MSP 99

THE MSP 99 NEWSLETTER

POOR RICHARD'S
PERIPHERAL ROUND-UP

By Dick Dunbar

Due to a groundswell of popular request (one person asked me), I shall attempt to summarize the presentation on third-party expansion hardware that I gave at the April meeting. Those of you who would have liked to take down some of the information but could not will now have it for reference or possible action.

What are third-party products, and who needs them, anyway?

Third-party products are products made by a different company which work with or replace equipment or products made by the original manufacturer of a particular brand of equipment. In many cases they supply hardware or software not otherwise available. In our particular case, since Texas Instruments has pulled out of the home computer business, ANY expansion equipment we get will soon have to be third-party.

This article will deal with hardware products which are made by some third party and which are uniquely targeted toward the TI99/4A. They are presented in five categories so that you can concentrate on your particular area of interest. These categories are:

Expansion Adapter equipment.

Memory Expansion.

Disk Memory Systems.

Printer and Communications Devices.

Special Purpose Hardware.

Within each category will be presented the information currently available about the companies which are producing equipment in that category, what the equipment is or does, and an approximate cost, if known. There are qualifying comments in some cases.

## MSP 99 SOFTWARE SAMPLER TAPE #1

Sampler Tape #1 has been released and the Software Committee has done an excellent job with this one. It includes a wide variety of programs, all in Basic, each demonstrating different software applications. Remember, this tape is only $5, and includes a free cassette catalog program which is currently not available from any other source. That's a total of 11 programs. Definitely a bargain!

SIDE 1
1. Walk the Plank (E02030)
2. The Farmer's Dilemma (G01020)
3. Horserace (G01080)
4. Sound Demonstration (U01040)
5. Color Vision (M02101)

SIDE 2
1. Color Math (B01121)
2. Define Character (U01010)
3. Music Demonstration (M03101)
4. Sketch-A-Sketch (M02170)
5. Household Inventory (H01150)
6. Cassette Catalog Program

INSIDE:

* TI-Writer Tips
* Disks & Drives
* Magazine Review
* "Type-In" Program
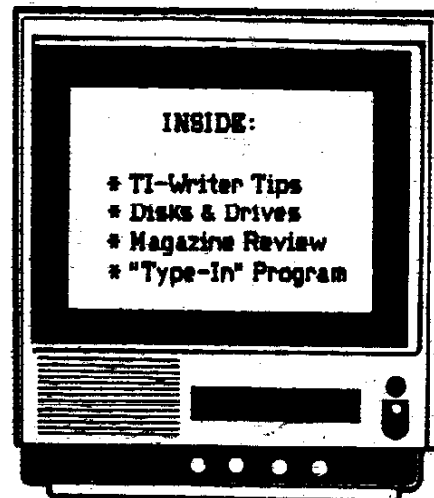
The MSP 99 USERS GROUP meets each month for discussions and presentations that enable its members to be better informed about their computers. Users group members share and exchange information. Some members have a broad range of computer expertise; others are just beginning. We are not affiliated with or sponsored by any other group or company. Membership dues are $12 a year for a family, $10 for an individual, and $50 for a sponsor member. You're welcome to visit a meeting before you join. For more information, call or write us.

USERS GROUP MEETINGS are held the third Tuesday of each month at 7 p.m. at Brown Institute Computer Building, 27th Ave. and East Lake St., Minneapolis.

MSP 99 USERS GROUP
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The MSP 99 NEWSLETTER is published eleven times per year, on a monthly basis except during July, by the MSP 99 Users Group. Members are encouraged to contribute articles for publication. Opinions expressed are those of the writer and not necessarily those of the MSP 99 Users Group, its officers, editor, or members. Materials accepted by the editor for publication in the MSP 99 Newsletter, including software listings, are believed to be in the public domain. Newsletter articles may be reproduced by other users groups if appropriate credit is given to the author (if one is listed) and to the Minneapolis-St. Paul 99 Users Group.

