Covering the TI99/4A and the Myarc 9640

MICROpendium

Volume 6 Number 4 | May 1989 | $2.00

Database Tutorial

TI-Base from the the beginning

A program to convert disk catalog files for TI-Base

TI-Writer & databasing

An XBASIC program to create TIW files

Geneve

Part II of XDIR

1989 MAY 1989

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APR 1989

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JUN 1989

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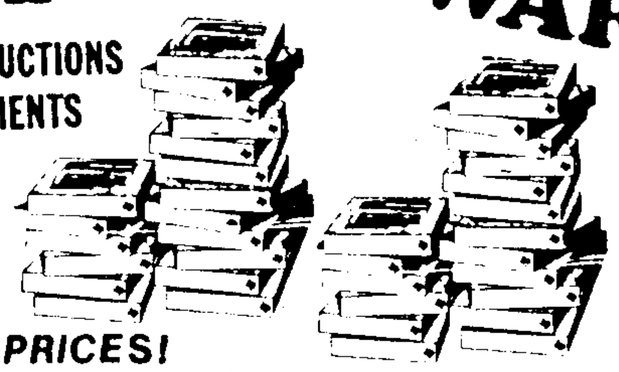

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MICROpendium (ISSN 10432299) is published monthly for $20 per year by Burns-Koloen Communications Inc., 16606 Terrace Dr., Austin, TX 78728-1156. Second-class postage paid at Austin, Texas, and additional mailing offices. POSTMASTER: Send address changes to MICROpendium, P.O. Box 1343, Round Rock, TX 78680-1343.

Foreign subscriptions are $25.25 (Mexico); $27.50 (Canada) $25.00, surface mail to other countries; $37 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
Source: TI4596
CompuServe: 75156,3270
Delphi TI NET: MICROPENDIUM
GEnie: J.Koloen

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

Programming conventions

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 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.

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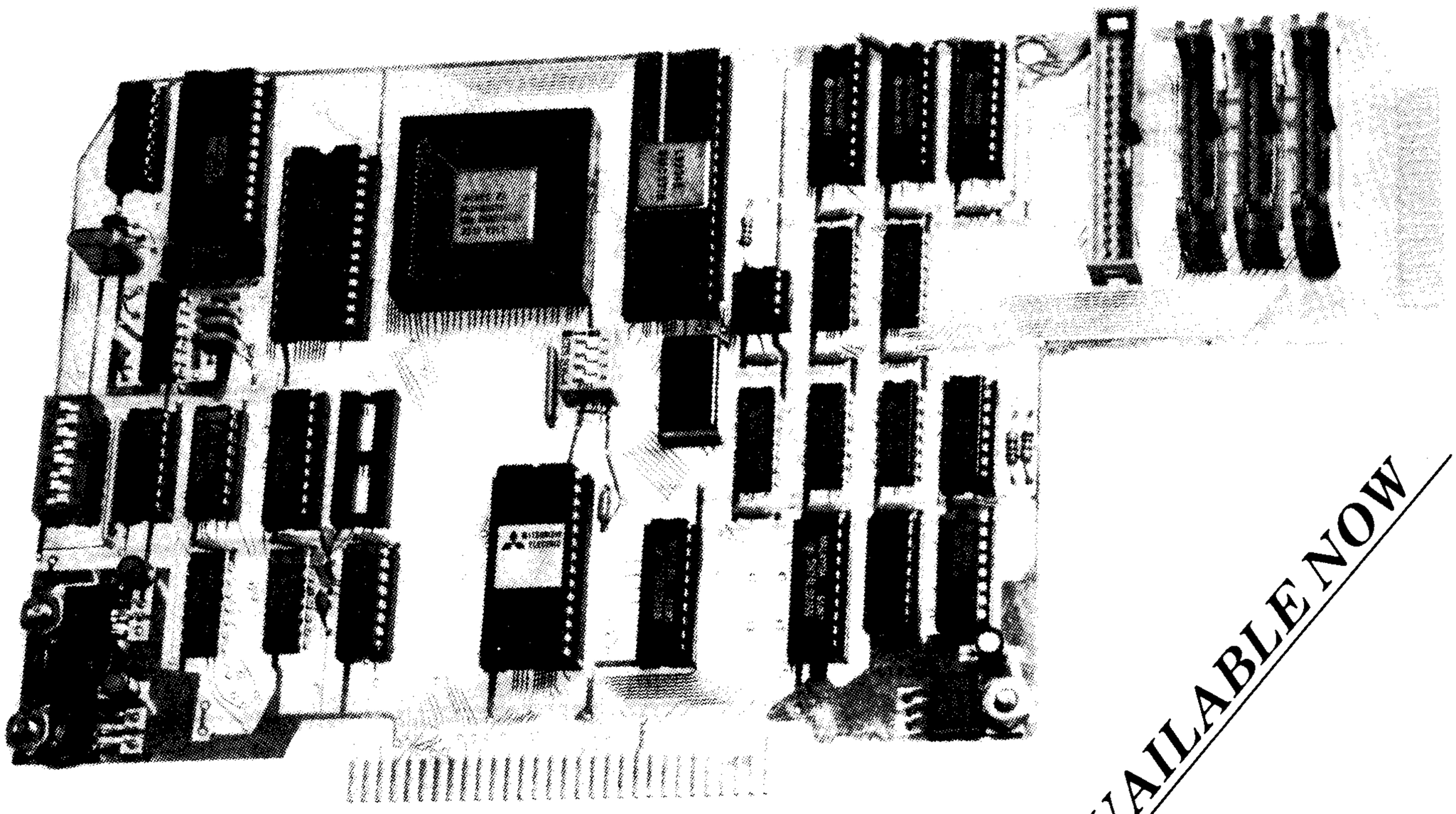

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Comments

Programs are getting longer

We are beginning to publish listings of large programs, an example of which is John Johnson's XDIR for the Geneve. Next month we expect to publish a nifty character generator by Wayne Stith that not only allows you to modify character sets but save them as CHARA1 files. This assembly language program will run 7-8 pages in MICROpendium (and it runs with the 4A and the Geneve).

Why are we devoting so much space to so few programs? Because the best programming that is going on in the TI community involves large programs. Either the programs are one long listing, or consist of many modules that are loaded when needed by the computer. In either case, it's not uncommon to see programs that take up several hundred sectors on a disk.

Why are programs getting longer? Because we as users are asking more of the programs and programmers. The trend is toward programs that routinely integrate disk management functions with their application's duties. It used to be that we expected a word processor to be able to catalog a disk or erase a file, but we didn't expect it of a home budget program or a single-purpose utility. Now we expect our home budget program not only to help us track our expenses, but we want to be able to use it to run a directory of a disk and perhaps read a text file while rummaging through our check registers.

Where is this leading? To bigger and, in many cases, more useful programs. And we're seeing more in the way of programming "environments," which act like "shells" within which other programs may be run. Funnelweb is a good example of the evolution of programs for the 4A. It started out as a TI-Writer clone and menu program that evolved into a multi-purpose operating system. The recently released cSHELL99 by Joseph Ross is an example of a shell environment that is used to load and run other programs while providing a "desktop" from which to operate.

Desktop. Environment. Shell. These are terms from the PC and Macintosh communities. And yet they are now being adopted by TI users and programmers as they reach out for new ways of using their systems. In my discussions with programmers, it seems, users keep asking them to create The All-Purpose Program, which is analogous to The Great American Novel among the literati. Barry Boone started out with a relatively simple program to compress and uncompress programs so that they would take up less space on a disk. Since then, Archiver has incorporated numerous disk management functions, including the ability to read text files. Now he's working on making it compatible with a hard disk, and who knows what other bells and whistles he'll come up with.

Wouldn't it be nice if we could turn on our computers, load an all-purpose menuing-desktop-windowing-environment and from there load in our combination word processor-spreadsheet-terminal-graphics-disk management-archiving program and never have to leave it except perhaps to once in a while drop out of it for an occasional game of TI-Chess?

Naaaa.

PORTABLE, BATTERY-BACKED TI99/4A

Jan Janowski, of Skokie, Illinois, has produced a portable 4A console that includes an expansion memory, 512K RAMdisk, parallel printer port, battery backup and a SuperCart with 8 individual 8K memories. Barry Boone modified ROS 7.3 (RAMdisk Operating System) so that the RAMdisk works without the need of a disk controller. The portable was recently demonstrated at a meeting of the Chicago TI User Group.

The portable TI functions normally on battery power and can be plugged into a PEB like any other console. Users can then download RAMdisk contents to a disk or hard disk, or upload files into the RAMdisk from a floppy or hard disk. When the system is turned off, the contents of the RAMdisk remain intact.

Janowski and Don Jones of the Chicago group are compiling a series of articles about the project which we expect to publish.

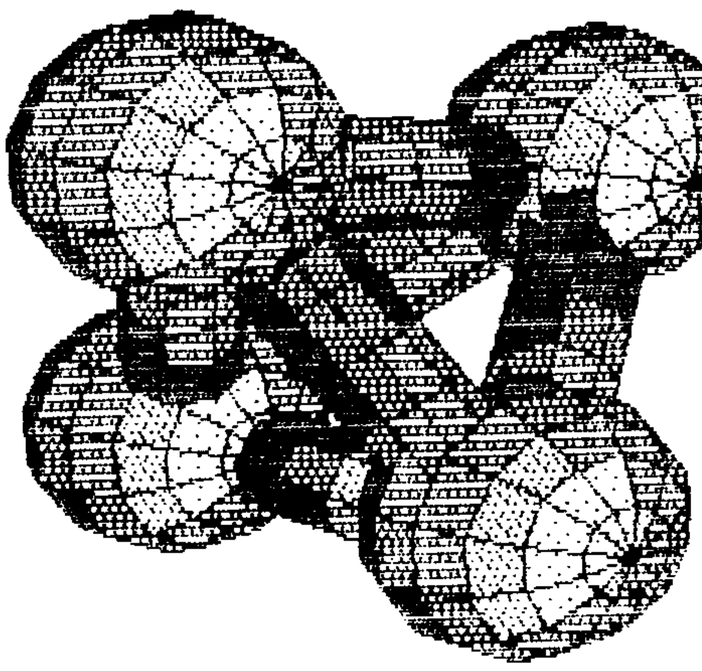
ABOUT OUR TI FAIR LISTINGS

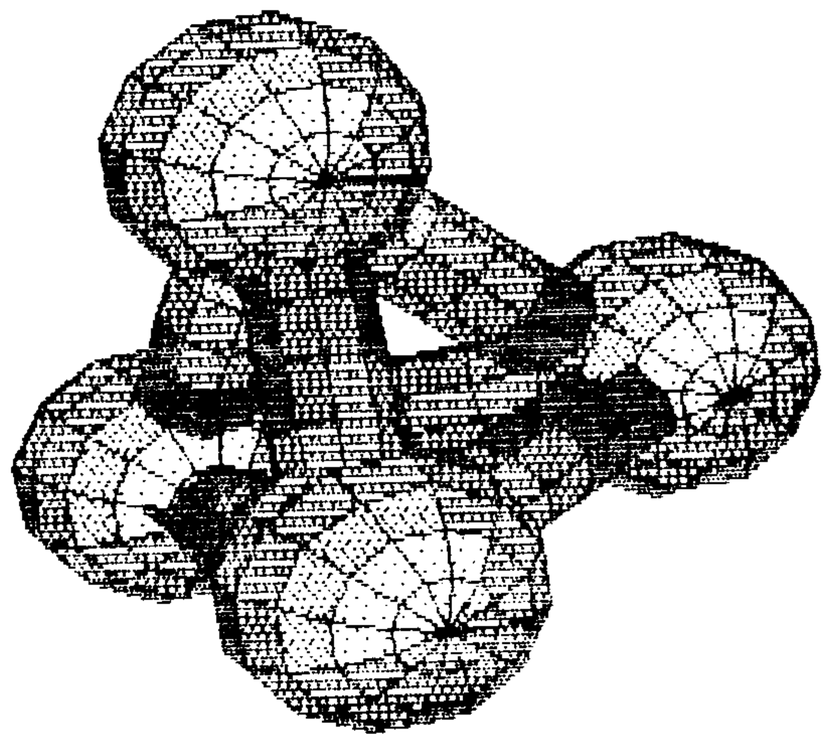
Just so you know, our listing of TI fairs includes fairs that have already been held. A reader asked why we don't eliminate these form the list. The answer is simple — so readers can plan for it for the coming year. Fair dates remain fairly constant from year to year.

—JK

We're Moving

McCann Software is moving to MDOS on the Geneve 9640 from Myarc. Our product "The Geometer's Apprentice" was released as a product for the Geveve which runs from the 99/4A--GPL mode. We thought it would be a lot more fun and faster to just type TGA right from the A) prompt of MDOS. Just one thing stood in the way, we had no implementation of TI-Forth for MDOS (all McCann Software is in Forth). So we wrote our own. As soon as we get the upgrade of TGA completed we will be offering the upgrade free to all registered owners by mail. Now those of you contemplating purchase can get started with V1.00 of TGA without worry about upgrade fee. In the mean time we want to offer our MDOS port of TI-Forth to all Forth users who have a Geneve. We made up a diskette which has TI-Forth for MDOS, its assembler source code, and brief documentation of the new system calls for MDOS, all for $15. The $15 includes shipping, handling, diskette and mailer. We worked hard to keep all the dictionary words the same as in TI-Forth for the 99/4A (minus some known bugs). You will like bringing Forth up with 44K of dictionary space. You will also like the ability to use Forth blocks in either file mode or sector mode due to the clever BREAD and BWRITE system calls in MDOS. Finally, you have the source code to the entire Forth and McCann Software's loader with detailed instructions on how to create your own version should you choose. Those who wish to start using Forth should obtain the original TI-Forth diskette and Manual from MICROpendium, your user group or dealer in addition to our diskette.





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The Printer's Apprentice, TPA Toolbox and Business Graphs 99 requires: TI-99/4A with 32K memory, Disk System, and TI-Extended BASIC or Editor Assembler. The Geometer's Apprentice for TI-99/4A requires the same items as above. The Geometer's Apprentice for Geneve 9640 by Myarc requires at least version 1.01 MDOS, V.99 GPL and EA. All products print on TI-99/4A printer, Gemini 10X and other 100% Epson compatible graphics printers including Panasonic 1091, Star NX and IBM Graphics Printer.

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Feedback

Myarc defenders speak up for company

Feedback has received an unprecedented number of letters on a single topic and has therefore for this month departed from its practice of printing only one or two letters per topic. — Ed.

I would like to comment on Mr. Alan C. Fox's letter (March 1989).

I recently updated my old TI99/4A with the Myarc 9640 due to my TI99/4A locking up in the middle of TI Extended BASIC programs. I purchased a hard drive from Mr. Jack Riley of Myarac's Alabama office and was having trouble in getting the hard drive to operate, even after being formatted and loaded down with various Myarc programs by Jack Riley. Jack called me several times to see how I was doing. The last time, through his assistance, it was determined that my problem was because of one of the CRU bus dip switches being partly in the off position.

I can't speak for the New Jersey office as all my dealings have been with Jack, but I strongly recommend contacting Mr. Riley on any problems dealing with the Myarc 9640 and associated hardware as he seems to want to do everything possibel to have a satisfied customer.

Charles C. Briery
Sun City West, Arizona

Please, if you can, title this "Myarc support felt to be great, great, great!" as this is the way I feel.

I bought the first two Geneves that were made, I was told, and am still using the Geneve today and it is as good today as it was when I first bought the unit.

I have put thousands of hours on my unit and am very pleased with the reliability of the unit and can't think of many hours I have not used my system.

I agree with one thing Mr. Fox said and that is the Geneve is all Myarc said it was and more. I have used the TI and had one unit go bad and it's sitting right now on the table. Although I liked the TI, to say it will work on and on is just a little wrong, although he could have said it worked for him. The Geneve has given me wonderful reliability and performance in speed and power. I will never go back to the TI.

He said he had called the New Jersey office and he could not get through. I don't know, maybe it is because he is in the Canadian prairies, but when I called the New Jersey office about changing my 512K RAM card to use on the Geneve, the person who answered the phone was none other than Lou Phillips. I don't know of any better service than the man who designed the system. I know that he has to be busy, but he did not care, he just wanted to help me with my problem and he did so. Thanks Myarc for the fine machine and the great support that you give all the Geneve owners world wide.

Ron Spruell
Hueytown, Alabama

I feel that I must respond to Alan C. Fox way out there in the prairies of Saskatchewan. He wrote of his disappointment in gaining quick service for his 9640 which ceased to compute after 54 weeks of life. I got one of the first 9640s. I am glad that it still works fine just like the 99/4A that I used starting in 1982. However, with chips and wires, as with the human body and mind, none of us can really be assured of the next bit or breath. Don't think about that. Breathe and compute as if all things last forever. Then when problems come, deal with your frustration, but take appropriate action.

I want to tell you about my experience with Myarc and Jack Riley, and, to some extent, Lou Phillips. First, almost from the begining I started calling the number for Myarc listed in the manual that came with the 9640. In those days I often got Lou Phillips who would guide me through some problem. I would ask him all sorts of questions and he was always willing to help even when I got fiesty about the coming of a usable version of MDOS. Then came the listing of the number in Alabama and things got even better. Jack Riley did not just listen, guide and respond. Jack sent me a disk. Another time Jack, at my request, traded a keyboard and let me keep the old one until the new one arrived so I could keep on computing. Then there was a chip that needed replacing and Jack sent it over.

In all this talking to Jack we have gotten on a first-name basis. That has not provided all the promised final versions of software yet, but it has kept me going. In the meantime I write in MY-Word, figure in Multiplan, keep records in a couple of data bases, dabble in "c" and assembler, play with three versions of BASIC (TI XB, Myarc XB and Beta test Myarc Advanced BASIC), create artwork for publications in my work with my mouse and MY-Art as well as TI-Artist (I used the assembler program in a recent MICROpendium to create a mouse DSR for Artist) and keep my credit card terminally ill with long sessions on GEnie, Delphi and another service I use in my work.

When you're down and out in the prairies of Saskatchewan or the canyons of a metropolis it's easy to wail that we've had a lot of promises from Myarc that have not come through. It is true that final versions of MDOS, Advanced BASIC and runtime PASCAL have not yet come. Still, look what has come! I loved my 99/4A, but I don't want to go back to its little keyboard, small memory and narrow screen. Everything I had with the 99/4A I've still got, but now I've got it so much better and faster! And no longer do I have to struggle to get the XB cartridge to work!

If nothing else ever arrived for the 9640 I would still have a much more satisfactory computer than the 99/4A. Myarc is not the operation of a large, well-funded company (my guess). I can have a lot more patience than I exhibit in some of the conversations I have with Jack Riley, but Jack listens, and Jack helps. Give Jack a call.

J. Richard Stanford
Stone Mountain, Georgia

I have been using the Myarc 9640 Geneve computer for more than a year and a half and the Myarc HFDCC for more than a year on both the 9640 and the TI99/4A. I have experienced the frustration of software bugs and unfinished software as Alan Fox has, but to a greater degree. I knew I was in for this when I ordered my equipment since Myarc warned me when they took my orders. Even so they (Jack Riley in particular) have spent many hours on the phone with me and sent me many updates to software and modified the hardware as necessary to help me as much as possible. I volunteered to help with beta testing and

(See Page 9)

Feedback

(Continued from Page 8)

and so have many hours experience and have put many hours on the equipment.

All this is to say that the equipment has held up pretty well. I had to send a friend's HFDCC card back and Jack gave me the return authorization and Lou Phillips worked on the card himself the day they received it. He spent several hours testing it and replaced a resistor and sent it back with the latest Eprom and the latest disk manager that same day. I sent my friend's and my cards back for slight modification (not repair) once more. This was not because they wouldn't work, but because they could work better. What other company takes its product back to upgrade it without charge? I have had one additional breakdown which I chose not to send for repair. The LED burned out on my card and I replaced it myself.

I admit that Myarc has been slow as Peachtree and Microsoft in getting their software done. All in all, there are few suppliers for TI that give more support than Myarc. If you have a problem with any Myarc product please call Jack Riley in Alabama at (205) 854-5843 and I assure you he will take care of you. If you have trouble getting through it is because he is not there all hours, but he usually stays till about 7 p.m. so you can call after work and even save some money on the call.

Don Alexander
Macon, Georgia

I was surprised to read Alan C. Fox's complaint about Myarc's lack of attention and service.

I have found them actually the opposite with remarkable prompt support and correction of my problems as they occur. I have had J. Riley on the phone on each occasion and he has spent even up to one hour with me in setting up my hard disk, besides other numerous phone calls and correction of problems immediately. No other PC computer manufacturer has such a service. Such a complaint, therefore, is unfair, but the problem may be that the writer did not call the right place or the right person or did not have the patience to repeat his call when it was busy.

Gerald F. Perry, M.D.
Muttontown, New York

I have had a 99/4A since 1982. One reason I continue to use it is the support I receive from people like Myarc. I have the CorComp disk controller and the 512K memory card installed in my system. When the hard drive system became available from Myarc, I purchased one. I had problems with the unit and was referred to the factory in New Jersey for a fix.

I have met or corresponded with many people in the 99/4A community and have never been denied help. Myarc (Lou Phillips) is no exception. When I had problems getting the hard card up and running, I was invited to the factory on a Sunday where Lou Phillips personally set up my hard drive.

I have since moved to California and the Myarc support has not stopped. I have had some major problems with my hard drive and Myarc was there to help, even when the problem was not with the Myarc product. When I had problems running Multiplan, not a Myarc product, Lou Phillips took the time to send me a known good copy of Multiplan at his expense.

I have ordered the 9640 Geneve from Myarc. The major reason for this purchase was the outstanding support I received from Myarc with the hard drive system. I wanted to know the delivery date for the Geneve. I called the New Jersey office, phone number listed in MICROpendium, and within two hours Ms. Coffee called back with an answer.

