Covering the TI99/4A and the Myarc 9640

MICROpendium

Volume 7 Number 2 March 1990 $2.50

Programs in BASIC and XBASIC

The game of Yacht

Checkbook Balancer

Listlong for lazy programmers

Bells and whistles for Tetris

A report on TI Fest West '90

INSIDE

- ☐ Using the p-system
- ☐ BBS listings
- ☐ Standard dev in c99

REVIEWS

Panasonic KX-P1124 printer, Contract Bridge V3, Boot Disk Changer, Multiplan Upgrade, TMS-9000 Clipboard, Cryptograms

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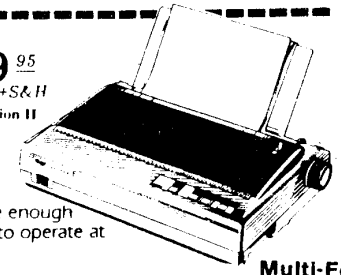

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*READ THIS

Here are some tips to help you when entering programs from MICROpendium:
1. All BASIC and Extended BASIC programs are run through Checksum, the numbers that follow exclamation 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.

The MISSING LINK

The Ultimate Extended Basic Upgrade

The ultimate upgrade. The Missing Link is a powerful extension of the Extended Basic language that allows programmers to access all of the high resolution bit-mapped graphics and advanced text modes of the TI-99/4a. Before The Missing Link was developed these advanced display modes could only be accessed through assembly language programs, or by using optional and often expensive hardware. Now, using The Missing Link, ordinary Extended Basic programs, without the aid of any additional hardware, can be written to take full advantage of these advanced display modes.

High-speed subroutines. The Missing Link consists of over 30 assembly language subroutines that replace the usual methods of accessing the computer display through Extended Basic. With these high-speed subroutines many text, cartesian graphic, turtle graphic, sprite graphic, windowing and miscellaneous peripheral operations can now be incorporated into any Extended Basic program. Novice and expert users alike will find these subroutines easy-to-use, and also fully explained in the 32 page manual included with The Missing Link.

Incredible text functions. Using the text functions found in The Missing Link information can be displayed and input to and from the screen. Text can be displayed both horizontally and vertically with automatic word wrap in a window of any size. The character text size can be changed permitting up to 32 rows by 60 columns to be displayed on the screen. Different sized text can also be displayed simultaneously on the same screen.

Awesome graphics power. A tremendous amount of bit-mapped graphics functions are also available in The Missing Link. With cartesian graphics, points, lines, circles and boxes can be plotted on the screen. Turtle graphics can be used without the ink and color restrictions typically found in Logo. Using the advanced sprite routines up to 32 moving sprites can be defined and controlled simultaneously. Best of all, there are no limits when combining the advanced text and graphics capabilities on the screen.

"Through Extended Basic, The Missing Link allows anyone to access all of the incredible graphics and text capabilities found in the TI-99/4a. This was something people said could never be done... we did it."

Steve Lamberti
President of Texaments

It does windows. With The Missing Link you can display an unlimited amount of windows without any size or color restrictions. Text may be displayed in or input from a window; graphics may be generated inside and outside the boundries of a window. Multiple windows can even be overlapped and text or graphics output controlled within window boundries.

TI Artist compatibility. In addition to its remarkable text and graphics capabilities, The Missing Link can also display and save full color TI Artist pictures. Furthermore, The Missing Link can perform full bit-mapped screen dumps of any current display.

The first one is on us. Included free with The Missing Link is PaperSaver, the first program ever written with and for The Missing Link. PaperSaver is an impressive utility program that, for the first time, lets you see precisely how text prepared with TI Writer is going to look before it is printed.

Go ahead, try it! For only $3.00 (shipping included) we will send you a Live Demostration of The Missing Link that demonstrates almost every function of The Missing Link and PaperSaver. The Live Demostration is written entirely in Extended Basic and is a true representation of what can actually be done with The Missing Link. There is no better way to see what The Missing Link can do (unless you buy it, of course).

Order today. Not only is The Missing Link powerful, but it is affordable as well. For only $24.95 (plus shipping) you get The Missing Link, the PaperSaver utility, a comprehensive 32 page manual, and The Missing Link Live Demonstration.

Requirements. A TI-99/4a system with 32K memory expansion, disk drive system and an Extended Basic cartridge is all that is required to operate The Missing Link. An Epson compatible printer is needed to use the screen dump features. The Missing Link has been tested (but is not guaranteed) to be compatible with the Geneve 9640 (in TI mode), all Myarc and CorComp peripheral expansion cards, HRD, and the Triton/MG Super Extended Basic.

TEXAMENTS

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Comments

Fest West offered plenty to see, do

The TI Fest West '90 appears to have been quite a success, both in terms of activities and visitors. Based on Gary Cox' report in this issue, there was plenty to do and see throughout the fair. A number of new products were either demo'd, promoted or discussed — including ROS_8 for the Horizon RAMdisk, Spell-It from Asgard Software, a pre-release version of Windows 9640 by Beery Miller, Reminders by Comprodine, a new version of TRIAD for the 9640, Giffy Picture by Barry Boone and The Missing Link by Texaments. See page 22 for details.

I don't have much space to fill this month, because we wanted print an updated Reviewed in MICROpendium list. It's something we haven't done for a long time, and we thought you'd find it helpful.

—JK

READER TO READER

☐ C. LaPointe writes, "Does anyone know of programs for hand-knitters (not machine knitters). Especially one that would figure changes with different types of yarn."

Regena had a knitting program in the April 1989 MICROpendium. Readers with information on other knitting programs may write LaPointe at 4530 Treeline Dr., Pensacola, FL 32504.

☐ Tom Wills of 6925 East Kingston Dr., Tucson, AZ 85710, wants to know if the WICO track ball can be modified to work in place of a mouse with the Geneve 9640.

☐ Robert D. Gilpin of 11439 Juniper Rd., #309, Cleveland, OH 44106, has a problem with his console. After a week of flashing between color and b/w, it stopped displaying color. It now displays only in black and white. He checked the composite input of the monitor using a VCR and it works fine. The cable is also functional.

***Reader to Reader*is a column to put T199/4A and Geneve 9640 users in contact with other users. Be sure to address your questions to Reader to Reader, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.**

Reviewed in MICROpendium

1984

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

1985

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

1986

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

1987

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

1988

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

1989

January: First Base V1.0, Picture—It
February: Triad, Superbasic, P-Box Prototype Board, Keyboard Overlays, The Computer Phonebook, St. Valentine's Day Card, 1989 KBGB Girlie Calendar
March: NX-1000 Printer, Home Publishing on the 99/4A, Form-Shop, TELSUP V1.5, Boot/Menu pro-grams, Arcade Action Software
April: Checkbook Manager III, TI-Runner Level Editor, TI-Writer V4.01, Artist Borders I, II, III, Multiplan Printer Codes
May: Jiffyflyer, Sector One Sector Editor, TI User Group Listing, Crypto, Giant Art Posters
June: Form Shop, 40-Column Utilities, Calculations, Conversions & Lotsa Data, New Columnizer
July: Page Pro 99
August: Chainlink, Personal Auditor Home Accounting System, Harrison Software Music Disks, Captions, Japanese Studies
September: TI-Sort, Disk Hacker
October: Sargon I, TI-Writer Graphics, Pagepro Fonts, Phantom of the Opera, User Group Hardware Reprints
November: JiffyCard, Tapemaster, Pix Pro, Starfleet Technical Drawings II
December: TI-Artist Plus, EXEC, GETSTR and GETKEY, Inventions, Calendar Quiz, QDAV (Directory Utility and Remembrance)

1990

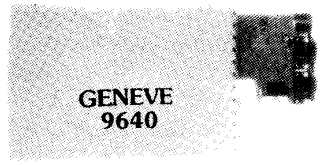
January: Tris, Printer's Apprentice (Geneve version), Funnelweb Instruction Video, TI-Tax, Mailing List Manager, Publications Index, TI Print Shop, War of the Netherworlds.
February: XHi (eXtended HIgh resolution graphics support), Hardware Reprint Manual, TIW Supplement and TIW Supplement Companion, TI Short Sheet III, 127 Screen Fonts, Genial TRAVelER, Contract Bridge V3.0, TI Print Shop

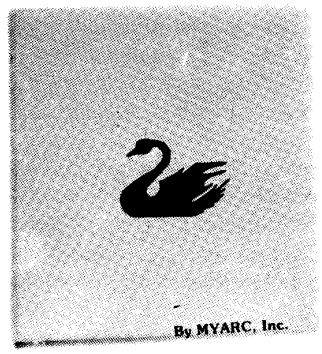
THE GENEVE 9640 HAS LANDED

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

Now at new lower price, includes Myarc Mouse and MY-Art Drawing Program

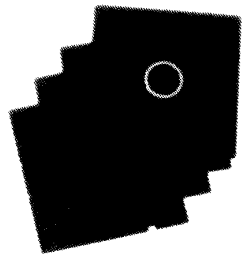
- **Near 100% Compatible:**
  — If you have a program written in Basic, Extended Basic, XBII, Assembly Language, Forth, Pascal, you name it, if it runs on the 99/4A then it is near certain to run on the GENEVE.
- **32K No Wait State High Speed RAM:**
  — Programs like MultiPlan, which are painfully slow on the 99/4A, run many times faster, thanks in part to the High Speed RAM.
- **V9938 Video Processor with 7 Graphics Modes:**
  — Compatible with the 99/4A so you can use the GENEVE with the TV or monitor you are currently using. Same resolution as the Mac but with color. Faster than the Amiga, as fast as the Atari and does it with true aspect ratio, something the Amiga and IBM AT can not do. Aspect ratio renders higher resolution, better color, and appearance, through the use of square pixels. In the high resolution mode, 256 colors may be displayed on the screen at one time by the GENEVE, eight times as many as the Amiga can display in its high resolution mode.
- **Mouse Interface:**
  — The mouse interface is built in and ready to use with the MYARC mouse. But, we didn't stop there, it is also ready to support the newest hardware, like video digitzers, and that's just for starters.
- **6 Complete Pieces Of Software Are Included WithThe GENEVE. But, three you will not be able to see how you ever did without are:**
  — My-Word Processor; 80 columns, help screens for all modes of operation including control-U, initialize a disk without leaving the program, print formatted text to the screen for viewing before sending it to the printer and that's still not all My-Word will do.
  — Advanced Basic; the best and most powerful basic on the market today.
  — Pascal V4.21; if you have a standard USCD Pascal program, you will be able to run it with this program. If you do not have any Pascal programs, let me tell you, one of the largest library of programs available, is Pascal. Compilers for Fortran, Modula 2, Lisp, and Pilot, as well as business programs from A to Z, are all there. USCD Pascal Software developed for computers from Apple to IBM, will run on the GENEVE, without modification.





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

GENEVE
P. O. Box 140
Basking Ridge, New Jersey 07920-1014
(205) 854-5843



Feedback

Motives called misunderstood

After reading your comments in the January issue, I decided to do something I seldom do, send a letter to the editor.

My comments are in reply to your "One More Comment on the Geneve." It appears you have totally misunderstood the motives behind the move towards an alternate OS for the Geneve. On behalf of several people who were only *thinking* of the possibility of an alternative to MDOS, I have been collecting comments from Geneve users via several high-traffic BBSes throughout the country. What I received almost always included comments indicating the desire for a *finished* product, external drivers and functions (allowing for aftermarket enhancements), full hard and floppy drive compatibility, possible multitasking capability (we already know this is possible, thanks to Beery Miller), and most often requested — open architecture allowing third party software development. Several software authors have programs ready to go for native MDOS but are afraid to release them because no one knows what will be changed in the next "interim" release of MDOS (hdsl or wdsl?).

The complaint in the Geneve community remains the same: we want a *finished* product. The response from Myarc is a painfully repetitive "available in two or three weeks" or something similar. We hear the same sort of story about Pascal and a finished Advanced BASIC. (By the way, what happened to the December mailing of software?)

It was hoped that discussion of an alternate OS for the Geneve, *fully* MDOS compatible, I might add, would help spur things on at Myarc. No such luck. The project has never gotten beyond the discussion stage, unfortunately, because most people have said they are tired of waiting for MDOS, why start waiting for another OS? They have a point, but what's the alternative?

The desired end result is still the same. We want Lou (Philips) to know we are *still* waiting, but every day without a *fully* operational MDOS is a day closer to having no customer base for the Geneve. As I told a friend recently, with a few exceptions the Geneve is being used by most people as a hopped-up TI. It has *tremendous* potential, but until MDOS is complete for both hard and floppy use, it is *only* potential!

David E. Ratcliffe
President, Central Pennsylvania 99/4A User Group
Harrisburg, Pennsylvania

Comments called misinformed

I must object strenuously to your "One More Comment on the Geneve." I find it to be based on second or perhaps even third-hand information. To correct that misinformation, I have included the following passage from an internet email message between myself and Clint Pully. My lines are delineated with " > " with Mr. Pulley's comments following. This became the birth of what is known as the !mdos project.

```
> I guess the best question is:
> If[!mdos.eq."viable".and."wanted".and."doable"] then
> case how-do-we-do-it
>   1 : we-start-from-scratch
>   2 : we-find-mdos-source
>   3 : we-disassemble-mdos
>   4 : we-bomb-myarc — no need, they do it themselves very well
      5 : none-of-the-above
> endcase
> endif
```

On reflection I added 5. Since (1..3) are not really feasible, consider the following:

The three essentials which we require from MDOS are:

— I/O management (currently under reconstruction),

— memory management (in place, seems to work well),

— job/task/process (take your pick) management (aside from a few bugs in the loader, looks to be in good shape).

Everything else (video, sound, float point, cli) can be replaced or supplanted. For video, there is no substitute for direct screen output when performance is the goal — eg qde, ploths from yrs. trly.

So here's an alternate strategy:

— Beg, bribe or coerce Myarc into fixing the I/O. I believe that most of the loader bugs are fixed in 1.14f/0.96h.

— Thrash out specs for those areas which require supplanting and find willing and able bodies to work on those areas.

— Write a new CLI shell using (among other things) the runprg (with parameter passing) and sector i/o functions on which I'm currently working.

These things will co-exist with stock MDOS, ensuring compatibility.

In spite of all the criticism of MDOS, I (a system software specialist with over 20 years in the business) have been very impressed with much of the internal structure of MDOS. Let's not throw out the baby with the bath water!

bfn

Clint

As you can see for yourself, we never intended to throw MDOS aside, but to fix it, as it seems that Myarc is unable or unwilling to do so. I find it totally unreasonable *still* not to have full functionality with the hfdc. To quote Dr. Henry Jones Sr., "This is intolerable."

James N. Stricherz
Tallahassee, Florida

Easier software needed?

Thanks for reporting on my talk at the Chicago show last fall. You said, "Jim Horn is talking about people putting their TIs in the closet and how they'd be better served by donating them to schools." You indicated that you are talking about people with closets full of software they don't know how to use. I contend we are both talking about the same thing, which is making the community of 99ers a continuing, viable entity.

You want to emphasize the idea of making software easier to use. I am all for that but you are talking about a fairly small portion of your readership. The only people who can go inside a program and make it easy to use are the design team, beta testers (through advice to the programmer), and a limited group who can gain access to the internals. The size of the last group depends largely on the language of the program and several other factors. However, *all* of us can make "finished" software easier to use, simply by helping others over the rough spots. Most problems with soft-

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Feedback

(Continued from Page 8)

ware are simply a matter of learning our way past what I call the "Oh, by the way ... *gotcha!*"s found in even the most carefully designed programs. Once those barriers are overcome, most of the program's problems disappear, if it is truly useful. MICROpendium serves a major function, as does TIFORUM, in helping people over the rough spots.

That does not address the question "Why is giving computers away the same as making them easier to use?" The answer, of course, is our community focus should not be on those giving up their computer, but on those *getting* them. Working backwards, one starts with the premise that teachers needing computer teaching tools would make ideal new members of our community.

What is the barrier to getting more teachers into our community? Not computers. Not programs. We have more of both to give away than either Apple or IBM. The problem is peopleware.

The easiest, quickest way to get "into" a program, bar none, is to be shown how to use the program by someone who is familiar with it.

Having someone there to help, even on the phone on the weekend when stores are closed (who needs stores, anyway?) is the ultimate software. When that person also brings specialized knowledge to the task, it is unbelievable what can be done.

Teaching happens to be a field where a club can unite to address a problem, since we have an "education crisis" in the U.S. There are other areas.

Groups in Ottawa are more comfortable with senior citizens. Boston Computer SIG has decided to concentrate on the child, rather than the teacher.

What is being chronicled, therefore, is not giving away computers. Rather, we are acquiring computers, not always at zero cost, from people who can no longer use them and then giving *help*, along with an occasional computer, to people who we find will use them. Finding the right person is infinitely harder than finding the computer, but well worth the search!

Back to the software usability idea: The programmer launches the ship, sometimes like Columbus, with only a vague idea of where he is going, or the uses to which the software can be employed. Columbus thought he was going somewhere else, but he is still famous.

Making a program "user friendly" takes not only a knowledge of programming, but of the target function being automated. Often, large teams are needed to visualize the intricate detail of certain procedures. The famous Apple iconware is not even original to Apple, as most people reading your magazine know, but is the result of millions spent by Xerox. We are mostly beyond the commercial team approach, though the entire community can be part of the team I envision.

By definition, our "mature market," because of the time we have been around, has most of the software that will ever be written for our machine already on disk, tape, module or paper.

Of ourse, the programs are not complete. All or them need just a little peopleware, and *that* is what makes our community unique. We have it in abundance. As a result, the creativity process has only begun.

Jim Horn
Rockville, Maryland

Transferring files from cassette to disk

I opened a bag of worms with my letter to you in November complaining about not being able to load some cassettes. I received eight responses. Five of these had good suggestions but ones that I had already tried. The sixth response was from R. Leonard Fung from Stuttgart, West Germany. He sent along a Mini-Memory Machine Language program from a German publication. I haven't translated the documentation yet, so I'll not comment further.

I had a phone call from Jerry L. Stern, who told me that I should disconnect my disk drives to release more memory. I tried that, but it didn't work on the first file that I tried. My next response was from Wallace Knight of Glendale, Arizona, who sent me a cassette with copies of the programs that were giving me difficulty. I thought that here was the answer to my problem. Wrong again. This cassette did the same thing. I fooled around and found that some of the files would load. Then it dawned on me that Jerry was right to an extent. I removed my Extended BASIC module and the programs loaded OK.

The way that I finally transferred my cassette files to disk is as follows: I left the Extended BASIC module out, connected the P-Box and Called Files(1). Then I loaded the files from cassette into memory and then saved them to disk as per the usual routine. One file would not load in this configuration. I disconnected the P-Box and loaded the file. Then I edited off the last 200 lines of the file and saved it to another cassette. I reloaded the entire file and edited off the first 200 lines of the file and saved this to the new cassette. Back to the P-Box and CALL FILES(1). I loaded the first part of the file and saved it to disk. Then I loaded the second part of the file and saved it to disk. Now it was just a matter of combining the two parts of the program together. I did this by putting my system back together, resaving the second disk file in the merge format and merging the two parts into one file. I now have all my cassette files transferred to disk.

The moral of this story is — if you have a problem, air it in "Reader to Reader." There are people out there willing and able to help.

I wish to thank MICROpendium for providing this service and all who responded to my request for help.

George K. Bennison
Holland Patent, New York

Price was wrong

Thanks for including my program in the "User Supported Software" listing.

I would appreciate it, though, if you could print a correction. The pricing is wrong. I am asking $6.50 for the package, but I will provide the media, mailer and postage at that price. The same is true at the $4 price offered to registered users of earlier versions.

Brad Snyder
Palmerton, Pennsylvania

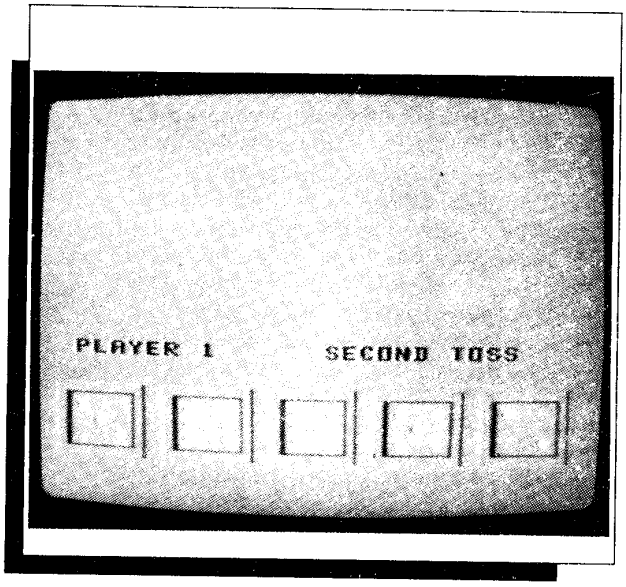
***Feedback is a forum for TI99/4A and Geneve 9640 users. The editor will condense submissions when necessary. We ask readers to restrict themselves to one subject for the sake of simplicity. Mail Feedback items to* MICROpendium, P.O. Box 1343, Round Rock, TX 78680.**

BASIC

The Game of Yacht

By REGENA

Years ago (1981), I programmed the game of "Yahtzee" for the TI99/4A, but it was never published because Yahtzee was a game developed by Milton Bradley, and magazines and books were not supposed to publish programs of copyrighted games. (Several other computer magazines, however, did have BASIC versions of Yahtzee.) Eventually, of course, Milton Bradley did come out with a TI module of Yahtzee — so my program just sat in the storage room.



Well, recently I was thumbing through a book of *Play According to Hoyle: Hoyle's Rules of Games*, which describes games based on Hoyle in 1672-1769. I found the game of "Yacht" using five dice. So — this Yahtzee was actually taken from Yacht and I don't need to worry about infringing on copyrights, especially if I follow the Yacht rules according to Hoyle. So, I have taken my old program out of storage and adapted it to the original game of Yacht. I revised the old program — so keep in mind that some of the programming techniques were done before I learned more efficient ways. In fact, with the slow editing process on the TI (such as deleting many lines), it may have been faster to type in a program from the start, but I stuck pretty much to the original program.

Yacht is a game using five dice. Any number from two to about 10 may play, but the game is best if there are no more than five or six. My computer version allows one through six players. There are 12 rounds, and each player has one turn in each round. A turn consists of three rolls of the dice. The player may at any time stand, or he may pick up and reroll any of his dice until he has had his three rolls.

