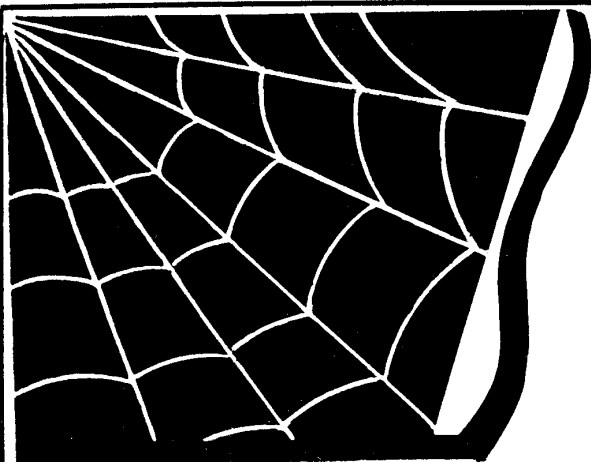

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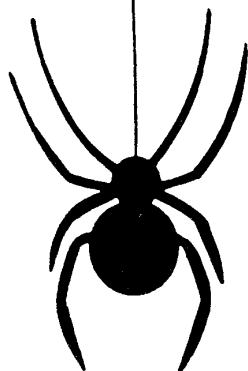
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October 1988

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Configuring Funnelweb



In the dark about this program? Jim Swedlow's tutorial sheds light on it, step by step.

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- ☒ Mini-Reviews debut ☒ Chicago TI-Faire ☒ Tips for hard disk users
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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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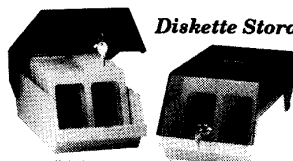
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Fair season brings out new products

Fall is always a busy time for TIers, what with the numerous fairs and conventions going on and the introduction of new software — just in time for the Christmas rush.

In addition to the Chicago and Milwaukee fairs, November should see the introduction of a radically different word processor from Asgard Software, at the Chicago fair. Written by Charles Earl of TELCO fame, the Press word processor promises many features previously unavailable to TI users, not the least of which is a 100,000-word spelling checker. (Last month I touted it as a 120,000-word spelling checker. But what's 20,000 words among friends.) Chris Bobbitt of Asgard says Press incorporates the features of a number of word processors from the PC world, Word-Perfect among them.

Also in Chicago, Myarc will be showing the finished Myarc Advanced BASIC, the "H" version of MDOS, an EPROM that includes MDOS and GPL and possibly Pascal with a converted version of the Swan database ported to the Geneve from the PC world. MABASIC was said to be 99 percent complete when it was shown at the Seattle TI Fair in September.

MICROreviews DEBUTS THIS MONTH

Starting this month Harry Brashear will be writing a series of abbreviated reviews of products that might otherwise not be reviewed in these pages. Software authors, regardless of their distribution methods, may want to send copies of their programs to Harry for possible inclusion in MICROreviews.

John Birdwell's assembly language column isn't available this month. John is trying to catch up with his move to the Chicago area. We expect him back next month with more on MICRO-WORD.

We've delayed publishing a review of Texament's TI-Base data base manager because it's been updated and our reviewer, Bill Gaskill, wants the review the new version. He is rewriting his review and we expect (hope) to have it ready for the November edition. Incidentally, another database program, Genial Computerware's First Base, made an appearance at the TI fair in Harrisburg, Pennsylvania. We'll have a rundown of its features next month.

In doing research for our series on telecommunications networks, I've found that it is just about impossible to compare rates unless one is very specific. For example, the rates included with the article are mostly applicable to those who live in major cities in the continental U.S. That's because the networks provide local telephone connections for users. Get outside these major metro areas and you've got to start thinking about long distance charges or telephone networks (such as Tymnet and PC Pursuit), which generally increase the cost of going online but can

also save money. The networks frequently conduct special promotions to attract new customers that can slash or eliminate sign-up fees — unfortunately these are often advertised only on the boards themselves. Delphi has been advertising a reduced rate for new subscribers, but that's about the only service that reaches out into the print media for TI users.

In any case, I still don't know which one is the best deal.

A MAN ON A MISSION

Jim Horn, a sysop on CompuServe and an avid Tler, wants to recycle old TI99/4A. No, he doesn't want us to get rid of our systems, but he does want to get non-users to clean out their closets and put their unused 4As where they can be used, namely, classrooms.

What's the incentive for someone to give his dusty, unused TI away? Tax deductions, for one. Another is the satisfaction that comes with helping others, in this case students and teachers.

Of course, not every teacher is going to jump at the opportunity of acquiring a raft of inexpensive computers when he can have his school board pay thousands for the new technology. But, Jim points out, "if no one in a given school seems interested in a flood of FREE computers perfectly capable of teaching youngsters all they need to know about computers as well as being helpful tools in many other classes, move on. Find another school, another teacher."

What are the advantages of Horn's proposal for the active TI community? If it succeeds, it may increase our numbers and public awareness of the TI99/4A as an educational tool and a nifty machine.

Jim sees this project as well within the scope of user groups. Through creative use of press releases, dialogue with local teachers, principals and school board members, and an organized method of locating the unused TIs, user groups should be ideally suited to carry out this type of project. Especially if it is adopted as a group project.

It's a great idea, and it's something we all need to think about.

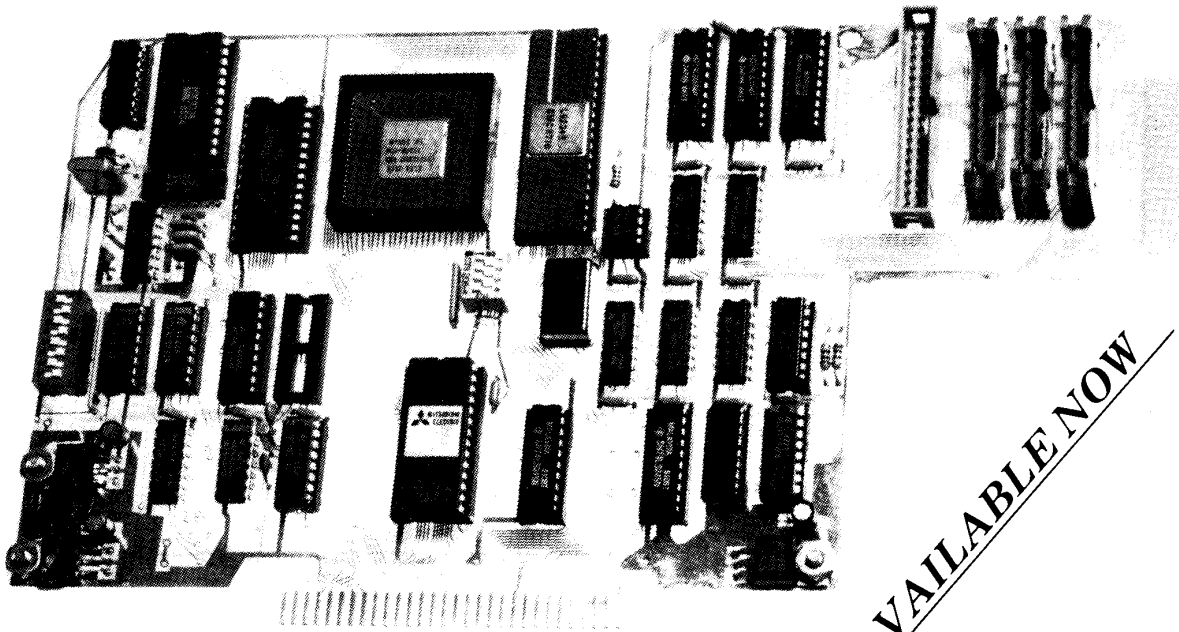
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Feedback

Video display 'rules' violated

In regard to your article on the Yamaha V9938 by Tony Lewis in the September issue of MICROpendium, I want to express my appreciation for mentioning DIJIT Systems and our AVPC.

I would, however, like to address the "do-it-yourself" aspect of the article. While the V9938 is upwardly compatible with the TMS9918 series of VDPs it is not directly compatible with the TI99/4A computer. Aside from the sheer physical complexity of the V9938, the designers of the TI99/4A in Lubbock didn't play by the rules laid down by the Video Display Products Group in Houston, who designed the TMS9918A.

The Video Display Processors Programmer's Guide, SPPU004, states with regard to VDP Write-Only Registers on page 5-1, "In some of the registers not all eight bits are used. To insure software compatibility with the next generation Advanced Video Display Processor, the unused bits must be set to 0s." The Lubbock people must have reasoned that, since the registers didn't exist, it doesn't matter what is written, so they filled those bits with 1s. And there were other "Igotchas" to reckon with, the autoincrementing of the disk buffer into "Never-Never Land" and the RS232 bug that brought us to grief. Therein lies the crux of the incompatibility of the V9938 with the TI99/4A and some of the software that won't run on V9938 based video systems.

I'm sure other potential third party vendors met with frustration in dealing with the V9938 and some even admitted that they didn't think it was possible to incorporate it into the TI99/4A. Indeed, it took us a year and a half in hardware and software design to develop the AVPC into an acceptable package that operates out of the P-Box. To date we have sold many AVPCs and have experienced an extremely high reliability rate. While the AVPC is compatible with most existing TI99/4A programs, there is also a steadily growing body of software to take advantage of its special features.

I would like to thank our chief programmer, David Allen, for his dogged determination in solving the many software prob-

blems that beset us. I would also like to express my sincere appreciation to Barry Boone for all the work he has done in V9938 related programming. Barry has solved the compatibility problem with the Horizon RAMdisk with a "patch" to the ROS. This "fairware" is available for downloading from our bulletin board, (619) 278-8155, or directly from Barry Boone, P.O. Box 1233, Sand Springs, OK 74063.

Thomas Spillane
DIJIT Systems
San Diego, California

Cheers for CorComp

In the beginning some wise men of the West gathered together and said: "Behold there is a rising star in the personal computer sky called Texas Instruments, let us pay homage," and they did.

It came to pass that one of these wise men said: "But what is this *large* ugly apurtenance with limited capabilities attached to this star via a long flat black umbilical?" Plus after examining the new phenomenon the wise men had determined that unlike other stars it could only illuminate the populace with a double side *single* density light.

The wise men pondered and then gave birth to a different apurtenance, a *small* ugly box that they called a CorComp 9900. It had no umbilical and further had four red lights that sometimes flashed, but it could speak an augmented language called double sided *double* density; further, it included 32K of additional knowledge and could give pronouncements through an oracle known as an RS232 Oracle.

Their firstborn's abilities were announced far and wide but alas, the wise men found themselves in disagreement about many things and a new prophet came on the scene. Further, the new prophet said we must protect the newborn from the unholy, and invoked a gospel called Chapter 11 Bankruptcy; thus, the gospel of Jackie Sagouspe came into being.

During these difficult times additional small ugly black boxes were added that did such things as tell the time and date and let the populace not have to wait for printing to be completed before going on, as well as allowing the star's speaking ability to hide from sight. Then came the ability

to store one meg of knowledge and find that knowledge at astonishing speed.

The gospel of Jackie Sagouspe proved fruitful; prosperity came; the child started to mature and threw off the bondage of the Chapter 11 Bankruptcy. It further multiplied while adding the ability to write letters and even to save these letters in a revered format known as the IBM Format so they could be sent to practitioners of the IBM DOS teachings; and the star could diagnose some of its own illnesses and it could print without its CorComp 9900 apurtenance, but to do many of these wondrous things the star's breadth had increased to almost 1½ yards and it needed a resting place about the size of a Dutch door.

Not wishing to have their CorComp beliefs held up to ridicule by other practitioners of the TI99/4A arts, they called upon a foreign merchant named Tex-Comp who produced a cable called a PE Box Extender Cable. If ordered in a nine-inch version it allowed all of the small ugly black boxes to be mounted upside down underneath its now venerable console thus making for an uncluttered desk top although verily a narrow slot had to be cut into one's operating desk next to the peripheral slot in order to reach the profusion of small black boxes.

Nevertheless, the virtues of CorComp are many, for they include: never, never selling a product that doesn't work; never, never advertising a product that isn't currently for sale; never, never failing to make their service technicians readily available; nor is their management difficult to contact; and foremost, they beta test their products to assure their products do what they say they will do. Perhaps this is why the MICROpendium survey shows there are significantly more CorComp users than any other after market product users.

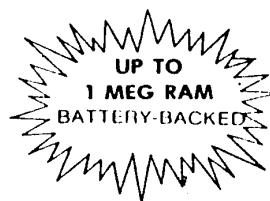
May we all beseech CorComp to produce a hard disk controller that adheres to CorComp's proven reputation!

Fred DuVall
Mission, Texas

The Feedback column is for readers. It is a forum to communicate with other readers. The editor will condense excessively lengthy submissions where necessary. We ask that readers restrict themselves to one subject for the sake of simplicity. Mail Feedback items to MICROpendium, P.O. Box 1343, Round Rock TX 78680.

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BASIC

Using the trace command

By REGENA

The TRACE command in TI BASIC and TI Extended BASIC can be handy in debugging a program or in following a program's progress. TI's commands of TRACE and UNTRACE are comparable to other computer versions' BASIC commands TRON and TROFF.

I think the best way for me to explain these commands is to have you sit at your TI computer while you are reading this column. Type in the sample programs, and you will be able to see how TRACE can work.

TRACE can be entered as a command or it can be entered with a line number as a statement within a program. It tells the computer to print the line number of the line being executed when a program is run. The computer will run the program normally except just before each line is executed the line will be printed on the screen in angle brackets. You will be able to see the sequence of lines as a program is run. UNTRACE tells the computer to turn off the tracing of line numbers.

Try this simple BASIC program:

```
100 PRINT "HELLO"
110 PRINT "SEE YOU LATER"
120 END
```

When you RUN the program, the result is
HELLO
SEE YOU LATER

**** DONE ****

Now, at the cursor, type in TRACE, then press the ENTER key. Next, type RUN and press ENTER. The result is

```
<100>HELLO
<110>SEE YOU LATER
<120>
```

**** DONE ****

The line numbers are shown in order just as in the program, and the computer executes the lines in numerical order. If you type UNTRACE then RUN the program will run without printing the line numbers. The NEW command also turns off TRACE.

As you know, the computer does not always just go line by line in numerical order through a program. Try this program:

```
100 FOR J=1 TO 5
110 PRINT J
120 NEXT J
130 END
```

Type TRACE then RUN the program. The result should look like this:

```
<100><110> 1
<120><110> 2
<120><110> 3
<120><110> 4
<120><110> 5
<120><130>
```

**** DONE ****

Notice that within the FOR-NEXT loop lines are repeated until the end condition is met. Now delete line 110, which is the PRINT statement. The computer still has a FOR-NEXT statement but will

not print the counting on the screen. Now when you RUN the program, it will look like this:

```
<100><120><120><120><120>
<120><130>
```

**** DONE ****

The line numbers are printed across the screen, and the NEXT command is executed five times. The line numbers are printed one right after the other horizontally unless PRINT statements cause the computer to go to the next line (or if you have more than the screen width of characters).

An IF-THEN statement will also cause the computer to jump out of numerical order in executing statements. Type NEW, press ENTER, then enter this short program.

```
100 SCORE=SCORE+1
110 IF SCORE<10 THEN 100
120 PRINT "SCORE =" ;SCORE
130 END
```

This program increments the SCORE until it is 10, then the score is printed and the program ends. When you RUN the program, you will see just the final score printed. When you type TRACE then RUN the program, you can see how the IF statement transfers control back to Line 100 until the condition is met for Lines 120 and 130 to be executed.

Subroutines are also interesting to watch with the TRACE command. Try the following program.

```
100 GOSUB 500
110 PRINT "HELLO"
120 GOSUB 300
130 PRINT "BACK TO MAIN"
140 GOTO 600
200 PRINT "HOW ARE YOU?"
300 PRINT "SUBROUTINE"
310 RETURN
500 PRINT "GOOD DAY"
510 RETURN
600 END
```

RUN the program. This is what you should see:

```
GOOD DAY
HELLO
SUBROUTINE
BACK TO MAIN
```

**** DONE ****

Let's suppose you are trying to figure out why "HOW ARE YOU?" doesn't print. You can use TRACE to follow the computer's sequence of execution. Type TRACE and press ENTER, then type RUN. This time you will see the following:

```
<100><511>GOOD DAY
<510><110>HELLO
<120><300>SUBROUTINE
<310><130>BACK TO MAIN
<140><600>
```

**** DONE ****

You can see that the computer never does execute Line 200 to
(See Page 12)

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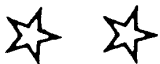
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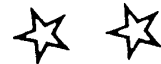
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REGENA ON BASIC

(Continued from Page 10)

print "HOW ARE YOU?" You can also see what happens when the computer executes a GOSUB and RETURN. You can use the TRACE numbers to follow step by step what the computer is doing.