In summary: To you, Mr. Fox; if you find help no place else, call or write me via MICROpendium, who can give you my address and phone number. If you need something to put your system back on line just ask. I spent four years in the Philippines and know about being removed from the mainstream of the TI community. People like Paul Johnson, the STATCO Fan man, and Tony McGovern of Funnelweb Farm, gave me help where there was none. To those two men I owe a debt I will never be able to repay. That's what the TI community is all about: helping each other. Since my return and the purchase of the hard drive system, Lou Phillips — Myarc — has offered me nothing but support and then some.

James M. Postle
San Bernardino, California

TI helps with Spanish

This past year my wife and I have been in Costa Rica studying Spanish. I took along my TI, and boy, am I glad I did.

Both my wife and I have found it invaluable in writing all our papers (I have even made a TI-Writer Spanish character set to see the changed characters on the screen).

During this time MICROpendium helped me when I decided to purchase a Horizon RAMdisk. I should also note that through your magazine last year I got to know Jim Lesher who regularly advertises in your magazine. He helped me upgrade my machine and when things didn't work like they should have he was only a phone call away. I believe it's because of people like Jim who are helpful and go beyond being just another seller of computers, programs and parts that the TI community has continued so long.

Rev. Mark Searing
Oyster Bay, New York

Review clarification

Bob Carmany's review of *Home Publishing on the 99/4A* was fair and thorough, but I think just a tad misguided. Bob seemed to think the manual had something to do with the software that went with it. The fact is that the software was an afterthought. The manual and its supplements are intended to show what can be done with *existing* TI graphics. That subject is so expansive we couldn't begin to cover it completely. With new graphic programs coming out every day, the two 20-page supplements (the final one will be done in June) won't even finish the job.

The problem is that some people think we have produced a new desktop publisher, which couldn't be further from the truth. The software contains printing programs that can be used for "camera-ready" artwork — finished pages not possible with normal printout methods of most commercial graphic products — created by Robert Coffey of the Western New York 99ers so we could turn out the best possible newsletters. We added them to the package and put the docs on disk. The manual is the primary, the software is just along for the ride.

Harry T. Brashear
Newfane, New York

BASIC

Multiple choice test

By REGENA

This month I have a program for high school students. This program is a basic multiple choice test which mixes up the questions and then mixes up the five possible answers. The student works at the computer. A question (or statement to be completed) appears on the screen. Five possible answers are given. The student presses the letter of the best answer. The computer will print whether the answer is correct or incorrect, and if the answer is incorrect the correct answer is shown.

You may use any subject for the multiple choice questions. The questions and answers are typed in DATA statements starting with Line 770. The first data item is the question. Then the five answers are the next five data items, then the correct answer of those five (such as 4 for the fourth answer) is the last data item. You may use any number of questions. I have DIMensioned this program for 30 questions (Line 200). With questions the length in this example, about 25 questions could be used within standard memory.

As you are typing the questions and answers, use extra spaces so words are not split improperly on the screen. If the question or answer contains commas or leading spaces or trailing spaces, quotation marks can be used. To help you in typing the data, all the questions are in quotation marks and in separate DATA statements, with the answers in the following one or two DATA statements.

The questions included in this program test the student's knowledge of general concepts in science and are from the ARCO GED Study Guide for the High School Equivalency Diploma Test. There are three sample science tests. The first listing has the basic program with 20 science questions. The second listing replaces the DATA statements with 20 more science questions, and the third listing contains 20 more science questions. You can save them on three different cassettes or as three different titles (such as SCIENCE1, SCIENCE2, SCIENCE3) on a diskette.

You may wish to type in the program up to Line 760, plus Lines 3000 and 4000. SAVE this program as your basic multiple choice test program. Now add Lines 770 to the end and SAVE this program with a different title (such as SCIENCE1). To make the second program, load the first program and type the second set of data statements. SAVE the program with a different title (such as SCIENCE2). To make the third program, load the first program and type the third set of DATA statements. SAVE the program with a different title (such as SCIENCE3). Use this process to add your own test questions.

I have written programs to enter questions from within the program, then save data files for different tests, but I have found that on the TI99/4A it is easier to change the DATA statements and SAVE separate programs under different titles.

By the way, Lines 580-620 show how to use the CALL KEY statement to detect either lowercase or uppercase alphabetic characters A through E. In general, I do not use CALL KEY(3...) because I still use my "old" TI99/4 which does not have the Keyboard 3 option.

If you wish to save typing effort, you may have a copy of this month's programs by sending $4 to *REGENA, P.O. Box 1502, Cedar City, UT 84720.* Be sure to specify that you need the TI version of SCIENCE1, SCIENCE2, and SCIENCE3 and whether you want cassette or diskette.

MULTIPLE CHOICE

```
100 REM MULTIPLE CHOICE TEST
    !241
110 REM HIGH SCHOOL SCIENCE
!252
120 CALL CLEAR !209
130 PRINT "**********************
*********" !193
140 PRINT "*  MULTIPLE CHOIC
E TEST  *" !232
150 PRINT "**********************
*********" !193
160 PRINT : : : : :!037
170 PRINT : :"PRESS LETTER O
F CORRECT" !072
180 PRINT :"ANSWER FOR EACH
QUESTION." !255
190 OPTION BASE 1 !137
200 DIM T$(30),A$(30,5),B(30
),S$(30),AA$(5)!022
210 J=1 !002
220 PRINT : :"...LOADING QUE
STIONS..." !225
230 READ T$(J),A$(J,1),A$(J,
2),A$(J,3),A$(J,4),A$(J,5),B
(J)!232
240 IF T$(J)="ZZZ" THEN 280
!219
250 S$(J)="A" !245
260 J=J+1 !013
270 GOTO 230 !053
280 J=J-1 !014
290 PRINT : :"TEST OF";J;"QU
ESTIONS" !022
300 PRINT : :"PRESS <ENTER>
TO START." !040
310 CALL KEY(0,K,S)!187
320 IF K<>13 THEN 310 !044
330 FOR P=1 TO J !143
340 RANDOMIZE !149
350 X=INT(J*RND)+1 !241
360 IF S$(X)="" THEN 350 !02
9
370 CALL CLEAR !209
380 PRINT T$(X): :!067
390 S$(X)="" !193
400 FOR K=1 TO 5 !062
410 C(K)=1 !179
420 NEXT K !225
430 D=INT(5*RND)+1 !145
440 AA$(D)=A$(X,B(X))!249
450 C(B(X))=0 !110
460 FOR K=1 TO 5 !062
470 IF K=D THEN 520 !084
480 E=INT(5*RND)+1 !146
490 IF C(E)=0 THEN 480 !138
500 AA$(K)=A$(X,E)!062
510 C(E)=0 !172
520 NEXT K !225
530 FOR K=1 TO 5 !062
540 PRINT CHR$(64+K);". ";AA
$(K)!252
550 NEXT K !225
```

(See Page 11)

BASIC—

(Continued from Page 10)

```
560 PRINT : :!006
570 CALL SOUND(100,1497,2)!1
90
580 CALL KEY(0,K,S)!187
590 IF (K<65)+(K>101)+((K>69
)+(K<97)=-2)THEN 580 !081
600 IF K<70 THEN 620 !166
610 K=K-32 !069
620 CALL HCHAR(23,3,K)!025
630 PRINT !156
640 IF K=64+D THEN 670 !223
650 PRINT "NO, THE ANSWER IS
 ";CHR$(64+D);"." !229
660 GOTO 690 !003
670 PRINT "CORRECT" !124
680 SC=SC+1 !165
690 PRINT :"PRESS <ENTER>."
!249
700 CALL KEY(0,K,S)!187
710 IF K<>13 THEN 700 !179
720 NEXT P !230
730 CALL CLEAR !209
740 PRINT "OUT OF";J;"QUESTI
ONS," !144
750 PRINT "YOUR SCORE IS ";S
C: : : :!086
760 GOTO 4000 !254
770 DATA "A DECREASE IN THE
NUMBER OF RED BLOOD CORPUSCL
ES WILL   SERIOUSLY IMPAIR T
HE BODY'S ABILITY TO" !124
780 DATA TRANSPORT OXYGEN,CL
OT BLOOD,RETAIN WATER,ELIMIN
ATE WASTE,RETARD SUNBURN,1 !
113
790 DATA "KNEE JERK RESPONSE
 TO A     SHARP BLOW IS AN E
XAMPLE OF" !113
800 DATA HABIT,PHOTOTROPISM,
LEARNED RESPONSE,INSTINCT,RE
FLEX,5 !003
810 DATA "AFTER BIRTH, THE B
ODY IS    MOST LIMITED IN FO
RMING NEW" !177
820 DATA NERVE CELLS,BLOOD C
ELLS,SKIN CELLS,STOMACH CELL
S,SPERM CELLS,1 !198
830 DATA "IF THERE ARE 48 CH
ROMOSOMES IN BODY CELLS, THE
 NORMAL   NUMBER OF CHROMOSO
MES IN    SPERM CELLS IS" !2
22
840 DATA 15,20,24,48,96,3 !0
09
850 DATA "A CONCENTRATION OF
 CARBON   DIOXIDE IN THE BLO
OD        STIMULATES THE BRE
ATHING    CENTER IN THE" !22
8
860 DATA LUNGS,MEDULLA OBLON
GATA,THROAT,MENINGES,CEREBRU
M,2 !226
870 DATA "THE BEST SUBSTITUT
E FOR     LEMONS FOR THE TRE
ATMENT OF SCURVY IS" !212
880 DATA COD-LIVER OIL,VITAM
IN A TABLETS,ORANGE JUICE,MI
LK,BREAD,3 !049
890 DATA "A COMPOUND THAT IS
 QUICKLY  ABSORBED THROUGH T
HE WALLS  OF THE STOMACH IS"
 !224
900 DATA ALCOHOL,SUGAR,FAT,P
ROTEIN,KELP,1 !186
910 DATA "OF THE FOLLOWING O
RGANS,    WHICH IS SPECIFICA
LLY A PARTOF THE EXCRETORY S
YSTEM?" !229
920 DATA HEART,SALIVARY GLAN
DS,CEREBRUM,KIDNEY,STOMACH,4
 !000
930 DATA "THE USE OF IODINE
IN THE    BODY IS MOST CLOSE
LY RELATEDTO THE FUNCTION OF
" !223
940 DATA THE CAROTID ARTERY,
THE THYROID GLAND,THE CORNEA
,PANCREATIC FLUID,BILE,2 !03
3
950 DATA "RESEARCH INDICATES
 THAT     CIGARETTE SMOKING
RESULTS INONE OF THE FOLLOWI
NG .      CONDITIONS:" !033
960 DATA MEASLES,CARDIOVASCU
LAR STRESS,HEPATITIS,DANDRUF
F,WHOOPING COUGH,2 !071
970 DATA "LIFE PROCESSES WHI
CH TAKE   PLACE IN MOST ANIM
ALS       INCLUDE ALL THE FO
LLOWING   EXCEPT" !095
980 DATA "   USING ENERGY FO
R         METABOLISM","
 ELIMINATION OF WATER
 AND WASTE" !209
990 DATA REPRODUCTION,GIVING
 OFF OXYGEN,"   INGESTION AN
D ABSORPTION    OF FOOD",4 !
027
1000 DATA "IRON IS ESSENTIAL
 IN THE    STRUCTURE OF HUMA
N" !155
1010 DATA CARTILAGE,MUSCLES,
KIDNEYS,RED BLOOD CELLS,BONE
S,4 !086
1020 DATA "WHICH OF THE FOLL
OWING LACK A BACKBONE?" !171
1030 DATA TIGER,JELLYFISH,EA
GLE,ALLIGATOR,BABY PANDA,2 !
223
1040 DATA "WHICH OF THE FOLL
OWING      DETERMINES THE SE
X OF A     HUMAN?" !193
1050 DATA EGG CELL,SPERM CEL
L,CHROMOSOME,FIBRINOGEN,VACU
OLE,2 !234
1060 DATA "WHEN A CHILD HAS
           APPENDICITIS, ITS
 BLOOD WILLLIKELY SHOW AN IN
CREASE IN" !219
1070 DATA RED CORPUSCLES,WHI
TE CORPUSCLES,CYTOPLASM,PLAT
ELETS,HEMOGLOBIN,2 !031
1080 DATA "THE PART OF THE B
ODY       SUFFERING MOST FR
OM A      CALCIUM DEFICIENC
Y WOULD BE" !205
1090 DATA THE SKIN,THE EYES,
THE SKELETON,THE DIGESTIVE S
YSTEM,THE STOMACH,3 !190
1100 DATA "THE CONDITION WHI
CH IS MOST LIKELY TO BE GENE
TICALLY-  RELATED IS" !229
1110 DATA SYPHILIS,TUBERCULO
SIS,ANEMIA,EXCESS TEETH,COLI
TIS,4 !100
1120 DATA "AN ALLOY IS A COM
BINATION OFMETALS WHICH ARE
BLENDED   TOGETHER BY MELTI
NG. AN    EXAMPLE IS" !126
1130 DATA TIN,COPPER,PEWTER,
ANTIMONY,ZINC,3 !063
1140 DATA "PASTEURIZATION, A
 PROCESS  DEVELOPED BY LOUI
S PASTEUR, IS MOST FREQUENTL
Y USED IN  PURIFICATION OF"
!114
1150 DATA COFFEE,WATER,MEAT,
MALT,MILK,5 !188
1160 DATA "CHLOROPHYLL IS TH
E GREEN   MATERIAL IN PLANT
 CELLS    WHICH ENABLES THE
 PLANT TO  MANUFACTURE" !026
1170 DATA WATER,OXYGEN,SUGAR
,CARBON MONOXIDE,COLOR,3 !17
6
3000 DATA ZZZ,Z,Z,Z,Z,Z,0 !0
70
4000 END !139
```

EXTENDED BASIC

Program works with TI-Writer to create simple database files

By JERRY STERN

Now that we finally have real data base programs available to us for our 99/4A and Geneve computers, we are faced with a decision that until recently had no significance. When should we NOT invest the time and energy in a new data file, but instead simplify our activities? Is it really worthwhile to define structures, field lengths, and data types for just 60 records? Eighty? Where does one draw the line?

For small data base applications, it would not be worthwhile to define a new data file if we had an ideal "small file data processor." Perhaps a wish list would help define what this could include:

WANTED:

1. Easy data input, with a full screen editor.
2. Search capability.
3. Search and replace capability.
4. Excellent report generation.
5. The ability to merge data files.
6. Sort capability, by any field.
7. Selective record retrieval.

I'm a great believer in not taking the time and trouble to re-invent the wheel every time I go for a drive. Wishes one through five are available as a very versatile data handling tool known as TI-Writer. This includes an excellent editor, FS or Find String commands, RS or Replace String, lots of formatting options, and has the additional advantage that we are already familiar with its operation; it won't be another program to learn.

If we could just type our data into a chart format in TI-Writer, with Word Wrap turned OFF, we would have our data arranged in columns in a nice neat format. That chart would provide every function on the wish list except sorting and partial or selective record retrieval. For those functions we would need a way to sort TI-Writer files into alphabetical order by ANY column in the chart.

A utility program to do this would complete the wish list; but that utility program would not be worthwhile if for every file, the user would have to explain how many columns of data there are, and how big each one is.

If a utility program could determine that information for itself, the idea of a word processor based small file data base would then be practical. This is possible if we restrict the format of the TI-Writer file only slightly. First, there must be no column headings in the file, only data. Any headings must be in a separate file, which could then use the .IF command to "include" the data file. Second, all the columns of data must be marked in the Tab line. This is something that would be helpful to do even if there were no additional reason for it. Finally, leave the left margin setting at the default of zero; that is, start the first data column at the left edge of the screen. I don't consider any of these restrictions as particularly inconvenient, especially if they will allow an automatic sort to be done.

A utility program to sort a file by the first character of each 80-column line would be easy to write. But we need two additional features in this utility. The program must sort by the data in any column, and IT MUST KNOW WHERE THOSE COLUMNS ARE.

Sort routines can be modified to sort by any position in a string. I have already done this in the subprogram QUICK3. This is an adaptation of the fastest sort routine I have found, which I have modified to sort strings instead of numbers, and to sort by any character in the string. Since the sort routine is in a subprogram, it could easily be changed to a slower routine if that were wanted, simply be changing subprograms. Why would you want a slower sort? Well, QUICK3 uses an extra numeric array as an index for the file data, so it eats a lot of memory. For sorting an extremely large file, a slower routine might have to be tolerated if memory is a problem. This is not likely, because the utility program for sorting will only be large enough to contain sort functions, and will not use much memory on its own.

But how will our new utility program, which we'll call CHARTBASE, know where the data columns are located? That information is in the TI-Writer file, in the tab line. That's the little line stuck at the end of every text file saved with the SF, or Save File, command. The format of that information has not been published. Until now, anyway. By reading that line into a program with the LINPUT statement, and playing with the tab options, I have been able to decipher the meaning of each character in the tab line. Since that line contains the position of each column as a tab setting, the program will be able to decode the tab line, converting it into a list of column positions.

The tab line itself is fairly simple. It is always 22 characters long. The first, third, and twenty-first position are always ASCII character 128. The left margin setting of a file is stored in the second position as 134 plus the setting of the margin. So, if the left margin is 5, the second character of the tab line will be 139. The right margin is stored the same way, but as the fourth character of the line. The fifth character is the first tab position, which TI-Writer sets as equal to the left margin. The last character of the line is the number of characters to indent each paragraph, again stored as 134 plus the number.

The rest of the tab line, characters six through twenty, are the positions of the tab stops. There are sixteen tabs available. When less than 16 of these are needed, the extras are set at 79, or equal to the maximum right margin. So all CHARTBASE must do is load in the data file including the tab line, read and decode the tab settings starting at the sixth position of the tab line, display a sample line to serve as an example, sort by the column requested, and resave the text file and the tab line. This becomes easy because the tab line information is now available, and the sort routine is in a subprogram where it can be called as needed. The rest of the

(See Page 13)

EXTENDED BASIC—

(Continued from Page 12)

functions needed are just data handling and display, fairly routine.

There is one problem; the program is intended to save time for processing chart files. If the user of the program uses a bad file name to attempt to save the sorted file, the program could crash, resulting in crushed psyches and torn nerves. We'll add some error trapping routines to prevent this.

The program starts with dimensions. The numeric array P() will be used for storing the 16 tab values. The string array R$() will hold the data lines. The subprograms TITLE2 and PAUSE get some basic introductions out of the way without adding to the complexity of the program.

Lines 190 and 200 ask for and get the file name of the starting or Source file as S$, and check the name to be sure it is possible. There is no way to be certain that the file name is right, however, without checking the disk for the actual file. If the file is not there, or is not a Display/Variable 80 file, the program will normally crash. To prevent this, line 210 changes Extended BASIC's error command from "Stop on error" to "Go to line 180 on error." That will just back up the program to ask for the file name again. We'll leave the error instruction set that way until the data file has been read in, so that if there is an error anywhere in the process, the program will just back up one step.

After the data file has been read into memory, the error instruction is returned back to its normal condition. The ON ERROR statements are potentially very messy. If error commands are changed in a program and then an error occurs that was not foreseen, the program will branch into an area of statements that can not handle that particular type of error. Sometimes an infinite loop can be formed. If the program also uses ON BREAK NEXT to ignore function CLEAR commands from the keyboard, the only way out of a program may be to turn off the computer. When writing a program with advanced error trapping, save the program before EVERY trial run, and leave the ON BREAK statements out until the very last stages of testing.

Line 250 rearranges the file slightly. If our test data file has ten sets of data, the file will contain eleven lines. The last line is the tab line. The variable L was used as a counter for those lines, so R$(11) will contain the tab line. An easier way to handle the array will be to set L=L-1, or the number of actual data sets, and use R$(0) to hold the tab line, or R$(0)=R$(L+1).

Now comes the fun part. The program must decode the tab line into a useful form. First, deduce the number of columns of data in the chart: N=POS(R$(0),CHR$(213),5)-5::IF N=0 THEN N N=16

Starting at the fifth character of the tab line, these statements search for the number 213, or tab 79 less 134. If the first 213 is in the tenth position, than the tabs are located at positions five through nine. That's five tabs, or five columns of data. If there is no 213 in the string, POS will return N as zero. That means all sixteen tabs were used in the chart file, so there are 16 columns of data. The rest of the program will refer to the tab positions frequently, so line 280 will convert them to a list of column positions stored in the array P().

The first line of the chart is used as an example for the screen display in lines 290 to 300. Each column is displayed on a separate line, with a tab column number on the left and the column number on the right. Any columns longer than 20 characters are truncated in the display. On the same screen, the choice of field to sort by is requested by line 310. Enter the column number here, not the tab column! To be sure that the column entered is sensible, more error trapping takes place here. Only a one or two digit number can get past the VALIDATE(DIGIT) in the ACCEPT statement, and the sort field number T is checked to be certain that it is not larger than the number of columns, or equal to zero. Again, if the program finds an impossible number, it just branches back to ask for the input again.

I don't like programs that make sorting look difficult. Some clear the screen, print a message like, "Sorting, Please Wait Two Years," and then go off someplace to contemplate their memory locations. We know that the program is not using screen memory or display

(See Page 18)

TI-WRITER TAB LINE AND DEFAULTS

POS.	VALUE	MEANING
1	128	CONTROL ,
2	134	LEFT MARGIN 0 (134-134)
3	128	CONTROL ,
4	213	RIGHT MARGIN 79 (213-134)
5	134	FIRST TAB VALUE COLUMN 0 (134-134)
6	139	TAB 5 (139-134)
7	144	TAB 10
8	149	TAB 15
9	159	TAB 25
10	169	TAB 35
11	179	TAB 45
12	189	TAB 55
13	199	TAB 65
14	213	TAB 79
15	213	TAB 79
16	213	TAB 79
17	213	TAB 79
18	213	TAB 79
19	213	TAB 79
20	213	TAB 79
21	128	CONTROL ,
22	134	INDENT 0 (134-134)

Each column value is expressed as a number from zero to 79. The string is always 22 characters long, with all unused tabs stored as position 79. There are sixteen tab values available.

