHR$(27)&CHR$(69)&STR$(D)&C
HR$(27)&CHR$(70)&CHR$(13)::
GOTO 480 !057
470 PRINT #1:TAB((6*C)+1);ST
R$(D);!210
480 C=C+1 !255
490 IF C>=7 THEN C=0 :: PRIN
T #1:CHR$(14);!223
500 NEXT D !218
510 IF C=0 THEN PRINT #1:CHR
$(13)&CHR$(27)&CHR$(87)&CHR$
(0)ELSE PRINT #1:CL$&CHR$(27
)&CHR$(87)&CHR$(0)!015
520 CALL LINE(2,P$):: PRINT
#1:CL$;CL$ !004
530 PRINT #1:CL$ !251
540 NEXT R !232
550 PRINT #1:CHR$(12);CHR$(2
7);CHR$(65);CHR$(11)!049
560 NEXT M !227
570 DATA "JANUARY",31,"FEBRU
ARY",28,"MARCH",31,"APRIL",3
0,"MAY",31,"JUNE",30,"JULY",
31,"AUGUST",31,"SEPTEMBER",3
0,"OCTOBER" !018
580 DATA 31,"NOVEMBER",30,"D
ECEMBER",31 !027
590 END !139
29505 SUB BLUE !149
29510 ! SWITCHES DISPLAY TO
WHITE ON BLUE; JLS 7/88 !230
29515 CALL SCREEN(5):: FOR L
=0 TO 14 :: CALL COLOR(L,16,
1):: NEXT L :: SUBEND !202
30000 SUB HEAD(X,P$)!107
30005 ! HEAD(# TO PRINT) !15
3
30010 DIM A$(16),Z$(4),Y(4)!
158
30015 DATA 0000,0001,0010,00
11,0100,0101,0110,0111,1000,
1001,1010,1011,1100,1101,111
0,1111 !240
30020 RESTORE 30015 :: FOR L
=0 TO 15 :: READ A$(L):: NEX
```

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EXTENDED BASIC—

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```
L !158
30025 Y(4)=X-INT(X/10)*10 !0
12
30030 Y(1)=INT(X/1000):: Y(2
)=INT((X-Y(1)*1000)/100)!087
30035 Y(3)=INT((X-Y(1)*1000-
Y(2)*100)/10)!228
30040 OPEN #9:P$&".CR" :: PR
INT #9:CHR$(27);CHR$(65);CHR
$(8)!120
30045 FOR L=1 TO 4 :: CALL C
HARPAT(Y(L)+48,Z$(L)):: NEXT
 L !243
30050 FOR L=1 TO 15 STEP 2 :
: FOR L2=1 TO 4 :: FOR L3=0
TO 1 !255
30055 N=ASC(SEG$(Z$(L2),L+L3
,1))-48 :: IF N>9 THEN N=N-7
 !201
30060 PRINT #9:CHR$(27);CHR$
(76);CHR$(96);CHR$(0)!020
30065 FOR L4=1 TO 4 :: IF SE
G$(A$(N),L4,1)="0" THEN C=0
ELSE C=255 !006
30070 PRINT #9:RPT$(CHR$(C),
4)!007
0075 NEXT L4 !022
30080 NEXT L3 :: NEXT L2 !17
1
30085 PRINT #9:CHR$(10);CHR$
(13);"          " :: NEXT L !
235
30090 PRINT #9:CHR$(27);CHR$
(65);CHR$(11):: CLOSE #9 !05
4
30095 SUBEND !168
30125 SUB DAY(J,K,I,N)!252
30130 ! GIVEN (MONTH,DAY,YEA
R,RETURN VARIABLE) DETERMINE
S WEEKDAY AS #0 TO 6 !102
30140 IF J>2 THEN M=J-2 :: Y
=I ELSE M=J+10 :: Y=I-1 !141
30145 C=INT(Y/100):: D=Y-100
*C !183
30150 N=INT((13*M-1)/5)+K+D+
INT(D/4)+INT(C/4)-C-C+77 !13
6
30155 N=N-7*INT(N/7)!045
30160 SUBEND !168
30165 SUB YEARDAY(J,K,I,N)!0
49
30170 ! DETERMINES DAY # OF
THE YEAR (N) GIVEN INPUTS OF
(MONTH,DAY,YEAR,RETURN VARIA
BLE) !155
30180 N=INT(3055*(J+2)/100)-
91 !045
30185 L=0 :: IF I=4*INT(I/4)
THEN L=1 !202
30190 IF I=100*INT(I/100)THE
N L=0 !002
30195 IF I=400*INT(I/400)THE
N L=1 !009
30200 IF J>2 THEN N=N-2+L !0
93
30205 N=N+K !102
30210 SUBEND !168
30845 SUB JULIAN(J,K,I,N)!22
8
30850 ! (MONTH,DAY,YEAR,JULI
AN DATE)CONVERTS STANDARD TO
 JULIAN DATES !042
30860 IF J>2 THEN M=J-3 :: Y
=I ELSE M=J+9 :: Y=I-1 !101
30865 C=INT(Y/100):: D=Y-100
*C !183
30870 N=INT(146097*C/4)+K+IN
T(1461*D/4)+1721119+INT((153
*M+2)/5):: SUBEND !253
31530 SUB TITLE !240
31535 ! SHORT TITLE SCREEN !
181
31540 DISPLAY AT(1,10)ERASE
ALL:"CALENDAR" :: CALL CHAR(
95,"00FF"):: CALL HCHAR(2,12
,95,8)!193
31545 DISPLAY AT(3,4):"Two P
age Wall Calendar" !254
31555 DISPLAY AT(5,2):"Novem
ber 1990 Jerry Stern" !201
31560 SUBEND !168
31645 SUB LINE(N,P$)!119
31650 ! PRINTS A SOLID BLACK
 LINE FULL WIDTH OF PAGE OF
THICKNESS N DOTS !114
31655 OPEN #77:P$&".CR",OUTP
UT,VARIABLE 132 :: X=2^N-1 !
085
31660 PRINT #77:CHR$(27);CHR
$(76);CHR$(252);CHR$(3);RPT$
(CHR$(X),255);RPT$(CHR$(X),2
55);RPT$(CHR$(X),255);RPT$(C
HR$(X),255)!084
31665 PRINT #77:CHR$(13):: C
LOSE #77 :: SUBEND !120
```

Newsletter decline leads to project

Dwindling membership has made the publication of a newsletter no longer feasible for some TI users groups, while rising costs of paper and postage are causing some groups to discontinue exchanging their newsletters with others.

The Central Ohio Ninety-Niners Inc. (C.O.N.N.I) has initiated two projects to address these issues: A newsletter-disk offer and a clearinghouse for newsletter articles of more than local interest.

C.O.N.N.I. now offers a package that includes subscription to the group's newsletter and a copy of each of its disks of the month. The package costs $30 a year for 11 issues (no publication in August) for the 20-page newsletter and at least 10 disks, each at least one flippy disk (two sides, SSSD) including public domain and fairware offerings. Eligibility is residence in the continental U.S. excluding the following Ohio counties: Delaware, Fairfield, Franklin, Licking, Madison, Pickaway and Union. For those outside the continental U.S. the same package is available for $40 a year. Inquiries and checks (payable to C.O.N.N.I.) should be sent to Bob Devilbill, Membership Chairman, C.O.N.N.I., 2000 Atterbury Ave., Columbus, OH 43229. Phone is (614) 891-0566.

To address the decline in exchanges, which might cause worthwhile articles to become unavailable, user group officers at the May 1990 Lima TI fair decided to ask Irwin Hott, sysop of the Spirit of '99 BBS in Columbus, his willingness to maintain a clearinghouse on that board to which participating groups could send articles of more than local appeal. The articles would be distributed on the board to other groups. Hott said the program will require additions to the BBS hardware, including a hard-drive system, and a 2400-baud modem to reduce uploading/downloading costs.

If a minimum of 25 groups subscribe before Feb. 1, 1991, the project will go forward, according to C.O.N.N.I. If not enough groups participate, checks will be returned. Only authorized members of participating user groups will have access to the material. For information, or to join (make checks payable to C.O.N.N.I.), write Everett Wade, 179 Erie Rd., Columbus, OH 43214, or phone (614) 262-6346.

BASIC Assembly

Characters and colors in assembly

BY BARRY TRAVER

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Before I begin this month's column, let me apologize for the delay in continuing this series: The fault is mine, not MICROpendium's. These articles, I'm told, are fairly easy reading for assembly articles, but they have been more difficult to write than almost anything else I've ever written. Ernest Hemingway commented, "Easy writing makes hard reading," and (although I can't locate the reference right now) I believe that Sir Arthur Quiller-Couch pointed out the truth of the reverse, viz., that "easy reading comes from d**ned hard writing." (I'm quoting from memory, but I believe the quote is accurate.) Well, my objective here is easy reading, but it's a lot harder to do than it may look, and I'm not sure how well I succeeded this month.

This month's column has primarily to do with redefining characters in assembly (plus a bit on redefining color sets). Since BASIC and Extended BASIC already include a CALL CHAR statement, you might wonder whether there is any reason to do this in assembly rather than (X)BASIC. After all, didn't I tell you that BASIC is a perfectly good (although underrated) language, and that if we can do something acceptably in BASIC, there's no reason to go into assembly? Why should we write a CALL LINK("CHAR",NUM,DEF$) when we already have a CALL CHAR(NUM,DEF$) in BASIC?

No, I haven't changed my philosophy on BASIC and assembly. The point is that—in certain situations—the CALL CHAR statement in XBASIC is not really adequate. Let me give three examples.

First, you cannot use CALL CHAR in XB to redefine the character definition of CHR$(30), the cursor, or CHR$(31), the edge character. This is a somewhat trivial example, but suppose you want your cursor to be something other than what it usually is: suppose instead of a solid block or an underline you want a TI logo or a smiley face? You can't do that with CALL CHAR!

Second, you cannot use CALL CHAR in XB to redefine character sets 15 and 16, i.e., ASCII characters 144 through 159. I know, TI in its XB manual (page 10) claims that in XB "the characters in character sets 15 and 16 are no longer available. That memory area is used by TI Extended BASIC to keep track of sprites." Well, that is only partially true. The truth is that you can use character sets 15 and 16 (we're talking 16 available character definitions, folks, no small matter) as long as you aren't trying to have sprites on the screen at the same time. If you're not using sprites, using character sets 15 and 16 is really no problem.

In spite of TI's comment, you can display or print characters 144 through 159 on the screen (plus less meaningful characters) in normal XB. If you tell XB to PRINT CHR$(144) or PRINT CHR$(159), it will do it just as easily as it will do a PRINT CHR$(65) (the letter "A") or a PRINT CHR$(122) (the letter "z"). So you see that you can easily print or display in XB the characters in character sets 15 and 16: it's just that CALL CHAR in XB does not allow you to redefine them!

The truth is that you can use character sets 15 and 16 (we're talking 16 available character definitions, folks, no small matter) as long as you aren't trying to have sprites on the screen at the same time. If you're not using sprites, using character sets 15 and 16 is really no problem.

There are a number of situations where you may want to make use of character sets 15 and 16 in XB. One example is when you are trying to run in XB a program written in TI BASIC that makes use of character sets 15 and 16. (What normally happens is that the TI BASIC program crashes when run in XB when it tries to redefine characters 144 through 159.) Another example is that there are times in XB where you're doing special graphics on the screen and you would rather have 16 additional characters definitions available to you than have sprites. (You can still have sprites elsewhere in your XB program: the only limitation is that you cannot use sprites and character sets 15 and 16 at the same time.)

Third, if you have a lot of CALL CHAR statements in an XB program, you will find that it can take a lot of time to get them all done. Instead of requiring the user to stare at a "ONE MOMENT PLEASE..." message on the screen while a lot of characters are being redefined, why not redefine the characters almost instaneously in assembly? In this situation, I prefer to use a CALL LINK("FONT") (redefining an entire "font" at once) rather than using separate CALL LINK("CHAR",NUM,DEF$) statements (redefining characters individually), but my point is still the same: an assembly version in this situation is superior to the normal CALL CHAR of XB.

The CALL LINK("CHAR",NUM,DEF$) and CALL LINK("COLOR",SET,FORE,BACK) routines provided here make use of the GET/STRING/S file published in MICROpendium, August 1990, pages 26-27. (If you haven't already done so, I recommend you consider ordering MICROpenium on disk for April 1990 to March 1991.)

Now down to business. Earlier we took a "byte-size" look at assembly programming; this time we are going to concentrate on "nybbles" (assuming that you're hungry for more!). Let's review. A Register holds a word. A (TI-size) word is made up of 2 bytes or 4 nybbles or 16 bits. A byte is made up of 2 nybbles or 8 bits. A nybble is made up of 4 bits.

Take the word >ABCD. It is made up of the two bytes >AB and >CD. The byte >AB is made up of the two nybbles >A and >B. When you see a word like >ABCD, I've suggested that you learn to think of it in terms of left and right byte. Well, now I'm suggesting further that you think of a byte in terms of left and right nybble.

