

---

Covering the TI99/4A and the Myarc 9640

---

# MICROpendium

---

Volume 9 Number 6

July 1992

\$2.50

---

**Regena  
on  
BASIC**

**Barry Traver**  
Cottaging, archiving  
and networking

**Bruce Harrison**  
Crossing the bridge  
to Option 5

**Things to come**  
SCSI, Midi-Master V3

**MICRO-Reviews**  
Bluffoon, Page Pro  
Border Fonts, TI  
Casino Supplement,  
Household Budget

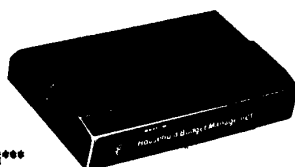
**Review**  
ImageWise Plus V3

**Adventure in  
Programming**  
Having a lotto fun  
with the TI

**User Notes**  
A shorter catalog  
program, Fibonacci  
Numbers, full-screen  
program editing

**Redesigned**  
Asgard changes its  
mouse

# TEX+COMP™ SOFTWARE SUPER SALE!



- |                                    |   |
|------------------------------------|---|
| PHM 3027 ADDITION & SUBTRACTION I  | PHM 3016 TAX INVESTMENT RECORD KEEPING*** |
| PHM 3028 ADDITION & SUBTRACTION II | PHM 3022 PERSONAL REAL ESTATE             |
| PHM 3093 MILLIKEN DIVISION         | PHM 3023 HUNT THE WUMPUS                  |
| PHM 3091 MILLIKEN SUBTRACTION      | PHM 3031 THE ATTACK                       |
| PHM 3051 NUMERATION II             | PHM 3220 MICROSURGEON                     |
| PHM 3094 MILLIKEN INTEGERS         | PHM 3057 MUNCHMAN                         |
| PHM 3118 MINUS MISSION             | PHM 3110 CHISHOLM TRAIL                   |
| PHM 3029 MULTIPLICATION I          | PHM 3219 SUPER DEMON ATTACK               |
| PHM 3002 EARLY LEARNING FUN        | PHM 3034 HUSTLE                           |
| PHM 3003 BEGINNING GRAMMAR         | PHM 3035 TERMINAL EMULATOR II             |
| PHM 3082 READING FLIGHT            | PHM 3052 TOMBSTONE CITY                   |
| PHM 3056 ALPINER                   | PHM 3109 LOGO II* → → →                   |
| PHM 3044 PERS. REPORT GENERATOR**  | PHM 3055 EDITOR ASSEMBLER → → →           |
| PHM 3053 TI INVADERS               | PHM 3010 PHYSICAL FITNESS                 |
| PHM 3194 JAWBREAKERS II            | PHM 3146 MUNCHMOBILE                      |
| PHM 3043 READING FUN               | PHM 3048 READING RALLY                    |

AS LOW AS **\$1.95**  
EACH!!  
WHEN BUYING TEN OR MORE  
OR BUY ANY AMOUNT AT ONLY \$2.95 EACH.

## 99¢ BOOK BLOWOUT!!!

PUBLISHER'S CLEARANCE ON BOOKS FOR THE 99/4A  
BUY FIVE OR MORE BOOKS FOR ONLY 99 CENTS EACH + s&h.  
BUY ANY AMOUNT LESS THAN 5 FOR ONLY \$1.49 EACH + s&h.

GAMES TIs PLAY  
THE ELEMENTARY TI  
COMPUTER PLAYGROUND (TI)  
INTRO TO ASSEMBLY LANGUAGE  
PROGRAMS FOR THE TI COMPUTER  
USING & PROGRAMMING THE 99/4A  
STARTER PACK I  
STARTER PACK II  
GAME WRITERS PACK I  
GAME WRITERS PACK II  
\*\*\*\*\*  
CASSETTE OR DISK WITH ALL  
PROGRAMS IN GAMES TIs PLAY  
CASSETTE OR DISK WITH ALL  
STARTER AND GAMES WRITERS  
PACK PROGRAMS  
\$3.00 EACH +s&h

ALSO INCLUDED ARE THE FOLLOWING ARARISOFT MODULES:

DEFENDER, PROTECTOR II, PICNIC PARANOIA

\*ADD AN ADDITIONAL \$4.00 EACH ON THESE THREE TITLES DUE TO WEIGHT  
\*\* FOR USE WITH PERSONAL RECORD KEEPING, \*\*\* DISK DRIVE REQUIRED  
PERSONAL RECORD KEEPING AVAILABLE AT \$14.00

### SPECIAL PACKAGE AND PRICING ON THE ADVENTURE SERIES... ON DISK OR CASSETTE (specify)

THE COMPLETE SCOTT ADAMS SERIES I (ADVENTURELAND, PIRATE ISLAND, THE COUNT MISSION IMPOSSIBLE, VODOO CASTLE, STRANGE ODYSSEY, MYSTERY FUN HOUSE, PYRAMID OF DOOM, GHOST TOWN, SAVAGE ISLAND I, SAVAGE ISLAND II, AND GOLDEN VOYAGE PLUS KNIGHT IRONHEART BONUS ADVENTURE

ONLY **\$12.95** FOR ALL 13.

THE SCOTT ADAMS ADVENTURE SERIES II (THE HULK, SPIDERMAN, BUCKAROO BANZAI, AND THE SORCERER OF CLAYMORGUE CASTLE PLUS 2 BONUS ADVENTURES

ONLY **\$9.95** FOR ALL 6

ADVENTURE MODULE REQUIRED FOR ABOVE ADVENTURES (reg \$6.95) **ONLY 95 CENTS**  
WITH EITHER OF THE ABOVE SERIES.

ADVENTURE HINT BOOK FOR ALL OF THE ABOVE SCOTT ADAMS ADVENTURES (reg \$7.95) **ONLY 95 CENTS**  
WITH EITHER OF THE ABOVE SERIES.

*Special purchase*

**DONKEY KONG**  
featuring Mario  
**\$4.95** (regular \$9.95)



SEND ORDER AND MAKE CHECKS PAYABLE TO  
**TEX+COMP**  
Serving the TI-99/4A user since 1980

P O BOX 33064 — GRANADA HILLS CA 91344  
TERMS: All prices F.O.B. Los Angeles. For fastest service use  
cashiers check or money order. Add 3% shipping and handling  
(\$3.00 minimum East of Mississippi) 4% (Free shipping on all  
software orders over \$100.00). Prices and availability subject to  
change without notice. We reserve the right to limit quantities.  
When in the Los Angeles area visit our modern warehouse outlet store  
where you can purchase all TI items at our regular discount prices. Call  
for location & hours!



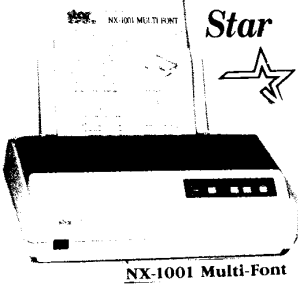
VISA and MASTERCARD  
HOLDERS CALL DIRECT  
**(818) 366-6631**  
24 Hour Order Line

3% for credit card orders

# Super Savings

# TEX+COMP FOR TEXAS INSTRUMENTS

## There may never be a better time than now to buy



NX-1001 Multi-Font

Star



THE NX-1001 MULTI-FONT OFFERS 5 RESIDENT FONTS WITH SPEEDS UP TO 180 CPS. FULLY TI (AND IBM) COMPATIBLE WITH ALL OF TI GRAPHICS PROGRAMS. SWITCH FROM TRACTOR TO SHEET WITHOUT REMOVING THE TRACTOR PAPER. ALL THIS PLUS GREAT LETTER QUALITY AND A FREE TEX-COMP BONUS OF 99 WRITER II WORD PROCESSOR, BETTER BANNERS WITH GRAPHICS, PRINTER CARE DISK, STAR DEMO DISK, A COPY HOLDER AND A FREE SPARE RIBBON. A \$100+ BONUS VALUE.....ONLY \$189.95 +s&h

TI PRINTER CABLE..\$24.95 +s&h, RS232 CARD...79.95 +s&h

\*\*\*\*\*  
THE NEW MAGNAVOX 14" COMPOSITE/RGB/ANALOG COLOR MONITOR IS THE ONLY MONITOR THAT WORKS WITH EVERY TI SYSTEM INCLUDING THE GENEVE. FEATURES INCLUDE DUAL SPEAKERS AND STEREO AMP SO YOU CAN EVEN HOOK IT UP TO A STEREO VCR OR A LASER DISK PLAYER FOR FANTASTIC PICTURE & SOUND. WE INCLUDE A TI AND A IBM CABLE. WITH A TUNER OR VCR YOU ALSO HAVE A SECOND TV. COMES WITH A 2 YEAR WARRANTY FROM PHILIPS.

..... ONLY \$279.95 +\$10s&h

\*\*\*\*\*  
THE ORIGINAL TI EXTENDED BASIC IS AN ABSOLUTE MUST FOR ANY 99\4A SYSTEM. COMPLETE WITH THE ORIGINAL MANUAL. WE WERE ONLY ABLE TO GET A LIMITED QUANTITY OF THESE NEWLY PRODUCED MODULES. WITH EACH MODULE WE INCLUDE YOUR CHOICE OF 5 FREE DISKS FROM OUR FREWARE COLLECTION, A \$25 VALUE.

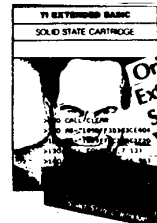
..... ONLY \$64.95 +s&h

\*\*\*\*\*  
THE SPEECH SYNTHESIZER IS BY FAR, THE TI ACCESSORY THAT IS THE MOST DIFFICULT TO LOCATE. WE WERE ABLE TO GET HOLD OF A A VERY LIMITED QUANTITY. WITH EACH SYNTHESIZER WE INCLUDE 5 FREE DISK FROM OUR FREWARE COLLECTION. CHOOSE FROM ONE OF THE MANY DISKS WITH SPEECH CAPABILITY.

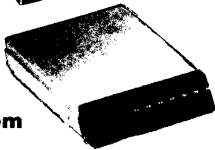
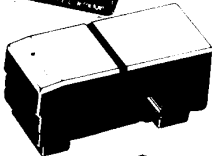
..... ONLY \$59.95 +s&h

\*\*\*\*\*  
OUR NEW 300/1200/2400 MODEM IS THE ONLY MODEM YOU WILL EVER NEED. WORKS WITH ANY COMPUTER..TI,MAC,IBM ETC. WE INCLUDE THE TI CABLE AND A COLLECTION OF THE BEST TI COMMUNICATIONS SOFTWARE TE-II, FAST TERM & TELCO. .... ONLY 99.95 +s&h

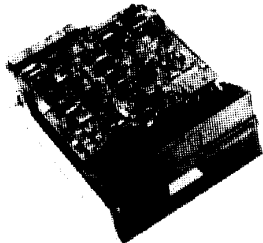
\*\*\*\*\*  
WE WERE ABLE TO GET A SPECIAL BUY ON A FULL SIZE DS/DD DISK DRIVE BY SHUGART WHO MADE THE ORIGINAL SS/SD DRIVE FOR TI. THIS DRIVE IS FACTORY NEW AND IS COMPLETELY INTERCHANGEABLE WITH THE P-BOX DRIVE IN ONLY 5 MINUTES. THIS DRIVE WORKS WITH ALL FORMAT DISKS, SS/SD, SD/DD, DS/SD AND DS/DD. WITH THE ORIGINAL TI DISK CONTROLLER YOU CAN FORMAT AND RUN BOTH SINGLE AND DOUBLE SIDED DISKS. THIS DRIVE WILL GIVE YOU TWICE THE DISK STORAGE CAPACITY WHEN USED WITH THE ORIGINAL CONTROLLER AND 4 TIMES WITH A CORCOMP OR MYARC CONTROLLER. DON'T WAIT UNTIL YOUR ORIGINAL DRIVE GOES OUT. REPLACE IT NOW AT A PRICE LOWER THAN THE COST TO REPAIR OR REBUILD THE ORIGINAL SINGLE SIDED DRIVE.....SPECIAL PRICE \$39.95 +s&h



Original TI  
Extended Basic  
Still the BEST  
WITH FREE  
Bonus



Modem



DISK DRIVE  
Fully TI Compatible!



# TEX+COMP™

P.O. BOX 33084 — GRANADA HILLS, CA 91344



VISA and MASTERCARD  
HOLDERS CALL DIRECT:  
(818) 366-6631



TERMS: All prices F.O.B. Los Angeles. For fastest service use cashiers check or money order. Personal checks take at least ten days to clear. Add 3% shipping and handling (\$1.00 minimum). East of Mississippi 4.5% (Free shipping on all software orders over \$100.00). We will ship UPS C.O.D. with 25% deposit. C.O.D. to be paid by cash or certified check. All products are sold with the original manufacturer's guarantee (sent on request). Prices and availability subject to change without notice. We reserve the right to limit quantities.

ALL PRICES REFLECT A 3% DISCOUNT FOR CASH  
ADD 3% IF PAYING BY CREDIT CARD

# Contents

## MICROpendium

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

No information published in the pages of MICROpendium may be used without permission of the publisher, Burns-Koloen Communications Inc. Only computer user groups that have exchange agreements with MICROpendium may excerpt articles appearing in MICROpendium without prior approval.

While all efforts are directed at providing factual and true information in published articles, the publisher cannot accept responsibility for errors that appear in advertising or text appearing in MICROpendium. The inclusion of brand names in text does not constitute an endorsement of any product by the publisher. Statements published by MICROpendium which reflect erroneously on individuals, products or companies will be corrected upon contacting the publisher.

Unless the author specifies, letters will be treated as unconditionally assigned for publication, copyright purposes and use in any other publication or brochure and are subject to MICROpendium's unrestricted right to edit and comment.

Display advertising deadlines and rates are available upon request.

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

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

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

Mailing address: P.O. Box 1343, Round Rock TX 78680

Telephone: (512) 255-1512

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

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

## Regena on BASIC

Utah state flag and song ..... Page 7

## Extended BASIC (plus)

Cottaging, archiving and networking ..... Page 11

## The Art of Assembly

Crossing the bridge to Option 5..... Page 14

## The Lima fair

Thing to come include SCSI, Midi-Master V.3 ..... Page 19

National hardware standards announced ..... Page 20

## Newsbytes

Computing nuns get recognition, Asgard redesigns its mouse, and programs from F.F.W..... Page 21

## Reviews

MICRO-Reviews: Bluffoon, Page Pro Border Fonts, TI Casino Supplement, Household Budget..... Page 23

ImageWise Plus V3.0 ..... Page 25

## A Programming Adventure

Having a lotto fun with the TI..... Page 27

## User Notes

A shorter catalog program, a program to generate Fibonacci Numbers, full-screen program editing ..... Page 28

## Classified ..... Page 31

## Departments

Comments ..... Page 5

Feedback ..... Page 5

Reader to Reader ..... Page 22

Fairs ..... Page 26

Bugs and Bytes ..... Page 27

### \*READ THIS

Here are some tips to help you when entering programs from MICROpendium:

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

## Comments

# More hardware on the way

We should all be happy that Lou Phillips is planning to get back into software development for the Geneve. According to an article in this issue, Lou will be writing software after a group of users led by Beery Miller buys out the rights to MDOS. I don't know what kind of programs he will write, but I'm looking forward to seeing his work.

### ON THE HARDWARE FRONT

There are several developments to report, all of which are mentioned in greater detail in this issue.

- Bud Mills says he'll be releasing an SCSI (pronounced

"scuzzy") interface next month. Don O'Neil, developer of the SCSI card, says his TI-Accelerator card is back on track. Also in the works is a Memex card for the 4A which would provide users with up to 16 megabytes of programmable memory.

- Barry Boone is working on a closely guarded hardware project that he says will be available by the Chicago TI fair on Oct. 31. No word as to what it is.

Now, if we only had a few more pieces of software coming our way.

—JK

## Feedback

### More TI longevity

Re: "Comments" May 1992 MICROpendium:

I got my TI99/4 for Christmas in 1980. With my work for various publications, it got a good workout. In 1984 it got set aside because more people had the TI99/4A — but we still let the children use it, and I continued to test programs on it. We haven't used it much the last few years, but it still works.

I got an early TI99/4A, and some of the early models had trouble with the on-off switch or power connection or keyboard. I had to exchange a couple of consoles, but soon got one that worked, and I have been using the same console since 1981.

I have helped other people get TIs and placed several in our elementary schools. Whenever someone claims the computer isn't working, the cause is really the RF modulator, so I keep a few of those on hand.

When the peripheral expansion box first came out, I was able to get one with the RS-232 Card, the 32K Memory Expansion Card, the Disk Controller Card and a single disk drive. I am still using those originals.

Regena (Cheryl Whitelaw)  
Cedar City, Utah

### Help goes further

I want to thank Dennis F. Rebello of

Swansea, Massachusetts, for his reply to Mr. Larry Reeves' problem with his printer (Feedback, April 1992).

It also solved my problem with my Royal Alpha 2015.

Joe Willisms  
Kingsville, Ohio

### Something left out

In your April 1992 issue you ran a very positive review of the Harrison Software Word Processor. It sounded good enough to try, so I sent away for it.

I tried loading it with Extended BASIC to no avail, using both "LOAD" and "UTILI". I tried loading it with Editor/Assembler to no avail. The computer kept hanging up, and I kept restarting it, wondering what I was doing wrong. I read through the manual and the manual supplement, but found no solution.

By chance, today I was looking through the catalog that Harrison sent with the software, and there it was in capital letters: NOT COMPATIBLE WITH GENEVE.

Please tell Stan Krajewski that this was a rather significant omission from his review.

Ben Ciscel  
Round Rock, Texas

### Tex-Comp has OS/99

In the review of OS/99 in the May issue of MICROpendium the phrase "Tex-Comp is expected to distribute it" (instead of

"Tex-Comp will be distributing it") raised the question of whether they had it. We just assumed that they somehow got a copy. A copy has been sent to them along with "express permission" to distribute OS/99.

There is a "next" version which we plan to release at the end of this year/beginning of next year. It is the GROM0 version. It is completely compatible with the GROM7 version. All user extensions work with either if the guidelines are followed. We are awaiting reports of "glitches." Since they will be in the GROM0 version also, corrections can be made to both at the same time.

The GROM0 version makes the 99/4A an "OS/99" and "some other language" machine. The "other language" depends on a compiler; it could be any language. The "C" compiler is an example. While not offering any capabilities that are not in the present version, the GROM0 version places less restriction on how much code can be moved to CPU RAM, since it can continue moving code past the end of GROM0 and into GROM1. Support for the "other language" could be part of the code that is moved.

Don't know, we will see what happens.

Guy Neubert  
Kirkland, Washington

### Clarifying status

I have noticed a lot of confusion in the TI  
(See Page 6)

# Feedback

(Continued from Page 5)

community concerning the status of the TI-Net BBS and TI-Net Gameroom software.

Both programs, and all versions of these programs are *copyrighted*.

Originally written by Erik Olson and Matt Storm, they were first marketed commercially by Erik through his Gadego Software company. Later, Matt sold them as Fairware. Eventually, they both stopped shipping copies and gave the sole distribution rights to any and all versions to me.

I and my son Jesse have done extensive rewrites to both the Extended BASIC and assembly language portions of the code. Our current version number is 3.95, and the current Gameroom includes Spells and many other revisions which Matt and I co-wrote. No version has ever been public domain. Currently, no version is Fairware.

Anyone other than I who may be selling, trading or copying these programs is committing an act of piracy.

Anyone wishing further information on TI-Net BBS and TI-Net Gameroom software can contact me on Delphi by sending E-Mail to SSLICER, or by sending U.S. mail to 1101 Purdom St., Olathe, KS 66061-2717, or by calling my part-time BBS.