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ANIMATION 99' (52) This is the one by Ray Kazmer that was featured in the July 88 Micropendium. See fantastic animation and also learn how it was done. This one is destined to be a classic.
ANIMATED XMAS CARD (11) This is the original animation by Ray Kazmer that made him an overnight superstar in the TI community. This classic is also referred to as "Woodstock" among TI'ers.
PRINTART DEMO (4) This 2-disk side collection prints well known comic and TV personalities out on your printer.
FIGURE STUDY (14) This is a collection of programs that print Playboy type centerfolds out on your printer.
MONA LISA PRINTOUT (9) This program prints a near photo quality picture of Mona Lisa on your printer. You won't believe the quality!
SPACE SHUTTLE DEMO (7) An outstanding music/graphics program that salutes the U.S. space program. Its almost like watching a film.
STAR/EPSON DEMO (15) A 2-Disk side collection of programs to show you what your printer can really do. Also a great graphics tutorial with examples!
GOTHIC PRINT DISK (10) This program lets you type a message and then prints it out in Old English style. Looks like hand lettered calligraphy. Great for invitations, announcements.
SIDEWAYS PRINTOUT (16) Lets your printer print sideways. Great for spreadsheets and banners. Includes two versions and new Multiplan enhancements.
VIDEO GRAPHS (41) This disk is sold as a backup to owners of the discontiued TI Video Graphs module. We can only legally provide it to module owners.

TELECOMMUNICATIONS

TELCO (57) This program has been rated as one of the best telecommunications programs for the TI-99/4A. A user supported program that contains everything you need to upload and download data with your modem. Supports all baud rates and protocalls.

APPLICATIONS

WILL WRITER (23) Enter your answers to a group of questions and this program writes out a complete will.
MEDICAL ALERT (25) Contains many menu accessable files on what to do until the doctor or paramedics come. Could easily save a life!
ENGINEERING CALCULATIONS (24) A 2-disk side collection dozens of engineering and technical formulas. Does calculations, convereions, and even designs electrical circuits. Even contains medical and communications data and formulas.
LABEL MAKER (29) A pair of programs that let you make quick and easy labels for all purposes. Mail, disks, files etc. Uses standard tractor labels and even makes a graphic picture with the label text.
INFOCOM RAPID LOADER (47) A must for owners of Infocom 99/4A games. Loads games in seconds instead of minutes. Easy to use!
GENEALOGY (67) Now you can enter and arrange your family tree and print out copies for your relations. Also can be used if you breed animals such as dogs, cats or horses.
GRAPH MAKER (59) A collection of the best programs we have seen that produce graphs and charts from your data. Printer required!
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#93 THE 1989 KBGB GIRLIE CALENDAR
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If you have seen vols 1 & 2 of this series you know we only provide the very best. This latest volume is also filled with a collection of great ones!

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

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

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

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

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

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An exciting game for use with the Tunnels of Doom module. Several Exbasic bonus games are included.

#101 ENHANCED DISPLAY PACKAGE
This screen enhancement utility lets you do 40 columns, windowing, reverse scrolling, clock/alarm, and a whole host of othe great trick's in exbasic. Fully documented.

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EXTENDED BASIC—

(Continued from Page 13)

chips to sort the data, so there is no need to clear the screen and make a big deal out of the procedure. I prefer to give the user something to look at while the sorting process is going on. In this case, CHARTBASE displays the first ten records in the file, and starts sorting while you're distracted with studying your data. When the sort is done, the new first ten records are displayed below the original order. This allows easy comparison of the sorted file with the original.

The next chunk of CHARTBASE provides a menu, for sorting again, saving the new file, loading a new file, or giving up and calling it a day. The sorting and loading options are just branches back to earlier parts of the program. Quitting is verified before shutting down; its not nice to press a wrong key and lose all your work. Saving the new file is the remaining option, and some more error checking is required here to prevent crashes.

Several different things could go wrong here. The user could use a bad file name, something like DSK7.2RALPH. Or there might not be a disk in the drive. Maybe there is no room on the disk, or the file name is a duplicate of a protected file. These errors all would cause a crash at the same point, the OPEN statement. So the ON ERROR 400 statement is placed just before the OPEN statement, and branches back to the request in 400 for the file name if an error is detected. As soon as the file is closed, the ON ERROR STOP statement is used to restore the error treatment to normal.

Saving the file is easy. The array R$() is just saved back to the disk, from record one to one more than the number of data lines (L+1). Record zero is a duplicate of record L+1, so it isn't saved. The last line of the file resaves the tab line just as it was originally.

The save routine branches back to the menu, so the file can be sorted again, saved again, whatever it takes to keep your data happy. This small data base is certainly less work than the big ones. Maybe it would also help to rearrange the columns of a report file created on disk by a relational data base program. Certainly these new big programs have one weak area, report generation. If you try using CHARTBASE for this, be sure to load the data file into TI Writer first and setting the tabs.

CHARTBASE is only a "small file data processor." The utility of a program is in choosing the right data base program for the right purpose. I've used CHARTBASE to maintain lists of information several pages long, but a true relational data base would, with more work, allow more manipulation of the data. Two years ago there were no acceptable data base programs for the TI. At least now there is a choice.

CHARTBASE

```
 1 THEN 30835 !049 !081
30840 SUBEND !168 !202
31565 SUB TITLE2 !035 !062
31575 DISPLAY AT(7,10)ERASE
ALL:"DATASORT" :: CALL CHAR(
95,"00FF"):: CALL HCHAR(8,12
,95,8)!245 !019
31580 DISPLAY AT(12,5):"SORT
S A CHART FILE" !057 !088
31595 SUBEND !168 !202
32070 SUB QUICK3(N,X$(),D)!1
09 !138
32075 !(NUMBER OF VALUES,STR
ING ARRAY TO BE SORTED,DIGIT
 TO SORT BY) MIDSTRING SORT
VERSION !065 !095
32085 K,I=0 :: E=133-D :: DI
M S(200)!020 !041
32090 S(I+1)=1 :: S(I+2)=N !
207 !235
32095 K=K+1 !015 !040
32100 IF K=0 THEN SUBEXIT !2
21 !245
32105 K=K-1 :: I=K+K !240 !0
09
32110 A=S(I+1):: B=S(I+2)!01
0 !030
32115 Z$=X$(A):: U=A :: L=B+
1 !197 !233
32120 L=L-1 !018 !046
32125 IF L=U THEN 32150 !111
 !133
32130 IF SEG$(Z$,D,E)<=SEG$(
X$(L),D,E)THEN 32120 ELSE X$
(U)=X$(L)!060 !085
32135 U=U+1 !035 !062
32140 IF L=U THEN 32150 !111
 !133
32145 IF SEG$(Z$,D,E)>=SEG$(
X$(U),D,E)THEN 32135 ELSE X$
(L)=X$(U):: GOTO 32120 !027
!055
32150 X$(U)=Z$ !122 !146
32155 IF B-U>=2 THEN I=K+K :
: S(I+1)=U+1 :: S(I+2)=B ::
K=K+1 !080 !107
32160 IF L-A>=2 THEN I=K+K :
: S(I+1)=A :: S(I+2)=L-1 ::
K=K+1 !061 !087
32165 GOTO 32100 !048 !079
32170 SUBEND !168 !202
32575 SUB GUN !086 !119
32580 ! GUN SOUND EFFECT SIN
GLE SHOT JLS- 12/85 !152 !17
9
32585 CALL SOUND(100,110,0,1
30,5,34000,30,-8,0):: FOR L=
0 TO 30 STEP 15 :: CALL SOUN
D(-100,110,30,110,30,3400,30
,-8,L):: NEXT L :: SUBEND !1
42 !168
100 ! CHARTBASE !048 !079
110 ! V 4.0 JLS 5/89 !169 !2
04
120 ! SORTS DATA RECORDS BY
ITEM, DETERMINED BY TAB POSI
TION LISTING ON LAST LINE !1
87 !222
130 ! OF DATA FILE: IN FORMA
T NN NN NN NN, WHERE NN IS T
HE CHARACTER POSITION OF EAC
H FIELD, UP TO 16. !209 !239
140 ! THE DATA MUST BE STRIN
GS OF CONCATENATED INFORMATI
ON IN DISPLAY/VARIABLE 80 FO
RMAT !143 !170
150 ON WARNING NEXT !215 !24
2
160 DIM P(16),R$(300)!108 !1
36
170 CALL TITLE2 :: CALL PAUS
E !137 !167
180 CALL CLEAR !209 !239
190 DISPLAY AT(2,1):"NAME OF
 FILE TO LOAD?":"DSK1." !082
 !111
200 ACCEPT AT(3,4)VALIDATE(U
ALPHA,DIGIT,"._")SIZE(-12):S
$ :: IF S$="1." THEN STOP EL
```

(See Page 19)

EXTENDED BASIC—

(Continued from Page 18)

```
SE S$="DSK"&S$ !Ø86 !119
21Ø ON ERROR 18Ø !189 !226
22Ø OPEN #1:S$,DISPLAY ,VARI
ABLE 8Ø,INPUT :: L=Ø !185 !2
18
23Ø IF EOF(1)THEN 25Ø !Ø4Ø !
Ø63
24Ø L=L+1 :: LINPUT #1:R$(L)
:: IF LEN(R$(L))<3 THEN L=L-
1 :: GOTO 23Ø ELSE 23Ø !243
!Ø15
25Ø CLOSE #1 :: ON ERROR STO
P :: L=L-1 :: R$(Ø)=R$(L+1)!
 L LEFT WITH VALUE OF NUMBER
 OF FILE LINES !236 !Ø1Ø
26Ø ! DATA LINE BREAKDOWN !1
94 !227
27Ø N=(POS(R$(Ø),CHR$(213),5
)-5):: IF N=Ø THEN N=16 ! N:
NUMBER OF DATA ITEMS PER REC
ORD !198 !235
28Ø FOR T=1 TO N :: P(T)=ASC
(SEG$(R$(Ø),T+4,1))-133 :: N
EXT T :: P(T)=8Ø !215 !242
29Ø CALL CLEAR :: DISPLAY AT
(1,1):L;" RECORD FIELDS STAR
T AT:" !224 !251
3ØØ FOR T=1 TO N :: DISPLAY
AT(T+1,1):P(T);TAB(5);SEG$(R
$(1),P(T),MIN(2Ø,P(T+1)-P(T)
));TAB(27);T :: NEXT T !145
!174
31Ø DISPLAY AT(23,1):"ENTER
CHOICE OF FIELD        TO SOR
T BY:(Ø TO STOP)" :: ACCEPT
AT(24,27)VALIDATE(DIGIT)SIZE
(2):T !222 !247
32Ø IF T>N THEN 31Ø ELSE IF
T=Ø THEN 37Ø !146 !176
33Ø DISPLAY AT(1,1)ERASE ALL
:"PRE-SORT" :: FOR U=1 TO MI
N(1Ø,L):: DISPLAY AT(U+1,1):
SEG$(R$(U),1,28):: NEXT U !Ø
21 !Ø43
34Ø DISPLAY AT(13,1):"SORTIN
G..." :: CALL QUICK3(L,R$(),
P(T))!192 !223
35Ø DISPLAY AT(13,1):"POST-S
ORT" :: FOR T=1 TO MIN(1Ø,L)
:: DISPLAY AT(T+13,1):SEG$(R
$(T),1,28):: NEXT T !254 !Ø2
8
36Ø CALL PAUSE !232 !ØØ2
37Ø DISPLAY AT(2,1)ERASE ALL
:"CHOOSE:": :" 1 :SORT AGAIN
":" 2 :SAVE FILE":" 3 :LOAD
A NEW FILE":" 4 :QUIT" !21Ø
!232
38Ø CALL KEY(Ø,K,S):: IF S<1
 THEN 38Ø ELSE IF K>52 OR K<
49 THEN 38Ø ELSE T=K-48 !2Ø3
 !227
39Ø ON T GOTO 29Ø,4ØØ,18Ø,45
Ø !221 !245
4ØØ DISPLAY AT(2,1)ERASE ALL
:"NAME OF FILE TO SAVE?":S$
!166 !198
41Ø ACCEPT AT(3,4)VALIDATE(U
ALPHA,DIGIT,"._")SIZE(-12):S
$ :: S$="DSK"&S$ !172 !2Ø1
42Ø ON ERROR 4ØØ !154 !183
43Ø OPEN #2:S$,DISPLAY ,VARI
ABLE 8Ø,OUTPUT !154 !183
44Ø FOR T=1 TO L+1 :: PRINT
#2:R$(T):: NEXT T :: CLOSE #
2 :: ON ERROR STOP :: GOTO 3
7Ø !118 !147
45Ø CALL GUN :: DISPLAY AT(5
,1)ERASE ALL:"QUIT???": :"TY
PE Y TO CONFIRM..." :: ACCEP
T AT(7,22)SIZE(1):Z$ !Ø64 !Ø
93
46Ø IF Z$="Y" THEN STOP ELSE
 37Ø !23Ø !254
3Ø82Ø SUB PAUSE !236 !Ø1Ø
3Ø825 FOR D=1 TO 1ØØ :: NEXT
 D !241 !Ø11
3Ø83Ø DISPLAY AT(24,2):"PRES
S ANY KEY TO CONTINUE" !Ø88
!123
3Ø835 CALL KEY(Ø,K,S):: IF S
<1 THEN 3Ø835 !Ø49 !Ø81
3Ø84Ø SUBEND !168 !2Ø2
31565 SUB TITLE2 !Ø35 !Ø62
31575 DISPLAY AT(7,1Ø)ERASE
ALL:"DATASORT" :: CALL CHAR(
95,"ØØFF"):: CALL HCHAR(8,12
,95,8)!245 !Ø19
31585 DISPLAY AT(12,5):"SORT
S A CHART FILE" !Ø57 !Ø88
31595 SUBEND !168 !2Ø2
32Ø7Ø SUB QUICK3(N,X$(),D)!1
Ø9 !138
32Ø75 !(NUMBER OF VALUES,STR
ING ARRAY TO BE SORTED,DIGIT
 TO SORT BY) MIDSTRING SORT
VERSION !Ø65 !Ø95
32Ø85 K,I=Ø :: E=133-D :: DI
M S(2ØØ)!Ø2Ø !Ø41
32Ø9Ø S(I+1)=1 :: S(I+2)=N !
2Ø7 !235
32Ø95 K=K+1 !Ø15 !Ø4Ø
321ØØ IF K=Ø THEN SUBEXIT !2
21 !245
321Ø5 K=K-1 :: I=K+K !24Ø !Ø
Ø9
3211Ø A=S(I+1):: B=S(I+2)!Ø1
Ø !Ø3Ø
32115 Z$=X$(A):: U=A :: L=B+
1 !197 !233
3212Ø L=L-1 !Ø18 !Ø46
32125 IF L=U THEN 3215Ø !111
 !133
3213Ø IF SEG$(Z$,D,E)<=SEG$(
X$(L),D,E)THEN 3212Ø ELSE X$
(U)=X$(L)!Ø6Ø !Ø85
32135 U=U+1 !Ø35 !Ø62
3214Ø IF L=U THEN 3215Ø !111
 !133
32145 IF SEG$(Z$,D,E)>=SEG$(
X$(U),D,E)THEN 32135 ELSE X$
(L)=X$(U):: GOTO 3212Ø !Ø27
!Ø55
3215Ø X$(U)=Z$ !122 !146
32155 IF B-U>=2 THEN I=K+K :
: S(I+1)=U+1 :: S(I+2)=B ::
K=K+1 !Ø8Ø !1Ø7
3216Ø IF L-A>=2 THEN I=K+K :
: S(I+1)=A :: S(I+2)=L-1 ::
K=K+1 !Ø61 !Ø87
32165 GOTO 321ØØ !Ø48 !Ø79
3217Ø SUBEND !168 !2Ø2
32575 SUB GUN !Ø86 !119
3258Ø ! GUN SOUND EFFECT SIN
GLE SHOT JLS- 12/85 !152 !17
9
32585 CALL SOUND(1ØØ,11Ø,Ø,1
3Ø,5,34ØØØ,3Ø,-8,Ø):: FOR L=
Ø TO 3Ø STEP 15 :: CALL SOUN
D(-1ØØ,11Ø,3Ø,11Ø,3Ø,34ØØ,3Ø
,-8,L):: NEXT L :: SUBEND !1
42 !168
```

User group update

The following are additions and updates to our user group listings, begun in May 1987.

Michigan

Great Lakes Computer Group, c/o Jack Jeup, Chairman of the Board, P.O. Box 7151, Roseville, MI 48305 (312) 776-2247; June C. Smith, president, and Leonard Smith, newsletter editor, 236 Wendy Lane, Bloomfield Hills, MI 48013, (312) 338-0072. Meets last Monday of month.

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San Antonio 99er User Group, Andy Tokoly, president, 1017 West Magnolia, San Antonio, TX 78201.

LOADERS, MODULAR PROGRAMMING, LINKAGES & OVERLAYS

Dynamic modular programming using Extended BASIC

By MERLE VOGT

This is the third of a five-part series on loaders, linkages and overlays.—Ed.

In this installment I want to discuss *dynamic* modular program runs using Extended BASIC. The preliminary steps are similar to those already discussed. We start by using the Editor/Assembler editor to create the source code for a module. Then we use the assembler to make an object module, and save that to disk. However, the source code is somewhat different in order to make it compatible with the Extended BASIC environment.

The new, dynamic element is important in that the loading of object modules into RAM becomes a function of the run phase of the Extended BASIC program, which has its own loader. See program below:

```
100 REM X-BASIC DYNAMIC SUBR
OUTINE EXECUTION
110 DISPLAY "THIS PROGRAM WI
LL INPUT A STRING, THEN ADD
01 TO EACH CHARACTER, THEN D
ISPLAY RESULTS.": : :
500 CALL INIT
510 CALL LOAD("DSK1.XB/PT3/O
BJ")
600 INPUT "TYPE IN A STRING,
 NOT OVER 31 CHARACTERS ":I
N$
610 IF SEG$(IN$,1,3)="ZZZ" T
HEN 1000
890 REM
900 CALL LINK("SUBRT1",IN$,O
UT$)
910 REM COMES BACK TO HERE
920 DISPLAY IN$: :OUT$: :"TY
PE ZZZ TO HALT": : :
930 GOTO 600
940 REM
1000 DISPLAY "END OF JOB ***
******"
1010 FOR QQ=1 TO 1000
1020 NEXT QQ
1030 STOP
1040 END
```

The CALL INIT is needed, first, to load the utility routines, and then to make the

(See Page 22)

SUBRT1 (Extended BASIC)

```
0001                DEF   SUBRT1
0002   STRASG       EQU   >2010
0003   STRREF       EQU   >2014
0004   XBWS         EQU   >83E0
0005   XBRETN       EQU   >0070
0006   STAT         EQU   >837C
0007   SUBRT1       LWPI  MYWS
0008                LI    R4,>1F00
0009                MOVB  R4,@BUFFER
0010                CLR   R0
0011                LI    R1,1
0012                LI    R2,BUFFER
0013                BLWP  @STRREF
0014                MOVB  @BUFFER,R4
0015                SWPB  R4
0016                LI    R5,BUFFER+1
0017   ADD          AB    @PLUS1,*R5+
0018                DEC   R4
0019                JNE   ADD
0020                CLR   R0
0021                LI    R1,2
0022                LI    R2,BUFFER
0023                BLWP  @STRASG
0024                LWPI  XBWS
0025                CLR   @STAT
0026                B     @XBRETN
0027   PLUS1        DATA  >0101
0028   BUFFER       BSS   32
0029   MYWS         BSS   32
0030                END
```

Fig. 1

PROGRAM COMMENTS

Line #	Explanation
1	Defines the routine name, SUBRT1
2-6	Give the address equates needed
7	Provides workspace for this module
8-9	Set up the length code in first buffer byte, here it is 31 bytes
10-13	Pull the string from XBASIC into buffer
14-15	Picks up actual buffer length received from XB and puts it into R4
16	Put pointer to first character of the string into R5
17-19	Adds 01 to each character of the string
20-23	Move string back to XB to data filed "OUT$"
24-26	Return control to XB
27-29	Set up data and work spaces

(The line numbers in the program are for reference only. Do enter them when typing in the program.—Ed.)

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■ **We don't call** Page Pro 99 a "desktop publishing program", but it lets you do more, more easily then many programs that claim to be. Page Pro 99 is so capable we did the manual entirely with the program with just TI-Writer and standard TI-Artist fonts and instances.

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LOADERS, MODULAR PROGRAMMNG, LINKAGES & OVERLAYS

(Continued from Page 20)

loader function correctly. The CALL LOAD will haul in the SUBRT1 module and place it into RAM, and place the symbol name SUBRT1 into a REF/DEF table. Then, in line 900, we use CALL LINK to enter SUBRT1 and execute it. Note also that two data names (parameters) are passed to SUBRT1. More clarification on this in the example code for SUBRT1. See Fig. 1 and study it closely.

Now look at the entire Extended BASIC program in Fig. 2.

I have tried to demonstrate how to approach a dynamic program operation. Only one subroutine was used. You can have more, but there is a major obstacle when Extended BASIC is used: It eats up all of the high RAM, >A000 through >FFFF. The utilities occupy low RAM space >2000 through >24F3. Thus, you are left only the area of >24F4 through >3FXX, which is not enough space to do large projects. Also, the Extended BASIC loader puts your DEFs into a low RAM REF/DEF, starting at >3FF8 and downwards. The only DEFs in this table are those from your modules. Extended BASIC does not have any of its own. That is why you must code all those EQUates to get access to the Extended BASIC utilities.

MODULAR PROGRAMMING WITH MINI-MEMORY

You can also do dynamic runs with facilities provided by the Mini-Memory cartridge. The control program must be in regular TI-BASIC. The CALL INIT, CALL LOAD and CALL LINK commands work as already detailed. You can use all these utilities in ROM >6000 from the assembly modules. As before, you use the editor to create *source* modules and the assembler to make *object* modules. Be careful to conform to the slight differences of the Mini-Memory loader.

The assembly code looks rather different from that in Fig. 1. See Fig. 3.