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Newsletter Committee Members:
Clarence Brockman
Marilyn McPartlin

DEADLINE FOR NEXT ISSUE: May 15

COMMITTEE VOLUNTEERS

If you want to work on a committee (Education, Equipment, Program, Publicity, Software, Newsletter), or have an idea for a program, contact one of the officers.

COMMERCIAL ADVERTISEMENT RATES

Business firms that want to communicate with our members may do so by placing an ad in the newsletter. Rates are: Full Page (7-1/2 X 10-1/2) $40; Half Page (3-1/2 X 10-1/2) $30; Quarter Page (3-1/2 X 5) $22. Each ad must be camera-ready in sizes indicated and paid in advance. Inserts (printed by advertiser on 8-1/2 x 11) may be inserted in the newsletter at $20 per sheet. Contact the editor for information or to reserve space.

CHANGE OF ADDRESS

Before you move, please mail a change of address to the group at the above address.

MSP 99 CALENDAR OF EVENTS

MAY 15 --
(TUESDAY)   1984 Software Contest Awards! Come see the entrants demonstrate
7:00-9:00   their prize-winning programs!

JUNE 19 --   Education Software Demonstration. One reason you bought your
(TUESDAY)   TI-994/A was to help the Kids (of all ages) learn, right?!
7:00-9:00   Featuring programs from the MSP 99 Software Library.

JULY   Good old summer-time picnic. Mark your calendar now and watch
MEETING --   for details in the June issue.

SUBGROUP MEETINGS:

ASSEMBLY LANGUAGE--First Tuesday of month, Brown Institute. Chair: Kerm Steffenhagen.

BUSINESS--Second Tuesday, 7-9 p.m., Norwest Bank, Hopkins. Call Bob DeMars (544-6219) or Dick Clemetson (926-8083) for info.

EDUCATION--At monthly MSP meetings. Chair: Jon Todd.

YOUTH GROUP--At monthly MSP meetings. Pres.: Scott Morgan.

COMMITTEE CHAIRS:

Education--Marilyn McPartlin, 636-5663
Equipment--Mary Ledford, 927-4054
Newsletter--Bonnie Burton, 431-6064
Program--Dick Dunbar, 488-0153
Publicity--Dave Wunderlin, 544-8266
Software--Ed Neu, 425-8744

WHAT GOES ON AT THOSE COMPUTER MEETINGS ANYWAY???

Of course we're all familiar with the main presentation each month at the MSP 99 User Group meetings. (From the Calendar of Events.) But did you know there is also a 'Beginner's Room', where new members can ask questions and get helpful information? Not only that, but our vendor's have their own area where an assortment of TI related items can be purchased. At the youth meeting, young adults congregate for such activities as 'Tunnels of Doom' challenges. Literary folks gather at the library where members can browse through computer and TI related magazines, books and articles. The Education Sub-group always has something going on. Of course, if you're short on disks or cassettes, you can purchase them near the rear entrance (at group rates) while you renew your membership, register a new member or sign up for the various software offerings such as FORTH or the Sampler Software Tapes. Above all, regardless of your chosen activity at our monthly meetings, you can count on friendly faces, conversation and lots of support for any problems or questions you have about your TI-99/4A. Join us at our next general meeting. It will be fun!

DISKS AND DRIVES PART I
By T. D. Bell

(The following article is reprinted from the Central Ohio Ninety-Niners, Inc. Newsletter, SPIRIT OF 99 - FEBRUARY, 1984.)

"Computers are the pencils of the information age. Floppy disks are the paper. You are the brains." Popular mythology.

Fact: computers are so feeble minded they cannot remember anything, they must write all information down or its gone. While they may have no minds and absolutely no memories; they can crunch, shuffle and collate fantastic amounts of data and write thousands of words of paper in a split second. The paper? A precision, glass smooth disk of magnetic crystals, thinner than a human hair (Three mils, 3/1000). Under ideal conditions, these floppy disks can remember forever.

Let's go back a little. Before magnetic recording tape, there was paper tape or cards with little patterns of punched holes to save, if the computer programs were saved at all. While this was very inexpensive and great for throwing out windows during parades, it did little to promote personal computing. It was also very fallible and slow. Then came cassette tape and very expensive 8" disks. While cassettes were faster, they were still relatively slow and there was no way to randomly access individual files. Unless you knew where the information was on the tape, you had to start at the beginning and go until you or the computer found the file needed.