TRACE and UNTRACE may also be used within a program if you know only a certain section is giving you trouble. You may add a line with TRACE and later in the program add another line with UNTRACE. Only those program lines executed between TRACE and UNTRACE will be listed. For example, keep using the above program and type UNTRACE to get back to normal. RUN the program to make sure you are not getting the line numbers. Now add the following two lines (they will be in the subroutines).

```
505 TRACE
```

```
305 UNTRACE
```

Remember that you need to add TRACE in a line that is executed before the line that has UNTRACE. In this case the line numbers are not numerically in order, but the TRACE will be executed before the UNTRACE because the 500 subroutine will be executed before the 300 subroutine. Now try running the program. The result should look like this.

```
GOOD DAY
```

```
<510> <HELLO
```

```
<120> <300> SUBROUTINE
```

```
<305> BACK TO MAIN
```

```
** DONE **
```

Only the line numbers for lines executed between 505 and 305 will be TRACEd or listed.

I have used very simple programs to illustrate the use of TRACE, and in these programs you could probably follow the computer easily enough without using TRACE. I find TRACE handy in larger programs or in programs that other people have written and I need to find out what they had planned in their programming.

I have also used TRACE when the computer seems to "hang up" for a while. I insert TRACE after a line I know has executed, and the program will run normally up to that point, then start printing line numbers. It is possible that the computer gets caught in an "endless loop," and the TRACE command can let you know how long that loop operates. The cause could be a series of GOTO statements that keep looping, or a GOSUB loop that gets tangled up. Quite often an IF-THEN or IF-THEN-ELSE statement branches. If you notice an endless loop, you can interrupt the program with CONTROL-BREAK then PRINT values of the variables at that point. From there you can trace how the variables got those values and determine solutions to any programming problems.

My examples used PRINT statements. Notice that using TRACE prints line numbers on the screen and the PRINT statements may be shifted or the spacing may vary. If you use TRACE with a graphics program, the graphics will scroll up the screen as line numbers are printed, so later graphics may not form properly. Keep in mind that this problem will happen only while you TRACE and the graphics will go back to normal when you no longer print line numbers.

I hope this has helped you understand the TRACE and UNTRACE commands, possible uses for them and how they can really help a programmer.

Trials of a c99 beginner

Two-dimensional arrays

By CHARLES E. KIRKWOOD JR.

This month we will enter into the world of two-dimensional arrays which Clint Pulley added to Versions 3 and 4 of c99.

A general purpose sort program and a sort function are written. This program will sort character strings which includes numbers (both integers and floating-point). All numbers, however, must be right justified in order to be sorted properly; i.e., the right side of the numbers must line up.

But before taking up this new topic, a short quiz will be given. Unlike quizzes that you usually take, there will be no grade for this one and the only person to see your results will be you. **What is the output** of each of the three short programs given? Then type, compile, and assemble each one so that you can run them to obtain the results. You might be surprised at the answers.

```
/*QUESTION 1*/
```

```
main()
```

```
{
    int day[8];
    int i;
    day[0]="SUN";
    day[1]="MON";
```

```
    day[2]="TUE";
    day[3]="WED";
    day[4]="THU";
    day[5]="FRI";
    day[6]="SAT";
    for (i=0; i<=6; ++i)
    {
        puts(" ");
        puts(day[i]);
    }
```

```
/*QUESTION 2*/
```

```
/*Input the six days, press*/
/*<ENTER> after each.*/
```

```
main()
```

```
{
    int day[8];
    int i,k;
    char buff[25];
    for (i=0; i<=6; ++i);
```

(See Page 14)

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c99—

(Continued from Page 12)

```

    day[i]=gets(buff);
    for(i=0;i<=6;++i)
    {
        puts("  ");
        puts(day[i]);
    }
}

/*QUESTION 3*/
/*Input same data as Question 2*/
main()
{
    int day[8];
    int i,k;
    char buff[25];
    for(i=0;i<=6;++i)
    {
        k=gets(buff);
        strcpy(day[i],k);
    }
    for(i=0;i<=6;++i)
    {
        puts("  ");
        puts(day[i]);
    }
}

```

```

}
/*from string function library*/
/*by Tom Wible*/
strcpy(s1,s2) /*copy s2 into s1*/
char *s1,*s2;
{
    while((*s1++)=(*s2++))
        ;
    return;
}

```

Pulley included a very helpful test program for two-dimensional arrays with V3 of c99. When an argument is preceded by the ampersand (&), the program passes the address of the argument to the function. Some rules for the C language are:

1. A name preceded by an & is a constant (an address).
2. Use this notation as an argument in a function call.
3. Use this notation to the right of the equal sign in an expression.
4. A pointer name preceded by an * is a variable. Its value is the contents of the pointer.
5. Use this notation when you declare a pointer.
6. Use this notation in an assignment statement on either side of the equal sign.

A simple example:

```

int a[5],x;
int *pa;
pa=&a[0]; /*sets pa to point to the zeroth*/
/*element of a; that is, pa contains*
/*the address of a[0]*/
x=*pa; /*copies the contents of a[0] into x*

```

Refer to a good C text for a complete discussion of pointers. Character strings are actually an array of characters. So, an array of character strings is an array of an array, which is a two dimensional array. The items in the SORT program can be input from the keyboard or a file and output to the screen or a file. Just follow the prompts when the program is executed. Remember that the ;C is omitted in the function names. The program will default to the keyboard and the screen.

```

/*SORT PROGRAM*/
#define dim 25
#include DSK1.STDIO
#include DSK1.STRING
#include DSK1.CONV
main()
{
    int i,m,n,c,d,df,f,in,out,col;
    char a[150][dim],buff[dim];
    c='K';
    d='S';
    col=dim;
    puts("Input File or Keyboard (F/K) ");
    c=getchar();
    putchar(10);
    if(c=='F')
    {

```

(See Page 15)

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DEALER ENQUIRIES WELCOME

c99—

(Continued from Page 14)

```

puts("Disk File ");
df=gets(buff);
in=fopen(df,"r");
putchar(10);
}
puts("Output File or Screen (F/S) ");
d=getchar();
putchar(10);
if (d=='F')
{
    puts("File Name ");
    f=gets(buff);
    out=fopen(f,"w");
    putchar(10);
}
puts("Input number of items ");
m=gets(buff);
n=atoi(m);
n=n-1;
if(c=='F')
{
    for(i=0;i<=n;++i)
        fgets(&a[i][0],col,in);
}
else
{
    puts("Input items\n");
    for(i=0;i<=n;++i)
        gets(&a[i][0]);
}
sort(n,a);
putchar(10);
if(d=='F')
{
    for(i=0;i<=n;++i)
        fputs(&a[i][0],out);
}
else
{
    for(i=0;i<=n;++i)
        puts(&a[i][0]);
    putchar(10);
}
if(c=='F')
    fclose(in);
if(d=='F')
    fclose(out);
}

/*FUNCTION SORT*/
sort(n,s)
char s[][dim];
int n;
{

```

```

int i,j,k,m;
char t[dim];
m=n-1;
for(i=0;i<=m;++i)
{
    strcpy(&t[0],&s[i][0]);
    k=i;
    for(j=i;j<=n;++j)
    {
        if(strcmp(&s[i][0],&t[0])<0)
        {
            strcpy(&t[0],&s[j][0]);
            k=j;
        }
    }
    strcpy(&s[k][0],&s[i][0]);
    strcpy(&s[i][0],&t[0]);
}
return(s);
}

```

This program will sort 150 character strings such as names, addresses, numbers, etc., with less than 25 characters in ascending order. Change < to > in the sort function for descending order. (See Page 20)

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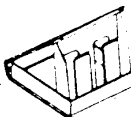
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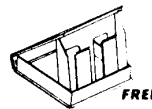
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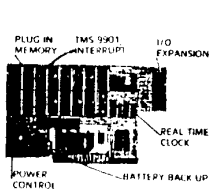
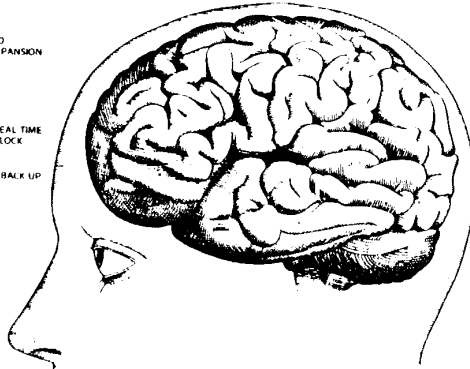
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DM1000 is one of the most popular disk manager programs for the TI-99/4A. It originally started life as a Canadian copy of the Cor-Comp Disk Manager and has been improved by users all around the world. Ver. 3.5 is considered the most reliable version to date

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(Continued from Page 15)

The second dimension in the function must agree with the second dimension in your program. This can be done by typing this second dimension the same as in the program or by defining a variable (the second dimension) at the beginning. After you have assembled your file, load your object file, CSUP, and CFIO.

The functions **fprint()** and **fprintf()** can be used in the program in place of **puts()** and **fputs()**. In this case delete **#include DSK1.CONV** and add **extern atoi(), fprint(), fprintf();**. Include **PRINTF** and **FPRINTF** when you load your object program. The argument **&t[0]** can be replaced by **t** in the sort function.

Now is a good time to show some of the advantages of pointers. If pointers were not available, separate functions might be necessary to copy the *i*th character string in a two-dimensional array to a character string (a one dimensional array), the *i*th character string in a two-dimensional array to the *k*th character string in a two-dimensional array, a character string to the *i*th character string in a two-dimensional array. One of these three functions might be written as:

```
/*COPY FROM 2-DIM TO 1-DIM ARRAY*/
dblsng(t,s,i) /*copy s into t*/
char s[][dim],t[];
int i;
{
    int j;
    j=0;
    while(t[j]=s[i][j])
        ++j;
    return;
}
```

This function can be rewritten using pointers, as:

```
dblsng(t,s,i)
int i;
char s[][dim];
char *t;
{
    char *p;
    p=&s[i][0];
    while(*t++=*p++)
```

```
;
return;
}
```

Change the heading to **strcpy(t,s)**, omit **int i;**, change **char s[][dim];** to **char s;**, omit **char *p;**, omit **p=&s[i][0];**, and change ***p** to ***s**. Now, look back to the copy function, **strcpy()**, earlier in the article. You should recognize that you now have turned the above function into **strcpy()**. The initial pointer values are supplied by the arguments, which can be a character string in a one- or two-dimensional array.

Write two functions using arrays to copy the *i*th character string in an array to the *k*th character string in an array and to copy character string to the *i*th character string in an array. By the same reasoning and changes you will find that you will end up with the same function, **strcpy()**.

In the same way, the compare function, **strcmp()**, might take the place of two functions.

A change should be made in the function **ax()** included in the function library **MATH:C** (later changed to **ALG**) in previous c9 articles. The following else block should have been written in the list of else blocks:

```
else if(fcom(x,"==",zero)
    fcpy(wone,r);
```

If this isn't one of Murphy's Laws, it should be: "No matter how many times a person proofreads a manuscript, there will always be one more mistake!"

It has been mentioned that it would be a good idea if program could be available on disk. I really had not intended doing this for I have always considered typing a program part of the learning process. If anyone wants copies of my programs and/or functions on disk I will be glad to make the copies. Two disks are available - one with uncompiled c99 programs and function libraries and the other with ready-to-run programs using E/A option 5. The copies will be SS/SD. If you want only one disk copied, be sure you let me know which one. Please send formatted disk(s) in a mailer with a self-addressed label, return postage and \$5 for each one that you would like to have copied. Address to P.O. Box 1241, Clemson, S 29633.

Swedish user offers BASIC CALLs

This comes from our British correspondent Stephen Shaw. He writes:

Way back in the golden days of yore, 99er Magazine published one article on the extra CALLs available to TI BASIC when either the Personal Record Keeping or Statistics modules were in the module slot. The article dealt with CALL A and CALL D, which were equivalent to ACCEPT AT and DISPLAY AT.

Subsequent user group newsletters covered CALLs such as CALL P, CALL G, CALL H, CALL L and CALL S.

Now, we have *all* the CALLs available to us courtesy of Jan Alexandersson.

Jan has prepared a disk which contains documentation to help with all the CALLs, plus the PRK module in the form of a BASIC program. (Remember those rumors that it was written in BASIC — now you can see the listing.) As the program is some 20K, it cannot be run in TI BASIC, but it can be listed in Extended BASIC. He has also separated out the various parts of it into MERGE files, which can be used in BASIC programs after loading in XB and

resaving.

The extra CALLs are interesting as they have names which use single character with low ASCII values. While CALL A is the same as CALL [65], these newly documented CALLs in the neighborhood of CALL [5]. If your keyboard can't produce them, there's also the MERGE files or you could use a sector editor.

To obtain the disk, send at least \$5 (U.S. for the disk) to Jan Alexandersson, Springarvagen 5, 3TR; S-14261, Trångsund, Sweden.

Tutorial: Configuring Funnelweb

By JIM SWEDLOW

These instructions supplement the Funnelweb Versions documentation. This release supports Versions 4.10 (May 30, 1988), 4.11 (July 4, 1988) and 4.12 (Aug. 12, 1988).

These instructions assume that you will operate Funnelweb from Drive 1. If you will use another drive, you will need to modify them accordingly.

They also assume a basic system and normal use. If you have special features or uses, you should be able to modify them to meet your needs.

If you need to press a key or keys, the "<>" signs will be used (for example, "Press <ENTER>"). When two keys must be pressed together, it will shown this way: "Press <CTRL^C>". <CTRL^C> means hold the <CTRL> key down with one finger and then press <C> with another. Release both fingers simultaneously.

In boxes where you input information (a file name, etc), indicate that you are done by pressing <ENTER>. When this is necessary, it will be shown this way: "Enter the correct file name."

In Configure menus, you normally choose options by pressing the first letter. For example, the Top Menu has three choices: Sysinfo, Quit and Install.

Press <S> for Sysinfo, <Q> to Quit and <I> to install. Such choices will be shown as "Press <Q>uit" or "Press <Q> to Quit."

A menu layout of all Configure Menus follows these instructions.

<CTRL^C> is used to move from the current menu to the pervious menu. You can use <BACK> or <FCTN9> instead of <CTRL^C>.

A number of times these instructions ask you to press <CTRL^C> to return to a previous menu. Sometimes it will be necessary to press <CTRL^C> more than once.

<CTRL^C> also now works in DM 1000 instead of <BACK>.

In many places in the Configuration Program, pressing <?> or <FCTN1> windows in help screens. These screens are filled with useful information. You should check them frequently the first time you configure Funnelweb.

Also available in most places in the Configuration Program is the Quick Directory. Press <FCTN 7> to access the disk directory function.

Abbreviations

FWb Funnelweb
XB Extended BASIC
EA Editor Assembler
TI Wr TI-Writer

STARTING UP

Make a working FWb disk. Use DM 1000 to copy the files you will need to a freshly initialized disk. A list of files and some suggested arrangements follow these instructions. Configure only your working copy. Keep an unmodified master copy "just in case."

Load FWb with your working FWb disk in Drive 1. If you are using XB, FWb will autoboot when you choose Extended Basic. If you are using the EA module, choose "5. Run program File" and then press <ENTER>.

If you loaded from XB, choose Configure from the XB Menu. If you loaded from EA, choose User List from the EA Menu and then choose Configure. If Configure is not on either menu, you can load it through the LOADERS function. Choose option 2. The file name is DSK1.CF.

FUNNELWEB MENU LAYOUT

TOP MENU

Sysinfo
Quit--->Exits Configuration Program
Install

INSTALL MENU

LOAD XB/XBII
FW/UTIL1 Others

SYSINFO MENU

Load--->Loads SYSCON file
Edit

Save--->Saves edited SYSCON file
SYSINFO EDIT MENU

Loading
Devices
Colors
Menu
XB List
UL List

TOP MENU

Press any key to get past the opening screen.

Press <S> to modify the system infor-

mation (Sysinfo).

SYSINFO MENU

Press <L> to load the system configuration file. Enter the file name (DSK1.SYSCON). You can have multiple configuration files with any names you choose. To implement one, you must activate the Configuration Program, load the configuration file and then install it (see step 12).

Press <E> to edit the system configuration.

LOADING

Press <L> to access the Loading Menu.

Boot Tracking should be ON if you are loading from a disk drive. RAM disk users should turn it OFF as FWb cannot track booting in RAM disks. Press to toggle Boot Tracking ON or OFF.