Here is the corresponding BASIC program.

```
100 REM MINI-MEM DYNAMIC SUB
ROUTINE RUN
110 DISPLAY "THIS PROGRAM WI
LL INPUT A NUMBER, THEN USE
ASSEMBLY TO ADD IT TO ITSELF
."
120 REM
500 CALL INIT
510 CALL LOAD("DSK1.SUBRT108
JT")
600 INPUT "TYPE A NUMBER  ":
KEYPUT
610 IF KEYPUT=0 THEN 1000
620 REM
890 IN=KEYPUT
900 CALL LINK("SUBRT1",IN,OU
T)
910 REM
920 DISPLAY "IN=  ":;IN:"IN+
IN=   ";OUT:"TYPE  0 TO HALT
" :: ::
```

(See Page 23)

SUBRT1 (Mini-Memory)

```
0001            DEF     SUBRT1
0002            REF     NUMASG,NUMREF,XMLLNK
0003  FAC       EQU     >834A
0004  ARG       EQU     >835C
0005  STAT      EQU     >837C
0006  IN        EQU     FAC
0007  MYWS      BSS     32
0008  SUBRT1    BLWP    @SB4
0009            B       *R11
0010  SB4       DATA    MYWS
0011            DATA    SUBGO
0012  SUBGO     CLR     R0
0013            LI      R1,1
0014            BLWP    @NUMREF
0015            LI      R4,4
0016            LI      R5,IN
0017            LI      R6,ARG
0018  MOVE4     MOV     *R5+,*R6+
0019            DEC     R4
0020            JNE     MOVE4
0021            BLWP    @XMLLNK
0022            DATA    >0600
0023            CLR     R0
0024            LI      R1,2
0025            BLWP    @NUMASG
0026            CLR     @STAT
0027            RTWP
0028            END
```

PROGRAM COMMENTS

Line #	Explanation
1	Defines module name
2	Specifies REFs used in this module
3-6	Set up needed equates
7-11	Make the setup to start the module executing
12-14	Get data field "IN" (floating point number)
15-19	Place a copy of "FAC" into a work area named "ARG"
21-22	Execute a floating point add routine which is in the XMLLNK routines. "ARG" is added to "FAC", so FAC becomes IN+IN.
23-25	Move FAC to data field "OUT" in BASIC
26	Clears status to avoid a false error flag

(The line numbers in this program are for reference. Do not enter them when typing this program.—Ed)

TRIALS OF A c99 BEGINNER

Complex functions using pointers

By CHARLES E. KIRKWOOD JR.

Arrays were used with the functions in the article on Complex Arithmetic. This month the three functions **fsepcx()**, **fcbncx()**, and **strcat()** (renamed **catstr()**) will be rewritten with pointers. But first I would like to correct a typing error and an error in the function **fsepcx()**. In the listings of the complex functions, **fsepxn(s,w)** should be **fsepcx(s,w)**. In the function **fsepcx(s,w)**, change:

i=0; to **i=1;**

j=0; to **j=1;**

and add next **r[0]=s[0];**

Before writing the functions, here are three short programs to mull over. The first two use the function **strcpy()** from Tom Wible's string function library:

```
strcpy(t,s)
char *s,*t;
{
  while(*t++=*s++)
    ;
  return;
}

/*program 1*/
main()
{
  int a;
  char buff[81];
  char *b;
  a=gets(buff);
  strcpy(b,a);
  puts(b);
}

/*program 2*/
main()
{
  int a;
  char buff[81];
  char *b;
  b="ABCDEFGISHIJKLMNOPQRSTUVWXYZ";
  a=gets(a);
  strcpy(b,a);
  puts(b);
}

/*program 3*/
main()
{
  int a;
  char buff[81];
  char *b;
  a=gets(buff);
  b=a;
  puts(b);
}
```

Input a character string for each. What result do you get for each?

1. same as input
2. same as input provided length of string was equal to or less than the string "ABCDEFGHIJKLMNOPQRSTUVWXYZ"
3. nothing
4. garbage

Two different versions of **fsepcx** will be given. The first version was a little tricky for me. So I am going to discuss what I did, and why. I hope my reasoning is correct.

The two pointers ***r** and ***im** do not initially point to anything, so the two statements **r=''100000000'';** and **im=''100000000'';**

(See Page 24)

VOGT—

(Continued from Page 22)

```
930 GOTO 600
940 REM
1000 DISPLAY "END OF JOB ***
*********" :: :: :
1010 FOR QQ=1 TO 1000
1020 NEXT QQ
1030 STOP
1040 END
```

I have tried to demonstrate how to use Mini-Memory to do dynamic routine runs. In this context, note that there is one large advantage in using the Mini-Memory: Since it does not eat up high or low RAM, you have >A000 through >FFE0 and low RAM >2000 through >3FFF. You get nearly 32K of space for programs. So you can shoot for bigger things in this environment.

Note, too, that you do not have to run programs dynamically with Mini-Memory. It is an option. I will go into more detail on dynamic programs in Part 4 of this series. It will focus on *overlays*.

You may do regular "static" programs, as in the Editor/Assembler. You would create and assemble modules with the E/A then transfer to Mini-Memory and select *load and run* or *run* for the execution phase of the job.

c99—

(Continued from Page 23)

were put in to give initial locations for the pointers. Enough characters were used between the quotation marks to provide enough space for a floating-point number. When I tried too few characters, my answers included garbage. A counter **i** was included in the loops because it is necessary to reset the pointers to the first characters before **r** and **im** can be used as arguments in the function **stof()**. If the pointers weren't reset, they would point to the next locations and not the beginnings.

```
/*Separate a+bi into two variables, a and b*/
/*First Version*/
fsepcx(s,x)
char *s;
float x[][8];
{
  int i;
  char *r,*im;
  r="100000000";
  im="100000000";
  *r++=*s++;
  i=1;  /*real component*/
  while((*s!='+')&(*s!='-'))
  {
    *r++=*s++;
    ++i;
  }
  *r='\0'; /*terminate with NULL '\0' or 0*/
  while(i>0) /*reset pointer to 1st character*/
  {
    *r--;
    --i;
  }
  i=0;  /*imaginary component less 'i'*/
  while(*s!='i')
  {
    *im++=*s++;
    ++i;
  }
  *im='\0';   /*terminate with NULL*/
  while(i>0)  /*reset pointer*/
  {
    *im--;
    --i;
  }
  stof(r,&x[0][0]); /*convert to floating point*/
  stof(im,&x[1][0]);/*convert to floating point*/
  return;
}

/*Combine a and b to form a+bi*/
fcbncx(x,s)
float x[][8];
char *s;
{
  char t[15];
  ftos(&x[0][0],s,0,0,0);
  ftos(&x[1][0],t,0,0,0);
  catstr(s,t);
  *s++;
  while(*s++!='\0')
  {
    if(*s==' ')
      *s='+';
  }
  *s--;
  *s++='i';
  *s='\0';
  return;
}

/*Concatinate two strings*/
catstr(s,t)
char *s,*t;
{
  while(*s++!='\0')
    ;
  *s--;
  while((*s++=*t++)!='\0')
    ;
```

(See Page 26)

c99—

(Continued from Page 24)

```
        return;
    }
```

The part of the **while** statements **!='0'** or **!=0** may be omitted; for example, **while(*s++)** or **while(*s++=*t++)**.

In the second version of the function **fsepcx()**, the pointers ***r** and ***im** remain pointing to the first characters and an offset is used (see Warren Agee's article in the December issue). This simplifies the function somewhat since it is not necessary to reset the pointers.

```
/*Separate a+bi into two variables, a and b*/
/*Second Version*/
fsepcx(s,x)
char *s;
float x[][8];
{
  int i;
  char *r,*im;
  r="100000000";
  im="100000000";
  *r=*s++;
  i=1;
  while(((*s)!='+')&((*s)!='-'))
    *(r+i++)=*s++;
  *(r+i)='\0';
  i=0;
  while((*s)!='i')
    *(im+i++)=*s++;
  *(im+i)='\0';
  stof(r,&x[0][0]);
  stof(im,&x[1][0]);
  return;
}
```

I wish to thank Warren Agee and others for correcting some of my errors and making suggestions for improvements. The Scramble with Dictionary program (May 1988) can be shortened and improved by one of Warren's methods for dynamically constructing the filename (November and December 1988). He did what I wanted to do, but could not get to work.

GENEVE

XDIR utility for MDOS users

This is the second part of John Johnson's XDIR extended MDOS utility for the Geneve. A description of what it does and how to use it appeared in last month's MICROpendium. The assembly language program listing appearing below picks up where the listing left off last month. After entering the additional code below, assemble the program in the normal fashion. If you get a message during the assembly processing that there isn't enough memory, delete some of the text from the comments included with the program. At most, this should involve only several hundred characters.

XDIR (Part 2)

```
ONEDIR BL   @CHKTYP       go see if the filetype is a match
       JNE  NOTYPE        if no match
       BL   @CHKFIL       go see if filename is a match
       JNE  NOTYPE        if no match
*
* let's do up the screen's DIR info and HEADER
* and printer output the DIR info and HEADER line
*
       ABS  @HITDIR
       JNE  FRMDIR
       SETO @HITDIR
       BLWP @PUTDIR
       JMP  FRMDIR
NOTYPE B    @READIT       else go show the match
*
NODIR  BL   @CHKTYP       check for a type match
       JNE  NOTYPE        if none
       BL   @CHKFIL       check for a filename match
       JNE  NOTYPE        if no match
*
* we have a printable record
* go do the printer, screen headers and directory info
*
       ABS  @HITDIR       if it's hi, it's already been printed
       JNE  HITDON
       SETO @HITDIR       else show it as hit and printed
       BLWP @PUTDIR       go put the dir and header info up
HITDON C    @ATTR1,@ATTR2 are they the same after the ABS?
       JEQ  NOPROT
       LI   R9,PRO
       MOVB @LILY,*R9
*
* get the sectors used
*
NOPROT BL   @GETFPT
       MOV  R1,@NUMBER
       BLWP @BTOA         convert the number to ascii
       LI   R9,AU
       BL   @MOVRES
*
* now the record length or bytes
*
       BL   @GETFPT
       MOV  R1,@NUMBER
       BLWP @BTOA
       LI   R9,RECS
       BL   @MOVRES
*
* now get the creation time
*
       LI   R7,12         twelve elements to post
       SETO @DORT         to keep leading zero's
       LI   R6,DNTTBL
PUTDNT MOV  *R6+,R9       creation time start location
       BL   @PUT2D
       DEC  R7
       JNE  PUTDNT
*
       LI   R8,':/'
       LI   R9,CLNTBL        write the colons first
       BL   @DOCNS
       SWPB R8               then the slash
```

(See Page 27)

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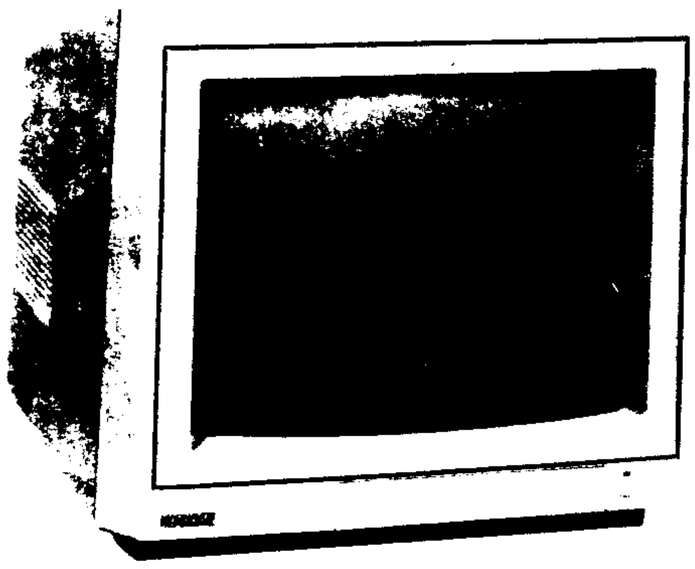

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XDIR—

(Continued from Page 26)

```
        BL    @DOCNS
*
        LI    R1,CRLFNU
FRMDIR  LI    RØ,CLFNUL
        MOVB  *RØ+,*R1+
        MOVB  *RØ+,*R1+
        MOVB  *RØ+,*R1+
        BL    @PAUSE          go check for more..
        BL    @TTYOUT         write the record to the screen
        DATA  LINE,Ø
        ABS   @PRINT
        JEQ   JUSTSC
        BL    @DOPRN          and to the printer
        DEC   @PLINES
        JNE   JUSTSC
        BL    @PRNFF
        BL    @PRNCR
JUSTSC  B     @READIT
*
* write tty routine
*
TTYOUT  MOV   *R11+,R8        get data address
        MOV   *R11+,R9        get length of data to write
TTYØ    MOV   R9,R2           save length in r2 for the ttyout routine
        LI    R1Ø,WORK        for the move to hi memory
        MOV   R1Ø,R1          save for the ttyout routine
TTY1    MOVB  *R8+,*R1Ø+      move em to hi memory
        JEQ   TTY2            if we hit a null
        DEC   R9              till r3 is zero
        JNE   TTY1
TTY2    LI    RØ,>ØØ27        do the actual ttyout routine
        CALL  @VIDEO          xop @6,Ø
        B     *R11
*
* get a floating point number
*
GETFPT  MOVB  *R1Ø+,R8        see if it's an 8
        CI    R8,>Ø8ØØ
        JNE   GOTDIR          if it ain't a floating point number, we're done
OKFPT   SRL   R8,8            make r8 a word
        LI    R12,FPTBUF
MOVFPT  MOVB  *R1Ø+,*R12+     and move the floater
        DEC   R8
        JNE   MOVFPT
        LI    RØ,14           convert float to integer
        LI    R2,FPTBUF       pointer to float source
        CALL  @MATH           do the MDOS float to integer conversion
GOTDIR  RT                    with integer returned in R1
*
* check for a filetype match
*
CHKTYP  MOVB  @TYPES,@TYPES   anything there?
        JEQ   NOCARE          if a null, any filetype will do
        CB    @TYPE,@TYPES    same as we are looking for?
NOCARE  RT
*
* check for a filename match
* this was a real somebich (and it's SLOPPY but it works)
*
CHKFIL  LWPI  UTILWS
        MOV   @STLEN,R2
        JEQ   NOCAR2          if no filename match is required, it's =, exit
        MOV   @PTHNAM,R3
        C     R2,R3           search string cannot be greater than filename
        JH    NOCAR2
*
        LI    RØ,'??'         fill new string with wildcards
        LI    R1,NEWSTR       new string goes here
        LI    R2,5            1Ø bytes
CLRNEW  MOV   RØ,*R1+
        DEC   R2
        JNE   CLRNEW
*
* look for an '*' in the search string
*
        LI    R12,1Ø          1Ø possible bytes in filename
        CLR   R1              pointer to string location
        CLR   R4              pointer to new string location
        MOV   @PTHNAM,R5      get filename length
        MOV   @STLEN,R2       and string length
        MOV   R2,R9           save string length for later
FNDAST  CB    @STRING(R1),@AST  compare byte in string to a '*'
        JEQ   GOTAS1
        MOVB  @STRING(R1),@NEWSTR(R4)
        INC   R1
        INC   R4
        DEC   R2
        JNE   FNDAST
        JMP   GOTAS2
*
GOTAS1  MOV   R5,R1Ø          get original filename length end
        MOV   R9,R11          get original string length end
GOTAS4  MOVB  @STRING-1(R11),@NEWSTR-1(R1Ø)
        DEC   R1Ø             we done with filename length?
        JEQ   GOTAS3
        DEC   R11
        JEQ   GOTAS3
        DEC   R2              how many more bytes remaining?
        JNE   GOTAS4
*
GOTAS3  MOVB  @QMARK,@NEWSTR(R1Ø)   patch over original '*'
        MOV   @PTHNAM,R9      set length of string to same as filenam
*
GOTAS2  MOV   R9,R2           search length
        MOV   @PTHNAM,R4      filename length
        C     R2,R4           are they the same length?
        JNE   NOCAR2          if not, no match - exit
*
CHKMCH  CB    @NEWSTR-1(R2),@QMARK
        JEQ   GOTQM
        CB    @NEWSTR-1(R2),@NAME-1(R2)
        JNE   NOCAR2
GOTQM   DEC   R2
        JNE   CHKMCH
NOCAR2  LWPI  WS
        JMP   NOCARE
*
GETKEY  LI    RØ,5            keymode 5
        CALL  @KEY            go get a key from user
        ANDI  R1,>7FØØ        else strip the hi bit
        CB    R1,@CTRLC       and see if it's a ^c
        JNE   NOABRT          if it is, exit
        B     @CLOSIT
NOABRT  RT
*
* ------ Binary to ASCII ------ *
*
BTOA    DATA  UTILWS,$+2
        LI    R8,TENTHO
        LI    R9,1ØØØØ
        MOV   R9,*R8
        LI    R9,5
        LI    R1Ø,RESULT
        MOV   @NUMBER,R5
BTOA1   CLR   R4
        DIV   *R8,R4
        AI    R4,48
        SWPB  R4
        MOVB  R4,*R1Ø+
        CLR   R6
        MOV   *R8,R7
        DIV   @TEN,R6
        MOV   R6,*R8
        DEC   R9
        JNE   BTOA1
        CLR   R9
BTOA2   ABS   @DORT
        JNE   BTOA7
        CB    @RESULT(R9),@ZERO
        JNE   BTOA7
        MOVB  @H32,@RESULT(R9)
        INC   R9
        CI    R9,5
        JNE   BTOA2
BTOA7   RTWP
*
DOCNS   LI    R6,4
WRTDEL  MOV   *R9+,R1
        MOVB  R8,*R1
        DEC   R6
        JNE   WRTDEL
        RT
*
MOVLS2  LI    R1,RESULT+3
        LI    R12,2
```

(See Page 28)

XDIR—

(Continued from Page 28)

```
        JMP   MOVR1
MOVRES  LI    R1,RESULT
        LI    R12,5
MOVR1   MOVB  *R1+,*R9+
        DEC   R12
        JNE   MOVR1
        RT
*
PUT2D   MOV   R11,@PUTR11
        BL    @GETFPT
        MOV   R1,@NUMBER
        BLWP  @BTOA
        BL    @MOVLS2
PUTR11  EQU   $+2
        LI    R11,Ø
        B     *R11
*
* put the dir info and header to the screen and printer
*
PUTDIR  DATA  UTILWS,$+2
        MOV   @LEN,@FLEN
        BL    @PAUSE
        BL    @TTYOUT
        DATA  NOMEM,2       a crlf
        BL    @PAUSE
        BL    @TTYOUT
        DATA  FNAME         print pathname to screen
FLEN    DATA  Ø             for LEN bytes
        BL    @TTYOUT       then a crlflf
        DATA  NOMEM-1,3
        BL    @PAUSE
        BL    @PAUSE        again, we print 2 lines for the header
        BL    @TTYOUT
        DATA  HDR,HDRLEN    and put a header up on the first printing
*
        ABS   @PRINT        we printing?
        JEQ   PUTBYE        if not
        C     @PLINES,@VIDEO    do we have 1Ø lines left on the printer?
        JHE   NUFLIN        if we do
        BL    @PRNFF        else form feed to printer
NUFLIN  BL    @PRNCR        then a cr
        BL    @PRNDIR       go print the dir header
        BL    @PRNCR        then a crlf
        BL    @PRNCR        then another crlf
        BL    @PRNHDR       now the header
        MOV   @PLINES,RØ    patch the PLINES count
        AI    RØ,-5         to show lines used
        MOV   RØ,@PLINES    then put it back
PUTBYE  RTWP
*
* print a form feed to the printer
*
PRNFF   MOVB  @FF,@WORK
        MOVB  @NULL,@WORK+1
        LI    RØ,6Ø
        MOV   RØ,@PLINES
        JMP   DOPRN
*
PRNCR   MOVB  @NOMEM,@WORK
        MOVB  @NOMEM+1,@WORK+1
        MOVB  @NULL,@WORK+2
        JMP   DOPRN
*
* print the dir-name to the printer
*
PRNDIR  LI    RØ,FNAME
        MOV   RØ,@PBUF
        MOV   @LEN,@PCOUNT
        JMP   DOPRN1
*
* print the header to the printer
*
PRNHDR  LI    RØ,HDR
        MOV   RØ,@PBUF
        LI    RØ,HDRLEN
        MOV   RØ,@PCOUNT
        JMP   DOPRN1
*
DOPRN   LI    RØ,WORK
        MOV   RØ,@PBUF
        CLR   R3
PLEN    MOVB  *RØ+,R1
        JEQ   DOPRNØ
        INC   R3
        JMP   PLEN
DOPRNØ  MOV   R3,@PCOUNT
DOPRN1  LI    RØ,PRN
        MOVB  @WRITE,*RØ
        CALL  @IO           do the printer write
        LI    RØ,WORK
        MOV   RØ,@PBUF
        RT
*
PAUSE   MOV   R11,@MORERT   save r11 for return
        ABS   @MORE         we pausing?
        JEQ   MORBYE        if equal
        DEC   @MORE         dec a line
        JNE   MORBYE        done yet?
        BL    @TTYOUT
        DATA  MORMSG,7      more..<cr>
PAUSE2  BL    @GETKEY       pause for a key
        CB    R1,@H7F       was a key pressed?
        JEQ   PAUSE2
        CB    R1,@CTRLX     cancel this routine?
        JNE   YEAMOR
        CLR   @LCOUNT       if so, clear line counter
YEAMOR  BL    @TTYOUT       put 7 spaces
        DATA  MORSP,7
        BL    @TTYOUT
        DATA  NOMEM,1       then a carrage return
LCOUNT  EQU   $+2
        LI    R11,21        patch MORE for another 22 lines
        MOV   R11,@MORE
MORERT  EQU   $+2
MORBYE  LI    R11,Ø         and return
        RT
*
* end of code, data follows
```

(See Page 30)