The other option? 8" disks developed by IBM which were too costly. Without the mini-floppy technology developed by Shugart Associates in 1976, which offered the first affordable 5-1/4" disk

drive, personal computing might never have gotten into the home.

DISK MAKEUP

Not unlike audio cassette tape, floppy disks store information on magnetically charged iron oxide particles that coat the surface. Iron oxide is not ground up metal but clinically grown crystals, each having the ability to hold a magnetic charge. This is where the likeness ends.

The crystals that coat recording tape are aligned in the direction of the tape's travel, allowing them to receive the highest degree of magnetization from the recording head. The crystals on the surface of a disk, although very similar to Type 1 recording tape, are in a random order due mostly to the way they are manufactured and various factors involved in the technology of disk recording. While the base film of a disk is about six times thicker than standard tape, the magnetic oxide coating over the base film is about three times thinner than standard tape. (Base film = 3/1000 of an inch; magnetic oxide = 90/1000000 of an inch.)

Quite simply, the reason for the thinness is less chance of a spillover and overwrite of digital information and a better chance that old data has been completely erased when written over.

Digital information is recorded on a series of tracks (concentric magnetic rings), not grooves, put there by the micro system's disk drive read/write head. That's right, when you buy them, they are really blank. Most disks are rated to contain 48 tracks per inch (tpi), while the actual area used is only 40 tracks (single density), or 96 tpi formatted to contain 80 tracks (double density). The TI system uses single sided, single density.
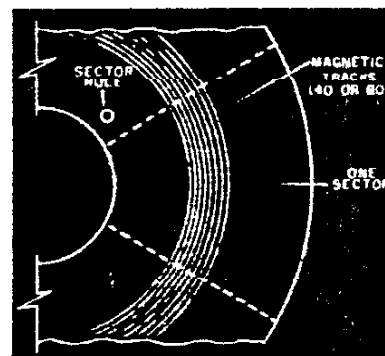
When a disk is formatted, track and sector information is written to the disk. Each system formats a floppy according to its own initialization or formatting program. Each track is divided into a number of sectors, enabling it to store and locate information more easily. TI uses 358 sectors. Another section of the disk, called the directory, stores the name of the file along with the track and sector location, where they can be found, and the amount of free space available on the disk. The directory uses the track and sector information to access, almost instantaneously, any file at random. The read/write head searches out the correct data by using the timing hole as a guidepost and a "format" something like a ZIP code) as a destination. This is a vast improvement to serial storage used by cassettes.

DISK MANUFACTURE

The manufacturing of a floppy disk begins with a continuous sheet of plastic film called a WEB. This is run through a coating machine containing a flurry of 40% magnetic oxide and 60% binders, resins and lubricates. The coated sheets are dried in large high temperature ovens and calendered to compress and polish the surface.

GETTING IT RIGHT WITH YOUR TI-WRITER

by Bill Browning

PART TWO

This is the second in a series of articles on ways to increase the ease and efficiency of your TI-Writer word-processing program.

In the first article, I talked about a way to use Replace String to make your work easier. This article covers another use of that handy feature.

Word-processing programs can be grouped into two main categories: (1) symbol formatted, and (2) what-you-see-is-what-you-get. With the symbol-formatted kind, the user embeds symbols in the program to tell the printer how to format the text. With the what-you-see kind, the screen displays the text in essentially the same way it will appear in print.

TI-Writer is somewhat unusual because you can use both methods. "Fill" (.FI) is equivalent to symbol formatting, and "No Fill" (.NF) is a "what-you-see" method.

The what-you-see method usually has an 80-column format, in order to accommodate the line width found on a typical 8-1/2 x 11 sheet. But if you want 80 columns on TI-Writer, you have to look at them section by section in three overlapping windows. Most users find this process to be extremely bothersome, because when reviewing what you have written, you cannot see an entire block of material at one time.