Are you familiar with the game "musical chairs"? Well, we're going to invent a new

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BASIC Assembly—

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version for the purpose of illustration. Picture a row of 16 seats in an auditorium. We won't have a circle of chairs with chairs being removed one by one, as the game is usually played. Instead, we'll have a row of chairs with people shifting left and right, and the rule is that if you're pushed into the aisle, you're out of the game and have to leave. (I'm getting ready to explain SLA and SRL—this rule doesn't apply to SLA or SRC, which we'll defer to a different time.)

The starting position (left to right) is Al, Bob, Chuck, Dave, Ed, Frank, George, Hank, Ian, Jerry, Ken, Larry, Mack, Nick, Otis, and Paul, and they are sitting in a Row that we will arbitrarily call Row 1 (or R1 for short). (For sake of economy, let's use initials from here on in, and use "-" to indicate an empty seat.) SLA R1,n means we shift n number of seats to the left, while SRL R1,n means we shift n number of seats to the right. Let's try some things and see what the result is.

```
Start:        ABCD EFGH IJKL MNOP
Instruction:  SRL  R1,12
Result:       ---- ---- ---- ABCD
Instruction:  SLA  R1,4
Start:        ---- ---- ABCD ----
```

Al, Bob, Chuck, and Dave are now sitting by themselves in the 9th through the 12th seats, and the others are gone (hopefully to get some pizza or engage in some socially acceptable activity, rather than seeking to get even with Al, Bob, Chuck, and Dave!).

I think you can see the application here. By using SRL ("Shift Right Logical") and SLA ("Shift Left Arithmetic"), we can shift people around, and (if we want) get rid of some others in the process. If the number is a multiple of 4 (i.e., 4, 8, or 12), then we are dealing with 4-people groups at a time, which corresponds to nybbles, if we think of the 16-seat row as a 16-bit Register. Likewise if we shift 8 people at a time, then we can think of the 8-people groups as bytes.

What happens in a Register is exactly like what happens in our new version of "musical chairs." SRL Rn,8 moves the left byte to the right and clears the left byte in the process. (I bet people—like Ian, Jerry, Ken, Larry, Mack, Nick, Otis, and Paul—are rolling in the aisles with this illustration!) Similarly, SLA Rn,8 moves the right byte to the left and clears the right byte in the process. You can you use SLA Rn,4 or SRL Rn,4 or SLA Rn,12 or SRL Rn,12 to put a left nybble into a right nybble (or vice versa). Some of this can be done in other ways (e.g., the SWPB or "SWaP Bytes" instruction can be useful), but if you're serious about assembly, you will need to learn how SLA and SRL operate.

One really nice thing about SRL and SLA is that you can use them as an easy way to multiply or divide by a power of 2. SLA Rn,3 is equivalent to multiplying the contents of a Register by 8 (since 8 = 2 cubed), and SRL Rn,1 is equivalent to dividing the contents of a Register by 2 (since 1/2 = 2 to the -1 power). Caution: when you use this method to divide, there is no "rounding" of the result; rather, the fractional part is lost (somewhat similar to the INT function in BASIC).

The code for COLOR/S is relatively straightforward. The only thing I'll note is that—since assembly likes to begin counting with 0 rather than 1—you have to adjust the numbers for colors. That is, colors in BASIC are 1 for transparent, 2 for black, 3 for medium green, etc., but colors in assembly are 0 for transparent, 1 for black, etc. Just decrease the BASIC number by one, and you've got the right number for assembly.

Incidentally, there is one disadvantage of the assembly routine, but it is a very minor one: it is set for one character set, while in XBASIC you can do more than one with a single CALL, e.g., CALL COLOR(A,B,C,D,E,F,...). There is no practical way to do a CALL LINK in assembly to pass along as many parameters as are allowed in CALL COLOR in XB, so I've kept the assembly code simple, but you do need to know of the limitation. All this means is that you must do a separate CALL LINK("COLOR",SET,FORE,BACK) for each character set, but that's no big deal.

There's not space here for extensive comment on CHAR/S, so I'll just comment on three things. We need to start our assembly code by recognizing that BASIC adds "0" when necessary to make a definition string equal to a multiple of 16 in length. For example, BASIC takes CALL CHAR(143,"FFFF") as equivalent to CALL CHAR(143,"FFFF00000000000 0"). We too have to add the 0's, if needed.

Also, remember how I said at one time that you could think of a byte as roughly corresponding to an ASCII character and a nybble as a hex digit? Well, BASIC wastes a lot of space in its character definitions, because it uses bytes rather than nybbles to define characters. That is, in BASIC a string like "FFFFFFFFFFFFF FFF" is 16 bytes (or 32 nybbles), not 16 nybbles. (The "F" in BASIC is ASCII character or byte 70, not hex 15 as a nybble.) When we put it into assembly, our definition string becomes half as long (but we have to do the conversion from ASCII to hex).

Note that we use a B @RETURN and not a B @SEND at the end in CHAR/S to return to BASIC, because we have been ecology conscious in re-using the space at NUM and DEF$ and we don't want to send back the changed values. We just used those spaces as scrap paper to figure out the location in VDP RAM to which to write the definition—and to figure out the assembly version of the definition string—in order to write the new string to the right place. (By the way, you have to be very careful in reading a string, processing the information, and writing back to the same string, but it works here, because our new string is half as long as our original, so nothing is messed up.)

Anyway, have fun using CHAR/S and COLOR/S to do things like redefining the cursor or character sets 15 and 16. If you don't like writing a lot of CALL LINKs in your program, try adding the following to your program, using just plain CALL CHAR and CALL COLOR in your main program:

```
29999 !@P+
30000 SUB CHAR(SET,DEF$)
30010 CALL LINK("CHAR",SET,DE
F$)
30020 SUBEND
30030 SUB COLOR(SET,FORE,BAC
K)
30040 CALL LINK("COLOR",SET,F
ORE,BACK)
```

(See Page 25)

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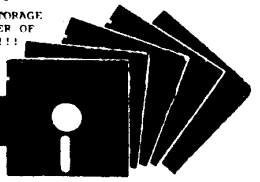

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This program randomly generates numbers for use in the various state lotto games and even runs a simulated lotto game. Easy to modify for pick 5 etc. games. A great learning and fun disk.

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This disk prints out a near photo quality picture of that lady with the clsssic smile. We understand it was made by digitizing the original with a super powerful computer and converting the output to run on the TI-99/4A. Impresses everyone who sees it! Requires Epson printer compatibility.

#10. GOTHIC PRINT
This disk lets you type out a phrase on the screen and then print it out in gothic (Old English) style. Looks like hand-lettered calligraphy. Use for invitations, announcements and business cards.

#11. ANIMATED CHRISTMAS CARD "WOODSTOCK"
This disk was actually originally sent to TEX-COMP as a greeting from master programmer Ray Kazmer. It was just too good not to share! One of the best examples of computer animation and graphics you will see on any computer!

#12. TI-99 OLOPY
This great piece of programming actually simulates and plays the famous board game. For legal reasons we cannot name the game but "do not pass Go! but go directly to Jail!"

#13. STRIP POKER (PG RATED)
Play Poker against your TI-99/4A. When you win a hand she loses--a piece of her clothes that is. Don't worry about being a lousy poker player. Another file is included where you don't even have to know an ace from a king.

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A collection of Playboy type centerfolds that can be printed out at your command. Use with any printer.

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This 2 sided disk contains a large collection of demo programs to put your Star/Epson compatible printer through its paces. Learn what control codes can do! Lots of text and graphics examples. Second side has a great tutorial on printer graphics with examples!

#16. SIDEWAYS PRINTOUT
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This disk released by TI adds real lower case to your TI Writer, speed to Multiplan and other enhancements. Easy to use., just substitute new files for old! Instructions included.

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With this disk you print out the data you have stored with the TI HBM Module. HBM is a great module that can be used for many home and small business applications but TI forgot to include a printout function. This program comes with full instructions and we are sure that your HBM Module will now start being used. Fantastic programming job.

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Another collection of classic games for the TI-99/4A. Exbasic & 32K req.

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A collection of some unusual programs of interest to programmers. One program shows a group of opening title displays, another is a cross reference program as good as any of the commercial ones, plus a great disk management utility.

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A collection of various programs for evaluating loans, calculating interest, and other financial items such as return on investment and security performance. Two disk sides filled with financial and business related programs.

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This unofficial police cookbook was put together by one of our boys in blue who is also a gourmet chef. (Yes, it contains jailhouse chili) Over 50 great receipes from soup to nuts on two disk sides and each separate side can be called up on screen or printer in exbasic from a menu. As good as any of the new PC computer cookbooks we have seen.

#38. GREAT 99/4A GAMES VOL. I
A collection of professional games in assembly and exbasic that all load from a menu in exbasic. Includes a great ski game where you dodge the trees in a fast downhill run. We have included only the best.

#39. GREAT 99/4A GAMES VOL. II
Still more of the great ones from all over the world. The quality, graphics and speed of many of these games will make you wonder why they were never released commercially.

#40. ARTIFICIAL INTELLIGENCE
This disk contains the famouse computer program "Eliza" where you type in a question or a problem you are having and "Eliza" helps you find the solution. Also contains one of the better bio-rhythm programs so you can analyze all your emotional problems at one sitting.

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This disk is a backup of the discontinued Video Graphs Module from TI. For legal reasons, it can only be purchased for backup use by owners of the original module. Do not order UNLESS you have the original module and intend to use this disk only for backup purposes. Exbasic autoload...

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This Pacman/Munchman type game starts at a slow pace and slowly speeds up to a break-neck pace. A totally new experience.

#49. DEMON DESTROYER (from France)
This great assembly game starts where Invaders leaves off. Add features like descending aliens and closing walls. Hours of great arcade action.

#50. OH MUMMY (from Germany)
Move through the chambers of a Pyramid in search of hidden treasure. Fantastic graphics and great entertainment.

#51. BERLIN WALL (from Canada)
This game requires a mine field to be crossed before escaping from E. Berlin. Good graphics and a real challenge.

#52. ANIMATION 99 (from Germany)
THIS IS THE ONE!!! A demo disk filled with computer animation routines like you have never seen before on any computer. See famous cartoon figures move with more realism that on Sat. morning TV. This disk received a standing ovation when previewed at a local users group. We have even included instructions how to do it yourself on the second disk side. This one is a show stopper!!!

#53. HACKER/CRACKER
A collection of disk copying programs that copy TI disks by tracks. If one of these can't copy a protected disk nothing will. We included a collection of the very best ones including both TI and CorComp compatible. These programs require 2 disk drives and 32K of memory.

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This program allows you to dump disk and even module programs to a Star Epson compatible printer. Comes with easy to follow plans to build a load interrupt switch which is needed to dump module programs. This dump program by Danny Michael is considered the best of the bunch! Complete with documentation.

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OK, it's not Multiplan but it works great and handles many spread sheet applications. A great way to learn to use spread sheet software. Comes with full instructions and documentation.

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Considered one of the best data communications programs for the TI-99/4A. Complete with documentation.

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The alltime most popular and widely used data base program for the TI-99/4A. A freeware program that is widely supported and updated.

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A fantastic game where you guide the hero through underground passages filled with danger. Nintendo quality, great graphics and fast action. One of the best we have ever seen!!!

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A fast action game from F.R.G. that will keep you going for hours. Many screens and skills required.

#62. DISK MANAGER II MODULE BACKUP
The complete TI Disk Manager II on Disk. For legal reasons it is only available to owners of the original module for backup use.

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A pair of great games that continue where Parsec and Munchman leave off. Imagine Parsec with enemy space craft coming from in front and in back of your ship!!!

#64. MAJOR TOM/SPACE STATION PHETA
A pair of great space games. These two are going to keep you in front of the 99/4A for hours. Great!

#65. PERFECT PUSH
An all new space game where you assemble and launch a rocket ship in outer space while avoiding a space monster. This one is professional in very way...graphics, speed and action!!!

#66. HEBREW TYPEWRITER
This program converts your TI-99/4A keyboard into a typewriter that displays Hebrew letters on the screen. Can also be printed when used in conjunction with screen dump program (included). Great for religious training or making your copy of the dead sea scrolls or ten commandments!

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Now you can set up your family tree and store or print out the records. Great for keeping track of family relationships and records.

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The original computer chess game Sargon has been reprogrammed for the TI-99/4A. Now play chess with your computer. Documentation included. Exbasic autoload.

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A unique music program which displays a piano on the screen and actually plays your selections.

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The very latest (and best) "runner" game based on TI Runner and Star Runner. Great action, graphics and entertainment.

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#72. CERBERUS
Fantastic space game from Germany. Pilot your ship through narrow and crooked channels in space without colliding. Great graphics and music.

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One of the best word games we have seen for any computer. Set up like a TV game show with great screen displays.

#74. LABEL MAKER II
Make labels for holidays and special events. You compose the text and select the resident graphics for the occasion.