The BBS hours are 10 p.m.-7 a.m. Central Time, 300/1200/2400 baud, 8-N-1, at (913) 764-6451. This is in the Kansas City area and is PC Pursuitable through MOKAN.

**Shirley Slicer  
Olathe, Kansas**

## Hardware developers have many problems

We would like to respond to the article by Bruce Harrison which contained a reference about his concern for what he sees as hardware mania in the TI community and to a letter by Frank Gehrling about the death of a dream, both in the April 1992 issue.

Here are, to say the least, two radically different viewpoints. Both bring up good points that should be discussed. First, we would like to respond to Bruce's article on hardware mania. Yes, Bruce, we at Western Horizon Technologies feel that all programs should support the lowest common

denominator system. An excellent example of a program that supports a basic expanded system and the more modernized system without any sacrifice is Telco. Mainly, this was made possible by the masterful use of overlays and a modular design. The basic structure of a program is 80 percent of the work and adding the extra modules or routines to support "extended hardware" requires only marginally more work, if you have examples of code on how to take advantage of the features such hardware provides.

To this end, Don O'Neil is trying to bring together a National TI Standards committee to aid in this process. One of the main goals of the NTSC is free distribution of a group of common routines for hardware access. An example would be a universal memory bank switcher. You would be given a disk with routines to access memory. All you would have to do is compile this code with your main program and access it through a BLWP command. Programmers using this set of routines would be relieved of the pressures of trying to figure out the quirks of all the various memory cards — CorComp, Foundation, Morning Star, Myarc, etc. The beauty of this plan is, as programmers' interest in supporting a particular package wanes, the only thing needed to patch a bug in these low level routines or to add support for a new memory device would usually consist of just sticking in a disk containing the latest release of these support routines and recompiling!

In reference to the number of extra sales for adding a feature, most authors write software for the hardware they personally own, while trying to make their software compatible with what they don't. (See your own excellent efforts with the Geneve.) An author truly concerned about his potential number of sales would probably be writing MS-DOS based software.

Concerning the death of a dream by Mr. Frank Gehrling, hardware developers in the TI community are even more confined by *time* and *cost* factors than developers in the PC world, because we do this in our spare time. We define spare time as that time not taken up by our full time jobs, schooling, sleep, family duties and other obligations. That doesn't leave much time. Now to the

cost factor. We have free labor at this point. The cost of building even a single prototype can be expensive. You have the price of a protoboard (\$35), support chips and other discrete components (\$40) and at least two 99105a (\$200x2). This cost does not include special equipment needed to produce a working prototype. Most hardware hackers have Multimeters and soldering irons. To do a project of this magnitude you need an eprommer/PAL programmer (\$600). Also, an oscilloscope is a must (\$500 minimum).

Let's add it up:  $\$35 + 40 + (200 \times 2) + 600 + 500 = \$1,575$ . For most of us struggling to stay employed, pay rent or mortgages and car payments and generally just trying to keep our heads above water, this is a large out-of-pocket expense, considering potential return on investment. The above figure does not even include promotional expenses or the enormous production start-up cost.

Now, you have to give away a few pieces of any new hardware to programmers to get the ball rolling. One hopes that this free hardware will entice them to develop software to take full advantage of your new piece of hardware. Now you can see why hardware development for the TI has progressed at such a slow pace. It is a tribute to the human spirit that hardware development has continued at all!

Western Horizon Technologies has reshuffled its development priorities.

Here is the current order in which we hope to complete our announced projects:

1. DigiPort
2. SCSI controller
3. 4A MEMEX

Most hardware and software developers have spent thousands and thousands of dollars for maxed out systems because they have the same dreams we do.

If anyone would like to support us by laying down \$10,000 to aid with development, we would be glad to give that person a percentage of the royalties.

**Dan Eicher  
Mooresville, Indiana  
Don O'Neil**

**Gilroy, California  
Western Horizon Technologies**

*Mail Feedback to MICROpendium Feedback, P.O. Box 1343, Round Rock, TX 78680.*

## BASIC

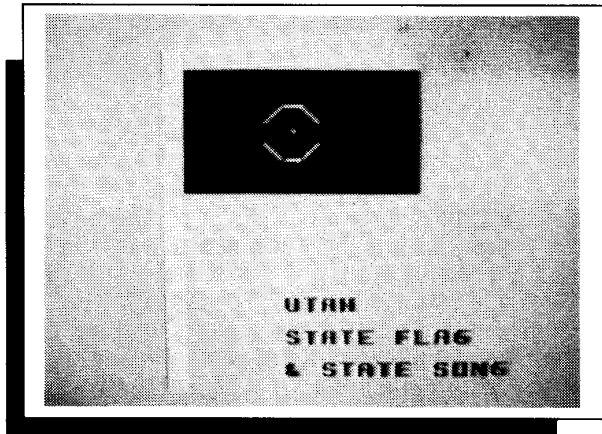
## Utah state song and flag

By REGENA

I have been extra busy this past week with graduations. My oldest daughter graduated from the university and my other daughter graduated from high school. Also, a son graduated from kindergarten (his was the funnest ceremony to attend of the three). Anyway, I dug into my old programs and found this program of the Utah State Song and Flag that was written in 1981 and was cassette only.

If a program has too large of a memory for the disk system (probably written before many of us had disk systems), yet can be saved on cassette, you can try to convert it. The disk system must be turned off, then you can load the program on cassette. Edit the program by taking out all REMark statements and trying other methods to conserve memory. Save the program on another cassette and turn the computer off. Turn on the disk system and computer. Type in CALL FILES(I), press ENTER; type NEW and press ENTER, then try to load the second cassette version. If you're lucky, you then have a disk version.

This program won a contest for programs to draw a state flag, probably because I added the state song with it. Also, the Utah flag has a more intricate design than some other states. I have redone it here so more people may see it — and to get you think-



ing about Utah for the 1993 Fest West which will be held in Salt Lake City, Utah, Feb. 13 and 14. The Ogden TI Users Group was well represented at the Phoenix Fest West earlier this year and decided to host the next Fest West if the Salt Lake and Valley Users Group (SLaVes) would help also. It is now official, and they will combine to host the Fest West in 1993.

Fest West has been quite fun because different cities have been the sites for the last several years, and different users groups

have become involved as the hosts. Some of the San Diego people were worried because of the *cold* weather in February in Utah, but plan ahead now to go skiing before and after Fest West! We're looking into some possible ski packages. More details will be published in MICROpendium later. Meanwhile, get used to seeing the Utah flag. Remember to CALL FILES(I), NEW first.

If you wish to save typing effort, you may have a copy of this program by sending \$4 to REGENA, 918 Cedar Knolls West, Cedar City, UT 84720. Be sure to specify that you want UTAH FLAG for the TI and whether you want cassette or diskette.

## UTAH FLAG

```

100 REM UTAH FLAG !070
110 REM BY REGENA !071
120 T=920 !120
130 CALL CHAR(96,"0101010101
010101")!191
140 CALL CLEAR !209
150 CALL SOUND(T,311,2,208,8
,131,10)!050
160 CALL CHAR(97,"0202020202
020202")!200
170 CALL CHAR(98,"80C0603018
0C0603")!002
180 PRINT TAB(14);"UTAH" !22
9
190 CALL CHAR(99,"0103060C18
3060C")!203
200 CALL SOUND(T/2,415,2,208
,8,131,10)!246
210 CALL CHAR(100,"FF")!088
220 CALL CHAR(101,"FFFFFFFFF
FFFFFFFF")!059
230 CALL SOUND(T/2,523,2,208
,8,156,10)!253
240 CALL CHAR(102,"0")!253
250 CALL CHAR(103,"1020528C0
0142")!118
260 CALL SOUND(T*3/4,523,2,3
11,8,208,10)!183
270 PRINT :TAB(14);"STATE FL
AG" !041
280 CALL COLOR(9,1,1)!178
290 PRINT :TAB(14);"& STATE
SONG" !142
300 CALL SOUND(T/4,494,2,294
,8,208,10)!009
310 CALL HCHAR(6,11,102,6)!2
22
320 CALL SOUND(T,523,2,311,8
,208,10)!055
330 FOR X=7 TO 12 !128
340 CALL HCHAR(X,11,102,11)!
100
350 NEXT X !238
360 CALL SOUND(T,523,2,415,8
,156,10)!062
370 CALL HCHAR(13,17,102,5)!
018
380 CALL HCHAR(8,15,99)!016
390 CALL HCHAR(8,16,100)!049
400 CALL HCHAR(8,17,98)!017
410 CALL SOUND(T,466,2,392,8
,156,10)!072
420 CALL HCHAR(9,14,96)!013
430 CALL HCHAR(9,16,103)!053
440 CALL HCHAR(9,17,97)!017
450 CALL HCHAR(10,15,98)!057
460 CALL SOUND(T/4,554,2,392
,8,156,10)!007
470 CALL HCHAR(11,16,100)!09
2
480 CALL SOUND(T*3/2,554,2,3

```

(See Page 8)

## REGENA ON BASIC —

```

(Continued from Page 7)
92,8,156,10)!196
490 CALL HCHAR(10,17,99)!060
500 CALL VCHAR(5,10,101,20)!
022
510 CALL COLOR(9,12,2)!230
520 CALL SOUND(T*3/2,523,2,4
15,8,156,10)!188
530 GOSUB 3480 !245
540 CALL CHAR(104,"030303030
3030303")!246
550 CALL CHAR(105,"0080C0E0F
0F8FCFE")!151
560 CALL SOUND(T,311,2,208,8
,131,10)!050
570 GOSUB 3530 !039
580 CALL CHAR(106,"FF7F3F1F0
F070301")!122
590 CALL SOUND(T/2,415,2,208
,8,131,10)!246
600 GOSUB 3480 !245
610 CALL SOUND(T/2,523,2,208
,8,156,10)!253
620 GOSUB 3530 !039
630 CALL SOUND(T*3/4,523,2,2
08,8,156,10)!190
640 CALL CHAR(107,"0103070F1
F3F7FFF")!123
650 CALL CHAR(108,"FEFCF8F0E
0C08")!007
660 CALL CHAR(109,"C0C0C0C0C
0C0C0C0")!123
670 CALL SOUND(T/4,494,2,294
,8,208,10)!009
680 CALL CHAR(110,"FFFFFFFFF
FFFFFFFF")!059
690 CALL SOUND(T,523,2,311,8
,208,10)!055
700 CALL CHAR(112,"FFFFFFFFF
FFFFFFFF")!061
710 CALL CHAR(113,"10183C3C7
E7EFFF")!163
720 CALL CHAR(114,"F8F0F0F09
80C0603")!108
730 CALL CHAR(115,"1F0F0F0F1
93060C")!046
740 CALL SOUND(T,523,2,208,8
,117,14)!063
750 CALL CHAR(116,"80C060301
80C0603")!042
760 CALL CHAR(117,"0103060C1
83060C")!243
770 CALL CHAR(120,"00000080C
0703F0F")!045
780 CALL CHAR(121,"000000010
30EFCF")!004
790 CALL SOUND(T,466,2,208,8
,117,14)!069
800 CALL CHAR(122,"80C060301
80CFFFF")!118
810 CALL CHAR(123,"000000000
000FFFF")!055
820 CALL CHAR(124,"0103060C1
830FFFF")!097
830 CALL CHAR(128,"80C060301
80C0603")!045
840 CALL SOUND(T/4,587,2,349
,8,117,14)!016
850 CALL CHAR(129,"0103060C1
83060C")!246
860 CALL SOUND(T*2,698,2,415
,8,117,14)!010
870 CALL CHAR(130,"E0E0E0301
80C0603")!068
880 CALL CHAR(131,"0707070C1
83060C")!250
890 CALL CHAR(132,"FEFCF8F0F
8CC8603")!188
900 CALL CHAR(133,"FF7F3F1F1
F3763C1")!151
910 CALL CHAR(136,"000103070
F0F1D1")!255
920 CALL CHAR(137,"FEFFFE7E
7FFFFFF")!035
930 CALL CHAR(138,"FCFFFEFFF
CFFFEFF")!061
940 CALL SOUND(T*2,622,2,392
,8,156,12)!002
950 CALL CHAR(139,"FFFF7F3F1
F0F0703")!171
960 CALL CHAR(140,"FEFCF8F0E
0C08")!003
970 CALL CHAR(141,"FFFFFFFFF
FFFFFFFF")!063
980 CALL CHAR(142,"0")!001
990 CALL CHAR(143,"0080C080F
0F8E0FE")!120
1000 CALL CHAR(144,"0103070F
1F3F7FFF")!124
1010 CALL CHAR(145,"0080C0E0
F0F8FCFE")!155
1020 CALL SOUND(T/2,466,2,19
6,8,156,12)!011
1030 CALL CHAR(146,"FEFCF8F0
E0C08")!009
1040 CALL CHAR(147,"FF7F3F1F
0F070301")!127
1050 CALL SOUND(T/2,392,2,15
6,12)!055
1060 CALL CHAR(148,"01010303
07070F0F")!040
1070 CALL CHAR(149,"8080C0C0
E0E0F0F")!066
1080 CALL SOUND(T/2,415,2,17
5,8,131,10)!249
1090 CALL CHAR(150,"1F1F1F3F
3F3F7F7F")!169
1100 CALL CHAR(151,"F8F8F8FC
FCFCFEFE")!011
1110 CALL SOUND(T/2,466,2,31
1,8,117,12)!253
1120 CALL CHAR(152,"FFFFFFFFF
FFFFFFFF")!065
1130 CALL CHAR(153,"0")!003
1140 CALL SOUND(T,523,2,208,
8,156,12)!064
1150 CALL CHAR(43,"0080C0E0F
0F8FCFE")!103
1160 CALL CHAR(44,"FF7F7F3F3
F1F1F1F")!141
1170 CALL CHAR(45,"0F0F07070
3030101")!243
1180 CALL CHAR(46,"FF7F3F1F0
F070301")!076
1190 CALL SOUND(T/4,494,2,29
4,8,208,12)!011
1200 CALL CHAR(47,"0103070F1
F3F7FFF")!077
1210 CALL SOUND(T,523,2,208,
8,156,12)!064
1220 CALL CHAR(48,"FEFCF8F0E
0C08")!217
1230 CALL CHAR(58,"F0F0E0E0C
0C0808")!016
1240 CALL CHAR(59,"FFFEFEFCF
CF8F8F8")!228
1250 CALL CLEAR !209
1260 CALL SOUND(T/2,523,2,22
0,8,175,9)!207
1270 CALL SCREEN(5)!150
1280 CALL COLOR(1,16,2)!226
1290 CALL CHAR(97,"FF")!054
1300 CALL SOUND(T,440,2,220,
8,175,9)!014
1310 FOR I=2 TO 15 !111
1320 CALL COLOR(I,2,2)!251
1330 NEXT I !223
1340 CALL SOUND(T/2,466,2,34
9,8,139,10)!010
1350 CALL HCHAR(2,13,42,8)!1
76
1360 CALL VCHAR(9,6,42,8)!15
0
1370 CALL VCHAR(9,27,42,8)!2
02

```

(See Page 9)



## REGENA ON BASIC—

(Continued from Page 8)

```

1380 CALL CHAR(100,"03030303
03030303")!242
1390 CALL SOUND(T/2,523,2,17
5,8,131,12)!251
1400 CALL HCHAR(23,13,42,8)!
228
1410 CALL VCHAR(7,7,42,2)!14
3
1420 CALL VCHAR(7,26,42,2)!1
93
1430 CALL VCHAR(17,7,42,2)!1
93
1440 CALL SOUND(T*3/4,554,2,
175,8,117,12)!196
1450 CALL VCHAR(17,26,42,2)!
243
1460 CALL HCHAR(3,11,42,2)!1
69
1470 CALL HCHAR(3,21,42,2)!1
70
1480 CALL HCHAR(22,11,42,2)!
219
1490 CALL SOUND(T/4,523,2,17
5,8,131,12)!253
1500 CALL HCHAR(22,21,42,2)!
220
1510 CALL SOUND(T*2.2,554,2,
175,8,117,12)!100
1520 CALL CHAR(101,"C0C0C0C0
C0C0C0C")!066
1530 CALL CHAR(102,"00000000
0103FF")!170
1540 DATA 4,10,5,9,6,8,4,23,
5,24,6,25,19,25,20,24,21,23,
19,8,20,9,21,10 !050
1550 RESTORE 1540 !103
1560 FOR I=1 TO 12 !107
1570 READ X,Y !251
1580 CALL HCHAR(X,Y,42)!132
1590 NEXT I !223
1600 CALL COLOR(2,16,2)!227
1610 CALL SOUND(T/2,554,2,23
3,8,156,12)!001
1620 CALL CHAR(103,"00000000
80C0FFFF")!080
1630 CALL HCHAR(11,16,144)!1
00
1640 CALL HCHAR(11,17,145)!1
02
1650 CALL HCHAR(12,15,148)!1
04
1660 CALL HCHAR(12,16,152,2)
!018
1670 CALL SOUND(T/2,466,2,19
6,8,139,12)!012
1680 CALL HCHAR(12,18,149)!1
08
1690 CALL HCHAR(13,15,150)!0
98
1700 CALL HCHAR(13,16,152,2)
!019
1710 CALL HCHAR(13,18,151)!1
02
1720 CALL SOUND(T/2,523,2,15
6,8,131,12)!250
1730 CALL HCHAR(14,15,152,4)
!021
1740 CALL HCHAR(14,14,153)!1
01
1750 CALL HCHAR(14,19,153)!1
06
1760 CALL HCHAR(15,14,153,6)
!024
1770 CALL SOUND(T/2,554,2,19
6,8,117,12)!006
1780 CALL COLOR(15,11,2)!019
1790 CALL COLOR(16,11,12)!07
0
1800 CALL SOUND(T*3/4,622,2,
185,8,131,12)!189
1810 FOR I=3 TO 8 !065
1820 CALL COLOR(I,16,2)!049
1830 NEXT I !223
1840 CALL HCHAR(16,15,85)!05
9
1850 CALL HCHAR(16,16,84)!05
9
1860 CALL HCHAR(16,17,65)!05
9
1870 CALL HCHAR(16,18,72)!05
8
1880 CALL SOUND(T/4,587,2,20
8,8,175,9)!225
1890 CALL VCHAR(13,13,112,3)
!027
1900 CALL VCHAR(12,14,112,2)
!026
1910 CALL SOUND(T,622,2,208,
8,131,10)!055
1920 CALL VCHAR(12,19,112,2)
!031
1930 CALL VCHAR(14,20,112,2)
!025
1940 CALL VCHAR(12,13,113)!1
08
1950 CALL VCHAR(11,14,113)!1
08
1960 CALL VCHAR(11,19,113)!1
13
1970 CALL VCHAR(13,20,113)!1
07
1980 CALL COLOR(11,13,2)!017
1990 CALL SOUND(T*3/2,698,2,
277,8,208,10)!205
2000 DATA 73,78,68,85,83,84,
82,89,32 !016
2010 RESTORE 2000 !052
2020 FOR Y=13 TO 21 !175
2030 READ L !227
2040 CALL HCHAR(10,Y,L)!115
2050 NEXT Y !239
2060 CALL SOUND(T*3/2,622,2,
196,8,156,10)!194
2070 CALL HCHAR(3,14,142)!04
8
2080 CALL HCHAR(3,19,142)!05
3
2090 CALL HCHAR(4,12,142,10)
!013
2100 CALL HCHAR(5,11,142,12)
!015
2110 CALL HCHAR(6,10,142,14)
!017
2120 CALL HCHAR(7,9,142,16)!
235
2130 CALL HCHAR(8,8,142)!007
2140 CALL HCHAR(8,25,142)!05
5
2150 CALL SOUND(T/2,392,2,20
8,8,156,10)!001
2160 DATA 5,15,136,5,16,137,
5,17,141,5,18,138,6,19,143,6
,18,141,6,17,141,6,16,139 !0
76
2170 RESTORE 2160 !213
2180 CALL SOUND(T*2,466,2,19
6,8,156,10)!008
2190 FOR I=1 TO 8 !063
2200 READ X,Y,C !241
2210 CALL HCHAR(X,Y,C)!151
2220 NEXT I !223
2230 CALL COLOR(14,16,11)!07
2
2240 CALL HCHAR(3,13,144)!04
9
2250 CALL HCHAR(3,20,145)!04
8
2260 CALL HCHAR(4,11,144)!04
8
2270 CALL HCHAR(4,22,145)!05
1
2280 CALL HCHAR(5,10,144)!04