The number following "TI Writer side" is the drive number where the files that support the choices on the TI Writer Menu will be found. This number is used if Boot Tracking is OFF or if it fails.

The same applies to "Edit/Assm side". Normally both are 1. To change them, press <T> or <E> and then enter the drive number.

"Working Drive" is the drive number of the drive in which you will put your data disk. If you have a two drive system, this will normally be 2. Press <W> to change the Working Drive.

If "UL Immediate" is ON, the User List will be the first menu you will see when you load thru EA. Unless you want to access the UL immediately, you will normally want this off. Press <U> to toggle this ON and OFF.

Turning this ON allows you to load FWb from EA and have a menu that you designed completely appear first. This feature was added with Version 4.11.

When all values are correct, press <CTRL^C> to return to the main Edit Menu.

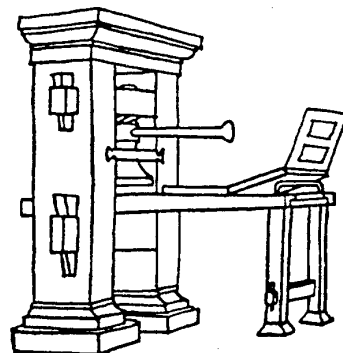
DEVICES

Press <D> to access the Devices Menu.

Press <E> for the Editor Printer. If you have a parallel printer, enter "PIO". If you have a serial printer, make sure that all the switches are correct.

(See Page 24)

PRESSTM RELEASE



Every now and then a program comes along that redefines the way you work and play with your computer. You can literally count such programs on two hands - yet they are so useful and so revolutionary that you don't know how you ever got along without them. Where would graphics be without *TI-Artist* and *GRAPHX*, spreadsheets without *Multiplan*, terminal emulators without *Telco*, disk managing without *DM1000* or databases without *TI-Base* or *PR-Base*? Asgard Software is pleased to introduce the newest addition to this select group. We are pleased to introduce a program that will change the way you write letters, reports, newsletters and even books. We are pleased to introduce something that will soon come to define "word processing" on the TI-99/4A and Myarc Geneve 9640 - the program to which all others will be compared.

Press Is the result of over a man-year of development by Charles Earl (author of *Telco*), Ruth O'Neill, Chris Bobbitt and dozens of others who have helped to define, implement and test the next-generation word processor for the 99/4A. Starting from scratch, we examined the best word processors on PCs and other computers, and created a new word processor for the 4A that combined the best features of those other programs with the unique capabilities of the 99/4A. The resulting program is as powerful and as professional as programs for the Apple Macintosh or IBM PC compatibles costing \$300, and even \$600. We also designed a program that would take advantage of whatever hardware you have, including super-carts, RAM-disks, hard-drives and 80-column displays, yet it will run perfectly well on a basic TI-99/4A with 32K and a single drive.

Press has hundreds of features - including hundreds available in no other word processor for the TI-99/4A or its compatibles. You can easily do things in *Press* that are difficult or impossible in *TI-Writer* or enhancements of it such as *MY-Word*. Some of the major features are:

- The program will allow you to set a page width of up to 256 columns, and define one or more newspaper-style "columns" on the page, each with its own width. To format the text in columns simply tell the program the page width, the number of columns on it, and start typing. At the end of one column it will automatically send you to the top of the next.
- The program is entirely "what-you-see-is-what-you-get" (or WYSIWYG - pronounced "wiz-e-wig"). In other words, you'll see right-justification, centering, indentation, bold text, underline, italics, and other functions *on the screen*, as it will appear on the page. You don't need to learn a code language or read a printer manual to produce a great-looking page. There is no "formatter" in *Press* - all formatting is done on the screen as you type from options you select by pull-down menus or short-cut function key presses. Even page breaks are marked on the screen.
- Unlike any other editor for the TI-99/4A or Geneve, the length of your document is limited only by the amount of disk space available. You can easily create or edit 90K, 180K, or even 360K documents without breaking it up. If you have a hard-drive you can create a 1000-page book - all as a single document.
- A complete 100,000 word spelling checker is integrated into the program. To use it simply select a word, line or paragraph and tell it to check it. The program will tell you if there is a misspelling and the context it is in.
- The program supports the features of your printer - simply select your printer type from a list and your printers features will be available within your document - and on the screen.
- The program will accept a standard TI-Writer file - none of your documents have to be re-typed to be used in *Press*.
- The program has many more features than can be listed: block operations that include column manipulation, multi-line headers and footers, footnotes, "un-delete", a keyboard buffer so that you never lose characters while typing, mail-merge, and much more.

Press requires 32K, a disk drive, and either Extended BASIC or Editor/Assembler. It can utilize any 80-column card, most RAM-disks, an 8K or 32K Supercart, a hard-disk drive, any number of floppy drives, replacement keyboards, GRAM devices, and virtually any printer. It includes an extensive manual in a professional binder and a limited-subscription to a user magazine, *Press Report*.

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FUNNELWEB—

(Continued from Page 21)

Press <F> for the Formatter Printer. If you have a parallel printer, enter "PIO.LF". If you have a serial printer, make sure that all the switches are correct and that the printer name includes ".LF".

The Object, Work and Program file names are defaults for various FWb functions. If you enter a name, include the drive designator (for example, DSK1.LOADFILE). If you leave the field blank, the drive number you designated as the "Working Drive" in the Loading Menu will appear (for example, if you designated the working drive as 2, it will be "DSK2."). If you want the default to be a different drive than the working drive, you can enter "DSKn.". Any file name you tag in the Quick Directory will override these default names.

Press <O> to update the Object File. This is the default file name when an object (DF/80) EA file is required (for example, when loading an object file).

Press <W> to update the Work File name. If you put a name here, it will be the default when you use LoadFile in the Editor.

Press <P> to update the Program file. This is the default when loading EA Program files (TI Pgm, GPL Pgm, E/A Pgm, etc).

When all values are correct, press <CTRL^C> to return to the main Edit Menu.

COLORS

Press <C> to access the Colors Menu.

The cursor will be on the first color choice. This is the screen colors that will appear when FWb boots. The other colors are those that cycle when you press <CTRL^3> in the Editor or 0 (zero) on most screens that invite selection by number.

You have several choices from this point:

<E>dit: modify the current color

<N>ext: move to the next color on the list

ack: move to the previous color on the list

<X>chg: exchange two sets of colors

<R>edo: restore the colors to what they were when you started

<V>iew: the current color

When all colors are correct, press

<CTRL^C> to return to the main Edit Menu.

MENU

Press <M> to edit the choices on the main TI Writer and EA Menus.

Press <T> to edit the choices on the TI Writer Menu and <E> for the Editor Assembler Menu. You can change items 4 through 7 on both Menus.

For each line on the Menu, you have these options: <E>dit, <N>ext, ack and <R>edo. These are the

same as in Colors.

If you <E>dit a Menu line, you will be required to enter the following information.

NAME: This is the name that will appear on the Menu. This can be anything you want up to 10 characters.

FILE NAME: This is entered just to the right of the Menu name and must be only two characters. This is the file name that will be loaded when you opt for that Menu.

(See Page 25)

FUNNELWEB MENUS

LOADING MENU

Boot Tracking ON
TI Writer side 1
Edit/Assm side 1
Working Drive2
UL ImmediateOFF

MENU MENU

TI Writer side
Edit/Assm side

Edit Choices:

Name
File name
Type:TIW Pgm
GPL Pgm
E/A Pgm
Script
Lqw Mem
Ld/Run

DEVICES MENU

Edtr Printer
Fmtr Printer
Object File
Work File
Program

XB LIST MENU

Edit entries
Fetch list
Make reserve
Xchg buffers

Edit Menu

Edit
Next
Back
Redo

Edit Choices

Name
Boot Tracking
ON/OFF
Secondary NO/YES
Reminder NO/YES
Filename
DSKn.NNNN
Type:TIW Pgm
GPL Pgm
E/A Pgm
Script
Low Mem
L/R A/M
XB Pgrm
XB Retn

USER LIST MENU

Edit entries
Fetch list
Make reserve
Xchg Buffers
Save UL file

The User List Edit Menu is the same as the XB Edit Menu except that XB Pgrm and XB Retn are not available.

COLORS MENU

Edit
Next
Back
Xchg
Redo
View

FUNNELWEB—

(Continued from Page 24)

choice. You cannot enter "DSKn." FWb gets the drive number from Boot Tracking or the Loading information.

TYPE: Here you tell FWb the file type. Move the light bar between the options by pressing <N>ext and ack. You have the following choices:

TIW PGM: Emulates option 3 from the TI Writer Menu. The file must be in EA Program format.

GPL PGM: This is used for most programs loaded by the EA "Run Program File" option.

E/A PGM: This is for EA "Run Program Files" that need EA Utilities. In general, use "E/A Pgm" if "GPL Pgm" doesn't work.

SCRIPT: This allows you to write a script for loading a series of object (DF 80) EA files. See FWDOC/UTIL for details.

LOW MEM: Loads object (DF 80) files into low memory. See FWDOC/UTIL for details.

LD/RUN: Use this for most "Load and Run" object (DF 80) EA files.

When you are satisfied with the TI Writer and EA Menus, press <CTRL>C> to return to the main Edit Menu.

XB LIST

Press <X> to modify the Menu that appears after you load FWb from XB. The first three choices ("TI Writer", "Edit/Assm" and "XB Return") cannot be modified.

You now have four choices:

<E>DIT: Use this option to Edit the current entries (that is, the XB List in the SYSCON file).

<F>ETCH LIST: Use this option to obtain the menu in the LOAD program. Normally this is the same as what is in the SYSCON file.

<M>AKE RESERVE: If you <F>etch a list, press <M> to make it the reserve list. Then if you later press <R>edo, this is the list that will be restored.

<X>CHG BUFFERS: Restores the previous "reserved" list.

During initial configuration, you should

press <E>dit.

<E>dit will show you the choices in the XB Menu. You have the normal keys active for moving from item to item: <E>dit, <N>ext, ack and <R>edo.

If you choose to <E>dit an entry, you will be required to enter the following information:

NAME: This is the name that will appear on the Menu. This can be anything you want up to 10 characters.

BOOT TRACKING ON/OFF: Keep Boot Tracking ON if the disk with the file will be in the drive from which you loaded FWb. Turn it OFF if it will be in another drive. Boot Tracking does not work with RAM disks.

SECONDARY NO/YES: If the drive for this file is different than the boot drive and if you answer YES to this question, FWb will look for the user file in the drive specified.

REMINDER NO/YES: If this is YES, FWb will remind you to insert the disk (See Page 26)

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FUNNELWEB—

(Continued from Page 25)

with the file. If it is NO, FWb will read the file immediately. Make this YES if the disk with the file will NOT be in the named drive when you invoke this Menu choice.

FILENAME: The name of the file that FWb should load. Include "DSKn." in the file name.

TYPE: Here you tell FWb the file type. Move between options with <N>ext and ack. You cannot leave this field as a blank. You have the choices listed above, and:

XB PRGM: This is a standard XB Program.

XB RETN: This returns you to the XB "ready" screen. It works like the NEW command.

When you are satisfied with the XB Menus, press <CTRL^C> to return to the main Edit Menu.

UL LIST

Press <U> to edit the User Lists.

There are at least two User Lists to edit. The first one is called "UL" and is the user list that comes up when you press "8. User List" on the EA Menu.

The other one is the Disk Utilities choice in the TI Writer Menu ("3. Disk Util"). The file name is DS.

You can chain User Lists. The main User List can call another User List by making User List a choice on the User List. FWb convention is to call subsequent User Lists UM, UN, etc.

From the main User List Menu you have the following choices:

- <E>dit Entries
- <F>etch List
- <M>ake Reserve
- <X>chg Buffers
- <S>ave UL File

The following instructions should be followed for each User List. At a minimum, you should modify UL and DS.

Press <F> to fetch the User List. Enter the correct file name (DSK1.UL, DSK1.DS, etc).

Press <M> to make the fetched User List the reserve.

Press <E> to edit the user list. Editing is the same as editing the XB Menu (step 9e) except that the file types "XB Program" and "XB Return" are not available.

Press <CTRL^C> to return to the main User List Menu.

Press <S> to save the User List. Use the correct file name (DSK1.UL, DSK1.DS, etc).

<L>oad, <E>dit and <S>ave any other User Lists you will be using. Each User List is saved under a separate file name — revising one does not affect another.

When you are done editing User Lists, press <CTRL^C> to return to the Edit Menu.

Edit Menu — Saving the SYSCON file

Press <CTRL^C> to return to the Sysinfo Menu.

Press <S> to save the SYSCON file. Enter the file name (DSK1.SYSCON or whatever name you choose to use).

Press <CTRL^C> to return to the Top Menu.

INSTALL MENU

Press <I> to invoke the Install Menu.

Press <L> for "LOAD XB/XBII". The file name should be DSK1.LOAD. Change it if necessary.

Press <ENTER> to load the Source File.

When prompted, press <ENTER> to save the Target File.

Press <CTRL^C> to return to the Top Menu.

FINAL STEPS

Press <Q> to Quit.

Exit FWb and then reload it. The changes you have made will not appear until you reload the program.

(See Page 28)

FUNNELWEB FILES

File	Purpose	SSSD Disk	DSSD Disk	Note
-READ-ME	Docs File			
AS/AT	Assembler			1
&C99PFI;O	c99 Utility			2
CF/CG	Configuration Pgm		D	
CHARA1	TI Wr Characters	S	D	
&CHARA2	EA Characters			1
CP	c99 Loader			2
CT8RAM	Cartridge RAM Loader			2
&DP	Disk Patch	S	D	
DS	Disk Utilities	S	D	
EA	EA Loaders	S	D	
&ED/EE	TI Wr Editor	S	D	
FMSAVE	Save Utility			1
FO/FP	TI Wr Formatter	S	D	
&FWDOC/EASM	Docs File			
FWDOC/LOAD	Docs File			
FWDOC/REPT	Docs File			
&FWDOC/TIWR	Docs File			
FWDOC/UTIL	Docs File			
FWSAVE	Save Utility			1
&LDFW	Aux Load Program			3
LH	Line Hunter			1
LL	Low Mem Loader		D	
&LOAD	XB Load Program	S	D	
MG/MH	DM 1000	S	D	
QD	Quick Directory	S	D	
&SAVIT	Sample Script File		D	
SL	Script Loader		D	
SYSCON	System Configuration	S	D	
&UL	User List	S	D	
UTIL1	Loads FWb from EA	S	D	
XB4THLD	Forth Loader			2

1. These files are normally used only for Assembly programming.

2. Used with named programs. See FWDOC/UTIL for details. Include only if needed.

3. LDFW can be used to load FWb from BASIC in EA, XB II or Mini-Memory. See FWDOC/UTIL for details.

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**PERFORMANCE COMPARISON**



9640 FILES	STANDARD DISKS(a)	JUMBOOT 1.0 TI CC MY	JUMBOOT 2.0 TI CC MY	HORIZON RAMDISK
MDOS 358 Sectors	34	8-15(c) 9	4.5 9 4.5 4.5	1
GPL/GPP 124 Sectors	19	14 12 12	11.5 9.5 8-9.5(b)	3

Nominal read times in seconds. - (a) MDOS 9 sector/track single density
(b) 8.0 sec on 80 track version - (c) 8 sec on 60.97, 15 sec on 60.98 EPROM

RAVE REVIEWS

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- Walt Howe, Author, March 1988 MICROpendium

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What's on line?

The networks aren't ignoring TI, Geneve users

By JOHN KOLOEN

So, your disk drive is on the fritz. What do you do?

First off, you need information. Where do you turn? A recent edition of a good encyclopedia can help if you want general information about how a disk drive works. But it won't tell you how to fix one or diagnose a problem.

You can buy a technical volume on disk drives, but without a technical background you may not be able to understand it. Who do you turn to then? A technician? Certainly, he can help. But it will cost big bucks.

How about other hobbyists? Good idea. The only problem is that there may not be any fellow hobbyists in town to turn to. What then?

If you're like thousands of TI users, you'll let your fingers do the walking and your modem do the talking.

Electronic bulletin boards provide an array of possibilities for computer hobbyists that doesn't exist anywhere else. A BBS is a combination meeting place, software

store and information service that provides instant access to thousands of other hobbyists 24 hours a day. Have a question, post it on a BBS and within hours you may receive more answers than you'd have found in all the computer books at the library.

There are thousands of electronic bulletin boards across the country, ranging from single-purpose boards with limited access hours operating out of microcomputers to huge commercial ventures that use several mainframes and operate around the clock to serve tens of thousands of users. For the purposes of this article, we're going to focus on four commercial systems, each of which includes a Special Interest Group dedicated to the TI99/4A. These include CompuServe, Delphi, GENie and The Source.

