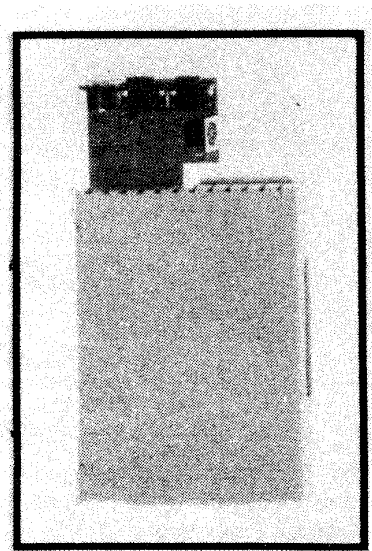
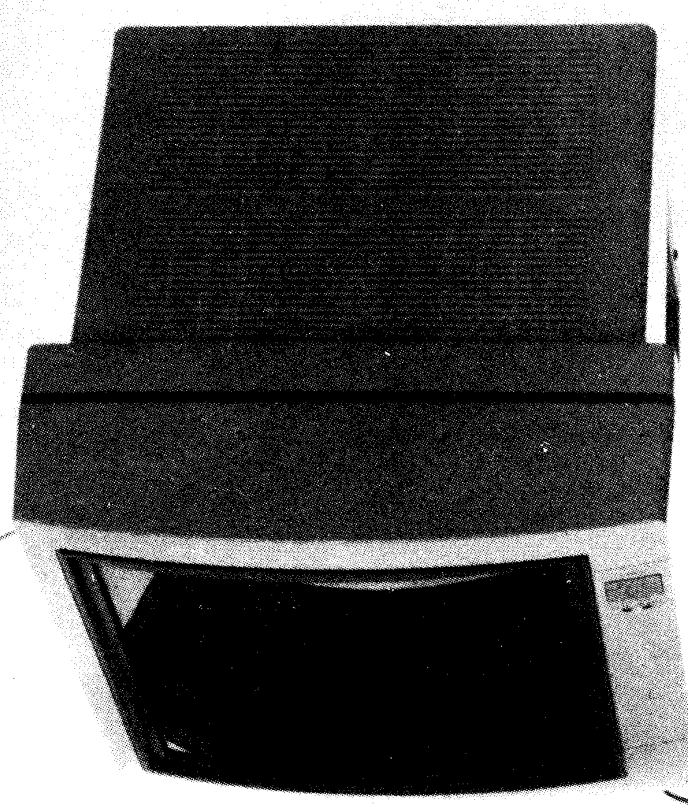
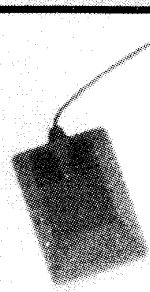
Covering the TI99/4A, the Myarc 9640 and compatibles

MICROpendium

Volume 4 Number 3 April 1987 $1.50







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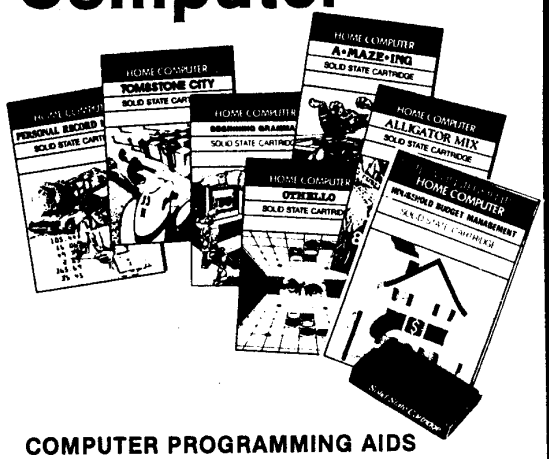

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- Putting your speech synthesizer to work

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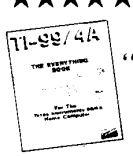

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Comments

The birth of a computer

The Geneve is here, and you'll find the first in a series of preview/reviews in this edition.

I have never witnessed the birth of a new computer before and I find this experience to be thrilling. It brings me back to that first weekend when me and the kids cleared the kitchen table to make room for our first 99/4A. Everything about that experience was intriguing, and my introduction to the 9640 is remarkably similar. I expect this feeling to continue for a long time as new products and software are released to support the machine. My sources tell me that Myarc is gearing up to produce some 100 of the 9640 boards per day and that the end of April will signal the beginning of its consumer sales campaign. Those who have been waiting, I'm told, won't have to wait much longer.

USER NOTE CORRECTION

I am more than a little chagrined by the revelation that a program published in last month's User Notes column was first published in Smart Programmer in 1984. Robert Carmany, a frequent contributor to MICROpendium, informs us that the program, which translates assembly language code into Extended BASIC CALL LOADs, was written by Paolo Bagnaresi of BA-Writer fame. We downloaded it from TexNet on The Source shortly before TexNet folded. According to Carmany, our version was resequenced and that the person who placed it on TexNet had deleted reference to Bagnaresi as the author. We published it because it is useful, but we regret not having gotten it on better authority.

To clear up on other matter, we gave credit where it wasn't due in a February User Note. We attributed the note to Terry Atkinson of the Toronto Users Group. We published an item from Newsletter 9T9, the group's publication, that told how to use GRAM Kracker to remove the foreign language references from the TI-Writer menu.

Says Terry: It seems that people like to give me credit where it is NOT due. A great many tutorials, reviews and the like come my way. I also write a considerable number of both. I generally like to share good material with others in the TI community, and honestly try to give credit where credit is due.

Despite claims to the contrary, I do not write for any particular magazine or newsletter. I spread the word through my own BBS or by uploading material to either STC, CIS or Timeline (now defunct). I think this is where the problem comes into play. Just because I upload an article, does not mean I have written said article. I always include the author's name when known. Otherwise, I state that the author is unknown. (Articles or software written by me are public domain, and may be used any way one sees fit).

To that end, I did not write the article. I don't even own a GK. I believe I uploaded the article to TimeLine quite some time ago, and the name of the original author escapes me (if I knew it at all).

LOOKING FOR P-CODE COMPILER

A reader in Ohio recently obtained a p-code card and is in need of a compiler for it. Anyone who knows where he might obtain one is encouraged to write us through Feedback. Thanks.

A NOTE ON THE WEST COAST COMPUTER FAIRE

We're publishing a report of by Neil Wood of the San Francisco 99ers User Group participation in the 12th West Coast Computer Faire. This is one of the really big such fairs. While it doesn't focus on TI, he argues that TI user groups shouldn't shun the non-TI fairs if their goal is to increase membership and awareness of the TI. "If we are to remain a vital community we must recruit new members from outside our own," he writes. This is not so say that user groups should abandon the sponsorship of TI fairs. But he makes a good point.

—JK

Reviewed in MICROpendium

1984

February: B-1 Nuclear Bomber, Tandon TM-100 Disk Drive, Void, Beanstalk Adventure, Microsurgeon, On Gaming, Database 500

March: Star Trek, Escape From Balthazar, Garkon's Getaway, Sky Diver, Mail-Call, Prowriter 8510 Printer

April: Monthly Budget$ Master, Budget Master, Home Budget, Thief, Donkey Kong, Khe Sanh

May: Companion Word Processor, Q*Bert, Mad-Dog I & II, Programs for the TI Home Computer

June: Creative Expressions Accounts Receivable/Accounts Payable, CDC 9409 Disk Drive, Starship Concord, Lost Treasure of the Aztec, ASW Tactics II

July: Theon Raiders, Introduction to Assembly Language for the TI Home Computer, Game of Wit, Pole Position

August: TE-1200, Tower, Galactic Battle, Galaxy

September: Wycove Forth, 99/4 Auto Spell-Check, QUICKCOPYer, Wizard's Dominion, Anchor Automation Mk XII Modem

October: Killer Caterpillar, ZORK I, Defender

November: 9900 Disk Controller Card/Manager, Super Bugger, Transtar 120S printer, Floppy-Copy, Data Base-X

December: Gravity Master, Data Base Manager System, Learning 99/4A Assembly Language Programming

1985

January: Super Sketch, Foundation Computing 128K Card, PTERM-99, TI-Runner

February: Super Extended BASIC, Beginning Assembly Language for the TI, ZORK II

March: Morning Star Software CP/M Card, WDS/100 Winchester Disk Drive, Sketch Mate, BMC Color Monitor

April: 9900 Micro Expansion System, Disk + Aid, Gemini 10X-15X

May: Character Sets and Graphics Design, Draw 'N Plot

June: GRAPHX, DATA BASE I

July: Acorn 99, Advanced Diagnostics

August: Model Dow-4 Gazelle, TI-Artist, PC-KEYS, Not-Polyoptics' Bankroll

September: Midnite Mason, Myarc 32K/128K Card, GRAPHX Companion

October: 4A/TALK, Extended BASIC II Plus, XB Detective, Console Writer 2.1

November: Foundation Z80A/80-column cards, 9900BASIC, Adventure Editor

December: Display Enhancement Package, Triple Tech

1986

January: BITMAC, Starcross

February: Night Mission, Peripheral Diagnostic Module, BA-Writer

March: Super Duper, Tunnels of Doom Editor, Business Graphs 99

April: U.S. Open Tennis, PRBASE

May: 4A Flyer, GRAM Kracker, Artist's Companion

June: Myarc Disk Controller Card, Maximem

July: Horizon RAMdisk, Old Dark Caves, Funlwriter, TI99/4A Macro Assembler

August: JOYPAINT 99, GPL Assembler, TI99/4A INTERN, GPL Linker

September: Mechatronic 128K card

October: TI-Forth Utilities, CorComp Memory Plus

November: Submarine Commander, PEP, MAX-RLE

December: GK Utility 1 and II and GRAM Packer, X-10 Powerhouse, RAVE 99/101.

1987

January: MG DISkASSEMBLER, Myarc XBII.

February: TI-Tax, Mechatronic Mouse

March: Wycove Forth version 3.0, DIJIT Systems RGB Conversion Kit, Spad XIII Flight Simulator

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Feedback

Head assembly may be cause of problem

In reading my March 1987 MICROpendium I find a familiar problem on page 10 that Helmuth Dann of Lake Worth, Florida is experiencing.

After accidentally inserting a disk into my disk drive without the power being turned on, I could no longer initialize a disk but the operation of recording or loading programs to the computer worked fine. I had my disk manager card checked; it turned out to be O.K.

The disk drive was sent to a repair shop three times for testing as the trouble indicated in that direction.

On the third trip to the repair shop I went along with the disk drive and the trouble turned out to be a head assembly which had been bent when I had inserted the disk while the power was off. At present we are awaiting the arrival of a new head for the disk drive.

Mr. Dann may need someone to physically look at the head assembly of his unit to see if it has somehow been bent.

James F. Murta
Glendale, California

Ottawa group behind on correspondence

To the many hundreds of friends of the Ottawa TI User Group who have taken the time to send comments and donations for our Fairware packages we offer sincere thanks for you support and reassurance that we will try to continue the effort as long as you and the wonderful li'l orphans we've acquired want us to be.

I have over the past two years held the responsible post in the Ottawa TI User Group of responding to all letters sent to us regarding our fairware packages; specifically DM-1000; 2D-Graphics; Side-Writer; Graphic Labeler and others. I have tried (and will continue to do so) to respond personally to every letter, question, suggestion and donation we receive. Regrettably, due to a very heavy schedule, I've fallen way behind in that correspondence; almost 80 letters are on a back burner right now screaming to be answered. Some of you are showing signs of becoming concerned to the point of placing expensive phone calls to us or writing follow-up letters of inquiry, etc. I'm also concerned that some of your letters are getting lost out there due to incorrect addressing.

Correct address is the Ottawa TI99/4 Users' Group, P.O. Box 2144, Station D, Ottawa, Ontario, Canada K1P 5W3.

I apologize to all of you whose letters have been sitting on my back burner for an inexcusably long time. Your responses, questions and suggestions are not, and have not been, ignored. Each and every one of you will get, at the very least, an acknowledgement of your letter. Your patience may even be rewarded with a later version of the package you've written in to us about. We fully expect to be releasing a new version of DM-1000 at our Faire in Ottawa, Canada in May. In the meantime, keep on TIing!

Bob Boone
Arnprior, Ontario, Canada

Talking, not spelling

In working with the TI Speech Synthesizer, I came across an item I have not seen published in any of TI's manuals. This specifically refers to Extended BASIC's use of CALL SAY or CALL SPGET.

If you refer to the list of resident vocabulary words in the Editor/Assembler or Speech Synthesizer manuals, you will see some phrases such as "Texas Instruments." A normal CALL SAY("TEXAS INSTRUMENTS") will cause the speech synthesizer to spell each word as though the words were not in its vocabulary. The secret to saying those listed phrases is to tell the synthesizer that it is to look for the whole phrase, not each word. This is done by using the # sign inside of the quotes before and after the phrase, i.e. CALL SAY ("#TEXAS INSTRUMENTS#").

Along the same line, to get + to say "positive," - to say "negative" and . (period) to say "point," you must precede these symbols with a # also unless the + or - precedes a number or the period is between two or more numbers. For example, to say "point seven" you must use CALL SAY ("#.7").

Another item that you may not have figures out is that almost all of the symbols when used alone say "uh-oh" during a CALL SAY. The exceptions are plus, minus, period, comma, colon and semicolon. These give no response when used alone. Preceding and following the above signs with a # sign will give the previously mentioned response for plus ("positive"), minus ("negative") and period ("point"), but the rest will then give "uh-oh."

Jack H. Miller
Trenton, Michigan

Time warp in Parsec

In response to Brian Doornboos' tip on "multiplying lives" on some game cartridges, I have also found a secret.

I was unable to get his "***" method to work on any of the cartridges that I have but instead I found that some game cartridge such as Moon Mine, Alpiner and others went into a test mode by my holding down the SHIFT key and typing 838 at the very beginning of the game (the game title screen). Possibly this was what Brian was referring to? On the Star Trek cartridge SHIFT 838 at first appeared not to do anything but as the game went on I found I had nearly unlimited shield, photon and warp power!

In the Parsec game I have found what appears to be a time warp or actually a bug in the program where after the user goes through the following procedures the game will suddenly jump from level 1 to the satellites in level 4!

1. Crash one ship before firing.
2. Work up to the Bynites (the Bynites come before the asteroids).
3. Crash one ship afater destroying each Bynite. If the asteroids start coming, crash all remaining ships.
4. Push "REDO" before the "GAME OVER" appears.
5. Crash one ship before firing.
6. After the swoopers come the killer satellites, so be ready to break your joystick!

You are now at level 4 although the ground color still indicates you are at level 1. Also, variations of the above will sometimes take you to lower levels than

See Page 10

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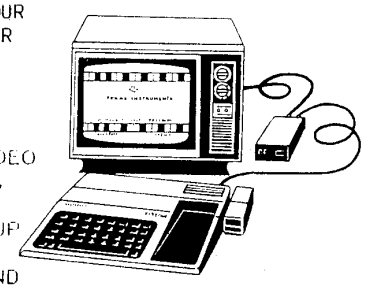

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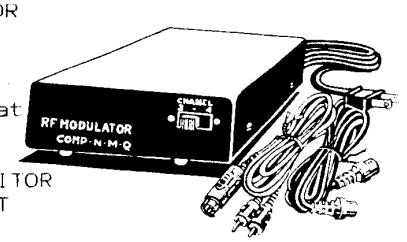

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Feedback

Continued from Page 8

level 4, but the above procedure must be followed for the most part exactly to jump to level 4.

Gary Cox
Memphis, Tennessee

Converting Myarc to CorComp

I was reading your January 1987 issue and saw an article on page 43 about converting Myarc to CorComp. I happen to know what the problem is.

The Myarc Controller will initialize a disk with 18 sectors per track if you are using the Myarc Disk Manager. The Disk Manager 2 by Texas Instruments will only initialize a disk at 16 sectors per track. Anyone owning a Myarc controller can order the Myarc Disk Manager from Myarc Inc. I thought that I should let your readers know that they don't need that program, if the person with the Myarc card has the Myarc Disk Manager.

Troy Voght
Orlando, Florida

Myarc card versatile

In User Notes (Jan. 1987) you carried an article by Sid Smart and Jim Lohmeyer from Leroy, Illinois. I'm sure it was unintentional on the part of the writers, but the article was very misleading about the capabilities of the Myarc disk controller card.

To quote, "...the CorComp controller formats diskettes with 18 sectors per track while the Myarc controller uses 16...."

The article included a program that converts the Myarc 16-sectored diskette so the CorComp 18-sector card could read the disk. The program used Millers Graphics "Advanced Diagnostics" and apparently took a lot of time.

While the article might prove useful to someone it appears to me that a more useful article would educate both the users of Myarc's card and those that don't understand the versatility of the Myarc card. Properly used, the Myarc disk controller card will format diskettes (that are readable) to any disk controller card on the market.

I have used all the disk controller cards available on the market for our TI computer. Honestly I must say the cards manufactured by TI are the most reliable. No matter what occurs they just keep clunking along. They hardly need servicing and seem to accept almost anything you want to do, within their limits. The CorComp card, by contrast, seems to tighten up the TI to a point that my computer no longer is the TI I became familiar with. The Myarc card goes in the opposite direction. While it adds a lot of capabilities to the computer it seems to be there, hanging loosely, until called upon to do something. Then you make a lot of decisions for it that are usually made by the other controller cards. You can do the following.

1. Of course you can format SS/SD, SS/DD, DS/SD, DS/DD and quad density (80 track). While formatting you can specify 16 or 18 sectors per track. You can also change the track interlace.
2. With the Myarc controller card you can call a disk directory without dumping the program already in the computer.
3. Without additional software (Editor/Assembler, TI-Writer, XBASIC, etc.) you can access assembly programs. All you need is the Myarc disk controller.
4. With the Myarc controller we can run up to five disk drives in any configuration. (Why would anyone need five drives?)

My point is the Myarc disk controller is far superior to the piece of hardware portrayed in the article. I haven't used a disk controller for our TI that wasn't compatible with other controllers on the market, if properly used. Those of us who use the Myarc disk controller must remember that we must format disks to other systems, i.e., CorComp and TI. By far the best format, if you are going to exchange disks with other users, is the standard single-side, single-density format used by the original TI card.

The bottom line is deciding which one is best. We don't want to sound like the Amiga and ST owners; therefore, I guess that your preference depends upon which controller you own. If properly used they will all talk to each other. I haven't found any that didn't live up to the manufacturer's claims. Quite unlike anything else on the market—isn't it?