#75. DISK CATALOGER
Now you can organize your disk files with this great utility. Files, sorts, and prints your records. Easy to use.

#76. PROGRAMMING AIDS AND UTILITIES II
A collection of very useful material. Includes a program to convert basic to exbasic so your old basic programs will load & run in exbasic, even with graphics. Also includes two on screen diagnostic programs to test your keyboard and processor. A great merge utility is also on this disk.

#77. MICROdex 99
A database program by Bill Gaskill which files and retrieves data such as magazine articles. A sample database is included.

#78. ARTCON+ BY RAY KAZMER
ATTENTION GRAPHX AND TI ARTIST USERS!!!
This program lets you convert Exbasic graphics to TI Artist and Graphx pictures. Also contains a new MAC-RLE (2) for converting from Artist to Graphx.

#79. DM1000 V3.5
One of the most popular disk managers for the TI-99/4A. Originally a rip-off of the CorComp manager, it has been improved and refined by talented users all over the world. This version is deemed the most reliable to date and is far advanced over the TI Disk Manager II. Distributed by permission from CorComp.

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#81. HOME ACCOUNTING SYSTEM
A complete family & small business accounting system including a checkbook manager, budget analysis, mailing list and an inventory program. Complete with documentation. Easy to modify for specific needs.

#82. CROSSWORD PUZZLES
This program from Australia creates a different puzzle each time you run it. Self contained with definitions and vocabulary taken from a leading crossword dictionary. Great crossword fun.

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A pair of great commercial quality games from EB Software of TI Runner fame. Galactic Battle is a space "trek" type strategy game for one or more players. Spy Adventure is an adventure game that will keep you guessing for hours.

#85. AUTOBOOT UTILITY
This utility which can be installed on a disk loads and runs or displays most files. Now you can have a disk with exbasic programs, Editor Assembler programs and TI Writer files and run or display them all from exbasic.

#86. COLUMN TEXT III V3.2
A very useful utility for printing TI Writer and 99 Writer II files in separate spaced columns. Saves hours in producing a newsletter. Complete with documentation.

#87. ARCHIVER III
This utility allows you to "pack" or combine several files into one for space utilization. A number of boards are sending files packed to save transmission costs. This utility will let you pack and/or unpack these files.

#88. AUSSIE GAMES VOL 1
A collection of games from our friends down under. Includes a great card game and board game. Hours of fun and entertainment. Includes Matchmaker & TILO.

#89. PROCALC
This is an on screen calculator for decimal/hexidecimal conversions and much more. A must for the serious programmer.

 # 90. JET CHECKBOOK MANAGER
This checkbook manager is considered the ultimate with every feature you can think of for keeping track of your checking account and keeping records of your spending for budget and tax purposes. Complete with documentation.

#91. "THE MAZE OF GROG"(St. Valentine)
Ray Kazmer has created a great maze game with fantastic graphics and the characters from his now legendary "Woodstock" disk. Fun for all!!!

#92. HOUSEHOLD INVENTORY
Written by 99/4 programming great Charles Ehninger, this prize winner originally sold for $59.95. Keeps track of household, business or personal items by category and provides automatic updating for inflation etc. A must for tax and insurance records!

#93. THE 1990 KBGB GIRLIE CALENDAR
This latest offering from programming master Ken Gilliland prints out a jumbo 12 month calendar with a knockout centerfold pinup for each month. If you like our #14 Figure Study disk, you will flip over this one. For Adults Only!! Exbasic & d/m printer.

#94. GREAT 99/4A GAMES VOL. III
If you have seen vols. 1 & 2 of this series you know we only provide the very best. This latest volumn is also filled with a collection of great ones!

#95. WEATHER FORECASTER
The weather predictions are amazingly reliable and accurate! A great game "Lawnmower" and a mini database are also included to make this disk a fantastic value.

#96. STATISTICS & SORTING
Two great assembly utilities by John Clulow. STAT is a set of statistic routines for use in exbasic. SORT allows sorting by two separate fields and a choice of two types of sorts.

#97. MEMORY MANIPULATOR
This powerful utility lets you explore the entire memory in your 99/4A system and take apart what you find. User friendly!

#98. DAYS OF EDEN & DOORS OF EDEN
Two bible games)non-fiction) that work with the TI Adventure Module.

#99. GREAT 99/4A GAMES VOL. IV
This disk features the works of J. Peter Hoddie. All of these games are of commercial qualaity and well worth the donation requested!

#100. ASSULT THE CITY (T. of DOOM)
An exciting game for use with the Tunnels of Doom module. Several Exbasic bonus games are included.

#101. ENCHANCED DISPLAY PACKAGE
This screen enhancement utility lets you do 40 columns, windowing, reverse scrolling, clock/alarm, and a whole host of other great tricks in exbasic. Fully documented.

#102. COLOSSAL CAVES ADVENTURE
This classic adventure now available for the 99/4A is what led to the Zork series. Hours of text adventuring.

#103. SORGAN, THE 99/4A ORGAN
This program which is currently selling for big bucks on module turns your 99/4A into an electronic organ. Sound effects, different instruments and voices, chord forms, color graphics with complete control of all.

#104. C99 COMPILER AND LIBRARY
This two-sided (flippy) disk gets you into C programming with your 99/4A. Comes with a great collection of utilities such as text & graphics. (E/A)

#105. KING'S CASTLE+
A great arcade style assembly game formerly offered on module. Also includes an EB "Trek" game and a collection of sprite & graphics from Tigercub's Jim Peterson.

#106. QUEST (Dungeons & Dragons)
One of the best D&D games around! You must destroy the Dark Lord to free your homeland! Complete with documentation on disk.

#107. STAR TREK MUSIC ALBUM
Ken Gilliand's music and graphics version of the TV theme and the three motion pictures. (Exbasic)

#108. FUNLPLUS BY JACK SUGHRUE
Fantastic disk packed with Funnelweb (#42) templates, utilities and prog. to augment and configure Funnelweb. Unbeliveable collection of fantastic aids to make the best even better!

#109. TI-WRITER MINI MANUAL
This disk prints out a five page TI Writer manual with everything you need to know to use TI Writer or the many clones such as 99Writer II. Additional aids for using this powerful word processor are included.

#110. DISK + AID
A powerful disk sector editor formerly sold for $20. Menu Driven and easy to use.

#111. POP MUSIC & GRAPHICS
This exciting disk from Germany features music/graphics written in 100% assembly and what comes from the TI sound chip is sure to astound you.

#112. INVOICE PACK
An excellent invoice preparation and printing program with instructions on how to modify it for your own business.

#113. LABEL MAKER 3
A collection of label programs to create mailing and disk envelopes, disk labels and much more!

#114. PANORAMA
A drawing and illustration program that compliments Graphx and TI Artist. A must for the serious 99/4A artist!

#115. GRAPHICS DESIGN SYSTEM
A complete system for creating graphic screens in full color for your programs by J. Peter Hoddie. Fully documented.

#116. FOURTH TUTORIAL
A lesson in FORTH programming on how to create graphics.

#117. UNIVERSAL DISASSEMBLER
This powerful utility written in Forth allows disassembly of programs off disk in any format, in memory, and even off of P-Box cards. Very complete with some very unique features.

#118. FAST TERM
One of the most popular and recommended of the 99/4A terminal emulator programs. Supports TE-II, ASCII, and X-Modem transfers, print spooling and more. Loads from Exbasic or E/A.

#119. RAG LINKER
A utility for converting DIS/FIX 80 assembly object code files to PROGRAM image. This allows files to load faster and take up less space on disk. Full Doc

#120. BITMAC
The original BITMAC is now available at $4.95 with all original documentation. A powerful graphics program for the 4A which lets you print where you want..even over pre-existing text. Create great graphics in 16 colors, print text sideways, mirror image, upside down etc. etc. A **must** for anyone into 99/4A graphics. Comes with second bonus disk with utilities such as sign & banner makers. Even can computer generate your own signature!

#121. SUPER YAHTZEE & WHEEL II
If you like Yahtzee this disk is for you. A great version written in high speed assembly. Also included is another version of Wheel of Fortune which also lets you create your own puzzles with a puzzle edit program included.

#122. ADULT ADVENTURE
A trily adult adventure for use with the TI Adventure Module. Also included is a bonus adventure (not adult) "LOST GOLD" which is one of the better ones we have seen recently.

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BASIC Assembly—

(Continued from Page 19)

30050 SUBEND

Next time (D.V.) I'll show you an efficient way to redefine entire fonts quickly. UnTIl then, keep on compuTIn'!

Traver publishes a diskazine for TI users called Genial TRAVelER. He can be reached at 835 Green Valley Dr., Philadelphia, PA 19128.

```
0001   * CHAR/S
0002   *   (C) COPYRIGHT 1990
0003   *    BY BARRY A. TRAVER
0004
0005         COPY "DSK1.GET/SEND/S"
0006
0007    * CALL LINK("CHAR",NUM,DEF$)
0008   *   WHICH IS EQUIVALENT TO
0009   * CALL CHAR(NUM,DEF$) IN XB
0010   * (EXCEPT THAT THE CALL LINK CAN
0011   * HANDLE CHAR. SETS 0, 15, & 16)
0012
0013           DEF   CHAR
0014   NUM     EQU   PARAM1
0015   DEF$    EQU   PARAM2
0016
0017   CHAR    LWPI WS
0018
0019   * FIRST, FILL ALL 64 POSSIBLE POSITIONS
0020   *   OF DEF$ WITH "0" IN CASE ORIGINAL
0021   *   STRING IS NOT EVENLY DIVISIBLY BY 16
0022           LI    R0,DEF$+1
0023           LI    R1,>3000 * >30=ASCII 48,"0"
0024           LI    R2,64
0025   SETUP   MOVB R1,*R0+
0026           DEC   R2
0027           JNE   SETUP
0028
0029   * GET THE PARAMETERS FROM XB
0030           BL    @GET
0031
0032   * CALCULATE VDP RAM LOCATION FOR
0033   *   DEFINITION OF CHARACTER(S)
0034           MOV   @NUM,R0
0035           SLA   R0,3        * MULTIPLY BY 8
0036           AI    R0,>0300
0037           MOV   R0,@NUM     * SAVE VDP ADDRESS
0038
0039   * CALCULATE IMPLIED LENGTH OF ASCII DEF
0040   *   (I.E., EVENLY DIVISIBLE BY 16)
0041           MOVB @DEF$,R0   * GET LENGTH
0042           SRL   R0,8    * SHIFT TO RIGHT BYTE
0043           JNE   OKAY      * HAVE NULL STRING?
0044           AI    R0,1      * IF SO, COMPENSATE
0045   OKAY    AI    R0,15 * ROUND UP TO NEXT 16
0046           SRL   R0,4    *   DIVIDE BY 16, AND
0047           SLA   R0,4    *   MULT. BY 16 AGAIN
0048           SLA   R0,8    * SHIFT TO LEFT BYTE
0049           MOVB R0,@DEF$     * STORE LENGTH
0050
0051   * PUT STARTING VALUES IN REGISTERS
0052           MOV   @DEF$,R1 * PUT LENGTH IN R1
0053           SRL   R1,8     * SHIFT TO RIGHT BYTE
0054           LI    R2,DEF$+1 * ADDRESS TO READ
0055           LI    R3,DEF$+1 * ADDRESS TO WRITE
0056
0057   * NOW WE CAN CREATE THE NEW STRING...
0058
0059   * GET BYTE FOR LEFT NYBBLE OF NEW DEF
0060   GETIT   BL    @ASCHEX
0061
0062   * MULTIPLY BY 16 AND STORE IN R4
0063           SLA   R0,4        * MULTIPLY BY 16
0064           MOV   R0,R4
0065
0066   * DECREASE "TO DO" COUNTER BY ONE
0067           DEC   R1
0068
0069   * GET BYTE FOR RIGHT NYBBLE OF NEW DEF
0070           BL    @ASCHEX
0071
0072   * NOW ADD R4 TO R0 (COMBINE NYBBLES)
0073           A     R4,R0
0074
0075   * PUT CHARACTER BACK IN LEFT BYTE
0076   *   OF R0, AND MOVE IT TO DEF$
0077           SLA   R0,8     * SHIFT TO LEFT BYTE
0078           MOVB R0,*R3+
0079
0080   * DECREASE "TO DO" COUNTER BY ONE
0081           DEC   R1
0082
0083   * IF STILL MORE TO DO, DO ANOTHER!
0084           JNE   GETIT
0085
0086   * SET LENGTH OF NEW STRING
0087           MOVB @DEF$,R0 * GET OLD LENGTH
0088           SRL   R0,1        * DIVIDE BY 2
0089           MOVB R0,@DEF$ * WRITE NEW LENGTH
0090
0091   * FINALLY, WRITE THE DEFINITION!
0092           MOV   @NUM,R0 * LOCATION TO WRITE
0093           LI    R1,DEF$+1 * PLACE TO READ
0094           MOVB @DEF$,R2   * GET LENGTH
0095           SRL   R2,8    * SHIFT TO RIGHT BYTE
0096           BLWP @VMBW        * WRITE IT!
0097
0098   * RETURN TO XB
0099           B     @RETURN
0100
0101   ****** "ASCHEX" SUBROUTINE ******
0102
0103   * NOTE NECESSARY CONVERSION ROUTINE.
0104   *   SINCE "0"=ASCII 48 (NOT 0), "A"=
0105   *   ASCII 65 (NOT 10), ETC., WE NEED
0106   *   TO SUBTRACT FROM ASCII TO GET HEX!
0107
0108   ASCHEX MOVB *R2+,R0 * PUT CHAR IN R0
0109           SRL   R0,8    * SHIFT TO RIGHT BYTE
0110           CI    R0,57   * GREATER THAN "9"?
0111           JGT   HEX       * IF SO, MUST BE HEX
0112           AI    R0,-48 *SUBTRACT 48 FOR 0-9
0113           JMP   CONTIN          - OR -
0114   HEX     AI    R0,-55 *SUBTRACT 55 FOR A-F
0115   CONTIN RT             *RETURN TO MAIN PROG
0116
0117   ******
0118
0119           END
0120
```

```
0001   * COLOR/S
```