(These electronic bulletin boards wouldn't be as valuable if users had to pay long distance phone charges to reach them, which is the case with the thousands of private electronic bulletin boards operated throughout the world. In most cases, in the continental U.S., the networks maintain local phone numbers in major cities throughout the country that subscribers use to go online. Thus, even though a network may have its mainframes in Maryland, users from California can access them with a local phone call.)

These major information services provide their subscribers with access to an array of options, ranging from stock quotes to wire service news to electronic shopping. For the purpose of this article, however, we're only going to consider their support for computer users via Special Interest Groups (SIGs).

Each of these services supports SIGs for a variety of computer brands. And any subscriber, regardless of his computer type, can access any of the SIGs. The modem bridges the chasm of incompatibility that exists between computer types.

While it can be amusing to check in on the activities conducted by other SIGs, TI users are likely to spend most of their online time tuned in to a TI SIG.

Each of the SIGs is operated by sysops (system operators). Frequently, a SIG will

have several sysops, whose job it is to take care of the SIG by maintaining the various databases that users may access, as well as answering questions from users. Generally, the busier the BBS, the busier are the sysops.

PRIME-TIME

It's not easy to determine which of the boards is the cheapest to use — much less which is the best value — although it's easy to tell that using Delphi, GENie or The Source during non-prime time hours is much less expensive than during prime time. Unlike the other three networks, CompuServe does not distinguish between prime and non-prime time and thus charges the same rate regardless of the time of day.

Prime time is generally normal weekday business hours, from 7 a.m. to 6 p.m. During this time, accessing the networks gets to be very expensive. This is because the networks want to keep the databases available to business users who are willing to pay premium prices to access information.

Non-prime-time hours are generally from 6 p.m. to 7 a.m., weekends and holidays.

However, the various networks offer other price breaks to subscribers. For example, Delphi charges \$7.20 per non-prime-time hour regardless of the baud rate, which comes out to 12 cents per minute. But for those who are willing to spend at least \$24 per month for online charges, Delphi has a special Advantage Plan which knocks the price down to only \$4.80 per hour (8 cents per minute).

Similarly, The Source has a special rate for TI SIG members while they are using the TI SIG portion of the board. Using TI SIG on The Source during prime time, for example, costs 23 cents per minute compared to the normal 43-cent per minute charge for non-SIG services during prime time.

Rather than go into more detail on charges, refer to the chart outlining the rate structure of the four services.

MESSAGE BASE

One of the hallmarks of a bulletin board is its message base. This is where most
(See Page 30)

FUNNELWEB—

(Continued from Page 26)

Check all Menu choices to make sure that they work and that they look the way you want them to. If you go back to Configure to change anything, you only need to change those items in question. After you have <S>aved the SYSCON file, you must <I>nstall the revisions into LOAD and UTIL1.

Load DM 1000. From the first screen, press <FCTN 3>. Make sure that the printer name is correct. If you change any information, answer <Y> to the save to disk question.

You are almost done. Make a back up copy of your configured FWb disk. If your working copy blows up, you won't have to go through all these steps to reconfigure it.

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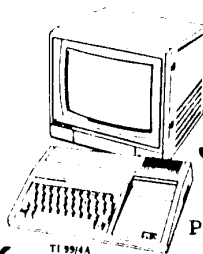
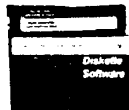
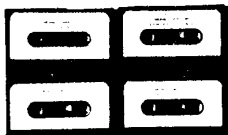
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TELECOMMUNICATIONS—

(Continued from Page 28)

messages are posted by users. It can be likened to a bulletin board in an office or school setting, where messages are constantly tacked up and taken down. However, on electronic bulletin boards, messages may be available for reading for years. Through the use of key words, for example, a user can call up every message posted between selected dates on a given topic.

What is exceptional about these electronic bulletin boards is the ability of the user to reach others with the same interest. As you would expect, messages on a TI SIG are likely to have something to do with

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Telecommunications rates in U.S. and Canada

	CompuServe	Delphi	Genie	Source
Prime Time	.10/.20/.20	.12/.12/.12	.58/.58/.58	.36/.43/.46
TI SIG Prime	NA	NA	NA	.18/.23/.25
Non-Prime	.10/.20/.20	.12/.12/.12	.08/.08/.20	.14/.18/.20
TI SIG non-prime	NA	NA	NA	.10/.13/.15
Advantage rate	NA	.08/.08/.08	NA	NA
Canada (non-prime)	—	.12/.12/.12	.15/.15/.15	.18/.22/.24
Method of payment	A,M,V	A,M,V	A,M,V	A,V,M,D

1. CompuServe rates for Alaska, Hawaii and Puerto Rico are 25, 23 and 18 cents/minute, respectively.
 2. Delphi rates for Alaska, Hawaii, Guam and Saipan are 17 cents/minute; 30 cents/minute from Puerto Rico.
 3. GENie rates include Alaska, Hawaii and Puerto Rico.
 4. First number is cost per minute at 300 baud, second number is cost at 1200, third number is cost at 2400 baud.
 5. Canadian funds
 6. A = American Express; V = Visa; M = MasterCard; D = Discover Card
- Above rates do not include long distance, surcharges or other fees that may be in effect depending on location of caller.

computing. Likewise, users who are interested in other subjects (photography, writing, etc.) can post messages on SIGs geared to those interests. However, computer SIGs are the most popular of the various SIGs.

The main bulletin board is where you'd post a message seeking the widest audience. (This is where you would probably ask for help in fixing your disk drive.) Most regular users will check in on the main bulletin board to stay current with what goes on on the BBS. But suppose you've got more specific interests. Say you're interested in Forth, or Myarc products, or assembly language programming. Then you'd tune in to the SIG data libraries that address these specific interests.

Each of the boards has a different selection of data libraries. In all cases, the data libraries are developed and supported by the users themselves. Without user interest, the data libraries wouldn't exist. (Of course, sysops play a role in this by directing "traffic" to particular data libraries.)

Although there may be thousands of users who access a particular board on a periodic basis, each of the SIGs has a coterie of regulars. These are the users who post 90 percent of the messages and, in many cases, carry on the most sophisticated dialogue regarding software and hardware issues. This group of active members may number anywhere from a handful to upwards of a hundred, while actual SIG members may be in the thousands.

CompuServe, for example, claims more than 7,000 members in its TI Forum (including TI Pro users). But this number can be misleading.

Generally, once a user has logged onto a network SIG, he remains a member. The exception to this may be on The Source, which charges a minimum fee of \$10 per month to its subscribers. Subscribers who don't use The Source very often are likely to cancel their memberships to escape the minimum monthly charge. The other networks bill only on the basis of the actual number of minutes spent online. And it doesn't matter whether a subscriber accesses the service once in a blue moon. (Let's say you decide to "visit" the Atari SIG on a network. When you do, you automatically become a member, and remain a member even if you never visit that SIG again.)

The majority of users, are likely to go online on a periodic basis, perhaps once a week. These periodic users seldom leave messages, preferring instead to review the contents of data libraries anonymously.

SOFTWARE LIBRARIES

Next to the main message-base of a SIG, the most popular data library has to be the software library. Here users can up and download programs. Some of the boards, such as CompuServe, have thousands of public domain and fairware programs available for downloading.

Here, too, the numbers revealed in the
(See Page 32)

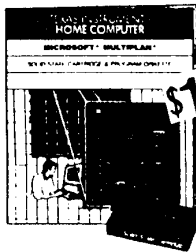
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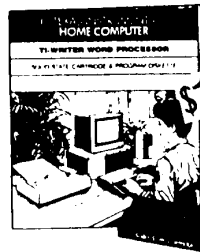
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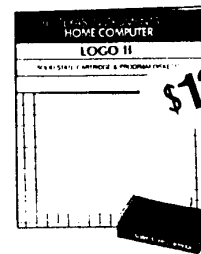
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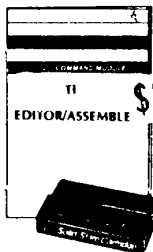
This is a professional word processing system for the TI-99/4A. Provides the features and ease of use found in office systems. Requires disk drive. 32K Memory and Printer. Module and Disk.



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Logo II

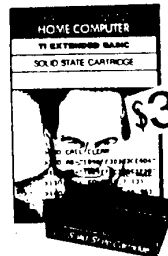
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Editor/Assembler

This is the complete version with manual, module, program disk and the disk version of Tombstone City as an example of assembly language programming. 32k and disk drive are required. This package will allow you to program the 99/4A in TMS 9900 Assembly Language and gives you access to all system features. Provides the fastest speed possible from the 16-bit processor!



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TELECOMMUNICATIONS—

(Continued from Page 30)

charts may be deceptive. For example, while GENie lists more than 2,600 programs in its software library, many of the entries are text files and, in some cases, not even TI compatible. The GENie TI SIG includes support of other "orphan" computers, such as Adam. However, none of the other orphans has nearly the dedicated following of the TI99/4A so it's safe to say that 90 percent of the files and programs in GENie's software library are TI specific.

CompuServe numbers thousands of programs in its software library, the equivalent of 300 single-sided disks. But, as Sysop Jim Horn points out, trying to count the number of programs in a software library is pointless since the advent of archiving. Because of this data compression technique, a single program name in a software library may actually consist of a dozen or more separate programs. For example, while Telco is listed as a single program name on all the networks, it consists of more than 20 programs after downloading and "unarchiving."

Major fairware and public domain releases, such as Telco, MDOS and Archiver, can be found in the software libraries of all four networks. The larger software libraries, however, will include a variety of programs ranging from utilities and applications to games. Since there are no copyright infringements to worry about, any of the networks should theoretically be able to obtain any programs included in the libraries of their competitors. However, in practice, this is not the case.

Judging a software library is basically a numbers game. The larger the selection the more likely you'll find what you're looking for.

In regards to downloading programs, many are in archived format and must be downloaded using XMODEM protocols. Archived programs must be extracted using Barry Boone's Archiver program, since virtually all of the archived programs are archived using his program. This is a painless process. The purpose of archiving is to compress programs so that they can be downloaded in less time and take up less space on a disk. Archiving has its critics, but in terms of telecommunications it is a time and money saver.

General information about TI-SIGs

	CompuServe	Delphi	GENie	Source
Members	7000+	1150	2000+	453
Messages/week	300+	140+	20-100	15
Downloadable pgms.	Thousands	1116	2600+	247
Data libraries	18	12	12	7
Prime Time.	NA	7 a.m.-6 p.m.	8 a.m.-6 pm.	7 a.m.-6 p.m.
Non-prime time	NA	6 p.m.-7 a.m.	6 p.m.-8 a.m.	6 p.m.-7 a.m.
Hard copy manual	incl./fee	incl./fee	incl./fee	\$21.95
Initial fee.	\$39.95	\$19.95	\$29.95	\$29.95
Min. monthly usage	NA	NA	NA	\$10

1. Registered TI users.
2. Includes TI Pro and private messages
3. About 30 million bytes of programs
4. Based on time in caller's time zone.
5. Initial fee includes several hours of free online time. Each service conducts promotional drives that could result in substantial savings to new members. For example, those who signed up on The Source in June had the initial fee waived, were issued \$60 free online credit and could purchase the manual for \$12.95.
6. Promotional rate of recent past but may not remain for long.

Online charges of the four networks vary considerably, and several have special plans that reduce hourly costs for users who agree to go online a specified number of hours per month. Only one service, The Source, has a minimum charge (\$10 per month) which is billed whether you go online or not. In practice, \$10 is worth about 77 minutes online at 1200 baud during non-prime time periods. Those who spend less time than that on the service probably are wasting their money.

Costs based on baud rate should also be considered in determining which networks to subscribe to. Several years ago, 300 baud was the standard for hobbyists. Now 1200 is the mainstay and 2400 is gaining in popularity. Those services that charge a premium for 1200 baud are behind the times. At 1200 baud, users gain nearly a four-fold increase in speed when it comes to downloading, uploading or simply scanning the network's various databases. Since it doesn't cost a network any more to support 1200 baud than it does to support 300 baud, the only reason to charge more for the faster baud rate is to gouge the consumer.

The only argument that can be made to justify a higher rate for 1200, 2400 or higher baud rate is that the network had to purchase faster, more expensive modems to support the faster transmission rates. But that doesn't hold water for long,

since 1200 baud modems have been available for years and aren't terribly expensive to begin with. Networks that upgrade to include support for 2400 baud may initially be justified in assessing higher fees for 2400 baud simply to recover costs. But these costs can be recovered quickly and shouldn't be used as a justification for a permanent premium rate for faster service.

NEXT MONTH — Surcharges, What's in the Data Libraries, and How do you Decide Which one to Subscribe To.

Reader to Reader

First a correction: Jim Lohmeyer asks that no more program suggestions be sent to him. He wrote the letter asking for suggestions quite some time before it was printed and says now "I have more than enough to work on and have moved to California! Not only does the extremely late printing of my letter send the Post Office into hysterics, but I also have to spend time and money replying individually to the people who write." We regret the error.

Patrick Graham of 159 Donald Dr., North Bay, Ontario, Canada P1A 3H2, writes, "My system is CorComp 9900 micro-expansion with 32K plus a CorComp Memory Plus 512K RAMdisk supported by a Panasonic P1080 printer and an Avatec 1200 modem. I am frustrated by the inability to run to completion any terminal programs, such as Fast-Term, Mass Transfer or 4A/Talk so I can get on any distant BBSes with the knowledge that I will be able to complete the session and log off properly.

"So far as I can judge by component exchanging, the problem, which occurs when the system has been 'up' for a while, seems to be either ROM-based in my CC9900 expansion box or somehow involves the RS232 port, because everything else works well. I would love to hear from anyone who has a similar problem, or even a solution."

Geneve

Redefining colors from MDOS

By MIKE DODD

In the spirit of MDOS programming, I have yet another MDOS-mode program. This program does a very simple thing: it allows you to re-define the colors. Readers of past columns of mine will recognize this as an MDOS-mode version of the GPL-mode program I presented a while back that does the same thing. However, to make it somewhat more interesting and educational, the program also includes a batch feature. You can, instead of specifying four numbers, specify a filename. The program will then read that file and get a list of numbers from it. It is possible to re-define all 16 colors with one command using this method.

The program (obviously) utilizes the DSR system call of MDOS. This is the first time that particular call has been used in this column. MDOS DSR access is rather similar to 99/4A DSR access. One difference is that the PAB, which now resides in CPU (instead of VDP) is 6 bytes longer. The PAB also allows the transfer of data to and from CPU, instead of restricting you to VDP. The format for the PAB is pretty well covered in Paul Charlton's XOP manual, a must for any MDOS programming.

The program should be typed in, assembled, and linked in the usual fashion. There are two ways of accessing it. For the purposes of discussion, I'll assume that

the final program image file is named COLOR.

If you type COLOR color red green blue, where the last four are numbers, then that color will be set with the values you specify for red, green and blue. Please remember that color must be a number from 1-16 and the color values must be from 0-7.

The other way to access it is to type COLOR filename. The program will then read the specified file (assuming it is a DIS/VAR 80 file) and use the numbers contained therein. For example, assume you have a file on drive B: named COLSET1 that reads as follows:

```
16 0 0 0
6 7 7 7
2 7 7 7
```

Typing COLOR B:COLSET1 would then set colors 16, 6 and 2 as specified.

USING THE EXTRA 32K OF RAM

Paul Charlton has written a very clear, detailed document on how to add 32K of no-wait-state RAM to your Geneve. The article is available on Delphi's TI Net (and other bulletin boards) in the 9640 Database.

I have modified MDM3 to work with MDOS V1.06, V1.08 and (presumably) later versions. The version number is V2.2. It, too, is available on Delphi's TI Net (and other bulletin boards) in the 9640 Database.

The 9938 VDP chip allows for very high resolution without requiring any additional CPU memory. The Geneve is shipped with 128K of VDP RAM. This is enough memory to easily store a 512 x 424 x 16 screen (columns x rows x colors) or a 256 x 424 x 256 screen. In fact, additional CPU memory will not increase the screen mode capability of the Geneve at all, as the 9938 will use only VDP memory.

Genial Computerware is now shipping MacFlix by J. Peter Hoddie. MacFlix, designed to display MacPaint pictures, is, I believe, the first piece of software to take advantage of the 512 x 424 x 16 screen mode of the 9938. In that mode, the 9640 will actually display more data than a Macintosh screen is capable of.

Some users have reported using V1.09 of MDOS. It should be noted that V1.09 was not released by Charlton, Myarc or its representatives. V1.08 is (as of 10/10/88) the most recent official version.

Finally, a question: what would you like to see in this column? Please write and tell me. You don't have to have specifics, just general concepts. Do you want to see more MDOS programming? More non-technical information? Let me know!