At the end of each turn, the player must designate his five dice to count in one of the 12 categories shown on the score pad:

Yacht (any five of a kind)	50 maximum
Big straight (2-3-4-5-6)	30
Little straight (1-2-3-4-5)	30
Four of a kind	30
Full house (three of a kind and a pair)	28
Choice	30
Sixes	30
Fives	25
Fours	20
Threes	15
Deuces	20
Aces	5

The maximum scores possible are shown. Each category may only be used once. The scoring is as follows:

1s, 2s, 3s, 4s, 5s, 6s — score the total of the numbers that fit the category. For example, 6-5-3-2-2 would score 4 in the 2s category for the number of deuces.

Full house — three of a kind plus a pair — scores the total of the numbers shown on the dice.

Four of a kind — scores the total of the numbers on the dice provided they include four of a kind.

Little straight is 1-2-3-4-5 **big straight** is 2-3-4-5-6. Each scores 30.

Yacht is any five of a kind. It scores 50.

Choice is designed to give a player leeway for a bad roll. It counts the total on the dice. **Ones and Twos** also help bad rolls because those scoring categories have low maximums anyway.

For an example, player A will have 12 turns. After each turn (his final five-dice combination after the three possible throws) he must select a category and the computer will determine his score (it may be zero).

When every player has had 12 turns, the scores are totaled, and the high score wins. The computer also keeps track of the high score during a session, so if more than one game is played the overall high score is still known.

For each turn, the five dice are randomly chosen. Use the left or right arrow keys or the space bar to move the indicator under the dice, and press the ENTER key to select a die to be changed. The space bar indicates that the die is not to be tossed again. When the selector is on the fifth die (the one at the right of the screen) the space bar or the ENTER key will signal the computer to re-toss the dice. The next roll will be shown. If you do not want to change any of the dice, simply press the space bar for all the dice.

After the third toss (or earlier toss if you select no dice to be changed), the scoring categories appear. Press the space bar to move the arrow on the scoring category, then press ENTER to select the category. The computer will show the score.

The computer will always check for a Yacht, but you may choose not to use it. For example, you may get five ones but already have the ones category filled and prefer to try for a higher score. You may go ahead and select dice to change.

(See Page 12)

REGENA ON BASIC —

(Continued from Page 10)

The A$ array keeps track of the scoring categories and also is used to indicate which categories are still needed. D() is the number on the die. DR() are coordinates used for the five dice. C1 and C2 are columns for the scoring. NP is the number of players, and P is the player number. CAT is the category number. Z(P,CAT) keeps track of the score for each category and each player. DX() keeps track of the dice to be changed.

To determine the scoring, the first six categories (1s, 2s, 3s, 4s, 5s and 6s) simply total the number of dice that qualify for that category. In the other categories, the dice are sorted (Lines 2390-2490) to make it easier to check the qualifications for a possible score. Lines 2500-2940 and 3700-3840 are the subroutines that check these categories and determine the score. Lines 3250-3690 are subroutines that print the dice.

This is a nearly full-memory program, so be sure to use this procedure before typing in the program or loading it:

CALL FILES(1) (ENTER)
NEW (ENTER)

If you wish to save typing effort and want a copy of this program, you may request one by sending $4 to *REGENA, 918 Cedar Knolls West, Cedar City, UT 84720.* Be sure to specify that you need the TI version of "Yacht" and whether you want cassette or diskette.

YACHT

```
100 REM YACHT !083
110 CALL CLEAR !209
120 CALL CHAR(96,"0000183C3C
18")!049
130 CALL SCREEN(8)!153
140 CALL CHAR(104,"000000000
0070404")!237
150 PRINT TAB(7);"*** YACHT
***" !066
160 PRINT : :"A TURN MAY CON
SIST OF THREE ROLLS OF THE F
IVE DICE." !080
170 PRINT :"USE THE ARROW KE
YS OR SPACE BAR TO ADVANCE T
HE INDICATORTHEN PRESS <ENTE
R> TO CHOOSE" !206
180 PRINT "THE DIE TO BE ROL
LED AGAIN." !075
190 PRINT : :"PRESS THE SPAC
E BAR TO":"MOVE THE ARROW ON
 THE":"SCORING CATEGORY, THE
N PRESS" !058
200 PRINT "<ENTER> TO SELECT
.": : :!093
210 T=300 !112
220 HIGH=0 !215
230 CALL SOUND(T,262,2)!122
240 CALL CHAR(105,"000000000
00FF")!071
250 CALL SOUND(T,262,2)!122
260 CALL CHAR(106,"000000000
00E0202")!200
270 CALL SOUND(T,330,2)!118
280 CALL CHAR(107,"2020202020
20202")!192
290 CALL SOUND(T,330,2)!118
300 CALL CHAR(108,"2020E")!2
24
310 CALL SOUND(T,392,2)!126
320 CALL CHAR(109,"0000FF")!
037
330 CALL SOUND(T,392,2)!126
340 CALL CHAR(110,"0404007")!
000
350 CALL SOUND(2*T,330,2)!05
2
360 CALL CHAR(111,"0404040400
4040404")!252
370 CALL SOUND(T,349,2)!128
380 DIM A$(12),PRT$(12),D(5)
,DR(5),Z(6,12),TZ(6)!044
390 CALL SOUND(T,349,2)!128
400 A$(1)="ONES, " !216
410 A$(2)="2S, " !039
420 CALL SOUND(T,294,2)!127
430 A$(3)="3S, " !041
440 CALL SOUND(T,294,2)!127
450 A$(4)="4S, " !043
460 CALL SOUND(T,247,2)!125
470 A$(5)="5S, " !045
480 A$(6)="6S, " !047
490 CALL SOUND(T,247,2)!125
500 A$(7)="4 OF A KIND, " !0
64
510 CALL SOUND(T/2,262,2)!05
7
520 A$(8)="FULL HOUSE, " !13
5
530 CALL SOUND(T/2,247,2)!06
0
540 A$(9)="LITTLE STR, " !15
2
550 CALL SOUND(T/2,220,2)!05
1
560 A$(10)="BIG STR, " !194
570 CALL SOUND(T/2,247,2)!06
0
580 A$(11)="YACHT, " !079
590 CALL SOUND(3*T,262,2,165
,8,196,8)!217
600 A$(12)="CHANCE, " !122
610 CALL COLOR(9,16,5)!237
620 CALL COLOR(10,2,5)!224
630 CALL COLOR(11,5,5)!228
640 R=18 !067
650 DR(1)=4 !184
660 DR(2)=10 !231
670 DR(3)=16 !238
680 DR(4)=22 !236
690 DR(5)=28 !243
700 C1=10 !093
710 C2=27 !102
720 PRINT "PRESS <ENTER> TO
START.";!114
730 CALL KEY(0,K,S)!187
740 IF K<>13 THEN 730 !209
750 CALL CLEAR !209
760 CALL SCREEN(4)!149
770 INPUT "HOW MANY PLAYERS?
 ":NP !193
780 IF (NP<7)+(NP>0)=-2 THEN
 810 !244
790 PRINT "SORRY, MUST BE 1-
6.": :!157
800 GOTO 770 !084
810 CALL CLEAR !209
820 FOR P=1 TO NP !227
830 FOR CAT=1 TO 12 !250
840 Z(P,CAT)=-1 !028
850 NEXT CAT !110
860 NEXT P !230
870 FOR ZZ=1 TO 12 !214
880 FOR P=1 TO NP !227
890 CALL CLEAR !209
900 T=1 !012
910 GOSUB 3030 !049
920 RANDOMIZE !149
930 FOR N=1 TO 5 !065
940 D(N)=INT(6*RND)+1 !077
950 NEXT N !228
960 GOSUB 3250 !014
970 REM ROLL AGAIN !147
```

(See Page 12)

REGENA ON BASIC—

(Continued from Page 11)

```
980 CH=1 !067
990 CALL GCHAR(R+5,DR(CH),PC
)!212
1000 CALL KEY(3,K,S)!190
1010 CALL HCHAR(R+5,DR(CH),9
4)!121
1020 CALL HCHAR(R+5,DR(CH),P
C)!213
1030 IF S<1 THEN 1000 !244
1040 IF (K<>83)THEN 1080 !16
5
1050 IF CH=1 THEN 1000 !043
1060 CH=CH-1 !144
1070 GOTO 990 !048
1080 IF K<>13 THEN 1120 !089
1090 CALL HCHAR(R+5,DR(CH),4
2)!114
1100 DX(CH)=1 !076
1110 GOTO 1150 !209
1120 IF ((K<>32)+(K<>68))=-2
 THEN 1000 !102
1130 CALL HCHAR(R+5,DR(CH),3
2)!113
1140 DX(CH)=0 !075
1150 IF CH=5 THEN 1180 !228
1160 CH=CH+1 !143
1170 GOTO 990 !048
1180 T=T+1 !033
1190 IF DX(1)+DX(2)+DX(3)+DX
(4)+DX(5)=0 THEN 1300 !234
1200 FOR CH=1 TO 5 !126
1210 IF DX(CH)=0 THEN 1230 !
026
1220 D(CH)=INT(6*RND)+1 !138
1230 NEXT CH !033
1240 REM PRINT DICE !156
1250 CALL CLEAR !209
1260 GOSUB 3030 !049
1270 GOSUB 3250 !014
1280 IF T=2 THEN 980 !225
1290 REM SCORING !239
1300 PRINT : :"ONES";TAB(14)
;"4 OF KIND" !005
1310 PRINT "TWOS";TAB(14);"F
ULL HOUSE" !092
1320 PRINT "THREES";TAB(14);
"LITTLE STR" !236
1330 PRINT "FOURS";TAB(14);"
BIG STR" !176
1340 PRINT "FIVES";TAB(14);"
YACHT" !042
1350 PRINT "SIXES";TAB(14);"
CHANCE" !099
1360 IF ZZ=1 THEN 1440 !014
1370 FOR CAT=1 TO 12 !250
1380 IF Z(P,CAT)=-1 THEN 143
0 !180
1390 SS=17+CAT !047
1400 IF CAT<7 THEN 1420 !037
1410 SS=11+CAT !041
1420 ON CAT GOSUB 2320,2320,
2320,2320,2320,2320,2590,259
0,2830,2910,2980,2590 !086
1430 NEXT CAT !110
1440 CAT=0 !143
1450 SC=2 !079
1460 SS=17 !150
1470 CAT=CAT+1 !041
1480 IF CAT=13 THEN 1440 !10
2
1490 IF CAT<>7 THEN 1520 !07
3
1500 SC=15 !132
1510 SS=17 !150
1520 SS=SS+1 !197
1530 IF Z(P,CAT)>-1 THEN 147
0 !222
1540 CALL KEY(3,K,S)!190
1550 CALL HCHAR(SS,SC,62)!01
7
1560 CALL HCHAR(SS,SC,32)!01
4
1570 IF S<1 THEN 1540 !019
1580 IF K=32 THEN 1470 !248
1590 IF K<>13 THEN 1540 !255
1600 Z(P,CAT)=0 !089
1610 ON CAT GOSUB 2280,2280,
2280,2280,2280,2280,2510,271
0,2800,2880,2960,2560 !024
1620 PRINT : : :"PRESS ANY K
EY TO CONTINUE." !176
1630 CALL KEY(0,K,S)!187
1640 IF S=0 THEN 1630 !107
1650 YY=0 !105
1660 NEXT P !230
1670 NEXT ZZ !074
1680 REM PRINT TOTALS !094
1690 FOR P=1 TO NP !227
1700 TZ(P)=0 !034
1710 NEXT P !230
1720 FOR P=1 TO NP !227
1730 FOR CAT=1 TO 12 !250
1740 TZ(P)=TZ(P)+Z(P,CAT)!24
7
1750 NEXT CAT !110
1760 NEXT P !230
1770 FOR P=1 TO NP !227
1780 IF HIGH>TZ(P)THEN 1800
!087
1790 HIGH=TZ(P)!073
1800 NEXT P !230
1810 IF NP<>1 THEN 1840 !075
1820 P=1 !008
1830 GOTO 1990 !028
1840 CALL CLEAR !209
1850 PRINT "   *** TOTALS **
*": :!081
1860 FOR I=1 TO NP !220
1870 PRINT "PLAYER";I;"   ";
TZ(I):!222
1880 NEXT I !223
1890 PRINT : :"HIGH SCORE ="
;HIGH !198
1900 PRINT : :"PRESS 'P' TO
PLAY AGAIN" !200
1910 PRINT "OR 'E' TO END PR
OGRAM" !190
1920 PRINT "OR PLAYER NUMBER
 FOR":"DETAILED SCORE." !134
1930 CALL KEY(0,K,S)!187
1940 IF K=80 THEN 750 !040
1950 IF K=69 THEN 2250 !017
1960 IF K<49 THEN 1930 !207
1970 IF K>NP+48 THEN 1930 !0
46
1980 P=K-48 !081
1990 CALL CLEAR !209
2000 TB=16 !133
2010 PRINT "PLAYER";P: :!164
2020 PRINT "ONES";TAB(TB-LEN
(STR$(Z(P,1))));Z(P,1)!215
2030 PRINT "TWOS";TAB(TB-LEN
(STR$(Z(P,2))));Z(P,2)!241
2040 PRINT "THREES";TAB(TB-L
EN(STR$(Z(P,3))));Z(P,3)!115
2050 PRINT "FOURS";TAB(TB-LE
N(STR$(Z(P,4))));Z(P,4)!056
2060 PRINT "FIVES";TAB(TB-LE
N(STR$(Z(P,5))));Z(P,5)!040
2070 PRINT "SIXES";TAB(TB-LE
N(STR$(Z(P,6))));Z(P,6)!057
2080 PRINT "4 OF A KIND";TAB
(TB-LEN(STR$(Z(P,7))));Z(P,7
)!069
2090 PRINT "FULL HOUSE";TAB(
TB-LEN(STR$(Z(P,8))));Z(P,8)
!141
2100 PRINT "LITTLE STR.";TAB
(TB-LEN(STR$(Z(P,9))));Z(P,9
)!206
2110 PRINT "BIG STR.";TAB(TB
-LEN(STR$(Z(P,10))));Z(P,10)
!033
```

(See Page 13)

EXTENDED BASIC—

(Continued from Page 12)

```
212Ø PRINT "YACHT";TAB(TB-LE
N(STR$(Z(P,11))));Z(P,11)!12
8
213Ø PRINT "CHANCE";TAB(TB-L
EN(STR$(Z(P,12))));Z(P,12)!1
72
214Ø PRINT :"TOTAL";TAB(TB-L
EN(STR$(TZ(P))));TZ(P)!Ø42
215Ø PRINT : :"HIGH SCORE ="
;HIGH !198
216Ø PRINT :"P=PLAY AGAIN; E
=END;" !Ø94
217Ø PRINT "T=TOTALS; OR PLA
YER NO. ?" !Ø23
218Ø CALL KEY(3,K,S)!19Ø
219Ø IF K=84 THEN 184Ø !115
22ØØ IF K=8Ø THEN 75Ø !Ø4Ø
221Ø IF K=69 THEN 225Ø !Ø17
222Ø IF K>NP+48 THEN 218Ø !Ø
41
223Ø IF K<49 THEN 218Ø !2Ø2
224Ø GOTO 198Ø !Ø18
225Ø CALL CLEAR !2Ø9
226Ø STOP !152
227Ø REM 1,2,3,4,5,6 !235
228Ø FOR I=1 TO 5 !Ø6Ø
229Ø IF D(I)<>CAT THEN 231Ø
!Ø93
23ØØ Z(P,CAT)=Z(P,CAT)+CAT !
155
231Ø NEXT I !223
232Ø CC=INT(Z(P,CAT)/1Ø)!Ø17
233Ø C=Z(P,CAT)-CC*1Ø+48 !2Ø
8
234Ø CC=CC+48 !193
235Ø IF CC=48 THEN 237Ø !194
236Ø CALL HCHAR(SS,C1,CC)!Ø6
7
237Ø CALL HCHAR(SS,C1+1,C)!1
87
238Ø RETURN !136
239Ø REM SORT SUBROUTINE !Ø8
2
24ØØ SW=Ø !Ø97
241Ø FOR I=1 TO 4 !Ø59
242Ø IF D(I)<=D(I+1)THEN 247
Ø !216
243Ø DD=D(I)!Ø64
244Ø D(I)=D(I+1)!1Ø9
245Ø D(I+1)=DD !251
246Ø SW=1 !Ø98
247Ø NEXT I !223
248Ø IF SW=1 THEN 24ØØ !2ØØ
249Ø RETURN !136
25ØØ REM 4 OF A KIND !1Ø6
251Ø GOSUB 24ØØ !185
252Ø IF D(2)<>D(3)THEN 268Ø
!Ø87
253Ø IF D(3)<>D(4)THEN 268Ø
!Ø89
254Ø IF D(1)<>D(2)THEN 267Ø
!Ø75
255Ø REM SCORE !Ø86
256Ø FOR I=1 TO 5 !Ø6Ø
257Ø Z(P,CAT)=Z(P,CAT)+D(I)!
189
258Ø NEXT I !223
259Ø IF Z(P,CAT)=Ø THEN 268Ø
!216
26ØØ CC=INT(Z(P,CAT)/1Ø)!Ø17
261Ø C=Z(P,CAT)-CC*1Ø+48 !2Ø
8
262Ø CC=CC+48 !193
263Ø IF CC=48 THEN 265Ø !219
264Ø CALL HCHAR(SS,C2,CC)!Ø6
8
265Ø CALL HCHAR(SS,C2+1,C)!1
88
266Ø RETURN !136
267Ø IF D(4)=D(5)THEN 255Ø !
Ø23
268Ø CALL HCHAR(SS,C2+1,48)!
175
269Ø RETURN !136
27ØØ REM FULL HOUSE !177
271Ø GOSUB 24ØØ !185
272Ø IF D(1)<>D(2)THEN 277Ø
!175
273Ø IF D(4)<>D(5)THEN 277Ø
!181
274Ø IF D(2)<>D(3)THEN 276Ø
!167
275Ø GOTO 256Ø !Ø89
276Ø IF D(3)=D(4)THEN 275Ø !
222
277Ø CALL HCHAR(SS,C2,48)!24
4
278Ø RETURN !136
279Ø REM LITTLE STRAIGHT !Ø4
6
28ØØ GOSUB 24ØØ !185
281Ø IF (D(1)=1)+(D(2)=2)+(D
(3)=3)+(D(4)=4)+(D(5)=5)<>-5
 THEN 285Ø !145
282Ø Z(P,9)=3Ø !183
283Ø IF Z(P,9)=Ø THEN 285Ø !
173
284Ø CALL HCHAR(SS,C2,51)!23
8
285Ø CALL HCHAR(SS,C2+1,48)!
175
286Ø RETURN !136
287Ø REM BIG STRAIGHT  !Ø82
288Ø GOSUB 24ØØ !185
289Ø IF (D(1)=2)+(D(2)=3)+(D
(3)=4)+(D(4)=5)+(D(5)=6)<>-5
 THEN 293Ø !23Ø
29ØØ Z(P,1Ø)=3Ø !224
291Ø IF Z(P,1Ø)=Ø THEN 293Ø
!Ø38
292Ø CALL HCHAR(SS,C2,51)!23
8
293Ø CALL HCHAR(SS,C2+1,48)!
175
294Ø RETURN !136
295Ø REM YACHT  !115
296Ø IF YY<>1 THEN 3ØØØ !235
297Ø Z(P,11)=5Ø !227
298Ø IF Z(P,11)=Ø THEN 3ØØØ
!1Ø9
299Ø CALL HCHAR(SS,C2,53)!24
Ø
3ØØØ CALL HCHAR(SS,C2+1,48)!
175
3Ø1Ø RETURN !136
3Ø2Ø REM INFO !ØØ6
3Ø3Ø IF T=1 THEN 3Ø9Ø !Ø39
3Ø4Ø IF T=2 THEN 3Ø7Ø !Ø19
3Ø5Ø PRINT "PLAYER";P,"THIRD
 TOSS" !162
3Ø6Ø GOTO 31ØØ !119
3Ø7Ø PRINT "PLAYER";P,"SECON
D TOSS" !228
3Ø8Ø GOTO 31ØØ !119
3Ø9Ø PRINT "PLAYER";P,"FIRST
 TOSS" !175
31ØØ IF ZZ<2 THEN 323Ø !Ø21
311Ø IF T=3 THEN 323Ø !181
312Ø PRINT :"YOU NEED:" !148
313Ø IK=Ø !Ø75
314Ø FOR I=1 TO 12 !1Ø7
315Ø IF Z(P,I)<>-1 THEN 318Ø
 !195
316Ø IK=IK+1 !161
317Ø PRT$(IK)=A$(I)!244
318Ø NEXT I !223
319Ø PRT$(IK)=SEG$(PRT$(IK),
1,LEN(PRT$(IK))-2)!179
32ØØ FOR I=1 TO IK !21Ø
321Ø PRINT PRT$(I);!Ø32
```

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REGENA ON BASIC—

(Continued from Page 13)

```
322Ø NEXT I !223
323Ø PRINT : :!ØØ6
324Ø RETURN !136
325Ø REM DRAW DICE !Ø61
326Ø CALL HCHAR(24,2,1Ø4)!Ø4
6
327Ø PRINT "iiij hiiij hiiij
 hiiij hiiij" !216
328Ø FOR I=1 TO 3 !Ø58
329Ø CALL HCHAR(24,2,111)!Ø4
4
33ØØ PRINT "pppk opppk opppk
 opppk opppk" !Ø98
331Ø NEXT I !223
332Ø CALL HCHAR(24,2,11Ø)!Ø4
3
333Ø PRINT "mmml mmmml mmmml
 mmmml mmmml": :!16Ø
334Ø REM PRINT DOTS !193
335Ø FOR N=1 TO 5 !Ø65
336Ø J=2+6*(N-1)!253
337Ø ON D(N)GOSUB 341Ø,344Ø,
348Ø,353Ø,359Ø,363Ø !254
338Ø NEXT N !228
339Ø GOSUB 37ØØ !21Ø
34ØØ RETURN !136
341Ø REM ONE !188
342Ø CALL HCHAR(R+2,J+2,96)!
24Ø
343Ø RETURN !136
344Ø REM TWO !212
345Ø CALL HCHAR(R+1,J+1,96)!
238
346Ø CALL HCHAR(R+3,J+3,96)!
242
347Ø RETURN !136
348Ø REM THREE !Ø82
349Ø FOR I=1 TO 3 !Ø58
35ØØ CALL HCHAR(R+I,J+I,96)!
14Ø
351Ø NEXT I !223
352Ø RETURN !136
353Ø REM FOUR !Ø22
354Ø CALL HCHAR(R+1,J+1,96)!
238
355Ø CALL HCHAR(R+1,J+3,96)!
24Ø
356Ø CALL HCHAR(R+3,J+1,96)!
24Ø
357Ø CALL HCHAR(R+3,J+3,96)!
242
358Ø RETURN !136
359Ø REM FIVE !ØØ4
36ØØ GOSUB 353Ø !Ø39
361Ø CALL HCHAR(R+2,J+2,96)!
24Ø
362Ø RETURN !136
363Ø REM SIX !2Ø6
364Ø FOR I=1 TO 3 !Ø58
365Ø FOR JJ=1 TO 3 STEP 2 !Ø
5Ø
366Ø CALL HCHAR(R+I,J+JJ,96)
!215
367Ø NEXT JJ !Ø42
368Ø NEXT I !223
369Ø RETURN !136
37ØØ REM CHECK YACHT  !241
371Ø IF (D(1)=D(2))+(D(2)=D(
3))+(D(3)=D(4))+(D(4)=D(5))<
>-4 THEN 384Ø !161
372Ø CALL SOUND(2ØØ,262,5)!1
34
373Ø CALL SOUND(2ØØ,33Ø,5)!1
3Ø
374Ø CALL SOUND(2ØØ,392,5)!1
38
375Ø CALL SOUND(9ØØ,524,2)!1
39
376Ø PRINT TAB(7);"Y A C H T
" !13Ø
377Ø CALL SOUND(2ØØ,392,5)!1
38
378Ø CALL SOUND(1ØØØ,524,2)!
18Ø
379Ø FOR M=7 TO 16 !121
38ØØ CALL SCREEN(M)!229
381Ø NEXT M !227
382Ø CALL SCREEN(4)!149
383Ø YY=1 !1Ø6
384Ø RETURN !136
385Ø END !139
```

Attend a TI fair
in 1990 and keep up with
fellow TIers.