(See Page 26)

BASIC Assembly—

(Continued from Page 25)

```
0002   *    (C)  COPYRIGHT  1990
0003   *     BY  BARRY A.  TRAVER
0004
0005            COPY  "DSK1.GET/SEND/S"
0006
0007    *  CALL  LINK("COLOR",SET,FORE,BACK)
0008   *          WHICH  IS  EQUIVALENT  TO
0009    *  CALL  COLOR(SET,FORE,BACK)  IN  XB
0010   *    (EXCEPT  THAT  THE  CALL  LINK  CAN
0011   *    HANDLE  CHAR.  SETS  0,  15,  &  16)
0012
0013            DEF    COLOR
0014   SET      EQU    PARAM1
0015   FORE     EQU    PARAM2
0016   BACK     EQU    PARAM3
0017
0018   COLOR    LWPI   WS
0019
0020   *  GET  THE  PARAMETERS  FROM  XB
0021            BL     @GET
0022
0023   *  CALCULATE  POSITION  IN  COLOR  TABLE
0024            LI     R0,>080F
0025            A      @SET,R0
0026
0027   *  PUT  FOREGROUND  COLOR  IN  LEFT  NYBBLE
0028   *    OF  RIGHT  BYTE  OF  R1  (FOR  NOW)
0029            MOV    @FORE,R1
0030            DEC    R1      *SUBTRACT  1  FOR  COLOR
0031            SLA    R1,4    *SHIFT  TO  LEFT  NYBBLE
0032
0033   *  PUT  BACKGROUND  COLOR  IN  RIGHT  NYBBLE
0034   *    OF  RIGHT  BYTE  OF  R2  (FOR  NOW)
0035            MOV    @BACK,R2
0036            DEC    R2      *SUBTRACT  1  FOR  COLOR
0037
0038   *  ADD  THE  TWO  TOGETHER,  AND  SHIFT  THE
0039   *    RESULT  TO  _LEFT_  BYTE  OF  R1
0040            A      R2,R1  *ADD  THEM  TOGETHER
0041            SLA    R1,8    *SHIFT  TO  LEFT  BYTE
0042
0043   *  WRITE  TO  COLOR  TABLE
0044            BLWP   @VSBW
0045
0046   *  RETURN  TO  XB
0047            B      @RETURN
0048
0049            END
0050
```

MY-BASIC

Tips on using subdirectories

By JIM UZZELL
DDI SOFTWARE

Since MY-Menu (published June 1990) was designed to be used with the Myarc Hard & Floppy Disk Controller card, the following is an explanation of lhow subdirectories are stored on a floppy.

The following chart lists hex then ASCII of a DS/SD disk sector 0.

```
      0 1 2 3 4 5 6 7 8 9 A B C D E F
0     424C414E4B202020202002D00944534B
      B L A N K             720 9 D S K
1     2028020153554234202020202020002
        (     S U B 4                 2
2     53554235202020202020000353554236
      S U B 5                   3 S U B 6
3     2020202020200004  38-255=BIT-MAP
                    4
```

00-09 Is volume name
0A-0B Is hex value of disk size
0C Is sectors/track
1F Is sector 2-sub4 FDR storage area
2B Is sector 3-sub5 FDR storage area
37 Is sector 4-sub6 FDR storage area

MY-Menu and CALL FILES will list subdirectories after any files stored in the main directory (volume) regardless of what name you give to subdirectories.

I recommend that you format and create subdirectories at the same time (prior to putting any files on the disk). This will reserve sectors 1-4 for FDR storage. If you create a subdirectory after files are on the disk, the next unused sector will be reserved for FDR storage, which might create nightmare if you have to fix a blown disk.

A minor and probably trivial feature not documented in MY-Menu is the use of the screen option to display a listed program with a width of 41 characters. This means that any program statement that is two screen lines long has 81 characters in it and you can quickly determine if that 81st character is a number, which we all know will cause a problem when loading a listed program.

REDEFINED CHARACTERS

Those who have used MY-BASIC probably know that it has some very powerful drawing commands, but it has something else even more powerful — redefined characters.

According to the manual, all 255 ASCII characters are available for redefinition (see CHAR in manual). And, have you wondered why there are question marks in the number of patterns in bitmap mode of Appendix K? Read the last paragraph of the first section of CHAR definition. If I have read this properly, you can use one character and create a full screen picture.

The program listed below is a demonstration of using predefined characters to supplement drawing commands.

I chose 11 characters that are above the standard character set and available from the keyboard so I could show how they can be

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MY-BASIC—

(Continued from Page 26)

used in HCHAR (or VCHAR for that matter) CHR$ sprite routines. I used a 6x8 pattern so it would be compatible with graphics modes.

All programs appearing in this column require MY-BASIC 2.99A. MY-BASIC 2.99A requires either MDOS 0.97h or MDOS 1.14F. To obtain these program from MICROpendium, send $5. MDOS 0.97h requires at least a double-sided, single-density disk. Mail checks to MICROpendium MDOS, P.O. Box 1343, Round Rock, TX 78680.—Ed.

```
100 CALL GRAPHICS(2,2)
110 CALL INIT
120 DIM AA$(140)
130 GOSUB 190
140 FOR X=129 TO 139 :: CALL
 CHAR(X,AA$(X)) :: CALL TCOL
OR(7,5) :: CALL HCHAR((X-127
)*2-1,5,X) :: CALL TCOLOR(16
,5)
150 DISPLAY AT((X-127)*2-1,1
0):"CTRL";" ";CHR$(X-64)
160 NEXT X
170 GOSUB 310
180 CALL KEY(0,K,S) :: IF S=
0 THEN 180 ELSE END
190 AA$(129)="5050D010D05050
50"
200 AA$(132)="50505050505050
50"
210 AA$(139)="0000F010D05050
50"
220 AA$(131)="5050D010F00000
00"
230 AA$(130)="50505C407C0000
00"
240 AA$(134)="5050DC00FC0000
00"
250 AA$(135)="00007C405C5050
50"
260 AA$(136)="0000FC00DC5050
50"
270 AA$(137)="5050DC00DC5050
50"
280 AA$(138)="0000FC00FC0000
00"
290 AA$(133)="50505C405C5050
50"
300 RETURN
310 Z$=CHR$(135)&CHR$(138)&C
HR$(138)&CHR$(136)&CHR$(138)
&CHR$(138)&CHR$(139)
320 Z1$=CHR$(132)&"  "&CHR$(
132)&"  "&CHR$(132)
330 Z2$=CHR$(133)&CHR$(138)&
CHR$(138)&CHR$(137)&CHR$(138
)&CHR$(138)&CHR$(129)
340 Z3$=CHR$(130)&CHR$(138)&
CHR$(138)&CHR$(134)&CHR$(138
)&CHR$(138)&CHR$(131)
350 DISPLAY AT(8,18):Z$ :: D
ISPLAY AT(9,18):Z1$ :: DISPL
AY AT(10,18):Z2$ :: DISPLAY
AT(11,18):Z1$ :: DISPLAY AT(
12,18):Z3$
360 CALL DCOLOR(7,16) :: CAL
L FILL(70,135) :: CALL DCOLO
R(13,16)
370 CALL FILL(70,125) :: CAL
L DCOLOR(11,16) :: CALL FILL
(80,125)
380 CALL SPRITE(#2,135,16,95
,110,#3,138,16,95,122,#4,136
,16,95,134)
390 CALL SPRITE(#5,138,16,95
,146,#6,139,16,95,158)
400 CALL SPRITE(#7,132,16,11
1,110,#8,132,16,111,134,#9,1
32,16,111,158)
410 CALL SPRITE(#10,130,16,1
23,110,#11,138,16,123,122,#1
2,134,16,123,134)
420 CALL SPRITE(#13,138,16,1
23,146,#14,131,16,123,158)
430 CALL MAGNIFY(2) :: RETUR
N
```

CHECKSUMS

0 1311 802 825 750 468 1 1940 2903 622 748 2784 1552 1512 1538 1526 1537 1568 1549 1577 1587 1568 1559 691 4049 2297 4099 4088 4724 2431 3682 3622 3478 2681 3593 3726 2841 1845 TOTAL 82286

THE TI-BASE USERS GUIDE — 6

Command file editors

By BILL GASKILL
© 1990 B. Gaskill

The ability to create command files for custom applications is the key to the power and flexibility of TI-Base. Writing command files can be done in the resident command file editor, but one of the best kept secrets about TI-Base is the fact that you can also create command files with the editor in the Editor/Assembler module, FunlWeb, BA-Writer, PReditor, RAG-Writer, Word-Writer, TI-Writer or any other text editor for the TI capable of saving files in Display/Variable 80 format.

One of the advantages to using an editor other than the resident TI-Base editor is the size of the command files that you may write. TI-Base's Command File Editor has a limitation of about fifty lines of code. The text editors listed above max out at around 600 lines of 40 characters per line code. One of the disadvantages of using the other editors is that you completely loose the ability to create single character inverse video displays that are available in TI-Base V3.0.

Besides being able to create larger command files in a TI-Writer like environment, you will also discover that a file created in a text editor is smaller in number of disk sectors consumed than the same file created in the TI-Base command file editor. The reason for the difference is that TI-Base actually saves each line of command file code as a 40 character string even if there are fewer than 40 characters in the string.

Although the command file editor appears to limit command file sizes to 50 lines, it is really the amount of dynamic memory available that imposes the limitation. A command file written in one of the editors just mentioned may be virtually hundreds of lines

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TI-BASE—

(Continued from Page 27)

long because there is over 20K of memory available in any one of them. TI-Base on the other hand has somewhere around 2K available when in the command file editor mode of operation. The command file interpreter built into TI-Base will read code way past the 50 line limit though. So when you decide to key in any of the files we will create, I suggest using TI-Writer or whatever text editor you prefer, unless the command file involves inverse video displays. In that case you can create the command file in two segments in the TI-Base editor and then merge each into a single file using the command file merge utility that I will show you how to write.

When using a text editor to create command files you must be sure that you put a /C on the end of whatever file you create so that TI-Base will recognize it as a command file, and then you must remember to print it to disk using the PF option rather than saving it to disk with the SF option.

Throughout these articles I will make reference to command files by using the name of the file. The name of a command file is found in the comments line for each file. A comments line is any line that begins with an asterisk. That is a TI-Base convention. When TALK is turned off, comments are invisible and thus are not displayed as part of the operation or function of the file. When TALK is turned on comments are displayed on screen. The file name of a command file will always be the first line in the file, and the command file name will always be displayed in lower case letters.

While some programmers use a structured programming style in creating command files (the indented appearance of the directives) TI-Base does not require it. Any directive written in a TI-Base command file will be properly interpreted if it is left justified or indented. Style of programming has no bearing on proper execution of a command.

One final note. To actually CREATE a command file in TI-Base you must type in MODIFY COMMAND FILENAME where FILENAME is the name of the command file to be created. In the TI-Writer environment you create command files just as you would any word processing document.

South Bay group has new BBS

According to Don O'Neil of the South Bay TI Users Group, the South Bay Techie bulletin board, listed in the September 1990 MICROpendium, is no longer in operation.

The group's new board is Texas Instruments Local X-change Group and the phone number is (408) TIULXGS (848-5947). According to O'Neil, the board features a "Shareware Request" whereby a user can look through the list of software in the group's library and request that a file be placed online for downloading. The 24-hour board operates seven days a week at 8N1.

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FEST WEST 91

Hourly Drawings for a variety of valuable and useful prizes.

RAM Disks: A separate drawing will be held for a brand new, fully tested Horizon RAM disk.

A Door Prize for a major TI item. Every one who buys an admission ticket will be entered automatically.