Bruce John Forbes
Springfield, Virginia

Modem power supply

After my second long distance call to the TI parts department, I have been informed that the power supply for my TI Modem is no longer available.

I was advised by the parts department to try Triton, Tenex or Tex-Comp for same. Tenex recommended sending the modem in for replacement, which would do me no good if there are no power supplies in stock. Triton has no spares as they go with the modems they have and Tex-Comp lets you talk to a recorder. It would be nice if they had an alternate number with a human on the other end.

My problem is that I have a modem which does not need repair that needs the power supply. This would be the PHP-1600T 120VAC to 24VAC adapter. If any of the readers are aware of a source or dealer that has this item it would be appreciated if the information were passed on to me.

I also have need of a black keyboard and the power supply for the P.E. Box. The power supply is available from TI but it is around $55 to $60. I need the power supply for a backup if I am ever going to try my Qumetrack 142 half-height DS/DD drives in my system. I have read every letter submitted to Feedback on using two drives in the PEB and I don't know which one is right. I want to believe that it can handle the two half-heights, but a spare power supply will give me a little more peace of mind if it doesn't. Information would also be appreciated on these items.

Bill Freese
Alpena, Michigan

We encourage readers to respond to your queries. Concerning your modem, it may be possible to obtain a transformer from an electronics supplier. There are 4-in-1 transformers available at discount stores that may solve your problem. Concerning your drives, see the article elsewhere in this edition. We hope it helps.—Ed.

The Feedback column is a forum for readers to communicate with each other. Mail Feedback items to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

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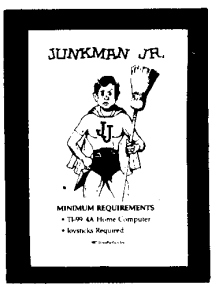

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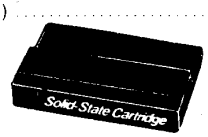

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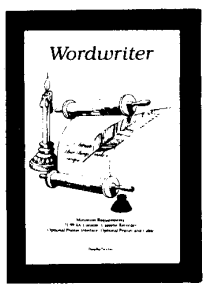

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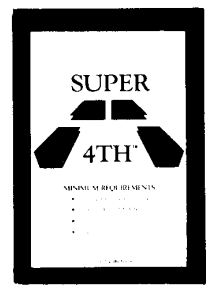

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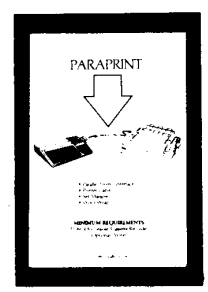

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BASIC

Massachusetts flag and song

By REGENA

One of my fun things to do on a computer is to combine graphics with music. One of the International Users Group's first contests (the prize was an Extended BASIC cartridge) was to draw a state flag. I won that contest with the Utah flag, and I think the reason I won may have been that I had the computer play the Utah state song while the graphics were being drawn (plus the flag had a rather complex design). At that time I also wrote programs for Rhode Island and Wyoming, so those programs are all out in public domain now.

When I visited the Houston Users Group, I wrote "Texas Medley" to play some famous Texas songs and draw their flag. Now in honor of the Boston convention and my invitation to attend there, I wrote this program but decided to share it with all of you so you might review some ideas of combining music with graphics.

I usually start out with all the CALL SOUND statements to play the music. I do *not* use DATA statements because I will be inserting graphics commands among the sound commands. Line 120 defines a variable T for the time or duration of an eighth note in the state song. Line 130 defines T2 for a quarter note, which is two times the eighth note. All the CALL SOUND statements will use the variable duration.

As a matter of habit and personal preference, in the CALL SOUND statement the first frequency and duration is the melody note. If there are second and third sets of frequencies and durations, they are accompaniment notes. I use this method so that as I am programming I will always know the melody note is listed first. If I need to change the tune, I know which note to change. Also, if I run out of memory I can leave off the second and third notes easily without having to look at each statement to determine which note to delete.

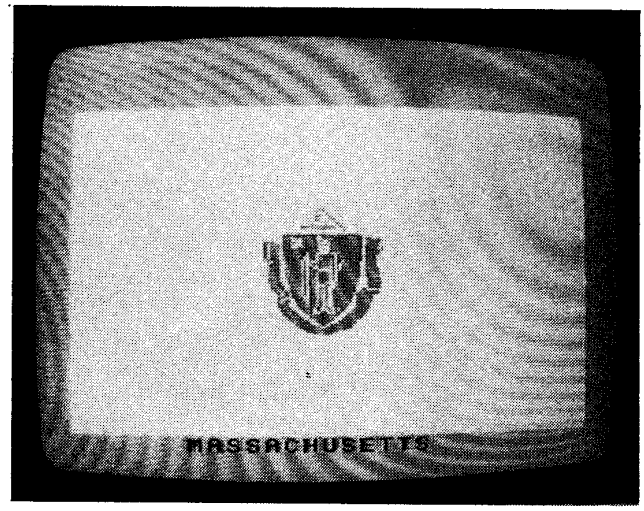
Sometimes you want to hear "tied" notes—perhaps a bass chord is being held while the melody note changes, or perhaps you have a half note in the melody and quarter notes in the accompaniment. Usually you can repeat the frequency and use the same loudness in differenet CALL SOUND statements and it will seem like only one note is being played. For example:

```
170 CALL SOUND (T2,349,4,220,8,175,10)
200 CALL SOUND(T,349,4,262,8)
220 CALL SOUND(T,392,4,262,8)
```

Lines 170 and 200 play the top note (#349) while the lower notes change, then Lines 200 and 220 change the melody note while the lower note (#262) is being held.

After I write all the CALL SOUND statements, I start inserting graphics commands. For example, I usually try one CALL CHAR statement for each eighth note and two CALL CHAR statements for each quarter note to define graphics characters. If you try to put too many commands between the CALL SOUND statements there will be gaps between the notes or delays in the music.

After you insert a few graphics commands, RUN the program to check it. If there are perceptible delays in the music, you can



rearrange the graphics statements or you can adjust the tempo to make each note sound longer. In this program, you would change Line 120. Experiment with different tempos to get the graphics commands in yet keep the music sounding correct. If you type in this program, you could try T=180, T=200, T=235, T=300, etc., to hear and see the difference.

To type in this program, you may want to use Extended BASIC and type in all the CALL SOUND statements first. Do not use the automatic numbering feature, but type in a line, then use FCTN-REDO. The line appears again and all you need to do is change the line number, use the arrow key to get over to the numbers in parentheses to make necessary changes, then press ENTER. Next, you type the rest of the CALL CHAR statements. It saves a litle typing effort to use the FCTN-REDO system because the statements are similar.

Lines 270-490 use lowercase letters in the PRINT statements. You will need to release the ALPHA LOCK key to print the letters in quotes, then press the ALPHA LOCK key back down for the rest of the typing. In Line 270 the first symbol in the quotes is typed using FCTN-C, and the second symbol is lowercase a. Lines 310-490 all use the lowercase L in quotes.

Music with graphics can be a lot of fun. You can make the graphics appear with music to tell a story. For example, I wrote a program for "The Ugly Duckling" using the music for the song that Danny popularized many years ago. As certain music is played, the graphics for those corresponding words would appear. You might enjoy making nursery rhymes or fairy tales for your young children. Until next month...have fun computing!

(Program starts on Page 14)

If you prefer to save typing effort, you may have a copy of this program by sending a $3 copying fee plus a blank cassette or diskette and a stamped, self-addressed mailer to REGENA, P.O. Box 1502, Cedar City, UT 84720.

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You will recognize it by its trade mark, a graceful gray swan swimming on blue water, an apt symbol. The ugly duckling TI no longer wanted, is no ugly duckling anymore. The GENEVE has surpassed everyones expectations, even our own; with power, speed, graphics, and adaptibility not found in other microcomputers. In fact, the GENEVE does so much, this ad can only begin to tell you about it.

- **Near 100% Compatible:**
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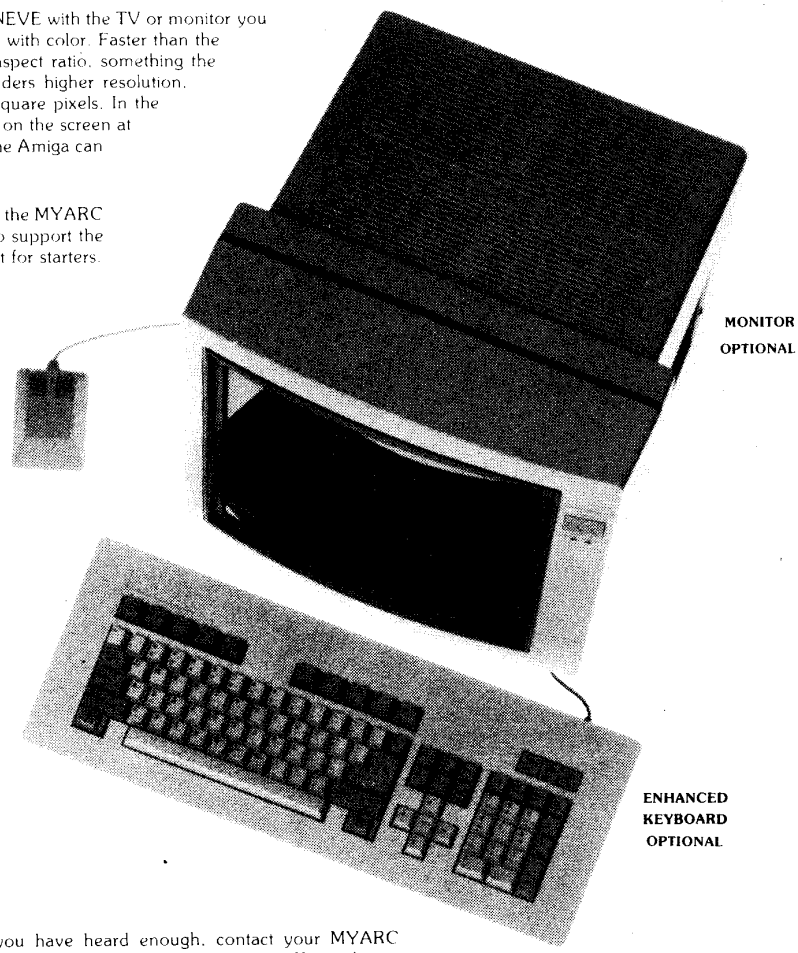
  - My-Word Processor; 80 columns, help screens for all modes of operation including control-U, initialize a disk without leaving the program, print formatted text to the screen for viewing before sending it to the printer and that's still not all My-Word will do.
  - Advanced Basic; the best and most powerful basic on the market today.
  - Pascal V4.21; if you have a standard USCD Pascal program, you will be able to run it with this program. If you do not have any Pascal programs, let me tell you, one of the largest library of programs available, is Pascal. Compilers for Fortran, Modula 2, Lisp, and Pilot, as well as business programs from A to Z, are all there. USCD Pascal Software developed for computers from Apple to IBM, will run on the GENEVE, without modification.



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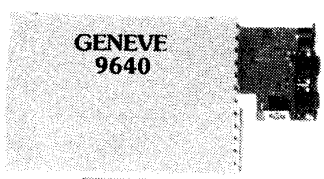
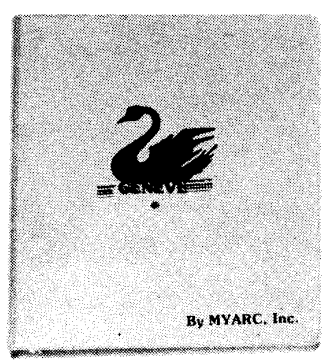
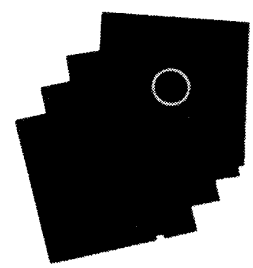




If you have heard enough, contact your MYARC dealer, they have one in stock for you. If you do not know who your stocking MYARC dealers are, or, if you want to know more about the GENEVE, telephone the number listed below, or mail your name and complete address with zip code to the address shown below.We will be happy to mail you a brochure covering the GENEVE in detail and a list of our stocking dealers. Supplies of the brochure are limited, so please hurry.



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(201) 766-1700

MASSACHUSETTS

```
100 REM MASSACHUSETTS
110 CALL CLEAR
120 T=220
130 T2=T*2
140 CALL SOUND(T2,262,5)
150 CALL SCREEN(8)
160 CALL COLOR(9,1,1)
170 CALL SOUND(T2,349,4,220,8,175,10)
180 CALL CHAR(108,"FFFFFFFFFFFFFFFF")
190 CALL CHAR(104,"000000F8DEDEDEDE")
200 CALL SOUND(T,349,4,262,8)
210 CALL CHAR(105,"FFF2F0FCF8F3FFFF")
220 CALL SOUND(T,392,4,262,8)
230 CALL CHAR(96,"0000000106182322")
240 CALL SOUND(T2,440,4,233,8,165,10)
250 CALL CHAR(106,"FEFC7EFE7E7EFEFF")
260 CALL SOUND(T2,392,4,233,8,165,10)
270 PRINT TAB(13);"'a"
280 CALL SOUND(T2,349,4,220,8)
290 PRINT TAB(12);"bcdef"
300 CALL SOUND(T2,349,4,196,8)
310 PRINT TAB(11);"1111111"
320 CALL SOUND(T2,262,4,220,8,175,10)
330 PRINT TAB(11);"1111111"
340 CALL SOUND(T2,349,4)
350 PRINT TAB(11);"1111111"
360 CALL SOUND(T2,392,3,165,8)
370 PRINT TAB(11);"1111111"
380 CALL SOUND(T,440,3,165,8)
390 CALL CHAR(97,"000000C0E0B0180C")
400 CALL SOUND(T,466,3,165,8)
410 CALL CHAR(98,"00000000000000FF")
420 CALL SOUND(T2,440,3,175,8)
430 PRINT TAB(11);"1111111"
440 CALL SOUND(T,392,3,175,8)
450 CALL CHAR(99,"231008FFFF0000FF")
460 CALL SOUND(T,349,3,175,8)
470 CALL CHAR(100,"06C321FCFE0000FF")
480 CALL SOUND(T2,392,2,165,8)
490 PRINT TAB(12);"11111"
500 CALL SOUND(T2,392,2,196,8)
510 PRINT : :
520 CALL SOUND(T2,392,2,131,8)
530 PRINT : :
540 CALL SOUND(T2,262,3)
550 PRINT : : :
560 CALL SOUND(T2,392,3,165,8)
570 CALL COLOR(1,1,16)
580 CALL CHAR(33,"FFFFFFFFFFFFFFFF")
590 CALL SOUND(T,392,3,196,8)
600 CALL VCHAR(1,1,33,48)
610 CALL SOUND(T,440,3,196,8)
620 CALL VCHAR(1,31,33,48)
630 CALL SOUND(T2,466,3,262,8)
640 CALL HCHAR(1,1,33,64)
650 CALL HCHAR(23,1,33,64)
660 CALL SOUND(T2,392,3,262,8)
670 CALL CHAR(101,"000080C0602000FF")
680 CALL CHAR(102,"00000000000000C")
690 CALL SOUND(T2,524,3,220,8)
700 CALL COLOR(9,11,16)
710 CALL COLOR(10,5,16)
720 CALL SOUND(T2,524,3,262,8)
730 CALL HCHAR(11,13,104)
740 CALL HCHAR(11,14,105)
750 CALL HCHAR(11,15,106)
760 CALL SOUND(T2,440,4,175,8)
770 CALL CHAR(107,"FF7F9F0FAF0F4F0F")
780 CALL HCHAR(11,16,107)
790 CALL SOUND(T2,440,2,175,8)
800 CALL CHAR(109,"C0DFCFCFDFDFDFDF")
810 CALL HCHAR(11,18,109)
820 CALL SOUND(T2,392,3,262,8,165,10)
830 CALL CHAR(110,"00C0C0C080A0A0C")
840 CALL HCHAR(11,19,110)
850 CALL SOUND(T2,524,3,262,8,165,10)
860 CALL COLOR(11,5,16)
870 CALL COLOR(12,5,16)
```

(See Page 16)

The **HORIZON RAMDISK**

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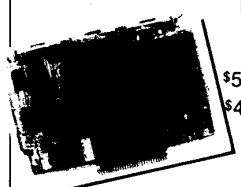

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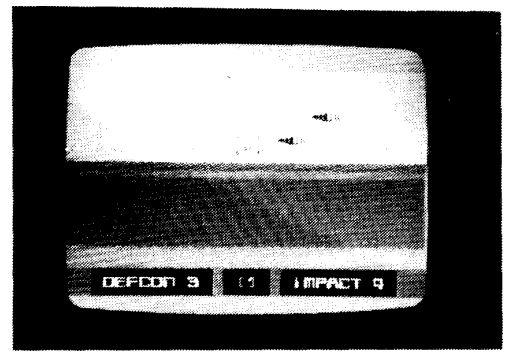

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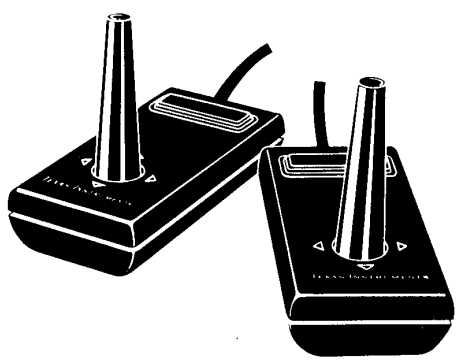

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MASSACHUSETTS—

(Continued from Page 14)

```
880 CALL COLOR(13,5,16)
890 CALL SOUND(T2,524,2,175,7,147,9)
900 CALL COLOR(14,5,16)
910 CALL CHAR(111,"DEDEDEFEAE3E3E3E")
920 CALL HCHAR(12,13,111)
930 CALL SOUND(T2,494,2,175,7,147,9)
940 CALL CHAR(112,"FFFFFFFF7F7F7F7F")
950 CALL HCHAR(12,14,112)
960 CALL SOUND(T2,524,2,196,6,165,8)
970 CALL CHAR(113,"DCDD9D8D514F5559")
980 CALL HCHAR(12,15,113)
990 CALL SOUND(T2,524,2,147,6)
1000 CALL CHAR(114,"13FDFDF5F5F5F5F5")
1010 CALL HCHAR(12,16,114)
1020 CALL SOUND(T2,524,2,131,6)
1030 CALL CHAR(115,"FFFFFFFFBF7F7F7F")
1040 CALL HCHAR(12,17,115)
1050 CALL SOUND(T2,524,0)
1060 CALL CHAR(116,"DFDFDFDF9F9F9F9F")
1070 CALL HCHAR(12,18,116)
1080 CALL SOUND(T2,587,0,233,6)
1090 CALL CHAR(117,"800000000000008")
1100 CALL HCHAR(12,19,117)
1110 CALL SOUND(T,587,0,175,7)
```