EXTENDED BASIC

Lazy programming

By JERRY STERN
©J.L. Stern

I guess the cold weather does it. The lower temperatures just make me want to go curl up in a mound of blankets and sleep until Spring. In this weather, I tend to get very lazy. That's not necessarily bad, but sometimes I fool myself and come up with a new way to not think particularly hard. In programming, that could work to your advantage. Or maybe not.

While studying a printout of a program that I wanted to update, I had an attack of cold-weather-induced laziness. The printout was pretty good; I had printed it with LIST132, the wide column program printer published here in March of '89. But some of the statements and loops were complex, and I needed more blank space to make notes on changes. I needed — (Did you see it coming?) — a utility program that would give me a special printout for program changes and debugging. If I could print each statement on a separate line, the program flow would be easier to follow without having to resort to (GASP!) a flow chart. Each line would be broken at each multiple statement indicator of double colons, printed without those colons for clarity, and indented to line up with the first statement of each line.

Tricky. Each statement might still be longer than 80 characters, so condensed print would be needed. The only practical format for the utility program to read from would be a "listed" form of the program in a Display/Variable 80 file, created with a disk file and this statement.

LIST "DSK1.PROG_LIST"

That format breaks the characters of each statement down into 80-character

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EXTENDED BASIC—

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blocks. Any line longer than that would have to be reconstructed, and then broken back down at the double colons. Also, the indentation of each statement should match the placement of the first printed line of each program line. If the line number was 100, an indentation of four spaces would be right, but a line number of 29505 would need a six space indent.

Some of these problems were solved when I wrote LIST132. The line reconstruction from an 80-character listed file was handled. Condensed print was used to fit 132 columns on the printout. By adding the line splitting routine and indentation function to LIST132, I could create a new program, LISTLONG, without having to do much work. Right, lazy. Useful, too.

LIST132 prints out each line AFTER it identifies the beginning of the following program line. Inserting a new algorithm for breaking up and indenting lines at that point could be done, but it would make the program lines awkward, difficult to debug, and messy to write. Too much aggravation that way. It would be much easier to let the list routine read the original file, and then use a new program portion to rebuild the program lines, save them to a temporary intermediate disk file, read the lines from the new file, and then break them down and print them out. That's more steps, but less complexity than doing everything in one pass. A temporary file is not an uncommon programming practice in large application programs. These files may be used to hold information during graphics printing, or the intermediate results of a sorting process. The use of this kind of file in this application is for ease of programming. The same results could be obtained in many ways, although writing a program based on an already existing program is so much faster than starting from nothing that this easy approach is preferable, this time.

LISTLONG starts with a definition statement:

```
DEF CLOG(X)=LOG(X)/2.30285
```

CLOG stands for common logarithm, or base ten logarithm. Texas Instruments Extended BASIC only supplies base e, or natural logarithms, so division of the natural log by 2.30285 results in the common log. Common logs have a useful characteristic for our indentation problem. The log of a number is that number which the base (ten) must be raised to in order to calculate the original number. The log of ten is one, or ten to the first power. The log of 100 is two, or ten to the second power. And so forth; the part of the log to the left of the decimal point is equal to the number of digits in the number, less one.

To use this, we just indent each chunk of program line by the rounded down integer portion of the logarithm of its line number, plus one for the extra character of length and plus one for one blank space.

After the definition statement for the logarithm formula, LISTLONG prints an introductory screen and gets the file names from the keyboard. In line 200, LISTLONG asks for the disk drive to use for the workspace. That will be where the program will create the temporary file TEMPTEMP. That file can be on a ramdisk if there is one available. It need not be on the same disk as either the program or the data file, and it will be automatically deleted by LISTLONG when it is no longer needed.

LIST 132 prints out each line AFTER it identifies the beginning of the following program line. Inserting a new algorithm for breaking up and indenting lines at that point could be done, but it would make the program lines awkward....

In lines 240-330, LISTLONG reconstructs the original line numbers in the same way as LIST132. Line 340 closes the file for the listed program file, and uses the RESTORE statement to reset the temporary file markers back to the beginning of that file. That file had to be opened in UPDATE mode, back in line 230, in order to allow both writing to and reading from the file. Finally, line 340 opens the printer file and sends some control codes to the printer. "15, 27, 48" turns on condensed print and sets line spacing to eight lines per inch. If your printer uses different codes than these standard EPSON codes, change them here. If you want to add more codes, say for perforation skipping or a special typeface, add those codes on 340. Also, change line 90 as needed for the name of your printer.

The only task left is to break the lines at all of the ":: " strings. Extended BASIC always prints multiple statement lines with that space after the double colons, even if you did not originally type it there. Line 380 searches each line for each occurrence of that combination of characters, and breaks the line at those points.

Usually, ":: " will only be in a program line as a statement separator. If that string appears inside a quoted string for some other reason, than LISTLONG will break the line at that spot anyway. The only program I have seen this error show up on is LISTLONG itself. The program cannot print its own line 380 correctly.

In line 400, LISTLONG closes the printer file and disk file, and uses the delete option of the CLOSE statement to erase the temporary work file. It should not be necessary, but if you stop LISTLONG for some reason before this point, you will need to delete the file TEMPTEMP manually.

Finally, LISTLONG uses the subprograms BLUE and TITLE to change the screen colors and display the title screen. That is just a convenience; pulling them off a disk full of subprograms as merge files is quicker, and lazier than typing in, yet one more time, the code for functions that are used over, and over, and on and on.

That's one way to save lots of time; another is to just modify similar programs to do new things, but while still keeping the new functions separated from the old ones to prevent conflicts between the different sections of code. Yes, I know that's a lazy way to program, but it requires organization, the resulting programs are easy to understand and debug, and it works. That's enough for me, as least for

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EXTENDED BASIC—

(Continued from Page 15)

now. It's getting cold again, and I have this urge to go hide until warm weather.

```
90 PR$="RS232.DA=8.BA=4800"
! DEFAULT PRINTER NAME !168
100 ! LISTLONG JLS 1/90 V.
2.1 !118
110 CALL BLUE !145
120 DEF CLOG(X)=LOG(X)/2.302
585 !241
130 CALL TITLE !236
140 DISPLAY AT(15,1):"To sto
re a program file as DISPLA
Y/VARIABLE 80 format, simply
 type:
LIST ""DSK_._____"""" !204
150 DISPLAY AT(19,1):"CAUTIO
N: This program writesand de
letes a temporary diskfile c
alled DSK_.TEMPTEMP. It wil
l be slightly larger" !100
160 DISPLAY AT(23,1):"than t
he file being listed. Leave
room!" !077
170 DISPLAY AT(7,1):"NAME OF
 PRINTER?":PR$ :: ACCEPT AT(
8,1)SIZE(-24)VALIDATE(UALPHA
,DIGIT,".=_"):D$ !220
180 DISPLAY AT(10,1):"PROGRA
M TO LIST?(MUST BE IN DISPLA
Y/VARIABLE 80 FORMAT)":"DSK1
." !214
190 ACCEPT AT(12,4)SIZE(-25)
VALIDATE(UALPHA,DIGIT,".=_")
:P$ :: P$="DSK"&P$ !022
200 DISPLAY AT(14,1):"USE DI
SK # 1 FOR WORKSPACE?" :: AC
CEPT AT(14,12)SIZE(-1)VALIDA
TE(DIGIT,"X"):Z$ !083
210 IF P$="" THEN STOP ELSE
IF LEN(P$)<3 THEN 180 !104
220 OPEN #1:P$,DISPLAY ,VARI
ABLE 80,INPUT !049
230 OPEN #9:"DSK"&Z$&".TEMPT
EMP",VARIABLE 254,DISPLAY ,U
PDATE !099
240 LN=0 !081
250 IF EOF(1)THEN 340 ELSE L
INPUT #1:A$ !191
260 T=POS(A$," ",1):: IF T>6
 OR T<2 THEN 330 !170
270 FOR L=1 TO T-1 :: Z=ASC(
SEG$(A$,L,1))!138
280 IF (Z>57)+(Z<48)THEN 330
 !130
290 NEXT L !226
300 Q=VAL(SEG$(A$,1,T-1)):
IF Q<=LN OR Q>32767 THEN 330
 ELSE LN=Q !109
310 PRINT #9:W$ :: W$=A$ !23
5
320 GOTO 250 !073
330 W$=W$&A$ :: GOTO 250 !15
6
340 PRINT #9:W$ :: CLOSE #1
:: RESTORE #9 :: OPEN #7:D$,
VARIABLE 132,DISPLAY :: PRIN
T #7:CHR$(15);CHR$(27);CHR$(
48)!042
350 IF EOF(9)THEN 400 ELSE L
INPUT #9:A$ :: Z=1 !159
360 IF A$="" THEN 350 !070
370 W=POS(A$," ",2):: LN=INT
(CLOG(VAL(SEG$(A$,1,MAX(W,2)
-1))))+1 !202
380 T=POS(A$,":: ",Z):: IF T
=0 THEN 390 ELSE PRINT #7:TA
B(-LN*(Z>1)+1);SEG$(A$,Z,T-Z
):: Z=T+2 :: GOTO 380 !005
390 PRINT #7:TAB(-LN*(Z>1)+1
);SEG$(A$,Z,LEN(A$)-Z+1):: G
OTO 350 !222
400 CLOSE #9:DELETE :: CLOSE
 #7 !012
29505 SUB BLUE !149
29510 ! SWITCHES DISPLAY TO
WHITE ON BLUE; JLS 7/88 !230
29515 CALL SCREEN(5):: FOR L
=0 TO 14 :: CALL COLOR(L,16,
1):: NEXT L :: SUBEND !202
31530 SUB TITLE !240
31540 DISPLAY AT(2,10)ERASE
ALL:"LISTLONG" :: CALL CHAR(
123,"00FF"):: CALL HCHAR(3,1
2,123,8)!071
31545 DISPLAY AT(4,1):"
 LISTS PROGRAMS              ON
E STATEMENT PER LINE" !154
31560 SUBEND !168
```

1990 TI FAIRS

FEBRUARY

TI-Fest West '90, Feb. 17-18, Day's Inn, 88 E. Broadway, Tucson, Arizona. Sponsored by Southwest 99ers. For information, call (602) 747-5046 or the Cactus Patch BBS, (602) 795-1953, check GEnie or write P.O. Box 17831, Tuscon, AZ 85730. For room reservations, call (602) 622-4000 by Jan. 16 and mention Fest-West.

MARCH

West Coast Computer Fair, 10 a.m.-6 p.m. March 1-4, Brooks Hall/Civic Center, San Francisco, California. San Francisco 99ers at Booth 1960. Fee $10 per day, discounts for multiple days. Call Neil Wood, (707) 425-3854.

TICOFF (TI Computer Owners' Fun Faire — The IBM & Clone Owners' Fun Faire, 9:30 a.m.-4 p.m. March 17, Roselle Park, New Jersey. For information, call (201) 241-4550 or the TICOFF BBS (201) 241-8902.

APRIL

Canadian TI-FEST, April 28, Merivale High School, Nepean, Ontario, Canada. For information, contact Ruth O'Neill, 34 McLeod St., Ottawa, Ontario, Canada K2P 0Z5 or (613) 234-8050 or CompuServe 72117,3541 or Delphi REON.

MAY

Boston Computer Society Home Computer Fair, 10 a.m.-4 p.m. May 5, cafeteria, Waltham Central Middle School, 55 School St., Waltham, Massachusetts. Contact Justin Dowling, The Boston Computer Society, TI99 User Group, One Center Plaza, Boston, MA 02108.

Alberta TI Orphan Reunion, 10 a.m.-5 p.m. May 12, Innisfail Lions Hall, Innisfail, Alberta, Canada. Contact Fred Kessler, Box 20, Sundre, Alberta, Canada T0M 1X0. Phone: (403) 638-3916.

TI Multi User Group Conference, 9 a.m.-6 p.m. May 26, Reed Hall/Student Activities Building, Ohio State University Lima Campus. For information write Lima Ohio User Group, P.O. Box 647, Venedocia, OH 45894, or call Dave Szippl evenings (419) 228-7109.

Annual Meet of TI99/4A Users Group UK, May 26, North Gate Arena, Chester, England. Contact Stephen Shaw, 10 Alstone Rd., Stockport, Cheshire, England SK4 5AH.

OCTOBER

Fourth Annual CPUG Computer/Electronics Exposition, 7 a.m.-3:30 p.m. Oct. 14, Cocoa Avenue Plaza, 605 Cocoa Ave. Hershey, Pennsylvania. Preregistration through Aug. 3. Write Central PA 99/4A Users Group, P.O. Box 14126, Harrisburg, PA 17104-0126 or call Dave Ratcliffe (717) 238-5414 or The Data Factory BBS (717) 657-4992 or 4997 (24 hours 8-N-1 300/240.

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

The p-System

Using the Filer command

By EDWARD LIVINGSTON

This article will examine the Filer command of the p-System and we'll also set up the emulate file on the hard drive. If you currently have only SSSD drives, then I'll include some tips for you as well. It is preferable to have at least one DSDD drive, you'll see why later in the article.

Now, if you haven't already done so, take the Editor-Filer disk , place it in drive one and power up the system. If you're not familiar with the p-System refer to my previous article (MICROpendium, September 1989) for the instructions in Command Mode. Once the command prompt is up , press (F) and invoke the Filer mode. Your screen should display the following:
Filer: G(et, S(ave, W(hat,?[C.10]

The question mark here, as in the Command Mode, means there are more commands than will fit on the screen line. But, before toggling through them let's look at them individually.

G(et — identifies a specific file as the workfile. Example: Floatpt.TEXT as a file for editing.

S(ave — allows you to save a workfile under a specific file name. Example: Floatpt.TEXT saved as FLOATPT2.TEXT and you will need to use the N(ew command to clear the workfile.

W(hat — this command shows the name of the current workfile and if it has been saved.

N(ew — clears the current workfile and is empty and unnamed.

L(dir — "List Directory" command gives a complete or partial listing of a volume directory.

P(refix — lets you change the default prefix to a particular volume name or display the current default prefix.

Q(uit — allows you to return to the command prompt.

R(em — allows you to delete file entries from a directory.

R(em with Wildcards — same as above but will prompt you through.

S(ave — lets you save a workfile under a specified name.

T(rans — this command lets you copy a file or an entire disk to a specified location.

T(rans with Wildcards — again same as above but will prompt you through.

V(ols — this command lists the names and associated device numbers of all volumes "on line". Example: 1 Console, 2 System, 4 Volume name of emulate file on hard drive, 5Dsk2 or Vol name of disk, 9 Dsk3 or Vol name of disk.

W(hat — displays the name of the workfile and informs you if it was saved or not.

X(amine — this command will try to recover suspected bad blocks on a disk.

Z(ero — this command must be used after you format a diskette. If a directory already exists then it will be destroyed.

> **... the p-System should always have been a hard drive implementation and not on floppies.**

After your look through the filer mode press "Q" to quit and return to the command mode. Remember that pressing "H" for Halt will return you back to the Title Screen.

Now that we are some what familiar with the system, let's set up the disk for the emulate file.

First initialize a good disk with your favorite disk manager. MDMV, DM1000 or whatever you prefer, keeping in mind that the larger your disk capacity the larger your emulate file will become.

The next step is to create the disk itself; we will need to return to the p-System to do this. Make sure the filer is "on-line." First we'll zero the disk that is to be emulated, using the Z(ero command. This becomes the target disk to transfer all "System Files" to. Now, once the command "edit run?" prompt is up, press the "F" for filer. Let's zero the disk with the Z(ero command.

The filer should prompt you with "Zero dir of?" Type the volume name of your disk and press Enter. If the disk already contains an old directory the system will see it and prompt you with "Destroy (volume name)?" Pressing (Y) will create a new directory and pressing (N) will return you to the Filer mode. The next prompt is "Duplicate dir?" Pressing (Y) will create and maintain a duplicate directory, pressing (N) will create a single directory only. A second directory could prove very useful if the original is somehow ruined. The COPYDUPDIR utility uses the second directory to recreate an original. More about that later.

You should now have a disk ready to use in the p-system. If you are still with SSSD drives you'll need to make these into flippies. It's not the perfect situation, but it'll ease the disk hunting problem a bit.

For those who have stepped up to a hard drive we'll take a look at what we need to do. One thing that will become obvious is that the p-System should always have been a hard drive implementation and not on floppies. An emulate file that is large enough will hold all of the "system files" and will greatly simplify program creation and design.

You could create single emulate files by emulating each system disk. However, a 360K disk will hold most of the necessary files and 720K will hold everything. So, DSDD should be the smallest emulate file. Remember you can use the T)Transfer command to transfer all of the files you need while in the p-System. Then toggle back to basic and call up MDM5 and use the "DSK1" emulate file command. You can then create the emulate file and turn it on per the HFDC manual. If you have sufficient space all leftover files, including work files, can be transferred over to the hard drive emulation file.

In closing I hope that the situation between Pecan Software and Myarc can be resolved. Once you see and use it on the hard drive you'll understand my point. Until next time good p-coding.

TRIALS OF A c99 BEGINNER

Standard deviation

By CHARLES E. KIRKWOOD JR.

Two methods of obtaining the standard deviation are given in this article. The standard deviation is a statistical measure of how far a group of observations are away from the mean (average). The smaller the standard deviation, the closer the observations are from the mean.

Without the mathematical symbols it is a little difficult to write the two formulas. The first method does not use arrays while the second one does.

```
/*STANDARD DEVIATION -- METHOD #1*/
extern atoi(),printf();
#include DSK1.FLOATI
#include DSK1.SQRT
main()
{
  float x[8],sum[8],xbar[8],rn[8],xsq[8];
  float s[8],t[8],o[8],sumsq[8];
  char buff[15];
  int i,n;
  itof(0,sum);
  itof(0,sumsq);
  itof(1,o);
  puts("Input number of observations ");
  n=atoi(gets(buff));
  puts("Input observations\n");
  for(i=1;i<=n;++i)
  {
    printf("%d ",i);
    fpget(buff,x);
    fexp(x,"+",sum,sum);
    fexp(x,"*",x,xsq);
    fexp(sumsq,"+",xsq,sumsq);
  }
  itof(n,rn);
  fexp(sum,"/",rn,xbar);
  puts("\nMean ");
  fpput(xbar,buff);
  fexp(sum,"*",sum,t);
  fexp(t,"/",rn,t);
  fexp(sumsq,"-",t,t);
  fexp(rn,"-",o,rn);
  fexp(t,"/",rn,t);
  puts("\nVariance ");
  fpput(t,buff);
  sqrt(t,s);
  puts("\nStandard deviation ");
  fpput(s,buff);
}
/*Link CSUP,PRINTF,FLOAT with object program*/
```

```
/*STANDARD DEVIATION -- METHOD #2*/
#include DSK1.FLOATI
#include DSK1.SQRT
extern atoi(),printf();
main()
{
  float x[10][8],sum[8],xbar[8],rn[8];
  float s[8],t[8],o[8];
  char buff[15];
  int n,i;
  itof(0,sum);
  itof(1,o);
  puts("Input number of observations ");
  n=atoi(gets(buff));
  puts("Input observations\n");
  for(i=1;i<=n;++i)
  {
    puts("x(");
    printf("%d",i);
    puts(") ");
    fpget(buff,&x[i][0]);
    fexp(&x[i][0],"+",sum,sum);
  }
  itof(n,rn);
  fexp(sum,"/",rn,xbar);
  puts("\nMean ");
  fpput(xbar,buff);
  itof(0,sum);
  for(i=1;i<=n;++i)
  {
    fexp(&x[i][0],"-",xbar,t);
    fexp(t,"*",t,t);
    fexp(t,"+",sum,sum);
  }
  fexp(rn,"-",o,rn);
  fexp(sum,"/",rn,t);
  puts("\nVariance ");
  fpput(t,buff);
  sqrt(t,s);
  puts("\nStandard Deviation ");
  fpput(s,buff);
}
/*Link CSUP,PRINTF,FLOAT with object program*/
```

A separate function for the variance, standard deviation, and mean is also included with a function for the median, mean, maximum and minimum values. You can include these with your own program.

I have been rather inconsistent in programs using arrays. Some programming languages do not start arrays with zero (0) sub-

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c99—

(Continued from Page 18)

script. You may have noticed that some of my programs start with zero and others with one. A large number of mathematical routines start with one.