More TI Bulletin Board Listings

The following list of TI Bulletin Board Services was compiled by Mike McGaughey of the Midland 99ers User Group of South Carolina. It was completely updated, as of Sept. 1, 1990. Installments have appeared in the September and October issues of MICROpendium. This listing is now complete.

CITY	STATE	PHONE	NAME	BAUD	SL#'s	PCP	SYSOP
Jacksonville	FL	DOWN AS OF 10/20/90					
Oldsmar	FL	813-787-2963	PBBs	24	4637		Joe Dematteis
Worchester	MA*%	617-329-4237	TISIG	12	8796	MABOS	Helen Holmes
Laurel	MD*%	301-596-1044	The Harvester/TISIG	12	4600	DCWAS	Bob Hoffman
Raleigh	NC	919-833-3412	TI-Raleigh	12	9986	NCRTP	Walter Tietjen
Raleigh	NC	919-851-8460	T-TIBBs	12	9986	NCRTP	Amnon Nissan
Vernon	NJ	201-764-5457	Outer Limits BBs	12	7618		Dave Lutton
Babylon	NY	516-661-3643	LITI	12	582		Steve Tuorto
Philadelphia	PA*%	215-729-0401	Bullwinkle's Corner/TISIG	24	9581	PAPHI	Steve Clarke
Providence	RI%	401-738-9155	Unknown	NA	9130		Unknown
Irmo	SC	803-781-4626	Why Knott PBBs	24	9993		Mike McGaughey
Sioux Falls	SD	605-336-3578	Dakota Infonet/TISIG	24			Rory Binkerd
Memphis	TN	901-386-1760	The Full Moon BBs	96			Unknown
West Memphis	TN	501-735-9980	The Midnight Hour	24	1551		Mike Dorman
Canyon	TX%	806-655-7918	PC-Datalink/TISIG	24	8736		J.D. Stephens
Corpus Christi	TX	512-853-3837	South Texas TI BBs	12			Wayne McNab
Dallas	TX*%	214-233-1750	99er Connection	12	2948	TXDAL	Louis Guion
Fort Worth	TX*%	817-457-7043	Unknown	24			Lee DeForest
Garland	TX	214-240-4979	Longhorn II BBs	24	2948		Greg Justice
Houston	TX*%	713-479-0466	USS Starship Exodus	12	4562	TXHOU	Chris Schneider
Houston	TX*%	713-495-7368	H.U.G. BBs	12	4562	TXHOU	Glenn Cox
Houston	TX*%	713-537-0741	Phoenix TIBBs	12	4562	TXHOU	Bill Rister
Houston	TX*%	713-955-6049	U.S.S. Net	12	4562	TXHOU	Doug Hood
Mission	TX	512-580-4265	Winter Texan	24			Fred Duvall
Salt Lake City	UT*%	801-250-8321	SLaVe Techi	12	534	UASLC	Neil Howieson
Chantilly	VA*%	202-631-8772	The Bull Board/TISIG	24	2262	DCWAS	Phil Simerly
Chantilly	VA*%	703-631-8772	The Bull Board/TISIG	12	2262		Phil Simerly
Vancouver	WA%	206-687-4497	N.O.V.A.	24	5447		Gary Crawford
Seattle	WA*%	206-361-0895	Queen Anne Computer	12	9170	WASEA	Barb Wiederhold
Lynnwood	WA*%	206-784-4142	Puget Sound 99ers	12	9170	WASEA	Keith Johnson
Des Moines	WA*%	206-824-6757	Trothgard	12	9170	WASEA	John Brittingham
Spokane	WA%	509-244-9209	Sage Soft BBs/TISIG	12	159		Unknown
Spokane	WA%	509-484-6163	The Horsepoor Ranch	24	159		Unknown
Spokane	WA%	509-534-9586	Lost Saloon/TISIG	24	159		Unknown
Sturgeon Bay	WI	414-743-8654	Techie	12			Wayne Fisher
Green Bay	WI	414-437-6930	Green Bay TIBBs	12			Dennie Pfotenhauer
Menomonee Falls	WI*%	414-255-0922	The Falls BBs	24	9167	WIMIL	Steve Riley
CANADA							
Airdrie	AL	403-948-5023	TI-Guru PBBs	24			Dave Lovering
Toronto	ON	416-743-6703	TI Echo	24			Ray Dyer
Toronto	ON	416-921-2731	TI Tower	24			Gary Bowser
Montreal	QU	514-254-8685	CIM-99	12			Rejean Felton
Laval	QU	514-669-4385	TI-Exchange	24			Aime Franche
Delta	BC	604-943-2077	TIme Warp	24			Dave MacDonald
Vancouver	BC	604-526-3389	Public Users BBs	12			Gavin Hutchinson
Vancouver	BC	604-522-9830	Dial-A-TI PBBs	12			Ron Warfield
Vancouver	BC	604-689-3227	West End	24			John McKechnie
White Rock	BC	604-531-6423	White Rock TIBBs	12			Sonny Saelin
Ottawa	ON	613-738-0617	TI Ottawa 99ers	12			Peter Arpin
North Bay	ON	705-474-9668	Razors Edge TIBBs	24			Unknown
North Bay	ON	705-476-3043	TEXLINK	24			Unknown
Dartmouth	NS	902-434-3121	Dartmouth TIBBs	12			Terry Atkinson
Halifax	NS	902-455-2076	TEXLINK	24			Paul Meadows
OUTSIDE CONTINENTAL UNITED STATES							
Queensland	AUS	61 07-284-8493	Techie	12			B. Barnardt
Honolulu	HI	808-521-3306	Sirius Cybernetics	24			Bryan Wilcutt
Gothenburg	SWE	46 31-917004	West 99 BBs	12			Sten Gunnarssen

Legend: *=accessible via PC-Pursuit; %=accessible via Starlink;SL#=Starlink number;BAUD 3=300; 12=300/1200; 24=300/1200/2400; 96=300/1200/2400/9600.

TOURNAMENT SOLITAIRE

This package is a collection of not one but seven popular variations of Solitaire, including: *Golf, Pyramid, Klondike, Canfield, Calculation, Pile Up* and *Corners.* Each of these games can be played individually, or one after the other in a tournament where the score from one is passed onto the next. Fast game-play and well-defined graphics mean you'll never have to wait for the computer or try to figure out what your hand is. Keep high scores in the game and compete with yourself or your friends. *Tournament Solitaire* includes a lengthy manual along with game hints. By William Reiss. Extended BASIC, 32K and a disk system required.

SUGGESTED RETAIL:
$14.95 & $2.00 S&H

Asgard Software
P.O. Box 10306
Rockville, MD 20849
(703)255-3085

Asgard Mouse

A great device for graphics

By BOB CARMANY

The most difficult part of reviewing the Asgard Peripherals Mouse was getting the packet open (the tape was exceptionally sticky). That should tell you a bit about how the review is going to go. Problems occurred now and then, but those will be pointed out a bit later.

Before I go any further, let me say that I am *not* a graphics-oriented person. I detest moving a pointer around on the screen to create pictures. I much prefer the "ready-made" variety. Playing around with the Mouse turned out to be the most fun I have had with graphics in a good while! Teamed up with TI-Artist Plus (the basis for this review), the Asgard Mouse really piques my interest in creating some original graphics material on my own.

The Asgard Mouse (hereafter called "AM") comes as a complete package. Besides the mouse itself are cables, a manual and a disk of programs. Included as software are two loaders for TI-Artist and TI-Artist Plus as well as four demo programs, a series of assembly language routines for XB programming support and much more.

Performance: Simply put, it does everything the manual claims and does it quite well. The keys were responsive, and no trouble was encountered in drawing the most intricate designs with TI-Artist Plus. I tried all sorts of geometric shapes as well as signatures, spirals, circles and just plain "doodles," and everything was excellent. The response in all cases was smooth and accurate.

I tried using AM on a variety of physical surfaces and it didn't lose much in the way of responsiveness. It even did well on a smooth, slick desktop, to my surprise. I would recommend a "mouse pad" to get the absolute best performance, but any reasonable surface will do.

The support programs to install AM as an input device for TI-Artist Plus worked flawlessly. In fact, all the software programs work without "bugs" or problems — at least on the TI99/4A. It was truly a pleasure to use because it was so responsive, and the software package was put together so well. It rates an A+ for outstanding performance.

Review

Report Card

Performance ..... **A+**
Ease of Use ..... **A**
Documentation ..... **A–**
Final Grade ..... **A**

Cost: $49
Manufacturer: Asgard Peripherals, P.O. Box 10697, Rockville, MD 20849
Requirements: Console, monitor or TV, disk system, 32K memory expansion, RS232 device and XB. TI-Artist or TI-Artist Plus optional but strongly recommended.

Ease of Use: AM is relatively simple to use. The RS232 (25-pin) plug is easily connected and the mouse cable plugs into it. About 30 seconds is required for the physical connections, and you are ready to go. No tools required except your hands. I like that! I didn't even have to open up the P-Box!

Making AM a permanent part of TI-Artist Plus was nearly as easy. Just copy the appropriate load program, EXTDSR, rename a couple of files as per the instruction manual, and you are off to the races. It was one of the easiest peripheral integrations into an existing program I have seen in some time.

Like any drawing tool, it takes a bit of practice before you get the results you want. I spent a couple of hours "doodling" with it before I was able to create reasonable signatures. Simple geometric shapes were much easier. Squares, circles and such are really a snap with AM. I even found the going much quicker with AM. Since it was so responsive and accurate, I didn't spend as much time erasing errors as usual once I got the feel for it. One of the more exciting aspects of AM is the ability to use it with Extended BASIC programs. With the assembly language support routines, AM could be used in place of the joystick for certain programming applications. The process of creating your own XB program with mouse support isn't quite as simple as the instruction manual would lead you to believe (as I found out). Nevertheless, it isn't a process that requires a degree in computer science either. If you are well acquainted with XB, there shouldn't be any major problems with merging the AM into your own XB programs.

The AM is easy enough to use that it rates an "A" in this category. With a little practice, you should be able to put your joysticks on the shelf and use it with TI-Artist/TI-Artist Plus and maybe even one of your own XB programming efforts.

Documentation: A 19-page instruction manual comes with AM. On the whole, it is thorough and complete. The proofreader missed a sentence or two, and I never found the "picture below" referenced on page 5, but the problems are relatively minor. The various components of the package (both hardware and software) are discussed in the pages of the manual, including an extensive segment on XB programming with AM as well as a "how to" section on using Barry Boone's Systex (included in the package).

All the various segments were clear and easy to follow — from installing the mouse to the section on activating/using the mouse. I wouldn't think that the novice would have any trouble figuring out how to hook AM up and use it with TI-Artist or TI-Artist Plus. Why the "A-"?

The XB programming interface could have been more thoroughly explained, and more than the short program example could have been given. Specifically, the program example could have been written to include the rest of the sprite control commands mentioned in the text. By adding another page or two to the documentation, the XB portion of the documentation could have been much more comprehensive. The documentation is still excellent.

Comments: One thing about AM has me a bit puzzled. Terminating the mouse cable with a 9-pin socket to plug into another 9-pin socket wired through to a 25-pin RS232 socket is a real puzzler. Unless it is for the mentioned IBM usage, it makes no sense. It would be much easier to wire the mouse straight through to an RS232

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MICRO-REVIEWS

Artist Print Shop and Page Pro Headline Maker are top-rated

By HARRY BRASHEAR

Ratings for the software reviewed in this column are based on a star system as follows:

★ Leave it alone, back to the drawing board.

★★ Needs improvements, but workable.

★★★ A good program, worth trying.

★★★★ Send your money and buy it.

★★★★ ARTIST PRINT SHOP

There are many TIers that stay away from the fast moving mainstream of our graphic systems. The reasons are many, but the usual one is that they are quite satisfied with TI-Artist and the abilities the program will give them. Artist was/is the hub of our graphics and shall, for many users, remain so. For that reason I'm always glad to see new utilities that use it's instances, fonts or pictures.

Paul Coleman, the author of APS, is unique in our community in that he likes graphics, and he has a good handle on the "C" language, speeding up the complex algorithms required to create good graphics output. I have long been a fan of his work, owning a copy of "Poster maker" from Comprodine, and "Designer Labels" from Texaments. Both of these programs use the Artist format to create outstanding results and give the user the upper hand in creative flexibility.

APS allows the user to make banners, full page signs and stationery letterheads. Although the latter is somewhat covered in Designer Labels, I believe it needs to be in this package to round it out. It also goes a step further toward creative design in APS because you can spread things over the whole width of the page.

Let's take a fast look at each of the three functions.

BANNERS

■ Up to 80 characters of text can be used in a single pass.

■ Any Artist font can be used. (There are over 350 fonts available for TI-Artist)

■ Graphic pictures (Artist instances) can be used on either or both ends of the banner. You may use up to a full screen instance for the graphic.

■ You can expand the graphic up to 10X, or, whatever fits on the page. (Which ever comes first.)

■ Text can be enlarged from 1 to 50 times. Again, what ever will fit on the page.

■ The material can be centered or moved about optionally.