```

(See Page 10)

## REGENA ON BASIC—

(Continued from Page 9)	8, 208, 10)!055	2900 CALL VCHAR(16, 12, 105)!1
8	2610 CALL VCHAR(8, 10, 42, 4)!1	12
2290 CALL SOUND(T*2, 415, 2, 20	89	2910 CALL SOUND(T, 311, 2, 208,
8, 8, 131, 10)!245	2620 CALL VCHAR(9, 11, 42, 3)!1	8, 131, 10)!050
2300 CALL HCHAR(5, 23, 145)!05	90	2920 CALL VCHAR(17, 12, 110, 2)
3	2630 CALL VCHAR(9, 24, 42, 2)!1	!027
2310 CALL HCHAR(6, 9, 144)!008	93	2930 CALL VCHAR(19, 12, 106)!1
2320 CALL HCHAR(6, 24, 145)!05	2640 CALL VCHAR(8, 23, 42, 4)!1	16
5	93	2940 CALL VCHAR(17, 13, 43)!06
2330 CALL HCHAR(7, 8, 144)!008	2650 CALL SOUND(T, 523, 2, 415,	6
2340 CALL HCHAR(7, 25, 145)!05	8, 156, 10)!062	2950 CALL SOUND(T/2, 415, 2, 20
7	2660 CALL VCHAR(9, 22, 42, 3)!1	8, 8, 131, 10)!246
2350 CALL HCHAR(9, 8, 146)!012	92	2960 CALL VCHAR(18, 13, 141, 2)
2360 CALL HCHAR(9, 25, 147)!06	2670 CALL VCHAR(9, 12, 100, 4)!1	!033
1	236	2970 CALL VCHAR(20, 13, 46)!06
2370 CALL COLOR(9, 12, 2)!230	2680 CALL VCHAR(9, 21, 101, 4)!1	3
2380 CALL COLOR(13, 13, 11)!06	237	2980 CALL SOUND(T/2, 523, 2, 20
8	2690 CALL HCHAR(18, 14, 97, 2)!1	8, 8, 156, 10)!253
2390 CALL COLOR(12, 13, 16)!07	237	2990 CALL VCHAR(10, 25, 109, 5)
2	2700 CALL SOUND(T, 466, 2, 392,	!035
2400 CALL SOUND(T, 311, 2, 208,	8, 156, 10)!072	3000 CALL VCHAR(11, 24, 47)!06
8, 131, 10)!050	2710 CALL HCHAR(18, 16, 98)!06	6
2410 DATA 8, 12, 102, 8, 11, 116,	6	3010 CALL SOUND(T*3/4, 523, 2,
7, 10, 116, 6, 9, 132, 8, 21, 103, 8,	2720 CALL HCHAR(18, 17, 99)!06	208, 8, 156, 10)!190
22, 117, 7, 23, 117, 6, 24, 133 !24	8	3020 CALL VCHAR(12, 24, 141, 3)!1
8	2730 CALL HCHAR(18, 18, 97, 2)!1	!030
2420 RESTORE 2410 !208	241	3030 CALL VCHAR(15, 24, 59)!07
2430 CALL SOUND(T*1.3, 415, 2,	2740 CALL COLOR(10, 7, 2)!226	3
208, 8, 131, 10)!087	2750 CALL SOUND(T/4, 554, 2, 39	3040 CALL VCHAR(16, 24, 58)!07
2440 FOR I=1 TO 8 !063	2, 8, 156, 10)!007	3
2450 READ X, Y, C !241	2760 CALL VCHAR(10, 8, 104, 5)!1	3050 CALL VCHAR(12, 23, 107)!1
2460 CALL HCHAR(X, Y, C)!151	238	12
2470 NEXT I !223	2770 CALL SOUND(T*3/2, 554, 2,	3060 CALL VCHAR(13, 23, 110, 4)
2480 CALL SOUND(T*3/4, 523, 2,	392, 8, 156, 10)!196	!027
208, 8, 156, 10)!190	2780 CALL VCHAR(11, 9, 43)!016	3070 CALL SOUND(T/4, 494, 2, 29
2490 CALL HCHAR(8, 13, 120)!04	2790 CALL VCHAR(12, 9, 141, 3)!1	4, 8, 208, 10)!009
8	240	3080 CALL VCHAR(17, 23, 108)!1
2500 CALL HCHAR(8, 20, 121)!04	2800 CALL VCHAR(15, 9, 44)!021	18
7	2810 CALL VCHAR(16, 9, 45)!023	3090 CALL SOUND(T, 523, 2, 311,
2510 DATA 8, 14, 122, 8, 18, 124,	2820 CALL VCHAR(12, 10, 105)!1	8, 208, 10)!055
8, 16, 123, 7, 13, 128, 7, 19, 129, 6	06	3100 CALL VCHAR(13, 22, 47)!06
, 12, 130, 6, 20, 131 !141	2830 CALL VCHAR(13, 10, 110, 4)	6
2520 RESTORE 2510 !052	!023	3110 CALL VCHAR(14, 22, 141, 4)
2530 CALL SOUND(T*1.7, 523, 2,	2840 CALL SOUND(T*3/2, 523, 2,	!031
311, 8, 208, 10)!091	415, 8, 156, 10)!188	3120 CALL VCHAR(18, 22, 48)!07
2540 FOR I=1 TO 7 !062	2850 CALL VCHAR(17, 10, 106)!1	2
2550 READ X, Y, C !241	12	3130 CALL SOUND(T, 523, 2, 208,
2560 CALL HCHAR(X, Y, C, 2)!069	2860 CALL VCHAR(13, 11, 43)!06	8, 117, 11)!060
2570 NEXT I !223	0	3140 CALL VCHAR(13, 21, 106)!1
2580 CALL SOUND(T/4, 494, 2, 29	2870 CALL VCHAR(14, 11, 141, 4)	10
4, 8, 208, 10)!009	!029	3150 CALL VCHAR(16, 21, 107)!1
2590 CALL VCHAR(9, 9, 42, 2)!14	2880 CALL VCHAR(18, 11, 46)!06	14
7	8	3160 CALL VCHAR(17, 21, 110, 2)
2600 CALL SOUND(T, 523, 2, 311,	2890 CALL VCHAR(13, 12, 108)!1	
	12	

(See Page 11)

## REGENA ON BASIC—

```

(Continued from Page 10)
!027
3170 CALL VCHAR(19,21,108)!1
18
3180 CALL SOUND(T,466,2,208,
8,117,14)!069
3190 CALL VCHAR(17,20,47)!06
8
3200 CALL VCHAR(18,20,141,2)
!031
3210 CALL VCHAR(20,20,48)!06
3
3220 CALL VCHAR(9,12,100,4)!
236
3230 CALL VCHAR(9,21,101,4)!
237
3240 CALL SOUND(T/4,587,2,34
9,8,117,14)!016
3250 CALL HCHAR(20,15,49)!05
4
3260 CALL SOUND(T*2,698,2,41
5,8,117,14)!010
3270 CALL HCHAR(20,16,56)!05
3
3280 CALL HCHAR(20,17,52)!05
0
3290 CALL HCHAR(20,18,55)!05
4
3300 CALL HCHAR(22,15,49)!05
6
3310 CALL HCHAR(22,16,56)!05
,196,8,117,12,.75,622,185,8,
5
3320 CALL HCHAR(22,17,57)!05
7
3330 CALL HCHAR(22,18,54)!05
5
3340 RESTORE 3390 !168
3350 FOR X=1 TO 27 !128
3360 READ Y,A,B,C,D,E !190
3370 CALL SOUND(T*Y,A,2,B,C,
D,E)!076
3380 NEXT X !238
3390 DATA 2,622,392,8,156,12
,.5,466,196,8,156,12,.5,392,
156,12,156,12,.5,415,175,8,1
31,10 !226
3400 DATA .5,466,311,8,117,1
2,.75,523,208,8,156,12,.25,4
94,294,8,208,12,1,523,208,8,
156,12 !024
3410 DATA .5,523,220,8,175,9
,.5,440,220,8,175,9,.5,466,3
49,8,139,10,.5,523,175,8,131
,12 !125
3420 DATA .75,554,175,8,117,
12,.25,523,175,8,131,12,1,55
4,175,8,117,12,.5,554,233,8,
156,12 !022
3430 DATA .5,466,196,8,139,1
2,.5,523,156,8,131,12,.5,554
,196,8,117,12,.75,622,185,8,
131,12 !028
3440 DATA .25,587,208,8,175,
9,1,622,208,8,131,10,1,698,2
77,8,208,10,1,622,196,8,156,
10 !092
3450 DATA .25,392,208,8,156,
10,2,466,196,8,156,10,4,415,
208,8,131,10 !238
3460 CALL KEY(3,K,S)!190
3470 IF S<1 THEN 3460 ELSE 3
580 !237
3480 CALL HCHAR(6,17,102,6)!
228
3490 CALL VCHAR(7,22,102,6)!
239
3500 CALL HCHAR(13,17,32,5)!
227
3510 CALL HCHAR(9,17,96)!016
3520 RETURN !136
3530 CALL HCHAR(6,17,32,6)!1
81
3540 CALL VCHAR(7,22,32,6)!1
92
3550 CALL HCHAR(9,17,97)!017
3560 CALL HCHAR(13,17,102,5)
!018
3570 RETURN !136
3580 CALL CLEAR !209
3590 END !139

```

## EXTENDED BASIC (plus)

# Cottaging, archiving and networking

By **BARRY TRAVER**

©1992 B. Traver

In January 1987 — over five and a half years ago! — Ron Albright's Orphan Survival Handbook was published, containing helpful material "for owners and other custodians of the TI-99/4A and Geneve." I had the honor of writing the introduction to that book: in my introduction, I gave a brief presentation of "principal survival principles for life in the orphanage" entitled "we CAN do it!" (That introduction itself was based on a talk I gave for the 1986 Boston Fayuh.)

The "CAN" in the title was an across-

tic/mnemonic, standing for Cottaging, Archiving, and Networking. Let's quickly look again at those principles, one by one, and then consider together what is important for survival in the 1990s, not only of the TI-99/4A in general, but also of TI Extended BASIC programming in particular.

(1) By "cottaging," I meant recognizing that one of the results of the computer revolution was the appearance of "cottage" industries. "mom-and-pop" outfits that can produce (and have produced) superior merchandise to that released by billion-dollar companies. As I said, we don't have to have Texas Instruments to survive, if we

recognize - and support - the resources available from such "cottage" operations: individuals, families, or small companies who can provide (and are providing) items for the TI-99/4A that TI never provided (and perhaps never would have provided, even if TI had continued to support the TI-99/4A).

(2) By "archiving," I was referring not to my Archiver program (already in existence at that time and later expanded by Barry Boone) but just to the practice of collecting TI material in general. The idea here was that we collect, preserve, and

(See Page 12)

## EXTENDED BASIC PLUS—

(Continued from Page 11)

make available what has already been done. That applies to both software and information (although I hope no one will take my remarks as a justification for collecting pirated software!) Public domain software and fairware may and should be collected and distributed freely without any restrictions.

(3) By "networking," I meant simply working together as an extended family. There are lots of ways this can be done, but it would include such things as TI user groups, TI faires, TI electronic bulletin boards (both local and national, the latter including CompuServe, Delphi, and GENIE). Although I did not specifically mention it in my earlier article, I have come to believe that of crucial importance to our survival (especially after the dropping of the "Classic Computer" section from Computer Shopper and then later from VCM's Computer Monthly) is being part of the family of MICROpendium subscribers. There is no better way of keeping in contact with what is happening in the TI world, and I believe we will prosper only as MICROpendium prospers.

Here's how I concluded my article: "... you will get little benefit from your TI-99/4A unless you put these three principal principles into practice: Cottaging (i.e., realizing that individuals and small companies can put out products equal or superior to those from TI), Archiving (i.e., collecting in a systematic way what has already been done for our machine), and Networking (i.e., working together with other TI'ers). We CAN survive and thrive — not merely as orphans, but as what we have become — as family!"

Well, to the amazement of many, the TI-99/4A did survive — and thrive — throughout the 1980s. Can the same hold true for the 1990s (especially in the area of TI Extended BASIC programming)? I believe it can, IF certain things take place. We have more than adequate *tools* to make this happen; the only question is whether we have the *people* to put them to use (and your own activity may be more essential to success than you realize).

### WE 'CAN' STILL DO IT

I believe we CAN still do it, so let's look one more time at what we need to do, this

time applying these same basic ideas to the situation in July 1992, particularly as it relates to TI Extended BASIC programs and programming.

**Cottaging.** My emphasis here is not on the XB programs but on XB programming. It is really amazing how many TI XB programming tools been made available throughout the '80s and early '90s. Whether the product be ordinary commercial software or fairware, it is important to our own survival that we support those individuals and small companies who are supporting us and that we thus encourage their survival. Buy the products and use them!

**Archiving.** Jim Peterson of Tigercub Software (156 Collingwood Avenue, Whitehall, OH 43213) has done an outstanding job of making available over 600 disks of public domain programs and fairware. He indeed offers "thousands of programs selected from the best from the U.S., Canada, Australia, England, Germany, Holland, and Belgium," and many (or most!?) of these programs are in TI Extended BASIC. (In fact, even the TI BASIC programs have been modified so as to run in TI XB.) Jim only charges \$1.50 a disk, and orders are postpaid if you order 8 or more disks.

User groups are another good source of TI XB programs (for example, check out the Southwest Ninety-Niners User Group, P.O. Box 17831, Tucson, AZ 85730, which sells disks for \$2 each, including postage), as are the software libraries on CompuServe, Delphi, and GENIE. As far as I am aware, however, Jim Peterson seems to be the best source of specifically TI XB programs. (I hope to encourage more TI XB activity on GENIE, but in general, the networks tend to be weaker in the area of Extended BASIC than they are in other programming languages, such as assembly or C.)

Mike Wright's TI enCYClopedia (available on-line on the TI RoundTable on GENIE; phone 1-800-638-9636 for information on subscribing) contains quite a bit of information on commercial TI XB programs released in the early 1980's. I'm hoping that we can work out getting permission for many of these to be released again, but this time as public domain or

fairware. Many of these programs will be "new" to the present TI community, and may motivate TI XB programmers today to write new TI XB programs.

**Networking.** Although some "networks" have weakened, most major ones still exist, and such associations have tremendous potential. IF people get involved and take advantage of the opportunities. For example, if you have a modem, you can become active on any of three major electronic networks, since CompuServe still has TI Forum, Delphi has TI-NET, and GENIE has TI RoundTable. Astounding as it may appear to others, TI fairs (Chicago/Milwaukee, Lima MUG, and the different Fest-Wests come immediately to mind) continue to occur on a regular basis, with attendees coming from many different states and often quite a few different countries.

Some user groups have declined in number of members, but continue to be active through the assistance of the "Newsletter Clearinghouse" project that was begun through the efforts of Irwin Hott and others. Because of mailing costs, some (e.g., the Cin-Day Users Group) are exploring such things as the mailing out of a quarterly "diskazine" instead of a monthly printed newsletter. TI-ECHO operating through local electronic BBS's (with some involvement of Delphi and GENIE) is also keeping TI'ers in contact with one another.

### THE ROLE OF TI XBASIC

Having said all that, I want to concentrate on the issue of what I see specifically as to the future of TI Extended BASIC. That's what this column is all about, and I think there is no more important time than the present too consider seriously the situation. Put briefly, I do have some real concerns about things right now. In some ways, it's never been better, and in other ways, it's never been worse. The tools and the resources are better than ever before; the question is whether the people (including especially the average TI'er) can "get it together" in some concrete action and activities.

Let me share some encouragements and discouragements. For example, Jim Peterson has an amazingly large collection of TI

(See Page 13)

## EXTENDED BASIC PLUS—

(Continued from Page 12)

XB programs available. That's very encouraging. Very few of them were written in the 1990s. That's very discouraging. What is true of Jim's TI-PD Library is also true of what you'll find on CIS, Delphi, and GENie; in user group libraries; etc. Why?

If you've read my recent columns, you know that the reason is *not* that people are "going IBM" because QuickBASIC has so much more to offer than does TI XB. QuickBASIC's CALL SOUND supports only one voice (not three voices like our TI XB, not to mention the noise generator), and QuickBASIC does not contain a CALL SAY. There are no sprite commands in QuickBASIC (remember: you do not have genuine sprites on an IBM or IBM clone, even if you have a VGA or super VGA card rather than a CGA or EGA card). What is simple to do in TI XB on an ordinary TI system is difficult or impossible to do in QuickBASIC on a normal IBM system (which may not even necessarily even allow you to have 16 colors on the screen at the same time!).

### PLENTY OF XB EXTENSIONS

Not only is TI XB itself an amazingly friendly language (our ACCEPT AT is far superior to the normal INPUT routine in QuickBASIC), but we have a great number of "extensions" to TI XB that do not require complicated knowledge to use. Included here (in no particular order) are Jim Hollender's Super Extended BASIC (SXB), Super Extended BASIC (SEB), the

special Mechatronics Extended BASIC, Myarc's Extended BASIC II (or was it IV?), Curtis Provance's Enhanced Display Package (EDP), the earlier Display Enhancement Package (DEP), Richard Mitchell's String Master, Brad Snyder's 40-Column Utilities, my own "Extended Extended BASIC" (XXB), Harry Wilhelm's The Missing Link (TML), Jean Marleau's Multi-Mode Extended BASIC, Rich Gilbertson's RICH GKXB (a new and worthwhile entry available from CaDD), and more!

As you can see, I had no difficulty in mentioning a dozen such resources off the top of my head. Anyone who knows how to program in TI XB will have little difficulty in using any of these packages. It's a matter of merely learning some additional statements to those you already know. Knowledge of assembly language is not required, but you can expand your repertoire greatly. For example, with The Missing Link, you can put a TI-Artist picture on the screen, play music (anyone for Beethoven's "Moonlight Sonata?"), and make use of sprites, all at the same time!

OK. The resources are there. But where are the programs? For example, how many TML programs have you seen around (other than those published right here in MICROpendium)? The same holds for the other enhancements of Extended BASIC. Here's the problem as I see it: we have all the tools we need to enable even novice programmers to write professional programs, but where are the people writ-

ing — and sharing — the programs?

### XB PROGRAMMERS NEEDED

I don't know what the cause is (perhaps it's a matter of TI XB programmers being intimidated by more "prestigious" languages like assembly or C, or maybe it's a matter of our having forgotten that "sharing" was one of the things that made the TI community so much fun and so strong), but I seriously believe that we need to recapture what earlier made the TI world so great. Are you writing TI XB programs? If not, why not? If so, are you making them available to other TI'ers?

Again, an "ordinary" TI running Extended BASIC program can run circles around an "ordinary" IBM running QuickBASIC program. The joy of programming in TI XB is one of the reasons why I have remained with the machine. If the same is true for you, then let's see what we can do, working together, to get some things happening in the world of TI XB programming. The resources are there (I haven't even mentioned the potential of Todd Kaplan's XBAL which can enable even a novice programmer who doesn't understand assembly at all to embed assembly routines in his programs, such as the recent useful routines from Bruce Harrison and others), but potential is not enough: we need to realize that potential.