A good program to use with one or both of these functions is the SORT program in the October 1988 issue. This is a character string sort, the character strings (data) must be converted to floating-point before using the functions. The subscripts in this program and SORT function begin with zero and the two functions this month begin with one. To use either or both of these functions make the following changes in the October program:

delete **n=N-1;**
change all **i=0;**to **i=1;**
change **#define dim 25** to **#define dim 15**
change **&t[0]** to **t** (preferred method)
add **#include DSK1.FLOATI**
#include DSK1.SQRT

The sort is not necessary for the standard deviation, but it is required for the median. Now add some or all the following for print out before the end of the program:

```
/*convert from character string to floating-point*/
for(i=1;i<=n;++i)
  stof(&a[i][0],&x[i][0];
/*calculation of median, etc*/
median(n,x,max,min,med,mean);
puts("\nMaximum = ");
fput(man,buff);
puts(" Minimum = ");
fput(min,buff);
puts("\nMedian  = ";
fput(med,buff);
puts(" Mean    = ");
fput(mean,buff);
putchar(10);
/*calculation of standard deviation, etc*/
stdev(n,x,mean,var,std);
puts("\nMean = ");
fput(mean,buff);
puts(" Variance = ");
fput(var,buff);
puts("\nStandard deviation = ");
fput(std,buff);
putchar(10);

/*MEAN,VARIANCE,STANDARD DEVIATION FUNCTION*/
/*n=number of observations*/
/*x=floating-point array of observations,*/
/*first dimension begins at 1*/
stdev(n,x,xbar,v,d)
int n;
float x[][8],xbar[],v[],d[];
{
  float sum[8],rn[8],t[8],o[8];
  int i;
```

(See Page 20)

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(Continued from Page 18)

```
    itof(1,o);
    itof(0,sum);
    itof(n,rn);
    for(i=1;i<=n;++i)
      fexp(sum,"+",&x[i][0],sum);
    fexp(sum,"/",rn,xbar);
    itof(0,sum);
    for(i=1;i<=n;++i)
    {
      fexp(&x[i][0],"-",xbar,t);
      fexp(t,"*",t,t);
      fexp(t,"+",sum,sum);
    }
    fexp(rn,"-",o,rn);
    fexp(sum,"/",rn,v);
    sqrt(v,d);
    return;
}

/*MEDIAN, MEAN, MAX, MIN FUNCTION*/
/*n=number of observations*/
/*x=string array of the observations,*/
/*first dimension begins at 1*/
median(n,x,max,min,med,mean)
int n;
float x[][8],max[],min[],med[],mean[];
{
  int i,j;
  float s[8],rn[8],t[8];
  itof(0,s);
  itof(2,t);
  itof(n,rn);
  for(i=1;i<=n;++i)
    fexp(s,"+",&x[i][0],s);
  fexp(s,"/",rn,mean);
  j=(1+n)/2;
  if(n%2==0)
  {
    fexp(&x[j][0],"+",&x[j+1][0],med);
    fexp(med,"/",t,med);
  }
  else
    fcpy(&x[j][0],med);
  if(fcom(&x[1][0],"<",&x[n][0]))
  {
    fcpy(&x[1][0],min);
    fcpy(&x[n][0],max);
  }
  else
  {
```

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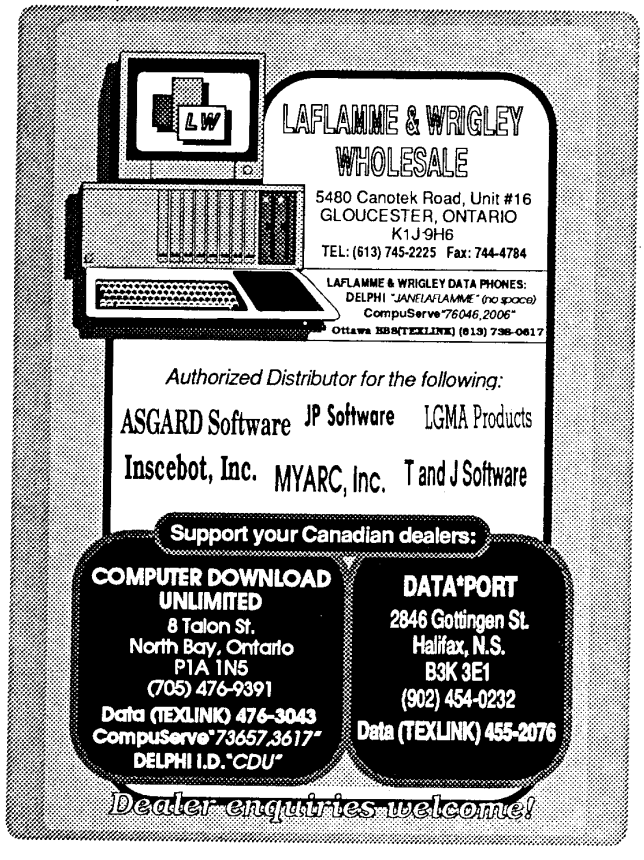

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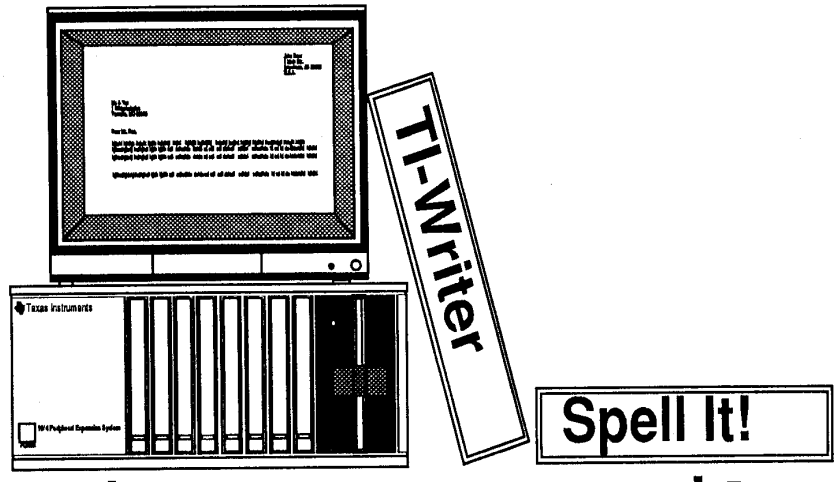

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TI Fest West '90

Asgard shows Spell-It spelling checker

By GARY COX

Although TI FEST WEST 90 was slightly smaller than the well known Chicago TI Faire, the TI FEST WEST has become a recognized annual event for TI enthusiasts held at a different location in the western U.S. each year. This year's event was Feb. 17-18 in Tucson, Arizona, with hundreds of visitors present and dozens of vendors represented.

Among the vendors and personalities present were Bud Mills of Bud Mills Services (Horizon RAMdisk, MEMEX, P-GRAM); Roger Merritt and Steve Mehr of Comprodine Software (Jiffy Card, Form Shop, Picture It, Warzone), also representing Texaments; Chris Bobbitt of Asgard Software; Barry Boone (Archiver); Peter Hoddie representing JP Software (Maxflix Professional, Identifile, PC Transfer) and the Boston Computer Society; Beery Miller of 9640 News Diskazine (for Geneve 9640 owners); Barry Traver of Genial TRAVelER Diskazine; Tom Freeman of the La 99ers and T&J Software; Don Shorock (educational software); Harrison Software (music programs); Regena (well known columnist and programmer); Jerry Price of Tex-Comp, also representing Cor-Comp and DataBioTics; Rich Hurlbutt of McCann Software (Printers Apprentice, Geometers Apprentice, TPA toolbox); John McDevitt of Rave 99 (keyboards, speech card); Terrie Masters of the LA 99ers; Jim Horn representing Myarc, Compuserve and Disk Only Software; plus other vendors with various new and used equipment and software such as the South West 99 users group, North County 99 users group, The Orphanage, Rocky Mountain 99 users group, VAST 99er User Group and Cactuscliff Computer. Various other well known personalities in the TI community were present; last but not least, the officers and members of the South West 99er Users Group, the host for the event.

As for what's new, the first item which caught my eye was The Missing Link from Texaments. The Missing Link is a powerful new utility package for use in Extended BASIC to allow users to perform functions which were previously not possible in XB or required the use of writing your own assembly routines. Enhancements include a windowing environment and various graphic functions allowing access to bit-mapped graphics as well as the ability to display and save TI-Artist pictures in XB, screen dumps to a printer and various other text and graphics functions. A demonstration program of The Missing Link's capabilities is available from Texaments for $3 (including shipping).

Hundreds of visitors at TI Fest West '90 kept vendors busy throughout the event.

Photo by Gary Cox

COMPRODINE SHOWS REMINDERS

New from Comprodine Software was Reminders, an appointment manager and date tracking system, written by Bill Gaskill. Comprodine also represented Texaments and is now distributing Great Lakes Software's product line. According to Steve Mehr of Comprodine, in the development stages are more companion packages for various graphics programs.

While no new programs were available from JP Software, Peter Hoddie did mention several items in the development stages including First Base Utilities, a new version of Triad for the Geneve 9640 which includes hard drive support, disk manager, and terminal emulator as well as several other additional features. Peter also mentioned that John Birdwell will have a new version of his Disk Utilities available sometime this spring. Plus in the works is a hard drive backup program and a new graphics program which Peter described as "way cool."

Barry Boone was displaying a preliminary version (v0.7) of a new program called Giffy Picture. Version 0.7 allows the user to convert GIF format pictures to TI-Artist format as well as to condense the picture and shift it up or left or just view the picture. According to Barry, future versions will allow the ability to transport pictures back and forth between GIF, TI-Artist and MY-Art formats.

New from Beery Miller of 9640 News (a magazine on disk for Geneve 9640 users) was a pre-release version of Windows 9640, a windowing environment for 9640 users. The pre-release version of Windows

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TI FEST WEST '90—

(Continued from Page 22)

9640 (available on volume 1) demonstrates its use in a disk management environment using a mouse as the pointing device. Also new was a version of Tetris which will run through M-DOS. Beery also demonstrated an multi-tasking environment which, with the use of additional memory, allows Advanced BASIC users to run two separate programs at once. Plus a pre-release version of "HIMIX" was shown which is capable of page making abilities including multi-fonts, line graphics and typewriter capabilities.

ASGARD INTRODUCES SPELL-IT

New from Asgard Software was Spell It, described as the "next best thing next to your word processor." Spell It is a new spelling checker allowing the user to check the spelling in any D/V 80 file (files produced by programs such as TI-Writer, Funnelweb or MY-Word). The dictionary contains between 30,000 and 200,000 words, depending on your hardware configuration (e.g. hard drive, DS/DD). Spell It uses a "Smart Check" algorithm "making it equivalent to a dictionary several times as large." Furthermore, features allow the ability to add words to the dictionary, correct the word in your text, view the word in the context of your text and list the dictionary for a suggested spelling of the misspelled word as well as the ability to possibly add foreign language dictionaries. Also new from Asgard Software was the Asgard Mouse, compatible with the TI99/4A and Geneve 9640. Plus new was "Edu-Pack," a package of several educational programs for use by small children.

MILLS SHOWS ROS_8

Bud Mills of Bud Mills Services had on hand the recently introduced MEMEX card for the Geneve as well as RAMBO for the Horizon RAMdisk. New was ROS_8 operating system specifically written for the Horizon RAMdisk when used with the RAMBO. According to Bud Mills ROS_8 corrects some bugs associated with the RAMBO and previous versions of the Horizon Operating System.

Regena of 918 Cedar Knolls West, Cedar City, UT 84720, was offering monthly issues of a magazine she is calling "Programming in Myarc Advanced BASIC," which includes programs on disk with each monthly issue. Cost is $6 per issue.

Two demonstration rooms were set up for presentations throughout both days on subjects ranging from the product lines of the various vendors to everything that you ever wanted to know about disk drives. Even Friday, Saturday and Sunday nights were long with many TI enthusiasts staying up well into the night discussing tips and tricks and trying to get a scoop on what's on the way. The TI FEST WEST was certainly time well spent and an enjoyment for all. I would highly recommend taking the time to try to attend the closest TI fair!

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#9. MONA LISA PRINT OUT
This disk prints out a near photo quality picture of that lady with the clsssic smile. We understand it was made by digitizing the original with a super powerful computer and converting the output to run on the TI-99/4A. Impresses everyone who sees it! Requires Epson printer compatibility.

#10. GOTHIC PRINT
This disk lets you type out a phrase on the screen and then print it out in gothic (Old English) style. Looks like hand-lettered calligraphy. Use for invitations, announcements and business cards.

#11. ANIMATED CHRISTMAS CARD "WOODSTOCK"
This disk was actually originally sent to TEX-COMP as a greeting from master programmer Ray Kazmer. It was just too good not to share! One of the best examples of computer animation and graphics you will see on any computer!

#12. TI-99 OLOPY
This great piece of programming actually simulates and plays the famous board game. For legal reasons we cannot name the game but "do not pass Go! but go directly to Jail!"

#13. STRIP POKER (PG RATED)
Play Poker against your TI-99/4A. When you win a hand she loses--a piece of her clothes that is. Don't worry about being a lousy poker player. Another file is included where you don't even have to know an ace from a king.

#14. FIGURE STUDY (PG RATED)
A collection of Playboy type centerfolds that can be printed out at your command. Use with any printer.

#15. STAR/EPSON PRINTER DEMO
This 2 sided disk contains a large collection of demo programs to put your Star/Epson compatible printer through its paces. Learn what control codes can do! Lots of text and graphics examples. Second side has a great tutorial on printer graphics with examples!

#16. SIDEWAYS PRINTOUT
This program allows you to print out the material from your printer sideways. Great for spreadsheets, banners and large graphics. Second side contains some new enhancements for Multiplan not available on the TI upgrade.

#17. TI FORTH DEMO
This demo disk was released by TI to show the power of Forth. Fantastic music and graphics. Ed/Assem and 32K required!

#18. TI DIAGNOSTIC
This program loads into the Mini-Memory module and checks out your entire system. Much better than disk based diagnostics that cannot be used if a problem in the disk system is at fault. Complete documentation on second side.

#19. TI WRITER/MULTIPLAN UPGRADE
This disk released by TI adds real lower case to your TI Writer, speed to Multiplan and other enhancements. Easy to use., just substitute new files for old! Instructions included.

#20. ACCOUNTS RECEIVABLE
This self contained prize winning program loads and runs in Exbasic and has all the features found in a progessional accounting system. Complete with documentation and a second disk side with report generating programs.

#21. DATA BASE DEMO DISK
A progessional data base program that was originally written to store various magazine articles from computer magazines and then find them by name, subject, key word, or publication. Fast, easy to use and easy to adapt for other applications. Come complete with sample data to make learning data base processing easy. Completely menu driven and unprotected.

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#22. ASTROLOGY
This one is as good as anything you will see in an arcade. Great color graphics and displays of the Zodiac. Enter your birthdate and learn about your sign, your lucky days and famous events in history on your birthday. Even prints out a report. Can be used as a great moneymaker at a charity event. Help guide your spouse's career.

#23. WILL WRITER
Enter your answers to a group of computer asked questions and this program then writes you a last will and testament. Now you can leave your TI-99/4A to your favorite nephew. Works with any printer. Appears legal in all states but better check that out!

#24. ENGINEERING CALCULATIONS
A two sided computer handbood of dozens of the most often used engineering and technical formulas. A real time saver. Does conversions, calculations and even designs electrical circuits. A must for anyone whose profession or hobby involves scientific calculations. Even has medical and communications applications.

#25. MEDICAL ALERT
This disk contains many menu accessible files covering most everyday medical emergencies. A good "what to do until the doctor or paramedic comes" guide. Well written and organized. Could very easily save a life!

#26. R RATED GAME
It was bound to happen. A talented (but demented) programmmer in Germany wrote an Invaders type game but with most unusual guns and targets. Definitely not what you would find at your neighborhood arcade. Not only a great party game but some great programming. You must be over 18 to order this one!!

#27. KIDS LEARNING
An educator in Georgia put this two sided disk collection of educational programs together. Contains great material. Math, geography, reading improvement, and even IQ testing. All high quality programs for kids of all ages.

#28. LOADERS AND CATALOGERS
We put together a collection of the best programs that catalog and load a group of programs on a disk. Just try them, pick the one you like and transfer it to another disk with the file name LOAD and you are in business.

#29. LABEL MAKER I
Two great programs for making custom labels for disks, addresses video tapes or any other application. Even contains a graphic display of the TI-99/4A console. Now you can create custom labels of any number by just typing in the lines as you want them. Uses standard tractor labels.

#30. HOUSEHOLD BUDGET PRINTOUT
With this disk you print out the data you have stored with the TI HBM Module. HBM is a great module that can be used for many home and small business applications but TI forgot to include a printout function. This program comes with full instructions and we are sure that your HBM Module will now start being used. Fantastic programming job.

#31. MORSE CODE TRAINER DISK
This disk has everything you need to learn and practice Morse Code for the various FCC license exams. It also is great for scout groups and school "ham" clubs for group training and merit badge qualification. Professional quality.

#32. EXBASIC XMAS MUSIC
Two disk sides full of high quality xmas music that can be played throughout the holiday season and then used as a learning tool since it contains wonderful arrangements and graphics. Autoloading and menu driven.

#33. CHECKERS & BACKGAMMON
A collection of great checkers and backgammon games for the TI-99/4A. These are professional in quality and will keep you busy for hours.

#34. SOLITAIRE & SCRABBLE
Another collection of classic games for the TI-99/4A. Exbasic & 32k req.

#35. PROGRAMMING AIDS & UTILITIES I
A collection of some unusual programs of interest to programmers. One program shows a group of opening title displays, another is a cross reference program as good as any of the commercial ones, plus a great disk management utility.

#36. STRICTLY BUSINESS
A collection of various programs for evaluating loans, calculating interest, and other financial items such as return on investment and security performance. Two disk sides filled with financial and business related programs.

#37. LAPD COOKBOOK
This unofficial police cookbook was put together by one of our boys in blue who is also a gourmet chef. (Yes, it contains jailhouse chili) Over 50 great receipes from soup to nuts on two disk sides and each separate side can be called up on screen or printer in exbasic from a menu. As good as any of the new PC computer cookbooks we have seen.

#38. GREAT 99/4A GAMES VOL. I
A collection of professional games in assembly and exbasic that all load from a menu in exbasic. Includes a great ski game where you dodge the trees in a fast downhill run. We have included only the best.

#39. GREAT 99/4A GAMES VOL. II
Still more of the great ones from all over the world. The quality, graphics and speed of many of these games will make you wonder why they were never released commercially.

#40. ARTIFICIAL INTELLIGENCE
This disk contains the famouse computer program "Eliza" where you type in a question or a problem you are having and "Eliza" helps you find the solution. Also contains one of the better bio-rhythm programs so you can analyze all your emotional problems at one sitting.

#41. VIDEO GRAPHS MODULE BACKUP DISK
This disk is a backup of the discontinued Video Graphs Module from TI. For legal reasons, it can only be purchased for backup use by owners of the original module. Do not order UNLESS you have the original module and intend to use this disk only for backup purposes. Exbasic autoload....

#42. FUNNELWEB FARM UTILITY
You heard about this one, now direct from Australia is the latest version of this fantastic utility that puts everything at your command. From one program you can access word processing, editor assembler, telecommunications and just about everything else. A freeware program complete with documentation on a second disk side.

#43. BEST OF BRITAIN, VOL I
Now for the first time, a collection of the best 99/4A games Britain has to offer including the famous "Billy Ball" series of arcade games. Great graphics, action and excitement.

#44. LABEL MAKER I GRAPHICS
A disk filled with graphics for the Label Maker I disk (#29). Dozens of great graphics for custom labels!

#45. BEST OF BRITAIN, VOL II
This disk contains an outstanding 3-D graphics adventure game for the TI-99/4A. Carfax Abbey lets you actually move through a four story mansion complete with bats and vampires. You actually are placed in each room and go up and down stairs and through secret panels. Legend of Zelda ...look out!

#46. SUPER TRIVIA 99
A great trivia game for 1 to 4 players with great questions and capability to add your own and print out the files. This one is a real challenge.

#47. INFOCOM RAPID LOADER
If you have Infocom games this is for you. Loads all TI Infocom games in only 28 seconds and permits new screen colors and improved text display. Comes with all documentation on disk.

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#48. GHOSTMAN (from England)
This Pacman Munchman type game starts at a slow pace and slowly speeds up to a break-neck pace. A totally new experience.

#49. DEMON DESTROYER (from France)
This great assembly game starts where Invaders leaves off. Add features like descending aliens and closing walls. Hours of great arcade action.

#50. OH MUMMY (from Germany)
Move through the chambers of a Pyramid in search of hidden treasure. Fantastic graphics and great entertainment.

#51. BERLIN WALL (from Canada)
This game requires a mine field to be crossed before escaping from E. Berlin. Good graphics and a real challenge.

#52. ANIMATION 99 (from Germany)
THIS IS THE ONE!!! A demo disk filled with computer animation routines like you have never seen before on any computer. See famous cartoon figures move with more realism that on Sat. morning TV. This disk received a standing ovation when previewed at a local users group. We have even included instructions how to do it yourself on the second disk side. This one is a show stopper!!!

#53. HACKER/CRACKER
A collection of disk copying programs that copy TI disks by tracks. If one of these can't copy a protected disk nothing will. We included a collection of the very best ones including both TI and CorComp compatible. These programs require 2 disk drives and 32K of memory.

#54. ASTRONOMY
This program from Australia plots the heavens and teaches you about the solar system. A great learning and reference tool. Exbasic and 32K required. Don't confuse this one with our Astrology demo. They are not the same...ask Nancy!

#55. SCREEN DUMP
This program allows you to dump disk and even module programs to a Star Epson compatible printer. Comes with easy to follow plans to build a load interrupt switch which is needed to dump module programs. This dump program by Danny Michael is considered the best of the bunch! Complete with documentation.

#56. SPREAD SHEET
OK, it's not Multiplan but it works great and handles many spread sheet applications. A great way to learn to use spread sheet software. Comes with full instructions and documentation.

#57. TELCO
Considered one of the best data communications programs for the TI-99/4A. Complete with documentation.

#58. PR BASE
The alltime most popular and widely used data base program for the TI-99/4A. A freeware program that is widely supported and updated.

#59. GRAPH MAKER
A collection of the best programs for producing graphs and charts from your data. Exbasic and printer.

#60. FREDDY
A fantastic game where you guide the hero through underground passages filled with danger. Nintendo quality, great graphics and fast action. One of the best we have ever seen!!!

#61. THE MINE
A fast action game from F.R.G. that will keep you going for hours. Many screens and skills required.