■ Block or single density output.

■ It's FAST.

STATIONERY

■ One line of text in any size Artist font, three lines in any one high font.

■ Graphic size up to 300 square characters allowed for either or both sides.

■ May be printed at the top or bottom of the page.

■ Single or double density printing.

■ Multiple copies up to 99.

SIGNMAKER

■ One large and one small Artist font of your choice.

■ Five graphics of any size may be used on a single page.

■ 12 borders and a "blank" are supplied with the program. (There is another program coming for $10 so you can design your own borders.)

■ Good flexibility in layout design.

■ Single and double size allowed in both text and graphics at any location.

■ Graphics may be printed normal or mirror image.

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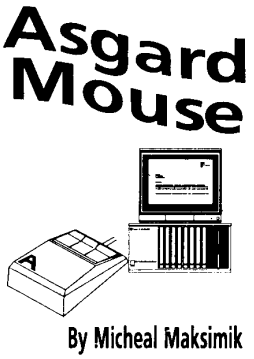
ASGARD MOUSE—

(Continued from Page 30)

socket and eliminate the short cable entirely.

While we're dealing with a "wish list," perhaps a future upgrade would include compatibility with GRAPHX as well. Being linked to the TI-Artist packages only is a minor limitation unless you prefer another graphics package. The positive aspects of AM greatly outweigh the few minor "inconveniences." A Mouse Development Package which includes commented source code for the XB routines as well as designer's notes and programming information is also mentioned. An additional $14.95 is not too much to ask if you are serious about really getting into some advanced programming applications with AM.



By Micheal Maksimik

Final Grade: AM's performance is superb. It is easy to use with just an hour or two of practice. The results are excellent when it is used in conjunction with TI-Artist or TI-Artist Plus. It comes with good documentation and allows an interface with XB programs through the support routines supplied with the package. AM rates a final grade of "A" and I would recommend it to anyone who regularly uses one of the TI-Artist packages. Seldom have I seen a peripheral device so easy to integrate into existing commercial software packages or offering the range of possibilities through A/L support for XB programming. The Asgard Mouse is another fine product from Asgard Software/Peripherals.

MICRO-REVIEWS—

(Continued from Page 31)

■ The program keeps track of lines and spaces automatically as you lay out your page.

To be honest with you, the idea of laying out pages without the benefit of screen graphics scared me to death. I figured that I was going to need at least a day just to try the program out and put a dot on the page where I wanted it. Not true! The program is very user friendly. With a good before hand reading of the docs just to get the sequence of inputs down pat, you have it knocked. The program keeps track of everything and just won't let you make an error. I was able to turn out a simple page in almost no time. I'm sure a complex one with lots of variations may be subject to user boo-boos, but it won't crash. I'm convinced that the program is smarter than the user anyway, so no problem. The banners and stationery programs are equally simple.

The only beef I have with the package is that you can't save the stationery files. (You can save the page files, however.) Somehow I would think that a user would have more use for a good letterhead than he would a garage sale sign. I guess the idea is that you could potentially put a lot more work into a page than a three step letterhead. It's as good of an excuse as I can come up with anyway. Maybe this will get squared away in the future.

Artist Print Shop, like the rest of Paul's program, is well worth the money spent, and it has "staying power" because it's simple to use. I recommend it highly.

HORIZON COMPUTER

HORIZON BARE BOARD, Manual + ROS8.14 $45
Zero K Kit=ALL parts, less Memory $105
128k Memory chips $45 each, 32k chips $8
128k Kit=$150 or $180 Built
256k Kit=$195 $225 Built
384k Kit=$240 $270 Built
512k Kit=$385 $415 Built
One Meg Kit=$465 $495 Built
1.5 Meg Kit=$645 $675 Built
ADD A RAMBO Mod for $45
256/800 PHOENIX Kit=$495 or $525 Built

P-GRAM kit 72k = $150 or $180 Built
P-GRAM+ kit 192k= $230 $260 Built
CLOCK for P-GRAM's =$20
KITS Include ALL PARTS Needed

MEMory EXpansion for the GENEVE 9640
MEMEX 504k $245
MEMEX 504k+GENMOD $345
MEMEX 1008k+GENMOD $395
MEMEX 1512k+GENMOD $445
MEMEX 2016k+GENMOD $495
The GENMOD is ADDED to YOUR GENEVE 9640 card.

GENMOD allows the 9640 to address all 2 MEG on the MEMEX card at ZERO wait

Up old 180k to 256k w/instructions=$40
32/16 Console Mem Mod w/Supercart =$40
Ohio Residents add 6% sales tax
Ship OverSeas ADD $7 Surface or $10 AIR
Prices may change if MEMORY costs go up
Shipping FREE Within U.S. and Canada
AmEX + MasterCard + Visa ADD %10
Call 419-385-5946 or Send your order to
Bud Mills Services
166 Dartmouth Dr. Please include
Toledo Oh 43614 your PHONE #

Call TI-COMM BBS on 419 385 7484
for current prices or information
300 Baud,7bit,e / 1200,8,n

Send $25 for the three-disk package to: Comprodine, 1949 Evergreen Ave, Fullerton CA, 92635

★★★★

PAGEPRO HEADLINE MAKER

It seems like utilities for PagePro come out on a monthly basis these days, so it's darn hard to keep up with them. One that has been kicking around for a few months is PagePro Headline Maker, by none other than Paul Scheidemantle. (Perhaps I should say "as usual" concerning Paul's tireless efforts.)

Headline Maker is designed to work outside of the PP environment and bypass the defaulted font sizes that PP normally uses. Previous to this program, larger letters had to be worked with one at a time as separate pictures. This program uses special files of letters and builds the complete title as a PagePro Picture, loadable where ever you want to the PP screen.

Anyone else would have taken the nice, pre-existing fonts that PP already had to make up the special headline files. But not Scheidemantle. He has to sit down and create a whole new series or two to surpass all the others he's done. (I figure this guy makes about two and half cents an hour for the work he puts out for us TIers.)

The program not only makes the title, but if you want it will also stretch them double after the headline is made. This is in evidence by the illustrated sample. (Note that the illustration is greatly reduced from the original—Ed) I did it twice, just for the possibilities. This feature will work on any PagePro picture, so you might find some other uses for it along the way.

There are eight fonts that come with the package, and an additional 12 in Headline Fonts No. 2. All are particularly suited to headline characters, have full alphabets and are beautifully done.

Headline Maker is from Asgard Software for $9.95, and the additional font set is $7.95. Add $2.50 per order for shipping and handling and send to: Asgard Software, P.O. Box 10306, Rockville, MD 20849

Just for your information department: FunnelWriter is up to Ver. 4.31 and now includes a viewer for MY-Art graphic files in the 80-column Disk Review function. There is also a file recovery feature built into the disk utilities menu as well. A new 40-column version of Disk Review is also on the way that will incorporate most of the functions of DR80. I wonder if Tony McGovern is aware of how much he has given to this community. Why don't you send him some money and let him know.

If you would like me to review your software in this column, please send it to Harry T. Brashear, 2753 Main St., Newfane, NY 14108. If you would like it returned, include a SASE.

READER TO READER

Walter Chmara, 2870 Clifton Dr., Bensalem, PA 19020, writes:

I have recently hooked up my TI99/4A to a radio modem with the capability of receiving facsimile and ham radio slow scan TV pictures. These images can be produced directly on paper via a cable between the modem and my Star NX-10 printer, but it is a shame to waste paper on something of which I may not desire to have a hard copy. Unfortunately, unless I can access the graphics capabilities of the Terminal Emulator II module, this is the only way I can see what I'm pulling in.

I need to know if it is possible for the computer to take the same signals that the printer receives (to translate into dots on paper), and translate them into a similar pixel pattern on the screen. If so, how can it be done?

I wrote TI more than a month ago for the graphics protocol manual which the TE II manual says I must write for to find out how to access the module's graphics features, but their lack of response tells me I must look elsewhere for help in this department. If anyone out there can tell me what keys I need to push to accomplish my objective, I would really be grateful.

Zonrae Russell, P.O. Box 211, Weatherford, TX 76086, has several requests. He writes:

I use Funnelweb a lot and I recently got the program QS-CLOCK from Quality 99 Software. I also have the Triple Tech Card with the clock. Because I just lose track of time, I would like to have the clock available on the screen to remind me of the time. I was wondering if anyone could tell me how to combine (merge) the clock program into FW so that it would show somewhere on the screen for viewing. It has a timer with it also to let me know when I wanted to be reminded as to how long I had been on the computer. It just seems a shame to have the program and not be able to use it in some way.

Another thing I would like to know is if anyone could tell me how to include print codes within the Command Report program included with TI-BASE. I have managed to write the program for making a report but have not been able to insert printer codes, which I think you can do if you know how. Another thing I need to know about TI-BASE is how to include the (;FOR STATEMENT) IE ;FOR PAYDATE = "10/28/90", I get an error when I try to use it within the command program. Or else I would like for it to stop and wait for input from the keyboard giving the information needed to complete the report.

I would like to know if anyone else has the problem I have with Extended BASIC whereby the P-Box lights will go out and the system is hung up whenever booting a program so the load program will execute at the beginning. I usually have to turn the whole system off for a while before I can reboot it from Extended BASIC. Also, I can be typing along and the screen will freeze and nothing else can be typed from the keyboard. However, sometimes I can bump the Navarone expansion device and the cursor will start blinking again and entry from the keyboard is again enabled. Any insight or information would be appreciated. I try to clean the contacts as often as needed.

Noreen Kaseburg-King, 4506 144th Dr. S.E., Snohomish, WA, 98290, writes:

I am a photographer as well as a TI99/4A user In my photography magazines I keep seeing ads for IBM programs for slide labels. The self-stick labels are available on tractor feed for printers. I would really like to be able to use these but haven't seen any programming for a TI.

I really need to have a program that would include the copyright notice as I do some retailing of my images. Is it possible there is another TI user that has my love for photography plus the skill to program who has written a program? It would really be nice if the program also had a data base that would help catalog my slides.

If they can do this with IBM I know our TI can do it. Sure would like to hear from anyone who has a program or knows a source for a program of this types. The labels I want to use are shaped just like a slide with two lines of print top and bottom.

***Reader to Reader* is a column to put TI99/4A and Geneve 9640 users in contact with other users. Be sure to address your questions to Reader to Reader, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.**

Rave PE/2 box has expansion bus for co-processor

The Rave 99 PE/2 expansion box for the TI and Geneve has a 32-bit expansion bus that isn't usable by the TI or Geneve but could become the home of a co-processor board that emulates another computer.

According to John McDevitt, Rave's owner, *the 32-bit expansion bus has a lot* of potential for development. He described as similar to a PC-AT bus with an additional eight data and address lines that are currently unusable by the TI or Geneve. He said it has the potential for expanding memory "in the multi-megabyte range."

He said that use of the bus "would depend on a new product. It's like the first step in the process. If we didn't do it, no one would be able to take advantage of this type of expandability."

Although ESD Corp. has contacted him about using the bus for its new hard and floppy disk controller, McDevitt says the bus is designed for the installation of a co-processor board. A co-processor could be installed that emulates a PC, or an Apple computer, or an Atari, or, for that matter, a Nintendo game player.

Because the Geneve uses an 8-bit data bus, it would have to be modified to take advantage of the slot's full 16-bit capabilities. McDevitt has queried users he meets at TI fairs about developing a PC co-processor card and find some support for it. However, "I wouldn't develop a card if users thought it was detrimental to the market."

Whether a card is actually developed that takes advantage of the 32-bit bus depends on user interest as well as the capabilities of third-party hardware developers. At this time, Rave is not developing a co-processor card.

The PE/2 box comes in two models: A and B. The "A" model is strictly for the Geneve and can handle up to 3 5¼ half-height hard or floppy drives and 2 3½-inch hard or floppy drives. It costs $309 plus shipping and handling.

The "B" version of the box is for the Geneve and TI and allows the user to intall both the Geneve and the 99/4A motherboard into the box. McDevitt says only a

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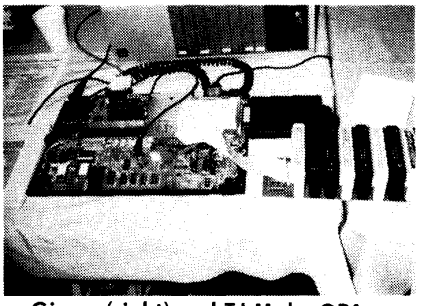
CHICAGO TI FAIRE—

(Continued from Page 6)

The box comes in two forms. In one model — PE/2-A — the Geneve is installed in the PE/2. The second model — PE/2-B — is for the Geneve and the TI99/4A. In this model, the Geneve or 99/4A motherboard can be installed alone or together on two separate slots. This model allows the 99/4A and Geneve to run simultaneously. The user switches from one to the other by pressing a front panel switch. Of course, there are some limitations when trying to run both computers at the same time. Both models have a 32-bit expansion slot. For more information about this, see the article on page 33.