XDIR—

(Continued from Page 29)

```
*
PLINES DATA Ø
DIRLOC DATA DIRTBL
NXTDIR DATA DIRTBL
KEY    DATA 5          kscan xop
VIDEO  DATA 6          video xop
MEM    DATA 7
IO     DATA 8          i/o xop
TAB    EQU  $+1        point to the >Ø9
UTIL   DATA 9          utility xop
MATH
TEN    DATA 1Ø         math library and a ten for the multiply
PRINT  DATA Ø
NUMBER DATA Ø
DORT   DATA Ø
DIR    DATA Ø
TENTHO DATA 1ØØØØ
*
SLASH  BYTE '/'
LILP   BYTE 'p'
LILS   BYTE 's'
S      BYTE 'S'
CTRLS  BYTE 19
CTRLC  BYTE 3
CTRLQ  BYTE 17
CTRLX  BYTE 24
CLOSE  BYTE >Ø1
READ   BYTE >Ø2
WRITE  BYTE >Ø3
CLFNUL BYTE LF,CR,Ø
       BYTE LF
NOMEM  BYTE CR,LF
       TEXT 'insufficient memor'
LILY   TEXT 'y'
       BYTE CR,LF
NULL   BYTE Ø
*
HELP   BYTE CR,LF,9
       TEXT 'XDIR II, John A. Johnson, Feb 29, 1989'
       BYTE CR,LF,LF,9,9
       TEXT 'Usage: XDIR [path][afn][`type][/pmsc?]'
       BYTE CR,LF,Ø
LILM
MORMSG TEXT 'more..'
       BYTE CR
M      TEXT 'M'
H7F    BYTE >7F
FF     BYTE 12
HDR    TEXT '    Filename    Type      AU'
       BYTE 39,'s'
H32    TEXT '   P        Created'
MORSP  TEXT '                Updated'
       BYTE CR,LF
       TEXT '    ---------- -------   -----'
       TEXT '   -   --------  -'
       TEXT '-------    --------  --------'
       BYTE CR,LF
HDRLEN EQU  $-HDR
TYPE   BYTE Ø
TYPES  BYTE Ø                  will hold the filetype we search for
       BYTE 'D'                display fixed
       BYTE 'd'                display variable
       BYTE 'I'                internal fixed
       BYTE 'i'                internal variable
P      BYTE 'P'                program
ANGLE  TEXT '<directory>'      subdirectory is type 6
ZERO   BYTE 48
AST    BYTE '*'
DECMAL BYTE '.'
QMARK  BYTE '?'
TICK   BYTE '`'
Y      BYTE 'Y',CR,LF
N      BYTE 'N',CR,LF
A      BYTE 'A',CR,LF
YNA    TEXT ' (Y/N/A)? '
       BYTE Ø
C      BYTE 'C'
LILC   BYTE 'c'
CMSG1  BYTE CR,LF
       TEXT 'View the directory on '
       BYTE Ø
CLNTBL DATA UPSEC-1,UPMIN-1    four colons to write
       DATA CRSEC-1,CRMIN-1
SLHTBL DATA UPYEAR-1,UPDAY-1   four slashes to write
       DATA CRYEAR-1,CRDAY-1
DNTTBL DATA CRSEC,CRMIN,CRHRS,CRDAY,CRMON,CRYEAR
       DATA UPSEC,UPMIN,UPHRS,UPDAY,UPMON,UPYEAR
*
* printer pab
*
PRN    DATA >ØØ12,Ø
PBUF   DATA WORK,Ø,Ø,Ø
PCOUNT DATA Ø,6
PNAME  TEXT 'PIO.CR'
*
* pab used to load directory file
*
       EVEN                    start the pab on an even word boundry
FILE   BYTE Ø       Ø          >ØØ is OPEN
       BYTE >ØC     1          mode flag IF    ØØØØ 1100
ERBYTE BYTE Ø       2          the errors are returned here after the I/O
       BYTE Ø       3          not used
       DATA RECBUF  4,5        buffer address
       BYTE Ø       6          \
       BYTE Ø       7           \
       BYTE Ø       8            \
       BYTE Ø       9             >    not used
       BYTE Ø       1Ø            \
       BYTE Ø       11            /
COUNT  BYTE Ø       12         after the i/o, bytes read in is returned here
       BYTE Ø       13         as a word
LEN    BYTE Ø       14
       BYTE >28     15         length of the text of name - let the parser do it
FNAME  EQU  $                  filename will go here - let the parser do it
*
MAP    EQU  FNAME+5Ø           map info from MDOS will go here
SINGLE EQU  MAP+1Ø
CONFRM EQU  SINGLE+2
ATTR1  EQU  CONFRM+2
ATTR2  EQU  ATTR1+2
HITDIR EQU  ATTR2+2
MORE   EQU  HITDIR+2
RESULT EQU  MORE+2             ascii conversions from binary to ascii routine
STLEN  EQU  RESULT+6           string length
STRING EQU  STLEN+2            string to search for
NEWSTR EQU  STRING+1Ø          new string to search for
FPTBUF EQU  NEWSTR+1Ø          floating point buffer
RECBUF EQU  FPTBUF+2Ø          i/o on the pab will put the record here
LINE   EQU  RECBUF+256         build the screen print line here
*
NAME   EQU  LINE+4             filename goes here
DECPLC EQU  NAME+1Ø            decimal place
RECS   EQU  NAME+13            record or byte length
AU     EQU  RECS+8             sectors
PRO    EQU  AU+8               protect flag

CRTIME EQU  AU+12              create time
CRHRS  EQU  CRTIME                  hours
CRMIN  EQU  CRTIME+3                minutes
CRSEC  EQU  CRTIME+6                seconds

CRDATE EQU  CRTIME+1Ø          create date
CRMON  EQU  CRDATE                  month
CRDAY  EQU  CRDATE+3                day
CRYEAR EQU  CRDATE+6                year

UPTIME EQU  CRDATE+12          update time
UPHRS  EQU  UPTIME                  hours
UPMIN  EQU  UPTIME+3                minutes
UPSEC  EQU  UPTIME+6                seconds

UPDATE EQU  UPTIME+1Ø          update date
UPMON  EQU  UPDATE                  month
UPDAY  EQU  UPDATE+3                day
UPYEAR EQU  UPDATE+6                year

CRLFNU EQU  UPYEAR+2           put a CR,LF, and NULL here
DIRTBL EQU  LINE+8Ø            put directory name tables here
       END
```

MICROdex

FOR TI BASE

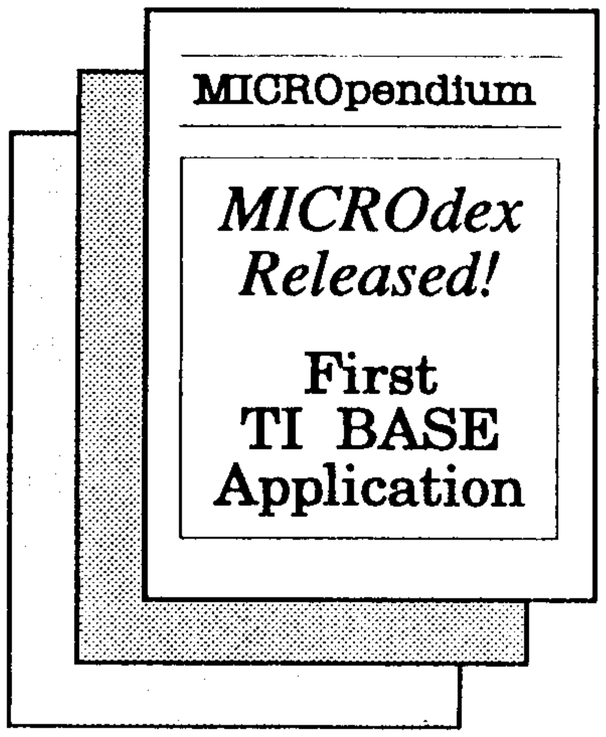
Your Window to Information

MICROdex is a fast, easy to use, publication indexing system that places an enormous amount of information at your fingertips. Frantically searching through all your magazines for a particular article, program, or review, is a thing of the past. MICROdex can even help you better understand the powers of TI Base.

With MICROdex, you can locate the source of various information printed about the TI-99/4a, and in some cases, the Geneve 9640. Any article, program, review, or editorial, that has appeared in many TI-related publications can be quickly located by subject, source, or type. Printed reports can also be prepared based on different search criteria, including a comprehensive listing of all references. On-line help is even available.

Written in TI Base for TI Base

Although MICROdex is a complete database application, it can also be used to show how TI Base applications operate. The entire MICROdex indexing system was developed using TI Base, and its data files are stored in the standard TI Base format. The command (program) files included can be viewed using the TI Base editor, and altered to suit your own needs.



Thousands of References

Due to its large size, MICROdex is divided into two volumes. Thousands of references about the TI-99/4a and Geneve 9640 are recorded, categorized, and stored in those volumes.

TI Base Version 2.0 or higher (sold separately) is required to use either MICROdex volume.

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- Enthusiast 99
- Family Computing
- Mini Mag 99
- Popular Computing
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TEXAMENTS

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Calendar maker

Print a month, from any year from 1593 to 9999

The following program is the first of a pair of programs that output calendars to Epson-compatible printers. This installment will output to a 8½ x 11 page a single month for the year specified by the user. At the bottom of the calendar page, it also prints small calendars for the preceding and subsequent months.

The program comes from Dale A. Kloes of Gibsonia, Pennsylvania. It runs in Extended BASIC. Included with the program that prints the calendar is a menu that allows the user to load two other calendar programs — one outputs a calendar for an entire year on a single sheet of paper (this will be published next month) while a third displays a calendar on the screen (because of its length, this may not be published).

CALENDAR2

```
10 REM CALENDAR2 - PRINT MON
TH ON PRINTER !199
15 REM (C) 1983-88 BY DALE A
. KLOES   PUBLIC DOMAIN !245
20 CALL CLEAR !209
30 DEF INVERT(A)=A-INT(A)!07
7
40 DIM DOTW$(5,6),TM$(5,6),L
M$(5,6),NM$(5,6)!186
50 GOSUB 1270 !074
60 MONMSG1$="  1 - JAN  2 -
FEB  3 - MAR" :: MONMSG2$="
 4 - APR  5 - MAY  6 - JUN"
:: MONMSG3$="  7 - JUL  8 -
AUG  9 - SEP" !056
70 MONMSG4$=" 10 - OCT 11 -
NOV 12 - DEC" :: MONMSG5$="E
NTER MONTH NUMBER" :: MONMSG
6$="INVALID MONTH! TRY AGAIN
!" !100
80 YRMSG1$="ENTER THE YEAR"
:: PFLG$="Y" !248
90 YRMSG2$="YEAR MUST BE 158
3 THRU 9999" !033
100 YRMSG3$="NO. OF COPIES"
!222
102 DISPLAY AT(1,1):"
 PRINT MONTH" !104
104 DISPLAY AT(2,1):"(C) 198
3-88 BY DALE A. KLOES" !131
106 DISPLAY AT(3,1):"
PUBLIC DOMAIN" !175
107 IF PFLG$="N" THEN 110 !1
40
108 PFLG$="N" :: DISPLAY AT(
4,1):"ENTER PRINTER:" !210
109 ACCEPT AT(5,1)BEEP:PRNTR
$ !009
110 DISPLAY AT(6,1):YRMSG1$
:: ACCEPT AT(6,23)VALIDATE("
1234567890")BEEP SIZE(4):YR$
 !187
120 IF VAL(YR$)>=1583 THEN D
ISPLAY AT(24,1):" " :: GOTO
140 !059
130 DISPLAY AT(24,1):YRMSG2$
 :: GOTO 110 !184
140 DISPLAY AT(8,1):MONMSG1$
 !136
150 DISPLAY AT(10,1):MONMSG2
$ !179
160 DISPLAY AT(12,1):MONMSG3
$ !182
170 DISPLAY AT(14,1):MONMSG4
$ !185
180 DISPLAY AT(16,1):MONMSG5
$ !188
190 ACCEPT AT(16,23)VALIDATE
(DIGIT)BEEP SIZE(2):MONTH !2
28
200 IF MONTH>=1 AND MONTH<=1
2 THEN DISPLAY AT(24,1):" "
:: GOTO 220 !067
210 DISPLAY AT(24,1):MONMSG6
$ :: GOTO 190 !075
220 DISPLAY AT(18,1):YRMSG3$
 :: ACCEPT AT(18,23)VALIDATE
("1234567890")BEEP SIZE(2):C
OPYNO !044
230 IF MONTH=12 THEN NMON=1
:: NYR$=STR$(VAL(YR$)+1)ELSE
 NMON=MONTH+1 :: NYR$=YR$ !2
39
240 IF MONTH=1 THEN LMON=12
:: LYR$=STR$(VAL(YR$)-1)ELSE
 LMON=MONTH-1 :: LYR$=YR$ !2
33
250 FOR QP=1 TO 3 !146
260 IF QP=1 THEN TYR$=YR$ ::
 GOTO 290 !049
270 IF QP=2 THEN MONTH=LMON
:: YR$=LYR$ :: GOTO 290 !038
280 YR$=NYR$ :: MONTH=NMON !
168
290 IF YR$="10000" THEN CN=1
00 :: YR=0 :: GOTO 320 !031
300 CN=VAL(SEG$(YR$,1,2))!00
5
310 YR=VAL(SEG$(YR$,3,2))!03
3
320 ON MONTH GOTO 330,380,47
0,510,550,590,630,670,710,75
0,790,830 !004
330 MN=11 !133
340 YR=YR-1 !208
350 MN$="JAN" !032
360 MX=31 !145
370 GOTO 860 !174
380 MN=12 !134
390 IF INVERT(YR/4)<>0 THEN
430 !213
400 MX=29 !152
410 IF YR<>0 THEN 440 !217
420 IF INVERT(CN/4)=0 THEN 4
40 !004
430 MX=28 !151
440 YR=YR-1 !208
450 MN$="FEB" !020
460 GOTO 860 !174
470 MN=1 !083
480 MN$="MAR" !039
490 MX=31 !145
500 GOTO 860 !174
510 MN=2 !084
520 MN$="APR" !042
530 MX=30 !144
540 GOTO 860 !174
550 MN=3 !085
```

(See Page 33)

CALENDAR2—

(Continued from Page 32)

```
560 MN$="MAY" !046
570 MX=31 !145
580 GOTO 860 !174
590 MN=4 !086
600 MN$="JUN" !052
610 MX=30 !144
620 GOTO 860 !174
630 MN=5 !087
640 MN$="JUL" !050
650 MX=31 !145
660 GOTO 860 !174
670 MN=6 !088
680 MN$="AUG" !036
690 MX=31 !145
700 GOTO 860 !174
710 MN=7 !089
720 MN$="SEP" !047
730 MX=30 !144
740 GOTO 860 !174
750 MN=8 !090
760 MN$="OCT" !045
770 MX=31 !145
780 GOTO 860 !174
790 MN=9 !091
800 MN$="NOV" !058
810 MX=30 !144
820 GOTO 860 !174
830 MN=10 !132
840 MN$="DEC" !019
850 MX=31 !145
860 REM START W/ 1ST DAY OF
MON !163
870 DY=1 !085
880 GOSUB 1150 ! FIND DOTW$
!024
890 FOR K=0 TO 5 !061
900 FOR I=D TO 6 !135
910 IF DY=0 THEN 1010 !070
920 IF DY>MX THEN 1000 !234
930 DOTW$(K,I)=STR$(DY)!185
940 IF DY<10 THEN DOTW$(K,I)
=" "&DOTW$(K,I)!069
950 DOTW$(K,I)=" "&DOTW$(K,I
)!138
960 IF QP=1 THEN TM$(K,I)=DO
TW$(K,I):: GOTO 990 !140
970 IF QP=2 THEN LM$(K,I)=DO
TW$(K,I):: GOTO 990 !133
980 NM$(K,I)=DOTW$(K,I)!071
990 DY=DY+1 :: GOTO 1010 !12
1
1000 DY=0 !084
1010 NEXT I !223
1020 D=0 !251
1030 NEXT K !225
1040 IF QP=1 THEN TMN$=MN$ :
: GOTO 1070 !032
1050 IF QP=2 THEN LMN$=MN$ :
: GOTO 1070 !025
1060 NMN$=MN$ !138
1070 NEXT QP !055
1080 FOR I=1 TO COPYNO :: GO
SUB 1440 :: NEXT I !238
1090 DISPLAY AT(24,1):"PRESS
 ANY KEY TO GO ON!" !100
1091 CALL SOUND(200,1397,5)!
193
1092 CALL KEY(0,K19,S19)!143
1093 IF S19=0 THEN 1092 !185
1094 CALL CLEAR !209
1100 DISPLAY AT(2,1):"PRESS
1 - SHOW MONTH" !105
1102 DISPLAY AT(4,1):"
2 - PRINT MONTH" !204
1103 DISPLAY AT(6,1):"
3 - CHANGE PRINTER" !137
1104 DISPLAY AT(8,1):"
4 - PRINT YEAR" !124
1106 DISPLAY AT(10,1):"
 5 - EXIT PROGRAM" !061
1108 CALL SOUND(200,1397,5)!
193
1110 CALL KEY(0,K19,S19)!143
1112 IF S19=0 THEN 1110 !203
1113 IF K19<49 OR K19>53 THE
N 1108 !097
1114 CALL CLEAR !209
1115 ON K19-48 GOTO 1122,112
0,1116,1124,1140 !145
1116 PFLG$="Y" !044
1120 GOSUB 1420 ! CLR TBLS !
186
1121 GOTO 102 !181
1122 RUN "DSK1.CALENDAR1" !0
42
1124 RUN "DSK1.CALENDAR3" !0
44
1140 STOP :: CALL CLEAR :: G
OTO 1140 !052
1150 REM SUBR TO FIND DAY OF
 WEEK (D) !174
1160 D=1+INT(2.6*MN-.2)+INT(
YR/4+YR)+(INT(CN/4)-2*CN)!07
0
1170 IF D>=0 THEN 1200 !108
1180 D=D+7 !007
1190 GOTO 1170 !229
1200 D=INT(7*INVERT(D/7)+.5)
!060
1210 IF YR+1<>0 THEN 1260 !2
03
1220 IF INVERT(CN/4)=0 THEN
1260 !059
1230 IF MN$="JAN" THEN 1250
!003
1240 IF MN$<>"FEB" THEN 1260
 !194
1250 D=D+1 !001
1260 RETURN !136
1270 REM SUBR. LOAD PRINTING
 CONSTANTS !204
1280 SP2$="  " !192
1290 SP3$="   " !226
1300 SP4$=SP2$&SP2$ !099
1310 SP5$=SP2$&SP3$ !101
1320 SP9$=SP4$&SP5$ !109
1330 SP11$=SP9$&SP2$ !152
1340 SP8$=SP4$&SP4$ !107
1350 SP10$=SP8$&SP2$ !150
1360 SP15$=SP11$&SP4$ !199
1370 SP14$=SP11$&SP3$ !197
1380 SP35$=SP11$&SP11$&SP11$
&SP2$ !137
1390 HEAD$="S  M  T  W TH  F
  S" !174
1400 GOSUB 1420 ! CLR TBLS !
186
1410 RETURN !136
1420 FOR K=0 TO 5 :: FOR I=0
 TO 6 :: TM$(K,I),LM$(K,I),N
M$(K,I),DOTW$(K,I)=SP3$ :: N
EXT I :: NEXT K !133
1430 RETURN !136
1440 REM PRINT CAL !055
1450 OPEN #1:PRNTR$ !005
1460 GOSUB 1720 :: GOSUB 172
0 !158
1470 PRINT #1:CHR$(14);TYR$;
SP14$;TMN$;SP14$;TYR$;CHR$(2
0)!018
1480 GOSUB 1720 !014
1490 PRINT #1:CHR$(14);"SUN"
;SP3$;"MON";SP3$;"TUE";SP3$;
"WED";SP3$;"THU";SP3$;"FRI";
SP3$;"SAT";CHR$(20)!203
1500 GOSUB 1720 :: GOSUB 172
0 !158
1510 FOR J=0 TO 5 !060
1520 LINE$=TM$(J,0)&SP3$&TM$
(J,1)&SP3$&TM$(J,2)&SP3$&TM$
(J,3)&SP3$&TM$(J,4)&SP3$&TM$
(J,5)&SP3$&TM$(J,6)!179
1530 PRINT #1:CHR$(14);LINE$
;CHR$(20)!221
1540 GOSUB 1710 !004
1550 NEXT J !224
```

(See Page 34)

Jiffyflyer

What you see is what you get

By RAY KAZMER

In case you've never heard the term, "WYSIWYG" (pronounced WIZ-EE-WIG) it's a word, meaning: "What You See Is What You Get." WYSIWYG comes to the TI, with Jiffyflyer, one of the slickest programs I've seen in a long time.

Have you ever typed or hand-printed a sign or card, perhaps to have a garage sale? Maybe you lost your dog and you put signs up on telephone poles all over your neighborhood, hoping your dog will see them, and come home. Have you ever advertised on a local supermarket's bulletin board to find new members for your TI-99/4A User Group?

If you answered "yes" to any of these then Jiffyflyer may be for you.

Jiffyflyer creates a vertical, 8½x11-inch flyer with built-in border artwork, fonts and larger graphics (CSGD 2-sector, small graphic "/GR" pictures) within the body of the flyer. The program's use of graphics and fonts (both in two sizes) makes an attractive, attention-grabbing combination.

But flyer's are not the only use for Jiffyflyer. You can also use it for vertical award certificates to honor one of your user group stars or announce a special event. It's easy, once you learn how.

Before running Jiffyflyer for the first time, print the docs. (The documentation is on disk as a D/V80 file.)

Jiffyflyer auto-loads from Extended BASIC in about a minute, because assembly routines (including a 30-column, double-density screen dump by Robby Robinson), two big fonts and the border art (much of that by John Taylor and his wife) and seven small fonts (by the enormously talented, Jim Peterson, of Tigercub Software) load first.

As Jiffyflyer makes its grand entrance you'll see the top half of a flyer, already in memory. This can be a template for your creations. Simply change the graphics and fonts to whatever you prefer, then type over the text on the screen.