To avoid windowing, you can use the .FI, or symbol formatting, mode. You simply set up the left and right margins on the TAB line to fill one screen's width. For example, for a typical TV screen, you might set the left margin at "2" and the right margin at "39." This setup gives you a 38-column display. On some sets, a slightly narrower or wider display may be optimal. (For simplicity, I will refer to this as a 40-column format.)

You then include formatting symbols that tell the printer to print whatever margins and indentions you desire. (Of course, your manual explains how to do that.)

However, the 40-column approach has a limitation that can be serious in some cases: By looking at the screen, you cannot tell where page breaks (page endings) will occur. Therefore, without

printing the document to see where the page breaks are, you have no way of eliminating widow lines.

A widow line isn't something you find at the local welfare office. It's an isolated word or line at the top or bottom of a page. It may be a subheading separated from the following material, or it may be a line isolated from the rest of a paragraph. In any case, because widow lines look awkward, they should be avoided if possible. Therefore...

THE CHALLENGE: How to use the 40-column format to avoid windowing, and yet be able to preview the material on the screen to insert page breaks that will eliminate widow lines in your printout.

We are assuming that (1) the document is too long to be quickly printed out in draft form, and (2) the document is important enough for you to be concerned about page breaks.

THE SOLUTION:

1. Key in your text using the 40-column format for ease of typing and editing. But do not include any margin (such as .LM 12) or centering (.CE) format commands, because you will be converting the format to a No Fill (NF), what-you-see display.

At the beginning of each paragraph, key in a symbol that will not be used elsewhere in the text. A good symbol to use is the >. The reason for doing this will be made clear in a moment.

Do not indent the paragraphs at this stage. Below is an example of what the beginning of a paragraph would look like:

>Now is the time....

2. When you are ready to print out the copy, first convert to a what-you-see format. To begin with, change the left and right margins on the Tab line to the actual ones you want on the printout.

Then, use the Replace String mode to automatically reformat the document: If the paragraphs are not to be indented, use />//. If they are to be indented, use />/^^^/, with one space symbol (^) for each indention space.

Press "ENTER" and "A" for All, when that prompt appears. Then, sit back. The file will be automatically converted from 40 columns to the actual printing width.

3. Save the file under a different name, so that you don't lose the original 40-column format, in case you want to use

TEXAS
INSTRUMENTS

March 28, 1984

MSP 99 Users Group
P.O. Box 12351
St. Paul, MN 55112

Dear 99/4A Owners:

I would like to take this opportunity to thank each of you
for your loyal support of our products, and also to pass on
information concerning a change in the services we have been
offering to our customers.

Effective April 2, 1984, Texas Instruments will no longer
sell products for the TI-99/4A Home Computer. As you may
recall, when we announced our withdrawal from the home
computer market we said we were committed to providing
product sales support until such time as another means of
support could be identified.

Arrangements have now been concluded to provide availability
for all existing software through an organization separate
from Texas Instruments. The Triton company is a
well-established direct-response/mail order firm, and we are
confident that they are capable of providing this continued
support. They may be contacted at:

        Triton
        P.O. Box 8123
        San Francisco, CA 94128

You may also call them toll-free at 800/227-6900 in the
continental United States or at 800/632-4777 in California.

Sincerely,

Carl Gundlach
Manager, Consumer Services

/das
Enclosure

(Editor's Note: TI provided a four page listing of 3rd-party peripheral suppliers with this
letter. It is available for viewing in the MSP Library which is coordinated by Marilyn McPartlin.)

MAGAZINE REVIEW
Family Computing
By Jon Todd

"No more magazines!"

At my house, we receive quite a few magazines in
the mail. So many, in fact, that we (meaning my wife)
have decided that we can't subscribe to any new
magazines until the subscriptions run out on the old
ones. But one particular magazine seems to find its
way into the house every month, subscription or no.

Family Computing, published by Scholastic, Inc.,
730 Broadway, New York, NY 10003, is that magazine.
Unlike most other computer magazines, this one does
not present articles devoted to the programming of one
brand of computer. Instead, its focus is on people who
are discovering and using computers in many different
ways; people who care about computer education and how
they and their children can use computers for
learning, working and play.