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```
1120 CALL CHAR(118,"3E3E3E3E3E3E3F1F")
1130 CALL SOUND(T,587,1,175,7)
1140 CALL HCHAR(13,13,118)
1150 CALL SOUND(T2,466,1,294,6,233,8)
1160 CALL CHAR(119,"7F7F7F7F3F3F3F1F")
1170 CALL HCHAR(13,14,119)
1180 CALL SOUND(T2,587,0,294,6,233,8)
1190 CALL CHAR(120,"5E5D5D5D5D5D5D5C")
1200 CALL HCHAR(13,15,120)
1210 CALL SOUND(T2,523,0,220,6,175,8)
1220 CALL CHAR(121,"04F5F5F5F5F5C333")
1230 CALL HCHAR(13,16,121)
1240 CALL SOUND(T,587,0,220,6,175,8)
1250 CALL CHAR(122,"9F9F9F9F0F0F0F0F")
1260 CALL SOUND(T,523,0,220,6,175,8)
1270 CALL HCHAR(13,18,122)
1280 CALL SOUND(T2,440,1,262,7)
1290 CALL CHAR(123,"80808080C0C0C0C")
1300 CALL HCHAR(13,19,123)
1310 CALL SOUND(T,440,0,262,7)
1320 CALL CHAR(124,"1F1F0F0702030302")
1330 CALL SOUND(T,466,1,262,7)
1340 CALL HCHAR(14,13,124)
1350 CALL SOUND(T2,523,1,220,6,175,8)
1360 CALL CHAR(125,"9F9FDF6FEFAF67E7")
1370 CALL HCHAR(14,14,125)
1380 CALL SOUND(T,466,1,220,6,175,8)
1390 CALL CHAR(126,"5D5D5D5D5D9D9DDD")
1400 CALL SOUND(T,440,1,220,6,175,8)
1410 CALL HCHAR(14,15,126)
1420 CALL SOUND(T2,466,1,262,7)
1430 CALL CHAR(127,"A3A7A7A7A7A7A7A7")
1440 CALL HCHAR(14,16,127)
1450 CALL SOUND(T2,440,1,262,7)
1460 CALL CHAR(128,"FEFEFEFDFDFDF9F9")
1470 CALL HCHAR(14,17,128)
1480 CALL SOUND(T2,392,1,165,7)
1490 CALL CHAR(129,"0F70FFFFFCFCFCFC")
1500 CALL HCHAR(14,18,129)
1510 CALL SOUND(T,392,1,175,7)
1520 CALL CHAR(130,"C080808")
1530 CALL SOUND(T,392,1,196,7)
1540 CALL HCHAR(14,19,130)
1550 CALL SOUND(T2,392,1,131,7)
1560 CALL CHAR(131,"03030101")
1570 CALL HCHAR(15,13,131)
1580 CALL SOUND(T2,262,1)
1590 CALL CHAR(132,"E3E3F1F8FCFE7F3F")
1600 CALL HCHAR(15,14,132)
1610 CALL SOUND(T2,440,2,175,7)
1620 CALL CHAR(133,"DDFDFBFB783F1F8F")
1630 CALL HCHAR(15,15,133)
1640 CALL SOUND(T,440,2,262,7)
1650 CALL CHAR(134,"A7A73A5AE3FFFEFC")
```

(See Page 18)

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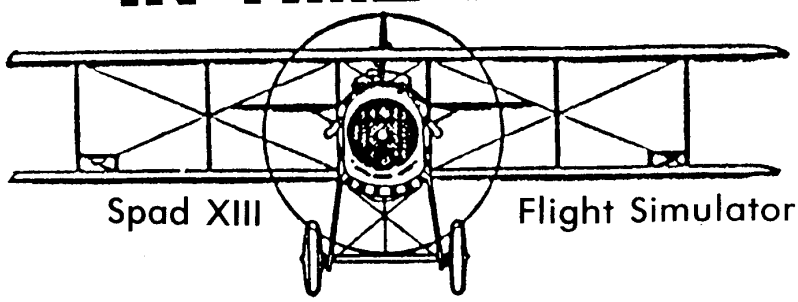

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MASSACHUSETTS—

(Continued from Page 16)

```
1660 CALL SOUND(T,440,1,262,7)
1670 CALL HCHAR(15,16,134)
1680 CALL SOUND(T2,466,1,196,6)
1690 CALL CHAR(135,"F1F1E3C78F1F3F7F")
1700 CALL HCHAR(15,17,135)
1710 CALL SOUND(T2,392,1,196,6)
1720 CALL CHAR(136,"F8F8F8F0E0E0C08")
1730 CALL HCHAR(15,18,136)
1740 CALL SOUND(T2,524,2,220,6)
1750 CALL HCHAR(15,19,32)
1760 CALL SOUND(T2,524,2,262,6)
1770 CALL CHAR(137,"1F0F0703")
1780 CALL HCHAR(16,14,137)
1790 CALL SOUND(T2,349,2,294,6,233,8)
1800 CALL CHAR(138,"E7F3FCFFFF3F07")
1810 CALL HCHAR(16,15,138)
1820 CALL SOUND(T2,466,1,294,6,233,8)
1830 CALL CHAR(139,"F9F3CF3FFFFFF8")
1840 CALL HCHAR(16,16,139)
1850 CALL SOUND(T2,440,1,175,6,131,8)
1860 CALL CHAR(140,"FFFEFCF8E")
1870 CALL HCHAR(16,17,140)
1880 CALL SOUND(T2,349,1,175,6,131,8)
1890 CALL HCHAR(16,18,32)
1900 CALL SOUND(T2,349,2,196,6,131,9)
1910 CALL COLOR(5,2,12)
1920 CALL SOUND(T2,330,3,196,6,131,9)
1930 CALL COLOR(6,2,12)
1940 CALL COLOR(7,2,12)
1950 CALL SOUND(T2,349,4,220,7,175,9)
1960 CALL SOUND(T2,349,4,262,7)
1970 CALL SOUND(T2,349,4,175,7)
1980 CALL SOUND(T2,262,4)
1990 CALL SOUND(T2,392,3,165,7,131,9)
2000 CALL HCHAR(23,9,77)
2010 CALL SOUND(T,392,3,175,7)
2020 CALL SOUND(T,440,3,175,7)
2030 CALL HCHAR(23,10,65)
2040 CALL SOUND(T2,466,2,196,6,165,8)
2050 CALL HCHAR(23,11,83)
2060 CALL SOUND(T2,392,2,196,6,165,8)
2070 CALL HCHAR(23,12,83)
2080 CALL SOUND(T2,440,2,175,6)
2090 CALL HCHAR(23,13,65)
2100 CALL SOUND(T,440,2,196,6)
2110 CALL SOUND(T,466,2,196,6)
2120 CALL HCHAR(23,14,67)
2130 CALL SOUND(T2,523,2,220,6,175,8)
2140 CALL HCHAR(23,15,72)
2150 CALL SOUND(T2,440,2,220,6,175,8)
2160 CALL HCHAR(23,16,85)
2170 CALL SOUND(T2,466,2,262,6,196,8)
2180 CALL HCHAR(23,17,83)
2190 CALL SOUND(T2,392,2,262,6,196,8)
2200 CALL HCHAR(23,18,69)
2210 CALL SOUND(T2,440,2,175,6)
2220 CALL HCHAR(23,19,84)
2230 CALL SOUND(T2,349,2,175,6)
2240 CALL HCHAR(23,20,84)
2250 CALL SOUND(T2,524,3,165,6)
2260 CALL HCHAR(23,21,83)
2270 CALL SOUND(T2,524,3,147,6)
2280 CALL SOUND(T2,524,3,131,6)
2290 CALL SOUND(T2,466,1)
2300 CALL SOUND(T2,440,1,175,6)
2310 CALL SOUND(T,440,1,262,6)
2320 CALL SOUND(T,440,2,262,6)
2330 CALL SOUND(T2,466,1,196,6)
2340 CALL SOUND(T2,392,1,196,6)
2350 CALL SOUND(T2,524,2,220,6)
2360 CALL SOUND(T2,524,2,262,6)
2370 CALL SOUND(T2,349,1,294,5,233,7)
2380 CALL SOUND(T2,466,1,294,5,233,7)
2390 CALL SOUND(T2,440,1,175,5,131,7)
2400 CALL SOUND(T2,350,1,175,5,131,7)
2410 CALL SOUND(T2*1.2,350,0,196,5,131,6)
2420 CALL SOUND(T2*1.4,330,0,196,5,131,6)
2430 CALL SOUND(4*T,350,0,220,5,175,7)
2440 CALL KEY(0,K,S)
2450 IF S<1 THEN 2440
2460 CALL CLEAR
2470 REM BY REGENA
2480 REM CEDAR CITY, UTAH
2490 END
```

International hookup set for TI fairs in May

TI fairs scheduled for the same date in three countries plan an intercontinental telecommunications conference in conjunction with the events via the Genie Teledata TI-Network.

The TI99/4 National Users Association of Canada in cooperation with the Ottawa TI99/4A Users Group; the LA 99ers of Los Angeles, California; and the TI-Times of the United Kingdom plan to attempt the conference at approximately noon Ottawa time, according to Bob Boone of the Ottawa Users Group.

Boone, Terri Masters of the LA 99ers, Clive Scalley of TI-Times and Scott Darling, chief TI sysop on Genie, are coordinating the project. Boone says Scalley initiated the project with the Ottawa group, which "took it a step further to include the LA 99ers."

Boone says each of the groups will be able to make a national phone call to do it, though only Los Angeles will be able to do it with a local call.

For further information, contact Boone at (613) 623-7841.

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Super Multi-cart project puts 8K RAM, 4 cartridges online

By PATRICK UGORCAK

In the June 1985 issue of MICROpendium John Clulow wrote an article on the construction of a handy cartridge for the TI99/4A dubbed the "Super-Cart" by its inventor Ron Gries. Since then I have built several of these modules for myself and friends and use them daily.

Although I own a Navarone Widget, I still find it quite frustrating having to search for and change cartridges. This inconvenience caused me to build what I call the Super Multi-Cart.

The Super Multi-Cart is a single cartridge containing TI-Writer, Editor/Assembler, Mini-Mem, Disk Manager II and 8K of battery backed RAM memory.

Construction of the Super Multi-Cart follows the same procedure used to build the Super-Cart. The only difference is that additional GROM chips from TI-Writer, Disk Manager II and Mini-Mem were also included in the module. The programs are selected by turning on a switch which is attached to each GROM chip. Only one chip or group of chips can be selected at a time or the selection screen will be scrambled. It is possible to install up to 12 GROM chips in the module by way of piggy-backing the chips. The Disk Manager II module, for instance, contains two chips and it is necessary to piggy-back them in order to have room for the other chips used in this cartridge.

The switches used in the module were micro-mini toggle type and are available at Radio Shack (part no. 275-624) for $1.49. The GROM chips are available from the TI Parts Department in Lubbock, Texas, phone (806) 762-7451. Listed below are the chip numbers:

1015960-1204 Editor/Assembler
1015960-0215 Mini-Mem
1015960-0234 Disk Manager II (chip No. 1)
1015960-0235 Disk Manager II (chip No. 2)

(See Page 22)

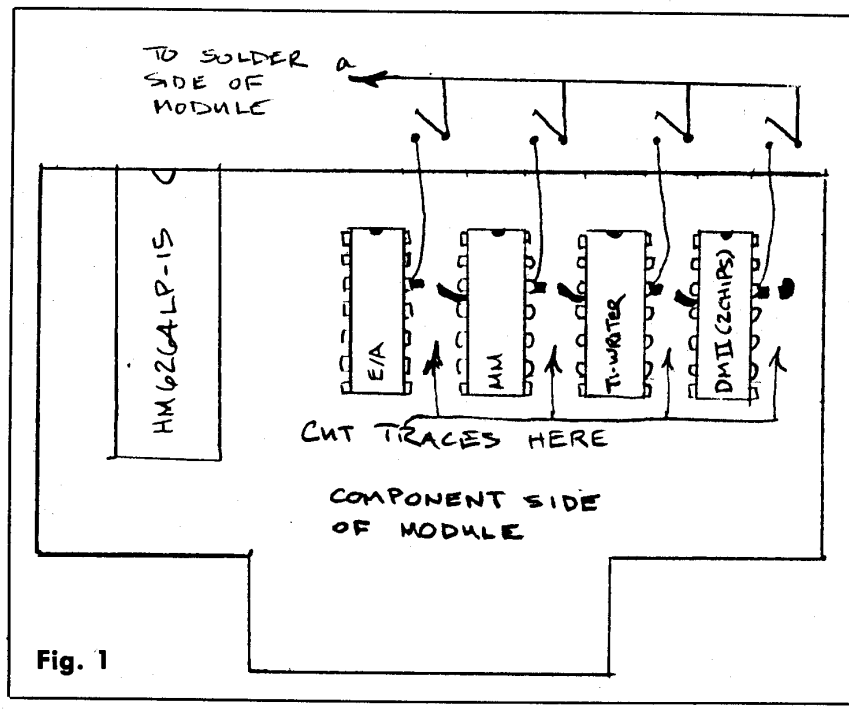

Fig. 1

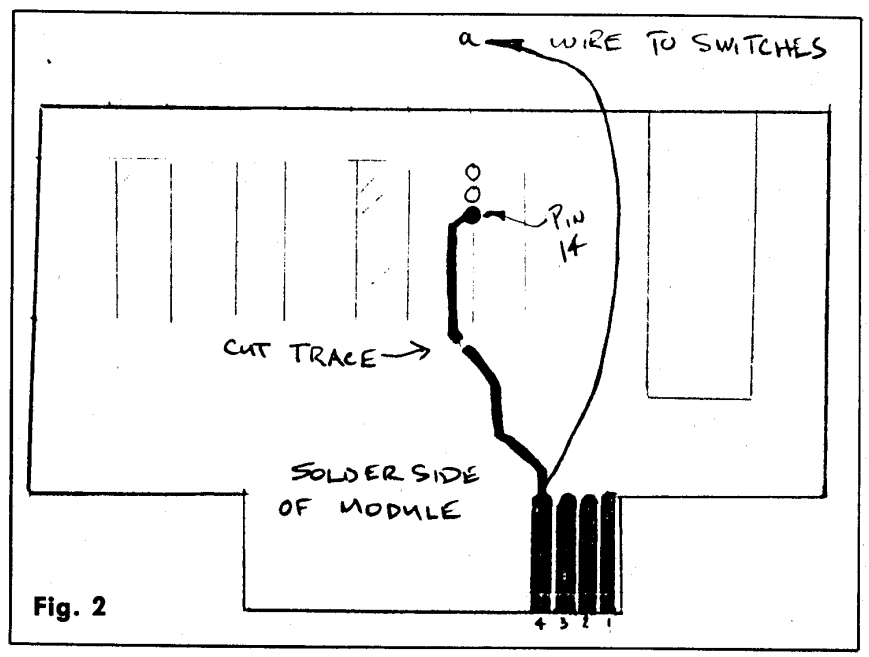

Fig. 2

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MULTI-CART—

(Continued from Page 20)

The TI-Writer chip is not available from TI but can be removed from a TI-Writer cartridge.

Other GROM chips can also be used. The Multiplan GROM chips can be bought from TI but five of them are needed and the chips are required to be piggy-backed in the proper sequence for the program to work correctly. This is not too difficult because the chips are numbered in sequential order. A list of the TI GROM chips available can be obtained from Kent Sheets, 1673 S. North Curtice Rd., Curtice, OH 43412.

PROCEDURE

1) Follow the procedure for assembly of the Supercart but also cut the circuit board (PCB) traces at pin 14 for each GROM chip set to separate them. (See Fig. 1.)

2) The PCB trace connecting pin 14 to the GROM port edge connector on the bottom (solder) side of the board must be cut (Fig. 2).

3) The chips are installed and switch hookup wires are attached to pin 14 of each GROM chip group and the location on the bottom of the PCB indicated in Fig. 2.

4) Attach the wires to the switches as in Fig. 1.

5) Install the switches in the module case so that they reside between the GROM chips and put the module back together.

6) Try out each of the programs installed to make sure that everything is operating properly.

The only problem I have experienced is that the Mini-Mem chip does not function fully. The Mini-Memory section of the program cannot be used but the Easy Bug section works.

After using this cartridge for a while you will see how great it is not having to search for and change modules. All you do is flip a switch and away you go.

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MEMBERSHIP: New members are most welcome and are usually swamped with offers of assistance and advice from fellow members. The six-year-old group has over 400 active members and is growing every year. If you do not live in the Chicago area and are unable to attend the meetings, you will receive the newsletter by mail. You will also receive any information on discounts that the group receives.

THE TI-FAIRE: The Chicago TI-Faire, held every year at Triton Junior College, is the biggest all-TI gathering in the U.S.

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Getting more from XBII

Routines aid screen manipulation

By J. PETER HODDIE

While Myarc has provided all the standard commands for manipulating a bit map graphic screen in its Extended BASIC II software, there are a number of tasks that can not be conveniently completed with the existing command set. Listing 1 is a set of four assembly routines to provide some extra bit map manipulation features.

To demonstrate these routines we will always use the following BASIC program, just changing line 40 to demonstrate each routine:

```
10 CALL GRAPHICS(3)
20 CALL DCOLOR(3,4)
30 CALL DRAW(1,1,1,190,190)
40 CALL LINK(---------)
50 GOTO 20
```

The first routine is COLCLR which simply clears the color portion of a picture. To see it work, change line 40 above to read:

```
40 CALL LINK("COLCLR")
```

The next routine is GRFCLR. This clears the graphic image, but leaves the color table intact. To see it, change line 40 to read:

```
40 CALL LINK("GRFCLR")
```

The third routine is GRFINV which inverts the image by turning all on pixels off and all off pixels on. To see it work change line 40 to read:

```
40 CALL LINK("GRFINV")
```

The final routine is COLEXC which changes all occurences of a particular color to another. For example to change all pixels of color 4 (as set in line 20) to color 16, change line 40 to read:

```
40 CALL LINK("COLEXC",4,16)
```

That is about it for these routines. Because of the large amount of VDP access they aren't quite as fast as is possible using buffering techniques. However, for most purposes they are sufficiently fast.

To use these routines, first type in the code given in Listing 1 and save it to disk with the filename DSK1.COLOR/S. Next enter the Assembler and give a source file name of DSK1.COLOR/S, object file name of DSK1.COLOR, hit ENTER for the list file, and enter RC for options.

(See Page 26)

Assembly bit map enhancements

```
        DEF  COLCLR
        DEF  GRFCLR
        DEF  GRFINV
        DEF  COLEXC

        REF  VDPWD,VDPWA,VDPRD
        REF  NUMREF

FAC     EQU  >834A          WHERE FAC IS

WS      BSS  32             MY WORKSPACE

H4000   DATA >4000          DATA FOR SETTING VDP WRITE ADDRESS
NULL    DATA 0              A NUL

CT      EQU  >2000          ADDRESS OF COLOR TABLE
PDT     EQU  >0000          ADDRESS OF PATTERN DESCRIPTOR TABLE

*************************

COLCLR
        LI   R0,CT          GET ADDRESS OF COLOR TABLE
        LI   R2,>1000       BLACK ON TRANSPARENT.
COLCL0
        BL   @VWRITE        SET WRITE ADDRESS

        LI   R1,>1800       LOTS OF BYTES TO MOVE.
COLCL1
        MOVB R2,@VDPWD      CLEAR A BYTE
        DEC  R1             DECREMENT COUNTER
        JNE  COLCL1         NOT DONE

EXIT
        LWPI >83E0          RESTORE GPL WORKSPACE
        B    @>006A         RETURN TO BASIC

*************************

GRFCLR
        LI   R0,PDT         ADDRESS OF PATTERN TABLE
        CLR  R2             NULL IT
        JMP  COLCL0         USE COMMON ROUTINE.