#62. DISK MANAGER II MODULE BACKUP
The complete TI Disk Manager II on Disk. For legal reasons it is only available to owners of the original module for backup use.

#63. ASTROBLITZ/MAZOG
A pair of great games that continue where Parsec and Munchman leave off. Imagine Parsec with enemy space craft coming from in front and in back of your ship!!!

#64. MAJOR TOM/SPACE STATION PHETA
A pair of great space games. These two are going to keep you in front of the 99/4A for hours. Great!

#65. PERFECT PUSH
An all new space game where you assemble and launch a rocket ship in outer space while avoiding a space monster. This one is professional in very way..graphics, speed and action!!!

#66. HEBREW TYPEWRITER
This program converts your TI-99/4A keyboard into a typewriter that displays Hebrew letters on the screen. Can also be printed when used in conjunction with screen dump program (included). Great for religious training or making your copy of the dead sea scrolls or ten commandments!

#67. GENEALOGY
Now you can set up your family tree and store or print out the records. Great for keeping track of family relationships and records.

#68. CHESS
The original computer chess game Sargon has been reprogrammed for the TI-99/4A. Now play chess with your computer. Documentation included. Exbasic autoload.

#69. COMPUTER PLAYER PIANO/KEY-BOARD CHORD ANALYSIS
A unique music program which displays a piano on the screen and actually plays your selections.

#70. TI RUNNER II
The very latest (and best) "runner" game based on TI Runner and Star Runner. Great action, graphics and entertainment.

#71. KIDS LEARNING II
Two more disk sides loaded with the best in educational programs. Kids improve their math, spelling and comprehension skills while having fun.

#72. CERBERUS
Fantastic space game from Germany. Pilot your ship through narrow and crooked channels in space without colliding. Great graphics and music.

#73. CRYPTO (gram)
One of the best word games we have seen for any computer. Set up like a TV game show with great screen displays.

#74. LABEL MAKER II
Make labels for holidays and special events. You compose the text and select the resident graphics for the occasion.

#75. DISK CATALOGER
Now you can organize your disk files with this great utility. Files, sorts, and prints your records. Easy to use.

#76. PROGRAMMING AIDS AND UTILITIES II
A collection of very useful material. Includes a program to convert basic to exbasic so your old basic programs will load & run in exbasic, even with graphics. Also includes two on screen diagnostic programs to test your keyboard and processor. A great merge utility is also on this disk.

#77. MICROdex 99
A database program by Bill Gaskill which files and retrieves data such as magazine articles. A sample database is included.

#78. ARTCON+ BY RAY KAZMER
ATTENTION GRAPHX AND TI ARTIST USERS!!!
This program lets you convert Exbasic graphics to TI Artist and Graphx pictures. Also contains a new MAC-RLE (2) for converting from Artist to Graphx.

#79. DM1000 V3.5
One of the most popular disk managers for the TI-99/4A. Originally a rip-off of the CorComp manager, it has been improved and refined by talented users all over the world. This version is deemed the most reliable to date and is far advanced over the TI Disk Manager II. Distributed by permission from CorComp.

#80. BIRDWELL DISK UTILITY
A must if you are junto programming and software development. Besides being a great disk manager, it has provision for copying sectors, comparing files and is menu driven. Complete with documentation.

#81. HOME ACCOUNTING SYSTEM
A complete family & small business accounting system including a checkbook manager, budget analysis, mailing list and an inventory program. Complete with documentation. Easy to modify for specific needs.

#82. CROSSWORD PUZZLES
This program from Australia creates a different puzzle each time you run it. Self contained with definitions and vocabulary taken from a leading crossword dictionary. Great crossword fun.

#83. HOME APPLICATION PROGRAMS
A two disk side collection of useful programs for the home. Includes banking, cooking, home bar guide, utility records, and much much more. Something for everyone.

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#84. GALACTIC BATTLE/SPY ADVENTURE
A pair of great commercial quality games from EB Software of TI Runner fame. Galactic Battle is a space "trek" type strategy game for one or more players. Spy Adventure is an adventure game that will keep you guessing for hours.

#85. AUTOBOOT UTILITY
This utility which can be installed on a disk loads and runs or displays most files. Now you can have a disk with exbasic programs, Editor Assembler programs and TI Writer files and run or display them all from exbasic.

#86. COLUMN TEXT III V3.2
A very useful utility for printing TI Writer and 99 Writer II files in separate spaced columns. Saves hours in producing a newsletter. Complete with documentation.

#87. ARCHIVER III
This utility allows you to "pack" or combine several files into one for space utilization. A number of boards are sending files packed to save transmission costs. This utility will let you pack and/or unpack these files.

#88. AUSSIE GAMES VOL 1
A collection of games from our friends down under. Includes a great card game and board game. Hours of fun and entertainment. Includes Matchmaker & TILO.

#89. PROCALC
This is an on screen calculator for decimal/hexidecimal conversions and much more. A must for the serious programmer.

 # 90. JET CHECKBOOK MANAGER
This checkbook manager is considered the ultimate with every feature you can think of for keeping track of your checking account and keeping records of your spending for budget and tax purposes. Complete with documentation.

#91. "THE MAZE OF GROG"(St. Valentine)
Ray Kazmer has created a great maze game with fantastic graphics and the characters from his now legendary "Woodstock" disk. Fun for all!!!

#92. HOUSEHOLD INVENTORY
Written by 99/4 programming great Charles Ehninger, this prize winner originally sold for $59.95. Keeps track of household, business or personal items by category and provides automatic updating for inflation etc. A must for tax and insurance records!

#93. THE 1990 KBGB GIRLIE CALENDAR
This latest offering from programming master Ken Gilliland prints out a jumbo 12 month calendar with a knock-out centerfold pinup for each month. If you like our #14 Figure Study disk, you will flip over this one. For Adults Only!! Exbasic & d/m printer.

#94. GREAT 99/4A GAMES VOL. III
If you have seen vols. 1 & 2 of this series you know we only provide the very best. This latest volumn is also filled with a collection of great ones!

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

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

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

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

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

#100. ASSULT THE CITY (T. of DOOM)
An exciting game for use with the Tunnels of Doom module. Several Exbasic bonus games are included.

#101. ENCHANCED DISPLAY PACKAGE
This screen enhancement utility lets you do 40 columns, windowing, reverse scrolling, clock/alarm, and a whole host of other great tricks in exbasic. Fully documented.

#102. COLOSSAL CAVES ADVENTURE
This classic adventure now available for the 99/4A is what led to the Zork series. Hours of text adventuring.

#103. SORGAN, THE 99/4A ORGAN
This program which is currently selling for big bucks on module turns your 99/4A into an electronic organ. Sound effects, different instruments and voices, chord forms, color graphics with complete control of all.

#104. C99 COMPILER AND LIBRARY
This two-sided (flippy) disk gets you into C programming with your 99/4A. Comes with a great collection of utilities such as text & graphics. (E/A)

#105. KING'S CASTLE+
A great arcade style assembly game formerly offered on module. Also includes an EB "Trek" game and a collection of sprite & graphics from Tigercub's Jim Peterson.

#106. QUEST (Dungeons & Dragons)
One of the best D&D games around! You must destroy the Dark Lord to free your homeland! Complete with documentation on disk.

#107. STAR TREK MUSIC ALBUM
Ken Gilliand's music and graphics version of the TV theme and the three motion pictures. (Exbasic)

#108. FUNLPLUS BY JACK SUGHRUE
Fantastic disk packed with Funnelweb (#42) templates, utilities and prog. to augment and configure Funnelweb. Unbeliveable collection of fantastic aids to make the best even better!

#109. TI-WRITER MINI MANUAL
This disk prints out a five page TI Writer manual with everything you need to know to use TI Writer or the many clones such as 99Writer II. Additional aids for using this powerful word processor are included.

#110. DISK + AID
A powerful disk sector editor formerly sold for $20. Menu Driven and easy to use.

#111. POP MUSIC & GRAPHICS
This exciting disk from Germany features music/graphics written in 100% assembly and what comes from the TI sound chip is sure to astound you.

#112. INVOICE PACK
An excellent invoice preparation and printing program with instructions on how to modify it for your own business.

#113. LABEL MAKER 3
A collection of label programs to create mailing and disk envelopes, disk labels and much more!

#114. PANORAMA
A drawing and illustration program that compliments Graphx and TI Artist. A must for the serious 99/4A artist!

#115. GRAPHICS DESIGN SYSTEM
A complete system for creating graphic screens in full color for your programs by J. Peter Hoddie. Fully documented.

#116. FOURTH TUTORIAL
A lesson in FORTH programming on how to create graphics.

#117. UNIVERSAL DISASSEMBLER
This powerful utility written in Forth allows disassembly of programs off disk in any format, in memory, and even off of P-Box cards. Very complete with some very unique features.

#118. FAST TERM
One of the most popular and recommended of the 99/4A terminal emulator programs. Supports TE-II, ASCII, and X-Modem transfers, print spooling and more. Loads from Exbasic or E/A.

#119. RAG LINKER
A utility for converting DIS/FIX 80 assembly object code files to PROGRAM image. This allows files to load faster and take up less space on disk. Full Doc

#120. BITMAC
The original BITMAC is now available at $4.95 with all original documentation. A powerful graphics program for the 4A which lets you print where you want..even over pre-existing text. Create great graphics in 16 colors, print text sideways, mirror image, upside down etc. etc. A **must** for anyone into 99/4A graphics. Comes with second bonus disk with utilities such as sign & banner makers. Even can computer generate your own signature!

#121. SUPER YAHTZEE & WHEEL II
If you like Yahtzee this disk is for you. A great version written in high speed assembly. Also included is another version of Wheel of Fortune which also lets you create your own puzzles with a puzzle edit program included.

#122. ADULT ADVENTURE
A trily adult adventure for use with the TI Adventure Module. Also included is a bonus adventure (not adult) "LOST GOLD" which is one of the better ones we have seen recently.

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TI bulletin boards listed

By GERALD J. MACDONELL

I had promised a few people, inluding the editor of this magazine, a compiled list of TI Bulletin Board Systems. I assure you, this is no mean feat! The following list contains over 220 BBS numbers and connection information. I cannot guarantee that all of the BBSes on this list still exist; my main goal was to cover the broadest area possible, allowing anyone using this list to find a BBS in his area code. The BBSes are listed as operating out of IBM systems should contain TI or Geneve files.

Any BBS with the notation (Not known) are BBSes that have no listed names. I have limited funds, so I can't verify their existence or check their names. Sources used for this list include MICROpendium (June 1987-August 1988) and BBS listings from boards on this list. The telephone numbers are numerically ordered with the area code first, then to increasing numbers. Any notes on parity or hours has been listed. Note that BBSes marked 1200 baud can handle calls up to 1200 baud, so if you have only a 300 baud modem you can still connect to the BBS.

For those whose area codes aren't included here: A good way to find BBS numbers is to call local computer stores. In many cases, they'll have a list of numbers.

You may want to call an unfamiliar board by voice first to confirm that it is still online. If you get a modem tone, you know it is still in business. Also, avoid placing a late night call to an unfamiliar board. The hours may have changed and the SYSOP may not appreciate being awakened from his sleep.—ED

BOARDNAME	TELEPHONE	BAUD	HOURS	CPU	OTHER
Beaver Board Techie	201-238-8170	1200	24	4A	NJ
Turbo BBS	201-257-2607	1200	24	4A	NJ
TI Net	201-370-4756	1200	24	4A	NJ
NNJTIBBS	201-472-1799	300	24	4A	NJ-7N
Ramer 99	201-584-5373	300	24	4A	NJ
The Circus BBS	201-592-0456	1200	24	4A	NJ
O.B.T. Techie	201-679-0549	300	24	4A	NJ-7N
TI-World	201-794-3175	1200	24	4A	NJ
Dragon's Lair U.G.	201-929-8161	1200	24	4A	NJ
Panhandler TI-Net	201-972-9322	1200	24	4A	NJ
BBBBS	202-292-1482	1200	24	4A	MD
99ers Bull Board	202-631-8772	1200	24	4A	VA-Clsd Entr
E. Hartford	203-289-6321	1200	6p-9a	IBM	CT
W. Hartford	203-521-1991	1200	24	IBM	CT
Chelsea TIBBS	203-665-0119	1200	6p-5a	4A	CT
New Canaan	203-966-8869	1200	24	IBM	CT

c99—

(Continued from Page 20)

```
        fcpy(&x[1][0],max);
        fcpy(&x[n][0],min);
    }
    return;
}
```

The following must be linked with the object program: CSUP, CFIO, FLOAT.

BOARDNAME	TELEPHONE	BAUD	HOURS	CPU	OTHER
Birmingham TIBBS	205-419-4162	1200	3-10p	4A	AL
Huntsville	205-586-1956	1200	7p-7a	IBM	AL
TI-Bugs Techie	205-836-7608	300	24	4A	AL
Queen Anne Comp.	206-361-0895	300	24	4A	WA
Seattle RBBS	206-367-7949	300	10p-9a	IBM	WA
J.R. Exchange	206-377-1845	1200	24	4A	WA
Dave's BBS	206-522-1340	300	24	IBM	WA
Great NorthWest BBS	206-598-3228	1200	24	4A	WA
TIBBS	206-631-8772	1200	24	4A	WA
Puget Sound 99ers	206-784-4142	1200	24	4A	WA
Throthgard (TIK)	206-824-6757	1200	24	4A	WA
Down East Connect.	207-797-5690	1200	24	4A	ME
TI-Downloads	207-892-4414	1200	24	4A	ME
After Hours	212-547-4210	1200	24	4A	NY,NY
TI World of S. Cal.	213-923-8433	1200	24	4A	CA
99 BBS	213-947-7777	1200	24	4A	CA
Longhorn TIBBS	214-240-4608	1200	24	4A	TX
99er Connection	214-272-2786	1200	24	4A	TX
The Orphanage	214-276-7832	1200	24	4A	TX
(Not known)	214-353-0502	1200	24	4A	TX
FLUGTIBBS	214-398-7162	1200	24	4A	TX
Dungeon Keep	214-618-5729	1200	24	4A	TX
The Flip Side	214-964-0603	300	24	4A	TX
Techie	215-252-8867	1200	24	IBM	PA-TI wares
(Not known)	215-258-5235	1200	24	4A	PA
Com-Link HQ	215-289-4948	300	24	4A	PA
Studio 1	215-372-1154	300	24	4A	PA
TI D Bits	215-672-4051	2400	24	4A	PA
(Not known)	215-676-7393	1200	24	4A	PA
Philly TIBBS II	215-745-9774	1200	24	4A	PA
Resurrection Connect.	215-785-2268	1200	24	4A	PA
TI-Line	215-926-1661	1200	24	4A	PA
Philly TIBBS I	215-927-6432	1200	24	4A	PA
TI Line	215-929-5348	1200	24	4A	PA
DreamScope	216-533-3593	1200	10p-8a	4A	OH
Free-Net BBS	216-742-3072	1200	24	4A	OH
Penn-Ohio UG	216-755-8220	1200	24	4A	OH
Champaign FIDO	217-359-3431	1200	24	IBM/TI	IL
Techie	217-384-8173	1200	24	4A	IL
(Not known)	219-659-1245	1200	24	4A	IN
(Not known)	219-854-4787	1200	24	4A	IN
BBBBS	301-292-1482	1200	24	4A	DC
(Not known)	301-434-0117	1200	24	4A	DC
(Not known)	301-477-1624	1200	24	4A	DC
Bullboard II	301-927-7079	1200	24	4A	DC
Delaware Valley UG	302-322-3999	1200	24	4A	DE
Rocky Mt. 99ers	303-288-3692	1200	24	4A	CO
(Not known)	303-528-8971	1200	24	4A	CO
Villa-TI	303-574-2567	1200	24	4A	CO
Front Range 99ers	303-574-5762	1200	24	4A	CO
(Not known)	304-727-8436	1200	24	4A	VA
Miami U.G.	305-255-6307	1200	24	4A	FL
Kraker BBS	305-327-3629	1200	24	4A	FL
(Not known)	305-583-4343	1200	24	4A	FL
Comm-Link 99	305-682-1526	1200	24	4A	FL
Cheers	305-682-3701	1200	24	4A	FL
(Not known)	305-793-8050	1200	24	4A	FL
(Not known)	305-851-8384	1200	24	4A	FL
(Not known)	305-877-6546	1200	24	4A	FL
Lone Wolf	305-894-9641	1200	24	4A	FL

Additional listings of TI BBSes will be published next month.—ED

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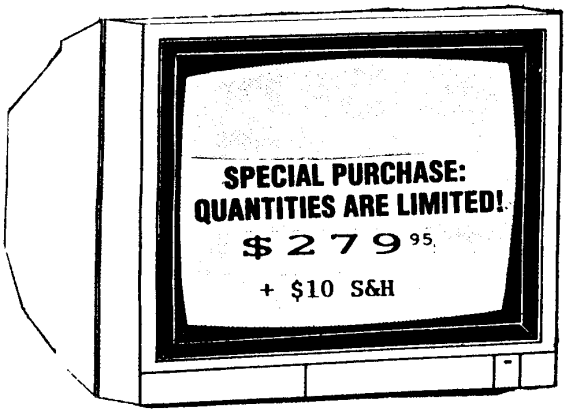

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EXPANDING YOUR SYSTEM

Do you think you need a modem?

By JOHN KOLOEN

Who needs a modem?

If you make your living with computers, the answer is that you do. However, if you are a hobbyist, the answer depends as much on how serious of a hobbyist you are as well as how much money you have to spend on your hobby.

There is no question that a modem opens up a new world for computer users who have gone without them. A modem gives you the potential to connect with millions of other computer users throughout the world. By so doing, it gives you access to thousands of programs that in many cases are free for the downloading.

But let's not get too far ahead of ourselves. First of all, what is a modem and what does it do?

WHAT DOES A MODEM DO?

A modem (MOdulator DEModulator) is an electronic device that performs the modulation and demodulation required for telecommunications. Modems are used to connect computers using telephone circuits so that users of two or more computers can communicate with each other using their computer keyboards as input devices. The modulator on the transmission end converts the computer's signals to the proper codes for transmission over telephone lines. The receiving end demodulates the signals, or reconverts them into characters readable by the receiving computer.

Discussions of modems get technical very quickly, and that's not the focus of this series. What I'm trying to do is to give you enough information to decide whether a modem is for you.

Beyond the modem, which is hardware, software is also required to make telecommunications work. Generally, terminal programs — TELCO, Terminal Emulator II, Fast Term, 4A-Talk, etc. — are used with the TI and Geneve to initiate and control telecommunications. Basically, the software is used to make sure that your computer is able to make itself compatible with the receiving computer. Thus, a TI user can communicate directly with a Macintosh user, an Amiga user, a PC user. However, while it is possible to send data in ASCII format between one computer type and another, the same isn't true for programs. Don't expect to download a program meant to run a PC to your TI and be able to run it. While it may be possible to actually download a PC program to your TI or Geneve, there is no way to load and run it on your TI. However, there is no problem in downloading a TI program from another computer and using it on your TI.

You may have noticed already that telecommunications comes with its own vernacular. Already we've used a few words that you may not be familiar with — downloading, modems, terminal programs. The list goes on. But since we're discussing modems, we'll leave the definitions aside.

1200 BAUD BETTER THAN 300

Modems come in many sizes, ranging from 300 baud and upwards. They also come in two varieties: Acoustic and digital. Acoustic modems use a pair of couplers into which a telephone handset is placed when in use. The acoustic modem is in turn plugged into your computer's RS232 port. A digital modem lets you plug a phone line directly into it. The digital modem is then plugged into your TI's RS232 card. Unlike PCs, there are no modem cards for the TI or Geneve, but that's not a great loss since an external modem can be used with a variety of different computer brands while a modem card is limited to that type of computer.

A 300 baud modem is generally the most basic modem you will find. A 300 baud modem transmits and receives data at 300 baud, about 37 characters per second. This is about as slow as most terminal programs will operate, though some support 110 baud. I don't recommend 300 baud modems simply because they operate at such a slow speed. I don't believe 300 baud modems are manufactured anymore

1200 baud modems are much more common and can be had for under $100. 2400 baud modems are even better, and I've seen them for as little as $110.

TIME IS MONEY

Basically, the reason that 1200 and 2400 baud modems are desirable is that they allow you to telecommunicate at higher speeds. And because much telecommunicating is done over long distances or on a cost per minute basis, time IS money. Although 1200 baud isn't four times as fast as 300 baud — the transmission rate depends on other factors as well — it is *close* to four times as fast. A 2400 baud modem can send or receive data at *nearly* twice the rate of a 1200 baud modem. Plus, if you want to telecommunicate at slower speeds you can. Modems generally support any speed your terminal program can support up to its maximum speed. Thus, a 1200 baud modem can be used at 300 baud as well. The same goes for 2400 baud modems.

Faster modems are available — 9600 baud and higher — but they are extremely expensive and aren't designed for use by hobbyists.

Things to look for when selecting a modem are:

- Hayes compatibility;
- Proper cable for connection to TI RS232 port.

Hayes compatibility simply means that the modem supports the Hayes instruction set. This is an industry standard set of codes used in telecommunications. If the modem doesn't claim to be Hayes-compatible, don't buy it.

YES, YOU'LL NEED A CABLE

The cable issue turns on how handy you are at fabricating cables. Most modems are designed to be used with PCs. This means that they come with cables designed to be plugged into a PC RS232 port, not a TI RS232 port. Unless you buy the modem from a TI vendor, you will have to either fabricate your own cable or have someone else do it for you. Most modem manuals provide plenty of information that can be

(See Page 32)

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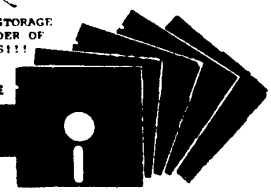

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EXPANDING YOUR SYSTEM—

(Continued from Page 30)

used to fabricate a cable and generally all you are doing is switching a single set of pins of a standard 25-pin plug. I had a computer doctor do the job for me for $15 about five years ago. What he did was to fabricate an adapter plug, one end of which is plugged into the RS232 card. The PC-compatible cable that came with the modem is connected to the other end of the plug. With this adapter plug, I can use any PC-compatible modem using the cables that come with it. I've used a number of modems since I had the adapter made but I've used the same adapter with all of them.