Every issue contains profiles of families who are
overcoming initial fears and making home computers
useful and fun in their homes. There are portraits of
famous computer users such as musician Herbie Hancock,
adventure game designer Roberta Williams (The Dark
Crystal) and computer guru Peter McWilliams.

Other monthly features include a how-to series
on computer accessories, featured software such as
word-processing or preschool programs, a home-business
series on using computers to make money and much more.

One favorite section of the magazine is called
Beginner Programs. Each month, two or three seasonal
programs are listed for each of 12 models of home
computer, including TI. In October, a program turned
my TI monitor into a jack o'lantern; in March, a bed
of flowers; in December, a Christmas tree. These
programs are short and easy to follow, a great way to
learn programming.

A puzzle game program is listed each month also.
It takes some real thinking to solve these puzzles,
even though you type in the program yourself and have
therefore presumably seen the solution. (My favorite
was October's 'Dracula's Family Tree'.)

Other regular features are reviews of new
computer hardware, software and novelties. The
software reviews are especially good. About half are
devoted to educational programs, with the rest spread
amongst strategy, adventure and arcade games, and more
serious stuff like spreadsheets and word-processors.
Each review contains a photograph of a computer screen
generated during the program, rates the programs by
age and by several criteria, including how real
children fared using the programs.

Since Family Computing does not write for a
single computer brand, the software described often
cannot be used on TI equipment, but each month I have

PROGRAM LISTING

How about using your computer to learn a
foreign language? Try this 'type-in' Spanish
program reprinted from the Sydney News Digest.

```
2 REM  *****************
3 REM  *    SPANISH    *
4 REM  *    -------     *
5 REM  *   IN TI BASIC  *
6 REM  * FROM  TI SHUG *
7 REM  *   JULY  1983   *
8 REM  *****************
10 CALL CLEAR
20 CALL SCREEN(12)
30 READ I$
40 PRINT I$
50 PRINT
60 READ N
70 LET S=0
80 LET L$(0)="TRY AGAIN"
90 LET L$(1)="THE CORRECT ANSWER IS:"
100 LET L$(2)=L$(1)
110 FOR I=1 TO N
120 READ Q$,A$
130 LET T=0
140 PRINT Q$;
150 INPUT B$
160 CALL CLEAR
170 IF A$=B$ THEN 240
180 PRINT L$(T):
190 LET T=T+1
200 IF T=1 THEN 150
210 PRINT A$
220 LET T=2
230 GOTO 140
240 LET S=S+2-T
250 PRINT
260 NEXT I
270 LET S1=S/(2*N)
280 PRINT "YOUR SCORE IS":INT(S1*100+0.5):"%"
290 DATA I SPELL IN SPANISH YOU. SPELL IN ENGLISH"
300 FOR DELAY=1 TO 500
310 NEXT DELAY
320 DATA 20
330 DATA DIEZ Y OCHO,EIGHTEEN,JUEVES,THURSDAY
340 DATA ESCRITORIO,DESK,PAPEL,PAPER
350 DATA PARED,WALL,VENTANA,WINDOW
360 DATA POBRE,POOR,COMODO,COMFORTABLE
370 DATA LA CUCHARA,SPOON,JUGO DE NARANJA,ORANGE JUICE
380 DATA EL INVIERNO,WINTER,NUNCA,NEVER
390 DATA LA MADERA,WOOD,EL ORO,GOLD
400 DATA ZAPATO,SHOE,PAN,BREAD
410 DATA CERRADO,CLOSED,AYER,YESTERDAY
420 DATA SECO,DRY,EL CORAZON,HEART
430 END
```

(TI-Writer, continued)

it later for more typing or editing. (One handy notation is to put NF, for No Fill, on the end of the new file name, to distinguish it from the other one.)

4. Starting at the beginning of the new file, go through and type in forced page breaks (.BP) where you want pages to end. The following table will help you determine page breaks. The table assumes standard 11 inch long paper:

	MAXIMUM LINES
SPACING	OF TEXT
Single	58
1-1/2	36
Double (.LS 2) . .	29

For example, if you are using single spacing, you will want to make page breaks at or before 58 lines per page (including skipped lines). These numbers hold true whether or not you are using a header and/or footer.