For more information, write Rave 99 at 112 Rambling Road, Vernon, CT 06066; or call 203-871-7824.

TI-Image Maker (T.I.M.) is an expansion board that fits into the TI console and replaces the TMS9918 video chip with a V9958 Video Display Processor. This chip, which is compatible with the TMS9918, lets the console support an 80-column RGB monitor. The board, which measures 4x3-inches, is installed by the user. The board provides 192K of video RAM, an analog RGB video monitor port and an external analog/digital expansion port for future OPA products, such as a digitizer. The board supports 80-column color monitors with graphics modes ranging from 256x192 pixels to 256x424 with up to 256 colors and 512x192 to 512x424 pixels with 16 colors from a palette of 512 colors. OPA says the board can display up to 19,268 colors by using the YJK system display. The board supports up to 32 sprites with up to eight sprites on the same horizontal line. It also supports all features of the original TI video chip. A chip is also on board that removes software compatibility problems.



Gismo (right) and T.I.M. by OPA

T.I.M. is said to be compatible with all software written for other 80-column cards. T.I.M. comes with a variety of software, including an 80-column Funnelweb, 80-column Telco and a special GIF viewer to view GIF pictures in high resolution mode, among other programs. Price of The Image Maker is $179.

OPA's Gary Bowser also showed "Gismo," a cartridge expander device that allows up to eight cartridges to be plugged into the TI at one time. It might be called a super-duper Widget. The device lets the user switch from one module to another through software. Gismo also lets the user access routines in one cartridge while using another. For example, You can access the speech capabilities of Terminal Emulator II while in Extended BASIC.

Write OPA at 432 Jarvis St. Suite 502, Toronto, Ontario, Canada M47-2H3; or call 416-960-0925.

One product shown privately was a floppy disk controller from Germany designed and produced by Michael Becker. Called BWG-Disk Controller, it is one of the best built cards for the TI that I've seen. Because of its use of low energy chips, it doesn't require heat sinks. The card supports formats from single-sided single-density to double-sided double-density. It formats disks in 9 and 18 sectors per track, the same as the CorComp disk controller. It does not support the Myarc disk format of 16 sectors per track.

A unique feature of the card is a battery backed clock that is available for use through software, including Extended BASIC. More than 40 of the cards have been sold in Germany. The card does not include a clamshell case.

Bud Mills talks about Memex at seminar

Judging from the appearance of the disk controller card I saw, Becker is an accomplished engineer. He is said to be working on other hardware projects for the TI.

The disk controller card is priced at $240, depending on the currency exchange rate, and includes software. For information, write: System 99 User Group, Attn: Michael Becker, Sankt Ingberter Strasse 5, D-6800 Mannheim 31 Germany.

Although JP Software wasn't in attendance, Tom Freeman of T&J Software handled questions about JP Software products. Here's information on three JP programs:

Disk One by John Birdwell, a rewrite of his popular DSKU, is expected to be available in early 1991. The program supports all of DSKU's floppy disk editing and management functions as well as similar support for hard disk drives for those with a Myarc Hard & Floppy Disk Controller. Disk One works on the both TI and Geneve's.

Gen-Tri, Wayne Stith's Geneve version of Triad, is also expected to be available in early 1991, if not sooner. Gen-Tri combines a terminal emulator, word processor with spelling checker and a disk manager in one program. A description of its main features was published in the October MICROpendium. The program is expected to retail for $49.95. JP Software is not accepting orders at this time.

FirstBase Utilities One, released several months ago, includes two utilities for users of the FirstBase database manager. Included are Field Totaler by Warren Agee that allows the creation of summaries of numeric fields across a range of records and a second utility by J.Peter Hoddie that allows the importing of data from any program that outputs in D/V80 format. The price is $10.

For more information, write JP Software at 1014 Pine St., Menlo Park, CA 94025; or call 415-328-0885.

T&J Software showed three of his programs, including Hardback, DISkAssembler V2.0, and The Bugger V1.1. Hardback is used to backup one hard drive directly to another hard drive and sells for $15. DISkAssembler V2.0 is used with the

(See Page 35)

CHICAGO TI FAIRE—

(Continued from Page 34)

Geneve and disassembles D/F80 object code with resolution of REFs, or program files. It can load an entire set of chained program files into memory and disassemble all files. It sells for $22.95. The Bugger V1.1 is similar to TI Debug and SuperBug with with output directed through the RS232/2 port to a terminal or second computer. It includes three kinds of single-stepping and breakpoints. It sells for $18.50. DISkAssembler V2.0 is for the Geneve only.

For more information, write T&J Software at 515 Alma Real Dr., Pacific Palisades, CA 90272.

In addition to selling the Memex memory expansion for the Geneve, Bud Mills showed the p-GRAM card for the TI and the Horizon RAMdisk.

For more information, write Bud Mills Services at 166 Dartmouth Dr., Rockville, MD 20850; or call 703-255-3085.

Ken Gilliland of Notung Software had a variety of software, including many music programs. Gilliland said that he is developing Star Trek calendar containing digitized pictures of Star Trek The Next Generation crew members. Other products under development are a book on TPA, a TI Casino game and a companion for Certificate.

Barry Boone at Texaments' table

For more information, write Notung at 7647 McGroarty St., Tujunga, CA 91042; or call 816-951-2718.

Texaments was represented by Barry Boone who demonstrated his new GIF Mania program. GIF Mania displays GIF pictures on the TI99/4A. GIF is a file format developed by CompuServe to allow users of different computers to exchange common graphic/image files. More than 100,000 images are available in GIF format. GIF Mania converts GIF images into a format used by TI-Artist. The cost is $14.95.

Texaments also debuted Checktrack, a checking account database that runs out of TI Base. The program keeps track of checkbook transactions and provides monthly and year-to-date reports. The cost is $14.95.

Write Texaments at 53 Center St., Patchogue, NY 11772; or call 516-475-3480; BBS 516-475-6463.

Comprodine Software showeded several software products, including a new game similar to Breakout called Backsteine. Also new was Artist Catalog, providing an easy way to print out a picture catalog of TI-Artist instances and fonts. Comprodine Software also was selling Great Lakes Software products and copies of TI-Base Tips, a book of TI-Base tips by Bill Gaskill.

For more information write Comprodine at 1949 Evergreen Ave., Fullerton, CA 92635; or call 714-990-4577.

Beery Miller of 9640 News was selling subscriptions to his diskazine for Geneve 9640 users . Each issue includes programs written for the Geneve 9640. New from Miller was $$CRASH$$, a stock market analysis program capable of tracking up to 20 stocks into a spreadsheet, with data plotted out over a one year period. $$CRASH$$ runs under MDOS. Miller also demonstrated a MY-Aart scrolling demo capable of storing 42 MY-Art pictures in memory and scrolling them over the screen. Also released was Global Wars, a new game that runs out of Myarc BASIC.

Write 9640 News at P.O. Box 75-2465, Memphis, TN 38115.

Larry Conner of L.L. Conner Enterprises had a vast assortment of equipment and software, including hard-to-find CC40 and hexbus equipment, printed circuit boards for cartridges and peripheral expansion cards. In addition, he offered parts and chips for the TI99/4A.

For information, write Conner at 1521 Ferry St., Lafayette, IN 47904; or call 317-742-8146.

Competition Computer displayed a variety of software and hardware, including some unusual ⅓ height 5¼-inch drives of which three will fit in the Peripheral Expansion Box. However, the power supply must be modified to meet the power requirements of three drives.

Write Competition at 2629 National Ave., Milwaukee, WI 53204; or call 414-672-4010.

The Chicago TI User Group sold a number of public domain programs as well as very useful "encyclopedias" of graphic images and fonts. Called Encyclopedia of Graphics for the TI and the 9640 Home Computers, the two volume set depicts fonts and TIPS (TI Print Shop) There are thousands of reproductions of the graphic images and hundreds of fonts. The price is about $10 plus postage. Each volume consists of well over 100 pages of three-hold drilled, loose leaf paper.

The day after the Chicago fair, the Milwaukee User Group held its fair. This year the Miwaukeeans invited PC hobbyists though it was definitely a TI-oriented event.

Write the Chicago group at P.O. Box 578341, Chicago, IL 60657; or call 312-869-4304.

ALSO AT THE FAIRE

Also at the fair were CompuServe (P.O. Box 4170, Rockville, MD 20850), electronic information service; C.O.N.N.I. User Group of Columbus, Ohio, software for the TI; Delphi (P.O. Box 244 Lorton, VA 22199), electronic information service; Fox Valley Users Group (1536

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CHICAGO TI-FAIRE—

(Continued from Page 35)

Amarillo, Carpentersville, IL 60110; 708-426-6301), software for the TI; Genial TRAVelER Diskazine (835 Green Valley Dr., Philadelphia, PA 19128), disk-based magazine for the TI; H&H Computer Supplies (824 Garfield, Aurora, IL 60506), general computer supplies;Harrison Software (5705 40th Pl., Hyattsville, MD 20781, music software, word processor and golf score analyzer; Hunter Electronics (4N370 Pine, Bensenville, IL 60106; 708-766-0566), software and hardware for the TI and Geneve; Indianapolis User Group (185 N. Post Rd., Indianapolis, IN 46219), software for the TI and souvenirs; MICROpendium Magazine; Milwaukee User Group; MS Express Software (P.O. Box 498, Richmond, OH 43944; 614-282-5627), adventure games, Galactic Emperors game, sliding block puzzle software for the TI; Prodigy Services Co. (1411 Opus Pl., Suite 105, Downers Grove, IL 60515; 708-515-0890), electronic information service; Ramcharged Computers (6467 E. Vancey, Brook Park, OH; 80[illegible] 669-1214), software and hardware for the TI; and Will Cou[illegible] User Group (P.O. Box 216R, Romeoville, IL 60441), software for the TI.

Speakers at the fair included: Roger Merit of Comprodine Software, software; Ken Gilliland of Notung Software, software demonstration; Shane Truffer and Christopher Pratt of Electronics Systems Development Corp., discussed hard and floppy disk controller; Bruce Harrison of Harrison Software, demonstrated music software, golf score analyzer and enhancements to his word processing software; Jim Yeaman of Prodigy, demonstration of the Prodigy electronic information

The faire report was supplemented by information from Gary Cox of the Mid-South 99 User Group. The photos are courtesy of Cox.—Ed.

Newsbytes

Asgard releases products, catalogs

Asgard Software has released a number of new products. The company has also released its fall catalogs for software and for peripherals, free from Asgard on request.

New products include Y.A.P.P., Artist Font Maker, Page Pro Sideways Picture Printer and Tournament Solitaire.

The Spell-It! spelling checker program has been upgraded.

Y.A.P.P. (Yet Another Paint Program) by Alexander Hulpke is designed to function on a TI99/4A with an 80-column device or on a Myarc Geneve 9640. The manufacturer describes it as the first program designed to take full advantage of the features offered by the 9938 video processor.

Other features listed by the manufacturer include:

- Support for four different drawing modes, 256x212 dots with 256 colors, 256x424 with 256 colors, 512x212 with 16 colors and 512x424 with 16 colors. According to the manufacturer, unlike with a standard TI99/4A, each dot can be any of the available colors.
- An icon-driven interface that works with the Asgard Mouse, the Myarc Mouse, a Mechatronics/Dijit mouse or a joystick.
- Drawing commands including an airbrush tool, different drawing brushes, lines, boxes, frames, filling and circles/ellipses.
- Built-in support for moving and copying parts of a picture.
- A fast zoom drawing mode (192K video RAM required for some graphics modes).
- Built-in support for TI-Artist compatible fonts.
- Support for creating and using color clip art.
- An "undo" function for erasing mistakes.
- The saving and loading of pictures, including support for MY-Art picture format, and a built-in mouse/joystick driven disk cataloger.
- Support for 10 different logic functions that work with almost all commands for use in creating special effects.
- A printout utility for printing color pic-tures in gray-scale on most dot-matrix printers. This utility is said to allow the user to customize the gray pattern selected for each color.
- Support for GIF format pictures (8K Supercart required on a TI99/4A to load them directly into the program, otherwise a separate conversion utility included must be used).

Y.A.P.P. includes a collection of original example pictures and fonts and a manual/tutorial with illustrations. A German-language manual is also available on request.

The program requires either a TI99/4A with an 80-column card, 32K, a disk system and either an Asgard Mouse, Mechatronics mouse or a joystick; or a Myarc Geneve 9640 with a disk system, and an Asgard or Myarc mouse. A printer is recommended. Compatibility with non-Ep[illegible] son or compatible printers is not assured. Suggested retail for the program is $29.95.

Artist Font Maker by Jim Reiss and Asgard Software allows the user to create a font with any drawing program for the TI or Geneve and to "clip" each letter and save it as part of an existing or new font file. The program requires 32K, disk and the Editor/Assembler module. Suggested retail is $$12.95.

Page Pro Sideways Picture Printer by Chris Bobbitt allows the user to print any Page Pro picture sideways on an Epson or compatible printer.