T.S. Eliot suggested that the world will end "not with a bang, but with a whimper." If doomsayers are right in their prediction that the TI world is coming to an end, then I say that we should do our best to see that it ends not with a whimper, but with a bang! In the coming months, for example, I hope to do what I can not only here in MICROpendium (which is limited in what it can accomplish in 32 or 48 pages per issue) but also on the TI RoundTable on GENie (if people are interested) to make more TI XB programs available and to help TI XB programmers use the many tools available. We're at an important point in our history, but I'm hoping (and expecting) to see some new TI XB action in the TI community. My attitude is one of "cautious optimism." Whether or not we see a revival of TI XB programs and programming, however, is something that is ultimately dependent not upon me, but upon YOU. Keep on compuTIn'!

## New BBS on line

Vanishing Point BBS is now running 24 hours a day at (904) 362-4559 at baud rates from 300 to 38,400, according to Stan Krajewski, who notes he may be reached or files sent regarding his MICROreview column through this board.

He says the board contains 18 downloadable areas, two of which are for the TI. 11 on-line games, nine message areas and file doors. The BBS runs on a 386sx clone with 115 meg. available hard drive space. Krajewski recommends Fast Term for uploads or downloads, but says Telco must be used to take advantage of the graphics and on-line game. The board contains more than 100 Gif files. He says TI files are available, but notes that more should be added to make the section work for TIers.

## German fair slated

The seventh international TI-Computer-Treffen is scheduled to be held Oct. 9-11 in Wiesbaden, Germany.

For further information contact Horst Wiese, Elenorenstr. 6, DW-6200 Wiesbaden, Germany. Persons writing should send return postage in the form of International Reply Coupons. These are available for purchase in any post office.

# Crossing the bridge to Option 5

By **BRUCE HARRISON**  
©1992 Harrison Software

In all our Assembly work so far in this series, we've concentrated our attention on programs to execute as Option 3 (Load and Run) from the E/A menu. We have made some excursions into the mysteries of Loaders, but not much in the area of using TI's SAVE utility to make our programs into Option 5 directly.

Let's start by simply stating that, in the E/A manual, there are lots of things TI forgot to tell you about this process of converting from Option 3 to Option 5. In some ways, it's a little like crossing from Staten Island to Brooklyn by first building the Verrazano Narrows bridge.

Let's say you've written and debugged an Assembly program, and everything is working just the way you want it under Option 3. Now you want to convert it to Option 5, so you get out the big book and start at page 420. You put in the labels SFIRST, SLOAD, SLAST, make sure your first instruction at label SFIRST is an executable one, save your source code to disk and Assemble it. Now you load in your object file and the SAVE utility, and enter at label SAVE. Everything looks fine. You give the Option 5 program a file name "DSK1.ANYPROG", and SAVE makes one or more memory image files.

Now you run an immediate test of this by loading DSK1.ANYPROG under Option 5. So long as you haven't used GPLLNK, everything will work. (We'll get into the strange case of GPLLNK in a little bit.) You go on about your business, happy that what TI said was okay.

Later, you start up your computer anew, and try DSK1.ANYPROG from Option 5. Nothing works. The screen goes green, no displays appear, the keyboard does not respond except to Function-Quit, and you're mystified. The problem is actually quite a simple one. Remember those "Utility" vectors like VMBW, VSBW, KSCAN, and so on that you used in your Option 3 program? They haven't been placed in low memory for you by Option 5. When you made that first trial just after the SAVE operation, those utilities were still in place from the Option 3 loading operation. Now that you've made a clean start, there's nothing there, so the first place in your program that calls for one of those will simply lock up the computer.

You have at this point fallen victim to something TI forgot to mention on pages 420 and 421 of the manual, namely that Option 5 does not load those utilities into low memory for you.

You have a few options at this point in your program's development. You could forget about Option 5 and simply keep your program running as Option 3 only. That's okay for your own use, but the program will take longer to load each time you want to use it, and you'll always feel that this program is unfinished.

You could rework your program so that it doesn't use those low-memory utilities, but that's really a big pain. You could write your own utilities to perform these functions, but that's an even bigger pain. You could use a tool like Art Green's Linker and Li-

(See Page 15)

## Sidebar

```

* TWO WAYS TO CONVERT FROM OPTION 3 TO OPTION 5
* FIRST IS FOR NORMAL HIGH MEMORY LOADED PROGRAMS
*
* EXAMPLE OF "WRAPPER" FOR OPTION 5 PROGRAM FILE
* TAKEN FROM OUR CRYPTOGRAM GAME PROGRAM
DEF SFIRST,SLOAD,SLAST DEFINITIONS NEEDED BY SAVE UTILITY
SFIRST
SLOAD
LWPI WST LOAD TEMPORARY WORKSPACE
LI R9,EAUT POINT R9 AT STORED UTILITIES
LI R10,>2094 POINT R10 AT >2094 IN LOW MEMORY
LI R4,>23BA->2094 LOAD R4 WITH NUMBER OF BYTES TO MOVE
PUTUT MOV *R9+,*R10+ MOVE ONE WORD, INCREMENT POINTERS BY TWO
DECT R4 DECREMENT COUNT BY TWO
JNE PUTUT IF NOT ZERO, REPEAT OPERATION
*
* MAIN PROGRAM'S CODE STARTS HERE
*
* THE MAIN PROGRAM AND ITS DATA SECTION ARE
* "SANDWICHED" HERE BETWEEN THE PART THAT REPLACES
* THE UTILITIES AND THE PART THAT SAVES THEM INTO
* MEMORY THAT WILL BECOME PART OF THE MEMORY IMAGE FILE
*
* MAIN PROGRAM'S DATA SECTION ENDS HERE
*
EAUT EVEN INSURE THAT EAUT IS AT AN EVEN MEMORY LOCATION
BSS >23BA->2094 LENGTH OF BSS IS 806 BYTES
REF SAVE REFERENCE IT'S SAVE UTILITY
DEF SAVIT DEFINE OUR SAVIT ENTRY POINT
SLAST
* SLAST MARKS THE END OF WHAT THE SAVE UTILITY WILL PUT IN MEM-IM FILE
SAVIT
MOV R11,@>8300 STASH R11
LWPI WST LOAD OUR TEMPORARY WORKSPACE
LI R9,>2094 POINT R9 AT BEGINNING OF AREA TO BE SAVED
LI R10,EAUT POINT R10 AT MEMORY LOCATION ABOVE
LI R4,>23BA->2094 LOAD R4 WITH NUMBER OF BYTES TO MOVE
(806)
GETLP MOV *R9+,*R10+ MOVE ONE WORD AND INCREMENT POINTERS BY TWO
DECT R4 DECREMENT COUNT BY TWO
JNE GETLP IF NOT ZERO, REPEAT AT LABEL GETLP
B @SAVE BRANCH DIRECTLY TO IT'S SAVE UTILITY
WST BSS 32 OUR TEMPORARY WORKSPACE
END
* END OF FIRST "SANDWICH" SOURCE CODE
*
* SECOND "SANDWICH"
* BUILT-IN Saver FOR LOW-MEMORY PROGRAMS
* ADD THESE PROGRAM LINES TO CONVERT PROGRAM
* FROM OPTION 3 TO OPTION 5
* AFTER ASSEMBLY, LOAD AS OPTION 3, THEN
* ENTER WITH PROGRAM NAME GETUT TO SAVE PROGRAM
* AS OPTION 5 PROGRAM FILE
*
* THIS PART GOES BEFORE MAIN BODY OF PROGRAM
DEF GETUT
AORG >2678 ABSOLUTE ORIGIN AT >2678
SFIRST
SLOAD
LWPI TWS LOAD TEMPORARY WORKSPACE
LI R9,SAVUT POINT AT MEMORY BLOCK WITH UTILITIES
LI R10,>2094 POINT AT DESTINATION FOR UTILITIES
LI R4,>23BA->2094 LOAD R4 WITH LENGTH OF BLOCK
PUTUT MOV *R9+,*R10+ MOVE ONE WORD AND INCREMENT POINTERS BY TWO
DECT R4 DECREMENT COUNT BY TWO
JNE PUTUT IF NOT ZERO, MOVE ANOTHER WORD
*
* MAIN PROGRAM GOES HERE - BE SURE TO REMOVE AORG AND END FROM MAIN
PROGRAM
* NEXT PART GOES AFTER END OF MAIN PROGRAM
*
EVEN
SAVUT BSS >23BA->2094 SPACE FOR SAVING UTILITIES
SLAST
GETUT MOV R11,@>8300 STASH REGISTER 11

```

# THE ART OF ASSEMBLY—

(Continued from Page 14)

brary system, which provides Art's own versions of those utilities embedded in your program file. (We have a copy of Art Green's Linker disk, purchased from him several years ago at Ottawa, but have never used it. Judging only by its documentation, it looks as if it would work nicely, but we can't say for certain.)

The method that we've used in all of our Option 5 conversions has been simply to stash the needed utilities in our own program space as a data block, then put them in their proper place in memory when the program starts. We take 806 bytes from low memory and place that at the very end of our program before branching to the SAVE utility.

The first part of today's sidebar shows how we do this, using what one might call a "wrapper" around our main program. There's a short section of code at the very beginning of the program, to put the utilities in place, and a short section of code after SLAST that is used to get the utilities into our own memory space before branching to TI's SAVE utility. Once our program has been assembled this way, we load the object file from Option 3, then load the SAVE utility. Now instead of using the Program Name SAVE, we use the Program Name SAVIT, which is like a mini-program within our own program. This stashes the utilities, then branches to TI's utility to actually make the memory-image file(s).

Another important note: If your program itself loads into low memory, as with an AORG, TI's SAVE utility can't be used to make it an Option 5 Program File, because that utility itself loads into low memory, and will overwrite the program you've just loaded. For that instance, we use our own "SAVE" utility, tacked onto the back end of our main program. This method was used in our Smart Connect programs, to let all of High Memory remain available for stashing a file being brought in from a PC. Source code for that is in the second part of today's sidebar.

## THE STRANGE CASE OF GPLLNK

We mentioned earlier the "strange case" of GPLLNK, and perhaps now would be a good time to explain that statement.

TI's built-in GPLLNK will work just fine so long as we're operating in the straight Option 3 environment, without an Auto-Start label in our program. Once we're out of that "envelope", the TI GPLLNK seems to run amok. Even saving all the utilities as we've shown in today's sidebar will not allow our Option 5 program to use the TI GPLLNK. The symptom that shows up is easy to describe, but so far we've not found any way to explain it. Let's say for example that we've used BLWP @GPLLNK followed by DATA >34 to make a beep when our program is ready for a user input. In normal Option 3 mode, where we've typed in the entry point as a PROGRAM NAME, all is well. The beep happens as expected, and as long as we've remembered to include LIM1 2 and LIM1 0 in our key acceptance loop, the beep stops itself after the normal duration.

If, however, we used the Auto-Start option in our Option 3 program, the beep results in taking us immediately out of our program. It places us at the PROGRAM NAME input location (without the prompt), and our program is essentially dead. We can type

(See Page 18)

```

LWPI TWS      LOAD TEMPORARY WORKSPACE
LI R9,>2094   POINT AT START OF UTILITIES
LI R10,SAVIT POINT AT MEMORY SPACE
LI R4,>23BA->2094  LOAD R4 WITH LENGTH OF BLOCK
GETI.P MOV *R9+,*R10+  MOVE ONE WORD AND INCREMENT POINTERS BY TWO
DECT R4      DECREMENT COUNT BY TWO
JNE GETI.P   IF NOT ZERO, REPEAT
LI R0,>1000   POINT R0 AT PERIPHERAL ACCESS BLOCK IN VDP
LI R1,SPABIT POINT TO DATA FOR PAB
LI R2,25     25 BYTES TO WRITE
BLWP @>2110  WRITE PAB DATA INTO VDP (>2110 IS VMBW VECTOR)
AI R0,9      ADD NINE TO R0
MOV R0,@>8356  MOVE PAB+9 ADDRESS TO >8356
LI R0,>1020   POINT AT VDP BUFFER LOCATION
LI R2,6      SIX BYTES TO WRITE
LI R1,HEADER FOR FILE HEADER
BLWP @>2110  WRITE HEADER TO BUFFER
A R2,R0      ADD HEADER LENGTH TO VDP ADDRESS
LI R2,SLAST-SPFIRST  LENGTH OF ENTIRE PROGRAM IN R2
LI R1,SPFIRST  R1 POINTS TO START OF PROGRAM
BLWP @>2110  WRITE MEMORY IMAGE TO VDP BUFFER
CLR @>837C    CLEAR GPL STATUS BYTE
BLWP @>2120  CALL DSR LINKAGE VECTOR AT >2120
DATA 8
LWPI >83B0   LOAD GPL WORKSPACE
CLR @>837C    CLEAR GPL STATUS BYTE
B @>006A     RETURN TO GPL INTERPRETER
TWS BSS 32   TEMPORARY WORKSPACE
HEADERDATA 0,SLAST-SPFIRST,>2678
* CHANGE FILE NAME IN SPABIT AS NEEDED
* BE SURE LENGTH BYTES AT SPABIT+9 MATCHES LENGTH OF NAME
SPABIT+DATA >0600,>1020,0,SLAST+6-SPFIRST,>000C
TEXT 'DSK1.ANYPROG'
END
* END OF SECOND "SANDWICH"

```

## HORIZON COMPUTER

RAMDISK BARE BOARD, Manual + ROS 8.14 \$50

Zero K Kit = above + parts NO MEMORY \$110

128k Memory NOW \$30 each 32k \$9 each

128k Kit = \$140 or \$170 Built

256k Kit = \$170 \$200 Built

384k Kit = \$200 \$230 Built

512k Kit = \$230 \$260 Built

1 MEG Kit = \$370 \$400 Built

1.5 M Kit = \$490 \$520 Built

Add a RAMBO Mod \$45 (KIT)

256/800 PHOENIX KIT=\$400 or \$430 Built

Digiport = \$40 Horizon Mouse = \$40

P-GRAM Kit 72k = \$150 or \$180 Built

P-GRAM+ Kit 192k = \$180 or \$210 Built

Clock for P-GRAMS = \$20 U/G 72k to 192k \$50

ALL KITS Include ALL PARTS, DOCs + Software

## Memory Expansion for the GENEVE 9640

MEMEX 504K+ \$225

MEMEX 504K+GENMOD \$325

MEMEX 1008K+GENMOD \$365

MEMEX 1512K+GENMOD \$405

MEMEX 2016K+GENMOD \$445

GENMOD allows all 2 meg use at ZERO Wait

ON HOLD > >>>> THE ACCELERATOR >>> ON HOLD

180/256k HRD Mod \$40 PUT 32k MEM on HRD \$25

Prices will change IF MEMORY COSTS go up

OHIO Residents ADD 6% Sales Tax

FREE Shipping to US & CANADA Add \$5 AIR O/S

Send Order BUD MILLS SERVICES

with PHONE # to 166 Dartmouth Drive

Toledo OH 43614-2911

CALL 419-385-5946 voice or 419-385-7484 BBS

for More Information or Current Pricing

**NEW  
LOWER  
RAMDISK  
PRICES  
NOW**

**GENMOD is added  
to YOUR GENEVE  
Call for INSTALL \$**

# FREEWARE • THE TOP IN QUALITY, SELECTION AND VALUE

ONLY  
**\$4.95** Per Disk

•• Public Domain and Shareware for the Texas Instruments TI-99/4A Computer.

**TEX+COMP**  
Celebrating Our Tenth Year

## NEW TITLES INCREDIBLE FOR 1992 SOFTWARE

NEW BONUS PROGRAM  
SAVE AS MUCH AS 33%

GAMES • BUSINESS • GRAPHICS • WORD PROCESSING • UTILITIES • DATABASE • MUSIC • COMMUNICATIONS • HOME

BUY FIVE DISKS GET ONE FREE

BUY TEN DISKS GET THREE FREE

BUY FIFTEEN DISKS GET FIVE FREE \$3.70

TWO HUNDRED GREAT DISKS WITH MORE COMING

WATCH FOR THEM! PER DISK!

**#114. PANORAMA**  
A drawing and illustration program that compliments Graphx and TI Artist. A must for the serious 99/4A artist!  
**#115. GRAPHICS DESIGN SYSTEM**  
A complete system for creating graphic screens in full color for your programs by J. Peter Hoddie. Fully documented.  
**#116. FOURTH TUTORIAL**  
A lesson in FORTH programming on how to create graphics.  
**#117. UNIVERSAL DISASSEMBLER**  
This powerful utility written in Forth allows disassembly of programs off disk in any format, in memory, and even off of P-Box cards. Very complete with some very unique features.  
**#118. FAST TERM**  
One of the most popular and recommended of the 99/4A terminal emulator programs. Supports TE-II, ASC11, and X-Modem transfers, print spooling and more. Loads from Exbasic or E/A.  
**#119. RAG LINKER**  
A utility for converting DIS/FIX 80 assembly object code files to PROGRAM image. This allows files to load faster and take up less space on disk. Full Doc

**#120. BITMAC**  
The original BITMAC is now available at \$4.95 with all original documentation. A powerful graphics program for the 4A which lets you print where you want...even over pre-existing text. Create great graphics in 16 colors, print text sideways, mirror image, upside down etc. etc. A must for anyone into 99/4A graphics. Comes with second bonus disk with utilities such as sign & banner makers. Even can computer generate your own signature!  
**#121. SUPER YAHTZEE & WHEEL II**  
If you like Yahtzee this disk is for you. A great version written in high speed assembly. Also included is another version of Wheel of Fortune which also lets you create your own puzzles with a puzzle edit program included.  
**#122. ADULT ADVENTURE**  
A truly adult adventure for use with the TI Adventure Module. Also included is a bonus adventure (not adult) "LOST GOLD" which is one of the better ones we have seen recently.

**#123. GREAT 99/4A GAMES, VOL V**  
THE FIFTH IN OUR BEST SELLING GAME COLLECTION SERIES. TWO DISK SIDES PACKED WITH THE BEST!  
**#124. GREAT 99/4A GAMES, VOL VI**  
TWO MORE DISK SIDES FILLED WITH THE BEST GAMES AVAILABLE.  
**#125. BLACKJACK & POKER**  
A DISK BACKUP FOR MODULE OWNERS.  
**#126. VIDEO CHESS**  
A DISK BACKUP FOR OWNERS OF THE ORIGINAL MODULE ON IN EXBASIC!  
**#127. PIX-GRAPHICS UTILITY**  
THIS IS THE FREEWARE VERSION OF JIM REISS' UTILITY THAT CAN DISPLAY TI-ARTIST, GRAPHX AND RLE GRAPHICS AND CONVERT FORMATS.  
**#128. TETRIS--THE SOVIET MIND GAME!**  
THIS INTERNATIONAL HIT IS NOW AVAILABLE FOR THE 99/4A. EXBASIC AUTOLOAD AND ENGLISH INSTRUCTIONS.  
**#129. CASH DRAWER**  
A COMPUTERIZED CASH REGISTER PROGRAM THAT PRINTS RECEIPTS, COMPUTES DAILY TOTALS AND EVEN FIGURES SALES TAX.  
**#130. THE ORGANIZER**  
THE ORIGINAL ORGANIZER PROGRAM WHICH LETS YOU ORGANIZE, SCHEDULE AND ARRANGE BUSINESS AND PERSONAL ACTIVITIES!