When using 1-1/2 spacing (assuming your printer can support that spacing) set the page length (.PL) at 44 instead of the default of 66.

When you are using .LS 2 for double spacing, the printer skips 2 spaces instead of 3 when you skip a line while typing. Use the following formula when your double spaced text includes skipped lines:

29 + (Skipped Lines/2) = Line Count

In other words, count all the skipped lines in a 29-line block. Divide that number by 2. Add that number to 29. Make the page break no later than the line following the sum.

For example, if there are 6 skipped lines in a 29-line block, divide 6 by 2 and add the result, 3, to 29. Thus, you would put a forced break following line 32, or before that if necessary to avoid a widow line. (You really didn't want to use double spacing after all, did you.)

The line numbers in the TI-Writer program are very helpful for locating page breaks. So is a calculator.

5. Save the file with the forced page breaks, and print it out.

On a long document, this process will take a bit of time. (Less time, however, than required to explain it.) But it does give you a way to preview the document as it will appear on the printed page.

*****

I'd like to invite you to get in touch with me if you have some work-saving suggestions for using the TI-Writer, or if you have comments or questions about this article or about TI-Writer in general. My work number is 540-5118, and my home number is 561-0885. Of course, you'll get credit if your idea is included in an article.

Good luck, and good TI-Writing!

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

(Family Computing, continued)