*************************

GRFINV
        LI   R8,PDT         GET ADDRESS OF PATTERN TABLE

        LI   R5,>1800       COUNTER

GRFIN0
        MOV  R8,R0          GET ADDRESS INTO PATTERN TABLE
        BL   @VREAD         SET VDP READ ADDRESS
        MOVB @VDPRD,R3      GET THE BYTE
        INV  R3             INVERT IT
        BL   @VWRITE        SET VDP WRITE ADDRESS
        MOVB R3,@VDPWD      SEND BYTE BACK TO VDP
        INC  R8             INCREMENT POINTER INTO VDP
        DEC  R5             DECREMENT COUNTER
        JNE  GRFIN0         NOT DONE.
        JMP  EXIT           RETURN TO BASIC
```

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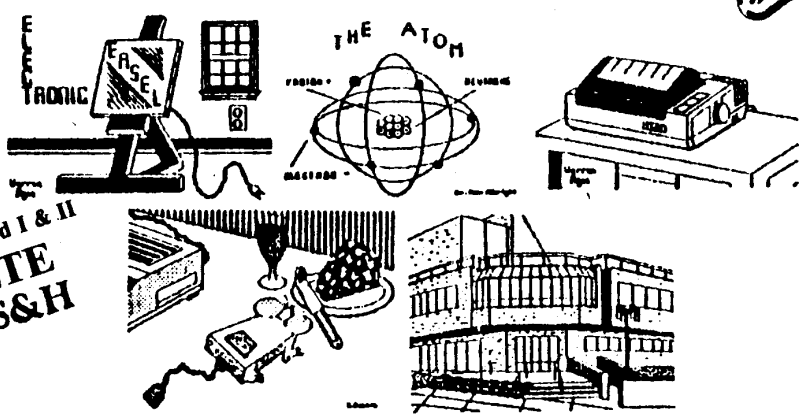

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XBII—

Continued from Page 24

When the Assembler is done you can then start up XBII and do a CALL INIT, followed by a CALL LOAD("DSK1. COLOR") to bring the routines into memory.

Readers who don't want to type the code in or don't have access to an assembler may obtain the source code, and object code, by calling BCS TI99 BBS No. 2 at (617) 335-8475. Or, get a disk with the material by sending $3 to Boston Computer Society, TI99 User Group, One Center Plaza, Boston, MA 02108.

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Continued from Page 24

```
**************************

COLEXC
       LWPI WS             LOAD MY WORKSPACE

       LI   R8,CT          ADDRESS OF COLOR TABLE

       CLR  R0             NO ARRAY
       LI   R1,1           1ST PARAMETER
       BLWP @NUMREF        GET A NUMBER
       MOVB @FAC+1,R5      GET IMPORANT PIECE OF IT
       SRL  R5,8           MAKE IT A WORD
       DEC  R5             DECREMENT IT . . R5 NOW HAS "FROM" COLOR

       INC  R1             2ND PARAMETER
       BLWP @NUMREF        GET NUMBER
       MOVB @FAC+1,R6      GET ITS IMPORTANT DATA
       SRL  R6,8           MAKE IT A WORD
       DEC  R6             AND NOW R6 HAS COLOR "TO"

       LI   R1,>1800       LOTS OF BYTES TO CHECK.

EXC00
       MOV  R8,R0          GET OFFSET INTO VDP
       BL   @VREAD         SET VDP READ ADDRESS
       MOVB @VDPRD,R3      GET A BYTE
       MOV  R3,R2          COPY IT
       MOV  R3,R4          AND AGAIN
       SRL  R2,12          ISOLATE HIGH NYBBLE
       C    R2,R5          RIGHT COLOR?
       JNE  EXC01          NOPE.
       MOV  R6,R2          GOT THAT ONE FIXED
EXC01
       SLA  R2,8           PREPARE TO REBUILD

       SRL  R3,8           MAKE THAT A WORD
       ANDI R3,>000F       ISOLATE PART WE WANT
       C    R3,R5          RIGHT COLOR?
       JNE  EXC02          NOPE
       MOV  R6,R3
EXC02
       A    R2,R3          REBUILD BYTE
       SWPB R3             PREPARE TO COMPARE
       CB   R3,R4          DID IT CHANGE?
       JEQ  EXC03          NO CHANGE. DON'T RE-WRITE. FASTER.
       MOV  R8,R0          GET VDP OFFSET
       BL   @VWRITE        SET VDP WRITE ADDRESS
       MOVB R3,@VDPWD      PUT IT BACK
EXC03
       INC  R8             INCREMENT VDP OFFSET
       DEC  R1             DOWN COUNTER
       JNE  EXC00          NOT DONE.

       JMP  EXIT           GET OUT.

**************************

VWRITE
       SOC  @H4000,R0      SET HIGH BIT TO INDICATE THIS IS _WRITE_ ADDRES
VREAD
       SWPB R0             GET LOW BYTE
       MOVB R0,@VDPWA      SEND IT TO VDP SET ADDRESS
       SWPB R0             GET HIGH BYTE
       MOVB R0,@VDPWA      SEND IT
       SWPB @NULL          WAIT (REALLY THIS IS FOR GENEVE)
       RT                  RETURN TO CALLING ROUTINE