**#131. COMPUTER CRAPS**  
THE BEST CASINO CRAPS GAME AVAILABLE FOR THE 4A. COMES WITH FULL DOCUMENTATION.  
**#132. AMBULANCE**  
A DISK BACKUP OF THE ARCADE MODULE BY FUNWARE. LOADS IN EXBASIC!  
**#133. DRIVING DEMON**  
A DISK BACKUP OF THE ARCADE MODULE BY FUNWARE. LOADS IN EXBASIC!  
**#134. ROTO-RAIDER**  
A DISK BACKUP OF THIS HIT MODULE BY ROMOX. LOADS IN EXBASIC.  
**#135. ARCTURUS**  
A DISK BACKUP OF THE HIT SUNWARE ARCADE MODULE. TI'S ANSWER TO ZAXXON!  
**#136. ANT-EATER**  
A DISK BACKUP OF THIS HIT ROMOX MODULE  
**#137. CROSSFIRE**  
A DISK BACKUP FOR OWNERS OF THE ORIGINAL TI ACTION MODULE FROM SIFERRA ON-LINE.  
**#138. FIREHOUSE COOKBOOK**  
A TWO DISK SIDE COLLECTION OF THE BEST FIREHOUSE RECIPES. FOR ANY BIG GROUP!  
**#139. MOONMINE**  
A DISK BACKUP FOR OWNERS OF THE MODULE  
**#140. MASH**  
A DISK BACKUP FOR OWNERS OF THE ORIGINAL  
**#141. MOONSWEEPER**  
A DISK BACKUP FOR OWNERS OF THE ORIGINAL  
**#142. TOUCH TYPING TUTOR**  
A DISK BACKUP FOR OWNERS OF THE ORIGINAL  
**#143. CONGO BONGO**  
A DISK BACKUP FOR OWNERS OF THE ORIGINAL  
**#144. STAR TREK**  
A DISK BACKUP FOR OWNERS OF THE ORIGINAL  
**#145. BUCK ROGERS**  
A DISK BACKUP FOR OWNERS OF THE ORIGINAL  
**#146. THE PRESIDENTS**  
A TI FIRST! THE BIOGRAPHIES OF EVERY U.S. PRESIDENT ON TWO DISK SIDES. GREAT FOR SCHOOL TRIVIA AND HISTORY BUFFS.  
**#147. CALENDAR-NOTEPAD**  
THE BEST "CALENDAR MAKER" PROGRAM WE HAVE SEEN. KEEP TRACK OF APPOINTMENTS, SPECIAL OCCASIONS AND PRINT OUT ANY MONTH. INCLUDES A GREAT CALENDAR UTILITY FOR ANY DAY/DATE IN THE FUTURE!  
**#148. KENO & SLOTS**  
TWO TOP RATED GAMES BY BOB GASTONI. THE VERY BEST AND REALISTIC KENO GAME WE HAVE SEEN. JUST LIKE VEGAS!  
**#149. GREAT 99/4A GAMES VOL. VII**  
FEATURES "BLOCKBUSTER" THE ULTIMATE MULTI-LEVEL BREAKOUT GAME PROGRAMMED IN C.

**#150. ULTIMATE TRIVIA**  
A COLLECTION OF SEVEN INFORMATIVE AND THINKING TYPE TRIVIA GAMES-THE BEST!!  
**ATARI SOFT BACKUPS**  
**#151 JUNGLE HUNT\***  
**#152 POLE POSITION\***  
**#153 DONKEY KONG\***  
**#154 PROTECTOR II\***  
**#155 PAC MAN\***  
**#156 CENTIPEDE\***  
**#157 DEFENDER\***  
**#158 SHAMUS\***  
**#159 MS. PAC MAN\***  
**#160 DIG DUG\***  
**#161 PICNIC PARANOIA\***  
**#162 MOON PATROL\***  
\*DISK VERSIONS OF DISCONTINUED MODULES. LOAD IN EXBASIC-SOLD AS A BACKUP FOR MODULE OWNERS

**INFOCOM BACKUPS**  
**#163 ZORK I**  
**#164 ZORK II**  
**#165 ZORK III**  
**#166 HITCHIKER'S GUIDE TO THE GALAXY**  
**#167 WITNESS**  
**#168 ENCHANTER**  
**#169 INFIDEL**  
**#170 PLANETFALL**  
**#171 SORCERER**  
**#172 DEADLINE**  
**#173 CUTTHROATS**  
**#174 SUSPENDED**  
**#175 STARCROSS**

**TI BACKUP DISK-BACKUPS FOR THE OWNERS OF ORIGINAL. LOAD FROM EX-BASIC.**  
**#176 AMAZING**  
**#177 HOUSEHOLD BUD.MGT.**  
**#30 H.B.M.DATA PRINOUT**  
**#178 DEMON DESTROYER**  
**#179 POPEYE**  
**#180 QUEBERT**  
**#181 METEOR BELT**  
**#182 BLASTO**  
**#183 CAR WARS**  
**#184 FACE MAKER**  
**#185 SUPER FLY\***  
**#186 SPACE BANDITS\***  
**#187 BIG FOOT\***  
\* NOT FOR MBX SYSTEM BACKUPS OF HIT MODULES.  
**#188 KILLER CATERPILLER**  
**#189 ESPIAL (HIT VERSION)**  
**#190 BLACK HOLE & SPACE AGGRESSOR**  
**#191 GREAT 99/4A GAMES VOL. VIII.COLLECTION OF THE BEST. 2 SIDES**  
**#192 GREAT 99/4A GAMES VOL. IX. 2 SIDES PACKED WITH THE BEST GAMES EVER.**  
**#193 SPY'S DEMISE**  
DISK BACKUP OF THE ARCADE GAME BASED ON "ELEVATOR ACTION".  
**#194 ST. NICK, GHOSTLY SPELLING+, THE HIT GAME ON DISK PLUS EDUCATIONAL GAMES. TINY LOGO**  
**JOTTO**  
**#197 PRO TENNIS +**

ONLY  
**\$4.95** Per Disk  
BUY FIVE DISKS GET ONE FREE  
BUY TEN DISKS GET THREE FREE  
BUY FIFTEEN DISKS GET FIVE FREE

**TEX+COMP**  
AMERICA'S NUMBER ONE  
TI COMPUTER RETAILER  
P.O. Box 33084, Granada Hills, CA 91344

Charge-It On Your Visa or MasterCard ORDER BY PHONE

24 HOURS A DAY 7 Days a Week!  
**(818) 366-6631**

©1992 All prices F.O.B. Los Angeles. For fastest service send cashiers check or money order. Personal checks require up to 15 days to clear. Prices reflect a 3% discount for cash or approved check. Add 3% for Credit Card orders. Prices and availability are subject to change without notice. We reserve the right to limit quantities. California orders add 7.5% sales tax.



# FREEWARE THE TOP IN QUALITY, SELECTION AND VALUE

**\$4.95** Per Disk

**MORE**

•• Public Domain and Shareware for the Texas Instruments TI-99/4A Computer.



**TEX+COMP**  
Celebrating Our Tenth Year

**NEW BONUS**

**SAVE AS MUCH AS 33%**  
BUY FIVE DISKS GET ONE FREE  
BUY TEN DISKS GET THREE FREE  
BUY FIFTEEN DISKS GET FIVE FREE

## NEW TITLES FOR 1992 INCREDIBLE SOFTWARE

GAMES • BUSINESS • GRAPHICS • WORD PROCESSING • UTILITIES • DATABASE • MUSIC • COMMUNICATIONS • HOME

PROTECT YOUR INVESTMENT WITH DISK BACKUPS OF THE BEST MODULES!

MODULE BACKUPS FOR THE OWNERS OF THE ORIGINAL MODULES ALL LOAD FROM EXBASIC AND REQUIRE 32K MEMORY

- #198 TI INVADERS, TOMBSTONE CITY
- #199 MILLIKEN ADDITION
- #200 MILLIKEN DECIMALS
- #201 MILLIKEN EQUATIONS
- #202 CONNECT FOUR
- #203 MILLIKEN FRACTIONS
- #204 MILLIKEN INTEGERS
- #205 MILLIKEN LAWS OF MATHAMATICS
- #206 TREASURE ISLAND
- #244 HOPPER
- #245 SLYMOIDS
- #207 OTHELLO
- #208 PARSEC
- #209 SOCCER
- #210 SEWERMANIA
- #211 MIND CHALLENGERS
- #212 MINUS MISSION
- #213 MILLIKEN PERCENTS
- #214 STORY MACHINE
- #215 BEGINNING GRAMMAR
- #216 METEOR MULTIPLICATION
- #217 HANGMAN
- #218 HUSTLE/FOOTBALL
- #219 CHISHOLM TRAIL
- #220 ZERO ZAP
- #221 PERSONAL REAL ESTATE
- #222 MUSICMAKER
- #223 PHYSICAL FITNESS

- #224 ATTACK
- #225 ALIEN ADDITION
- #226 ALLIGATOR MIX
- #227 DEMOLITION DIVISION
- #228 DRAGON MIX
- #229 4A FLYER BACKUP
- \*\*\*\*\*
- #230 SINGING TI #2  
Two disk sides of show tunes actually sung. Speech Syn is required. Music Man & South Pacific
- #231 SINGING TI #3  
Two more disk side with selections from Wizard of Oz & Patsy Klein. Speech Req.
- #232 TUNNELS OF DOOM  
The module plus the two original programs on disk with two 2 all new TOD programs.
- #233 MS ADVENTURES  
Three great adventures and an ex basic loader
- SELECTED REPLACEMENT DISKS FROM THE HOME COMPUTER MAGAZINE.. PROVIDED AS BACKUPS
- #234 ON DISK V5 #1
- #235 ON DISK V4 #2
- #236 ON DISK V2 #11
- #237 ON DISK V5 #2
- #238 ON DISK V4 #4
- #239 ON DISK V4 #3
- #240 ON DISK V4 #5
- #241 ON DISK V2 #10
- #242 HC JOURNAL ON DISK VOLUME 1

**NOW AVAILABLE**

#243 OS/99  
(GRAM device required)



**TEX+COMP**

**CHARGE IT**  
WE ACCEPT VISA or MASTERCARD



**ORDER BY PHONE**  
24 HOURS A DAY  
7 Days a Week!

**(818) 366-6631**

TERMS: All prices FOB Los Angeles. For fastest service use cashiers check or money order. Add 3% shipping and handling (\$3.00 Minimum). East of Mississippi 4% tax. Add 1% for C. Add Card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.

NOTE: Payment in full must accompany all orders. Credit card Company check or Money order for immediate shipment. Personal Checks require up to 4 weeks to clear. Cash only orders add sales tax.

## THE ART OF ASSEMBLY—

(Continued from Page 15)

in the Program Name at the prompt and re-start, but that defeats the purpose of having the Auto-Start option in the first place. The same symptom will show up in the case of an Option 5 program that uses TI's GPLLNK. Why, you ask, does this happen? Sorry, but we don't know. We've tried numerous ways to get this effect not to happen, but always to no avail. We've resorted to using a separate GPLLNK routine (see No. 7 in this series) to provide the GPLLNK services in our programs.

If any of our readers can shed some light into this dark corridor of TI operation, we'd be happy to get some feedback on the matter. A letter to the Feedback column would be most appreciated, or even a letter to us at 5705 40th Place, Hyattsville, MD 20781, would be cheerfully accepted. In either case, we'd like to know the why of this little problem, and any solution short of providing a separate GPLLNK.

In the course of our many experiments to come up with a viable method of making the utilities available under Option 5, we've made a "mapping" of the locations of all these E/A utilities, which is probably worth sharing with our readers. Here it is:

VECTOR	ADDR	WORKSPACE/CODE
GPLLNK	>2100	>2094/>21C4
XMLLNK	>2104	>2094/>2196
KSCAN	>2108	>2094/>21DE
VSBW	>210C	>2094/>21F4
VMBW	>2110	>2094/>2200
VSBR	>2114	>2094/>220E
VMBR	>2118	>2094/>221A
VWTR	>211C	>2094/>22B2
DSRLNK	>2120	>209A/>22B2
LOADER	>2124	>20DA/>23BA

Most of these utilities use the workspace at >2094, and, except for the object code LOADER, their code sections end at >23BA.

A quick glance at our sidebar will reveal that we save all of the area from >2094 through >23BA into our program space. We don't save the loader's code, which extends some distance beyond >23BA, since we don't generally need an object code loader in our programs. We do save the contents of the workspace at >2094, since this seems necessary for correct operation of TI's DSRLNK. Thus 806 bytes are saved and replaced by our SAVIT and PUTUT loops.

Note here, as in some examples we've shown previously, that we use a temporary workspace while saving and loading the utilities, since those envelop our usual workspace at >20BA. Within the programs themselves we "recycle" parts of the memory used to stash the utilities as general purpose memory. For example, if we need a couple of 80 character spaces, we will use EAUT for one of them and EAUT+80 for another. We sometimes use that space for our subroutine return address stack.

### SECOND PART IS TRICKY

The second part of today's sidebar is a bit more tricky to use. In this case, you have to put the name of the planned Option 5 file directly in the source code, and remember to change the length byte at the end of SPABDT. In the example we've put in the name "DSKI.ANYPROG", which has 12 characters in it, and made

the length byte >0C at the end of SPABDT.

There are reminders in the source code that bear highlighting here as well. When you wrap this "sandwich" with the source code shown, you must be sure to remove the END directive from the end of your main program, else the assembler will never assemble the second slice of bread. Also, in the case of the low memory programs, there will be an AORG at the start of the main program. This must be removed so that the AORG in the first part of our "sandwich" will define the memory location for the program. We've used >2678 in that AORG directive, since that's usually the first available low memory location when we start up under E/A.

In this second part of source code, we've used absolute numbers for the utility vectors VMBW and DSRLNK, and the absolute address for the GPL STATUS byte and GPL Workspace. This was done simply to avoid conflicting with the REF statements you may have included in the main program's code. We'd create Assembly errors if we also REF'd the same utilities, so we took advantage of our "mapping" to put the absolute numbers in here.

Before we leave this subject, we'll call your attention to the DATA at the line labelled HEADER in the source code. When TI's SAVE utility is used to make Option 5 files, it takes care of placing the header on the file for you. Here, where we are in effect making our own "SAVE" utility, we compose the header in three data statements. The first data word is zero to indicate that this file is not "chained" to others. Thus the Option 5 loading process will not bother looking for another file named "DSKI.ANYPROH" to load after "DSKI.ANYPROG".

The second word of data in the header is the length of the actual memory image content of the program. We've made the Assembler calculate that number for you by placing the expression SLAST-SFIRST in the data line. (A similar trick was used in the PAB data, with +6 added to account for the header.) The last of the three words is the origin of the program in memory, and this we've set to >2678. If you've used some other origin, you might want to change that to read SFIRST instead of an absolute number.

If your low-memory program is tight for memory space, you could place an AORG >A000 directive just before label GETUT, so that the second slice of bread will appear in high memory instead of using valuable low-memory space.

Please remember that the method shown in today's article is only one way of getting across from Option 3 to Option 5. There are probably a hundred or so other ways to accomplish this mission, but we've given you a way that we know works reliably, because we've used these methods in our own programs. We'd be very pleased if readers who know "better" ways would share them through letters or items for the "User Notes" column.

### NEXT MONTH: GENEVE COMPATIBILITY

In our next article, we'll try to wrestle with some problems of making programs compatible with Geneve. That effort will be hampered somewhat by the fact that we don't own one of those, but our tips will be rather generic anyway.

## Lima Fair Update

# Bud Mills says SCSI interface due in August

A SCSI interface for the TI99/4A will be ready in August, according to Bud Mills of Bud Mills Services, in a recent telephone conversation with MICROpendium.

Mills and Don O'Neil of Western Horizon Technologies, who is developing the SCSI, discussed it and several other hardware products at the Lima Multi User Group Conference in May.

A SCSI (pronounced *scuzzy*) will support up to seven drives, and will allow data to be transferred to the P-box at the rate of one megabyte per second, according to O'Neil. It will allow the TI to talk to scanners and allow ASCII files to be read from IBM format to TI-Writer without a con-

version program.

Estimated price for the SCSI is \$170.

O'Neil says his Accelerator is no longer "on hold" and he is working on it again after receiving information from TI. Depending on options used, the Accelerator will cause the TI to operate at eight times the console speed or twice the speed of the Geneve. Al Beard has agreed to write floating point math routines for it, he says.

Another product in the works is a 4A MEMEX card which will operate similarly to the MEMEX card for the Geneve. Expansion up to 16 megabytes would be possible, O'Neil says. O'Neil demonstrated his DigiPort sound product at Lima also.

Bud Mills Services is at 166 Dartmouth

Dr., Toledo OH 43614-2911. Phone number is (419) 385-5946 (voice) or (419) 385-7484. Western Horizon Technologies is at 10225 Jean Ellen Dr., Gilroy, CA 95020, (408) 848-5947.

### MIDI-MASTER V.3 COMING

Mike Maksimik of Crystal Software told fairgoers that he is nearing completion of V.3.0 of MIDI-Master, which is scheduled to have several configurations. MIDI-Master operates with the TI and a MIDI-compatible keyboard, using the RS232 interface.

V.3.0S (standard) requires a TI99/4A with 32K and a disk system. Two disk drives are preferable, but not required.

(See Page 20)

## McKechnie, active Tler, victim of 'thrill kill'

John McKechnie, author of hardware articles appearing in a number of publications, including MICROpendium, was found dead in the taxi he drove in East Vancouver, British Columbia, Canada.

According to a message posted by James Atrill of the BC 99ers and appearing on a number of TI bulletin boards, McKechnie had been shot in the head and twice more in the upper torso. He was found slumped forward over the wheel with the engine running and his foot still on the gas pedal. He had not been robbed. As there were no sign of a struggle and all shots came from behind, a theory advanced is that the slaying may have been a "thrill kill."

McKechnie had unearthed the changes required to use the Super Extended BASIC Cartridge in a Widget and to allow full use of the SEB's editing features or John Guion's Multi-Mod with the Rave keyboard. McKechnie designed a number of circuits for use with the Foundation memory card, which first brought memory capacity up to 1 meg., then battery backed the card, then allowed the card to function as a Horizon compatible RAMdisk with memory backup via a Super Computer.

He had established the West End Bulletin Board Service, the first dedicated TI BBS in the Vancouver area. According to the post, his efforts were instrumental in a number of changes to the Tex-Link BBS program to improve hard drive support.

McKechnie was active on GENie and had served as the North West Representative for Delphi's TI-NET, serving as a confer-

ence host and moderator.

He was a member of the Central Presbyterian Church in Vancouver, where he sang in the choir, and had recently modified the church lighting and rewired the building to reduce power consumption. He had donated computer equipment and computerized the church's administrative functions. As a volunteer for the Vancouver Co-op radio station, he maintained and repaired equipment.

Funeral services were held May 31 at Central Presbyterian Church. Those attending included an estimated 1,200 taxi drivers.

A memorial trust fund to benefit Patti McKechnie, his wife of less than two years, was established by Jan Prins, owner of Advance Cabs. The Vancouver Taxi Association has pledged to match whatever amount the existing fund generates. The B.C. 99ers will contribute to the fund and also accept donations on its behalf, according to the post.

Contributions may be sent to The John McKechnie Memorial Fund, c/o The Bank of Montreal, 2 W. Hastings, Vancouver, B.C., Canada, V3L 2B2, phone (604) 665-7200; or c/o B.C. 99er Users' Group, 216 10th Ave., New Westminster, B.C., Canada, V3L 2B2, phone (604) 522-2598; or c/o the B.C. 99er Users Group, Ste. K, 237 W. 2nd St., North Vancouver, B.C., Canada V7M 1C9, phone (604) 988-0515.