*Send correspondence to: Mike Dodd,
116 Richard Dr., Oliver Springs, TN
37840.*

REDEFINE COLORS IN MDOS

0001 * MDOS Color Palette Set	0021 MOV R0,R2	Local page 1
0002 * Copyright 1988 by Mike Dodd.	0022 CLR R3	Slow RAM is fine
0003 * Written for MICROpendium magazine.	0023 SYS 2MEM	Memory management XOP
0004 *	0024 MOV R0,R0	Error code
0005 * format: COLOR color red green blue	0025 JNE ERROR	If any error, go to error routine
0006 * color = color to set (1-16)	0026 LI R0,3	Map page opcode
0007 * red = red value (0-7)	0027 LI R1,1	Local page 1
0008 * green = green value (0-7)	0028 LI R2,7	Execution page 7
0009 * blue = blue value (0-7)	0029 SYS 2MEM	Memory management XOP
0010 * -OR-	0030 MOV R0,R0	Error code
0011 * COLOR <filename>	0031 JNE ERROR	If any error, go to error routine
0012 * which will cause <filename> to be read as a batch file	0032 * Get the command line	
0013	0033 LI R1,CMDLIN	Buffer
0014 DXOP SYS,0	0034 MOVB 2H20,*R1+	Write maximum length
0015	0035 BI 2CMDSTR	Get it
0016 * Start of program	0036 JNE ERROR	If any error, report it
0017 LWPI >F000	0037 CB *R1,2H30	Is it a number?
0018 * Get a page of memory at >E000	0038 JL SC1	No
0019 LI R0,1	0039 CB *R1,2H39	
0020 MOV R0,R1		

(See Page 34)

COLORS—

(Continued from Page 33)

0040	JH	SC1		0102	SYS	2DSR	Access DSR
0041	BL	2SETCOL	Yes, it is a number -- do it	0103	MOVB	2PAB+2,R0	Get error code
0042	DONE	BLWP	2)0000	0104	SRL	R0,13	
0043	*			0105	JNE	GODSR1	
0044	*		open file and read input from it	0106	RT		
0045	SC1	LI	R0,8	0107	GODSR1	C1 R0,5	
0046	*		Parse filename	0108	JNE	ERROR	
0047		LI	R2,PABLEN	0109	JMP	DONE	EOF error -- exit back to MDOS
0048	MOVB	2H28,*R2	Output buffer	0110			
0049	CLR	R3	Maximum length	0111	GETNUM	CLR R2	Start with 0
0050	SYS	2UTIL	Generate device name suffix	0112	GN1	MOVB 2CMDLIN,R0	Get length
0051	MOV	R1,R1	Parse it	0113	JEQ	GN2	No more characters -- must be done
0052	JNE	ERROR	Get error code	0114	SB	2H01,2CMDLIN	Minus one
0053	MOVB	2H00,2PAB	Open opcode	0115	MOVB	*R1+,R0	Get character
0054	BL	2GODSR	Access DSR	0116	CB	R0,2SPACE	Space?
0055	MOVB	2H02,2PAB	Read opcode	0117	JEQ	GN2	Yes -- must be done
0056	SC2	BL	2GODSR	0118	CB	R0,2COMMA	Comma?
0057	MOVB	2PAB+13,2CMDLIN	Read a line	0119	JEQ	GN2	Yes -- must be done
0058	BL	2SETCOL	Set colors	0120	*	Make sure it's really a number	
0059	JMP	SC2		0121	SB	2H30,R0	Minus ASCII offset
0060				0122	CB	R0,2H39	'9'
0061	SETCOL	MOV	R11,R10	0123	JH	ERROR	Not a number -- error
0062	LI	R1,CMDLIN+1	Save return address	0124	MPY	2D10,R2	Multiply what we have by 10
0063	BL	2GETNUM	Get color to set	0125	MOV	R3,R2	Move result back to right place
0064	MOV	R2,R6	Save	0126	SRL	R0,8	To LSBs
0065	JEQ	ERROR	If 0, then error	0127	A	R0,R2	Add to accumulator
0066	C1	R6,16	Greater than 16?	0128	JMP	GN1	Get another number
0067	JH	ERROR	Yes -- error	0129	GN2	RT	Return
0068	DEC	R6	Minus one for assembly offset	0130			
0069	BL	2GETNUM	Get red value	0131	*****		
0070	C1	R2,7	Greater than 7?	0132	*		
0071	JH	ERROR	Yes -- error	0133	*	convert command args into string	
0072	MOV	R2,R7		0134	*	by J. Paul Charlton	
0073	SLA	R7,12	Shift left twelve bits	0135	*		
0074	BL	2GETNUM	Get green value	0136	*	IN: R1 points to string buffer (byte after length byte)	
0075	C1	R2,7	Greater than 7?	0137	*	length byte must have max length of buffer	
0076	JH	ERROR	Yes -- error	0138	*		
0077	A	R2,R7		0139	*	OUT: ok R0=0 equal flag SET	
0078	BL	2GETNUM	Get blue value	0140	*	error R0=-1 equal flag RESET	
0079	C1	R2,7	Greater than 7?	0141	*		
0080	JH	ERROR	Yes -- error	0142	CMDSTR	MOV 2)0120,R2	get pointer to command string
0081	SLA	R2,8	Shift left eight bits	0143	JEQ	NOSTR	zero length string
0082	A	R2,R7		0144	CB	22(R2),2-1(R1)	compare lengths of strings
0083	LIMI	0	Turn off interrupts	0145	JHE	BADLEN	string too long for the buffer
0084	LI	R0,29000	VDP Write to R16	0146	MOV	R1,R5	cursor to caller's string buffer
0085	A	R6,R0	Palette #	0147	DEC	R5	
0086	SWPB	R0		0148	MOVB	22(R2),R6	count of chars to move
0087	MOVB	R0,2VDP1	Write to VDP port 1 (address)	0149	SRL	R6,8	
0088	SWPB	R0		0150	INCT	R6	
0089	MOVB	R0,2VDP1	Write to VDP port 1 (address)	0151	*		
0090	SWPB	R0	Delay time	0152	NXTNOD	MOV R2,R3	cursor within node
0091	MOVB	R7,2VDP2	Write red and blue data to port 2	0153	INCT	R3	
0092	SWPB	R7		0154	MOV	R2,R4	
0093	MOVB	R7,2VDP2	Write green data to port 2	0155	AI	R4,8	pointer to end of node
0094	LIMI	2	Turn interrupts back on	0156	*		
0095	B	*R10	Return to caller	0157	MODL1	MOVB *R3+,*R5+	
0096				0158	DEC	R6	
0097	ERROR	BL	2SHOTXT	0159	JEQ	NODJ1	
0098	DATA	ERRTXT	Display text	0160	C	R3,R4	
0099	JMP	DONE	Error text	0161	JL	MODL1	
0100			Return to MDOS	0162	MOV	*R2,R2	this link never zero if valid string
0101	GODSR	LI	R0,PAB	0163	JMP	NXTNOD	
			Point to PAB				

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COLORS—

(Continued from Page 34)

0164 *			0198 VID DATA 6	Video XOP number
0165 NODJ1 CLR R0			0199 MEM DATA 7	Memory XOP number
0166 JMP NODRET			0200 DSR DATA 8	
0167 *			0201 UTIL DATA 9	
0168 NOWSTR CLR R0			0202 D10 DATA 10	
0169 MOVB R0,2-1(R1)			0203	
0170 MOVB R0,*R1			0204 ERRTXT BYTE 13	Error message - length of 13
0171 JMP NODRET			0205 TEXT '---Error---	Actual text
0172 *			0206 BYTE >0D,>0A	CRLF
0173 BADLEN SETD R0			0207 H00 BYTE >00	
0174 NODRET MOV R0,R0			0208 H01 BYTE >01	
0175 RT			0209 H02 BYTE >02	
0176			0210 H28 BYTE >28	
0177 * Display text on the screen			0211 SPACE BYTE ' '	
0178 SHOTXT MOV *R1+,R0	Get address of length byte		0212 COMMA BYTE ', '	
0179 MOVB *R0+,R2	Get length byte		0213 H30 BYTE >30	
0180 JEQ SHORET	Null length - don't display anything		0214 H39 BYTE >39	
0181 SRL R2,8	To LSBy		0215	
0182 MOV R2,R3	Save		0216 CMDLIN BSS 41	Buffer for command line
0183 LI R1,XTBUF	Text buffer		0217 EVEN	
0184 SHOTX1 MOVB *R0+,*R1+	Move		0218	
0185 DEC R3	Any more to move?		0219 PAB BYTE >00	opcode
0186 JNE SHOTX1	Yes		0220 BYTE >14	Input, display, variable
0187 LI R1,XTBUF	Text buffer		0221 BYTE >00	Error code
0188 LI R0,>27	WriteTTY opcode		0222 BYTE >00	High byte for buffer address
0189 SYS 2VID	Video XOP		0223 DATA CMDLIN+1	Buffer to store input
0190 SHORET RT	Return		0224 DATA >0000	Record number
0191			0225 DATA >0050	Record length (80)
0192 *****			0226 BYTE >00	CPU access
0193			0227 BYTE >00,>00,>00	Character count
0194 XTBUF EQU >E000			0228 BYTE >00	Status byte
0195 VDP1 EQU >F10A			0229 PABLEN BYTE >00	Length byte
0196 VDP2 EQU >F10C			0230 PABNAM BSS 40	Buffer
0197			0231	
			0232 END	

Press to debut at Chicago TI Faire

More than two dozen exhibitors and nine seminars are planned for this year's Chicago TI Faire/Convention, Friday and Saturday, Nov. 11-12.

Several products are expected to make their debut, including the Press word processor by Charles Earl and Mike Dodd's Hyper Copy for the Geneve. Myarc is also expected to show the latest versions of MDOS, Advanced BASIC for the Geneve and the Hard and Floppy Disk Controller.

The fair is sponsored by the Chicago Area TI-99/4A User Group. Fair manager is Marcy Brun. The fair hotline number is 312-695-9291.

This year's fair will be at the Holiday Inn in Rolling Meadows (3505 Algonquin Rd., Rolling Meadows, 312-259-5000.)

The fair is again being held in conjunction with the Milwaukee TI-Faire, Sunday, Nov. 13. It is sponsored by the Milwaukee Area TI-99/4A User Group and The

Wisconsin 99er Computer Council. Fair organizer is Gene Hitz (414-535-0133).

Here is a schedule of activities:

- Nov. 11 — Social Mixer, 8 p.m.-midnight. Admission is \$4.

- Nov. 12 — 9 a.m.-6 p.m., fair and convention. Admission is \$4. A dinner is planned from 7 to 9:30 p.m. Admission is \$10 per person.

- Nov. 13 — Milwaukee TI-Faire, 9 a.m.-5 p.m., Quality Inn, 5311 S. Howell Ave., across from Mitchell Field Airport.

Here is a list of exhibitors, which may be updated prior to the fair: Asgard Software (software), B&D Computer Supplies (supplies), Bud Mills Services (Horizon RAMdisk and P-GRAM card), CADD Electronics (GRAMulator), C&G Drives (disk drives and power supplies), Chicago Area TI-99/4A User Group (software, T-shirts), Chicago B128 User Group (disks, supplies), Competition Computer

(printers), Data Systems (software), Fox Valley User Group (membership information), Genial Computerware (software), GEnie (telecommunications service), Great Lakes Software (software), Hunter Electronics (hardware and software), L.L. Conner Enterprises (hardware, software, cables and chips), MICROpendium (subscriptions), Midwest Engineering Consultants (RAMdisks and other products), Myarc Inc. (Myarc products), National Myarc Users Group (membership information), Ottawa Users Group (software), Rave 99 Co. (keyboard, speech adapter and memory expansion cards), Texaments (software), TI User Group of Will County (membership information), Tigercub Software (software) and Triton Products Co. (catalogs).

At least nine seminars are scheduled throughout the day Saturday. Included are

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Hard disks: backups & downloads

By JOHN KOLOEN

This may seem obvious, but downloading files from bulletin boards to a hard disk may not be a great idea.

Sure, as long as the terminal software allows the user to designate a hard disk directory as a destination it can be done. And programs such as TELCO make this easy. But many files are archived, and there is no archiver program for the TI or Geneve that will address hard drive directories. So, these programs will have to be transferred to a floppy to extract the files anyway.

More importantly, downloading to a floppy makes it easy to avoid problems associated with "virus" type programs. (None has been reported that infect TI systems, but they are a big problem in the PC world and a highly recommended practice there is to download all data to floppies to avoid infecting a hard drive.) Also, there is a minuscule chance that an electrical surge or similar event during the downloading process could cause a problem for other files on the hard disk.

Users who like the convenience and speed of downloading to a hard disk can self-insure themselves by frequently backing up the hard disk to floppies. That way, no matter what happens, the files can be restored without any serious inconvenience to the user.

Backing up a hard disk is a good practice for anyone, and doing it on a weekly basis is a recommended practice that is ignored by most users, including me. What shouldn't be ignored, however, is the use of at least two alternating sets of backups. Back up the hard disk to one set one week, and the next week back it up to the second set. Then, on the third week, reuse the first set of backups, and so on.

Even though you may need dozens of diskettes for a single backup set, don't try to pinch pennies and get along with one set. There are as many reasons as to why multiple backups are desirable as there are ways for a floppy or hard disk to go bad.

For example, suppose you are backing up your hard disk over your only set of backup disks and the power goes out. Or a power surge occurs. What happens to the backup? More than likely, you will have lost it. Which means that you've not only

lost the backup you had, but you also lost the backup you were creating.

Multiple backups also insure against the possibility of a defective diskette creeping into your backup sets. Diskettes are delicate and it doesn't take a lot to damage them, even while they're nestled in a box. Excessive heat is enough to do it.

For an entire 20 megabyte hard disk, you'll need as many as 60 floppies for a complete backup. Backing up a nearly full hard disk, then, is a time-consuming process. As a result, it's a process that most hard disk users eschew. It may be that backing up your hard disk once a month, every other month or even less frequently will give you sufficient piece of mind. It just depends on how much faith you have in your hardware and media and how inconvenient it would be if you lost everything on your hard disk and the most recent backup set you have is six months old.

Many hard disk users measure their risks and decide that even if all is lost, there are

only a few files or programs that they couldn't do without. Thus, they do frequent backups of these important subdirectories while ignoring the rest.

MICROpendium does this with its circulation files. These files are backed up several times a week, with one backup set always kept at an off-site location. Losing this data would virtually wipe out the magazine. But most other data on the hard disk can be reconstructed if lost, such as word processing files, and are backed up infrequently.

Why keep one set of backups off-site? To guard against such unpredictable events as theft, fire and vandalism. While the possibility of these events may be remote, if they occur the result can go way beyond the immediate inconvenience of insurance adjusters and police reports.

To what extent a user needs to maintain backups of his hard disk is a personal decision. But, as a rule of thumb, if you absolutely, positively can't get along without a particular program or file, back it.

FAIR—

(Continued from Page 35)

the following:

- Irwin Hott — How the TI is Used by a Blind Person
- Chris Bobbitt, Charles Earl and Ruth O'Neil — demonstration of the Press word processor
- J. Peter Hoddie — demonstrations of new programs
- Bud Mills — Horizon RAMdisk and P-GRAM card
- Donn Granros and Chris Bobbitt — The Legends Sequels
- Charles Earl and Tom Bentley — TELCO, Texlink and Batch-It
- Jim Horn — Outreach Program to get used TI's into the hands of educators and increase user group membership

SEATTLE FAIR

Some 300 TI users attended the Seattle TI Convention held in September. Highlights included demonstrations by Myarc and Genial Computerware and Miller Communications.

Myarc's Jack Riley showed a nearly complete version of Advanced BASIC

(V3.0) for the Geneve, a version of the windowing, multi-tasking environment GEME and its hard and floppy disk controller.

Genial Computerware developed a lot of interest with a demonstration of its MacFlix software. MacFlix allows TI users to view and manipulate Macintosh pictures on a TI or Geneve. Genial sold out its supply of the program following the demo.

Dave Miller's Videoflex Card is the costliest software available for the Geneve at \$10,000. Designed to edit news videotape, the card and software are complete. Only the documentation remained to be finished. According to Miller, a PC compatible version of the software also will be marketed for use with 80286 and 80386 microprocessors. The cost of the PC version of the software and card is expected to exceed \$15,000.

Speakers included Scott Darling (GENie), Jim Horn, (CompuServe), Chris Bobbitt (Asgard), Tom Auleta (Genial Computerware), and Jack Riley (Myarc).