       END
```

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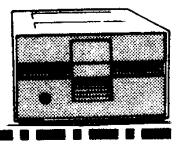

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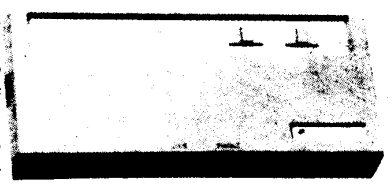

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Techie Corner

A truly expanded system

By MACK McCORMICK
Technical Editor

This article is unlike any I've written for MICROpendium because it doesn't focus on some technical aspect of programming but rather the system I use every day.

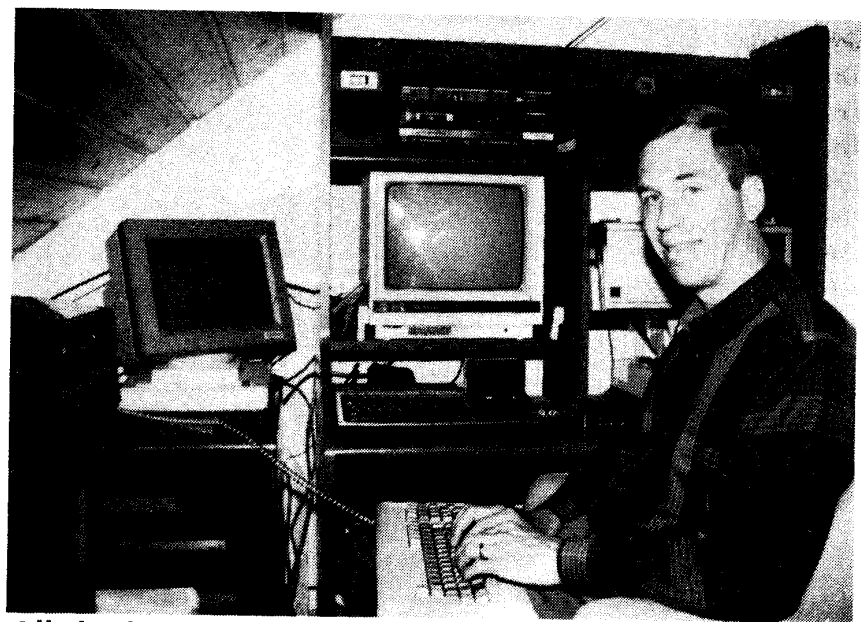
Editor Laura Burns asked me to write an article well over 11 months ago about my system and enclose a few pictures. Here it is, a bit late but then better late than never. I'll take each component and briefly describe its use and how I tie it all together.

Computer. It's a standard black and silver model with only one modification. It has the DIJIT RGB VDP processor chip (TMS 9928) and driver for RGB output, which greatly enhances video resolution. I highly recommend it if you have or are contemplating purchasing an analog RGB monitor. An A for this device.

Gram Kracker. Don't know how I ever got along without one. I think everyone already knows how and what this device does. It's the best yet in terms of user friendliness, useful utilities, and ease of executing your own GPL coded program. An A for this device.

Mechatronics Mouse. A very useful and easy to use two button mouse. Plugs into the joystick port. Requires a DC power supply (transformer supplied) and, of course, modifications to existing software to use. I've modified TI-Artist to use the mouse and it really makes drawing a cinch. A "B" for this device only because of the scarcity of software with it can interface.

Single Step Card and DSR/clock routine. This is the card referred to in the Editor/Assembler manual when it talks about special hardware to use the "S" command with DEBUG. It plugs in the I/O port of the console. I use this card with special software and an 80-column monitor as my primary debugging tool. The monitor interfaces through the RS232 port at 19,200 baud. The advantage is my TI program screen is not disrupted during debugging and breakpoints can be set in ROM. Also on this card is a DSR routine using RAM or EPROM where you can tuck away all sorts of useful utilities at any CRU address you have open, and a battery backed clock with minimal chips. There is also a debounced LOAD interrupt and 8K of RAM at address >6000. This card gets an A.



All the bells and whistles
Technical editor Mack McCormick is at home with his "comprehensive" TI system.

Speech Synthesizer plus. I managed to cram a few useful circuits inside my speech synthesizer, such as a debounced load interrupt, a GROM port emulator (a misnomer) which enables you to run bank switched ROM cartridges such as Pole Position from addresses >2000 and >A000 instead of >6000. It allows you to back up these cartridges to diskette. It really just decodes the address bits from the I/O port differently. A variable slow-motion device is also included which enables you to slow down interrupt driven processing such as screens, sprites and sound when interrupts are enabled. This was the subject of a construction project in the December edition of MICROpndium.

Mechatronics EPROM Programmer. This is by far the best EPROM programmer I have seen for the TI. It has full buffer and file loading/saving utilities, reads, writes, verifies and programs all standard EPROMs up through 27128s. Has a fast programming mode, which is a real plus if you've ever waited seven minutes per EPROM. Very flexible. An A product.

Myarc Winchester Personality Card. Myarc is the only manufacturer of a Winchester-compatible card for the TI. I've become so accustomed to using it that I don't know how I ever survived without it. It supports 10 megabytes of storage per hard drive, and I run two hard drives. It's about 10 times faster than a floppy and has UNIX-type directory management and simple, floppy-like, utilities. Since its ar-

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SYSTEM—

(Continued from Page 28)

rival my floppy disk drives almost never turn on. A cinch to install and operate, the only modification I've made is to add battery backed-up capability to the built-in clock. An A for the personality card.

Myarc Quad-Density/Double-Sided Disk Controller. The fastest disk controller on the market. Drives one TEAC 55B and a 55F disk drive giving me the capability to read/write to any TI density currently in use. In the DS/QD mode you have more than 650 kilobytes of storage per floppy. MICROpendium has already done a review of the DS/DD controller so I won't repeat here. An A for the controller.

Myarc RS232 cards. I use two of them to drive all my peripherals. The principal advantage the Myarc cards have is the firmware support for 19.2K baud, abbreviated command for PIO output, and a hand-shaking software switch. An A for the firmware support designed into this card.

Myarc 512K card. My most useful optional card, I use it for all my work while the computer is in operation. Transfers data at memory speed, spools sometimes for hours to my printer while I continue to work, runs Myarc's XBII, which is four times faster than other Extended BASICs. I keep it backed up with a transformer. Easy to use and totally transparent. An A for this device.

Mechatronics 128K GRAM card. A useful card whose advantages and disadvantages I have previously reviewed. Great for holding lots of modules but all is lost when the PEB is powered down and must be rebooted. Easily expandable to 512K. This one gets a B.

Morning Star 128K card. A very useful card for programmers who need complete flexibility over address space. Not often used but it has great potential.

GROM Emulator Module. A neat little eight-chip card which simulates GROM using EPROMs or RAM. Allows you to

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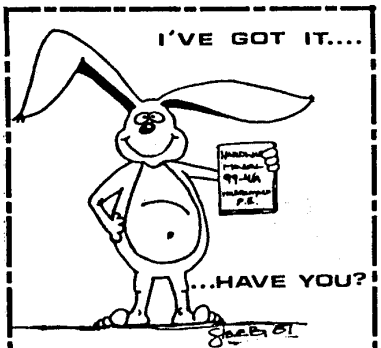

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Faire report

SF 99ers recommend booths at non-TI fairs

By NEIL WOOD

The following report details the participation of the San Francisco 99ers User Group at the West Coast Computer Faire, March 26-29. The author was in charge of the project.—Ed.

The actual work of getting things going for the fair began at 7 a.m. Wednesday, March 25, when I picked up Jim Tillman. We made our way to San Francisco's Moscone Center with my truck loaded down with tables, chairs, cartons and, of course, computers. By 1 p.m. we had our demonstration system up and operating. As our prerecorded video demo tape gave forth with computer generated music and graphics we got a loud cheer from those setting up around us. It also generated a lot of curiosity.

"What system is that? A TI99 you say?"

At 3 p.m. we were all set up and headed for home.

Thursday found Jim and I in Moscone Center at 8 a.m. Jim was doing some last minute adjustments to the systems and I was putting together our press release kit. It had as the cover document Barry Traver's introduction to Dr. Ron Albright's *Orphan Survival Manual*. Barry and Jim Horn of Disk Only Software gave us permission to use it during the fair. The other items in the kit were a copy of MICROpendium, a Tenex and Triton catalog and a flyer about our user group. Every press kit we put out during the fair was taken by the media.

Some last minute sign work done the public was there at 10 a.m. Our display table included Tenex and Triton catalogs (Triton also helped pay for the cost of the electricity we used the fair), MICROpendium, flyers from T.A.P.E and Barry Traver's article, securely stapled to the table. We also had a flyer from MG. This, and the *Orphan Survival Manual*, were used over and over again during the fair to refer users to groups throughout the U.S.

Before we knew it the time was 12:30 and Jim and I flipped a coin to determine which of us would go to the keynote address. I won!

John C. Dvorak was the emcee and he introduced David Bunnell who told of his days at MITS Inc. when they were producing the first commercial PC. He spoke about how all 11 employees were on the phone during the day and how they would crank up the production line and build computers at night.

Lee Felenstein, designer of the Osborne-1 PC, addresed the social impact of computers and what we are to do with all the "orphans."

Steve Wozniak, co-founder of Apple Computer, told why he returned to UC Berkeley to get his Electrical Engineering degree. (So that he wouldn't be introduced as a Homestead High School graduate.) Now only Steve Jobs has to say that. He also covered how 30 days credit, one level of management and a 10-day product turnaround can make you a millionaire.

Other speakers included Don Lancaster

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SYSTEM—

(Continued from Page 29)

also have a program at ROM >6000. Easy to build in less than 15 minutes. A future construction article.

Panasonic KX-P1091 Printer. Has served me faithfully for years. Thousands of pages with no problems. Rated No. 1 Consumer Reports. Has proportional and near-letter quality modes. A rating. I use two other printers, the best one being a DEC-Writer which was too heavy for me to bring to Germany. A great high speed printer.

Sears (Sanyo) TV/monitor. A good monitor for composite video output. As an RGB monitor I'm not satisfied since it is intended to be interfaced to an IBM digital RGB interface and the TI uses an analog signal. OK picture, but the colors are a bit washed out. I'll definitely be purchasing a new state of the art analog monitor soon.

Qume 80-Column Dumb Terminal. As previously mentioned, I use it to interface at 19.2K baud for debugging programs. It also makes a handy piece of scrap paper for jotting quick video notes when tracing code, dumping disk listings, or assembler source listings. Has many useful features such as PF keys to save keystrokes for MACRO commands. A rating.

Prometheus ProModem 1200. Don't get to use this much over here since I left CompuServe. A super modem. 1200 baud. Auto answer/dial. Hayes plus command set. 64K buffer. I actually used to have it log on to CompuServe, with the computer off, while I slept and download the message base each day. Really a great time saver. Battery-backed clock.

EPROM Eraser. Not much point having a programmer without an eraser. A very simple model but then all it does is shine a little light.

Isobar Power Strip. Well worth the money to stop all those nasty electrical spikes. Only thing better would be a pwer conditioner with emergency battery back-up.

That's pretty much the hardware I use on a day to day basis but the closet here is full of other goodies, such as a MBX, PIO EPROM programmer, Super Sketch, Pro Joysticks, TI and CorComp Disk Controller cards, and on and on.

My pet piece of hardware? The MBX. I have the original source code to program it. I just need more time! That's one project we'll do just for fun.

My next major purchase? Besides a monitor, I have a close friend who is a senior executive for one of the leading manufacturers of laser printers. Well, I figure my TI deserves one, so After all I can get it for one-third price. It's a steal, I told my wife Sandy.

I hope you found this interesting. If you have specific questions please let me know. (Who do I have to thank for getting me hooked into this insanity? Ron Albright, my good friend).

Until next time, "Back on your heads!"

FAIRE—

(Continued from Page 30)

of Synergetics, a new age consulting firm for advanced microcomputer applications and the "Guru" in Computer Shopper, Gary A. Kildall, developer of CP/M and currently involved in CD-ROM, and Jim Warren, who founded the West Coast Computer Faire.

Back to work on the floor, the patronage was good but not overwhelming and inclined toward business applications. The videotape demonstration Gary Anderson and Tillman put together was about an hour long and allowed us to staff the booth with one person. We judged the response to be good for the first day.

Friday saw Jim and I back at Moscone Center. Today was to be a special occasion since Les Merryman, West Coast distributer for Myarc Inc., and his sales representative Scott Engle were meeting us to set up the Geneve 9640 for a demonstration through noon Sunday. We literally ran into each other outside the center. None of us had met before. Jim worked with Les and Scott and soon the Geneve was up and running. Unfortunately, over the next 2½ days, I did not get to see much of it. To paraphrase an old saying, "Where did all those people come from?"

It's 2 p.m. and not a let-up. Dick Altman, whose Fairware list we used to describe and catalog our fairware offerings, stopped by to see how things were going. He helped out for a while and I had my only coffee break of the day. Dick's list provides a standardized means of describing a program and numbered according to the list, insuring an easy means of reproducing the program. I recommend this to anyone considering doing a show or even for the group library. Incidentally, the most requested Fairware was Clint Pulley's c-99.

The following trend held true throughout the rest of the fair: When a person came to the booth we asked, "Do you own a TI-99?" The responses fell into four categories:

1. Oh! I thought this was IBM (our graphics and music were great).

2. Yes I do. (We gave these people a full sales pitch for our group or directed them to a group in their area.)

3. No, but I know someone who does. (We gave these people semi-full sales pitches.)

4. Is that a new computer?

We got a good response in category 2, and we have several new members. Most responses fell into category 3, which means there are many potential members out there.

Bob Clay, of the San Francisco Progress newspaper, took several pictures of our booth. Jim Thomas, Sysop of Capricorn BBS in Pacific, CA. 415/359-7555, 24 hours, 300/1200 baud, was on hand at the time. His name should be familiar to many readers.

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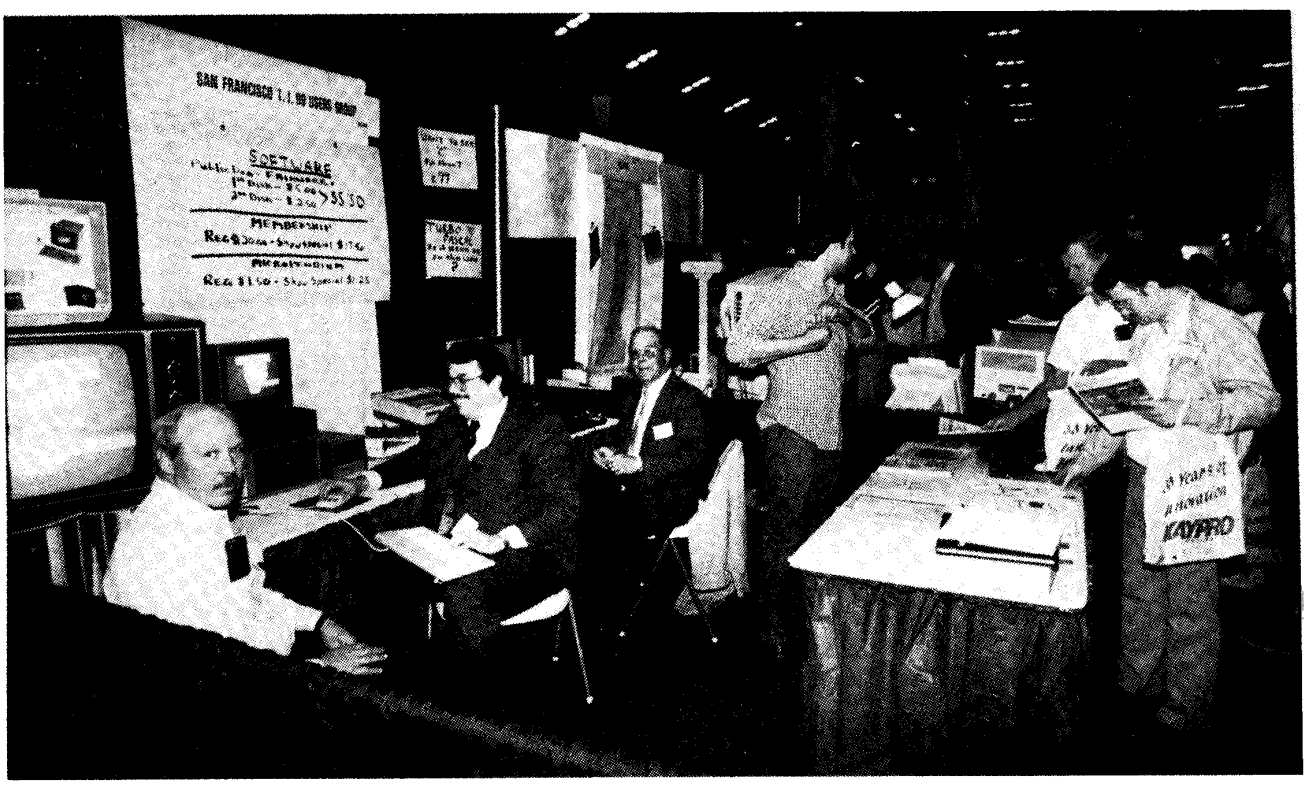

Keeping the TI faith are representatives of the San Francisco TI99 Users Group. From left, they are Gary Anderson, president; Jim Tillman, vice president, at the Geneve keyboard; Neil Wood, Faire coordinator; and, standing to face the fairgoers, Jim Thomas, sysop of the Capricorn BBS in Pacifica, California, which operates at 300/1200 baud 24 hours at (415) 359-7000. Photo ©1987 by Bob Clay, *San Francisco Progress.*

Dear editor

Programming on a word processor has its advantages

By R.M. CARMANY

Do you own TI-Writer or one of its "clones" like TK-Writer, BA-Writer or Funlwriter? Did you know that with a little preparation and a couple of other programs, you can write programs with your word processor?

I'm sure that the first thing that comes to mind is "Why in the world would anyone want to use a word processor to write computer programs?

The answer is really quite simple—the TI-Writer type of word processor allows you to use some versatile and useful "debugging" aids that are not available in the usual programming mode. The one that is of the most immediate use is "String Find/Replace" from the editor function list. With it, you can find and replace a typo or a line that you wish to change without having to go through the program on a line-by-line basis. This is really convenient if the program you have written is very long.

But let's start at the beginning! To get started, you will need one of the TI-Writer "clones" or TI-Writer itself. Also necessary is XLATE (MICROpendium Dec '85) or a similar program for converting D/V 80 text files into a RUNnable program format. I have found several other programs to be of value when writing a program, but these are really "luxuries." The Spellcheck program from Dragonslayer is a valuable debugging aid and there are programs to compact your end product like BASTRAN, Compactor and several commercial entries.

Now, with everything collected, let's get started. The first thing that I do is to create a template so I won't have to type in the line numbers every time I sit down to write a program. I simply set up a text file with nothing but the line numbers in it. I prefer to start as 100 with an increment of 5. Simply enter the editor, select "E" for edit and

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FAIRE—

(Continued from Page 31)

On Saturday Gary Anderson and Charles Peterson took the early shift. Galen A. Read, owner of Innovative Programming and author of CorComp's new word processor Writerease, is on hand to demonstrate this and other programs. He donated two copies of Writerease, providing us with a drawing prize for Saturday and Sunday.

The Sacramento Area TI-99 Users Group arrived with a video camera and spent several hours with Merryman recording the performance of the Geneve for members of their group who could not attend. Woody Large of the Sacramento group helped arrange the display of the Geneve. Charles Burley, owner of Silver Wolf Software and a member of the Santa Rosa User Group, loaned us his Myarc disk controller so that we had full Myarc compatability in the system running the Geneve.

Sunday is almost a replay of Saturday. Les and Scott have to leave at noon to catch a flight to Lancaster, California.

It's 4 p.m. and the fair closes at 5. One of our members spots noted Byte Magazine columnist Jerry Pournelle at the Apple booth behind ours, with staff in tow. I asked that he look at where the TI99 is today. He responded that his readers did not want to hear about the TI. Chuck Burley interjected that he reads Byte and would like to see some coverage. Pournelle then proceeded to cover TI's inept marketing and the Air Force Academy use of the TI as a language tool. After some discussion about what we had to offer, Pournelle left the booth with a copy of Barry Traver's article and a copy of MICROpendium saying "maybe there is a story here after all." Only time will tell.

Why did we sponsor a booth at the world's largest computer fair? To gain membership.

Why not at a TI fair? Because most of the folks there already belong to a user group. Second reason: To bring the TI99 back before the public eye.

TI fairs are a fine way for the TI community to purchase, review and communicate with others in the TI community, but if we are to remain a vital community we must recruit new members from outside our own. Sponsors of major fairs, such as The Interface Group which sponsors the west coast fair, will donate a 10 X 10 foot booth to user groups in exchange for some advance PR and a mailing list of your group. Apple had no fewer than three user groups at this fair, Atari had at least two and numerous other computers at least one. All this in the middle of a high tech bargain palace.

Ask yourself: has the mainstream moved away from us or have we moved out of the mainstream?

I strongly recommend to TI user groups that if there is a major show in your area that you contact the sponsor regarding free booth space. The 10th Northeast Computer Faire is in Boston during October 1987. Contact The Interface Group Inc., 300 First Ave., Needham, MA 02194. Telephone (617)449-6600. This is just one; there are many others.

Will we do it again?

Yes, the 13th West Coast Computer Faire is at Brooks Hall, San Francisco, CA. April 21-24, 1988 and the S.F. 99ers. will be at Booth 1263.

EDITING BASIC—

(Continued from Page 32)

begin. Type in 100 and press ENTER, 105 and ENTER, etc., until you have entered a sufficient number of line numbers (I usually stop at 995). Now, we have to SAVE this template to disk so we can use it over and over again and also strip out all of the "CRs" after each line number. Fortunately, this is a simple task and the computer will handle the whole thing for us. Press FCTN-9 (BACK) and select F(iles) and then PF for (P)rint(F)ile. When the prompt for devicename appears, type in the following:

C DSKx.filename

The "C" will strip out all of the carriage returns (CR) and all the other formatting commands before the template is saved to disk. The "x" should, of course, be the disk drive number and "filename" should be any name you choose to give the template file. With that little chore out of the way, you can follow the instructions for (L)oad(F)ile in your manual and reload the template any time you get ready to program. By using (P)rint(F)ile, you have also eliminated any Tab information you might have inadvertantly entered when you started.

Now that you have the template ready, let's go ahead and start programming. One word of caution before we start! If you are using the default "Word Wrap" mode, be extremely careful and avoid reformatting your program with CTRL-2. Rather than insert a character, use the arrow keys to type over it. Otherwise, you will end up with a merged mess of characters. The alternative, of course, is to press CTRL-0 and program in the fixed mode after you have reloaded your template. That is by far the best solution to the problem.

Well, it is an hour or so later and you have finished typing in your program. Now, what do you do with it to get it converted into a RUNnable program? First, save a copy of the program to another disk using the same procedure that you used to save the line number template. This copy must not be erased until your program is thoroughly debugged and running correctly!

Now, boot up XLATE (or a similar program) and follow the input prompts. Remember to give the output a different filename than the program you have just saved or at least use a different disk drive designation so you won't erase the original. If you have followed the instructions correctly and haven't made any grave errors, XLATE will churn out a program version of your D/V 80 text file. Then, you can try to RUN the program and, if it performs as expected, you are through. If there are some bugs in the program, you can either debug it normally as you would any other program or use the following approach if you have Spellcheck.

Dragonslayer's Spellcheck adds another dimension to debugging a program. It can be used to check for typos and syntax errors. Spellcheck allows you to create your own customized User Dictionaries. For my own use, I have created a User Dictionary that contains all of the "keywords" that are used in programming (i.e. HCHAR, GCHAR, CALL, INIT, etc.). After saving the D/V 80 file to disk, I run it through Spellcheck and locate and correct any typos or syntax errors that I find. Usually, this takes care of almost all the errors I encounter. You will find that typos are probably the most common reason for a program to "crash." If you don't have Spellcheck, you can use (F)ind(S)tring and (R)eplace(S)tring to do much the same thing. You can also use this Editor function to make substantive changes in the program itself like replacing multiple occurrences of string variables of strings as well as commands. For example, you could rename "A$" to "X$" throughout the program with a couple of keystrokes instead of having to go through the program on a line by line basis.

For similar results using conventional programming techniques, you can use PROOFREAD (MICROpendium Feb. '86) to "ferret" out all the misspellings that occur when you are rushing through a programming effort. PROOFREAD will read the D/V 80 file and return any errors. The instructions are with the program and, although it is somewhat more difficult to use than Spellcheck, it will still do a fine job of checking for typos and syntax errors.

Some "bugs" are more difficult to find than others. One of these is the enigmatic "READ DATA ERROR" which occurs when an illegal value is contained in a data statement or you have made a similar error. Spellchecker will not help you with this and it is often difficult to find the error using the usual TRACE and UNTRACE techniques from the console. If you know what the variable or string variable designation is from the read statement there is an easy way to find the error. For example, if you have a statement "125 READ A" in your program and you get a program break with a "READ DATA ERROR" when the program executes, simply enter the following line in the immediate mode:

PRINT A

The computer will print the last valid variable that was read before the error was encountered. It is then a simple matter to go back and find it with either (F)ind(S)tring or by conventional debugging procedures.

If you have one of the program compacters like BASTRAN or Compactor, you can use them to "crunch" your program into a more compact form after you have everything running smoothly.

If you have access to a TI-Writer "clone" and Spellcheck, you can reduce the frustration of typos and syntax errors to near zero. The whole point is that programming should not be an unpleasant "chore" and you should be able to let the computer do most of the debugging work. With TI-Writer, Spellcheck, XLATE and a few other utility programs, you can make writing and debugging a program a matter of a few keystrokes rather than an "all day" affair.

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Forth tips

Using CHARA1 for lowercase

By LUTZ WINKLER

Your favorite CHARA1 file from TI-Writer can be installed on your Forth disk for true lowercase. Screen 19 of the system disk is only partially used by the Forth kernel, leaving sufficient space for the chardefs of ASCII 32 through 127.

The parameters given below assume a two-drive, SS/SD system. For other configurations it will be necessary to adjust them accordingly. In case you prefer the 64-column editor, the following does not affect the display of its tiny characters. (There's no way to improve them.)

Step 1: Copy the CHARA1 file to a clean, initialized disk. Any disk manager may be used.

Step 2: Boot Forth and place the disk with the CHARA1 file in drive 2. The file will be found on screens 98 and 99. That is, the sectors that are needed are on these screens, the rest may be ignored.

Step 3. Thke file could be transferred now, but it is easier to combine it first onto one screen (No. 100) before the transfer is made. The CHARA1 file starts on line 8 (addr512) but the first 6 bytes (0 to 5) constitute the file header, so the address must be incremented by 6 (518). This is followed by 256 bytes (the chardefs for ASCII 0 to 31) which we don't need. Therefore, the starting address for the transfer is 98 BLOCK 774 , desitnation is 100 BLOCK and we want to move the remaining 250 bytes of that screen:

98 BLOCK 774 + 100 BLOCK 250 CMOVE UPDATE FLUSH

The rest of the chardefs are found on screen 99 and 506 bytes have to be moved. They must follow what has already been put on screen 100:

99 BLOCK 100 BLOCK 250 + 506 CMOVE UPDATE FLUSH

Screen No. 100 now contains the entire set of definitions for displayable ASCII characters.

Step 4. Once again it is time to issue that old warning: *Do it on a backup disk!* With the Forth BU disk in drive 1 and the chardefs on screen 100 in drive 2, the transfer is easily accomplished by:

100 BLOCK 19 BLOCK 256 + 768 CMOVE UPDATE FLUSH

Provided no errors were made and screen No. 33 (system calls) is booted, the new chardefs are written to the PDT (pattern discriptor table) with:

HEX 13 BLOCK 100 + 900 300 VMBW

For a quick check, it can be entered from the keyboard and some lowercase characters typed. If everything works as expected, i.e. the display does not go haywire and lowercase letters are properly shown, then the above statement should be placed on screen No. 3 (the welcome screen) to autoboot the new charset along with whatever other autobooting features may already have been installed there by the user.

While it is not necessary to put the entire charset into the PDT (uppercase characters already are there), I use the entire range (32 to 127) because I have redefined the characters of my file. They are not only bigger but I have slashed the zero and improved the lowercase characters. Also, I can easily put the same charset into the upper end of the PDT for conversion to inverse video. (More on that next month.)

The procedure I have described makes use of space on the disk which is otherwise wasted. It does not require modification of other screen to accommodate the character definitions. A VMBW of 300 bytes does not add any noticeable delay when booting Forth.

This is the first of a three-part series of Forth Tips. Installment No. 2 will cover inverse video and installment No. 3 will cover modifications to the Forth editor.—Ed.

EDITING BASIC—

(Continued from Page 33)

While all of these procedures will work when you are programming from "scratch," what do you do with that program you always wanted to alter? Or what about changing a program for a second time?

Well, the answer to that is really quite simple. When you LIST a program to disk, it is saved as a DIS/VAR 80 file—suitable for processing with TI-Writer or one of its clones. So, to convert an existing file to a form that can be handled by one of the word processors, first LOAD it into memory by using "OLD.DSKx.filename" where "x" is the number of the drive the program is on and "filename" is the name of the program. Then, in the immediate mode, simply type in "LIST DSKx.filename". The program will be "listed" to disk as a DIS/VAR 80 file which can be processed with your word processor. One word of caution, though; either use a different drive to save your "LISTed" program or use a program name different from the original to avoid overwriting the original program.

MICROpendium

PAYS

for reviews of TI software & hardware

If you have an item you'd like to review, let us know about it. Call us at 512-255-1512 or mail us a note. We'll let you know right away whether we can use it. Items we'd like to see reviewed in the next several months include Writerease, Mechatronic 80-column card, joysticks, Junk Man...you name it.

Geneve 9640 Computer

It's finally here!

Review

By JOHN KOLOEN

The Geneve 9640 is here! Finally. And it works.

I've been using the 9640 for about a month. Primary activities include writing this and other articles, entering programs in Myarc's XBII, loading and running existing Extended BASIC programs and wondering why the massive manual doesn't have anything to do with the computer it is supposed to describe. The price is in the $500 range depending whether an AT or XT type keyboard is purchsed. I used the AT type, which is about $30 more than the XT keyboard. I am not sure what the difference between the keyboards is.

Clearly, the 9640 hardware works as it is supposed to. The computer-on-a-card installs in the first slot of a PEB, replacing the system card with its monster ribbon cable that plugs into the side port of a 99/4A. Ports for a joystick, monitor (analog RGB or composite), a PC-style keyboard and a Myarc Mouse, to be available in the future, are located on the back of the card. Although it is possible to use a TI monitor with the 9640, I do not recommend it for programs that require more than 40 columns. Anyone familiar with the difficulty in reading a 64-column Forth screen on a TI monitor can easily imagine the near-impossibility of reading an 80-column screen on the same monitor.

PRE-PRODUCTION MODEL

As Part I of a review of the Geneve, this installment is going to concentrate on initial impressions.

The 9640 board I have is a pre-production model. The software includes a beta test edition of an 80-column version of TI-Writer, a software patch that turns Multiplan into an 80-column spreadsheet, a utility to save TI cartridges to disk, a utility to load saved-cartridges into the Geneve, several demonstration programs and a version of Paul Charlton's Fast-Term terminal emulator.

The cartridge-saving software, written by J. Peter Hoddie, functions like MG's GRAM Kracker in the way it saves cartridges. It operates out of a 99/4A console, of course. Cartridges saved with a GRAM Kracker may be loaded directly into the Geneve using the cartridge loader, a GPL interpreter. Except for XBII and the cartridge-saving utility, none of the programs includes any documentation. My understanding is that buyers of the Geneve will receive ample documentation.

Feeling my way through the Geneve, as it were, my initial impressions remain positive.

80-COLUMN TIW

The Myarc 9640 Word Processor is similar to TI-Writer, at least the beta test model is.

Actually, the Myarc word processor is an enhancement of TI-Writer. The most noticeable difference is that you don't lose characters when ending one line of type and beginning another. You can type as quickly as you want and not have to worry about going back to insert characters that never registered. (Eight keystrokes are buffered throughout the operation of the Geneve so that it is possible to enter commands even before a program is completely loaded.)

Word processing functions may be initiated using dedicated function keys or by pressing number keys and the Control key.

The Show Directory command function operates out of a 32-column mode. Scrolling through the directory is done by holding down the E or X keys, equivalent to the up and down arrow keys on the TI. I assume that the final version will use the page up and page down keys for this function.

The Formatter screen is also in 32 columns. The editor, of course, is in 80 columns. The Formatter is entered directly

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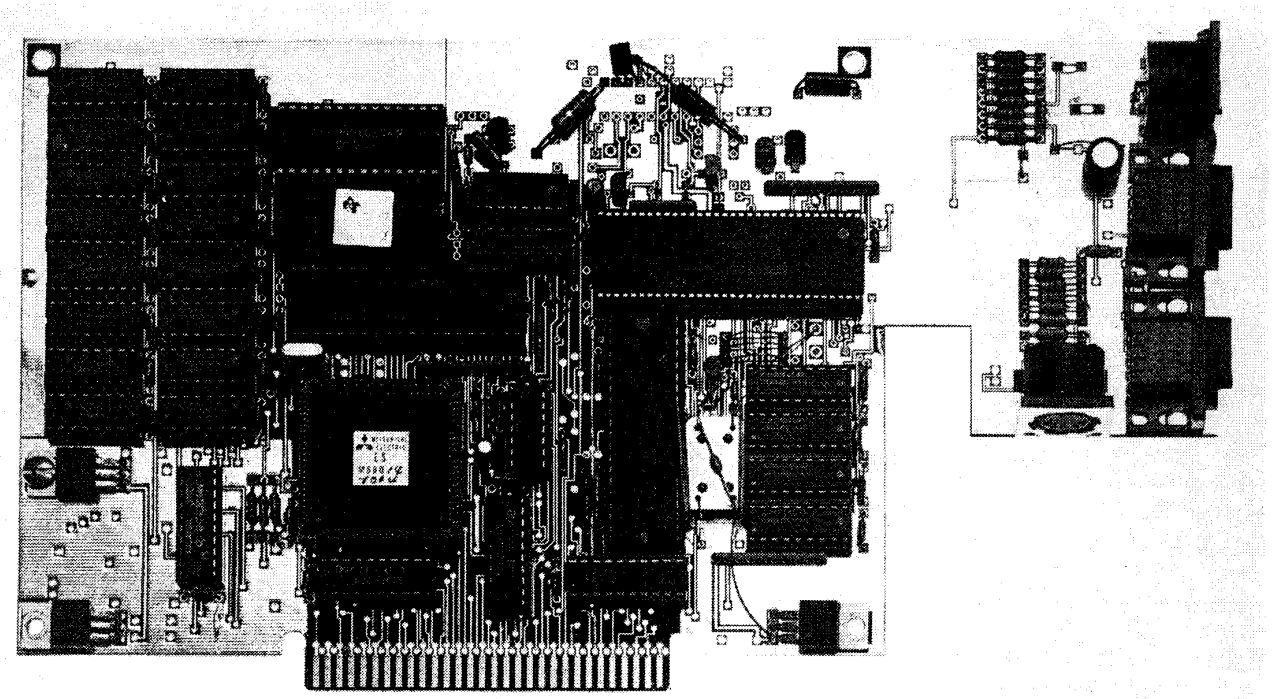

The Geneve 9640 comes on a single board that fits into the TI Peripheral Expansion Box. Ports are pictured at right. They are, clockwise from top, monitor, joystick, mouse and keyboard.

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from the editor using FO as the command. When the formatter is finished processing you may return directly to the editor.

There is also a new function, View File, that allows one to read a text file without loading it into memory. This comes in handy when you're working on a document and want to view text from another at the same time. Another enhancement is dotted line at the bottom of the screen displaying left and right margin locations as well as tab settings. At the lower right corner is a clock displaying the time of day.

However, the beta test version of this word processor is not fully functional. The search and replace functions do not work and, while there is a clock at the lower right of the screen, without the Myarc DOS it doesn't show the actual time. But this is the test model. The final version, in addition to correcting the deficiencies of the beta test model, will also include online help screens and user-specified system defaults for everything from devices to the definitions of CTRL U functions and transliterations.

XBII IS SUPERB

Myarc's Extended BASIC II — the Geneve is expected to come bundled with XBIII — works extremely well. Every program in this edition of MICROpendium was entered and run using the 9640 and XBII (the programs were also run using a 99/4A). This is the same version of Myarc's Extended BASIC reviewed several months ago in MICROpendium. The only difference between the two is that this version resides entirely on a disk while the 99/4A version also requires a cartridge.

Although I have yet to run benchmark tests, XBII in the 9640 runs faster than XBII in the 99/4A, which in turn runs several times faster than TI's Extended BASIC. Pre-scantime is virtually eliminated and programs start running almost at the instant the RUN command is entered. The first time I ran TI-Count Accounts Receivable with the Geneve I was stunned. Running out of a hard disk, program segments load with extraordinary speed. Initiating functions and entering data is as fast as I would expect from an assembly language program, even though TI-Count is written for use with Extended BASIC. I am guesstimating that the Geneve with XBII runs TI-Count faster than the 99/4A with Extended BASICby a factor of 10.

Running games is something else. Although I've enjoyed the speed that utility and applications programs gain from the Geneve and XBII, I've noticed timing problems with a number of games. Also, programs that use CALL COLOR(X,F,B) are likely to crash since CALL COLOR can't be used in XBII's text mode. CALL SCREEN(F,B) needs to be used instead. Or,you can enter CALL GRAPHICS(1) to go into a 32-column mode that appears to satisfy the requirements of many Extended BASIC games. I've also encountered problems with some CALL LOADs resulting in the error message "name not in table." Myarc says this will be corrected in XBIII.

In most cases, I found that loading TI's Extended BASIC into memory instead of XBII solved the problems mentioned

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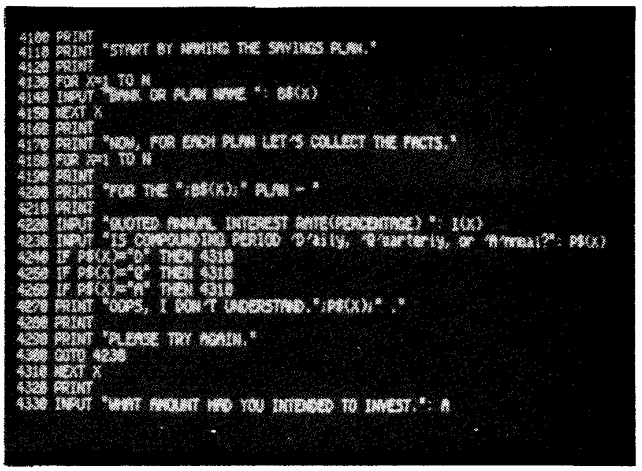
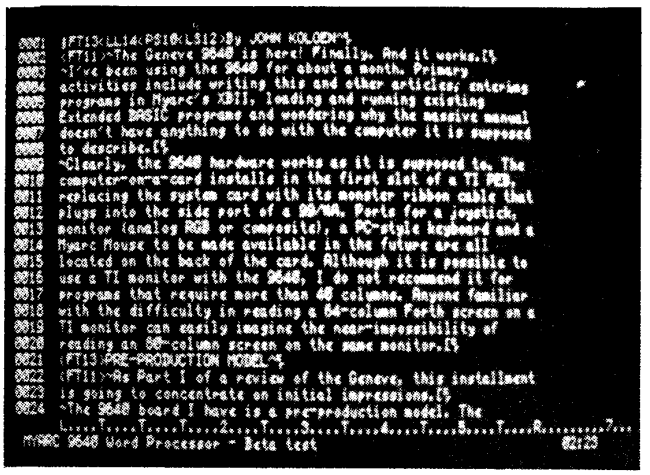


Myarc's Extended BASIC II in 80-column mode. XBII, which runs several times faster than TI's XB on the 99/4A, is even faster on the Geneve.



The editing screen from the beta test version of Myarc's 80-column word processing program. Note the clock in the lower right corner.

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(Continued from Page 36)

above. Spad XIII, for example, wouldn't load with XBII, but loaded normally and faster with Extended BASIC. The plane is much more responsive to keyboard input with the Geneve than with the 99/4A. And I suspect you'll find this to be true of any programs that use keyboard input.

NO DOS, YET

Knowing that the 9640 I have been using isn't exactly what buyers of the Geneve are going to get makes writing a review a little difficult. For example, my version lacks a ROM boot chip. Also it can read and write only to single-density diskettes. This is because of a timing problem that Myarc says will be overcome in the production model. Even so, I don't mind using single-sided diskettes.

The absence of the Myarc disk operating system is probably the biggest inconvenience for me. The manual is geared specifically to M-DOS and describes all the nifty things one can do with it. Unfortunately, I have no DOS and must rely on several 99/4A programs to catalog disks and the like. I can load Myarc's Disk Manager Supreme Level III that is packaged with the Myarc disk controller and use it to do everything from formatting to copying disks, but not all other disk manager programs are compatible.

Returning to square one for a moment, the 9640 I have cannot be used with either a TI or a CorComp disk controller. The system I am using includes a PEB, 9640 card, TI RS232 card, Myarc disk controller card, a monochrome monitor, a PC-style keyboard with the function keys located at the top and a C. Itoh Prowriter printer. I had to remove a Myarc 128K memory expansion and CorComp's Triple Tech card.

According to Myarc, the production model will be compatible with all the above mentioned cards, as well as others. However, the speech synthesizer in Triple Tech won't work. Myarc says it will have a card available soon that will accommodate a TI Speech Synthesizer board.

STANDARD PROCEDURE

Prior to turning on the PEB and booting the Geneve it is necessary to slip a 9640 system disk into DSK1. The drive light goes on for a few seconds at boot and the screen lights up with a cursor that is preceded by "DSK1." As long as this prompt is on the screen, it is not necessary to designate a drive number when loading a program. Accordingto the M-DOS manual, the DSK1. designator will be replaced by letter designations — A, B, C, etc — for drives, similar to PC DOS. Myarc DOS, in fact, emulates PC DOS in virtually every respect, including the use of such commands as DISKCOPY.

Having gotten the DSK1. prompt, I am required to enter SLVDP (Slow Down Video Display Processor). The 9640 is so fast that unless it is slowed down it can't run TI99/4A programs. SLVDP is a routine that loads from the system disk to do this. My understanding is that the ROM boot chip will include this routine. Following this, which takes about 5 seconds, one is free to load XBII, a GPL interpreter used to load cartridge-based programs from disk, the 80-column TI-Writer or the demonstration programs.

FAST MULTIPLAN

Because the 9640 I have doesn't include all the bells and whistles expected to be included with the production model, I can't speak authoritatively about software or hardware compatibility. Some programs written in assembly have failed to load under certain circumstances but loaded under others (I touched on this with the loading of Spad XIII) while others weren't fully functional, and this may be the result of my not knowing how to load them as much as anything else. Still others worked perfectly. I expect to have more details about specific programs next month.

One program that does deserve mention, however, is Multiplan. The 9640 enhances Multiplan in either a 40- or an 80-column format. The major difference between Multiplan as it runs on the 99/4A and as it runs on the 9640 is speed. It is several times faster (I want to say *many*times

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Disk Utilities

Getting into disk structure

By JOE NUVOLINI

Everyone who remembers Disk Utilities, ver. 1.1, by John Birdwell, please raise your hand.

Ah, I thought most of you would

John has updated his program and I received version 3.2 from him recently. It has been released as Fairware. He also has a Super-Cart version that will operate out of the >6000 area. The Super-Cart version is only 3.0. The program will load out of the TI-Writer Utilities option, Extended BASIC and option 5 of the Editor/Assembler. The purpose of the program as stated by the author is "to study how data is stored on disk."

After the program is booted, there is a Fairware title screen followed by a menu with the following selections: Compare Disks, Print Sectors, Find String, Disk Report, Directory/Comments, File Utilities, Printer Setup and Screen Colors. The Compare Disks option allows you to compare two disks to see whether the contents are the same. Sectors that are not identical are printed to your printer.

The next option, Print Sectors, allows you to print individual or multiple sectors to a printer. The sectors in this and the previous option are printed in condensed print and include both ASCII and HEX information.

The Sector Editor option allows you to view the contents of any sector, in ASCII or HEX, change it if necessary, and then write the edited sector back to the disk. There is a byte counter here so you can keep track of which byte the cursor is over.

The Find String option will find an ASCII or HEX string of up to 16 bytes. If found, it will be displayed and you can enter the sector editor, continue to the next occurence of the string or quit the search.

The Disk Report option will print a detailed report on the contents of the disk to your printer. The information provided includes Diskname, Total Sectors, Available Sectors, Filename, File Type, Size, Starting and Ending Sector, Protection Status and any Comments.

The Directory/Comments option (not available on the Super-Cart version) is the same as the previous option except that it outputs to the display instead of the printer. You can also enter comments about each file here. These comments are stored in the directory block and, if the file is modified by another program, will be removed. The File Utilities has five sub-options which we will cover later.

The Printer Setup option allows you to change the printer output name (default is PIO) or to output data to a disk. You can also disable the formfeed after printout. The printer defaults for disk report, print sector and screen dump are also displayed. The settings you enter here remain in effect as long as the program is running; however, to make them permanent, you must edit the first sector of the first program file. Using the sector editor, you can change the length byte of the output device, the output device name, the HEX codes to command and cancel compressed print on your printer (comes with Okidata codes as defaults), the formfeed on/off, the text and screen colors and the control print mode for various reports. After you change the values, if necessary, be sure you re-boot the program before trying to check them as the computer reads these values on boot-up.

The Screen Colors option allows you to select colors to suit your tastes. These are, of course, not permanent unless changed in sector one.

The sub-menu under File Utilities contains File Compare, File Print, File Edit, Find String and File Report (this is the only file utility on the Super-Cart version). The basic difference between these options and those on the main menu is that all operations are based on the filename. The program automatically determines the beginning and ending sectors of the file for you. They are indicated by an SOF and EOF displayed just above the sector number. A warning "honk" and message are issued if the user attempts to exceed the limits of the file. If you choose to do so, the program automatically reverts to the Sector Editor.

The use of the CTRL and FCTN keys to manage the program is slightly different from ver 1.1 but is adequately covered in the DOCs.

This is an excellent utility and well worth the asking Fairware donation of $10.

Review

Report Card

Performance.....A+
Documentation.....A
Ease of use.....A
Value.....A
Final Grade.....A

Cost: $10 (Fairware donation).
Manufacturer: John Birdwell, 501 S. Edson Ave., Lombard, IL 60148.
Requirements: console, monitor or television, disk system and either TI-Writer, Extended BASIC or Editor/Assembler.

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(Continued from Page 37)

faster) on the Geneve, both in recalculating and data entry. Data entry seems to be nearly as fast as with a word processor such as TI-Writer. As a benchmark, with the Geneve, Multiplan recalculated a medium-size spreadsheet (consisting of 236 cells) in 23.73 seconds. The 99/4A recalculated the same spreadsheet in 2 minutes 18 seconds.

All Multiplan functions appear to operate much faster on the Geneve than on the 99/4A. The delay between entering a keystroke and having it register is virtually eliminated. Scrolling up and down the screen is faster and moving from one point on a spreadsheet to another is much faster on the Geneve. Jumping from one window to another is also very rapid.

I see I'm running out of space. Next month I hope to have the final version of the word processor, as well as XB III and M-DOS. I also hope to have some benchmarks and let you Forth programmers know how the Geneve runs with TI and Wycove Forth.

Newsbytes

Romano gains award from Front Rangers

Dr. Guy-Stefan Romano, director of the Amnion Helpline, has been awarded the eighth Outstanding Support Award by the Front Range 99er Computer Club of Colorado Springs, Colorado.

Romano operates the free helpline for owners of the TI99/4A in San Francisco, California. An article profiling him and the hotline appeared in the August 1984 MICROpendium.

Romano, who speaks 17 languages, operates the helpline at (415) 733-5581 between 9 a.m. and 4 p.m. Pacific time , or users may write him at 116 Carl St., San Francisco, CA 94117. Correspondents should enclose a stamped, self-addressed envelope.

In presenting the award, the Front Rangers noted that Romano had been their guest by phone on three occasions during their monthly meetings.

Nashville fair set for second year

The Nashville 99ers are scheduled to hold their second annual regional TI fair at the Cumberland Museum in Nashville April 25-26.

According to Bob Teague of the Nashville 99ers, the event will feature the Myarc 9640 and participation by users groups from throughout the southeastern United States.

For further information, contact Teague at (615) 889-5852.

NAMELOC provides graphics support

NAMELOC Software of Portland Oregon has released two new programs, CSGD SUPPORT and TI-ARTIST SUPPORT.

According to Paul Coleman of NAMELoc, there are a total of 108 "graphics" or small instances, 34 "pictures" or large instances and 11 fonts.

"I personally produced each of these 155 files so they have not been offered previously," Coleman says.

The files may be ordered in either CSGD or TI-Artist format for $9.95 plus $1.50 shipping and handling. The CSGD (Character Sets and Graphic Design) format is two single-sided, single-density disks, while the TI-Artist format is two "flippies." Both formats (four disks) may be purchased for $14.95 plus shipping and handling.

For further information or to order, contact NAMELOC Software, 3971 S.E. Lincoln, Portland, OR 97214.

Fairware exchange programs available

Robert Neal of the TI Users Group of Will County has begun obtaining a collection of Fairware programs which he plans to make available to all 4A users.

A listing of programs currently available through the FAIRWARE EXCHANGE may be obtained by sending $2 to defray the cost of copying and postage. The $2 may be deducted from the user's first order from the FAIRWARE EXCHANGE, according to Neal.

More than 75 selections are available, and he plans to add more "as time permits." Programs may be obtained from the FAIRWARE EXCHANGE either by paying $2.50 per selection (includes disk, mailer and postage) or users may submit programs not in the FAIRWARE EXCHANGE on a one-for-one basis.

For more information or to request a current catalog listing, write FAIRWARE EXCHANGE, c/o Robert Neal, 317 Hickory, Romeoville, IL 60441.

Tigercub releases Nuts & Bolts Disk #3

Tigercub Software has released Nuts & Bolts Disk #3, containing another 140 subprograms in MERGE format.

Contents include "19 screetn character fonts, etc.; 17 screen display routines; six screen formatting, eight plotting, six joystick and keyboard, 32 math, four time and date, 10 input and accept, nine string handling, 15 file handling and nine miscellaneous routines," according to Jim Peterson of Tigercub Software. The 11 pages of documentation contain a programming example to demonstrate the use of each routine, he says.

The three Nuts & Bolts Disks now provide a total of 348 subprograms which, according to Peterson, "even a beginning programmer can merge into his own programs and use, alsmost like having another 348 CALLs available in Extended BASIC."

The price of all three of these disks has been reduced to $15 each, postpaid, he says.

The four Tips from the Tigercub disks, and the 18 Tigercub Collection disks, have been reduced to $2 each, plus $1.50 per order for cassette or disk and postage (minimum order $10). Cassette orders will be filled only until stocks of blank cassettes have been exhausted, Peterson says. Tigercub catalogs are available for $1, deductable from first order, until stocks are exhausted.

For further information, or to order, write Tigercub Software, 156 Collingwood Ave., Columbus, OH 43213.

TI-NET BBS released as Freeware program

The TI-NET BBS, formerly marketed by Gadego Software, has been released as Freeware.

Matt Storm says hs is "tired of messing around with pirating and my expenses are greater than my income."

The BBS is described as having XModem uploads and downloads, text files, multiple message bases and 300/1200/2400 baud operation. Storm says it has "many powerful sysop functions" and is easy to modify.

The board has a "Gameroom" described as similar to the Proving Grounds BBS for the Apple Computer. The gameroom features fights betwwen users and monsters, Castle Raids, a weapon and armor store, Jousting, a five-topic voting booth and a casino that has blackjack, slots and five other games.

"The gameroom is very popular with non-TI callers who aren't calling long distance to check the downloads and leave,"

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Newsbytes

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Storm notes.

System requirements are TI Extended BASIC, 32K memory, a Hayes-compatible modem and at least 360K disk space for the gameroom. RAMdisk and hard disk are optional. A real time clock is recommended.

Storm says the only "cost" is to leave the author's name on the BBS and gameroom at logon. He says it can be tried out at (201) 972-9322. Users who enter "TI-99/4A" exactly for their computer type will get auto-access for the gameroom. Storm notes that he has been told that the BBS will work with the Geneve 9640 Basic.

The program can be obtained by sending two disks and a self-addressed stamped mailer or $5 to Storm at 6 Monroe Dr., Marlboro, NJ 07746.

Storm adds that TI-NET V.4.0, totally in assembly, is "down the road a bit."

Reduce eyestrain with text so sharp you can even read the 64 column Forth editor clearly and distinctly.

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New game slated by Asgard Software

Asgard Software has announced an agreement between the development team of Donn Granros (author of the game Old Dark Caves), Ed Johnson (a specialist in assembly language) and Asgard in the development of a sequel to the Old Dark Caves adventure game.

Titled "Legends", the program is the result of a year of development effort, according to Asgard. Mostly written in assembly, Legends is planned to be 30 times as fast as comparable games for the Commodore 64 and will occupy two SS/SD diskettes with more than 170K of program code. The manufacturer says it will "have even better graphics than 'Old Dark Caves'."

An adventure based on Dungeons & Dragons, this program will feature hundreds of creatures, dozens of spells, different characters, levels and encounters, the manufacturer says.

The manufacturer says it will "recall the puzzles found in games by Infocom, while all of it will have stunning animated graphics action!"

The final package is scheduled to include a manual between 20-30 pages long, associated reference cards and game aids, and the two-disk program.

According to Asgard, Legends will retail in "about the $30 range," and will be manufactured by Asgard Software. Granros, a graphic artist and a programmer, will work with Johnson, an assembly expert responsible for the underlying support routines for the game. The staff of Asgard will produce the manual as well as test the program and advise the programmers with its "in-house adventure aficionados."

Legends is scheduled to be available at the end of the summer of 1987. For further information write or call Asgard Software, P.O. Box 10306, Rockville, MD 20850, (301) 345-2492.

Transfer package being marketed

Diversions Inc. announces what it calls Chest-Top Publishing, a package enabling images printed by computer to be transferred onto T-shirts, jackets, banners or other cloth items.

Richard A. Milewski, president of Diversions, says that the package will work with 283 printers. He says that a graphics program that will produce lettering written in reverse is necessary for printing words by this method, however.

Compatible printers include C. Itoh, Brother, Epson, Okidata, Panasonic, Star and Gemini types. Color ribbons are available for some printers or black Underware Ribbons and Underware ColorPens with iron-on ink. The company also produces the Underware Coloring Kit, a set of fine point ColorPens and 20 sheets of Underware Transfer Paper (special formula carbon paper which prints iron-on transfers).

He says the products are unconditionally guaranteed and have been tested and proven safe on dot matrix and impact printers; they will not damage printheads or irons. Milewski says transfers made on fabrics with at least 50 percent polyester content are permanent and washable.

He says Underware Ribbons last for "20 to 100 shirts, depending on the density or complexity of the designs drawn." Ribbons are available in a variety of colors, including black, red, blue, green, yellow, brown and purple, with multi-color ribbons available for color printer. Pens are available either with ribbons are separately. Ribbons and pen sets retail for between $14.95 and $34.95.

For further information, contact Diversions Inc., 505 W. Olive Ave. #520, Sunnyvale, CA 94086 or (408) 245-7575. Toll-free order line is 800-843-9899, in California 800-445-2304.

Newsbytes is a column of general information for TI99/4A users. It includes product announcements and other items of interest. The publisher does not necessarily endorse products listed in this column. Vendors and others are encouraged to submit items for consideration.

User Notes

UG catalogs library

The MSP99 Users Group, P.O. Box 12351, St. Paul, MN 55112, has published a 24-page catalog listing the group's library of user-written and fairware software. It is available for $2.50. Also, the group is offering an 8-page manual with drawings of all the ports of the TI, pin locations and descriptions. Also included are pin definitions of the PEB bus, and more. The manual is available for $3.50 from the group.

Quick directory counts in bytes

QUICK/DIRectory by Gerard D. Graddy, of Paterson, New Jersey, is a relatively fast-running directory program that automatically catalogs DSK1. The program provides a listing of filenames and programs, with sizes in bytes rather than sectors.

After a disk is cataloged, a prompt appears. The user has five choices (which do not appear on screen). They are:

1. DIR — Loads and runs the LOAD program in the specified drive.
2. NEW — Clears the memory buffer and enters Extended BASIC command mode.
3. BYE — Returns to the title screen.
4. INVERSE — Inverts the color of the screen. However, if an assembly program is to be run, the computer must be reset either by turning the machine off or returning to the title screen.)
5. ENTER — Stops the execution of the program, though it remains in memory.

To activate these options, enter the number that corresponds to the function.

QUICK/DIRectory also freezes the QUIT key while programming. The program is set up for single-sided, single-density drives. Those with double-sided, single-density drives will need to change the number in line 14 from 92160 to 184,320. Those with double-sided, double-density drives will need to change the number based on the number of sectors, which depends on the type of disk controller. To determine the number, multiply the number of sectors by 256 (each sector contains 256 bytes) and enter that number in line 14.