It would be a good idea to print a hard-copy test of this flyer, or any of the other flyers on the disk, to get an idea of how a flyer should look, on paper, before making one of your own. But don't just punch the print button. Your paper must first be "aligned," and I'll tell you why, in just a moment.

There is no "menu," rather, pressing Enter "cycles" you through eight options, which appear one at a time, at the bottom of the screen. This option line is "invisible" to Jiffyflyer. It is (and should be) overwritten with your text. When the cursor moves up or down off the option line area, the option line re-appears, seemingly over your input. But, when you print a flyer, you get what you input, not the option line. A clever bit of programming.

Rather than get into a "push-this-key-to-do-this" description, I'll merely include a list of the options:

1. CHANGE PAGE FORMAT (offers 2 formats)
2. TYPE BIG MESSAGE (like a title line, near the top of the flyer, 2 fonts)
3. CHANGE BORDERS (Press "SB", the space bar, and the borders are redrawn, right before your very eyes.)
4. LOAD CSGD "/GR" GRAPHIC (A filename is asked for. If you know what you want, type it in, if not, see option 7.)
5. TYPE SMALL TEXT (You can't accidently overwrite areas set aside for the big text or graphics, but a flyer can be "customized" by erasing those areas with TI-Writer and then writing over them, while still in TI-Writer.)
6. CHANGE SMALL TEXT FONT (press "SB" and 7 Tigercub fonts are re-

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Review

Report Card

Performance	**A+**
Ease of Use	**A+**
Documentation	**A**
Value	**A+**
Final Grade	**A+**

Cost: $10 plus $1. S&H
Manufacturer: Rodger Merritt, 1949 Evergreen Ave., Fullerton, CA. 92635 (Dist. by Comprodine same address)
Requirements: Console, Extended BASIC, memory expansion, disk system, Epson-compatible printer (helpful: TI-Writer or equivalent, and any CSGD (Character Sets & Graphics Design) small graphics)

CALENDAR2—

(Continued from Page 33)

```
156Ø PRINT #1:SP1Ø$;LMN$;SP5
$;LYR$;SP15$;"NOTES";SP15$;S
P8$;NMN$;SP5$;NYR$ !11Ø
157Ø GOSUB 172Ø !Ø14
158Ø PRINT #1:SP3$;HEAD$;SP3
5$;" ";HEAD$ !149
1585 GOSUB 172Ø !Ø14
159Ø FOR J=Ø TO 5 !Ø6Ø
16ØØ LINE$=" " !242
161Ø FOR Z1=Ø TO 6 :: LINE$=
LINE$&LM$(J,Z1):: NEXT Z1 !Ø
99
162Ø LINE$=LINE$&SP35$ !Ø61
163Ø LINE$=LINE$&SEG$(NM$(J,
Ø),2,2)!2Ø9
164Ø FOR Z1=1 TO 6 :: LINE$=
LINE$&NM$(J,Z1):: NEXT Z1 !1
Ø2
166Ø PRINT #1:LINE$ !148
167Ø NEXT J !224
168Ø PRINT #1:CHR$(12)!184
169Ø CLOSE #1 !151
17ØØ RETURN !136
171Ø FOR Z=1 TO 6 :: PRINT #
1:" " :: NEXT Z :: RETURN !1
24
172Ø PRINT #1:" " :: RETURN
!Ø58
173Ø END !139
```

MICRO-reviews

The good stuff keeps coming

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

★ Leave it alone, back to the drawing board.

★★ Needs improvements, but workable.

★★★ A good program, worth trying.

★★★★ Send your money and buy it.

SECTOR ONE, SECTOR EDITOR

There are no stars on this one folks, because I'm not qualified to judge it. Put another way, I don't have the equipment to judge it, but I think you should be aware of it.

Sector One is a sector editor made with hard drives in mind. I was able to look at all the functions with the use of a floppy and they seemed to work OK, but hard drives are the primary concern. For instance, when you boot the program up, it looks for the HDs you have hooked up, (up to three) so it will know the sector/allocation units. (It didn't reject me for not having one.)

It has all the same stuff in it that any sector editor should have, such as reading, writing, mapping, moving, printer dump and string search. It's user friendly and keeps all the possible commands in a box at the bottom of the screen at all times.

It seems like a very nice program. The only problem I had with it was the docs. (The author admits to being a programmer, not a documentation writer.) It's not that they don't tell you what you need to know, but I think four pages of documentation is a little lean for a hard drive "anything."

As I said, I can't judge it, just let you know it's here.

Send $10 to: Randall W. Moore, 3931 Navaho Dr., N. Highlands, CA 95660.

★★★

USER GROUP LISTINGS

Now, "what's going on here?", you may ask? That's a strange thing to put into a review column! You're right, it is, but, I will give you two reasons for getting this item. (The most important to me is last.)

REASON No. 1: It is THE most comprehensive list of TI user groups from around the world that I have seen. It has been compiled by Andi Wise of the Eugene 99/4A user group, and it must have taken a year—it has more than 500 entries. I can't vouch for too many of them, but I looked up my own group (Western New York 99ers) and found three entries for it. Two of the addresses were solid, and one was a little iffy, but still usable. I found that many of the groups had multiple entries when confusion reigned supreme. There's nothing wrong with this, because that way, you are bound to get to somebody that is still friendly to the group in question. There are fields for addresses, names, and status (active, newsletter offered, etc.). Foreign groups are included too, so if you are the pen pal type of TI'er you won't be at a loss for "hands across the waters" relationships.

Every user group should have a copy of this listing.

REASON No. 2: When Andi finished the listing, Bill Gaskill took it in hand and converted it to TI-Base.

If you are like me, a picture really is worth a thousand words. You know those mind boggling command files that are supposed to do your bidding in TI-Base? There are NINE of them to look at in the TIB package. Bill made menus with inputs, command files to browse any field and I don't know what all. Anyway, the point is that this thing is one heck of a lesson in TI-Base usage.

When you get the file de-arced, run up TI-Base and type in DO MENU on the first open prompt, (not the date input) and just let'er rip. I knew TI-Base was good, and this is the best proof I've seen yet.

The program sells for $5, and the money goes to support the users group. To find out where the other user groups are, send your money to the Eugene 99/4A Users Group, P.O. Box 11313, Eugene, OR 97440.

★★★★

CRYPTO

Holy hangman! If you're into word games, this one is will keep you occupied for at least the next six months. My understanding that TI'ers in Michigan and Ohio have been keeping this game a secret for at least a year. Shame on you!

Crypto is kind of a cross between Wheel of Fortune and I-Spy. A cryptogram, loosely defined, is a message written in code. For instance, all of the "A"s might be "E"s in disguise. When you play the game, the message is placed on the screen in it's mixed up condition with little boxes under the letters. It might look like this:

RE ZVRS DO BVQQE
OO OOOO OO OOOOO

Pretend the upper case "O"s are boxes. What you do is enter the old character, (let's say "Q") and then the new character, maybe an "R." The new letter is placed in the boxes and you continue from there. It soon becomes obvious weather you are getting somewhere or not. If not, you just keep guessing. The end result of the above would be:

RE ZVRS DO BVQQE
MY NAME IS HARRY

If you like, you can get a random hint letter, but that costs you "try points." It also has a "Give Up" key press, but that gets you a random insult at the bottom of the screen.(It does show you the answer though.)

There are 300 quotes and sayings in the file to play with, which are selected randomly. I doubt if you will run out of play material for a long, long time to come. It took me anywhere from 20 minutes to three hours to do the more complicated ones. (I got sucked in pretty quick!)

The graphics are super, easy on the eyes, and the program seems to be absolutely crash proof. It's fast enough for the pickiest people too, because there are some assembly routines built in for the letter comparisons. All in all, a real pro looking piece of work.

The author, Paul Scheidemantle, has done quite a few other games, and particularly, graphic packages over the years. Ask for info on them when you send your money for this one. I recommend it.

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JIFFYFLYER—

(Continued from Page 34)

drawn, on-screen. When you see the one you want, merely select your next option. The font you see is what you'll print.)

7. S(ave) L(oad) C(atalog). (The "star" here is "C." As only "/GR" filenames scroll across the bottom of the screen, hit Enter when the one you want is in a "black-box cursor" and it auto-loads your small graphics choice.)

8. PRINT YOUR FLYER (Requires your paper to be rolled down, so the top of the page is almost even with the top of the print head. Jiffyflyer literally fills your paper, top to bottom.)

Printers can vary, but on my NX-1000, I have two little "windows" in my paper guide, on each side of the print head. If I roll the paper down, so I can just barely see the top edge of the paper in these windows, I get a perfectly centered (top/bottom) flyer. Don't expect to hit it perfect the first time. Once you find your "start point," make a note of how your paper was aligned and stick it into the sleeve with your Jiffyflyer disk. If you don't use it often, having that information handy will save paper.

Jiffyflyer is flexible. It creates a DV/80 file which can also be loaded into TI-Writer. If you don't want some of the preplanned graphics in your flyer, they can be erased and text substituted. Then, if you like to experiment and are clever with TI-Writer, you can even "rearrange" the whole thing. (Tampering with border graphics is not recommended for novices.)

Say what? You're a plumber and you want to put a toilet on your flyer, but there's no TOILET/GR on the Jiffyflyer disk? Well, I really don't know if CSGD offers a TOILET/GR or not, but if it does, Jiffyflyer will load it. The best way to find out about other CSGD small graphics is to send a letter of inquiry to the author of CSGD, but remember to enclose a self-addressed, stamped envelope. Write: Dave Rose, 2781 Resor Rd., Fairfield, OH 45014-5053.

The use of color can give spectacular results. Jiffyflyer will work with the NX-1000 Rainbow printer, according tothe docs. Although I don't have that model, I feel that buying a few color ribbons for use with Jiffyflyer, would be justified.

Can you make multi-color flyers with a regular printer? How about mixing more than one small font or even graphics, on the same sheet of paper? Sure. With some practice, you can do practically anything with Jiffyflyer. (The trick is done with multiple printing, not mirrors.)

After creating a complete flyer, just recopy it several times, with different filenames, such as BORDER, BIGTEXT, GRAPH1, GRAPH2, TEXT1, TEXT2 and so on. Load each into TI-Writer and erase everything that doesn't match the filename of the file you've loaded.

Suppose you want a border of red hearts, with nothing else colored red on your flyer. You'd load BORDER into TI-Writer, then erase everything except the border. Resave it with the same filename, and your first "overlay" would be ready to print via Jiffyflyer.

A word of caution when editing with TI-Writer: never erase the column of numbers which you will see below the bottom border of your flyer. To erase text or graphics, use only the space bar, to "blank out" unwanted characters. Do not delete (FCTN-3) a line.

Printing overlay files can be a bit tricky, so you should make several "base" copies. As an example, when you print the "red hearts" BORDER file, make several copies, carefully aligning each one. If you mess one up later, when adding text, a replacement is ready without having to start the whole procedure over again.

Using two or more small fonts is even easier than changing colors. After making a partial file for each font change, load each back into Jiffyflyer, select CHANGE SMALL TEXT FONT, press the space bar and pick out what you want. You can have a nice "computer" font for some text and perhaps a very fancy "script" to emphasize a line or two. Just remember to resave each overlay file while in Jiffyflyer, to replace invisible control-codes, which can accidently be erased while you're using TI-Writer.

Jiffyflyer will do just about anything you can imagine. Multi-colors, multi-fonts, multi-graphics. You can knock out a nice flyer in 30 minutes, or you can spend a bit longer and create a work of art. One thing is certain: Jiffyflyer will turn your creative juices on. At a mere $10 (plus $1 S&H) it is one of the best buys you'll ever see for your 99/4A. (Unless of course, I decide to write another Woodstock!)

MICRO-REVIEWS—

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Send $5 plus $1.50 for postage and disk to: Paul Scheidemantle, 2762 Lovington, Troy MI, 48083.

★★★★

GIANT ART POSTERS

So how great can a program with four inputs be? If it comes from the graphics genius of Comprodine, it can one heck of a program.

It's been a long time since we have had the ability to print out giant art works. The last I remember was a companion disk to BitMac that never got off the ground... and it wasn't all that great.

Anyway, dig out all the artist pictures you like and convert them to a full screen instance. This is done via the TI-Artist Enhancement section. Keep in mind that it MUST be a full screen, 24 by 32 characters in height and width.

Load up GAP, and three inputs later you can have a poster up to 64 inches high by 200 inches long. That's 24 times the size of two Artist screens. Two, because you can load two screens side by side if you like.

If you need something a little more practically sized, you can select from nine possibilities. A 4X is 10 by 14 inches, and takes eight minutes to print. That information came from a chart at the back of the docs that tells all the statistics you need like that.

There's a place in the program for you to line up your paper with a printing test before you take off. This can be done before or after the instance is loaded. Then, once the program starts printing, it's FAST!

A picture grid is included to help you line things up when creating an Artist screen too. They thought of everything. Did I mention also that there are two densities of print? Hey, I can't help being distracted by something like this, I'm having fun!

Comprodine gets my vote this year for

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Newsbytes

Dutch event set

The Fourth European Tref is scheduled to start at 10 a.m. Oct. 7 at the Kopinghuis in Nijmegen, The Netherlands, opposite the central railway station.

Stephen Shaw of the TI99/4A User Group (U.K.) says his group has been invited to the event, which previously has been attended by users from The Netherlands, Denmark, Germany, Belgium and France.

For further information, contact Berry Harmsen, 13, Oosterparkstr 141e, 1091 GZ, Amsterdam, Holland. Telephone is + 31 20 941047. Call before 9 p.m. Dutch time.

Prices are higher

The Checkbook Manager III program has a new price, according to Harry Brashear, who reviewed the program in the April 1989 MICROpendium.

The program is now $12. The $2 increase represents a significant upgrade, according to Brashear.

Checkbook Manager III is available from W. Irving Crowley, Lost Canyon Rd., Pine Level, AL 36065.

Also, the Macflix program from Genial Computerware, P.O. Box 183, Grafton MA 01519 is $15 plus $1 shipping, not $10 plus shipping as stated in our November review.

Hardware manual available from group

The Chicago TI99/4A Users Group is offering its hardware manual for sale.

Don Jones, president of the group, says the group compiled articles about hardware projects from newsletters from various users groups.

The manual costs $6 plus $4 for postage and handling. It is available from the Chicago TI99/4A Users' Group Inc., P.O. Box 578341, Chicago, IL 60657.

Data base of groups available for $5

A data base of users groups from around the world has been compiled by Andi Wise, newsletter editor for the Eugene, Oregon, TI99/4A Users Group.

It is compiled in Mark Beck's Creative Filing System data manager and is available for a $5 fee that goes to support the club, from the Eugene TI99/4A Users Group, Box 11313, Eugene, OR 97440.

Asgard introduces Page Pro 99, and Music Pro

Asgard Software recently introduced three new products to the TI marketplace. They are Page Pro 99, a page-making program; Page Pro Pics, a series of companion disks for Page Pro 99; and Music Pro, a music-composing program.

Page Pro 99, by Ed Johnson, was developed over a 2-year period, according to Asgard. Compatible with the 4A and the Geneve, the program is designed to create letterheads, signs, charts, maps, graphs, business forms, short documents and newsletters.

The program operates in a WYSIWIG (what-you-see-is-what-you-get) mode. The printed page will look exactly like what is on the screen.

Written assembly language, Page Pro 99 allows the user to create an 8½x11-inch page — 66 lines — at once. Users may place up to 28 pictures of any size anywhere on the page. Page Pro 99 permits the use of two fonts at once — a small 8x12 pixel font for regular text and a large 16x24 font for titles. The program also permits the drawing of lines in any of two styles.

Page Pro 99 includes text editing features for inserting and deleting characters and lines. It also permits the importation of D/V80 text files. The standard TI-Writer windowing keys are also supported. Page Pro 99 also allows typing in any direction (up, down, left or right) for easily making vertical titles. Pictures, fonts and line styles can be loaded at any time. Documents created with Page Pro 99 can be saved to disk and output to a printer in three dot-densities on Epson-compatible printers. Utilities to convert TI-Artist fonts and instances, and to convert text files into two-column format are also provided.

A disk of fonts and pictures is also included. The manual includes a tutorial and information for programmers to write utilities for use with Page Pro 99.

Page Pro 99 includes a version optimized for the Geneve 9640 and one for the 99/4A (an 80-column version of each and a version compatible with a Prowriter printer are planned).

Page Pro 99 requires either a TI-99/4A with memory expansion, disk system and Extended BASIC or Editor/Assembler, or a Myarc Geneve 9640 with a single disk drive. Multiple disk drives, all RAM-disks and the Myarc Hard & Floppy Disk Controller are supported.

The price of the program is $24.95.

Music Pro is a project of David Caron, Lucie Dorais, and the Ottawa TI-99/4A Users Group. The program is described as "a word-processor for music (or, a MUSICal PROcessor)." Music Pro has a full-featured editor that allows the user to create music by typing notes on a staff. The cursor is used to delete or insert notes and phrases and transform blocks of music to different durations or frequencies.

Music Pro automatically takes care of different voices with different durations playing simultaneously.

After entering the music, the score is compiled into assembly language data for rapid playing. Scores may be saved or loaded for editing at any time.

Music Pro is the only music program for the 99/4A that will print out scores in sheet music form (one voice at a time), using Epson-compatible printers.

Music Pro includes a detailed manual by Dorais, and includes sample songs, a keyboard overlay strip and keyboard note map in TI-Writer format. It requires a TI-99/4A with 32K, disk and Extended BASIC. (The program is incompatible with

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the "bright idea guys."

Send $15 and $1.50 for postage to: Comprodine, 1949 Evergreen Ave., Fullerton, CA 92635.

Anyone who would like software considered for review in this column may send it to the following address. Include an SASE if you would like it returned: Harry T. Brashear, 2753 Main St., Newfane, NY 14108.

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the Geneve.)

The price is $17.55. The program is copyrighted by the Ottawa TI99/4A User Group. Distribution in Canada is through LaFlamme & Wrigley Wholesale.

Page Pro Pics is a set of five companion packages to Page Pro 99. It includes hundreds of large and detailed pictures for use with Page Pro 99.

The five volumes and their contents are: Volume 1 (Animals); Volume 2 (Holidays); Volume 3 (Computer); Volume 4 (Home/Misc.); Volume 5 (People).

Each volume carries a suggested retail price of $6.95. All require Page Pro 99.

For more information or to order, write to Asgard Software; P.O. Box 10306; Rockville, MD 20850. Payment by check or money order, credit card (Mastercard/Visa) and COD orders accepted. Add 75 cents for shipping and handling within the U.S., and $3 for airmail elsewhere. Credit card orders add $1.25 bank processing fee.

cSHELL99 provides window-oriented environment for 4A

A window-oriented program similar to GEOS on the Commodore 64 has recently been released for the TI99/4A. Written by Joe Ross, the program uses icons and a series of windows to perform a variety of functions, ranging from disk management operations to loading and running programs.

Called cSHELL99, it is written in Clint Pulley's c99 and assembly. All assembly language routines are placed within a "c" structure, and some of the routines include source code so that users may take advantage of and expand the basic system.

One of the program's apparent strengths is that users may use the program's loaders to execute "c" and assembly language programs and return to the DOS-like shell environment when finished.

The program requires an expansion memory and disk system. A joystick, used to control cursor movement, and a printer are optional. It runs out of Extended BASIC, Editor/Assembler or TI-Writer. Included with the program is a comprehensive manual that describe's the program's features as well as the use of loaders, "c" stack, REF/DEF table, system functions and globals available to the user. The author says that "interfacing with the cSHELL99 shell is a rather easy process for both experienced and being "c" programmers...."

Also included with the package is a c99 sound library, similar to the BASIC CALL SOUND command, the source code to a c99 graphics library, a c99 speech library and a variety of modules that demonstrate the ability of c99 to move between text, graphics and bitmap mode.

It is not necessary to have a copy of c99 to run cSHELL99. (c99 is available from Clint Pulley, 38 Townsend Ave., Burlington, Ontario, Canada L7T 1Y6. Write him for pricing and include a SASE.)

cSHELL99 is copyrighted and is not protected. All rights are reserved by the author. It is priced at $30. It is available from Joe Ross at 119 Knollwood Terrace, Clifton, New Jersey 07012.

McCann slates Forth for Geneve

McCann Software, P.O. Box 34160, Omaha, NE 68134, is offering a version of TI-Forth for Geneve users for $15. Included is a diskette with TI-Forth for MDOS, source code and documentation of the new system calls for MDOS.

The MDOS version of TI-Forth allows 44K of dictionary space. Users may also use Forth blocks in either file or sector mode.

Send items for *Newsbytes* to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

READER TO READER

Ray Russell of P.O. Box 211, Weatherford, TX 76085, writes:

Well, I finally got my double-sided disk drives and I am happy about it, but I tried to copy my old single-sided disk to double-sided and I found a problem. The problem is that when I use disk copy the new disk is initialized back to single-sided and the only way that I can get files onto the double-sided disk is use file copy, and that takes a long time. Is there any way (by the way, I have TI disk manager) of putting the single-sided disk onto double-sided disk any faster than file copy? I would appreciate any help on this matter.

Another problem I have is using the Funnelweb to implement the MOVE command. I will just go back to editor without making the move. I have v3.4 direct from the writers. Can someone help me by telling me what I am doing wrong or what steps to take to correct this problem?

Also, I have Dumpit disk and have put Tax/Investment Record on disk but I want to change the printer code from RS232 to PIO and need help in doing it. When I finally got the money to get the Gramkracker it went out of production. I believe it had instructions on how to make the change. If someone would write me with this information I would greatly appreciate it.

Somehow I got the book on the Disk Fixer by Navarone without the cartridge and cannot find anywhere to get the cartridge from software catalogs. Any suggestions where I can get the cartridge? I think it came with the Dumpit Disk from Tex-Comp, but am not sure.