Myarc Q&A

Myarc to mail software in November

By JOHN KOLOEN

We'll get to the questions in a minute. First, here's the good stuff:

- Registered Geneve users will be getting their MDOS 1.14, GPL 1.04, MY-Word 1.21, Myarc Advanced BASIC and Pascal Runtime 4.22 in November. MDOS 1.14 will include an external command for graphics support for printers. This file will most likely be included on the GPL 1.04 disk, since the MDOS disk is full. Along with the software, users will receive the option of purchasing an extended warranty for their Geneves, price yet to be determined. (Incidentally, Myarc will repair its memory expansion cards for \$60 each, excluding the cost of any DRAMs.)

- MDOS 1.14H will be released at the same time as MDOS 1.14. 1.14H provides support for hard disks directly from MDOS and will be included with the Myarc Hard & Floppy Disk Controller. It is of no use to those without a hard disk.

- The release of Pascal Runtime 4.22 will mark the opening of a new segment of the software market for Geneve users. The first applications program to be available to run under this software is a Geneve version of the Swan database program. Swan is written in Pascal and is being ported from a PC environment to the Geneve environment. According to Myarc spokesman Jack Riley, this is done via a modem, with a translation program that converts the PC code into Geneve-readable code.

Pecan Software Systems Inc. (1410 39th St., Brooklyn, NY 11218 — 718-851-3100) has a library of Pascal programs available that could be converted for use with the Geneve. A list of these programs is available from Pecan, according to Riley. We'll publish a partial list next month, but readers may order it directly from Pecan. We'll take suggestions about what you'd like to see and pass it on to Myarc. (The only hitch to the conversion process comes with programs that are written to take advantage of a specific computer's hardware, such as a Macintosh. Many of the programs don't require special hardware features and can thus be converted in relatively little time.)

- Myarc has released the source code to

RS-Bug to Tom Freeman and Jim Lohmeyer. They are reworking it so that it will load from MDOS. The program is expected to be sold by Freeman and Lohmeyer and will allow users to develop assembly language programs on the 9640. Lohmeyer is also putting together a package of example XOPs that will be available as public domain material. Paul Charlton already has a Linker and Loader available and is said to be working on an assembler to load from MDOS.

- Work is underway on an EPROM-based version of MDOS and GPL. Myarc will show a Geneve with an MDOS/GPL EPROM at the Chicago TI Faire. Future versions will include special functions, such as an editor to create AUTOEXEC files, custom loaders for the Myarc Disk Manager, etc. The EPROM-based MDOS boots in 3-5 seconds, thus the familiar Geneve Swan will be eliminated. Part of the 16K that the Swan takes up will be used to develop the special functions.

- MDM5 is changing its name to MDM6 with V1.26. File names are also different so that users won't mix files from one version with those of another.

- Here's what Myarc will be demonstrating at the Chicago fair during its seminar period: Hard & Floppy Disk Controller, MDOS V1.14, EPROM-based MDOS, Myarc Advanced BASIC, possibly the Pascal Runtime and Swan database manager, and GEME.

Now for the questions:

Will those of us who have earlier versions of Geneve software receive the final versions from Myarc?

Myarc's policy is that all registered owners of the 9640 will receive all of the what we call the final software, and at this point in time that looks like version 1.14 of MDOS, 1.04 GPL, 1.21 of MY-Word, version 1 of Myarc Advanced BASIC, version 4.22 of Pascal Runtime. And that is tentatively scheduled sometime to start mailing approximately the middle of November. But yes, they will receive at no additional charge all of that software.

Is it possible to use a second disk controller card in the PEB with the HFDC?
Yes.

Can a TI controller card be used along

with my Myarc disk controller card model DDCC-1 so that the Companion Word Processor can be used?

No, you cannot use a floppy disk controller because you have no way of changing the CRU address. You can use the hard and floppy disk controller because it has four switches that allow you to set the CRU address from >1000 to >1100 to >1200, etc. As such, you can attach up to eight drives: four to your floppy disk controller if it's a Myarc or three to your floppy disk controller if it's a TI, and an additional four to your hard and floppy disk controller. When you do that the four drives attached to your floppy disk controller are accessed as DSK5, 6, 7 and 8. But only with the HFDC.

When I first turn on my Geneve it boots up and will work only in MDOS mode, but if I try to boot up GPL it boots up to the load screen and immediately goes to a condition where the first underline character is shown without flashing and the keyboard doesn't respond. Turning the power off and on again is all I can do. Eventually it will load. When I load MY-Word, if I try to Show Directory it will do that and fill the screen with gibberish and again I have to power down. It didn't start doing this until lately. How can I fix it?

Well to me it sounds like a software problem, not a hardware problem. It also sounds like he's got either a bad copy of GPL and/or MY-Word or he's got an incompatible copy. In other words, he's using version 0.99 of GPL with version 1.06 or 1.08 of MDOS. This will create a similar symptom as described. But if he's tested all of that and is sure it's not, he can call and get an RMA number and we'll look at his card. But I really don't think that's the problem. Or he can call (205-854-5843) when he's in front of his machine and I'll be glad to step through it so we can analyze it. I am normally at the office between 5 and 6 p.m. Monday through Thursday to give people an extra hour to call with those kinds of problems.

Send your Myarc questions to MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

Bunyard Hardware Manual

A roadmap for hardware hackers

By TONY LEWIS

I freely admit that I am a hardware hacker who has cut his teeth on the TI99/4A system, and am still learning more about this "orphan" as time goes by. Years ago, I had purchased the Texas Instruments "Technical Data" manual that covers the console and PE Box, but found it wanting in explaining several hardware aspects of the system. Well, the "Hardware Manual for the Texas Instruments 99/4A Home Computer," by Michael Bunyard, is available to fill in most of the missing information that hardware hackers have been searching for. Mike Bunyard is a former Senior Member of the Technical Staff at Texas Instruments, and his manual is the closest that most of us will come to getting inside the file drawers of the 99/4A design team.

Documentation: Chapter 1 introduces the reader to the organization of the manual, and lists several other sources of information relating to the 99/4A and the chips used in it. Chapters 2-3 cover the various subsystems of the 4A, such as video, RAM, cassette interface and the 9900 itself. Each of the main subsystems is covered in varying levels of detail. There is a large section in Chapter 2 on GROMs that more than justifies the cost of the manual. It explains (indirectly) how devices like the GRAM Kracker and GRAMulator can override the console GROMs: GROMs are made by the PMOS process, not TTL, and are therefore poor line drivers of the data bus. This means that a TTL compatible memory system with the appropriate bus driver chip can "force" the CPU to read its data and not the GROM's data, since the GROM data driving capability is much weaker. Most of the other information concerning data buses, memory maps, and CRU allocation are covered better in the TI Technical Data Manual.

Chapter 4 is on the "Pitfalls" of designing equipment or assembly programs for the 99/4A and PEB system. This is valuable information to help developers avoid some of the idiosyncrasies built into the hardware that might cause an otherwise well-developed hardware project not to function properly. Some of the informa-

Review

Report Card

Documentation A
Ease of Use A-
Value A+
Final Grade A

Cost: \$19.95

Publisher: The Bunyard Group, AMS,
P.O. Box 53171, Lubbock, TX 79453

tion is purely hardware. For example, the pinout of the Command Module Port is not the same as the 36-pin connector on the motherboard. Other information relates to assembly programs, such as minimum wait times between accesses to the VDP or GROMs.

The next couple of chapters cover the TMS9900 microprocessor's control, data and address signals, interrupts, CRU functions, and instruction set. You should note that the description of the signals is oriented towards their use in the design of electronic circuits and do not necessarily cover "all you need to know" about the 9900 signals or their timing relationships. The architecture of the 9900 as it relates to CRU and byte/bit manipulation instructions is covered adequately. About 8 pages in Chapter 6 are used to lightly touch on assembly language instructions. However, this subject is covered better by some of the assembly texts already on the market.

Chapters 7-11 cover the Peripheral Expansion Box and the for PEB cards released by TI: the 32K memory expansion, RS232, P-Code, and disk drive controller. The old "sidecar" equivalents are also covered wherever applicable.

The chapter on the PEB isn't much, but each of the four expansion cards is covered in detail. As with other chapters, the information relates to the electronic logic and architecture of the card, and helpful data on various signals and how they are used. The software (aka DSRs) pertaining to each card is not discussed. Schematics of the cards are not provided in the manual, but may be purchased separately from TI. I strongly recommend that if you are in-

terested in studying any of these cards in depth, that you have the schematic of the card prior to reviewing its description in the Hardware Manual; otherwise you'll get lost very rapidly.

Appendices A-C cover the pin definitions for the Command Module Port, 44-pin side port and PEB, respectively. Appendix G is a schematic of the motherboard that doesn't appear to contain any more (and in some cases, less) information than the schematics in the TI Technical Data manual.

A neat and welcome section is the Extended BASIC module schematic and description in Appendix F. The most valuable appendices are D-E, which cover the design basis and schematics for a GROM simulator. I have not (yet) tried to build the circuit, but it certainly looks like everything you need is covered in the schematics and text. The schematic uses an EPROM for memory, but a GRAM simulator could be made by use of a static 8K RAM chip and the addition of a few control lines.

Ease of Use: As you may have already noted from my previous comments, the Bunyard Hardware Manual is written for people who like to hack around the 4A and its PEB cards. Don't go looking for help on assembly programming or DSRs here; consult the many books and MICROpendium articles available on the software side of the TI computer.

The Hardware Manual is an intermediate to high level text on the electronic design of the 99/4A system, which means that electronic novices should be forewarned that its author assumes that you have more than a passing knowledge of how modern microprocessor-based circuits function. But don't let that discourage you if you are interested in getting your feet wet in the TI hardware world because several introductory manuals and books are listed in the first chapter to help bring you up to speed.

The text is, in my opinion, very readable, and not as dry as you would expect from an engineer (like myself). The manual has plenty of schematics and some interesting cartoons at strategic locations.

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MANUAL—

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The schematics are hand-drawn and the text is not typeset, but I suspect that you would be buying this manual for the unavailable-anywhere-else type of information, and not just pretty pictures.

If you already have the TI Technical Data manual, should you buy the Hardware Manual? Definitely! The TI manual was put out at the last minute (1983) to allow third party developers to work with the previously closed 4A system, but it was obviously just too late to help. The TI manual is quite dry and is oriented toward professional programmers and designers, whereas the Hardware Manual is more like a friend who sits down and explains how the computer is put together. Oddly

enough, the two manuals compliment each other, with relatively little information duplicated between them.

Value: At \$19.95 each (\$24 outside the U.S.), the Bunyard Hardware Manual is worth the cost if you'd like to have some help in exploring the 99/4A, developing modifications, or add-on cards. The manual comes in a multi-ring binder, like the TI manual, which makes for a sturdy package that's easier to read. And at 140 plus pages, you probably won't be able to read it all in one sitting.

Final Grade: Despite some minor gaps in certain areas and a light discussion of the 9900 assembly instructions, the Hardware Manual is just the ticket for TI hardware hackers. It contains information that

is not available outside of Texas Instruments itself, and it is presented in a readable format. Just about anything you'd like to know about the TI99/4A, its PEB and expansion cards, from an electronic hardware viewpoint, is in the book.

Well written, with a wealth of useful schematics, this manual is an unbeatable asset, especially when used in conjunction with the TI Technical Data manual and expansion card schematics. (Readers interested in obtaining the TI Technical Data manual and schematics for the PEB cards, call Texas Instruments Parts Dept., (806)741-2265, from 8 a.m. to 4:30 p.m., Monday through Friday, for current prices and availability of these items.)

MICROreviews

A utility that many can't do without

By HARRY BRASHEAR

Welcome to my own little corner of MICROpendium, MICROreviews. This is the beginning of a mini-review department, something that has been needed by users and software authors for quite some time. My thanks to John Koloen and Laura Burns for finally recognizing this need and allowing me the privilege of getting it under way.

There are many readers of MICROpendium who believe the sun of the TI world rises and sets within these pages. There might well be some truth in this, but at the same time, there are other branches of the community that are alive and well, and living on GENie, Delphi, and in user groups. The problem is that a lot of good programmers hit these areas, and a lot of the readers of this magazine find out about them later than they should. I am not speaking of the big guys with the big programs, like TI-Base, EZ-Keys, etc., but the guys and gals that are coming up in the ranks. The ones who make music, access tools, utilities, games, and graphics, the ones that might not get noticed for a year or so down the road. It's not their fault, they just don't have the means of letting the world know about what they are doing. These people need recognition and that's what this column is going to do,

review the work of the up and comers.

The other thing I want to do here is to review some of the little commercial programs that just aren't big enough to make a major review. I also intend to keep you abreast of updates on some commercial items that you need to know about, and give bug warnings when I run into them.

Let's do it!

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

- ★ Put it back on the drawing board.
- ★★ Needs improvements, but workable.
- ★★★ A good program, worth trying.
- ★★★★ Send your money and buy it.

★★★★ Writerease Update

A long awaited update to Writerease has finally arrived from CorComp. The update will give you something that was badly needed ... the ability to create a user dictionary.

During a spell-check, if the program encounters a word that isn't in its resident dictionary, it moves on to check the user dictionary. If the word isn't found there, you are invited to add it or check the spelling.

As far as I can tell, this is the only upgrade to the program. Badly needed as

it was, there are still a couple of items that I wish CorComp would straighten out.

- Up the drive numbers to nine for the dictionary.

- Give me a way to back out of the "ALL" command in the spell check, like FCTN 9. There's no way out until the program runs into a word it can't find.

In spite of its idiosyncrasies, I still think this is a very good program, and a viable alternative to the Writers. If you look around, you will find that the price is down a little since we first reviewed the program. For update prices, contact CorComp Inc, 2211G Winston Rd., Anaheim CA, 92806.

★★★★ M-COPY

Mike Dodd has been at it again. Our resident genius has come up with an offering called M-COPY. This is one of those little programs that doesn't do a lot, but it's, oh, so nice to have around.

M-COPY reorganizes your disk files for you, and preserves your hardware a bit. Let me give you an example; I have many DSDD disks full of instances and graphics. It's one of those situations where you fill up a disk with 127 files, all 4 to 10 sectors in size. Before M-COPY, I would ask for a file from one of these disks and the drive

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MICROREVIEWS—

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would chatter like crazy, racing around to find the file. It sounded like the head was going to come out the front end.

With M-Copy, I initialized a new disk and let the program recopy the files from one disk to the other. It reorganized the files and the allocation tables so that the drive could smoothly go to files that I needed. I even notice a big difference when I catalogue the disk because the file list came up a lot faster.

The asking price is \$10 and the program can be found around the big databases, or write to: Mike Dodd, 116 Richards Dr., Oliver Springs TN, 37840.

Nice work Mike!

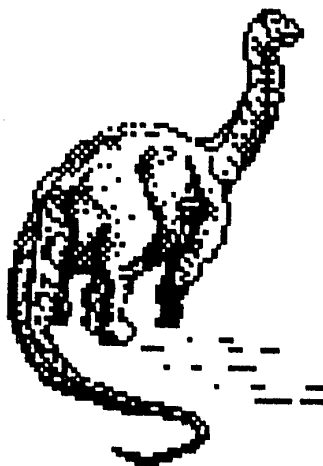
★★★

Disk of Dinosaurs

From Asgard Software comes a Disk of Dinosaurs. Everybody likes dinosaurs, don't they? Actually, there are two disks involved and they are the creation of Ken Gilliland. The dinosaurs come in two formats, cartoon and beautifully done real-life monsters. There are two Artist pictures that you can "paste" the critter instances into, and also a complete dinosaur font. Just to give you a little inspiration, Ken also included some animated sequences using the cartoon versions, and they are fantastic.

To give you an idea of the quality of this offering, take a look at the sample drawing.

The kids are gonna love this set, and just to keep them legal, there is a dinosaur hunting license included on the disk.



I would like to see more of this kind of stuff coming out because it would make TI-Artist more useful to those people that have trouble drawing. This is also an educational tool that should not be ignored.

The Disk of Dinosaurs set is \$12.95 and can be ordered from: Asgard Software, P.O. Box 10306, Rockville MD, 20850. I believe there is also a \$1.50 handling and postage charge.

★★★★

Infocom Fast Loader

If time is money, and all things are relative, then Ray Kazmer is going to save you a fortune ... if you own an Infocom game or two.

The only problem with those great Infocom adventure games is the time it takes to load them. Ray has created a fast loader for each game that will cut the time to

about twenty-eight seconds or less.

I won't get into how it's done, but I can promise you that any novice can handle the program. It will even give you new screen colors if you like, and a true lower case.

I converted all of my Infocom games from two disks to one and spruced them up with Ray's program in about 30 minutes. Then I put the originals away and beat my brains out on Hitchhikers for a couple of days.