You may think that the big cost of the modem is what you have to pay for it. But that may not be true. What you do with the modem may cost a lot more. For example, if you sign up for one of the popular national telecommunications services — CompuServe, Delphi or GEnie — you can expect to pay at least $6 per hour while online during non-prime-time hours (evenings and weekends). Fortunately, most users in the U.S. can access these services without making long distance phone calls. However, those living in relatively remote areas would also have to pay long distance charges, which can make the cost per minute double.

There are thousands of other private electronic bulletin boards throughout the country. Many of them are open to the public and don't charge fees to users. Frequently, these boards are operated by hobbyists or those with a special interest in telecommunications or other subjects. Your modem is the key to this vast network of information services. (Elsewhere in this issue you'll find a listing of TI bulletin boards.)

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I know of TIers who have spent as much as $500 in a single month on telecommunications charges. For many, it is almost an addiction. I have a stepson who spends hours every week on the boards, though, fortunately, he is permitted to call only local boards that don't charge fees. When I first got into telecommunications, I was spending more than $150 a month, but I've since cut it down a lot. Primarily, I don't have as much free time as I once had.

What do you need besides a modem? A disk system would be required if you intend to download any software, an RS232 card is required, as is a memory expansion if you intend to use any of the better terminal programs. TEII works out of the TI console but it doesn't support the XMODEM protocols which are required to download software from most bulletin boards. And, of course, a phone.

What about used modems? As long as you know they work, and they come with the original manual or a photocopy thereof, they should be fine. Prices should be dirt cheap. A 300 baud modem, if someone doesn't just give it to you, shouldn't be more than $25, including the TI-compatible cables. A used 1200 baud modem should be in the $50-$75 range. Anything more than that and you should be looking for a new modem. Because modems are relatively cheap, finding a used one may be difficult. No one can afford to advertise them.

If I were just looking to get into telecommunications but didn't know whether I'd like it, I'd probably try to borrow a modem from a friend. Or, visit a friend who has a modem and ask for a demonstration. It shouldn't take much more than an hour on the boards to decide whether telecommunicating is for you.

What brand names should you be looking for? Just about any, really. Most modems are manufactured overseas and the U.S. distributor simply puts his label on it. I've owned modems from Anchor Automation (Volksmodem), Everex and I have a 2400 baud modem (called Magic 2400) that has absolutely no manufacturer information on it or in the documentation. My recommendation is not to spend too much. Brand names aren't that important.

On my list of hardware priorities, where does a modem fall? Here's the list, in order of importance:

1. 4A console
2. PEB
3. Disk system
4. Memory expansion
5. Printer and interface
6. Color computer monitor
7. Modem

Next month we'll get into GRAM devices.

Texaments consolidates operations

Texaments has consolidated its operations — manufacturing, warehousing, distribution, telemarketing and technical support — at its Patchogue, New York location.

"For the past two years Texaments has been operating from two primary locations, one in Patchogue and the other in Yaphank (New York)," says Steve Lamberti, president of Texaments. "Although this arrangement has served us well, we have decided to relocate all of our operations to our corporate headquarters in Patchogue. This will enable us to operate our entire business in a more efficient and productive manner. We're committed to support the TI99/4A for years to come, and this move will allow us to continue our strong support of this phenomenal microcomputer. Our recent product introductions, including Missing Link, demonstrate the level of our commitment."

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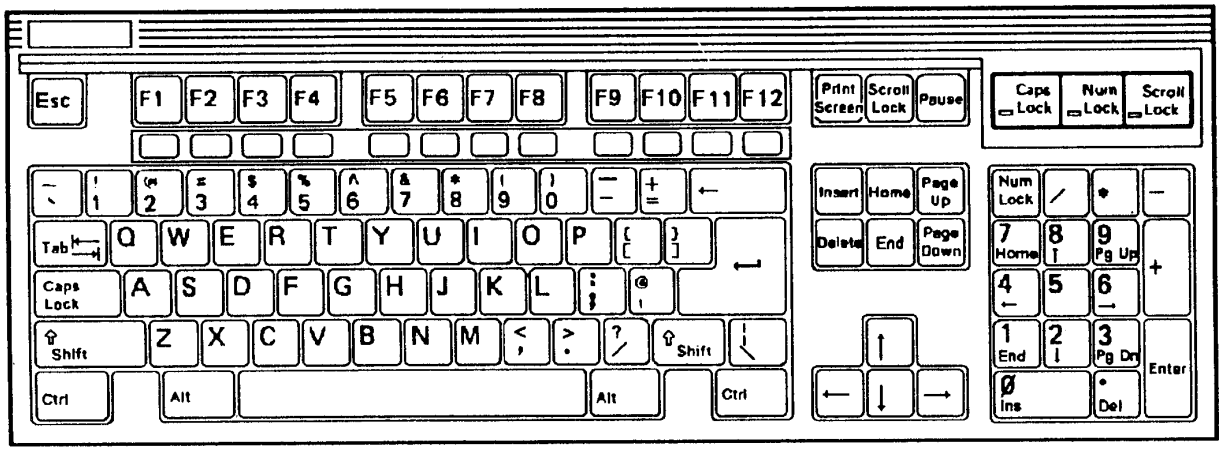

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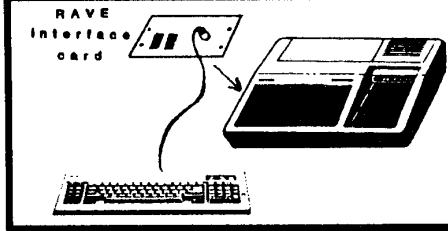

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TI'S UNRELEASED LEGENDS

TI used GROM Box to debug carts

By RICHARD FLEETWOOD

This is the third installment of a series of articles about products Texas Instruments developed for its home computer but never released. Fleetwood is a former president of the Forest Lane TI User Group in Dallas.

The TI GROM Box, also known as the GROM Emulator, was the forerunner of the GRAM Kracker. It was used to dump cartridges to disk and then allowed you to modify the code using Disko or other sector editor. It was used mostly by Q.A.E. (quality assurance engineers) to examine new cartridge-based programs and verify debugging before the final products were made.

As hardware goes, the GROM box was simple. It consisted of a single board, which was powered by a regular TI99/4A power supply (both wall unit and console p/s board). The housing (I've seen several different ones) was nothing more than an experimenter's box, typical of ones used by electronic gadget makers for all kinds of things. The PC board held several dozen chips, most of which were for addressing. There were also a few PAL chips, several EPROMs and an 80K bank of memory, which was the actual space used to simulate the GROM. Also used was a DIP switch to select/deselect the memory chips used.

This unit was hooked up to a regular 99/4A through a cartridge which attached by way of two long cables. However, it was not a normal cartridge. The PC board of the cartridge extended out of the housing about 3/8", and the pinout was opposite that of a regular cartridge. In order to use the GROM box, one had to cannibalize a working 99/4A console by cutting out an area directly behind the heat vents over the cartridge port. This would be directly over the power plug input. An opening had to be made to plug the GROM cartridge into the back of the GROM port.

This was no major problem. I did mine in about 10 minutes with a large pair of diagonal wire cutters. Once the opening was made, and before you put the console back together, you had to make a custom GROM port system. Using an extra GROM port unit, I de-soldered the connector from the small PC board and discarded the board. I then took the connector and soldered it pin for pin onto the back of the GROM port already in the console. The finished product was a GROM port card with a connector facing the front of the console, and one facing the back opening just made. Once this was done, the console was ready to put back together.

As hardware goes, the GROM box was simple. It consisted of a single board, which was powered by a regular TI99/4A power supply.... The housing ... was nothing more than an experimenter's box, typical of ones used by electronic gadget makers for all kinds of things.

On top of the GROM cartridge adapter were two switches. These were double throw, multiple pole switches. When the cartridge was plugged into the back of the custom console, the switch on the left activated the GROM box memory to the 99/4A operating system. The switch on the right enabled whichever GROM port you wanted to use.

Software for the unit was found on disks containing several modules worth of programs. An E/A option 5 file (UTIL1) was used to read a D/V80 (CONTROL) file that contained all file information, menu information and types of GROM files (GRAM or ROM) and what disk the files were to be on. UTIL1 was the same on all disks. CONTROL was different as per the files on that disk. In fact, I have found that the UTIL1/CONTROL system will work to load any E/A files on a regular system, not just those GROM box programs.

To load any of these programs, you simply inserted your Editor/Assembler cartridge into the front port, and the GROM adaptor into the back port. The left switch always stayed pointed back (away from you). The right switch first had to be flipped toward you so you could use E/A to load the loader files. After going through the E/A menus to option 5, simply pressing Enter loaded the DSK1.UTIL1 file, which then loaded the DSK1.CONTROL file info into memory. A menu was then displayed, which allowed you to select the cartridge on disk you wished to load. After pressing the key, you then pressed Enter, and then the system went to open that file. After pressing Enter, you then needed to flip the right switch to the back to enable the system to load the files into the GROM box. After the program was properly loaded, the system returned to the color bar screen. Pressing any key displayed the standard TI menu: 1. TI BASIC, 2. (your cartridge), only now option 2 was the cartridge you had just loaded into memory.

Everything was extremely easy to use once you used the system once or twice. I found through playing with the hardware I could load my GRAM Kracker into the front port, plug the E/A cartridge into it, then plug the GROM box into the back port. The software would load the regular way, and, once the GROM box was loaded, I could use the GRAM Kracker to dump the GROM box contents into regular GRAM Kracker file format. I am not sure of the difference between the two formats, but one would not load into another.

As for software that I got with the unit, well, I can't tell you exactly what, except that I had all my cartridges already dumped and ready to use. I did receive several programs that never made it out the door. Suffice it to say, I believe this unit was one of the better things TI did.

TI made this unit only for internal use and testing, and not for resale or consumer sales. I know of about a dozen of these and believe that there were only a few dozen of these units made.

Panasonic KX-P1124 Dot Matrix Printer

A terrific 24-pin machine

By JOHN KOLOEN

It wasn't until I purchased the Panasonic KX-P1124 Dot Matrix Printer that I learned the advantages of having a well-designed printer. The KX-P1124 is sophisticated, easy to use and versatile enough to allow you to address envelopes without having to unload the fanfolded paper you generally use.

When I purchased the KX-P1124 I was looking for an economical, 24-pin printer. Period. I didn't expect a lot. I wanted it to function like an 8-pin dot matrix printer only I expected it to produce better quality output. The reason I went with the KX-P1124 was that it was $50 cheaper than a comparable Epson model. I paid more than $400 for it last year when it first came out but the prices have dropped. I've seen it advertised for as little as $330.

After I got it home, I was glad I left the Epson at the dealer's. The KX-P1124 gives you more than 5,500 print style combinations to use, ranging from plain Pica to Micron elongated. Many of the printer's functions are controlled from a touch-sensitive front display that lets you do everything from selecting fonts and pitches to reverse sheet feeding to creating up to three macros of printer settings that can be called up with the touch of a pressure sensitive key.

PERFORMANCE: The KX-P1124 supports both the Epson LQ-2500 and IBM Proprinter X24 modes. (The LQ in LQ-2500 refers to Letter Quality, which it isn't. I would have called it NLQ-2500 — Near Letter Quality-2500.) Both of these are industry standards. For TI users, its enough to know that it is Epson-compatible. For those who output graphics, the printer supports six 8-pin bit image modes and five 24-pin bit image modes within the LQ-2500 mode. It also has four 8-pin and four 24-pin bit image modes within the Proprinter X24 mode. This variety should be adequate to meeting the requirements of most graphics software.

Dot densities can be varied by the user, ranging from a maximum of 360 dots per inch in 24-pin mode (240 dots per inch in 8-pin mode) to a standard "low" density of 60 dots per inch in any mode.

Reviews

REPORT CARD

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

Cost: $320-$400
Manufacturer: Panasonic Computer Products Division; 2 Panasonic Way; Seacaucus, NJ 07094; 800-222-0584.
Requirements: Parallel port, computer

The KX-P1124 provides five fonts that may be controlled from the front panel. These include: Draft, Courier, Prestige, Bold PS (Proportional Spacing), Script and Sans Serif. Font styles include Subscript, Superscript and Italic. Pitches include: Pica (10 characters per inch), Elite (12 cpi), Micron (15 cpi), Compressed (17 cpi), Elite compressed (20 cpi) and proportional.

Also selectable from the front panel are form length (8, 8.5, 11, 11.5, 12 and 14 inches) and lines per inch (3, 4, 6, 7.5, 8 and 12). Under software control, the user may vary the LPI settings by as little as 1/180th of an inch.

Character highlighting options, available under software control, include double height, double width, double strike, emphasized, underlining and overlining of text.

It should be noted that all printer functions, including those above, may be controlled through software.

Also available from the front panel are settings for left and right margins, paper and linefeed controls, including the surprisingly useful reverse paper feed and, reading, writing and executing of macros.

Downloadable characters are supported with the purchase of a 32K buffer option.

Macros are used to allow you to create up to three default modes for the printer. Once entered, these macros are called up simply by pressing one of the three macro keys. The macros remain in memory even when the power is turned off. Macros are made up of any of the features that are included on the front control panel.

The printer uses single sheet paper, fan-folded paper or envelopes. When switching from fan-folded paper to single sheet or envelopes the printer will "park" the fan-folded paper and let you run the envelope, for example, through an opening in the front of the printer. Single sheets can be fed in landscape or portrait style (width-wise or length-wise). Fan-folded paper may be loaded from the bottom, front or back of the printer. A push/pull tractor feed is used for fanfolding.

I've used this printer for about a year and I'm still happy with it. I like its versatility

(See Page 39)

Fonts available from the front panel of the KX-P1124.

This is Draft font on the KX-P1124.

This is Courier font on the KX-P1124.

This is Prestige font on the KX-P1124.

This is Bold PS font on the KX-P1124.

This is Script font on the KX-P1124.

This is Sans Serif font on the KX-P1124.

Contract Bridge V3.0

Good for learning and playing

By JOE N. SIMMONS

Contract Bridge V3.0 was reviewed in brief last month in MICRO-REVIEWS.—ED

John H. Bull of the K-town Computer Club recently released Version 3.0 of his Contract Bridge program. It includes a tutorial on contract bridge, the game rubber bridge, and 50 hands of duplicate bridge.

Those who would like a copy of this excellent fairware program may send $20 to Bull at 409 Blue Valley Rd.; Knoxville, Tennessee, 37922. Since John has only a SSSD drive, you will receive the game as a flippy with the duplicate boards on the back side of the flippy. On the other hand, if you have received a copy from a friend be sure to send the author his $20.

Bull is a retired minister who enjoys the game of bridge. Wanting to generate an interest and later enjoyment by others in the game, he developed his Bridge program first as segements on a cassette tape player using the console. In 1988 he expanded the program with the use of the P.E.B. ,disk drive, and 32K memory into a fully intergrated Extended BASIC program.

The first portion of the program is a tutorial on how to play Bridge. Unlike TI's Bridge tutorials, written by Robert Hamman and Robert Wolff in 1980, Bull's tutorials allow the user to bid and see the results of the bidding. TI's tutorial, on the other hand, is a step-by-step tutor allowing the user up to three chances to make the predetermined "correct" action. Being an American I prefer Bull's method, which allows one to profit by his mistakes.

Bull's tutorial begins with a narrative on how to count bid points, determine biddable suits, and how to score the hands. After a short exercise on the counting of the card points, one is allowed to bid, with the computer bidding the West, North, and East hands. All of these hands are visible so that you can see what they contain. If you, your partner or your opponents win the contract bid, then you can see your action and theirs (the computer playing the other hands). After the game is over, the program computes and displays the score. This continues until one completes the rubber.

TI's tutor program teaches the conventions of bidding; however, Bull's arrives at the same point through the avenue of repeated experiences.

The second portion of the Bridge program is Rubber Bridge. Rubber Bridge is much like the tutorial except that one does not see his partner's nor his opponents' hands. Since his original program, Bull has added See and Replay subprograms which allow one at the end of each hand played to review (See) everyone's hands and the option to replay (rebid) the hand just played. I'm always wondering what if I had bid this way or played that way. Now, with this new feature, I have that option. Some may feel that it is unfair to see the other players' hands and then replay; however, it is a great way to learn how to bid and play, and the TI has not complained, yet!

Another feature in this release lets the computer make your move when you have only one card left in the suit being played. This really speeds up the play.

The third portion of the Bridge program is Duplicate Bridge. It has three options. They are:

1. Play the boards
2. Deal the boards
3. Quit.

The Duplicate boards are located on the

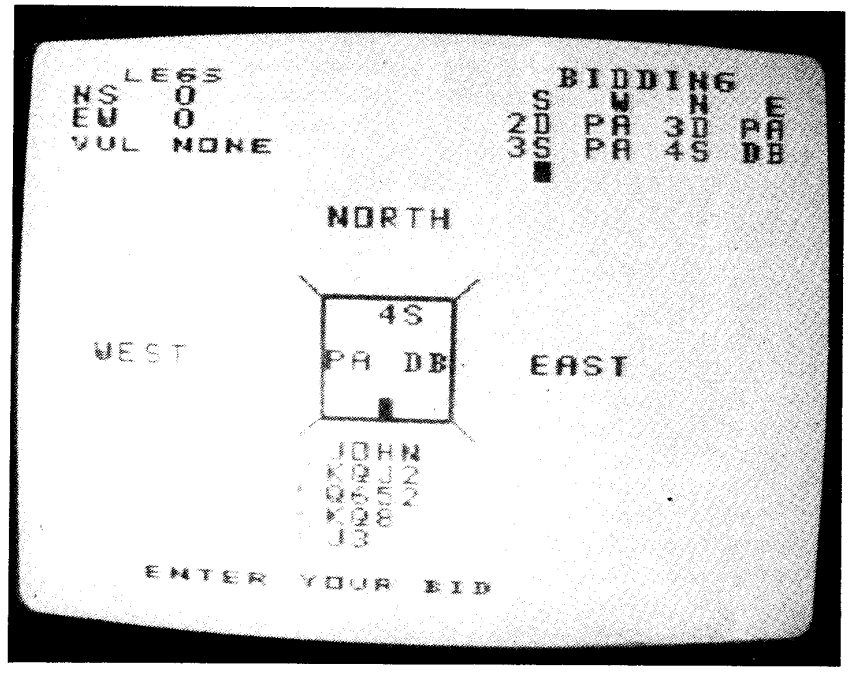
(See Page 39)

Review

REPORT CARD

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

Cost: $20
Manufacturer: John H. Bull; 409 Blue Valley Lane; Knoxville, TN 37922
Requirements: Disk system, Extended BASIC, memory expansion.



MICRO-REVIEWS

Update speeds Multiplan

By HARRY BRASHEAR

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

★ Leave it alone, back to the drawing board.

★★ Needs improvements, but workable.

★★★ A good program, worth trying.

★★★★ Send your money and buy it.

I have received a few letters of constructive comment over the last few months. Most of them have been very positive about this column, but a couple expressed a concern about the rating system and "tools."

I think there is a fine line drawn between the term "tool" and "utility." A tool seems to accomplish a single given task, while a utility, generally, is a much larger program that takes care of a much larger range of accomplishment. The people feel that tools are unfairly rated because they aren't as grand as utilities.

With all of this in mind, I have decided not to rate "tools." Since I rarely review programs that are no good at all, (have I ever?) you can depend on the fact that the program works if you find it in this column. Being unrated, it's up to you to get it based on your own needs.

Here's an example:

TOOL: BOOT DISK CHANGER

How many times have you come across a program that you would like to run from a drive other than the one the program was written for?

How many of you RAMdisk owners have a drawer full of assembly language files that you would like to store and run from your RAMdisk, but cannot because these programs insist on loading from DSK1? The same thing holds true for those massive Extended BASIC programs with tons of I/O in the code.

Using BDC (Boot Disk Changer) you can change all the DSK references in your BASIC and Extended BASIC programs, program image assembly language files, and D/F 80 assembly language object files to whatever drive you wish to have them run from.

I know this sounds a little scary, but it seems to work. There may be some odd situations where things could go awry, but you should only work with copies of your programs anyway. That way you shouldn't have any problems.

BDC will only change references to DSK when it is followed immediately by a number from 1 to 9. For example, BDC will recognize and change DSK1, DSK5, DSK8, etc. but will ignore DSK.TEST.LOAD.

BDC will also change any references to DSK that are within the text of a program, for example:

```
10 CALL CLEAR
20 PRINT "Please insert disk into DSK1"
30 RUN "DSK1.BDC"
```

In this example, both the reference to DSK1 in the text of line 20 and the RUN reference in line 30 will be changed to the new DSK number.

A few of the more complex programs load their files by reading data on a sector by sector basis. In these programs, there are no references to DSK, and therefore BDC cannot alter these files. Fortunately, these loaders are few and far between.

To get the use of this "bigger hammer", send $10 to: Scott Morrow; P.O. Box 1763, CFPO 5056; Belleville, Ontario Canada, K0K 3R0.

★★★★

MULTIPLAN UPGRADE

RAG Software, aka Art Green, is at it again. It seems like only a couple of months ago that I was describing his TI-Writer upgrades to you. Now I have received a Microsoft Multiplan upgrade that he has been working on.

Mr. Green is calling this Version 4.0 because it is based on the TI upgrade that came out just after we were dropped. The main feature off the new version is the speed. It's almost 50 percent faster in its calculations, and even though he doesn't claim so, I could swear I noticed an increase in cursor and input speed, too. (Maybe that was just wishful thinking.) Nevertheless, I compared the recalculation of a fair sized spreadsheet using my old version and RAG's new one, and it really was a lot faster.

He has also made some adjustments so that the program runs easier from RAMdisks and the like. There are two versions on the disk, one for the cartridge, and the other is for GRAM devices (P-GRAM or GRAM Kracker).

The following comment has nothing to do with the aforementioned. The whole program is complete on the disk. This is about a new utility that is also included.

Art has continually been performing these great services for our community, and I think he deserves a round of applause for his efforts. However, he has come up with a new way of taking care of upgrades that scares me to death. Art is promoting a public domain utility that he has for laying assembly patches into your programs. He also would like to see other software authors will use this system. I HOPE NOT!

I understand the reason for this. It's a lot easier to just tell the world what few bytes need to be put into a program than to send out a lot of disks. There are always bugs representing just a minor fix to the code, but the majority of the community is 100 percent incapable of accomplishing this.

I read the docs for this wonderful little utility, and I couldn't understand one single word of it. Memory locations and hex code give me the screaming jitters, and the docs were full of it. I guess what I'm trying to say here is, Art, I love your work, but please don't do this to me!

The Multiplan version 4.0 can be had complete, (both, GRAM and cartridge versions) for $10.from: RAG Software; R.A. Green; 1032 Chantenay Dr.; Gloucester, Ont. K1C 2K9 Canada.