From Russ Ralston, 1408 Forest Lakes Blvd., Naples, FL 33492, comes this:

I have upgraded my Horizon RAMdisk from a double to triple-sided RAM disk with my 9640 computer. I am unable to initialize it to the new capacity. I received the Johnson menu v7.3 but it locked up when loading it so I sent it back to Bud Mills Services with a letter describing the problem. Can anyone suggest a way to utilize the additional capacity? I have DM II and DM1000 v3.7.

***Reader to Reader* is a column to put TI99/4A and Geneve 9640 users in contact with other users. Anyone with a specific problem or question that may be answered by other readers is encouraged to submit an item. Be sure to address it to Reader to Reader, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.**

DATABASE TUTORIAL

Getting more out of TI-Base

By WILLIAM GASKILL

You probably heard about it, then read about it and ultimately perhaps even saw a demonstration of it at one of your user group meetings. Everybody seemed to like it. The reviewers all gave it high marks for power, flexibility and innovation. It was said to be like no other program ever written for the 99/4A. The price was reasonable so eventually you took the plunge and bought a copy.

Now you've got it and you've had a chance to look it over and you're wondering if you want to invest the time and energy required to learn the program. It seems so complex and intimidating.

Does this sound familiar? I'll bet it does to some. It's exactly what I was thinking when I bought my first copy of..., no, not TI-Base, but Multiplan. But the same can be said of other programs such as TELCO or even TI-Writer. These everyday tools, that we now take for granted, all had an awesome air of complexity to them when we first put them to work. TI-Base is no different. It is a powerful, flexible and innovative piece of software. And yes, it does have a degree of complexity to it.

However, unlike many other 99/4A applications (except perhaps TELCO), TI-Base has some of the best support behind it from the author, the distributor and the TI community that you will find anywhere. This entire series of articles on TI-Base is being presented with the support of Inscebot Inc., Texaments and of course MICROpendium. Texaments even provides a 24-hour BBS number (516-475-6463) that you can call with questions on TI-Base use. TI community support in the form of tutorials is also available. Some of the most intelligent and useful TI-Base information that you will find comes from Martin Smoley in the NorthCoast 99ers newsletter. You can join that group just for the newsletter by sending $15 to them at 6149 Bryson Dr., Mentor, Ohio 44060.

The point I wish to make is that TI-Base enjoys more support than virtually any other piece of 99/4A software I have ever seen. Its acceptance by the TI community only attests to its power and potential as a workhorse for the 4A user. So if you stay with it, seek out some of the support available and read on, you may find that the help you were looking for is just around the corner.

This series is aimed at users of TI-Base V2.0 or higher, but owners of earlier versions can also benefit from many of the routines and tips that will be covered.

VERSION 2.0

This series is aimed at users of TI-Base V2.0 or higher, but owners of earlier versions can also benefit from many of the routines and tips that will be covered. If you own an earlier version and have not upgraded yet I strongly suggest that you do so. Releases prior to V2.0, which came out Dec. 15, 1988, lack many of the features that will be discussed in this and subsequent TI-Base articles. Since file compatibility between the two versions has been retained there is no hassle over data conversions and with the cost of the upgrade only $7.95, the process is virtually painless. It is really worth the added investment to have all the additional features that you get in V2.0. You will honestly enjoy the ride much more if you are driving a Cadillac rather than a Volkswagen. There is that much difference.

Versions of TI-Base prior to V2.0 came with the TI-Base program disk, a Tutor disk, a 38-page user's manual and a keyboard overlay. Version 2.0 comes with the TI-Base program disk, the Tutor II disk, a 73-page user's manual and a quick reference card in place of the keyboard overlay. Version 2.0 is also distinguished by a timeout bar displayed on the title screen during the loading process. Earlier versions did not have this feature.

GETTING HELP

While the documentation for V2.0 is not flawless, it is leagues above the manual that came with the first versions. It is logically organized. Five sections or chapters cover: introductory information, getting started, operating the program, using the directives in a command language environment and useful information about TI-Base. An appendix lists technical data and shows you the names of the files that should be on your TI-Base program disk.

READ THE MANUAL

When reading through the manual, which you WILL need to do, you may come across some terminology you don't understand. If so, read pages 1-2 and 1-3 for an explanation of terms (manual pages are number with the chapter number followed by the page number).

When you have covered the manual at least once, load the TI-Base program and press Fctn 7 (AID) from the dot prompt. This displays a menu for help with creating data files, inputting data, accessing data, displaying data and listing supported directives. To display any choice on the menu simply press the number key listed to the left of the option to be displayed. While you are working through the help screens have the manual handy to locate the directives in the book that are discussed in the help screens. You will find this useful in understanding more of what is being covered.

When you are done with the help screens press Fctn 9, which is the Escape key in TI-Base, and the dot prompt will return. Next, insert the TUTOR II disk into the DATDISK drive, which is the drive where data files are stored, type in DO TUTOR, and then work through the 21 different options that are covered. If you don't know which drive is the DATDISK drive, type in SET DATDISK=DSK1. at the dot prompt before inserting the TUTOR II disk. This will set DSK1 as the drive to be

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DATABASE TUTORIAL

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used for reading the tutorials. Now insert the TUTOR II into DSK1 and type in DO TUTOR. While going through the topics on the TUTOR II disk you may press Fctn 9 to abort at any point. The dot prompt will be returned, effectively breaking you out of the tutorial mode. Optionally, you may press the space bar during the display of any of the tutorial files to halt the process and then press Fctn 9. This will abort the current tutorial and return the menu of topics rather than breaking out of the entire session.

Other help is also available within the TI-Base program. As I mentioned earlier, pressing Fctn 7 (AID) from the dot prompt displays a menu for help with some of the most common program operations. Fctn 7 also displays keypress command help in the Append, Edit and Modify modes of TI-Base. On screen overlays are displayed that list the available function key commands pertinent to the operational mode that you are in. For example, the Append/Edit overlay tells you that:

- F1 will delete a character.
- F2 will toggle insert on/off.
- F3 will delete a line (but it doesn't).
- F4 will insert a line (but it doesn't).
- F7 will display the overlay.
- F8 will save and end the session.
- F9 will abort the session.

In the Append mode, F1 deletes a character and F2 toggles the insert mode on and off. F3-F6 don't do anything. F8 writes the current record to disk without you having to press the Enter key through all fields in the record, and F9 ends the Append session.

In the Edit mode, F1 deletes characters and F2 toggles the insert mode on and off. F3-F4 don't do anything. F5 advances the file forward one record while F6 forces a backward trek through the file. F7 displays the keypress overlay, F8 does the same thing as F5 and F9 aborts the session.

In the command file editor you may press Fctn 7 to display a similar overlay. It tells you that:

- F1 will delete a character (it does).
- F2 will toggle the insert mode on/off (it does).
- F3 will delete a line (it does).
- F4 will insert a blank line (it does).
- F5 will page forward one screen.
- F6 will page backwards one screen.
- F7 will display the keypress overlay.
- F8 will save the command file and exit the editor.
- F9 will abort the session without saving the work.

All command file overlay keypresses are accurate and functional.

TI-BASE FILES

Okay. Now that you have taken the nickel tour of TI-Base help, let's get down to business. First a little about the program disk.

TI-Base contains more than 20 files on the program disk. Fig. 1 contains a brief explanation of each one and the part that the file plays in TI-Base operation.

HARDWARE

From my own experience I can attest that TI-Base will run from a mechanical floppy and the Horizon RAMdisk. It can also be used on a hard disk with the Myarc HFDC and data files can be created and stored on the hard disk too. But certain input/output access routines don't seem to work. For example, I can't get TI-Base to find a command file when it is on the hard disk, nor can I get it to find files that I want to convert using the CONVERT feature. TI-Base author Dennis Faherty says that he is working on this problem, but that it is a difficult one to solve since the hard drive I/O access routines differ from floppy drive ones. The problem is that you can't have it both ways, yet. Dennis is searching for the programming space to support both types of devices without having to have one version of the program for floppies and RAM disks and another for hard disks, I assume.

I use TI-Base from a Horizon RAMdisk running John Johnson's Menu program with ROS 7.35. It loads faster than it does from a floppy by about 54 seconds. That's pretty fast considering a floppy load, using the XB loader, takes about 60 seconds. The program also runs flawlessly in every mode of operation and it speeds up the slower operations such as sorts if I put data on the RAMdisk.

Although I haven't tested them myself, the that the CorComp and Myarc floppy disk controllers are supported as well as the Myarc RAMdisk, according to the TI-Base

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TI-BASE FILES

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-AID06/H  - Database Creation help file.
-AID07A/H - Appending Data help file.
-AID07B/H - Editing Data help file.
-AID07C/H - Replacing Data help file.
-AID07D/H - Math Expressions help file.
-AID07X/H - The Help Menu.
-AID08/H  - Data Access help file.
-AID09/H  - Display of Data help file.
-AID10/H  - Directive List.
-LOAD     - The Extended Basic loader.
-LOADTI   - Loader for the main program.
-MAIN     - The main TI-Base program.
-MSGS     - Error message file.
-OVRLAY/P - The external program segments.
-PRINTER  - Printer drivers data base.
-PROBLEMS - An historical list of "bugs".
-README   - Author's "new info" file.
-SCRN     - The TI-BASE screen file.
-SETUP/C  - The system parameters file.
-TEST     - A test file used by the author.
-TIBASE   - E/A option 3 loader.
-TIBASEB  - Call Load loader for XB.
-TIBASEP  - E/A option 5 loader.
```

Fig. 1

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manual.

LOADERS

TI-Base loads from almost any loader available for the 99/4A, including:

- Barry Boone's E/A option 5 simulator for Extended BASIC.
- Editor/Assembler options 3 and 5.
- Extended BASIC.
- FunnelWeb options 3 and 4.
- John Johnson's BOOT and Horizon RAM Disk MENU loaders.
- and Mini-Memory.

TI-Writer's option 3 loader (UTIL1) is not supported.

LOADING SEQUENCE

All TI-Base loaders access the LOADTI file. It is the traffic manager of the loading process. When LOADTI is first accessed it executes the SCRN file that displays the Inscebot Inc. startup screen with the timeout bar and the large TI-BASE name on it. Next, the MSGS file is executed, which places all the error messages supported by the TI-Base program into VDP RAM. Once the error messages are in place the MAIN file is executed. This is the main portion of TI-Base that you and I use to accomplish our data management needs.

LOADING THE PROGRAM

Barry Boone loader — Type in DSK1.TIBASEP in quotes in the program statement that reads CALL LINK("OPT5;"DSK1.TIBASEP")

Editor/Assembler — From option 3 type in DSK1.TIBASE. For option 5 type in DSK1.TIBASEP.

Extended BASIC — Insert the program disk into DSK1 and select the 4A's XB menu option.

FunnelWeb loaders — For option 3 type in DSK1.TIBASEB. For option 4 type in DSK1.TIBASEP.

Horizon RAMdisk — At option 3 from the John Johnson Menu, type in DSK1.TIBASEP. You may also put the same command on the menu as a menu option.

Mini-Memory — Select the "Re-Initialize" option and then press Fctn 6 (PROC'D). Type in DSK1.TIBASE and then press ENTER.

PRINTER DRIVERS

Printer drivers are software switches that can be used to control your printer. Because printers are intelligent peripherals, which means that they have a chip in them with a set of instructions, computer programs can access those instructions via messages sent from within a computer program.[

TI-Base provides a PRINTER file on the system disk that contains switches to access the following printer instructions:

NAME	Name of your printer
(FF)	Form feed
(LF)	Line feed
(CR)	Carriage return
(DS)	Double strike
(UL)	Underline
(EX)	Expanded print
(CM)	Compressed print
(IT)	Italics
(B)	Bold or double strike
(SPS)	Superscript
(SBS)	Subscript
(HT)	Tab horizontally
(ST)	Set horizontal tabs
(NM)	Normal printing mode
(BLANK)	User defined option

Any of the available fields in the PRINTER file may be edited to fit your printer, or you may APPEND a new record to the file if one of the existing drivers does not match the printer you are using.

It is possible to restructure the PRINTER file if needed, but you must be certain that:

- the NAME field remains the first field in the file and that it is 10 characters long.
- the next three fields in the file are FF, LF and CR and that each are exactly two characters long per field.
- the PRINTER file is sorted by NAME.

If you discover that the Diablo, Epson, MX-80, NEC, Okidata, Proprinter or TI-850 drivers already in the PRINTER file do not fit your printer, then you will want to add a new record to the PRINTER file. To do so, boot your TI-Base program and then load the file with a

USE DSK#.PRINTER

statement, where the pound sign (#) is the drive number where your TI-Base program disk resides. Type in APPEND when the file is active and then TYPE in a NAME for your printer. Consult the User's Reference manual that came with your printer for the HEX codes that fit each of the available variables in the file.

After you have appended the new record onto the PRINTER file make sure that you type in

SORT ON NAME

so that the file remains sorted by the NAME field's contents. If you do not sort the file after appending the new record you will find that the drivers are not properly accessed.

After sorting the file, CLOSE it and call up the SETUP file into the command file editor. After the word PRINTER, type in the name for your printer that was entered into the NAME field in the record that you just added. Press Fctn 8 and you are done. Now, type in DO SETUP to re-run the SETUP file and it will pick up the driver for your printer. Pretty simple.

SETUP FILE

The SETUP file is the first file automatically activated and then executed each time TI-Base is loaded. It is accessed immediately after the "enter date MM/DD/YY:" prompt. SETUP contains the default parameters for system variables and any other operators or commands that you wish to put in the file. SETUP is edited just as any command file created with TI-Base would be edited. The only difference is that SETUP exists as a D/V40 file, rather than in D/V80 format as other command files do. This is a carryover of sorts from previous versions when all command files written in TI-Base were saved as D/V40 files. In future articles you will see why the change to D/V80 format is very important to command file creation.

The default contents of the SETUP file may be altered through the command file editor. Because SETUP resides on the system disk rather than a data disk as most other command files do, you should include the drive number in the MODIFY command when editing SETUP. If you do not, the command file editor will look to the default DATDISK drive and will open a new, but empty SETUP file.

On my system, I have a Horizon RAMdisk partitioned as drives 3 and 4. Drive 4 contains the TI-Base program. I use my mechanical drive 1 for data storage, so I must type in:

MODIFY COMMAND DSK4.SETUP

when I want to edit the SETUP file. Alternatively, I could also type in:

(See Page 42)

DATABASE TUTORIAL

(Continued from Page 41)

SET DATDISK=DSK4.
and then enter:
MODIFY COMMAND SETUP
but that would require an entire extra line of instructions.

While editing the defaults in the SETUP file to fit you can also add commands to auto-load specific data files, initialize local variables, change the default display colors and the like. If you were using TI-Base to manage a checking account for example, you would want to have the beginning balance read into dynamic memory each time you booted the program and the checking file. So you might have something like:

```
CLEAR LOCAL
LOCAL BEGBAL N 9 2 C
REPLACE BEGBAL WITH 1234.56
USE CHECKSFILE
```

added to the file. In this example the value 1234.56 is the beginning balance amount for the checking account file.

On my system, the SETUP file looks like this:

```
* Welcome to TI-BASE
* QUIT will terminate TI-BASE
*
COLOR WHITE DARK-BLUE
PRINTER EPSON
SET DATDISK DSK1
SET CURSOR 2
LOCAL BBAL N 9 2 C
REPLACE BBAL WITH 835.27
DISPLAY STATUS
* FUNCTION (7) for help
USE CHECKS89
RETURN
```

The SETUP file can contain virtually any valid statement and the number of statements can be as few as a one liner that only says RETURN, or it can have as many statements in it as will fit into the command file editor. You do not have to DISPLAY STATUS each time you load TI-Base and you don't have to have SETUP show the messages about quitting the system or how to access the on-disk help files. SETUP is there for your benefit so TI-Base can be customized to fit your hardware.

THE STATUS LINE

The Status Line is the inverse video bar at the base of the screen when TI-Base is in the command (dot prompt) mode. The information it displays can be extremely valuable and warrants explanation.

The bar consists of 40 positions that display the information in each position number, reading from left to right (see Fig. 2).

Pos#	Operation/Function
01-08	The name of the command file that is currently in use
09-11	The command file line number being executed
12	Blank
13	The *slot* number that is currently active
14	Blank
15-22	The name of the active data file
23-27	The number of the record being read or written to
28	A slash separator between the active record and the file size
29-33	The file size in number of records
34-36	Blank
37-39	Insert Mode toggle indicator
40	Operation indicator: C(lose), O(utput), R(ead), S(status), W(rite), and *(pause)

Fig. 2

CONCLUSION

Future articles on TI-Base will delve into file creation, an in-depth discussion of the directives used in both a programming and non-programming environment and other tips. We will also begin to cover actual command file creation for some useful applications such as building menus, writing a checkbook manager, creating an appointments calendar, printing multiple-across mailing labels and a teacher's grading system for student tests and quizzes.

1989 TI FAIRS

FEBRUARY

TI-Fest West '89, Feb. 18-19, San Diego, California. Write TI-Fest West c/o Southern California Computer Group, P.O. Box 21181, El Cajon, CA 92021 or call the SCCG BBS, (619) 278-7155.

MARCH

West Coast Computer Fair, March 17-19, San Francisco. Write San Francisco 99ers, 24816 Mango St., Hayward CA 94545.

TICOFF (TI Computer Owners Fun Faire), March 18, Roselle Park, New Jersey. Write TICOFF'89 c/o Roselle Park High School, 185 West Webster Ave., Roselle Park, NJ 07204, or call Robert Guellnitz at (201) 241-4550 or (201) 382-5963 or the TICOFF BBS, (201) 241-8902.

APRIL

Fourth Annual New England TI Fayuh, April 1, Ramada Inn of IH95 in Woburn, Massachusetts. For information, contact the Boston Computer Society TI99/4A User Group, One Center Plaza, Boston MA 02108.

Alberta TI-Orphan Reunion, April 29, Innisfail, Alberta, Canada. For information, contact Fred Kessler, Box 20, Sundre, Alberta, Canada T0M 1X0 or (403) 638-3916.

4th Annual Ottawa TI-FEST, April 29, Nepean, Ontario, Canada. For information, contact Jane Laflamme, 5480 Canotek Rd. Unit #10, Gloucester, Ontario, Canada K1J 9H6 or (613) 745-2225.

MAY

Multi User Group Conference May 20, Reed Hall/Student Activities Building, Ohio State University, Lima, Ohio. For further information write Lima Users Group, P.O. Box 647, Venedocia, OH 45894, or call Dave Szipple evenings at (419) 228-7109.

JUNE

TI99/4A Users Group (U.K.) Annual Meeting June 17 in Romley, England. For information, contact Stephen Shaw, 10 Alstone Rd., Stockport, Cheshire, England SK4 5AH.

OCTOBER

Fourth European Tref, begins at 10 a.m. Oct. 7 at Kolpinghuis, Nijmegen, The Netherlands. For information, contact Berry Harmsen, Ie. Oosterparstr 141e, 1091 GZ, Amsterdam, Holland.

Australia TI Fair, 2-6 p.m. Oct. 14, Pavilion, Deepdene Park, Whitehorse Rd., Deepdene, Australia. For information contact TI99/4A Users Group – Melbourne Inc., 88 Main St., Blackburn, Victoria 3130, Australia.

3rd International TI-Users Meeting, 10 a.m.-6 p.m. Oct. 15 at Jugenderherberge Duisberg Wedau, Kalkweg 148, 4100 Duisberg 48, West Germany. For information contact TI-99er Workshop Rheinland, Dept. Allgemein & Software, c/o Mike Heuser, Karl-Marx-Allee 18, 5000 Cologne 71, West Germany, or the organizing committee at PCC, TI-Service, c/o Hans Greiffenberg, Großglocknerstr. 45, D-4100 Duisberg 28., West Germany.

Third Annual CPUG Computer Expo, 7 a.m.-2 p.m. Oct. 15 at Carlisle Fairgrounds on Clay Street in Carlisle, Pennsylvania. Sponsored by Central Pennsylvania 99/4A Users Group, co-sponsored by Cumberland County Amateur Radio Service and 6th Annual Cumberland County Hamfest. For information, contact Central Pennsylvania 99/4A Users Group, P.O. Box 14126, Harrisburg, PA 17104-0126 or the WIZ/TIB BBS, (717) 657-4992 or 657-4997.

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. Events will remain listed throughout the year for reference for the coming year.

User Notes

CorComp Tool Shed Utility demo

This item appeared in the TI-SIG newsletter of the San Diego Computer Society. It was written by Woody Wilson.

Do you have a CorComp disk controller? If you have one, have you ever tried any of the Tool Shed subprograms? Here is a short program that can illustrate some of the power of the utility:

```
90 ! CorComp Disk Controller
 Tool Shed subprogram utilit
ies. Sample program by Woody
 Wilson, San Diego TI-SIG, A
pr. 89. !053
100 CALL CLEAR !209
110 CALL INIT :: DELETE "LD-
CMDS" !106
120 CALL HCHAR(1,1,42,768)!2
34
130 CALL LINK("MOVEM")(2,0,4
0960,768)!014
140 CALL CLEAR !209
150 DISPLAY AT(12,3):"YES, Y
OU SAW STARS, BUT NOW YOU DO
 NOT" !155
160 DISPLAY AT(17,3):"I WILL
 BRING THEM BACK" !036
170 CALL KEY(0,K,S):: IF S<1
 THEN 170 !240
180 CALL CLEAR !209
190 CALL LINK("MOVEM")(3,409
60,0,768)!015
200 GOTO 200 !023
```

Forget the name?

The following routine isn't just for the absent minded. It runs out of BASIC using the Editor/Assembler or Mini-Memory cartridge and will do one of two things: It will either load and execute a D/F 80 assembly language file or it will print out the name used to make it run. You can then use a CALL LINK("NAME") to execute the program. The author of this routine is unknown (we found it in Topics, the newsletter of the LA 99ers.

After entering the program, run it from MMM or E/A BASIC. Make sure you enter the appropriate disk drive designation and filename in line 110.