This is a four star utility, folks, that means you just send the money and buy it ... only \$7. Send to: Ray Kazmer, 13225 Azores Ave, Sylmar CA, 91342.

BA-Writer bug

Finally, a bug report on BA-Writer V1.5. I have not heard of this happening elsewhere so it's unconfirmed and only my experience.

Since I do a lot of writing, I frequently use BA down to its last byte of memory. I have found that when you get close to the limit and you start moving blocks of text around, the program will duplicate the moved blocks somewhere else in the program. Also, when using "E" to indicate the end of a file in loading parts of text, the program will not give me the entire file. This has also happened when saving parts of a file using "E" instead of the last line number.

Authors who would like their software reviewed in this column may send review copies to: Harry Brashear, 2753 Main St., Newfane, NY 14108. If the software is to be returned, include a SASE.

Please help me make this an exciting column, folks. Don't be shy.

User Groups

The following are additions and updates to our user group listings, which we began publishing in the May 1987 issue.

California

L.A. 99ers Computer Group, P.O. Box 67A79, Los Angeles, CA 90067 (new address).

Florida

West Palm Beach Group, c/o Stanley Krajewski, 103 Shoreview Dr., Greenacres, FL 33463. Meets 7 p.m. first Friday of month at above address. Five members, no dues.

Georgia

Augusta 99ers have disbanded and merged with the Midlands 99ers of Columbia, South Carolina

New York

Central Westchester 99ers, c/o A. Byers, 1261 Williams Dr., Shrub Oak, NY 10508. Robert Amenta, president (914) 356-5771. Meets third Thursday of the month.

Western New York 99ers, 84 Glenhaven Dr., Amherst, NY 14120 (new address). Annual dues \$15.

South Carolina

Midlands 99ers, c/o Larry J. Harpring, President,

645 W. Five Notch Rd., North Augusta, SC 29841-9319. Phone (803) 278-4607, PBBS (803) 754-4996, 300-2400 baud, 8N1, sysop Mike Kimble. Home of the Paradigm BBS by Kimble and Travis Watford and MAX-RLE and Omega by Watford. Approximately 20 members. Based in Columbia, South Carolina. Newsletter. Annual dues \$12.

Outside U.S.

United Kingdom

International TI User Group, 96 Banbury Rd., Oxford OX2 6JT, England. Peter Brooks, proprietor and editor. Phone: 0865 510822. Commercial group supporting TI99/4A, Geneva 9640. Approximately 300 members.

MICROpendium Index

Finishing up 1984 and adding 1985

This is the third installment of Elton Schooling's BASIC index of MICROpendium. Other installments were published in the June and April 1988 editions. Readers who use this index must have the June and April editions available.

The program lines from 10 to 360 are the same for each year, so each annual installment starting with 1985 will begin with program line number 370. Lines 10-360 must be appended to the beginning of each year prior to running since lines 370 and higher are nothing more than DATA statements.

1984 Index continued

540 DATA TACTICS2 GA REV 6/8
4/18, TAPELOAD USNO 6/84/21, S
UPERSONIC USNO 6/84/21, MEM U
SNO 6/84/21, MEM1 USNO 6/84/2
2 !011
550 DATA COLOR USNO 6/84/22,
DISKLR USNO 6/84/22, BASSIZE
USNO 6/84/22, BLINDPI (3 ART)
7/84/9, CBOX REV 7/84/13, CO
MPUSERVE 7/84/14 !222
560 DATA RAIDERS GA REV 7/84
/15, ASSEMBL BOOK REV 7/84/16
, WIT GA REV 7/84/17, POLEPOS
ITION GA REV 7/84/18, ENCHM US
NO 7/84/21 !072
570 DATA BOOK ASSEMBL REV 7/
84/16 !090
580 DATA PRINT USNO 7/84/21,
DISTORTION USNO 7/84/21, 132C
HAR USNO 7/84/21, BASPIANO US
NO 7/84/21, CLOAD USNO 7/84/2
2 !057
590 DATA WIDELOC USNO 7/84/22
, ENCHM USNO 7/84/22, LONGPROG
R FEEDB 8/84/4, CLNKYS FEEDB
8/84/4, BASSIZE 8/84/5 !130
600 DATA AMNION 8/84/9, COPYR
8/84/10, CARE 8/84/11, TIWR
8/84/14, TE TE1200 REV 8/84/1
5 !209
610 DATA TOWER GA REV 8/84/1
6, GALACTIC BATTLE GA REV 8/8
4/17, GALAXY GA REV 8/84/18, F
ILECONV USNO 8/84/21, ERRORFI
X USNO 8/84/21 !123
620 DATA CASSTODSK USNO 8/84
/21, COLOR USNO 8/84/21, DISKEX

T FEEDB 9/84/4, MARKET 9/84/6
, WYC FORTH REV 9/84/16, FORTH
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630 DATA MARKXII MODEM REV 9
/84/22, MODEM MARKXII REV 9/8
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UICKCOPYER REV 9/84/24, SPELL
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9/84/25, TE1200 USNO 9/84/29,
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650 DATA BLINDHANDIC USNO 9/
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O 9/84/30 !184
660 DATA POKE FEEDB 10/84/4,
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GA REV 10/84/20, KILLERCAT G
A REV 10/84/22, WYC FORTH 10/
84/23, FORTHWYC 10/84/23 !176
670 DATA CRREMOVER USNO 10/8
4/30 !058
680 DATA DEFENDER GA REV 10/
84/24, TIWR USNO 10/84/29, AUT
OLOAD USNO 10/84/29, SPEECH U
SNO 10/84/29, MANNERS USNO 10
/84/29 !042
690 DATA PRICES USNO 10/84/2
9, PRK USNO 10/84/29, CURSOR U
SNO 10/84/30, SOUNDS USNO 10/
84/30, FREEZEIT USNO 10/84/30
!228
700 DATA TE1200 USNO 10/84/3
0, CLEAR USNO 10/84/30, COMPI
T 11/84/10, SCORE 11/84/18, FO
RTH ENCHMS 11/84/22, ENCHMSFO
RTH 11/84/22 !011
710 DATA TRANSTAR PRINTER RE
V 11/84/24, PRINTER TRANSTAR
REV 11/84/24, DISKCTRL CC9900
REV 11/84/25, CC9900 DISKCTRL
REV 11/84/25 !190
720 DATA BUG REV 11/84/31, S
HUG BUG FIX 11/84/32, FLOPPY
COPY REV 11/84/33, RESTART US
NO 11/84/37, CHARSET USNO 11/
84/37 !221
730 DATA LABELS USNO 11/84/3
7, TIFORTH 11/84/37, FORTHPI U
SNO 11/84/37, MUSIC USNO 11/8

4/37, COMPINS USNO 11/84/37, R
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740 DATA UNDERLINE USNO 11/8
4/38, CALLSAY USNO 11/84/38, F
REEW USNO 11/84/38, MEM FEEDB
12/84/6, FORTHTIWR FEEDB 12/
84/6, TIWRFORTH FEEDB 12/84/6
!024
750 DATA DABASE DATABASEX RE
V 11/84/34, DATABASEX DABASE
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760 DATA CHIFAIRE REP 12/84/
10, BLACKFRIDAY 12/84/18, CIRC
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TIVSWYC 12/84/21 !233
770 DATA DISKCAT 12/84/27, BBS
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/84/29, GRAVITYMASTER GA REV
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780 DATA BOOK ASSEMBL REV 12
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790 DATA CIRCSPRITES USNO 12
/84/36, FLOPPYFIX USNO 12/84/
36, TRANSTAR USNO 12/84/36, ED
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R USNO 12/84/36 !094
800 DATA COLMS USNO 12/84/36
, SINDSYMPH USNO 12/84/37, FNCT
NX USNO 12/84/37, TFEASTER US
NO 12/84/37, FREEW USNO 12/84
/37, TREMEO USNO 12/84/37 !1
10
810 SUB LONGSHELL (N, N\$()) !10
3
820 D=N !030
830 D=INT(D/3)+1 :: FOR I=1
TO N-D :: IF N\$(I)<N\$(I+D)T
HEN 860 :: T\$=N\$(I+D):: J=I
!121
840 N\$(J+D)=N\$(J):: J=J-D ::
IF J<1 THEN 850 :: IF T\$<N\$(
J)THEN 840 !240
850 N\$(J+D)=T\$!100
860 NEXT I !223
870 IF D>1 THEN 830 !060
880 SUBEND !168

1985 Index

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 380 DATA BASORGAN 1/85/24, OR GANHAS 1/85/24, SUPERSKEICH R RV 1/85/27, FOUND128KCARD 1/8 5/29, PTERM-99TE REV 1/85/30 !121
 390 DATA MEMXPAN128K FOUND R RV 1/85/29 !164
 400 DATA TE PTERM-99 REV 1/8 5/30, TI-RUNNER GA REV 1/85/3 1, CHARGESET USNO 1/85/36, SP SAV ER USNO 1/85/36, PARSEC USNO 1/85/36 !160
 410 DATA DSKLABELS USNO 1/85 /36, SBUGINXHAS USNO 1/85/37, 128K+TE USNO 1/85/37, MULT US NO 1/85/38, PETERREG USNO 1/85/ 38 !112
 420 DATA TIWRXLIT 2/85/12, CA T41SKS 2/85/15, XLITTIWR 2/85 /12, SUPERXHAS 2/85/20, HEGINA SSEMBL 2/85/24, ZORKII GA REV 2/85/25, FREEW 2/85/27 !193
 430 DATA DSKCAT4 2/85/15, DUM PSCR USNO 2/85/29 !117
 440 DATA ASSEMBLEGIN 2/85/2 4, SCRDUMP USNO 2/85/29, FORTH USNO 2/85/29, TIWR USNO 2/85 /29, SNIKEFF USNO 2/85/29, TAPE REC USNO 2/85/29 !101
 450 DATA FORTHADIR USNO 2/85 /30, CONTACTS USNO 2/85/30, TR ACE USNO 2/85/30, TYPING USNO 2/85/30, DIR USNO 2/85/30, HD C1N FEEDB 3/85/8 !003
 460 DATA FORTHCOMPARED FEEDB 3/85/8 !015
 470 DATA DSKLABELS ERROR FEED B 3/85/8, RRS 3/85/12, LABELS DSK FEEDB 3/85/8, FOUND128KCD REV 3/85/13, 128KFOUND REV 3 /85/13, CX4900BOX 3/85/23 !04 0
 480 DATA CP/MCARD REV 3/85/2 4, WINCHDR REV 3/85/28, SKETCH MATE REV 3/85/30, BMCNOM REV 3/85/31, MONIMC REV 3/85/31, F REEW 3/85/33 !152
 490 DATA SPEL1CHECK USNO 3/8 5/35, XBASPROTEC USNO 3/85/35 , PARSEC USNO 3/85/35, CONSCOO I, USNO 3/85/36, FORTHRESTART USNO 3/85/36 !238
 500 DATA TIFORTHRESTART USNO 3/85/35, TIFORTHPIO USNO 3/8 5/36 !044
 510 DATA STARTORDER USNO 3/8 5/36, DSKMEM USNO 3/85/36, FOR THPIO USNO 3/85/36, MULT USNO 3/85/36, MAGN USNO 3/85/36, C S1KSC USNO 3/85/37 !252
 520 DATA PRINTR USNO 3/85/37, DSKBITMAP FEEDB 4/85/8, RUNCS 1 FEEDB 4/85/10, FORUM (2 ART) 4/85/12, GRAPHREGIN 4/85/24 !092
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 540 DATA DSK+ALD REV 4/85/29 , GEMPRNTRS REV 4/85/31, FREEW 4/85/33, MULT USNO 4/85/35, T IWRFORTH USNO 4/85/35, ALIGNC HAR USNO 4/85/36 !079
 550 DATA ASSEMBLSROLL USNO 4/85/36, TEXTSORT USNO 4/85/37 , HEATSINK FEEDB 5/85/10, FREE W 5/85/18, PRKHAS 5/85/26, CHA RGETS&GRAPH REV 5/85/30 !034
 560 DATA DRAWNPLOT REV 5/85/ 31, FREEW 5/85/33, SAVESCRASSE MBL USNO 5/85/35, XHAS USNO 5 /85/36, CHARISIGN USNO 5/85/3 6, TIMECASS USNO 5/85/37 !118
 570 DATA CASSTIME USNO 5/85/ 37 !184
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 590 DATA FREEW 6/85/41, TKWR USNO 6/85/43, SEKTORFIX USNO 6/85/43, TIWR USNO 6/85/43, DO RERS USNO 6/85/43, CS1VOLTS USNO 6/85/44 !134
 600 DATA MULT USNO 6/85/44, B ARCHART USNO 6/85/44, CALLSND USNO 6/85/44, JOYSTTEST USNO 6/85/44, TIWR FEEDB 7/85/10, PRNTRLINES FEEDB 7/85/10 !16 0
 610 DATA ENCHM FEEDB 7/85/10 , DSKLABELCORR FREEW 7/85/12, CONSUMERRELECTSHOW REP 7/85/ 14, SUPERCARTASSEMBL 7/85/22, CHARISIGN 7/85/28 !017
 620 DATA ASSEMBLSUPERCART 7/ 85/22, DSKFIXADVDIAG REV 7/85 /39, QUICKSORTASSEMBL USNO 7/ 85/43, ASSEMBLQUICKSORT USNO 7/85/43 !069
 630 DATA ACORN99 DABASE 7/85 /34, DABASE ACORN99 7/85/34, A DVDIAGDSKFIX REV 7/85/39, FRE EW 7/85/41, TE2HUFF USNO 7/85 /43, BUFFTE2 USNO 7/85/43 !16 4
 640 DATA DECTOBIN USNO 7/85/ 44, FOWSUPP USNO 7/85/44, MMBB ATT USNO 7/85/44, ENGLISHNOTE S FEEDB 8/85/10, SUPERCART FE EDB 8/85/12 !092
 650 DATA JOYSTTEST FEEDB 8/8 5/12, TIFORTHCORR 8/85/20, DOW 4GAZ REV 8/85/37, TIART REV 8 /85/38, PCKEYS REV 8/85/39, BA NKROLL GA REV 8/85/40 !158
 660 DATA FORTHTICORR 8/85/20 !073
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 680 DATA STATICEFIX USNO 8/85 /44, TIWR USNO 8/85/44, SUPERC ART USNO 8/85/45, DRHOOKUP FE EDB 9/85/10, TIWR CTRLU 9/85/ 14, CTRLU TIWR 9/85/14 !017
 690 DATA ADVDIAG FEEDB 9/85/ 12, CENTERTEXT USNO 9/85/43 !1 59
 700 DATA COUPONSAVINGS 9/85/ 30, MIDNITEMASON GA REV 9/85/ 36, MYARC 32/128K REV 9/85/37 , 32/128KMYARC REV 9/85/37 !1 75
 710 DATA GRAPHX COMPANION RE V 9/85/39, COMPANION GRAPHX R EV 9/85/39, SCROLLDOWN USNO 9/ 85/42, ACCEPTAT USNO 9/85/42, LINELENGTH USNO 9/85/42 !203
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 730 DATA TIWR FEEDB 10/85/12 , TINYCAL 10/85/16, GRAPH 10/8 5/18, ASSEMBL 10/85/20, CAD 10 /85/32, ATALKTE REV 10/85/42 , XBAS11+ REV 10/85/44 !223
 740 DATA CALENDARTINYCAL 10/

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Newsbytes

Texaments releases support software

Texaments has released new software to support the TI Artist and Designer Labels programs.

For TI Artist, it has released what is planned as the first in a series of Starfleet Technical Drawings, as well as Artist's Companion #8 and Artist's Companion #9.

The Starfleet Technical Drawings are images of the various starships that appear in the Star Trek television series and motion pictures. According to Steve Lamberti, president of Texaments, each of the Federation and Klingon starships may be used, altered and printed with the TI Artist drawing system. The images include warships and freighters from both the United Federation of Planets and the Klingon Empire. Also included, Lamberti says, are detailed drawings of the Starship Enterprise as it has appeared throughout its 20-year film history. In addition, each individual disk contains a file that allows the images to be automatically viewed in slide show format using Display Master (sold separately).

The three-disk set of Starfleet Technical Drawings consist of three disks and is available for \$9.96 plus \$2.50 shipping. Lamberti says that for a limited time only the set may be ordered with Display Master for \$22.50 plus shipping.

Artist's Companion #8 is a two-disk set with 12 fonts, 38 instances and five borders. Artist's Companion #9 is a two-disk set with 14 fonts, 30 instances and five borders. Lamberti says three of the fonts included are a combination of both text and graphics, while most contain complete numerics and punctuation.