```
1 !************************
2 !*   QUICK/DIRECTORY    *
3 !*                      *
4 !* BY: Gerard D. Graddy*
5 !************************
6 CALL CLEAR :: CALL PEEK(-3
1806,QT) :: IF QT<>16 THEN C
ALL INIT :: CALL LOAD(-31806
,16)
7 @$(1)="DF" :: @$(2)="DV" :
: @$(3)="IF" :: @$(4)="IV" :
: @$(5)="PGM" :: D$="1" 8 U=
0 :: OPEN #1: "DSK"&D$&".",
INPUT ,RELATIVE ,INTERNAL
9 INPUT #1: A$,J,S,A :: PRIN
T "} ";A$
10 FOR L=1 TO 127 :: INPUT #
1: A$,T,N,B
11 IF A$="" THEN 13 ELSE PRI
NT A$;TAB (12);@$(ABS(T));"/
";STR$(B);TAB (20);N*256; ::
 IF T<0 THEN PRINT TAB (27);
"*" ELSE PRINT
12 U=U+(N*256) :: NEXT L
13 CLOSE #1 :: U=U+512
14 PRINT "USED:";U;TAB (18);
"FREE:";92160-U
15 PRINT :: INPUT "}": C$
16 IF SEG$(C$,1,3)="DIR" THE
N D$=SEG$(C$,4,1) :: CALL CL
EAR :: GOTO 8
17 IF C$="NEW" THEN CALL CLE
AR :: CALL LOAD(-31952,255,2
31,255,231)
18 IF C$="BYE" THEN CALL LOA
D(-32730,32)
19 IF C$="INVERSE" THEN 20 E
LSE PRINT "TI EXTENDED BASIC
" :: END
20 FOR I=1 TO 50 :: READ X :
: CALL LOAD(9459+I,X) :: NEX
T I
21 CALL LOAD(8194,37,38,"",-
31804,36,246) :: CALL LOAD(9
459,240) :: GOTO 15
22 DATA 244,0,2,1,0,135,208,
96,36,244,216,1,140,2,6,193,
216,1,140,2,2,1,0,72
23 DATA 216,1,140,2,6,193,21
6,1,140,2,2,0,0,32,216,32,36
,244,140,0,6,0,22,251,4,91
```

Word-Count getting better

Jiri Svoboda, of Toronto, Ontario, offers another revision of the Extended BASIC Wordcount program that first appeared in the April 1986 MICROpendium. (A revision was included in the October edition and Svoboda's revision marks Rev. 3 for the program.) He writes:

After seeing the "Wordcount Revised" in your October issue, I began to work on my own version. Its listing for Extended BASIC friends is attached. As far as the speed of this version is concerned, it is about four times as quick as the "revised" version and its results (do not include) Text Formatter commands.

The execution speed of the program is still much slower than the assembly version of the program by Jim Jagielski published in the November issue...but its results are equally consistent and there is almost zero pre-scan time. The following features were added:

- pressing of any key causes stepping through the text lines with a count per line verification;
- single standing control characters — not only CR of FF — and the ESC character followed by one other character are not added into the final count.

The program requires Extended BASIC, expansion memory and a disk system.