```
100 CALL INIT !157 !189
110 CALL LOAD("DSKx.FILENAME
")!058 !179
120 CALL PEEK(16176,A,B,C,D,
E,F)!148 !180
130 PRINT CHR$(A)&CHR$(B)&CH
R$(C)&CHR$(D)&CHR$(E)&CHR$(F
)!091 !120
```

Program outputs character codes

The following program, by Wesley R. Richardson, of the Northcoast 99ers (Cleveland, Ohio), outputs character codes for ASCII codes 32-127. The way that it is written, it will output the listing of codes to a disk. However, by changing the output device definition in line 150, users may direct the listing to a printer. To have the listing appear on the screen instead, REM out lines 150, 160 and 250 and change lines 221-230 to start: **PRINT CHR$(I....** instead of **PRINT #1:TAB(xx);....**

```
100 REM CHARCODES !070
110 REM WESLEY R. RICHARDSON
, MARCH 1989 !242
120 REM TI-99/4A EXTENDED BA
SIC !141
130 REM NORTHCOAST 99ERS, CL
EVELAND, OH !248
140 REM PRINTS CHARACTER COD
ES FOR CHARACTERS 32 TO 127
!222
150 D$="DSK1.CHARCODE-H" ! O
R USE DS$="PIO" FOR PARALLEL
 PRINTER !056
160 OPEN #1:D$ !179
170 FOR I=32 TO 63 !166
180 CALL CHARPAT(I,A$)!061
190 CALL CHARPAT(I+32,B$)!04
6
200 CALL CHARPAT(I+64,C$)!05
2
210 PRINT #1:TAB(10);CHR$(I)
;" ";A$;!133
220 PRINT #1:TAB(33);CHR$(I+
32);" ";B$;!123
230 PRINT #1:TAB(56);CHR$(I+
64);" ";C$ !210
240 NEXT I !223
250 CLOSE #1 !151
260 END !139
```

Convert disk catalogs to TIB

Users to TI-Base will find this program useful (and it may provide a good reason for non-users to consider purchasing the program. Written by Jerry Keisler, the program allows the user to catalog his disks for conversion into a database by TI-Base. Information from the catalog is then available for use through TI-Base. The program and text appeared in the Paris 99er News, the newsletter of the Paris (Texas) TI User Group.

The following fields and field lengths are used by the program:

Field#	Description	Type	Width
1	FILENAME	C	10
2	SIZE	C	4
3	TY	C	2
4	REC	C	3
5	P	C	1
6	DISKNAME	C	10

Each record includes the following: FILENAME of up to 10 characters long, SIZE can be up to 1440 sectors on DS/DD disks, TYpe includes IF, DF, IV, DV or PR, REC can be up to 256, P is "Y" for protection and DISKNAME is the disk containing the file.

This structure uses 30 bytes per record, or 8 records per sector. 2864 records can be stored on a SS/SD disk.

The program will prompt you for disks to catalog, and will work with one or more disk drives. It will read the disk and then append the information to a file called CATALOG on a second disk.

If you have a single-drive system, you will be limited to 1408 catalog records per SS/SD disk because the conversion process requires at least half of the disk space plus five sectors. A DS/DD disk will allow a single-drive system to convert 5632 catalog records in a single run. A DS/DD two-drive system will handle up to 11,264 catalog records.

After loading Ver. 2 of TI-Base, type:
.CONVERT, DSKn.CATALOG DSKn.DSKFL
where "n" is the drive number and may be different for multi-drive systems. Insert the disk containing CATALOG and build

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the data structure described in the above chart. Press FCTN/8

```
.USE DSKn.DSKFL
.RECOVER
.CLOSE
100 !SAVE DSK1.DSKTODSKDB !0
00
110 DISPLAY AT(1,1)ERASE ALL
:"PRINT DISK CATALOG TO DISK
": : :"DISK TO CATALOG WILL
BE IN":"DRIVE 1" !037
120 DISPLAY AT(7,1):"FILE TO
 RECEIVE DATA WILL":"BE DSK1
.CATALOG" !071
130 ACCEPT AT(5,7)SIZE(-1)VA
LIDATE("123456789"):CD1$ ::
ACCEPT AT(8,4)SIZE(-15):PF$
:: CD2$=SEG$(PF$,4,1)!213
140 DIM TYPE$(5),R$(128)!087
150 TYPE$(1)="DF" !222
160 TYPE$(2)="DV" !239
170 TYPE$(3)="IF" !229
180 TYPE$(4)="IV" !246
190 TYPE$(5)="PR" !250
200 IF CD1$<>CD2$ THEN DISPL
AY AT(10,1):"INSERT DISKS" E
LSE DISPLAY AT(10,1):"INSERT
 DISK TO CATALOG" !038
210 DISPLAY AT(24,1):"PRESS
ENTER TO START" :: ACCEPT AT
(24,22)SIZE(1):Q$ !024
220 DISPLAY AT(22,1):"READIN
G FILE  WRITING FILE":"":""
:: DISPLAY AT(10,1):"" !027
230 OPEN #1:"DSK"&CD1$&".",I
NPUT ,RELATIVE,INTERNAL !205
240 INPUT #1:D$,J,J,K !158
250 DISPLAY AT(12,1):"" :: D
ISPLAY AT(12,1):USING "#####
##### ####FREE ####USED":D$,
K,J-K !099
260 FOR LOOP=1 TO 127 !148
270 INPUT #1:A$,A,J,K !146
280 IF LEN(A$)=0 THEN T=LOOP
-1 :: GOTO 370 !222
290 DISPLAY AT(20,1)SIZE(-10
):A$ !055
300 COUNT=COUNT+1 :: DISPLAY
 AT(24,4)SIZE(-5):COUNT !066
310 IF ABS(A)=5 THEN N$="
" ELSE N$=STR$(K)&RPT$(" ",3
-LEN(STR$(K)))!059
320 IF A<0 THEN P$="Y" ELSE
P$=" " !027
330 A$=A$&RPT$(" ",10-LEN(A$
))!189
340 J$=STR$(J):: J$=RPT$(" "
,4-LEN(J$))&J$ !234
350 R$(LOOP)=A$&J$&TYPE$(ABS
(A))&N$&P$&D$ !224
360 NEXT LOOP !208
370 CLOSE #1 !151
380 IF CD1$=CD2$ THEN DISPLA
Y AT(10,1):"INSERT DISK TO R
ECEIVE": :"DATA and PRESS EN
TER" :: ACCEPT AT(11,25)BEEP
:Q$ !194
390 DISPLAY AT(10,1):"":"":"
" !075
400 OPEN #2:PF$,APPEND !178
410 FOR LOOP=1 TO T :: COUNT
2=COUNT2+1 :: DISPLAY AT(24,
18)SIZE(-5):COUNT2 :: PRINT
#2:R$(LOOP):: NEXT LOOP :: C
LOSE #2 !103
420 CALL SOUND(50,1000,3)::
FOR ZZ=1 TO 10 !212
430 DISPLAY AT(10,1):"INSERT
 DISK TO CATALOG": : :"PRESS
 ENTER OR ""Q"" to quit" ::
DISPLAY AT(10,1):"":"":"":""
 !055
440 CALL KEY(3,KEY,ST):: IF
KEY=81 THEN END !203
450 IF KEY=13 THEN 230 !184
460 NEXT ZZ :: GOTO 420 !192
```

Center titles without loading a WP

This comes from Glen Pedersen of Harwood, North Dakota. He writes:

If you've ever wanted a quick way to print a centered title on a page without having to load your word processor, try this routine written for a Gemini 10X. Users may have to modify the printer control codes for use with other printers.

```
100 CALL CLEAR !209
110 OPEN #1:"PIO" :: PRINT #
1:CHR$(27);"@";CHR$(27);"E";
!152
120 LINPUT "Title: ":A$ :: P
RINT !012
130 INPUT "Doublewidth? Y/N"
:B$ :: IF B$="Y" OR B$="y" T
HEN B=20 :: PRINT #1:CHR$(14
);ELSE B=40 !025
140 PRINT #1:RPT$(" ",B-LEN(
A$)/2);!079
150 INPUT "Underlined? Y/N":
C$ :: IF C$="Y" OR C$="y" TH
EN PRINT #1:CHR$(27);"-";CHR
$(1)&A$&CHR$(27);"-";CHR$(0)
;ELSE PRINT #1:A$ !253
```

The routine's default is emphasized pica. If you want elite print, change the values 20 and 40 in line 130 to 24 and 49, respectively. Also change line 110 as follows:

```
110 OPEN #1:"PIO",VARIABLE 9
6 :: PRINT #1:CHR$(27);"@";C
HR$(27);"B";CHR$(2);
```

If you'd like condensed print, change the values 20 and 40 in line 130 to 34 and 69, respectively. Also change line 110 as follows:

```
110 OPEN #1:"PIO",VARIABLE 1
36 :: PRINT #1:CHR$(27);"@";
CHR$(15);
```

This routine can be very useful when made part of a "soft'key" utility, such as EZ-Keys.

Palette Master clarification

The Palette Master program published in the February edition included a couple of unusual characters in lines 110 and 120. The characters, vertical lines of varying widths, don't belong there. Here are the lines as they are supposed to look:

```
110 DISPLAY AT(5,20):"  "
120 DISPLAY AT(6,20):"  "
```

More tips on using SCM module

Several more tips for those with the Smith Corona Messenger module. The first is to use the serial port at 1200 baud using a straight RS232 cable. A reader called to say that it is the same as a PC serial cable and that he hasn't had any problem with the module. Code changes aren't necessary with this arrangement.

Another reader, William A. Shores, of Lockport, New York, writes:

This is for those using the SCM module connected to a typewriter. For an RS232 serial interface, set the DIP switches as follows (the DIP switches are in the order as viewed at the front of the module. DIP

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1 is on the right, DIP 2 on the left.):

DIP 1

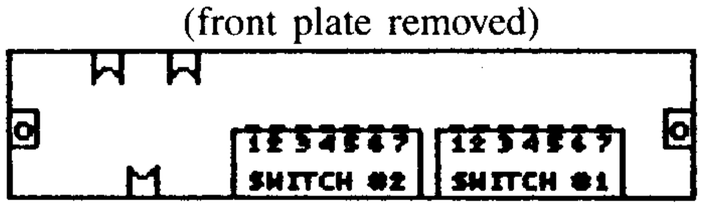
1 — off Serial Busy
2 — on CR/LF
3 — off CR/LF
4 — on Foreign Daisy Select
5 — on Foreign Daisy Select
6 — off Auto Carriage Return
7 — on Not Used ?

DIP 2

1-7 are all "ON" (baud rate is set at 300)

Use the factory settings for the parallel port on the PEB RS232 card, and also for the Axiom ParalAx TI parallel printer interface.

Smith-Corona Messenger Module
(front plate removed)



Pascal and the HFDC

This comes from Frank W. Aylstock, of Yorba Linda, California. He writes:

I read in the March issue about using the Myarc Hard & Floppy Disk Controller with Pascal. Last November Lou Phillips, of Myarc, asked me to try the new HFDC with Pascal and I tried it in different ways and found that it would work as a emulated DSK1 as Ed Livingston stated in the March issue.

However, I would like to add that since Pascal formats a complete disk as one program I transferred my complete Pascal start up file onto a quad-density disk, which is 1440 blocks or 2880 sectors. This now gives me enough room to put my many utility programs on the hard disk. This also provides a large area for a work file.

By having the Pascal files on the hard disk you will reduce the compiling time considerably, compared to compiling on a floppy. We compiled one program on a floppy and it took 8 minutes. On the hard drive it took only 2 minutes.

Anyone who is looking for help may write me at 4336 Eureka Ave., Yorba Linda, CA 92686.

Correction on Horizon RAMdisk 32K mod

One note on the User Notes from March about modifying the Horizon RAMdisk so that it would replace the PEB 32K card.

In the wiring instructions, it stated:
"solder pin 14 to pin 16, wire to U11 pin 28"
Those who undertake the project should instead:
"solder pin 14 of 74LS08 to pin 28 of U11."

This clarification comes from Bud Mills of Bud Mills Services, manufacturer of the Horizon RAMdisk.

DM-1000 bug fix

This item is by B.J. Bieber and appeared in several newsletters. We saw it in the K-Town 99'er of Knoxville, Tennessee.

Have you ever encountered a problem with a disk that indicated you have used 6123 sectors and have 7123 free sectors when you know the disk was good last time you accessed its directory?

The problem in DM-1000 V3.7, 3.8 and 4.0 is that they will mess-up the disk header sector zero when changing disk names. I can't verify the same problems with earlier versions because I dumped them when purging my disk library.

Here's the problem: If you type in a new disk name without deleting any characters and do nothing else except save the new disk name back to disk, then all is well. But, if you more the cursor back into the existing disk name, delete one or more characters, then save the new disk name to disk, you'll find the *Sectors Used* and *Free* become screwed-up. This happens because byte >10 (decimal 11) on sector zero gets reversed.

Before somebody asks: "No, repeating the process does not reverse the errant byte a second time." Bytes >10 and >11 (decimal 11 and 12) indicate how the disk was formatted.

Here is what you should see, under normal circumstances:

>0168=SS/SD (360 sectors)
>02D0=SS/DD (720 sectors)
>05A0=(1440 sectors)

Don't despair — all is not lost. You can spend the time recopying the files to another disk or you can make a correction using a sector editor.

Look at sector zero, bytes >10 and >11. You'll probably see something like 1068 or 20D0 or 50A0. Compare the numbers above. If you look closely, you'll notice just the first two numbers (1 byte) are reversed. To correct the problem, just type the correct numbers into byte >10 and write the sector back to disk.

Recatalog the disk and the *Sectors Used* and *Free* should return to normal.

Cut the cards

The following program randomly deals five cards at a time from a standard deck of 52 playing cards. The cards and their suits appear on the screen in color.

After five cards are displayed, the user has the option of having the computer deal additional five-card hands until the deck is used up, or a new deal from a new deck of reshuffled cards. The program appeared in PUNN, the newsletter of the Portland (Oregon) TI User Group. It runs out of BASIC or Extended BASIC.

```
100 REM CARDS !039
110 CALL CLEAR !209
120 DIM C(13,4)!024
130 CALL CHAR(135,"6CFEFEFE7
C7C381")!139
140 CALL CHAR(134,"10387CFE7
C381")!197
150 CALL CHAR(130,"")!205
160 CALL COLOR(13,7,16)!027
170 CALL CHAR(136,"10387CEEF
E7C1038")!132
180 CALL CHAR(137,"1038105 4F
E541038")!058
190 CALL COLOR(14,2,16)!023
200 FOR I=3 TO 8 !065
210 CALL COLOR(I,2,16)!049
220 NEXT I !223
230 CALL CHAR(92,"")!163
240 FOR I=1 TO 5 !060
250 FOR J=3+(I-1)*6 TO 7+(I-
1)*6 !043
260 CALL VCHAR(5,J,130,7)!01
1
270 NEXT J !224
280 RANDOMIZE !149
290 N=INT(13*RND)+1 !203
300 S=INT(4*RND)+1 !159
310 IF C(N,S)=1 THEN 290 !22
0
320 IF N<>10 THEN 360 !094
330 CALL HCHAR(7,J-4,49)!227
340 CALL HCHAR(7,J-3,48)!225
350 GOTO 490 !058
```

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```
360 IF N<>11 THEN 390 !125
370 CALL HCHAR(7,J-3,74)!224
380 GOTO 490 !058
390 IF N<>12 THEN 420 !156
400 CALL HCHAR(7,J-3,81)!222
410 GOTO 490 !058
420 IF N<>13 THEN 450 !187
430 CALL HCHAR(7,J-3,75)!225
440 GOTO 490 !058
450 IF N<>1 THEN 480 !165
460 CALL HCHAR(7,J-3,65)!224
470 GOTO 490 !058
480 CALL HCHAR(7,J-3,N+48)!2
40
490 CALL HCHAR(9,J-3,133+S)!
035
500 C(N,S)=1 !188
510 NEXT I !223
520 CALL HCHAR(21,3,32,14)!2
21
530 CALL HCHAR(22,3,32,14)!2
22
540 PRINT "PRESS\1\DEAL\FIVE
\MORE\\\\\\" !072
550 PRINT "\\\\\\2\DEAL\FROM
\FULL\DECK\" !057
560 PRINT "\\\\\\3\END\PROGR
AM\\\\\\\\" !096
570 CALL KEY(0,K,ST)!015
580 IF (K<49)+(K>51)THEN 570
 !080
590 CALL CLEAR !209
600 ON K-48 GOTO 610,650,710
 !221
610 T=T+1 !033
620 IF T<10 THEN 240 !043
630 PRINT "OUT\OF\CARDS;\" !
186
640 PRINT "STARTING\OVER\":
:!059
650 FOR I=1 TO 13 !108
660 FOR J=1 TO 4 !060
670 C(I,J)=0 !173
680 NEXT J !224
690 NEXT I !223
700 GOTO 240 !063
710 END !139
```

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

REVIEWED IN MICROPENDIUM

1984

February: B-1 Nuclear Bomber, Tandon TM-100 Disk Drive, Void, Beanstalk Adventure, Microsurgeon, On Gaming, Database 500.
March: Star Trek, Escape From Balthazar, Garkon's Getaway, Sky Diver, Mail-Call, Prowriter 8510 Printer.
April: Monthly Budget$ Master, Budget Master, Home Budget, Thief, Donkey Kong, Khe Sanh.
May: Companion Word Processor, Q*Bert, Mad-Dog I & II, Programs for the TI Home Computer.
June: Creative Expressions Accounts Receivable/Accounts Payable, CDC 9409 Disk Drive, Starship Concord, Lost Treasure of the Aztec, ASW Tactics II.
July: Theon Raiders, Introduction to Assembly Language for the TI Home Computer, Game of Wit, Pole Position
August: TE-1200, Tower, Galactic Battle, Galaxy
September: Wycove Forth, 99/4 Auto Spell-Check, QUICKCOPYer, Wizard's Dominion, Anchor Automation Mk XII Modem
October: Killer Caterpillar, ZORK I, Defender
November: 9900 Disk Controller Card/Manager, Super Bugger, Transtar 120S printer, Floppy-Copy, Data Base-X
December: Gravity Master, Data Base Manager System, Learning 99/4A Assembly Language Programming

1985

January: Super Sketch, Foundation Computing 128K Card, PTERM-99, TI-Runner
February: Super Extended BASIC, Beginning Assembly Language for the TI, ZORK II
March: Morning Star Software CP/M Card, WDS/100 Winchester Disk Drive, Sketch Mate, BMC Color Monitor
April: 9900 Micro Expansion System, Disk+Aid, Gemini 10X-15X
May: Character Sets and Graphics Design, Draw 'N Plot
June: GRAPHX, DATA BASE I
July: Acorn 99, Advanced Diagnostics
August: Model Dow-4 Gazelle, TI-Artist, PC-KEYS, Not-Polyoptics' Bankroll
September: Midnite Mason, Myarc 32K/128K Card, GRAPHX Companion
October: 4A/TALK, Extende BASIC II Plus, XB Detective, Console Writer 2.a
November: Foundation Z80A/80-column cards, 9900BASIC, Adventure Editor
December: Display Enhancement Package, Triple Tech

1986

January: BITMAC, Starcross
February: Night Mission, Peripheral Diagnostic Module, BA-Writer
March: Super Duper, Tunnels of Doom Editor, Business Graphs 99
April: U.S. Open Tennis, PRBASE
May: 4A Flyer, GRAM Kracker, Artist's Companion
June: Myarc Disk Controller Card, Maximem
July: Horizon RAMdisk, Old Dark Caves, Funlwriter, TI99/4A Macro Assembler
August: JOYPAINT 99, GPL Assembler, TI99/4A Intern, GPL Linker
September: Mechatronic 128K Card
October: TI-Forth Utilities, CorComp Memory Plus
November: Submarine Commander, PEP, MAX-RLE
December: GK Utility I and II and GRAM Packer, X-10 Powerhouse, RAVE 99/101.

1987

January: MG DISkASSEMBLER, Myarc XBII
February: TI-Tax, Mechatronic Mouse
March: Wycove Forth version 3.0, DIJIT Systems RGB Conversion Kit, Spad XIII Flight Simulator
April: Geneve 9640, Disk Utilities
May: QS-Solitaire, Geneve 9640 (Part 2), Technical Drive, Console Calc
June: Character Sets and Graphic Design III, Writerease Ver. 1.1, 4A DOS, Prescan_It
July: Junkman Junior, Avatex 1200/1200hc modem, Bubble Plane
August: Prostick, The Brain, Rocketman, Menu Ver. 6.3
September: TI-IBM Connection, Super Extended BASIC
October: Fontwriter, Mechatronic 80-Column Card, Star NP-10 printer
November: Legends, Music Preprocessor, QS-Wheel, Spin-to-Win
December: Remind Me, Certificate 99, Myart-Art and Myarc Mouse

1988

January: Quik Font, EZ-Keys
February: Disk Utilities 4.0
March: Telco, String Master, Epson LX-800 printer
April: Super Space II, PC-Transfer, Calendar Maker, Archiver II
May: Plus!
June: Captain's Wheel 32K Memory Expansion, Desk Top Publisher Ver. 1.0, Texlink BBS
July: Artist Enlarger
August: Gramulator, Barrage
September: Myarc Hard & Floppy Disk Controller, Game Writers Pack I, Graphic Lister
October: Bunyard Hardware Manual, Writerease Update, M-Copy, Disk of Dinosaurs, Infocom Fast Loader
November:TI-Base, 3D-Maze, Macflix, Disk Labeler 99
December: P-GRAM Card, Epyx 500XJ Joystick, Enhanced Display Package, Starfleet Technical Drawings, Carfax Abbey, Rocketman

1989

January: First Base V1.0, Picture—It
February: Triad, Superbasic, P-Box Prototype Board, Keyboard Overlays, The Computer Phonebook, St. Valentine's Day Card, 1989 KBGB Girlie Calendar
March: NX-1000 Printer, Home Publishing on the 99/4A, Form-Shop, TELSUP V1.5, Boot/Menu programs, Arcade Action Software
April: Checkbook Manager III, TI-Runner Level Editor, TI-Writer V4.01, Artist Borders I, II, III, Multiplan Printer Codes

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