★★★

TMS-9900 CLIPBOARD

I am going to quote from the introduction on this disk because it says it all.

Since the number of decent program

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MICRO-REVIEWS—

(Continued from Page 37)

mers for the TI-99/4A is dwindling, we felt that we should try to re-kindle the fire that made user groups begin in the first place.

One function of the users group is to provide information to the individuals who seek help from an outside source. Sometimes this is not readily available, however. In response to those seeking knowledge, especially in-depth programming, we have decided to present a new resource of knowledge about below the surface use and programming of the TI-99/4A. Hopefully with the introduction of such a resource to developing programmers, we can increase the number of potential programmers for this fine computer.

This disk contains useful articles, tutorials, and software for programmers to use, and for those who wish to learn about the actual workings of the TI99/4A computer.

Be warned, this information package is not for the novice, or for the person who takes the TI-99/4A's programming environment lightly. This disk is informative, not entertaining.

I'm not sure I want to agree with the final statement there, but here's the rest of the story.

Clipboard is the brainchild of two Georga Tech students, Joe Delekto, and Jon Dyer. They are doing the disk in conjunction with the Atlanta 99/4A Computer Users Group, with the group taking responsibility for distribution.

I am impressed with the quality of the programing and the information that I found on the flippies I was sent. Generally, it seems that each issue will contain a lot of tutorial on assembly language and "c" programing, starting from the ground up. There are also programs to be found that include the source code in separate files. This way you can see what's going on, and make changes if you like as you learn. As long as this practice continues, (a running program or two) I think the disk will be well worth the asking price of $4 each, plus .50 cents postage. You can subscribe to the disk for a cost of $24 for six issues, or $47 for 12. I assume that they will pay the postage with the longer term subscriptions.

Please note that this diskazine is not fairware. It is a commercial product that is being sold to augment a group and it s members. The first disk, Volume 1, is available as a demonstration to those who leave a note on the club BBS at 404-991-6250.

If you have any doubts as to whether you can use it or not, I suggest you order one or two months worth and go from there. I feel good about the potential use of this product, and it should go a lot further than expected. The group has worked hard to make this a "no risk" situation, so dive right in.

Send your money to: A9CUG; P.O. Box 19841; Atlanta GA 30325.

★ ★ ★

CRYPTOGRAMS

It's rare that I run into some good, old-fashioned nonsense in this stern, utility oriented community. Cryptograms was like a breath of fresh air. First, a little history.

Cryptograms was created by Larry Tippett so that he could make up game sheets for his family to enjoy. It was a very well thought out extended basic program that you could type a phrase into, have it converted to a cryptogram and printed out in double wide, double spaced format. At that point, his family jumped on the output and spent hours playing the game.

The problem was, since Larry made the games, he didn't get a chance to play. Enter Mike Smith, a person of diabolical, deranged mind that already lived a life like one huge cryptogram. He had spent years collecting the words of one Josepi Orsi, a man whom, Mike states, "never said anything that wasn't quotable."

To give you an idea of what you are up against, here is a bit of what Mike says about Josepi. There is a much longer version of this tale included on the disk with the game, of course.

"Josepi Orsi was born in the early morning of June 17, 1880 to Moorci Orsi, a poor pasta packer at a little known Italian restaurant and fishing bait shop, and the ever lovely Lydia Lipinstine, an acorn artist. Being very poor, they where unable to buy Josepi many toys as a child, so his father brought Josepi pieces of defective pasta home from work to play with... (skip to...) At the age of 106 Josepi Orsi, was pronounced dead, and a closed casket funeral was held. Josepi left all his money and possessions to a Grandson whose mother was the result of one too many beers in a tavern where the women could really polka! In the years to follow Heraldo and Josepi's grandson, Chrysostom, spent their time recovering the lost pages of the journal. They wanted to preserve the words of grandfather Josepi who had come to be known as quite a philosopher."

The Cryptogram program has been expanded to use the files of Josepi's quotes. There are 180 of them included with the program, and more available.

Of course, it can still be used as a tool to make up your own files, too. Each phrase is a different cryptogram and the output includes a help letter to get you going. The answers are printed out on a separate sheet of paper in subscript so you can peel off your games and then get out of the way while it does that. You can correct the files you put in and catalogue the disk from the menu.

All in all, the program is a valuable tool for those of you who like this sort of thing, and I assure you the quotes are a lot more fun.

The price for this frolic is $10 for the program, game files and Josepi history. An additional disk of quotes can be had for $4 with the order or $5.50 later.

Send your money to: Larry Tippett; P.O. Box 293; Model City NY 14107.

KBCC offers catalog

A new software company, KB Computer Concepts, is offering a free catalog of its products. Products include three games: Spinner, a wheel-of-fortune game for 1-3 players; Memory Motel, the object of which is to place alien guests into their proper rooms; and Quizzard, a quiz making and taking utility. Also offered are 'phrase disks' for Spinner. The cost for each game is $12. The phrase disks are $5.

To order the catalog or products write to KBCC; c/o Keith Bergman; 653½ Fair Ave. NW; New Philadelphia, OH 44663.

PANASONIC PRINTER—

(Continued from Page 35)

and I'm even more fond of how easy it is to use. I even enjoy loading envelopes into it, it's that easy. It's also a great convenience to have three macro keys that let me go from near-letter quality output to draft output with the press of a single touch-sensitive key.

Ribbons for the KX-P1124 are rather expensive, going for $8-$11 depending on sales. I don't recommend third-party ribbons for this machine as Panasonic makes a very good ribbon. I've tried off-brands and found that they didn't last very long. The cloth ribbon is rated for a life of 3 million characters in draft mode, and I believe it. The ribbon features a "re-inking hole" that the user depresses when the characters aren't dark enough. The printing then gets darker. This feature is one of the reasons I recommend the Panasonic ribbon over others.

The interface is a standard Centronics plug. A serial interface is optional at additional cost.

Top output speed is 192 characters per second in draft-Elite mode. Near Letter Quality-Elite speed is 63 cps.

EASE OF USE: I think you may have gotten the impression that the KX-P1124 is easy to use. It is, and then some.

DOCUMENTATION: The manual is first-rate. The paper-back sized manual provides as much information as most people will ever need, ranging from specifications to escape codes. It is well organized, indexed and includes tutorial as well as reference sections. It includes trouble-shooting tips as well as a toll-free phone number for factory support.

VALUE: At $350 or so, this printer is worth every penny. I expect to be using it for years, probably into the next century. I'm that happy with it. If I buy another printer it won't be a dot matrix. To be better than this one, it would have to be a laser printer.

BRIDGE—

(Continued from Page 36)

flip side of the disk (if you are using a flippy). If you are using a DSSD format the boards can be accessed by pressing Enter. Once you have done so, you are given the option to play North's (your partner's hand) if he is the successful bidder. It can really change the outcome of your play.

Each of these boards has been played by the author. When you play them, your play is compared to John's to arrive at your score. If, after playing a board, you feel your play is better than John's, you may (Look and Save). If you use this option you have the opportunity to see all the hands and then save or not save your play. If you save your play, then future hands will be compared to your score to determine the game score. John has 50 boards on his released diskette. The number of boards on a single disk depends on its format. A SSSD format should be able to hold 100 boards.

Option 2 allows one to deal a new board. The graphics under this option are great. If you are like me, often you play a hand of bridge which you feel is unique. If you should do this when playing with friends in the real world or in John's rubber bridge, you can copy it down on a sheet of paper and insert it into a board (say No. 51) for others to play in the duplicate program.

John H. Bull has developed a fantastic program. I hope that those who receive a copy will enjoy and will convey to John his just reward for having developed it. This program should encourage newcomers to develop the skill and techniques to be able competitors in the Game of Bridge.

Thank you, John.

MICROpendium disks

Use this form (or a copy) to order program disks from MICROpendium

MICROpendium PROGRAMS

Disks contain programs ublished in MIICROpendium

SERIES NUMBER	COST
Series 1 (Apr. 1988-Mar. 1989)	$25
Series 2 (Apr. 1989-Mar. 1990)	$25
Series 3 (Apr. 1990-Mar. 1991) (Series 3 disks are mailed monthly)	$40
MICROpendium Index (2 disks, 1984-1989)	$6

GENEVE PUBLIC DOMAIN PROGRAMS

These disks contain programs downloaded from electronic bulletin boards. They are for use with the Myarc Geneve 9640 and cannot be used with the TI99/4A. Some of the programs are distributed under the shareware concept and may require payment to individual software authors. MICROpendium encourages shareware payments.Cost is based on disk format and number of disks required.

Title	SSSD	DSSD	DSDD	Controller
9640DSK1	$9.00	$6.00	$5.00	_____
9640DSK2	$9.00	$6.00	$5.00	_____
9640DSK3	$9.00	$6.00	$5.00	_____

(Please specify controller (CorComp, Myarc or TI) SSSD uses 4 disks; DSSD uses 2 disks; DSDD uses 1 disk

To order, circle the items ordered, including the price, and send check or money order (shipping is included) to: MICROpendium Disks; P.O. Box 1343; Round Rock, TX 78680. Visa and MasterCard accepted. (Write for foreign shipping.)

Name _____

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Exp Date _____ **M/C** **VISA** (Circle One)

(Allow 2-4 weeks for delivery)

TOTAL AMT. REMITTED_____

Texans add 7.5% sales tax.)

Checkbook balancer

Keeping track of the income and the outgo

By DAVE SWARTZ

Have you ever had to find out when a certain check was written to pay a specific bill or just what checks you wrote were eligible for income tax deductions as charitable contributions? How about your spouse, does he/she maintain the checkbook stubs with the current balance? Or if you use carbonless copies, are they recorded in the checkbook so as to maintain the balance?

Regardless of how you answered these questions, I feel that Checkbook Balancer will provide assistance in your financial dealings. The program will give you a printed record of all deposits and checks written against your account. It maintains a month to month balance, and will give a balance based on checks that have cleared the bank as well as the actual balance remaining after your latest uncleared check was written.

My wife is lax in entering checks to maintain the balance in her checkbook, so I wrote this program to give her an exact picture of her account. Monthly closeout of her account by the bank is the last day of the month, but it is at least another week to 10 days before a statement arrives, so she has to make a sort of educated guess as to her true balance.

The program is written in Extended BASIC and requires at least one disk drive and disk controller, 32K memory, a printer interface and a printer. There are two files to the program: LOAD and CKBK/BAL. Two D/F files are generated the first time the program is used: One is a D/F 10 file to hold the balance brought forward each month and the second is a D/F 7 file to hold the date of the most recent bank statement. Parallel printer output is programmed, but you can change line 180 to match your printer. Your printer must be connected and on during the entire run of the program as each transaction is printed as it is entered into the computer keyboard. The Enter key must be pressed after each item is entered. The program autoloads from disk drive No. 1 when XBASIC is selected from t' e initial menu.

Lines 100 through 150 give the program title and other miscellaneous remarks. Lines 160 through 240 connect the printer, open the two D/F files and print instuctions on your monitor screen. Instructions are repeated each time the program is run so as to refresh your memory.

Line 260 is special. The first time you run the program it is a GOSUB to line 810 where you are directed to enter the Old Balance, or the balance with which you wish to start the account. You will also be asked for the date of the last bank statement or the date you start the account. After entering the date, the program appears to blow up. Fear not, this is intended. You will be directed to type in 260, Enter, then FCTN X. This will put line 260 on the screen. Modify the line by inserting "REM" or a "!" between the line number and the word GOSUB, then press Enter. (Do not type in the quotation marks.) You will then be prompted to SAVE the program as DSK1.CKBK/BAL and then to RUN the program after it is saved.

Checkbook Balancer will give you a printed record of all deposits and checks written against your account. It maintains a month-to-month balance, and will give a balance based on checks that have cleared the bank as well as the actual balance remaining after your latest uncleared check was written.

Lines 270 through 320 continue the set-up by displaying the Brought Forward Balance (with an opportunity to correct it if wrong) and asking for the most recent statement date. Any time you wish to start a new account, remove the "REM" or "!" from line 260, DELETE files "AMT" and "ODT" from the disk, then run the program and repeat the instructions as outlined above for line 260.

The main program is now entered at line 330. More instructions are given, and I would like to point out that each transaction is printed as it is completed by pressing the Enter key twice for deposits and three times for checks. For deposits, the first press gives you an opportunity to make any necessary correction to the data entered. The second press makes the monetary adjustment and sends the transaction to the printer. For checks, three presses are required. The first press will allow you to flag a check as a charitable contribution, the second press will give you an opportunity to make a correction and the third press completes the transaction. To make a correction, press the letter "E" for Error before pressing the Enter key the second/third time. Any time the balance reaches zero or a negative amount you will be warned by a red screen border. Upon returning to a positive amount, the screen border will become green again.

Any check that is eligible for a tax deduction as a charitable contribution can be identified in the printed report by entering a "Y"es when asked if this is a charitable deduction. You may enter a "Y"es or "N"o or leave the column blank by pressing the Enter key at this prompt. At your fiscal year end, a review of printouts will quickly show you which checks are tax exempt as indicated by the "Y" in column "CC."

You may enter the date of deposits and checks in any digital sequence of day, month, and year. I use the YYMMDD sequence as I have used it in business and feel comfortable with it. No provision has been made to spell out the month name. In fact, the program will accept only digits for the date and check number and only UALPHA characters and the ampersand, comma and period for the payee name. Only NUMERIC characters can be entered for the amount. (See TI Extended BASIC book, "ACCEPT" section, for definition of UALPHA and NUMERIC

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CHECKBOOK BALANCER—

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characters.)

After the heading and "Starting Balance as of Date of Last Statement" are printed, you will be asked if you have cleared transactions. These are the transactions listed on your bank statement. A "Y"es answer will bring up a prompt asking if you have deposits. If answered "Y"es, you will be prompted to input the date and amount of each deposit. After the last deposit has been entered, pressing the zero key will bring up a prompt asking if you have checks. A "Y"es here will bring up prompts asking for check number, date of check, name of payee, amount of check and if it is a charitable contribution. The check date will remain the same until it is changed. I found this an advantage as I write most of my checks on the same day. If you find an error has been made after the data has been printed, it may be reversed by reentering the data and placing a minus sign in front of the amount, all other data being reentered with any necessary corrections. The balance is adjusted each time a transaction is completed.

After the last check has been entered, pressing the zero key will print a statement that your balance should be "$xxxxxx.xx" as of "Closing Date" and should match the bank statement closing balance. You will next be asked if you have any Uncleared Transactions. These are transactions completed after the month-end cut-off of your account, but which affect the true account balance. This part of the program uses the same program lines as the Cleared Transaction section. It does not reduce the bank statement account balance but does reduce the true balance. After the last transaction has been made, the true account balance will be printed as of the last check number entered. In both Cleared and Uncleared sections, if major prompts are answered "N"o, the program will proceed to the next section.

By printing each transaction as it is entered, one can rectify any mistakes immediately. Also the necessity of setting up a file for each transaction is obviated. The program is the end result of over two years development and I hope you can find it helpful and useful.

CHECKBOOK BALANCER

```
100 CALL CLEAR !209
110 DISPLAY AT(8,10):"LOADIN
G": : :"      PLEASE STAND BY
" !008
120 RUN "DSK1.CKBK/BAL" !215
```

```
100 ! **********************
** !147
110 ! *  CHECKBOOK BALANCER
 * !088
120 ! *     by Dave Swartz
 * !029
130 ! * TI Ex Basic Ver. 3.0
 * !223
140 ! **********************
** !147
150 ! Thanks to TIGERCUB SOF
TWARE for use of subroutines
 from their NUTS AND BOLTS #
1. !110
153 GOTO 160 :: K,S,BAL,FLAG
,ODT,AMT,CKNR,D,DDT,SDT,CAMT
,DAMT,PAYEE$,CDATE,CKNR1 ::
!P- !233
160 ! INSTRUCTIONS !088
170 CALL BORDER(16,6):: DISP
LAY AT(10,6):"CHECKBOOK BALA
NCER" !070
180 OPEN #1:"PIO" :: OPEN #2
:"DSK1.AMT",FIXED 10,RELATIV
E 1,UPDATE,DISPLAY :: OPEN #
3:"DSK1.ODT",FIXED 7,RELATIV
E 1,UPDATE,DISPLAY !074
190 DISPLAY AT(15,1):" NOTE:
 This program must be  in Dr
ive #1 or it will not  run p
roperly." :: FOR D=1 TO 1000
 :: NEXT D !190
200 CALL WIPE :: DISPLAY AT(
2,1):"This program is design
ed to help you balance your
check-book.  You may enter C
LEAREDand UNCLEARED transact
ions." !130
210 DISPLAY AT(7,1):"Cleared
 transactions are  those p
osted to your monthlybank st
atement.  Uncleared  transac
tions are those not" !061
220 DISPLAY AT(11,1):"posted
 to your account when it was
 closed at monthend.": :"The
 BROUGHT FORWARD BALANCE and
 the ACCOUNT BALANCE" !110
230 DISPLAY AT(16,1):"should
 be the same as your  statem
ent START and END  balanc
es.  The TRUE ACCOUNT BALANC
E is the amount in the" !186
240 DISPLAY AT(20,1):"accoun
t after your last  unclea
red transaction." :: DISPLAY
 AT(24,1):"Press <ENTER> to
continue." !126
250 CALL KEY(0,K,S):: IF K<>
13 THEN 250 !044
260 GOSUB 810 !125
270 CALL BORDER(16,6):: INPU
T #2:BAL :: INPUT #3:ODT ::
RESTORE #2 :: RESTORE #3 !20
7
280 DISPLAY AT(5,2):"BROUGHT
 FORWARD BALANCE is:" :: DIS
PLAY AT(7,9):"$";:: DISPLAY
AT(7,10):USING 340:BAL !252
290 DISPLAY AT(10,3):"If bal
ance is correct, press<ENTER
> key." !040
300 DISPLAY AT(13,3):"If inc
orrect, press <C> key to mak
e correction." !037
310 CALL KEY(3,K,S):: IF S=0
 THEN 310 ELSE IF K=67 THEN
850 ELSE IF K<>13 THEN 310 !
062
320 DISPLAY AT(18,1):"Enter
latest statement date:
    (DIGITS)" :: ACCEPT AT(1
9,12)VALIDATE(DIGIT)SIZE(-6)
:SDT !026
330 ! MAIN PROGRAM !000
340 IMAGE ######.## !186
350 CALL WIPE :: DISPLAY AT(
3,1):"Transactions are print
ed as each one is made by pr
essingthe <ENTER> key. If an
 error" !055
360 DISPLAY AT(6,1):"has bee
```

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CHECKBOOK BALANCER—

(Continued from Page 41)

```
n made and incorrect data en
tered, it can be      correct
ed by re-entering it,using a
 negative amount" !107
370 DISPLAY AT(10,1):"and al
l other data for that transa
ction ." !080
380 DISPLAY AT(13,1):"Press
<E> key to erase      incorr
ect data before it hasbeen e
ntered into memory.   Prompt
s will indicate when  the <E
> key is available." !012
390 DISPLAY AT(19,1):"Enter
all data as requested by pro
mpts." :: DISPLAY AT(24,1):"
Press <ENTER> to start." !10
9
400 PRINT #1:TAB(20);CHR$(27
);CHR$(14);"CHECKBOOK BALANC
ER": : :: FOR D=1 TO 500 ::
NEXT D :: FLAG=1 !208
410 PRINT #1:TAB(17);"Starti
ng balance is $";:: PRINT #1
,USING 340:BAL;:: PRINT #1:"
 as of";ODT: :!041
420 CALL KEY(0,K,S):: IF (S=
0)+(K<>13)THEN 420 !124
430 CALL WIPE :: DISPLAY AT(
10,6):"Do you have Cleared":
"      Transactions? (Y/N)"
!035
440 CALL KEY(3,K,S):: IF S=0
 THEN 440 ELSE IF K=78 THEN
700 ELSE IF K<>89 THEN 440 !
186
450 PRINT #1:TAB(28);"CLEARE
D TRANSACTIONS": : :: FLAG=1
 !219
460 ! DEPOSITS !014
470 CALL WIPE :: DISPLAY AT(
10,1):"Do you have deposits?
 (Y/N)" !147
480 CALL KEY(3,K,S):: IF S=0
 THEN 480 ELSE IF K=78 THEN
570 ELSE IF K<>89 THEN 480 !
136
490 PRINT #1:TAB(10);"DEPOSI
T DATE";TAB(30);"DEPOSIT AMO
UNT":TAB(10);"------------";
TAB(30);"--------------" !20
5
500 CALL BORDER(4,2)!065
510 DISPLAY AT(6,2):"Enter d
eposit date. If all":" depos
its are entered,":"      ent
er <ZERO>." :: DISPLAY AT(10
,10):"(DIGITS)" !172
520 ACCEPT AT(10,11)VALIDATE
(DIGIT)SIZE(6)BEEP:DDT :: IF
 DDT=0 THEN 570 :: DISPLAY A
T(16,2):"Enter deposit amoun
t:" :: DISPLAY AT(18,10):"$"
 !171
530 ACCEPT AT(18,11)VALIDATE
(NUMERIC)SIZE(-9)BEEP:DAMT !
075
540 DISPLAY AT(22,2):"If err
or press <E> else":" press <
ENTER>." :: CALL KEY(3,K,S):
: IF K=69 THEN 500 ELSE IF K
<>13 THEN 540 !004
550 PRINT #1:TAB(15);DDT;TAB
(35);:: PRINT #1,USING 340:D
AMT :: BAL=BAL+DAMT :: GOTO
500 !173
560 ! WITHDRAWALS !237
570 CALL BORDER(16,6):: DISP
LAY AT(10,3):"Do you have ch
ecks? (Y/N)" !116
580 CALL KEY(3,K,S):: IF S=0
 THEN 580 ELSE IF (K=78)*(FL
AG=1)THEN 700 ELSE IF (K=78)
*(FLAG=2)THEN 730 :: IF K<>8
9 THEN 580 !080
590 PRINT #1: : :: PRINT #1:
TAB(10);"CKNR";TAB(20);"CK D
ATE";TAB(30);"PAYEE";TAB(50)
;"CHECK AMOUNT";TAB(65);"CC"
 !087
600 PRINT #1:TAB(10);"----";
TAB(20);"-------";TAB(30);"-
-----";TAB(50);"----------"
;TAB(65);"--" !216
610 CALL BORDER(16,13)!168
620 DISPLAY AT(2,2):" Enter
check number.  If all Checks
 are entered, enter":" <ZERO
>." :: ACCEPT AT(6,6)VALIDAT
E(DIGIT)SIZE(5)BEEP:CKNR !04
2
630 IF CKNR=0 THEN 700 ELSE
CKNR1=CKNR :: DISPLAY AT(7,2
):"Enter check date (DIGITS)
" :: DISPLAY AT(9,5):CDATE :
: ACCEPT AT(9,6)VALIDATE(DIG
IT)SIZE(-6)BEEP:CDATE !049
640 DISPLAY AT(11,2):"Enter
payee name" :: ACCEPT AT(13,
6)VALIDATE(UALPHA,"&","-",".
")SIZE(20)BEEP:PAYEE$ !193
650 DISPLAY AT(15,2):"Check
amount" :: DISPLAY AT(17,6):
"$" :: ACCEPT AT(17,7)VALIDA
TE(NUMERIC)SIZE(9)BEEP:CAMT
!218
660 DISPLAY AT(19,2):"Charit
able Deduction?(Y/N) " :: AC
CEPT AT(19,28)VALIDATE("YN")
SIZE(-1)BEEP:CC$ !134
670 DISPLAY AT(21,1):" If er
ror press <E> else ":" press
 <ENTER>" :: CALL KEY(3,K,S)
:: IF S=0 THEN 670 ELSE IF K
=69 THEN 610 ELSE IF K<>13 T
HEN 670 !046
680 PRINT #1:TAB(9);CKNR;TAB
(20);CDATE;TAB(30);PAYEE$;TA
B(53);:: PRINT #1,USING 340:
CAMT;:: PRINT #1:TAB(65);CC$
 :: BAL=BAL-CAMT :: IF BAL<=
0 THEN 690 ELSE 610 !158
690 CALL BORDER(16,7):: GOTO
 620 !185
700 IF FLAG=1 THEN PRINT #1:
 : :: !133
710 IF FLAG=1 THEN PRINT #1:
TAB(10);"Your account balanc
e should be $";:: PRINT #1,U
SING 340:BAL;:: PRINT #1:" a
s of";SDT:TAB(10);"and shoul
d match your statment closin
g amount.": :!178
720 IF FLAG=1 THEN PRINT #2:
BAL :: PRINT #3:SDT :: CLOSE
 #2 :: CLOSE #3 :: GOTO 750
!203
730 IF FLAG=2 THEN PRINT #1:
 : :: PRINT #1:TAB(10);"Your
 true account balance is $";
:: PRINT #1,USING 340:BAL;::
 PRINT #1:" as of check numb
er";CKNR1 !227
740 PRINT #1:CHR$(12):: GOTO
 780 !152
750 CALL BORDER(16,6):: DISP
LAY AT(10,5):"Do you have un
cleared ":"    Transactions?
 (Y/N)" !225
760 CALL KEY(3,K,S):: IF S=0
 THEN 760 ELSE IF K=78 THEN
730 ELSE IF K=89 THEN 770 EL
SE 760 !232
770 CALL WIPE :: PRINT #1:TA
B(27);"UNCLEARED TRANSACTION
S": : :: FLAG=2 :: GOTO 470
```

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Newsbytes

New phone number for Pittsburgh BBS

The Pittsburgh Users Group bulletin board system has been relocated, according to Gary M. Taylor, the club president who is the new sysop.