```
100 REM WORDCOUNT
110 REM BY JIRI SVOBODA
120 REM TORONTO, ONTARIO
130 CALL CLEAR :: CALL SCREE
N(4) :: CALL HCHAR(2,1,42,16
0) :: DISPLAY AT(3,1) : "
 W O R D - C O U N T"
140 DISPLAY AT(8,9) : "The p
rogram counts a": "total num
ber of words in the": "selec
ted text file (D/V 80)."
150 L,W=0 :: DISPLAY AT(12,1
) : "Text File: DSK" :: ACCE
PT AT(12,15)BEEP SIZE(-12) :
 FN$ :: CALL BL(24,1) :: IF
FN$="" THEN 280
160 FN$="DSK"&FN$ :: ON ERRO
R 290 :: OPEN #1: FN$, INPUT
 :: ON ERROR STOP
170 DISPLAY AT(24,1) : "File
 input in progress..." :: DI
```

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User Notes

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```
SPLAY AT(15,1) : "Line numbe
r:"
180 IF EOF(1) THEN 260 :: LI
NPUT #1: X$ :: L=L+1 :: DISP
LAY AT(15,13) : L :: LX=LEN(
X$) :: K,WL=0
190 K1=K+1 :: IF K1>LX THEN
230 :: K=POS(X$," ",K1) :: I
F K=K1 THEN 190
200 K2=ASC(SEG$(X$,K1,1)) ::
 IF (K2=13)+(K2=46) THEN 230
 :: IF K>0 THEN WL=WL+1 :: G
OTO 190
210 IF POS(X$,CHR$(13),K1)>0
 THEN LX=LX-1
220 IF (K2>32)*(K2<127) OR (
K2=27)*(K1+1<LX) THEN WL=WL+
1
230 W=W+WL :: CALL KEY(0,K,S
) :: IF S=0 THEN 180
240 DISPLAY AT(17,1) : X$ ::
 DISPLAY AT(21,1)BEEP : "Lin
e Count:";WL : : : "(Press a
ny key to continue!)"
250 CALL KEY(0,K,S) :: IF S<
1 THEN 250 :: CALL BL(15,7)
:: GOTO 170
260 CLOSE #1 :: CALL BL(15,9
) :: DISPLAY AT(17,1) : "Tot
al Count:";W;"words"
270 DISPLAY AT(24,1)BEEP : "
Another Text File? (Y/N)" ::
 GOSUB 310 :: CALL BL(12,6)
:: IF K=89 THEN 150
280 CALL CLEAR :: STOP
290 CALL SCREEN(9) :: CALL S
OUND(500,175,2) :: DISPLAY A
T(24,5) : "TEXT FILE NOT FOU
ND!"
300 FOR I=1 TO 250 :: NEXT I
 :: CALL SCREEN(4) :: RETURN
 150
310 CALL KEY(0,K,S) :: IF S<
1 THEN 310 :: IF K>96 THEN K
=K-32
320 IF (K<>78)*(K<>89) THEN
CALL SOUND(100,175,2) :: GOT
O 310 ELSE CALL BL(24,1) ::
RETURN
330 SUB BL(X,Y) :: CALL HCHA
R(X,1,32,Y*32) :: SUBEND
340 END
```

Amortize program adds clock function

Herald H. Hughes Jr., of Livonia, Michigan, has revised Tom Bergeron's amortization program published in the October 1985 MICROpendium. Hughes writes:

My version does several things that the original does not. It will calculate the number of months when the payment is known or, as does the original, the payments when the number of months is given. In addition, my version has provision for several input items, an "as of" date or, alternatively, the date from your CorComp (Triple Tech) clock card. The printout numbers the pages, puts up to 48 lines of data per page spaced every 12 lines and an identifying header on each page. I also used the "PIO.LF" statement (line 610) for all printer commands. This avoids the annoyance of extra lines in the line count due to carriage returns the TI sends to Star printers.

Readers without a clock card will need to REM-out lines 640 and 1320 and delete reference to file 25 in line 1350.