Checks or money orders should be made payable to the John McKechnie Memorial Fund in all cases. Cards and letters for Patti McKechnie may be directed to either of the addresses for the users group, but the post asks that they clearly indicate the

## LIMA REPORT—

**(Continued from Page 19)**

V.3.0E needs 128K plus 32K, and will work with the RAMBO Mod or the forthcoming 4A MEMEX. Maksimik says he developed this because of requests for a more expensive system. This can load in more music including converted Cakewalk files from IBM.

V.3.0EX will run on a 99/4A with extra memory and 9938 video. It uses graphics for a full screen display with notes. It will access a RAMBO device or a 256K RAMdisk.

V.3.0G is for a Geneve 9640 system and a mouse. It needs 128K memory free and will access RAMBO or a MEMEX card.

Maksimik says V.3.0S will probably be his last release for a standard 32K system.

The MIDI-Master sells for \$45 from Crystal Software, 635 Mackinaw, Calumet City, IL 60409-4014.

**NEWSLETTER CLEARINGHOUSE**

Irwin Hott reported that the newsletter clearinghouse has been up and running since November and that 17 or 18 user groups belong. The board has 11 libraries which contain original material from newsletters, which member groups can upload or mail on disk.

Material includes articles from U.S. user group newsletters; articles from Sweden, Australia and England; and Tips from the Tigercub and miscellaneous articles by Jim Peterson.

The clearinghouse functions as part of the Spirit of 99 BBS, (614) 851-0708, operated by the Central Ohio Ninety-Niners.

**RICH GKXB ON POP-CART DISK**

Gary Bowser of Oasis Pensive Abactors demonstrated his TI Image Maker and the Pop-Cart, a cartridge containing a set of programs. These programs may be user designated or selected by OPA. (See April 1992 MICROpendium). The version shown at the Lima fair contained, among other programs, a new operating system and RICH GKXB and RICH GKEA, enhanced Extended BASIC and Editor/Assembler programs developed by Rich Gilbertson.

Bowser says OPA is developing an accounting package which will require RAMBO memory

and have an autosave capability.

OPA is at 432 Jarvis St. 501-502, Toronto, Ontario, Canada, M4Y 2H3. Phone is (416) 960-0925 (8 a.m.-1 p.m. eastern time); (416) 963-8484 (24-hour hotline); (416) 921-2731 (24-hour BBS).

**LOU PHILLIPS TO PROGRAM**

Beery Miller of 9640 News spoke about his work on purchasing MDOS and development prospects for Geneve 9640 software. He says Lou Phillips of Myarc says he hopes to write applications and routines for the machine once the transaction is carried out. (See April 1992 MICROpendium.)

He says Phillips told him that some dealers still have unsold Geneves, and that fewer than 1,000 of the machines were sold.

Miller publishes the magazine on disk, 9640 News, P.O. Box 752465, Memphis, TN 38175-2465.

**OTHER PRESENTATIONS**

Other presentations on the tape from the Lima fair include:

- Lee Bendick demonstrating TI's 99/8, only 250 of which were ever made.

- Ken Gilliland demonstrating products from Notung Software, 7647 McGroarty St., Tujunga, CA 91042, (816) 951-2718.

- Dolores Werths of Harrison Software demonstrating uses of a MIDI for a musician, including using it as a "music minus one" device for practicing a single part in a duet or ensemble. Bruce Harrison of Harrison Software demonstrating other products from the company, 5705 40th Place, Hyattsville, MD 20781-1727.

- Charles Good of the Lima Users Group demonstrating changes in the text editor of Tony McGovern's Funnelweb program.

- Joe Ross demonstrating c-Shell 99. Write him at 119 Knollwood Terrace, Clifton, NJ 07012.

- Ken Gladesevski demonstrating a robot interface, analog to digital conversion for a temperature sensing device and limited voice recognition, all with a TI. Schematics and articles relating to the project are available from him. Send a large self addressed envelope with two postage stamps to him at 6440 St. Rt. 86, Concord, OH 44077.

(See Page 21)

## National group adopts hardware standards

The National Committee for TI Standards released the following hardware standards after a meeting at the Lima Multi Users Group Conference in May, according to Don O'Neil, facilitator for the group:

Level A: TI99/4A console, TV or monitor, cassette deck and cable.

Level B: Level A plus 32K memory expansion, EA/5 loader (e.g., Extended BASIC, Editor/Assembler, Super-cart, TI-Writer, Multiplan).

Level C: Level B plus RS232, double-sided single-density disk drive and controller.

Level D: Level C plus 128K or greater CPU RAM bankable in at least 8K segments.

Level E: Level D plus 9938/58 VDP with 128K VDP RAM (any 80-column card) or a Geneve.

The group selected as its first project to write a universal DSR for memory access to all current extended memory cards (Myarc/Cor-Comp 128/256/512K, RAMBO, Geneve, RAVE, etc.)

The group plans to exchange information about the current RAM cards at the Chicago TI Faire Oct. 31, O'Neil says. Once the DSR is completed and documented, the group plans to release it in the public domain. Persons with information on accessing RAM cards are asked to contact NCTIS at the Chicago Faire or members of the group which met in Lima.

They include O'Neil; David Connery, Used TI Equipment; Vic Steerup, consumer, Beery Miller, 9640 News; Mike Maksimik, Crystal Software; Bud Mills, Bud Mills Services; Mark Wacholz, Media Ware Software; Ken Gilliland, Notung Software; and Mike Sealy, MS Express Software.

# Newsbytes

## Publication highlights TIs at Marian Hall

SALT, a quarterly magazine for friends of the Sisters of Charity, BVM, recently carried an article about retired members of the order at Mount Carmel and Marian Hall in Dubuque, Iowa, using computers.

The article was sent to MICROpendium by William Berendts, who along with his wife recently visited Sister Pat Taylor at Marian Hall. Sister Pat told MICROpendium that Berendts made a video for the Ozark 99ers, who had made donations of computer materials, of the banners produced by the sisters. She noted that Leland Piper of the Ozark 99ers had created many of the graphics used on the banners there. When the visit was made, 81 banners were on display for Nursing Home Week, all created with the TI, she said.

The article noted that Sister Pat had begun with one donated TI and programs in 1987. Now there are three TI systems at Marian Hall and three being used by members of the order in the community.

A second computer has been readied for the computing classes by Sister Margaret Mary Flynn, taught to Dubuque senior citizens at the Roberta Kuhn Center. Sister Pat uses one to teach keyboard skills and program use to a Dubuque man who is paraplegic because of spina bifida.

Other TI uses highlighted in the article are word processing for Christmas letters which can be individualized as desired and decorated with computer graphics.

"Catherina Walsh, BVM, did 70 letters last December; Noreen Walsh and Blandina Mosgrove did almost 100," states the article by Mira Mosle, BVM.

Also in use are mail lists and labels, provided by Beatrice Joyce, BVM, and others. The article quotes Sister Pat as saying that these "'save shaky hands from having to write addresses."

Also, Florentina Daly, BVM, assisted by Ann Michele Shay, BVM, personalizes more than 200 birthday signs for each resident in the course of a year, the article says. Sisters color in these messages as well as sign-up sheets for house activities and celebrations. Hand-colored banners are also generated by the sisters. Sister Pat notes that Sister Alice Caulfield asked her to print house goals in an illustrated form to aid sisters with memory impairment from age and disease.

Agna Condon, BVM, generates greeting cards for the sisters and for use as bingo prizes and as a donation for a parish which sends the greetings to its elderly for birthdays and uses them as fund-raisers.

Modified keyboards aid Thomas Greene, BVM, and others who can use only one hand, the article says. Volunteers have designed adjustable "compute mobiles" to accommodate the height needed for wheelchairs.

The article also discussed meetings of lay TI users hosted at Marian Hall.

Sister Pat told MICROpendium that many user groups send newsletters to Marian Hall.

She adds that many computers are in closets which with a few modifications could help individuals with diseases and impairments. With its large print, the TI is ideal for aged individuals she notes.

"Three sisters who are in their 90s who never even used it before are using it today," she notes. "So I'd say to younger people, 'What are you afraid of?'"

Computer equipment donations may be made to Marian Hall c/o Sister Pat Taylor, 1050 Carmel 132, Dubuque, IA 52003.

## Redesigned mouse released by Asgard

Asgard Software has reduced the price on its mouse to \$39.95, a savings which Chris Bobbitt of the company says has resulted from recent design changes which he says also have produced a more reliable product. The company has also released a new program, Page Pro Composer.

Installed by attaching to an RS232 connector, the mouse can be used by plugging it in and running any Asgard Mouse compatible program. A disk included with the device contains a driver for using the mouse with TI-Artist/TI-Artist Plus, as well as two demonstration programs.

Until Nov. 1, Bobbitt says, a copy of Asgard's Classic Checkers, which retails for \$14.95, will be included with each mouse ordered. He notes that previous problems related to sporadic shipments of the Asgard Mouse have been resolved.

Page Pro 99, written by Bobbitt, is a two-disk package said to allow the user to create documents of almost 1,000 pages; print pages in either landscape or portrait page orientations; and create pages in a range of different printer resolutions. Each page can contain up to 30 pictures of any size, according to Bobbitt. He says the extended printer support means that even the largest pictures converted from PCX files with Asgard's GOFER, or from MacPaint format with Asgard's Pix Pro, can be displayed and printed as is.

(See Page 22)

## LIMA REPORT—

(Continued from Page 20)

- Mickey Schmitt of MS Express Software, demonstrating adventure games, and Norman Rokke, demonstrating his Sliding Block Puzzles marketed by the company. MS Express is at P.O. Box 498, Richmond, OH 43944-0498.

- Eunice Spooner teaching TI Logo to Meaghan Good, a first-grade student who had no experience to the program prior to the conference. A five-hour Logo videotape and a demo disk are available for \$10 from her at Webb Rd. Box 3720 RFD, Waterville, ME 04901.

- Mark von Copenolle of CaDD Elec-

tronics, demonstrating the Gramulator, a device which allows the user to save a cartridge to disk, and the disk version of RICH GKXB. CaDD Electronics is at 81 Prescott Rd., Raymond, NH 03077-2624.

- Interviews by Mel Nomina of vendors at the fair.

The 17-hour set of three videotapes are available to any users group, dealer or paid member of the Lima Users Group for \$15, or for three blank tapes and \$3.75. Send payments to the Lima Users Group, c/o Charles W. Good, Box 647, Venedocia, OH 45894.

# Newsbytes

(Continued from Page 21)

He notes that although Page Composer can work by itself, it works best used with Page Pro 99 and compatible artwork.

"In conjunction with Page Pro 99 it is a powerful tool for laying out newsletters and periodicals, reports and other documents," he says.

Page Composer was written to work specifically with a mouse. Similarly to mouse software for other computers, Page Composer features an icon interface where program functions are selected by "clicking" a picture; scroll bars and arrows for moving the window around pages; "dialogue boxes" where users se-

lect options and specify filenames; and "buttons" for making choices between options. Typing is required only for entering filenames and page numbers. While compatible with both the keyboard and joysticks, the program is most easily used with an Asgard Mouse, according to the manufacturer.

The program is fully compatible with the HFDC and the Geneve 9640.

The suggested retail price of Page Composer is \$17.95. Owners of Page Pro 99 can purchase the program for \$14.95 by including a photocopy of the program disk with their orders. A shipping and handling charge of \$3 needs to be added to all orders.

Orders may be sent to Asgard Software, P.O. Box 10306, Rockville, MD 20849.

## ImageWise programs available from R.F.W.

Several video digitizer programs for use with the ImageWise system and the TI99/4A are marketed by R.F.W. Enterprises.

ImageWise for the 9918A Video Display Processor by Steve Languth contains three programs, GRAB, SHOW and CONVERT.

GRAB transfers the data from the ImageWise digitizer/transmitter board to the 99/4A, then to disk as a data file 246 sectors long in display fixed 128 format.

SHOW, written in Extended BASIC, is used to send a picture file created with GRAB and the d/t board to the receiver/display board to be displayed on a TV monitor. (The program and the receiver/display board are not necessary to digitize pictures and use them with the 99/4A.)

CONVERT converts the data file created with GRAB and the d/t board into a form that can be used with the 99/4A. The user can save the picture created with CONVERT in TI-Artist format. This allows the user to use TI-Artist to enhance pictures and use various slide-show programs.

Source code is included in the package, which sells for \$9.95 plus \$1.50 shipping and handling.

ImageWise Portrait Print is a poster size print routine for Epson and compatible dot matrix printers that can handle compressed mode printing. It will print a 17x22 inch poster size printout of an ImageWise digitizer GRAB file, according to the manufacturer. It requires a TI99/4A or compatible, 32K memory expansion, disk drive system and an Editor/Assembler type five loader. Price is \$5.95 plus \$1.50 shipping and handling.

The ImageWise Display Routine by Barry Boone was designed for use on a TI99/4A computer with a Yamaha 9938

(See Page 23)

## READER TO READER

Giancarlo Antici, via G. Cardano 170 C 2, 00146 Roma, Italy, would like to correspond with other TI99/4A users who use the hard disk and Hard and Floppy Disk Controller. He has used it for one year, "experiencing various problems, but also finding solutions and fitting software for use with the HD, and would like to share experience with other interested people, everywhere in the world."

Curtis A. Gadd, 17412 Clifton Blvd., Lakewood, OH 44107-2212, a member of TI Chips in Cleveland, writes:

Is it possible that someone in the TI world has written an amortization program that will accommodate or accept payments of unequal amounts and recompute balances?

All of the amortization programs I have or have heard of for the TI only accept fixed data — example, fixed amount of mortgage, fixed term of payments and fixed rate of interest. There are programs for our PC but very expensive. As it is, when I receive a payment with an additional sum to be applied to principal, I have to haul out my HP 12C calculator. It would be nice to boot it up in the TI and print out the results. Can anyone help?

Robert M. Carmany, 1504 Larson St., Greensboro, NC 27407, writes:

While going through some old MICROpendium magazines, I came across a review for Super Extended BASIC. It seems the cartridge was manufactured by Millers Graphics in 1987 (and later) and subsequently marketed by Triton Products. Since both are no longer in the TI business, I wonder if there is any other source currently available for this cartridge. I have been unable to locate a vendor that advertises the SXB cartridge in any literature. If anyone knows of a source for either the SXB cartridge or the German-produced Expanded Extended BASIC that was introduced at the 6th TI-Treffen in Berlin, I would appreciate hearing from you. Either will do for the programming application that I have in mind.

Ernest Feil, 449 Purrington, Petaluma, CA 94952, writes:

I have a Mechatronic 80 column, defective. Where can I get it repaired?

Michael Mickelsen, 1549 Webster Lane, Des Plaines, IL 60018, writes:

I am looking to install 32K in my TI console or the Speech Synthesizer. I have 6264LP15 chips. Does anyone have information on how to wire these chips for use with the TI?

**Reader to Reader is a column to put TI and Geneve users in contact with other users. Address questions to Reader to Reader, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.**

## MICRO-REVIEWS

# Bluffoon, Page Pro Border Fonts, TI Casino Supplement, and Household Budget

By STAN KRAJEWSKI

I would like to thank the software companies (you know who you are) for sending enough software to keep this column going. I have been notified that these reviews are doing their job by increasing these companies' sales. This helps us, the users, by making software for the TI profitable enough so these individuals may continue creating new and exciting software. Again, thanks.

It is only fair to mention the catalogs available from other companies. Notung has a 20-page 1992 catalog in a nice booklet form, packed with a lot of software goodies. Write them at 7647 McGroarty St., Tujunga, CA 91042. OPA (Oasis Pensive Abacutors), on the other hand, has a new twist. They issue their 1992 catalog on a disk. This file is 272 sectors and can be run with TI-Writer or its clones using the Formatter. A written request can get you a hard copy catalog. They offer hardware that you didn't know existed. One item of interest is POP (piles of programs) cart. This amazing item, the size of a cartridge, can hold up to 16 TI and third party car-

tridges and 16 assembly programs from disk. Maybe sometime they will send one of these amazing pieces of hardware for review. You may contact them at 432 Jarvis St., Ste. 501-502, Toronto, Ontario, Canada M4Y 2H3.

Ratings for the software reviewed in this column are based on the Star system that follows.

★ Leave it alone, back to the drawing board.

★★ Needs improvements, but workable.

★★★ A good program, worth trying.

★★★★ Send your money and buy it.

---

★★★  
**BLUFFOON**

---

Here is a game similar to Hangman but with better graphics and able to handle up to 10 players. System requirements are Geneve 9640 or TI99/4A, 32K memory, Extended BASIC and a disk drive.

The program has a Extended BASIC auto load program which will briefly display the now familiar title screen of Dennis Rebello's programs. When the program begins, you will first be able to enter your

names. Starting with player one, you now enter a word with up to 16 letters while the other players turn their backs. Pressing enter clears the word and the computer makes a sound letting the other players know to turn around. The top of the screen will display "THE WORD HAS — LETTERS. CAN YOU GUESS WHAT IT IS?" The number of letters the word has will fill the blank space. Below that is the number of dashes the word has. Also, on the bottom left the score is displayed and on the bottom right is a clown holding eight balloons.

Now each player will take turns guessing a letter. For each wrong guess the clown will release a balloon. For each correct guess the letter or letters will appear in the appropriate dashes. This will continue until all eight balloons are released or the word is solved. The next player then enters a word.

The score is displayed for each player who entered the word. If all the letters are guessed without a mistake, the player doesn't receive any points. For each wrong guess the score increases by 10 points. If the clown releases all his balloons, the player receives an additional 50 points. The word will then be displayed for all to see. After all players take turns, another menu will appear. You will have the options to: Press "R" for another round, "N" for New Game or "D" Done.

Children and adults alike can use this user-friendly game. This type of game does not seem to exist in abundance, so we can welcome it as another needed new product. I would note, however, that a player needs to watch for accidental key-presses of number keys and the space bar, which will inadvertently release a balloon. Other than that, have fun.

Bluffoon is available from D&L Software, 89 Little Neck Ave., Swansea, MA 02777. Price is \$8.95 + \$1 S&H.

---

★★★  
**PAGE PRO BORDER FONTS**

---

Are you tired of Line Graphics supplied  
(See Page 24)

## Newsbytes

(Continued from Page 22)

VDP but can be used in GPL mode on the Geneve 9640. It will load from a disk drive an ImageWise GRAB file and display it on your computer's monitor, utilizing the Yamaha 9938's high resolution 512x212x16 color non-interlaced mode.

Price is \$5.95 plus \$1.50 shipping and handling.

ImageWise Pictures are digitized pictures in 64 gray scale. They have been digitized using an ImageWise video digitizer and compressed and archived using Barry Boone's program Archiver.

Volumes 1A and 1B, sold as a set, contain, Birds No. 2, Charlie Chaplin, The Jetsons No. 2, Batman No. 2, The Jetsons No. 3 and Latoya Jackson No. 1.

The set of Volumes 2A and 2B contains The Jetsons No. 4, Michelle Pfeifer, Woman No. 1, Bat Beam, Carl Reiner and Tom Brokaw.

Each set sells for \$3 plus \$1.50 shipping and handling.

Order from R.F.W. Enterprises, 111 Oakridge St., Chicopee, MA 01020. Inquire about delivery charges before sending foreign orders. For information on the ImageWise Digitizer or display board, send a self-addressed, stamped manila envelope.

Reach thousands of TI/Geneve users free of charge. Send your product or other announcement to Newsbytes, P.O. Box 1343, Round Rock, TX 78680.

## MICRO-REVIEWS—

(Continued from Page 23)

on the Page Pro 99 disk? Then you need this collection of Page Pro Border Fonts, from here on in called PPBF. System requirements are Geneve 9640 or TI99/4A, 32K, disk drive, printer and Page Pro 99 program.