Lamberti says the addition of predefined borders is new to the Artist's Companion series. He says the borders can enclose or showcase graphics and text and range from standard picture frames to chains, spots and billboards.

Artist's Companion #8 and Artist's Companion #9 are available for \$9.95 each plus \$2.50 shipping, or in a Super Saver package for \$17.90 plus shipping.

Designer Labels Companion #1 and Designer Labels Companion #2 are for use with the Designer Labels software, which was created to allow TI Artist users to de-

sign and print instances repetitively in a number of standard mailing label sizes, or on 3x5-inch and 4x6-inch index cards.

Both Designer Labels Companion products include a series of predefined frames that can be used to "dress up" labels and act as a guide for creating labels that conform to standard mailing label sizes. Also included, Lamberti says, are "blank" frames that can be used to design other frames or as a guide to creating frameless labels. Each frame style comes ready-to-go in three standard label form factors: $\frac{1}{16}$ -inch, $\frac{1}{8}$ -inch and $\frac{1}{4}$ -inch. Examples of various labels are included.

Designer Labels Companion #1 is a three-disk package consisting of 12 frame styles, including one blank frame set, and is available for \$9.95. Designer Labels Companion #2 is a two-disk package consisting of seven frame styles, including one blank frame set, and is available for \$7.95. A Super Saver package containing both can be purchased for \$15.90 and one containing both with Designer Labels for \$23.90. A \$2.50 shipping charge applies to all orders.

For further information or to order, contact Texaments, 244 Mill Rd., Yaphank, NY 11980 or (516) 345-2134.

Hyper Copy for Geneve

Genial Computerware is planning to release Hyper Copy at the Chicago TI Faire, Nov. 12. The program, by Mike Dodd, is the first commercial program to run in the MDOS mode on the Geneve.

Hyper Copy will copy a double-sided, 40-track disk in just under a minute, including formatting the copy disk. An 80-track disk takes just under two minutes.

Additionally, it is the first program for the TI or 9640 to allow formatting a disk with a "skew." Skew is a technique whereby the physical layout of a disk can be shifted on each track, resulting in a much faster sector read. No longer will the computer pause between tracks — it will step and continue reading without any apparent pause. This allows Hyper Card to format a disk without copying. It also allows a "box format," similar to what DM1000 has.

Hyper Copy also supports multiple copies of the same disk. You can read a disk into memory and then write it out to multiple disk drives. After all the disks are written to, all you have to do is switch disks and press a key, and Hyper Copy will write to the disks again.

A common problem with other fast disk copiers for the 99/4A and 9640 have been that they access only physical disk drives. If you wanted to copy a floppy to a RAMdisk or a RAMdisk to a floppy, you had to use a normal, slow disk copier. Hyper Copy fully supports reading and writing from/to logical devices such as a RAMdisk.

Hyper Copy runs on the Myarc, CorComp, and TI disk controller cards. To order, send \$20, plus \$1 shipping, to: Genial Computerware, P.O. Box 183, Grafton, MA 01519.

Tex-Comp to sell Collins Starter Packs

Tex-Comp has acquired the exclusive North American distributorship for the Collins Starter Packs and Game Writers' Packs, according to Tex-Comp vice president Jerry Price.

The packs originate in England. One of the packs was reviewed in the September 1988 MICROpendium.

The four-pack sets sell for \$9.95 on cassette or \$12.95 on disk, plus \$3 shipping and handling (\$4 shipping and handling in Canada).

To order, contact Tex-Comp, P.O. Box 33084, Granada Hills, CA 91334 or (818) 366-6631.

Donaldson Software cuts prices on games

Donaldson Software has cut all prices on its software to \$8.95 per game, according to Floyd Donaldson, president. He says that because of the coming holiday season, the Professional Blackjack cassette will be given away free with any order from Donaldson Software. Programs from the company are cassette only.

He says because of the number of word processors on the market, it is uncertain

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whether the company's previously-announced D.S. Writer will be released. The program is in beta testing, he says.

For further information, or to order, write Donaldson Software, 521 Lievre St., Buckingham, Quebec, Canada J8L 2C2.

Texlink BBS operating

A Texlink BBS is operating in Halifax, Nova Scotia, Canada at (902) 455-2076. Sysop is Paul A. Meadows. The 24-hour board operates at 300 and 1200 baud and is expanding to a hard drive soon, Meadows says.

Newsbytes is a column of general information about products, services and activities relating to TI users. The publisher does not necessarily endorse products listed in this column. Vendors, manufacturers and others are encouraged to submit items for consideration. Photos will be used when space permits. Materials cannot be returned.

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750 DATA XH0T0T0TIVE REV 10/85/46, CONSWRNNAV WDFROC REV 10/85/47, NUMTALK USNO 10/85/52, GROM USNO 10/85/52, T1WR USNO 10/85/53, AMORTIZE USNO 10/

/85/53 !024

760 DATA WDFROC NAVCONSWR REV 10/85/47 !236

770 DATA TKWR USNO 10/85/53, 4ATALK FEEDB 11/85/8, CHIFAIR E REP 11/85/12, BRITISH TI REP 11/85/24, ASSEMBL SHUG 11/85/30, SHUG ASSEMBL 11/85/30 !168

780 DATA FOUNDZ80CD REV 11/85/40, 9900BAS COMPILER REV 11/85/43, ADVENTURED GA REV 11/85/44, ACCEPT USNO 11/85/48, CURSOR USNO 11/85/48 !144
790 DATA COMPILER 9900BAS REV 11/85/43 !092

800 DATA JOYSTLR USNO 11/85/49, INSANITY USNO 11/85/49, S CROLOR USNO 1/85/50, 40COL U SNO 11/85/50, FREEW 11/85/52, DSKDR FEEDB 12/85/8 !166
810 DATA NUMTALK FEEDB 12/85/8, FREEW (3 ART) 12/85/12, WY CFORTH 12/85/20, FORTHWC 12/85/20, ASSEMBL 12/85/22, FREEW 12/85/36, DRHOOKUP 12/85/38 !000

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830 DATA CIRCBA USNO 12/85/49, XLBAS 12/85/49, XLATE DV80TOFROGR USNO 12/85/50, DV80TOFROGR XLATE USNO 12/85/50 !067

840 DATA TINYCAICORR USNO 12/85/50, MUSMAKER USNO 12/85/52 !230

850 SUB LONGSHELL(N,N\$()) !103

860 D=N !080

870 D=INT(D/3)+1 :: FOR I=1 TO N-D :: IF N\$(I)<N\$(I+D) THEN 900 :: T\$=N\$(I+D):: J=I !161

880 N\$(J+D)=N\$(J):: J=J-D :: IF J<1 THEN 890 :: IF T\$<N\$(J) THEN 880 !064

890 N\$(J+D)=T\$!100

900 NEXT I !223

910 IF D>1 THEN 870 !100

920 SUBEND !168

User Notes

British users have sort utility for TI Base

British Tler Steven Shaw writes:

One of the severest shortcomings of TI Base is the single key sort. Here in the UK we have been able to keep our user group members satisfied with a sort utility, SORT1, which we have licensed from Software Specialities Inc. The utility can sort any file on up to eight keys.

SORT1 works very well as an external utility for TI Base files where the records are less than 255 characters — use standard TI blocking.

SORT1 gives a different result to the normal TI base sort, as it carries out an actual sort rather than an indexed sort. That is, the top record after sorting will have Record Number 1.

Shaw has provided information about SORT1 to Texaments. Readers who know where this utility is available in the U.S.

may want to pass along that information to us for publication.

Status check of Alpha Lock

The following item comes from Mike Gikow of Andover, Massachusetts. He writes:

The following listing contains an XB program to check the status of the Alpha Lock key and an assembly routine, which must be assembled and saved as DSK1.K/O. The program works by brute force and is not an elegant solution. Here's how:

The keyboard is connected to the 4/A by the TMS 9901 integrated circuit which uses the Communications Register Unit (CRU) and is accessed by CRU instructions, like SBZ, SBO and TB (SET BIT ZERO, SET BIT ONE and TEST BIT.) TI's technical data manual indicates that

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the Alpha Lock key is connected between the output for CRU BIT 21 and the input for CRU BIT 7.

When the switch is closed, the output can be read by the input. The programs tests the condition of the switch, then writes a value of (-1) or (0) to memory

locations -1 and -2. The CLR instruction produces the (0) and SETO produces the (-1). A standard return statement then returns control to XB. The CALL LINK statement then tests memory location -1 for a value of (0) or (-1). Note that -1 is read as 255 by the CALL PEEK statement. Here's the assembly routine:

*Program source K/S, object K/O, run by K (XB)
*Checks Alpha Lock button status. By Mike Gikow

```

DEF ALPHA
ALPHA MOV R12,2>FFFC      Save old R12
      CLR R12             TMS 9901 CRU base = 0
      SBZ 21              Send signal to Alpha Lock Key line
      TB 7                 Check Alpha Lock Key, other side
      JNE STATE           Jump if on state, don't if off
      SETO 2>FFFE         Off state here
      JMP JUMPA           Skip next line, if off state
STATE CLR 2>FFFE          On state here
JUMPA  SB0 21              Stop sending to Alpha Lock key
      MOV 2>FFFC,R12      Restore old R12

```

*Standard return to X Basic:

```

SB 2>837C,2>837C      Clear error for Basic
B 2>0070              Return to calling program
END ALPHA

```

And this is the XB portion (in 28 column format, just as it should look on your screen.) Pressing and releasing ONLY the Alpha Lock key, changes the (A\$) message.

```

100 ! "K" BY MIKE GIKOW
110 ! USED WITH K/O
120 ! MODIFIED SLIGHTLY, BY
    RAY KAZMER

```

```

130 CALL INIT :: CALL CLEAR
140 CALL LOAD("DSK1.K/O")
150 CALL LINK("ALPHA")
160 CALL PEEK(-1,A)
170 IF A=0 THEN A$="YOUR ALP
HA LOCK IS down." ELSE A$="Y
OUR ALPHA LOCK IS UP!"
180 DISPLAY AT(12,3):A$ :: G
OTO 150

```

Two versions on one disk

This comes from Ray Kazmer, of Sylmar, California. He writes:

In case you were unaware of it, your Funnelweb (V4.1) disk actually contains two versions of Funnelweb. The XB loading version is named LOAD and the E/A loading version is named UTIL1. This V4.1 disk also has one of the slickest programs I've ever seen called CONFIGURE, which changes text/screen colors and rearranges menus (all with "windows") just to name some of it's amazing capabilities.

But, I'm a grad of the Hack and Slash School of Convolved Computing (our motto is: "Never read docs, unless you

want to admit defeat.") However, I rarely lose a program, because my numero uno rule is: "never mess with your originals, always make a copy, and butcher that instead!" (I suggest you observe that rule, before attempting any of the following trickery.)

Using CONFIGURE (without reading the docs) I somehow managed to alter the text and screen colors in UTIL1. When I tried it on LOAD, however, I overwrote the LOAD program, and destroyed it. It was my fault, I know, but still being reluctant to read the docs (and hating to admit defeat) I copied LOAD from my "safe"

original, and sought an alternative way to change the text and screen colors.

Using a sector editor, I found that by changing 1 byte in the LOAD file, and 1 byte in UTIL1, I could change the text/screen colors, to whatever combination I wanted, without having to read the docs. (Phew! What a relief!) Here's how:

1—Make a copy of your Funnelweb 4.1 disk, then load your favorite sector editor.

2—Do a "FIND FILE" to locate "LOAD." (Or UTIL1, if you already did LOAD.)

3—Count backwards, three sectors, from the highest numbered sector. (If your highest numbered sector is 100, as an example, you'd count: 100, 99, 98.)

4—Edit the third highest sector. (In the example, sector 98.) This process is the same, for either LOAD or UTIL1.

5—Select the HEX mode (not ASCII) then, for LOAD, place the cursor on byte 91. For UTIL1, on byte 86. Someplace very near the cursor (just to the left or right) you should see an "identifying string" of HEX numbers. The last two numbers in those strings, correspond to text and screen colors, in HEX.

For LOAD, look for: FD0380F4. F4 equals white letters, dark blue screen.

For UTIL1, look for: FD0380F5. F5 equals white letters, light blue screen.

6—Select desired colors from this chart:

COLOR	#	COLOR	#
Transparent	0	Medium Red	8
Black	1	Light Red	9
Medium Green	2	Dark Yellow	A
Light Green	3	Light Yellow	B
Dark Blue	4	Dark Green	C
Light Blue	5	Magenta	D
Dark Red	6	Gray	E
Cyan	7	White	F

7—Type over the F4 in LOAD (or the F5 in UTIL1) what you want your text/screen colors to be. Example: for gray characters on a black screen, you would type: E1.

8—Write the changed sector to your copy disk. Break out of your sector editor, and test your customized Funnelwriter, with both XB and E/A, option 5. If it suits you, keep the change. If you do not like your changes, you can always put it back the way it was...maybe.

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This whimsy is meant only as general information, with my sincerest apologies to Will McGovern, who, I feel, is one of the finest 99/4A programmers alive. (I sure hope that gets me off the hook!)

AUTOEXEC from a hard disk

This is one of those suggestions that seems so obvious that you wonder why you never asked. It has to do with loading the MDOS AUTOEXEC file from a hard disk, rather than a floppy. With currently available versions of MDOS, the AUTOEXEC file must reside on physical floppy drive 1 to be accessed. This means it can't be accessed from a subdirectory called DSK1 on a hard disk.

However, according to Bob Boone, you can have the AUTOEXEC file load from WDS1 by modifying the SYSTEM/SYS file with a sector editor. Simply look for the appearance of AUTOEXEC on the SYSTEM/SYS file. AUTOEXEC will appear twice on the same sector, preceded by DSK1. (With Disk Utilities, and SYSTEM/SYS saved to a fresh floppy, the sector is at 00ED.) Change the DSK1 to WDS1 in both occurrences, save the sector back to disk and save the SYSTEM/SYS file back to WDS1, along with an AUTOEXEC file. Boone posted this suggestion on Delphi, and it works like a charm. Geneve users with hard disks no longer have to wait for the final version of MDOS to access AUTOEXEC files from their hard disks.

TELCO V2.2 and hard disks

Charles Earl has released Version 2.2 of his terminal program TELCO. It provides better support for hard disks than previous versions, among other things. Previously, TELCO users could load the program from a hard disk as long as the program resided on WDS1.DSK1. V2.2 allows the user to set a hard disk path to load the program. Here's how to do it:

1. Load TELCO from a floppy and hold down the Enter key.
2. You will be prompted to enter a path name. Enter it in this fashion:

WDS1.TELECOM. (make sure a period is used after each subdirectory name.

3. Press Enter when finished. Reboot the program and you'll be able to load it from the designated subdirectory.

TELCO can be obtained from many bulletin boards or from the author for \$20. Send check or money order to: Charles Earl, 34 McLeod St., Ottawa, Ontario, K2P 0Z5.

Fixing glitched files with Rediskit

This comes from Ken Schmidt, who posted this information on the GENie network. It requires Rediskit, a fairware copy program by Jim Schroeder.

I got an adventure graphics game on disk at our last club meeting. After playing through several screens the next one to load stopped with a syntax error. Listing the program showed several lines of code to be glitched. Trying to edit out the glitched code caused the screen to change from blue to red and then lock up the computer. Not wanting to wait a month for the next club meeting to exchange the disk I decided to experiment.

First, I copied the disk with Rediskit. (The program on the original disk would not even load because of a bad sector.) Rediskit apparently fills in the glitched sectors with loadable data even though the lines won't make any sense when listed to the screen.

Next, I saved the program to disk with the command LIST "DSKx.filename".

This DV/80 file must next be printed to disk with the TI-Writer Formatter. It will

not load into the Editor after listing because the file still has the glitches in it.

Now load the file into the TI-Writer Editor and delete the glitched lines and print back to disk with the command C DSKx.FILENAME to remove linefeed symbols put in by the formatter. If you are lucky to have a printout of the program before it got glitched it will be easy to add the missing code and the convert it back to program format with a DV/80-program conversion utility.

In my case the next screen to load after this one had identical code except for a few lines that were different, so I added the lines and thus reconstructed the glitched program. If neither of the above options are available you could try guessing at the missing code. Of course, if you knew of someone else that bought the same disk and had a modem, he could send a replacement for the bad file to you, but that is not much of a challenge.

The above procedure will also work for glitched DV/80 message files from BBS. This is a lot easier as most of the above steps can be eliminated. Sometimes just printing the glitched file from the formatter to printer is all that is necessary if you do not wish to save the file for latter use.

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. MICROpendium pays \$10 for any item sent in by readers that appears in this column. Mail User Notes to: MICROpendium User Notes, P.O. Box 1343, Round Rock, Tex 78680.

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