Phone number is (412) 341-4820. It operates at 300/1200/2400 baud at 8,N,1 24 hours a day, seven days a week.

The system is running a fairware board called Paradigm 99, according to Taylor, written by Mike Kimble and Travis Watford. It is run on a TI99/4A that has been modified with 32K on the 16-bit bus, a Horizon RAMdisk and two DSSD disk drives.

The board still hosts an Adventure Game Special Interest Group moderated by Mickey Schmitt and Lynn Gardner, Taylor says. Two new adventure games are added the first day of each month.

Dallas group provides upgrades, speakers

A new service provided for members by the Dallas TI Home Computer Group allows a member with a single-sided, single-density disk drive to exchange the drive for a double-sided, double-density drive for $10, including installation and testing, according to Jim Stewart, the group's membership chairman.

The service is provided by Louis Guion and John Creviston.

Barry Boone, author of Archiver V.3, Exec and other programs for the 9640 and GIFfy, was features at the club's recent "Evening with Barry Boone" March 9 and addressed the group's meeting March 10.

Walter Pearson, newsletter editor for the group, says the group plans to have an outside speaker every three months.

Address is Dallas TI Home Computer Group, P.O. Box 29863, Dallas, TX 75229. BBS is (214) 233-1750.

Boston fair changes date to May 5

The Boston Computer Society Home Computer Fair has been rescheduled to 10 a.m.-4 p.m. May 5 at the cafeteria of the Waltham Central Middle School, 55 School St. in Waltham, Massachusetts.

For information, write the Boston Computer Society, TI99 User Group, One Center Plaza, Boston MA 02108.

Harrison Software raises prices

Harrison Software has raised prices; disks which formerly sold for $4.50 are now $5 and disks which formerly sold for $7.50 are now $8, including shipping and handling, Bruce Harrison of Harrison Software says.

He notes that **J.C. Bach Opus V** disks shipped before November 1989 had gaps in the document included on the disk. He says the company will forward a corrected disk to any user bothered by this program who writes.

Address for the company is Harrison Software, 5705 40th Place, Hyattsville, MD 20781.

Orange County users have items available

The User Group of Orange County in California has updated its configuration instructions for Funnelweb. According to Jim Swedlow of the group, it now covers all versions from 4.10 to 4.21 and includes direction to a more recent version. It is available on disk. The group asks $4 for media and postage.

Also, Earl Raguse's series **Beginning Forth**, originally published as newsletter articles, is available on paper for $4 for copying and postage.

Swedlow's entire set of newsletter columns, containing a variety of information, especially about Extended BASIC and TI-Writer, is available, along with a number of TI-related files. Runnable copies of all programs are on the disks, he says. Cost is $5 for three double-sided disks or $6 for five single-sided disks. (Specify format when ordering.)

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CHECKBOOK BALANCER—

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```
!Ø72
78Ø CLOSE #1 :: CALL BORDER(
16,6):: DISPLAY AT(15,3):"Pr
ess <R>erun or <Q>uit." !165
79Ø CALL KEY(3,K,S):: IF K=8
2 THEN RUN "DSK1.LOAD" ELSE
IF K=81 THEN CALL LOAD(-3196
1,51)ELSE 79Ø !Ø75
8ØØ STOP !152
81Ø CALL BORDER(11,2):: DISP
LAY AT(6,1):"Old Balance" ::
 DISPLAY AT(8,11):"$" :: ACC
EPT AT(8,12)VALIDATE(NUMERIC
)SIZE(9)BEEP:AMT :: PRINT #2
:AMT :: RESTORE #2 !Ø92
82Ø DISPLAY AT(1Ø,4):"Last S
tatement Date" :: DISPLAY AT
(12,11):"(DIGITS)" :: ACCEPT
 AT(12,12)VALIDATE(DIGIT)SIZ
E(-6)BEEP:ODT :: PRINT #3:OD
T :: RESTORE #3 !22383Ø CALL
 CLEAR :: DISPLAY AT(14,1):"
At this point key in ""26Ø""
  then <FCTN X>.
 Insert ""REM"" between 26Ø
and GOSUB, then press <ENTER
>." !185
84Ø DISPLAY AT(18,1):"Save a
s DSK1.CKBK/BAL, then RUN pr
ogram from beginning." :: BR
EAK !154
85Ø CALL BORDER(11,2):: DISP
LAY AT(5,1):"Enter correct b
alance:" :: DISPLAY AT(7,1Ø)
:"$" :: ACCEPT AT(7,11)VALID
ATE(NUMERIC)SIZE(9):AMT !ØØ4
86Ø PRINT #2:AMT :: RESTORE
#2 :: GOTO 27Ø !Ø25
87Ø SUB BORDER(F,B):: CALL C
LEAR :: CALL SCREEN(B):: CAL
L VCHAR(1,31,1,96):: FOR S=1
 TO 12 :: CALL COLOR(S,B,F):
: NEXT S :: SUBEND !1Ø6
88Ø SUB WIPE :: CALL VCHAR(1
,3,32,672):: SUBEND !Ø65
```

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Ben Hathaway of the group has written Magic File Manipulator, an assembly program that transfers files between the TI and any other computer "at an unbelievable rate," according to Swedlow. From the keyboard of the other computer, you can transfer files either way, catalog TI disks drives and perform some disk management tasks (rename, protect, unprotect, delete, etc.)

Requirements are a TI with 32K, RS232, at least one disk drive and Extended BASIC. The other computer must have a serial port and a terminal emulation program. Instructions for a three wire cable are included.

The disk includes a utility to change text files from TI format to MS-DOS format and vice versa. The group asks $4 to cover media and postage. Swedlow notes that the program is also on many bulletin boards.

For any of the above items, contact Jim Swedlow, 7301 Kirby Way, Stanton, CA 90680.

TI 'Orphan Reunion' set in Alberta

The Alberta TI Orphan Reunion is scheduled from 10 a.m. to 5 p.m. May 12 at the Innisfail Lions Hall in Innisfail, Alberta, Canada.

For information, contact Fred Kessler, Box 20, Sundre, Alberta, Canada T0M 1X0, (403) 638-3916.

TI-Base application released by Gaskill

Bill Gaskill has released Membership Manager, a TI-Base application he says is designed specifically for computer user groups.

The program is a series of TI-Base command files that create a completely menu driven environment for the management of user group member information, including name, address, telephone, date joined, date membership expires, notes, areas of expertise, interests and miscellaneous.

Membership Manager is a relational data base application that creates two records for each member from a single custom input screen and then performs searches and displays on both files, based upon a single query. Program options include the ability to check for upcoming expirations at the touch or a key, based upon the date entered when TI-Base was loaded; printing of three different types of reports; printing of mass-mailout mailing labels, selective print of mailing labels by a member's name; and printing of mailing labels for only those members whose dues are up for renewal. An Index Card report is also offered that will print all member data from both files on a 3x5-inch index card for quick reference, filed by member name. The application comes with a 10-page manual and 15 help screens.

Membership Manager is available for $25, which includes shipping and handling, from Bill Gaskill, Box 2642, Grand Junction, CO 81502.

Tampa BBS changes

The Greater Tampa Bay TI User Group's BBS, TI Heaven has a new sysop and phone number.

The number is (813) 988-7676 for the 8,N,1, 24-hour board. Sysop is Paul Wiese.

***Newsbytes* is a column of general information that reaches thousands of TI and Geneve users. Information from manufacturers, authors, distributors, user groups, etc. is welcome. Illustrations and photographs will be used when space permits. Products listed in this column are not necessarily endorsed by MICROpendium. Send items to MICROpendium Newsbytes; P.O. Box 1343; Round Rock, TX 78680.**

User Notes

Bells and whistles for Tetrls

The September 1989 MICROpendium included an Extended BASIC game called Tetrls by Steven Karasek. The game is modeled after Tris. Jack B. Cunningham, of San Antonio, Texas, liked Tetrls and made some improvements which are included here. Enter the following lines and save them as TETRISX MERGE format (SAVE DSKx.TETRISX, MERGE). Then, load your existing copy of Tetrls and merge it with these updated lines (MERGE DSKx.TETRISX).

```
100 DISPLAY ERASE ALL AT(8,1
2):"Tetris" :: DISPLAY AT(10
,3):"(C) 1989 STEVEN KARASEK
" :: DISPLAY AT(12,2):"BELLS
 AND WHISTLES 1/90 JBC" !015
103 DISPLAY AT(15,2):"AFTER
MAKING GAME SELECTIONS  A SH
ORT DELAY WILL OCCUR." !014
105 DISPLAY AT(22,2):"NEED I
NSTRUCTIONS? (Y or N)" :: CA
LL KEY(0,M,W):: IF W=0 THEN
105 :: CALL CLEAR :: IF M=89
 OR M=121 THEN 700 ELSE 110
!198
115 CALL CLEAR :: PRINT "*MA
KE SURE ALPHA LOCK IS UP*ENT
ER KEYS(1) OR JOYSTICK(2)" :
: INPUT AA :: IF AA<1 OR AA>
2 THEN 115 !249
117 CALL CLEAR :: INPUT "PLA
Y PAUSE(1) OR FREEFALL(2)??"
:BA :: IF BA<1 OR BA>2 THEN
117 !163
118 CALL CLEAR :: INPUT "DIS
PLAY PAUSE? NO(1) YES(2)":CA
 :: IF CA<1 OR CA>2 THEN 118
 !241
120 DIM Z$(23),Z(26),A(18,3)
,B(18,3):: RANDOMIZE :: C$="
jkl; uqsdfar" :: Z(24)=4095
:: CALL MAGNIFY(4):: CALL CL
EAR :: FOR I=0 TO 6 !067
160 GOSUB 600 !170
200 FOR I=1 TO V :: IF AA=2
THEN 610 :: CALL KEY(0,M,W):
```

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User Notes

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```
: IF M<Ø THEN 35Ø ELSE ON PO
S(C$,CHR$(M),1)+1 GOTO 35Ø,2
1Ø,28Ø,23Ø,34Ø,25Ø,33Ø,44Ø,2
1Ø,28Ø,23Ø,34Ø,33Ø !Ø95
34Ø IF BA=2 THEN 35Ø :: CALL
 KEY(Ø,M,W):: IF W<>1 THEN 3
45 ELSE 35Ø :: GOTO 34Ø !Ø83
345 IF CA=2 THEN GOSUB 67Ø E
LSE 34Ø :: GOTO 34Ø !Ø38
35Ø IF CA=2 THEN GOSUB 68Ø E
LSE 355 !Ø25
355 SW=Ø :: NEXT I :: P=P+1
:: IF P+X4>=D THEN 37Ø !174
42Ø NEXT I :: CALL SOUND(5Ø,
5ØØ,4):: SW=Ø :: GOTO 17Ø !Ø
17
43Ø H=MAX(H,U):: DISPLAY AT(
1,2Ø):USING "##########":H ::
 CALL DELSPRITE(#1):: GOSUB
6ØØ :: GOTO 15Ø !Ø57
56Ø DATA ØFØFØFØFØFØFØFØF,,Ø
ØØØØØØØFØFØFØFØ,FØFØFØF,ØFØF
ØFØFØFØFØFØF,,FØFØFØFØFØFØFØ
F,,ØFØFØFØFFFFFFFFF,,ØØØØØØØ
ØFØFØFØF,!Ø49
59Ø DATA ØØØØØØØØFFFFFFFF,,F
ØFØFØFØFØFØFØFØ,,ØFØFØFØFØFØ
FØFØF,ØFØFØFØF,,FØFØFØF,FFFF
FFFFFØFØFØF,,FØFØFØF,,ØFØFØF
ØF,,FØFØFØFØFØFØFØF,FØFØFØFØ
 !148
6ØØ CALL SOUND(2ØØ,4ØØ,6)::
CALL SOUND(3ØØ,3ØØ,4):: CALL
 KEY(Ø,M,W):: IF M<>98 THEN
6ØØ :: RETURN !175
61Ø CALL JOYST(1,JX,JY):: JZ
=((JX+3*JY)/4)+5 !Ø24
62Ø ON JZ GOTO 63Ø,28Ø,63Ø,2
1Ø,63Ø,23Ø,63Ø,65Ø,63Ø !Ø35
63Ø CALL KEY(5,JM,W):: IF JM
=113 THEN 44Ø :: IF JM=117 T
HEN 33Ø !128
64Ø CALL KEY(1,JM,W):: IF JM
=18 THEN 25Ø ELSE 66Ø !237
65Ø SW=(SW-1)*-1 !186
66Ø IF BA=2 OR SW=Ø THEN 35Ø
 :: IF CA=2 THEN GOSUB 67Ø E
LSE 61Ø :: GOTO 61Ø !12167Ø
DISPLAY AT(12,23):"aaa" :: F
OR F=1 TO 2Ø :: NEXT F :: RE
TURN !ØØ1
68Ø DISPLAY AT(12,23):CHR$(1
29);CHR$(129);CHR$(129):: RE
TURN !Ø51
7ØØ CALL CLEAR :: PRINT "OBJ
ECTIVE:  To fit falling blo
cks into a solid line andrem
ove that line. Game ends whe
n pattern builds to top.":!1
13
71Ø PRINT :: PRINT "SCORING:
  Points are scored when blo
ck lands or line is made. Po
ints go up as level rises or
 height block drops from or
lands on increases." !Ø15
72Ø PRINT :: PRINT "PLAYING:
  Level is shown on left-hig
h and game scores onright. l
evel & speed may be increase
d during game using" !2Ø7
73Ø PRINT "U/R keys. Automat
ic increaseoccurs every 5ØØØ
 points.  " :: PRINT !212
74Ø PRINT "  PAUSE does not
 work when playing FREEFALL.
 If playing" !24Ø
75Ø PRINT "DISPLAY, pause is
 shown by aRed bar, fall by
green." :: PRINT :: !Ø5Ø76Ø
DISPLAY AT(24,2):"(PRESS ANY
 KEY TO CONTINUE)" :: CALL K
EY(Ø,M,W):: IF W=1 THEN 77Ø
ELSE 76Ø !197
77Ø CALL CLEAR :: PRINT "CON
TROLS: Use keyboard or #1joy
stick as shown below to mov
e block or change game." ::
PRINT :: !ØØ9
78Ø PRINT TAB(3);"KEYBOARD";
TAB(18);"JOYSTICK" :: PRINT
:: PRINT "Left----S or J : L
eft" :: PRINT "Right---F or
L : Right" !221
79Ø PRINT "Rotate--D or K :
Down" :: PRINT "Drop----Spac
e  : Fire" :: PRINT "Pause--
-A or ; : Up" :: PRINT "Resu
me--Any     : Up" !Ø53
8ØØ PRINT "Level---R or U :
R or U key" :: PRINT "Quit--
---Q       : Q key" :: PRINT :
: PRINT "BEGIN NEW GAME BY P
RESSING BWHEN TONE SOUNDS" !
235
81Ø PRINT :: PRINT :: PRINT
:: DISPLAY AT(24,1):"*PRESS
ANY KEY TO START PLAY" !Ø93
82Ø CALL KEY(Ø,M,W):: IF W=Ø
 THEN 82Ø :: CALL CLEAR :: G
OTO 11Ø !Ø23
```

Using MDOS ASSIGN

This comes from Bob Sherburne, of Las Vegas, Nevada. He writes:

Those who are fortunate enough to be using a hard drive with your Geneve have probably wished for a way to avoid typing in those long path names when using programs such as MY-Art, Advanced BASIC, Picture Transfer or other MDOS applications where intensive hard drive use is required. Well, there is a way.

I am sure most users are familiar with the MDOS "ASSIGN" command and what it is used for. What you may not know is that you can also assign a directory, along with your hard drive designation. For example, if you keep your Advanced BASIC program and files in the directory ADVBAS on your hard drive, you can assign the letter — E in this case — of your internal RAMdisk to: ASSIGN E=HDS1.ADVBAS. After Advanced BASIC has loaded, you can use E:FILENAME instead ofHDS1.ADVBAS.FILENAME when loading, saving, merging, etc.

If this directory was your default drive at the time you loaded BASIC1 through 7, you can load or save your programs to this directory with OLD FILENAME or SAVE FILENAME. CALL FILES with no drive designation will catalog H:ADVBAS.

The same holds true for MY-Art. ASSIGN G=HDS1.MYART will allow you to load and save your artwork with just a filename and no drive designation at all, assuming your default drive at the time of loading was "G." Be sure to leave off the ending colon when doing this type of assign.

Using the LASTDRIVE = (letter) command allows you to specify the last drive in

(See Page 46)

User Notes

(Continued from Page 45)

your system. Depending on the memory of your system, you can specify drives out to the letter "Z," and each can be assigned to a different directory. You will know if you assign too many if you start receiving "Insufficient free memory" error messages.

Saving paper while using TIW

This comes from Majorie Mountjoy, of Columbia, Maryland. She writes:

After letting TI-Writer waste tons of my paper, I have discovered a simple way to regain control of page ejects.

1. Start each document with CTRL U, SHIFT Q, CTRL U. This selects the printer, enabling the printing of the document.

2. End each document with CTRL U, SHIFT S, CTRL U. This deselects the printer, thereby disabling the form feeds supplied by the formatter.

When you are done, your printer will be off-line. It can be brought back on by turning the power off and then on, or by asking it to print CHR$(17).

Saving paper is not my only concern. If I can keep the page from being ejected prematurely I can end my letter with a picture of my favorite cat.

One last time

This comes from Oliver D. Hebert, of Brewton, Alabama. He writes:

One page 45 of the February 1990 MICROpendium, Rick Fallstrom gives some valuable information on TI, Myarc, and CorComp disk controllers. The last paragraph and possibly the last two paragraphs were added by MICROpendium.

The information from Fallstrom (to include the chart) is accurate. However, the next two paragraphs are a muddled mess. Perhaps a chart in a slightly different format would be appropriate.

Format	Sectors	Sec/Trk	Controller
SS/SD	360	9	CC,MY,TI
SS/DD-1	640	16	MY
SS/DD-2	720	18	CC, MY
DS/SD	720	9	CC, MY, TI
DS/DD-1	1280	16	MY
DS/DD-2	1440	18	CC, MY

The Myarc disk controller can make and read disks in the 16-sector/track format whereas the CorComp controller can't. However, the 18 sector/track format has been the *de facto* DS/DD standard for at least 10 years.

More CALL LOADs

Here are some CALL LOADS, some of which may have appeared in earlier editions of MICROpendium. CALL LOADs require Extended BASIC and a memory expansion, though Mini-Memory BASIC may be used instead of Extended BASIC.

CALLLOAD(-31860,4) — This will take you from Extended BASIC directly to TI BASIC. Follow it with NEW to clear the screen. Source: Uncle Miltie's Corner, LA 99ers Topics.

CALL LOAD(-31962,255) — This restarts XBASIC while in XBASIC (everything in memory is erased). Precede it with a CALL INIT. Source: Uncle Miltie's Corner, LA 99ers Topics.

CALL LOAD(-32118,0,0) — This automatically resets the computer and tries to load a file called LOAD from DSK1. Whatever is in memory at the time it is executed is lost. Source: Sam Carey, Portland, Oregon.

CALLLOAD(-32119,0,0) — This resets to the title screen but without displaying the title screen. Good trick. Source: Sam Carey, Portland, Oregon.

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