These two SS/SD disks include 24 different sets of fonts for creating your own borders, nine sample borders and the original Page Pro default large font. Using these fonts you can make larger borders faster and look better. You can start by looking at the nine sample borders included. You can work from them or look at them to see what you can create. Loading a PPBF set is as easy as loading the large fonts, by pressing Ctrl A. Using the large font option you create one large font size at a time. This lets you create a border faster than line graphics.

Once PPBF is loaded your active keys are the Ctrl arrow keys that operate the cursor, and the "W," "E," "R," "S," "D," "Z," "X" and "C." These eight keys are eight fonts of a set that create the different graphics you need for one border. Picture these keys as a square. The "W" is the left corner. The "S" is the left side, the "E" is the top and so forth. By using the Page Pro assigned arrow keys and PPBF keys, you create a complete border with tops, sides and corners.

Once you create a border you can then save your art to a picture format. You can reload it by using the Ctrl L keys, just as any other page. Although a border or frame can take up to 210 sectors, it will save you from having to create it again. This is where the Page Pro Default font comes in. By having this on your work disk you are free from having to reinsert the Page Pro program disks.

Page Pro Border Fonts volume 1 is available from Media Ware, Ste. 15, 2141 NW 64th Avenue, Sunrise, FL 33313-3950. The two-disk set sells for \$7 + \$2.50 S&H.

★★★

### HOUSEHOLD BUDGET

The old TI cartridge, Household Budget Manager, was cumbersome to use and didn't include a hard copy option. This program is easier to use and has a print option.

System requirements are Geneve 9640 or TI99/4A, 32K, disk system and Extended BASIC, with printer optional.

Household Budget is an Extended BASIC program with Assembly language sub-routines which speed up the processing of the program functions. One of the first things you will notice is that this program will let you define up to 21 categories of your choosing. Also, you can enter the amount of money you want budgeted for each category, and this information is saved for future reference if desired.

The main index includes these features: 1—Budget Categories, 2—Load Data File, 3—Edit Expenses, 4—Display Report, 5—Print Report, 6—Save Data File, 7—Edit Miscellaneous Items, 8—Exit. A sub-menu will appear by pressing Budget Categories. This will display all the features you need to load, add, edit, delete or save categories.

When adding your categories, a counter on the top of the screen will keep track of how many you choose. Including your income, this is 22 categories. When the categories are full the screen will return to the main menu if you choose the Add Category option. If you try to load a month that isn't on file it will tell you and return to the previous menu. Pressing Enter during any display will take you back to the main menu.

Display Report displays the category, budgeted amount and the actual amount paid for the month. The computer totals all the expenses, subtracts the total from the income, then reports the cash balance for the month.

The printing option is a little more detailed. It will default at PIO. A cursor is available to change this to another output device. The hard copy will contain the month and year in emphasized print. Four columns will display: Category, Budget, Actual (amount paid toward the expense) and Year To Date total. Below each column, each category is totaled and printed. A cash balance is then printed under the Actual and Year To Date columns. A Miscellaneous Expenses report is also printed. It includes the items and amounts spent.

I found the program fast. I didn't have time to turn my back to do something else during any of the procedures. Full documentation is included on disk, even though

the program is user friendly.

Household Budget is available from D & L Software, 89 Little Neck Ave., Somers, MA 02777. The price is \$10.95 + \$1 S&H.

★★★

### TI CASINO SUPPLEMENT

Who said the best can't get better? In this case it does for this sophisticated casino program.

System requirements are Geneve 9640 or TI99/4A, 32K, disk system, Extended BASIC, joysticks and the TI Casino program. Printer is optional.

I won't go into detail about the TI Casino program. You can look in your archives of past MICRO-Review issues and refer to Harry Brashear's review (July 1991). However, I would like to mention a few improvements in the new version 3.0, before I discuss the supplement available for the game.

An entertainer tells jokes in a nightclub. You can see him on stage (unless you don't tip the maitre'd enough). There are five separate bank accounts with passwords instead of only one. Also included is a program to transfer your previous wealth to the new accounts. Baccarat plays like Las Vegas, you can be the dealer, or play with a player or the dealer for a tie. Limits have been raised in Blackjack and Baccarat.

Now let's mention the TI Casino Supplement. It offers even more enhancements. You will first notice the change in the lobby. To make room for the game and future expansion, you now go upstairs to go to Club Notung. Once in Club Notung you will notice a change there, also. Instead of the Jokefile replaying after its completion, it now stops and waits for a keypress, thus letting you choose another one of the five jokefiles while the program is running. Instead of one line jokes, these new files also contain amusing little stories (some with adult situations). You may now stay longer at Club Notung and enjoy more of the show. While you are upstairs you will notice a new game called FARO.

A new Slot machine has been installed. It includes new graphics, and now takes \$10 and \$25 tokens. It is also more challenging. The supplement includes an in (See Page 25)



## ImageWise Plus V3.0

# Grabbing and using video images

By JOHN KOLOEN

This review of ImageWise Plus Ver. 3.0 by Joseph Syzdek is incomplete because I do not have access to the ImageWise Video Digitizer. What this means is that I cannot "capture" images from a television or other video source. However, the ImageWise Plus software does allow me to view digitized images and it is on this basis that I am doing the review.

So, what does digitizing have to do with you? The simple answer is that if you have an interest in graphics, video recorders and camcorders, quite a lot. If you are a text-oriented person and hate MY-Art and other drawing programs, then you're probably wasting your time reading this review.

The process of converting a video image into digital form requires a connection between a video output device and a computer, in this case the Geneve. The ImageWise Video Digitizer uses an RS232 connection and, with the help of the ImageWise Plus software, the user can "grab" a video image as it comes across the RS232 channel. The program stores the image in digital format so that the computer can display it. This single-frame grab can be of anything. Samples sent to me include frames

## MICRO-REVIEWS—

(Continued from Page 24)

struction booklet telling you how to install the new files on your original program disk.

TI Casino Supplement is available from Notung Software, 7647 McGroarty St., Tujunga, CA 91042, priced at \$5 + \$1 S&H.

If you would like your software or hardware reviewed in this column, you may send it to Stan Krajewski, Route 6, Box 568-15, Live Oak, FL 32060. If you would like it returned, please include postage. If you need to call me for any reason, you may reach me at (904) 364-7897 E.S.T.

## Review

### REPORT CARD

Performance .....	A
Ease of Use.....	B
Documentation .....	B
Value .....	A
Final Grade.....	A-

Cost: \$19.95 + \$1.50 S&H

Manufacturer: Joseph M. Syzdek, 99 Highland Ave., West Springfield, MA 01089-1017

Requirements: Geneve 9640. ImageWise Video Digitizer recommended

of Barry Traver and Walt Howe taken with video equipment at a TI fair. The process is somewhat more complex than this, but I'll spare the details since what I'm really doing here is reviewing the software that displays the images on the Geneve.

ImageWise Plus works with MDOS V1.14F or .97H. Early versions are problematical. The program loads directly from the MDOS prompt. The program can be run so that an image is immediately loaded into memory upon, or you can forego the image and be presented with a menu.

Functions supported by the menu include:

- L — Load an ImageWise picture file.
- D — Display the picture file in memory.
- H — Histogram of picture. Plots the 64 grayscale values of the picture. This helps the user determine the amount of contrast in the image.

S — Save picture in any of three formats: ImageWise format, which should be compatible with programs written for processing ImageWise files on other computers; MY-Art format, produces an image with a header that is compatible with YAPP auto-detect graphics mode; TI-Artist format, used to save the picture as a black and white image (generates the pic-

ture \_\_P file).

Z — Dither. This is used to convert the image to b/w for saving in TI-Artist format.

R — Change display resolution (256x212 or 512x212).

G — Grab frame.

E — Edge filter. Transforms the image to detect edges (changes in brightness).

# — Skip number of lines at top of picture. Displays 212 lines vs 244 in ImageWise format.

= — Transforms through Look Up Table (LUT).

M — Modify color table. Works in 256x212 mode only. Modifies the low resolution output LUT that translates the gray scale values to colors on the screen and in MY-Art files.

F1 — Saves the picture in memory to the buffer.

F2 — Reloads the previously saved picture data from the buffer to picture memory.

F5 — MDOS command line interpreter. Lets you enter basic commands, such as DIR, DELETE, FORMAT, etc. Pressing FCTN 9 returns to the menu.

With this program, you load a "grabbed" image into memory and manipulate it. It is not a drawing program, so the changes you make have to do with the entire image, not parts of it. You can't selectively erase, fill, etc. You can, however, modify the contrast and brightness of the picture as well as determining gray scale densities. Since ImageWise Plus doesn't support printers, a hard copy of your work can only be done through YAPP or TI-Artist after conversion to MY-Art or TI-Artist formats.

Manipulation of the saved digitized images can be accomplished through MY-Art or TI-Artist.

The purpose of ImageWise Plus is to give Geneve users access to the ImageWise Video Digitizer. This device accepts any b/w or color NTSC video signal from television cameras, VCRs, Laserdisc players,

(See Page 26)

## 1992 TI FAIRS

### MARCH

**T.I.C.O.F.F.** (TI Computer Owners' Fun Faire — The IBM & Clone Owners' Fun Faire), 9 a.m.-4 p.m., March 14, Roselle Park High School, Roselle Park, New Jersey, \$5. Contact Robert Guellnitz, Roselle Park Public Schools, 185 West Webster Ave., Roselle Park, NJ 07204, (908) 241-4550 (voice) or (908) 241-8902 (BBS).

### APRIL

**Northeast Computer Fair**, April 4, Waltham High School, Waltham, Massachusetts, sponsored by TI99/4A User Group of the Boston Com-puter Society. Contact Ron Williams, 14 East St., Avon, MA 02322.

**Dutch Annual TI-Fair**, April 25, Utrecht, The Netherlands, sponsored by Dutch TI-Usergroup. Contact Drs. Erik C. van Wette, Hanninkhoek 39, 7546 AD Enschede, The Netherlands, phone: 31-53-778723.

**Ottawa TI Fest**, 10 a.m.-4 p.m., April 25, Merivale High School, 1755 Merivale Rd., Nepean, Ontario, Canada. Contact Ottawa Users Group c/o Bill Gard, 3489 Paul Anka Dr., Ottawa, Ontario, Canada K1V 9K6; (613) 523-9396 (home); (819) 994-8856 (work); (819) 994-8873 (work, attn. DSE 2).

### MAY

**TI Orphan Reunion**, 10 a.m.-5 p.m. May 9, Innisfail Lions' Hall, Innisfail, Alberta, Canada. Contact Fred Kessler, Box 20, Sundre, Alber-ta, Canada, T0M 1X0, (403) 638-3916.

**TI99/4A Users Group, UK, Annual Meeting**, May 16, Princess Anne Training Centre, 10 Trinity St., Derby (Derbyshire, England). Contact Stephen Shaw, 10 Alstone Rd., Stockport, Cheshire England SK4 5H.

**Multi User Group Conference**, May 15-16, Ohio State University Lima Campus. Contact Lima 99/4A Users Group, P.O. Box 647, Venedocia, OH 45894 or phone Dave Szimpl (419) 228-7109 or Charles Good (419) 667-3131 evenings.

### SEPTEMBER

**State of Washington TI Convention**, Sept. 19, Tacoma, Washington. Contact Jim Tomkins, (206) 756-0934.

### OCTOBER

**7th Internationale TI-Computer-Treffen**, Oct. 9-11, Wiesbaden, Germany. Contact Horst Wiese, Eleonorenstr. 6, DW-6200, Wiesbaden, Germany. Please enclose International Reply Coupons (can be bought at U.S. Post Office).

**Chicago International World Faire**, Oct. 30-31, Elk Grove Holiday Inn, Elk Grove, Illinois. Contact Chicago Users Group, 2515 Mar-cy, Evanston, IL 60201-1111.

### NOVEMBER

**TI-Faire**, Nov. 28-29, Ashfield Boys High School Hall (next to Western Suburbs Leagues Clu), Liverpool Road, Ashfield, NSW, Australia. Contact TISHUG (Australia) Limited, P.O. Box 1089, Strawberry Hills, NSW 2012, Australia.

## 1993 TI FAIRS

### FEBRUARY

**Fest West "North" 93**, Feb. 13-14, Howard Johnson Hotel, Salt Lake City, Utah. Contact Fest West "North" 93 Committee, 1396 Lincoln Apt. B, Ogden, UT 84404 or Salt Flats BBS, (308) 394-0064.

**This TI event listing is a permanent feature of MICROpendium. User groups and others planning events for TI/Geneve users may send information for inclusion in this standing column. Send information to MICROpendium Fairs, P.O. Box 1343, Round Rock, TX 78680.**

## IMAGEWISE PLUS—

(Continued from Page 25)

camcorders and similar devices. The device is available in three forms: Experimenter Kit (\$99), Full Board Kit (\$249), and Full Kit with case and power supply (\$298). For information, Circuit Cellar Inc., 4 Park St. Ste. 12, Vernon, CT 06066, 203-875-2751. Circuit Cellar has a catalog which you may request.

**EASE OF USE:** Using this program effectively requires a lot of trial and error, especially when trying to save an acceptable image in TI-Artist format. It's not to say that it can't be done, just that there are a number of variables you have to work

with, including contrast levels and dithering, which Webster's New World defines as being "nervously excited or confused." Actually, dithering, used in the context of computer graphics, has to do with turning various combinations of pixels black or white to achieve shades of gray.

**DOCUMENTATION:** The documentation — an eight-page printout — that comes with ImageWise Plus focuses almost entirely on the operation of the program. I'll describe it as "to the point." It doesn't do much hand-holding. Since the subject becomes technical very quickly that is probably just as well. For informa-

tion about image processing it's recommended the user read Digital Image Processing: A Practical Primer by Gregory A. Baxes (Prentice-Hall, Inc.).

Because I do not have a digitizer, I cannot vouch for the grab function of the ImageWise Plus. But I am confident that it works as well as the other functions I reviewed in this article. For someone without the hardware, this program is little more than a curiosity. Coupled with the hardware, it could open up an array of possibilities in image processing heretofore unavailable to Geneve users.

# A programming adventure

## or, having a Lotto fun with the TI

By JOHN H. BULL

'Twas a dark and stormy night and we were all gathered around a table in McDonalds after our monthly K'Town 99'ers session when it all began. Somebody brought up the topic of the Australian Syndicate that tried to buy all the number combinations for the Virginia State Lottery — and pulled it off! At least, they won. In a desperate scramble they were able to buy tickets for about 80 percent of the possibilities and the winner was one of their tickets. Maybe First American Bank would lend us the seven million needed for Kentucky's Lotto. No collateral, but an absolute promise that they would get their money back in three days.

Silence fell over the group. Then E.M. Smith said, "John, could you write a program....?" And thus the adventure began. First, in Extended BASIC, a program to figure how many possible sets of six numbers between 1 and 49 there are, with no duplications, no repeats. It figures out to about 14 million, a number that we were later to check out the hard way. Next, fig-

uring the odds. They are terrible, much worse than Los Vegas, but how else will they pay for the education of those Kentucky children. Of course, the odds improve considerably if there is no winner for a few weeks. That is how the Australians came out way ahead.

In another few days and late nights we wrestled out routines for calculating the sets of numbers, all 14 million of them, showing them, with a count, on screen, sending them to the printer, and finally printing the tickets that you use to buy your chances.

Just printing all the sets, we figured, would take cartons of paper and many weeks. Printing the tickets would take months. However, just running them on the screen? E.M. set up the necessary equipment — console, XB, and monitor — in his basement and started it going. We watched, fascinated. Forty days and 40 nights later a wire to the modulator came loose. At 243 sets per minute we had shown the sets up to about 11 million. Fast!

The only real challenge was working

out an algorism for calculating the sets of numbers. After several tries, this did the job:

```
100 N6=6::N5=5::N4=4::N3=3::
N2=2::N1=1 ! initial values
110 T6=49::T5=48::T4=47::T3=
46::T2=45::T1=44 ! upper lim
its
120 GOTO 200
130 IF N6<T6 THEN N6=N6+1::GO
TO 200
140 IF N5<T5 THEN N5,N6=N5+1
:: GOTO 130
150 IF N4<T4 THEN N4,N5=N4+1
:: GOTO 130
160 IF N3<T3 THEN N3,N4=N3+1
:: GOTO 130
170 IF N2<T2 THEN N2,N3=N2+1
:: GOTO 130
180 IF N1<T1 THEN N1,N2=N1+1
:: GOTO 130
190 PRINT "RUN COMPLETE" :: S
TOP
200 S=S+1 :: PRINT USING "###
##### ## ## ## ## ## ##":S,N1
,N2,N3,N4,N5,N6 :: GOTO 130
```

(See Page 28)

## BUGS & BYTES

### TI-CHIPS aiding autistic

TI-CHIPS, the Cleveland, Ohio, users group, reported a new group project at the users group roundtable at the Lima Multi User Group Conference. The group set up TIs to facilitate communication between autistic individuals and their families.

Autism is a disorder characterized by difficulties in communications and relationships. The title character in the movie Rain Man portrayed by Dustin Hoffman was an autistic person functioning at a high level. Many autistic individuals, though they may have normal or high intelligence, cannot speak or communicate at all.

Glen Bernasek of TI-CHIPS agreed to present a workshop on the project at next year's Lima Fair.

### Hardware standards

Don O'Neil, who has spearheaded the National Committee on TI Standards, has expressed disappointment that neither Asgard or Oasis Pensive Abacutors sent representatives to the committee's meeting at the Lima fair, even though they were present at the fair itself.

### Help for DOS users?

Glen Bernasek also spoke about his recent "controversial" remarks favoring helping PC-DOS users who are in TI clubs. The idea, he explains, is not to stop being a TI club, but to help members who have both machines.

### No more 3000 board from Horizon

Bud Mills says he has stopped producing 3000 boards because of supply problems. Instead, he is introducing a 4000 board which will include RAMBO and 32K expansion. Price will be \$65 for the bare board, and anyone who has paid for a 3000 board will receive a credit toward a 4000 board.

### New products in works

Mickey Schmitt told Lima fairgoers that her company, MS Express, is working on something new. Also, Lee Bendick and Barry Boone are reportedly working on a product which may debut at the Chicago Fair in October. We don't know what either "secret project" is going to be.

## ADVENTURE IN PROGRAMMING—

(Continued from Page 27)

The next act! I demonstrated the XB programs at our next meeting. Not everyone fell asleep. Then Art Gibson, our wizard assembly language programmer, stepped forward with a disk — he had thrown together a few utilities from his bin of spare parts, translated the algorism into assembly, and voila! Assembly had taken over from Extended Basic. The speed record immediately jumped from 243 to 1,900 sets per minute. Fortunately, Art had included a keypress to halt the flash of numbers so we could see what was happening on the screen.

The saga went on by phone and by shared disk. We talked about it on the way to Lima. The speed went to 2000, then 18,000, then 28,000, then 38,000, and now to 42,000 sets a minute. A key press to `s_l_o_w` the program with a time loop was added. Time of execution came down from forty-something days to five hours and thirty minutes. The total number of sets on the final screen proved to be

13,983,816, exactly as calculated. Of course! RUN COMPLETE!

Improvements came in bits and pieces: Instead of recalculating all the numbers in each cycle, we updated a text string of the count and the numbers. Art substituted his versions of KSCAN and VMBW — faster — and all sorts of neat tricks. A routine for updating the cycle counter may be worth sharing:

```
ZERO  BYTE >30  ASCII for "0"
NINE  BYTE >39  ASCII for "9"
ONE   BYTE >01  just one!
NUMS  TEXT '00000001' 7 zeroes

      LI R1,NUMS+7
INC1  CB  *R1,@NINE
      JL  INC2
      MOVB @ZERO,*R1
      DEC R1
      JMP INC1
INC2  AB  @ONE,*R1
```

Each time through, this program segment increases the string count in NUMS by one up to a maximum of one less than 100 million. It may be useful to someone,

sometime. Running this by itself with just a display routine counts about 60,000 numbers a minute. Our TI is quicker than I had thought possible.