The program requires a printer and Extended BASIC.

```
ABC BANK                    AS OF 10/12/86      PAGE  1
THE ORIGINAL LOAN IS            $   500.00
THE PAYMENT IS                    $ 128.14
THE INTEREST RATE IS                12.00
THE NUMBER OF PAYMENTS IS            4.

PYMT. NO.      INTEREST      PRINCIPAL      LOAN BALANCE

     1         $  5.00       $ 123.14       $   376.86
     2            3.77         124.37           252.49
     3            2.52         125.62           126.87
     4            1.27         126.87              .00

10/12/86
```

```
100 REM ********************
***
110 REM *
  *
120 REM *      AMORTIZE
  *
130 REM *
  *
140 REM *    BY TOM BERGERON
  *
150 REM *     MICROPENDIUM
  *
160 REM * OCT. 1985 (PG. 53)
  *
170 REM *
  *
180 REM *     MODIFIED BY
  *
190 REM *  H.H. HUGHES, JR.
  *
200 REM *   REV. 10/25/86
  *
210 REM *
  *
220 REM ********************
***
330 CALL CLEAR
340 DEF FMT=INT(NU*10^ PL+.5
)/10^ PL
350 INPUT "NAME: ": N$
360 PRINT
370 PRINT "LEAVE BLANK IF TO
DAY'S DATE."
380 PRINT
390 INPUT "AS OF ": DATE$
400 PRINT
410 INPUT "AMOUNT= ": A
420 PRINT
430 PRINT "ENTER % AS .XXXX"

440 PRINT
450 INPUT "INTEREST RATE= ":
 I
460 PRINT
470 PRINT "ENTER '0' TO CALC
ULATE      NUMER OF PAYMENTS
"
480 PRINT
490 INPUT "TOT NUM OF PAYMEN
TS= ": J
500 IF J=0 THEN GOTO 510 ELS
E 550
510 INPUT "PAYMENT= ": D
520 K=INT(LOG(D/(D-A*I/12))/
LOG(1+I/12))
530 J=K
540 GOTO 560
550 D=A*((I/12)/(1-(1/((1+(I
/12))^ J))))
560 H=INT(0)
570 HH=0
580 HF=0
590 PG=1
600 C=0
610 OPEN #1: "PIO.LF"
620 OPEN #2: "PIO"
630 PRINT #1: CHR$(27);CHR$(
77);CHR$(15);CHR$(27);"R";CH
R$(3);CHR$(27);"E"
640 OPEN #25: "CLOCK"
650 IF DATE$="" THEN 660 ELS
```

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User Notes

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```
E 670
660 INPUT #25: DAY$,DATE$,TI
ME$
670 PL=2
680 NU=D
690 D=FMT
700 PRINT #2: N$;TAB (27);"A
S OF ";DATE$;TAB (47);
710 PRINT #2,USING "PAGE ##"
: PG
720 PRINT #2,USING "THE ORIG
INAL LOAN IS          $$******
.##": A
730 PRINT #2,USING "THE PAYM
ENT IS                  $$****
.##": D
740 PRINT #2,USING "THE INTE
REST RATE IS              ##
.##": I*100
750 PRINT #2,USING "THE NUMB
ER OF PAYMENTS IS         ###
": J
760 PRINT #2
770 PRINT #2: "PYMT. NO.
  INTEREST       PRINCIPAL
  LOAN BALANCE" :: PRINT #2
::
780 CALL CLEAR
790 CALL SCREEN(6)
800 PRINT "THE PAYMENT IS",D
 ::
810 PRINT "PRESS THE 'S' KEY
 TO STOP"
820 H=H+1
830 E=A*I/12
840 F=D-E
850 A=A-F
860 NU=E
870 E=FMT
880 NU=F
890 F=FMT
900 NU=A
910 A=FMT
920 IMAGE "   ###          $$
##.##       $$****.##       $$
*****.##"
930 IMAGE "   ###           #
##.##        ####.##        #
*****.##"
940 IF HF=0 THEN 950 ELSE 96
0
950 PRINT #2,USING 920 : H,E
,F,A :: GOTO 970
960 PRINT #2,USING 930 : H,E
,F,A
970 HH=HH+1
980 IF HH=12 THEN 990 ELSE 1
000
990 PRINT #2: :: HH=0
1000 HF=HF+1
1010 IF H=J THEN 1150
1020 IF HF=48 THEN 1030 ELSE
 1070
1030 PRINT #1: CHR$(12) :: H
F=0 :: PG=PG+1
1040 PRINT #2: N$;TAB (47) :

1050 PRINT #2,USING "PAGE ##
": PG :: PRINT #2
1060 PRINT #2,USING "PYMT. N
O.      INTEREST      PRINCIPA
L      LOAN BALANCE" :: PRINT
 #2 ::
1070 CALL KEY(0,KY,STT)
1080 IF STT=0 THEN 820
1090 IF KY=83 THEN 1100
1100 INPUT "ENTER 'Q' TO QUI
T ===>": Q$
1110 IF Q$="Q" THEN 1170
1120 CLR=INT(14*RND)+2
1130 CALL SCREEN(CLR)
1140 GOTO 820
1150 NU=A :: A=FMT
1160 IF A=0 THEN GOTO 1320 E
LSE 1170
1170 E=A*I/12
1180 D=A+E
1190 F=D-E
1200 A=A-F
1210 NU=E
1220 E=FMT
1230 NU=F
1240 F=FMT
1250 NU=A
1260 A=FMT
1270 IMAGE "FINAL PYMT.
$***.##         $*****.##
     -0- "
1280 IMAGE "FINAL PYMT.
 ***.##          ****.##
     -0- "
1290 IF HF=0 THEN 1300 ELSE
1310
1300 PRINT #2,USING 1270 : E
,F :: GOTO 1340
1310 PRINT #2,USING 1280 : E
,F
1320 INPUT #25: DAY$,DATE$,T
IME$
1330 PRINT #2 :: PRINT #2: D
ATE$
1340 PRINT #1: CHR$(12);CHR$
(27) : "@"
1350 CLOSE #1 :: CLOSE #2 ::
 CLOSE #25
1360 STOP
1370 END
```

More on disk catalogs

Tom Renfroe, of Pensacola, Florida, has gone a step further with a program used to catalog disks for reading by TI-Writer. He writes:

In your October 1986 edition, you had a BASIC program in User Notes on cataloging a disk to disk and then possibly using a sorter program when several disks are filed together. I added a couple of lines for filing the disk name alongside each file name. Also, I took out the text for printing the column headings as I am using an (assembly language) sort program which does not require them.

I had no sort program for a D/F 80 file on disk, so I entered one (using) E/A from a book by Ralph Molesworth called *Introduction to Assembly Language for the TI Home Computer*. This program will handle 276 D/F 80 file names at one time. That is the purpose of the first tab in line 290 at 16.

```
90 REM PARTS FROM PAGE 41 OF
 DISK MEMORY MANUAL
100 CALL CLEAR
110 DIM TYPE$(5)
120 TYPE$(1)="Dis/Fix"
130 TYPE$(2)="Dis/Var"
140 TYPE$(3)="Int/Fix"
150 TYPE$(4)="Int/Var"
160 TYPE$(5)="Program"
170 INPUT "Master Disk(1-5)
": A
180 A=INT(A)
190 IF A<1 THEN 170
200 IF A>5 THEN 170
210 OPEN #1: "DSK"&STR$(A)&"
.", INPUT ,RELATIVE ,INTERNA
L
220 INPUT "Enter Drive No. a
nd Filenamefor catalog: ": D
```

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User Notes

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```
N$
230 OPEN #2: DN$,OUTPUT ,REL
ATIVE
240 INPUT #1: A$,J,J,K
250 VOL$=A$
260 FOR LOOP=1 TO 127
270 INPUT #1: B$,A,J,K
280 IF LEN(B$)=0 THEN 370
290 PRINT #2: VOL$;TAB (16);
B$;TAB (27);J;TAB (32);TYPE$
(ABS(A));
300 IF ABS(A)=5 THEN 340
310 DIVF$=" "&STR$(K)
320 PRINT #2: SEG$(DIVF$,LEN
(DIVF$)-2,3)
330 GOTO 350
340 PRINT #2: :
350 NEXT LOOP
360 CLOSE #2
370 CLOSE #1
380 END
```

Search program locates variables

Chuck Reinhart has a program that could benefit many Extended BASIC programmers who want to locate specific variables, data statements, line numbers or statements without having to list an entire program.

According to the author, the program will search programs and lines of any size. The program requires Extended BASIC, a memory expansion, disk system and a printer.

To use the program, save the program to be searched with the LIST command using the word LIST as the filename (LIST DSKx.LIST). You will be prompted for the item you want to search for, then the program will ask if the item is a numeric variable. Each program line containing the item will be output to a printer, with the item itself being printed in boldface.

```
1 REM SEARCH-32K
100 DIM F$(130) :: H=0 :: GO
TO 180
105 LINPUT #12: A$ :: IF A$=
"" THEN 105 :: D$(1)=A$ :: S
=POS(A$," ",1) :: C$=SEG$(A$
,1,S-1) :: Z=1
110 P=POS(A$,CHR$(34),Z) ::
IF P=0 THEN Z=1 :: GOTO 115
ELSE Z=P+1 :: IF E=0 THEN E=
1 :: GOTO 110 ELSE E=0 :: GO
TO 110
115 FOR I=1 TO 65 :: IF H=9
THEN 149 :: IF EOF(12) THEN
H=9 :: GOTO 145
120 FOR X=2 TO 5 :: LINPUT #
12: A$ :: E=C
125 P=POS(A$,CHR$(34),Z) ::
IF P=0 THEN 128 :: Z=P+1 ::
IF C=0 THEN C=1 :: GOTO 125
ELSE C=0 :: GOTO 125
128 S=POS(A$," ",1) :: IF S<
2 THEN 135 :: E$=SEG$(A$,1,S
-1) :: IF E$<"1" OR E$>"9999
9" THEN 135
130 Z=1 :: E$=SEG$(A$,S+1,2)
 :: IF E$=":" OR E$="TH" OR
 E$="TO" OR E=2 OR E$="OR" O
R E$="AN" OR E$="EL" OR LEN(
E$)>5 THEN 135 ELSE D$(7)=A$
 :: C$=SEG$(A$,1,S-1) :: GOT
O 145
135 Z=1 :: D$(X)=A$ :: IF EO
F(12) THEN H=9 :: GOTO 145
140 NEXT X
145 F$(I)=D$(1)&D$(2) :: F$(
I+65)=D$(3)&D$(4) :: D$(1)=D
$(7) :: D$(2),D$(3),D$(4),D$
(5)="" :: Z=1 :: NEXT I
149 FOR J=1 TO I-1 :: L=0 ::
 IF LEN(F$(J+65))>94 THEN L=
5 :: F$(0)=F$(J)&SEG$(F$(J+6
5),1,94) ELSE F$(0)=F$(J)&F$
(J+65)
150 X=POS(F$(0)," ",1)-1 ::
C,Z=1
151 P=POS(F$,0),B$,Z+X) :: I
F P=0 THEN 163 ELSE IF K<>49
 THEN 155 ELSE S=ASC(SEG$(F$
(0),P-1,1)) :: IF S-32 OR S>
37 AND S<48 OR S>57 AND S<63
 THEN 153 ELSE X=P :: GOTO 1
51
153 IF LEN(F$(0))-LEN(B$)=P-
1 THEN 155 :: S=ASC(SEG$(F$(
0),P+LEN(B$),1)) :: IF S=32
OR S>37 AND S<48 OR S>57 AND
 S<63 THEN 155 ELSE X=P :: G
OTO 151
155 IF L=6 AND E<161 THEN L=
0 :: PRINT #1: SEG$(F$(J),E,
160);
156 PRINT #1: SEG$(F$(0),Z,P
-Z);CHR$(27)&CHR$(69)&B$&CHR
$(27)&CHR$(70);
160 C=0 :: Z=LEN(B$)+P :: GO
TO 151
163 E=Z :: IF L=5 AND Z>160
THEN Z=Z-160 :: L=6 :: F$(0)
=SEG$(F$(J+65),Z+1,120) :: G
OTO 150 ELSE IF L=5 AND Z<16
1 THEN Z=1 :: L=6 :: F$(0)=F
$(J+65) :: GOTO 151 ELSE IF
C=0 THEN PRINT #1: : :
164 NEXT J :: IF H=9 THEN 16
5 ELSE 115
165 CLOSE #12 :: PRINT #1: :
 : : ,"** COMPLETE **" :: CL
OSE #1 :: PRINT "   ** COMPL
ETE **": : : "SEARCH AGAIN (
Y OR N) ?" :: GOSUB 175
170 GOSUB 176 :: IF K=89 THE
N 100 ELSE END
175 CALL SOUND(300,1000,2) :
: CALL SOUND(1000,111,30) ::
 RETURN
176 CALL KEY(0,K,S) :: IF S=
0 OR (K=78)+(K=89)<>-1 THEN
176 :: RETURN
180 CALL CLEAR :: DISPLAY AT
(2,9) : "SEARCH-32": TAB (9)
;RPT$("-",9) : : TAB (11);"b
y chuck reinhart": : : "FIRS
T WRITE YOUR PROGRAM TO": :
"DISK USING:": : : "    LIST
 "DSK1.LIST""
185 DISPLAY AT(18,4) : "***
SET UP PRINTER **": : : "
 ENTER SEARCH DATA": : :: LI
NPUT B$ :: CALL CLEAR :: DIS
PLAY AT(16,1) : "IS THE DATA
 A": : "NUMERIC VARIABLE?":
: : : ,"(Y OR N)": : : :: GO
SUB 175
190 GOSUB 176 :: CALL CLEAR
:: PRINT B$ : : :: IF K=78 T
HEN K=50 ELSE K=49
195 OPEN #12: "DSK1.LIST", I
NPUT :: OPEN #1: "PIO" :: PR
INT #1: CHR$(14);B$;CHR$(20)
 :: GOTO 105
```

Routine pinpoints screen locations

Glen Pedersen, of Fargo, North Dakota, provided a routine to help programmers with screen locations. It prints a "map"

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User Notes

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consisting of numbers corresponding to each of the 767 column/row positions on the screen.

"Written as an aid for assembly programmers," he writes, "it prints the relative locations of the screen graphics positions." Users may wish to add a border around the printout as well as centering marks, he suggests. The routine is designed for use with a Gemini-10X printer but may be adapted for other printers by modifying the printer commands in line 110.

```
100 OPEN #1: "PIO",VARIABLE
128
110 PRINT #1: CHR$(15);CHR$(
27);"A";CHR$(16);CHR$(27);"M
";CHR$(4)
120 FOR I=0 TO 767 :: IF I/3
2=INT(I/32) AND I>0 THEN PRI
NT #1
130 PRINT #1,USING "### ": I
; :: NEXT I
```

Key-Codes helps identify that 'K'

Ray Kazmer, of Sylmar, California, former president of KAZCO International which used to provide support for TI users, provided a short program designed to help those who need an easy way to identify key codes. He writes:

How many times have you wanted to use a special CALL KEY in one of your programs — such as CTRL X or CTRL 1, or even FCTN (QUIT) — to do some special job? Perhaps you wanted to change screen colors, or "page" from one screen to another, but when it got right down to the time enter the "IF K " you were stuck, because you didn't know what the **!! "K" was supposed to equal. Well, then, Key-Codes is for you.

This tiny program will show you what the "K" in any of your TI's six different types of CALL KEYs, instantly! To use Key- Codes, all you have to do is load it in Extended BASIC. At the screen prompts, select the type of CALL KEY (0-5) you want to use, then press the key or combination of keys (CTRL 1, CTRL J, FCTN , or whatever) and read what "K" equals on your screen. It's that simple. If you press a key or a combination that your TI does not recognize, Key-Codes will just ignore it and wait for you to press something legitimate. Best of all, it should take you only a few minutes to key it in.

```
100 CALL CLEAR :: CALL SCREE
N(13):: CALL INIT :: CALL LO
AD(-31806,16):: ON BREAK NEX
T :: FOR D=0 TO 12 :: CALL C
OLOR(D,16,13):: NEXT D
110 CALL HCHAR(24,1,126,64):
: DISPLAY AT(3,2):"""KEY-COD
ES"" BY RAY KAZMER":;:" SAN
 FERNANDO VALLEY 99'ERS" ::
T$="?" :: GOTO 170
120 ACCEPT AT(11,16)SIZE(-1)
VALIDATE("012345"):T$ :: IF
T$="?" THEN CALL SOUND(175,2
20,0):: GOTO 120 ELSE L=VAL(
T$)
130 DISPLAY AT(9,1):"" :: DI
SPLAY AT(13,1)BEEP:"PRESS AN
Y KEY OR COMBINATION" :: FOR
 D=1 TO 100 :: NEXT D
140 CALL KEY(L,K,S):: IF S=0
 THEN 140 ELSE DISPLAY AT(13
,1)BEEP:"":;:;:TAB(12);"K =
"&STR$(K)
150 FOR D=1 TO 400 :: NEXT D
 :: DISPLAY AT(22,1)BEEP:"PR
ESS ANY KEY TO REPEAT TEST"
160 CALL KEY(0,K,S):: IF S=0
 THEN 160 ELSE DISPLAY AT(16
,1):"" :: DISPLAY AT(22,1):"
"

170 DISPLAY AT(9,1)BEEP:"SEL
ECT CALL KEY TYPE # (0-5)":;
:"       CALL KEY("&T$&",K,S)
":;:"       AND PRESS ENTER"
:: GOTO 120
```

At the tone leave a message

Arthur Hazboun, of Harbor City, California, writes:

In response to Francis X. Gaston's letter in the February 1987 MICROpendium, please see the program below which I call "PHONEANS." The program needs the TEII cartridge (initially when you type in the program); and then the user may change the wording to whatever one desires. Note that the Speech Synthesizer must be attached and then the user may record the results to any outgoing cassette tape of any phone answering machine. The advantage and beauty of this program is that you can change line 15 (slope/pitch) and get amazing and hilarious voices which will really confuse the caller. Also, note that in this program you are not limited to the Speech Synthesizer resident vocabulary because of the exponentiation and greater than symbols in lines 20 and 30. I hope this helps the reader and any other phone answering machine users.

```
1 PRINT "*******************
*********"
2 PRINT "* WRITTEN BY<<ARTHU
R HAZBOUN>>@1985-REV.1987*"
3 PRINT "*******************
*********"
4 PRINT "": :
5 REM -USE TEII MODULE-#PHM
3035 FOR PROGRAM
10 OPEN #1:"SPEECH",OUTPUT
11 PRINT "hello...please lea
ve a brief message after you
 hear the beep"
15 PRINT #1:"//20 25"
20 PRINT #1:"^>HELLO ":" ^>P
LEASE LEAVE A BRIEF""^>MESSA
GE AFTER YOU HEAR THE BEEP^"
21 PRINT "along with your na
me number and the time you c
alled"
30 PRINT #1:"^>ALONG WITH YO
UR NAME NUMBER AND THE TIME
YOU CALLED^"
31 PRINT "thank you"
32 PRINT "~~~~~~~~~~~~~~~~~~
~~~~~~~~~~~~"
50 PRINT #1:"^THANK YOU"
51 PRINT "Hi, Make the chang
es you    would like, and th
en record it onto your"
52 PRINT "outgoing message c
assette of your answer machi
ne and let the  computer ans
wer your phone. ENJOY!!!"
```

User Notes is a column of tips and ideas designed to help readers put their home computers to better use. The information provided here comes from many sources, including TI home computer user group newsletters. MICROpendium will pay $10 for any item sent in by readers that appears in this column. Mail tips to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

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