always found something relevant and useful in its reviews. A thoughtful and very well laid out magazine, Family Computing provides a needed source of information for those interested in real family involvement in computers. At $1.95 on the newstand, it is a real value. Now if only my subscription to GRIT would run out......

~~~~~~~~~~~~~~~~~~~~~~~~~~~~

(Disks, continued)

The material is then rolled into 'BUTT ROLLS' and the procedure is repeated for the other side. To stabilize the polyester base, the disk goes to the curing ovens for 24 hours. Next, a stamping machine cuts out the disk shape and the center hole, along with any required index or sector holes. Finally, A chemical bath gives the disk more durability.

At the same time, in another part of the factory, little jackets are being made from PVC (cured 24 hours in heat chambers), to house and protect the disks. A non-woven synthetic liner is then welded into place as a bearing surface and cleaner for the disk. It is cut to size, folded into shape, with the flaps sonically welded. Centering, indexing and write-protect holes are punched out along with the head-access slot. The disk is then slipped inside the jacket and tested by a certifying machine. The machine fills the entire surface of the disk with data and checks for errors.

Errors found on one side of the disk make it 'single-sided'. If errors are found on the second side, the disk is useless and is trashed. If no errors are found on the other side, it is 'double-sided'. The tests also determine single or double density. A single density disk is usable at low packing levels but cannot meet the rigid requirements of high capacity. The last flap of the jacket is then sonically sealed and a hub-reinforcing ring added. The disks are then labeled, packaged and shipped.

EXPANSION ADAPTER EQUIPMENT

Captain's Wheel — Three PEB-card (T.I.compatible Peripheral Expansion Box card) expansion box plugs directly into the side of the console. $120 range. Local company (Farmington).

Single PEB-card expansion module; unit plugs into side of console, card plugs into unit laying sideways.

Cor-Comp — Micro-expansion system with RS232 (1-parallel port, 1-serial port), 32K memory, and disk controller. Will be available soon. $400 range.

99060 Expansion system, about 1/2 the size of T.I. Peripheral expansion box, will contain RS232 card (1-par, 2-ser), 32K memory card, and disk controller card(will handle double-density and FOUR drives). It will have additional expansion slots, space for 1 full or 2 half height disk drives, and a small "L" Connector with a round cable leading out the back side of the console. Will be available later this summer. $550 range.

Infra — Expansion cabinet with 8" disk drives, uses a modified disk controller which will handle double density drives, space available for RS232, expansion memory. $995-1495 range, depending on what you chose. This is also a local company.

Myarc — Mini Peripheral Expansion System with 32K memory, RS232(1-par, 1-ser), disk controller with double-density, and one disk drive. Will hold 2 half height drives. Date and time-of-day option available. $595 range with single sided drive, another $50 for double sided.

MEMORY EXPANSION

Cor-Comp — 32K PEB card. $135 range.

Intellitec — 32K PEB card. Does not have protective metal case. $100 range.

32K Standalone w/PassThru(allows other modules to be plugged in also). $140 range.

Foundation — 32K PEB card. $150 range.

128K PEB card. Additional 96K can be directly accessed only via assembly language, but can be used by either BASIC as 1 large or 3 smaller relative files, using supplied firmware. This implementation has some flaws, but it is workable. $230 range.

Tachyon — 32K Standalone w/PassThru. $125 range.

Ultracomp — 32K Standalone w/PassThru. $135 range.

DISK MEMORY SYSTEMS

Cor-Comp — PEB-card disk controller with double density and up to FOUR drives. Has disk-based Disk Manager and new BASIC commands. Will be available soon. $200 range.

Infra — Expansion cabinet with 8" disk drives, uses a modified disk controller which will handle double density drives, space available for RS232, expansion memory. $995-1495 range, depending on what you chose.

Percom Data — Standalone disk system with controller built in. Doesn't need and cannot be used with the PEB. (May not be available for long, as Percom has stopped production of these except to fill back orders. Production could be resumed depending on the outcome of certain negotiations, but it's unlikely.) Prices on these units vary in the $300-$450 range.

Myarc — Hard disk system with controller. Uses "UNIX-like" file management. This is not a bargain-basement special at $1900 for a 5-Megabyte unit or $2200 for 10 Megabytes.

PRINTER and COMMUNICATIONS DEVICES

AlphaCom — Thermal Printers with adapter cable (No PEB or RS232 needed). $100-$220 range.

Apropos Technology — Impact printer with adapter cable(No PEB or RS232 needed). $290 range.

Axiom — Parallel print interface - Standalone PassThru.

(Continued)

Cor-Comp | RS232 PEB card (functionally identical to the T.I. card). $120 range.

RS232 Standalone w/PassThru. Can be upgraded with 32K and disk controller. Will be available soon. $150 range.

Midwest Engineering | "The Missing Link", a printer adapter which uses the T.I.'s joystick port. $37 range, includes several programs.

SPECIAL PURPOSE HARDWARE

A/D Electronics | "First Ade"; PEB-card Analog/Digital control system with 8 analog 8 digital inputs, 8 digital outputs, battery powered real time clock, and disk based, menu driven control software. $200 range.

Databar | OSCAR optical scanner plugs into cassette port. $80 range.

Infra | Grom pipeline - plugs into cartridge slot, gives 65K of GRAM and provides a dramatic speed-up for the TI99 console, plus other amazing capabilities. $350 range.