One of four different print resolutions and a variety of vertical and horizontal enlargements may be selected. A set of Page Pro 99 templates and artwork is included to permit creation of certificates, signs (up to three pages wide) sideways calendars and newsletters.

The program requires an Epson or compatible printer and either a TI99/4A with Extended BASIC or Editor/Assembler, 32K and a disk system; or a Geneve. It includes both a TI99/4A and a Geneve M-DOS system. A manual is included. Sug[illegible]

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Newsbytes

(Continued from Page 36)

gested retail is $12.95.

Tournament Solitaire by William Reiss is a collection of seven variations of solitaire, including Golf, Pyramid, Klondike, Canfield, Calculation, Pile Up and Corners. Games can be played individually, or one after another in a "tournament," in which the score from one is passed onto the next.

The program requires Extended BASIC, 32K and a disk system. A manual and game hints are included. Some knowledge of solitaire is recommended by the manufacturer. Suggested retail is $14.95.

To order, send a check or money order plus $2.50/order S&H to Asgard Software, P.O. Box 10306, Rockville, MD 20849, or call (703) 255-3085 (credit cards add 7 percent).

The manufacturer says that Version 1.1 of Spell It! includes, according to the manufacturer an enlarged capacity (up to 1,900) for unique words; a word count feature; the ability to correct a word into two or three words; full support for alternate CHARA1 files and for special characters found in non-English languages; a speed improvement of 10-15 percent in all versions; full compatibility with Horizon RAMdisks on the TI99/4A and com-patibility with the HFDC on the 99/4A and the Geneve.

Asgard has sent registered users of Spell It! information on obtaining the upgrade. Non-registered users may obtain the upgrade by returning the original program disk and a check for $5 to Asgard Software at the address above.

New source for BBS

Mike Kimble has turned over the "care and feeding" of the Paradigm BBS software, developed by Kimble and Travis Watford, to Tom Wills. Wills is assuming all rights to the software package, including copyrights, fairware rights and distribution rights. He says Kimble expressed the wish to go on to new things with his TI.

Wills worked on the Extended BASIC coding of the package and worked with its creators to develop Geneve and HFDCC patches for the software. Wills formerly operated the Nearer The Lake PBBS in Sheboygan, Wisconsin, for the Sheboygan Area 99ers User Group and now operates the Cactus Patch PBBS for the SouthWest Ninety Niners User Group in Tucson, Arizona.

He says PBBS software will continue to be distributed as a fairware package. Suggested donation is $30. Wills says support to all existing PBBS operators will continue without interruption. The current version is 3.50, and he says an upgrade correcting a few minor bugs will be out soon.

Wills notes that Kimble shut down his PBBS, Fellowship Hall, Oct. 31.

Information about PBBS can be obtained by writing Wills at 6925 Kingston Dr., Tucson, AZ, 85710, or by calling the Cactus Patch PBBS, (602) 290-6277, 300/1200/2400 baud, 8N1, 24 hours a day, where the most current version of PBBS is planned to be always available for downloading online.

MS Express debuts

MS Express Software, a partnership between Mickey Schmitt and Mike Sealy, made its official debut at the Chicago faire Nov. 3.

The company has released Adventure Hints — Series I, Galactic Emperors, Sliding Block Puzzles — Series I and Sliding Block Solutions — Series I.

Adventure Hints — Series I uses the same programming format and storage medium as adventure module games and allows the user to copy the hint files directly onto disks of Oliver's Twist, Rattlesnake Bend or Zoom Flume. The hint programs include a built-in map and a map to each game on paper.

Adventure Hints — Series I requires a TI99/4A console, monitor or TV, disk drive system (minimum configuration one SS/SD drive) and the Adventure Module. Suggested retail is $9.95 plus $1 shipping and handling.

Galactic Emperors by Eric Kepes is a multi-player game for from two to four players, each of whom is trying to defeat his opponents by gaining control of all the planets in the galaxy. Between 4 and 50 planets can be in the galaxy, as the players choose. The computer generated playing grid and random events make the game different every time, according to the manufacturer.

The game requires a TI99/4A console, color monitor or TV, disk drive system (minimum configuration of one SS/SD drive), 32K memory and Extended BASIC. Suggested retail is $9.95 plus $1 shipping and handling.

Sliding Block Puzzles — Series I by Norman Rokke contains three different puzzles. Puzzle No. 1 consists of nine blocks of different colors and can be solved in a minimum of 59 moves. Puzzle No. 2 contains 10 blocks of different colors and can be solved in a minimum of 81 moves. Puzzle No. 3 consists of 11 different-colored blocks and can be solved in a minimum of 90 moves. The program contains a save game feature.

Sliding Block Puzzles — Series I requires a TI99/4A console, color monitor or TV, disk drive system (minimum configuration of one SS/SD drive), 32K memory and Extended BASIC. Suggested retail is $7.95 plus $1 shipping and handling.

Sliding Block Solutions — Series I by Rokke has the same requirements as the puzzles program plus requiring a printer. It contains help for solving the puzzles. The user controls the amount of help received. The user can choose between receiving the heop via the monitor, the printer or both.

Suggested retail is $7.95 plus $1 shipping and handling.

For further information or to order, write MS Express Software, P.O. Box 498, Richmond, OH 43944. Ohio residents should add sales tax to orders.

Front Range officer dies

Oliver Harold Archer, elected treasurer of the Front Range 99ers Computer Club in Colorado Springs, Colorado, Sept. 20, died Oct. 1. He had been a long-time member of the group.

He was born June 13, 1922, in Angola, Indiana. He had retired from the Air Force in 1963.

He is survived by his wife, Wanda, and two sons, Michael and Matthew.

Funeral services were Oct. 5 at the First Lutheran Church in Colorado Springs. Burial was at Ft. Logan National Cemetery.

User Notes

Paper feed and the Panasonic KX-P1124

A reader of MICROpendium asked how to use the paperfeed on the Panasonic KX-P1124 so as not to waste paper after tearing off a sheet at the perforation. Here's how:

1. Finish printing the document, then press the Form Feed or Line Feed to bring the page up far enough so that the perforations are lined up with the top of the smoked plastic cover. Tear the sheet off at the perforations.

2. Press the Function key, then press the green On Line key. The paper will reverse feed into the printer. When it has reached the paper sensor, a beep will be emitted.

3. Press the Function key again and press the On Line key. The paper will advance up to the top of the print head, ready for the next job.

Two-liner catalogs disks to D/V80 file

The following two-line tinygram, by Glenn Bernasek of TI-Chips of Cleveland, Ohio, is called TINY/LIB. What it does is catalog a disk on DSK1 and output the catalog in D/V80 format to a file called D/LIB on DSK2. The program runs out of Extended BASIC.

Anytime you run a catalog of a disk with TINY/LIB, it appends the output to D/LIB. Bernasek used a D/V80 output because it is easily edited with a word processor.

```
100 CALL CLEAR :: INPUT "PUT
 MASTER IN #1 AND D/LIB IN
#2; THEN PRESS <ENTER>.":A$
:: OPEN #1:"DSK1.",INPUT ,RE
LATIVE,INTERNAL :: OPEN #2:"
DSK2.D/LIB",APPEND,VARIABLE
:: INPUT #1:P$,W,X,Y :: PRIN
T #2:P$,X,Y:" " !101
110 INPUT #1:P$,Z,Z,Z :: IF
P$="" THEN PRINT #2:" ":" ":
" " :: CLOSE #1 :: CLOSE #2
:: INPUT "<FCTN/4>&""RUN"" F
OR MORE OR  <ENTER> TO QUIT.
":A$ :: END :: ELSE PRINT #2
:P$,:: GOTO 110 :: !TINYD/LI
B (C)1990 G.W. BERNASEK !179
```

MICROpendium pays $10 for items appearing in User Notes. Send them to MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

(Continued from Page 33)

screwdriver is needed to install the 4A board. This box has room for 3 half-height 5¼-inch hard or floppy drives and 1 3½-inch hard or floppy drive. It costs $369 plus shipping and handling. A front panel switch is used to select either the TI or the Geneve.

What the "B" model does that the "A" model doesn't is to run both the TI and the Geneve at the same time. The only limitation is that only one of the computers can have access to the commonly shared cards — RS232, disk controller, etc. — at one time. One way of using both computers simultaneously, for example, is to have the TI run a lengthy sort routine that doesn't require use of any of the shared cards, switch to the Geneve and use it and then switch back to the TI when the TI is finished sorting. Use of the TI and Geneve on the PE/2 requires a composite rather than RGB monitor, though it may be possible to use an RGB monitor if the 99/4A motherboard is equipped with an RGB adapter such as that formerly produced by DIJIT Systems.

For those without Geneve's, the PE/2 requires the purchase of a Rave 99 keyboard at additional cost.

Delivery time for the PE/2 expansion box is 6-8 weeks. For more information, contact Rave at 203-871-7843.

Classified

SOFTWARE

"BOOT PROGRAM"

Copyrighted by the Miami Users Group Feb. 1989. Not available from any other source or Mail Order Co.
Latest up-to-date version by the original author, John Johnson.
"BOOT" is in assembly language and uses the Horizon RAM Disk "MENU" program, without a RAM Disk.
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v7n10

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TIGERCUB SOFTWARE, 156 Collingwood Ave., Whitehall, OH 43213 v7n11

Classified

SOFTWARE

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Check out these three, all-assembly language programs:

Artist Cataloger: Print out your graphics easily and quickly. One keystroke catalobs disk and prints all fonts or instances ($10).

Artist Printshop: Create full-page signs, banners, and stationery using all your favorite fonts and instances. It's a 3-disk package with a 20-page printed manual ($25).

Border Maker: Create your very own borders for use with Artist Printshop + get 12 brand new border designs ($10). Each requires TI-Artist, appropriate hardware, plus Epson-compatible printer. Send check or money order plus $1.50 S/H to: Paul Coleman, 3971 S.E. Lincoln, Portland, OR 97214. v7n10

!!MINDREADER!!

An XB Program on disk that guesses the number you're thinking of in your mind. Could this be the beginning of artificial intelligence? Just fun for all ages. Disk, 32K, XB required. Speech optional. $5.00 CK or MO to Castaldi, Suite #816, 150 Hamakua Dr., Kailua, HI 96734. v7n12

HARDWARE

TI EQUIPMENT

Too numerous to list. Includes consoles, P-Boxes, speech, cards, including Horizon RAMdisks. Priced dirt cheap: Example — P-Box FULL $150. Call (813) 681-8954 after 6 p.m. Eastern Standard Time. v7n10

FOR SALE

Complete 9900 CorComp expansion system ready to use. Rave 99/84 keyboard. Two Teac DSDD drives in outboard P/S. BMC color monitor. TI-Writer. Mplan. XBASIC. TI-IBM. Software, cartridges and Widget. $395. 708-459-1840 or 708-537-4353 (9am to 4pm). v7n10

SYSTEMS

FOR SALE

New Myarc 9640. First reasonable offer. Call Bob (502) 821-5245 after 5 p.m. v7n10

FOR SALE

Complete TI99/4A System — console, PEB including disc, memory expansion, RS232 card. Also TI99/4 printer. Also included: external disc drive, mini-memory, Extended BASIC, TI-Writer, Multiplan, plus other programs. Most never used. Price $450, UPS included. K. Games, days (816) 741-9100, night (913) 345-8419. v7n10

TI99/4A COMPUTER

Memory, disk, voice synthesizer, plus. Call Kevin (714) 279-2133. v7n10

FOR SALE

Geneve with P.E.B., Enhanced Keyboard, RS232, Myarc Hard Floppy Disk Controller, 21 MB Hard drive, 1.44 MB DS/High Density Floppy, 300/1200 baud Volksmodem with cable. Much Arcade Software $975.00. Also 32K TI Memory Card $30.00. TI P.E.B. Interface cable/card $25.00. 903-263-7897.v7n10

MISCELLANEOUS

ENORMOUS TI99/4A INVENTORY

Catalogs $2.00. Braatzs Computer Services, 719 E. Byrd St. Appleton, WI 54911. 1-414-731-3478. v8n8

FOR SALE

Geneve 9640 (new), $400; Citizen 120D printer, $165; Seikosha GP250 Printer, $125; Speech Synthesizer, $40; parallel printer cable, $12; amber monitor $90; TI modem, $30; Volksmodem w/cable, $35; Racal Vadic 1200 baud modem, $55; Extended BASIC w/manual, $30; cassette cables, $5; assorted software, $3/ea; Plato software (new) $20/ea; TCM, Box 6016, Lou. KY 40207, 502-425-4959. v7n10

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4A FACTORY REPAIR MANUAL	$ 25
DISK CONTROLLER REPAIR MANUAL	$ 10
32K MEMORY CARD REPAIR MANUAL	$ 10
TI COLOR MONITOR SERVICE MANUAL	$ 15
PLATO INTERPRETER MODULE	$ 25
SCHMETICS/CARDS CONSOL PBOX/ea	$ 5
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