Not all our ideas worked. Under the impression that our machine would handle register addresses and data faster than label addresses and data, I rewrote most of the source code with that in mind. Debug it. Assemble it. Load and run it. No dice! It made absolutely no difference in the speed. All I gained was a new appreciation for the convenience and quickness of a RAMdisk and Funlweb.

This has been lots of fun but absolutely no use, earthly or unearthly, except that I have learned a lot. As far as I know, the adventure is over; however, I have shown Art my last(?) version and heaven only knows what he will come up with next out of his huge bag of tricks.

'Tis a dark and stormy night and we are all gathered around a table at McDonald's. Any more ideas, E.M.?

## User Notes

### Typo corrected

A User Note by Barry Boone published in the December 1991 MICROpendium

contained a typographical error. The offending sentence referred to a ST504 hard drive interface and hard drive. There is no such thing. The User Note refers to modifications to the Myarc HFDC to make it compatible with larger hard drives. The modification works with ST506 and ST412 MFM drives.

### SHORTCAT

This comes from Phil Van Nordstrand, of Seabrook, Texas. He writes:

There are quite a few times when I want to check on a disk name, find out if it is double or single sided, double or single density, or just to find out how many sectors are free. It takes a long time to find out that small amount of info by loading and running a disk manager program like DM1000, especially if there are very many files on it. For example, try it with a disk with 60 or so CSGD files. So I wrote a simple program excerpted and expanded from the sample Catalog Program in the TI

Disk Memory System Manual, Page 41. See the enclosed disk for a listing with CHECKSUM numbers on the program lines.

This runs from Basic or Ext. Basic and occupies 3 sectors. The line numbers from 110 to 200 are taken from the original program. I keep this program on my Ramdisk where I can call it up in a jiffy. You can change DSK to WDS if you have a hard disk and want to find out the sector count but it is seldom needed. It would have been nice to get a count of the files from sector 1 but I couldn't see how to do that without defeating the purpose of the program.

A caveat: I have not been able to make it give the right answer on my 256K Horizon RAMdisk. The total sector count is correct but "K" is wrong. DM1000 and DISKU give the correct value but Hardmaster, MDM5, TI-BASE, Funnelweb (both Disk Review and Text Editor) and Archiver also give the same bad value (but Archiver apparently adds up the file sector

(See Page 29)

## Software for the 99/4A & 9640

- Entertainment
- Home/Business
- Graphics
- Desktop Publishing
- Utilities & Aids
- Peripherals

**SEND FOR A FREE CATALOG**

Asgard Software  
P.O. Box 10306  
Rockville, MD 20849

# User Notes

(Continued from Page 28)

count and gives the right value from that at the bottom of the catalog). I don't know how the program reads "K" but if it used the bitmap it should get the correct value.

```
80 REM by P.C.Van Nordstrand
   JSC U.G. May 1992 !092
90 REM Listing on screen omi
   ts all file information. !13
8
100 REM SAVE DSK3.SHORTCAT !
180
110 CALL CLEAR !209
120 INPUT "MASTER DISK[1-3]?
   ":A !255
130 PRINT !156
140 A=INT(A)!124
150 IF A<1 THEN 120 !111
160 IF A>3 THEN 120 !114
170 OPEN #1:"DSK"&STR$(A)&"
   ",INPUT ,RELATIVE,INTERNAL !
122
180 INPUT #1:A$,J,J,K !155
190 DISPLAY "DSK";STR$(A);"
   -DISKNAME=";A$;"AVAILABLE=";
   K;"USED=";J-K !059
200 CLOSE #1 !151
210 PRINT !156
220 DISPLAY "RUN AGAIN? (Y o
   r y)" !148
230 CALL KEY(3,KEY,S)!092
240 IF S=0 THEN 230 !237
250 IF KEY=89 THEN 120 ELSE
END !099
```

## Full screen editing for BASIC, XBASIC

This item appeared in Newsletter Nine-T-Nine of the User's Group of Toronto. It appeared elsewhere as well and was written by Frederick Hawkins.

John Hamilton, writing a column called 99 Tips in the Central Iowa 99/4A UG newsletter, is up to tip 81. We don't know about the first 80, but the last is a real humdinger.

John's crucial insight into TI's MERGE (XBASIC) command makes this program tick. What he noticed, and TI didn't document, was that the MERGE command doesn't check for syntax on the way in from the disk drive.

In other words, if you disk file is Dis-

play. Variable !63, each record starts with a line number (followed by a space). The last record is hex FFFF (CHR\$(255)) twice. This is a MERGE format file.

Notice that the file does not require any BASIC syntax. You could create a Display !63 file that consists of a grocery list and it will be MERGEable!

Why is the ability to create a MERGE file so earth-shaking? Because now you can use TI-Writer or the Editor/Assembler to write your BASIC programs. You can have all of the features of their editors, such as Find String, Move, Copy, Include File, etc., and still be able to run the program. You can also run a LISTed program (obviously it has to be on a storage device, not a printer). Other uses include being able to run screen drumps from the Terminal Emulator II environment.

## Fibonacci Numbers

This item appeared in the Milwaukee Hocus newsletter. It was written by Earl Raguse.

Fibonacci Numbers were invented by an Italian mathematician, Leonardo Fibonacci, who lived between 1180 and 1250. They have been used to solve some pretty exotic scientific problems, but I personally have never found anything of a practical nature I could do with them. That doesn't cool my interest in them even a little bit.

Fibonacci Numbers make a number series in which every number is the sum of the two previous numbers. The first two are an exception, of course. The first is one and the one before that was, of course, zero. Thus, the second is also one. The following program will generate a Fibonacci series of any length desired.

I once tried to become famous by inventing Raguse Numbers. Each number was the sum of the three previous numbers. Nobody ever found a use for them, so I didn't become famous.

Newt Armstrong used Fibonacci Numbers to solve a puzzle challenge that he had put in the Jan. 1988 ROM newsletter. Either Fibonacci Numbers were just made for solving Newt's puzzle or, just possibly, Newt designed the puzzle just to show off Fibonacci Numbers.

```
100 ! SAVE "DSK1.FIBONACCI"
110 DISPLAY AT(4,6)ERASE ALL
   : "FIBONACCI NUMBERS"
115 DISPLAY AT(6,1): "A Fibon
   acci number is equal to the
   sum of its two prede-cessors
   ."
120 DISPLAY AT(18,1): "
   PRESS SPACE BAR TO
   PAUSE OR CONTINUE,
   Q TO QUIT"
130 INPUT "   Enter a LIMIT
   ? ":LIMIT
135 CALL CLEAR :: PRINT "
   COUNT";"   FIBONACCI";"
   VALUE": :
140 A=0 :: B=1 :: C=1 :: PRI
   NT TAB(6);1;TAB(14);C
150 FOR X=2 TO LIMIT
170 C=A+B :: IF C>LIMIT THEN
   270
180 A=B
190 B=C
200 PRINT TAB(6);X;TAB(14);C
210 CALL KEY(3,K,S):: IF S<1
   THEN 260
250 IF K=ASC("Q")THEN 320 EL
   SE GOSUB 280
260 NEXT X
270 PRINT : : : : : CALL AGAI
   N :: GOTO 110
280 CALL KEY(3,K,S):: IF S<1
   THEN 280
290 IF K<>32 THEN 280 :: RET
   URN
320 RUN "DSK1.DIR"
330 !
430 ! SUBPROGRAM AREA
440 !
5500 SUB AGAIN :: DISPLAY AT
   (24,1): "Again? Press A, Else
   Any Key"
5510 CALL KEY(3,K,S):: IF S<
   1 THEN 5510 ELSE IF K<>ASC("
   A")THEN RUN "DSK1.DIR"
5520 SUBEND
```

If you don't have a program named DIR, then replace RUN "DSK1.DIR" in line 5510 with STOP.

Of some interest may be the way that I executed the pause in line 120. Notice that line 210 is:

```
210 CALL KEY(3,K,S):: IFS<1 THEN
```

(See Page 30)

# User Notes

(Continued from Page 29)

260  
 Meaning, if no key press go to line 260.  
 But, if there had been a key pressed on line 120, we would examine it on line 230 to see if it was a "Q," in which case

we should go to 320 and return to DIR. Buf, if the key was not "Q" then we should GOSUB 280, where another CALL KEY awaits. Here, if any key is pressed, which is not a space character (32), it will be ignored by returning to

280. Buf if a space character (32) is pressed, we RETURN to 260. Which is first after the calling line 250. The sequence then resumes until the next pause or limit is reached.

(See Page 31)

## MICROpendium Disks, Etc.

- Series 1992-1993 mailed monthly** (April 1992-March ... 1993) ..... \$40.00
- Series 1991-1992** (Apr 1991-Mar 1992, 6 disks) ... \$25.00
- Series 1990-1991** (Apr 1990-Mar 1991, 6 disks) ....\$25.00
- Series 1989-1990** (Apr 1989-Mar 1991, 6 disks) ....\$25.00
- Series 1988-1989** (Apr 1988-Mar 1989, 6 disks) .... \$25.00
- 110 Subprograms** (Jerry Stern's collection of 110 XB subprograms, 1 disk) ..... \$6.00
- TI-Forth** (2 disks, req. 32K, E/A, no docs) ..... \$6.00
- 1988 updates of TI-Writer, Multiplan & SBUG** (2 ... disks) ..... \$6.00
- Disk of programs** from any issue of MICROpendium between April 1988 and present ..... \$4.00
- CHECKSUM and CHECK** programs from October ... 1987 issue (Must have magazine to use) ..... \$4.00

### MICROpendium Index disks

- MICROpendium Index** (2 SSSD disks, 1984-1991, Extended BASIC req.) .....\$6.00
- MICROpendium Index II** (8 SSSD disks—1 for each year 1984-1991, XB req.) ..... \$24.00
- MICROpendium Index II with MICROdex99** (10 SSSD disks XB req.) ..... \$30.00
- MICROdex99** (for use with MICROpendium Index II, 2 SSSD disks XB req.).....\$10.00
- 1991 Update Disk for MICROpendium Index II** (1 SSSD disk) ..... \$4.00

*MICROdex99 by Bill Gaskill is anew product designed for use with MICROpendium Index II. The program allows users of MP Index II to modify their index entries as well as add entries. MICROdex99 supports many other functions, including file merging, deletion of purged records, record counting and file browsing.*

### GENEVE DISKS

- MDOS .97h** (req. SSDD or larger, used with MBASIC) \$4.00
- MDOS 1.14F** (req. for MBASIC) .....\$4.00
- Myarc BASIC 2.99A** ..... \$4.00
- MY-Word V1.21** ..... \$4.00
- Menu 80** (specify floppy or hard disk version(s), SETCOLR, SHOWCOLOR, FIND, XUTILS, REMIND ..... \$4.00

*(Unless specified, all disks are SSSD)  
 Texas residents add 7.75% sales tax*

### GENEVE PUBLIC DOMAIN DISKS

*(These disks consist of public domain programs available from bulletin boards. If ordering DSDD specify whether Myarc or CorComp.)*

	SSSD	DSDD	DSDD
<input type="checkbox"/> Series 1.....	\$9.00.....	\$7.00.....	\$5.00
<input type="checkbox"/> Series 2.....	\$9.00.....	\$7.00.....	\$5.00
<input type="checkbox"/> Series 3.....	\$9.00.....	\$7.00.....	\$5.00
<input type="checkbox"/> Series 4.....	\$9.00.....	\$7.00.....	\$5.00
<input type="checkbox"/> Series 5.....	\$9.00.....	\$7.00.....	\$5.00
<input type="checkbox"/> Series 6.....	\$9.00.....	\$7.00.....	\$5.00

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ ZIP \_\_\_\_\_

Check box for each item ordered and enter total amount here: \_\_\_\_\_

Check/MO          Visa          M/C  
 (Circle method of payment)

Credit Card # \_\_\_\_\_

Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

## User Notes

### Assembly program turns cassette port on and off

The following item appeared in the newsletter of the Long Island TI99er User Group.

Here is an assembly program for the TI written by Jonathan D. Guidry that turns the cassette port on and off and the audio port on the cassette port on and off.

```

DEF MTRON, MTROFF
DEF AUDON, AUOFF
STATUS EQU >837C
GPLWS EQU >83E0
MTRON CLR R12
SBO 22
JMP QUIT
MTROFF CLR R12
SBZ 22
JMP QUITAUDON
CLR R12
SBZ 24
JMP QUIT
AUOFF CLR R12
SBO 24
JMP QUIT
QUIT CLR R0
MOVB R0, @STATUS
LWPI GPLWS
B @>0070
END

```

MICROpendium pays \$10 for items sent in by readers and used in this column. Send them to MICROpendium User Notes, P.O. Box 1343, Round Rock, TX 78680.

## Classified

### Policy

The cost of classified advertising is 25 cents per word. Classified display (i.e., special formatting or graphics) is \$9 per column inch. Classified advertisements must be paid in advance. Classified advertisers may request a category under which they would like their advertisements to appear, but the final placement decision is the responsibility of the publisher.

Classified deadlines will be kept open for as long as practical. For the purpose of classified advertising deadlines, any classified ad received later than the first day of any month cannot be assured of placement in the next edition. We will do our best to include every advertisement that is submitted in the earliest possible edition.

The publisher offers no guarantee that any advertisement will be published in any particular issue. Any damages that result either from errors in copy or for failure to be included in any particular edition will be limited to the amount of the cost of the advertisement itself. The publisher reserves the right to reject any advertisement.

The advertiser may elect to publish the advertisement in subsequent editions at the same charge, payable prior to publication. The deadline for carryover classifieds is the same as for new advertising.

In submitting an ad, please indicate whether you would like a refund if it is not published in the requested edition or whether you would like us to hold it for the next edition. Cancellations and refunds cannot be made after the second day of the month.

Send classified advertising to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

### SOFTWARE

#### TI-PUBLICDOMAIN AND FAIRWARE

600 DISKS just \$1.50 EACH! And orders for 8 or more disks are postpaid.

Thousands of programs selected from the best from the U.S., Canada, Australia, England, Germany, Holland and Belgium. FAIRWARE IS OFFERED BY AUTHOR'S WRITTEN PERMISSION ONLY. Disks as full as possible, arranged by exact category. BASIC programs converted to X BASIC, assembly programs with X BASIC loader, disks with autoloader by full program name.

Send \$1.00 (deductible from first order) for 20-page catalog listing all programs and authors. Catalog also available on disk.

TIGERCUB SOFTWARE, 156 Collingwood Ave., Whitehall, OH 43213. v9/8

### HARDWARE

**COMPLETE TI SYSTEM** including full P-box (32K, RS232, TI controller, two half-height drives); Amdek color monitor; two silver/black consoles; 35 modules including XB, E/A, Logo, Multiplan with manuals; much graphics and game software; all for \$250 plus shipping. Call (1-503)231-0723 after 5 PM EDT. 9/6

#### TI EQUIPMENT

Too numerous to list. Includes consoles, P-Boxes, speech, cards, including Horizon RAMdisks. Price dirt cheap: Example: P-Box FULL \$200.00. Call (813)985-1048 after p.m. Eastern. 9/6

### MISCELLANEOUS

**PLATO disks** \$3 each, mostly used ones. Send for complete catalog \$2.00. Jim Leshner, 722 Huntley, Dallas, TX 75214; 214-821-9274. 9/6

**ENORMOUS TI99/4A INVENTORY. CATALOGS \$2.00. BRAATZS COMPUTER SERVICES, 719 E. BYRD ST., APPLETON, WI 54911. 1-414-731-3478.** 9/9

**GAMES EDUCATIONAL HARDWARE—TI99/4A CALL OR WRITE FOR FREE CATALOG: JOY ELECTRONICS, INC; P.O. BOX 542526 DALLAS, TEXAS 75354-2526 (800) 527-7438, OUTSIDE DALLAS AREA (214) 243-5371, DALLAS AREA** 9/6

## Buy and sell used computer stuff

**National Used Software Club** has buyers looking for TI products, as well as sellers. More than 100 TI items are listed for sale, including such hard to find items as Z80/80-column cards and GRAM Kracker. The membership fee is only \$15/year and entitles you to buy or sell computer items via the NUS/HC database. You will also receive FREE

our newsletter (mailed every eight weeks). **Our guarantee:** if you don't buy or sell anything during the term of your membership we will refund your annual fee.

**For a free, no-obligation information packet,** write to National Used Software/Hardware Club, P.O. Box 1343, Round Rock, TX 78680.

### BBS open to non-members for summer

Non-members with modems can access our BBS without joining during the summer. Call 512-255-1557 (5:30 p.m.-8 a.m. weekdays, and from noon Saturday to 8 a.m. Monday weekends. Use 300-1200 baud. Preferred setting is 8N1.

# The ONLY monthly devoted to the T199/4A

## Subscription Fees

\$25 for 12 issues via domestic second class mail  
 \$30.25 (U.S. funds) Mexican delivery  
 \$32.50 (U.S. funds) Canadian delivery  
 \$30.00 (U.S. funds) for 12 issues other foreign delivery via surface mail  
 \$42.00 (U.S. funds) for 12 issues other foreign delivery via air mail

Outside U.S., pay via postal or international money order or credit card; personal checks from non-U.S. banks will be returned

## Address Changes

Subscribers who move may have the delivery of their most recent issue(s) delayed unless MICROpendium is notified six weeks in advance of address changes. Please include your old address as it appears on your mailing label when making an address change.

## Back Issues

Back issues of MICROpendium are available to subscribers only. Those wishing back issues may notify us of the issue(s) desired and include \$2.50 per issue desired in a check or money order or by credit card. (Minimum credit card order is \$9.) No shipping charge in U.S. and Mexico; Texas residents add 7.75% sales tax. Shipping charge of 30 cents per issue to Canada. For other foreign delivery, add 50 cents per issue surface mail, \$2 per issue air mail. No discounts on orders of sets. All prices U.S. funds.

OUT OF STOCK: Vol 1, nos. 1-2, Vol 2, no. 1

## Miscellany

T1-Forth Disks (2 disks, program and demo disks, no manual).....\$6.00  
 MICROpendium Index (2-SSSD disks, XBASIC required).....\$6.00  
 Disk of programs from one issue of MICROpendium (must be a subscriber to order).....\$4.00  
 12 monthly disks (April 1991-March 1992) of programs appearing in each edition of MICROpendium (must be a subscriber to order).....\$40.00  
 Magazine holders (12/set-add \$1 shipping/order).....\$3.00

Send name, address, product(s) ordered, check, money order or Visa/MasterCard number and expiration date (\$9 minimum on credit card orders \$9) to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680. (Foreign orders write for postage fees. Texans add 7.75% sales tax.)

## Tell us about it

Please let us know what columns or features you like the most about MICROpendium. Rank your selections in order of preference using this form. Return it to us when you renew your subscription.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

Other suggestions: \_\_\_\_\_

Send me the next 12 issues of MICROpendium. I am enclosing \$ \_\_\_\_\_ in a check or money order in U.S. funds. Or bill my    (Check one)

Exp. Date \_\_\_\_\_

Card No. \_\_\_\_\_  
Minimum credit card order is \$9

Signature \_\_\_\_\_  
(required on credit card orders)

Mail to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ ZIP \_\_\_\_\_

The numbers on the left of your mailing label indicates the cover date of the last issue on your subscription.

SECOND CLASS