Morning Star | CP/M PEB-card with 64K memory separate from the TI 32K expansion (which is also required with this item), plus a 5kHz 8085 processor running CP/M 2.2. Uses Osborne disk format for software transportability. $595 range.

Navarone | Widget Expander plugs into the cartridge port and lets you switch between three cartridges. $40 range.

WHERE TO REACH THE THIRD PARTIES

The following is an incomplete list of the addresses and telephone numbers where most of the vendors mentioned above can be reached. If a particular one is not in this list, contact one of the Sponsor Members who were helpful in putting this information together, OBM Memory Systems and Specialists In Texas Instruments.

A/D Electronics
Box 26357
Sacramento, CA 95826
(916)363-8331

Apropos Technology
1071-A Avenida Acaso
Camarillo, CA 93010
(805)482-3604

Databar Corporation
10202 Crosstown Circle
Eden Prairie, MN 55344
(612)944-5700

Information Research Association
(INFRA)
P.O.Box 8152
Roseville, MN 55113
(612)789-4670

Intellitec Computer Systems
1709 East Sitzmark Dr.
Sandy, UT 84092
(801)572-6272

Foundation -
74 Claire Way
Tiburon, CA 94920
(415)388-3840

Morning Star Software
4325 S.W. 109th Ave.
Beaverton, OR 97005
(800)824-2412

Myarc, Inc.
P.O.Box 140
Basking Ridge, NJ 07920
(201)766-1700

Navarone Industries
510 Lawrence Expressway #800
Sunnyvale, CA 94086
(408)866-8579

Percom Data Corporation
11220 Pagemill Road
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NEW ADVENTURE SOFTWARE for your TI 99/4A

With these new adventures you're on the threshold of a whole new experience. Far ahead of you is the extraordinary trilogy of the Great Underground Empire. And once you step through the door to ZORK, you leave the world of arcade games and trite fantasies behind, and enter the dimension of your imagination.

You don't just play the ZORK trilogy - you become part of it. Every plot, every puzzle, every personality has been honed and perfected to make your experience uniquely realistic and involving. Perhaps that's why all three ZORK adventures are among the most popular computer games in history.

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ZORK I: The Great Underground Empire
Confronts you with perils and predicaments ranging from mystical to the macabre, as you strive to discover the Twenty Treasures of ZORK and escape with them and your life.

ZORK II: The Wizard of Frobozz
Takes you to new depths of the subterranean realm. There you'll meet the Wizard, who will attempt to confound your quest with his capricious powers.

ZORK III: The Dungeon Master
Is the test of your wisdom and courage. Your odyssey culminates in an encounter with the Dungeon Master himself, and your destiny hangs in the balance.

What makes these Adventures so different?
To start with, they're 100% prose. But it's the way the prose is written that really gives these games a whole new dimension. The game involves you in the story more than other computer games do, because the program doesn't come between you and the story. The secret is a special "command parser," which in non-computerese means that interfacing with one of these games is as easy as talking.

Thanks to the parser, you don't have to play guessing games to find the command the program will accept. The game recognizes over 600 words, including adjectives - and should you hit upon a command that it doesn't understand, it'll even tell you which word in your sentence is causing the confusion. The parser even lets you use more than one object in a command. The fact is, a command like FLOYD, PUT THE MONSTER AND THE GREEN MONKEY INTO THE IRON CAGE THEN LOCK THE DOOR AND THROW AWAY THE KEY, which would stump any other computer game, is a piece of cake for these games.

All of which boils down to this: When you play one of these new games, you're interfacing with stories written by master story-tellers, instead of fighting with programs written by programmers.

OTHER ADVENTURES AVAILABLE IN THIS SERIES:

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ENCHANTER, the inception of a spellbinding series in the Zorkian tradition.

INFIDEL, the original action classic Tales of Adventure.

To run the above software you need:

TI 99/4A, 32K Memory Expansion, Disk Drive and one of the following modules: Extended BASIC, Mini-Memory, or Editor/Assembler.

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TIDBITS

*** Please note there will be NO JULY ISSUE of the MSP 99 NEWSLETTER. In July we will all meet for a picnic instead of the usual general meeting and newsletter publication will resume with the August issue. So take note of the scheduled events now and mark your calendars.

*** For all of you who took advantage of the FORTH offer, and may need a helpful resource, the FORTH Interest Group (FIG) is a non-profit group dedicated to furthering the use of FORTH. You can write to:

FORTH INTEREST GROUP
P.O. Box 1105
San Carlos, CA 94070
Or call the FIG Hot Line, (415)962-8653.

*** Beginning April 28 and every fourth week thereafter, KSTP-AM will devote its COMPUTER TALK broadcast to the TI computer User. Among other things, they will try to broadcast software listings over the air, which you can record on cassette tape and subsequently run on your 99-4/A. Tune in on 1500 AM, Saturdays, 5:05 - 6:00 PM.

*** Those of you who have the ADVENTURE series on tape and would like to transfer them to disk, here's how. Using the TUNNELS OF DOOM Command Module, insert it into the console and go to the screen that asks you to load from cassette or disk or other. Select 'cassette' and load the ADVENTURE tape into the computer. Immediately after completing the load, hit 'Back' (FCTN 9). This takes you to the screen for saving to cassette, disk, or other. Select disk and there you are! HOWEVER, be aware that this method may not transfer the entire adventure and you may have trouble solving it.

WANT ADS

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